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CENTRAL FLORIDA AQUIFER RECHARGE ENHANCEMENT PROGRAM PHASE 1 – ARTIFICIAL RECHARGE WELL DEMONSTRATION PROJECT

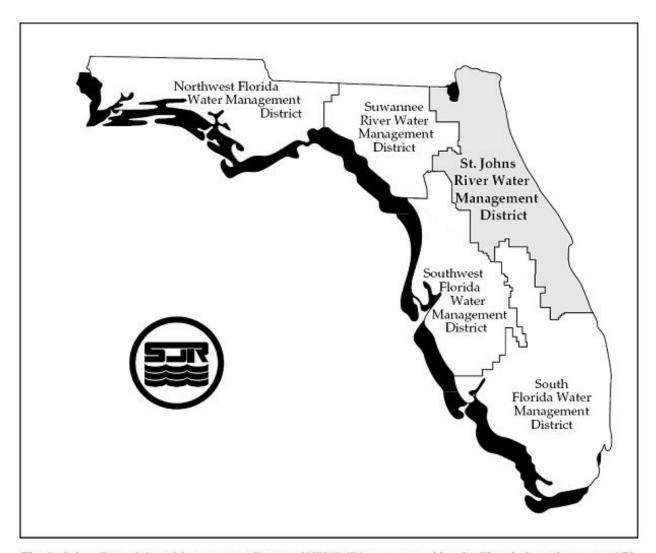


CENTRAL FLORIDA AQUIFER RECHARGE ENHANCEMENT PROGRAM PHASE 1 – ARTIFICIAL RECHARGE WELL DEMONSTRATION PROJECT



St. Johns River Water Management District Palatka, Florida

> 2006 October



The St. Johns River Water Management District (SJRWMD) was created by the Florida Legislature in 1972 to be one of five water management districts in Florida. It includes all or part of 18 counties in northeast Florida. The mission of SJRWMD is to ensure the sustainable use and protection of water resources for the benefit of the people of the District and the state of Florida. SJRWMD accomplishes its mission through regulation; applied research; assistance to federal, state, and local governments; operation and maintenance of water control works; and land acquisition and management.

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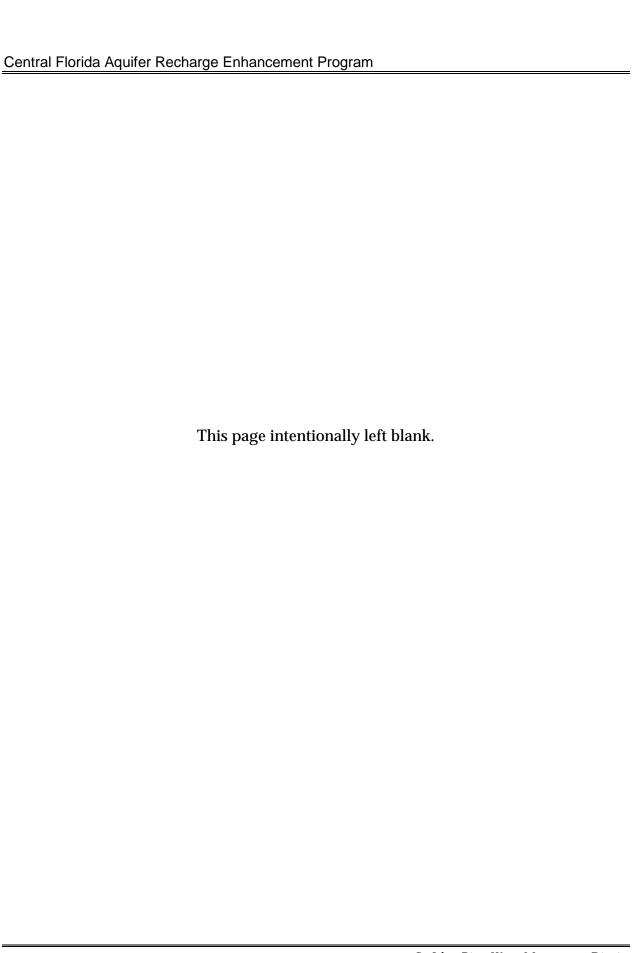
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ACRONYMS AND ABBREVIATIONS

 μ g/L micrograms per liter ADF average daily flow

CFARE Central Florida Aquifer Recharge Enhancement

CFARE1 Central Florida Aquifer Recharge Enhancement Phase 1

cfu colony forming unit

DCE Dichloroethene
DO dissolved oxygen

DWS Drinking Water Standard

EPA U.S. Environmental Protection Agency

FDEP Florida Department of Environmental Protection

ft foot or feet

GCTL groundwater cleanup target level GWMP groundwater monitoring plan

in. inch or inches

MCL maximum contaminant level

MEK methyl ethyl ketone mg/L milligrams per liter

mgd million gallons per day

msl mean sea level

mL milliliter

MSDS Material Safety Data Sheet

NCDC National Climatological Data Center

NTU Nephelometric Turbidity Unit

PCB polychlorinated biphenyl

PCE Tetrachloroethene (perchloroethylene)

pfu plaque forming units

redox Redox potential RBC risk-based criteria

SVOC semi-volatile organic compound

TCE Trichloroethene

Central Florida Aquifer Recharge Enhancement Program

TDS total dissolved solid TOC total organic carbon

TRPH total recoverable petroleum hydrocarbons

UIC underground injection control

USGS U.S. Geological Survey

VOC volatile organic compound

QA/QC quality assurance/quality control

WTP water treatment plant

INTRODUCTION

PURPOSE

The purpose of the Central Florida Aquifer Recharge Enhancement Program (CFARE) is to investigate the feasibility of increasing recharge to the Floridan aquifer to potentially increase available groundwater as part of the St. Johns River Water Management District (SJRWMD) Alternative Water Supply Strategy Investigation. The CFARE – Phase 1 (CFARE1) project investigated the feasibility of increasing recharge to the Floridan aquifer through stormwater recharge wells in Orange and Seminole counties by assessing the water quality impact of prolonged operation of the recharge wells. Key issues addressed are the acceptability of current conditions, the feasibility of implementing improvements, if needed, and how to increase recharge if conditions are acceptable.

GOAL

At the onset of the project, the goal of CFARE1 was to quantify the potential for bacterial contamination of the aquifer using lake water or treated stormwater. This goal was to be accomplished by assessing the:

- Fate of bacteria in the Floridan aquifer
- Effectiveness of passive stormwater treatment for reducing bacteria
- Effectiveness and cost feasibility of physically reducing bacteria in lake water recharge

The pre-project prevailing understanding was that microbial impact to the Floridan aquifer would be of dominant concern. Additionally, there was concern that synthetic organic chemicals in stormwater could be transported to groundwater.

HISTORY OF CENTRAL FLORIDA RECHARGE WELLS

Much of the central Florida surface water system is composed of a series of internally drained basins with few streams. Historically, stormwater flowed over land to lakes and then percolated to groundwater or evaporated. Over the years, increased development diverted stormwater to lakes more quickly, resulting in local flooding. Stormwater recharge wells were installed into the Floridan aquifer from 1904 to the late 1960s to alleviate this local flooding.

As a result of promulgation of the Clean Water Act and the development of Underground Injection Control (UIC) regulations, construction of new stormwater recharge wells has not occurred. Wells that predate the regulations have been allowed to continue to operate and be maintained for their original hydraulic capacity. Stormwater recharge wells are classified as Class V, Group 6 wells in Chapter 62-528 of the Florida Administrative Code.

Currently, approximately 500 recharge wells in Orange and Seminole counties divert an estimated 39 to 52 million gallons per day (mgd) of average daily flow (ADF) to the Floridan aquifer (CH2M HILL 1998) (Figure 1).

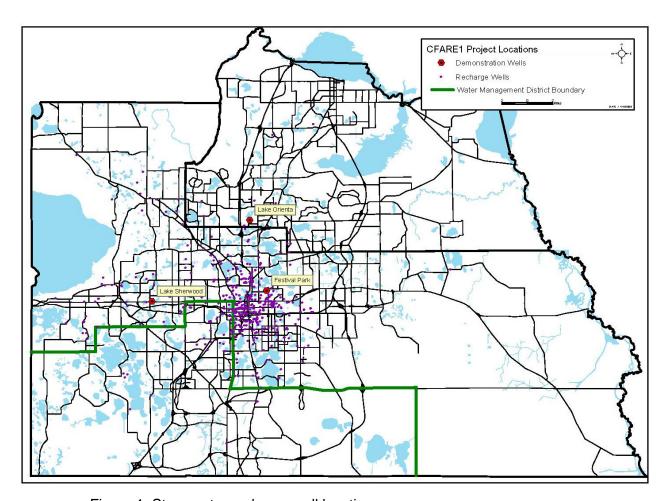


Figure 1. Stormwater recharge well locations

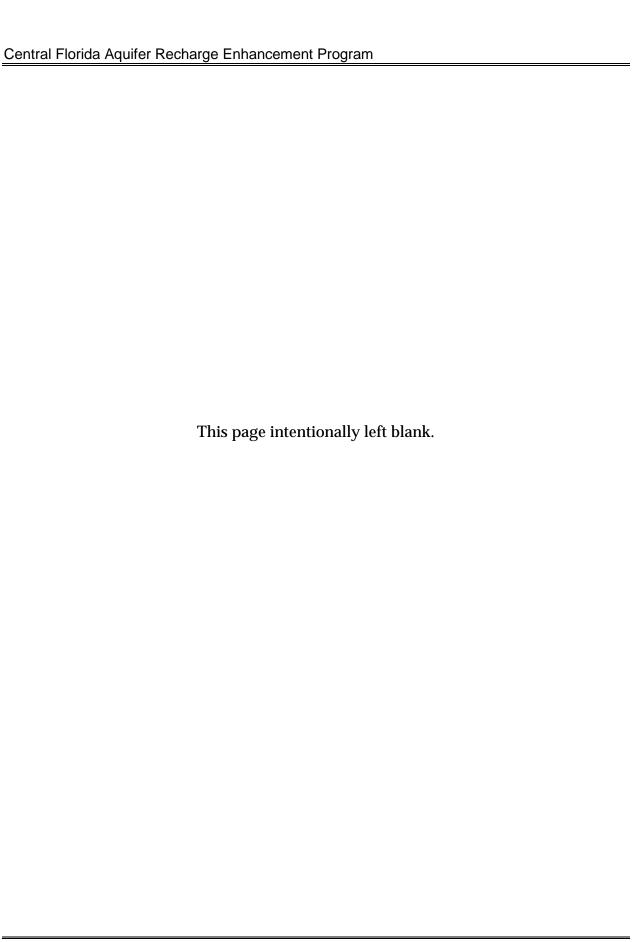
Two types of recharge wells evolved in central Florida, those receiving direct urban runoff that collect curb and gutter flow but whose flow is erratic and dependent on rain events, and lake level control wells that receive more steady inflow when lake levels rise to overflow elevations. CFARE1 addresses both types of wells and their impacts on Floridan aquifer water quality.

PLANNED PROJECT TASKS

A series of project tasks were planned for the CFARE1 project. These projects activities included the following:

- Literature review
- Site selection
- Dry-period characterization
- Monitoring well installation
- Groundwater tracer test
- Baseline characterization
- Operational site characterization
- Evaluation of data for potential pathogen treatment
- Development and implementation of pathogen treatment program
- Post-pathogen treatment operational site characterization

During the term of the project, 10 status reports were prepared and distributed at various project milestones. These reports contain decision documents and updates of project results (Appendix A).



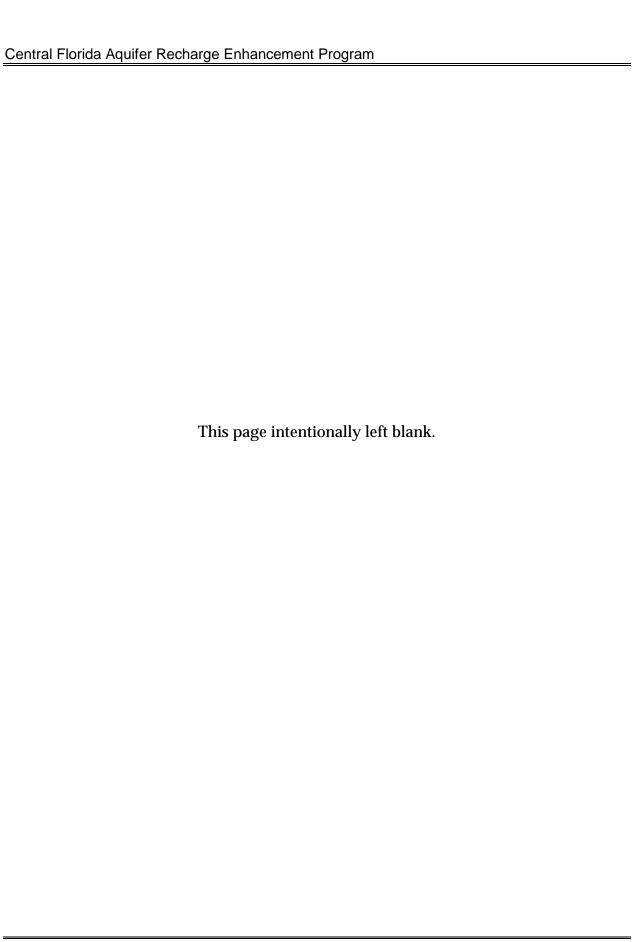
LITERATURE REVIEW

A review of relevant literature indicated that while there is an emerging body of research involving elements of this study, there are few demonstrably similar research endeavors. This literature review included the analysis of research involving surface water contamination, ecotoxicity, groundwater tracing (including biotracing), Floridan aquifer drainage wells, and water quality.

Of relevance is published research conducted by Bradner (1991) involving tests conducted to detect microbial activity in drainage wells in Orlando.

Sandrin et al. (2004) recommend conducting biotracer tests to describe levels of biodegradation and microbial activity. Field tests conducted by Sandrin et al. (2004) confirm the applicability of this method and note that levels of degradation were time related. Further, the use of tracer dyes to test for contamination is well documented (i.e., Harden, Chanton, Rose, John, and Hooks (2003); Field, Wilhelm, Quinlan, and Aley. (1995)).

The Schiner and German (1983) study evaluated the impact of recharge to the Floridan aquifer through drainage wells at selected locations in central Florida. The study presents valuable data on water quality implications associated with recharge. Similarly, another U.S. Geological Survey (USGS) study conducted by Kimrey and Fayard (1984) in Florida suggests the viability of using recharge wells for urban drainage. These studies collected samples from the drainage wells.



SITE DESCRIPTIONS

The site-selection objective for CFARE1 was to select at least one site with a recharge well used for lake-level control (lake-level control well) and one site with a recharge well that received water directly from urban runoff (direct-urban runoff well). Selecting these two types of sites provided the opportunity to assess differences in groundwater quality impacts related to two different sources of water: lakes and urban stormwater. The sites selected had land use conditions that allowed for the construction and sampling of monitoring wells. Water samples were collected at these three sites during the project and discussions were limited to these sites. The sites are Lake Sherwood in west Orange County, Lake Orienta in Altamonte Springs, and Festival Park in Orlando (see Figure 1).

LAKE SHERWOOD

Lake Sherwood is located in a suburban, mixed-use residential and commercial setting in west Orange County. Initially, the Lake Sherwood site (noted in Figure 2) was selected because of the impact that the lake's level could have on nearby houses. However, during the initial investigation, the field team observed that the lake level was well below the overflow elevation, resulting in no recharge into the existing recharge well. Figure 3 presents the lake levels for Lake Sherwood. These data show that levels in Lake Sherwood rarely reach the elevation for drainage to occur. For this reason, although sampling for dry-period characterization was conducted at this site, no further CFARE1 work was performed in association with this site.

LAKE ORIENTA

Lake Orienta is a Florida, Class III fresh surface water, designated for recreational use, and located in south-central Altamonte Springs, Florida. The drainage basin for the area consists of a 135-acre lake with a 916-acre tributary watershed for a total basin area of 1,051 acres (CH2M HILL 1998). The area around and near the lake is characterized by residential and commercial land uses in a suburban setting. Some properties around Lake Orienta were prone to chronic flooding when the rainfall runoff and direct rainfall exceeded the capacity of the two recharge wells located on the southern shore of the lake (Figure 4). The wells were installed to prevent flooding of surrounding land. However, the capacity of the two recharge wells known at the beginning of the study was insufficient to prevent flooding problems resulting from exceptionally heavy rainfall.



Figure 2. Lake Sherwood location

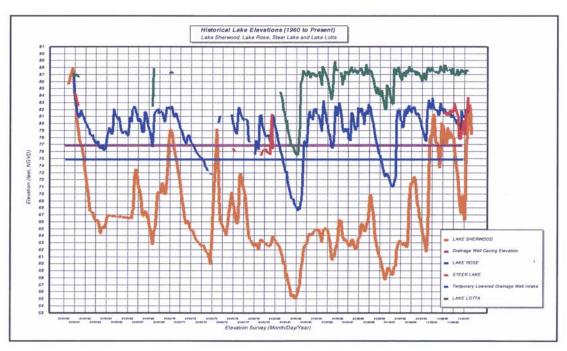


Figure 3. Observed lake levels for Lakes Sherwood, Rose, Steer, and Lotta (PEC, 1999)

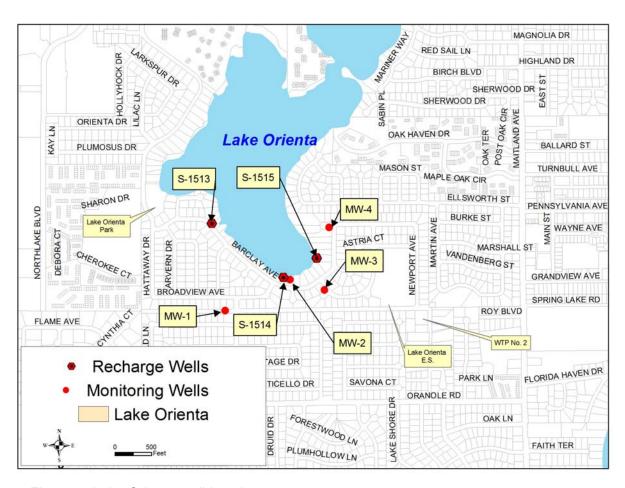


Figure 4. Lake Orienta well locations

Two wells at the site were identified at the beginning of the project: S-1514 and S-1515. Wells S-1514 and S-1515 are fitted with two inlets at different elevations. Upper inlets are used for normal operations while lower inlets are used to prepare for or during extreme wet weather events. Use of these lower inlets requires an Emergency Order from the Florida Department of Environmental Protection (FDEP). During the project a third recharge well (S-1513) was located. An investigation by the City of Altamonte Springs revealed that the inlet pipe to the well had been severed, apparently in association with residential construction. The City reinstalled the inlet pipe, cleaned the recharge well, and received permission from FDEP to place the well back into service.

In addition, as a result of geophysical logging performed as part of CFARE1 S-1515 was found to be clogged by vegetation.

The City cleaned the well and restored it to service. These improvements may have sufficiently improved the total recharge capacity of the Lake Orienta recharge well system, alleviating the need for additional capacity.

Specific construction dates of these recharge wells are unknown. However, they were constructed prior to promulgation of the Safe Drinking Water Act in 1972. Completion characteristics of the wells are presented in Table 1.

Table 1. (Completion	characteristics of	of the recharge	wells for	Lake Orienta

Well	Estimated Land Surface Elevation (ft, msl) Cased Diameter Depth (ft)		Total Depth (ft)	
Lake Orienta	75	10	Unknown	120
S-1513				
Lake Orienta	70	12	270	326
S-1514				
Lake Orienta	65	10	56	125
S-1515				

An inventory of private wells located within one mile of each of the Lake Orienta drainage wells was conducted. Based on this inventory, numerous publicly owned and presumed privately owned water supply wells were identified within 1 mile of the each of the drainage wells. Discussions with City of Altamonte Springs staff indicated that very few records on locations and construction characteristics are available on the private wells in the area based on previous searches and coordination with the Health Department. Four utilities provide potable water service within 1-mile of each of the three recharge wells: City of Altamonte Springs; Seminole County; Utilities, Incorporated; and City of Maitland. The four utilities identified the locations of customers served by the utilities. Locations that were not identified as water customers by the utilities were assumed to be supplied by privately owned domestic self-supply wells. No publicly or privately owned water supply wells were identified within 1,000 ft (an FDEP-establish notification distance) from each of the three recharge wells.

The City of Altamonte Springs Water Treatment Plant (WTP) No. 2 is located southeast of the lake. City staff advised that two Upper Floridan aquifer supply wells (Well No. 3 and Well No. 4) were abandoned in 1995 because of

chronic bacteriological exceedences. WTP No. 2 is currently provided water by three Lower Floridan aquifer wells (Figure 4).

FESTIVAL PARK

Festival Park is located in east Orlando within an urban commercial, light industrial, and recreational setting. There are two direct urban runoff wells at this site, specifically wells R-143 and R-40 (Figure 5). The wells are typical of numerous wells installed in the area to manage storm water runoff to alleviate local flooding caused by urbanization. The drainage area for the wells is primarily commercial property in an urban setting. The earliest records of information on the wells are U.S. Geological Survey (USGS) inventory cards dated May 14, 1943 (Hartman and Associates 2003); therefore, the wells were constructed and have been operational at least since that time. Completion characteristics of the wells are presented in Table 2.

Table 2. Completion characteristics of the recharge wells for Festival Park

Well	Estimated Land Surface Elevation (ft, msl)	Diameter (in.)	Cased Depth (ft)	Total Depth (ft)
Festival Park (Well 40)	102	12	195	490 ^b
Festival Park (Well 143)	102	10	140	315

^a Original reported total depth was 450 ft (PEC 1999)

^b Total depth through geophysical logging (8/3/00), reported total constructed depth – 1049 ft, USGS inventory card depth – 350 ft

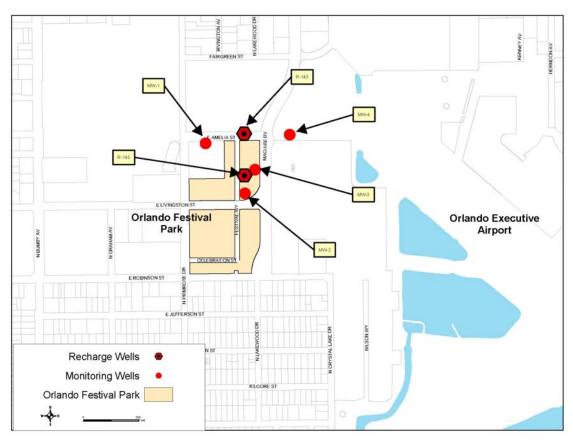


Figure 5. Festival Park well locations

ANALYTE LIST

A groundwater monitoring plan (GWMP) was prepared and implemented based on comments by FDEP (Status Report 4, Appendix A).

MICROBIOLOGICAL

Groundwater samples were collected based on established procedures (Appendix D of Appendix A) and were analyzed for the following organisms: total coliforms, fecal coliforms, *Escherichia coli* (*E. coli*), enterococci, C. perfringens, coliphage, giardia, and cryptosporidium. The microbiological data were evaluated and compared to indicator guidelines for ambient surface water quality (Class III waters). Class III surface water is a designation for surface water used for recreational purposes. Lake Orienta and Lake Sherwood are Class III surface waters.

CHEMICAL

The samples were analyzed for the chemical analyte groups listed below. The sampling procedures and quality assurance/quality control (QA/QC) procedures are presented in Appendixes B and C of Appendix A of this document.

- Field parameters temperature, pH, specific conductance, redox potential, and dissolved oxygen.
- Common ions calcium, potassium, magnesium, sodium, carbonate/bicarbonate, chloride, and sulfate.
- Nutrients nitrate, nitrite, ammonia, TKN, total nitrogen, orthophosphate, and total phosphorus.
- Other parameters turbidity, color, BOD5, and total dissolved solids (TDS).
- Metals using SW-846 6000 and 7000 series methods.
- Volatile Organic Compounds using SW-846 8260.
- Semi-volatile Organic Compounds using SW-846 8270.
- Organochlorine Pesticides and PCBs using SW-846 8081 and 8082.
- Chlorinated Herbicides using SW-846 8151.
- Total Petroleum Hydrocarbons using the Flo-Pro method

Gross Alpha and Gross Beta.

The chemical data were validated using the following U.S. EPA and FDEP guidelines for evaluating inorganic and organic chemical data and compared to regulatory criteria:

 U.S. Environmental Protection Agency, Office of Water. Drinking Water Standards and Health Advisories. EPA 822-B-00-001. Washington, D.C. Summer 2000.

http://www.epa.gov/ost/drinking/standards/summary.html

- U.S. Environmental Protection Agency. USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review. EPA-540/R-94-013 (PB94-963502). Atlanta, GA. February 1994.
- U.S. Environmental Protection Agency. USEPA Contract Laboratory Program. National Functional Guidelines for Organic Data Review. EPA-540/R-99-008 (PB99-963506). Atlanta, GA. October 1999.
- Florida Department of Environmental Protection. Drinking Water Standards, Monitoring, and Reporting. Chapter 62-550, Florida Administrative Code.

http://www.dep.state.fl.us/legal/Rules/rulelistnum.htm

DRY PERIOD CHARACTERIZATION

Dry-period characterization was conducted during August 2001 to take advantage of an abnormally prolonged period of low rainfall when the lakelevel control wells did not receive water. The goal of this task was to collect site reference water quality data. Because the recharge wells have been present and operating on an as-needed basis for more than 40 years, this represented a reasonable opportunity to evaluate baseline conditions of groundwater quality. One well at Lake Sherwood and two wells at Lake Orienta (S-1514 and S-1515) were sampled for chemical and biological parameters. During this event, the recharge wells (not monitoring wells) were directly sampled. The Festival Park site was not formally established as a project site at the time, and therefore dry-period characterization was not performed. The Lake Sherwood site was not investigated beyond dry-period characterization because the lake level was sufficiently low that it was considered unlikely that the level would rise to an elevation greater than the inlet of the well during the time period of the project. The presence of S-1513 at the Lake Orienta site was not identified at the time, and therefore dryperiod characterization was not performed for that well.

The wells were sampled using dedicated bladder pumps with the pump bodies and pump intakes positioned near the bottoms of the wells. The three wells were not operational at the times of samplings because the water levels in the lakes were below the intake levels for the wells. Based on the lake level data, these wells had not received recharge for a significant period of time prior to sampling.

The water samples were analyzed for chemical constituents using the procedures consistent with the analyte group method numbers presented in the Analyte List section of this document.

SAMPLING RESULTS

A summary of the results of the microbiological analyses are provided in Table 3, and are provided in their entirety in Appendix B. The organisms found and their concentrations fall within the guidelines for Class III surface waters. The total coliform concentrations of the three samples exceed the primary drinking water standard (DWS) for Class G-II groundwater of 4 colonies per 100 mL.

Table 3. Microbial data

Organism	Location SampleID ==> Date Collected ==> Units	Lake Orienta East LO-E-R-DP 8/23/2001	Lake Orienta West LO-W-R-DP 8/23/2001	Lake Sherwood LS-R 8/13/2001	Indicator Guidelines for Ambient Surface Water Quality (Class III Waters) ¹
Total Coliform	cfu/100 mL	250	210	235	1,000 cfu/100 mL – Single Sample 400 cfu/100 mL – Average
Fecal Coliform	cfu/100 mL	<1	36	7	800 cfu/100 mL – Single Sample 200 cfu/100 mL – Geometric Mean
E. coli	cfu/100 mL	2	1	<1	126 cfu/100 mL – Geometric Mean
Enterococci	cfu/100 mL	<1	4	9	35 cfu/100 mL – Fresh Water 104 cfu/100 mL – Geometric Mean
C. perfringens	cfu/100 mL	<1	<1	<1	50 cfu/100 mL
Cryptosporidium	no./100 L	<2	<34	<30.5	
Giardia	no./100 L	<2	<34	<30.5	
Somatic Coliphage	pfu/100 mL	<5	<5	<5	100 pfu/100 mL
1 Liter enrichment	pfu/100 mL	not done	not done	negative	
F+ coliphage	pfu/100 mL	<5	<5	<5	100 pfu/100 mL
1 Liter enrichment	pfu/100 mL	not done	not done	negative	

Notes:

cfu - Colony forming units

pfu - plaque forming units

Total Coliforms State of Florida guidelines for a single sample 1000 cfu/100ml, average of 400 cfu/100ml

Fecal Coliforms EPA and the state of Florida recommended guidelines for a single sample of 800 cfu/100 mL, for a

geometric mean, 200 cfu/100 mL

E.coli EPA recommended guideline for a geometric mean sample 126 cfu/100 mL

Enterococci EPA recommended guidelines for a single sample of 104 cfu/100 mL, for a geometric mean, 33-35

cfu/100 mL for marine and fresh water respectively.

C. perfringens Guidelines used by state of Hawaii based on research by Dr. Roger Fujioka et al at the University of

Hawaii of 50 cfu/100 mL for fresh and brackish water and 5 cfu/100 mL for marine waters.

Coliphage Level used – 100 pfu/100 mL based on previous research by Dr. Joan Rose, USF

¹ Indicator Guidelines for Ambient Surface Water Quality (used for Class III Waters)

The water quality from the three recharge wells exhibited characteristics and influence of surface water contribution compared to Upper Floridan aquifer water, for example:

- Total Coliform concentration of 210 to 250 colony forming units (cfu) per 100 milliliters (cfu/100 mL). Floridan aquifer concentrations are expected to be less than 1 cfu/100 mL.
- Color measurement of 10 to 50 color units. Floridan aquifer concentrations are expected to be less than 1 color unit.
- Total organic carbon (TOC) concentrations between 1.2 and 22 mg/L. Floridan aquifer concentrations are expected to be less than 1 mg/L.
- Turbidity measurement of 0.75 to 36 (estimated value) Nephelometric Turbidity Units (NTUs). Measurement of Floridan aquifer water is expected to be less than 1 NTU.
- The presence of ammonia nitrogen between 0.13 and 1.2 milligrams per liter (mg/L). Ammonia nitrogen is expected to be undetected in Floridan aquifer groundwater.
- Iron concentrations of 0.29 to 6.3 mg/L. Iron is expected to be undetected in Floridan aquifer groundwater.

The detections from the chemical analyses are provided in Table 4. Detections were encountered in the following analyte groups: general chemicals, common anions and cations, nutrients, metals, volatile organic chemicals, and radionuclides. These detections were compared to primary and secondary drinking water standards. A detailed comparison of the detections, criteria, and screening values is also provided in Appendix B. A summary of comparisons follows:

- No chemicals detected exceeded the primary DWSs. Turbidity exceeded 1
 NTU in waters from the Lake Orienta West and Lake Sherwood wells.
- Secondary DWSs were exceeded for color, aluminum, iron, and manganese from selected wells.
- Two volatile organic compounds (VOCs) were positively detected: methyl
 ethyl keytone (MEK) and methylene chloride. No DWS is established for
 MEK. The concentrations of methylene chloride were approximately
 below the DWS.

The chemical data presented in Table 4, and the other chemical data tables in the remainder of this report, are provided with qualifiers that resulted from the data validation process. The data validation process for this data set and the remainder of the chemical data sets presented in this report were performed in accordance with U.S. Environmental Protection Agency (USEPA) guidance for data review for inorganic chemicals and organic chemicals, February 1994 and USEPA October 1999, respectively.

The chemical data were compared to various regulatory criteria and risk-based criteria (RBC); the results were identified by different formatting (bolding, shading, and boxing). No chemical from the monitoring well samples was detected at a concentration greater than Florida Primary and Secondary DWSs. The concentration of iron exceeded the DWS in two of the three recharge wells; see Table 4. Please refer to the notes at the bottom of data tables for explanations to identify comparisons of the chemical results and various regulatory and risk-based criteria (Appendix C).

Table 4. Chemical Detections During Dry-Period Characterization

1 4:		Lake Orienta		Lake Orienta		Lake	
	Location	East		West		Sherwood	
	SampleID ==>	LO-E-R-DP		LO-W-R-DP		LS-R	
	Date Collected ==>	8/23/2001		8/23/2001		8/13/2001	
	Time Collected ==>	12:45		11:20		15:00	
	Matrix ==>	WA		WA		WA	
	Sample Type ==>	N		N		N	
Parameter Group and Name	Units	Result	Result Qual.		Qual.	Result	Qual
<u>Radionuclides</u>							
Alpha, gross	pCi/L	5.5	=	9.8	=	3.3	=
Beta, gross	pCi/L	4.7	=	6.8	=	10.4	=
General Chemistry							
Total Dissolved Solids (residue,							
filterable)	mg/L	240	=	270	=	150	=
Turbidity	NTU	0.75	=	12	=	36	J
Color	Color Units	10	=	50	=	20	J
Total Organic Carbon	mg/L	1.2	=	2.1	=	22	=
Dissolved Organic Carbon	mg/L	1.2	=	1.4	=	2.5	=
Methylene Blue Active Substances	s mg/L	0.047	U	0.095	J	0.047	U
<u>Nutrients</u>							
Nitrogen, ammonia (as N)	mg/L	0.13	=	0.46	=	1.2	=
Nitrogen, Kjeldahl, Total	mg/L	0.36	J	2	=	1.4	=

Table 4. Chemical Detections During Dry-Period Characterization

Location Lake Orienta East Lake Orienta West Lake Sherwood SampleID ==> LO-E-R-DP LO-W-R-DP LS-R Date Collected ==> 8/23/2001 8/23/2001 8/13/2001 Time Collected ==> 12:45 11:20 15:00	ast West SI -R-DP LO-W-R-DP /2001 8/23/2001 8/ :45 11:20 /A WA	East 0-E-R-DP 23/2001 12:45 WA	LO 8/			
Date Collected ==> 8/23/2001 8/23/2001 8/13/2001 Time Collected ==> 12:45 11:20 15:00	/2001 8/23/2001 8/ :45 11:20 /A WA N N	23/2001 12:45 WA	8/	SampleID ==>		
Time Collected ==> 12:45 11:20 15:00	:45 11:20 /A WA N N	12:45 WA				
	VA WA N	WA		'		
	N N					
Matrix ==> WA WA WA				Matrix ==>		
Sample Type ==> N N N	Qual. Result Qual. Resu	N		Sample Type ==>	Sa	
Parameter Group and Name Units Result Qual. Result Qual. Result Qual.		lt Qual.	Resul	Units	Parameter Group and Name	
Phosphorus, Total (as p) mg/L 0.036 = 0.42 = 0.045 =	= 0.42 = 0.04	6 =	0.036	mg/L	Phosphorus, Total (as p)	
Phosphorus, Total Orthophosphate					Phosphorus, Total Orthophosphate	
(as P) mg/L 0.09 = 0.045 = 0.009	= 0.045 = 0.00) =	0.09	mg/L	(as P)	
A to					A*	
Anions Obligation (as Ob)	10		4-		•	
Chloride (as CI) mg/L 17 = 19 = 9.7 =				=	, ,	
Fluoride mg/L 0.062 U 0.062 U 0.36 =				=		
Sulfate (as SO4) mg/L 14 = 55 = 16				•	, ,	
Alkalinity, bicarbonate (as CaCO3) mg/L 140 = 130 = 110 =	= 130 = 110	=	140	mg/L	Alkalinity, bicarbonate (as CaCO3)	
Metals					Motals	
Aluminum μg/L 120 U 1610 = 88.4 U	11 1610 - 88	11	120	ug/l	<u> </u>	
Arsenic $\mu g/L$ 0.4 U 6.36 = 1.09 =				· -		
	·			· -		
' "	-			· -		
, , , , , , , , , , , , , , , , , , , ,	<u> </u>				•	
Cadmium $\mu g/L$ 0.233 J 1.46 =				· -		
Calcium $\mu g/L$ $60000 = 65900 = 36600 = 0.47$				· -		
Chromium, total μg/L 0.4 U 3.17 J 0.478 U						
Cobalt μg/L 0.142 J 0.37 J 0.434				· -		
Copper μg/L 0.12 UJ 16.6 J 3 U					• •	
Iron $\mu g/L$ 292 = 4680 = 6310 =						
Lead $\mu g/L$ 0.0131 U 9.24 = 0.972						
Magnesium $\mu g/L$ 2410 = 9260 = 10600 =					•	
Manganese $\mu g/L$ 10.8 = 61.4 = 76.5 =					_	
Nickel $\mu g/L$ 5.08 = 6.77 = 23 =						
Potassium μg/L 1380 J 1780 J 2760				· -		
Silver µg/L 0.047 J 0.02 U 10.3 U						
Sodium $\mu g/L$ 6630 = 10900 = 14900 $\mu g/L$				· -		
Vanadium μg/L 0.351 J 6.95 J 0.08 U				· -		
Zinc $\mu g/L$ 1 U 26.8 = 1.66 .	U 26.8 = 1.6	U	1	μg/L	Zinc	
Volatile Organic Compounds			l		Volatile Organic Compounds	
Methyl ethyl ketone (2-butanone) μg/L 27 J 3.9 J 160	J 3.9 J 160	J	27	µg/L		
Methylene chloride μg/L 0.43 J 0.55 J 10 U				· -	, ,	

Table 4. Chemical Detections During Dry-Period Characterization

	Location		Lake Orienta East		Lake Orienta West		ke vood
	SampleID ==>	SampleID ==> LO-E-R-DP		LO-W-R-DP		LS-R	
	Date Collected ==>	8/23/2001		8/23/2001		8/13/2001	
	Time Collected ==>	12:45		11:20		15:0	00
	Matrix ==>	WA		WA		W	Α
	Sample Type ==>	N		N		N	
Parameter Group and Name	Units	Result	Qual.	Result	Qual.	Result	Qual

Notes:

Bolded values represent positive detections above promulgated regulatory criteria.

Boxed values represent positive detections above Risk-Based Criteria.

Bolded and boxed values represent positive detections above promulgated regulatory criteria and Risk-Based Criteria. The value and the qualifier must be taken together to properly understand the laboratory results. For example, if a result for a chemical was "10" mg/L with an "=" qualifier then the chemical was detected at a concentration of 10 mg/L. However, if a result was "10" mg/L with a "U" qualifier then the chemical was not detected at a reporting limit of 10 mg/L.

Sources for regulatory and risk-based criteria:

- 1. Florida Ground Water Guidance Concentrations, 17-520.400 FAC, June 2, 1994: Primary Drinking Water Standards (17-550.310 FAC), Secondary Drinking Water Standards (17-550.320 FAC).
- 2. Brownfield's Cleanup Criteria Rule, Groundwater Cleanup Target Levels, Draft Chapter 62-785 F.A.C., 1997.
- 3. Drinking Water Regulations and Health Advisories, Office of Water, USEPA, October 1996.
- 4. EPA Region III Risk-Based Concentration Table, Tap Water Values, R.L. Smith, October 1997.
- 5. EPA Region IV Supplemental Guidance to RAGS: Region 4 Bulletins, Human Health Risk Assessment, November 1995; HQ=0.1 applied to noncarcinogens.

Explanation of Abbreviations and Qualifiers (Qual.)

"WA" is water.

"N" is a normal sample.

Blanks for the chemical data represent nondetection.

Blanks for the criteria and screening values represent no established value.

[&]quot;=" Represents a detection at the value shown.

[&]quot;J" Represents an estimated value that is above the method detection limit and below the practical quantitation limit.

[&]quot;U" Represents not detected at the detection limit value shown.

MONITORING WELL INSTALLATIONS

Monitoring wells were installed with the intent to mimic the completion depth intervals of the onsite recharge wells. The locations of the wells were based on the direction of regional flow in the Upper Floridan aquifer. Monitoring well locations at sites that were up-gradient, down-gradient, and cross-gradient of recharge wells were selected. The installation was coordinated with appropriate local governments and FDEP.

The construction reports for the Lake Orienta and Festival Park monitoring wells are provided in Appendix D. Dedicated, air-actuated bladder pumps were installed in the monitoring wells to collect samples. The pump bodies were made of PVC, the bladders were made of Teflon® and the sample tubing was Teflon-lined polyethylene tubing. The pumps were installed to the approximate depths of the casings in each monitoring well.

LAKE ORIENTA

Four monitoring wells (MW-1 through MW-4) were installed at the site to allow groundwater sampling to measure changes of water quality during the project. Construction characteristics are presented in Table 5 and their locations are shown in Figure 4.

Table 5. Completion characteristics of the monitoring wells with SJRWMD well designations for Lake Orienta

Well	Estimated Land Surface Elevation (ft, msl)	Diameter (in.)	Cased Depth (ft)	Total Depth (ft)	Depth to Water ^a (ft)
MW-1	110	4	210	290	51.98
(S-0344)					
MW-2	70	4	130	320	22.08
(S-0345)					
MW-3	95	4	170	290	33.88
(S-0346)					
MW-4	70	4	160	300	25.09
(S-0347)					

^a Water level collected at the completion of monitoring well construction.

FESTIVAL PARK

Four monitoring wells (MW-1 through MW-4) were installed at the site to monitor for changes of water quality during the project. Construction characteristics are presented in Table 6 and their locations are shown in Figure 5.

Table 6. Completion characteristics of the monitoring wells with SJRWMD well designations for Festival Park

Well	Estimated Land Surface Elevation (ft, msl)	Diameter (in.)	Cased Depth (ft)	Total Depth (ft)	Depth to Water ^a (ft)
MW-1 (OR-0140)	102	4	210	400	54.8
MW-2 (OR-0141)	102	4	120	250	54.1
MW-3 (OR-0818)	102	4	180	250	55.6
MW-4 (OR-0819)	102	4	65	250	54.15

^a Water level collected at the completion of monitoring well construction.

QUALITATIVE GROUNDWATER TRACER TESTS

Qualitative groundwater tracer tests were conducted to demonstrate complete pathways of groundwater flow in the Floridan aquifer between the recharge wells and the monitoring wells. The benefits of performing these tests are that the results will improve the sampling plan design for the operational characterization tasks and support the results of groundwater sampling and analysis. The groundwater tracer test plan was presented in Status Report 5 contained in Appendix A. As previously described in the Site Descriptions section of this document, many water supply wells were identified within 1 mile and no water supply wells were identified within 1,000 feet of the Lake Orienta recharge wells. FDEP requested that a public meeting be held to inform the property owners near the Lake Orienta recharge wells of the intent to perform a tracer test. The meeting was conducted and no negative comments were communicated at the meeting. As a result, the tracer test proceeded at Lake Orienta without additional coordination activities. No water supply wells were identified within one mile of the Festival Park recharge wells. As a result, the tracer test proceeded at that site without further coordination activities.

QUALITATIVE GROUNDWATER TRACER TEST

The qualitative groundwater tracer tests were performed at each site to provide evidence of which monitoring wells were in hydraulic connection with which recharge wells through the aquifer. This led to modification of the sampling plans for better focused sampling for the characterization phases of the project.

At both sites different tracers were introduced into each of the recharge wells while the recharge wells were receiving water. The use of different tracers allowed the verification of hydraulic connection between individual recharge wells and individual monitoring wells. Two tracers were used at Festival Park: fluorescein and eosine. Three tracers were used at Lake Orienta: fluorescein, eosine, and Rhodamine WT. Prior to tracer introduction, the monitoring wells were sampled for background indications of the tracers that could interfere with the interpretation of the results of the tests. Results of the background sampling were that the tracers were either not detected or detected at sufficiently low concentrations to not interfere with the interpretation the laboratory results.

TRACER TEST PROCEDURES

The strings of tracer sample packs were designed based on the cased depths and open-hole intervals of the monitoring wells. For each well, tether lines were made to extend from the tops of the monitoring wells to the bottom of the casings and detachable strings of sample packs were made to extend over the open-hole intervals. Sample packs were positioned at generally 10-foot intervals along the strings. This allowed for simple and rapid replacement of sample pack strings by pulling the tether line from the well and exchanging the strings, then lowering the assemblies back into the wells. This procedure provided better confidence that the sample packs were located at consistent intervals within the wells. Stainless steel weights were placed at the bottomend of the sampler strings to keep the strings in tension and to assist in identifying obstructions in the wells. Figure 6 shows a photograph of the sample packs on the strings as they were received from the laboratory and Figure 7 an example of an exchange event.

The individual sample packs were cut from the string and placed in individual plastic bags, labeled and placed on ice for preservation and preparation for transport to the laboratory. Labeling consisted of well, depth, date, and time. The same information was recorded on the chain-of-custody form that accompanied the shipment of the sample pack to the laboratory.



Figure 6. Sample packs on strings



Figure 7. Example of an exchange event Note: The white cord is the sample string and the yellow cord is the tether line.

For the tests at the sites, strings of activated carbon sample packs were positioned over the open-hole intervals of the monitoring wells to intercept tracers in the groundwater flowing past the monitoring wells. Sample packs were spaced on the strings at intervals between 10 and 15 feet. The strings were replaced at approximately two-week intervals then sample packs were preserved and transported to the laboratory for analysis. Laboratory results represent the accumulation of tracer on the activated carbon during a particular two-week interval when the sample packs were in the monitoring wells. The durations of the tracer tests were 12 weeks.

In the laboratory the activated carbon of the sample packs were rinsed with known volumes of a solvent and the resulting solution, or elutant, was analyzed for presence of tracer. Therefore, the concentrations reported by the laboratory represent the amount of tracer that accumulated on the carbon and not concentrations of tracers in the groundwater. However, because the residence time of the samples packs in the monitoring wells were the same, the results provide insight into travel time between wells based on time of appearance and relative robustness of the hydraulic connection between wells based on the concentration value.

LAKE ORIENTA TESTING

Background Tracer Characterization

Two rounds of background characterization occurred at Festival Park. Each round consisted of suspending two carbon sample packs in the monitoring wells within the open-hole intervals and in the lake where they resided for two weeks. These procedures were consistent with the residence duration of the sample packs for the tracer test. One set of grab water samples was collected from each location at the beginning of the first event. The presence of tracer adsorbed by the sample packs was evaluated by rinsing the carbon with a known aliquot of a solvent then analyzing the solvent for tracer. The results are presented in Table 7. The results indicated very low concentrations of fluorescein and eosine at levels that would not interfere with interpreting the test results. The laboratory reports of the background tracer characterization are presented in Appendix E.

Tracer Test Procedure

As previously described, the drinking water well survey indicated the presence of privately-owned and public supply utility-owned water supply wells between 1000 feet and 1 mile of the recharge wells. No water supply wells were identified within 1000 feet of the recharge wells. Because of this, a public meeting was held on November 17, 2004, in Altamonte Springs, Florida. The purpose of the public meeting was to:

- Present the role of recharge wells in managing storm water in central Florida and the level of Lake Orienta
- Describe the CFARE1 project
- Describe the need for and the intent to conduct a groundwater tracer test
- Solicit comments and cooperation on the tracer test

In preparation for the meeting, Seminole and Orange County property owners within 1 mile of the recharge wells were identified from property tax records. Meeting notices were sent to each of the approximate 1600 identified property owners. No negative comments were received during the meeting. As a result, the tracer test was conducted without further coordination activities.

Table 7. Lake Orienta artificial recharge well demonstration project - groundwater tracer test

Results of Charcoal Pack and Water Background Samples Analyzed for the Presence of Fluorescein and Eosine Dyes.

				Fluorescein Results		Eosine	Results	Eosine	Results
Station Name	Sample Type	Date Placed	Date Recovered	Peak (nm)	Conc. (ppb) ^a	Peak (nm)	Conc. (ppb) ^a	Peak (nm)	Conc. (ppb) ^a
MVV-1	Grab Water		8/11/2004	ND		ND		ND	
MW-2	Grab Water		8/11/2004	ND		ND		ND	
MW-3	Charcoal Pack		8/11/2004	ND		ND		ND	
MW-4	Charcoal Pack		8/11/2004	ND		ND		ND	
Lake	Charcoal Pack		8/11/2004	ND		ND		575.0*	0.116
MW-1 @ 215 ft	Charcoal Pack	8/24/2004	9/7/2004	515.4*	0.550	ND		ND	
MW-1 @ 240 ft	Charcoal Pack	8/24/2004	9/7/2004	516.2*	0.621	ND		ND	
MW-2 @ 135 ft	Charcoal Pack	8/24/2004	9/7/2004	514.8*	0.447	ND		ND	
MW-2 @ 170 ft	Charcoal Pack	8/24/2004	9/7/2004	516.4*	0.410	ND		ND	
MW-3 @ 175 ft	Charcoal Pack	8/24/2004	9/7/2004	517.0*	0.807	ND		ND	
MW-3 @ 210 ft	Charcoal Pack	8/24/2004	9/7/2004	513.8*	0.385	ND		ND	
MW-4 @ 165 ft	Charcoal Pack	8/24/2004	9/7/2004	513.8*	0.797	ND		ND	
MW-4 @ 200 ft	Charcoal Pack	8/24/2004	9/7/2004	515.4*	0.949	ND		ND	
1.6 ft depth above Lake bottom	Charcoal Pack	8/24/2004	9/7/2004	514.4*	0.811	ND		569.8*	10.3
3.4 ft depth above Lake bottom	Charcoal Pack	8/24/2004	9/7/2004	514.0*	0.599	ND		571.3*	8.07

Notes:

ppb - parts per billion

^{*} A fluorescence peak is present that does not meet all the criteria for a positive dye result but has been calculated for background purposes as though it were the dye. nm - wavelength of chromatograph peak in nanometers

^a Blanks indicate no calculated concentration

The release was made on November 18, 2004, by pumping tracer solution into the three recharge wells and the tracer was delivered to the aquifer by the water flowing from the lake into the wells. Locations and quantities of tracer introduced into the recharge wells are 50 pounds of fluorescein into S-1513; 75 pounds of eosine into S-1514; and 100 pounds of rhodamine WT into S-1515.

Fresh carbon sample packs were installed in the monitoring wells prior to introducing the tracer into the recharge wells. The sample packs were replaced and analyzed at two-week intervals (with the exception of the week of the year-end holidays) through February 17, 2005. The duration of the planned test was 13 weeks.

Results of sample pack analyses from MW-2 indicated the presence of two tracers. As a result additional focused sampling was conducted at MW-2. The focused sampling consisted of placing additional sample packs at two depths in the well and replacing the packs at two-week intervals. Sampling at MW-2 ended on April 14, 2005, 21 weeks after tracer introduction. Tracer test locations and monitoring wells for Lake Orienta are presented in Figure 8. The lower inlets of wells S-1514 and S-1515 were open for the duration of the planned tracer test to allow lake water to recharge the aquifer during the test.

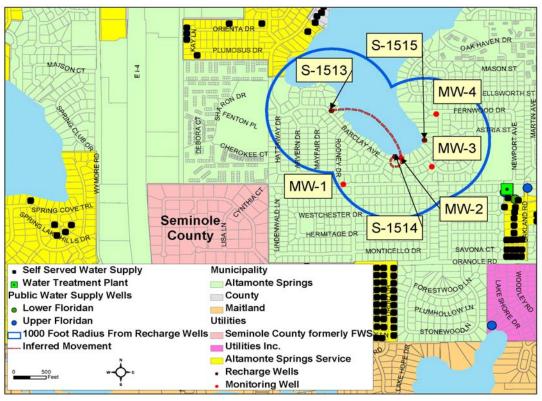


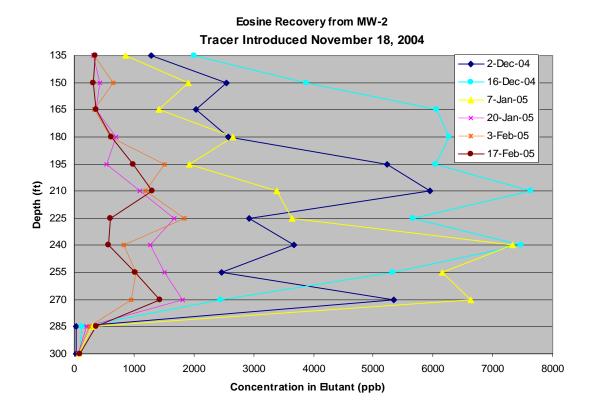
Figure 8. Lake Orienta testing sites

Tracer Test Results

The goal of the tracer test was achieved. Two tracers, eosine and fluorescein, were detected at one monitoring well, MW-2. The results of this test demonstrate a hydraulic connection between recharge well S-1514 and monitoring well MW-2, and between recharge well S-1513 and monitoring well MW-2. The presence of tracer was not identified at the other three monitoring wells.

Tracer test locations are shown in Figure 8 and a summary of the results of the tracer test at Lake Orienta follows.

- Tracers introduced into two recharge wells were recovered from one monitoring well.
- Tracer (eosine) from S-1514 was recovered in sample packs from MW-2 within the first two-week interval of the tracer test indicating that MW-2 is hydraulically connected to the recharge well. This indicates that the travel time between S-1514 and MW-2 is less than two weeks. MW-2 is located approximately 100 ft east of S-1514. Results of the eosine and fluorescein recovery for MW-2 are graphically presented in Figure 9. The graph shows that eosine from S-1514 appeared at MW-2 during the first two-week period (collected December 2), reached its highest concentrations during the second two-week period (collected December 16), and eosine concentrations declined in the remaining four samplings.
- Tracer (fluorescein) from S-1513 was positively identified in sample packs from MW-2 within the fourth two-week interval of the tracer test indicating that MW-2 is hydraulically connected to the recharge well. This indicates that the travel time between S-1513 and MW-2 is between 6 and 8 weeks. MW-2 is located approximately 1350 ft east of S-1513. While evaluating the results of the fourth sample set, the laboratory speculated that fluorescein was appearing at MW-2, but the laboratory was unable to segregate the two tracers. This was based on an elongated leading edge and widening of the breakthrough curves of the chromatograms. The pattern continued and became more pronounced through the remainder of the scheduled 12 weeks of the tracer test. As a result, additional focused monitoring at MW-2 was continued to confirm or deny the presence of fluorescein. The additional monitoring consisted of monitoring for tracer at two depths (240 ft and 255 ft) for four additional two-week intervals.



Fluorescein Recovery from MW-2 Tracer Introduced November 18, 2004

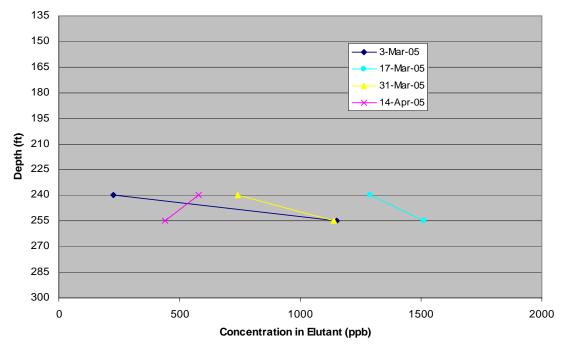


Figure 9. Eosine and fluorescein recovery at MW-2, Lake Orienta

The laboratory recommended these two depths as those where the pattern was most pronounced. Testing ended on April 14, 2005 after the presence of fluorescein was confirmed. Table 8 presents tracer concentrations detected at MW-2 during the additional focused testing period.

Table 8. Results from additional monitoring in MW-2 at 240 feet and 255 feet, Lake Orienta

Date Collected	Fluorescein (240 ft)	Eosine (240 ft)	Fluorescein (255 ft)	Eosine (255 ft)
3/3/2005	227 ppb	400 ppb	1150 ppb	2170 ppb
3/17/2005	1290 ppb	1330 ppb	1510 ppb	1610 ppb
3/31/2005	739 ppb	484 ppb	1140 ppb	878 ppb
4/14/2005	578 ppb	313 ppb	438 ppb	246 ppb

Observations and interpretations of the results are:

- Rhodamine WT from S-1515 was not recovered from the four monitoring wells during the 12-week interval of the tracer test.
- Tracers (fluorescein and eosine) were not recovered from MW-1, MW-3, and MW-4.
- Eosine and fluorescein were encountered in MW-2.
- The peak of eosine passing by MW-2 was from the December 16, 2004, sampling, four weeks after the tracer was introduced into S-1514.
- Because of the nature of the supplemental sampling for fluorescein in MW-2, the arrival characteristics of the tracer could not be evaluated. However, the results were sufficient to positively identify this tracer in the monitoring well meeting the goal of the qualitative tracer test.

Appendix E presents laboratory sampling reports for the tracer testing for this site.

 Resulting from the test the following designations were assigned to the remaining sampling locations: Lake Orienta from a dock near the inlet to S-1514 for the source location; MW-2 as the characterization location; and MW-1 as the site reference location; and MW-3 and MW-4 were removed from further sampling.

FESTIVAL PARK TESTING

Background Tracer Characterization

Two rounds of background characterization occurred at Festival Park. Each round consisted of suspending two carbon sample packs in the monitoring wells within the open-hole intervals and in the lake where they resided for two weeks. These procedures were consistent with the residence duration of the sample packs for the tracer test. One set of grab water samples was collected from each location at the beginning of the first event. The presence of tracer adsorbed by the sample packs was evaluated by rinsing the carbon with a known aliquot of a solvent then analyzing the solvent for tracer.

The results are presented in Table 9. The results indicated very low concentrations of fluorescein at levels that would not interfere with interpreting the test results.

Table 9. Results of charcoal pack and water background samples analyzed for the presence of fluorescein and eosine dyes, Festival Park

Results of Charcoal Pack and Water Back	around Samples Ana	lyzed for the Presence of	f Fluorescein and Eosine Dves.

				Fluorescei	n Results	Eosine	Results
Station Name	Sample Type	Date Placed	Date Recovered	Peak (nm)	Conc. (ppb) ^a	Peak (nm)	Conc. (ppb) a
R-40 South Recharge Well	Grab Water		5/13/2003	ND		ND	
R-143 North Recharge Well	Grab Water		5/13/2003	ND		ND	
R-40 South Recharge Well	Charcoal Pack	5/13/2003	5/20/2003	ND		ND	
R-143 North Recharge Well	Charcoal Pack	5/13/2003	5/20/2003	ND		ND	
MW-1 @ 167 ft	Charcoal Pack	5/13/2003	5/20/2003	515.2 *	0.213	ND	
MW-1 @ 197 ft	Charcoal Pack	5/13/2003	5/20/2003	513.8 *	0.233	ND	
MW-2 @ 195 ft	Charcoal Pack	5/13/2003	5/20/2003	ND		ND	
MW-2 @ 225 ft	Charcoal Pack	5/13/2003	5/20/2003	517.2 *	0.215	ND	
MW-3 @ 195 ft	Charcoal Pack	5/13/2003	5/20/2003	ND		ND	
MW-3 @ 225 ft	Charcoal Pack	5/13/2003	5/20/2003	ND		ND	
MW-4 @ 195 ft	Charcoal Pack	5/13/2003	5/20/2003	516.6 *	0.476	ND	
MW-4 @ 225 ft	Charcoal Pack	5/13/2003	5/20/2003	516.4 *	0.549	ND	
R-143 North Recharge Well	Charcoal Pack	5/20/2003	5/27/2003	ND		ND	

Table 9. Results of charcoal pack and water background samples analyzed for the presence of fluorescein and eosine dyes, Festival Park

Results of Charcoal Pack and Water Background Samples Analyzed for the Presence of Fluorescein and Eosine Dyes.

				Fluorescein Results		Eosine Results	
Station Name	Sample Type	Date Placed	Date Recovered	Peak (nm)	Conc. (ppb) ^a	Peak (nm)	Conc. (ppb) a
MW-1 @ 167 ft	Charcoal Pack	5/20/2003	5/27/2003	515.4 *	0.877	ND	
MW-1 @ 197 ft	Charcoal Pack	5/20/2003	5/27/2003	514.2 *	0.533	ND	
MW-2 @ 195 ft	Charcoal Pack	5/20/2003	5/27/2003	517.0 *	0.345	ND	
MW-2 @ 225 ft	Charcoal Pack	5/20/2003	5/27/2003	517.4 *	0.352	ND	
MW-3 @ 195 ft	Charcoal Pack	5/20/2003	5/27/2003	ND		ND	
MW-3 @ 225 ft	Charcoal Pack	5/20/2003	5/27/2003	ND		ND	
MW-4 @ 195 ft	Charcoal Pack	5/20/2003	5/27/2003	516.2 *	0.350	ND	
MW-4 @ 225 ft	Charcoal Pack	5/20/2003	5/27/2003	516.4 *	0.842	ND	

Notes:

nm - wavelength of chromatograph peak in nanometers ppb - parts per billion

Tracer Test Procedure

At Festival Park, tracer release was conducted on Friday, May 30, 2003, after completing baseline sampling. In conducting the test, tracer solution was pumped into the two recharge wells through tremie pipes. The release point was approximately 180 ft below ground and approximately 5-10 ft above the bottom of the casing. The recharge wells continually flow; therefore, the ambient flow was used to move the tracer from the well bores into the aquifer. Approximately 50 pounds of fluorescein were introduced into Well R-143 and 75 pounds of eosine were introduced into Well R-40.

Carbon sample packs were installed in the monitoring wells at the end of the baseline sampling and prior to the releasing the tracer. The sample packs were replaced with fresh sample packs and analyzed at two-week intervals. The duration of the tracer test was 12 weeks.

When the first string of sample packs was lowered into MW-1, it did not extend to the length consistent with the well construction information. Approximately 50 ft of tether line remained at the surface when the bottom of the string touched the bottom of the well. Several unsuccessful attempts were

^{*} A fluorescence peak is present that does not meet all the criteria for a positive dye result but has been calculated for background purposes as though it were the dye.

^a Blanks indicate no calculated concentration

made to get past the obstruction. As a result, the string was allowed to remain suspended in the well gathering and securing remaining tether line at the top portion of the monitoring well, within the casing. The string of sample packs was positioned from the attainable depth of the open-hole interval of the well and extended into the casing.

Approximately five weeks later, on July 7, 2003, the driller was able to remobilize to the site to investigate the condition of the well. The well was found to be obstructed at the approximate depth of 190 ft. The well was redeveloped and the sampler string was reinserted into the well; however, the string was only able to be lowered into the well an additional 20 ft. Because laboratory results, received on July 1, 2003, of sample pack analyses from the string collected on June 13, 2003, indicated positive recovery of tracer, the tracer test was successful for its purpose and no further drilling or development work was performed to achieve the original drilled depth of the well.

Festival Park is a direct-urban runoff recharge site and flow to the recharge wells directly relates to rainfall events. Although no attempts were made to measure the flow rate into the two recharge wells, rainfall amounts and timing provide indications of flow activity. Daily rainfall measurements were obtained from data downloads NOAA National Climatological Data Center (NCDC) for the Orlando Executive Airport (call sign: ORL). The Orlando Executive Airport is immediately east of Festival Park and because of its closeness to the site rainfall recorded at ORL represents reasonable rainfall data for the site. Daily rainfall and project activities are presented in Figure 10. During 2003, 49.26 in. of rainfall were recorded at the station. During the period of the tracer test, May 30 through August 25, 2003, 22.10 in. of rainfall were recorded at the station. During the first two-week interval of the tracer test, 2.39 in. of rain was recorded. Rainfall was recorded on five separate days with the range of 0.1 to 0.94 in.

Tracer Test Results

Fluorescein from R-143 was detected in the sample packs from MW-1 and MW-2, but not detected in the sample packs from MW-3 and MW-4 during the 12-week period of the test. Eosine from R-40 was not detected in sample packs from the four monitoring wells during the 12-week period of the test. Since tracer was detected at one or more of the monitoring wells, the goal of the Festival Park tracer test was achieved: it was demonstrated that MW-1 and MW-2 are hydraulically connected to R-143. MW-1 is approximately 250 ft west of R-143, and MW-2 is approximately 400 ft south of R-143.

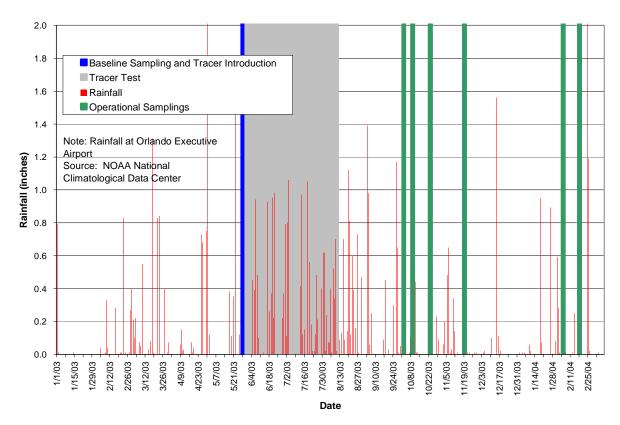


Figure 10. Rainfall at Orlando Executive Airport and project milestones

Graphs presenting the tracer recovery with depth and through time are presented in Figure 11 for MW-1 and in Figure 12 for MW-2. Sample packs from the June 27, 2003, sampling were lost in transit from the site to the laboratory. Inspection of the graphs reveals the advancement and retreat of the tracer front. Observations and interpretations of the results are:

- Tracer from one recharge well was recovered from two monitoring wells.
- Tracer (fluorescein) introduced into R-143 was recovered in sample packs from MW-1 and MW-2 within the first two-week interval of the tracer test indicating that the two monitoring wells are in hydraulic connection with the recharge well.
- The peak of the tracer front passed MW-1 at approximately the eight-week interval from the July 29 sample string analyses and MW-2 at approximately the six-week interval from the July 14 sample string analyses.

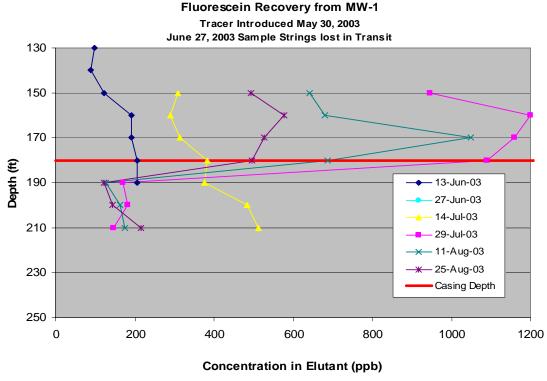


Figure 11. Tracer recovery for MW-1

Fluorescein Recovery from MW-2 Tracer Introduced May 30, 2003 June 27, 2003 Sample Strings lost in Transit

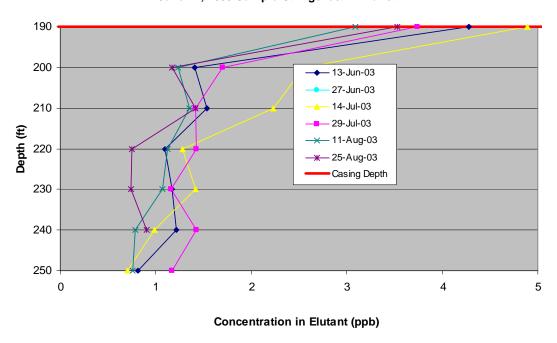


Figure 12. Tracer recovery for MW-2

• Amounts of fluorescein encountered at MW-1 were two orders of magnitude greater than the amounts encountered at MW-2. The results of this test confirm a connection between R-143 and monitoring wells MW-1 and MW-2. A map of the inferred movement is provided in Figure 13.

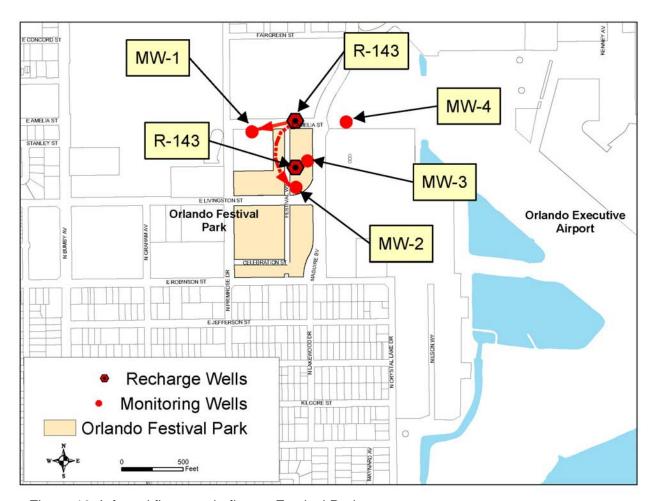


Figure 13. Inferred fluorescein flow at Festival Park

- The strength of the tracer recovery from MW-1 was approximately 200 times greater than the strength of the tracer recovery from MW-2. This suggests that the pathway between R-143 to MW-1 is more robust than the pathway between R-143 and MW-2.
- The greatest amounts of tracer recovery from MW-1 occurred above the bottom of the casing. This suggests upward transport within the casing.
- The greatest amounts of tracer recovery from MW-2 occurred at the sample packs positioned approximately at the bottom of the casing. This

- suggests the hydraulic contribution to the well is just below the bottom of the casing, upward transport of tracer, or both.
- Tracer (eosine) from R-40 was not recovered from the four monitoring wells during the 12-week interval of the tracer test. This suggests that the monitoring wells do not individually share flow paths that are common to R-40 with transport times of 12 weeks or less.
- Tracers were not recovered in sample packs placed in MW-3 and MW-4.
 As such, fluorescein was not detected at the MW-3 and MW-4 during the study.
- Given these results, the sampling plan was modified to sample inflow to R-143 as the site source monitoring location; MW-1 and MW-2 as characterization monitoring locations; MW-4 as the site reference monitoring location. The inflow to R-40 and MW-3 were removed from further sampling.

Appendix E contains laboratory reports for the tracer testing for this site.

CONCLUSION

The tracer tests resulted in verifying that one or more monitoring wells are in hydraulic connection with one or more recharge wells through the Upper Floridan aquifer. Sampling plans for subsequent characterization tasks were modified to focus on monitoring well(s) that are in connection with the recharge well(s), plus one well for each site not in hydraulic connection to monitor site reference conditions. The wells and their functional designations are presented in Table 10.

Table 10. Sampling locations and functional designations for baseline and operational characterization tasks

Site	Source Water Location	Characterization Locations	Reference Location
Lake Orienta	Lake Orienta	MW-2	MW-1
Festival Park	Inflow to R-143	MW-1 and MW-2	MW-4

QA/QC samples were collected for each characterization event for duplicate, matrix spike, and matrix spike duplicate, for all chemical analyses, and trip blank for volatile organic chemicals.

The tracers applied are commonly used in water resource investigations. Material Safety Data Sheets (MSDSs) for each of the tracer compounds in included in Appendix F.

BASELINE CHARACTERIZATION

Baseline task samplings were intended to sample the sites prior to recharging conditions to establish condition at that time. Samples were analyzed for microbiological and chemical parameters. As previously presented in the Analyte List section of this document, the water samples were analyzed for microbial constituents using procedures presented in the GWMP (Status Report 4, Appendix D of Appendix A). . The microbiological parameters were bacteria (total coliform, fecal coliform, *E. coli*, and enterococci), virus (coliphage), and parasites (*Giardia* spp. and *Cryptosporidium* spp.). Chemical analyte groups were field parameter measurements, general chemistry, nutrients, metals, radiologicals, total recoverable petroleum hydrocarbons (TRPH), volatile organic chemicals (VOCs), semi-volatile organic chemicals (SVOCs), organochlorine pesticides, polychlorinated biphenyls (PCBs), organophosphorous pesticides, and chlorinated herbicides.

LAKE ORIENTA

Baseline characterization was not performed at Lake Orienta as planned because the City of Altamonte Springs obtained an Emergency Order from FDEP to open the lower inlets to prepare for anticipated high rainfall before planned sampling occurred. The lower inlets to wells S-1514 and S-1515 were opened on June 17, 2005, and remained open through the Operational Characterization task of the investigation. In addition, because recharge through the wells occurs when lake levels are sufficiently high and the lower inlets remained open, rainfall events are not the direct events to trigger recharge. Therefore, rainfall data were not collected.

FESTIVAL PARK

Baseline sampling for Festival Park occurred on May 30, 2003, prior to the beginning of the tracer test. Appendix G presents the Data Quality Evaluation report for Festival Park. Field sampling logs and field notes, as applicable, are presented in Appendix H.

Microbiological Results

The results of the microbial analyses are presented in Table 11. The results are also presented in Appendix B.

Table 11. Results of microbial analyses

	Location SampleID ==> te Collected ==>	R-40 5/28/2003	R-143 5/28/2003	MW-1 5/29/2003	MW-2 5/29/2003	MW-3 5/29/2003	MW-4 5/28/2003	Indicator Guidelines for Ambient Surface Water Quality (Class III Waters) ¹
Organism	Units							
Total Coliform	cfu/100 mL	380,000	69,000	20	3.8	<0.2		1,000 cfu/100 mL - Single Sample 400 cfu/100 mL - Average 4 cfu/100 mL - Groundwater criteria
Total Colloini	Clu/100 IIIL	300,000	09,000	20	5.0	₹0.2		800 cfu/100 mL - Single Sample
Fecal Coliform	cfu/100 mL	270,000	58,000	20	1.6	<0.2		200 cfu/100 mL - Geometric Mean
E. coli	cfu/100 mL	72,000	15,000	5	0.4	<0.2	<0.2	126 cfu/100 mL - Geometric Mean
								35 cfu/100 mL - Fresh Water
Enterococcus	cfu/100 mL	6	30	0.2	0.2	<0.2	<0.2	104 cfu/100 mL - Geometric Mean
Cryptosporidium	no./100 L	<2	<5	<0.1	<0.1	<0.1	<0.1	
Giarida	no./100 L	<2	<5	<0.1	<0.1	<0.1	<0.1	
Coliphage								100 pfu/100 mL
Host C3000 Overlay	pfu/100 mL	30	+ (<5)	+ (<5)	+ (<5)	+ (<5)	+ (<5)	
Host Famp+ Overlay	pfu/100 mL	80	+ (<5)	+ (<5)	+ (<5)	+ (<5)	+ (<5)	
Host Famp+ Enrichment	pfu/100 mL	+/DNA	+/RNA	+/DNA	+/DNA	+/RNA	+/RNA	

Notes:

cfu - Colony forming units pfu - plaque forming units

¹ Indicator Guidelines for Ambient Surface Water Quality (used for Class III Waters)

Total Coliforms State of Florida guidelines for a single sample 1000 cfu/100mL, average of 400 cfu/100mL

EPA and the state of Florida recommended guidelines for a single sample of 800 cfu/100 mL, for a

Fecal Coliforms geometric mean, 200 cfu/100 mL

E.coli EPA recommended guideline for a geometric mean sample 126 cfu/100 mL

EPA recommended guidelines for a single sample of 104 cfu/100 mL, for a geometric mean , 33-35

Enterococci cfu/100 mL for marine and fresh water respectively.

Coliphage Level used - 100 pfu/100 mL based on previous research by Dr. Joan Rose, USF

A "+" indicates that the samples tested positive for the presence of coliphage. When the enrichment method provides a "+" with a "<5" pfu/100 mL

for the overlay methods results, then coliphage is interpreted to be present at concentrations less than that value.

A "-" indicates that the the presence of coliphage was not detected in the sample.

The interpretation of the microbiological results are straight-forward, with the exception of Host Famp+ Enrichment for coliphage. This analysis is a qualitative one; the two overlay methods provide quantitative results. Two designations are present for the results. The "+" indicates that the samples tested positive for the presence of coliphage. When the enrichment method provides a "+" with a "<5" pfu/100 mL for the overlay methods results, then coliphage is interpreted to be present at concentrations less than that value. The "DNA" designation indicates that more of the coliphage were of the DNA type rather than the RNA type, and conversely for the "RNA" designation. RNA phage are more highly correlated with human E. coli. As was presented in the Qualitative Groundwater Tracer Tests section, regarding the tracer test, MW-1 and MW-2 are hydraulically connected to R-143 through the Floridan aquifer. Comparing the results from these three locations shows that total coliform concentrations decrease three to four orders of magnitude from the influent water at R-143 to the groundwater at MW-1 and MW-2.

Chemical Results

With the exception of the detection of several VOCs from several locations at Festival Park and TRPH in the inflow to the recharge wells at the site, no other synthetic organic chemicals were positively detected from samples collected. The results are presented in Appendix B.

Inorganic Chemicals

Many of the inorganic chemicals were detected from the water samples taken during the baseline characterization, and are presented in Appendix B. While descriptions are not specifically presented here, selected chemicals are included in the geochemical and microbial analyses of the data presented later in this report. The following inorganic chemicals were positively detected at concentrations greater than drinking water standards (DWS) during the baseline characterization at Festival Park:

- Iron was detected from the inflow to R-40 and R-143 at 496 $\mu g/L$ and 448 $\mu g/L$, respectively. The DWS for iron is 300 $\mu g/L$.
- Arsenic was detected in MW-1 and MW-2 at 10.5 μ g/L and 19.4 μ g/L, respectively. The DWS for arsenic is 10 μ g/L. On January 1, 2005, the DWS for arsenic was changed from 50 μ g/L to 10 μ g/L.

Volatile Organic Chemicals

The following VOCs were positively detected during the baseline characterization at Festival Park:

- Cis-1,2-dichloroethylene at 2.3 μ g/L and 2.4 μ g/L from MW-2 and MW-3, respectively. The DWS is 70 μ g/L.
- 1,1-dichloroethane at 1.1 μ g/L and 1.2 μ g/L from MW-1 and MW-2, respectively. The groundwater cleanup target level (GCTL) is 700 μ g/L.
- 1,1-dichloroethene at 1.4 μ g/L. The DWS is 7 μ g/L.

Total Recoverable Petroleum Hydrocarbons

TRPH was positively detected from the inflow to R-40 and R-143 at 0.43 mg/L and 0.49 mg/L, respectively. The GCTL is 5 mg/L.

OPERATIONAL CHARACTERIZATION

The operational characterization task was to evaluate aquifer conditions for temporal changes of quality to recharging conditions. Eight operational characterization samplings were conducted at Lake Orienta while the lower inlets were open and the wells were receiving water throughout the period. Six operational characterization samplings were conducted at Festival Park under two conditions: four samplings during the fall of 2003, at the end of the rainy season, and two samplings in February 2004. Consistent with the modified sampling approach that resulted from the tracer test, the February samplings at Festival Park were in response to three relatively isolated rainfall events in the dry season that occurred during the last week of January 2004, see Figure 10. The water samples were analyzed for chemical constituents using the procedures consistent with the analyte group method numbers presented in the Analyte List section of this document. The water samples were analyzed for microbial constituents using procedures presented in the GWMP (Status Report 4, Appendix D of Appendix A).

LAKE ORIENTA

Eight operational characterization samples were collected from the Lake Orienta site from July through December 2005. The specific schedule of events follows.

Event 1 - July 12-13, 2005

Event 2 – July 20-21, 2005

Event 3 – July 27-28, 2005

Event 4 - August 8-9, 2005

Event 5 - September 7-8, 2005

Event 6 – October 5, 2005

Event 7 - October 31, 2005

Event 8 – December 5, 2005

The microbial and chemical results are fully presented in Appendix B. Field sampling logs and field notes, as applicable, are presented in Appendix H.

Microbial Results

The water samples were analyzed for several microorganisms within three classifications: bacteria, virus, and parasites:

• Bacteria – total coliform, fecal coliform, E. coli, and enterococci

- Virus coliphage
- Parasites *Giardia* spp. and *Cryptosporidium* spp.

Surface Water Sampling Results. Comparison of the surface water microbial concentrations to Florida Class III Surface Water criteria for parameters that criteria are established reveals the following:

- Total Coliform The maximum total coliform concentration [1400 colony forming units per 100 milliliters (cfu/100 mL)] exceeded the criterion (1000 cfu/100 mL) from one sample that was collected September 7, 2005. The average of the results was 378 cfu/100 mL, which is below the criterion of 400 cfu/100 mL.
- **Fecal Coliform** –The maximum fecal coliform concentration (833 cfu/100 mL) exceeded the criterion (800 cfu/100 mL) from one sample that was collected September 7, 2005. The geometric mean of the results was 122 cfu/100 mL, which is below the criterion of 200 cfu/100 mL.
- *E. coli* –The geometric mean of the results for *E. coli* was 43.3 cfu/100 mL, which is below the criterion of 126 cfu/100 mL.
- **Coliphage** No detections of coliphage were reported.
- **Giardia** No detections of *Giardia* spp. were reported.
- **Cryptosporidium** *Cryptosporidium* spp. was detected from the September 7 and October 6, 2005, samples of the lake water. One organism with internal features was detected from these two sampling events with equivalent concentrations of 7.9 and 13.2 pfu/100 mL, respectively. The organism is encapsulated in a coating; the coating may be present with or without viable organism inside. The designation of "internal features" means that viable organism was encountered.

Groundwater Sampling Results. Comparison of the groundwater microbial concentrations to Florida groundwater criteria for parameters for which criteria are established reveals:

- **Total Coliform** The maximum total coliform concentration exceeded the groundwater criterion (4 cfu/100 mL) from two samples: 7.7 cfu/100 mL collected on October 6, 2005 and 60 cfu/100 mL collected on December 5, 2005.
- **Fecal Coliform** –The maximum fecal coliform concentration (833 cfu/100 mL) exceeded the criterion (800 cfu/100 mL) from one sample that was collected September 7, 2005.

- *E. coli* No detections of *E. coli* in the groundwater samples were reported.
- **Coliphage** No detections of coliphage in the groundwater samples were reported.
- **Giardia** No detections of *Giardia spp*. in the groundwater samples were reported.
- **Cryptosporidium** No detections of *Cryptosporidium spp*. in the groundwater samples were reported.

There is qualification of the fecal coliform sample results from Event 1 that is associated with the receipt temperature of the samples at the laboratory. After discussion with the laboratory personnel, it was determined that amount of ice packed in the coolers was insufficient relative to the amount of water sample to chill and maintain sample temperature. During subsequent sampling events, more coolers were used to ship the samples increasing the relative amount of ice per sample to pack the coolers.

Resulting from this, reductions of bacteria concentrations from the lake to the monitoring wells are observed. The range of bacteria concentrations from samples collected at Lake Orienta is presented in Table 12.

		Lake Source		MW-2 Characterization		MW-1 Reference	
Organism	Units	Low	High	Low	High	Low	High
Total Coliform	cfu/100 mL	27	1,400	<0.09	60	<0.09	7.7
Fecal Coliform	cfu/100 mL	32	833	<0.09	0.09	<0.09	0.65
E. coli	cfu/100 mL	15	167	<0.09	0.09	<0.09	<3
Enterococcus	cfu/100 mL	2.7	36,000	0.19	0.83	<0.09	0.37

Table 12. Range of bacteria concentrations at Lake Orienta

Chemical Results

Synthetic Organic Chemicals – No analytes were positively detected for the parameter groups of volatile organic compounds, semi-volatile organic compounds, organochlorine pesticides, organophosphorous pesticides, PCBs, and chlorinated herbicides using EPA SW-846 methods. These nondetections will not be presented further.

Inorganic Chemicals – Many of the inorganic chemicals were detected from the water samples taken during the baseline characterization (Appendix B). While descriptions are not specifically presented here, selected chemicals are included in the geochemical and microbial analyses of the data presented

later in this report. The following inorganic chemicals were positively detected at concentrations greater than DWS during the baseline characterization at Lake Orienta:

- **Aluminum** No positive detection resulted from the analyses of the 16 groundwater samples. Five positive detections resulted from the analyses of the surface water samples. There is no surface water criterion for aluminum. One of five positive detections [277 micrograms per liter $(\mu g/L)$] exceeded the Secondary DWS for groundwater (200 $\mu g/L$).
- **Arsenic** –Ten of 12 positive detections from groundwater samples exceeded the DWS of 10 μ g/L for arsenic. The range of concentrations was 8.16 to 17.1 μ g/L. Twelve of 12 positive detections from the groundwater samples exceeded the RBC for arsenic of 0.045 μ g/L.

One positive detection for arsenic resulted from the eight surface water samples. The concentration was 7.03 μ g/L, which is below the Class III Surface Water criterion for fresh surface water, 50 μ g/L. The occurrence of arsenic from the one lake water sample may have resulted from leaching of the wood preservative used in dock construction.

- Iron Of the 16 normal groundwater samples collected from the Lake Orienta site, two resulted in positive detections for iron. Both of those concentrations were less than the DWS of 300 μ g/L.
- **Selenium** Of the 16 normal groundwater samples, two positive detections resulted for selenium. The range of concentrations was 23.8 to 27.3 μ g/L. The regulatory criterion of 50 μ g/L was not exceeded. The RBC of 18 μ g/L was exceeded.

The most pertinent result of this project is the presence of arsenic in the groundwater at concentrations that exceed the Drinking Water Standard (DWS) (10 μ g/L), when it was infrequently (1 of 8 samples) detected in the source water. A summary of the results of influent water and groundwater analyses for arsenic is presented in Table 13. One of eight samples of the surface water at Lake Orienta resulted in the positive detection of arsenic.

Purpose Source Characterization Reference Location Lake MW-2 MW-1 Parameter Units Low High Low High Low High µg/L 7.03 8.88 17.2 8.16 15.3 Arsenic nd

Table 13. Range of arsenic concentrations at Lake Orienta

Color –The DWS for color is 15 Color Units (CU). The range of color measurements for the lake samples from Lake Orienta was 40 to 60 CU. The range of color measurements was 10 to 25 CU from MW-1, with one of eight samples below the DWS. The range of color measurements was 15 to 25 CU from MW-2.

FESTIVAL PARK

Six operational characterization samplings were conducted from the Festival Park site during the period of October 2003, through February 2004, and split into four wet season samplings and 2 dry season samplings that were triggered by a rainfall event of approximately 1 in. or greater in 24 hours during the dry season. The relationship of the samplings to rainfall recorded at Orlando Executive Airport was previously presented in Figure 10.

• 4 wet season samplings

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Sampling Event 1 - October 1-3, 2003
Sampling Event 2 - October 8-10, 2003
Sampling Event 3 - October 22-24, 2003
Sampling Event 4 - November 18-20, 2003
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• 2 dry season samplings

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Sampling Event 5 - February 4-6, 2004
Sampling Event 6 - February 16-18, 2004
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The results of the sample analyses are summarized below. The results are fully presented relative to detections and DWS values in Appendix B. Field sampling logs and field notes, as applicable, are presented in Appendix H.

Microbial Results

The water samples were analyzed for several microorganisms within three classifications: bacteria, virus, and parasites:

- Bacteria total coliform, fecal coliform, *E. coli*, and enterococci
- Virus coliphage
- Parasites Giardia spp. and Cryptosporidium spp.

The microbial and chemical results for the operational characterization task are fully presented in Appendix B. Field sampling logs and field notes, as applicable, are presented in Appendix H.

Surface Water Sampling Results. A comparison of the surface water microbial concentrations to Florida Class III Surface Water criteria is presented in Table 14.

	Purpose	Source		Characterization				Reference	
	Well	R-	R-143		MW-1 MW-2		V-2	MW-4	
Organism	Units	Low	High	Low	High	Low	High	Low	High
Total Coliform	cfu/100 mL	990	1,000,000	<0.2	7.4	<0.2	474	<0.2	5.5
Fecal Coliform	cfu/100 mL	860	980,000	<0.2	5.9	<0.2	585	<0.2	5.3
E. coli	cfu/100 mL	180	2,400	<0.2	2.3	<0.2	1.52	<0.2	<0.2
Enterococcus	cfu/100 mL	69	3,400	<0.2	23	<0.2	3.16	<0.2	13

Chemical Results

Synthetic Organic Chemicals – Positive detections of synthetic organic chemicals occurred from two sampling locations from the six Operational Characterization samplings. These detections were in low concentrations and below DWS values. The chemicals, locations and potential sources relative to Festival Park are listed below. The complete list of sample analysis results for Festival Park is presented in Appendix B.

R-143 (stormwater)

- Total Recoverable Petroleum Hydrocarbons: = 0.82 mg/L, two of six events (oil, grease, fuel from automobile traffic; no DWS)
- Tetrachloroethene (PCE): 1.1 μ g/L, five of six events (dry cleaning fluid, industrial solvent; DWS=3 μ g/L)
- Trichloroethene (TCE): $< 0.32 J \, \mu g/L$, four of six events (industrial solvent and product of reductive dechlorination of PCE; DWS=3 $\mu g/L$)

- cis-1,2-Dichloroethene (cis-1,2-DCE): 2.9 μg/L, five of six events (product of reductive dechlorination of PCE and TCE; DWS=70μg/L)
- 1,1 DCE: 0.96J μ g/L, three of six events (component of flexible plastic food wrap and flame retardant fabrics, and in piping, coating for steel pipes, and adhesives; DWS=7 μ g/L)
- 1,2 Dichlorobenzene: 0.52J μg/L, one of six events (chemical intermediate for making agricultural chemicals, primarily herbicides; DWS=600 μg/L)
- Toluene: $< 0.7 J \, \mu g/L$, four of six events (component of gasoline; DWS=1,000 $\, \mu g/L$)

MW-2 (groundwater)

- cis-1,2-DCE: 4.5 μ g/L, six of six events (product of reductive dechlorination of PCE and TCE; DWS=70 μ g/L)
- 1,1-Dichloroethane (DCA): $2.5 \mu g/L$, six of six events (component of degreasing agents, and paint, varnish and finish removers; no DWS)

Inorganic Chemicals – Many of the inorganic chemicals were detected from the water samples taken during the baseline characterization, and are presented in Appendix B. While descriptions are not specifically presented here, selected chemicals are included in the geochemical and microbial analyses of the data presented later in this report. The following inorganic chemicals were positively detected at concentrations greater than DWS during the baseline characterization at Festival Park:

- Aluminum Aluminum in the Sampling Event 2 sample from MW-4 exceeded the secondary standard of 200 micrograms per liter (μ g/L). Iron, in every instance, and aluminum from one sample from the recharge water at R-143 exceeded their respective standards.
- Arsenic The most pertinent result of this project is the presence of arsenic in the groundwater at concentrations that exceed the revised DWS ($10~\mu g/L$), when it was not present in the source water. Summaries of the results of influent water and groundwater analyses for arsenic are presented in Table 15. None of the seven samples from the inflow to R-143 at Festival Park resulted in positive detection of arsenic. None of the seven samples from the site reference well (MW-4) at Festival Park resulted in positive detection of arsenic. Thirteen of 14 groundwater samples from the two characterization wells at Festival Park resulted in positive detections

of arsenic, with five of those detections resulting in concentrations that exceeded the DWS.

Table 15. Range of arsenic concentrations at Festival Park

Range of Arsenic Concentrations of Floridan Aquifer Water at Festival Park

	Purpose	Sou	ırce		Characterization				Reference	
	Well	R-143		M۱	MW-1 MW-2		MW-4			
Parameter	Units	Low	High	Low	High	Low	High	Low	High	
Arsenic	μg/L	nd	nd	6.0	9.39	nd	19.4	nd	nd	

nd - not detected

Color – The range of color measurements for the inflow to R-143 at Festival Park was 20 to 25 CU from the seven samples (one Baseline Characterization and seven Operational Characterization Task samples). R-40 was sampled once during the Baseline Characterization task with a result of 20 CU. The results of the color measurements from MW-1 were less than or equal to 15 CU for the seven samplings, with one sample result of 15 CU. The results of the color measurements from MW-2 were less than or equal to 15 CU for the seven samplings, with two sample results of 15 CU. The results of the color measurements from MW-4 were less than or equal to 15 CU for the seven samplings, with two sample results of 15 CU.

ANALYSIS AND DISCUSSION

One baseline characterization sample and six operational characterization samples were collected from the Festival Park site. The opportunity to collect a baseline characterization sample set at Lake Orienta was missed because the City of Altamonte Springs received an Emergency Order from FDEP to operate the lower inlets of the wells before the characterization sampling could occur. The City applied for and received the order to be prepared for stormwater management volume in anticipation of a more active than usual hurricane season. As a result, zero baseline characterization samples and eight operational characterization samples were collected from the Lake Orienta site.

The differing flow characteristics (more ephemeral at Festival Park versus more seasonal and steady at Lake Orienta) between the sites and the groundwater travel times for both sites will be considered when comparing the results of the characterization samplings.

MICROBIOLOGICAL RESULTS AND COMPARISON OF SITES

The microbiological parameters were bacteria (total coliform, fecal coliform, *E. coli*, and enterococci), virus (coliphage), and parasites (*Giardia* spp. and *Cryptosporidium* spp.). Coliphage (virus that attacks coliform bacteria) were not detected in the samples at either site and will not be presented further. *Giardia* were not detected in the samples from either site and will not be presented further. *Cryptosporidium* was detected in one lake sample from Lake Orienta at 1 (oo)cyst per 100 mL and will not be presented further.

The range of bacteria concentrations of the influent water at the two sites are presented in Table 16 and the range of bacteria concentrations in the groundwater from the characterization monitoring wells from the two sites are presented in Table 17.

Table 16. Range of bacteria concentrations of source water

			val Park to R-143	Lake Orienta		
Organism	Units	Low	High	Low	High	
Total Coliform	cfu/100 mL	990	1,000,000	27	1,400	
Fecal Coliform	cfu/100 mL	860	980,000	32	833	
E. coli	cfu/100 mL	180	2,400	15	167	
Enterococcus	cfu/100 mL	69 3,400		2.7	36,000	

Festival Park - 1 Baseline characterization and 6 Operational Characterization sample sets Lake Orienta - 0 Baseline characterization and 8 Operational Characterization sample sets

Table 17. Range of bacteria concentrations of Floridan aquifer water

	Location	Festival Park						Lake Orienta			
	Purpose	Characterization			Reference		Characterization		Reference		
	Well	MV	MW-1 MW-2 N		MV	V-4	/-4 MW-2		MW-1		
Organism	Units	Low	High	Low	High	Low	High	Low	High	Low	High
Total Coliform	cfu/100 mL	<0.2	7.4	<0.2	474	<0.2	5.5	<0.09	60	<0.09	7.7
Fecal Coliform	cfu/100 mL	<0.2	5.9	<0.2	585	<0.2	5.3	<0.09	0.09	<0.09	0.65
E. coli	cfu/100 mL	<0.2	2.3	<0.2	1.52	<0.2	<0.2	<0.09	0.09	<0.09	<3
Enterococcus	cfu/100 mL	<0.2	23	<0.2	3.16	<0.2	13	0.19	0.83	<0.09	0.37

Festival Park - 1 Baseline characterization and 6 Operational Characterization sample sets Lake Orienta - 1 Baseline characterization and 7 Operational Characterization sample sets

Summary of Comparison of Microbial Results

Inspection of the tables provides the following conclusions:

- Concentrations of bacteria measured from the influent to R-143 at Festival Park were significantly higher than measured from Lake Orienta water.
- At both sites, comparison of the values indicates that groundwater concentrations are at least two orders-of-magnitude lower and up to six orders-of-magnitude lower than the source waters.
- For Festival Park, the concentrations for the reference sampling location (MW-4) compare well with the lesser of the two characterization sampling locations (MW-1); and for Lake Orienta the concentrations for the reference sampling location (MW-1) compare well with the characterization sampling location (MW-2), but to a lesser degree. This indicates that the groundwater is impacted more broadly than the results

of the tracer test would indicate. This is expected considering the long period of recharge operation at the sites.

CHEMICAL RESULTS

Chemical analyte groups were field parameter measurements, general chemistry, nutrients, metals, radiologicals, TRPH, VOCs, SVOCs, organochlorine pesticides, PCBs, organophosphorous pesticides, and chlorinated herbicides. With the exception of the detection of several VOCs from several locations at Festival Park and of TRPH at one location at Festival Park, no other synthetic organic chemicals were positively detected from samples collected at either site. These nondetections will not be presented further.

Volatile Organic Chemicals

The following VOCs were positively detected during the different tasks of this project:

- Lake Sherwood recharge well during the dry-period characterization
 - Methyl ethyl ketone at 160 $\mu g/L$. The Groundwater Cleanup Target Level (GCTL) is 4200 $\mu g/L$.
- Festival Park during the baseline characterization
 - Cis-1,2-dichloroethylene at 2.3 $\mu g/L$ and 2.4 $\mu g/L$ from MW-2 and MW-3, respectively. The DWS is 70 $\mu g/L$.
 - 1,1-dichloroethane at 1.1 $\mu g/L$ and 1.2 $\mu g/L$ from MW-1 and MW-2, respectively. The GCTL is 700 $\mu g/L$
 - 1,1-dichloroethene at 1.4 μ g/L. The DWS is 7 μ g/L.
- Festival Park during the operational characterization
 - Cis-1,2-dichloroethylene at three detections between 1.1 and 2.9 μ g/L from inflow to R-143, and six detections between 3.5 and 4.5 μ g/L from MW-2. The DWS is 70 μ g/L.
 - 1,1-dichloroethane at six detections between 2.1 and 2.5 μ g/L from MW-2. The GCTL is 700 μ g/L.
 - Tetrachloroethylene at 1.1 μ g/L from inflow to R-143. The DWS is 3 μ g/L.

Total Recoverable Petroleum Hydrocarbons

TRPH was positively detected twice from the inflow to R-143 at 0.82 mg/L. The GCTL is 5 mg/L.

Arsenic

The most pertinent result of this project is the presence of arsenic in the groundwater at concentrations that exceed the Drinking Water Standard (10 μ g/L), when it was not present in the source water. Summaries of the results of influent water and groundwater analyses for arsenic are presented in Tables 18 and 19.

For the Festival Park site, none of the seven samples from the inflow to R-143 at Festival Park resulted in positive detection of arsenic. Thirteen of fourteen groundwater samples from the characterization wells resulted in positive detections of arsenic. None of the eight groundwater samples from site reference well (MW-4) resulted in positive detections of arsenic.

For the Lake Orienta site, one of eight samples of the surface water at Lake Orienta resulted in the positive detection of arsenic that was below the revised DWS. Five of the eight samples from the characterization well (MW-2) resulted in positive detections; four of those were greater than the revised DWS. Seven of the eight groundwater samples from site reference well (MW-1) resulted in positive detections of arsenic. The concentrations of six of these samples exceeded the revised DWS.

Table 18. Range of arsenic concentrations of influent water

			al Park to R-143	Lake Orienta		
Parameter	Units	Low	High	Low	High	
Arsenic	μg/L	nd	nd	nd	7.03	

nd - not detected

Location Festival Park Lake Orienta Purpose Characterization Reference Characterization Reference Well MW-1 MW-4 MW-2 MW-1 Units Parameter Low High Low High Low High Low High Low High Arsenic µg/L 6.0 9.39 nd 19.4 nd nd 8.88 17.2 8.16 15.3

Table 19. Range of arsenic concentrations of Floridan aquifer water

nd - not detected

Color

Color is an indication of the presence of naturally occurring organic acids in water and highly colored water is typical of surface waters in central Florida. The effect of color relative to water treatment is that it renders some disinfection processes less effective and the organic acids can be converted to deleterious chemicals when chlorine is the disinfectant. These are referred to as disinfection byproducts that have promulgated regulatory criteria.

Color was identified in the water of Lake Orienta, which was expected, and there was a high occurrence of color greater than the DWS in the monitoring wells.

Color was identified in the recharge water at Festival Park at concentrations generally greater than the DWS, but lower than the measurement results from Lake Orienta. Correspondingly, there was lower frequency and concentration of occurrence of color in the groundwater from the Festival Park monitoring wells, relative to the Lake Orienta results.

Summary of Comparison of Chemical Results

These observations indicate that the recharge of surface water to the Upper Floridan aquifer at these two sites results in the increase of arsenic concentrations in the groundwater. This has been a recent topic in aquifer storage and recovery systems where a similar phenomenon has been observed. Research is being conducted on the cause and effect relationship between recharge of treated, partially treated, and untreated water to the Upper Floridan aquifer at various locations in Florida.

GEOCHEMICAL EVALUATION OF CHARACTERIZATION RESULTS

Further evaluation of the chemical data for geochemical considerations was provided by Lisle (2006) and Mirecki (2006) (Appendices I and J). Summaries

of the results of the evaluations for each site are presented below. The reports presented in the referenced appendices provide a more thorough explanation of the methodologies, results, and conclusions.

Lake Orienta Evaluation

The Lake Orienta geochemical evaluation and the ensuing microbial evaluation were based on the following aquifer flowpath hypotheses:

- Lake Orienta through the recharge wells is hydraulically connected to MW-2, but not MW-1.
- MW-2 is not hydraulically connected to MW-1.
- MW-1 represents site reference conditions.

Lisle (2006) investigated the correlation of the chemical, nutrient, and physical results based on the combination of flowpath endpoints, and reported:

The lake data are significantly correlated with chloride, water color, dissolved phosphate and turbidity data from MW-1 and MW-2. These positive correlations suggest that perhaps the flow path between the Lake Orienta inlet and MW-2 is not as isolated, in regard to MW-1, as previously assumed. The relatively high number of correlated data sets (9 of 13 or 69.2%) between MW-1 and MW-2 supports this hypothesis. Additionally, those parameters that would be considered possible conservative tracers (i.e., chloride, color, turbidity) were all positively and significantly correlated between MW-1 and MW-2. As with MW-4 at the Festival Park site, if MW-1 at the Lake Orienta site is to be used as the "native control" further investigation into the hydrogeology of this site may be necessary.

The flowpath analysis was also evaluated by Mirecki (2006) for geochemical trends. Mirecki reports the following from analysis of the Lake Orienta data:

- Statistically significant increases in bicarbonate alkalinity and calcium concentrations in all down-gradient wells.
- Statistically significant increases in arsenic, total and ortho-phosphorus, and ammonia nitrogen concentrations.
- Increased (but only weakly significant) concentrations of magnesium in all downgradient wells.
- Lower sodium, chloride, and sulfate in MW-1 samples compared to MW-2

- Statistically significant decreased concentrations of aluminum, barium, manganese, sodium, total nitrogen and total Kjeldahl nitrogen in MW-1 and MW-2
- Statistically significant decreased concentrations of total and dissolved organic carbon (TOC, DOC) in MW-1 and MW-2
- More reducing redox environment, characterized by more negative ORP values and diminished dissolved oxygen concentration in MW-1 and MW-2.
- No statistically significant changes in cadmium, chromium, cobalt, copper, iron, lead, mercury, nickel, potassium, selenium, vanadium, and zinc concentrations along the flowpath.

Water-quality changes along the short Lake Orienta flowpath to MW-2 are affected primarily by limestone dissolution and microbial-redox reactions. These controls on water-quality are not clearly evident when lake samples are compared to MW-1 samples. Concentrations of sodium, chloride, and sulfate are lower in MW-1 compared to Lake Orienta and MW-2 samples. Because these constituents behave conservatively, it is not possible to simulate water-quality changes without invoking halite and gypsum precipitation along the flowpath between Lake Orienta and MW-1. For reasons discussed below, this is unlikely. Therefore, it appears that MW-1 samples do not reflect water-quality changes along a flowpath that extends from Lake Orienta. The dominant geochemical reactions that control water-quality changes along the Lake Orienta flowpath ending MW-2 are:

- Dissolution of calcium carbonate and possibly gypsum/ anhydrite
- Microbe-mediated oxidation of organic carbon with increasing alkalinity
- Increased ammonia (NH₄) from rain or microbe-mediated nitrogen fixation
- Minor pyrite oxidation, sometimes coupled with precipitation of iron oxyhydroxide

Figure 14 shows the median concentrations and the maxima of field parameters and inorganic constituents from surface-water inflow samples (lake), and groundwater samples from MW-1 and MW- at Lake Orienta.

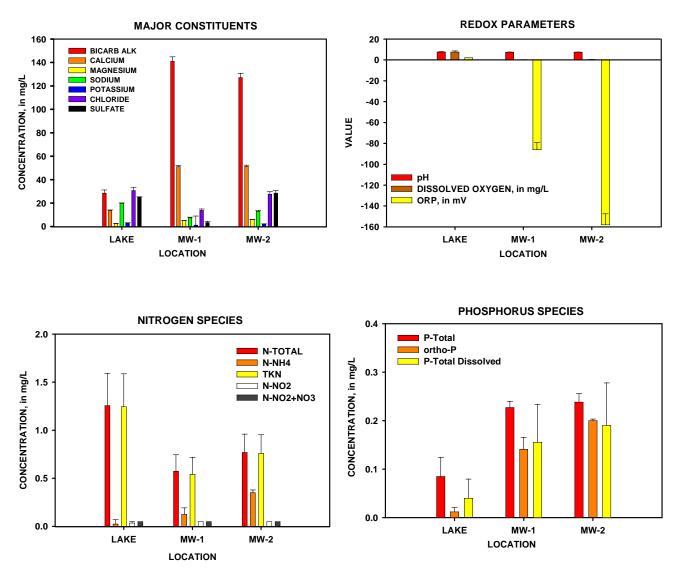
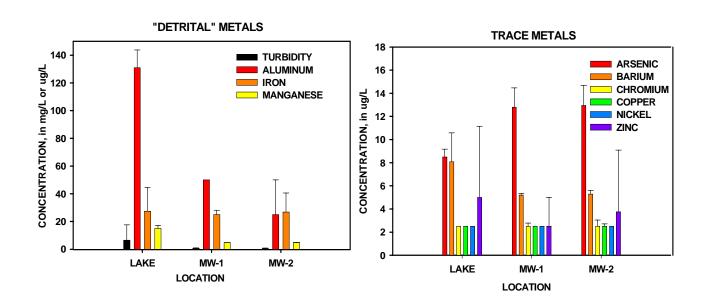


Figure 14. Median concentrations of field parameters and inorganic constituents Lake Orienta (Mirecki 2006)





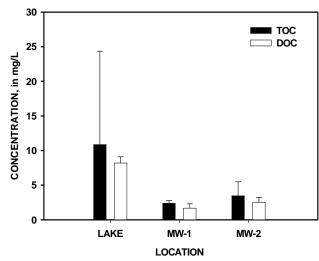


Figure 14 continued. Median concentrations of field parameters and inorganic constituents Lake Orienta (Mirecki 2006)

Festival Park Evaluation

The Festival Park geochemical evaluation and the ensuing microbial evaluation were based on the following aquifer flowpath hypotheses:

- R-143 is hydraulically connected to MW-1 and MW-2, but not MW-4.
- MW-1 and MW-2 are not hydraulically connected to MW-4

• MW-4 represents site reference conditions.

Lisle (2006) investigated the correlation of the chemical, nutrient, and physical results based on the combination of flowpath endpoints, and reported:

Evaluating the statistically significant correlation coefficients for the Festival Park chemical, nutrient and physical data, from the perspective of the hypotheses stated previously, increases in concentrations of organic phosphate, orthophosphate, sulfates, total nitrogen species and total organic carbon at the inlet also occur at MW-4. Also, the fluctuations in water color data, which could be used as a conservative tracer, from all of the monitoring wells at the Festival Park site are positively correlated. Additionally, the calcium, water color, total phosphate, total nitrogen, total organic carbon and turbidity data from MW-1 and MW-4 are positively correlated. Collectively, these data indicate that MW-4 may not be as isolated from R143, MW-1 and MW-2 as previously assumed. These associations may be positively influenced by the relatively greater flow rate between R143 and MW-1 as MW-1 and MW-4 have several parameters that are positively correlated. However, an additional hydraulic connection to the aquifer zone from which MW-4 extracts water cannot be ruled out. If MW-4 is to be used as a "native control" for this zone within the aquifer, further investigation into the hydrogeology of this site may be warranted.

Lisle (2006) reports that the water quality data from Festival Park cluster in discrete zones from factor analysis. This suggests that water quality trends and the relative relationships between the sampling points remain similar in the dataset. The data from Lake Orienta collect in clusters for each sampling location, but in trends and not in discrete zones like the Festival Park data. This suggests that water quality trends shift but the relative relationships between the sampling points remain similar in the data set.

Figure 15 shows the median concentrations of field parameters and inorganic constituents from surface-water inflow samples (R-143), and groundwater samples from MW-1, MW-2, and MW-4 at Festival Park. Mirecki (2006) reports the following from analysis of the Festival Park data:

Water-quality changes occur as surface water recharge (or inflow) flows downgradient toward MW-1, MW-2. The ground-water flowpath begins at the point of inflow, and extends to MW-1 and MW-2. Based on tracer test data, MW-4 does not sample this flowpath, and may represent site reference conditions in the Upper Floridan aquifer. As such, water-quality data from MW-4 appears not influenced by surface water, and is consistent with the results of the groundwater tracer test. Bar graphs comparing all dissolved constituents along the flowpath

are shown in Figure 10-1. Water-quality evolution along the flowpath is interpreted from bar graphs in Figure 10-1 and is summarized below.

- Statistically significant increases in calcium carbonate saturation, marked by increased bicarbonate alkalinity, calcium, and magnesium concentrations in all downgradient wells.
- Increased (but only weakly significant) concentrations of sodium, potassium, and sulfate in all downgradient wells.
- Increased (but only weakly significant) concentrations of arsenic and barium in downgradient wells MW-1 and MW-2. MW-4 does not show significant increases of these two constituents.
- Decreased (but only weakly significant) concentrations of iron, manganese, zinc, and dissolved organic carbon (DOC) in all downgradient wells.
- More reducing redox environment in the groundwater, characterized by more negative ORP values and diminished dissolved oxygen concentration in the wells. Water quality at MW-4 indicates the most extensive reducing environment.
- No statistically significant changes in nutrients (nitrogen and phosphorus species), aluminum, cadmium, cobalt, copper, lead, mercury, nickel, and vanadium concentrations along the flowpath.
- No statistically significant changes in total organic carbon (TOC) concentrations along the flowpath.

Water-quality changes along the Festival Park flowpath are affected by mixing of runoff constituents, microbial activity, and water-rock interactions. Inverse geochemical modeling methods can define and quantify the mass transfer values that result from dominant reactions along the flowpath.

The dominant reactions are listed below:

- CaCO₃ saturation after limited CaCO₃ dissolution and microbial oxidation of TOC/DOC
- Gypsum/anhydrite dissolution resulting in increased sulfate and decreased DOC in MW-1 and MW-2
- Microbial sulfate reduction resulting in low sulfate and negative ORP in MW-4

- Pyrite oxidation resulting in release of arsenic and possibly other trace elements
- Iron oxyhydroxide precipitation
- Mixing of barium-rich inflow with native aquifer waters along the flowpath

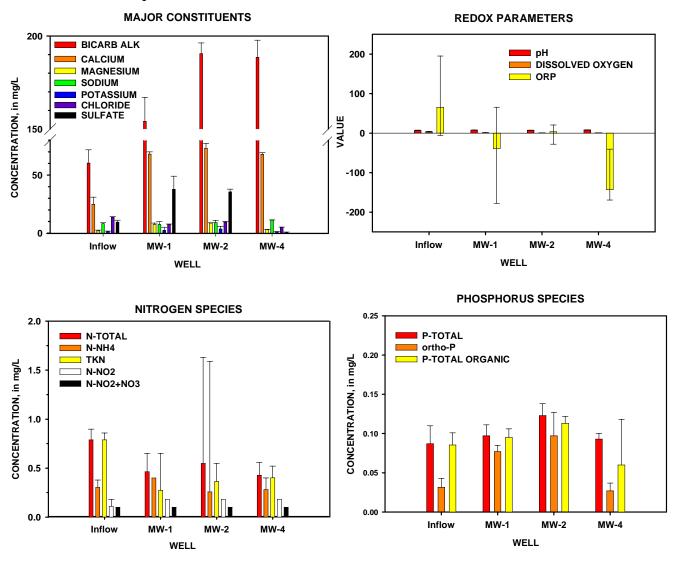


Figure 15. Median concentrations of field parameters and inorganic constituents Festival Park (Mirecki 2006)

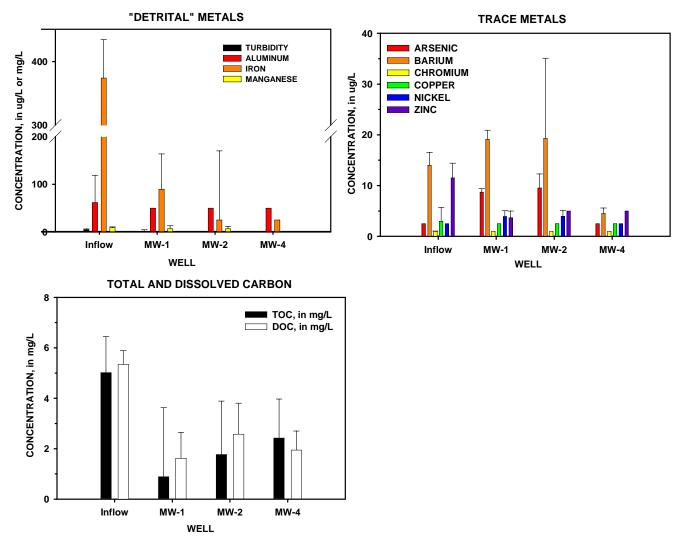


Figure 15 Continued. Median concentrations of field parameters and inorganic constituents Festival Park (Mirecki 2006)

MICROBIAL EVALUATION OF CHARACTERIZATION RESULTS

Lisle (2006) further evaluated the chemical, nutrient and physical data and the microbial data resulting from the characterization events to gain further insight into microbial data. Dissolved oxygen (DO) concentrations changed from near saturation levels at the inlets to approximately 2 mg/L at the monitoring wells. Geochemical reactions and microbial respiration were attributed to this observed change. Ratios of carbon to nitrogen to phosphorus (C:N:P) were also evaluated between the inlets and the monitoring wells. These were evaluated because they represent food sources. For both sites the C:N:P ratios at the monitoring wells indicated more than

sufficient amounts of these constituents to support microbial activity in the aquifer.

DISCUSSION OF MICROBIAL AND ARSENIC TREATMENT

This discussion focuses on the evaluation of the necessity and effectiveness of treatment for microbial reduction of surface water prior to recharge and mobilization of arsenic in aquifers associated with artificial recharge.

The original goals of the project were to:

- Evaluate the impact of recharge to the aquifer.
- Evaluate the effectiveness of passive treatment to manage the effect of recharge of surface water through wells to the microbial quality of the Floridan aquifer.
- If warranted, evaluate the effectiveness of implementing treatment to increase recharge of stormwater through wells. If the quantity of groundwater recharge through wells were to increase, that incremental "stream" of water would need to meet DWSs. Resulting from the samplings of this study, targeted constituents would be coliform bacteria and color.

As previously described, the in-place stormwater recharge well systems in central Florida predate promulgation of the current regulations and can be operated and maintained at the originally installed condition. Rehabilitation and maintenance activities are allowed by FDEP through the Underground Injection Control (UIC) Program to maintain the capacities without implementing treatment to improve water quality. Increases to capacity must meet the current regulations, which means that the portion of increased recharge water quality must meet DWSs and not cause a violation of groundwater quality as a result of the recharge activity.

Microbial Treatment

The results of CFARE1 show that the recharge wells have impacted groundwater quality at the two project sites. The following observations are made:

 Bacteria are present at the monitoring wells at concentrations that are greater than expected in the Upper Floridan aquifer in central Florida.

- Bacteria concentrations decrease two to six orders of magnitude between the source water and the monitoring wells, suggesting inactivation processes are occurring.
- Comparison of bacteria concentrations between source waters and groundwaters at the monitoring wells indicates that inactivation rates are less than rates suggested from other studies (Lisle 2006) and indicates that sustained bacterial communities are present at the sites.

The original concept of the project was to implement passive treatment of stormwater to improve the quality of recharge through existing wells or increase quantity of recharge through new wells. Primary characteristics of stormwater quality that make it unacceptable for recharge are the presence of total coliform bacteria and color above DWSs. Treatment of this water to meet DWSs is disinfection and color reduction. Color reduction would allow the disinfectant to be more effective and/or manage the potential for formation of DBPs at unacceptable concentrations. Passive stormwater treatment (settling basins, etc.) does not provide for disinfection of the water. Therefore, the original concept of passive surface water treatment is not implementable without regulatory relief because it would not reduce bacterial concentrations of the water to below the DWS prior to recharge.

In addition, the locations of the wells and the land uses near the wells were compared using geographic information systems (GIS) techniques to evaluate availability of land near the recharge wells. Because the recharge wells were installed in reaction to urbanization and development, they were typically installed to alleviate local flooding after development occurred. Densities of recharge wells are high where land use densities are high, see Figure 1 for insight to recharge well densities. As a result, little unused land remains near the recharge well systems to implement passive or active treatment.

Furthermore, results of the microbial evaluation indicate that the presence of bacteria in the monitoring wells is greater than predicted by inactivation rate equations. This implies that microbial communities are prospering in the Floridan aquifer near the recharge wells likely from continual input of food sources, nutrients and oxygen from the recharged water. To implement treatment to disinfect the recharge water would imply that the goal would be to return the subsurface microbial condition to its original condition. Considering the number of wells, the amount of recharge that has and is occurring, the duration of the recharge (leading to a presumed combined presence of microbial communities in the aquifer), and lack of available land, implementing disinfection seems to be an ineffective activity to undertake.

Arsenic Mobilization

Arsenic mobilization in groundwater related to artificial recharge applications emerged as a regulatory issue during this project and became significant when the DWS for arsenic was reduced from 50 µg/L to 10 µg/L in January 2005, for Florida. Because of the change in the DWS for arsenic, multiple detections of arsenic above the revised DWS, but below the former DWS, resulted from sampling the monitoring wells. This is of interest because, although present in lower concentrations, arsenic was not detected above the revised DWS in the source waters. In addition, through monitoring of other artificial recharge activities by others in Florida and other locations in the United States, detections of arsenic in the recovered water were above the revised DWS, and in some instances above the former DWS, when arsenic was not detected in the recharged water. These other artificial recharge applications were aquifer storage and recovery (ASR) systems using potable or reclaimed water for recharge. The observations of increased arsenic concentrations indicate that arsenic is being mobilized from the aquifer matrix as a result of recharge activities.

The results of CFARE1 show that the recharge wells have impacted groundwater quality at the two project sites. The following observations are made:

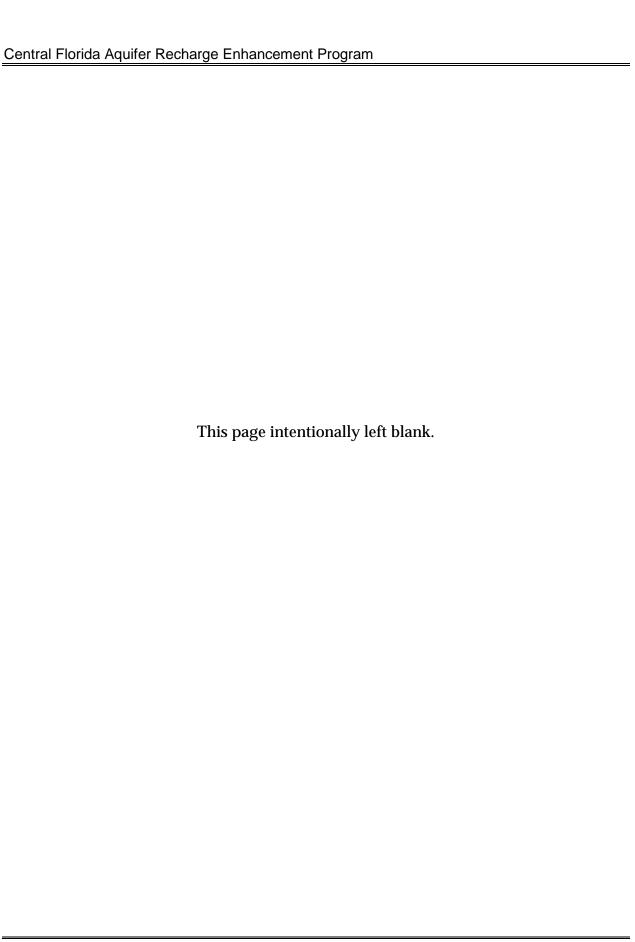
- Changes to the distributions of ions and other physical parameters of waters are observed between source waters and groundwaters at the monitoring wells.
- The delivery of oxygenated water to the Floridan aquifer with the resulting observation of arsenic in selected monitoring wells is consistent with arsenic mobilization observed in other investigations.
- Arsenic was detected in the influent water, which contributes to the levels of this constituent in the monitoring wells.

During the past several years, there has been increased investigation to identify the source of arsenic and the reason(s) arsenic is found in and around recharge well systems. The generally accepted current conclusion from these studies is that arsenic is associated with pyrite and that artificial recharge changes aquifer conditions, mobilizing arsenic from pyrite to the groundwater.

Pyrite is a commonly occurring mineral that is contained within the limestone matrix of the rocks that comprise the Upper Floridan aquifer. The native

aquifer condition is of very low to no levels of dissolved oxygen, referred to as a reduced condition. At this condition the rock/water condition is stable relative to the solubility of pyrite. Recharge of oxygenated surface or treated water locally converts the groundwater to an oxidized condition and the rock/water condition becomes unstable. The oxygenated water in contact with the aquifer matrix dissolves the pyrite that is exposed to the water and when the pyrite dissolves the arsenic is mobilized into the groundwater. A condensed but more thorough explanation is provided by Price and Pichler (2004) (Appendix K). Although the setting for the Price and Pichler study was the Suwannee Limestone in southwest Florida, the mineralogy and water condition is presumed sufficiently similar to explain the occurrence of arsenic in the monitoring wells at the two project sites.

Further geochemical, mineralogical, and treatment research is underway by others to identify mechanisms and/or treatment processes to apply in order to manage the rock/water condition to effectively manage mobilization of arsenic from artificial recharge activities through wells.



CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS FROM SITE CHARACTERIZATIONS

Work performed in association with CFARE1 at the Festival Park and Lake Orienta sites demonstrates the effects of recharge on the Upper Floridan aquifer from the operations of five of approximately 500 stormwater recharge wells in central Florida. This project was conducted to evaluate conditions at these two sites; it was not a study to evaluate the collective impact of the entire stormwater recharge well system of central Florida. Given that these two sites are representative of the settings and the periods of operation for many of the other recharge wells, the results are considered indicative of conditions at those sites.

This study included:

- Installation and use of monitoring wells to evaluate impacts to the Upper Floridan aquifer at locations removed from the recharge wells
- Use of a broad analyte list to evaluate chemical and microbial fate and transport
- Use of groundwater tracer tests to verify hydraulic connections between one or more recharge wells and one or more monitoring wells within the Upper Floridan aquifer
- Consideration of ongoing, unpublished recharge-related research to assist in evaluating the results

The results of the investigations at these two sites indicate that additional work and coordination is needed to better understand and manage the effects of recharge. The two recharge well systems have been active for greater than 40 to 60 years. Results represent effects of long-term operations. The following were found from this work:

- Two- to six- order-of-magnitude reduction of bacteria concentrations in groundwater was observed, but the amount of inactivation is less than predicted.
- Arsenic is present at the monitoring wells at concentrations greater than at the source locations. It is concluded that arsenic mobilization from the aquifer matrix is occurring.

- Synthetic organics were largely undetected at the Festival Park site, with detections less than DWSs.
- Synthetic organics were undetected at the Lake Orienta site.
- Observations were different than pre-project prevailing thought.
 - The pre-project thought was that microbes in the Upper Floridan aquifer were the dominant contaminants resulting from the recharge. Results of the sampling indicated 2 to 6 order-of-magnitude reduction of coliform concentrations when comparing the recharge water samples and samples from monitoring wells in hydraulic connection with the recharge wells. However, the measured concentrations are generally greater than concentrations calculated using simple microbial inactivation rate models. This suggests that microbial colonies are proliferating in the aquifer as a result of continued recharge.
 - Significant synthetic organics were expected, but none were detected above DWSs.
 - Arsenic was not originally expected to be an issue, but is now a significant consideration as a result of the change in the DWS for arsenic from $50 \,\mu g/L$ to $10 \,\mu g/L$ during the study.

RECOMMENDATIONS

Do not proceed with evaluating treatment enhancements at the recharge wells used for the study. The original objective of this project was to evaluate the need for and benefit of implementing enhanced treatment to better manage bacterial inflow to the Floridan aquifer through recharge wells. The presence of sustaining microbial colonies of non-indigenous coliform bacteria should be considered representative of many of the other recharge well locations in central Florida. Based on the results that communities of the indicator organisms (coliform bacteria) are proliferating in the groundwater matrix at the study sites, treatment enhancements may not work to reduce bacteria levels at all recharge well locations. However, implementing enhanced treatment at selected locations could be feasible where microbial contamination from recharge well operations is an issue, or where stormwater management capacity needs to be increased. But, implementing enhanced treatment on a broad scale at the locations of the approximately 500 recharge wells would be technically and economically demanding.

- Support public health agencies in Orange and Seminole counties in addressing potential impacts to private and public groundwater supplies. This recommendation is offered because many potential private and some public supply utility water supply wells exist near the recharge wells at the Lake Orienta site. The private/domestic, non-utility wells would be considered a greater risk to public health because of the unregulated nature of these water supplies. There are likely more locations in Orange and Seminole counties with similar conditions.
- Support additional microbiological survivability research.
- Participate in continued mineralogy and geochemical research to identify operations changes or implement treatment processes that would control the mobilization of arsenic at artificial recharge well sites. The results of this study are consistent with other artificial recharge projects (specifically aquifer storage and recovery) where mobilization of arsenic and other constituents appears to be occurring. Arsenic concentrations at the Festival Park and Lake Orienta sites were observed to be up to approximately twice the recently promulgated standard; arsenic concentrations at some of the other sites are significantly higher. Review of other projects indicates that dissolution of pyrite through exposure of oxygen-laden groundwater from recharge is a principal cause.
- Properly plug and abandon the monitoring wells at the two sites when they are no longer needed.

Recommended Follow-on Activities

Public Health., The central Florida residents are largely served with potable water from public water supply systems or domestic self-supply wells whose source is groundwater. The water supply wells are typically located at sufficient distances from recharge wells, or they obtain water from deeper portions of the Floridan aquifer beyond the influence of the recharge wells. However, as in the case of the Lake Orienta site, domestic self-supply or public supply system wells could be sufficiently close to the recharge wells to have their quality potentially impacted. Water supply wells close to recharge wells and obtaining water from the same zone as the recharge wells should be identified and further investigated to verify that the water quality is not negatively impacted. Appropriate measures (supplemental treatment, connection to an unimpacted public water supply system, supplied bottled water, etc.) should be implemented if water supply wells are negatively impacted to a sufficient degree to impact public health. Emphasis should be placed on self-served domestic water supplies, because these sources are not required to be monitored for water quality. It is unlikely that the owners of

domestic water supply wells would be aware of adverse impacts to water quality, whereas public water supply systems are required to monitor source waters and deliver water of a regulated quality.

Continued Research. Continued research is progressing to evaluate the need for better ways to manage microbial and geochemical impacts to the Floridan aquifer associated with artificial recharge applications. The options for the next steps for microbial and geochemical research associated with the central Florida recharge wells fall into several categories focused on the need to implement disinfection and the need to better control the mobilization of arsenic. However, overall, the results of this project demonstrated microbial and geochemical impacts to the Upper Floridan aquifer at the two project sites. During the project many meetings and conversations were conducted with scientists, engineers, and regulators to coordinate activities and conclusions on similar projects. Much of this work is emerging technology as the microbial and/or arsenic conditions are encountered at artificial recharge sites. Resulting from these meetings and conversations were multiple options to further investigate and manage these conditions for sustainable solutions.

Microbial Research. This project focused on several indicator microbial parameters that are enteric in nature and regulatory based. Microbial research is emerging to increase the understanding of the fate and transport of microbes in groundwater systems. The following activities could further our understanding of microbial fate and transport in groundwater systems.

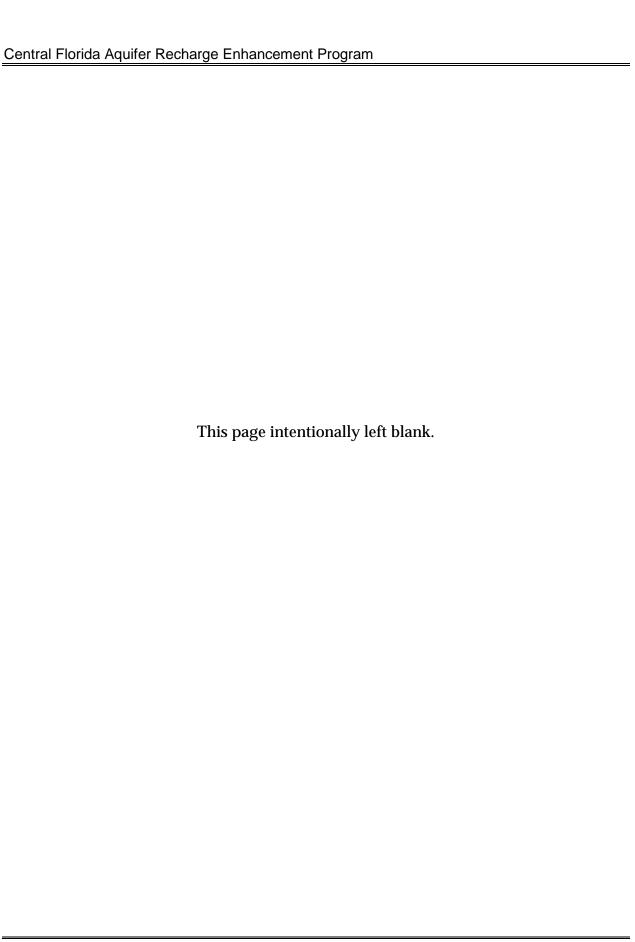
- Investigate employing diffusion chamber techniques to quantify in-situ survivability of selected microbes.
- Coordinate with FDEP to develop and implement survivability investigations.

Arsenic/Geochemical Research. Significant research has recently been conducted and continues to be conducted to identify the source and mechanism(s) by which arsenic is mobilized in the Floridan aquifer. Continued support of the research with emphasis on how to effectively treat or amend the source water to sequester the mobilization and/or transport of arsenic should continue.

Techniques to Map Flow Paths. The results of this project indicate that water movement in the Floridan aquifer cannot always be predicted using granular porous media flow concepts. It is important that researchers verify hydraulic connections between source and monitoring locations. Tracer tests can be used to verify the connection(s); however, they provide insight only at the

monitoring points. Other techniques like surface geophysics and subsurface techniques like cross-hole tomography can be use to better define discrete flow paths. Candidate connections identified during this study are the ones between R-143 and MW-1 and R-143 and MW-2 at Festival Park.

Regulatory Remedies. FDEP has presented a position paper to USEPA regarding an approach to manage arsenic mobilization identified specifically for ASR sites. The proposed approach principally consists of groundwater monitoring and land use management controls. If management for arsenic mobilization is needed or becomes needed in association with recharge wells in central Florida, a similar approach may be employed to separate groundwater influenced by the recharge wells from potable water supplies.



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PHASE 1 – ARTIFICIAL RECHARGE WELL DEMONSTRATION PROJECT



FILE ID: GNV31013363823.DOC/063380004

PROJECT MANAGER: AL AIKENS/ORL

PROJECT NUMBER: 177652.LO.MP.MP

EDITOR: LETICIA SOLAUN/GNV

DATE: OCTOBER 2006

St. Johns River Water Management District Palatka, Florida

> 2006 October

Appendix A Project Status Reports

CFARE Status Report No. 1

From: Aikens, Al/ORL

Sent: Thursday, July 12, 2001 4:21 PM

To: Anil Desai (E-mail); Chris Ferraro (E-mail); Chris Sweazy (E-mail); Doug Munch (E-mail);

Duane Watroba (É-mail); Elizabeth Thomas (E-mail); George Heuler (E-mail); Jerry Salsano (E-mail); Larry Pearson (E-mail); Leslee Williams (E-mail); Rich Deuerling (E-mail); Richard

Drew (E-mail)

Cc: Barbara Vegara (E-mail); Jim Hunt (Business Fax); Joan B. Rose (E-mail); John Peters (E-

mail); Kristin Rombeck (E-mail); Mark McNeal; Rick Howard (E-mail); Rodney Lynn (E-mail)

Subject: July 2001 - Central Florida Artificial Recharge Well Status Report

Attachments: GWMP Comments from A. Desai.doc

This is the first in a series of monthly status reports for the Central Florida Artificial Recharge Well Demonstration Project as agreed to with FDEP at the June 18 meeting to review the Groundwater Monitoring Plan. The reports will be distributed through e-mail.

GWMP Review

Comments on the GWMP were received from Anil Desai/FDEP-Orlando regarding the overall program and from Leslee Williams/FDEP-Tallahassee regarding the microbiological testing plan. Anil's comments have been incorporated into the plan, and the comments were copied into the attached Word document and responses are provided following the specific comment. Leslee's comments were received and forwarded to Joan Rose. Joan responded and Leslee requested further clarification. Joan is out of the country until July 19. Upon her return, she and Leslee will get together and reach a resolution. In my discussions with Leslee, further clarification and discussion were requested to better define the scope of the microbiological work (generally a statement of intent, what's included, what's not included, and clearer explanations of sampling and analyses procedures). This should be resolved quickly. When the GWMP is reissued it will be provided in revision mode to clearly show the changes.

Dry-period sampling preparation

The pumps, air compressor, and controller for the four recharge wells have been received.

A laboratory is under contract to provide sampling kits and to perform chemical analyses as described in the GWMP.

USF is under contract to perform the microbiological sampling and testing for the task.

CH2M HILL have contracted with a local consulting firm (a disadvantaged business enterprise) to install the pumps and collect the groundwater samples. The subconsultant visited the sites and evaluated site conditions to install the pumps. An amount of "field engineering" is needed to securely install the protective pipes and pumps in the wells and to allow ready access to the pumps for sampling. This may require slight modification of grates or other fixtures. These details are being sketched, after which we will coordinate with the local partner for approval then installation.



GWMP Comments from A. Desai.do...

Please provide me with your input so that this report will better meet your needs. I will be out of the office for most of the next two weeks on business and vacation. I'll respond as quickly as I can when I return.

Regards Al Aikens CH2M HILL/Orlando, FL

Dear Al:

This is a follow up message regarding the requested e-mail addresses for the DEP folks who would like to be copied on all progress reports for the aforementioned project.

Chris.Ferraro@dep.state.fl.us Anil.Desai@dep.state.fl.us Duane.Watroba@dep.state.fl.us Richard.Deuerling@dep.state.fl.us Richard.Drew@dep.state.fl.us George.Heuler@dep.state.fl.us

Leslee.Williams@dep.state.fl.usAlthough we have already discussed at the meeting today, I would like to give our official comments as under;

1) We would like to have on our file a private drinking water well inventory in a one-mile radius from the three drain well sites proposed for the pilot study. From your proposed activities, I don't expect any additional adverse impact on the private wells but it will be prudent to keep this information ready, in the event that it becomes necessary to sample any of the private wells in the vicinity of the proposed drain well sites.

Response: A new task, Task 2 - Private Drinking Water Well Survey, was added to the plan.

Surveys for private drinking water wells will be conducted for each of the three sites. Records of building departments and health departments of the city or county applicable to the well sites, SJRWMD, and SFWMD will be accessed to find wells identified as private drinking water wells. The search radius will be one mile from each well.

2) Regarding measuring the rain fall, I would recommend that we assign at least one designated gauge station for rain fall monitoring in the vicinity of each site rather then averaging the data from multiple monitoring stations.

Response: Discussion was added in Appendix G - Precipitation Characteristics for a Triggering Storm Event as follows:

The locations and availability of rain gauge data near the project sites will be reviewed with the intent to select gauges where rainfall conditions are reasonably similar to that of the project sites. As rainfall is a triggering event, the gauges need to monitored and readily available on a daily basis. A list of gauge locations with monitoring frequency will be prepared and submitted to FDEP for discussion and agreement.

3) Under the analyte list depicted on Appendix A in the nutrients category, nitrate was listed twice. Nitrite shall be added along with Nitrate. I would also include total nitrogen along with total phosphorus.

Response: Corrections and additions were made as requested.

4) Duane and myself would like to do the field reconnaissance with you to decide the placement of upgradient, sidegradient and downgradient monitoring wells one you have had the opportunity to come up with tentative locations based on all published

hydrogeologic information available. Once we proceed with the study and gather more information on the ground water flow direction and hydraulic gradient, we shall be in a position to refine the well placement, if found to be necessary. I would certainly keep a strong emphasis in selecting the location of upgradient well outside the influence of drain well injection area (if feasible), so that we would have a good background water quality data in the upper Floridan Aquifer for comparison purposes.

Response: As always FDEP participation in project implementation is welcome. The renumbered Task 4 – Baseline Site Characterization was revised to include the following statements:

The project team, including FDEP staff, will coordinate on locating monitoring wells for the three sites. This will include field visits to evaluate site options and constraints, as necessary.5) Regarding the progress reports to be submitted quarterly as proposed, we would like to see a monthly update through e-mail correspondence. If any meetings are required to discuss the progress or to obtain any DEP approvals, Duane and I shall be available at short notice.

Response: Agreed. This transmittal is the first of the progress reports.

6) Under references, you mentioned about the EPA Document "Functional Guidelines for evaluating Data (Inorganic and Organic), Atlanta, February 1994. I would like to have a copy of this document if possible. If not, you can provide me the resource or contact at EPA.

Response: This document has been split into two documents: one for inorganics and the other for organics. The reference list was updated to reflect the change. The revised references and URLs are

U.S. Environmental Protection Agency. USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data. EPA-540/R-94-013 (PB94-963502). Atlanta, GA. February 1994. http://www.epa.gov/superfund/programs/clp/download/fginorg.pdf

U.S. Environmental Protection Agency. USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review. EPA-540/R-99-008 (PB99-963506). Atlanta, GA. October 1999. http://www.epa.gov/superfund/programs/clp/download/fgorg.pdf

You have done a wonderful job of putting together the above proposal and developing an appropriate conceptual study plan for the above project. Although the results of this pilot study can either be positive or negative but nobody had tried to conduct this type of study before and we can only be hopeful to get either success with the study or put this issue at rest for ever.

Please forward this message to all interested parties and partners, as deemed feasible.

Thanks and good luck with your efforts,

Anil Desai, P.G.

Program Manager - Ground Water/UIC

Tel: 407-893-3305

Fax: 407-897-2966

 $\hbox{E-mail: Anil.Desai@dep.state.fl.us}\\$

CFARE Status Report No. 2

This report no longer exists.

CFARE Status Report No. 3

From: Aikens, Al/ORL

Sent: Friday, December 28, 2001 1:29 PM

To: 'Anil Desai (E-mail)'; 'Chris Ferraro (E-mail)'; 'Chris Sweazy (E-mail)'; 'Duane Watroba (E-

mail)'; 'Elizabeth Thomas (E-mail)'; 'George Heuler (E-mail)'; 'Jerry Salsano (E-mail)'; 'Larry Pearson (E-mail)'; 'Leslee Williams (E-mail)'; 'Rich Deuerling (E-mail)'; 'Richard Drew (E-mail)' (Barbara Vegara (E-mail)'; 'David John (E-mail)'; 'David W. Hamstra (E-mail)'; 'Doug Munch

(E-mail)'; 'Jim Hunt (E-mail)'; 'Joan B. Rose (E-mail)'; 'John Peters (E-mail)'; 'Kristin Rombeck

(E-mail)'; McNeal, Mark/TPA; 'Rick Howard (E-mail)'; 'Rodney Lynn (E-mail)'; Wycoff,

Ron/GNV

Subject: Central Florida Artificial Recharge Well Status Report No. 3

Attachments: Dry Period Detections.xls



Cc:

Dry Period Detections.xls

Three topics are covered in this status update regarding the Central Florida Artificial Recharge Project:

- * Provisional results of sampling of the lake level control recharge wells
- * Likely change in urban runoff recharge well site
- * Groundwater Monitoring Plan (GWMP) status
- * Follow-on activities

Provisional results of sampling of the lake level control recharge wells

In August 2001 the recharge wells at Lake Orienta and Lake Sherwood were sampled for the chemical and biological parameters as were provided in the GWMP. The wells were sampled using dedicated bladder pumps with the pump bodies and pump intakes positioned near the bottoms of the wells. The three wells were not operational at the times of samplings because the water level in the lakes were below the intake levels for the wells. Judging from the lake levels, these wells have did not receive recharge for significant periods of time prior to sampling. The well at the intersection of Marks Street and Shine Avenue was not sampled for reasons as described below under the heading "Likely change in urban runoff recharge well site."

The groundwater samples were analyzed for the following organisms: total coliforms, fecal coliforms, E.coli, enterococci, C. perfringens, coliphage, giardia and cryptosporidium. The microbiological data were evaluated and compared to indicator guidelines for ambient surface water quality (Class III waters). Class III surface water is a designation for surface water used for recreational purposes. Lake Orienta and Lake Sherwood are Class III surface waters.

The groundwater samples were analyzed for the following chemical analyte groups: general chemicals, common anions and cations, nutrients, Target Analyte List metals, volatile organic chemicals, semivolatile organic chemicals, herbicides, pesticides, PCBs, and radionuclides. The chemical data were validated using US EPA guidelines for evaluating chemical data and compared to regulatory criteria and screening values. The results of the microbiological analyses and detections resulting from the chemical analyses are provided as separate tabs in the attached Excel file: Dry Period Detections.xls.

<<Dry Period Detections.xls>>

The provisional results of the microbiological analyses are provided in Table 1 found in the Microbiological Data and Criteria tab from the Excel file. The organisms found and

their concentrations fall within the guidelines for Class III surface waters. The total coliform concentrations of the three samples exceed the primary drinking water standard for Class G-II groundwater of 4 colonies per 100 mL.

The provisional detections from the chemical analyses are provided in Table 2 found in the Chemical Data and Criteria tab from the Excel file. Detections were encountered in the following analyte groups: general chemicals, common anions and cations, nutrients, Target Analyte List metals, volatile organic chemicals, and radionuclides. These detections were compared to primary and secondary drinking water standard MCLs, Brownfields criteria, and risk-based screening criteria (RBCs) as described in the GWMP. A detailed comparison of the detections and criteria and screening values are provided in Table 2. A summary of comparisons follows:

- * $\,$ No chemicals detected exceeded the primary drinking water standard MCLs. Turbidity exceeded 1 NTU in waters from the Lake Orienta West and Lake Sherwood wells.
- * Secondary drinking water standard MCLs were exceeded for color, aluminum, iron, and manganese from selected wells.
- * Screening values for chemicals designated as non-carcinogens were exceeded for fluoride and iron from selected wells.
- * Screening values for chemicals designated as carcinogens were exceeded for arsenic and beryllium from selected wells.
- * Two VOCs were encountered: methyl ethyl keytone (MEK) and methylene chloride. The concentrations of MEK fell below the RBC screening value: no MCL is established for MEK. The concentrations of methylene chloride were approximately one-tenth of the MCL and the RBC.

Likely change in urban runoff recharge well site

The well at the intersection of Marks Street and Shine Avenue was not sampled as planned because the well experienced back-flowing conditions following a rain storm within one week prior to sampling the well. Water flowed out of the well from what is believed to be the release of entrained air that entered the aquifer with the storm water. The force of the back-flowing water was sufficient to remove the manhole cover and extract the pump and pump assembly from the well. Based on this observation it was decided to look for a different site. The manhole cover has been welded to the manhole.

Discussions ensued with the City of Orlando and their consultant on their drainage well inventory project. Several candidate wells were provided by the consultant and subsequently visited. Based on the available information a recommendation for the wells at Festival Park was made. The Festival Park site receives direct urban runoff and provides ample open space for the installation of monitoring wells and the lack of need to close streets to install and sample wells. Representatives from FDEP, Jerry Salsano and Al Aikens are scheduling to visit the site likely during the second week of January to select monitoring well locations.

Groundwater Monitoring Plan status

Several iterations of dialog regarding the were received and are being worked into the revised GWMP. With concurrence on the Festival Park site and monitoring well locations, the GWMP will be updated and redistributed.

The goal is to complete the plan by the end of January 2002.

Lake Sherwood continues to be dry with the bottom of the lake approximately 30 feet below the intake level for the well. I will be contacting Orange County for the possibility continuing with the project or relocating to another recharge well site.

Follow-on Activities for January through June 2002

- * Install and sample monitoring wells at the Festival Park Site.
- * Reevaluate the viability of Lake Sherwood site.

* Plan to install monitoring wells at the Lake Orienta site.

Al Aikens CH2M HILL/Orlando, FL

Table 1.

Summary of Results of Microbiological Sampling and Testing from the Dry-Period Sampling Event SJRWMD Alternative Water Supply Program Central Florida Artificial Recharge Project

		Lake Orienta	Lake Orienta	Lake	Indicator Guidelines for Ambient
	Location	East	West	Sherwood	Surface Water Quality
	SampleID ==>	LO-E-R-DP	LO-W-R-DP	LS-R	(Class III Waters) 1
	Date Collected ==>	8/23/2001	8/23/2001	8/13/2001	
Organism	Units				
					1,000 cfu/100 mL - Single Sample
Total Coliform	cfu/100 mL	250	210		400 cfu/100 mL - Average
					800 cfu/100 mL - Single Sample
Fecal Coliform	cfu/100 mL	<1	36	7	200 cfu/100 mL - Geometric Mean
E. coli	cfu/100 mL	2	1	<1	126 cfu/100 mL - Geometric Mean
					35 cfu/100 mL - Fresh Water
Enterococci	cfu/100 mL	<1	4	9	104 cfu/100 mL - Geometric Mean
C. perfringens	cfu/100 mL	<1	<1	<1	50 cfu/100 mL
Cryptosporidium	no./100 L	<2	<34	<30.5	
Giarida	no./100 L	<2	<34	<30.5	
Somatic Coliphage	pfu/100 mL	<5	<5	<5	100 pfu/100 mL
1 Liter enrichment	pfu/100 mL	not done	not done	negative	
F+ coliphage	pfu/100 mL	<5	<5	<5	100 pfu/100 mL
1 Liter enrichment	pfu/100 mL	not done	not done	negative	

Notes:

cfu - Colony forming units pfu - plaque forming units

¹ Indicator Guidelines for Ambient Surface Water Quality (used for Class III Waters)

Total Coliforms State of Florida guidelines for a single sample 1000 cfu/100ml, average of 400 cfu/100ml

EPA and the state of Florida recommended guidelines for a single sample of 800 cfu/100 mL, for a geometric mean, 200

Fecal Coliforms cfu/100 mL

E.coli EPA recommended guideline for a geometric mean sample 126 cfu/100 mL

EPA recommended guidelines for a single sample of 104 cfu/100 mL, for a geometric mean, 33-35 cfu/100 mL for marine and

Enterococci fresh water respectively.

C. perfringens for fresh and brackish water and 5 cfu/100 mL for marine waters.

Coliphage Level used - 100 pfu/100 mL based on previous research by Dr. Joan Rose, USF

Printed: 10/31/2006, 1:1/4 PM

Table 2.

Summary of Detections and Comparisons to Criteria and Screening Values from the Dry-Period Sampling Event SJRWMD Alternative Water Supply Program Central Florida Artificial Recharge Project

Matrix ==> Sample Type ==> N	
Date Collected ==> \$2(32/2001 \$167/2001 \$167/2001 \$15/20	EPA RBC 4,5
Time Collected cases	
Matrix ==>	
Parameter Group and Name	-
Parameter Group and Name	=0.1)
Radionuclides	Units
Alpha, gross	
Color Color Color Units 10 240 270 2 150 2 36 3 3 1 NTU 500 mg/L 50	
Total Dissolved Solids (residue, filterable) mg/L 240 = 270 = 150 = 150 = 500 mg/L	
Turbidity	
Color	
Total Organic Carbon mg/L 1.2	
Dissolved Organic Carbon mg/L 1.2 1.4 2.5 = none	
Methylene Blue Active Substances mg/L 0.095 J 0.095 J 0.5 mg/L 0.5 mg/L 0.5 mg/L Mutrients Nutrients Nutrie	
Nitrogen, ammonia (as N) mg/L 0.13 = 0.46 = 1.2 = 10 mg/L 10 mg/L 10 mg/L 580 mg/	
Nitrogen, ammonia (as N)	
Nitrogen, Kjeldahl, Total	
Phosphorus, Total (as p) mg/L 0.036 = 0.42 = 0.045 = 0.009 J none	mg/L
Phosphorus, Total Orthophosphate (as P) mg/L 0.09 0.045 0.009 J none	
Anions Chloride (as Cl)	
Chloride (as Cl)	
Fluoride mg/L mg/L 14 = 55 = 16 = 250 mg/L 250 mg/L 250 mg/L 250 mg/L 250 mg/L 2.2 mg/L 0.22 mg/L 0.23 mg/L 0.22 mg/L 0.24 mg/L 0.250 mg/L	
Sulfate (as SO4)	
Alkalinity, bicarbonate (as CaCO3) mg/L 140 = 130 = 110 = none	mg/L
Metals	
Aluminum	
Arsenic	
Barium	
Beryllium	
Cadmium $\mu g/L$ 0.233 J 1.46 = 5 $\mu g/L$ 5 $\mu g/L$ 5 $\mu g/L$ 1.8 Calcium $\mu g/L$ 60000 = 65900 = 36600 = none	
Calcium	
	µg/L
Chromium, total μ g/L 3.17 3 100 μ g/L 100 μ g/L	
Cobalt µg/L 0.142 J 0.37 J 0.434 J 220	a/l
	μg/L
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	µg/L
Lead μg/L 9.24 = 0.972 3 13 μg/L 13 μg/L 15 μ	
	μg/L
	μg/L
Potassium	µg/L
	μg/L
Sodium µg/L 6630 10900 14900 J 160000 µg/L 100 µg/L	<u>⊬9′</u>
	μg/L
Zinc	
Volatile Organic Compounds	~ 3' -
	μg/L
	μg/L

Notes

Bolded values represent positive detections above promulgated regulatory criteria.

Boxed values represent positive detections above Risk-Based Criteria.

Bolded and boxed values represent positive detections above promulgated regulatory criteria and Risk-Based Criteria.

Sources:

¹ Florida Ground Water Guidance Concentrations, 17-520.400 FAC, June 2, 1994: Primary Drinking Water Standards (17-550.310 FAC), Secondary Drinking Water Standards (17-550.320 FAC).

² Brownfield's Cleanup Criteria Rule, Groundwater Cleanup Target Levels, Draft Chapter 62-785 F.A.C., 1997.

³ Drinking Water Regulations and Health Advisories, Office of Water, USEPA, October 1996.

⁴ EPA Region III Risk-Based Concentration Table, Tap Water Values, R.L. Smith, October 1997.

⁵ EPA Region IV Supplemental Guidance to RAGS: Region 4 Bulletins, Human Health Risk Assessment, November 1995; HQ=0.1 applied to noncarcinogens.

Explanation of Qualifers

"=" Represents a detection at the value shown

"J" Represents an estimated value that is above the method detection limit and below the practical quantitation limit.

Blanks for the chemical data represent nondetection

Blanks for the criteria and screening values represent no established value.

CFARE Status Report No. 4

From: Aikens, Al/ORL

Sent: Monday, January 27, 2003 5:57 PM

To: 'Anil Desai (E-mail)'; 'Chris Ferraro (E-mail)'; 'Chris Sweazy (E-mail)'; 'Duane Watroba (E-

mail)'; 'Elizabeth Thomas (E-mail)'; 'George Heuler (E-mail)'; 'Jerry Salsano (E-mail)'; 'Larry Pearson (E-mail)'; 'Leslee Williams (E-mail)'; 'Rich Deuerling (E-mail)'; 'Richard Drew (E-

mail)'; Bart Bibler (Bart Bibler@doh.state.fl.us); Peter J. Kwiatkowski, P.G.

(pkwiat@sfwmd.gov); Don Ellison (Ellison, Don/SWFWMD)

Cc: 'Barbara Vegara (E-mail)'; 'David John (E-mail)'; 'Doug Munch (E-mail)'; 'Jim Hunt (E-mail)';

McNeal, Mark/TPA; 'Rick Howard (E-mail)'; 'Rodney Lynn (E-mail)'; Wycoff, Ron/GNV;

'rosejo@msu.edu'; Peters, Chris/DFB; Chris Sweazy (Sweazy, Chris/SFWMD);

rarenken@usgs.gov; Rick Howard (Howard, Rick/Orlando)

Subject: Central Florida Artificial Recharge Well Status Report No. 4

Follow Up Flag: Follow up

Due By: Monday, January 27, 2003 9:00 PM

Flag Status: Flagged

Folks,

This e-mail transmits the Groundwater Monitoring Plan files. The other transmits the tracer test plan. The files for this project have become sufficiently large to e-mail. I have posted the files on the CH2M HILL ftp site under two folders: "GWMP" for the Ground Water Monitoring Plan, and "TracerTest" contains the files for the tracer test (Attachment G to the GWMP). The ftp site can be reached through this link: ftp://ftp.ch2m.com/pub/SJRWMD Recharge Well/.

It has been quite some time since the last update on the status of this project. We have spent from December 2001 until now obtaining access to the sites to construct monitoring wells and to sample the wells. An agreement between the SJRWMD and the City of Orlando to access Festival Park is in place. An agreement between the SJRWMD and the Greater Orlando Aviation Authority is close to being in place for MW-4. We now plan to begin well installation in mid-February 2003.

One task has been added to the project: to perform a qualitative groundwater tracer test prove or disprove hydraulic connection between the recharge wells and the monitoring wells. The tracer test is positioned between the Baseline Sampling task and the Operational Testing Plan. An updated groundwater monitoring plan and the tracer testing plan can be found at the above referenced ftp site.

Please let me know if you were unable to access the site and obtain the files.

Al Aikens CH2M HILL/Orlando, FL

Groundwater Monitoring Plan Central Florida Artificial Recharge Demonstration Program Artificial Recharge Well Demonstration Project

Background

As part of the St. Johns River Water Management District's (SJRWMD) District Water Supply Plan (DWSP, 2000) the ability of the groundwater resources of the Floridan aquifer to accommodate projected future water demands was evaluated. It was concluded that the groundwater resources of the Floridan aquifer would fall about 200 million gallons a day short of the projected need in the Central Florida area, which includes all or parts of Lake, Orange, Osceola, and Seminole Counties.

This project is a cooperative effort between the SJRWMD, the South Florida Water Management District, City of Altamonte Springs, City of Orlando, and Orange County.

A multifaceted approach is being investigated to meet the projected deficit. As a part of this approach, the SJRWMD is sponsoring an Alternatives Water Supply Investigation Program to identify beneficial ways to augment the groundwater resource. Augmentation can take the form of alternate sources, such as brackish water or surface water, or investigating the feasibility of expanding and improving artificial recharge through basins or wells.

The Orlando area is a basin almost absent of streams; stormwater that falls on Orlando that is not evaporated or infiltrated into the soils, travels by overland flow to one of many lakes. As Orlando became urbanized, land was covered with impervious surfaces reducing the area available for infiltration and decreasing the time for overland flow to collect and travel to lakes. This resulted in chronic local flooding. Recharge wells were installed to alleviate the flooding. The U.S. Geological Survey (USGS), State, and Local governments have generated an inventory of over 400 artificial recharge wells in the Central Florida area that were installed for various purposes, stormwater management being the most prevalent purpose. A significant portion of stormwater in the Orlando area is managed through recharge wells, which were installed beginning in approximately 1904 and through the 1960's. Approximately 39 to 52 million gallons per day (mgd) of water are estimated to recharge to the Floridan aquifer through these wells, CH2M HILL, 1998.

Purpose and Overview of the Project

The intent of this project is to

- Characterize the chemical and microbiological quality of the source storm water. Identify the constituents that may be degrading groundwater quality, if any;
- Characterize any changes in groundwater quality due to time and distance of travel from the recharge wells.
- After characterization, develop and implement a plan to improve the quality of the recharged water through treatment to reduce concentrations of those constituents, if necessary, and to monitor any subsequent improvement in groundwater quality.

The overall goal of the program is to expand the recharge well system in the Orlando area, recharging more water into the aquifer, to assist in offsetting the projected groundwater supply deficit in a manner that is not detrimental to human health or the environment. The planned recharge well demonstration program is intended provide data needed to support future regulatory actions, whether through wellhead pretreatment, natural treatment in the aquifer, or some combination of these options that is appropriate for the Orlando area.

This is one of three projects being conducted in Florida to characterize the fate of microbiological and chemical water quality constituents of waters artificially recharging the Floridan aquifer in various settings and ambient water qualities. Participating agencies are the Florida Department of Environmental Protection, South Florida Water Management District, and Southwest Florida Water Management District. This program is developed to be consistent with the other studies to provide comparable results.

Demonstration Sites

A previous study was conducted to identify existing or potential new sites where artificial recharge demonstration projects could address to appropriate use of artificial recharge wells the Orlando metropolitan area (CH2M HILL, 1998). Three sites were selected during that study that represented locations where local governments were experiencing problems in managing stormwater runoff. Three sites to be investigated are the lake level control at Lake Sherwood, the lake level control at Lake Orienta, and an urban runoff capture facility near the intersection of Marks Street and Shine Avenue near downtown Orlando, Figure 1. Well completion details, as known, are presented in Table 1.

Presented with the maps of the three demonstration sites are four sets of potentiometric surface contours for the Upper Floridan aquifer: May 1995, September 1995, September 1998, and May 2000. The May contours represent the annual "dry period" sampling, while the September contours represent the annual "wet period" sampling. The reasons for selecting the these four episodes are

- May 1995 recent dry period high
- September 1995 recent wet period high
- September 1998 recent wet period low
- May 2000 recent dry period high

The purpose of the showing the contours is to demonstrate the consistency or inconsistency of the magnitude and direction of the inferred groundwater flow direction between various sampling episodes.

Lake Orienta, Altamonte Springs – The properties around Lake Orienta are prone to chronic flooding when the runoff from rainfall and direct rainfall exceeds the capacity of the two recharge wells on the southern shore of the lake. The desire is to improve the recharge capacity to assist in alleviating the storm water management capacity of the recharge wells.

Lake Orienta is located in south central Altamonte Springs, Florida, Figure 1. The drainage basin for the lake consists of 135-acre lake with a 916-acre tributary watershed for a total

basin area of 1,015 acres (CH2M HILL, 1998). The area around and near the lake is completely developed by residential and commercial land uses in a suburban setting. A map showing the recharge wells, the proposed monitoring wells, the four sets of potentiometric surface contours is presented in Figure 2. The City's Water Treatment Plant (WTP) No. 2 is located southeast of the lake. In personal communications with City staff, two Upper Floridan aquifer supply wells (Well No. 3 and Well No. 4) were abandoned in 1995 because of chronic bacteriological exceedences. WTP No. 2 is currently provided water by three Lower Floridan aquifer wells.

Lake Sherwood, west Orange County – The properties around Lake Sherwood are prone to encroachment of the lake during periods of high rainfall. The desire of the project is to lower the elevation of the intake for the recharge well approximately 2 feet to assist in reducing the encroachment of the shoreline on the properties.

Lake Sherwood is located in western Orange County along State Road 50, see Figure 1. The Lake Sherwood watershed encompasses approximately 5,400 acres in a semi-suburban setting, and becoming more developed. A map showing the location of the recharge well, the proposed monitoring wells and the four sets of potentiometric surface contours is presented in Figure 3. The area around and near the lake is completely developed by residential and commercial land uses in a suburban setting. The watershed is comprised of five primary lake systems that are connected through a series of culverts and natural drainage channels. The primary lake systems are Lake Lotta, Lake Olivia, Lake Rose, Lake Sherwood, and Steer Lake (PEC, 1999). Lake Sherwood is the lowest elevation lake in the watershed. A more complete description and hydrologic evaluation of the Lake Sherwood watershed is presented in *Engineering Report*, *Lake Sherwood Drainage Basin Study*, PEC, 1999.

Orange County Utility (OCU) records were reviewed for water customers near the lake. The search revealed that the parcels on the west and north shore of the lake, north of S.R. 50 do not have connections to OCU's water distribution system, which are identified in Figure 3. Therefore, the residences are assumed to be self-supplied for water service. During the study, the construction of the private wells will be investigated for correlation to the construction of the recharge well.

Intersection of Marks Avenue and Shine Street – This site is located in a residential and commercial area approximately $1\frac{1}{2}$ miles east-northeast of downtown Orlando. The storm water collection system for the recharge well at the intersection of Marks Avenue and Shine Street (Marks and Shine) is of insufficient capacity to properly manage the volume of storm water. The desire of the project is increase the capacity of the collection system.

One of the recommended sites, Mills Avenue Street Drainage Treatment Project site originally described (CH2M HILL, 1998) was replaced by a similar project near the intersection of Marks Avenue and Shine Street, which is in a similar setting and approximately 3,000 feet south of the Mills Avenue site. The well at Marks and Shine is typical of numerous wells installed in the area to manage storm water runoff to alleviate local flooding while Orlando was urbanized. The drainage area for the Marks and Shine well is approximately 27 acres of residential and commercial property in an urban setting. This well was installed in April 1926. A map showing the location of the recharge well, the proposed monitoring wells and the four sets of potentiometric surface contours is presented in Figure 4.

The recharge well at Marks and Shine receives direct runoff from the storm water collection system without an interceding surface water body. As a result, when it the rainfall exceed a certain intensities and durations, runoff occurs that is collected by the system and is routed to the recharge well. Once the monitoring wells are installed and sampled, the current condition performance sampling can occur after a triggering rainfall event occurs.

TABLE 1General Completion Characteristics of the Recharge Wells

Well	Diameter (Inches)	Cased Depth (Feet)	Total Depth (Feet)	
Lake Orienta (west) 12 421 Barclay Ave.		261	317	
Lake Orienta (east) 505 Barclay Ave.	10	Unknown	Unknown	
Lake Sherwood	24	140	375 ^a	
Marks and Shine	12	119	219	

^a Original reported total depth was 450 feet (PEC, 1999)

Project Approach

The overall approach of the project is four-fold.

- 1. The first point of emphasis will be dry period monitoring of the four recharge wells for characterization of the chemical and microbiological quality the recharge water within the Upper Floridan aquifer at the three demonstration sites.
- 2. The investigation will then be expanded to include monitoring wells at the three demonstration test sites. Monitoring wells will be installed for additional water quality sampling throughout the project as well as for characterizing localized directions of flow within the upper Floridan aquifer.
- 3. Thirdly, the project will characterize the chemical and microbiological quality of recharge water derived directly from street runoff and indirectly from lake level control overflow. Once introduced to the upper Floridan aquifer water samples will be collected from monitoring wells to evaluate the fate of the chemical and microbiological constituents with respect to distance and time in order to assess the degree of impact that the recharge water has on the in-situ aquifer water.
- 4. Using these data select and implement above ground treatment processes to enhance the quality of the recharge water and then reassess the fate of chemical and microbiological constituents within the aquifer resulting from this treatment. The pre- and post-treatment data will then be compared, and compared to regulatory criteria to identify the benefit and value that treatment provided.

The project is divided into six major tasks which includes a Literature Review, dry period characterization, baseline site characterization, operational (wet or recharging) site characterization, enhanced treatment site characterization, and reporting and

documentation. Each of the "characterization" Phases involves a significant amount of fieldwork, water quality sample collection, monitoring well construction and hydrogeologic interpretation.

Task 1 - Literature Survey

Background information relating to well construction, hydrogeology and water quality at this site, and in this area, will be gathered as part of a literature search, and will be presented in the form of a Technical Memorandum, supporting presentation and interpretation of data collected subsequently in this sampling program. The literature search will include prior investigations by the U.S. Geological Survey regarding drainage wells and groundwater quality in the Central Florida area. It will also include applicable published investigations and other experience relating to the fate of microorganisms and other constituents in storm water runoff during recharge into aquifers such as the Upper Floridan aquifer.

Task 2 – Private Drinking Water Well Survey

Surveys for private drinking water wells will be conducted for each of the three sites. Records of building departments and health departments of the city or county applicable to the well sites, SJRWMD, and SFWMD will be accessed to find wells identified as private drinking water wells. The search radius will be one mile from each well.

TASK 3 – Dry Period Characterization

Central Florida has experienced drought conditions for several years and significantly reduced quantities of stormwater has recharged the aquifer through the wells during this time. Currently the stage of Lake Orienta is approximately 5 to 7 feet below the intake elevation for the recharge wells and Lake Sherwood is nearly dry.

The purpose of this task is to collect reference water quality data for the three demonstration sites that has resulted from the drought conditions. The following subtasks will be performed at the sites:

- Collect water quality samples from the recharge wells and analyze the water for a broad suite of analytes (see Appendix A- Analyte List) to assess the current condition of aquifer water quality. The samples will be collected in accordance to the Sampling Equipment and Procedures (Appendix B) and Quality Assurance/Quality Control and Data Validation Plan attached (Appendix C).
- Collect water from the recharge wells to evaluate indicator microbes and to conduct laboratory beaker studies on microorganism survivability (see Appendix D for the approach).
- Validate the chemical data.

- Compare the validated chemical data from both wells to regulatory criteria and the recharge water quality data to the site reference data to identify baseline water quality (Appendix E).
- Evaluate the microbial sampling and survivability testing to literature results.

TASK 4 – Baseline Site Characterization

The purpose of this task is to collect baseline water quality data at all three demonstration sites. The installation of monitoring wells will occur in order to map local hydraulic gradients within the Floridan aquifer, and to assist in tracking the fate and transport of recharge water to be accomplished in a following task of this project. The project team, including FDEP staff, will coordinate on locating monitoring wells for the three sites. This will include field visits to evaluate site options and constraints, as necessary.

In this task, background water quality samples which are representative of in-situ upper Floridan aquifer formation water will be collected to have laboratory studies on the survivability of microorganisms performed.

The following subtasks will be performed at the sites:

- Track area rainfall from the agreed upon rain gauges.
- Install one reference monitoring well, upgradient of the recharge well. The well will be surveyed for horizontal and vertical control to allow determination of the hydraulic gradient of the potentiometric surface of the Floridan aquifer.
- Collect reference and baseline water quality data using the protocols previously described. This will provide reference data and baseline water quality data early on in the well installation process in case significant recharge events occur.
 - Collect water quality sample from the newly constructed monitoring wells and the recharge wells then analyze the water for a broad suite of analytes to assess the current condition of aquifer water quality. All samples will be collected in accordance to the Quality Assurance/Quality Control and Data Validation Plan attached (Appendix C) and Sampling Equipment and Procedures (Appendix D). A description of proposed monitoring well construction is attached in Appendix F.
 - Validate the chemical data.
 - Compare the validated chemical data from both wells to regulatory criteria and the recharge water quality data to the site reference data to identify baseline water quality (Appendix E).
- Collect and map water level elevation data from nearby recharge wells and the reference monitoring wells to better evaluate groundwater flow direction. The purpose of this step is to better identify the aquifer gradient near the recharge wells and to collect water quality data to better assess reference conditions at the sites.
- Using the aquifer gradient data, install at least one cross-gradient and two to three more down gradient monitoring wells at appropriate locations of spacing and direction and

physical site constraints. This can be done concurrently with the sampling of the reference monitoring well and the recharge well. The wells will be surveyed for horizontal and vertical control to allow determination of the hydraulic gradient of the potentiometric surface of the Floridan aquifer.

- Review the results of the laboratory microorganism survivability testing. Identify
 microorganisms to sample in subsequent tasks, which address water quality monitoring
 during or as a result of recharge events.
- Verify or modify the chemical and microbiological analyte list to monitor recharge events.
- Evaluate the water level and water quality data to validate locations and number of monitoring well or the need for additional wells.
- Install and sample the remaining monitoring wells and evaluate the data as previously described.
- Manage the data and provide status reports on the results.

Task 5 – Operational Site Characterization

The purpose of this task is to monitor and track aquifer water quality resulting from a recharge event.

• Track area rainfall from the Orlando International Airport or other appropriate gauging stations.

After an appropriate storm and recharge event (Appendix G) begin sampling to track groundwater quality changes.

- Sample the recharge well and the monitoring wells and analyze the groundwater for constituents of the analyte list. The sampling frequency will be 1, 5, 10, 30, 60, 120, and optionally 180 days after a triggering recharge event.
- Collect and map water level elevation data for each sampling event.
- Validate the chemical water quality data.
- Compare the validated data to regulatory criteria and site reference data.
- Manage and track the data.
- Verify or modify the chemical and microbiological analyte list for the 60-day, 120-day, and the optional 180-day sampling events based on the results of the previous samplings.
- Manage the data and provide status reports on the results.

Task 6 – Enhanced Treatment Site Characterization

The objectives of Phase 3 are to evaluate, design, and implement storm water treatment then evaluate the degree that the treatment improves groundwater quality. The treatment

evaluation and design will occur concurrently with Phases 1 and 2 after the reference, baseline, and recharge water quality are characterized. The steps are

- Track area rainfall from the Orlando International Airport and other appropriate gauging stations.
- Evaluate the site reference, baseline, and recharge water quality from Phases 1 and 2.
- Determine water quality goals for the treatment process.
- Design and construct treatment system.
- After an appropriate storm and recharge event begin sampling to track groundwater quality changes.
- Sample the recharge well and the monitoring wells and analyze the groundwater for constituents of the analyte list. The sampling frequency will be 1, 5, 10, 30, 60, 120, and optionally 180 days after a triggering recharge event.
- Collect and map water level elevation data for each sampling event.
- Validate the chemical water quality data.
- Compare the validated data to regulatory criteria and site reference data.
- Manage and track the data.
- Verify or modify the chemical and microbiological analyte list for the 60-day, 120-day, and the optional 180-day sampling events based on the results of the previous samplings.
- Manage the data and provide status and final reports on the results.

The final data evaluation for the program is to compare the pre- and post-treatment data from the three sites to identify the effectiveness and value that treatment had on aquifer water quality.

Task 7 – Reporting and Documentation

Status progress reports will be prepared and submitted to FDEP monthly through e-mail. The chemical and microbial data will be included in the reports. Data reports will be distributed approximately 8 weeks after the sampling events occur.

The data and final reports will contain cumulative data for the project showing minimum values, maximum values, and arithmetic mean values of the data.

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Appendix A

Analyte List

The intent of the sampling plan that includes the analyte list, quality assurance/quality control (QA/QC) program, and data validation is to provide data that is collected using industry standard procedures and data that will withstand scrutiny for public review. The broad suite analyte list for site screening is presented below. The purposes of collecting data from a broad list of constituents is to more fully characterize the geochemical conditions of the sites, to more fully characterize the status of contaminants that may be present at the sites, and to provide information to evaluate and select treatment processes for the sites.

- Field parameters using calibrated meters temperature, pH, specific conductance, ReDox potential, and dissolved oxygen.
- Common ions calcium, potassium, magnesium, sodium, carbonate/bicarbonate, chloride, sulfate and total dissolved solids.
- Nutrients nitrate, nitrite, ammonia, TKN, total nitrogen, orthophosphate, and total phosphorus.
- Other parameters turbidity, color, BOD5.
- Metals using SW-846 6000 and 7000 series methods 23 metals.
- Volatile Organic Compounds using SW-846 8260.
- Semi-volatile Organic Compounds using SW-846 8270.
- Organochlorine Pesticides and PCBs using SW-846 8081 and 8082.
- Chlorinated Herbicides using SW-846 8151.
- Total Petroleum Hydrocarbons using the Flo-Pro method
- Gross Alpha and Gross Beta.
- The microorganisms or populations, which consist of bacteria, viruses, and protozoa, are *Cryptosporidium*, *Giardia*, total and fecal Coliforms, Enterococci, and Coliphage. The sampling and analyses for the microorganisms are provided in Appendix D.

Appendix B

Sampling Equipment and Procedures

The recharge wells and the monitoring wells will be sampled using dedicated bladder pumps. For the recharge wells the pumps will be inserted into a 2-inch diameter PVC pipe to protect the pump and the pipe will be reduced to ¾-inch PVC pipe below the pump. The bottom open-end of the reduced-diameter drop pipe will extend to the desired sampling depth of the recharge well. The purpose of the drop pipe is to protect the pump during recharge events, to isolate the sampling level, and to reduce the volume of purge water and sampling time.

Samples will be collected using low-flow sampling procedures to collect representative groundwater samples with a minimum of disturbance to the groundwater system, Puls and Barcelona, April 1996.

Appendix C

Quality Assurance /Quality Control and Data Validation for Chemical Analyses

QA/QC for the resulting laboratory data resulting from the chemical analyses will be achieved through the use of QA/QC samples.

- Blind duplicate samples to check the accuracy of the laboratory results
- Field blank samples to check for the potential of remnant contamination in the laboratory equipment.
- Trip blank samples for VOCs to check for transit-based contaminant intrusion into the samples
- Matrix spike and matrix spike duplicate samples (MS/MSD) to check the precision and accuracy of the laboratory equipment.

The laboratory data, including QA/QC sample results will be validated using USEPA Functional Guidelines for Evaluating Data (Inorganic and Organic), USEPA, February 1994. The process results in placing validation flags for the data which indicate that the data are valid, qualified valid, or invalid. Other than valid data the two categories with the next greatest number of qualified values are "estimated" values and "non-detections." These values will be retained and included in the mathematical management of the data. Estimated values (results between the reporting limit and method detection limit – "J"-flagged) will be included in the calculation of mean values at their reported values. Non-detections (results below the method detection limit – "U"-flagged) will be included in the mean value calculations at one-half of the method detection limit for those particular analyses.

Appendix D

Microbiological Monitoring

Introduction

Recharge of the Floridan aquifer through wells with surface water and storm water has occurred in Central Florida since the early 1900's. As part of the SJRWMD Artificial Recharge Demonstration Program, it is desired to evaluate the impact of this practice on the quality of the aquifer to determine the effectiveness and value of treatment to expand this practice in a way to not affect human health and the environment in an unacceptable manner. The purpose of this scope focuses on monitoring and evaluating the fate of the microbiological components of the recharged water.

Fecal coliform bacteria have long been used for assessing ambient water quality and total coliform bacteria have been used to assess drinking water treatment (disinfection) however, several types of alternative indicator organisms have also been suggested for Florida tropical waters or as better predictors of risk. These indicators include coliphage and *Enterococcus*. The evaluation of groundwaters and surface waters and the distinction between them based on water quality variables will be extremely important in Florida particularly for applications of aquifer recharge. The types of indicators, monitoring approaches for both assessing the risk to native ground water and the recovery of the input water is not clearly defined. In addition, these microorganisms will die-off at different rates and their differential survival in stored groundwater systems has not been assessed.

Intent of the project

As stated in the purpose and overview of the Project: "The intent of this project is to Characterize the chemical and microbiological quality of the source storm water. Identify the constituents that may be degrading the groundwater quality if any." Specifically for the microbiology, the goal of the project is to undertake a descriptive study of ground and surface microbiological water quality seasonally. This study will use a number of routine and alternative microbial indicators of fecal pollution in addition to sampling directly for the enteric protozoa to describe the water quality. Finally, using the native ground water, the survival of these fecal indicators will be examined in the laboratory.

Monitoring Program Goals

The goals of a monitoring program for the recharge well demonstration projects are

- To demonstrate any change in water quality (improvement or degradation) in the water recovered from the recharge wells and monitoring wells
- To develop a system which can aid in greater assurance of maintaining the operations without adverse impacts

Background on Indicators/Pathogen monitoring:

Coliphage are viruses that infect bacteria, specifically the bacterium *E. coli*. The various types of coliphage may have some value as indicators, particularly for human enteric viruses (Havelaar et al., 1993; Payment and Franco, 1993). These model viruses behave in the environment and survive many treatment processes (i.e. disinfection) in a manner that is similar to the human viruses of health concern. The coliphage are also easily assayed by sampling the water and mixing it with the host bacterium. When plated, the bacteria produce a lawn of cells in which the viruses will produce holes or plaques in the lawn through lysis of the bacterial cells. The analysis takes less than 24 hours and the quantitative measurement for the viruses is referred to as "plaque forming units" or PFU. Havelaar et al, (1993) evaluated wastewater both untreated and treated, river water, treated river water and lake water for coliphage and human enteric viruses. Significant correlations between coliphage and enteric viruses suggest that coliphage may predict the concentration of human viral pathogens. However, no correlation was found in untreated and treated wastewater, and this suggests there are other unknown factors involved which may complicate the use of this surrogate with recent sewage inputs into a water body. More recently, coliphage have been used to distinguish between animal and human wastes (Hsu et al., 1995). This may be useful when applied to groundwaters impacted by primarily pristine surface water that receive little or no human wastewater.

The genus *Enterococcus* is a subgroup of the fecal streptococci (bacterial cocci of fecal origin) which possess the group D antigen and conform to the Sherman criteria (Clausen *et al.*, 1977). The *Enterococcus* group includes *Enterococcus faecium*, *E. faecalis*, *E. durans*, and related biotypes (Clausen *et al.* 1977). *Enterococcus* generally appears to be more persistent than either bacterial pathogens or fecal coliforms (Davies-Colley *et al*, 1994; Sinton *et al*, 1994).

E.coli is a specific genus and species found as part of the fecal coliform bacteria group. It may be more indicative of fecal pollution and risk.

While conventional and alternative indicators are rapid and fairly inexpensive, they do not always represent the presence/absence of parasites such as *Cryptosporidium* and *Giardia* or enteric viruses, thus direct pathogen monitoring is often warranted. *Giardia* and *Cryptosporidium* are two protozoan parasites that form hardy cysts and oocysts that can survive water treatment disinfection and are one of the biggest concerns of water utilities today. The cysts and oocysts are very infectious and the presence of low numbers of cysts and oocysts in water poses a health threat. In developed regions all surface water supplies are subjected to contamination with *Giardia* and *Cryptosporidium* (Rose et al., 1996). Waterborne transmission of cysts and oocysts has become more prevalent in recent years, and regulatory agencies are urging that source and finished water be screened for these organisms. [Should this be a new paragraph?] Five major groups of human viruses have been identified to cause gastrointestinal diseases in humans: rotavirus, enteric adenovirus, Norwalk virus, calicivirus, and astrovirus. Enteric viruses may also contaminate water supplies and come from human feces (Rusin et al., 2000).

TASKS

In order to evaluate the water quality in ground and surface waters, the distinction between them over time associated with aquifer recharge a variety of tasks associated with microbial water quality monitoring will be undertaken.

- 1. Evaluate indicator microbes in background groundwaters and in pre and post treated waters over time: total and fecal coliform, enterococci, *E.coli* bacteria, coliphage viruses
- 2. Evaluate *crytrosporidium* and *giardia* parasites in background groundwaters and in pre and post treated waters over time.
- 3. Assess in a beaker study the survival of conventional and alternative indicators in natural surface waters.

Methods for Collection

Grab samples of 2L will be collected directly from the well (after purging) in sterile 1 L polypropylene bottles. These will be pumped out using clean tubing, placed immediately on ice, stored at 40C and then transported to the USF laboratory for analysis within 24 hours. Surface waters will be collected from the edge of the lakes, using sterile bottles. Parasites will be collected in the field by filtering water (volume may range from 10 L to 100L depending on the clarity, turbidity of the water) through the Gelman Filters, placed on ice and shipped to the laboratory for processing. The SOPs will be available which detail the methods of analysis.

Methods of Analysis

Bacterial analysis total coliform and fecal coliform bacteria, *E.coli* and *Enterococcus* will be performed using a membrane filtration technique according to the methods described in Standard Methods for the Examination of Water and Wastewater (APHA, 1998).

Enterococcus will be enumerated using Method 1600 (USEPA, 1996). Water samples will be filtered as described previously. The filters will be placed on mEI agar (mE agar base, Difco Laboratories, Detroit, MI; amended with indoxyl *B*-D glucoside, nalidixic acid and triphenyl tetrazolium chloride) and incubated at 41± 0.5°C. After 24 hour incubation, colonies with a blue halo will be counted as enterococci.

Detection and quantification of *E.coli* will be performed on MUG agar plates incubated at 37°C for 24 hours. Fluorescent colonies will be counted as *E.coli*.

Coliphage will be analyzed using the agar overlay method of Adams (1959).). This method incorporates the use of semisolid top agar that is inoculated with a log phase culture of host bacteria (*E. coli*) along with the sample to be analyzed. This mixture is then poured onto a petri plate containing a solid agar surface. The resulting plate is allowed to rest on a horizontal surface for several minutes while the top agar solidifies. Finally the

sample plate is inverted and placed into a 37°C incubator for 24 hours. During the incubation period, the phage particles that were present in the water sample will begin to infiltrate the bacterial host cells. The phage will replicate within the bacterial cells and ultimately reach a concentration that will lyse the bacterium. The destruction of the bacterial cells that make up the confluent lawn results in clear areas known as plaques. The concentration of bacteriophage originally present in a water sample can be determined by visually enumerating the plaques.

Parasite detection will be performed by filtering approximately 100 liters of water through a 10-inch polypropylene yarn-wound cartridge filter or 1.0 nominal porosity using a gasoline powered portable water pump with a flow rate of 4.0 liter per minute. After collection, the filters will be placed on ice and transported to the University for analysis within 24 hours. Samples will be processed using EPA Method 1623. Final concentrates (post magnetic separation) will be enumerated using IFA microscopy and further analyzed for infectivity using cell culture techniques.

Efficiency of the Methods

Standard Operating Procedures will be used for the bacteria and coliphage analysis. Positive and negative controls will be used to assure media quality and the sterile techniques in the laboratory. Recoveries for the protozoa will be evaluated for each water sample by seeding 10 L of water from the sites in the laboratory with approximately 100 to 1000 oocysts and 100 to 1000 cysts. The samples will be filtered and processed and recoveries will be reported.

Bench-scale Survival Studies

Beaker studies will include studies on three natural waters incubated at 20 and 30° C, and PBS control at 4° C, and TDS (NaCl) of 200, 500 and 1500. Survival of coliphage, total and fecal coliforms, enterococci and MS2 and PRD 1 phage will be evaluated.

Protocol for Bench-scale Survival Studies

The objective of this portion of the survival study is to isolate potential factors that could impact survival of several types of water quality indicator microorganisms if introduced via recharged storm water into Florida ground water. Specifically, temperature and total dissolved solid (TDS) concentrations are the parameters to be examined in this phase. In addition, the impact of native (both sterilized and unsterilized) ground water versus sterile artificial water with sodium chloride will be examined to compare the effect of in-situ microbial populations and native biogeochemical factors on the survival of introduced organisms. A control solution of phosphate buffered saline will also be used. Conditions and organisms to be evaluated are described in Table 1.

Experiments will be conducted using 250-mL Erlenmeyer flasks as reaction vessels. Each flask will be acid-washed and sterilized by autoclaving before water is added. Rubber stoppers, also pre-sterilized, will be used to cap each flask. For experiments involving artificial water, the appropriate TDS concentration will be created using sodium chloride (NaCl) and sterilized before adding to the pre-sterilized flask. Native ground waters will be used as both sterilized and nonsterile trials. For sterilizing native water samples, a pasteurization process will be employed so as to eliminate living microorganisms but to

avoid thermal degradation of natural compounds that may affect survival. Phosphate buffered saline will be made according to EPA Method 1623 and sterilized by autoclaving. The TDS concentration of each experimental flask will also be verified by measurement using a conductivity meter at the beginning and end of each experimental time frame.

The following organisms will be evaluated: MS-2 bacteriophage, PRD-1 bacteriophage, natural population of fecal coliforms, natural population of total coliforms (verified as non-fecal), natural population of enterococci, and natural population of coliphage. The MS-2 and PRD-1 bacteriophage will be propagated from existing pureculture stocks on hand in the laboratory. The natural populations will be created from organisms isolated from surface water obtained from both Bullfrog creek (Hillsborough county, Florida) or storm water runoff (Hillsborough county). Bacteria will initially be picked from colonies or plaques on the appropriate selective media, then streaked on a nonselective media (tryptic soy agar) to obtain isolated colonies, and one colony will then be transferred to a tryptic soy agar slant tube for storage and simultaneously confirmed as the desired organism. Natural bacteriophage will be selected from plaques on the appropriate bacteriophage host overlay plate (Escherichia coli 15597), transferred to a 5 mL aliquot of log-phase host culture to propagate the phage isolate, and re-confirmed as a coliphage after the phage suspension is grown and purified. Isolates will be stored separately at 4 C on tryptic soy agar slants (bacteria) or in tryptic soy broth tubes (phage) and re-propagated prior to each experiment. For each natural population, 10 separate organism cultures will be used to comprise the mixture. Experiments will group compatible organisms to reduce the number of trials to be run. The three groups are (1) natural coliphage alone, (2) total coliform, fecal coliform, and enterococci, and (3) MS-2 and PRD-1.

Flasks will be maintained at the appropriate temperature using water baths or in a refrigerator, and will be kept in the dark to negate the potential effect of light. To initiate each experiment, a known concentration of each organism will be added to flasks, which will then simply be stored under the prescribed conditions and sampled at the appropriate time point. One-mL samples will be taken and diluted as necessary to achieve a readable plate count for colony forming units (cfu) or plaque forming units (pfu). Samples will be plated in duplicate on the appropriate selective media for bacteria or using the appropriate bacterial host culture as an overlay plate for phage. Time points for each experiment will be 0, 1, 2, 3, 5, 7, 10, 14, 18, 21, 24, and 30 days. The results of analyses at these times will reveal the inactivation rates of the various organisms under the given set of conditions. Table 1 summarizes the experimental parameters for the bench-scale survival study.

TABLE 1: Parameters to be compared in survival study

Water Parameters	Temperatures	Organisms	
	(degrees C)		
Artificial, 200 mg/L NaCl	4	Coliphage (natural population)	group 1
Artificial, 500 mg/L NaCl	20	fecal coliform (natural population)	
Artificial, 1500 mg/L NaCl	30	total coliform (natural population)	group 2
Natural Water 1, sterile		enterococci (natural population)	
Natural Water 2, sterile		MS-2	group 2
Natural Water 3, sterile		PRD-1	group 3
Natural Water 1, nonsterile			
Natural Water 2, nonsterile			
Natural Water 3, nonsterile			
Phosphate buffered saline			

Site	Recharge Wells	Monitoring wells	Total	Total # samples
Marks and Shine	1	5	6	96
Lake Orienta	2	4	6	96
Lake Sherwood	1	3	4	64

¹ Reference sample, 1 baseline sample, 7 pretreatment and 7 post-treatment

Appendix E

Regulatory Criteria and Data Screening Process for Chemical Data

The State and Federal regulatory criteria for comparison of chemical data are listed below. Table E1 provides the source of the criteria and levels for the regulated constituents from the below listed sources:

- Florida Primary and Secondary Maximum Contaminant Levels Chapter 62-550, Florida Administrative Code (FAC).
- Groundwater Cleanup Target Levels Chapter 62-785, FAC.
- Federal Primary and Secondary Maximum Contaminant Level USEPA Drinking Water Regulations and Health Advisories, August 2000.
- USEPA Risk-based Criteria Hubbard, October 2000.

These criteria and the site reference data from the each site's reference monitoring well will be used to screen the data to evaluate the groundwater quality to identify constituents to monitor and track during the program. The screening process is a cascading one where constituents that are detected below a specific criterion are not carried to the next level of the process, with the exception of constituents detected above Primary and Secondary Drinking Water Standards, which will be retained through the monitoring program. Constituents that remain through the process are the constituents to track for changes in subsequent sampling events. Microorganisms will not be screened out. The order of the screens is

- 1. Florida Primary and Secondary Maximum Contaminant Levels Constituents detected above these criteria will remain in the process regardless of the results of subsequent screens.
- 2. Federal Primary and Secondary Maximum Contaminant Level Constituents detected above these criteria will remain in the process regardless of the results of subsequent screens.
- 3. Site reference water quality data
- 4. Groundwater Cleanup Target Levels
- 5. USEPA Risk-based Criteria

Appendix F

Monitoring Well Construction

The SJRWMD will install the monitoring wells. The monitoring wells will be constructed of either 4-inch diameter PVC or carbon steel casing manufactured for well construction. The wells will be completed open-hole from the bottom of the casing to the desired depth. The profile of the wells, cased depth and total depth, will mimic the profile of the associated recharge well, as best as can be accomplished given currently unknown constraints of the local geology. Larger diameter surface casing may be used to assist in stabilizing the borehole during construction. Well construction activities will be documented in the project report.

FDEP staff will be coordinated with to participate in the process of locating the monitoring wells for the three sites.

Mud rotary and reverse-air rotary drilling techniques will be used to drill the boreholes for the monitoring wells.

Upon completion, the monitoring wells will be developed using pumping and hydraulic surging until the water discharged from the well is clear and free of debris, or until further improvement in clarity cannot be made. Mechanical or airlift pumping procedures will be used. Well development process and results will be documented in the project report.

Appendix G

Precipitation Characteristics for a Triggering Storm Event

The NPDES storm water sampling program defined representative storm events to be greater than 0.1-inch in volume and at least 72 hours between measurable events (40 CFR Chapter 122.21(7)). A minimum volume is desired to ensure that sufficient runoff has occurred to sample. Very small rainfall events may wet the land surface, but little runoff will enter the ponds or wells. A slightly higher rainfall event may have runoff, but will not transport many solids or runoff from pervious areas. To provide a uniform methodology for this study, the following protocols will be used to identify when to sample the wells.

The locations and availability of rain gauge data near the project sites will be reviewed with the intent to select gauges where rainfall conditions are reasonably similar to that of the project sites. As rainfall is a triggering event, the gauges need to monitored and readily available on a daily basis. A list of gauge locations with monitoring frequency will be prepared and submitted to FDEP for discussion and agreement.

Rainfall records will be obtained from the agreed upon gauges as soon as possible after a substantial rainfall event. Only rainfall exceeding 0.1 inch will be sampled. Sometimes, rainfall can be spotty and very localized. An inspection of the area surrounding the recharge well will be made during or soon after a rain event for evidence of runoff, of possible. If the program team judges that there may not have been local rainfall and runoff, then no sampling will be conducted.

The NPDES requirements for storm water sampling from ponds are different than from a free outfall (i.e., a pipe discharging into a stream). For ponds with a retention time greater than 24 hours, one grab sample is all that is required. Generally, this sample is taken within 24 hours after the storm. The Lake Orienta and Lake Sherwood sites are in essence ponds with the recharge well as the outfall, while the Marks and Shine site is in a vault under a street. For this recharge well, the groundwater acts like a pond regardless of the nature of the surface conditions. As long as there is a fairly substantial flow into the well, 1 sample within 24 hours of a runoff event will capture the quality of the discharge.

Waiting between events for a period of time is useful to allow pollutants to buildup before a sampling event. If a sample was collected too soon after multiple events, lower concentrations would be expected. However, rainfall in Florida is much more frequent than in some parts of the country and 72 hours between storm events may cause significant delay in the program. Therefore, an antecedent dry period of 24 hours will be used. Any rainfall greater than 0.02 inch (i.e., slightly more than a trace), but less than 0.1 inch, would not be sampled and would require that the antecedent dry period be extended by another 24 hours. Rainfall events of less than 0.02 inch would not be sampled, and would not be counted as a runoff event.

CFARE Status Report No. 5

From: Aikens, Al/ORL

Sent: Wednesday, June 04, 2003 1:47 PM

To: 'Anil Desai (E-mail)'; 'Chris Ferraro (E-mail)'; 'Chris Sweazy (E-mail)'; 'Duane Watroba (E-

mail)'; 'Elizabeth Thomas (E-mail)'; 'George Heuler (E-mail)'; 'Jerry Salsano (E-mail)'; 'Larry Pearson (E-mail)'; 'Leslee Williams (E-mail)'; 'Rich Deuerling (E-mail)'; 'Richard Drew (E-

mail)'; 'Bart Bibler (Bart_Bibler@doh.state.fl.us)'; 'Peter J. Kwiatkowski, P.G.

(pkwiat@sfwmd.gov)'; 'Don Ellison (Ellison, Don/SWFWMD)'; Jim Gross/SJRWMD

'Barbara Vegara (E-mail)'; 'David John (E-mail)'; 'Doug Munch (E-mail)'; 'Jim Hunt (E-mail)'; McNeal, Mark/TPA; 'Rodney Lynn (E-mail)'; Wycoff, Ron/GNV; 'rosejo@msu.edu'; Peters, Chris/DFB; 'Chris Sweazy (Sweazy, Chris/SFWMD)'; 'rarenken@usgs.gov'; 'Rick Howard (Howard, Rick/Orlando)'; Rob Teegarden (Teegarden, Rob/OCU); Lydia Wing (Wing,

Lvdia/Nodarse): Lehnen, Jeff/GNV: Sanders, Kevin/GNA

Subject: Central Florida Artificial Recharge Well Status Report No. 5

Attachments: tracer test conceptual plan final.doc

Folks,

Cc:

This e-mail transmits the fifth Status Report for the Central Florida Aquifer Recharge Enhancement Program, Artificial Recharge Well Study. The last report was January 27, 2003. The reports are issued at times associated with project milestones. Since the last report the following has been accomplished: monitoring wells were installed, baseline groundwater sampling was conducted, and the groundwater tracer test was begun. These are briefly described below.

Monitoring Well Installations

The monitoring wells were installed at Festival Park, Orlando, Florida during the latter part of February through early April 2003.

Baseline Groundwater Sampling

Baseline sampling of the two recharge wells and four monitoring wells was conducted Tuesday, May 27 through Thursday, May 29, 2003. The samples will be analyzed for chemical and microbiological parameters as documented in the Groundwater Monitoring Plan (Status Report 4).

Groundwater Tracer Test

Test Planning - Planning to conduct the groundwater tracer test was coordinated with FDEP. The following documents were submitted to FDEP for consideration:

- Groundwater Tracer Test Conceptual Plan revised (attached)
- Results of private well surveys from the Florida Department of Health and the SJRWMD. No potable water supply wells were identified within 1 mile of the project site.
- Materials Safety Data Sheets for fluorescein and eosine

A letter was issued by FDEP approving of the groundwater tracer test plan.

Background Tracer Sampling - Groundwater quality was monitored at the two recharge wells and four monitoring wells for background indications of tracer signature. Activated carbon sample packs are used for tracer dye adsorption. Sample packs were placed in the wells and left for one week, then replaced with fresh packs for another week (two weeks total). Eosine was not detected from any sample pack. Low concentrations (sub ppm) were reported for fluorescein in MW-1, MW-2, and MW-4. These low concentrations should not interfere with the ability to detect fluorescein tracer anticipated at the monitoring wells based on the planned mass loading, based on consultation with Ozark Underground Laboratory.

Tracer Release - Tracer release was conducted on Friday, May 30, 2003 after the baseline sampling was finished. The release was made by pumping tracer solution into the two recharge wells through tremie pipes. The release point was 5-10 feet above the bottom of the casing. The tracer was pumped in at approximately 3-4 gpm. The recharge wells continually flow; therefore, the ambient flow was used to move the tracer from the well bores into the aquifer. 75 pounds of fluorescein was introduced into Well 40, the southern well, and 50 pounds of eosine was introduced into Well 143, the

northern well.

Fresh carbon sample packs were installed in the monitoring wells prior to the releasing the tracer. The sample packs will be replaced and analyzed at two week intervals. The scheduled duration of the tracer test is three months.

Other Data Collection

- Groundwater levels are being collected in the monitoring wells using pressure transducers and recorded by data loggers for the duration of the tracer test.
- Daily rainfall from the Orlando Executive Airport have been collected since February 2003 and will continue through the Operational Testing phase of the project at a minimum.

Next Anticipated Status Report

The next anticipated status report will be at the conclusion of the groundwater tracer test. At that time, if the chemical and/or microbiological data are available from the baseline sampling they will be included. If the data are not available a separate status report will be issued to transmit those data.

Please let me know if you have any questions regarding this project.



tracer test conceptual plan fi...

Al Aikens CH2M HILL/Orlando, FL

Festival Park Tracer Test Conceptual Plan

PREPARED FOR: SIRWMD

PREPARED BY: CH2M HILL

DATE: May, 8, 2003 (Revised)

1.0 Introduction

The St. John's River Water Management District (SJRWMD) seeks to demonstrate the existence of a hydrologic connection between Festival Park recharge wells 40 and 143 and monitoring wells MW-1, -2, -3, and -4, Figure 1. A qualitative groundwater tracer test will be conducted for the purpose of demonstrating this connection.

2.0 Site Conceptual Model

The Festival Park site is located immediately west of Orlando Executive Airport (OEA). The site contains two recharge wells that receive direct runoff from the stormwater collection system. Table 1 contains the completion details of the Festival Park recharge wells. These intervals for each of the wells will be selected in the field based on actual conditions encountered during drilling.

TABLE 1General Completion Characteristics of the Recharge Wells and Monitoring Wells

Well	Diameter (Inches)	Cased Depth (Feet)	Total Depth (Feet)
Festival Park (Well 40)	12	195	490 ^a
Festival Park (Well 143)	10	140	315
MW-1	4	180	250
MW-2	4	180	250
MW-3	4	185	250
MW-4	4	190	250

^a Total depth through geophysical logging (8/3/00), reported total constructed depth - 1049 feet, USGS inventory card depth - 350 feet. Additional geophysical and television camera surveys conducted in March 2003 show that the water enters the aquifer between the approximate interval of 195 feet to 200 feet below grade. Below 200 feet, little evidence of flow from the well into the aquifer was observed.

The wells are open to the upper Floridan aquifer, and are completed using open-hole construction.

3.0 Literature review

The most viable mechanism for identifying the presence of tracer in the monitoring wells to is the use of activated carbon fluorescent dye receptors. Information on dye detection mechanisms may be found in Section 6.3, below. A literature review was conducted to identify fluorescent dyes that had been successfully used for groundwater tracer tests.

Mull *et. al.* (1988) provide information on the use of tracers in karst terranes, however they present tracer test analysis methods that can be applied to any environment. Kass (1998) provides an overview of the planning, execution, and analysis of tracer tests using a variety of tracers. Aley (1999) developed a groundwater tracing handbook, which addresses topics such as the selection of dyes and their quantities, methods of dye introduction and sampling, and dye analysis.

A comprehensive study of the use of a variety of fluorescent dyes for hydrologic studies has been presented by Smart and Laidlaw (1976). Their report discusses the variation of fluorescence with temperature, pH, salinity, and other water quality parameters. Adsorption of a variety of tracer dyes onto dissolved limestone was found to be approximately 5% (Smart and Laidlaw, 1976). Adsorption onto consolidated in-situ limestone in the study area is expected to be even lower its lower surface area compared to the dissolved limestone used by Smart and Laidlaw.

Tai and Rathbun (1988) present a study on the photolysis (photodecay) of Rhodamine-WT dye. Photolysis is not expected to be a factor in the tracer study conducted under this scope of work because the tracer will be released into groundwater, not surface water. Sabatini and Austin (1991) examined the sorption of fluorscent dyes and herbicides on alluvial aqufier sand. Rhodamine WT was found to have the highest level of absorption, followed in decreasing order by alachlor, atrazine, and fluorescein.

Sabatini (2000) studied the sorption of fluorescein and sulforhodamine B onto sandstone and limestone. Fluorescein was found to readily sorb to negatively charged sandstone due to its positive charge. Though not a component of the study, Sabatini noted that Rhodamine WT, which has both cationic and anionic groups has the potential to sorb to most mineral surfaces.

4.0 Expected Travel Time

If it is assumed that the tracer is inert and that advection is the dominant transport mechanism through the aquifer (*i.e.*, the tracer moves at the same velocity as the groundwater, and is not retarded by the aquifer matrix), the expected travel time of the tracer can be estimated by calculating the average linear velocity of the groundwater:

$$\overline{v} = \frac{-K}{n} \frac{\partial h}{\partial l}$$
 (Freeze and Cherry, 1979) (1)

where

v = average linear velocity

K = hydraulic conductivity (assume 250 ft/d)

n = porosity (assume 0.2) $\frac{\partial h}{\partial l}$ = hydraulic gradient (assume 0.0001)

Aquifer characteristics uses to compute the travel time were collected as follows: The Upper Floridan aquifer in the area was assigned a transmissivity of 87,500 ft²/d in the East-Central Florida Groundwater Flow Model, (McGurk and Presley, 2000). The aquifer is approximately 350 feet thick in its representation in the model. The porosity is estimated to be 0.2. Potentiometric surface elevations measured in May 2000 indicate an eastward hydraulic gradient of approximately 0.0001.

Since the distances between the recharge wells and the proposed monitoring wells are known, the travel time can be estimated by dividing the distance by the average linear velocity. The results for each monitor well and recharge well combination are presented in Table 2.

TABLE 2Expected travel time for each recharge/monitor well pair

Well (with position)	Distance from Recharge Well 39 (feet)	Distance from Recharge Well 40 (feet)	Expected travel time from Well 39 (days)	Expected travel time from Well 40 (days)
MW-1 (up gradient)	350	450	450 44 ^a	
MW-2 (cross gradient)	500	150	63	16
MW-3 (down gradient)	350	100	44	13
MW-4 (down gradient)	500	650	63	81 ^a
Average	425	338	53	42

^a Given the historic west to east and northwest to southeast gradients, flow to the northwest (towards MW-1) or northeast (Well 40 to MW-4) is not considered likely.

6.0 Tracer Test Execution

6.1 Background Sampling and Tracer Selection

The source of recharge water for the Festival Park recharge wells is stormwater runoff. The recharge water can reasonably expected to contain a variety of compounds, some of which may have characteristics similar to fluorescent tracer dyes. False positive results may result if these compounds are sorbed onto the activated carbon detectors.

Prior to the introduction of tracer, background sampling will be conducted to evaluate for the presence of compounds that fluoresce and may interfere with the tracer test. The background sampling will consist of two activated carbon samplers placed at approximately one-third and two-thirds of the open-hole interval of the monitoring wells and in the two recharge wells at the vault boxes. The activated carbon samplers will be left in place for a week during the background sampling. These samples will be analyzed in order to determine the degree of background fluorescence in the runoff and/or groundwater.

Aley (2002, personal communication) suggests that fluorescein and eosine would be the most likely choices for the test. However, the dyes selected for the tracer test will be confirmed from the results of the background sampling. Multiple dyes will be used for the following reasons:

- Use of multiple dyes can help eliminate false positives.
- The material cost of additional dye is small compared to the total cost of the project, and provides an excellent benefit for marginal cost.
- There is no additional analytical cost for more than one dye. The eluted solution from the activated carbon receptors is analyzed using a spectrofluorophotometer, which reports the fluorescence of the elution. Multiple dyes will show up as multiple peaks.

In order to assess preferential flow pathways, one dye will be introduced into Festival Park Well 40, and another dye will be introduced into Festival Park Well 143.

6.2 Quantity of Tracer

The initial concentration must be sufficient so that the tracer can be detected in the laboratory after the carbon samplers have been eluted. Because the tracer test is intended to be qualitative in nature, the precise determination of an initial concentration is not as significant as it would be if the test were quantitative in nature. Furthermore, the use of activated carbon samplers allows the tracer to adsorb over time, so the instantaneous concentration is less important at any one time.

Aley (2002, personal communication) recommends using between 50 and 75 pounds of dye solution (75% dye and 25% dilutant) for each well. This quantity is greater than would typically be used for this type of application, and is intended to serve as a safety factor on the test. A lack of dye in the monitoring wells could be attributed to preferential pathways rather than insufficient dye.

6.3 Tracer Release

The dye will be pre-mixed in plastic "carboy" containers, and added to the top of the openhole interval of the recharge wells with a tremie pipe. Water continually flows from the stormwater collection system into the recharge wells. This water will be used to transport the dyes from the well bore into the aquifer. Rainfall from the OEA will be monitored during the tracer test.

6.4 Tracer Detection

A cost-effective sampling approach is the use of activated carbon samplers. A string of samplers will be deployed in the open-hole intervals of the monitoring wells, and will continuously absorb and accumulate fluorescent dye. Sampler strings will be installed into the monitoring wells for a period of time. The strings will then be removed from the wells for laboratory analyses, and a replacement string of samplers will be inserted to continue

monitoring. The string will consist of samplers positioned at 10-foot intervals through the open hole portion of the monitoring wells.

In the laboratory, the samplers are washed in chlorine-free water and treated with a solution that elutes the tracer dyes from the activated carbon. The elutant is then run through a spectrofluorophotometer for analysis. The anticipated turn-around time for laboratory analysis is approximately one week.

6.5 Sampling Frequency

The expected travel time ranges from 13 to 63 days (Table 3). The adsorption of dye onto activated carbon decreases as the length of time increases (Aley, 1999). Due to the variety of distances between the monitoring wells and recharge wells, and the unknown gradients that change in response to recharge events and non-recharge periods, it is recommended that the samplers be collected and changed every two weeks. Once tracer is positively detected in a monitoring well in two successive sampling intervals, sampling will be discontinued at that well.

Water samples will be collected from each monitoring well at the same time that the activated carbon samplers are collected and replaced. The purpose of collecting water samples is to provide a "snapshot" dye concentration at a known point in time. The activated carbon samplers can tell whether or not dye had reached a sampling station, but cannot tell when it occurred.

6.6 Groundwater Level Monitoring

The groundwater levels in the two recharge wells and the four monitoring wells will be monitored through the duration of the test. The purpose of collecting the data is to evaluate the changes to the groundwater gradient in response to recharge events and quiescent periods.

6.7 QA/QC

6.5.1 Background Sampling

The background sampling described in Section 6.1 will help identify and manage false positives and assist that the dyes used are appropriate based on antecedent conditions.

6.5.2 Activated Carbon Samplers and Water Samples

Standard sampling and chain-of-custody procedures will be followed at all times. These procedures are described in Attachment 1. Additionally, the following procedures will be implemented:

- Sample bags will be labeled only on the outside; no labels will be put inside. Colored pens or markers will not be used, only black Sharpie[™] pens, or similar will be used (other pens may have trace dyes in their ink.
- Ice contained in double wrapped sealed plastic bags (Zip-Lock™, or similar) will be used to keep samples cool during field work and shipping.

- Samples will be kept refrigerated upon receipt by the laboratory until analysis to inhibit bacteriological growth.
- Samplers will not be washed in chlorinated tap water.

7.0 Reporting

The laboratory results will be used to identify the presence of traced water, relative to baseline conditions, at the monitoring wells from the activated carbon samplers and the grab samples from the monitoring wells over time and distance from the recharge wells. The results will be reported in the form a technical memorandum.

8.0 Schedule

The travel times presented in Table 3 suggest that it may take approximately 2 months for tracer to reach the furthest downgradient monitor well. Table 4, below, summarizes the project schedule

Table 4 – Project Schedule

Milestone	Date from Notice to Proceed
Conduct background sampling, receive results from laboratory, finalize dye selection, prepare letter to FDEP, add dye to wells	1 month
Complete sampling	3 months (assumes recharge wells operate as soon as possible (i.e. within a few days) after the dry sets are installed
Delivery of draft report	5 months
Delivery of final report	6 months (assumes two-week review of draft report by SJRWMD)

9.0 Preliminary Budget

A preliminary budget of \$79,000 was developed for the tracer test based on the plan as described. Much of the field work is planned to be accomplished by Nodarse & Associates (a WBE) as an extension to the work associated with the monitoring well installation, baseline sampling, and operational testing sampling for the Recharge Well Demonstration Project at Festival Park.

10.0 References

Aley, T., 1999. Groundwater Tracing Handbook. Ozark Underground Laboratory, Protem, MO.

Freeze, R.A. and J. Cherry, 1979. Groundwater. Prentice-Hall, Englewood Cliffs, N.J.

McGurk, Brian, and P. Presley. 2000. Simulation of the Effects of Groundwater Withdrawals of the Floridan Aquifer System in East-Central Florida: Model Expansion Revision - Draft. St. Johns River Water Management District. Palatka, FL.

Mull, D.S., T.D. Libermann, J.L. Smoot, L.H. Woosley, Jr., 1988. Application of Dye-Tracing Techniques for Determining Solute-Transport Characteristics of Ground Water in Karst Terranes. EPA904-6-88-001. U.S. Environmental Protection Agency Region IV, Atlanta, GA.

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CFARE Status Report No. 6

Folks,

This e-mail transmits the sixth Status Report for the Central Florida Aquifer Recharge Enhancement Program, Artificial Recharge Well Study. The last report was June 4, 2003. The reports are issued at times associated with project milestones. Since the last report the following two tasks were accomplished for the Festival Park site: analyses of the baseline samples to identify the chemical and microbial components of the inflow at the two recharge wells and groundwater from the monitoring wells, and completion of the groundwater tracer test. These are briefly described below.

The intent of this status report is to provide in-progress results of the project. So far, we have the results of monitoring well installation, one set of water sample results, and the results of a groundwater tracer test. While some analysis and data interpretation is presented, it is not intended to be an exhaustive evaluation of the results. We are gaining considerable insight on the Festival Park site. As with any study, we will gain more insight as we collect more data.

Preliminary coordination activities began with the City of Altamonte Springs to conduct a similar study at Lake Orienta. Where the recharge wells at Festival Park represent direct urban runoff recharge wells, the recharge wells at Lake Orienta represent lake level control wells. These activities are presented near the end of this status report.

Festival Park Recharge Well Site

Festival Park is a park (several city blocks) approximately two miles east of downtown Orlando, see *Festival Park Site Map.pdf*. At the site are two volleyball courts, a recently constructed skate park and an open area for festivals. Two recharge wells are present at the site, R-40 and R-143. The two recharge wells were constructed during the 1940's and have been active since that time. Water has been observed to continually flow into the wells each time that the site was visited. The wells divert urban stormwater from the stormwater collection system to Upper Floridan aquifer. Four monitoring wells were installed in at the park and vicinity. Their locations are shown on the site map.

Baseline Sampling – Baseline sampling of the water flowing into the two recharge wells and groundwater from the four monitoring wells was conducted Tuesday, May 27 through Thursday, May 29, 2003. The samples were analyzed for chemical and microbiological parameters as documented in the Groundwater Monitoring Plan (Status Report 4). Results of the chemical and microbial analyses of the waters are provided in the attached Portable Document File: *Baseline Sampling Results.pdf*. The sampling occurred before the tracers were introduced into the recharge wells.

Results of Baseline Sampling – Two sets of data are presented in the results. Table 1 is the Summary of Results from Microbiological Analyses from the Baseline Sampling Event. Table 2 is the Summary of Results from Chemical Analyses and Comparison to Criteria from the Baseline Sampling Event.

Microbiological Results – The interpretation of the microbiological results presented in Table 1 are fairly straight-forward, with the exception of Host Famp+ Enrichment for coliphage. This analysis is a qualitative one; the two overlay methods provide quantitative results. Two designations are present for the results. The "+" indicates that the samples tested positive for the presence of coliphage. When the enrichment method

provides a "+" with a "<5" pfu/100 mL for the overlay methods results, then coliphage is interpreted to be present at concentrations less than that value. The "DNA" designation indicates that more of the coliphage were of the DNA type rather than the RNA type, and conversely for the "RNA" designation. RNA phage are more highly correlated with human *E. coli*.

As will be presented in the tracer test portion of this status report, MW-1 and MW-2 are hydraulically connected to R-143 through the Floridan aquifer. Comparing the results from these 3 wells shows that total coliform concentrations decrease 3 to 4 orders of magnitude from the influent water at R-143 to the groundwater at MW-1 and MW-2.

Chemical Results – The chemical data presented in Table 2 are provided with qualifiers that resulted from the data validation process. The value and the qualifier must be taken together to properly understand the laboratory results. For instance, if a result for a chemical was "10" mg/L with an "=" qualifier then the chemical was detected at a concentration of 10 mg/L. However, if a result was "10" mg/L with a "U" qualifier then the chemical was not detected at a reporting limit of 10 mg/L. Please refer to the notes at the bottom of the table for explanations of the qualifiers.

The chemical data were compared to various regulatory criteria and risk-based criteria; the results were identified by different formatting (bolding, shading, and boxing). No chemical from the monitoring well samples was detected at a concentration greater than Florida Primary and Secondary Maximum Contaminant Levels (MCLs). The concentration of iron exceeded the MCL for the stormwater flowing into the two recharge wells. Please refer to the notes at the bottom of Table 2 for explanations to identify comparisons of the chemical results and various regulatory and risk-based criteria.

Groundwater Tracer Test – Planning to conduct the groundwater tracer test was coordinated with FDEP. The following documents were submitted to FDEP for consideration:

- Groundwater Tracer Test Conceptual Plan (Status Report 5)
- Results of private well surveys from the Florida Department of Health and the SJRWMD. No potable water supply wells were identified within 1 mile of the project site.
- Materials Safety Data Sheets for fluorescein and eosine

A letter was issued by FDEP approving of the groundwater tracer test plan.

Goal of the Tracer Test – Demonstrate complete pathway in the Floridan aquifer between the recharge wells and one or of the more monitoring wells. The test will assist to support results of groundwater sampling and analysis, and to adapt sampling plan for future project phases.

Tracer Release and Monitoring – Tracer release was conducted on Friday, May 30, 2003 after the baseline sampling was finished. Pumping tracer solution into the two recharge wells through tremie pipes made the release. The release point was approximately 180 feet below ground, approximately 5-10 feet above the bottom of the casing. The recharge wells continually flow; therefore, the ambient flow was used to move the tracer from the well bores into the aguifer. 50 pounds of fluorescein were

introduced into Well R-143, the northern well, and 75 pounds of eosine were introduced into Well R-40, the southern well.

Fresh carbon sample packs were installed in the monitoring wells at the end of the Baseline Sampling, prior to the releasing the tracer. The sample packs were replaced and analyzed at two-week intervals. The duration of the tracer test was 12 weeks.

Results of the Tracer Test – The goal of the tracer test was attained. Fluorescein was encountered at monitoring wells MW-1 and MW-2. Eosine was not detected at any monitoring well. Amounts of fluorescein encountered at MW-1 were two orders of magnitude greater than the amounts encountered at MW-2. The results of this test confirm a connection between R-143 and monitoring wells MW-1 and MW-2. A map of the inferred movement is provided below. The data further indicate that water entering R-40 does not appear at the four monitoring wells.



Other Data Collection

- Groundwater levels are being collected in the monitoring wells using pressure transducers and recorded by data loggers for the duration of the tracer test.
- Daily rainfall from the Orlando Executive Airport were collected since February 2003 and will continue through the Operational Testing phase of the project at a minimum. Rainfall data are obtained from the National Climatological Data Center (NCDC) of the National Oceanographic and Atmospheric Administration (NOAA) through an Internet subscription service.

Modification of the Sampling Plan – The results of the groundwater tracer test indicated that MW-1 and MW-2 are hydraulically connected to R-143 through the Floridan aquifer and that MW-3 and MW-4 are connected to neither recharge well. Further, the groundwater travel time from R-143 and MW-1/MW-2 was less than two weeks. Therefore, at a meeting with the Central District of FDEP on September 4, 2003 it was agreed upon to modify the sampling plan to

- Discontinue sampling of the influent to R-40 and MW-3. The influent to R-143 and groundwater from MW-1, MW-2, and MW-4 will continue to be sampled for an unchanged list of microbes and chemicals.
- Change the sample collection frequency for the Operational Characterization phase of the project from be 1, 5, 10, 30, 60, 120, and optionally 180 days after a triggering recharge event to 1, 2, 4, and 8 weeks after a triggering recharge (0.5 inch to 1 inch of rainfall in 24 hours) event during the Fall of 2003 to monitor the end of the 2003 wet season, then sample 1 and 2 weeks after a triggering recharge event during the Winter/Spring of 2004 to monitor the system after a period of little rainfall.

Upcoming Tasks at Festival Park

- Complete of Operational Characterization phase as modified Fall 2003 through Spring 2004.
- Evaluate data for possible treatment, Summer 2004
- Implement treatment 2005, as needed
- Perform Post-treatment Operational Characterization 2006, as needed

Lake Orienta Recharge Well Site

The request for funding for the project at the Lake Orienta Recharge Well Site in Altamonte Springs is on the October 2003 agenda for the SJRWMD Governing Board. Planning discussions occurred with representatives of City of Altamonte Springs to begin the project. The current schedule of activities is

- Monitoring well construction Fall-Winter 2003/2004
- Baseline Sampling Characterize chemical and biological quality of source water and groundwater, Winter 2004
- Qualitative Tracer Test, Winter-Spring 2003/2004
- Operational Testing Evaluate fate and transport of biological and chemical components in the aquifer (Spring/Summer 2004)
- Evaluate and implement treatment, as needed
- Post-treatment operational testing Evaluate effectiveness of treatment

Next Anticipated Status Report

The next anticipated status report will be at the conclusion of the groundwater tracer test. At that time, if the chemical and/or microbiological data are available from the baseline sampling they will be included. If the data are not available, a separate status report will be issued to transmit those data.

Please let me know if you have any questions regarding this project.

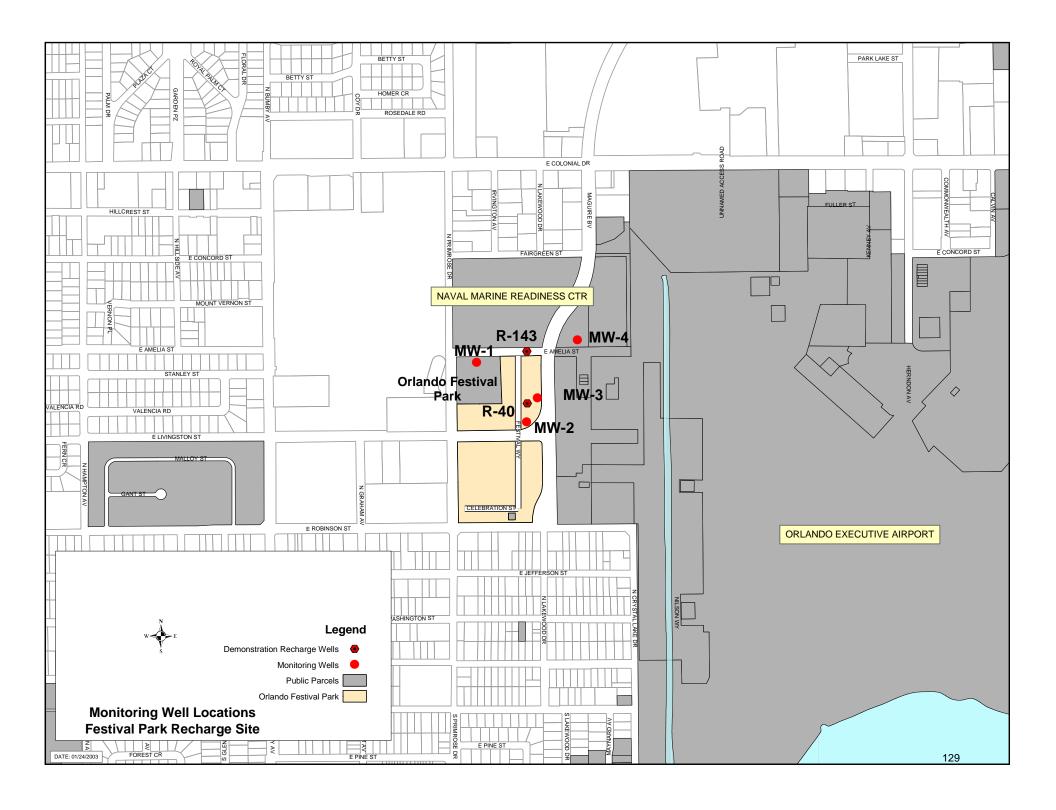


Table 1.
Summary of Results from Microbiological Analyses from the Baseline Sampling Event
SJRWMD Alternative Water Supply Program
Central Florida Artificial Recharge Project

Da	Location SampleID ==> te Collected ==>		R-143 05/28/2003	MW-1 05/29/2003	MW-2 05/29/2003	MW-3 05/29/2003	MW-4 05/28/2003	Indicator Guidelines for Ambient Surface Water Quality (Class III Waters) ¹
Organism	Units	00/20/2000	00/20/2000	30/20/2000	30/20/2000	00/20/2000	00,20,200	
								1,000 cfu/100 mL - Single Sample 400 cfu/100 mL - Average
Total Coliform	cfu/100 mL	380,000	69,000	20	3.8	<0.2		4 cfu/100 mL - Groundwater criteria
								800 cfu/100 mL - Single Sample
Fecal Coliform	cfu/100 mL	270,000	58,000	20	1.6	<0.2	<0.2	200 cfu/100 mL - Geometric Mean
E. coli	cfu/100 mL	72,000	15,000	5	0.4	<0.2	<0.2	126 cfu/100 mL - Geometric Mean
								35 cfu/100 mL - Fresh Water
Enterococcus	cfu/100 mL	6	30	0.2	0.2	<0.2	<0.2	104 cfu/100 mL - Geometric Mean
Cryptosporidium	no./100 L	<2	<5	<0.1	<0.1	<0.1	<0.1	
Giarida	no./100 L	<2	<5	<0.1	<0.1	<0.1	<0.1	
Coliphage								100 pfu/100 mL
Host C3000 Overlay	pfu/100 mL	30	<5	<5	<5	<5	<5	·
Host Famp+ Overlay	pfu/100 mL	80	<5	<5	<5	<5	<5	
Host Famp+ Enrichment	pfu/100 mL	+/DNA	+/RNA	+/DNA	+/DNA	+/RNA	+/RNA	

Notes:

cfu - Colony forming units pfu - plaque forming units

¹ Indicator Guidelines for Ambient Surface Water Quality (used for Class III Waters)

Total Coliforms State of Florida guidelines for a single sample 1000 cfu/100ml, average of 400 cfu/100ml

EPA and the state of Florida recommended guidelines for a single sample of 800 cfu/100 mL, for a

Fecal Coliforms geometric mean, 200 cfu/100 mL

E.coli EPA recommended guideline for a geometric mean sample 126 cfu/100 mL

EPA recommended guidelines for a single sample of 104 cfu/100 mL, for a geometric mean, 33-

Enterococci 35 cfu/100 mL for marine and fresh water respectively.

Coliphage Level used - 100 pfu/100 mL based on previous research by Dr. Joan Rose, USF

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-		1.0 :	Tr. n				10000		•	Ma torrest	minant!			Daniel Color	B	Name and the Control of the Control
	Location: SJRWMD No.	Inflow to R-40 None	Inflow to R-143 None	MW-1 OR0018	MW-2 OR0819	MW-3 OR0818	MW-3 (Dup) OR0818	MW-4 OR0141	<u> </u>	Maximum Conta	minant Levels		Florida	Brownfields	Risk-based C	Concentrations
	SampleID:	FP-03-01-007	FP-03-01-008	FP-03-01-009	FP-03-01-00		FP-03-01-003		Florida MCL / SMCL	Florida MCL / SMCL	Federal MCL/SMCL ²	Federal MCL/SMCL ²	Florida Brownfield	Florida Brownfield	Regional USEPA RBC ⁴	Regional USEPA RBC 4,5
	DateCollected :	05/28/2003	05/28/2003	05/29/2003	05/27/2003	05/27/2003	05/27/2003		(Chapter 62-550, FAC) 1	(Chapter 62-550, FAC) 1			(62-785) ³	(62-785) ³	EPA Region III	EPA Region IV
	Matrix:	Stormwater	Stormwater	Groundwater	Groundwate		Groundwater		MCL	SMCL	MCL	SMCL	GCTL	Groundwater LY/PQ	Tap Water	
Parameter Group and Name	SampleType : Unit	Normal Result Qua	Normal al Result Qual	Normal Result Qual	Normal Result Qua	Normal Result Qual	Field Duplicat Result Qua		l Criteria Unit	Criteria Unit	Criteria Unit	Criteria Unit	Criteria Unit	Criteria Unit	(HQ=0.1) Criteria Unit	(HQ=0.1) Criteria Unit
Field Parameters	Std. Units	5.89	6.45	9.22	7.38	11.1	11.1	10.17	Onic Onic	Criteria Onit	Criteria Oriit	Criteria Oriit	Criteria Onit	Criteria Oriit	Criteria Oriit	Criteria Unit
TEMPERATURE	°C	32.8	29.2	25.4	25.5	25.4	25.4	24.9								
CONDUCTANCE	µmhos	139	218	226	360	501	501	131								
TURBIDITY	NTU	2.95	4.79	1.2	1.24	6.72	6.72	1.45								
DISSOLVED OXYGEN	mg/L	2.7	3.19	0.82	1.81	0.22	0.22	0.24								
OXIDATION/REDUCTION POTENTIAL Radiologicals	mV	211	195	1	252	-140	-140	10								
ALPHA, GROSS	pCi/l	2.4 U	0.9 U	3.1 U	4.5 =	3.9 =	2.5 U	2.9 =	15 pCi/L	pCi/L	15 pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L
BETA, GROSS	pCi/l	2.5 =	1 =	3.3 =	37.8 =	54.7 =	42.1 =	2.2 U	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L
Anions																
ALKALINITY, BICARBONATE (AS CACO3)	mg/L	45.5 =	53 =	152 =	211 =	1 U	11 =	188 =	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
CHLORIDE (AS CL)	μg/L	10600 =	14300 =	6590 =	3580 =	3060 =	3000 =	4470 =	μg/L	250000 µg/L	μg/L	250000 µg/L	250000 µg/L	2500000 µg/L	μg/L	μg/L
SULFATE (AS SO4)	mg/L	9.09 =	11.3 =	37.5 =	26.7 =	3.26 =	3.19 =	0.912 J	mg/L	250 mg/L	mg/L	250 mg/L	250 mg/L	2500 mg/L	mg/L	mg/L
Nutrients TOTAL NITROGEN, ALL FORMS, CALCULATED	mg/L	0.484 =	0.358 =	0.198 =	1.99 =	0.901 =	0.741 =	0.453 =	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
NITROGEN, AMMONIA (AS N)	mg/L	0.404 = 0.213 J	0.336 = 0.21 U	0.427 =	1.59 =	1.04 =	0.431 =	0.433 = 0.21 U	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
NITROGEN, KJELDAHL, TOTAL	mg/L	0.484 U	0.358 U	0.198 U	1.322 =	0.901 U	0.741 U	0.453 U	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
NITROGEN, NITRITE	mg/L	0.05 U	0.05 U	0.05 U	0.535 =	0.05 U	0.05 U	0.05 U	1 mg/L	mg/L	1 mg/L	mg/L	1 mg/L	mg/L	3.7 mg/L	3.7 mg/L
NITROGEN, NITRATE-NITRITE	mg/L	0.05 U	0.05 U	0.05 U	0.67 =	0.05 U	0.05 U	0.05 U	mg/L	mg/L	10 mg/L	mg/L	10 mg/L	mg/L	mg/L	mg/L
PHOSPHORUS, TOTAL (AS P)	mg/L	0.148 =	0.103 =	0.226 =	0.084 =	0.051 =	0.101 =	0.143 =	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
PHOSPHORUS, TOTAL ORCANIC (AS P)	mg/L	0.078 =	0.046 =	0.037 =	0.031 =	0.027 =	0.038 =	0.122 =	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
PHOSPHORUS, TOTAL ORGANIC (AS P) General Chemistry	mg/L	0.102 =	0.075 =	0.082 =	0.075 =	0.054 =	0.057 =	0.048 =	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
TOTAL DISSOLVED SOLIDS (RESIDUE, FILTERABLE	mg/L	102 =	125 =	117 =	361 =	386 =	274 =	265 =	mg/L	500 mg/L	mg/L	500 mg/L	500 mg/L	500 mg/L	mg/L	mg/L
TURBIDITY	NTU	1.6 =	1.7 =	0.12 U	0.12 U	0.12 U	1 =	0.12 U	μg/L	µg/L	μg/L	µg/L	μg/L	µg/L	μg/L	μg/L
pH	PH UNITS	6.53 =	6.31 =	7.5 =	7.44 =	11.1 =	10.6 =	7.79 =	μg/L	µg/L	µg/L	µg/L	µg/L	μg/L	μg/L	µg/L
COLOR	COLOR UNIT	20 =	20 =	5 J	0 U	5 J	5 J	0 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
BIOLOGIC OXYGEN DEMAND, FIVE DAY	mg/L	2 U	2 U	2 U	2 U	2 U	2 U	2 U	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
TOTAL ORGANIC CARBON	mg/L	4.85 =	27.5 =	27.8 =	3.19 U	2.18 U	2.83 U	20.8 =	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
DISSOLVED ORGANIC CARBON	mg/L	4.94 U	23.8 =	24.3 =	1.52 U	2.67 U	2.81 U	2.79 U	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Metals ALUMINUM	μg/L	73.7 U	76.3 U	150 U	35 U	37.7 U	35 U	35 U	μg/L	200 µg/L	µg/L	50 μg/L	μg/L	200 µg/L	37000 µg/L	3700 µg/L
ANTIMONY	μg/L	2.5 U	2.5 U	2.5 U	2.66 J	2.5 U	2.5 U	2.5 U	6 μg/L	μg/L	6 µg/L	μg/L	6 µg/L	60 μg/L	15 μg/L	1.5 µg/L
ARSENIC	μg/L	2.04 U	2.04 U	10.5 =	19.4 =	3.06 J	2.04 U	2.04 U	50 μg/L	µg/L	50 μg/L	μg/L	50 μg/L	5000 µg/L	0.045 µg/L	0.045 µg/L
BARIUM	µg/L	14.3 =	16.6 =	11.1 =	35.9 =	51.1 =	35.3 =	6 =	2000 μg/L	µg/L	2000 µg/L	μg/L	2000 µg/L	20000 µg/L	2600 µg/L	260 µg/L
BERYLLIUM	μg/L	0.0945 U	0.0945 U	0.0945 U	0.0945 U	0.0945 U	0.0945 U	0.0945 U	4 µg/L	μg/L	4 μg/L	μg/L	4 μg/L	400 µg/L	0.016 µg/L	0.016 µg/L
CADMIUM	μg/L	0.356 U	0.356 U	0.356 U	0.356 U	0.356 U	0.356 U	0.356 U	5 μg/L	μg/L	5 µg/L	μg/L	5 μg/L	515 μg/L	18 μg/L	1.8 µg/L
CALCIUM	μg/L	18500 =	21500 =	61800 =	52700 =	17100 =	20400 =	65600 =	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
CHROMIUM, TOTAL	μg/L	0.712 J	0.57 U	0.57 U	1.13 U	1.79 U	1.13 U	0.57 U	100 μg/L	µg/L	100 μg/L	µg/L	100 μg/L	1000 μg/L	µg/L	µg/L
COBALT COPPER	μg/L μg/L	0.569 U 3.43 U	0.569 U 4.34 U	0.569 U 1.17 U	0.569 U 1.17 U	0.569 U 1.17 U	0.569 U 1.17 U	0.569 U 1.17 U	μg/L	μg/L 1000 μg/L	μg/L μg/L	μg/L 1000 μg/L	μg/L 1000 μg/L	μg/L 10000 μg/L	2200 μg/L 130000 μg/L	220 µg/L 13000 µg/L
IRON	μg/L	496 =	448 =	16.7 U	16.7 U	30.5 U	16.7 U	18.4 U	μg/L μg/L	300 μg/L	μg/L	300 μg/L	300 μg/L	μg/L	11000 µg/L	1100 µg/L
LEAD	µg/L	1.76 U	1.76 U	1.76 U	1.76 U	2.05 U	3.26 U	1.76 U	15 µg/L	μg/L	15 µg/L	µg/L	15 µg/L	150 µg/L	μg/L	μg/L
MAGNESIUM	μg/L	1530 =	2030 =	4700 =	6420 =	1030 =	2080 =	3150 =	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
MANGANESE	μg/L	9.28 =	10.1 =	3.94 =	2.21 =	0.413 U	0.515 U	1.35 U	μg/L	50 μg/L	μg/L	50 μg/L	50 μg/L	500 μg/L	840 μg/L	84 µg/L
MERCURY	μg/L	0.0162 U	0.0162 U	0.0162 U	0.0162 U	0.0162 U	0.0162 U	0.0162 U	2 µg/L	μg/L	2 μg/L	μg/L	2 μg/L	20 μg/L	11 μg/L	1.1 µg/L
NICKEL	µg/L	0.997 U	2.31 J	1.64 J	4.66 J	0.997 U	0.997 U	0.997 U	100 µg/L	μg/L	100 µg/L	μg/L	100 μg/L	1000 µg/L	730 µg/L	73 μg/L
POTASSIUM SELENILIM	µg/L	1350 =	1510 =	1760 =	25400 =	56000 =	41400 =	1450 =	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	μg/L	µg/L
SELENIUM SILVER	μg/L μg/L	2.1 U 0.325 U	2.1 U 0.325 U	2.1 U 0.325 U	2.1 U 0.325 U	2.1 U 0.325 U	2.1 U 0.325 U	2.1 U 0.75 U	50 μg/L	μg/L 100 μg/L	50 μg/L	μg/L 100 μg/L	50 μg/L 100 μg/L	500 μg/L 1000 μg/L	180 μg/L 180 μg/L	18 μg/L 18 μg/L
SODIUM	μg/L μg/L	6110 =	8000 =	5380 =	25600 =	29300 =	22900 =	10200 =	μg/L 160000 μg/L	μg/L	μg/L μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
THALLIUM	μg/L	2.54 U	2.54 U	2.54 U	2.54 U	2.54 U	2.54 U	2.54 U	2 μg/L	μg/L	2 μg/L	μg/L	2 μg/L	μg/L	μg/L	μg/L
VANADIUM	μg/L	1.93 U	1.82 U	1.8 U	3.73 =	0.47 J	0.447 U	0.573 U	µg/L	µg/L	μg/L	µg/L	49 µg/L	490 µg/L	260 μg/L	26 µg/L
ZINC	μg/L	14.2 =	11.2 =	1.54 U	1.66 U	1.33 U	0.951 U	1.31 U	μg/L	5000 μg/L	μg/L	5000 μg/L	5000 μg/L	50000 μg/L	11000 μg/L	1100 µg/L
Total Petroleum Hydrocarbons PETROLEUM HYDROCARBONS	mg/L	0.43 =	0.49 =	0.35 U	0.34 U	0.34 U	0.38 =	0.36 U	mg/L	mg/L	mg/L	mg/L	5 mg/L	50 mg/L	mg/L	mg/L
Volatile Organic Compounds ACETONE	μg/L	3 J	3.9 J	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	μg/L	µg/L	µg/L	μg/L	700 µg/L	7000 µg/L	3700 µg/L	370 µg/L
ACROLEIN	μg/L	10 UJ	10 UJ	10 U	10 UJ	10 UJ	10 UJ	10 UJ	μg/L	µg/L	μg/L	µg/L	μg/L	μg/L	μg/L	μg/L
ACRYLONITRILE	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
ALLYL CHLORIDE (3-CHLOROPROPENE)	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
BENZENE	μg/L	1 U	0.18 J	1 U	1 U	0.64 J	0.48 J	1 U	1 µg/L	μg/L	5 μg/L	μg/L	1 μg/L	100 μg/L	0.36 µg/L	0.36 µg/L
BROMODICHLOROMETHANE	μg/L	1 U	1 U	1 ∪	1U	1 U	1 U	1 U	100 μg/L	μg/L	100 μg/L	μg/L	0.6 μg/L	60 μg/L	0.17 μg/L	0.17 μg/L
BROMOFORM	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	100 µg/L	μg/L	100 μg/L	μg/L	4 µg/L	40 μg/L	2.4 µg/L	2.4 µg/L
BROMOMETHANE	μg/L	1 U	1 U	1 U	10	10	1 U	10	μg/L	μg/L	μg/L	µg/L	9.8 µg/L	μg/L	8.7 µg/L	0.87 μg/L
CARBON DISULFIDE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	μg/L	μg/L	µg/L	µg/L	700 µg/L	7000 µg/L	1000 µg/L	100 μg/L
CARBON TETRACHLORIDE	µg/L	1 U 1 U	1 U	1 U 1 U	1 U	1 U	1 U 1 U	1 U	3 μg/L	µg/L	5 μg/L 100 μg/L	μg/L μg/L	3 μg/L 100 μg/L	300 μg/L 1000 μg/L	0.16 μg/L 39 μg/L	0.16 μg/L 3.9 μg/L
CHI OPORENIZENE																.3.21(10/1
CHLOROBENZENE CHLOROFTHANE	μg/L ug/l								100 μg/L μg/l	μg/L μg/l						
CHLOROBENZENE CHLOROETHANE CHLOROFORM	μg/L μg/L μg/L	1 UJ 1 UJ	1 UJ 1 UJ	1 U	1 U	1 U	1 U	1 UJ	μg/L 100 μg/L	μg/L μg/L	μg/L 100 μg/L	μg/L μg/L	2800 µg/L 6 µg/L	28000 µg/L 600 µg/L	3.6 µg/L 0.15 µg/L	3.6 µg/L 0.15 µg/L

	Location:	Inflow to R-40	Inflow to R-143	MW-1	MW-2	MW-3	MW-3 (Dup)	MW-4		Maximum Contan	ninant l evels		Florida	Brownfields	Rick-haced	Concentrations
	SJRWMD No.	None	None	OR0018	OR0819	OR0818	OR0818	OR0141		waxiiiaii oontai	Illiant Levels		Tiorida	Brownincius	Nisk-baseu	Concentrations
	SampleID :	FP-03-01-007	FP-03-01-008	FP-03-01-009	FP-03-01-001		FP-03-01-003	3 FP-03-01-00	6 Florida MCL / SMCL	Florida MCL / SMCL	Federal MCL/SMCL ²	Federal MCL/SMCL ²	Florida Brownfield	Florida Brownfield	Regional USEPA RBC 4	Regional USEPA RBC 4,
	DateCollected :	05/28/2003	05/28/2003	05/29/2003	05/27/2003	05/27/2003	05/27/2003	05/28/2003	(Chapter 62-550, FAC) 1	(Chapter 62-550, FAC) 1			(62-785) ³	(62-785) ³	EPA Region III	EPA Region IV
	Matrix : SampleType :	Stormwater Normal	Stormwater Normal	Groundwater Normal	Groundwater Normal	Groundwater Normal	Groundwater Field Duplicate		MCL_	SMCL	MCL	SMCL	GCTL	Groundwater LY/PQ	Tap Water	(110.04)
Parameter Group and Name	Unit	Result Qua				Result Qual			Il Criteria Unit	Criteria Unit	Criteria Unit	Criteria Unit	Criteria Unit	Criteria Unit	(HQ=0.1) Criteria Unit	(HQ=0.1) Criteria Unit
2-CHLORO-1,3-BUTADIENE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	μg/L	µg/L	μg/L	µg/L	μg/L	μg/L	μg/L	μg/L
cis-1,2-DICHLOROETHYLENE	μg/L	0.54 J	0.52 J	1 U	2.3 =	2.4 =	3 =	1 U	70 μg/L	μg/L	70 μg/L	μg/L	70 μg/L	700 µg/L	61 µg/L	6.1 µg/L
cis-1,3-DICHLOROPROPENE	μg/L	1 U	1 U	1 U	1 U	1 U	1_U	1 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
DIBROMOCHLOROMETHANE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	100 μg/L	μg/L	100 μg/L	μg/L	0.4 µg/L	40 μg/L	0.13 μg/L	0.13 µg/L
DICHLORODIFLUOROMETHANE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	μg/L	μg/L	μg/L	μg/L	1400 µg/L	μg/L	390 μg/L	39 µg/L
1,1-DICHLOROETHANE	μg/L	1.1 =	1 U	1 U	1.2 =	1 U	1 U	1 U	μg/L	μg/L	μg/L	μg/L	700 µg/L	7000 µg/L	810 µg/L	81 µg/L
1,1-DICHLOROETHENE	μg/L	1.4 =	1 U	1 U	1 U	1 U	1 U	1 U	7 μg/L	μg/L	7 μg/L	μg/L	7 µg/L	700 µg/L	0.044 µg/L	0.044 µg/L
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.02 µg/L	μg/L	0.05 μg/L	μg/L	0.02 µg/L	2 µg/L	0.00075 µg/L	0.00075 µg/L
1,2-DICHLOROBENZENE	μg/L	0.34 J	0.6 J	1 U	1 U	1 U	1 U	1 U	600 µg/L	μg/L	600 µg/L	μg/L	600 µg/L	6000 µg/L	64 µg/L	6.4 µg/L
1,2-DICHLOROETHANE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	3 µg/L	μg/L	5 μg/L	μg/L	3 µg/L	300 µg/L	0.12 µg/L	0.12 µg/L
1,2-DICHLOROPROPANE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 µg/L	μg/L	5 μg/L	μg/L	5 μg/L	500 μg/L	0.16 µg/L	0.16 µg/L
1,3-DICHLOROBENZENE	μg/L	1U	1 U	1 U	1 U	1 U	1 U	1 U	μg/L	μg/L	μg/L	μg/L	10 μg/L	100 μg/L	540 µg/L	54 μg/L
1,4-DICHLOROBENZENE	μg/L	1U	1U	1U	10	1 U	1 U	1 U	75 μg/L	μg/L	75 μg/L	μg/L	75 μg/L	7500 µg/L	0.44 µg/L	0.44 µg/L
ETHYLBENZENE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	700 μg/L	30 μg/L	700 µg/L	μg/L	30 μg/L	300 μg/L	1300 µg/L	130 µg/L
2-HEXANONE	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	μg/L	μg/L	µg/L	μg/L	μg/L	µg/L	1500 µg/L	150 µg/L
IODOMETHANE (METHYL IODIDE)	µg/L	2 U	2 U	2 U	2 U	2 U	2 U	2 U	µg/L	μg/L	µg/L	μg/L	µg/L	μg/L	µg/L	μg/L
METHYLENE CHLORIDE	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 µg/L	µg/L	5 µg/L	µg/L	5 µg/L	500 µg/L	4.1 µg/L	4.1 µg/L
STYRENE TETRACHLOROETHYLENE(PCE)	μg/L ug/l	0.37 J	0.81 J	1 U	1 U	1 U	1 U	1 U	100 µg/L	μg/L μg/l	100 µg/L	μg/L	100 µg/L	1000 µg/L	1600 µg/L	160 µg/L
TOLUENE	μg/L μg/L	0.37 J 0.65 J	0.81 J	1 U	1 U	1 U	1 U	1 U	3 μg/L 1000 μg/L	μg/L 40 μg/L	5 μg/L 1000 μg/L	μg/L μg/l	3 μg/L 40 μg/L	300 μg/L 400 μg/L	1.1 µg/L 750 µg/L	1.1 μg/L 75 μg/L
trans-1,2-DICHLOROETHENE	μg/L μg/L	0.65 J	1 U	1 U	1 U	1 U	0.16 J	1 U	1000 µg/L	40 μg/L μg/L	1000 µg/L	μg/L μg/L	40 μg/L 100 μg/L	400 μg/L 1000 μg/L	750 μg/L 120 μg/L	75 μg/L 12 μg/L
trans-1,3-DICHLOROPROPENE	μg/L	1 U	1 U	1 UJ	1 UJ	1 UJ	1 UJ	1 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
trans-1,4-DICHLORO-2-BUTENE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
TRICHLOROETHYLENE (TCE)	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	3 µg/L	µg/L	5 μg/L	µg/L	3 µg/L	300 µg/L	1.6 µg/L	1.6 µg/L
TRICHLOROFLUOROMETHANE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	μg/L	µg/L	µg/L	µg/L	2100 µg/L	21000 µg/L	1300 µg/L	130 µg/L
1,1,1-TRICHLOROETHANE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	200 µg/L	µg/L	200 μg/L	μg/L	200 μg/L	2000 µg/L	540 µg/L	54 μg/L
1,1,2,2-TETRACHLOROETHANE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	μg/L	μg/L	μg/L	μg/L	0.5 μg/L	50 μg/L	0.052 µg/L	0.052 µg/L
1,2,3-TRICHLOROPROPANE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	μg/L	μg/L	μg/L	μg/L	5 μg/L	μg/L	0.0015 µg/L	0.0015 µg/L
VINYL ACETATE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	μg/L	μg/L	μg/L	μg/L	90 μg/L	900 µg/L	37000 µg/L	3700 µg/L
VINYL CHLORIDE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 µg/L	μg/L	2 μg/L	μg/L	1 μg/L	100 μg/L	0.019 µg/L	0.019 µg/L
M,P-XYLENE (SUM OF ISOMERS)	μg/L	2 U	2 U	2 U	2 U	2 U	2 U	2 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	12000 µg/L	12000 µg/L
O-XYLENE (1,2-DIMETHYLBENZENE)	μg/L	1 U	0.16 J	1 U	1 U	1 U	1 U	1 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	12000 µg/L	12000 µg/L
XYLENES, TOTAL	μg/L	2 U	2 U	2 U	2 U	2 U	2 U	2 U	10000 µg/L	20 μg/L	10000 μg/L	μg/L	20 μg/L	200 μg/L	12000 µg/L	1200 µg/L
Semi-volatile Organic Compound																
ACETOPHENONE	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	μg/L	µg/L	μg/L	µg/L	μg/L	µg/L	μg/L	µg/L
ANILINE (PHENYLAMINE, AMINOBENZENE)	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	μg/L	μg/L	μg/L	µg/L	6.1 µg/L	610 µg/L	10 μg/L	10 μg/L
ARAMITE	µg/L	10.1 U	10.1 U	10.1 U	10.1 U	10 U	10.1 U	10.2 U	μg/L	μg/L	μg/L	µg/L	μg/L	μg/L	µg/L	μg/L
4-AMINOBIPHENYL (4-BIPHENYLAMINE) 2-ACETYLAMINOFLUORENE	µg/L	5 U 10.1 U	5 U 10.1 U	5 U 10.1 U	5 U 10.1 U	5 U 10 U	5 U 10.1 U	5.1 U 10.2 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
2-AMINONAPHTHALENE (BETA NAPHTHYLAMINE)	μg/L μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/l	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L
BENZYL ALCOHOL	μg/L	10.1 U	10.1 U	10.1 U	10.1 U	10 U	10.1 U	10.2 U	μg/L	μg/L	μg/L	μg/L μg/L	2100 µg/L	21000 µg/L	11000 µg/L	1100 µg/L
BENZYL BUTYL PHTHALATE	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	μg/L	μg/L	μg/L	μg/L	1400 µg/L	14000 µg/L	7300 µg/L	730 µg/L
4-BROMOPHENYL PHENYL ETHER	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	2100 µg/L	210 µg/L
4-CHLOROANILINE	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	μg/L	µg/L	µg/L	µg/L	28 µg/L	280 µg/L	150 µg/L	15 µg/L
4-CHLOROPHENYL PHENYL ETHER	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	μg/L	µg/L	µg/L	µg/L	µg/L	μg/L	µg/L	µg/L
2-CHLORONAPHTHALENE	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	μg/L	μg/L	μg/L	μg/L	560 µg/L	5600 µg/L	2900 μg/L	290 µg/L
2-CHLOROPHENOL	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	μg/L	μg/L	μg/L	μg/L	35 µg/L	μg/L	180 μg/L	18 µg/L
1,3-DINITROBENZENE	μg/L	10.1 U	10.1 U	10.1 U	10.1 U	10 U	10.1 U	10.2 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
2,4-DICHLOROPHENOL	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	μg/L	μg/L	μg/L	μg/L	5 μg/L	μg/L	110 μg/L	11 μg/L
2,6-DICHLOROPHENOL	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
2,4-DIMETHYLPHENOL	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	μg/L	μg/L	μg/L	μg/L	140 μg/L	1400 μg/L	730 µg/L	73 µg/L
2,4-DINITROPHENOL	μg/L	10.1 UJ	10.1 UJ	10.1 UJ	10.1 UJ	10 UJ	10.1 UJ	10.2 UJ	μg/L	μg/L	μg/L	μg/L	30 μg/L	μg/L	73 µg/L	7.3 µg/L
2,4-DINITROTOLUENE	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	μg/L	μg/L	μg/L	µg/L	0.2 μg/L	20 μg/L	73 μg/L	7.3 µg/L
bis(2-CHLOROETHOXY) METHANE	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	μg/L	μg/L	µg/L	μg/L	µg/L	µg/L	µg/L	µg/L
bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ET		5 ∪	5 ∪	5 U	5 U	5 ∪	5 ∪	5.1 U	μg/L	μg/L	µg/L	μg/L	4 µg/L	400 μg/L	0.0092 µg/L	0.0092 µg/L
bis(2-CHLOROISOPROPYL) ETHER		EIII	5 U	5 U	5 U	5 U	5 U	5.1 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
CHLOROBENZILATE	μg/L	5 U														
DIALLATE	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	μg/L	μg/L	µg/L	μg/L	μg/L	μg/L	μg/L	µg/L
DIALLATE	μg/L μg/L	5 U 5 U	5 U 5 U	5 U	5 U	5 U	5 U	5.1 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
DIBENZOFURAN	μg/L μg/L μg/L	5 U 5 U 5 U	5 U 5 U 5 U	5 U 5 U	5 U 5 U	5 U 5 U	5 U 5 U	5.1 U 5.1 U	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L 28 μg/L	μg/L 280 μg/L	μg/L 150 μg/L	μg/L 15 μg/L
DIBENZOFURAN DIETHYL PHTHALATE	µg/L µg/L µg/L µg/L	5 U 5 U 5 U 5 U	5 U 5 U 5 U 5 U	5 U 5 U 5 U	5 U 5 U 5 U	5 U 5 U 5 U	5 U 5 U 5 U	5.1 U 5.1 U 5.1 U	μg/L μg/L μg/L	μg/L μg/L μg/L	μg/L μg/L μg/L	µg/L µg/L µg/L	μg/L 28 μg/L 5600 μg/L	280 µg/L 56000 µg/L	μg/L 150 μg/L 29000 μg/L	μg/L 15 μg/L 2900 μg/L
DIBENZOFURAN DIETHYL PHTHALATE DIMETHYL PHTHALATE	μg/L μg/L μg/L μg/L μg/L	5 U 5 U 5 U 5 U 5 U	5 U 5 U 5 U 5 U 5 U	5 U 5 U 5 U 5 U	5 U 5 U 5 U	5 U 5 U 5 U 5 U	5 U 5 U 5 U 5 U	5.1 U 5.1 U 5.1 U 5.1 U	μg/L μg/L μg/L μg/L	µg/L µg/L µg/L µg/L	μg/L μg/L μg/L μg/L	µg/L µg/L µg/L µg/L	μg/L 28 μg/L 5600 μg/L 70000 μg/L	μg/L 280 μg/L 56000 μg/L 700000 μg/L	μg/L 150 μg/L 29000 μg/L 370000 μg/L	μg/L 15 μg/L 2900 μg/L 37000 μg/L
DIBENZOFURAN DIETHYL PHTHALATE DIMETHYL PHTHALATE DIMETHYLPHENYLETHYLAMINE	pg/L pg/L pg/L pg/L pg/L pg/L	5 U 5 U 5 U 5 U 5 U 20.2 UJ	5 U 5 U 5 U 5 U 5 U 20.2 UJ	5 U 5 U 5 U 5 U 20.2 UJ	5 U 5 U 5 U 5 U 20.2 UJ	5 U 5 U 5 U 5 U 20.1 UJ	5 U 5 U 5 U 5 U 20.2 UJ	5.1 U 5.1 U 5.1 U 5.1 U 20.4 UJ	μg/L μg/L μg/L μg/L	μg/L μg/L μg/L μg/L μg/L	μg/L μg/L μg/L μg/L μg/L	µg/L µg/L µg/L µg/L µg/L	μg/L 28 μg/L 5600 μg/L 70000 μg/L μg/L	μg/L 280 μg/L 56000 μg/L 700000 μg/L μg/L	µg/L 150 µg/L 29000 µg/L 370000 µg/L µg/L	μg/L 15 μg/L 2900 μg/L 37000 μg/L μg/L
DIBENZOFURAN DIETHYL PHTHALATE DIMETHYL PHTHALATE	µg/L µg/L µg/L µg/L µg/L µg/L	5 U 5 U 5 U 5 U 5 U 20.2 UJ 5 U	5 U 5 U 5 U 5 U 5 U 20.2 UJ 5 U	5 U 5 U 5 U 5 U 20.2 UJ 5 U	5 U 5 U 5 U 5 U 20.2 UJ 5 U	5 U 5 U 5 U 5 U 20.1 UJ 5 U	5 U 5 U 5 U 5 U 20.2 UJ 5 U	5.1 U 5.1 U 5.1 U 5.1 U 20.4 UJ 5.1 U	μg/L μg/L μg/L μg/L μg/L	μg/L μg/L μg/L μg/L μg/L μg/L	μg/L μg/L μg/L μg/L μg/L μg/L	μg/L μg/L μg/L μg/L μg/L μg/L	μg/L 28 μg/L 5600 μg/L 70000 μg/L μg/L μg/L	μg/L 280 μg/L 56000 μg/L 700000 μg/L μg/L μg/L	μg/L 150 μg/L 29000 μg/L 370000 μg/L μg/L μg/L	µg/L 15 µg/L 2900 µg/L 37000 µg/L µg/L µg/L
DIBENZOFURAN DIETHYL PHTHALATE DIMETHYL PHTHALATE DIMETHYLPHENYLETHYLAMINE 7,12-DIMETHYLBENZ(a)ANTHRACENE p-DIMETHYLAMINOAZOBENZENE	µg/L µg/L µg/L µg/L µg/L µg/L µg/L	5 U 5 U 5 U 5 U 5 U 20.2 UJ 5 U 10.1 U	5 U 5 U 5 U 5 U 5 U 20.2 UJ 5 U	5 U 5 U 5 U 5 U 20.2 UJ	5 U 5 U 5 U 5 U 20.2 UJ 5 U 10.1 U	5 U 5 U 5 U 5 U 20.1 UJ 5 U 10 U	5 U 5 U 5 U 5 U 20.2 UJ 5 U 10.1 U	5.1 U 5.1 U 5.1 U 5.1 U 20.4 UJ 5.1 U 10.2 U	μg/L μg/L μg/L μg/L μg/L μg/L μg/L	µg/L µg/L µg/L µg/L µg/L µg/L	μg/L μg/L μg/L μg/L μg/L μg/L μg/L	μg/L μg/L μg/L μg/L μg/L μg/L μg/L	28 µg/L 5600 µg/L 70000 µg/L µg/L µg/L µg/L	μg/L 280 μg/L 56000 μg/L 700000 μg/L μg/L μg/L μg/L μg/L	μg/L 150 μg/L 29000 μg/L 370000 μg/L μg/L μg/L μg/L	µg/L 15 µg/L 2900 µg/L 37000 µg/L μg/L μg/L μg/L μg/L
DIBENZOFURAN DIETHYL PHTHALATE DIMETHYL PHTHALATE DIMETHYLPHENYLETHYLAMINE 7,12-DIMETHYLBENZ(a)ANTHRACENE p-DIMETHYLAMINOAZOBENZENE 3,3'-DICHLOROBENZIDINE	pg/L pg/L pg/L pg/L pg/L pg/L pg/L pg/L	5 U 5 U 5 U 5 U 5 U 20.2 W 5 U 10.1 U	5 U 5 U 5 U 5 U 5 U 20.2 UJ 5 U 10.1 U	5 U 5 U 5 U 5 U 20.2 UJ 5 U 10.1 U	5 U 5 U 5 U 5 U 20.2 UJ 5 U 10.1 U	5 U 5 U 5 U 5 U 20.1 UJ 5 U 10 U	5 U 5 U 5 U 5 U 20.2 UJ 5 U 10.1 U	5.1 U 5.1 U 5.1 U 5.1 U 20.4 UJ 5.1 U 10.2 U 5.1 UJ	μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L	µg/L µg/L µg/L µg/L µg/L µg/L µg/L	μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L	μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L	ру/L 28 ру/L 5600 ру/L 70000 ру/L ру/L ру/L ру/L ру/L ру/L ру/L ру/L	μg/L 280 μg/L 56000 μg/L 700000 μg/L μg/L μg/L μg/L μg/L	μg/L 150 μg/L 29000 μg/L 370000 μg/L μg/L μg/L μg/L μg/L μg/L μg/L	μg/L 15 μg/L 2900 μg/L 37000 μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L
DIBENZOFURAN DIETHYL PHTHALATE DIMETHYL PHTHALATE DIMETHYLPHENYLETHYLAMINE 7,12-DIMETHYLBENZ(a)ANTHRACENE P-DIMETHYLAMINOAZOBENZENE 3,3'-DICHLOROBENZIDINE 3,3'-DIMETHYLBENZIDINE	µg/L µg/L µg/L µg/L µg/L µg/L µg/L µg/L µg/L	5 U 5 U 5 U 5 U 5 U 20.2 W 5 U 10.1 U	5 U 5 U 5 U 5 U 5 U 20.2 UJ 5 U 10.1 U	5 U 5 U 5 U 20.2 UJ 5 U 10.1 U 10.1 U 10.1 UJ	5 U 5 U 5 U 5 U 20.2 UJ 5 U 10.1 U 5 U	5 U 5 U 5 U 5 U 20.1 UJ 5 U 10 U 5 U	5 U 5 U 5 U 5 U 20.2 UJ 5 U 10.1 U 5 U	5.1 U 5.1 U 5.1 U 5.1 U 20.4 UJ 5.1 U 10.2 U 5.1 UJ 10.2 U	μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L	µg/L µg/L µg/L µg/L µg/L µg/L µg/L µg/L	µg/L µg/L µg/L µg/L µg/L µg/L µg/L µg/L	μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L	μg/L 28 μg/L 5600 μg/L 70000 μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L	μg/L 280 μg/L 56000 μg/L 700000 μg/L μg/L μg/L μg/L μg/L μg/L μg/L	μg/L 150 μg/L 29000 μg/L 370000 μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L	μg/L 15 μg/L 2900 μg/L 37000 μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L
DIBENZOFURAN DIETHYL PHTHALATE DIMETHYL PHTHALATE DIMETHYLPHENYLETHYLAMINE 7,12-DIMETHYLBENZ(a)ANTHRACENE p-DIMETHYLAMINOAZOBENZENE 3,3'-DICHLOROBENZIDINE 3,3'-DIMETHYLBENZIDINE	µg/L µg/L µg/L µg/L µg/L µg/L µg/L µg/L µg/L µg/L	5 U 5 U 5 U 5 U 5 U 20.2 W 5 U 10.1 U	5 U 5 U 5 U 5 U 5 U 20.2 UJ 5 U 10.1 U	5 U 5 U 5 U 5 U 20.2 UJ 5 U 10.1 U	5 U 5 U 5 U 5 U 20.2 UJ 5 U 10.1 U	5 U 5 U 5 U 5 U 20.1 UJ 5 U 10 U	5 U 5 U 5 U 5 U 20.2 UJ 5 U 10.1 U	5.1 U 5.1 U 5.1 U 5.1 U 20.4 UJ 5.1 U 10.2 U 5.1 UJ	μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L	µg/L µg/L µg/L µg/L µg/L µg/L µg/L µg/L	μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L	μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L	ру/L 28 ру/L 5600 ру/L 70000 ру/L ру/L ру/L ру/L ру/L ру/L ру/L ру/L	μg/L 280 μg/L 56000 μg/L 700000 μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L	μg/L 150 μg/L 29000 μg/L 370000 μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L	µg/L 15 µg/L 2900 µg/L 37000 µg/L µg/L µg/L µg/L µg/L µg/L µg/L µg/L
DIBENZOFURAN DIETHYL PHTHALATE DIMETHYL PHTHALATE DIMETHYLPHENYLETHYLAMINE 7,12-DIMETHYLBENZ(a)ANTHRACENE p-DIMETHYLAMINOAZOBENZENE 3,3'-DICHLOROBENZIDINE 3,3'-DIMETHYLBENZIDINE ETHYL METHANESULFONATE	µg/L µg/L µg/L µg/L µg/L µg/L µg/L µg/L µg/L	5 U 5 U 5 U 5 U 5 U 20.2 UJ 5 U 10.1 U 5 UJ 10.1 U	5 U 5 U 5 U 5 U 5 U 20.2 UJ 5 U 10.1 U 5 UJ	5 U 5 U 5 U 5 U 20.2 UJ 5 U 10.1 U 10.1 UJ 5 U	5 U 5 U 5 U 20.2 UJ 5 U 10.1 U 5 U 10.1 U 5 U	5 U 5 U 5 U 5 U 20.1 UJ 5 U 10 U 5 U 10 U 5 U	5 U 5 U 5 U 5 U 20.2 UJ 5 U 10.1 U 5 U	5.1 U 5.1 U 5.1 U 5.1 U 20.4 UJ 5.1 U 10.2 U 5.1 UJ 10.2 U 5.1 UJ	μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L	µg/L µg/L µg/L µg/L µg/L µg/L µg/L µg/L	µg/L µg/L µg/L µg/L µg/L µg/L µg/L µg/L	μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L	μg/L 28 μg/L 5600 μg/L 70000 μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L	μg/L 280 μg/L 56000 μg/L 700000 μg/L μg/L μg/L μg/L μg/L μg/L μg/L	μg/L 150 μg/L 29000 μg/L 370000 μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L	μg/L 15 μg/L 2900 μg/L 37000 μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L
DIBENZOFURAN DIETHYL PHTHALATE DIMETHYL PHTHALATE DIMETHYLPHENYLETHYLAMINE 7,12-DIMETHYLBENZ(a)ANTHRACENE p-DIMETHYLAMINOAZOBENZENE 3,3'-DICHLOROBENZIDINE 3,3'-DIMETHYLBENZIDINE ETHYL METHANESULFONATE HEXACHLOROPROPENE	µg/L µg/L µg/L µg/L µg/L µg/L µg/L µg/L µg/L µg/L µg/L	5 U 5 U 5 U 5 U 5 U 20.2 UJ 5 U 10.1 U 5 U 10.1 U 5 U 5 U	5 U 5 U 5 U 5 U 5 U 20.2 UJ 5 U 10.1 U 5 UJ 5 U 5 U	5 U 5 U 5 U 5 U 20.2 UJ 5 U 10.1 U 5 U 10.1 UJ 5 U	5 U 5 U 5 U 5 U 20.2 UJ 5 U 10.1 U 5 U 10.1 U 5 U	5 U 5 U 5 U 5 U 20.1 UJ 5 U 10 U 5 U 5 U	5 U 5 U 5 U 5 U 20.2 UJ 5 U 10.1 U 5 U 10.1 U 5 U	5.1 U 5.1 U 5.1 U 5.1 U 20.4 UJ 5.1 U 10.2 U 5.1 U 10.2 U 5.1 U 5.1 U	μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L	µg/L µg/L µg/L µg/L µg/L µg/L µg/L µg/L	µg/L µg/L µg/L µg/L µg/L µg/L µg/L µg/L µg/L µg/L µg/L	µg/L µg/L µg/L µg/L µg/L µg/L µg/L µg/L µg/L µg/L	µg/L 28 µg/L 5600 µg/L 70000 µg/L µg/L µg/L µg/L µg/L µg/L µg/L µg/L	280 µg/L 260 µg/L 56000 µg/L 700000 µg/L µg/L µg/L µg/L µg/L µg/L µg/L µg/L	μg/L 150 μg/L 29000 μg/L 370000 μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L	μg/L 15 μg/L 2900 μg/L 37000 μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L
DIBENZOFURAN DIETHYL PHTHALATE DIMETHYL PHTHALATE DIMETHYLPHENYLETHYLAMINE 7,12-DIMETHYLBENZ(a)ANTHRACENE p-DIMETHYLAMINOAZOBENZENE 3,3'-DICHLOROBENZIDINE 3,3'-DIMETHYLBENZIDINE ETHYL METHANESULFONATE HEXACHLOROPROPENE ISODRIN	µg/L µg/L µg/L µg/L µg/L µg/L µg/L µg/L µg/L µg/L µg/L µg/L	5 U 5 U 5 U 5 U 5 U 5 U 20.2 UJ 5 U 10.1 U 5 UJ 5 U U 5 U UJ 5 U UJ 5 U UJ 5 U UJ	5 U 5 U 5 U 5 U 5 U 20.2 UJ 5 U 10.1 U 5 UJ 10.1 U 5 U 5 U	5 U 5 U 5 U 5 U 20.2 UJ 5 U 10.1 U 5 U 10.1 UJ 5 U 5 U	5 U 5 U 5 U 5 U 20.2 UJ 5 U 10.1 U 5 U 5 U 5 U 5 U 5 U 5 U 5 U 5 U 5 U 5	5 U 5 U 5 U 20.1 UJ 5 U 10 U 5 U 10 U 5 U 5 U	5 U 5 U 5 U 5 U 20.2 UJ 5 U 10.1 U 5 U 10.1 U 5 U 5 U	5.1 U 5.1 U 5.1 U 5.1 U 20.4 UJ 5.1 U 10.2 U 5.1 UJ 10.2 U 5.1 UJ 10.2 U 5.1 UJ	μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L	µg/L µg/L µg/L µg/L µg/L µg/L µg/L µg/L µg/L µg/L µg/L	µg/L µg/L µg/L µg/L µg/L µg/L µg/L µg/L µg/L µg/L µg/L µg/L	μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L	µg/L 28 µg/L 5600 µg/L 70000 µg/L µg/L	280 µg/L 260 µg/L 56000 µg/L 700000 µg/L µg/L µg/L µg/L µg/L µg/L µg/L µg/L	μg/L 150 μg/L 29000 μg/L 370000 μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L	µg/L 15 µg/L 2900 µg/L 37000 µg/L µg/L µg/L µg/L µg/L µg/L µg/L µg/L

	Location:	Inflow to R-40	Inflow to R-143	B MW-1	MW-2	MW-3	MW-3 (Dup)	MW-4		Maximum Contar	ninant Levels		Florida F	Brownfields	Risk-based C	oncentrations
	SJRWMD No.	None	None	OR0018	OR0819	OR0818	OR0818	OR0141		maximum contain	IIII LOVOIO		Tiorida I	Stowninelas	THOR BUSCU G	JIIOGIRI GETOTO
	SampleID :	FP-03-01-007				FP-03-01-002		3 FP-03-01-00	-	Florida MCL / SMCL	Federal MCL/SMCL ²	Federal MCL/SMCL ²	Florida Brownfield	Florida Brownfield	Regional USEPA RBC 4	Regional USEPA RBC 4,5
	DateCollected :	05/28/2003	05/28/2003	05/29/2003	05/27/2003	05/27/2003	05/27/2003	05/28/2003	(Chapter 62-550, FAC) 1	(Chapter 62-550, FAC) 1			(62-785) ³	(62-785) ³	EPA Region III	EPA Region IV
	Matrix : SampleType :	Stormwater Normal	Stormwater Normal	Groundwater Normal	Groundwater Normal	Groundwater Normal	Groundwater Field Duplicate	_	MCL MCL	SMCL	MCL	SMCL	GCTL	Groundwater LY/PQ	Tap Water (HQ=0.1)	(HQ=0.1)
Parameter Group and Name	Unit	Result Qua							l Criteria Unit	Criteria Unit	Criteria Unit	Criteria Unit	Criteria Unit	Criteria Unit	Criteria Unit	Criteria Unit
METHAPYRILENE	μg/L	10.1 UJ	10.1 UJ	10.1 UJ	10.1 UJ	10 UJ	10.1 UJ	10.2 UJ	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
METHYL METHANESULFONATE	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
2-METHYLNAPHTHALENE	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	μg/L	μg/L	μg/L	μg/L	20 μg/L	200 μg/L	1500 μg/L	1500 µg/L
2-METHYLPHENOL (o-CRESOL)	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	µg/L	µg/L	μg/L	μg/L	350 µg/L	3500 µg/L	1800 μg/L	180 µg/L
3-METHYLCHOLANTHRENE	μg/L	5 U	5 U	5 U	5 U 5 UJ	5 U	5 U	5.1 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
4-METHYLPHENOL (p-CRESOL) 1,4-NAPHTHOQUINONE	μg/L μg/L	5 UJ 10.1 U	5 UJ 10.1 U	5 UJ 10.1 U	10.1 U	5 UJ 10 U	5 UJ 10.1 U	5.1 UJ 10.2 U	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L
1-NAPHTHYLAMINE	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
2-NITROANILINE	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	μg/L	μg/L	µg/L	μg/L	50 µg/L	500 μg/L	2.2 µg/L	0.22 µg/L
3-NITROANILINE	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	μg/L	μg/L	µg/L	μg/L	μg/L	μg/L	110 µg/L	11 µg/L
4-NITROANILINE	μg/L	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 U	5.1 UJ	μg/L	μg/L	μg/L	μg/L	20 μg/L	200 μg/L	110 μg/L	11 µg/L
4-NITROQUINOLINE-N-OXIDE	μg/L	10.1 U	10.1 U	10.1 UJ	10.1 UJ	10 UJ	10.1 UJ	10.2 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
5-NITRO-o-TOLUIDINE	μg/L	10.1 U	10.1 U	10.1 U	10.1 U	10 U	10.1 U	10.2 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
N-NITROSO-DI-N-BUTYLAMINE	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	μg/L	μg/L	μg/L	μg/L	µg/L	μg/L	µg/L	µg/L
N-NITROSODI-n-PROPYLAMINE	μg/L	5 U	5 U	5 ∪	5 U	5 ∪	5 ∪	5.1 U	µg/L	µg/L	µg/L	μg/L	4 µg/L	400 μg/L	0.0096 μg/L	0.0096 µg/L
N-NITROSODIETHYLAMINE	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	μg/L	µg/L	μg/L	μg/L	µg/L	μg/L	μg/L	µg/L
N-NITROSODIMETHYLAMINE N-NITROSODIPHENYLAMINE	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	μg/L	μg/L	μg/L	μg/L	2 µg/L	200 µg/L	0.0013 µg/L	0.0013 μg/L
N-NITROSOMORPHOLINE	μg/L μg/L	5 U 5 U	5 U	5 U	5 U	5 U	5 UJ 5 U	5.1 U 5.1 U	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	7 μg/L μg/L	700 µg/L µg/L	14 μg/L μg/L	14 μg/L μg/L
1,3,5-TRINITROBENZENE	μg/L	20.2 U	20.2 U	20.2 U	20.2 U	20.1 U	20.2 U	20.4 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	µg/L
N-NITROSOPIPERIDINE	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	μg/L	µg/L	μg/L	µg/L	μg/L	μg/L	μg/L	μg/L
N-NITROSOPYRROLIDINE	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
NITROBENZENE	μg/L	5 ∪	5 U	5 ∪	5 ∪	5 U	5 ∪	5.1 ∪	μg/L	μg/L	μg/L	μg/L	4 μg/L	40 μg/L	3.4 µg/L	0.34 µg/L
NITROSOMETHYLETHYLAMINE	μg/L	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5.1 UJ	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
O,O,O-TRIETHYL PHOSPHOROTHIOATE	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
o-TOLUIDINE	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	µg/L	µg/L	μg/L	µg/L	µg/L	µg/L	µg/L	µg/L
2-PICOLINE (ALPHA-PICOLINE) D-PHENYLENEDIAMINE	µg/L	5 UJ 10.1 U	5 UJ 10.1 U	5 UJ 10.1 U	5 UJ 10.1 U	5 UJ 10 U	5 UJ 10.1 U	5.1 UJ 10.2 U	μg/L	µg/L	μg/L	µg/L	μg/L	μg/L	μg/L	μg/L
PENTACHLOROBENZENE	μg/L μg/L	10.1 U	10.1 U	10.1 U	10.1 U	5 U	5 U	5.1 U	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L
PENTACHLOROETHANE	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
PENTACHLORONITROBENZENE	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	μg/L	µg/L	µg/L	μg/L	μg/L	μg/L	μg/L	µg/L
PENTACHLOROPHENOL	μg/L	10.1 U	10.1 U	10.1 U	10.1 U	10 U	10.1 U	10.2 U	1 μg/L	μg/L	1 µg/L	μg/L	1 µg/L	μg/L	0.56 µg/L	0.56 µg/L
PHENACETIN	μg/L	10.1 U	10.1 U	10.1 U	10.1 U	10 U	10.1 U	10.2 U	µg/L	µg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
PHENOL	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	μg/L	μg/L	μg/L	μg/L	10 μg/L	100 μg/L	22000 μg/L	2200 µg/L
PRONAMIDE	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
PYRIDINE	μg/L	5 UJ	5 UJ	5 UJ	5 U	5 U	5 U	5.1 UJ	µg/L	µg/L	μg/L	µg/L	µg/L	µg/L	µg/L	µg/L
SAFROLE 1.2.4.5-TETRACHLOROBENZENE	µg/L	5 U 5 U	5 U	5 U	5 U	5 U	5 U	5.1 U 5.1 U	μg/L	µg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
2,3,4,6-TETRACHLOROPHENOL	μg/L μg/L	10.1 U	10.1 U	10.1 U	10.1 U	10 U	10.1 U	10.2 U	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L
1,2,4-TRICHLOROBENZENE	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	70 μg/L	μg/L	70 μg/L	μg/L	70 μg/L	700 µg/L	190 µg/L	19 µg/L
2,4,5-TRICHLOROPHENOL	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	µg/L	μg/L	µg/L	μg/L	4 µg/L	μg/L	3700 µg/L	370 µg/L
2,4,6-TRICHLOROPHENOL	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	μg/L	μg/L	μg/L	μg/L	5 μg/L	μg/L	6.1 µg/L	6.1 µg/L
Organochlorine Pesticides																
ALDRIN	μg/L	0.052 ∪	0.053 ∪	0.052 U	0.053 ∪	0.052 U	0.051 U	0.052 ∪	μg/L	μg/L	μg/L	μg/L	0.005 µg/L	0.5 µg/L	0.004 µg/L	0.004 µg/L
ALPHA-CHLORDANE	μg/L	0.052 U	0.053 U	0.052 U	0.053 U	0.052 U	0.051 U	0.052 U	2 μg/L	μg/L	2 µg/L	μg/L	2 µg/L	200 μg/L	0.19 μg/L	0.19 µg/L
GAMMA-CHLORDANE	μg/L	0.052 U 0.052 U	0.053 U	0.052 U 0.052 U	0.053 U 0.053 U	0.052 U 0.052 U	0.051 U 0.051 U	0.052 U 0.052 U	2 µg/L	µg/L	2 μg/L	µg/L	2 µg/L	200 µg/L	0.19 µg/L	0.19 µg/L
ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE)	1.3		0.053 U						μg/L	µg/L	μg/L	µg/L	0.006 µg/L	0.6 µg/L	0.011 µg/L	0.011 µg/L
BETA BHC (BETA HEXACHLOROCYCLOHEXANE) DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE)	μg/L μg/L	0.052 U 0.062 UJ	0.053 U 0.064 UJ	0.052 U 0.062 U	0.053 U 0.063 UJ	0.052 U 0.062 UJ	0.051 U 0.061 UJ	0.052 U 0.062 UJ	μg/L μg/L	μg/L μg/L	μg/L	μg/L μg/L	0.02 µg/L 2.1 µg/L	2 μg/L 21 μg/L	0.037 μg/L 0.037 μg/L	0.037 μg/L 0.037 μg/L
GAMMA BHC (LINDANE)	μg/L μg/L	0.062 UJ	0.064 UJ 0.053 U	0.062 U	0.063 UJ	0.062 UJ 0.052 U	0.061 UJ 0.051 U	0.062 UJ	μg/L 0.2 μg/L	μg/L μg/L	μg/L 0.2 μg/L	μg/L μg/L	2.1 μg/L 0.2 μg/L	21 µg/L 20 µg/L	0.037 μg/L 0.052 μg/L	0.037 μg/L 0.052 μg/L
DIELDRIN	μg/L μg/L	0.052 U	0.053 U	0.052 U	0.053 U	0.052 U	0.051 U	0.052 U	μg/L	μg/L	μg/L	μg/L	0.2 µg/L 0.005 µg/L	0.5 μg/L	0.0042 μg/L	0.0042 µg/L
ALPHA ENDOSULFAN	μg/L	0.052 U	0.053 U	0.052 U	0.053 U	0.052 U	0.051 U	0.052 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
BETA ENDOSULFAN	μg/L	0.052 U	0.053 U	0.052 U	0.053 U	0.052 U	0.051 U	0.052 U	μg/L	μg/L	μg/L	µg/L	μg/L	µg/L	μg/L	μg/L
ENDOSULFAN SULFATE	μg/L	0.052 U	0.053 U	0.052 U	0.053 U	0.052 U	0.051 U	0.052 U	μg/L	µg/L	μg/L	µg/L	μg/L	μg/L	μg/L	μg/L
ENDRIN	μg/L	0.052 U	0.053 U	0.052 U	0.053 U	0.052 U	0.051 U	0.052 U	2 µg/L	μg/L	2 µg/L	μg/L	2 µg/L	20 μg/L	11 μg/L	1.1 µg/L
ENDRIN ALDEHYDE	μg/L	0.062 U	0.064 U	0.062 U	0.063 U	0.062 U	0.061 U	0.062 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
ENDRIN KETONE	μg/L	0.052 U	0.053 U	0.052 U	0.053 U	0.052 U	0.051 U	0.052 U	µg/L	μg/L	µg/L	μg/L	µg/L	μg/L	μg/L	μg/L
HEPTACHLOR EDOVIDE	μg/L	0.052 U	0.053 U	0.052 U	0.053 U	0.052 U	0.051 U	0.052 U	0.4 µg/L	µg/L	0.4 µg/L	µg/L	0.4 µg/L	40 μg/L	0.0023 µg/L	0.0023 µg/L
HEPTACHLOR EPOXIDE	µg/L	0.052 U	0.028 J	0.052 U	0.053 U	0.052 U	0.051 U	0.052 U	0.2 µg/L	µg/L	0.2 μg/L	µg/L	0.2 µg/L	20 µg/L	0.0012 µg/L	0.0012 µg/L
p,p'-DDD p,p'-DDE	µg/L	0.052 U 0.062 U	0.053 U 0.064 U	0.052 U 0.062 U	0.053 U 0.063 U	0.052 U 0.062 U	0.051 U 0.061 U	0.052 U 0.062 U	μg/L	µg/L	μg/L	µg/L	0.1 µg/L	10 µg/L	0.28 µg/L	0.28 µg/L
p,p'-DDT	μg/L μg/L	0.062 U 0.052 U	0.064 U 0.053 U	0.062 U	0.063 U	0.062 U	0.061 U 0.051 U	0.062 U	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	0.1 μg/L 0.1 μg/L	10 μg/L 10 μg/L	0.2 μg/L 0.2 μg/L	0.2 μg/L 0.2 μg/L
METHOXYCHLOR	μg/L	0.052 U	0.053 U	0.052 U	0.053 U	0.052 U	0.051 U	0.052 U	μg/L 40 μg/L	μg/L	μg/L 40 μg/L	μg/L	40 μg/L	400 µg/L	180 µg/L	18 µg/L
TOXAPHENE	μg/L	3.1 U	3.2 U	3.1 UJ	3.2 UJ	3.1 UJ	3.1 UJ	3.1 U	3 μg/L	μg/L	3 μg/L	μg/L	3 μg/L	300 µg/L	0.061 µg/L	0.061 µg/L
Organophosphorous Pesticides	F3-								- F 3' =	F3 =	, , , , , , , , , , , , , , , , , , ,	F3-=			F3 =	F3' =
ATRAZINE	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	3 µg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
AZINPHOS, METHYL (GUTHION)	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	μg/L	μg/L	μg/L	μg/L	10.5 µg/L	105 μg/L	μg/L	μg/L
BOLSTAR	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
CHLORPYRIFOS	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	μg/L	µg/L	μg/L	µg/L	21 µg/L	210 µg/L	110 μg/L	11 µg/L
COUMAPHOS DEMETON-O	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	μg/L	μg/L	μg/L	μg/L	2.1 µg/L	21 µg/L	μg/L	μg/L
DEMETON-O DEMETON-S	μg/L μg/l	10 U 10 U	10 U	10 U 10 U	10 U 10 U	10 U 10 U	10 U 10 U	10 U 10 U	μg/L ug/l	μg/L μg/l	μg/L μg/l	μg/L μg/l	μg/L μg/l	μg/L μg/l	μg/L μg/l	μg/L μg/l
DEIVIE TOIN-3	μg/L	10 0	100	100	100	100	100	100	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L

		1. fl t. D. 40	II. 0	1 AMA/ 4	1 111/0	1444.0	1 MM (O (D .)	B 40 A / 4	I	Marrian Canta			Florido D		Diele bessel	
	Location:	Inflow to R-40	Inflow to R-143	MW-1	MW-2	MW-3	MW-3 (Dup)	MW-4		Maximum Contar	minant Leveis		Fiorida E	Brownfields	RISK-based	Concentrations
	SJRWMD No.	None	None	OR0018 FP-03-01-009	OR0819 FP-03-01-001	OR0818 FP-03-01-002	OR0818	OR0141	Florida MCL / SMCL	T =	T =	T =		I	4	T
	SampleID : DateCollected :	FP-03-01-007 05/28/2003	FP-03-01-008 05/28/2003	05/29/2003	05/27/2003	05/27/2003	05/27/2003	05/28/2003		Florida MCL / SMCL	Federal MCL/SMCL ²	Federal MCL/SMCL ²	Florida Brownfield	Florida Brownfield	Regional USEPA RBC ⁴	Regional USEPA RBC 4,5
	Matrix :								(Chapter 62-550, FAC) ¹ MCL	(Chapter 62-550, FAC) 1		0.40	(62-785) ³	(62-785) 3	EPA Region III	EPA Region IV
	SampleType :	Stormwater Normal	Stormwater Normal	Groundwater Normal	Groundwater Normal	Groundwater Normal	Groundwater Field Duplicate	_	IVICL	SMCL	MCL	SMCL	GCTL	Groundwater LY/PQ	Tap Water	#10 0 th
Parameter Group and Name	Unit Unit	Result Qual	Result Qual						Criteria Unit	Criteria Unit	Criteria Unit	Criteria Unit	Criteria Unit	Criteria Unit	(HQ=0.1) Criteria Unit	(HQ=0.1) Criteria Unit
DIAZINON	μg/L	10 II	10 U	10 U	10 II	10 U	10 II	10 LI		µg/L	µg/L	ug/L	ug/L	µg/L	33 µg/L	3.3 µg/L
DICHLORVOS		10 U			10 0	10 U	10 U	10 0	μg/L	1.0	1.0	1.0	1.0	1.0	1.0	10
	μg/L		10 U	10 U	10 U			10 ∪	µg/L	µg/L	µg/L	μg/L	0.1 µg/L	1 µg/L	0.23 μg/L	0.23 µg/L
DIMETHOATE	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	µg/L	μg/L	μg/L	μg/L	μg/L	μg/L	µg/L	µg/L
DISULFOTON	μg/L	10 U	10 ∪	10 U	10 ∪	10 ∪	10 U	10 ∪	μg/L	μg/L	μg/L	μg/L	0.3 µg/L	3 μg/L	1.5 µg/L	0.15 μg/L
ETHOPROP	μg/L	10 U	10 U	10 U	10 U	10 ∪	10 U	10 U	μg/L	μg/L	μg/L	μg/L	0.11 µg/L	1.1 μg/L	μg/L	μg/L
FAMPHUR	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
FENSULFOTHION	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	μg/L	μg/L	μg/L	μg/L	1.75 µg/L	17.5 μg/L	μg/L	μg/L
FENTHION	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
MERPHOS	μg/L	10 U	10 ∪	10 ∪	10 ∪	10 ∪	10 ∪	10 U	μg/L	μg/L	μg/L	μg/L	0.21 µg/L	μg/L	1.1 μg/L	0.11 µg/L
MEVINPHOS	μg/L	10 UJ	10 UJ	10 UJ	10 U	10 U	10 U	10 UJ	μg/L	μg/L	μg/L	μg/L	1.75 µg/L	17.5 µg/L	μg/L	μg/L
NALED	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	μg/L	μg/L	μg/L	μg/L	14 µg/L	140 µg/L	73 µg/L	7.3 µg/L
PARATHION, ETHYL	μg/L	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	μg/L	μg/L	μg/L	μg/L	42 µg/L	420 µg/L	220 µg/L	22 µg/L
PARATHION, METHYL	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
PHORATE	μg/L	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	μg/L	μg/L	μg/L	μg/L	1.4 µg/L	14 µg/L	7.3 µg/L	0.73 µg/L
RONNEL	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	μg/L	μg/L	μg/L	µg/L	350 µg/L	3500 µg/L	1800 µg/L	180 µg/L
SIMAZINE	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	μg/L	µg/L	μg/L	μg/L	μg/L	μg/L	µg/L	μg/L
STIROFOS (TETRACHLORVINPHOS)	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	μg/L	µg/L	μg/L	μg/L	μg/L	µg/L	µg/L	μg/L
THIODIPHOSPHORIC ACID TETRAETHYL ESTER	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	μg/L	µg/L	μg/L	μg/L	μg/L	µg/L	µg/L	μg/L
TOKUTHION (PROTHIOFOS)	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
TRICHLORONATE	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
ZINOPHOS	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	μg/L	µg/L	μg/L	μg/L	µg/L	µg/L	µg/L	µg/L
Polychlorinated biphenols (PCBs)	pg/L	10 0	10 0	10 0	10 0	100	100	10 0	pg/L	pg/L	P9/L	pg/L	pg/L	P9/L	pg/L	
PCB-1016 (AROCHLOR 1016)	μg/L	0.52 U	0.53 U	0.52 U	0.53 U	0.52 U	0.51 U	0.52 U	μg/L	μg/L	μg/L	μg/L	1 µg/L	10 µg/L	2.6 µg/L	0.26 µg/L
PCB-1221 (AROCHLOR 1221)	μg/L	0.32 0	1.1 U	0.32 0	0.55 0	0.32 0	0.510	0.52 0	1	μg/L	0.5 µg/L					0.034 µg/L
,		0.50		0.50	0.50	0.50	0.54	0.50 11	µg/L	1.0		μg/L	0.5 µg/L	50 μg/L	0.034 µg/L	10
PCB-1232 (AROCHLOR 1232)	μg/L	0.52 ∪	0.53 ∪	0.52 U	0.53 U	0.52 U	0.51 U	0.52 U	µg/L	μg/L	0.5 µg/L	μg/L	0.5 µg/L	50 μg/L	0.034 μg/L	0.034 µg/L
PCB-1242 (AROCHLOR 1242)	μg/L	0.52 U	0.53 U	0.52 U	0.53 U	0.52 U	0.51 U	0.52 U	μg/L	μg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
PCB-1248 (AROCHLOR 1248)	μg/L	0.52 ∪	0.53 ∪	0.52 ∪	0.53 ∪	0.52 ∪	0.51 U	0.52 ∪	μg/L	μg/L	0.5 μg/L	μg/L	0.5 µg/L	50 μg/L	0.034 µg/L	0.034 µg/L
PCB-1254 (AROCHLOR 1254)	μg/L	0.52 U	0.53 U	0.52 U	0.53 U	0.52 U	0.51 U	0.52 U	μg/L	μg/L	μg/L	μg/L	1 µg/L	10 μg/L	0.73 μg/L	0.073 µg/L
PCB-1260 (AROCHLOR 1260)	μg/L	0.52 ∪	0.53 ∪	0.52 ∪	0.53 ∪	0.52 ∪	0.51 U	0.52 ∪	μg/L	μg/L	0.5 μg/L	μg/L	0.5 µg/L	50 μg/L	0.034 μg/L	0.034 µg/L
Herbicides	_															
2,4,5-T (TRICHLOROPHENOXYACETIC ACID)	μg/L	0.53 U	0.53 U	0.53 R	0.52 U	0.51 U	0.51 U	0.53 U	μg/L	μg/L	μg/L	μg/L	70 µg/L	700 µg/L	370 μg/L	37 µg/L
2,4-D (DICHLOROPHENOXYACETIC ACID)	μg/L	0.53 U	0.53 U	0.53 R	0.52 U	0.51 U	0.51 U	0.53 U	70 μg/L	μg/L	70 μg/L	μg/L	70 μg/L	700 µg/L	61 µg/L	6.1 µg/L
DALAPON	μg/L	0.53 UJ	0.53 UJ	0.53 R	0.52 U	0.51 U	0.51 U	0.53 UJ	200 µg/L	μg/L	200 µg/L	μg/L	200 µg/L	μg/L	1100 µg/L	110 µg/L
DICAMBA	μg/L	0.53 U	0.53 U	0.53 R	0.52 U	0.51 U	0.51 U	0.53 U	μg/L	µg/L	μg/L	μg/L	210 µg/L	μg/L	1100 µg/L	110 µg/L
DICHLOROPROP	μg/L	0.53 U	0.53 ∪	0.53 R	0.52 ∪	0.51 U	0.51 U	0.53 U	μg/L	μg/L	μg/L	μg/L	0.1 µg/L	1 μg/L	μg/L	μg/L
DINOSEB	μg/L	0.53 UJ	0.53 UJ	0.53 R	0.52 U	0.51 U	0.51 U	0.53 UJ	7 µg/L	μg/L	7 μg/L	μg/L	7 µg/L	70 μg/L	37 μg/L	3.7 µg/L
PICLORAM	μg/L	11 UJ	10 UJ	11 R	10 UJ	10 UJ	10 UJ	11 UJ	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
SILVEX (2,4,5-TP)	μg/L	0.53 U	0.53 U	0.53 R	0.52 U	0.51 U	0.51 U	0.53 U	50 μg/L	μg/L	50 μg/L	μg/L	50 μg/L	500 μg/L	290 µg/L	29 µg/L

Notes:
Shaded cells with bolded values represent detections equal to or above promulgated regulatory criteria.

Shaded cells with boxed values represent detections equal to or above Risk-Based Criteria.

Shaded cells with bolded and boxed values represent detections equal to or above promulgated regulatory and Risk-Based Criteria.

Bolded values represent reporting limits equal or above promulgated regulatory criteria.

Boxed values represent reporting limits equal or above Risk-Based Criteria.

Bolded and boxed values represent reporting limits equal or above promulgated regulatory criteria and Risk-Based Criteria.

Explanation of Qualifiers

"=" Represents a detection at the value shown

"U" Represents a nondetection above the reporting limit shown

"J" Represents an estimated value between the method detection limit and the practical quantitation limit.

"UJ" Represents a nondetection above the value shown

"R" Represents rejected data

Blanks for the criteria and screening values represent no established values.

Explanation of Units pCi/L - picoCuries per liter

mg/L - milligrams per liter

NTU - Nephelometric Turbidity Units

μg/L - micrograms per liter

Sources:

¹ Florida Ground Water Guidance Concentrations, 62-520.400 FAC, June 2, 1994: Chapter 62-550 Drinking Water Standards, Monitoring and Reporting, April 10, 2003

² Drinking Water Regulations and Health Advisories, Office of Water, USEPA, October 1996.

³ Brownfield's Cleanup Criteria Rule, Groundwater Cleanup Target Levels, Draft Chapter 62-785 F.A.C., 1997.

⁴ EPA Region III Risk-Based Concentration Table, Tap Water Values, R.L. Smith, October 1997.

⁵ EPA Region IV Supplemental Guidance to RAGS: Region 4 Bulletins, Human Health Risk Assessment, November 1995; HQ=0.1 applied to noncarcinogens.

Definitions:MCL - Maximum Contaminant Level

SMCL - Secondary MCL

GCTL - Groundwater Cleanup Target Level

LY/PQ - Low Yield/Poor Quality

RBC - Risk-based Concentration

ı	Loc-4-	Inflow to D 40	Inflore to D 440	NAVA/ 4	MANA/ O	MANA/ O	MW 2 /D	NA\A/ 4	T	Maximum Contan	ninant Lovels		Elavid-	Brownfields	Dick base 4	Concentrations
	Location: SJRWMD No.	Inflow to R-40 None	Inflow to R-143 None	MW-1 OR0018	MW-2 OR0819	MW-3 OR0818	MW-3 (Dup) OR0818	MW-4 OR0141	1	waxiinum Contan	IIIIdIII Levels		Fiorida	Brownfields	RISK-DASED (Jonceminations
	SampleID :	FP-03-01-007	FP-03-01-008	FP-03-01-009	FP-03-01-00	1 FP-03-01-002	FP-03-01-003	FP-03-01-006		Florida MCL / SMCL	Federal MCL/SMCL ²	Federal MCL/SMCL ²	Florida Brownfield	_	Regional USEPA RBC ⁴	Regional USEPA RBC 4,5
·	DateCollected : Matrix :	05/28/2003 Stormwater	05/28/2003 Stormwater	05/29/2003 Groundwater	05/27/2003 Groundwate	05/27/2003 r Groundwater	05/27/2003 Groundwater	05/28/2003 Groundwater	(Chapter 62-550, FAC) ¹ MCL	(Chapter 62-550, FAC) ¹ SMCL	MCL	SMCL	(62-785) ³ GCTL	(62-785) ³ Groundwater LY/PQ	EPA Region III Tap Water	EPA Region IV
	SampleType :	Normal	Normal	Normal	Normal	Normal	Field Duplicate						0012	Olounawater E171 Q	(HQ=0.1)	(HQ=0.1)
Parameter Group and Name Field Parameters	Unit	Result Qua	al Result Qual	Result Qua	Result Qua	al Result Qual	Result Qual	Result Qual	Criteria Unit	Criteria Unit	Criteria Unit	Criteria Unit	Criteria Unit	Criteria Unit	Criteria Unit	Criteria Unit
pH	Std. Units	5.89	6.45	9.22	7.38	11.1	11.1	10.17								
TEMPERATURE CONDUCTANCE	°C µmhos	32.8 139	29.2 218	25.4 226	25.5 360	25.4 501	25.4 501	24.9 131								
TURBIDITY	NTU	2.95	4.79	1.2	1.24	6.72	6.72	1.45								
DISSOLVED OXYGEN	mg/L	2.7	3.19	0.82	1.81	0.22	0.22	0.24								
OXIDATION/REDUCTION POTENTIAL	mV	211	195	1	252	-140	-140	10								
Radiologicals ALPHA, GROSS	pCi/l	2.4 U	0.9 U	3.1 U	4.5 =	3.9 =	2.5 U	2.9 =	15 pCi/L	pCi/L	15 pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L
BETA, GROSS	pCi/l	2.5 =	1 =	3.3 =	37.8 =	54.7 =	42.1 =	2.2 U	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L
Anions			=0	150				400								
ALKALINITY, BICARBONATE (AS CACO3) CHLORIDE (AS CL)	mg/L μg/L	45.5 = 10600 =	53 = 14300 =	152 = 6590 =	211 = 3580 =	1 U 3060 =	11 = 3000 =	188 = 4470 =	mg/L µg/L	mg/L 250000 µg/L	mg/L µg/L	mg/L 250000 µg/L	mg/L 250000 μg/L	mg/L 2500000 μg/L	mg/L μg/L	mg/L µg/L
SULFATE (AS SO4)	mg/L	9.09 =	11.3 =	37.5 =	26.7 =	3.26 =	3.19 =	0.912 J	mg/L	250 mg/L	mg/L	250 mg/L	250 mg/L	2500 mg/L	mg/L	mg/L
Nutrients																
TOTAL NITROGEN, ALL FORMS, CALCULATED	mg/L	0.484 = 0.213 J	0.358 = 0.21 U	0.198 = 0.427 =	1.99 = 1.59 =	0.901 = 1.04 =	0.741 =	0.453 =	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
NITROGEN, AMMONIA (AS N) NITROGEN, KJELDAHL, TOTAL	mg/L mg/L	0.213 J 0.484 U	0.21 U 0.358 U	0.427 = 0.198 U	1.59 =	1.04 = 0.901 U	0.431 = 0.741 U	0.21 U 0.453 U	mg/L mg/L	mg/L mg/L	mg/L mg/L	mg/L mg/L	mg/L mg/L	mg/L mg/L	mg/L mg/L	mg/L mg/L
NITROGEN, NITRITE	mg/L	0.05 U	0.05 U	0.05 U	0.535 =	0.05 U	0.05 U	0.05 U	1 mg/L	mg/L	1 mg/L	mg/L	1 mg/L	mg/L	3.7 mg/L	3.7 mg/L
NITROGEN, NITRATE-NITRITE	mg/L	0.05 U	0.05 U	0.05 U	0.67 =	0.05 U	0.05 U	0.05 U	mg/L	mg/L	10 mg/L	mg/L	10 mg/L	mg/L	mg/L	mg/L
PHOSPHORUS, TOTAL (AS P) PHOSPHORUS. TOTAL ORTHOPHOSPHATE (AS P)	mg/L	0.148 =	0.103 = 0.046 =	0.226 =	0.084 =	0.051 =	0.101 =	0.143 =	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
PHOSPHORUS, TOTAL ORTHOPHOSPHATE (AS P) PHOSPHORUS, TOTAL ORGANIC (AS P)	mg/L mg/L	0.078 = 0.102 =	0.046 =	0.037 =	0.031 =	0.027 =	0.038 =	0.122 =	mg/L mg/L	mg/L mg/L	mg/L mg/L	mg/L mg/L	mg/L mg/L	mg/L mg/L	mg/L mg/L	mg/L mg/L
General Chemistry	Ť								<i>3,-</i>	.9-		, .	, .	19.=		, , , , , , , , ,
TOTAL DISSOLVED SOLIDS (RESIDUE, FILTERABLE		102 =	125 =	117 =	361 =	386 =	274 =	265 =	mg/L	500 mg/L	mg/L	500 mg/L	500 mg/L	500 mg/L	mg/L	mg/L
TURBIDITY	NTU PH UNITS	1.6 = 6.53 =	1.7 = 6.31 =	0.12 U 7.5 =	0.12 U 7.44 =	0.12 U 11.1 =	1 =	0.12 U 7.79 =	μg/L μg/L	μg/L μg/L	µg/L µg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L
COLOR	COLOR UNIT	20 =	20 =	7.5 <u>–</u> 5 J	0 U	5 J	5 J	0 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
BIOLOGIC OXYGEN DEMAND, FIVE DAY	mg/L	2 U	2 U	2 U	2 U	2 U	2 U	2 U	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
TOTAL ORGANIC CARBON	mg/L	4.85 =	27.5 =	27.8 =	3.19 U	2.18 U	2.83 U	20.8 =	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
DISSOLVED ORGANIC CARBON Metals	mg/L	4.94 U	23.8 =	24.3 =	1.52 U	2.67 U	2.81 U	2.79 U	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
ALUMINUM	μg/L	73.7 U	76.3 U	150 U	35 U	37.7 U	35 U	35 U	μg/L	200 μg/L	μg/L	50 μg/L	μg/L	200 μg/L	37000 µg/L	3700 µg/L
ANTIMONY	μg/L	2.5 U	2.5 U	2.5 U	2.66 J	2.5 U	2.5 U	2.5 U	6 μg/L	μg/L	6 µg/L	μg/L	6 µg/L	60 µg/L	15 μg/L	1.5 µg/L
ARSENIC	μg/L	2.04 U	2.04 U	10.5 =	19.4 =	3.06 J	2.04 U	2.04 U	50 μg/L	μg/L	50 μg/L	µg/L	50 μg/L	5000 μg/L	0.045 µg/L	0.045 µg/L
BARIUM BERYLLIUM	μg/L μg/L	14.3 = 0.0945 U	16.6 = 0.0945 U	11.1 = 0.0945 U	35.9 = 0.0945 U	51.1 = 0.0945 U	35.3 = 0.0945 U	6 = 0.0945 U	2000 μg/L 4 μg/L	μg/L μg/L	2000 μg/L 4 μg/L	μg/L μg/L	2000 μg/L 4 μg/L	20000 μg/L 400 μg/L	2600 µg/L 0.016 µg/L	260 µg/L 0.016 µg/L
CADMIUM	μg/L	0.356 U	0.356 U	0.356 U	0.356 U	0.0343 U	0.356 U	0.356 U	5 μg/L	µg/L	5 μg/L	μg/L	5 μg/L	515 µg/L	18 µg/L	1.8 µg/L
CALCIUM	μg/L	18500 =	21500 =	61800 =	52700 =	17100 =	20400 =	65600 =	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
CHROMIUM, TOTAL	μg/L	0.712 J	0.57 U	0.57 U	1.13 U	1.79 U	1.13 U	0.57 U	100 μg/L	μg/L	100 μg/L	μg/L	100 μg/L	1000 µg/L	μg/L	μg/L
COBALT COPPER	μg/L	0.569 U 3.43 U	0.569 U 4.34 U	0.569 U 1.17 U	0.569 U 1.17 U	0.569 U 1.17 U	0.569 U 1.17 U	0.569 U 1.17 U	μg/L μg/l	μg/L 1000 μg/L	μg/L	μg/L 1000 μg/L	μg/L 1000 μg/L	μg/L 10000 μg/L	2200 µg/L 130000 µg/L	220 µg/L 13000 µg/L
IRON	μg/L μg/L	496 =	448 =	16.7 U	16.7 U	30.5 U	16.7 U	18.4 U	μg/L μg/L	300 μg/L	µg/L µg/L	300 μg/L	300 µg/L	μg/L	11000 µg/L	1100 µg/L
LEAD	μg/L	1.76 U	1.76 U	1.76 U	1.76 U	2.05 U	3.26 U	1.76 U	15 µg/L	μg/L	15 μg/L	μg/L	15 µg/L	150 µg/L	μg/L	μg/L
MAGNESIUM	μg/L	1530 =	2030 =	4700 =	6420 =	1030 =	2080 =	3150 =	μg/L	μg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
MANGANESE MERCURY	μg/L μg/L	9.28 = 0.0162 U	10.1 = 0.0162 U	3.94 = 0.0162 U	2.21 = 0.0162 U	0.413 U 0.0162 U	0.515 U 0.0162 U	1.35 U 0.0162 U	μg/L 2 μg/L	50 µg/L µg/L	μg/L 2 μg/L	50 µg/L µg/L	50 μg/L 2 μg/L	500 μg/L 20 μg/L	840 µg/L 11 µg/L	84 μg/L 1.1 μg/L
NICKEL	μg/L	0.997 U	2.31 J	1.64 J	4.66 J	0.997 U	0.997 U	0.997 U	100 μg/L	μg/L	100 µg/L	µg/L	100 µg/L	1000 µg/L	730 µg/L	73 µg/L
POTASSIUM	μg/L	1350 =	1510 =	1760 =	25400 =	56000 =	41400 =	1450 =	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
SELENIUM SILVER	μg/L	2.1 U 0.325 U	2.1 U 0.325 U	2.1 U 0.325 U	2.1 U 0.325 U	2.1 U 0.325 U	2.1 U	2.1 U 0.75 U	50 μg/L	μg/L	50 μg/L	µg/L	50 μg/L	500 µg/L	180 µg/L	18 µg/L
SODIUM	μg/L μg/L	0.325 U 6110 =	0.325 U 8000 =	0.325 U 5380 =	0.325 U 25600 =	29300 =	0.325 U 22900 =	10200 =	μg/L 160000 μg/L	100 μg/L μg/L	µg/L µg/L	100 μg/L μg/L	100 μg/L μg/L	1000 μg/L μg/L	180 μg/L μg/L	18 μg/L μg/L
THALLIUM	μg/L	2.54 U	2.54 U	2.54 U	2.54 U	2.54 U	2.54 U	2.54 U	2 μg/L	μg/L	2 μg/L	µg/L	2 μg/L	μg/L	μg/L	μg/L
VANADIUM	μg/L	1.93 U	1.82 U	1.8 U	3.73 =	0.47 J	0.447 U	0.573 U	μg/L	μg/L	μg/L	μg/L	49 μg/L	490 μg/L	260 μg/L	26 μg/L
ZINC Total Petroleum Hydrocarbons	μg/L	14.2 =	11.2 =	1.54 U	1.66 U	1.33 U	0.951 U	1.31 U	μg/L	5000 μg/L	μg/L	5000 µg/L	5000 µg/L	50000 μg/L	11000 µg/L	1100 µg/L
PETROLEUM HYDROCARBONS	mg/L	0.43 =	0.49 =	0.35 U	0.34 U	0.34 U	0.38 =	0.36 U	mg/L	mg/L	mg/L	mg/L	5 mg/L	50 mg/L	mg/L	mg/L
Volatile Organic Compounds	<u> </u>									<u> </u>	, J. –					
ACETONE	μg/L	3 J	3.9 J	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	μg/L	μg/L	μg/L	μg/L	700 µg/L	7000 µg/L	3700 μg/L	370 µg/L
ACROLEIN ACRYLONITRILE	μg/L μg/L	10 UJ 5 U	10 UJ 5 U	10 U 5 U	10 UJ 5 U	10 UJ 5 U	10 UJ 5 U	10 UJ 5 U	μg/L μg/L	μg/L μg/L	µg/L µg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L
ALLYL CHLORIDE (3-CHLOROPROPENE)	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
BENZENE	μg/L	1 U	0.18 J	1 U	1 U	0.64 J	0.48 J	1 U	1 µg/L	μg/L	5 µg/L	μg/L	1 µg/L	100 µg/L	0.36 μg/L	0.36 µg/L
BROMODICHLOROMETHANE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	100 μg/L	μg/L	100 μg/L	μg/L	0.6 μg/L	60 μg/L	0.17 μg/L	0.17 µg/L
BROMOFORM	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	100 μg/L	μg/L	100 μg/L	µg/L	4 µg/L	40 μg/L	2.4 µg/L	2.4 µg/L
BROMOMETHANE CARBON DISULFIDE	μg/L μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	9.8 μg/L 700 μg/L	μg/L 7000 μg/L	8.7 µg/L 1000 µg/L	0.87 μg/L 100 μg/L
CARBON TETRACHLORIDE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	μg/L 3 μg/L	µg/L	μg/L 5 μg/L	μg/L	700 μg/L 3 μg/L	300 μg/L	0.16 μg/L	0.16 μg/L
CHLOROBENZENE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	100 μg/L	μg/L	100 μg/L	μg/L	100 μg/L	1000 µg/L	39 µg/L	3.9 µg/L
CHLOROETHANE	μg/L	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 UJ	μg/L	μg/L	μg/L	μg/L	2800 µg/L	28000 μg/L	3.6 µg/L	3.6 µg/L
CHLOROFORM	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	100 μg/L	μg/L	100 μg/L	μg/L	6 μg/L	600 μg/L	0.15 μg/L	0.15 μg/L
CHLOROMETHANE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	μg/L	μg/L	μg/L	μg/L	2.7 μg/L	270 μg/L	1.4 µg/L	1.4 µg/L

	Location:	Inflow to R-40	Inflow to R-143	MW-1	MW-2	MW-3	MW-3 (Dup)	MW-4	I	Maximum Contar	minant Levels		Florida B	Brownfields	Risk-based C	Concentrations
	SJRWMD No.	None	None	OR0018	OR0819	OR0818	OR0818	OR0141								
	SampleID:	FP-03-01-007	FP-03-01-008	FP-03-01-009		FP-03-01-002				Florida MCL / SMCL	Federal MCL/SMCL ²	Federal MCL/SMCL ²	Florida Brownfield	Florida Brownfield	Regional USEPA RBC ⁴	Regional USEPA RBC 4,5
	DateCollected : Matrix :	05/28/2003 Stormwater	05/28/2003 Stormwater	05/29/2003 Groundwater	05/27/2003 Groundwater	05/27/2003 Groundwater	05/27/2003 Groundwater	05/28/2003 Groundwater	(Chapter 62-550, FAC) ¹ MCL	(Chapter 62-550, FAC) ¹ SMCL	MCL	SMCL	(62-785) ³ GCTL	(62-785) ³ Groundwater LY/PQ	EPA Region III Tap Water	EPA Region IV
	SampleType :	Normal	Normal	Normal	Normal	Normal	Field Duplicate		WIGE	SWCL	WICL	SIVICE	GCTL	Groundwater L1/PQ	(HQ=0.1)	(HQ=0.1)
Parameter Group and Name	Unit	Result Qual							Criteria Unit	Criteria Unit	Criteria Unit	Criteria Unit	Criteria Unit	Criteria Unit	Criteria Unit	Criteria Unit
2-CHLORO-1,3-BUTADIENE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
cis-1,2-DICHLOROETHYLENE	μg/L	0.54 J	0.52 J	1 U	2.3 =	2.4 =	3 =	1 U	70 μg/L	μg/L	70 μg/L	μg/L	70 μg/L	700 µg/L	61 µg/L	6.1 µg/L
cis-1,3-DICHLOROPROPENE DIBROMOCHLOROMETHANE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	μg/L	μg/L	μg/L	μg/L	µg/L	μg/L	µg/L	μg/L 0.13 μg/L
DICHLORODIFLUOROMETHANE	μg/L μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	100 μg/L μg/L	μg/L μg/L	100 µg/L µg/L	μg/L μg/L	0.4 µg/L 1400 µg/L	40 μg/L μg/L	0.13 μg/L 390 μg/L	39 µg/L
1,1-DICHLOROETHANE	μg/L	1.1 =	1 U	1 U	1.2 =	1 U	1 U	1 U	μg/L	μg/L	μg/L	μg/L	700 µg/L	7000 µg/L	810 µg/L	81 µg/L
1,1-DICHLOROETHENE	μg/L	1.4 =	1 U	1 U	1 U	1 U	1 U	1 U	7 µg/L	µg/L	7 µg/L	μg/L	7 μg/L	700 µg/L	0.044 µg/L	0.044 µg/L
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	μg/L	1 U	1 U	1 U	1 ∪	1 U	1 U	1 U	0.02 µg/L	μg/L	0.05 µg/L	μg/L	0.02 µg/L	2 μg/L	0.00075 µg/L	0.00075 µg/L
1,2-DICHLOROBENZENE	μg/L	0.34 J	0.6 J	1 U	1 U	1 U	1 U	1 U	600 µg/L	μg/L	600 μg/L	μg/L	600 µg/L	6000 µg/L	64 µg/L	6.4 µg/L
1,2-DICHLOROETHANE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	3 µg/L	μg/L	5 μg/L	μg/L	3 µg/L	300 µg/L	0.12 μg/L	0.12 μg/L
1,2-DICHLOROPROPANE	μg/L	1 U	1U	1 U	1U	1 U	1 U	1U	5 μg/L	μg/L	5 μg/L	µg/L	5 μg/L	500 μg/L	0.16 µg/L	0.16 µg/L
1,3-DICHLOROBENZENE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	μg/L	μg/L	μg/L	µg/L	10 μg/L	100 µg/L	540 µg/L	54 µg/L
1,4-DICHLOROBENZENE ETHYLBENZENE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	75 µg/L	µg/L	75 µg/L	μg/L	75 µg/L	7500 µg/L	0.44 µg/L	0.44 µg/L
2-HEXANONE	μg/L μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	700 μg/L μg/L	30 µg/L µg/L	700 µg/L µg/L	μg/L μg/L	30 µg/L µg/L	300 μg/L μg/L	1300 μg/L 1500 μg/L	130 μg/L 150 μg/L
IODOMETHANE (METHYL IODIDE)	μg/L	2 U	2 U	2 U	2 U	2 U	2 U	2 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
METHYLENE CHLORIDE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 µg/L	μg/L	5 μg/L	μg/L	5 μg/L	500 μg/L	4.1 μg/L	4.1 µg/L
STYRENE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	100 µg/L	μg/L	100 µg/L	μg/L	100 μg/L	1000 μg/L	1600 μg/L	160 μg/L
TETRACHLOROETHYLENE(PCE)	µg/L	0.37 J	0.81 J	1 U	1 U	1 U	1 U	1 U	3 µg/L	μg/L	5 µg/L	µg/L	3 µg/L	300 μg/L	1.1 µg/L	1.1 µg/L
TOLUENE trans-1,2-DICHLOROETHENE	μg/L μg/L	0.65 J 1 U	0.18 J 1 U	1 U	1 U	1 U	1 U 0.16 J	1 U	1000 μg/L 100 μg/L	40 μg/L μg/L	1000 μg/L 100 μg/L	μg/L μg/L	40 μg/L 100 μg/L	400 μg/L 1000 μg/L	750 μg/L 120 μg/L	75 μg/L 12 μg/L
trans-1,3-DICHLOROPROPENE	μg/L	1 U	1 U	1 UJ	1 UJ	1 UJ	1 UJ	1 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
trans-1,4-DICHLORO-2-BUTENE	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	μg/L	μg/L	µg/L	μg/L	μg/L	μg/L	μg/L	μg/L
TRICHLOROETHYLENE (TCE)	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	3 µg/L	μg/L	5 μg/L	μg/L	3 µg/L	300 µg/L	1.6 μg/L	1.6 µg/L
TRICHLOROFLUOROMETHANE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	μg/L	μg/L	μg/L	μg/L	2100 μg/L	21000 µg/L	1300 µg/L	130 µg/L
1,1,1-TRICHLOROETHANE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	200 µg/L	μg/L	200 μg/L	μg/L	200 µg/L	2000 µg/L	540 µg/L	54 µg/L
1,1,2,2-TETRACHLOROETHANE 1,2,3-TRICHLOROPROPANE	μg/L	1 0	10	10	10	10	1 U	10	μg/L	μg/L	µg/L	μg/L	0.5 µg/L	50 μg/L	0.052 µg/L	0.052 µg/L
VINYL ACETATE	μg/L μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	5 μg/L 90 μg/L	μg/L 900 μg/L	0.0015 μg/L 37000 μg/L	0.0015 μg/L 3700 μg/L
VINYL CHLORIDE	μg/L	1 U	1 U	1 U	10	1 U	1 U	10	1 μg/L	μg/L	2 µg/L	μg/L	1 μg/L	100 μg/L	0.019 µg/L	0.019 µg/L
M,P-XYLENE (SUM OF ISOMERS)	μg/L	2 U	2 U	2 U	2 U	2 U	2 U	2 U	μg/L	µg/L	µg/L	μg/L	μg/L	µg/L	12000 µg/L	12000 µg/L
O-XYLENE (1,2-DIMETHYLBENZENE)	μg/L	1 U	0.16 J	1 U	1 U	1 U	1 U	1 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	12000 µg/L	12000 µg/L
XYLENES, TOTAL	μg/L	2 U	2 U	2 U	2 U	2 U	2 U	2 U	10000 µg/L	20 μg/L	10000 μg/L	μg/L	20 μg/L	200 μg/L	12000 μg/L	1200 µg/L
Semi-volatile Organic Compound	/1	511	E LI	Elu	511	5 11		5411	/1		/1	/1	/!	/!	/1	1
ACETOPHENONE ANILINE (PHENYLAMINE, AMINOBENZENE)	μg/L μg/L	5 U 5 U	5 U	5 U 5 U	5 U	5 U	5 U	5.1 U 5.1 U	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L 6.1 μg/L	μg/L 610 μg/L	μg/L 10 μg/L	μg/L 10 μg/L
ARAMITE	μg/L	10.1 U	10.1 U	10.1 U	10.1 U	10 U	10.1 U	10.2 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
4-AMINOBIPHENYL (4-BIPHENYLAMINE)	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
2-ACETYLAMINOFLUORENE	μg/L	10.1 U	10.1 U	10.1 U	10.1 U	10 U	10.1 U	10.2 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
2-AMINONAPHTHALENE (BETA NAPHTHYLAMINE)	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	μg/L	μg/L	µg/L	µg/L	µg/L	μg/L	μg/L	µg/L
BENZYL ALCOHOL BENZYL BUTYL PHTHALATE	μg/L μg/L	10.1 U 5 U	10.1 U 5 U	10.1 U 5 U	10.1 U	10 U	10.1 U 5 U	10.2 U 5.1 U	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	2100 µg/L 1400 µg/L	21000 µg/L 14000 µg/L	11000 μg/L 7300 μg/L	1100 μg/L 730 μg/L
4-BROMOPHENYL PHENYL ETHER	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	2100 µg/L	210 µg/L
4-CHLOROANILINE	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	μg/L	μg/L	μg/L	μg/L	28 μg/L	280 µg/L	150 µg/L	15 µg/L
4-CHLOROPHENYL PHENYL ETHER	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
2-CHLORONAPHTHALENE	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	μg/L	μg/L	μg/L	μg/L	560 μg/L	5600 µg/L	2900 µg/L	290 μg/L
2-CHLOROPHENOL	μg/L	5 U	5 U	5 U	5 U	5 U 10 U	5 U	5.1 U	μg/L	μg/L	μg/L	μg/L	35 µg/L	µg/L	180 μg/L	18 μg/L
1,3-DINITROBENZENE 2,4-DICHLOROPHENOL	μg/L μg/L	10.1 U 5 U	10.1 U	10.1 U 5 U	10.1 U	5 U	10.1 U 5 U	10.2 U 5.1 U	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L 5 μg/L	μg/L μg/L	μg/L 110 μg/L	μg/L 11 μg/L
2,6-DICHLOROPHENOL	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	μg/L	μg/L	µg/L	μg/L	μg/L	μg/L	μg/L	μg/L
2,4-DIMETHYLPHENOL	μg/L	5 U	5 U	5 U	5 U	5 U	<u>5</u> U	5.1 U	μg/L	μg/L	μg/L	μg/L	140 µg/L	1400 µg/L	730 µg/L	73 µg/L
2,4-DINITROPHENOL	μg/L	10.1 UJ	10.1 UJ	10.1 UJ	10.1 UJ	10 UJ	10.1 UJ	10.2 UJ	μg/L	μg/L	μg/L	μg/L	30 μg/L	μg/L	73 μg/L	7.3 µg/L
2,4-DINITROTOLUENE	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	μg/L	μg/L	μg/L	μg/L	0.2 μg/L	20 μg/L	73 μg/L	7.3 µg/L
bis(2-CHLOROETHOXY) METHANE	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	μg/L	μg/L	μg/L	µg/L	µg/L	μg/L	μg/L	µg/L
bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ET bis(2-CHLOROISOPROPYL) ETHER	μg/L μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U 5.1 U	μg/L	μg/L	μg/L	μg/L	4 µg/L	400 μg/L	0.0092 μg/L	0.0092 µg/L
CHLOROBENZILATE	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L
DIALLATE	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
DIBENZOFURAN	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	μg/L	μg/L	μg/L	μg/L	28 μg/L	280 µg/L	150 µg/L	15 μg/L
DIETHYL PHTHALATE	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	μg/L	μg/L	μg/L	μg/L	5600 µg/L	56000 µg/L	29000 μg/L	2900 μg/L
DIMETHYL PHTHALATE	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	µg/L	μg/L	µg/L	µg/L	70000 µg/L	700000 µg/L	370000 μg/L	37000 µg/L
DIMETHYLPHENYLETHYLAMINE 7.12-DIMETHYLBENZ(a)ANTHRACENE	μg/L μg/L	20.2 UJ 5 U	20.2 UJ 5 U	20.2 UJ 5 U	20.2 UJ 5 U	20.1 UJ 5 U	20.2 UJ 5 U	20.4 UJ 5.1 U	μg/L	μg/L μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
p-DIMETHYLAMINOAZOBENZENE	μg/L μg/L	10.1 U	10.1 U	10.1 U	10.1 U	10 U	10.1 U	10.2 U	μg/L μg/L	μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L
3,3'-DICHLOROBENZIDINE	μg/L	5 UJ	5 UJ	5 U	5 U	5 U	5 U	5.1 UJ	μg/L	μg/L	µg/L	μg/L	12 µg/L	μg/L	0.15 µg/L	0.15 µg/L
3,3'-DIMETHYLBENZIDINE	μg/L	10.1 U	10.1 U	10.1 UJ	10.1 U	10 U	10.1 U	10.2 U	μg/L	μg/L	µg/L	μg/L	μg/L	µg/L	μg/L	µg/L
ETHYL METHANESULFONATE	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
HEXACHLOROPROPENE	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
ISODRIN	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	µg/L	μg/L	µg/L	µg/L	µg/L	μg/L	µg/L	μg/L
ISOPHORONE ISOSAFROLE	μg/L μg/L	5 U 5 U	5 U	5 U 5 U	5 U	5 U	5 U	5.1 U 5.1 U	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	37 μg/L μg/L	μg/L μg/L	71 μg/L μg/L	71 μg/L μg/L
KEPONE	μg/L	20.2 U	20.2 U	20.2 U	20.2 U	20.1 U	20.2 U	20.4 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	µg/L	μg/L
5.12	μg/∟	20.2 0	20.2 0	20.20	20.2 0	20.1	20.2 0	20.70	μg/ L	μ9/ L	P9/L	μg/ L	μg/L	μ9/∟	P9/⊏	P9/L

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	Location: SJRWMD No.	Inflow to R-40 None	Inflow to R-143 None	MW-1 OR0018	MW-2 OR0819	MW-3 OR0818	MW-3 (Dup) OR0818	MW-4 OR0141		Maximum Contar	ninant Leveis		Fiorida	Brownfields	RISK-Dased C	Concentrations
	SampleID:	FP-03-01-007		FP-03-01-009				FP-03-01-006	Florida MCL / SMCL	Florida MCL / SMCL	Federal MCL/SMCL ²	Federal MCL/SMCL ²	Florida Brownfield	Florida Brownfield	Regional USEPA RBC 4	Regional USEPA RBC 4,5
	DateCollected :	05/28/2003	05/28/2003	05/29/2003	05/27/2003	05/27/2003	05/27/2003	05/28/2003	(Chapter 62-550, FAC) 1	(Chapter 62-550, FAC) 1	T GGGTGL III GE GINIGE	1 odorar mozyomoz	(62-785) ³	(62-785) ³	EPA Region III	EPA Region IV
	Matrix:	Stormwater	Stormwater	Groundwater	Groundwate	r Groundwater	Groundwater	Groundwater	MCL	SMCL	MCL	SMCL	GCTL	Groundwater LY/PQ	Tap Water	1.0
	SampleType :	Normal	Normal	Normal	Normal	Normal	Field Duplicate								(HQ=0.1)	(HQ=0.1)
Parameter Group and Name	Unit	Result Qu								Criteria Unit				Criteria Unit	Criteria Unit	Criteria Unit
METHAPYRILENE	μg/L	10.1 UJ		10.1 UJ	10.1 UJ	10 UJ	10.1 UJ	10.2 UJ	µg/L	µg/L	µg/L	µg/L	µg/L	μg/L	µg/L	μg/L
METHYL METHANESULFONATE 2-METHYLNAPHTHALENE	μg/L	5 U 5 U	5 U	5 U 5 U	5 U	5 U	5 U	5.1 U 5.1 U	μg/L	μg/L	μg/L	μg/L	µg/L	μg/L	μg/L	μg/L
2-METHYLPHENOL (o-CRESOL)	μg/L μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	20 μg/L 350 μg/L	200 μg/L 3500 μg/L	1500 µg/L 1800 µg/L	1500 µg/L 180 µg/L
3-METHYLCHOLANTHRENE	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
4-METHYLPHENOL (p-CRESOL)	μg/L	5 UJ		5 UJ	5 UJ	5 UJ	5 UJ	5.1 UJ	μg/L	μg/L	µg/L	µg/L	µg/L	μg/L	µg/L	µg/L
1,4-NAPHTHOQUINONE	μg/L	10.1 U	10.1 U	10.1 U	10.1 U	10 U	10.1 U	10.2 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
1-NAPHTHYLAMINE	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
2-NITROANILINE	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	μg/L	μg/L	μg/L	μg/L	50 μg/L	500 μg/L	2.2 µg/L	0.22 µg/L
3-NITROANILINE	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	110 µg/L	11 µg/L
4-NITROANILINE	μg/L	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 U	5.1 UJ	μg/L	μg/L	μg/L	μg/L	20 μg/L	200 μg/L	110 μg/L	11 μg/L
4-NITROQUINOLINE-N-OXIDE	μg/L	10.1 U	10.1 U	10.1 UJ	10.1 UJ	10 UJ	10.1 UJ	10.2 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
5-NITRO-o-TOLUIDINE	μg/L	10.1 U	10.1 U	10.1 U	10.1 U	10 U	10.1 U	10.2 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
N-NITROSO-DI-N-BUTYLAMINE	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	µg/L	μg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
N-NITROSODI-n-PROPYLAMINE	μg/L	5 0	5 U	50	50	5 U	5 <u></u> ∪	5.1 ∪	µg/L	µg/L	µg/L	µg/L	4 µg/L	400 μg/L	0.0096 µg/L	0.0096 µg/L
N-NITROSODIETHYLAMINE	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	μg/L	µg/L	μg/L	µg/L	µg/L	μg/L	μg/L	µg/L
N-NITROSODIMETHYLAMINE	μg/L	5 U	5U	5 ∪	5 U	5 U	5 U	5.1 U	μg/L	μg/L	μg/L	µg/L	2 µg/L	200 μg/L	0.0013 µg/L	0.0013 µg/L
N-NITROSODIPHENYLAMINE	µg/L	5 U	5 U	5 U	5 U	5 U	5 UJ	5.1 U	μg/L	μg/L	μg/L	µg/L	7 µg/L	700 µg/L	14 µg/L	14 µg/L
N-NITROSOMORPHOLINE 1,3,5-TRINITROBENZENE	μg/L	5 U 20.2 U	5 U 20.2 U	5 U 20.2 U	5 U 20.2 U	5 U 20.1 U	5 U	5.1 U 20.4 U	μg/L	μg/L	μg/L	μg/L	µg/L	μg/L	μg/L	μg/L
N-NITROSOPIPERIDINE	μg/L μg/L	20.2 U	20.2 U	20.2 U	20.2 U	20.1 U	20.2 U 5 U	5.1 U	μg/L ug/l	μg/L μg/L	μg/L μg/L	μg/L μg/l	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/l
N-NITROSOPIPERIDINE N-NITROSOPYRROLIDINE	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	μg/L μg/L	µg/L	μg/L	μg/L μg/L	μg/L	μg/L	μg/L	μg/L μg/L
NITROBENZENE	μg/L	5 U	5 U	5 U	5 U	5 ∪	5 U	5.1 U	μg/L	µg/L	µg/L	µg/L	4 µg/L	40 µg/L	3.4 µg/L	0.34 µg/L
NITROSOMETHYLETHYLAMINE	μg/L	5 UJ		5 UJ	5 UJ	5 UJ	5 UJ	5.1 UJ	μg/L	µg/L	µg/L	µg/L	µg/L	μg/L	µg/L	μg/L
O,O,O-TRIETHYL PHOSPHOROTHIOATE	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	μg/L	μg/L	μg/L	µg/L	μg/L	μg/L	µg/L	µg/L
o-TOLUIDINE	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
2-PICOLINE (ALPHA-PICOLINE)	μg/L	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5.1 UJ	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
p-PHENYLENEDIAMINE	μg/L	10.1 U	10.1 U	10.1 U	10.1 U	10 U	10.1 U	10.2 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
PENTACHLOROBENZENE	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
PENTACHLOROETHANE	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
PENTACHLORONITROBENZENE	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	μg/L	μg/L	µg/L	μg/L	μg/L	μg/L	μg/L	μg/L
PENTACHLOROPHENOL	μg/L	10.1 U	10.1 U	10.1 U	10.1 U	10 U	10.1 U	10.2 ∪	1 μg/L	μg/L	1 µg/L	μg/L	1 µg/L	μg/L	0.56 µg/L	0.56 µg/L
PHENACETIN	μg/L	10.1 U	10.1 U	10.1 U	10.1 U	10 U	10.1 U	10.2 U	μg/L	μg/L	µg/L	μg/L	µg/L	μg/L	µg/L	µg/L
PHENOL PRONAMIDE	μg/L	5 U 5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	μg/L	µg/L	μg/L	µg/L	10 µg/L	100 μg/L	22000 µg/L	2200 µg/L
PYRIDINE	μg/L	5 UJ	5 U 5 UJ	5 U 5 UJ	5 U	5 U	5 U	5.1 U 5.1 UJ	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	µg/L
SAFROLE	μg/L μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L
1.2.4.5-TETRACHLOROBENZENE	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
2,3,4,6-TETRACHLOROPHENOL	μg/L	10.1 U	10.1 U	10.1 U	10.1 U	10 U	10.1 U	10.2 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	µg/L
1,2,4-TRICHLOROBENZENE	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	70 μg/L	μg/L	70 µg/L	μg/L	70 µg/L	700 µg/L	190 µg/L	19 µg/L
2,4,5-TRICHLOROPHENOL	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	μg/L	μg/L	μg/L	μg/L	4 µg/L	μg/L	3700 µg/L	370 µg/L
2,4,6-TRICHLOROPHENOL	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	μg/L	μg/L	μg/L	μg/L	5 μg/L	μg/L	6.1 µg/L	6.1 µg/L
Organochlorine Pesticides																
ALDRIN	μg/L	0.052 ∪	0.053 U	0.052 U	0.053 ∪	0.052 U	0.051 U	0.052 U	μg/L	μg/L	μg/L	μg/L	0.005 µg/L	0.5 µg/L	0.004 µg/L	0.004 µg/L
ALPHA-CHLORDANE	μg/L	0.052 U	0.053 U	0.052 U	0.053 U	0.052 U	0.051 U	0.052 U	2 µg/L	μg/L	2 μg/L	μg/L	2 µg/L	200 µg/L	0.19 µg/L	0.19 μg/L
GAMMA-CHLORDANE	μg/L	0.052 U	0.053 U	0.052 U	0.053 U	0.052 U	0.051 U	0.052 U	2 µg/L	μg/L	2 μg/L	μg/L	2 μg/L	200 μg/L	0.19 µg/L	0.19 µg/L
ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE)	μg/L	0.052 U	0.053 U	0.052 U	0.053 U	0.052 U	0.051 U	0.052 U	μg/L	μg/L	μg/L	μg/L	0.006 µg/L	0.6 μg/L	0.011 µg/L	0.011 µg/L
BETA BHC (BETA HEXACHLOROCYCLOHEXANE)	μg/L	0.052 U	0.053 U	0.052 U	0.053 U	0.052 U	0.051 U	0.052 U	μg/L	μg/L	μg/L	μg/L	0.02 µg/L	2 μg/L	0.037 µg/L	0.037 µg/L
DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE)	μg/L	0.062 UJ	0.064 UJ	0.062 U	0.063 UJ	0.062 UJ	0.061 UJ	0.062 UJ	µg/L	µg/L	µg/L	µg/L	2.1 µg/L	21 µg/L	0.037 µg/L	0.037 µg/L
GAMMA BHC (LINDANE)	μg/L	0.052 U	0.053 U	0.052 U	0.053 U	0.052 U	0.051 U	0.052 U	0.2 µg/L	µg/L	0.2 μg/L	µg/L	0.2 µg/L	20 μg/L	0.052 µg/L	0.052 µg/L
DIELDRIN	µg/L	0.052 U	0.053 U	0.052 U	0.053 U	0.052 U	0.051 U	0.052 U	μg/L	µg/L	μg/L	µg/L	0.005 µg/L	0.5 µg/L	0.0042 µg/L	0.0042 µg/L
ALPHA ENDOSULFAN BETA ENDOSULFAN	µg/L	0.052 U	0.053 U	0.052 U	0.053 U	0.052 U	0.051 U	0.052 U	μg/L	μg/L	μg/L	µg/L	µg/L	μg/L	μg/L	μg/L
BETA ENDOSULFAN ENDOSULFAN SULFATE	µg/L	0.052 U 0.052 U	0.053 U 0.053 U	0.052 U 0.052 U	0.053 U 0.053 U	0.052 U 0.052 U	0.051 U 0.051 U	0.052 U 0.052 U	μg/L	μg/L	µg/L	μg/L	μg/L	μg/L	μg/L	μg/L
ENDOSOLFAN SOLFATE ENDRIN	μg/L μg/L	0.052 U	0.053 U	0.052 U	0.053 U	0.052 U	0.051 U	0.052 U	μg/L 2 μg/L	μg/L μg/L	μg/L 2 μg/L	μg/L μg/L	μg/L 2 μg/L	μg/L 20 μg/L	μg/L 11 μg/L	μg/L 1.1 μg/L
ENDRIN ALDEHYDE	μg/L	0.062 U	0.053 U	0.062 U	0.063 U	0.062 U	0.051 U	0.052 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
ENDRIN KETONE	μg/L	0.052 U	0.053 U	0.052 U	0.053 U	0.052 U	0.051 U	0.052 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
HEPTACHLOR	μg/L	0.052 U	0.053 U	0.052 U	0.053 U	0.052 U	0.051 U	0.052 U	0.4 µg/L	µg/L	0.4 µg/L	µg/L	0.4 µg/L	40 µg/L	0.0023 µg/L	0.0023 µg/L
HEPTACHLOR EPOXIDE	μg/L	0.052 U	0.028 J	0.052 U	0.053 U	0.052 U	0.051 U	0.052 U	0.2 µg/L	μg/L	0.2 µg/L	μg/L	0.2 μg/L	20 μg/L	0.0012 µg/L	0.0012 µg/L
p,p'-DDD	μg/L	0.052 U	0.053 U	0.052 U	0.053 U	0.052 U	0.051 U	0.052 U	μg/L	μg/L	μg/L	μg/L	0.1 µg/L	10 μg/L	0.28 µg/L	0.28 µg/L
p,p'-DDE	μg/L	0.062 U	0.064 U	0.062 U	0.063 U	0.062 U	0.061 U	0.062 U	μg/L	μg/L	μg/L	µg/L	0.1 µg/L	10 µg/L	0.2 µg/L	0.2 µg/L
p,p'-DDT	μg/L	0.052 U	0.053 U	0.052 U	0.053 U	0.052 U	0.051 U	0.052 U	μg/L	μg/L	μg/L	μg/L	0.1 µg/L	10 μg/L	0.2 μg/L	0.2 μg/L
METHOXYCHLOR	μg/L	0.052 U	0.053 U	0.052 U	0.053 U	0.052 U	0.051 U	0.052 U	40 μg/L	μg/L	40 μg/L	μg/L	40 μg/L	400 μg/L	180 μg/L	18 µg/L
TOXAPHENE	μg/L	3.1 U	3.2 ∪	3.1 UJ	3.2 UJ	3.1 UJ	3.1 UJ	3.1 U	3 µg/L	μg/L	3 µg/L	μg/L	3 µg/L	300 μg/L	0.061 µg/L	0.061 µg/L
Organophosphorous Pesticides														_		
ATRAZINE	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	3 µg/L	μg/L	μg/L	μg/L	µg/L	μg/L	μg/L	μg/L
AZINPHOS, METHYL (GUTHION)	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	μg/L	μg/L	μg/L	μg/L	10.5 μg/L	105 μg/L	μg/L	μg/L
BOLSTAR	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	μg/L	µg/L	μg/L	µg/L	µg/L	µg/L	µg/L	μg/L
CHLORPYRIFOS	µg/L	10 U 10 U	10 U	10 U	10 U	10 U	10 U	10 U	μg/L μg/L	µg/L	μg/L	μg/L μg/L	21 µg/L	210 µg/L	110 μg/L μg/L	11 µg/L
ICOLIMADUOS			1000	1010	10 U	101U	100	100	■ IUU/L	μg/L	μg/L	I IIII/L	2.1 µg/L	21 µg/L	I UU/L	μg/L
COUMAPHOS DEMETON-O	μg/L μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	μg/L	μg/L	μg/L	µg/L	μg/L	μg/L	µg/L	μg/L

	Location:	Inflow to R-40	Inflow to R-143	MW-1	MW-2	MW-3	MW-3 (Dup)	MW-4	1	Maximum Contar	minant I evels		Florida B	rownfields	Risk-hased (Concentrations
	SJRWMD No.	None	None	OR0018	OR0819	OR0818	OR0818	OR0141		maximam contain	illiant Ecvolo		Tionaa E	- CWITHICIGO	Tribit buocu t	, on our autono
	SampleID :	FP-03-01-007	FP-03-01-008	FP-03-01-009			FP-03-01-003		Florida MCL / SMCL	Florida MCL / SMCL	Federal MCL/SMCL ²	Federal MCL/SMCL ²	Florida Brownfield	Florida Brownfield	Regional USEPA RBC 4	Regional USEPA RBC 4,5
	DateCollected :	05/28/2003	05/28/2003	05/29/2003	05/27/2003	05/27/2003	05/27/2003	05/28/2003	(Chapter 62-550, FAC) 1	(Chapter 62-550, FAC) 1			(62-785) ³	(62-785) ³	EPA Region III	EPA Region IV
	Matrix :	Stormwater	Stormwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	MCL	SMCL	MCL	SMCL	GCTL	Groundwater LY/PQ	Tap Water	
	SampleType :	Normal	Normal	Normal	Normal	Normal	Field Duplicate	Normal	1						(HQ=0.1)	(HQ=0.1)
Parameter Group and Name	Unit	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Criteria Unit	Criteria Unit	Criteria Unit	Criteria Unit	Criteria Unit	Criteria Unit	Criteria Unit	Criteria Unit
DIAZINON	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	33 µg/L	3.3 µg/L
DICHLORVOS	μg/L	10 U	10 U	10 U	10 ∪	10 ∪	10 U	10 ∪	μg/L	μg/L	μg/L	μg/L	0.1 µg/L	1 µg/L	0.23 µg/L	0.23 μg/L
DIMETHOATE	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
DISULFOTON	μg/L	10 U	10 ∪	10 ∪	10 ∪	10 ∪	10 U	10 U	μg/L	μg/L	μg/L	μg/L	0.3 µg/L	3 µg/L	1.5 µg/L	0.15 µg/L
ETHOPROP	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	μg/L	µg/L	μg/L	µg/L	0.11 µg/L	1.1 µg/L	µg/L	μg/L
FAMPHUR	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
FENSULFOTHION	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	μg/L	μg/L	μg/L	μg/L	1.75 µg/L	17.5 μg/L	μg/L	μg/L
FENTHION	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
MERPHOS	μg/L	10 U	10 ∪	10 U	10 ∪	10 U	10 U	10 ∪	μg/L	μg/L	μg/L	μg/L	0.21 µg/L	μg/L	1.1 µg/L	0.11 µg/L
MEVINPHOS	μg/L	10 UJ	10 UJ	10 UJ	10 U	10 U	10 U	10 UJ	μg/L	μg/L	μg/L	μg/L	1.75 µg/L	17.5 µg/L	μg/L	μg/L
NALED	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	μg/L	μg/L	μg/L	μg/L	14 µg/L	140 µg/L	73 µg/L	7.3 µg/L
PARATHION, ETHYL	μg/L	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	μg/L	µg/L	μg/L	µg/L	42 µg/L	420 µg/L	220 µg/L	22 µg/L
PARATHION, METHYL	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
PHORATE	μg/L	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	μg/L	μg/L	μg/L	μg/L	1.4 µg/L	14 µg/L	7.3 µg/L	0.73 µg/L
RONNEL	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	μg/L	µg/L	μg/L	μg/L	350 µg/L	3500 µg/L	1800 μg/L	180 µg/L
SIMAZINE	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
STIROFOS (TETRACHLORVINPHOS)	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	μg/L	μg/L	μg/L	µg/L	μg/L	μg/L	μg/L	μg/L
THIODIPHOSPHORIC ACID TETRAETHYL ESTER	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
TOKUTHION (PROTHIOFOS)	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
TRICHLORONATE	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
ZINOPHOS	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
Polychlorinated biphenols (PCBs)																
PCB-1016 (AROCHLOR 1016)	μg/L	0.52 U	0.53 U	0.52 U	0.53 U	0.52 U	0.51 U	0.52 U	μg/L	μg/L	μg/L	μg/L	1 µg/L	10 μg/L	2.6 μg/L	0.26 µg/L
PCB-1221 (AROCHLOR 1221)	μg/L	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U	μg/L	μg/L	0.5 µg/L	μg/L	0.5 µg/L	50 μg/L	0.034 μg/L	0.034 µg/L
PCB-1232 (AROCHLOR 1232)	μg/L	0.52 ∪	0.53 ∪	0.52 ∪	0.53 ∪	0.52 ∪	0.51 U	0.52 ∪	μg/L	μg/L	0.5 µg/L	μg/L	0.5 µg/L	50 μg/L	0.034 µg/L	0.034 µg/L
PCB-1242 (AROCHLOR 1242)	μg/L	0.52 U	0.53 U	0.52 U	0.53 U	0.52 U	0.51 U	0.52 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
PCB-1248 (AROCHLOR 1248)	μg/L	0.52 ∪	0.53 ∪	0.52 ∪	0.53 ∪	0.52 ∪	0.51 U	0.52 ∪	μg/L	μg/L	0.5 μg/L	μg/L	0.5 µg/L	50 μg/L	0.034 µg/L	0.034 µg/L
PCB-1254 (AROCHLOR 1254)	μg/L	0.52 U	0.53 U	0.52 U	0.53 U	0.52 U	0.51 U	0.52 U	μg/L	μg/L	μg/L	μg/L	1 µg/L	10 μg/L	0.73 µg/L	0.073 µg/L
PCB-1260 (AROCHLOR 1260)	μg/L	0.52 ∪	0.53 ∪	0.52 ∪	0.53 ∪	0.52 ∪	0.51 U	0.52 ∪	μg/L	μg/L	0.5 μg/L	μg/L	0.5 µg/L	50 μg/L	0.034 µg/L	0.034 µg/L
Herbicides																
2,4,5-T (TRICHLOROPHENOXYACETIC ACID)	μg/L	0.53 U	0.53 U	0.53 R	0.52 U	0.51 U	0.51 U	0.53 U	μg/L	μg/L	μg/L	μg/L	70 µg/L	700 µg/L	370 µg/L	37 μg/L
2,4-D (DICHLOROPHENOXYACETIC ACID)	μg/L	0.53 U	0.53 U	0.53 R	0.52 U	0.51 U	0.51 U	0.53 U	70 μg/L	μg/L	70 μg/L	μg/L	70 µg/L	700 µg/L	61 µg/L	6.1 µg/L
DALAPON	μg/L	0.53 UJ	0.53 UJ	0.53 R	0.52 U	0.51 U	0.51 U	0.53 UJ	200 μg/L	μg/L	200 μg/L	μg/L	200 μg/L	μg/L	1100 µg/L	110 µg/L
DICAMBA	μg/L	0.53 U	0.53 U	0.53 R	0.52 U	0.51 U	0.51 U	0.53 U	μg/L	μg/L	μg/L	μg/L	210 µg/L	μg/L	1100 μg/L	110 µg/L
DICHLOROPROP	μg/L	0.53 ∪	0.53 ∪	0.53 R	0.52 U	0.51 U	0.51 U	0.53 ∪	μg/L	μg/L	μg/L	μg/L	0.1 μg/L	1 μg/L	μg/L	μg/L
DINOSEB	μg/L	0.53 UJ	0.53 UJ	0.53 R	0.52 U	0.51 U	0.51 U	0.53 UJ	7 µg/L	μg/L	7 μg/L	μg/L	7 μg/L	70 μg/L	37 μg/L	3.7 µg/L
PICLORAM	μg/L	11 UJ	10 UJ	11 R	10 UJ	10 UJ	10 UJ	11 UJ	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
SILVEX (2,4,5-TP)	μg/L	0.53 U	0.53 U	0.53 R	0.52 U	0.51 U	0.51 U	0.53 U	50 μg/L	μg/L	50 μg/L	μg/L	50 μg/L	500 μg/L	290 μg/L	29 μg/L

Notes:
Shaded cells with bolded values represent detections equal to or above promulgated regulatory criteria.

Shaded cells with boxed values represent detections equal to or above Risk-Based Criteria.

Shaded cells with bolded and boxed values represent detections equal to or above promulgated regulatory and Risk-Based Criteria.

Bolded values represent reporting limits equal or above promulgated regulatory criteria.

Boxed values represent reporting limits equal or above Risk-Based Criteria. Bolded and boxed values represent reporting limits equal or above promulgated regulatory criteria and Risk-Based Criteria.

Explanation of Qualifiers

"=" Represents a detection at the value shown

"U" Represents a nondetection above the reporting limit shown

"J" Represents an estimated value between the method detection limit and the practical quantitation limit.

"UJ" Represents a nondetection above the value shown

"R" Represents rejected data

Blanks for the criteria and screening values represent no established values.

Explanation of Units pCi/L - picoCuries per liter

mg/L - milligrams per liter

NTU - Nephelometric Turbidity Units

μg/L - micrograms per liter

Sources:

¹ Florida Ground Water Guidance Concentrations, 62-520.400 FAC, June 2, 1994: Chapter 62-550 Drinking Water Standards, Monitoring and Reporting, April 10, 2003

² Drinking Water Regulations and Health Advisories, Office of Water, USEPA, October 1996.

³ Brownfield's Cleanup Criteria Rule, Groundwater Cleanup Target Levels, Draft Chapter 62-785 F.A.C., 1997.

⁴ EPA Region III Risk-Based Concentration Table, Tap Water Values, R.L. Smith, October 1997.

⁵ EPA Region IV Supplemental Guidance to RAGS: Region 4 Bulletins, Human Health Risk Assessment, November 1995; HQ=0.1 applied to noncarcinogens.

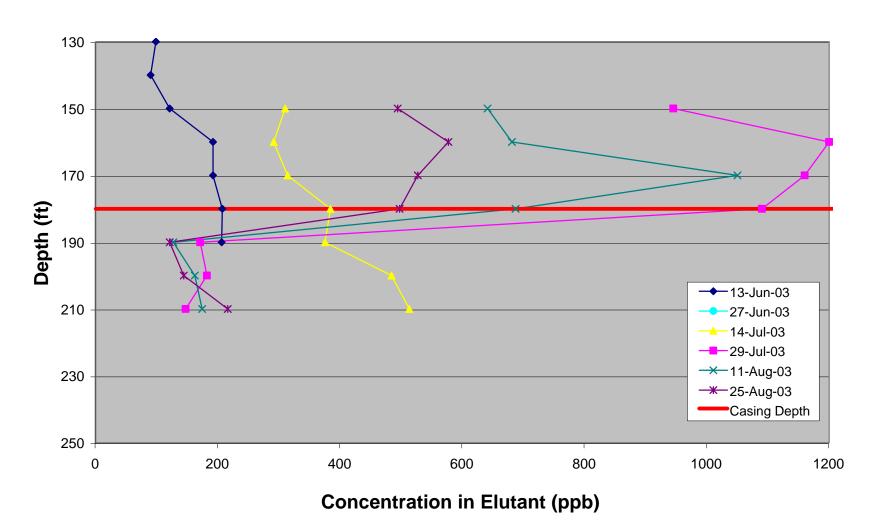
Definitions:MCL - Maximum Contaminant Level SMCL - Secondary MCL

GCTL - Groundwater Cleanup Target Level LY/PQ - Low Yield/Poor Quality

RBC - Risk-based Concentration

Fluorescein Recovery from MW-1

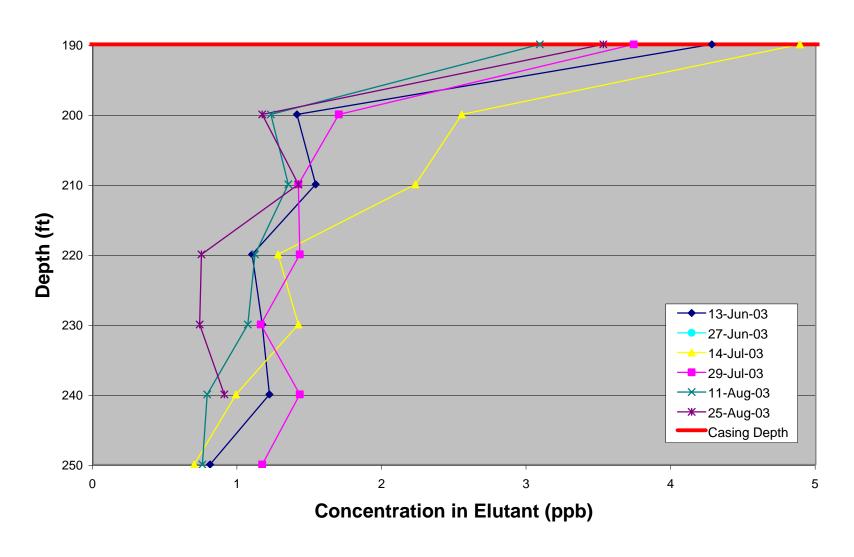
Tracer Introduced May 30, 2003
June 27, 2003 Sample Strings lost in Transit
Well Redeveloped on July 7, 2003



Fluorescein Recovery from MW-2

Tracer Introduced May 30, 2003

June 27, 2003 Sample Strings lost in Transit



CFARE Status Report No. 7

Status Report No. 7 – Central Florida Aquifer Recharge Enhancement Program, Artificial Recharge Well Study

This report provides Status Report No. 7 for the Central Florida Aquifer Recharge Enhancement Program, Artificial Recharge Well Study. The last report was October 2, 2003. The reports are issued at times associated with project milestones. Since the last report two significant tasks were completed:

- Six Operational Characterization samples were collected and analyzed for the Festival Park site in Orlando, Florida. The samples were collected to monitor trends of the chemical and microbial components of the stormwater inflow and the affected groundwater at selected monitoring wells.
- Four monitoring wells were installed, the three recharge wells and the monitoring wells were geophysically logged, and the potable water supply well survey was completed with the exception of one utility for the Lake Orienta site in Altamonte Springs, Florida.

The intent of this status report is to provide in-progress results of the project. While some analysis and data interpretation is presented, it is not intended to be an exhaustive evaluation of the results.

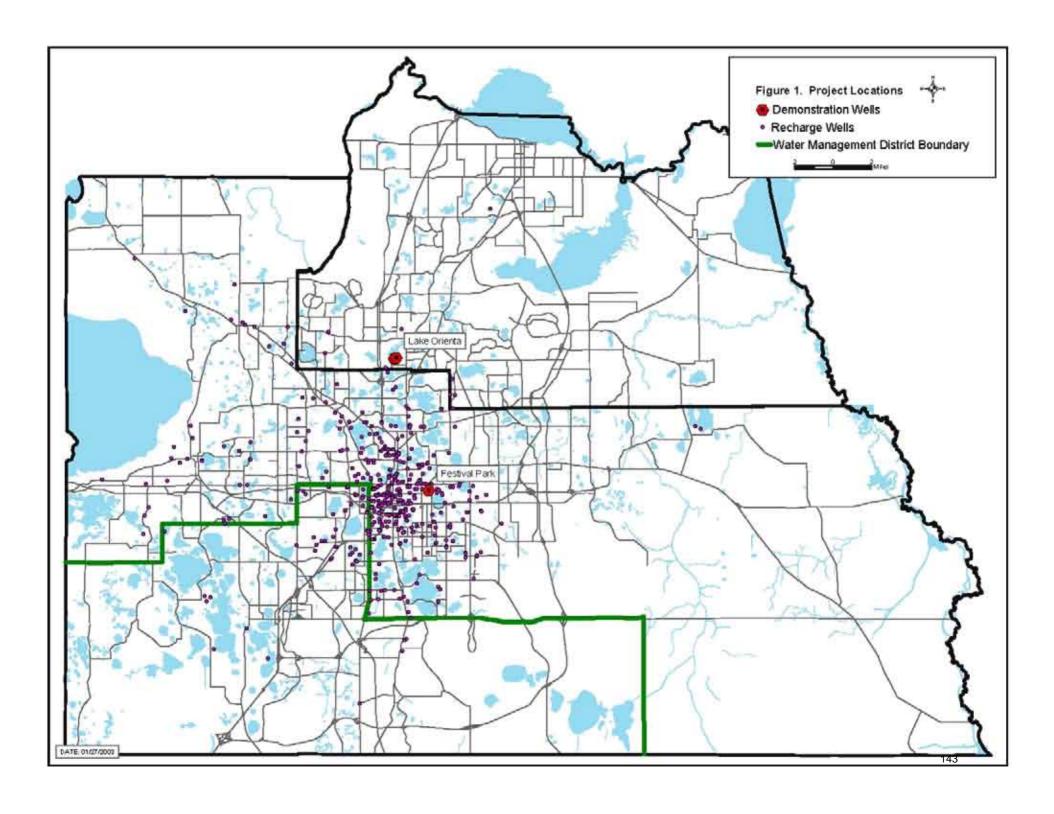
The locations of the two project sites are presented in Figure 1. The activities and results are briefly described below.

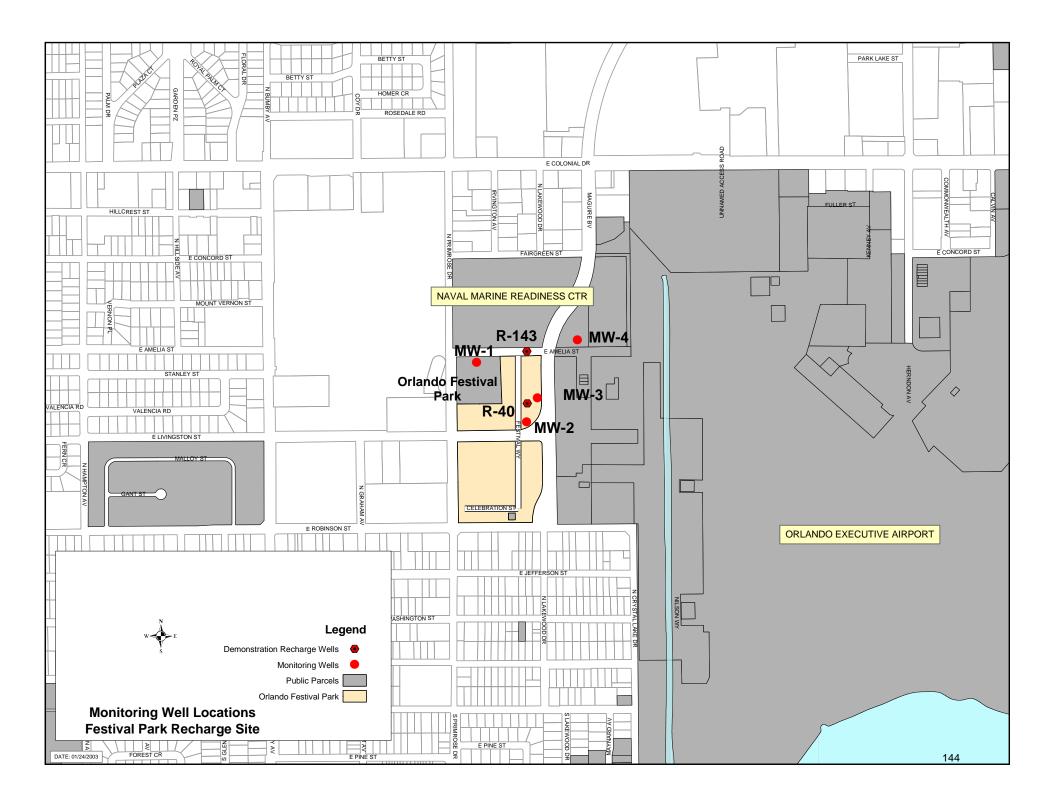
Festival Park Recharge Well Site

The tasks of the project and their status at Festival Park are:

- Literature Survey Completed. The survey results are compiled with other literature search activities for ASR and recharge wells. Posted at http://www.asrforum.com/fatestudy/literature.html
- Potable Water Supply Well Survey Completed (No public or private potable water supply wells were identified within 1 mile of the project site.)
- Dry Period Sampling Not Applicable
- Baseline Characterization Completed and presented in Status Report 6
- Groundwater Tracer Test Completed and presented in Status Report 6
- Operational Characterization Completed and presented in this status report
- Enhanced Treatment Site Characterization On hold and discussed in this status report

Festival Park is a City of Orlando park, comprised of several city blocks approximately two miles east of downtown Orlando. A site map is presented in Figure 2. The tracer test results and baseline characterization sampling results indicated that monitoring wells MW-1 and MW-2 are in hydraulic connection with recharge well R-143, and none of the four monitoring wells are in hydraulic connection with R-40. Refer to Status Report No. 6 for discussions of the groundwater tracer test results and baseline sampling results. The sampling plan was modified regarding the wells to be sampled



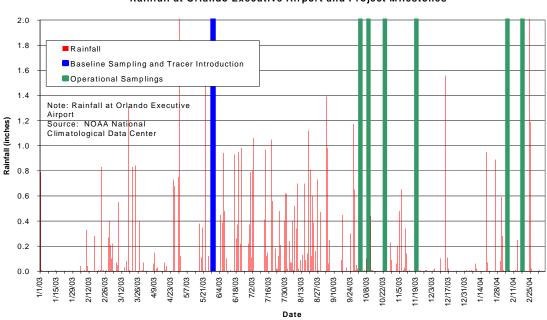


and the timing and the frequency of sampling relative to the Groundwater Monitoring Plan. Those changes were presented in Status Report No. 6 and are presented below.

Modification of the Sampling Plan – The results of the groundwater tracer test indicated that MW-1 and MW-2 are hydraulically connected to R-143 through the Floridan aquifer and that MW-3 and MW-4 are connected to neither recharge well. Further, the groundwater travel time from R-143 and MW-1/MW-2 was less than two weeks. Therefore, at a meeting with the Central District of FDEP on September 4, 2003 it was agreed upon to modify the sampling plan to

- Discontinue sampling of the influent to R-40 and MW-3. The influent to R-143 and groundwater from MW-1, MW-2, and MW-4 will continue to be sampled for an unchanged list of microbes and chemicals. MW-4 will serve as a background monitoring well.
- Change the sample collection frequency for the Operational Characterization phase of the project from 1, 5, 10, 30, 60, 120, and optionally 180 days after a triggering recharge event to 1, 2, 4, and 8 weeks after a triggering rainfall event (0.5 inch to 1 inch of rainfall in 24 hours) during the Fall of 2003 to monitor the end of the 2003 wet season, then sample 1 and 2 weeks after a triggering rainfall event during the Winter/Spring of 2004 to monitor the system after a period of little rainfall.

Daily rainfall at the Orlando Executive Airport and project milestones are presented in the following chart.



Rainfall at Orlando Executive Airport and Project Milestones

Triggering rainfall events occurred on September 26-27, 2003 and January 31, 2004 to initiate the respective sampling events. Operational characterization sampling events occurred as follows:

Sampling Event 1 - October 1-3, 2003 Sampling Event 2 - October 8-10, 2003 Sampling Event 3 - October 22-24, 2003 Sampling Event 4 - November 18-20, 2003 Sampling Event 5 - February 4-6, 2004 Sampling Event 6 - February 16-18, 2004

The microbial and chemical analyte list was the same for the Baseline Characterization and Operational Characterization sampling events as documented in the Groundwater Monitoring Plan presented in Status Report 4, distributed January 27, 2003.

Operational Characterization

Six Operational Characterization samplings occurred at the times presented above. The results of the microbial and chemical analyses of the waters are provided in Attachments A and Attachment B, respectively.

Microbial Results

The interpretation of the microbiological results presented are straightforward, with the exception of Host F amp+ Enrichment for coliphage. This analysis is a qualitative one; the two overlay methods provide quantitative results. Two designations are present for the results. The "+" indicates that the samples tested positive for the presence of coliphage. When the enrichment method provides a "+" with a "<5" pfu/100 mL for the overlay methods results, then coliphage is interpreted to be present at concentrations less than that value. The "DNA" designation indicates that more of the coliphage were of the DNA type rather than the RNA type, and conversely for the "RNA" designation. RNA phage are more highly correlated with human E. *coli* than DNA phage.

Comparing the total coliform results of the stormwater inflow at R-143 to the groundwater at MW-1 and MW-2 shows that concentrations decrease 3 to 4 orders of magnitude or more. Relative fecal coliform, E. *coli*, and Enterococcus concentrations between R-143 and MW-1/MW-2 are consistent with the Baseline Characterization results. *Cryptosporidium spp.* and *Giardia spp.* were not detected in any of the Operational Characterization samples. These observations are also consistent with the observations from the Baseline Characterization.

Stormwater recharge operations at Festival Park have been ongoing since the mid-1940's. The differences of total coliform concentrations between R-143 and the monitoring wells is encouraging and demonstrates the assimilative capability of the aquifer system to manage these bacteria on a long-term basis. The data are evaluated in two ways. First the concentration and rainfall data were evaluated in an attempt to correlate inflow concentrations at R-143 against rainfall for source characteristics. Second, the concentrations at the monitoring wells were evaluated against rainfall lagged in time to further evaluate correlation between rainfall and concentrations at the monitoring wells.

Total coliform concentrations at R-143 were compared to the occurrence of rainfall to evaluate correlation of high or low concentrations to rainfall events. The current and previous day rainfall totals were used to recognize the brief, but cumulative time of concentration of the stormwater collection system. The observations are presented in Table 1 arranged from high to low concentrations. Data from seven sample sets of the Baseline Characterization and the Operational Characterization were included in this analysis. With the exception of the May 28, 2003 sampling there appears to be good correlation between rainfall and coliform concentration, as one would expect.

TABLE 1Total Coliform Concentrations at R-143 and Rainfall

Sample Date	Concentration (cfu/100mL)	Total Rainfall of Sample Date and Previous 2 Days (inches)
October 23, 2003	990	0.00
February 4, 2003	3,300	0.01
October 8, 2003	5,900	0.11
October 1, 2003	45,000	0.35
May 28, 2003	69,000	0.00
February 16, 2004	161,000	0.25
November 21, 2004	1,000,000	0.36

Now that it seems reasonable that inflow concentrations are correlated to rainfall, the next assessment is to evaluate the lag between rainfall and concentration trends at the monitoring wells. Results of the groundwater tracer test indicated that the times of the first arrival of tracer from R-143 to MW-1 and MW-2 were less than 2 weeks. Therefore, calculations were performed to evaluate if correlations are present between concentration trends at the wells and rainfall lagged backward in time. This was evaluated for the two monitoring wells by calculating the correlation between the concentration trends at the monitoring wells using 3-day and 4-day rainfall totals lagged between 3 days and 14 days prior to sample collection. 3-day and 4-day rainfall totals were used to recognize that overall groundwater quality at the monitoring wells is an integration of rainfall/recharge events, and not single event driven. The greatest correlations and the lag times are presented in Table 2.

TABLE 2Correlations and Time Lags between Rainfall and Total Coliform Concentrations

Well	3-Day Ra	infall Total	4-Day Ra	infall Total
	Time Lag	Correlation	Time Lag	Correlation
MW-1	5 Days	0.961	6 Days	0.774
MW-2	14 Days	0.695	14 Days	0.710

These analyses indicate that rain events drive coliform impacted water into the aquifer, as expected, and that concentration trends correlate strongly to lagged rainfall in a manner consistent with results of the tracer test. The conclusion is that concentration differences between inflow and at the monitoring wells are indicative of the assimilative capacity of the Upper Floridan aquifer at the site.

Chemical Results

The chemical data are presented with qualifiers that resulted from the data validation process. The value and the qualifier must be taken together to properly understand the laboratory results. For instance, if a result for a chemical was "10" milligrams per liter (mg/L) with an "=" qualifier then the chemical was detected at a concentration of 10 mg/L. However, if a result was "10" mg/L with a "U" qualifier then the chemical was not detected at a reporting limit of 10 mg/L. A "J" qualifier designates an estimated concentration at the value shown, and that concentration is between the method detection limit and the practical quantitation limit (PQL) – less confidence is placed on these concentrations relative to concentrations with an "=" qualifier. A combined "UJ" qualifier indicates that the chemical was not detected at the value shown. Notes at the bottom of the table provide explanations of the qualifiers and explanations to identify comparisons of the chemical results and various regulatory and risk-based criteria. Results shown in bolded text represent concentrations that exceed Maximum Contaminant Levels (MCLs).

Inorganic Chemicals - The chemical data were compared to various regulatory criteria and risk-based criteria; the results of the comparison are presented by different formatting (bolding, shading, and boxing) of the cells of the table. Aluminum in the Sampling Event 2 sample from MW-4 exceeded the secondary standard of 200 micrograms per liter (μ g/L). Iron, in every instance, and aluminum from one sample from the recharge water at R-143 exceeded their respective standards. Concentrations of arsenic at MW-2 from Sampling Events 2 and 3 slightly exceeded the revised MCL. The revised MCL of 10 μ g/L is effective January 1, 2005. Arsenic was not detected in any sample from the recharge water at R-143, or from MW-4. No other inorganic chemical from the monitoring well samples was detected at a concentration greater than the current Florida Primary and Secondary Maximum Contaminant Levels (MCLs).

An explanation that may accommodate the observed changes in arsenic concentrations is the time lag between well completions and the first sampling during the Baseline Characterization. Mobilization of arsenic possibly occurred as a result of the drilling process. The act of drilling exposes new exchange site surfaces in the native rock which in turn are exposed to drilling materials (e.g., drilling mud) and methods (e.g., air-lift development). The fact that the first samples showed the highest concentration supports this theory. If this is the case, it is anticipated that arsenic concentrations will continue to decline as the open borehole approaches equilibrium with the undisturbed portion of the aquifer. For this site, the lag period may have been insufficient.

Data that support this theory are the relatively high pH values of the groundwater samples and relatively high concentrations of barium. High pH values and barium are indications of remnant drilling mud. The wells were constructed using mud-rotary drilling techniques without the loss of circulation of drilling fluid. This is an unusual occurrence for drilling in the Upper Floridan aquifer in Central Florida. Therefore, the drilling mud could have penetrated the formation sufficiently that residual effects were observed during the Baseline Characterization sampling.

<u>Organic Chemicals</u> - Positive detections of synthetic organic chemicals occurred from two sampling locations from the six Operational Characterization samplings. These detections were in low concentrations and below MCL values. The chemicals, locations and potential sources relative to Festival Park are:

R-143 (stormwater)

- Total Recoverable Petroleum Hydrocarbons: = 0.82 mg/L, 2 of 6 events (oil, grease, fuel from automobile traffic; no MCL)
- Tetrachloroethene (PCE): = 1.1 μ g/L, 5 of 6 events (dry cleaning fluid, industrial solvent; MCL=3 μ g/L)
- Trichloroethene (TCE): $< 0.32 J \, \mu g/L$, 4 of 6 events (industrial solvent and product of reductive dechlorination of PCE; MCL=3 $\mu g/L$)
- cis-1,2-Dichloroethene (cis-1,2-DCE): = $2.9 \,\mu g/L$, 5 of 6 events (product of reductive dechlorination of PCE and TCE; MCL= $70 \,\mu g/L$)
- 1,1 DCE: =0.96J μ g/L, 3 of 6 events (component of flexible plastic food wrap and flame retardant fabrics, and in piping, coating for steel pipes, and adhesives; MCL=7 μ g/L)
- 1,2 Dichlorobenzene: 0.52J μg/L, 1 of 6 events (chemical intermediate for making agricultural chemicals, primarily herbicides; MCL=600 μg/L)
- Toluene: < 0.7J μg/L, 4 of 6 events (component of gasoline; MCL=1,000 μg/L)

MW-2 (groundwater)

- cis-1,2-DCE: = 4.5 μ g/L, 6 of 6 events (product of reductive dechlorination of PCE and TCE; MCL=70 μ g/L)
- 1,1-Dichloroethane (DCA): = $2.5 \mu g/L$, 6 of 6 events (component of degreasing agents, and paint, varnish and finish removers; no MCL)

Stormwater Treatment Evaluation

A meeting was held with FDEP-Central District on March 31, 2004 to provide an update on the progress of the project and review data from the first four samplings of the Operational Characterization phase of the project. Because of the consistent concentration differences of coliform bacteria between R-143, and MW-1 and MW-2, it was decided to postpone implementation of disinfection treatment until data from the Lake Orienta project are available to consider the data sets together.

Upcoming Tasks at Festival Park

The Enhanced Treatment phase of the project is on hold at Festival Park pending the outcome of the investigation at Lake Orienta.

Lake Orienta Recharge Well Site

The request for funding for the project at the Lake Orienta Recharge Well Site in Altamonte Springs was approved by the SJRWMD Governing Board in October 2003. The current schedule of activities is:

- Literature Survey Completed (Compiled with other literature search activities for ASR and recharge wells. Posted at http://www.asrforum.com/fatestudy/literature.html)
- Potable Water Supply Well Survey >90 percent completed
- Dry Period Sampling Completed (transmitted in Status Report No. 3, December 28, 2001)
- Baseline Characterization August/September 2004, pending rise of lake stage to generate inflow into the recharge wells. This is based on the review of lake stage

data for the period of 1979 through 2003. The stage must be greater than elevation 61 feet to exceed the inflow elevation of the wells.

- Groundwater Tracer Test August/September 2004, pending rise of lake stage to generate inflow into the recharge wells
- Operational Characterization Spring through Summer 2005, pending rise of lake stage to generate inflow into the recharge wells
- Enhanced Treatment Site Characterization Future

Monitoring Well Construction

Four Upper Floridan aquifer monitoring wells were installed by the SJRWMD during January through March 2004. The wells were installed at the locations as agreed to with FDEP. SJRWMD staff is preparing a report on the construction of the wells.

Potable Water Supply Well Survey

FDEP requires a survey for potable water supply wells within 1 mile of the recharge wells. The purpose is to notify owners of the performance of the groundwater tracer test. Four utilities supply potable water to this area of interest; City of Altamonte Springs, City of Maitland, Florida Water Services (FWS), and Utilities, Inc. These utilities were contacted to identify water customers within the area of interest, and the inverse was used to infer locations that are self-supplied for potable water. Three of the four utilities have provided customer information; Utilities, Inc. will continue to be prompted to supply customer location information within the area of interest. If customer locations are not provided for the Utilities, Inc. service area within the area of interest, the project will proceed under the assumption that the locations are self-supplied and all property owners will be notified. Utility water supply wells were gathered from GIS information provided by the SJRWMD. The parcels that, to date, were identified as self-supplied for potable water are displayed in Figure 3.

Upcoming Tasks at Lake Orienta

The following tasks are scheduled for the Lake Orienta site:

- Completion of the potable water supply well survey
- Baseline Characterization
- Groundwater Tracer Test

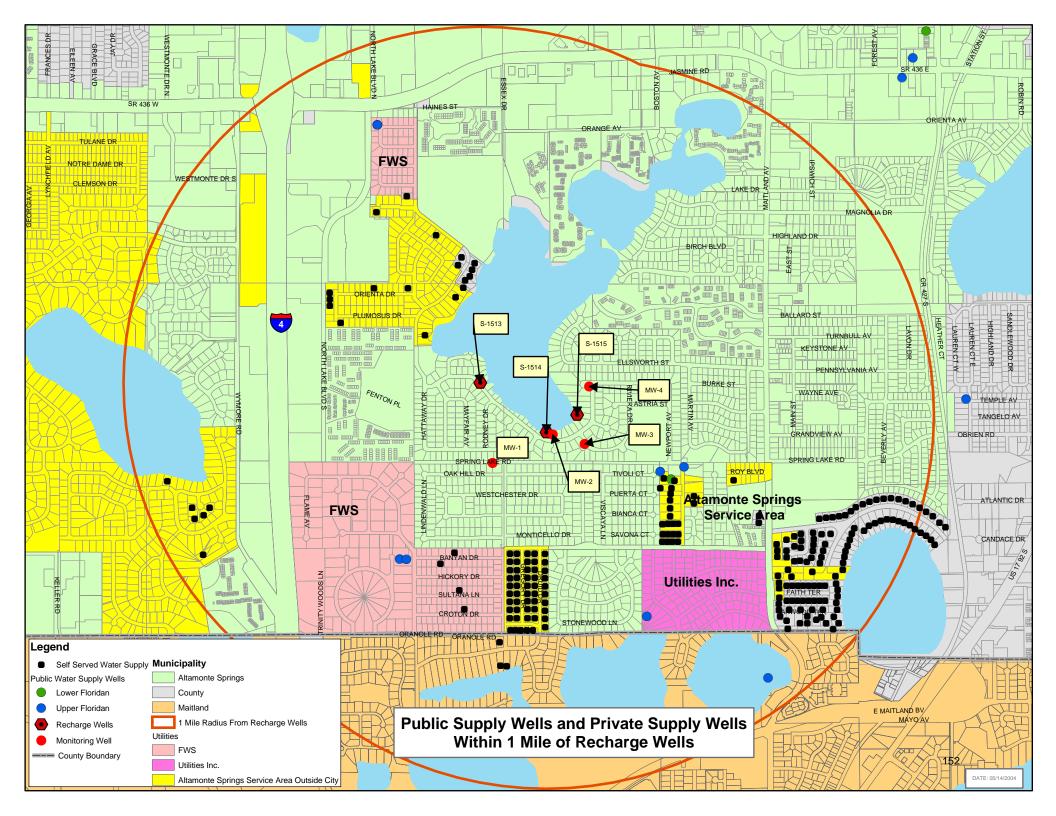
The baseline characterization and the groundwater tracer test are planned to occur after the stage in the lake has risen to the level that water would continuously flow into the recharge wells. The groundwater tracer test will begin immediately after sample collection for the baseline characterization. It is anticipated that this will occur during the middle to late summer.

Schedule

A Gantt chart showing the schedule for the investigations at the two recharge well sites is presented in Attachment C.

Next Anticipated Status Report

The next anticipated status report will be after the receipt of the microbiological and chemical data from the Baseline Characterization sampling and completion of the groundwater tracer test. This report should include results of monitoring well installation at the Lake Orienta site. This report will likely be issued late fall 2004.



Attachment A Microbial Results from Operational Characterization Phase at Festival Park

Summary of Results from Microbiological Analyses from the Operational Characterization Samplings

	ſ																	
	Location	Inflow to R-143	MW-1	MW-2	MW-4	Inflow to R-143	MW-1	MW-2	MW-4	Inflow to R-143	MW-1	MW-2	MW-4	Inflow to R-143	MW-1	MW-2	MW-4	Indicator Guidelines for Ambient Surface Water Quality
[Date Collected ==>	10/01/2003	10/01/2003	10/02/2003	10/03/2003	10/08/2003	10/08/2003	10/10/2003	10/09/2003	10/23/2003	10/24/2003	10/22/2003	10/23/2003	11/21/2003	11/19/2003	11/20/2003	11/21/2003	(Class III Waters) 1
Organism	Units		Sampling	g Event 1				g Event 2			Sampling	g Event 3		·	Sampling	g Event 4		,
																		400 cfu/100 mL - Average 4 cfu/100 mL - Groundwater
Total Coliform	cfu/100 mL	45,000	5.2	3.7	<0.2	5,900	7.4	0.3	<0.2	990	<0.2	2.2	<0.2	1,000,000	7.4	0.9	5.5	criteria
Fecal Coliform	cfu/100 mL	22,000	1.1	2	<0.2	3,400	2.9	0.7	<0.2	860	<0.2	1.6	<0.2	980,000	5.9	1		800 cfu/100 mL - Single Sample 200 cfu/100 mL - Geometric Mean
E. coli	cfu/100 mL	410	0.2	0.6	<0.2	410	<0.2	<0.2	<0.2		<0.2	0.3	<0.2	2,400	2.3	<0.2		126 cfu/100 mL - Geometric Mean
														,				35 cfu/100 mL - Fresh Water
Enterococcus	cfu/100 mL	1,700	0.3	<0.2	0.3	140	9.4	<0.2	13	69	<0.2	<0.2	<0.2	3,400	23		0.7	104 cfu/100 mL - Geometric Mean
Cryptosporidium	no./100 L	< 0.01	<0.01	<0.01	<3	<0.01	<0.01	<0.01	<3	<0.01	< 0.01	<0.01	<5	<0.01	<0.01	<0.01	<10	
Giardia	no./100 L	<0.01	<0.01	<0.01	<3	<0.01	<0.01	<0.01	<3	<0.01	<0.01	<0.01	<5	<0.01	<0.01	<0.01	<10	
Coliphage																		100 pfu/100 mL
Host C3000 Overl		-	-	-	+ (<5)		+ (<5)		+ (<5)		-	+ (<5)	+ (<5)	+ (<5)	+ (<5)		+ (<5)	
Host Famp+ Overl		+ (<5)	-	+ (<5)	+ (<5)		+ (<5)		+ (<5)		+ (<5)	+ (<5)	-	+ (<5)	+ (<5)		+ (<5)	
Host Famp+ Enrichme	ent pfu/100 mL	+/DNA	n/a	+/DNA	+/DNA	+/DNA	+/DNA	+/DNA	+/DNA	+/DNA	+/DNA	+/DNA	n/a	+/DNA	+/DNA	+/DNA	+/DNA	

		Inflow to				Inflow to				Indicator Guidelines for Ambient Surface Water
	Location	R-143	MW-1	MW-2	MW-4	R-143	MW-1	MW-2	MW-4	Quality
Da	te Collected ==>	02/04/2004	02/04/2004	02/06/2004	02/05/2004	02/16/2004	02/17/2004	02/18/2004	02/16/2004	(Class III Waters) 1
Organism	Units		Sampling	Event 5			Sampling	g Event 6		
										1,000 cfu/100 mL - Single
										Sample
Total Coliform	cfu/100 mL	3,300	0.8	<0.2	<0.2	161,000	<0.2	474	<0.2	400 cfu/100 mL - Average
										800 cfu/100 mL - Single Sample
Fecal Coliform	cfu/100 mL	1,900	1.8	<0.2	<0.2	77,000	<0.2	585	<0.2	200 cfu/100 mL - Geometric Mean
E. coli	cfu/100 mL	680	0.2	<0.2	<0.2	720	<0.2	1.52	<0.2	126 cfu/100 mL - Geometric Me
Enterococcus	cfu/100 mL	45	<0.2	2.2	<0.2	1,220	<0.2	3.16	<0.2	35 cfu/100 mL - Fresh Water
Cryptosporidium	no./100 L	<7.0	<0.1	<0.2	<0.1	<5	<0.1	<0.1	<0.1	
Giardia	no./100 L	<7.0	<0.1	<0.2	<0.1	<5	<0.1	<0.1	<0.1	
Coliphage										100 pfu/100 mL
Host C3000 Overlay	pfu/100 mL	+ (<5)	-	-	-	+ (<5)	+ (<5)	+ (<5)	+ (<5)	
Host Famp+ Overlay	pfu/100 mL	+ (<5)	+ (<5)	-	+ (<5)	+ (<5)	+ (<5)	+ (<5)	+ (<5)	
Host Famp+ Enrichment	pfu/100 mL	+/DNA	+/DNA	+/DNA	+/RNA	+/DNA	+/DNA	+/DNA	+/DNA	

Notes:

cfu - Colony forming units

pfu - plaque forming units

¹ Indicator Guidelines for Ambient Surface Water Quality (used for Class III Waters)

Total Coliforms State of Florida guidelines for a single sample 1000 cfu/100mL, average of 400 cfu/100mL

Fecal Coliforms EPA and the state of Florida recommended guidelines for a single sample of 800 cfu/100 mL, for a geometric mean, 200 cfu/100 mL

EPA recommended guideline for a geometric mean sample 126 cfu/100 mL

Enterococci EPA recommended guidelines for a single sample of 104 cfu/100 mL, for a geometric mean , 33-35 cfu/100 mL for marine and fresh water respectively.

Coliphage Level used - 100 pfu/100 mL based on previous research by Dr. Joan Rose, USF

A "+" indicates that the samples tested positive for the presence of coliphage. When the enrichment method provides a "+" with a "<5" pfu/100 mL for the overlay methods results,

then coliphage is interpreted to be present at concentrations less than that value.

A "-" indicates that the presence of coliphage was not detected in the sample.

Attachment B Chemical Analyses Results from Operational Characterization Phase at Festival Park

	F											INID CFARET									
		Inflorente D 440	MW-1	Sampling Event 1	104/0	100/4	Inflormed D 440	MW-1	Sampling Event 2 MW-1	101/ 0	100/4	Inflormation D 4.40	MW-1	Sampling Event 3 MW-1	ABW 0	MAY 4	Inflamenta D 440	MW-1	Sampling Event 4 MW-1	101/0	N04 4
	Location: Event:	Inflow to R-143 Sampling Event	1 Sampling Event 1	Sampling Event 1	MW-2 Sampling Event 1	MW-4 Sampling Event 1	Inflow to R-143 Sampling Event 2	Sampling Event 2	Sampling Event 2	MW-2 Sampling Event 2	MW-4 Sampling Event 2	Inflow to R-143 Sampling Event 3	Sampling Event 3	Sampling Event 3	MW-2 Sampling Event 3	MW-4 Sampling Event 3	Inflow to R-143 Sampling Event 4	Sampling Event 4	Sampling Event 4	MW-2 Sampling Event 4	MW-4 Sampling Event 4
	SJRWMD No.: SampleID:	None FP-03-02-005	OR0018 FP-03-02-001	OR0018 FP-03-02-002	OR0819 FP-03-02-006	OR0141 FP-03-02-007	None FP-03-03-002	OR0018 FP-03-03-001	OR0018 FP-03-03-003	OR0819 FP-03-03-007	OR0141 FP-03-03-006	None FP-03-04-003	OR0018 FP-03-04-004	OR0018 FP-03-04-005	OR0819 FP-03-04-001	OR0141 FP-03-04-002	None FP-03-05-007	OR0018 FP-03-05-001	OR0018 FP-03-05-002	OR0819 FP-03-05-005	OR0141 FP-03-05-006
	DateCollected: Matrix:	10/01/2003 Stormwater	10/01/2003 Groundwater	10/01/2003 Groundwater	10/02/2003 Groundwater	10/03/2003 Groundwater	10/08/2003 Stormwater	10/08/2003 Groundwater	10/08/2003 Groundwater	10/10/2003 Groundwater	10/09/2003 Groundwater	10/23/2003 Stormwater	10/24/2003 Groundwater	10/24/2003 Groundwater	10/22/2003 Groundwater	10/23/2003 Groundwater	11/20/2003 Stormwater	11/18/2003 Groundwater	11/18/2003 Groundwater	11/19/2003 Groundwater	11/20/2003 Groundwater
Parameter Group and Name	SampleType: Unit	Normal Result Qual	Normal Result Qual	Field Duplicate Result Qual	Normal Result Qual	Normal Result Qual	Normal Result Qual	Normal Result Qual	Field Duplicate Result Qual	Normal Result Qual	Normal Result Qual	Normal Result Qual	Normal Result Qual	Field Duplicate Result Qual	Normal Result Qual	Normal Result Qual	Normal Result Qual	Normal Result Qual	Field Duplicate Result Qual	Normal Result Qual	Normal Result Qual
Field Measurements	Std. Units	8.0	7.4	7.4	7.2	7.9	6.1	7.5	7.5	7.4	7.8	7.7	7.5	7.5	7.3	7.9	6.4	7.4	7.4	6.9	7.6
TEMPERATURE CONDUCTANCE	°C µmhos	27.0 210	24.8 478	24.8 478	25.1 464	25.1 321	27.4 197	24.8 328	24.8 328	24.9 455	24.8 368	28.5 246	25.2 361	25.2 361	25.4 425	25.1 411	24.4 197	25.0 319	25.0 319	24.5 408	23.6 328
TURBIDITY DISSOLVED OXYGEN	NTU mg/L	3.7 3.25	0.85 3.8	0.85 3.8	0.68 0.71	0.3 0.55	3.58 1.29	4.56 0.29	4.56 0.29	1.02 0.59	0.19 0.54	32.8 3	1.64 0.16	1.64 0.16	0.5 0.2	0.6 0.98	6.73 4.63	5.61 0.4	5.61 0.4	0.85 0.35	0.19 0.58
OXIDATION/REDUCTION POTENTIAL Radiologicals	mV	124	135	135	0.8	-164	62	42	42	8	-185	65	-158	-158	6	-123	-47	12	12	58	-109
ALPHA, GROSS BETA, GROSS	pCi/L pCi/L	2.4 = 2.9 =	10.2 = 12.9 =	4.6 = 10.7 =	3.7 = 8.6 =	2.2 = 2 =	3.3 = 3.5 =	1.6 U 2.8 =	3.2 = 2.4 =	1.3 = 4.5 =	2.5 = 2.6 =	2.1 = 1.9 =	2.9 = 2.7 =	2.8 = 3.1 =	4.3 = 4.8 =	2.6 = 4.1 =	1.2 = 3.5 =	1.7 U 4 =	1.5 U 3.9 =	1.4 U 2.6 =	2.1 =
Ion Balance														3.1 =				4 =			
Calcium Magnesium	meq/L meq/L	1.2 0.2	3.3 0.6	3.4 0.6	3.9 0.7	0.3	1.3 0.2	3.5 0.6	3.4 0.6	3.9 0.7	3.5 0.3	2.0 0.3	3.1 0.5	0.5	3.8 0.7	3.4 0.3	1.6 0.2	0.6	3.1 0.6	3.4 0.7	3.3 0.3
Sodium Potassium	meq/L meq/L	0.3	0.6	0.6 0.2	0.5 0.2	0.5	0.5 0.0	0.3	0.3 0.1	0.4	0.5	0.4	0.2	0.3	0.4 0.1	0.4	0.4 0.0	0.4	0.4 0.1	0.4	0.5 0.0
Sum of cations Bicarbonate	meq/L meq/L	1.7	4.8 3.5	4.8 3.4	5.3 3.8	4.1 2.3	2.1 1.3	4.5 3.1	4.4 3.1	5.2 4.1	4.3 3.9	2.7 1.5	3.8	3.9 3.1	5.0 3.9	4.1 4.0	2.2 1.6	4.2 3.0	4.2 3.1	4.6 3.8	4.1 3.8
Carbonate Hydroxide	meq/L meq/L																				
Chloride Sulfate	meq/L meq/L	0.4	0.2	0.2	0.3	0.1	0.5 0.2	0.2	0.2 0.8	0.3	0.1	0.4	0.2	0.2	0.2	0.1	0.4 0.2	0.2	0.2	0.3	0.1
Sum of anions	meq/L	1.6	4.6	4.5	4.8	2.4	2.0	4.2	4.1	5.1	4.1	2.1	3.8	4.1	4.9	4.1	2.2	3.9	3.9	4.8	4.0
Anions ALKALINITY, BICARBONATE (AS CACO3)	mad	57.5 =	173 =	170 =	189 =	114 =	65 =	157 =	157 =	203 =	197 =	74 =	151 =	157 =	194 =	200 =	81 =	151 =	154 =	192 =	189 =
ALIVERYTT, DICARDONATE (AC CACCO)	mg/L	37.3 =	173 -	170 -	103 =	114-	65 -	137 =	137 =	203 =	131 -	74-	131 -	157 =	134 -	200 -	01-	131 =	134 =	192 -	103 =
CHLORIDE (AS CL)	mg/L	12.5 =	7.44 =	7.4 =	9.16 =	4.82 J	16.2 =	7.51 =	7.54 =	9.52 =	5.07 =	13.9 =	6.18 =	6.06 =	7.72 =	3.2 =	13.8 =	8.66 =	8.53 =	9.96 =	5.19 =
SULFATE (AS SO4) Nutrients	mg/L	6.25 =	42.4 =	41 =	36.3 =	0.5 U	11.2 =	41.7 =	37.7 =	34.7 =	0.785 J	9.04 =	30.2 =	35.9 =	37.6 =	0.609 J	11.2 =	31.2 =	29.5 =	30.6 =	1.18 =
TOTAL NITROGEN, ALL FORMS, CALCULATED NITROGEN, AMMONIA (AS N)	mg/L mg/L	0.795 = 0.381 J	0.469 = 0.203 J	0.42 = 0.107 U	0.446 = 0.127 J	0.427 = 0.247 J	0.896 = 0.368 J	0.65 = 0.107 U	0.332 = 0.107 U	0.549 = 0.257 J	0.401 = 0.28 J	0.781 = 0.301 J	0.272 = 0.107 U	0.315 = 0.107 U	0.442 = 0.193 J	0.366 = 0.182 J	0.45 = 0.183 J	0.232 = 0.107 U	0 U 0.107 U	0.168 = 0.174 J	0.209 = 0.225 J
NITROGEN, KJELDAHL, TOTÁL NITROGEN, NITRITE	mg/L mg/L	0.795 J 0.037 J	0.401 = 0.0118 U	0.359 J 0.0118 U	0.364 = 0.0118 U	0.427 = 0.0118 U	0.83 = 0.0147 J	0.65 = 0.0118 U	0.332 = 0.0118 U	0.549 = 0.0118 U	0.401 = 0.0118 U	0.781 = 0.0118 U	0.272 = 0.0118 U	0.315 = 0.0118 U	0.442 = 0.0118 U	0.366 = 0.0118 U	0.385 = 0.0243 U	0.154 J 0.0118 U	0.128 U 0.0118 U	0.168 J 0.021 U	0.209 J 0.0119 U
NITROGEN, NITRATE-NITRITE PHOSPHORUS, TOTAL (AS =P)	mg/L mg/L	0.0201 U 0.085 =	0.0677 J 0.08 =	0.0614 J 0.085 =	0.0824 J 0.099 =	0.0201 U 0.037 J	0.0656 J 0.062 =	0.0201 U 0.086 =	0.0201 U 0.103 =	0.0201 U 0.109 =	0.0201 U 0.04 =	0.0201 U 0.112 =	0.0201 U 0.097 =	0.0201 U 0.118 =	0.0201 U 0.138 =	0.0201 U 0.097 =	0.0637 J 0.089 =	0.108 = 0.102 =	0.0252 J 0.098 =	0.0604 J 0.123 =	0.0201 U 0.093 =
PHOSPHORUS, TOTAL ORTHOPHOSPHATE (AS P) PHOSPHORUS, TOTAL ORGANIC (AS P)	mg/L mg/L	0.017 J 0.059 =	0.048 = 0.074 =	0.044 = 0.079 =	0.079 = 0.091 =	0.014 U 0.063 =	0.024 = 0.067 =	0.077 = 0.095 =	0.073 = 0.085 =	0.091 = 0.113 =	0.03 = 0.035 =	0.034 = 0.098 =	0.085 = 0.106 =	0.078 = 0.111 =	0.097 = 0.101 =	0.025 = 0.058 =	0.033 = 0.149 =	0.069 = 0.078 =	0.121 = 0.084 =	0.15 = 0.122 =	0.021 = 0.154 =
General Chemistry TOTAL DISSOLVED SOLIDS (RESIDUE, FILTERABLE)	mg/L	125 =	295 =	297 =	328 =	270 =	100 =	240 =	190 =	270 =	230 =	137 =	233 =	245 =	296 =	268 =	143 =	246 =	255 =	295 =	278 =
TURBIDITY	NTU	1.4 =	1.4 =	0.6 =	0.2 J	2 =	1 =	1 =	0.6 =	0.3 =	0.5 =	2.5 =	0.4 =	0.5 =	0.12 U	0.12 U	2.2 =	0.3 =	0.3 =	0.12 U	0.12 U
pH (laboratory) COLOR	PH UNITS COLOR UNIT	6 = 25 =	7.12 = 5 J	6.99 = 5 U	7.24 = 5 J	8.23 = 5 J	6.42 = 20 =	7.46 = 10 =	7.4 = 10 =	7.63 = 15 =	7.89 = 10 =	6.61 = 20 =	7.87 = 10 =	7.69 = 10 =	7.32 = 15 =	7.84 = 10 =	6.9 = 25 =	7.42 = 10 =	7.58 =	7.28 = 10 =	7.87 = 10 =
BIOLOGIC OXYGEN DEMAND, FIVE DAY TOTAL ORGANIC CARBON	mg/L mg/L	2 U 6.54 =	2 U 4.09 =	2 U 4.51 =	2 = 1.44 U	2 R 1.72 =	2 = 6.15 =	2 = 3.47 =	2 = 2.68 =	2 UJ 4.15 =	2 U 3.9 =	2 = 5.18 =	2 = 1.23 J	2 = 1.17 J	2 = 3.8 =	2 = 2.65 =	3.4 = 3.95 =	2 U 0.54 J	2 U 0.64 J	2 = 0.368 U	2 U 2.2 =
DISSOLVED ORGANIC CARBON Metals	mg/L	5.96 =	1.88 U	2.74 U	1.82 U	1.71 =	5.67 =	2.94 =	3.32 =	3.99 =	3.43 =	5.57 =	1.13 J	1.31 J	3.74 =	2.18 =	5.11 =	2.55 U	3.67 U	3.07 U	2.46 U
ALUMINUM ANTIMONY	μg/L μg/L	59.4 U 2.91 J	41 U 2.5 U	42.8 U 5.02 =	35 U 2.5 U	46.6 U 2.5 U	71.7 U 2.75 J	95.5 U 2.5 U	44.1 U 2.5 U	35 U 2.5 U	220 U 2.5 U	2660 = 2.5 U	35 U 3.27 J	35 U 2.5 U	35 U 2.5 U	35 U 2.5 U	121 = 2.5 U	41 J 2.5 U	35 U 3.51 J	35 U 2.5 U	35 U 2.5 U
ARSENIC BARILIM	μg/L μg/L	2.04 U 12.5 =	6.72 = 55 =	7.25 = 47.7 =	9.51 = 35.1 =	2.04 U 5.39 =	2.04 U 13.4 =	9.18 = 16.9 =	9.52 =	10.6 = 23.9 =	2.04 U 4.52 =	2.04 U 29.4 =	8.05 = 12.1 =	9.9 =	12.3 =	2.04 U 4.34 =	2.04 U 13.7 =	6 = 20.9 =	6.76 = 20.7 =	7.05 = 16.9 =	2.04 U 4.45 =
BERYLLIUM CADMIUM	μg/L	0.0945 U 0.356 U	0.197 U 0.522 J	0.203 U 0.546 J	0.168 U 0.369 J	0.0945 U 0.356 U	0.304 U 0.356 U	0.108 U 0.356 U	0.0945 U 0.356 U	0.0945 U 0.356 U	0.0945 U 0.356 U	0.188 U 0.356 U	0.156 U 0.356 U	0.0945 U 0.356 U	0.265 U 0.372 J	0.104 U 0.356 U	0.0945 U 0.356 U	0.219 U 0.358 J	0.234 U 0.548 J	0.0945 U 0.356 U	0.0945 U 0.356 U
CALCIUM CHROMIUM, TOTAL	μg/L μg/L	23300 = 0.57 U	66600 =	67900 = 0.774 J	77100 = 0.651 J	66300 = 0.57 U	26700 =	70100 = 0.57 U	68800 = 0.57 U	77100 = 0.57 U	69500 = 0.57 U	39700 = 10.6 =	61400 = 0.57 U	62500 = 0.576 J	75500 = 0.57 U	67200 = 0.57 U	32400 =	62800 = 0.826 J	62500 = 0.614 J	68800 = 0.812 J	66700 = 0.57 U
COBALT	μg/L μg/L	0.569 U	0.96 J 0.569 U	0.569 U	0.569 U	0.569 U	0.8 J 0.569 U	0.569 U	0.569 U	0.569 U	0.569 U	1.19 J	0.569 U	0.569 U	0.779 J	0.569 U	1.01 J 0.569 U	0.569 U	0.569 U	0.569 U	0.569 U
COPPER IRON	μg/L μg/L	8.41 = 393 =	1.17 U 48.2 U	1.17 U 57.3 U	1.17 U 16.7 U	1.17 U 22.1 U	5.82 = 355 =	1.17 U 89.5 U	1.22 J 68.4 U	1.17 U 40.4 U	1.17 U 16.7 U	5.25 = 4370 =	1.17 U 123 U	1.17 U 114 U	1.17 U 40.7 U	1.17 U 16.7 U	2.33 J 310 =	1.27 J 81.6 U	1.22 J 84.3 U	1.17 U 18.5 U	1.52 J 16.7 U
LEAD MAGNESIUM	μg/L μg/L	1.76 U 1900 =	1.76 U 7420 =	1.76 U 7410 =	1.76 U 8320 =	1.76 U 3100 =	1.76 U 2610 =	1.76 U 7090 =	1.76 U 6860 =	1.76 U 8930 =	1.76 U 3210 =	1.76 U 3000 =	1.76 U 5780 =	1.76 U 5780 =	1.76 U 8870 =	1.76 U 3100 =	4.32 J 2360 =	1.76 U 7330 =	1.76 U 7230 =	1.76 U 8030 =	1.76 U 3060 =
MANGANESE MERCURY	μg/L μg/L	8.46 = 0.0162 U	2.05 = 0.0162 U	2.15 = 0.0162 U	4.28 = 0.0162 U	1.11 U 0.0162 U	8.53 = 0.0162 U	18.8 = 0.0162 U	17.8 = 0.0162 U	11.8 = 0.0162 U	0.327 J 0.0162 U	24.2 = 0.0162 U	6.69 = 0.0162 U	6.48 = 0.0162 U	11.6 = 0.0162 U	1.36 U 0.0162 U	8.09 = 0.183 U	12.9 = 0.0162 U	13.3 = 0.0162 U	9.73 = 0.0162 U	0.278 U 0.16 U
NICKEL POTASSIUM	μg/L μg/L	0.997 U 1430 =	9.12 = 10600 =	8.8 = 8680 =	5.09 = 8110 =	0.997 U 1340 =	0.997 U 1870 =	4.85 J 2420 =	4.68 J 2330 =	4.35 J 5020 =	0.997 U 1230 =	5.65 = 1510 =	2.38 J 1770 =	2.86 J 1660 =	5.1 = 3730 =	0.997 U 1000 =	0.997 U 1920 =	5.07 = 3160 =	4.73 J 3050 =	3.94 J 3350 =	0.997 U 1100 =
SELENIUM SII VFR	μg/L μg/L	2.1 U 0.472 U	4.28 J 0.472 U	2.1 U 0.472 U	2.1 U 0.472 U	2.1 U 0.472 U	3.09 U 0.472 U	2.1 U 0.472 U	3.8 U 0.472 U	2.1 U 0.472 U	2.1 U 0.472 U	2.1 U 0.472 U	2.18 U 0.472 U	2.33 U 0.472 U	2.24 U 0.472 U	2.1 U 0.472 U	2.1 U 0.472 U	3.24 U 0.472 U	2.1 U 0.472 U	2.1 U 0.504 J	2.1 U 0.526 J
SODIUM THALLIUM	μg/L	7860 J 2.54 U	14300 J 2.54 U	12900 J 2.54 U	12600 J 2.54 U	11300 J 2.54 U	10500 J 2.54 U	7150 J 2.54 U	7000 J 2.54 U	10300 J 2.54 U	11700 J 2.54 U	9050 = 2.54 U	5690 = 2.54 U	5840 = 2.54 U	8620 = 2.93 U	10100 = 2.54 U	8380 = 2.54 U	8390 = 2.54 U	8150 = 2.54 U	8990 = 2.54 U	11400 = 2.54 U
VANADIUM ZINC	μg/L μg/L	1.57 J 10.4 =	2.91 J 3.7 J	2.16 J 3.01 J	3.72 = 2.69 U	0.447 U 2.77 U	1.84 J 8.6 J	1.52 J 17.5 =	1.48 J 5.88 J	2.08 J 5.57 J	0.447 U 67.6 =	12.5 = 23.9 =	1.17 J 1.27 J	1.31 J 1.51 J	1.57 J 0.409 U	0.447 U 0.409 U	1.89 J 14.5 =	1.07 J 3.67 J	0.81 J 3.09 J	1.89 J 1.23 U	0.447 U 0.694 U
Total Petroleum Hydrocarbons	μg/L																				
PETROLEUM HYDROCARBONS Volatile Organic Compounds	mg/L	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.82 =	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.36 U	0.35 U	0.34 U	0.34 U	0.82 =	0.34 U	0.34 U	0.35 U	0.34 U
ACETONE ACROLEIN	μg/L μg/L	10 U 10 U	10 U 10 U	10 U 10 U	10 U 10 U	10 U 10 U	10 U 10 UJ	10 U 10 UJ	10 U 10 UJ	10 U 10 UJ	10 U 10 UJ	10 U 10 U	10 U 10 UJ	10 U 10 UJ	10 U 10 U	10 U 10 U	10 U 10 U	10 U 10 U	10 U 10 U	10 U 10 U	10 U 10 U
ACRYLONITRILE ALLYL CHLORIDE (3-CHLOROPROPENE)	μg/L μg/L	5 U 1 U	5 U 1 U	5 U 1 U	5 U 1 U	5 U 1 U	5 U 1 UJ	5 U 1 UJ	5 U 1 UJ	5 U 1 UJ	5 U 1 UJ	5 U 1 U	5 U 1 U	5 U 1 U	5 U 1 U	5 U 1 U	5 U 1 U	5 U 1 U	5 U 1 U	5 U 1 U	5 U 1 U
BENZENE BROMODICHLOROMETHANE	μg/L μg/L	1 U 1 U	1 U	1 U	1 U 1 U	1 U	1 U 1 U	1 U	1 U	1 U	1 U 1 U	1 U 1 U	1 U	1 U	1 U 1 U	1 U	1 U 1 U	1 U	1 U 1 U	1 U 1 U	1 U
BROMOFORM BROMOMETHANE	μg/L μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
CARBON DISULFIDE CARBON TETRACHLORIDE	μg/L μg/L	1 U	1 0	10	1 U	1 0	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
CHLOROBENZENE CHLOROETHANE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
CHLOROFORM	μg/L μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 0	1 U	1 U	1 U	1 U	1 U	1 U	1 U
CHLOROMETHANE 2-CHLORO-1,3-BUTADIENE	μg/L μg/L	1 U	1 U	1 U	1 U	1 U	1 U 1 UJ	1 U 1 UJ	1 U	1 UJ 1 UJ	1 U 1 W	1 U	1 U	1 U	1 U	1 U	1 U 1 U	1 U	1 U	1 U	1 U
cis-1,2-DICHLOROETHYLENE cis-1,3-DICHLOROPROPENE	μg/L μg/L	0.89 J 1 U	1 U 1 U	1 U 1 U	3.5 = 1 U	1 U 1 U	0.88 J 1 U	1 UJ 1 U	1 UJ 1 U	4.4 = 1 UJ	1 U 1 UJ	2.3 = 1 U	1 U 1 U	1 U	4 = 1 U	1 U	1.1 = 1 U	1 U	1 U	4 = 1 U	1 U
DIBROMOCHLOROMETHANE DICHLORODIFLUOROMETHANE	μg/L μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U 1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 UJ	1 U	1 U
1,1-DICHLOROETHANE 1,1-DICHLOROETHENE	μg/L μg/L	1 U	1 U	1 U	2.2 = 0.48 J	1 U	1 U	1 U	1 U	2.5 = 0.53 J	1 U	1 U 0.96 J	1 U	1 U	2.2 = 0.48 J	1 U	1 U 0.38 J	1 U	1 U	2.2 = 0.44 J	1 U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE) 1,2-DICHLOROBENZENE	μg/L	1 U	1 0	1 U	1 U	10	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-DICHLOROETHANE 1,2-DICHLOROETHANE 1,2-DICHLOROPROPANE	μg/L μg/L	1 U	1 U	10	10	10	1 U	1 U	10	10	1 U	1 U	1 U	1 U	1 U	10	1 U	10	10	1 U	10
1,3-DICHLOROBENZENE	μg/L μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U 1 U	1 U	1 U	1 U	1 U 1 U	1 U 1 U	1 U	1 U	1 U
1,4-DICHLOROBENZENE ETHYLBENZENE	μg/L μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2-HEXANONE IODOMETHANE (METHYL IODIDE)	μg/L μg/L	5 U	5 U	5 U	5 U 1 U	5 U	5 U 1 U	5 U	5 U 1 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
METHYLENE CHLORIDE STYRENE	µg/L µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
TETRACHLOROETHYLENE(PCE) TOLUENE	μg/L	0.7 J 0.29 J	1 U	1 U	1 U	1 U	1.1 = 0.67 J	1 U	1 U	1 U	1 U	0.81 J 0.56 J	1 U	1 U	1 U	1 U	1 U 0.24 J	1 U	1 U	1 U	1 U
trans-1,2-DICHLOROETHENE	μg/L μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
trans-1,3-DICHLOROPROPENE trans-1,4-DICHLORO-2-BUTENE	μg/L μg/L	1 U 3.6 UJ	1 U 3.6 UJ	1 U 3.6 UJ	1 U 3.6 U	1 U 3.6 U	1 U 3.6 U	1 U 3.6 U	1 U 3.6 U	1 U 3.6 UJ	1 U 3.6 U	1 U 3.6 U	1 U 3.6 U	1 U 3.6 U	1 U 3.6 U	1 U 3.6 U	1 U 3.6 U	1 U 3.6 U	1 U 3.6 U	1 U 3.6 U	1 U 3.6 U
TRICHLOROETHYLENE (TCE) TRICHLOROFLUOROMETHANE	μg/L μg/L	0.23 J 1 U	1 U	1 U	1 U 1 U	1 U	0.32 J 1 U	1 U	1 U	1 U	1 U 1 U	0.27 J 1 U	1 U 1 U	1 U	1 U	1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U	1 U
1,1,1-TRICHLOROETHANE 1,1,2,2-TETRACHLOROETHANE	μg/L μg/L	1 U 1 UJ	1 U 1 UJ	1 U 1 UJ	1 U	1 U 1 W	1 U	1 U 1 U	1 U	1 U 1 UJ	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U	1 U
1,2,3-TRICHLOROPROPANE VINYL ACETATE	μg/L μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U 2 I I	1 U 2 I I	1 U	1 U	1 U 2 I I	1 U 2 I I	1 U	1 U	1 U 2 I I	1 U	1 U
VINYL CHLORIDE M,P-XYLENE (SUM OF ISOMERS)	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10
O-XYLENE (1,2-DIMETHYLBENZENE)	μg/L μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U 1 U	1 U	1 U	1 U	2 U 1 U
XYLENES, TOTAL	μg/L	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U

											SJRV	/MD CFARE1							
	[Sampling Event 5					Sampling Event 6				Maximum Con	taminant Levels		Florida	Brownfields	Risk-based	d Concentrations
	Location: Event:	Inflow to R-143 Sampling Event 5	MW-1 Sampling Event 5	MW-1 Sampling Event 5	MW-2 Sampling Event 5	MW-4 Sampling Event 5	Inflow to R-143 Sampling Event 6	MW-1 Sampling Event 6	MW-1 Sampling Event 6	MW-2 Sampling Event 6	MW-4 Sampling Event 6	Florida MCL / SMCL	Florida MCL / SMCL	Federal MCL/SMCL ²	Federal MCL/SMCL ²	Florida Brownfield	Florida Brownfield	Regional USEPA RB	BC legional USEPA
	SJRWMD No.: SampleID:	None FP-04-06-005	OR0018 FP-04-06-001	OR0018 FP-04-06-002	OR819 FP-04-06-007	OR0141 FP-04-06-006	None FP-04-007-02	OR0018 FP-04-07-003	OR0018 FP-04-07-004	OR819 FP-04-07-007	OR0141 FP-04-07-001	Chapter 62-550, FAC)	Chapter 62-550, FAC SMCL) MCL	SMCL	(62-785) ³ GCTL	(62-785) 3 Groundwater LY/PQ	EPA Region III Tap Water	EPA Region
	DateCollected:	02/04/2004	02/04/2004	02/04/2004	02/06/2004	02/05/2004	02/16/2004	02/17/2004	02/17/2004	02/18/2004	02/16/2004	WCL	SWICE	MCL	SWICE	GCIL	Gloulidwater E1/FQ	Tap Water	
	Matrix: SampleType:	Groundwater Normal	Groundwater Normal	Groundwater Field Duplicate	Groundwater Normal	Groundwater Normal	Groundwater Normal	Groundwater Normal	Groundwater Field Duplicate	Groundwater Normal	Groundwater Normal								
Parameter Group and Name Field Measurements	Unit	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Criteria Unit	Criteria Unit	Criteria Unit	Criteria Unit	Criteria Unit	Criteria Unit	Criteria Unit	Criteria L
PERATURE	Std. Units °C	6.05 20.1	7.29 24.4	7.29 24.4	7.49 24.9	7.56 24.2	6.63 20.6	7.62 24.1	7.62 24.1	6.61 24.3	7.81 23.8			·	·				
DUCTANCE BIDITY	µmhos NTU	157.3 4.68	403 0.98	403 0.98	410	317	192	393 0.25	393 0.25	305 0.87	371 0.04								
SOLVED OXYGEN	mg/L	5.02	0.34	0.34	0.29	0.37	3.1	0.2	0.2	0.21	0.2								
DATION/REDUCTION POTENTIAL Radiologicals	mV	-6	-90	-90	-19	164	no data	-237	-237	-55	-163								
PHA, GROSS FA, GROSS	pCi/L pCi/L	0.838 U 1.36 U	2.62 J 2.84 U	0.649 U 2.69 U	1.93 U 2.81 U	6.82 = 2.69 U	0.805 U 0.812 U	1.48 U 3.19 J	3.44 = 3.05 J	1.93 U 3.41 J	3.45 = 1.07 U	15 pCi/L pCi/L	pCi/L pCi/L	15 pCi/L pCi/L	pCi/L pCi/L	pCi/L pCi/L	pCi/L pCi/L	pCi/L pCi/L	pCi/l pCi/l
Ion Balance	meg/L	0.9	3.5	3.5	3.4	3.5	1.3	3.5	3.5	3.5	3.4				İ				
nesium	meq/L	0.1	0.7	0.7	0.7	0.3	0.2	0.7	0.7	0.7	0.3								
um ssium	meq/L meq/L	0.3	0.3 0.1	0.3 0.1	0.4 0.1	0.5 0.0	0.4	0.3 0.1	0.3 0.1	0.4 0.1	0.5 0.0								
Sum of cations rbonate	meq/L meq/L	1.3	4.6 3.3	4.6 3.2	4.6 3.6	4.2 3.7	1.9 1.3	4.5 2.7	4.5 3.0	4.7 3.7	4.2 3.8								
onate oxide	meq/L meq/L																		
ride te	meq/L meq/L	0.2	0.2 1.4	0.2 1.5	0.3	0.1	0.4 0.2	0.2	0.2	0.3 0.6	0.1								
Sum of anions	meq/L	1.4	4.9	4.9	4.7	3.9	1.9	3.6	4.0	4.5	3.9								
Balance (% difference) Anions		3.4%	3.5%	3.9%	1.3%	-4.2%	-0.6%	-10.1%	-5.4%	-1.6%	-3.3%								
LINITY, BICARBONATE (AS CACO3)	mg/L	51 =	165 =	161 =	182 =	187 =	63 =	135 =	150 =	184 =	188 =	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg
ORIDE (AS CL)	mad	8.49 =	7.02 =	7.19 =	10.5 =	5.21 =	13.7 =	7.64 =	7.42 =	9.48 =	5.04 =	ug/l	250 mg/l	ma/l	250 mg/L	250 mg/L	250 mg/l	ma/l	ma
FATE (AS SO4)	mg/L mg/L	6.77 =	7.02 = 68.5 =	71.8 =	38.3 =	0.22 U	9.96 =	33.7 =	39.9 =	28.8 =	0.22 U	μg/L mg/L	250 mg/L 250 mg/L	mg/L mg/L	250 mg/L 250 mg/L	250 mg/L 250 mg/L	250 mg/L 2500 mg/L	mg/L mg/L	mg/l
Nutrients AL NITROGEN, ALL FORMS,CALCULATED	mg/L	1.81 =	1.52 =	1.47 =	1.63 =	2.36 =	0.899 =	0.463 =	0.432 =	0.553 =	0.559 =	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/l
OGEN, AMMONIA (AS N) OGEN, KJELDAHL, TOTAL	mg/L mg/L	0.21 J 1.7 J	0.126 J 1.48 J	0.125 J 1.45 J	0.308 U 1.6 U	4.57 = 2.33 =	0.306 J 0.867 =	0.149 J 0.443 U	0.142 J 0.412 U	9.33 = 0.533 U	0.282 J 0.521 U	mg/L mg/L	mg/L mg/L	mg/L mg/L	mg/L mg/L	mg/L mg/L	mg/L mg/L	mg/L mg/L	mg mg
OGEN, NITRITE OGEN, NITRATE-NITRITE	mg/L mg/L	0.0142 J 0.11 =	0.0118 U 0.0366 J	0.0118 U 0.0201 U	0.0118 U 0.0328 J	0.0118 U 0.0261 J	0.0158 J 0.032 J	0.0118 U 0.0201 U	0.0118 U 0.0201 U	0.0118 U 0.0201 U	0.0118 U 0.0381 J	1 mg/L mg/L	mg/L mg/L	1 mg/L 10 mg/L	mg/L mg/L	1 mg/L 10 mg/L	mg/L mg/L	3.7 mg/L mg/L	3.7 mg
SPHORUS, TOTAL (AS =P) SPHORUS, TOTAL ORTHOPHOSPHATE (AS P)	mg/L mg/L	0.061 = 0.029 =	0.111 = 0.09 =	0.107 = 0.097 =	0.129 = 0.113 =	0.062 = 0.037 =	0.082 = 0.03 =	0.094 = 0.083 =	0.12 = 0.095 =	0.223 = 0.127 =	0.1 = 0.027 =	mg/L mg/L	mg/L mg/L	mg/L mg/L	mg/L mg/L	mg/L mg/L	mg/L mg/L	mg/L mg/L	mg
SPHORUS, TOTAL ORGANIC (AS P)	mg/L	0.029 =	0.09 =	0.096 =	0.113 =	0.06 =	0.096 =	0.152 =	0.181 =	0.127 =	0.118 =	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/ mg/
General Chemistry AL DISSOLVED SOLIDS (RESIDUE, FILTERABLE)	mg/L	89 =	263 =	271 =	237 =	271 =	125 =	242 =	255 =	272 =	252 =	mg/L	500 mg/L	mg/L	500 mg/L	500 mg/L	500 mg/L	mg/L	mg/
BIDITY aboratory)	NTU PH UNITS	1.5 = 6.93 =	1.1 = 7.62 =	1.2 = 7.55 =	7 = 7.45 =	0.25 = 8.01 =	1.5 = 6.63 =	0.12 U 7.44 =	0.5 = 7.41 =	0.6 = 7.43 =	0.12 U 7.81 =	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	µg/ µg/
OR LOGIC OXYGEN DEMAND, FIVE DAY	COLOR UNIT mg/L	25 = 2 U	15 = 2 U	10 = 2 U	15 = 2 U	15 = 3.3 =	25 = 2 U	10 = 2 U	15 = 2 U	15 = 2 U	10 = 2 U	μg/L mg/L	µg/L mg/L	μg/L mg/L	μg/L mg/L	μg/L mg/L	μg/L mg/L	μg/L mg/L	µg/l mg/
AL ORGANIC CARBON OLVED ORGANIC CARBON	mg/L mg/L	2.28 =	0.368 U 1.36 U	0.368 U 1.45 U	2.1 U 2.08 U	0.368 U 1.35 U	0.368 U 4.09 =	0.368 U 0.368 UJ	0.368 U 0.62 J	0.368 UJ 0.8 J	4.19 = 0.368 U	mg/L	mg/L mg/L	mg/L	mg/L	mg/L	mg/L	mg/L mg/L	mg/
Metals												mg/L		mg/L	mg/L	mg/L	mg/L		
MINUM IMONY	μg/L μg/L	111 = 2.5 U	35 = 2.5 U	41.8 U 2.5 U	35 U 2.5 U	35 U 2.5 U	35 U 2.5 U	35 U 4.3 U	35 U 3.5 U	35 U 2.5 U	35 U 2.5 U	μg/L 6 μg/L	200 μg/L μg/L	μg/L 6 μg/L	50 μg/L μg/L	μg/L 6 μg/L	200 μg/L 60 μg/L	37000 μg/L 15 μg/L	3700 μg/L 1.5 μg/L
ENIC UM	μg/L μg/L	2.04 U 11 =	8.71 = 20.9 =	10.6 = 19.7 =	2.93 J 16.3 =	2.04 U 5.58 =	2.04 U 16.4 =	9.39 = 19.1 =	9.59 = 18.6 =	7.77 = 15.9 =	2.04 U 4.47 =	50 μg/L 2000 μg/L	μg/L μg/L	50 μg/L 2000 μg/L	μg/L μg/L	50 μg/L 2000 μg/L	5000 μg/L 20000 μg/L	0.045 µg/L 2600 µg/L	0.045 μg/l 260 μg/l
YLLIUM MILIM	μg/L	0.0945 U 0.356 U	0.0945 U 0.356 U	0.0945 U 0.356 U	0.179 U 0.356 U	0.0945 U 0.356 U	0.0945 U 0.356 U	0.315 U 0.406 J	0.368 U 0.453 J	0.0945 U 0.356 U	0.0945 U 0.356 U	4 μg/L	μg/L	4 μg/L	μg/L	4 μg/L	400 μg/L	0.016 µg/L	0.016 µg/l
CIUM	μg/L μg/L	18500 =	69500 =	69200 =	68400 =	69100 =	26300 =	69800 =	70100 =	70400 =	68700 =	5 μg/L μg/L	μg/L μg/L	5 μg/L μg/L	μg/L μg/L	5 μg/L μg/L	515 μg/L μg/L	18 μg/L μg/L	1.8 µg/l
ROMIUM, TOTAL BALT	μg/L μg/L	0.57 U 0.569 U	0.57 U 0.569 U	0.57 U 0.569 U	0.57 U 0.569 U	0.57 U 0.569 U	1.07 J 0.569 U	1.16 J 0.569 U	0.57 U 0.569 U	0.751 J 0.569 U	0.601 J 0.569 U	100 μg/L μg/L	μg/L μg/L	100 μg/L μg/L	μg/L μg/L	100 μg/L μg/L	1000 μg/L μg/L	μg/L 2200 μg/L	μg/L 220 μg/L
PER I	μg/L μg/L	1.17 U 394 =	1.17 U 164 =	1.17 U 150 U	1.17 U 170 U	1.17 U 16.7 U	1.67 U 331 =	1.17 U 217 U	1.17 U 222 U	1.17 U 210 =	1.17 U 16.7 U	μg/L μg/L	1000 μg/L 300 μg/L	μg/L μg/L	1000 µg/L 300 µg/L	1000 μg/L 300 μg/L	10000 μg/L μg/L	130000 µg/L 11000 µg/L	13000 µg/ 1100 µg/
D SNESIUM	μg/L	2.1 J 1160 =	1.76 U 8790 =	1.76 U 8600 =	1.76 U 8580 =	1.76 U 3160 =	1.76 U 1810 =	1.76 U 8530 =	1.93 J 8360 =	1.76 U 8800 =	1.76 U	15 μg/L	μg/L	15 μg/L	μg/L	15 μg/L	150 µg/L	μg/L	μg/l
IGANESE	μg/L μg/L	6.77 =	9.99 =	7 =	6.78 =	0.259 U	10.8 =	6.6 =	6.61 =	5.21 =	0.167 U	μg/L μg/L	μg/L 50 μg/L	µg/L µg/L	μg/L 50 μg/L	μg/L 50 μg/L	μg/L 500 μg/L	μg/L 840 μg/L	84 µg
CCURY KEL	μg/L μg/L	0.0162 U 0.997 U	0.0162 U 3.92 J	0.0162 U 4.2 J	0.0162 U 2.95 J	0.0162 U 0.997 U	0.0162 U 0.997 U	0.0162 U 2.96 J	0.0162 U 3.08 J	0.0162 U 2.7 J	0.0162 U 0.997 U	2 μg/L 100 μg/L	µg/L µg/L	2 μg/L 100 μg/L	μg/L μg/L	2 μg/L 100 μg/L	20 μg/L 1000 μg/L	11 μg/L 730 μg/L	1.1 µg 73 µg
'ASSIUM ENIUM	μg/L μg/L	1100 = 2.1 U	2540 = 2.1 U	2400 = 2.1 U	3450 = 2.1 U	1500 J 2.1 U	1640 J 2.1 U	2010 J 2.1 U	1960 J 2.1 U	2800 = 2.1 U	1130 J 2.1 U	μg/L 50 μg/L	μg/L μg/L	μg/L 50 μg/L	μg/L μg/L	μg/L 50 μg/L	μg/L 500 μg/L	μg/L 180 μg/L	μg/l 18 μg/l
/ER DIUM	μg/L μg/L	0.587 U 6030 =	0.472 U 7630 =	0.472 U 7400 =	0.472 U 9040 =	0.472 U 11300 =	0.472 U 8500 J	0.695 U 6550 J	0.472 U 6430 J	0.54 U 8630 J	0.472 U 10400 J	μg/L 160000 μg/L	100 μg/L μg/L	μg/L μg/L	100 μg/L μg/L	100 μg/L μg/L	1000 μg/L μg/L	180 μg/L μg/L	18 µg/ µg/
LIUM	μg/L	2.54 U	2.54 U	2.54 U	2.54 U	2.54 U	2.54 U	2.54 U	2.54 U	2.54 U	2.54 U	2 μg/L	μg/L	2 μg/L	μg/L	2 μg/L	μg/L	μg/L	µд/
ADIUM	μg/L μg/L	1.53 J 10.9 =	0.623 J 0.68 J	0.447 U 2.99 J	0.771 U 0.755 U	0.447 U 1.66 U	1.8 J 11.8 J	1.3 J 0.85 J	1.29 J 0.409 UJ	0.749 J 0.409 U	0.447 U 1.71 UJ	μg/L μg/L	μg/L 5000 μg/L	μg/L μg/L	μg/L 5000 μg/L	49 μg/L 5000 μg/L	490 μg/L 50000 μg/L	260 μg/L 11000 μg/L	26 μg/ 1100 μg/
Total Petroleum Hydrocarbons ROLEUM HYDROCARBONS	mg/L	0.34 U	0.12 J	0.12 J	0.34 UJ	0.1 J	0.34 U	0.34 UJ	0.34 U	0.34 U	0.35 U	mg/L	mg/L	mg/L	mg/L	5 mg/L	50 mg/L	mg/L	mg
Volatile Organic Compounds TONE	μg/L	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 UJ	μg/L	µg/L	μg/L	µg/L	700 µg/L	7000 µg/L	3700 µg/L	370 µg/
OLEIN YLONITRILE	μg/L μg/L	10 U	10 U	10 U	10 UJ 5 U	10 UJ 5 U	10 UJ 5 U	10 UJ 5 U	10 UJ 5 U	10 UJ 5 U	10 UJ 5 U	μg/L	µg/L µg/L	μg/L μg/L	μg/L	μg/L	μg/L	μg/L μg/L	µg/
'L CHLORIDE (3-CHLOROPROPENE)	μg/L	1 U	1 U	1 U	1 U	1 W	1 UJ	1 UJ	1 UJ	1 U	1 UJ	μg/L μg/L	μg/L	μg/L	µg/L µg/L	μg/L μg/L	μg/L μg/L	μg/L	ha ha
ZENE MODICHLOROMETHANE	μg/L μg/L	1 U	1 U 1 U	1 U 1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 μg/L 100 μg/L	μg/L μg/L	5 μg/L 100 μg/L	μg/L μg/L	1 μg/L 0.6 μg/L	100 μg/L 60 μg/L	0.36 μg/L 0.17 μg/L	0.36 µg 0.17 µg
MOFORM MOMETHANE	μg/L μg/L	1 U 1 UJ	1 U 1 UJ	1 U 1 UJ	1 U 1 UJ	1 U 1 U	1 U	1 U	1 U 1 U	1 U 1 U	1 U 1 U	100 μg/L μg/L	μg/L μg/L	100 μg/L μg/L	μg/L μg/L	4 μg/L 9.8 μg/L	40 μg/L μg/L	2.4 μg/L 8.7 μg/L	2.4 µg 0.87 µg
SON DISULFIDE SON TETRACHLORIDE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	μg/L	μg/L	μg/L	μg/L	700 µg/L	7000 µg/L	1000 µg/L 0.16 µg/L	100 μς
ROBENZENE	μg/L μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	3 μg/L 100 μg/L	μg/L μg/L	5 μg/L 100 μg/L	µg/L µg/L	3 μg/L 100 μg/L	300 μg/L 1000 μg/L	39 µg/L	0.16 µg
DROETHANE DROFORM	μg/L μg/L	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	μg/L 100 μg/L	μg/L μg/L	μg/L 100 μg/L	μg/L μg/L	2800 μg/L 6 μg/L	28000 μg/L 600 μg/L	3.6 μg/L 0.15 μg/L	3.6 µ
DROMETHANE LORO-1,3-BUTADIENE	μg/L μg/L	1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 UJ 1 U	1 U 1 U	μg/L μg/L	µg/L µg/L	μg/L μg/L	μg/L μg/L	2.7 μg/L μg/L	270 μg/L μg/L	1.4 μg/L μg/L	1.4 µg
2-DICHLOROPENPENE	μg/L μg/L	2.9 = 1 U	1 U	1 U	4.5 = 1 U	1 U	1 U	1 U	1 U	4.4 = 1 U	1 U	70 μg/L	μg/L μg/L	70 μg/L μg/L	μg/L	70 μg/L μg/L	700 µg/L	61 µg/L µg/L	6.1 µg
OMOCHLOROMETHANE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	μg/L 100 μg/L	μg/L	100 μg/L	μg/L μg/L	0.4 μg/L	μg/L 40 μg/L	0.13 µg/L	0.13 µg
ILORODIFLUOROMETHANE ICHLOROETHANE	μg/L μg/L	1 U	1 U 1 U	1 U	1 U 2.2 =	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 2.1 =	1 U	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	1400 μg/L 700 μg/L	μg/L 7000 μg/L	390 μg/L 810 μg/L	39 µg 81 µg
ICHLOROETHENE IBROMOETHANE (ETHYLENE DIBROMIDE)	μg/L μg/L	0.96 J	1 U	1 U	0.44 J 1 U	1 U	1 U	1 U	1 U	0.49 J	1 U	7 μg/L 0.02 μg/L	μg/L μg/L	7 μg/L 0.05 μg/L	µg/L µg/L	7 μg/L 0.02 μg/L	700 μg/L 2 μg/L	0.044 µg/L 0.00075 µg/L	0.044 µg
CHLOROBENZENE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	600 µg/L	μg/L	600 µg/L	μg/L	600 µg/L	6000 µg/L	64 μg/L	6.4 μς
CHLOROETHANE CHLOROPROPANE	μg/L μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	3 μg/L 5 μg/L	μg/L μg/L	5 μg/L 5 μg/L	μg/L μg/L	3 μg/L 5 μg/L	300 μg/L 500 μg/L	0.12 μg/L 0.16 μg/L	0.12 µg
ICHLOROBENZENE ICHLOROBENZENE	μg/L μg/L	1 U	1 U 1 U	1 U	1 U	1 U	1 U 1 U	1 U	1 U 1 U	1 U 1 U	1 U 1 U	μg/L 75 μg/L	μg/L μg/L	μg/L 75 μg/L	μg/L μg/L	10 μg/L 75 μg/L	100 μg/L 7500 μg/L	540 μg/L 0.44 μg/L	54 μς 0.44 μς
LBENZENE (ANONE	μg/L	1 U 5 U	1 U 5 U	1 U 5 U	1 U 5 U	1 U 5 UJ	1 U 5 UJ	1 U 5 UJ	1 U 5 UJ	1 U 5 U	1 U 5 UJ	700 µg/L	30 μg/L	700 µg/L	μg/L	30 μg/L	300 µg/L	1300 µg/L	130 µg
METHANE (METHYL IODIDE)	μg/L μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	µg/L µg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	µg/L µg/L	1500 µg/L µg/L	μ
HYLENE CHLORIDE ENE	μg/L μg/L	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U	1 U 1 U	5 μg/L 100 μg/L	μg/L μg/L	5 μg/L 100 μg/L	μg/L μg/L	5 μg/L 100 μg/L	500 μg/L 1000 μg/L	4.1 µg/L 1600 µg/L	4.1 µ 160 µ
ACHLOROETHYLENE(PCE) JENE	μg/L μg/L	0.48 J 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	3 μg/L 1000 μg/L	μg/L 40 μg/L	5 μg/L 1000 μg/L	μg/L μg/L	3 μg/L 40 μg/L	300 μg/L 400 μg/L	1.1 μg/L 750 μg/L	1.1 µ
-1,2-DICHLOROETHENE -1,3-DICHLOROPROPENE	μg/L	1 U 1 UJ	1 U 1 UJ	1 U 1 UJ	0.24 J 1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	100 µg/L	μg/L	100 μg/L	μg/L	100 µg/L	1000 µg/L	120 µg/L	12 µ
1,4-DICHLORO-2-BUTENE	μg/L μg/L	3.6 U	3.6 U	3.6 U	3.6 U	3.6 U	3.6 U	3.6 U	3.6 U	3.6 U	3.6 U	μg/L μg/L	µg/L µg/L	µg/L µg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	ų ų
HLOROETHYLENE (TCE) HLOROFLUOROMETHANE	μg/L μg/L	1 U	1 U	1 U	1 U	1 U 1 U	1 U	1 U	1 U	1 U	1 U	3 μg/L μg/L	μg/L μg/L	5 μg/L μg/L	μg/L μg/L	3 μg/L 2100 μg/L	300 μg/L 21000 μg/L	1.6 μg/L 1300 μg/L	1.6 µ
-TRICHLOROETHANE 2,2-TETRACHLOROETHANE	μg/L μg/L	1 U	1 U	1 U	1 U	1 U	1 U 1 U	1 U	1 U	1 U	1 U 1 U	200 μg/L μg/L	μg/L μg/L	200 μg/L μg/L	μg/L μg/L	200 μg/L 0.5 μg/L	2000 μg/L 50 μg/L	540 μg/L 0.052 μg/L	54 μς 0.052 μς
3-TRICHLOROPROPANE	μg/L	10	1 U	10	1 U	1 U	1 U	1 U	1 U	1 U	1 U	μg/L	μg/L	µg/L	μg/L	5 μg/L	μg/L	0.0015 µg/L	0.0015 μς
YL ACETATE	μg/L μg/L	2 U 1 U	2 U 1 U	2 U 1 U	2 U 1 U	2 U 1 U	2 U 1 U	2 U 1 U	2 U 1 U	2 U 1 U	2 U 1 U	μg/L 1 μg/L	μg/L μg/L	μg/L 2 μg/L	μg/L μg/L	90 μg/L 1 μg/L	900 μg/L 100 μg/L	37000 μg/L 0.019 μg/L	3700 µg 0.019 µg
			2 U	2 U	2 U	2 U	2 U	2 U						ua/l					12000 µg/
NYL CHLORIDE P-XYLENE (SUM OF ISOMERS) XYLENE (1,2-DIMETHYLBENZENE)	μg/L μg/L	2 U 1 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U 1 U	2 U 1 U	2 U 1 U	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	12000 µg/L 12000 µg/L	1200

	_										SJRW	/MD CFARE1									
				Sampling Event					Sampling Event 2					Sampling Event 3					mpling Event 4		
	Location: Event:	Inflow to R-143 Sampling Event 1	MW-1 Sampling Event 1	MW-1 Sampling Event	MW-2 1 Sampling Event 1	MW-4 Sampling Event 1	Inflow to R-143 Sampling Event 2	MW-1 Sampling Event 2	MW-1 Sampling Event 2	MW-2 Sampling Event 2	MW-4 Sampling Event 2	Inflow to R-143 Sampling Event 3	MW-1 Sampling Event 3	MW-1 Sampling Event 3	MW-2 Sampling Event 3	MW-4 Sampling Event 3	Inflow to R-143 MV Sampling Event 4 Samplin		MW-1 ampling Event 4		MW-4 npling Event 4
	SJRWMD No.: SampleID:	None FP-03-02-005	OR0018 FP-03-02-001	OR0018 FP-03-02-002	OR0819 FP-03-02-006	OR0141 FP-03-02-007	None FP-03-03-002	OR0018 FP-03-03-001	OR0018 FP-03-03-003	OR0819 FP-03-03-007	OR0141 FP-03-03-006	None FP-03-04-003	OR0018 FP-03-04-004	OR0018 FP-03-04-005	OR0819 FP-03-04-001	OR0141 FP-03-04-002	None OR0	0018	OR0018 P-03-05-002		OR0141 P-03-05-006
	DateCollected:	10/01/2003	10/01/2003	10/01/2003	10/02/2003	10/03/2003	10/08/2003	10/08/2003	10/08/2003	10/10/2003	10/09/2003	10/23/2003	10/24/2003	10/24/2003	10/22/2003	10/23/2003	11/20/2003 11/18	8/2003	11/18/2003	11/19/2003 11	11/20/2003
	Matrix: SampleType:	Stormwater Normal	Groundwater Normal	Groundwater Field Duplicate		Groundwater Normal	Stormwater Normal	Groundwater Normal	Groundwater Field Duplicate	Groundwater Normal	Groundwater Normal	Stormwater Normal	Groundwater Normal	Groundwater Field Duplicate	Groundwater Normal	Groundwater Normal	Normal Nor	rmal Fi	Groundwater Field Duplicate	Normal I	Proundwater Normal
Parameter Group and Name Semi-volatile Organic Compound	Unit	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual Result	Qual Res	sult Qual F	Result Qual Resul	sult Qual
CETOPHENONE NILINE (PHENYLAMINE, AMINOBENZENE)	μg/L	5 U	5 U	5 U	5 U	5.1 U 5.1 UJ	5 U 5 U	5 U	5.2 U 5.2 U	5 U 5 UJ	5 U 5 UJ	5 U 5 U	5.1 U 5.1 U	5.1 U 5.1 U	5 U 5 U	5 U		i UJ	5 UJ 5 UJ	5 U	5 U
RAMITE	μg/L μg/L	10 U	10 U	10 U	10 U	10.2 U	10 U	10 U	10.3 U	10 U	10 U	10 UJ	10.2 U	10.2 U	10 U	10.1 UJ	10 U 10.1		10 U	10 U	10 U
-AMINOBIPHENYL (4-BIPHENYLAMINE) -ACETYLAMINOFLUORENE	μg/L μg/L	5 U 10 U	5 U 10 U	5 U 10 U	5 UJ 10 U	5.1 UJ 10.2 U	5 U 10 U	5 U 10 U	5.2 U 10.3 U	5 U 10 U	5 U 10 U	5 U 10 U	5.1 U 10.2 U	5.1 U 10.2 U	5 UJ 10 UJ	5 U 10.1 U	5 U 5 10 U 10.1		5 U 10 U	5 U 10 U	5 U 10 U
-AMINONAPHTHALENE (BETA NAPHTHYLAMINE) ENZYL ALCOHOL	μg/L	5 U 10 U	5 U 10 U	5 U 10 U	5 U 10 U	5.1 UJ 10.2 U	5 UJ 10 U	5 UJ 10 U	5.2 UJ 10.3 U	5 U 10 U	5 U 10 U	5 U 10 U	5.1 U 10.2 U	5.1 U 10.2 U	5 UJ 10 U	5 U 10.1 U	5 UJ 5 10 U 10.1	UJ	5 UJ 10 U	5 UJ	5 UJ 10 U
ENZYL BUTYL PHTHALATE	μg/L μg/L	5 U	5 U	5 U	5 U	5.1 U	5 U	5 U	5.2 U	5 U	5 U	5 U	5.1 U	5.1 U	5 U	5 U	5 U 5	U	5 U	5 U	5 U
-BROMOPHENYL PHENYL ETHER -CHLOROANILINE	μg/L μg/L	5 U	5 U	5 U	5 U	5.1 U 5.1 U	5 U 5 U	5 U	5.2 U 5.2 U	5 U	5 U 5 U	5 UJ 5 U	5.1 U 5.1 U	5.1 U 5.1 U	5 UJ 5 U	5 UJ 5 U		U	5 U	5 U	5 U
-CHLOROPHENYL PHENYL ETHER -CHLORONAPHTHALENE	μg/L	5 U	5 U	5 U	5 U	5.1 U	5 U	5 U	5.2 U	5 U	5 U	5 U	5.1 U	5.1 U	5 U	5 U	5 U 5	U	5 U	5 U	5 U
-CHLOROPHENOL	μg/L μg/L	5 U	5 U	5 U	5 U 5 U	5.1 U 5.1 U	5 U 5 U	5 U 5 U	5.2 U 5.2 U	5 U 5 U	5 U 5 U	5 U	5.1 UJ 5.1 U	5.1 U 5.1 U	5 U	5 U 5 U	5 U 5	U U	5 U 5 U	5 U 5 U	5 U
3-DINITROBENZENE 4-DICHLOROPHENOL	μg/L μg/L	10 UJ 5 U	10 UJ 5 U	10 UJ 5 U	10 UJ 5 U	10.2 UJ 5.1 U	10 UJ 5 UJ	10 UJ 5 U	10.3 UJ 5.2 UJ	10 UJ 5 U	10 UJ 5 U	10 U 5 U	10.2 U 5.1 U	10.2 U 5.1 U	10 U 5 U	10.1 U 5 U	10 U 10.1 5 U 5	U	10 U 5 U	10 U 5 U	10 U 5 U
6-DICHLOROPHENOL 4-DIMETHYLPHENOL	μg/L	5 U	5 U	5 U	5 U	5.1 U 5.1 U	5 U 5 U	5 U 5 U.I	5.2 U 5.2 U	5 U	5 U 5 U	5 U	5.1 U 5.1 U	5.1 U 5.1 II	5 U 5 U	5 U		U	5 U	5 U	5 U
4-DINITROPHENOL	μg/L μg/L	10 UJ	10 UJ	10 UJ	10 U	10.2 UJ	10 U	10 U	10.3 U	10 UJ	10 UJ	10 UJ	10.2 U	10.2 U	10 U	10.1 UJ	10 UJ 10.1		10 UJ		10 UJ
4-DINITROTOLUENE s(2-CHLOROETHOXY) METHANE	μg/L	5 U	5 U	5 U 5 U	5 U	5.1 U 5.1 U	5 U 5 U	5 U	5.2 U 5.2 U	5 U 5 U	5 U 5 U	5 U 5 U	5.1 U 5.1 U	5.1 U 5.1 U	5 UJ 5 U	5 U 5 U	5 U 5		5 U 5 U	5 U 5 U	5 U 5 U
s(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHER)	μg/L μg/L	5 U	5 U	5 U	5 ∪	5.1 ∪	5 U	5 U	5.2 ∪	5 U	5 U	5 U	5.1 ∪	5.1 ∪	5 ∪	5 U	5 ∪ 5		5 ∪		5 ∪
s(2-CHLOROISOPROPYL) ETHER HLOROBENZILATE	μg/L μg/l	5 U	5 U	5 U	5 U 5 U	5.1 U 5.1 U	5 U 5 U	5 U	5.2 U 5.2 U	5 U 5 U	5 U	5 U 5 U	5.1 U 5.1 U	5.1 U 5.1 U	5 U	5 U	5 U 5	U	5 U	5 U	5 U 5 U
IALLATE	µg/L µg/L	5 U	5 U	5 U	5 U	5.1 U	5 U	5 U	5.2 U	5 U	5 U	5 UJ	5.1 U	5.1 U	5 UJ	5 UJ	5 U 5	UJ	5 UJ	5 U	5 U
BENZOFURAN ETHYL PHTHALATE	μg/L μg/L	5 U	5 U	5 U	5 U 5 U	5.1 U 5.1 U	5 U 5 U	5 U	5.2 U 5.2 U	5 U 5 U	5 U 5 U	5 U 5 U	5.1 U 5.1 U	5.1 U 5.1 U	5 U	5 U 5 U		U U	5 U	5 U	5 U
METHYL PHTHALATE METHYLPHENYLETHYLAMINE	μg/L	5 U 20 R	5 U 20 R	5 U 20.1 R	5 U 20 R	5.1 U 20.4 R	5 U 20 R	5 U 20 R	5.2 U 20.6 R	5 U 20 R	5 U 20 R	5 U 20.1 UJ	5.1 U 20.5 R	5.1 U 20.5 R	5 U 20 R	5 U 20.2 UJ		U	5 U 20 R	5 U	5 U 20 R
12-DIMETHYLBENZ(a)ANTHRACENE	μg/L μg/L	5 U	5 U	5 U	5 U	5.1 U	5 U	5 U	5.2 U	5 U	5 U	5 U	5.1 U	5.1 U	5 U	5 U	5 U 5	U	5 U	5 U	5 U
-DIMETHYLAMINOAZOBENZENE 3'-DICHLOROBENZIDINE	μg/L μg/L	10 U 5 U	10 U 5 U	10 U 5 U	10 U 5 U	10.2 U 5.1 U	10 U 5 U	10 U 5 U	10.3 U 5.2 U	10 U 5 U	10 U 5 U	10 U 5 U	10.2 U 5.1 U	10.2 U 5.1 U	10 U 5 U	1.6 J 5 U	10 U 10.1 5 U 5	U	10 U 5 U	10 U 5 U	10 U 5 U
3'-DIMETHYLBENZIDINE	μg/L	10 U	10 U	10 U	10 UJ	10.2 UJ	10 UJ	10 UJ	10.3 UJ	10 UJ	10 W	10 U	10.2 U	10.2 U	10 UJ	10.1 U	10 U 10.1		10 UJ		10 U
THYL METHANESULFONATE EXACHLOROPROPENE	μg/L μg/L	5 U	5 U	5 U	5 U 5 U	5.1 U 5.1 U	5 U 5 UJ	5 U 5 UJ	5.2 U 5.2 UJ	5 U 5 UJ	5 U 5 W	5 U 5 UJ	5.1 U 5.1 U	5.1 U 5.1 U	5 U 5 U	5 UJ		U	5 U	5 U 5 UJ	5 U
SODRIN SOPHORONE	μg/L	5 U	5 U	5 U	5 U	5.1 U	5 U	5 U	5.2 U	5 U	5 U	5 U	5.1 U	5.1 U	5 U	5 U	5 U 5	U	5 U	5 U	5 U
SOSAFROLE	μg/L μg/L	5 U 5 U	5 U 5 U	5 U	5 U 5 U	5.1 U 5.1 U	5 U 5 U	5 U 5 U	5.2 U 5.2 U	5 U	5 U 5 U	5 U 5 U	5.1 U 5.1 U	5.1 U 5.1 U	5 U 5 UJ	5 U 5 U	5 U 5	UJ U	5 U 5 U	5 U 5 U	5 U
EPONE IETHAPYRII ENE	μg/L μg/L	20 UJ 10 UJ	20 UJ 10 UJ	20.1 UJ 10 UJ	20 R 10 UJ	20.4 R 10.2 UJ	20 UJ 10 R	20 UJ 10 R	20.6 UJ 10.3 R	20 UJ 10 UJ	20 UJ 10 UJ	20.1 UJ 10 UJ	20.5 U 10.2 UJ	20.5 U 10.2 UJ	20 UJ 10 UJ	20.2 UJ 10.1 UJ	20 U 20.2 10 UJ 10.1		20 U 10 UJ		20 U 10 UJ
ETHYL METHANESULFONATE	μg/L	5 U	5 U	5 U	5 U	5.1 U	5 UJ	5 UJ	5.2 UJ	5 UJ	5 UJ	5 UJ	5.1 U	5.1 U	5 UJ	5 UJ	5 U 5	U	5 U	5 U	5 U
METHYLNAPHTHALENE METHYLPHENOL (o-CRESOL)	μg/L μg/L	5 U	5 U 5 U	5 U	5 U 5 U	5.1 U 5.1 U	5 U	5 U	5.2 U 5.2 U	5 U 5 U	5 U 5 U	5 U 5 U	5.1 U 5.1 U	5.1 U 5.1 U	5 U 5 U	5 U 5 U		U U	5 U 5 U	5 U	5 U
-METHYLCHOLANTHRENE -METHYLPHENOL (p-CRESOL)	μg/L	5 U	5 U	5 U	5 U	5.1 U 5.1 U	5 U	5 U	5.2 U 5.2 U	5 U	5 U	5 U	5.1 U 5.1 U	5.1 U 5.1 U	5 U	5 U	5 U 5	U	5 U	5 U	5 U
4-NAPHTHOQUINONE	μg/L μg/L	5 U 10 U	5 U 10 U	5 U 10 U	5 U 10 U	10.2 U	5 U 10 U	5 U 10 U	10.3 U	5 U 10 U	5 U 10 U	5 U 10 U	10.2 U	10.2 U	5 UJ 10 U	5 U 10.1 U	10 U 10.1	U	5 U 10 U	5 U 10 U	5 U 10 U
NAPHTHYLAMINE NITROANILINE	μg/L μg/L	5 U	5 U	5 U	5 U	5.1 UJ 5.1 U	5 UJ 5 U	5 UJ 5 U	5.2 UJ 5.2 U	5 UJ	5 UJ 5 U	5 U	5.1 U 5.1 U	5.1 U 5.1 U	5 UJ 5 U	5 U	5 U 5		5 U	5 UJ 5 U.I	5 U 5 U
-NITROANILINE	μg/L	5 U	5 U	5 U	5 U	5.1 U	5 U	5 U	5.2 U	5 U	5 U	5 U	5.1 U	5.1 U	5 U	5 U	5 U 5	U	5 U	5 U	5 U
NITROANILINE NITROQUINOLINE-N-OXIDE	μg/L μg/L	5 U 10 UJ	5 U 10 UJ	5 U 10 UJ	5 U 10 UJ	5.1 U 10.2 UJ	5 U 10 UJ	5 U 10 UJ	5.2 U 10.3 UJ	5 U 10 UJ	5 U 10 UJ	5 U 10 UJ	5.1 U 10.2 UJ	5.1 U 10.2 UJ	5 UJ 10 UJ	5 U 10.1 UJ	5 U 5 10 UJ 10.1	U.J	5 U 10 UJ	5 U 10 UJ	5 U 10 UJ
-NITRO-o-TOLUIDINE -NITROSO-DI-N-BIJTYI AMINE	μg/L	10 U 5 U	10 U	10 U	10 U	10.2 U 5.1 U	10 U 5 U	10 U 5 U	10.3 U 5.2 U	10 U 5 U	10 U 5 U	10 U 5 U	10.2 U 5.1 U	10.2 U 5.1 U	10 U 5 U	10.1 U	10 U 10.1		10 U 5 UJ	10 U	10 U
-NITROSODI-n-PROPYLAMINE	μg/L μg/L	5 U	5 U	5 U	5 U	5.1 U	5 U	5 U	5.2 U	5 U	5 U	5 U	5.1 U	5.1 U	5 U	5 U	5 U 5		5 U		5 U
-NITROSODIETHYLAMINE -NITROSODIMETHYLAMINE	μg/L	5 U	5 U	5 U	5 U	5.1 U 5.1 U	5 U 5 R	5 U 5 R	5.2 U 5.2 R	5 U 5 R	5 U 5 R	5 U	5.1 U 5.1 U	5.1 U 5.1 U	5 U	5 U	5 U 5	U	5 U	5 U 5 U.I	5 U 5 UJ
-NITROSODIPHENYLAMINE	μg/L μg/L	5 U	5 U	5 U	5 U	5.1 U	5 K	5 U	5.2 U	5 U	5 U	5 U	5.1 U	5.1 U	5 U	5 U	5 U 5	U	5 U	5 U	5 U
-NITROSOMORPHOLINE ,3,5-TRINITROBENZENE	μg/L μg/L	5 U 20 UJ	5 U 20 UJ	5 U 20.1 UJ	5 U 20 UJ	5.1 U 20.4 UJ	5 U 20 UJ	5 U 20 UJ	5.2 U 20.6 UJ	5 U 20 UJ	5 U 20 UJ	5 U 20.1 U	5.1 U 20.5 U	5.1 U 20.5 U	5 U 20 UJ	5 U 20.2 U	5 U 5 20 UJ 20.2		5 U 20 UJ	5 U 20 UJ	5 U 20 UJ
NITROSOPIPERIDINE	μg/L	5 U	5 U	5 U	5 U	5.1 U	5 U	5 U	5.2 U	5 U	5 U	5 U	5.1 U	5.1 U	5 U	5 U	5 U 5	U	5 U	5 U	5 U
-NITROSOPYRROLIDINE ITROBENZENE	μg/L μg/L	5 U 5 U	5 U	5 U	5 U 5 U	5.1 U 5.1 U	5 U 5 U	5 U	5.2 U 5.2 U	5 U	5 U	5 UJ 5 U	5.1 U 5.1 U	5.1 U 5.1 U	5 U 5 U	5 UJ 5 U	5 U 5		5 U	5 U 5 U	5 U
ITROSOMETHYLETHYLAMINE 1,0,0-TRIETHYL PHOSPHOROTHIOATE	μg/L	5 U 5 U	5 U 5 U	5 U	5 U 5 U	5.1 U 5.1 U	5 U 5 U	5 U 5 U	5.2 U	5 U 5 U	5 U 5 U	5 UJ	5.1 U 5.1 U	5.1 U 5.1 U	5 UJ 5 UJ	5 UJ	5 UJ 5	U	5 U 5 U	5 U 5 U	5 U 5 U
-TOLUIDINE	μg/L μg/L	5 U	5 U	5 U	5 U	5.1 U	5 U	5 U	5.2 U 5.2 U	5 U	5 U	5 U 5 U	5.1 U	5.1 U	5 UJ	5 U 5 U	5 U 5	U	5 U	5 U	5 U
-PICOLINE (ALPHA-PICOLINE) -PHENYI ENEDIAMINE	μg/L μg/L	5 U 10 U	5 U 10 U	5 U 10 U	5 UJ 10 U	5.1 UJ 10.2 U	5 U 10 U	5 U 10 U	5.2 U 10.3 U	5 U 10 U	5 U 10 U	5 UJ 10 U	5.1 U 10.2 U	5.1 U 10.2 U	5 UJ 10 U	5 UJ 10.1 U	5 U 5 10 U 10.1		5 U 10 U	5 U 10 U	5 U 10 U
ENTACHLOROBENZENE ENTACHLOROETHANE	μg/L	5 U	5 U	5 U	5 U	5.1 U	5 U	5 U	5.2 U	5 U	5 U	5 U	5.1 U	5.1 U	5 U	5 U	5 U 5	U	5 U	5 U	5 U
ENTACHLORONITROBENZENE	μg/L μg/L	5 U 5 U	5 U 5 U	5 U	5 U 5 U	5.1 UJ 5.1 U	5 U 5 U	5 UJ 5 U	5.2 UJ 5.2 U	5 UJ 5 U	5 UJ 5 U	5 UJ 5 U	5.1 U 5.1 UJ	5.1 U 5.1 UJ	5 UJ 5 UJ	5 UJ 5 U	5 U 5	U	5 U 5 U	5 U 5 UJ	5 U 5 U
ENTACHLOROPHENOL HENACETIN	μg/L	6.2 J	10 U	10 U	10 UJ	10.2 U	10 UJ 10 UJ	10 U	10.3 UJ	10 U	10 U 10 UJ	10 U	10.2 U	10.2 U 10.2 U	10 U	10.1 U	10 U 10.1 10 U 10.1		10 U		10 U 10 U
HENOL	μg/L μg/L	10 UJ 5 U	10 UJ 5 U	10 UJ 5 U	10 UJ 5 U	10.2 UJ 5.1 U	5 U	10 UJ 5 U	5.2 U	10 UJ 5 U	5 U	10 U 5 U	10.2 U 5.1 U	5.1 U	5 U	5 U	5 U 5	UJ	5 UJ	5 U	5 U
RONAMIDE YRIDINE	μg/L μg/L	5 U	5 U	5 U	5 U	5.1 U 5.1 UJ	5 UJ 5 UJ	5 UJ 5 UJ	5.2 UJ 5.2 UJ	5 U 5 UJ	5 U 5 UJ	5 U 5 U	5.1 U 5.1 U	5.1 U 5.1 U	5 U 5 UJ	5 U 5 U		U	5 U	5 U	5 U
AFROLE	μg/L	5 U	5 U	5 U	5 U	5.1 U	5 U	5 U	5.2 U	5 U	5 U	5 U	5.1 U	5.1 U	5 U	5 U		Ü	5 U	5 U	5 U
2,4,5-TETRACHLOROBENZENE 3,4,6-TETRACHLOROPHENOL	μg/L μg/L	5 U 5.4 J	5 U 10 U	5 U 10 U	5 U 10 U	5.1 U 10.2 U	5 UJ 10 U	5 UJ 10 U	5.2 UJ 10.3 U	5 UJ 10 U	5 UJ 10 U	5 UJ 10 U	5.1 U 10.2 U	5.1 U 10.2 U	5 UJ 10 UJ	5 UJ 10.1 U	5 U 5 10 U 10.1		5 U 10 U		5 U 10 U
2,4-TRICHLOROBENZENE 4.5-TRICHLOROPHENOL	μg/L μg/L	5 U 5 U	5 U 5 U	5 U 5 U	5 U 5 U	5.1 U 5.1 U	5 U 5 U	5 U 5 U	5.2 U 5.2 U	5 U 5 U	5 U 5 U	5 U 5 U	5.1 U 5.1 U	5.1 U 5.1 U.I	5 U 5 UJ	5 U 5 U		U	5 U 5 U	5 U	5 U 5 U
4.6-TRICHLOROPHENOL	µg/L	5 U	5 U	5 U	5 U	5.1 U	5 U	5 U	5.2 U	5 U	5 U	5 U	5.1 U	5.1 U	5 U	5 U	5 U 5		5 U		5 U
Organochlorine Pesticides LDRIN	μg/L	0.05 U	0.05 U	0.052 ∪	0.05 ∪	0.051 ∪	0.052 ∪	0.05 ∪	0.053 ∪	0.05 ∪	0.05 ∪	0.05 ∪	0.052 ∪	0.05 ∪	0.05 U	0.05 U	0.051 U 0.05	iu d	0.052 U	0.05 UJ 0.	0.05 ∪
LPHA-CHLORDANE	μg/L	0.05 U 0.05 III	0.05 U 0.05 U.I	0.052 U 0.052 U.I	0.05 U 0.05 U	0.051 U 0.051 IJ	0.052 U 0.052 U	0.05 U 0.05 U	0.053 U 0.053 U	0.05 U 0.05 U	0.05 U 0.05 U	0.05 U 0.05 U	0.052 U 0.052 U	0.05 U 0.05 U	0.05 U 0.05 U	0.05 U 0.05 U	0.051 U 0.05 0.051 U 0.05	U (0.052 U 0.052 IJ	0.05 U 0.	0.05 U
:AMMA-CHLORDANE LPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE)	μg/L μg/L	0.05 ∪	0.05 ∪	0.052	0.05	0.051	0.052 UJ	0.05 UJ	0.053 UJ	0.05 111	0.05 UJ	0.05 ∪	0.05211	0.05	0.05 ∪	0.05 ∪	0.051	iii (0.052	0.05 ∪ 0.	0.05 UJ
ETA BHC (BETA HEXACHLOROCYCLOHEXANE) ELTA BHC (DELTA HEXACHLOROCYCLOHEXANE)	μg/L μg/L	0.05 U 0.06 U	0.05 U 0.06 U	0.052 U 0.062 U	0.05 U 0.061 U	0.051 U 0.061 U	0.052 U 0.062 UJ	0.05 U 0.06 UJ	0.053 U 0.063 UJ	0.05 U 0.061 UJ	0.05 U 0.061 UJ	0.05 0.06 UJ	0.052 U 0.062 UJ	0.05 U 0.061 UJ	0.05 U 0.06 UJ	0.05 U 0.06 UJ	0.051 U 0.05 0.061 UJ 0.061	U C	0.052 U 0.062 UJ	0.05 ∪ 0.	0.05 U 0.06 UJ
AMMA BHC (LINDANE)	μg/L μg/L	0.05 U 0.05 U	0.06 U 0.05 U 0.05 U	0.052 U 0.052 U 0.052 U	0.05 U 0.05 U	0.061 U 0.051 U 0.051 U	0.052 U 0.052 U 0.052 U	0.05 U 0.05 U	0.063 UJ 0.053 U 0.053 U	0.05 U 0.05 U	0.05 U 0.05 U	0.06 UJ 0.05 U 0.05 U	0.052 U 0.052 U 0.052 U	0.05 U 0.05 U	0.05 U 0.05 U	0.06 UJ 0.05 U 0.05 U	0.061 UJ 0.061 0.051 UJ 0.05 0.051 U 0.05	UJ C	0.052 UJ 0.052 U	0.05 U 0. 0.05 U 0.	0.05 UJ 0.05 U
IELDRIN PHA ENDOSUI FAN	μg/L	0.05 U 0.05 U	0.05 U 0.05 U	0.052 U 0.052 U	0.05 U 0.05 U	0.051 U 0.051 U	0.052 U 0.052 U	0.05 U 0.05 U	0.053 U 0.053 U	0.05 U 0.05 U	0.05 U 0.05 U	0.05 U 0.05 U	0.052 U 0.052 U	0.05 U 0.05 U	0.05 U 0.05 U	0.05 U 0.05 U	0.051 U 0.05 0.051 U 0.05		0.052 U 0.052 U		0.05 U 0.05 U
ETA ENDOSULFAN	μg/L μg/L	0.05 U	0.05 U	0.052 U	0.05 U	0.051 U	0.052 U	0.05 U	0.053 U	0.05 U	0.05 U	0.05 U	0.052 U	0.05 U	0.05 U	0.05 U	0.051 U 0.05	U C	0.052 U	0.05 U 0.	0.05 U
NDOSULFAN SULFATE	μg/L	0.05 U 0.05 U	0.05 U 0.05 U	0.052 U 0.052 U	0.05 U 0.05 U	0.051 U 0.051 U	0.052 U 0.052 U	0.05 U 0.05 U	0.053 U 0.053 U	0.05 U 0.05 U	0.05 U 0.05 U	0.05 U 0.05 U	0.052 U 0.052 U	0.05 U 0.05 U	0.05 U 0.05 U	0.05 U 0.05 U	0.051 U 0.05 0.051 U 0.05	U (0.052 U 0.052 U	0.05 U 0.	0.05 U 0.05 U
	μg/L	0.06 UJ	0.06 UJ	0.062 UJ	0.05 U	0.061 U	0.062 U	0.06 U	0.063 U	0.061 U	0.061 U	0.06 U	0.062 U	0.061 U	0.06 U	0.06 U	0.061 UJ 0.061	UJ (0.062 UJ	0.06 U 0.	0.06 UJ
	μg/L							0.05 11	0.053 11					0.05 11	0.05 11	0.05 11	0.051 1 0.05		0.052 11		0.05 11
NDRIN KETONE EPTACHLOR	μg/L	0.05 U	0.05 U	0.052 U	0.05 U 0.05 U	0.051 U 0.051 U	0.052 U 0.052 U	0.05 11		0.05 U	0.05 U 0.05 U	0.05 U 0.05 U	0.052 U 0.052 U								
NDRIN KETONE EPTACHLOR EPTACHLOR EPOXIDE	μg/L μg/L μg/L	0.05 U 0.05 U 0.05 U	0.05 U 0.05 U 0.05 U	0.052 U 0.052 U 0.052 U	0.05 U 0.05 U	0.051 U 0.051 U	0.052 U 0.052 U	0.05 U 0.05 U	0.053 U 0.053 U	0.05 U 0.05 U	0.05 U 0.05 U	0.05 U 0.05 U	0.052 U 0.052 U	0.05 U 0.05 U	0.05 U 0.05 U	0.05 U 0.05 U	0.051 U 0.05 0.051 U 0.05	U C	0.052 U 0.052 U	0.05 U 0. 0.05 U 0.	0.05 U 0.05 U
NORIN ALDEHYDE NORIN KETONE EPTACHLOR EPTACHLOR EPTACHLOR EPOXIDE p-DDD	µg/L µg/L µg/L µg/L	0.05 U 0.05 U 0.05 U 0.05 U	0.05 U 0.05 U 0.05 U 0.05 U	0.052 U 0.052 U	0.05 U 0.05 U 0.05 U	0.051 U	0.052 U 0.052 U 0.052 U	0.05 U 0.05 U 0.05 U	0.053 U	0.05 U 0.05 U 0.05 U	0.05 U 0.05 U 0.05 U	0.05 U 0.05 U 0.05 U	0.052 U 0.052 U 0.052 U	0.05 U 0.05 U 0.05 U	0.05 U 0.05 U 0.05 U	0.05 U 0.05 U 0.05 U	0.051 U 0.05 0.051 U 0.05 0.051 U 0.05	5 U G	0.052 U 0.052 U 0.052 U	0.05 U 0. 0.05 U 0. 0.05 U 0.	0.05 U 0.05 U 0.05 U
NDRIN KETONE EPTACHLOR EPTACHLOR EPOXIDE	μg/L μg/L μg/L	0.05 U 0.05 U 0.05 U	0.05 U 0.05 U 0.05 U	0.052 U 0.052 U 0.052 U 0.052 U	0.05 U 0.05 U	0.051 U 0.051 U 0.051 U	0.052 U 0.052 U	0.05 U 0.05 U	0.053 U 0.053 U 0.053 U	0.05 U 0.05 U	0.05 U 0.05 U	0.05 U 0.05 U	0.052 U 0.052 U	0.05 U 0.05 U	0.05 U 0.05 U	0.05 U 0.05 U	0.051 U 0.05 0.051 U 0.05 0.051 U 0.05		0.052 U 0.052 U	0.05 U 0. 0.05 U 0. 0.05 U 0. 0.06 U 0. 0.05 U 0.	0.05 U 0.05 U

											SJRV							
	Г			Sampling Event 5		1			Sampling Event 6			Maximum Cont	aminant Levels		Florida B	rownfields	Risk-based C	Concentrations
	Location:	Inflow to R-143	MW-1	MW-1	MW-2	MW-4	Inflow to R-143	MW-1	MW-1	MW-2	MW-4	Florida MCL / SMCL Florida MCL / SMCL		Federal MCL/SMCL ²	Florida Brownfield	Florida Brownfield	egional USEPA RBC	egional USEPA
	Event: SJRWMD No.:	Sampling Event 5 None	Sampling Event 5	Sampling Event 5	Sampling Event 5	Sampling Event 5 OR0141	Sampling Event 6	Sampling Event 6 OR0018	Sampling Event 6	Sampling Event 6 OR819	Sampling Event 6 OR0141	Chapter 62-550, FAC) Chapter 62-550, FAC)			(62-785) ³			
	SampleID:	FP-04-06-005	OR0018 FP-04-06-001	OR0018 FP-04-06-002	OR819 FP-04-06-007	FP-04-06-006	None FP-04-007-02	FP-04-07-003	OR0018 FP-04-07-004	FP-04-07-007	FP-04-07-001	MCL SMCL SMCL	MCL	SMCL	(62-785) ³ GCTL	(62-785) ³ Groundwater LY/PQ	EPA Region III Tap Water	EPA Regio
	DateCollected: Matrix:	02/04/2004 Groundwater	02/04/2004 Groundwater	02/04/2004 Groundwater	02/06/2004 Groundwater	02/05/2004 Groundwater	02/16/2004 Groundwater	02/17/2004 Groundwater	02/17/2004 Groundwater	02/18/2004 Groundwater	02/16/2004 Groundwater							
Parameter Group and Name	SampleType: Unit	Normal Result Qual	Normal Result Qual	Field Duplicate Result Qual	Normal Result Qual	Normal Result Qual	Normal Result Qual	Normal Result Qual	Field Duplicate Result Qual	Normal Result Qual	Normal Result Qual	Criteria Unit Criteria Unit	Criteria Unit	Criteria Unit	Criteria Unit	Criteria Unit	Criteria Unit	Criteria
Semi-volatile Organic Compound PHENONE		4 UJ	4 UJ	4 UJ		4 U	4 U	4.1 U	4 U	4 U	4 U							
NE (PHENYLAMINE, AMINOBENZENE)	μg/L μg/L	4 UJ	4 UJ	4 UJ	4 U 4 UJ	4 UJ	4 UJ	4.1 U	4 U	4 U	4 U	μg/L μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L 6.1 μg/L	μg/L 610 μg/L	μg/L 10 μg/L	μg/ 10 μg/
ITE NOBIPHENYL (4-BIPHENYLAMINE)	μg/L	10.1 UJ 4 UJ	10.1 UJ 4 UJ	10.1 UJ 4 UJ	10 U 4 U	10 U 4 U	10 U 4 U	10.2 U 4.1 U	10.1 U 4 U	10.1 U 4 U	10.1 U 4 U	μg/L μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	µg/
TYLAMINOFLUORENE	μg/L μg/L	10.1 UJ	10.1 UJ	10.1 UJ	10 U	10 U	10 UJ	10.2 U	10.1 U	10.1 U	10.1 UJ	μg/L μg/L μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	μд
IONAPHTHALENE (BETA NAPHTHYLAMINE) 'L ALCOHOL	μg/L μg/L	4 UJ 4 UJ	4 UJ 4 UJ	4 UJ 4 UJ	4 U 4 U	4 U 4 U	4 U 4 U	4.1 U 4.1 U	4 U 4 U	4 U 4 U	4 U 4 U	μg/L μg/L μg/L μg/L	μg/L μg/L	µg/L µg/L	μg/L 2100 μg/L	μg/L 21000 μg/L	μg/L 11000 μg/L	1100 µg
L BUTYL PHTHALATE	μg/L	4 UJ	4 UJ	4 UJ	4 U	4 U	4 U	4.1 U	4 U	4 U	4 U	μg/L μg/L	µg/L	μg/L	1400 µg/L	14000 µg/L	7300 µg/L	730 µg
MOPHENYL PHENYL ETHER OROANII INF	μg/L μg/L	4 UJ 4 UJ	4 UJ 4 UJ	4 UJ 4 UJ	4 U 4 U	4 U 4 U	4 U 4 U	4.1 U 4.1 U	4 U 4 U	4 U 4 U	4 U 4 U	μg/L μg/L μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L 28 μg/L	μg/L 280 μg/L	2100 μg/L 150 μg/L	210 μg 15 μg
ROPHENYL PHENYL ETHER	μg/L	4 UJ	4 UJ	4 UJ	4 U	4 U	4 U	4.1 U	4 U	4 U	4 U	μg/L μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μ
DRONAPHTHALENE DROPHENOL	μg/L μg/L	4 UJ 4 UJ	4 UJ 4 UJ	4 UJ 4 UJ	4 U	4 U 4 U	4 U 4 U	4.1 U 4.1 U	4 U 4 U	4 U 4 U	4 U 4 U	μg/L μg/L μg/L μg/L	μg/L μg/L	μg/L μg/L	560 μg/L 35 μg/L	5600 μg/L μg/L	2900 µg/L 180 µg/L	290 µ 18 µ
TROBENZENE	μg/L	20.2 UJ	20.2 UJ	20.2 UJ	20.1 U	20 U	20 U	20.3 U	20.2 U	20.2 U	20.2 U	µg/L µg/L	μg/L	μg/L	μg/L	μg/L	μg/L	10,
HLOROPHENOL HLOROPHENOL	μg/L μg/L	4 UJ 4 UJ	4 UJ 4 UJ	4 UJ 4 UJ	4 U 4 U	4 U 4 U	4 U 4 U	4.1 U 4.1 U	4 U 4 U	4 U 4 UJ	4 U 4 U	μg/L μg/L μg/L μg/L	μg/L μg/L	μg/L μg/L	5 μg/L μg/L	μg/L μg/L	110 μg/L μg/L	11 µ
ETHYLPHENOL	μg/L	4 UJ	4 UJ	4 UJ	4 U	4 U	4 U	4.1 U	4 U	4 U	4 U	μg/L μg/L	μg/L	μg/L	140 μg/L	1400 µg/L	730 µg/L	73 µ
TROPHENOL	μg/L	10.1 UJ	10.1 UJ	10.1 UJ	10 UJ	10 UJ	10 UJ	10.2 UJ	10.1 UJ	10.1 U	10.1 UJ	μg/L μg/L	μg/L	µg/L	30 μg/L	μg/L	73 µg/L	7.3
TROTOLUENE LOROETHOXY) METHANE	μg/L μg/L	4 UJ 4 UJ	4 UJ 4 UJ	4 UJ 4 UJ	4 U	4 U 4 U	4 U 4 U	4.1 U 4.1 U	4 U 4 U	4 U	4 U 4 U	μg/L μg/L μg/L μg/L	μg/L μg/L	µg/L µg/L	0.2 μg/L μg/L	20 μg/L μg/L	73 µg/L µg/L	7.3
HLOROETHYL) ETHER (2-CHLOROETHYL ETHER)	μg/L	4 UJ	4 UJ	4 UJ	4 U	4 U	4 U	4.1 U	4 U	4 U	4 UJ	μg/L μg/L	μg/L	μg/L	4 μg/L	400 μg/L	0.0092 µg/L	0.0092
ILOROISOPROPYL) ETHER DBENZILATE	μg/L μg/L	4 UJ 4 UJ	4 UJ 4 UJ	4 UJ 4 UJ	4 U 4 U	4 U 4 U	4 U 4 U	4.1 U 4.1 U	4 U 4 U	4 U 4 U	4 U	μg/L μg/L μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	
	μg/L	4 UJ	4 UJ	4 UJ	4 U	4 U	4 U	4.1 U	4 U	4 UJ	4 U	μg/L μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	
PFURAN PHTHALATE	μg/L μg/L	4 UJ 4 UJ	4 UJ 4 UJ	4 UJ 4 UJ	4 U 4 U	4 U 4 U	4 U 4 U	4.1 U 4.1 U	4 U 4 U	4 U 4 U	4 U 4 U	µg/L µg/L µg/L	µg/L µg/l	µg/L µg/l	28 μg/L 5600 μg/L	280 μg/L 56000 μg/L	150 μg/L 29000 μg/L	15 2900
/L PHTHALATE	μg/L	4 UJ	4 UJ	4 UJ	4 U	4 U	4 U	4.1 U	4 U	4 U	4 U	μg/L μg/L μg/L μg/L	μg/L μg/L	μg/L μg/L	70000 µg/L	700000 µg/L	370000 µg/L	37000
YLPHENYLETHYLAMINE IFTHYI BENZ(a)ANTHRACENE	μg/L	20.2 UJ 4 U.I	20.2 UJ 4 UJ	20.2 UJ 4 U.I	20.1 R 4 UJ	20 R 4 UJ	20 R 4 UJ	20.3 R 4.1 U	20.2 R 4 U	20.2 R 4 U	20.2 R 4 UJ	μg/L μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	
HYLAMINOAZOBENZENE	μg/L μg/L	10.1 UJ	10.1 UJ	10.1 UJ	4 UJ 10 U	4 UJ 10 U	10 U	4.1 U 10.2 U	10.1 U	10.1 U	10.1 U	μg/L μg/L μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	
HLOROBENZIDINE	μg/L	4 UJ	4 UJ	4 UJ	4 U	4 U	4 U	4.1 U	4 U	4 U	4 U	μg/L μg/L	μg/L	μg/L	12 μg/L	μg/L	0.15 μg/L	0.15
THYLBENZIDINE ETHANESULFONATE	μg/L μg/L	20.2 UJ 4 UJ	20.2 UJ 4 UJ	20.2 UJ 4 UJ	20.1 U 4 U	20 U 4 U	20 R 4 U	20.3 U 4.1 U	20.2 U 4 U	20.2 UJ 4 U	20.2 R 4 U	μg/L μg/L μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	
LOROPROPENE	μg/L	4 UJ	4 UJ	4 UJ	4 U	4 U	4 U	4.1 U	4 U	4 U	4 U	μg/L μg/L	µg/L	μg/L	μg/L	μg/L	μg/L	
RONE	μg/L ug/l	4 UJ 4 UJ	4 UJ 4 UJ	4 UJ 4 UJ	4 U 4 U	4 U 4 U	4 U 4 U	4.1 U 4.1 U	4 U 4 U	4 U 4 U	4 U 4 U	μg/L μg/L	μg/L μg/l	µg/L	μg/L 37 μg/l	μg/L ug/l	μg/L 71 μg/l	71
OLE	μg/L μg/L	4 UJ	4 UJ	4 UJ	4 U	4 UJ	4 U	4.1 U	4 U	4 U	4 U	μg/L μg/L μg/L μg/L	μg/L μg/L	μg/L μg/L	37 μg/L μg/L	μg/L μg/L	71 μg/L μg/L	71
	μg/L	20.2 UJ	20.2 UJ	20.2 UJ	20.1 U	20 U	20 U	20.3 R	20.2 R	20.2 UJ	20.2 U	µg/L µg/L	μg/L	μg/L	μg/L	μg/L	μg/L	
YRILENE METHANESULFONATE	μg/L μg/L	10.1 UJ 20.2 UJ	10.1 UJ 20.2 UJ	10.1 UJ 20.2 UJ	10 U 20.1 U	10 U 20 U	10 U 20 U	10.2 U 20.3 U	10.1 U 20.2 U	10.1 UJ 20.2 U	10.1 U 20.2 U	μg/L μg/L μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	
LNAPHTHALENE	μg/L	4 UJ	4 UJ	4 UJ	4 U	4 U	4 U	4.1 U	4 U	4 U	4 U	μg/L μg/L	μg/L	μg/L	20 μg/L	200 μg/L	1500 µg/L	1500
LPHENOL (o-CRESOL) LCHOLANTHRENE	μg/L μg/L	4 UJ 4 UJ	4 UJ 4 UJ	4 UJ 4 UJ	4 U	4 U 4 U	4 U 4 U	4.1 U 4.1 U	4 U 4 U	4 U 4 U	4 U	μg/L μg/L μg/L μg/L	μg/L μg/L	μg/L μg/L	350 μg/L μg/L	3500 μg/L μg/L	1800 μg/L μg/L	180
'LPHENOL (p-CRESOL)	µg/L	10.1 UJ	10.1 UJ	10.1 UJ	10 U	10 U	10 U	10.2 U	10.1 U	10.1 U	10.1 U	µg/L µg/L	µg/L	µg/L	μg/L	μg/L	µg/L	
HTHOQUINONE THYLAMINE	µg/L	10.1 UJ 10.1 UJ	10.1 UJ 10.1 UJ	10.1 UJ 10.1 UJ	10 UJ 10 U	10 UJ 10 U	10 UJ 10 U	10.2 UJ 10.2 U	10.1 UJ 10.1 U	10.1 UJ 10.1 U	10.1 UJ 10.1 U	µg/L µg/L	µg/L	µg/L	µg/L	µg/L	μg/L	
DANILINE	μg/L μg/L	4 UJ	4 UJ	4 UJ	4 U	4 U	4 U	4.1 U	4 U	4 U	4 U	μg/L μg/L μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L 50 μg/L	μg/L 500 μg/L	μg/L 2.2 μg/L	0.22
ANILINE	μg/L	4 UJ	4 UJ	4 UJ	4 U	4 U	4 U	4.1 U	4 U	4 U	4 U	μg/L μg/L	μg/L	μg/L	μg/L	μg/L	110 μg/L	11 µ
DANILINE DQUINOLINE-N-OXIDE	μg/L μg/L	4 UJ 10.1 UJ	4 UJ 10.1 UJ	4 UJ 10.1 UJ	4 U 10 UJ	4 U 10 UJ	4 U 10 UJ	4.1 U 10.2 UJ	4 U 10.1 UJ	4 U 10.1 UJ	4 U 10.1 UJ	μg/L μg/L μg/L μg/L	μg/L μg/L	µg/L µg/L	20 μg/L μg/L	200 μg/L μg/L	110 μg/L μg/L	11
0-o-TOLUIDINE	μg/L	10.1 UJ	10.1 UJ	10.1 UJ	10 U	10 U	10 U	10.2 U	10.1 U	10.1 UJ	10.1 U	µg/L µg/L	µg/L	µg/L	μg/L	μg/L	μg/L	
DSO-DI-N-BUTYLAMINE DSODI-n-PROPYLAMINE	μg/L	4 UJ 4 UJ	4 UJ 4 UJ	4 UJ 4 UJ	4 U	4 U 4 U	4 U 4 U	4.1 U 4.1 U	4 U 4 U	4 U	4 U	μg/L μg/L	μg/L	µg/L	μg/L 4 μg/l	μg/L 400 μg/L	μg/L 0.0096 μg/L	0.0096
DSODIETHYLAMINE	μg/L μg/L	4 UJ	4 UJ	4 UJ	4 U	4 U	4 U	4.1 U	4 U	4 U	4 U	μg/L μg/L μg/L μg/L	μg/L μg/L	µg/L µg/L	4 μg/L μg/L	µg/L	μg/L	1
SODIMETHYLAMINE	μg/L	4 UJ	4 UJ	4 UJ	4 U	4 U	4 U	4.1 UJ	4 UJ	4 UJ	4 U	μg/L μg/L	μg/L	μg/L	2 μg/L	200 μg/L	0.0013 µg/L	0.0013
SODIPHENYLAMINE SOMORPHOLINE	μg/L μg/L	4 UJ 4 UJ	4 UJ 4 UJ	4 UJ 4 UJ	4 U	4 U 4 U	4 U 4 U	4.1 U 4.1 U	4 U 4 U	4 U	4 U	μg/L μg/L μg/L μg/L	μg/L μg/L	μg/L μg/L	7 μg/L μg/L	700 μg/L μg/L	14 μg/L μg/L	14
NITROBENZENE	μg/L	20.2 UJ	20.2 UJ	20.2 UJ	20.1 UJ	20 UJ	20 UJ	20.3 U	20.2 U	20.2 U	20.2 UJ	μg/L μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	
DSOPIPERIDINE DSOPYRROLIDINE	µg/L	4 UJ 4 UJ	4 UJ 4 UJ	4 UJ 4 UJ	4 U 4 U	4 U 4 U	4 U 4 U	4.1 U 4.1 U	4 U 4 U	4 U 4 U	4 U 4 U	µg/L µg/L	µg/L	µg/L	µg/L	µg/L	μg/L	
ENZENE	μg/L μg/L	4 UJ	4 UJ	4 UJ	4 U	4 U	4 U	4.1 U	4 U	4 U	4 U	μg/L μg/L μg/L μg/L	μg/L μg/L	µg/L µg/L	μg/L 4 μg/L	μg/L 40 μg/L	μg/L 3.4 μg/L	0.34
DMETHYLETHYLAMINE	μg/L	4 UJ	4 UJ	4 UJ	4 U	4 U	4 U	4.1 U	4 U	4 U	4 U	μg/L μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	
RIETHYL PHOSPHOROTHIOATE DINE	μg/L μg/L	4 UJ 4 UJ	4 UJ 4 UJ	4 UJ 4 UJ	4 U 4 U	4 U 4 U	4 U 4 U	4.1 U 4.1 U	4 U 4 U	4 U 4 U	4 U 4 U	μg/L μg/L μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	
NE (ALPHA-PICOLINE)	μg/L	20.2 UJ	20.2 UJ	20.2 UJ	20.1 U	20 U	20 U	20.3 U	20.2 U	20.2 U	20.2 U	µg/L µg/L	μg/L	μg/L	μg/L	μg/L	μg/L	
LENEDIAMINE HLOROBENZENE	μg/L	10.1 UJ 4 UJ	10.1 UJ 4 UJ	10.1 UJ 4 UJ	10 U 4 U	10 U 4 U	10 U 4 U	10.2 U 4.1 U	10.1 U 4 U	10.1 U 4 U	10.1 U 4 U	μg/L μg/L	μg/L	µg/L	μg/L	μg/L	μg/L μg/l	
HLOROETHANE	μg/L μg/L	20.2 UJ	20.2 UJ	20.2 UJ	20.1 U	20 U	20 U	20.3 U	20.2 U	20.2 U	20.2 U	μg/L μg/L μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	
HLORONITROBENZENE	μg/L	4 UJ	4 UJ	4 UJ	4 U	4 U 20 U	4 U	4.1 U	4 U 20.2 U	4 U 20.2 U	4 U 20.2 U	μg/L μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	
HLOROPHENOL ETIN	μg/L μg/L	20.2 UJ 10.1 UJ	20.2 UJ 10.1 UJ	20.2 UJ 10.1 UJ	20.1 U	20 U	20 U 10 U	20.3 U 10.2 U	10.1 U	10.1 U	10.1 U	1 μg/L μg/L μg/L	1 μg/L μg/L	μg/L μg/L	1 μg/L μg/L	μg/L μg/L	0.56 μg/L μg/L	0.56
	μg/L	20.2 UJ	20.2 UJ	20.2 UJ	20.1 UJ	20 U	20 UJ	20.3 U	20.2 U	20.2 U	20.2 UJ	μg/L μg/L	μg/L	μg/L	10 μg/L	100 μg/L	22000 µg/L	2200
IIDE E	μg/L μg/L	4 UJ 4 UJ	4 UJ 4 UJ	4 UJ 4 UJ	4 U	4 U 4 U	4 U 4 R	4.1 U 4.1 U	4 U 4 U	4 U 4 U	4 U 4 R	μg/L μg/L μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	
	μg/L	10.1 UJ	10.1 UJ	10.1 UJ	10 U	10 U	10 U	10.2 U	10.1 U	10.1 U	10.1 U	μg/L μg/L μg/L μg/L	µg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	
TRACHLOROBENZENE	μg/L	4 UJ	4 UJ	4 UJ	4 U	4 U	4 U	4.1 U	4 U	4 U	4 U	µg/L µg/L	μg/L	µg/L	μg/L	µg/L	μg/L	
TRACHLOROPHENOL CHLOROBENZENE	μg/L μg/L	10.1 UJ 4 UJ	10.1 UJ 4 UJ	10.1 UJ 4 UJ	10 U 4 U	10 U 4 U	10 U 4 U	10.2 U 4.1 U	10.1 U 4 U	10.1 U 4 U	10.1 U 4 U	μg/L μg/L 70 μg/L μg/L	μg/L 70 μg/L	μg/L μg/L	μg/L 70 μg/L	μg/L 700 μg/L	μg/L 190 μg/L	19
CHLOROPHENOL	μg/L	4 UJ	4 UJ	4 UJ	4 U	4 U	4 U	4.1 U	4 U	4 U	4 U	μg/L μg/L	μg/L	μg/L	4 μg/L	μg/L	3700 μg/L	370
CHLOROPHENOL Organochlorine Pesticides	μg/L	4 UJ	4 UJ	4 UJ	4 U	4 U	4 U	4.1 U	4 U	4 U	4 U	μg/L μg/L	μg/L	μg/L	5 μg/L	μg/L	6.1 µg/L	6.1
	μg/L	0.05 U	0.05 ∪	0.05 ∪	0.05 ∪	0.05 U	0.05 U	0.05 ∪	0.05 ∪	0.051 ∪	0.051 U	μg/L μg/L	μg/L	μg/L	0.005 μg/L	0.5 μg/L	0.004 µg/L	0.004
CHLORDANE CHLORDANE	μg/L	0.05 U 0.05 U	0.05 U 0.05 U	0.05 U 0.05 U	0.05 U 0.05 U	0.05 U 0.05 U	0.05 U 0.05 U	0.05 U 0.05 U	0.05 U 0.05 U	0.051 U 0.051 U	0.051 U 0.051 U	2 μg/L μg/L	2 μg/L	μg/L	2 μg/L	200 µg/L	0.19 µg/L	0.19
HC (ALPHA HEXACHLOROCYCLOHEXANE)	μg/L μg/L	0.05 U	0.05 ∪	0.05 U	0.05 UJ	0.05 U	0.05 U	0.05 U	0.05 ∪	0.051 U	0.051 U	2 μg/L μg/L μg/L	2 μg/L μg/L	μg/L μg/L	2 μg/L 0.006 μg/L	200 μg/L 0.6 μg/L	0.19 µg/L 0.011 µg/L	0.19
IC (BETA HEXACHLOROCYCLOHEXANE)	μg/L	0.05 U	0.05 U	0.05 U	0.05 U	0.05 ∪	0.05 U	0.05 U	0.05 U	0.051 U	0.051 U	μg/L μg/L	μg/L	μg/L	0.02 µg/L	2 μg/L	0.037 µg/L	0.037
BHC (LINDANE)	μg/L	0.06 U 0.05 U	0.06 U 0.05 U	0.061 U 0.05 U	0.061 UJ 0.05 U	0.061 U 0.05 U	0.06 U 0.05 U	0.061 U 0.05 U	0.061 U 0.05 U	0.061 U 0.051 U	0.061 U 0.051 U	μg/L μg/L	μg/L	μg/L	2.1 µg/L	21 µg/L	0.037 µg/L	0.037
BHC (LINDANE) IN	μg/L μg/L	0.05 U 0.05 U	0.05 U 0.05 U	0.05 U	0.05 U 0.05 U	0.05 U 0.05 U	0.05 U 0.05 U	0.05 U 0.05 U	0.05 U 0.05 U	0.051 U 0.051 U	0.051 U 0.051 U	0.2 μg/L μg/L μg/L	0.2 μg/L μg/L	μg/L μg/L	0.2 μg/L 0.005 μg/L	20 μg/L 0.5 μg/L	0.052 μg/L 0.0042 μg/L	0.052 0.0042
NDOSULFAN	μg/L	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.051 U	0.051 U	μg/L μg/L	µg/L µg/L	μg/L	μg/L	μg/L	μg/L	
NDOSULFAN JLFAN SULFATE	μg/L	0.05 U	0.05 U	0.05 U	0.05 U 0.05 U	0.05 U 0.05 U	0.05 U	0.05 U 0.05 UJ	0.05 U	0.051 U 0.051 U	0.051 U 0.051 U	μg/L μg/L		μg/L	μg/L	μg/L	μg/L	
	μg/L μg/L	0.05 U 0.05 U	0.05 U 0.05 U	0.05 U 0.05 U	0.05 U	0.05 U	0.05 U 0.05 U	0.05 U	0.05 UJ 0.05 U	0.051 U	0.051 U	μg/L μg/L 2 μg/L μg/L	μg/L 2 μg/L	µg/L µg/L	μg/L 2 μg/L	μg/L 20 μg/L	μg/L 11 μg/L	1.1
ALDEHYDE	μg/L	0.06 U	0.06 U	0.061 U	0.061 U	0.061 UJ	0.06 UJ	0.061 UJ	0.061 UJ	0.061 UJ	0.061 UJ	μg/L μg/L	µg/L	μg/L	μg/L	μg/L	μg/L	
KETONE CHLOR	μg/L μg/L	0.05 U 0.05 U	0.05 U	0.05 U 0.05 U	0.05 U 0.05 U	0.05 U 0.05 U	0.05 U 0.05 U	0.05 U 0.05 U	0.05 U 0.05 U	0.051 U 0.051 U	0.051 U 0.051 U	μg/L μg/L μg/L μg/L	μg/L 0.4 μg/L	μg/L μg/L	μg/L 0.4 μg/L	μg/L 40 μg/L	μg/L 0.0023 μg/L	0.0023
CHLOR EPOXIDE	μg/L	0.05 U	0.05 U 0.05 U	0.05 U	0.05 U	0.05 U	0.05 U 0.05 U	0.05 U	0.05 U	0.051 U	0.051 U	0.2 μg/L μg/L	0.4 µg/L 0.2 µg/L	µg/L	0.4 μg/L 0.2 μg/L	40 μg/L 20 μg/L	0.0023 µg/L 0.0012 µg/L	0.0023
	μg/L	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U 0.061 U	0.05 U 0.06 U	0.05 U	0.05 U	0.051 U	0.051 U	μg/L μg/L	μg/L	μg/L	0.1 μg/L	10 μg/L	0.28 μg/L	0.28
D								0.061 U										
D E	μg/L μg/L	0.06 U 0.05 U	0.06 U 0.05 U	0.061 U 0.05 U	0.061 U 0.05 U	0.05 U	0.05 U	0.061 U	0.061 U 0.05 U	0.061 U 0.051 U	0.061 U 0.051 U	µg/L µg/L µg/L µg/L µg/L 40 µg/L µg/L	μg/L μg/L 40 μg/L	μg/L μg/L	0.1 μg/L 0.1 μg/L	10 μg/L 10 μg/L	0.2 μg/L 0.2 μg/L	0.2

	-						•					1					1				
				Sampling Event 1					Sampling Event 2					Sampling Event 3					Sampling Event 4		
	Location:	Inflow to R-143	MW-1	MW-1	MW-2	MW-4	Inflow to R-143	MW-1	MW-1	MW-2	MW-4	Inflow to R-143	MW-1	MW-1	MW-2	MW-4	Inflow to R-143	MW-1	MW-1	MW-2	MW-4
	Event:	Sampling Event 1	Sampling Event 1	Sampling Event 1	Sampling Event 1	Sampling Event 1	Sampling Event 2	Sampling Event 2	Sampling Event 2	Sampling Event 2	Sampling Event 2	Sampling Event 3	Sampling Event 3	Sampling Event 3	Sampling Event 3	Sampling Event 3	Sampling Event 4	Sampling Event 4	Sampling Event 4	Sampling Event 4	Sampling Event 4
	SJRWMD No.:	None FP-03-02-005	OR0018 FP-03-02-001	OR0018 FP-03-02-002	OR0819 FP-03-02-006	OR0141 FP-03-02-007	None FP-03-03-002	OR0018 FP-03-03-001	OR0018 FP-03-03-003	OR0819 FP-03-03-007	OR0141 FP-03-03-006	None FP-03-04-003	OR0018 FP-03-04-004	OR0018 FP-03-04-005	OR0819 FP-03-04-001	OR0141 FP-03-04-002	None FP-03-05-007	OR0018 FP-03-05-001	OR0018 FP-03-05-002	OR0819 FP-03-05-005	OR0141 FP-03-05-006
	SampleID: DateCollected:	10/01/2003	10/01/2003	10/01/2003	10/02/2003	10/03/2003	10/08/2003	10/08/2003	10/08/2003	10/10/2003	10/09/2003	10/23/2003	10/24/2003	10/24/2003	10/22/2003	10/23/2003	11/20/2003	11/18/2003	11/18/2003	11/19/2003	11/20/2003
	Matrix:	Stormwater	Groundwater	Groundwater	Groundwater	Groundwater	Stormwater	Groundwater	Groundwater	Groundwater	Groundwater	Stormwater	Groundwater	Groundwater	Groundwater	Groundwater	Stormwater	Groundwater	Groundwater	Groundwater	Groundwater
	SampleType:	Normal	Normal	Field Duplicate	Normal	Normal	Normal	Normal	Field Duplicate	Normal	Normal	Normal	Normal	Field Duplicate	Normal	Normal	Normal	Normal	Field Duplicate	Normal	Normal
Parameter Group and Name Organophosphorous Pesticides	Unit	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual
ATRAZINE	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
AZINPHOS, METHYL (GUTHION)	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BOLSTAR	μg/L	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CHLORPYRIFOS COUMAPHOS	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U 10 U	10 U	10 U	10 U	10 U	10 U
DEMETON-O	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U		10 U	10 U	10 U
DEMETON-S	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
DIAZINON	μg/L μg/L	10 11	10 U	10 0	10 0	10 U	10 0	10 0	100	10 U	10 0	10 0	10 0	10 U	10 U	10 0	10 0	10 0	10 U	10 0	10 U
DICHLORVOS	µg/L	10 0	10 0	10 0	10 0	10 0	10 0	10 0	10 0	10 0	10 0	10 0	10 0	10 0	10 0	10 0	10 0	10 0	10 0	10 0	10 0
DIMETHOATE	µg/L	10 U	10 0	10 U	10 11	10 11	10 11	10 U	10 U.I	10 U	10 U	10 U	10 U	10 U	10 11	10 0	10 11	10 U	10 11	10 11	10 U
DISULFOTON	μg/L	10	100	10 11	10 U	10 111	10	1011	10	1011	10 11	1011	10	10 U	10	10 1	10 U	10 11	10 1	10	10
ETHOPROP	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 U	10 U	10 U	10 U
EAMPHUR	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
FENSULFOTHION	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
FENTHION	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
MERPHOS	μg/L	10 UJ	10 UJ	10 UJ	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
MEVINPHOS	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
NALED	μg/L	10 UJ	10 UJ	10 UJ	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
PARATHION, ETHYL	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
PARATHION, METHYL	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
PHORATE	μg/L	10 UJ	10 ∪	10 U	10 U	10 UJ	10 U	10 U	10 UJ	10 U	10 U	10 U	10 ∪	10 ∪	10 U	10 U	10 U	10 ∪	10 U	10 U	10 U
RONNEL	μg/L	10 U	10 UJ	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
SIMAZINE	μg/L	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
STIROFOS (TETRACHLORVINPHOS)	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
THIODIPHOSPHORIC ACID TETRAETHYL ESTER	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
TOKUTHION (PROTHIOFOS) TRICHLORONATE	µg/L	10 U	10 U	10 U	10 U 10 U	10 UJ 10 UJ	10 U 10 U	10 U 10 U	10 UJ 10 U	10 U	10 U 10 U	10 U 10 U	10 U 10 U	10 U	10 U	10 U 10 U	10 U 10 U	10 U	10 U	10 U	10 U 10 U
ZINOPHOS	μg/L μg/L	10 U	10 U	10 U	10 U	10 03	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Polychlorinated biphenols (PCBs)	pg/L	10 0	100	10 0	10 0	10 0	10 0	10 0	10 0	10 0	10 0	10 0	10 0	10 0	10 0	10 0	10 0	10 0	10 0	10 0	10 0
PCB-1016 (AROCHLOR 1016)	μg/L	0.5 U.I	0.5 U.I	0.52 UJ	0.5 U.I	0.51 U	0.52 UJ	0.5 U.I	0.53 UJ	0.5 U.I	0.5 UJ	0.5 U	0.52 U	0.5 U	0.5 U	0.5 U	0.51 U	0.5 U	0.52 U	0.5 U	0.5 U
PCB-1221 (AROCHLOR 1221)	μg/L	1 U	1 U	1 U	10	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
PCB-1232 (AROCHLOR 1232)	μg/L	0.5 U	0.5 U	0.52 U	0.5 U	0.51 U	0.52 ∪	0.5 U	0.53 ∪	0.5 U	0.5 U	0.5 U	0.52 ∪	0.5 U	0.5 U	0.5 U	0.51 U	0.5 U	0.52 U	0.5 U	0.5 U
PCB-1242 (AROCHLOR 1242)	μg/L	0.5 U	0.5 U	0.52 U	0.5 U	0.51 U	0.52 11	0.5 ()	0.53 U	0.5 U	0.5 U	0.5 IJ	0.52 ()	0.5 U	0.5 U	0.5 U	0.51 U	0.5 U	0.52 U	0.5 U	0.5 U
PCB-1248 (AROCHLOR 1248)	μg/L	0.5 U	0.5 U	0.52 ∪	0.5 U	0.51 ∪	0.52 ∪	0.5 ()	0.53	0.5 U	0.5 U	0.5 U	0.52 ∪	0.5 U	0.5 U	0.5 U	0.51 ∪	0.5 U	0.52 ∪	0.5 U	0.5 U
PCB-1254 (AROCHLOR 1254)	μg/L	0.5 U	0.5 U	0.52 U	0.5 U	0.51 U	0.52 U	0.5 U	0.53 U	0.5 U	0.5 U	0.5 U	0.52 U	0.5 U	0.5 U	0.5 U	0.51 U	0.5 U	0.52 U	0.5 U	0.5 U
PCB-1260 (AROCHLOR 1260)	μg/L	0.5 UJ	0.5 UJ	0.52 UJ	0.5 UJ	0.51 UJ	0.52 UJ	0.5 UJ	0.53 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.52 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.51 UJ	0.5 UJ	0.52 UJ	0.5 U	0.5 UJ
Herbicides	1,0																				
2,4,5-T (TRICHLOROPHENOXYACETIC ACID)	μg/L	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U	0.5 U	0.5 U	0.5 U	0.52 UJ	0.52 UJ	0.51 U	0.5 U	0.5 UJ	0.51 U	0.52 U	0.52 U	0.51 U
2,4-D (DICHLOROPHENOXYACETIC ACID)	μg/L	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U	0.5 U	0.5 U	0.5 U	0.52 UJ	0.52 UJ	0.51 U	0.5 U	0.5 UJ	0.51 U	0.52 U	0.52 U	0.51 U
DALAPON	μg/L	0.56 U	0.56 UJ	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U	0.5 UJ	0.5 UJ	0.5 UJ	0.52 UJ	0.52 UJ	0.51 UJ	0.5 UJ	0.5 UJ	0.51 UJ	0.52 UJ	0.52 UJ	0.51 UJ
DICAMBA	μg/L	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U	0.5 U	0.5 U	0.5 U	0.52 UJ	0.52 UJ	0.51 U	0.5 U	0.5 UJ	0.51 UJ	0.52 UJ	0.52 U	0.51 UJ
DICHLOROPROP	μg/L	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U	0.5 U	0.5 U	0.5 U	0.52 UJ	0.52 UJ	0.51 U	0.5 U	0.5 UJ	0.51 U	0.52 U	0.52 U	0.51 U
DINOSEB	μg/L	0.56 UJ	0.56 UJ	0.56 UJ	0.56 R	0.56 R	0.56 UJ	0.56 UJ	0.56 UJ	0.5 R	0.5 UJ	0.5 UJ	0.52 UJ	0.52 UJ	0.51 R	0.5 UJ	0.5 UJ	0.51 U	0.52 U	0.52 U	0.51 U
PICLORAM	µg/L	11 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U	10 U	10 U	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 UJ
SILVEX (2,4,5-TP)	μg/L	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U	0.5 U	0.5 U	0.5 U	0.52 UJ	0.52 UJ	0.51 U	0.5 U	0.5 UJ	0.51 U	0.52 U	0.52 U	0.51 U

Notes:
Shaded cells with bolded values represent detections equal to or above promulgated regulatory criteria.
Shaded cells with bolded and boxed values represent detections equal to or above Risk-Based Criteria.
Shaded cells with bolded and boxed values represent detections equal to or above promulgated regulatory and Risk-Based Criteria.
Boxed values represent reporting limits equal or above promulgated regulatory criteria.
Boxed values represent reporting limits equal or above promulgated regulatory criteria and Risk-Based Criteria.
Boxed values represent reporting limits equal or above promulgated regulatory criteria and Risk-Based Criteria.
Boxed values represent reporting limits equal or above promulgated regulatory criteria and Risk-Based Criteria.
Explanation of Qualifiers
"Represents a detection at the value shown
"U" Represents a nondetection above the reporting limit shown
"U" Represents an estimated value between the method detection limit and the practical quantitation limit.
"UJ" Represents an ondetection above the value shown
"R" Represents an estimated value between the method detection limit and the practical quantitation limit.
"UJ" Represents an ondetection above the value shown
"R" Represents an estimated value between the method detection limit and the practical quantitation limit.

"UJ" Represents an ondetection above the value shown

"R" Represents an estimated value between the method detection limit and the practical quantitation limit.

"UJ" Represents an estimated value between the method detection limit and the practical quantitation limit.

"UJ" Represents an estimated value between the method detection limit and the practical quantitation limit.

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"UJ" Represents an estimated value between the method detection limit and the practical quantitation limit.

"UJ" Represents an estimated value between the method detection limit and the practical quantitation limit.

"UJ" Represent

Sources:

Florida Ground Water Guidance Concentrations, 62-520.400 FAC, June 2, 1994: Chapter 62-550Drinking Water Standards, Monitoring and Reporting, April 10, 2003

Thinking Water Regulations and Health Advisories Office of Water, USEPA, October 1996.

Brownfield's Cleanup Cinteria Rula Groundwater Cleanup Target Levels, Draft Chapter 62-785 F.A.C., 1997.

FAPA Region III Risk-Based Concentration Table, Tap Water Values, R.L. Smith, October 1997.

EPA Region IV Supplemental Guidance to RAGS: Region 4 Bulletins, Human Health Risk AssessmenNovember 1995; HQ-0.1 applied to noncarcinogens.

Definitions:
MCL - Maximum Contaminant Level
SMCL - Secondary MCL
GCTL - Groundwater Cleanup Target Level
LY/PQ - Low Yield/Poor Quality
RBC - Risk-based Concentration

				Sampling Event 5					Sampling Event 6				Maximum Conta	ıminant Levels		Florida I	Brownfields	Risk-based C	Concentrations
	Location:	Inflow to R-143	MW-1	MW-1	MW-2	MW-4	Inflow to R-143	MW-1	MW-1	MW-2	MW-4	Florida MCL / SMCL	- Florida MCL / SMCL	Federal MCL/SMCL	Federal MCL/SMCL ²	Florida Brownfield	Florida Brownfield	Regional USEPA RBC	tegional USEPA RBC
	Event:	Sampling Event 5	Sampling Event 5	Sampling Event 5	Sampling Event 5	Sampling Event 5	Sampling Event 6	Sampling Event 6	Sampling Event 6	Sampling Event 6	Sampling Event 6								
	SJRWMD No.:	None	OR0018	OR0018	OR819	OR0141	None	OR0018	OR0018	OR819	OR0141		Chapter 62-550, FAC)			(62-785) ³	(62-785) ³	EPA Region III	EPA Region IV
	SampleID:	FP-04-06-005	FP-04-06-001	FP-04-06-002	FP-04-06-007	FP-04-06-006	FP-04-007-02	FP-04-07-003	FP-04-07-004	FP-04-07-007	FP-04-07-001	MCL	SMCL	MCL	SMCL	GCTL	Groundwater LY/PQ	Tap Water	
	DateCollected:	02/04/2004	02/04/2004	02/04/2004	02/06/2004	02/05/2004	02/16/2004	02/17/2004	02/17/2004	02/18/2004	02/16/2004								
	Matrix: SampleType:	Groundwater Normal	Groundwater Normal	Groundwater Field Duplicate	Groundwater Normal	Groundwater Normal	Groundwater Normal	Groundwater Normal	Groundwater Field Duplicate	Groundwater Normal	Groundwater Normal								
Parameter Group and Name	Unit	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Criteria Unit	Criteria Unit	Criteria Unit	Criteria Unit	Criteria Unit	Criteria Unit	Criteria Unit	Criteria Unit
Organophosphorous Pesticides																			
ATRAZINE	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	3 μg/L	μg/L	3 μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
AZINPHOS, METHYL (GUTHION)	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	μg/L	μg/L	μg/L	μg/L	10.5 μg/L	105 μg/L	μg/L	μg/L
BOLSTAR	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	μg/L	μg/L	µg/L	μg/L	μg/L	µg/L	μg/L	μg/L
CHLORPYRIFOS	μg/L	10 U	10 U	10 U	10 UJ	10 UJ	10 U	10 U	10 U	10 U	10 U	μg/L	μg/L	µg/L	μg/L	21 µg/L	210 µg/L	110 µg/L	11 µg/L
COUMAPHOS	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	μg/L	μg/L	µg/L	µg/L	2.1 µg/L	21 µg/L	μg/L	μg/L
DEMETON-O DEMETON-S	μg/L	10 U	10 U	10 U 10 U	10 U	10 U	10 U 10 U	10 U	10 U	10 U	10 U 10 U	μg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
DIAZINON	µg/L	10 0	10 0	10 U	10 U	10 0	10 0	10 U	10 0	10 U	10 0	μg/L	μg/L	µg/L	µg/L	μg/L	µg/L	µg/L	µg/L
DICHLORVOS	µg/L	10 U	10 0		10 U	10 U	100	100	10 U	10 0	10 U	μg/L	μg/L	µg/L	µg/L	μg/L	µg/L	33 µg/L	3.3 µg/L
DIMETHOATE	μg/L μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	μg/L μg/L	μg/L μg/L	µg/L µg/L	μg/L μg/L	0.1 μg/L μg/L	1 μg/L μg/L	0.23 μg/L μg/L	0.23 μg/L μg/L
DISULFOTON	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	μg/L	µg/L	µg/L	µg/L	0.3 µg/L	3 µg/L	1.5 µg/L	0.15 µg/L
ETHOPROP	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U				µg/L				
FAMPHUR	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	μg/L μg/L	μg/L μg/L	µg/L µg/L	µg/L	0.11 μg/L μg/L	1.1 μg/L μg/L	μg/L μg/L	μg/L μg/L
FENSULFOTHION	µg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	μg/L	μg/L	µg/L	µg/L	1.75 µg/L	17.5 µg/L	μg/L	µg/L
FENTHION	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	μg/L	μg/L	µg/L	µg/L	µg/L	µg/L	μg/L	µg/L
MERPHOS	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	μg/L	μg/L	μg/L	μg/L	0.21 µg/L	μg/L	1.1 µg/L	0.11 µg/L
MEVINPHOS	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	μg/L	μg/L	μg/L	μg/L	1.75 µg/L	17.5 µg/L	μg/L	μg/L
NALED	μg/L	10 U	10 U	10 U	10 UJ	10 UJ	10 U	10 U	10 U	10 UJ	10 U	μg/L	μg/L	µg/L	μg/L	14 µg/L	140 µg/L	73 µg/L	7.3 µg/L
PARATHION, ETHYL	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	μg/L	μg/L	μg/L	μg/L	42 µg/L	420 µg/L	220 µg/L	22 µg/L
PARATHION, METHYL	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
PHORATE	μg/L	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	μg/L	μg/L	μg/L	μg/L	1.4 µg/L	14 μg/L	7.3 µg/L	0.73 µg/L
RONNEL	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	μg/L	μg/L	μg/L	μg/L	350 µg/L	3500 µg/L	1800 µg/L	180 µg/L
SIMAZINE	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
STIROFOS (TETRACHLORVINPHOS)	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
THIODIPHOSPHORIC ACID TETRAETHYL ESTER	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
TOKUTHION (PROTHIOFOS)	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	µg/L	μg/L	µg/L	µg/L	µg/L	µg/L	μg/L	µg/L
TRICHLORONATE ZINOPHOS	μg/L	10 U	10 U 10 U	10 U 10 U	10 U	10 U 10 U	10 U 10 U	10 U 10 U	10 U	10 U	10 U 10 U	μg/L	μg/L	µg/L	µg/L	µg/L	μg/L	μg/L μg/L	µg/L
Polychlorinated biphenols (PCBs)	μg/L	10 0	10 0	10 0	10 0	10 0	10 0	10 0	10 0	10 0	10 0	μg/L	μg/L	µg/L	µg/L	μg/L	μg/L	µg/L	μg/L
PCB-1016 (AROCHLOR 1016)	μg/L	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.51 U	0.51 U	μg/L	μg/L	μg/L	µg/L	1 μg/L	10 μg/L	2.6 µg/L	0.26 µg/L
PCB-1221 (AROCHLOR 1221)	μg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.51 U	0.51 U	μg/L	μg/L	0.5 µg/L	µg/L	0.5 μg/L	50 μg/L	0.034 µg/L	0.034 µg/L
PCB-1222 (AROCHLOR 1232)	μg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.51 U	0.51 U	μg/L	μg/L	0.5 µg/L	µg/L	0.5 μg/L	50 μg/L	0.034 µg/L	0.034 µg/L
PCB-1242 (AROCHLOR 1242)	μg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.51 U	0.51 U	μg/L	μg/L	µg/L	µg/L	μg/L	μg/L	μg/L	μg/L
PCB-1248 (AROCHLOR 1248)	μg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.51 U	0.51 U	μg/L	μg/L	0.5 µg/L	µg/L	0.5 μg/L	50 μg/L	0.034 µg/L	0.034 µg/L
PCB-1254 (AROCHLOR 1254)	μg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.51 U	0.51 U	μg/L	μg/L	µg/L	µg/L	1 μg/L	10 µg/L	0.73 µg/L	0.073 µg/L
PCB-1260 (AROCHLOR 1260)	µg/L	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.51 UJ	0.51 U	µg/L	μg/L	0.5 µg/L	µg/L	0.5 µg/L	50 μg/L	0.034 µg/L	0.034 µg/L
Herbicides	19-			3.0			3.0		3.0	5.5.1		F-5-	10-		1-9-	*** F5 =	**		*****
2,4,5-T (TRICHLOROPHENOXYACETIC ACID)	μg/L	0.25 U	0.25 U	0.25 U	0.5 U	0.25 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	μg/L	μg/L	µg/L	µg/L	70 μg/L	700 µg/L	370 µg/L	37 μg/L
2,4-D (DICHLOROPHENOXYACETIC ACID)	μg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	70 µg/L	μg/L	70 µg/L	μg/L	70 µg/L	700 µg/L	61 µg/L	6.1 µg/L
DALAPON	μg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	200 µg/L	μg/L	200 μg/L	μg/L	200 µg/L	μg/L	1100 µg/L	110 µg/L
DICAMBA	μg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	μg/L	μg/L	μg/L	μg/L	210 µg/L	μg/L	1100 µg/L	110 µg/L
DICHLOROPROP	μg/L	0.25 U	0.25 U	0.25 U	0.5 U	0.25 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	μg/L	μg/L	μg/L	μg/L	0.1 µg/L	1 μg/L	μg/L	μg/L
DINOSEB	μg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	7 μg/L	μg/L	7 μg/L	μg/L	7 µg/L	70 μg/L	37 μg/L	3.7 µg/L
PICLORAM	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
SILVEX (2,4,5-TP)	μg/L	0.25 U	0.25 U	0.25 U	0.5 U	0.25 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	50 μg/L	μg/L	50 μg/L	μg/L	50 μg/L	500 μg/L	290 µg/L	29 µg/L

Notes:
Shaded cells with bolded values represent detections equal to or above promulgated regulatory c
Shaded cells with boxed values represent detections equal to or above Risk-Based Criteria.
Shaded cells with boxed values represent detections equal to or above Promulgated r
Bolded values represent reporting limits equal or above promulgated regulatory criteria.
Boxed values represent reporting limits equal or above promulgated regulatory criteria.
Boxed values represent reporting limits equal or above promulgated regulatory criteria
Explanation of Qualifiers

"I Represents a detection at the value shown

"U" Represents a nondetection above the reporting limit shown

"U" Represents an estimated value between the method detection limit and the practical quantitati

"UJ" Represents an ondetection above the value shown

"R" Represents an estimated value between the method detection limit and the practical quantitati

"UJ" Represents and screening values represent no established values.

Explanation of Units

pcQL - picoCuries per liter

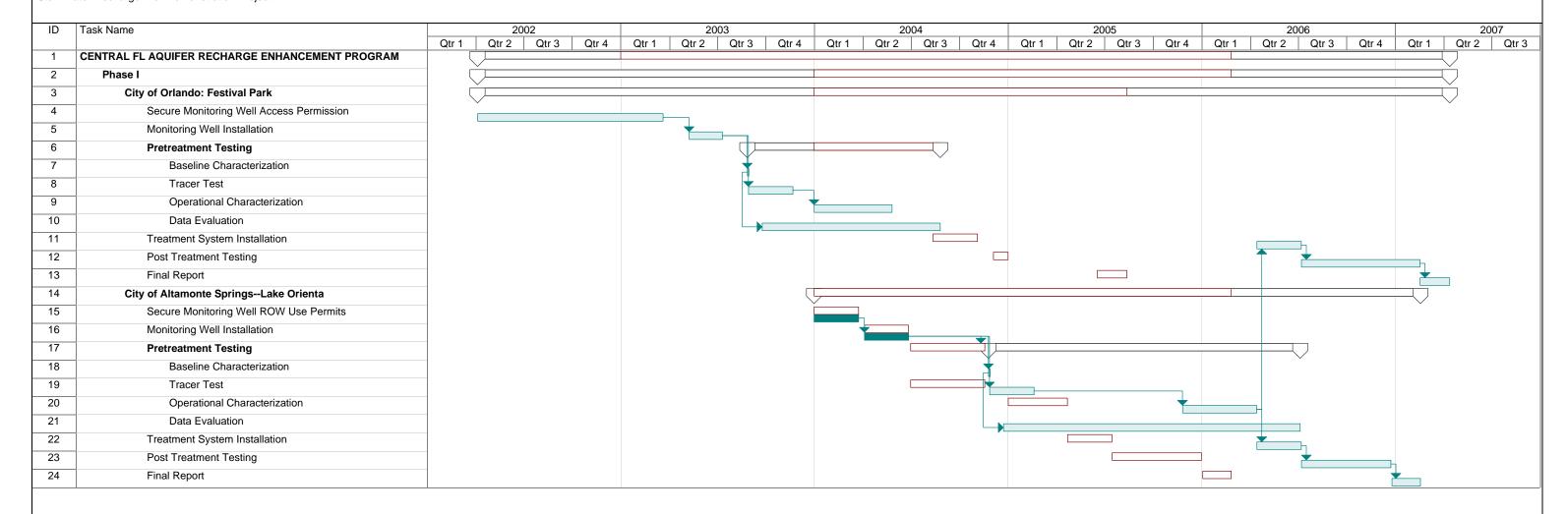
MTU - Nephelometric Turbidity Units

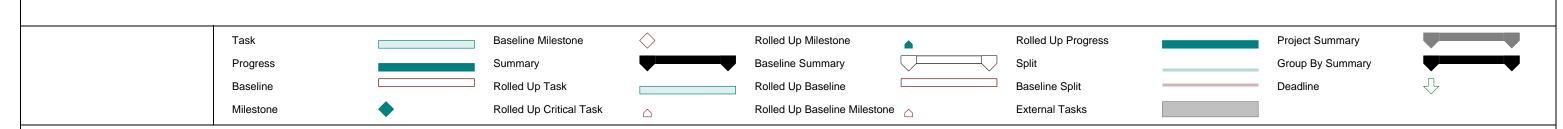
µgL - micrograms per liter

Attachment C Project Schedule

St. Johns River Water Management District Central Florida Aquifer Recharge Enhancement Program

Stormwater Recharge Well Demonstration Project





CFARE Status Report No. 8

Introduction

This report provides Status Report No. 8 for the Central Florida Aquifer Recharge Enhancement Program, Artificial Recharge Well Study. The last report was July 14, 2004. The reports are issued at project milestones. Since the last report the potable water supply well survey and the groundwater tracer test for the Lake Orienta Site were completed. The project progress and schedule are presented in Table 1.

TABLE 1 Project Tasks, Progress, and Schedule

Task	Site and Type of Recharge Well										
	Lake Sherwood Lake-Level Control	Festival Park Direct Runoff	Lake Orienta Lake-Level Control								
Literature Review	Completed	Completed	Completed								
Dry Period Characterization	Completed	N/A	Completed								
Water Supply Well Survey	Completed	Completed	Completed								
Baseline Characterization	Discontinued	Completed	Summer 2005								
Groundwater Tracer Test	N/A	Completed	Completed								
Operational Site Characterization	N/A	Completed	Fall 2005								
Enhanced Treatment Site Characterization	N/A	On Hold Potential Future (2006)	Potential Future (2006)								
Reporting and Documentation	N/A	(2006/2007)	(2006/2007)								

Additional treatment evaluation, treatment implementation, and post-treatment characterization for the Festival Park site are on hold until the Operation Site Characterization task at Lake Orienta is completed. Then the results from the two sites will be compared together.

Lake Orienta Recharge Well Site

Lake Orienta is a 135-acre lake located in south central Seminole County in Altamonte Springs, Florida. The area around and near the lake is completely developed by residential and commercial land uses in a suburban setting. Three Upper Floridan aquifer (UFA) recharge wells are located on the south side of the lake and UFA four monitoring wells were constructed as part of this project. A map showing the wells is attached.

Water flows from the lake to the recharge wells once the lake stage is greater than approximately 61 feet above sea level. Monthly lake stage data, from 1979 through 2003 supplied by the City of Altamonte Springs, show that water levels typically are higher than 61 feet during August through November of a given year. Therefore, lake water recharges the aquifer during this period.

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Potable Water Supply Well Survey and Public Meeting

A survey for potable water supply wells within 1 mile of the recharge wells was conducted to identify sources of water for local residents. In the 1-mile radius of the Lake Orienta site are four water supply utilities (City of Altamonte Springs, Maitland Utilities, Seminole County Utilities, and Utilities Inc.) providing potable water. There are also several neighborhoods that are self-supplied for potable water through wells. These locations are shown on the attached map. The map shows the locations of the utility service areas, municipal water supply wells, and locations inferred to be self-supplied for water. This inference was derived by communicating with utility staff; and in the case of Altamonte Springs, matching customer addresses with Seminole County Property Appraisers office addresses. Locations that did not match were inferred to be self-supplied.

Prior to conducting the public meeting, meeting notices were sent to approximately 1600 property owners. The list of owners was generated from the inferred self-supply locations and property owners on the lake perimeter and in the vicinity of the project for their general interest. Properties around the lake include three condominium complexes, which assisted in making the list of noticed owners large.

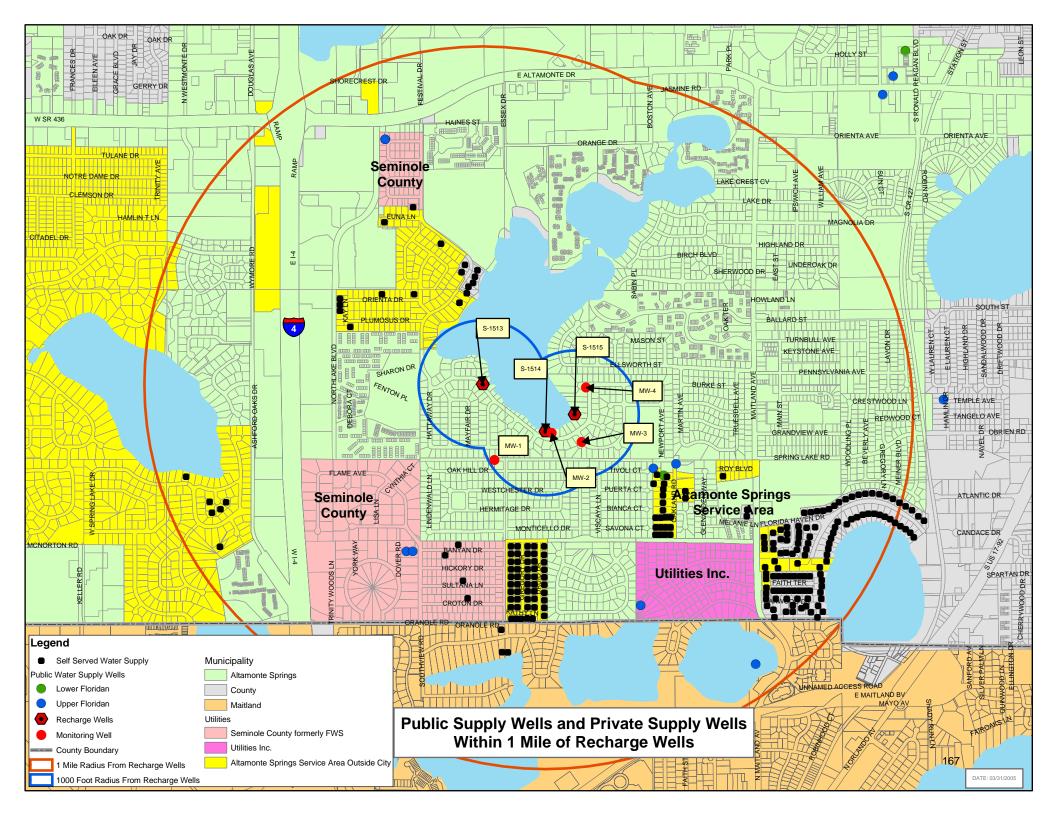
On November 17, 2004 the public meeting was held in Altamonte Springs to inform the community on the project, its goals and objectives, the intent to conduct groundwater tracer test, and what characteristics to look for if tracer would appear in the water supply. A primary message of the meeting was that if tinted water was observed, notify project representatives immediately and discontinue drinking the water. Twenty-one people signed the attendance list for the meeting. No adverse comments were received during the meeting. During the tracer test no calls were received indicating the presence of tinted water.

Groundwater Tracer Test

Goal of the Tracer Test – The tracer test was a qualitative test and the goal was to identify complete pathways in the UFA between the recharge wells and one or more monitoring wells. This was done by introducing a unique tracer into each of the three recharge wells and collecting samples from the monitoring wells. The samples were analyzed for the presence of tracer. Sample collection consisted of collecting grab water samples and by placing carbon sample packs in the monitoring wells for a period of time then retrieving the packs. The test will assist to support results of groundwater sampling and analysis, and to adapt the sampling plan for future project tasks. The tracers used were eosine, fluorescein, and rhodamine WT. Eosine and fluorescein were used at the Festival Park site.

Background Characterization – In August 2004 samples were collected from the lake and the monitoring wells to characterize the water relative to tracer signatures. If tracer were identified in the samples in sufficient concentrations to interfere with interpreting the test results, different tracers would be used. Two rounds of background characterization occurred. Each round consisted of suspending two carbon sample packs in the monitoring wells within the open-hole intervals and in the lake where they resided for two weeks. These procedures were consistent with the residence duration of the sample packs for the tracer test. One set of grab water samples was collected from each location at the beginning of the first event.

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The presence of tracer adsorbed by the sample packs was evaluated by rinsing the carbon with a known aliquot of a solvent then analyzing the solvent for tracer.

Detections resulting from the background characterization are as follows:

- Rhodamine WT was detected in the grab water sample from the lake at approximately 0.1 part per billion (ppb).
- Rhodamine WT was detected in the elutant from four of four carbon sample packs from the lake. The range of rhodamine WT concentrations was 7.96 ppb to 10.3 ppb.
- Fluorescein was detected in 16 of 16 carbon sample packs (4 wells, 2 packs per well, and 2 rounds of sampling) from the monitoring wells. The elutant concentrations were less than 1 ppb.

The results of the background characterization indicated that tracer was not present in sufficient concentrations to interfere with interpreting tracer test results, and test could proceed as planned.

Tracer Release and Monitoring – Tracer release was conducted on November 18, 2004. The release was made by pumping tracer solution into the three recharge wells and the tracer was delivered to the aquifer by the water flowing from the lake into the wells. Locations and quantities of tracer introduced into the recharge wells are

- 50 pounds of fluorescein into S-1513
- 75 pounds of eosine into S-1514
- 100 pounds of rhodamine WT into S-1515

Fresh carbon sample packs were installed in the monitoring wells prior to introducing the tracer into the recharge wells. The sample packs were replaced and analyzed at two-week intervals (with the exception of the week of the year-end holidays) through February 17, 2005. The duration of the test was 13 weeks. Based on the sampling results, additional focused sampling was conducted at MW-2. Four additional sampling events were completed at two week intervals. Sampling at MW-2 ended on April 14, 2005, 21 weeks after tracer introduction.

Results of the Tracer Test – The goal of the tracer test was attained. Two tracers, eosine and fluorescein, were detected at one monitoring well, MW-2. The results of this test demonstrate a hydraulic connection between recharge well S-1514 and monitoring well MW-2, and between recharge well S-1513 and monitoring well MW-2. The presence of tracer was not identified at the other three monitoring wells.

Eosine, introduced into S-1514, was encountered at MW-2 beginning with the first set of sample packs collected 2 weeks after the tracer introduction. MW-2 is located approximately 100 feet west of S-1514. Results of the tracer sampling for MW-2 are graphically presented in Figure 1. The graph shows that eosine from S-1514 appeared at MW-2 from the first 2-week period (collected December 2), reached its highest concentrations from the second 2-week period (collected December 16), and eosine concentrations declined from the remaining four samplings.

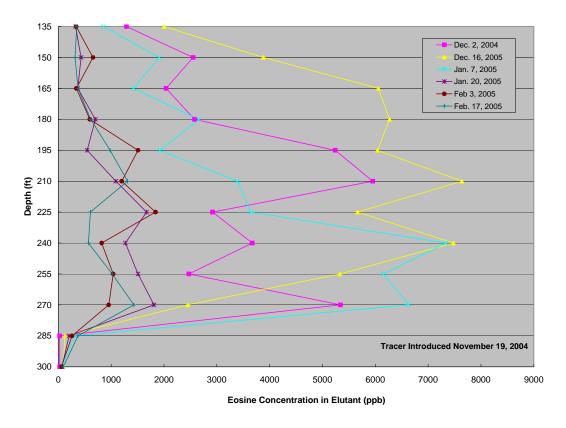


Figure 1. Eosine Detection at MW-2

While evaluating the results of the fourth sample set, the laboratory speculated that fluorescein was appearing at MW-2, but the laboratory was unable to segregate the two tracers. This was based on an elongated leading edge and widening of the breakthrough curves of the chromatograms. The pattern continued and became more pronounced through the remainder of the scheduled 12 weeks of the tracer test. As a result, additional focused monitoring at MW-2 was continued to confirm or deny the presence of fluorescein. The additional monitoring consisted of monitoring for tracer at two depths (240 feet and 255 feet) for four additional 2-week intervals. The laboratory recommended these depths as ones where the pattern was pronounced. Testing ended on April 14, 2005 after the presence of fluorescein was confirmed. Table 2 presents tracer concentrations detected at MW-2 during the additional focused testing period.

TABLE 2. Results from Additional Monitoring in MW-2 at 240 feet and 255 feet

Date Collected	Fluorescein (240 ft)	Eosine (240 ft)	Fluorescein (255 ft)	Eosine (255 ft)
3/3/2005	227 ppb	400 ppb	1150 ppb	2170 ppb
3/17/2005	1290 ppb	1330 ppb	1510 ppb	1610 ppb
3/31/2005	739 ppb	484 ppb	1140 ppb	878 ppb
4/14/2005	578 ppb	313 ppb	438 ppb	246 ppb

Rhodamine WT was not detected at any monitoring well, therefore, the data indicate that S-1515 is not hydraulically connected with the four monitoring wells within the timeframe of this test.

Modification of the Groundwater Monitoring Plan

The results of the groundwater tracer test indicate that MW-2 is hydraulically connected to S-1514 and S-1513 through the Floridan aquifer and that monitoring wells MW-1, MW-3, and MW-4 are not hydraulically connected to the recharge wells. Further, the groundwater travel time from S-1514 to MW-2 was less than two weeks. The groundwater travel time from S-1513 to MW-2 was less than 8 weeks. These results support modifying the Groundwater Monitoring Plan (GWMP) for the Baseline Characterization and the Operational Characterization tasks.

The initial GWMP provided for sampling the inflowing water from the lake at each of the 3 recharge wells and the four monitoring wells at the frequency of 1, 5, 10, 30, 60, 120, and optionally 180 days after a triggering recharge event. For the case of Lake Orienta, a triggering recharge event would be when the lake stage rises to the overflow elevation (elevation 61 feet) and lake water flows into the wells. Based on the results of the groundwater tracer test and the experiences from conducting these tasks at Festival Park the following sampling plan is recommended:

- Sample Locations Sample the lake near the inlet to S-1514 and monitoring wells MW-1 and MW-2. Samples from the lake are to characterize the quality of the source water. Samples form MW-2 will be used to assess how groundwater quality is affected by artificial recharge. Samples from MW-1 are to establish and maintain site reference conditions. No samples are to be collected from MW-3 and MW-4.
- Sample Frequency The recommended sampling frequency is 1, 2, 4, 8, 12, 16, and optionally 20 weeks following the beginning of recharge. Based on past lake stage data and barring extreme weather patterns, the duration of the typical recharge season is approximately 10 to 12 weeks. Therefore, the week 16 sampling event is intended to be in a quiescent period following the recharge season. If the recharge season persists longer than the typical duration, then the last sampling event will follow approximately 4 weeks of a non-recharge condition, here assumed to be 20 weeks after recharge begins.
- Parameter List The parameter list for the microbial and chemical analyses is unchanged.

Next Anticipated Status Report

The next anticipated status report will be after the receipt and validation of the microbial and chemical data from the Baseline Characterization task for Lake Orienta. This report will likely be issued October 2005.

CFARE Status Report No. 9

Introduction

This report provides Status Report No. 9 for the Central Florida Aquifer Recharge Enhancement Program, Artificial Recharge Well Study. The reports are issued at project milestones. The last report was May 24, 2005. Status Report No. 8 provided the procedures and results of the groundwater tracer test conducted at the Lake Orienta site in Altamonte Springs, Florida. This status report presents the results of the Baseline Characterization and the Operational Characterization tasks of the project. The project progress and schedule are presented in Table 1.

TABLE 1Project Tasks, Progress, and Schedule

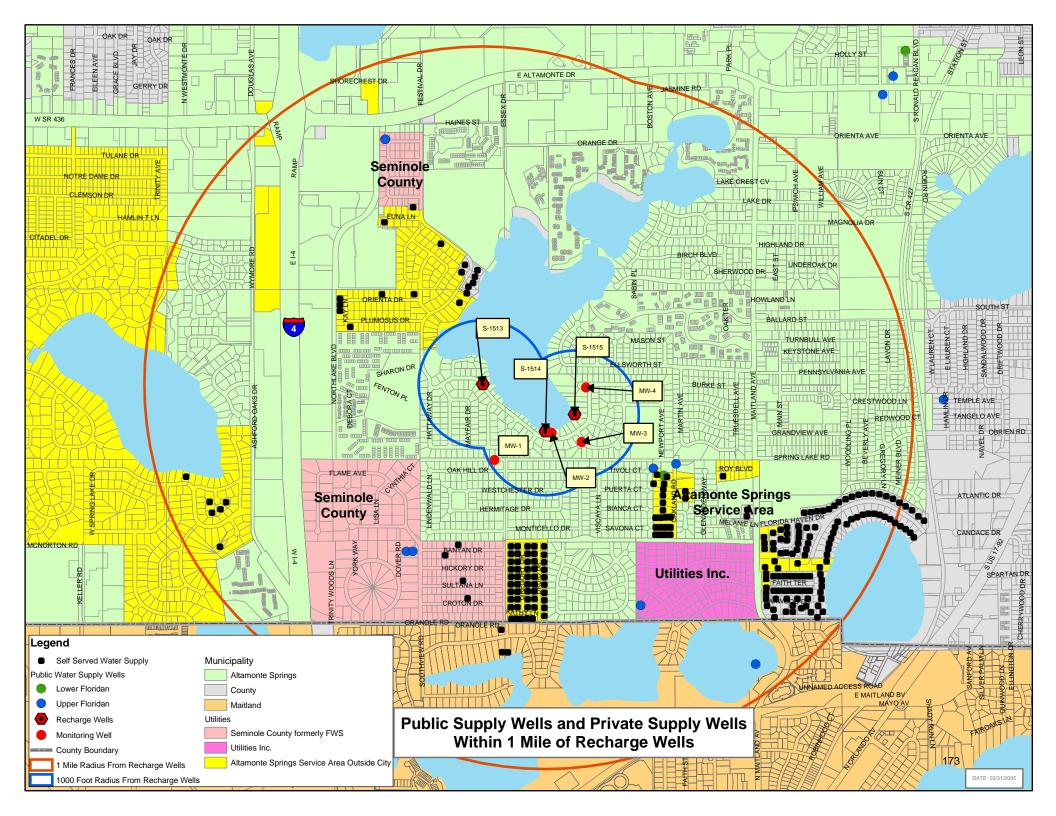
Task	Site	and Type of Recharge	Well
	Lake Sherwood Lake-Level Control	Festival Park Direct Runoff	Lake Orienta Lake-Level Control
Literature Review	Completed	Completed	Completed
Dry Period Characterization	Completed	N/A	Completed
Water Supply Well Survey	Completed	Completed	Completed
Baseline Characterization	Discontinued	Completed	Completed
Groundwater Tracer Test	N/A	Completed	Completed
Operational Site Characterization	N/A	Completed	Completed
Enhanced Treatment Site Characterization	N/A	On Hold Potential Future (2007)	On Hold Potential Future (2007)
Reporting and Documentation	N/A	(2006/2007)	(2006/2007)

Additional treatment evaluation, treatment implementation, and post-treatment characterization for the Festival Park site are on hold until the Operation Site Characterization task at Lake Orienta is completed. Then the results from the two sites will be compared together.

Greater than 400 recharge wells were installed between 1904 and the late 1960's to manage stormwater as urban development occurred in Orlando and vicinity. Two types of wells are present: urban runoff and lake level control. The wells at Lake Orienta are lake level control wells.

Lake Orienta Recharge Well Site

Lake Orienta is a 135-acre lake located in south central Seminole County in Altamonte Springs, Florida. The area around and near the lake is completely developed by residential and commercial land uses in a suburban setting. Three Upper Floridan aquifer (UFA) recharge wells are located on the south side of the lake and four UFA monitoring wells were constructed as part of this project. A map showing the wells is presented in Figure 1.



Water flows from the lake to the recharge wells once the lake stage is greater than approximately 61 feet above sea level. Monthly lake stage data, from 1979 through 2003 supplied by the City of Altamonte Springs, show that water levels typically are higher than 61 feet during August through November of a given year. Therefore, lake water recharges the aquifer during this period.

Additional operational flexibility is afforded to the City of Altamonte Springs by the presence of lower elevation inlet pipes for the wells located at 421 Barclay Avenue (SJRWMD Well No. S-1514) and 505 Barclay Avenue (SJRWMD Well No. S-1515). The well at 319 Barclay Avenue (SJRWMD Well No. S-1514) does not have a lower inlet pipe. The lower inlets typically opened at times when the lake stage is high and significant rain is foreseen. This allows the lake stage to decline providing additional storage for stormwater.

The City may open the lower inlets upon request of and receipt of an Emergency Order from FDEP. The City requested and was granted an Emergency Order in spring of 2005. The lower inlets for the two wells were opened on June 17, 2005.

Results of the Qualitative Groundwater Tracer Test and Modification of the Groundwater Monitoring Plan

The goal of the qualitative tracer test was to determine the presence or absence of hydraulic connection between the recharge wells and the monitoring wells. As documented in Status Report No. 8, the results of the groundwater tracer test indicate that MW-2 is hydraulically connected to recharge wells S-1513 and S-1514 through the Floridan aquifer and that monitoring wells MW-1, MW-3, and MW-4 are not hydraulically connected to the three recharge wells. Further, the groundwater travel time from S-1514 to MW-2 was less than two weeks. The groundwater travel time from S-1513 to MW-2 was 6 to 8 weeks. The approximate distances between S-1513 and MW-2, and S-1514 and MW-2 are 1350 feet and 75 feet, respectively. The goal of the tracer test was attained.

Based on the results of the groundwater tracer test and the experiences from conducting these tasks at Festival Park the following sampling plan was recommended:

- **Sample Locations** Sample the lake near the inlet to S-1514 and monitoring wells MW-1 and MW-2. Samples from the lake were used to characterize the quality of the source water. Samples form MW-2 will be used to assess how groundwater quality is affected by artificial recharge. Samples from MW-1 were used to establish and maintain site reference conditions. No samples were to be collected from MW-3 and MW-4.
- **Sample Frequency** The recommended sampling frequency is 1, 2, 4, 8, 12, 16, and optionally 20 weeks following the beginning of recharge.
- **Parameter List** The parameter lists for the chemical and microbial analyses are unchanged as presented in Status Report 4, distributed January 27, 2003.

Baseline and Operational Characterization Schedule

Baseline and Operational Characterization sampling events occurred as follows:

Baseline - July 12-13, 2005

Event 1 – July 20-21, 2005 (1 week)

Event 2 – July 27-28, 2005 (2 weeks)

Event 3 – August 8-9, 2005 (4 weeks)

Event 4 – September 7-8, 2005 (8 weeks)

Event 5 – October 5, 2005 (12 weeks)

Event 6 – October 31, 2005 (16 weeks)

Event 7 – December 5, 2005 (20 weeks)

Results of Baseline and Operational Characterizations

Results are presented from chemical and microbiological analyses of groundwater and surface water. Included in this discussion are the results from the one Baseline Characterization and the seven Operational Characterization sample sets, using the results of "normal" (non-field duplicate) groundwater and surface water samples. Therefore, the data set results from analyses of 16 groundwater samples from two monitoring wells and 8 surface water samples from Lake Orienta.

Chemical Results

The chemical data presented in Table 2, located at the end of this report, are provided with qualifiers that resulted from the data validation process. The value and the qualifier must be taken together to properly understand the laboratory results. For instance, if a result for a chemical was "10" mg/L with an "=" qualifier then the chemical was detected at a concentration of 10 mg/L. However, if a result was "10" mg/L with a "U" qualifier then the chemical was not detected at a reporting limit of 10 mg/L. Please refer to the notes at the bottom of the table for explanations of the qualifiers. Concentration values with an "=" qualifier represent confirmed or positive detections of analytes.

The chemical data were compared to various regulatory criteria and risk-based criteria; the results of the comparison are identified by different formatting of the table cells using bolding, shading, and boxing. A shaded cell represents that the concentration is greater than or equal to promulgated regulatory criterion or a risk-based criterion (RBC). Of the shaded cells, bolded text indicates that the concentration is greater than or equal to a regulatory criterion; normal text indicates that the concentration is greater than or equal to an RBC. Notes at the bottom of Table 2 provide other explanations of formatting to identify comparisons of the chemical results and various regulatory and risk-based criteria.

Lake Orienta is a Florida Class III fresh surface water, designated for recreational use.

The comparison provided the following results. The presentation is limited to the analytes with positive detections greater than regulatory criteria or risk-based criteria.

- Aluminum No positive detection resulted from the analyses of the 16 groundwater samples. Five positive detections resulted from the analyses of the surface water samples. There is no criterion for aluminum. One of five positive detections [277 micrograms per liter (μ g/L)] exceeded the Secondary MCL for groundwater (200 μ g/L).
- **Arsenic** –Ten of 12 positive detections from groundwater samples exceeded the MCL of $10 \mu g/L$ for arsenic. The range of concentrations was 8.16 to 17.1 $\mu g/L$. Twelve of 12

positive detections from the groundwater samples exceeded the RBC for arsenic of 0.045 $\mu g/L$.

One positive detection resulted for the eight surface water samples. The concentration was 7.03 $\mu g/L$, which is below the Class III Surface Water criterion for fresh surface water, 50 $\mu g/L$.

- Iron Two of two positive detections of normal groundwater samples resulted for iron. The concentrations were 78.6 and 186 μ g/L, and greater than the regulatory criterion of 30 μ g/L.
- **Selenium** Of the 16 normal groundwater samples, two positive detections resulted for selenium. The range of concentrations was 23.8 to 27.3 μ g/L. The regulatory criterion of 50 μ g/L was not exceeded. The RBC of 18 μ g/L was exceeded.
- **Synthetic Organic Compounds** No analytes were positively detected for the parameter groups of volatile organic compounds, semi-volatile organic compounds, organochlorine pesticides, organophosphorous pesticides, PCBs, and chlorinated herbicides using EPA SW-846 methods.

Microbiological Results

The water samples were analyzed for several microorganisms within three classifications: bacteria, virus, and parasites:

- Bacteria total coliform, fecal coliform, Escherichia coli (E. coli), and enterococci
- Virus coliphage
- Parasites Giardia spp. and Cryptosporidium spp.

Surface Water Sampling Results

Results of the analyses are provided in Table 3, located at the end of this report. Comparison of the surface water microbial concentrations to Florida Class III Surface Water criteria for parameters that criteria are established reveals the following:

- Total Coliform The maximum total coliform concentration [1400 colony forming units per 100 milliliters (cfu/100 mL)] exceeded the criterion (1000 cfu/100 mL) from one sample that was collected September 7, 2005. The average of the results was 378 cfu/100 mL, which is below the criterion of 400 cfu/100 mL.
- **Fecal Coliform** –The maximum fecal coliform concentration (833 cfu/100 mL) exceeded the criterion (800 cfu/100 mL) from one sample that was collected September 7, 2005. The geometric mean of the results was 122 cfu/100 mL, which is below the criterion of 200 cfu/100 mL.
- *E. coli* –The geometric mean of the results for *E. coli* was 43.3 cfu/100 mL, which is below the criterion of 126 cfu/100 mL.
- **Coliphage** No detections of coliphage were reported.
- **Giardia** No detections of *Giardia spp.* were reported.
- **Cryptosporidium** *Cryptosporidium spp*. was detected from the September 7 and October 6, 2005 samples of the lake water. One organism with internal features was detected

from these two sampling events with equivalent concentrations of 7.9 and 13.2 pfu/100 mL, respectively. The organism is encapsulated in a coating; the coating may be present with or without viable organism inside. The designation of "internal features" means that viable organism was encountered.

Discussion – There is qualification of the fecal coliform sample results from the Baseline characterization event that is associated with the receipt temperature of the samples at the laboratory. After discussion with the laboratory personnel, it was determined that amount of ice packed in the coolers was insufficient relative to the amount of water sample to chill and maintain sample temperature. During subsequent sampling events, more coolers were used to ship the samples increasing the relative amount of ice per sample to pack the coolers.

Groundwater Sampling Results

Comparison of the groundwater microbial concentrations to Florida Groundwater criteria for parameters that criteria are established reveals:

- Total Coliform The maximum total coliform concentration exceeded the groundwater criterion (4 cfu/100 mL) from two samples: 7.7 cfu/100 mL collected on October 6, 2005 and 60 cfu/100 mL collected on December 5, 2005.
- **Fecal Coliform** –The maximum fecal coliform concentration (833 cfu/100 mL) exceeded the criterion (800 cfu/100 mL) from one sample that was collected September 7, 2005.
- *E. coli* No detections of *E. coli* in the groundwater samples were reported.
- **Coliphage** No detections of coliphage in the groundwater samples were reported.
- **Giardia** No detections of *Giardia spp*. in the groundwater samples were reported.
- **Cryptosporidium** *Cryptosporidium spp*. was not detected from the groundwater samples.

Next Anticipated Status Report

The next task of the project is to compare the results from the Festival Park site and from the Lake Orienta site. This status report is anticipated to be issued by the end of May 2006.

	Location: Event:	LAKE Baseline	MW-1 Baseline	MW-1 Baseline	MW-2 Baseline	LAKE Event 1	MW-1 Event 1	MW-1 Event 1	MW-2 Event 1	LAKE Event 2	MW-1 Event 2	MW-1 Event 2	MW-2 Event 2	LAKE Event 3	MW-1 Event 3	MW-1 Event 3	MW-2 Event 3
	SJRWMD No.: SampleID: DateCollected:	None L0-00-Lake 13-Jul-05	S-0334 L0-00-MW1 13-Jul-05	S-0334 L0-00-Dupe 13-Jul-05	S-0335 L0-00-MW2 12-Jul-05	None L0-01-Lake 20-Jul-05	S-0334 L0-01-MW1 21-Jul-05	S-0334 L0-01-Dup 21-Jul-05	S-0335 L0-01-MW-2 20-Jul-05	None L0-02-LAKE 27-Jul-05	S-0334 L0-01-MW-1 28-Jul-05	S-0334 L0-01-DUPE 28-Jul-05	S-0335 L0-02-MW2 27-Jul-05	None LO-03-Lake 08-Aug-05	S-0334 LO-03-MW1 09-Aug-05	S-0334 LO-03-Dup 09-Aug-05	S-0335 LO-03-MW-2 08-Aug-05
Parameter Group and Name Field Measurements	Matrix: SampleType: Unit	Surface Water Normal Result Qual	Groundwater Normal Result Qual	Groundwater Field Duplicate Result Qual	Groundwater Normal Result Qual	Groundwater Normal Result Qual	Groundwater Normal Result Qual	Groundwater Field Duplicate Result Qual	Groundwater Normal Result Qual	Surface Water Normal Result Qual	Groundwater Normal Result Qual	Groundwater Field Duplicate Result Qual	Groundwater Normal Result Qual	Surface Water Normal Result Qual	Groundwater Normal Result Qual	Groundwater Field Duplicate Result Qual	Groundwater Normal Result Qual
pH	Std. Units	7.96	7.65	7.65	7.59	7.30	7.40	7.40	7.47	no data	8.29	8.29	7.32	no data	7.56	7.56	7.65
TEMPERATURE		32.2	24.2	24.2	24.3	30.4	23.9	23.9	24.2	no data	23.5	23.5	23.6	no data	23.3	23.3	23.8
CONDUCTANCE TURBIDITY	μmhos NTU	248 4.66	277	277	409 0.55	197 6.5	299 1.08	299 1.08	257 0.37	no data no data	300 0.69	300 0.69	339 1.01	no data no data	198 0.58	198 0.58	254 0.23
DISSOLVED OXYGEN	mg/L	7.39	0.17	0.17	0.36	5.28	0.13	0.13	0.62	no data	0.26	0.26	0.25	no data	0.1	0.1	0.17
OXIDATION/REDUCTION POTENTIAL General Chemistry	mV	no data	no data	no data	no data	no data	no data	no data	no data	no data	-215	-215	-159	no data	-87	-87	-158
TOTAL DISSOLVED SOLIDS (RESIDUE, FILTERABLE) TURBIDITY	mg/L NTU	120 =	160 = 0.3 U	175 = 0.3 U	206 = 0.3 UJ	28 = 33 =	257 = 3 =	298 =	282 =	187 =	137 =	146 =	119 =	115 =	174 =	174 =	168 =
pH (laboratory)	PH UNITS	7.4 =	7.5 =	7.68 =	7.33 J	7.12 =	7.52 =	7.52 =	7.36 =	6.62 =	7.32 =	7.36 =	7.18 =	7.2 =	7.42 =	7.45 =	7.33 =
COLOR	COLOR UNIT	40 =	10 =	10 =	15 =	45 =	15 =	15 =	15 =	60 =	25 =	15 =	20 =	50 =	15 =	15 =	15 =
BIOLOGIC OXYGEN DEMAND, FIVE DAY	mg/L	10 U	10 U	10 U	2 U	10 U	10 U	10 U	4 U	3 J	10 U	10 U	10 U	3 J	3 J	3 J	3 J
TOTAL ORGANIC CARBON DISSOLVED ORGANIC CARBON	mg/L	9.9 = 0.368 U	1 U 1.36 =	1.31 U 1.88 =	0.53 U 0.68 UJ	62.9 J 7.85 =	2.57 = 0.685 U	1.52 U 2.69 U	4.19 J 1.3 U	28.1 J 42.1 J	2.73 = 1.86 U	1.97 U 1.66 U	3.9 J 3.2 J	10.5 J 8.48 J	2.86 = 2.33 U	2.47 = 2.4 U	5.94 J 4.94 J
Nutrients	mg/L	0.308 0	1.30 =	1.00 =	0.00 03	7.65 =	0.665 0	2.09 0	1.30	42.1 3	1.00 0	1.00 0	3.2 0	0.40 0	2.33 0	2.4 0	4.54 0
TOTAL NITROGEN, ALL FORMS, CALCULATED	mg/L	1.22 =	0.766 =	0.844 =	0.808 =	1.6 =	0.743 =	0.684 =	1.26 =	1.29 =	0.93 =	0.662 =	0.776 =	0.661 J	0.27 =	0.218 =	0.377 J
NITROGEN, AMMONIA (AS N)	mg/L	0.0568 U	0.206 U	0.18 U	0.39 =	0.07 J	0.14 J	0.14 J	0.35 =	0.001 U	0.07 J	0.07 J	0.28 =	0.001 U	0.14 J	0.07 J	0.21 =
NITROGEN, KJELDAHL, TOTAL NITROGEN, NITRITE	mg/L	1.2 =	0.746 =	0.823 = 0.0118 U	0.781 J 0.0118 U	1.6 J 0.0118 U	0.743 = 0.0118 U	0.684 = 0.0118 U	1.26 J 0.0118 U	1.29 = 0.0143 J	0.93 = 0.0118 U	0.662 = 0.0118 U	0.776 =	0.661 J	0.27 =	0.218 J 0.0118 U	0.377 J
NITROGEN, NITRITE NITROGEN, NITRATE-NITRITE	mg/L mg/L	0.0118 U 0.0201 U	0.0118 U 0.0201 U	0.0118 U 0.0205 J	0.0118 U 0.0269 J	0.0118 U 0.0206 J	0.0118 U 0.0201 U	0.0118 U 0.0201 U	0.0118 U 0.0318 J	0.0143 J 0.0201 U	0.0118 U 0.0201 U	0.0118 U 0.0201 U	0.0118 U 0.0201 U	0.0245 J 0.0201 UJ	0.0118 U 0.0201 U	0.0118 U 0.0201 U	0.0118 U 0.0201 UJ
PHOSPHORUS, TOTAL (AS P)	mg/L	0.056 =	0.143 =	0.152 =	0.249 =	0.041 =	0.219 =	0.202 =	0.217 =	0.126 J	0.185 =	0.169 =	0.241 J	0.034 J	0.24 =	0.259 =	0.236 J
PHOSPHORUS, TOTAL ORTHOPHOSPHATE (AS P)	mg/L	0.014 U	0.138 =	0.137 =	0.213 =	0.014 U	0.131 =	0.13 =	0.197 =	0.014 U	0.171 =	0.157 =	0.204 =	0.021 J	0.206 =	0.207 =	0.198 =
PHOSPHORUS, DISSOLVED (AS P)	mg/L	0.048 =	0.24 =	0.188 =	0.253 =	0.046 =	0.207 =	0.201 =	0.185 =	0.131 =	0.213 =	0.199 =	0.286 =	0.09 =	0.253 =	0.266 =	0.37 =
Anions ALKALINITY, BICARBONATE (AS CaCO3)	mg/L	27 =	141 =	141 =	127 =	28 =	141 =	129 =	132 =	28 =	137 =	140 =	119 =	32 =	141 =	139 =	115 =
ALKALINITY, TOTAL (AS CaCO3)	mg/L	27 =	141 =	141 =	127 =	301 =	141 =	129 =	132 =	28 =	185 =	140 =	331 =	32 =	141 =	139 =	115 =
Alkalinity, carbonate (as CaCO3)	mg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Alkalinity, hydroxide (as CaCO3)	mg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Alkalinity, phenolphthalein	mg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CHLORIDE (AS CL) SULFATE (AS SO4)	mg/L mg/L	30.6 = 25.4 =	13 =	12.9 = 2.91 =	26.4 = 21.4 =	30.8 = 24.2 =	13.2 = 4.55 =	13.3 = 4.69 =	26.3 = 30.3 =	29.3 = 25.2 =	12.5 = 4.45 =	12.5 = 3.71 =	24.4 = 30.8 =	28.9 = 25.4 =	12.5 = 3.68 =	12.2 =	24.3 = 33.6 =
Metals	IIIg/L	23.4 =	2.01 =	2.31 =	21.4 -	24.2 -	4.55 =	4.05 =	30.3 =	25.2 =	4.45 -	5.71 =	30.0 =	25.4	3.00 =	3.40 =	33.0 =
ALUMINUM	μg/L	69.9 J	23.4 J	18 J	24 U	83.9 J	15 U	15 U	24.3 U	142 =	15 U	15 U	18.8 J	144 U	24.8 U	29 U	15 U
ANTIMONY	μg/L	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	4.88 J	2.3 U	2.3 U	2.3 U	2.73 J	2.3 U	2.3 U	2.3 U	2.3 U
ARSENIC	μg/L	8.41 U	13.2 =	10.5 U	14 =	8.58 U	8.16 =	9.7 =	13.5 =	8.88 U	10.9 =	10.3 =	12.4 U	9.27 U	11 U	10.9 U	10 U
BARIUM BERYLLIUM	μg/L	1.78 J 0.2 U	6.37 =	6.21 =	5.4 =	5.13 = 0.2 U	5.21 =	5.31 =	5.26 =	7.13 = 0.2 U	5.18 =	5.05 =	5.17 =	11 = 0.2 U	5 = 0.2 U	5.22 =	5.22 =
CADMIUM	μg/L μg/L	0.2 U	0.2 U 0.35 U	0.2 U 0.35 U	0.218 J 0.35 U	0.2 U	0.2 U 0.35 U	0.2 U 0.35 U	0.2 U 0.35 U	0.2 U	0.2 U 0.35 U	0.2 U 0.35 U	0.218 J 0.35 U	0.2 U	0.2 U	0.2 U 0.35 U	0.2 U 0.35 U
CALCIUM	μg/L	14300 =	50300 =	50000 =	51900 =	13600 =	50500 =	51700 =	51800 =	13900 =	51200 =	51400 =	50300 =	13900 =	51100 =	52700 =	50000 =
CHROMIUM, TOTAL	μg/L	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
COBALT	μg/L	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U
COPPER	μg/L	1.6 J	0.62 U	0.62 U	0.62 U	4.42 U	0.62 U	0.62 U	9.58 =	2.07 U	0.62 U	0.62 U	1.9 U	0.62 U	0.62 U	0.62 U	0.62 U
IRON LEAD	μg/L	27.6 U 2.2 U	34.8 U 2.2 U	33.6 U 2.2 U	22.8 U 2.2 U	29.9 J 2.2 U	20.7 J 2.2 U	19.1 J 2.2 U	28.6 J 9.81 =	48.3 J 2.2 U	17.5 J 2.2 U	17.8 J 2.2 U	24.5 J 2.2 U	31.2 U 2.2 U	186 = 2.2 U	80.2 =	12.3 U 2.2 U
MAGNESIUM	μg/L μg/L	2520 =	5350 =	5320 =	6330 =	2.2 0	5080 =	5240 =	9.81 =	2520 =	5310 =	5320 =	2.2 U 5750 =	2620 =	5200 =	2.2 U 5350 =	5990 =
MANGANESE	μg/L	15.5 =	4.36 J	4.34 J	4.79 J	17.2 =	4.81 J	6.17 =	4.88 J	16.7 =	4.82 J	4.77 J	4.91 J	17.4 =	5.36 =	5.35 =	4.44 J
MERCURY	μg/L	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U
NICKEL	μg/L	2.79 J	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
POTASSIUM SELENIUM	μg/L μg/L	3100 = 2.6 U	1290 = 2.6 U	1250 = 2.6 U	2120 = 2.6 U	3110 = 2.6 UJ	916 = 2.6 U	933 = 2.6 U	2210 = 2.6 UJ	3040 = 2.6 U	914 = 2.6 U	878 = 2.6 U	2010 = 2.6 U	3230 = 2.6 U	829 = 2.6 U	885 = 2.6 U	2360 = 2.6 U
SILVER	μg/L	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.678 J
SODIUM	μg/L	20100 =	8330 =	8210 =	12600 =	19200 =	7280 =	7390 =	13000 =	19600 =	7130 =	7120 =	12600 =	20100 =	6980 =	7270 =	14200 =
THALLIUM	μg/L	4.2 U	4.2 U	4.2 U	4.2 U	4.2 U	4.2 U	4.2 U	4.2 U	4.2 U	4.2 U	4.2 U	4.2 U	4.2 U	4.2 U	4.2 U	4.2 U
VANADIUM	μg/L	1.98 J	1.1 U	1.1 U	1.28 J	1.96 J	1.1 U	1.1 U	1.16 J	2.27 J	1.1 U	1.1 U	1.1 U	2.05 J	1.1 U	1.1 U	1.1 U
ZINC Ion Balance	μg/L	13.1 U	0.94 U	0.94 U	4.86 U	3.21 U	0.94 U	7.28 J	14.3 =	4.98 U	3.32 U	0.94 U	4.48 U	4.26 U	0.94 U	0.94 U	3.03 U
Calcium	meg/L	0.72	2.52	2.50	2.60	0.68	2.53	2.59	2.59	0.70	2.56	2.57	2.52	0.70	2.56	2.64	2.50
Magnesium	meq/L	0.21	0.45	0.44	0.53	0.21	0.42	0.44	0.51	0.21	0.44	0.44	0.48	0.22	0.43	0.45	0.50
Sodium	meq/L	0.87	0.36	0.36	0.55	0.83	0.32	0.32	0.57	0.85	0.31	0.31	0.55	0.87	0.30	0.32	0.62
Potassium Sum of cations	meq/L	0.08	0.03	0.03	0.05 3.72	0.08 1.80	0.02 3.29	0.02 3.37	0.06 3.73	0.08	0.02	0.02 3.35	0.05 3.59	0.08 1.87	0.02 3.31	0.02 3.42	0.06 3.68
Bicarbonate	meq/L meq/L	0.54	3.36 2.82	2.82	2.54	0.56	2.82	2.58	2.64	0.56	3.34 2.74	2.80	2.38	0.64	2.82	2.78	2.30
Carbonate	meq/L	0.07			2.0.	0.00	2.02	2.00	2.0.	0.00		2.00	2.00	0.0.	2.02	20	
Hydroxide	meq/L																
Chloride	meq/L	0.86	0.37	0.36	0.75	0.87	0.37	0.38	0.74	0.83	0.35	0.35	0.69	0.82	0.35	0.34	0.69
Sulfate Sum of anions	meq/L	0.53 1.9	0.05 3.24	0.06 3.25	0.45 3.73	0.50 1.93	0.09 3.29	0.10 3.05	0.63 4.01	0.53 1.91	0.09	0.08 3.23	0.64 3.71	0.53 1.99	0.08 3.25	0.07 3.20	0.70 3.69
Balance (% difference)	meq/L	1.5%	-1.7%	-1.3%	0.1%	3.6%	0.0%	-4.7%	3.9%	2.1%	-2.2%	-1.7%	1.6%	3.1%	-1.0%	-3.3%	0.1%
Radiologicals		1.073		1.070	0.170	0.070	0.070		J.J./J	2.17			1.070	0.170	1.070	0.070	5.175
Alpha, gross	pCi/L	2.36 U	2.47 U	2.45 U	2.61 U	2.08 U	2.49 U	1.69 U	1.94 U	5.07 =	2.51 U	3.09 U	2.61 U	4.55 J	1.63 U	2.32 U	2.89 UJ
Beta, gross	pCi/L	3.64 U	3.77 U	3.68 U	3.98 J	5.58 =	3.82 U	3.83 U	4.77 J	4.96 U	4.11 U	4.36 U	4.15 U	5.53 =	3.77 U	4.97 =	4.83 U

	Location: Event: SJRWMD No.: SampleID:	LAKE Event 4 None LO-04-LAKE	MW-1 Event 4 S-0334 LO-04-01	MW-1 Event 4 S-0334 LO-04-Dupe	MW-2 Event 4 S-0335 LO-04-02	LAKE Event 5 None LO-05-LAKE	MW-1 Event 5 S-0334 LO-05-01	MW-1 Event 5 S-0334 LO-05-DUPE	MW-2 Event 5 S-0335 LO-05-02	LAKE Event 6 None LO-06-LAKE	MW-1 Event 6 S-0334 LO-06-01	MW-1 Event 6 S-0334 LO-06-DUP	MW-2 Event 6 S-0335 LO-06-02	LAKE Event 7 None LO-07-LAKE	MW-1 Event 7 S-0334 LO-07-01	MW-1 Event 7 S-0334 LO-07-Dupe	MW-2 Event 7 S-0335 LO-07-02
	DateCollected: Matrix:	07-Sep-05 Surface Water	08-Sep-05 Groundwater	08-Sep-05 Groundwater	07-Sep-05 Groundwater	05-Oct-05 Surface Water	05-Oct-05 Groundwater	05-Oct-05 Groundwater	05-Oct-05 Groundwater	31-Oct-05 Surface Water	31-Oct-05 Groundwater	31-Oct-05 Groundwater	31-Oct-05 Groundwater	05-Dec-05 Surface Water	05-Dec-05 Groundwater	05-Dec-05 Groundwater	05-Dec-05 Groundwater
Parameter Group and Name Field Measurements	SampleType: Unit	Normal Result Qual	Normal Result Qual	Field Duplicate Result Qual	Normal Result Qual	Normal Result Qual	Normal Result Qual	Field Duplicate Result Qual	Normal Result Qual	Normal Result Qual	Normal Result Qual	Field Duplicate Result Qual	Normal Result Qual	Normal Result Qual	Normal Result Qual	Field Duplicate Result Qual	Normal Result Qual
pH TEMPERATURE	Std. Units ℃	no data no data	7.38	7.38 23.5	7.35 23.8	7.85 28.3	7.39 23.5	7.39 23.5	7.42	8.19 21.8	7.40 23.5	7.40 23.5	7.62 23.8	8.03 20.3	7.43 23.4	7.43 23.4	7.39
CONDUCTANCE	μmhos	no data	217	217	311	231	310	310	306	176	298	298	319	182	297	297	278
TURBIDITY DISSOLVED OXYGEN	NTU mg/L	no data no data	0.75 0.24	0.75 0.24	0.28	5.97 9.38	0.07 0.13	0.07 0.13	1.05 0.21	6.54 7.58	0.15 0.15	0.15 0.15	0.45	10.6 7.69	0.28 0.11	0.28 0.11	0.47
OXIDATION/REDUCTION POTENTIAL	mV	no data	-74	-74	-143	no data	-81	-81	-194	2	-85	-85	-152	no data	-214	-214	no data
General Chemistry TOTAL DISSOLVED SOLIDS (RESIDUE, FILTERABLE)	mg/L	110 =	115 =	125 =	165 =	169 =	224 =	231 =	250 =	138 =	206 =	197 =	259 =	97 =	160 =	174 =	204 =
TURBIDITY	NTU	2.6 =	0.4 =	0.4 =	0.4 =	2.5 =	1.2 =	0.4 =	1.23 =	3.4 =	0.3 U	0.3 U	1.1 =	2.86 =	0.3 U	0.3 U	0.3 U
pH (laboratory) COLOR	PH UNITS COLOR UNIT	7.2 = 45 =	7.46 = 15 =	7.42 =	7.36 = 15 =	7.45 = 40 =	7.56 = 15 =	7.58 =	7.56 = 15 =	7.52 = 45 =	7.78 = 15 =	7.74 = 15 =	7.62 = 15 =	7.1 =	7.41 =	7.66 = 15 =	7.49 = 15 =
BIOLOGIC OXYGEN DEMAND, FIVE DAY	mg/L	3 J	2 U	2 U	10 U	3 =	2 U	2 U	2 U	3 =	2 U	2 U	2 U	2.6 =	2 U	2 U	2 U
TOTAL ORGANIC CARBON DISSOLVED ORGANIC CARBON	mg/L	13.1 J	1.93 U 2.34 U	3.41 U	8.98 J	10.6 = 9.14 =	2.18 U 2.28 U	2.21 U 1.97 U	2.37 U 2.46 U	11.1 =	2.79 = 3.01 =	2.96 = 3.27 =	3.02 =	10.6 =	1.78 =	2.15 = 1.75 =	2.63 = 2.04 =
Nutrients	mg/L	7.5 =	2.34 0	2.65 U	2.59 U	9.14 =	2.20 0	1.97 0	2.46 0	9.02 =	3.01 =	3.27 =	3.19 =	7.91 =	1.86 =	1.75 =	2.04 =
TOTAL NITROGEN, ALL FORMS, CALCULATED	mg/L	1.57 =	0.668 =	0.619 =	0.762 =	0.415 U	0.323 U	0.156 U	0.435 U	0.174 =	0.232 =	0.289 =	0.222 =	1.82 =	0.478 U	1.86 =	1.01 =
NITROGEN, AMMONIA (AS N) NITROGEN, KJELDAHL, TOTAL	mg/L mg/L	0.07 J 1.55 =	0.21 =	0.21 =	0.35 = 0.742 =	0.14 = 0.415 U	0.28 = 0.323 U	0.21 = 0.156 U	0.35 = 0.435 U	0.017 UJ 1.14 =	0.0316 J 0.603 =	0.0339 J 0.609 =	0.179 J 0.481 =	0.0322 = 1.82 =	0.108 J 0.478 U	0.114 J 1.86 =	0.474 J 1.01 =
NITROGEN, NITRITE	mg/L	0.0195 J	0.0118 U	0.0118 U	0.0118 U	0.0118 U	0.0118 U	0.0118 U	0.0118 U	0.0118 U	0.0118 U	0.0118 U	0.0118 U	0.0449 J	0.0449 J	0.0449 J	0.0449 J
NITROGEN, NITRATE-NITRITE PHOSPHORUS, TOTAL (AS P)	mg/L mg/L	0.0201 U 0.114 J	0.0201 U 0.235 =	0.0201 U 0.217 =	0.0201 U 0.305 =	0.0201 U 0.217 =	0.0201 U 0.254 =	0.0201 U 0.322 =	0.0201 U 0.258 =	0.0201 U 0.017 U	0.0201 U 0.097 =	0.0201 U 0.017 U	0.0201 U 0.08 =	0.0201 U 0.12 =	0.0201 U 0.174 =	0.0201 U 0.165 =	0.0201 U 0.171 =
PHOSPHORUS, TOTAL ORTHOPHOSPHATE (AS P)	mg/L	0.017 J	0.14 =	0.133 =	0.172 =	0.027 J	0.137 =	0.141 =	0.197 =	0.014 U	0.15 =	0.147 =	0.202 =	0.02 J	0.142 =	0.126 =	0.202 =
PHOSPHORUS, DISSOLVED (AS P) Anions	mg/L	0.029 J	0.103 =	0.143 =	0.195 =	0.017 U	0.093 =	0.105 =	0.151 =	0.017 U	0.056 =	0.017 U	0.058 =	0.034 J	0.093 =	0.116 =	0.117 =
ALKALINITY, BICARBONATE (AS CaCO3)	mg/L	29 =	150 =	138 =	119 =	27.8 =	138 =	138 =	127 =	28.8 J	141 J	141 J	127 J	42 =	146 =	140 =	136 =
ALKALINITY, TOTAL (AS CaCO3) Alkalinity, carbonate (as CaCO3)	mg/L mg/L	29 = 0.5 U	150 = 0.5 U	138 = 0.5 U	119 = 0.5 U	27.8 = 0.5 U	138 = 0.5 U	138 = 0.5 U	127 = 0.5 U	28.8 J 0.5 U	141 J 0.5 U	141 J 0.5 U	127 J 0.5 U	42 = 0.5 U	146 = 0.5 U	140 = 0.5 U	136 = 0.5 U
Alkalinity, hydroxide (as CaCO3)	mg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Alkalinity, phenolphthalein CHLORIDE (AS CL)	mg/L mg/L	0.5 U 32.6 =	0.5 U 14.5 =	0.5 U 14.1 =	0.5 U 28.5 =	0.5 U 33.9 =	0.5 U 15.2 =	0.5 U 15.4 =	0.5 U 29.7 =	0.5 U 30 =	0.5 U 14.3 =	0.5 U 29.6 =	0.5 U 29.5 =	0.5 U 34.3 =	0.5 U 15.2 =	0.5 U 15.1 =	0.5 U 30.7 =
SULFATE (AS SO4)	mg/L	27.1 =	3.17 =	2.95 =	21.3 =	24.9 =	3.84 =	5.36 =	29.7 =	21.6 =	2.89 =	0.92 J	27.1 =	22.1 =	0.64 J	0.608 J	21.8 =
Metals ALUMINUM	μg/L	120 =	17.8 U	15 U	15 U	93.4 J	15 U	15 U	87 J	143 =	49.4 J	223 =	18.3 J	277 =	37.7 J	15 U	19.3 J
ANTIMONY	μg/L	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U
ARSENIC BARIUM	μg/L μg/L	6.96 U 9.03 =	13.2 = 5 =	11.5 = 4.98 J	14.9 = 5.25 =	11.8 U 6.91 =	15.3 = 5.24 =	19.1 = 5.16 =	17.1 = 5.32 =	8.05 U 9.31 =	14.9 = 5.39 =	14.2 = 5.42 =	9.85 U 5.69 =	7.03 = 11.9 =	12.4 = 5.12 =	12.8 = 5.02 =	8.88 = 6.47 =
BERYLLIUM	μg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.47 – 0.2 U
CADMIUM	μg/L	0.35 U	0.35 U	0.35 U	0.35 U	1.32 U	3.38 J	3.6 J	3.7 J	0.35 U	1.7 J	0.902 J	0.664 J	0.35 U	0.35 U	0.35 U	0.35 U
CALCIUM CHROMIUM, TOTAL	μg/L μg/L	13500 = 1.3 U	52300 = 1.3 U	52300 = 1.3 U	50400 = 1.3 U	12900 = 1.77 J	50000 = 2.89 J	49800 = 2.7 J	53800 = 3.27 J	13300 = 1.3 U	52100 = 1.91 J	51800 = 2.21 J	51100 = 2.15 J	14400 = 2.17 J	51500 = 3.73 J	50100 = 3.54 J	52500 = 3.22 J
COBALT	μg/L	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.7600001 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U
COPPER IRON	μg/L μg/L	1.31 J 24.7 J	0.956 U 28.3 U	0.62 U 26.5 U	2.78 J 41.2 J	0.76 J 20.6 J	0.62 U 29.1 J	0.62 U 29 J	0.984 J 78.6 =	1.59 U 59.5 =	0.879 U 22.7 J	0.62 U 62.3 =	3.07 U 38.9 J	2.82 U 33.2 J	2.35 U 23.4 J	0.62 U 19.1 J	1.4 U 13.9 J
LEAD	μg/L	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	5.15 =	2.51 J	2.2 U
MAGNESIUM MANGANESE	μg/L	2650 = 14.4 =	5310 = 5.24 U	5310 = 5.14 U	5470 = 4.87 J	2570 = 13.1 =	5180 =	5140 = 4.77 J	5760 = 5.48 =	2520 = 14 =	5390 = 4.8 J	5350 = 5.07 =	5980 = 4.51 J	2620 = 11.2 =	5260 =	5150 = 4.41 J	6490 = 4.67 J
MERCURY	μg/L μg/L	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	4.85 J 0.025 U	0.025 U	0.0808 U	0.0262 J	0.025 U	0.025 U	0.025 U	0.025 U	4.56 J 0.025 U	0.025 U	0.025 U
NICKEL POTASSIUM	μg/L	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	2.61 J 857 =	1.7 U	1.7 U	1.7 U	1.84 J 1010 =	2.08 J	1.7 U 2180 =	1.7 U	1.88 J 1040 =	1.7 U 995 =	1.7 U 2100 =
SELENIUM	μg/L μg/L	3310 = 2.6 U	1010 = 13 U	969 = 2.6 U	2300 = 2.6 U	3100 = 2.6 U	2.6 U	925 = 2.6 U	2070 = 2.6 U	3120 = 2.6 U	1010 = 13 U	980 = 13 U	2180 = 2.6 U	3220 = 6.01 U	27.3 =	995 = 24.7 =	23.8 =
SILVER	μg/L	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.722 U	0.65 U	0.65 U
SODIUM THALLIUM	μg/L μg/L	20900 = 4.2 U	8130 = 4.2 U	7590 = 4.2 U	14400 = 4.2 U	19500 = 4.2 U	6910 = 4.2 U	7080 = 4.2 U	13000 = 4.2 U	19300 = 4.2 U	7510 = 4.2 U	7410 = 4.2 U	12500 = 4.2 U	20100 = 4.2 U	7460 = 4.2 U	7230 = 4.2 U	13100 = 4.2 U
VANADIUM	μg/L	2.42 J	1.1 U	1.1 U	1.3 J	1.94 J	1.1 U	1.1 U	1.1 U	2.35 J	1.1 U	1.1 U	1.1 U	2.57 J	1.1 U	1.1 U	1.42 J
ZINC Ion Balance	μg/L	3.51 J	0.94 U	0.94 U	5.43 J	1.75 J	0.94 UJ	0.94 UJ	0.94 UJ	16.6 =	6.2 J	7.48 J	10.3 =	13.2 =	0.94 U	0.94 U	0.94 U
Calcium	meq/L	0.68	2.62	2.62	2.52	0.65	2.50	2.49	2.69	0.67	2.61	2.59	2.56	0.72	2.58	2.51	2.63
Magnesium Sodium	meq/L meq/L	0.22 0.91	0.44 0.35	0.44	0.46 0.63	0.21 0.85	0.43	0.43 0.31	0.48 0.57	0.21 0.84	0.45 0.33	0.45 0.32	0.50 0.54	0.22 0.87	0.44	0.43 0.31	0.54 0.57
Potassium	meq/L	0.08	0.03	0.02	0.06	0.08	0.02	0.02	0.05	0.08	0.03	0.03	0.06	0.08	0.03	0.03	0.05
Sum of cations	meq/L	1.89	3.44	3.41 2.76	3.66 2.38	1.79	3.25 2.76	3.25	3.79	1.79	3.41	3.38 2.82	3.65	1.89	3.36	3.27	3.79
Bicarbonate Carbonate	meq/L meq/L	0.58	3.00	2./0	∠.30	0.56	2.70	2.76	2.54	0.58	2.82	2.02	2.54	0.84	2.92	2.80	2.72
Hydroxide	meq/L	2.22		2.45	2.24	0.00	2.12			9.05	2.42	2.21	2.22	0.07	2.45	2.12	0.07
Chloride Sulfate	meq/L meq/L	0.92 0.56	0.41	0.40	0.81 0.44	0.96 0.52	0.43 0.08	0.44	0.84	0.85 0.45	0.40	0.84	0.83	0.97 0.46	0.43 0.01	0.43	0.87 0.45
Sum of anions	meq/L	2.07	3.48	3.22	3.63	2.03	3.27	3.31	4.00	1.87	3.28	3.68	3.94	2.27	3.36	3.24	4.04
Balance (% difference) Radiologicals		4.7%	0.6%	-2.8%	-0.4%	6.9%	0.2%	0.9%	2.8%	2.2%	-1.8%	4.3%	3.9%	9.9%	0.0%	-0.5%	3.3%
Alpha, gross	pCi/L	2.73 J	1.77 U	1.21 U	3.52 U	4.17 J	2.53 U	1.72 U	3.77 U	2.87 J	4.04 U	2.23 U	1.98 J	2.89 U	2.68 U	2.84 U	1.91 U
Beta, gross	pCi/L	5.26 U	4.3 U	3.66 U	4.73 U	5.02 =	4.57 U	3.56 U	4.83 U	4.63 U	4.66 U	4.51 U	4.39 U	5.19 =	4.48 U	4.5 U	4.18 U

	Location: Event: SJRWMD No.: SampleID:	LAKE Baseline None L0-00-Lake	MW-1 Baseline S-0334 L0-00-MW1	MW-1 Baseline S-0334 L0-00-Dupe	MW-2 Baseline S-0335 L0-00-MW2	LAKE Event 1 None L0-01-Lake	MW-1 Event 1 S-0334 L0-01-MW1	MW-1 Event 1 S-0334 L0-01-Dup	MW-2 Event 1 S-0335 L0-01-MW-2	LAKE Event 2 None L0-02-LAKE	MW-1 Event 2 S-0334 L0-01-MW-1	MW-1 Event 2 S-0334 L0-01-DUPE	MW-2 Event 2 S-0335 L0-02-MW2	LAKE Event 3 None LO-03-Lake	MW-1 Event 3 S-0334 LO-03-MW1	MW-1 Event 3 S-0334 LO-03-Dup	MW-2 Event 3 S-0335 LO-03-MW-2
	DateCollected: Matrix:	13-Jul-05 Surface Water	13-Jul-05 Groundwater	13-Jul-05 Groundwater	12-Jul-05 Groundwater	20-Jul-05 Groundwater	21-Jul-05 Groundwater	21-Jul-05 Groundwater	20-Jul-05 Groundwater	27-Jul-05 Surface Water	28-Jul-05 Groundwater	28-Jul-05 Groundwater	27-Jul-05 Groundwater	08-Aug-05 Surface Water	09-Aug-05 Groundwater	09-Aug-05 Groundwater	08-Aug-05 Groundwater
Parameter Group and Name	SampleType: Unit	Normal Result Qual	Normal Result Qual	Field Duplicate Result Qual	Normal Result Qual	Normal Result Qual	Normal Result Qual	Field Duplicate Result Qual	Normal Result Qual	Normal Result Qual	Normal Result Qual	Field Duplicate Result Qual	Normal Result Qual	Normal Result Qual	Normal Result Qual	Field Duplicate Result Qual	Normal Result Qual
Total Petroleum Hydrocarbons PETROLEUM HYDROCARBONS	mg/L	0.358 U	0.349 U	0.349 U	0.356 U	0.349 U	0.34 U	0.34 U	0.358 U	0.12 J	0.34 U	0.34 U	0.34 U	0.12 J	0.368 U	0.368 U	0.354 U
Volatile Organic Compounds ACETONE	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
ACROLEIN ACRYLONITRILE	μg/L	10 UJ 5 U	10 UJ 5 U	10 UJ 5 U	10 U 5 U	10 UJ 5 U	10 UJ 5 U	10 UJ 5 U	10 UJ 5 U	10 UJ 5 U	10 UJ 5 U	10 UJ 5 U	10 UJ 5 U	10 UJ 5 U	10 UJ 5 U	10 UJ 5 U	10 UJ 5 U
ALLYL CHLORIDE (3-CHLOROPROPENE)	μg/L μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
BENZENE BROMODICHLOROMETHANE	μg/L μg/L	1 U	1 U	1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U	1 U	1 U	1 U 1 U	1 U	1 U	1 U 1 U	1 U	1 U 1 U	1 U
BROMOFORM	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
BROMOMETHANE CARBON DISULFIDE	μg/L μg/L	1 U	1 U	1 U	1 U	1 U 1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
CARBON TETRACHLORIDE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
CHLOROBENZENE CHLOROETHANE	μg/L μg/L	1 U 1 U	1 U	1 U 1 U	1 U	1 U 1 U	1 U 1 U	1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U	1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U
CHLOROFORM	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
CHLOROMETHANE 2-CHLORO-1,3-BUTADIENE	μg/L μg/L	1 U 1 U	1 U	1 U 1 U	1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U
cis-1,2-DICHLOROETHYLENE cis-1,3-DICHLOROPROPENE	μg/L μg/L	1 U 1 U	1 U	1 U	1 U	1 U 1 U	1 U 1 U	1 U	1 U	1 U 1 U	1 U	1 U	1 U	1 U 1 U	1 U	1 U	1 U
DIBROMOCHLOROMETHANE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
DICHLORODIFLUOROMETHANE 1,1-DICHLOROETHANE	μg/L μg/L	1 U 1 U	1 U	1 U	1 U	1 U 1 U	1 U 1 U	1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U	1 U	1 U 1 U	1 U 1 U	1 U	1 U
1,1-DICHLOROETHENE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE) 1,2-DICHLOROBENZENE	μg/L μg/L	1 U	1 U	1 U	1 U	1 U 1 U	1 U	1 U	1 U	1 U 1 U	1 U	1 U	1 U	1 U 1 U	1 U	1 U	1 U
1,2-DICHLOROETHANE 1,2-DICHLOROPROPANE	μg/L	1 U	1 U	1 U	1 U	1 U 1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U 1 U	1 U	1 U	1 U
1,3-DICHLOROBENZENE	μg/L μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,4-DICHLOROBENZENE ETHYLBENZENE	μg/L μg/L	1 U	1 U	1 U	1 U	1 U 1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U 1 U	1 U	1 U 1 U	1 U
2-HEXANONE	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
IODOMETHANE (METHYL IODIDE) METHYLENE CHLORIDE	μg/L μg/L	2 U 1 U	2 U	2 U 1 U	2 U 1 U	2 U 1 U	2 U 1 U	2 U 1 U	2 U 1 U	2 U 1 U	2 U 1 U	2 U	2 U 1 U	2 U 1 U	2 U 1 U	2 U 1 U	2 U 1 U
STYRENE TETRACIII ORGETINI ENE (DOE)	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
TETRACHLOROETHYLENE(PCE) TOLUENE	μg/L μg/L	1 U 1 U	1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U
trans-1,2-DICHLOROETHENE trans-1,3-DICHLOROPROPENE	μg/L μg/L	1 U 1 U	1 U	1 U	1 U	1 U 1 U	1 U 1 U	1 U	1 U	1 U 1 U	1 U 1 U	1 U	1 U	1 U 1 U	1 UJ 1 U	1 UJ 1 U	1 U
trans-1,4-DICHLORO-2-BUTENE	μg/L	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 UJ	4 UJ	4 UJ	4 UJ	4 UJ	4 U	4 U	4 UJ
TRICHLOROETHYLENE (TCE) TRICHLOROFLUOROMETHANE	μg/L μg/L	1 U 1 U	1 U	1 U 1 U	1 U	1 U 1 U	1 U 1 U	1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U	1 U	1 U 1 U	1 U 1 U	1 U	1 U
1,1,1-TRICHLOROETHANE 1,1,2,2-TETRACHLOROETHANE	μg/L μg/L	1 U	1 U	1 U	1 U	1 U 1 U	1 U	1 U	1 U	1 U 1 U	1 U	1 U	1 U	1 U 1 U	1 U	1 U	1 U
1,2,3-TRICHLOROPROPANE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
VINYL ACETATE VINYL CHLORIDE	μg/L μg/L	2 U 1 U	2 U	2 U	2 U	2 U 1 UJ	2 U	2 U	2 U	2 U 1 U	2 U	2 U	2 U	2 U 1 U	2 U	2 U	2 U
M,P-XYLENE (SUM OF ISOMERS)	μg/L	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
O-XYLENE (1,2-DIMETHYLBENZENE) XYLENES, TOTAL	μg/L μg/L	1 U 2 U	1 U 2 U	1 U 2 U	1 U 2 U	1 U 2 U	1 U 2 U	1 U 2 U	1 U 2 U	1 U 2 U	1 U 2 U	1 U 2 U	1 U 2 U	1 U 2 U	1 U 2 U	1 U 2 U	1 U 2 U
Semi-volatile Organic Compounds ACETOPHENONE	μg/L	4.3 UJ	4.2 UJ	4.2 UJ	4 U	4.2 UJ	4 U	4 U	4.2 UJ	4 U	4 U	4 U	4 U	4.2 U	4.1 U	4.1 U	4.2 U
ANILINE (PHENYLAMINE, AMINOBENZENE)	μg/L	4.3 UJ	4.2 UJ	4.2 UJ	4 U	4.2 UJ	4 U	4 U	4.2 UJ	4 U	4 U	4 U	4 U	4.2 U	4.1 U	4.1 U	4.2 U
ARAMITE 4-AMINOBIPHENYL (4-BIPHENYLAMINE)	μg/L μg/L	4.3 UJ 4.3 UJ	4.2 UJ 4.2 UJ	4.2 UJ 4.2 UJ	4 U 4 U	4.2 UJ 4.2 UJ	4 R 4 U	4 R 4 U	4.2 UJ 4.2 UJ	4 UJ 4 U	4 UJ 4 U	4 UJ 4 U	4 UJ 4 U	4.2 U 4.2 U	4.1 U 4.1 U	4.1 U 4.1 U	4.2 U 4.2 U
2-ACETYLAMINOFLUORENE 2-AMINONAPHTHALENE (BETA NAPHTHYLAMINE)	μg/L	4.3 UJ 4.3 UJ	4.2 UJ 4.2 UJ	4.2 UJ 4.2 UJ	4 U 4 U	4.2 UJ 4.2 UJ	4 UJ 4 U	4 UJ 4 U	4.2 UJ 4.2 UJ	4 UJ 4 U	4 UJ 4 U	4 UJ 4 U	4 UJ 4 U	4.2 U 4.2 U	4.1 UJ 4.1 U	4.1 UJ 4.1 U	4.2 U 4.2 U
BENZYL ALCOHOL	μg/L μg/L	10.8 UJ	10.5 UJ	10.5 UJ	5 R	10.5 UJ	10 UJ	10 UJ	10.5 UJ	10 U	10 U	10 U	10 U	10.5 UJ	10.2 U	10.2 U	10.5 UJ
BENZYL BUTYL PHTHALATE 4-BROMOPHENYL PHENYL ETHER	μg/L μg/L	4.3 UJ 4.3 UJ	4.2 UJ 4.2 UJ	4.2 UJ 4.2 UJ	4 U 4 U	4.2 UJ 4.2 UJ	4 U 4 U	4 U 4 U	4.2 UJ 4.2 UJ	4 U 4 U	4 U 4 U	4 U 4 U	4 U 4 U	4.2 U 4.2 U	4.1 U 4.1 U	4.1 U 4.1 U	4.2 U 4.2 U
4-CHLOROANILINE 4-CHLOROPHENYL PHENYL ETHER	μg/L	4.3 UJ 4.3 UJ	4.2 UJ 4.2 UJ	4.2 UJ 4.2 UJ	4 U 4 U	4.2 UJ 4.2 UJ	4 U 4 U	4 U 4 U	4.2 UJ 4.2 UJ	4 U 4 U	4 U 4 U	4 U 4 U	4 U 4 U	4.2 UJ 4.2 U	4.1 U 4.1 U	4.1 U 4.1 U	4.2 UJ 4.2 U
2-CHLORONAPHTHALENE	μg/L μg/L	4.3 UJ	4.2 UJ	4.2 UJ	4 U	4.2 UJ	4 U	4 U	4.2 UJ	4 U	4 U	4 U	4 U	4.2 U	4.1 U	4.1 U	4.2 U
2-CHLOROPHENOL 1,3-DINITROBENZENE	μg/L μg/L	4.3 UJ 21.6 UJ	4.2 UJ 21 UJ	4.2 UJ 21 UJ	2 U 20 U	4.2 UJ 21 UJ	4 UJ 20 U	4 UJ 20 U	4.2 UJ 21 UJ	4 U 20 UJ	4 U 20 U	4 U 20 U	4 U 20 UJ	4.2 U 21 U	4.1 U 20.5 U	4.1 U 20.5 U	4.2 U 21 U
2,4-DICHLOROPHENOL 2,6-DICHLOROPHENOL	μg/L	4.3 UJ 4.3 UJ	4.2 UJ 4.2 UJ	4.2 UJ 4.2 UJ	2 U 2 U	4.2 UJ 4.2 UJ	4 UJ 4 UJ	4 UJ 4 UJ	4.2 UJ 4.2 UJ	4 U 4 UJ	4 U 4 UJ	4 U 4 UJ	4 U 4 UJ	4.2 UJ 4.2 U	4.1 U 4.1 U	4.1 U 4.1 U	4.2 UJ 4.2 U
2,4-DIMETHYLPHENOL	μg/L μg/L	4.3 UJ	4.2 UJ	4.2 UJ	2 U	4.2 UJ	4 UJ	4 UJ	4.2 UJ	4 U	4 U	4 U	4 U	4.2 U	4.1 U	4.1 U	4.2 U
2,4-DINITROPHENOL 2,4-DINITROTOLUENE	μg/L μg/L	21.6 UJ 4.3 UJ	21 UJ 4.2 UJ	21 UJ 4.2 UJ	10 U 4 U	21 UJ 4.2 UJ	20 UJ 4 U	20 UJ 4 U	21 UJ 4.2 UJ	20 U 4 U	20 U 4 U	20 U 4 U	20 U 4 U	21 U 4.2 R	20.5 U 4.1 UJ	20.5 U 4.1 UJ	21 U 4.2 U
bis(2-CHLOROETHOXY) METHANE	μg/L	4.3 UJ	4.2 UJ	4.2 UJ	4 U	4.2 UJ	4 U	4 U	4.2 UJ	4 U	4 U	4 U	4 U	4.2 U	4.1 U	4.1 U	4.2 U
bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHER) bis(2-CHLOROISOPROPYL) ETHER	μg/L μg/L	4.3 UJ 4.3 UJ	4.2 UJ 4.2 UJ	4.2 UJ 4.2 UJ	4 U 4 U	4.2 UJ 4.2 UJ	4 U 4 U	4 U	4.2 UJ 4.2 UJ	4 U 4 U	4 U	4 U	4 U	4.2 U 4.2 U	4.1 U 4.1 U	4.1 U 4.1 U	4.2 U 4.2 U
CHLOROBENZILATE DIALLATE	μg/L	4.3 UJ 4.3 UJ	4.2 UJ 4.2 UJ	4.2 UJ 4.2 UJ	4.1 R 4 U	4.2 UJ 4.2 UJ	4 R 4 U	4 R 4 U	4.2 UJ 4.2 UJ	4 U 4 U	4 U	4 U	4 U	4.2 U 4.2 U	4.1 U 4.1 U	4.1 U 4.1 U	4.2 U 4.2 U
DIBENZOFURAN	μg/L μg/L	4.3 UJ	4.2 UJ	4.2 UJ	4 U	4.2 UJ	4 U	4 U	4.2 UJ	4 U	4 U	4 U	4 U	4.2 U	4.1 U	4.1 U	4.2 U
DIETHYL PHTHALATE DIMETHYL PHTHALATE	μg/L μg/L	4.3 UJ 4.3 UJ	4.2 UJ 4.2 UJ	4.2 UJ 4.2 UJ	4.1 R 4.1 R	4.2 UJ 4.2 UJ	4 R 4 R	4 R 4 R	4.2 UJ 4.2 UJ	4 U 4 U	4 U 4 U	4 U 4 U	4 U 4 U	4.2 U 4.2 U	4.1 U 4.1 U	4.1 U 4.1 U	4.2 U 4.2 U
DIMETHYLPHENYLETHYLAMINE	μg/L	21.6 UJ	21 UJ	21 UJ	20 UJ	21 UJ	20 U	20 U	21 UJ	20 UJ	20 UJ	20 UJ	20 UJ	21 R	20.5 R	20.5 R	21 R
7,12-DIMETHYLBENZ(a)ANTHRACENE p-DIMETHYLAMINOAZOBENZENE	μg/L μg/L	4.3 UJ 4.3 UJ	4.2 UJ 4.2 UJ	4.2 UJ 4.2 UJ	4 U 4 U	4.2 UJ 4.2 UJ	4 U 4 U	4 U 4 U	4.2 UJ 4.2 UJ	4 U 4 UJ	4 U 4 UJ	4 U 4 UJ	4 U 4 UJ	4.2 U 4.2 U	4.1 U 4.1 U	4.1 U 4.1 U	4.2 U 4.2 U
3,3'-DICHLOROBENZIDINE 3,3'-DIMETHYLBENZIDINE	μg/L	4.3 UJ 21.6 UJ	4.2 UJ 21 UJ	4.2 UJ 21 UJ	4 U	4.2 UJ 21 UJ	4 U	4 U 20 U	4.2 UJ 21 UJ	4 U 20 UJ	4 U	4 U 20 UJ	4 U	4.2 U 21 U	4.1 U 20.5 U	4.1 U 20.5 U	4.2 U 21 U
ETHYL METHANESULFONATE	μg/L μg/L	4.3 UJ	4.2 UJ	4.2 UJ	20 U 4 U	4.2 UJ	20 U 4 U	4 U	4.2 UJ	4 U	20 UJ 4 U	4 U	20 UJ 4 U	4.2 U	4.1 U	4.1 U	4.2 U
HEXACHLOROPROPENE ISODRIN	μg/L μg/L	4.3 UJ 4.3 UJ	4.2 UJ 4.2 UJ	4.2 UJ 4.2 UJ	4 U 4 U	4.2 UJ 4.2 UJ	4 U 4 U	4 U 4 U	4.2 UJ 4.2 UJ	4 U 4 U	4 U 4 U	4 U	4 U 4 U	4.2 U 4.2 U	4.1 U 4.1 U	4.1 U 4.1 U	4.2 U 4.2 U
ISOPHORONE	μg/L	4.3 UJ	4.2 UJ	4.2 UJ	4 U	4.2 UJ	4 U	4 U	4.2 UJ	4 U	4 U	4 U	4 U	4.2 U	4.1 U	4.1 U	4.2 U
ISOSAFROLE	μg/L	4.3 UJ	4.2 UJ	4.2 UJ	4 U	4.2 UJ	4 U	4 U	4.2 UJ	4 U	4 U	4 U	4 U	4.2 U	4.1 U	4.1 U	4.2 U

	Location: Event: SJRWMD No.: SampleID: DateCollected:	LAKE Event 4 None LO-04-LAKE 07-Sep-05	MW-1 Event 4 S-0334 LO-04-01 08-Sep-05	MW-1 Event 4 S-0334 LO-04-Dupe 08-Sep-05	MW-2 Event 4 S-0335 LO-04-02 07-Sep-05	LAKE Event 5 None LO-05-LAKE 05-Oct-05	MW-1 Event 5 S-0334 LO-05-01 05-Oct-05	MW-1 Event 5 S-0334 LO-05-DUPE 05-Oct-05	MW-2 Event 5 S-0335 LO-05-02 05-Oct-05	LAKE Event 6 None LO-06-LAKE 31-Oct-05	MW-1 Event 6 S-0334 LO-06-01 31-Oct-05	MW-1 Event 6 S-0334 LO-06-DUP 31-Oct-05	MW-2 Event 6 S-0335 LO-06-02 31-Oct-05	LAKE Event 7 None LO-07-LAKE 05-Dec-05	MW-1 Event 7 S-0334 LO-07-01 05-Dec-05	MW-1 Event 7 S-0334 LO-07-Dupe 05-Dec-05	MW-2 Event 7 S-0335 LO-07-02 05-Dec-05
	Matrix: SampleType:	Surface Water Normal	Groundwater Normal	Groundwater Field Duplicate	Groundwater Normal	Surface Water Normal	Groundwater Normal	Groundwater Field Duplicate	Groundwater Normal	Surface Water Normal	Groundwater Normal	Groundwater Field Duplicate	Groundwater Normal	Surface Water Normal	Groundwater Normal	Groundwater Field Duplicate	Groundwater Normal
Parameter Group and Name Total Petroleum Hydrocarbons	Unit	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual
PETROLEUM HYDROCARBONS	mg/L	0.358 U	0.34 U	0.349 UJ	0.349 U	0.349 U	0.34 U	0.349 U	0.349 U	0.349 U	0.358 U	0.349 U	0.349 U	0.349 U	0.358 UJ	0.349 U	0.349 UJ
Volatile Organic Compounds ACETONE	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	9.4 J	10 U	10 U	10 U	10 U	10 U
ACROLEIN ACRYLONITRILE	μg/L μg/L	10 U 5 U	10 U 5 U	10 U 5 U	10 U 5 U	10 U 5 U	10 U 5 U	10 U 5 U	10 U 5 U	10 U 5 U	10 U	10 U	10 U	10 UJ 4 U	10 UJ 4 U	10 UJ 4 U	10 UJ 4 U
ALLYL CHLORIDE (3-CHLOROPROPENE) BENZENE	μg/L	1 U 1 U	1 U	1 U	1 U	1 U 1 U	1 U	1 U	1 U	1 U 1 U	1 U	1 U	1 U	1 U 1 U	1 U	1 U	1 U
BROMODICHLOROMETHANE	μg/L μg/L	1 U	1 U	1 U	1 U	1 U	1 U	10	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
BROMOFORM BROMOMETHANE	μg/L μg/L	1 U 1 UJ	1 U 1 UJ	1 U 1 UJ	1 U 1 UJ	1 U	1 U 1 U	1 U	1 U	1 U	1 U	1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U
CARBON DISULFIDE CARBON TETRACHLORIDE	μg/L μg/L	1 U 1 U	1 U	1 U	1 U	1 U 1 U	1 U	1 U	1 U	1 U 1 U	1 U	1 U	1 U	1 U 1 U	1 U	1 U	1 U
CHLOROBENZENE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
CHLOROFORM	μg/L μg/L	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U	1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U
CHLOROMETHANE 2-CHLORO-1,3-BUTADIENE	μg/L μg/L	1 U 1 U	1 U 1 U	1 U	1 U	1 U	1 U 1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U
cis-1,2-DICHLOROETHYLENE cis-1,3-DICHLOROPROPENE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
DIBROMOCHLOROMETHANE	μg/L μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1	1 U	1 U	1 U	1 U	1 U	1	1 U	1 U
DICHLORODIFLUOROMETHANE 1,1-DICHLOROETHANE	μg/L μg/L	1 U 1 U	1 U	1 U 1 U	1 U 1 U	1 U	1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U	1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U
1,1-DICHLOROETHENE 1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	μg/L μg/L	1 U 1 U	1 U	1 U	1 U	1 U 1 U	1 U	1 U	1 U	1 U 1 U	1 U	1 U	1 U	1 U 1 U	1 U	1 U	1 U
1,2-DICHLOROBENZENE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 UJ	1 UJ
1,2-DICHLOROETHANE 1,2-DICHLOROPROPANE	μg/L μg/L	1 U	1 U 1 U	1 U	1 U 1 U	1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U	1 U 1 U	1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U
1,3-DICHLOROBENZENE 1,4-DICHLOROBENZENE	μg/L μg/L	1 U 1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U 1 UJ	1 U	1 U	1 U
ETHYLBENZENE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2-HEXANONE IODOMETHANE (METHYL IODIDE)	μg/L μg/L	5 U 2 UJ	5 U 2 UJ	5 U 2 UJ	5 UJ 2 UJ	5 U 2 U	5 U 2 U	5 U 2 U	5 U 2 U	5 U 2 U	5 U 2 U	5 U 2 U	5 U 2 U	5 U 2 U	5 U 2 U	5 U 2 U	5 U 2 U
METHYLENE CHLORIDE STYRENE	μg/L μg/L	1 U 1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U 1 U	1 U	1 U	1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U
TETRACHLOROETHYLENE(PCE) TOLUENE	μg/L	1 U 1 U	1 U	1 U	1 U 1 U	1 U 1 U	1 U	1 U	1 U 1 U	1 U 1 U	1 U	1 U	1 U	1 U 1 U	1 U 1 U	1 U	1 U 1 U
trans-1,2-DICHLOROETHENE	μg/L μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
trans-1,3-DICHLOROPROPENE trans-1,4-DICHLORO-2-BUTENE	μg/L μg/L	1 U 4 UJ	1 U 4 UJ	1 U 4 UJ	1 U 4 UJ	1 U 4 U	1 U 4 U	1 U 4 U	1 U 4 U	1 U 4 U	1 U 4 U	1 U 4 U	1 U 4 U	1 U 4 U	1 U 4 U	1 U 4 U	1 U 4 U
TRICHLOROETHYLENE (TCE) TRICHLOROFLUOROMETHANE	μg/L μg/L	1 U 1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U
1,1,1-TRICHLOROETHANE 1,1,2,2-TETRACHLOROETHANE	μg/L μg/L	1 U 1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U 1 U	1 U	1 U	1 U
1,2,3-TRICHLOROPROPANE	μg/L	1 UJ	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
VINYL ACETATE VINYL CHLORIDE	μg/L μg/L	2 U 1 U	2 U 1 U	2 U 1 U	2 U 1 U	2 U 1 UJ	2 U 1 UJ	2 U 1 UJ	2 U 1 UJ	2 U 1 U	2 U 1 U	2 U 1 U	2 U 1 U	2 U 1 U	2 U 1 U	2 U 1 U	2 U 1 U
M,P-XYLENE (SUM OF ISOMERS) O-XYLENE (1,2-DIMETHYLBENZENE)	μg/L	2 U 1 U	2 U 1 U	2 U 1 U	2 U 1 U	2 U 1 U	2 U 1 U	2 U 1 U	2 U 1 U	2 U 1 U	2 U 1 U	2 U 1 U	2 U 1 U	2 U 1 U	2 U 1 U	2 U 1 U	2 U 1 U
XYLENES, TOTAL	μg/L μg/L	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Semi-volatile Organic Compounds ACETOPHENONE	μg/L	4 U	4.1 U	4.1 U	4.2 U	4.1 U	4.1 U	4.1 U	4.1 U	4 U	4.2 U	4.2 U	4.1 U	4.1 U	4.2 U	4.4 U	4 U
ANILINE (PHENYLAMINE, AMINOBENZENE) ARAMITE	μg/L μg/L	4 U 4 U	4.1 UJ 4.1 U	4.1 UJ 4.1 U	4.2 U 4.2 U	4.1 U 4.1 UJ	4.1 U 4.1 UJ	4.1 U 4.1 UJ	4.1 U 4.1 UJ	4 UJ 4 U	4.2 UJ 4.2 U	4.2 UJ 4.2 U	4.1 UJ 4.1 U	4.1 UJ 4.1 UJ	4.2 UJ 4.2 UJ	4.4 UJ 4.4 UJ	4 UJ 4 UJ
4-AMINOBIPHENYL (4-BIPHENYLAMINE) 2-ACETYLAMINOFLUORENE	μg/L	4 U 4 U	4.1 U 4.1 U	4.1 U 4.1 U	4.2 U 4.2 U	4.1 U 4.1 UJ	4.1 U 4.1 UJ	4.1 U 4.1 UJ	4.1 U 4.1 UJ	4 U 4 U	4.2 U 4.2 U	4.2 U 4.2 U	4.1 U 4.1 U	4.1 U 4.1 U	4.2 U 4.2 U	4.4 U 4.4 U	4 U 4 U
2-AMINONAPHTHALENE (BETA NAPHTHYLAMINE)	μg/L μg/L	4 U	4.1 U	4.1 U	4.2 U	4.1 U	4.1 U	4.1 U	4.1 U	4 U	4.2 U	4.2 U	4.1 U	4.1 U	4.2 U	4.4 U	4 U
BENZYL ALCOHOL BENZYL BUTYL PHTHALATE	μg/L μg/L	10 U 4 U	10.2 U 4.1 U	10.2 U 4.1 U	10.5 U 4.2 U	10.2 U 4.1 U	10.2 U 4.1 U	10.2 U 4.1 U	10.2 U 4.1 U	10.1 U 4 U	10.4 U 4.2 U	10.4 U 4.2 U	10.2 U 4.1 U	10.2 U 4.1 U	10.5 U 4.2 U	11.1 U 4.4 U	10 U 4 U
4-BROMOPHENYL PHENYL ETHER 4-CHLOROANILINE	μg/L μg/L	4 U 4 U	4.1 U 4.1 U	4.1 U 4.1 U	4.2 U 4.2 U	4.1 U 4.1 U	4.1 U 4.1 U	4.1 U 4.1 U	4.1 U 4.1 U	4 U 4 UJ	4.2 U 4.2 UJ	4.2 U 4.2 UJ	4.1 U 4.1 UJ	4.1 U 4.1 U	4.2 U 4.2 U	4.4 U 4.4 U	4 U 4 U
4-CHLOROPHENYL PHENYL ETHER 2-CHLORONAPHTHALENE	μg/L μg/L	4 U 4 U	4.1 U 4.1 U	4.1 U 4.1 U	4.2 U 4.2 U	4.1 U 4.1 U	4.1 U 4.1 U	4.1 U 4.1 U	4.1 U 4.1 U	4 U 4 U	4.2 U 4.2 U	4.2 U 4.2 U	4.1 U 4.1 U	4.1 U 4.1 U	4.2 U 4.2 U	4.4 U 4.4 U	4 U 4 U
2-CHLOROPHENOL 1.3-DINITROBENZENE	μg/L	4 U 20 U	4.1 U 20.5 U	4.1 U 20.5 U	4.2 U 21 U	4.1 U 20.5 UJ	4.1 U 20.5 UJ	4.1 U 20.5 UJ	4.1 U 20.5 UJ	4 U 20.2 U	4.2 U 20.8 U	4.2 U 20.8 U	4.1 U 20.4 U	4.1 U 20.5 U	4.2 U 21 U	4.4 U 22.2 U	4 U 20 U
2,4-DICHLOROPHENOL	μg/L μg/L	4 U	4.1 U	4.1 U	4.2 U	4.1 UJ	4.1 UJ	4.1 UJ	4.1 UJ	4 U	4.2 U	4.2 U	4.1 U	4.1 U	4.2 U	4.4 U	4 U
2,6-DICHLOROPHENOL 2,4-DIMETHYLPHENOL	μg/L μg/L	4 U 4 U	4.1 U 4.1 U	4.1 U 4.1 U	4.2 U 4.2 U	4.1 U 4.1 U	4.1 U 4.1 U	4.1 U 4.1 U	4.1 U 4.1 U	4 U 4 U	4.2 U 4.2 U	4.2 U 4.2 U	4.1 U 4.1 U	4.1 U 4.1 U	4.2 U 4.2 U	4.4 U 4.4 U	4 U 4 U
2,4-DINITROPHENOL 2.4-DINITROTOLUENE	μg/L μg/L	20 UJ 4 U	20.5 U 4.1 U	20.5 U 4.1 U	21 UJ 4.2 U	20.5 U 4.1 U	20.5 U 4.1 U	20.5 U 4.1 U	20.5 U 4.1 U	20.2 U 4 U	20.8 U 4.2 U	20.8 U 4.2 U	20.4 U 4.1 U	20.5 U 4.1 U	21 U 4.2 U	22.2 U 4.4 U	20 U 4 U
bis(2-CHLOROETHOXY) METHANE bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHER)	μg/L	4 U	4.1 U 4.1 U	4.1 U 4.1 U	4.2 U	4.1 U	4.1 U 4.1 U	4.1 U 4.1 U	4.1 U	4 U	4.2 U	4.2 U	4.1 U 4.1 U	4.1 U 4.1 U	4.2 U	4.4 U 4.4 U	4 U
bis(2-CHLOROISOPROPYL) ETHER	μg/L μg/L	4 U	4.1 U	4.1 U	4.2 U 4.2 U	4.1 U 4.1 U	4.1 U	4.1 U	4.1 U 4.1 U	4 U 4 U	4.2 U 4.2 U	4.2 U 4.2 U	4.1 U	4.1 UJ	4.2 U 4.2 UJ	4.4 UJ	4 UJ
CHLOROBENZILATE DIALLATE	μg/L μg/L	4 U 4 U	4.1 U 4.1 U	4.1 U 4.1 U	4.2 U 4.2 U	4.1 U 4.1 U	4.1 U 4.1 U	4.1 U 4.1 U	4.1 U 4.1 U	4 U 4 U	4.2 U 4.2 U	4.2 U 4.2 U	4.1 U 4.1 U	4.1 U 4.1 U	4.2 U 4.2 U	4.4 U 4.4 U	4 U 4 U
DIBENZOFURAN DIETHYL PHTHALATE	μg/L μg/L	4 U 4 U	4.1 U 4.1 U	4.1 U 4.1 U	4.2 U 4.2 U	4.1 U 4.1 U	4.1 U 4.1 U	4.1 U 4.1 U	4.1 U 4.1 U	4 UJ 4 U	4.2 UJ 4.2 U	4.2 UJ 4.2 U	4.1 UJ 4.1 U	4.1 U 4.1 U	4.2 U 4.2 U	4.4 U 4.4 U	4 U 4 U
DIMETHYL PHTHALATE DIMETHYL PHTHALATE DIMETHYLPHENYLETHYLAMINE	μg/L	4 U 20 R	4.1 U	4.1 U	4.2 U 21 R	4.1 U	4.1 U	4.1 U	4.1 U	4 U	4.2 U	4.2 U	4.1 U 20.4 UJ	4.1 U	4.2 U	4.4 U	4 U
7,12-DIMETHYLBENZ(a)ANTHRACENE	μg/L μg/L	4 U	20.5 R 4.1 U	20.5 R 4.1 U	4.2 U	20.5 UJ 4.1 U	20.5 UJ 4.1 U	20.5 UJ 4.1 U	20.5 UJ 4.1 U	20.2 UJ 4 U	20.8 UJ 4.2 U	20.8 UJ 4.2 U	4.1 U	20.5 UJ 4.1 U	21 UJ 4.2 U	22.2 UJ 4.4 U	20 UJ 4 U
p-DIMETHYLAMINOAZOBENZENE 3,3'-DICHLOROBENZIDINE	μg/L μg/L	4 U 4 U	4.1 U 4.1 U	4.1 U 4.1 U	4.2 U 4.2 U	4.1 U 4.1 U	4.1 U 4.1 U	4.1 U 4.1 U	4.1 U 4.1 U	4 U 4 U	4.2 U 4.2 U	4.2 U 4.2 U	4.1 U 4.1 U	4.1 U 4.1 U	4.2 U 4.2 U	4.4 U 4.4 U	4 U 4 U
3,3*-DIMETHYLBENZIDINE ETHYL METHANESULFONATE	μg/L	20 U	20.5 U	20.5 U	21 U 4.2 U	20.5 UJ	20.5 UJ	20.5 UJ	20.5 UJ	20.2 U	20.8 U	20.8 U	20.4 U	20.5 U	21 U 4.2 U	22.2 U	20 U
HEXACHLOROPROPENE	μg/L μg/L	4 U 4 U	4.1 U 4.1 U	4.1 U 4.1 U	4.2 U	4.1 U 4.1 U	4.1 U 4.1 U	4.1 U 4.1 U	4.1 U 4.1 U	4 U 4 UJ	4.2 U 4.2 UJ	4.2 U 4.2 UJ	4.1 U 4.1 UJ	4.1 U 4.1 U	4.2 U	4.4 U 4.4 U	4 U 4 U
ISODRIN ISOPHORONE	μg/L μg/L	4 U 4 U	4.1 U 4.1 U	4.1 U 4.1 U	4.2 U 4.2 U	4.1 U 4.1 U	4.1 U 4.1 U	4.1 U 4.1 U	4.1 U 4.1 U	4 U 4 U	4.2 U 4.2 U	4.2 U 4.2 U	4.1 U 4.1 U	4.1 U 4.1 U	4.2 U 4.2 U	4.4 U 4.4 U	4 U 4 U
ISOSAFROLE	μg/L	4 U	4.1 U	4.1 U	4.2 U	4.1 U	4.1 U	4.1 U	4.1 U	4 U	4.2 U	4.2 U	4.1 U	4.1 U	4.2 U	4.4 U	4 U

	Location:	LAKE	MW-1	MW-1	MW-2	LAKE	MW-1	MW-1	MW-2	LAKE	MW-1	MW-1	MW-2	LAKE	MW-1	MW-1	MW-2
	Event:	Baseline	Baseline	Baseline	Baseline	Event 1	Event 1	Event 1	Event 1	Event 2	Event 2	Event 2	Event 2	Event 3	Event 3	Event 3	Event 3
	SJRWMD No.:	None	S-0334	S-0334	S-0335	None	S-0334	S-0334	S-0335	None	S-0334	S-0334	S-0335	None	S-0334	S-0334	S-0335
	SampleID: DateCollected:	L0-00-Lake 13-Jul-05	L0-00-MW1 13-Jul-05	L0-00-Dupe 13-Jul-05	L0-00-MW2 12-Jul-05	L0-01-Lake 20-Jul-05	L0-01-MW1 21-Jul-05	L0-01-Dup 21-Jul-05	L0-01-MW-2 20-Jul-05	L0-02-LAKE 27-Jul-05	L0-01-MW-1 28-Jul-05	L0-01-DUPE 28-Jul-05	L0-02-MW2 27-Jul-05	LO-03-Lake 08-Aug-05	LO-03-MW1 09-Aug-05	LO-03-Dup 09-Aug-05	LO-03-MW-2 08-Aug-05
	Matrix:	Surface Water	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Surface Water	Groundwater	Groundwater	Groundwater	Surface Water	Groundwater	Groundwater	Groundwater
	SampleType:	Normal	Normal	Field Duplicate	Normal	Normal	Normal	Field Duplicate	Normal	Normal	Normal	Field Duplicate	Normal	Normal	Normal	Field Duplicate	Normal
Parameter Group and Name KEPONE	Unit	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual
METHAPYRILENE	μg/L μg/L	4.3 UJ 4.3 UJ	4.2 UJ 4.2 UJ	4.2 UJ 4.2 UJ	4 UJ	4.2 UJ 4.2 UJ	4 UJ 4 UJ	4 UJ 4 UJ	4.2 UJ 4.2 UJ	4 UJ 4 U	4 UJ	4 UJ 4 U	4 UJ 4 UJ	4.2 U	4.1 U 4.1 U	4.1 U	4.2 U 4.2 U
METHYL METHANESULFONATE	μg/L	21.6 UJ	21 UJ	21 UJ	20 U	21 UJ	20 U	20 U	21 UJ	20 U	20 U	20 U	20 U	21 U	20.5 U	20.5 U	21 U
2-METHYLNAPHTHALENE	μg/L	4.3 UJ	4.2 UJ	4.2 UJ	4 U	4.2 UJ	4 U	4 U	4.2 UJ	4 U	4 U	4 U	4 U	4.2 U	4.1 U	4.1 U	4.2 U
2-METHYLPHENOL (o-CRESOL) 3-METHYLCHOLANTHRENE	μg/L μg/L	4.3 UJ 4.3 UJ	4.2 UJ 4.2 UJ	4.2 UJ 4.2 UJ	2 U 4 U	4.2 UJ 4.2 UJ	4 UJ 4 UJ	4 UJ 4 UJ	4.2 UJ 4.2 UJ	4 U 4 U	4 U 4 U	4 U	4 U	4.2 U 4.2 U	4.1 U 4.1 U	4.1 U 4.1 U	4.2 U 4.2 U
4-METHYLPHENOL (p-CRESOL)	μg/L	10.8 UJ	10.5 UJ	10.5 UJ	5 U	10.5 UJ	10 UJ	10 UJ	10.5 UJ	10 U	10 U	10 U	10 U	10.5 U	10.2 U	10.2 U	10.5 U
1,4-NAPHTHOQUINONE	μg/L	4.3 UJ	4.2 UJ	4.2 UJ	4.1 R	4.2 UJ	4 R	4 R	4.2 UJ	4 UJ	4 UJ	4 UJ	4 UJ	4.2 U	4.1 UJ	4.1 UJ	4.2 U
1-NAPHTHYLAMINE 2-NITROANILINE	μg/L μg/L	10.8 UJ 4.3 UJ	10.5 UJ 4.2 UJ	10.5 UJ 4.2 UJ	10 U 4 U	10.5 UJ 4.2 UJ	10 U 4 U	10 U 4 U	10.5 UJ 4.2 UJ	10 U 4 U	10 U 4 U	10 U 4 U	10 U	10.5 U 4.2 U	10.2 U 4.1 UJ	10.2 U 4.1 UJ	10.5 U 4.2 U
3-NITROANILINE	μg/L	4.3 UJ	4.2 UJ	4.2 UJ	4 U	4.2 UJ	4 U	4 U	4.2 UJ	4 U	4 U	4 U	4 U	4.2 U	4.1 UJ	4.1 UJ	4.2 U
4-NITROANILINE	μg/L	4.3 UJ	4.2 UJ	4.2 UJ	4 U	4.2 UJ	4 U	4 U	4.2 UJ	4 U	4 U	4 U	4 U	4.2 U	4.1 U	4.1 U	4.2 U
4-NITROQUINOLINE-N-OXIDE 5-NITRO-o-TOLUIDINE	μg/L	21.6 UJ 4.3 UJ	21 UJ 4.2 UJ	21 UJ 4.2 UJ	20 U	21 UJ 4.2 UJ	20 UJ 4 U	20 UJ 4 U	21 UJ 4.2 UJ	20 UJ 4 UJ	20 UJ 4 UJ	20 UJ 4 UJ	20 UJ 4 UJ	21 U 4.2 U	20.5 U 4.1 UJ	20.5 U 4.1 UJ	21 U 4.2 U
N-NITROSO-DI-N-BUTYLAMINE	μg/L μg/L	4.3 UJ 4.3 UJ	4.2 UJ 4.2 UJ	4.2 UJ	4 U	4.2 UJ	4 U	4 U	4.2 UJ 4.2 UJ	4 UJ	4 UJ	4 UJ	4 UJ	4.2 U	4.1 UJ 4.1 U	4.1 UJ 4.1 U	4.2 U
N-NITROSODI-n-PROPYLAMINE	μg/L	4.3 UJ	4.2 UJ	4.2 UJ	4 U	4.2 UJ	4 U	4 U	4.2 UJ	4 U	4 U	4 U	4 U	4.2 U	4.1 U	4.1 U	4.2 U
N-NITROSODIETHYLAMINE	μg/L	4.3 UJ	4.2 UJ	4.2 UJ	4 U	4.2 UJ	4 U	4 U	4.2 UJ	4 U	4 U	4 U	4 U	4.2 U	4.1 U	4.1 U	4.2 U
N-NITROSODIMETHYLAMINE N-NITROSODIPHENYLAMINE	μg/L	4.3 UJ 4.3 UJ	4.2 UJ 4.2 UJ	4.2 UJ 4.2 UJ	4 U	4.2 UJ 4.2 UJ	4 U 4 U	4 U	4.2 UJ 4.2 UJ	4 U 4 U	4 U	4 U	4 U	4.2 U 4.2 U	4.1 U 4.1 U	4.1 U 4.1 U	4.2 U
N-NITROSOMORPHOLINE	μg/L μg/L	4.3 UJ 4.3 UJ	4.2 UJ 4.2 UJ	4.2 UJ 4.2 UJ	4 U	4.2 UJ 4.2 UJ	4 U	4 U	4.2 UJ 4.2 UJ	4 U	4 U	4 U	4 U	4.2 U	4.1 U 4.1 U	4.1 U 4.1 U	4.2 U 4.2 U
1,3,5-TRINITROBENZENE	μg/L	21.6 UJ	21 UJ	21 UJ	4 U	4.2 UJ	4 U	4 U	4.2 UJ	4 U	4 U	20 UJ	4 U	4.2 U	4.1 U	4.1 U	4.2 U
N-NITROSOPIPERIDINE	μg/L	4.3 UJ	4.2 UJ	4.2 UJ	20 U	21 UJ	20 UJ	20 UJ	21 UJ	20 UJ	20 UJ	4 U	20 UJ	21 U	20.5 U	20.5 U	21 U
N-NITROSOPYRROLIDINE NITROBENZENE	μg/L μg/L	4.3 UJ 4.3 UJ	4.2 UJ 4.2 UJ	4.2 UJ 4.2 UJ	4 U	4.2 UJ 4.2 UJ	4 U	4 U 4 U	4.2 UJ 4.2 UJ	4 U 4 U	4 U	4 U	4 U	4.2 U 4.2 U	4.1 U 4.1 U	4.1 U 4.1 U	4.2 U 4.2 U
NITROSOMETHYLETHYLAMINE	μg/L	4.3 UJ	4.2 UJ	4.2 UJ	4 U	4.2 UJ	4 U	4 U	4.2 UJ	4 U	4 U	4 U	4 U	4.2 U	4.1 U	4.1 U	4.2 U
O,O,O-TRIETHYL PHOSPHOROTHIOATE	μg/L	4.3 UJ	4.2 UJ	4.2 UJ	4 U	4.2 UJ	4 U	4 U	4.2 UJ	4 U	4 U	4 U	4 U	4.2 U	4.1 U	4.1 U	4.2 U
o-TOLUIDINE 2-PICOLINE (ALPHA-PICOLINE)	μg/L	4.3 UJ 21.6 UJ	4.2 UJ 21 UJ	4.2 UJ 21 UJ	4 U 20 U	4.2 UJ 21 UJ	4 U 20 U	4 U 20 U	4.2 UJ 21 UJ	4 U 20 U	4 U 20 U	4 U 20 U	4 U 20 U	4.2 U 21 U	4.1 U 20.5 U	4.1 U 20.5 U	4.2 U 21 U
p-PHENYLENEDIAMINE	μg/L μg/L	21.6 UJ	21 UJ	21 UJ	20 U	21 UJ	20 U	20 U	21 UJ	20 UJ	20 UJ	20 UJ	20 UJ	21 U	20.5 U	20.5 U	21 U
PENTACHLOROBENZENE	μg/L	4.3 UJ	4.2 UJ	4.2 UJ	4 U	4.2 UJ	4 U	4 U	4.2 UJ	4 U	4 U	4 U	4 U	4.2 U	4.1 U	4.1 U	4.2 U
PENTACHLOROETHANE PENTACHLORONITROBENZENE	μg/L	21.6 UJ 4.3 UJ	21 UJ 4.2 UJ	21 UJ 4.2 UJ	20.5 R	21 UJ 4.2 UJ	20 R 4 U	20 R 4 U	21 UJ 4.2 UJ	20 U 4 U.J	20 U 4 UJ	20 U 4 UJ	20 U 4 UJ	21 U 4.2 U	20.5 U 4.1 UJ	20.5 U 4.1 UJ	21 U 4.2 U
PENTACHLOROPHENOL	μg/L μg/L	4.3 UJ 21.6 UJ	21 UJ	4.2 UJ	10 U	4.2 UJ	20 UJ	20 UJ	21 UJ	20 U	20 U	20 U	20 U	21 UJ	20.5 U	20.5 U	21 UJ
PHENACETIN	μg/L	4.3 UJ	4.2 UJ	4.2 U	4 U	4.2 UJ	4 U	4 U	4.2 UJ	4 UJ	4 UJ	4 UJ	4 UJ	4.2 U	4.1 U	4.1 U	4.2 U
PHENOL	μg/L	21.6 UJ	21 UJ	21 UJ	10 U	21 UJ	20 UJ	20 UJ	21 UJ	20 U	20 U	20 U	20 U	21 U	20.5 U	20.5 U	21 U
PRONAMIDE PYRIDINE	μg/L μg/L	4.3 UJ 4.3 UJ	4.2 UJ 4.2 UJ	4.2 UJ 4.2 UJ	4 U	4.2 UJ 4.2 UJ	4 U 4 U	4 U 4 U	4.2 UJ 4.2 UJ	4 U.J	4 U 4 UJ	4 U 4 UJ	4 U.J	4.2 U 4.2 R	4.1 U 4.1 U	4.1 U 4.1 U	4.2 U 4.2 R
SAFROLE	μg/L	10.8 UJ	10.5 UJ	10.5 UJ	10 U	10.5 UJ	10 U	10 U	10.5 UJ	10 U	10 U	10 U	10 U	10.5 U	10.2 U	10.2 U	10.5 U
1,2,4,5-TETRACHLOROBENZENE	μg/L	4.3 UJ	4.2 UJ	4.2 UJ	4 U	4.2 UJ	4 U	4 U	4.2 UJ	4 U	4 U	4 U	4 U	4.2 U	4.1 U	4.1 U	4.2 U
2,3,4,6-TETRACHLOROPHENOL 1,2,4-TRICHLOROBENZENE	μg/L μg/L	4.3 UJ 4.3 UJ	4.2 UJ 4.2 UJ	4.2 UJ 4.2 UJ	2 U 4 U	4.2 UJ 4.2 UJ	4 UJ 4 U	4 UJ 4 U	4.2 UJ 4.2 UJ	4 UJ 4 U	4 UJ 4 U	4 UJ 4 U	4 UJ 4 U	4.2 U 4.2 U	4.1 UJ 4.1 U	4.1 UJ 4.1 U	4.2 U 4.2 U
2,4,5-TRICHLOROPHENOL	μg/L	4.3 UJ	4.2 UJ	4.2 UJ	2 U	4.2 UJ	4 UJ	4 UJ	4.2 UJ	4 U	4 U	4 U	4 U	4.2 U	4.1 U	4.1 U	4.2 U
2,4,6-TRICHLOROPHENOL	μg/L	4.3 UJ	4.2 UJ	4.2 UJ	2 U	4.2 UJ	4 UJ	4 UJ	4.2 UJ	4 U	4 U	4 U	4 U	4.2 U	4.1 U	4.1 U	4.2 U
Organochlorine Pesticides ALDRIN	μg/L	0.052 U	I 0.051 I ∪	0.051 I U	I 0.051I∪	0.058 U	0.051 UJ	0.051 ∪	I 0.05I∪	0.053 U	I 0.05 ∪	0.05∐∪	0.05 ∪	0.051 U	0.052 ∪	0.05 ∪	0.051 ∪
ALPHA-CHLORDANE	μg/L	0.052 U	0.051 U	0.051 U	0.051 U	0.058 UJ	0.051 UJ	0.051 UJ	0.05 UJ	0.053 U	0.05 U	0.05 U	0.05 U	0.051 U	0.052 U	0.05 U	0.051 U
GAMMA-CHLORDANE	μg/L	0.052 U	0.051 U	0.051 U	0.051 U	0.058 U	0.051 UJ	0.051 UJ	0.05 U	0.053 U	0.05 UJ	0.05 UJ	0.05 U	0.051 U	0.052 U	0.05 U	0.051 U
ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE)	μg/L	0.052 UJ	0.051 UJ	0.051 UJ	0.051 UJ	0.058 U	0.051 UJ 0.051 UJ	0.051 U	0.05 U	0.053 U	0.05 U	0.05 U 0.05 U	0.05 U	0.051 U	0.052 U	0.05 U 0.05 U	0.051 U
BETA BHC (BETA HEXACHLOROCYCLOHEXANE) DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE)	μg/L μg/L	0.052 U 0.052 UJ	0.051 U 0.051 UJ	0.051 U 0.051 UJ	0.051 U 0.051 UJ	0.058 U 0.058 U	0.051 UJ 0.051 UJ	0.051 U 0.051 U	0.05 U 0.05 U	0.053 U 0.053 U	0.05 U 0.05 U	0.05 U 0.05 U	0.05 U 0.05 U	0.051 UJ 0.051 U	0.052 U 0.052 U	0.05 U 0.05 U	0.051 UJ 0.051 U
GAMMA BHC (LINDANE)	μg/L	0.052 U	0.051 U	0.051 U	0.051 U	0.058 U	0.051 UJ	0.051 U	0.05 U	0.053 U	0.05 U	0.05 U	0.05 U	0.051 U	0.052 U	0.05 U	0.051 U
DIELDRIN	μg/L	0.052 U	0.051 U	0.051 U	0.051 U	0.058 U	0.051 UJ	0.051 U	0.05 ∪	0.053 U	0.05 ∪	0.05 ∪	0.05 ∪	0.051 U	0.052 U	0.05 ∪	0.051 U
ALPHA ENDOSULFAN	μg/L	0.052 U	0.051 U	0.051 U	0.051 U	0.058 U	0.051 UJ	0.051 U	0.05 U	0.053 U	0.05 U	0.05 U	0.05 U	0.051 U	0.052 U	0.05 U	0.051 U
BETA ENDOSULFAN ENDOSULFAN SULFATE	μg/L μg/L	0.052 U 0.052 U	0.051 U 0.051 U	0.051 U 0.051 U	0.051 U 0.051 U	0.058 UJ 0.058 U	0.051 UJ 0.051 UJ	0.051 U 0.051 U	0.05 U 0.05 U	0.053 U 0.053 U	0.05 U 0.05 U	0.05 U 0.05 U	0.05 U 0.05 U	0.051 U 0.051 U	0.052 U 0.052 U	0.05 U 0.05 U	0.051 U 0.051 U
ENDRIN	μg/L	0.052 U	0.051 U	0.051 U	0.051 U	0.058 U	0.051 UJ	0.051 U	0.05 U	0.053 U	0.05 U	0.05 U	0.05 U	0.051 U	0.052 U	0.05 U	0.051 U
ENDRIN ALDEHYDE	μg/L	0.052 U	0.051 U	0.051 U	0.051 U	0.058 UJ	0.051 UJ	0.051 UJ	0.05 UJ	0.053 U	0.05 UJ	0.05 UJ	0.05 U	0.051 UJ	0.052 U	0.05 U	0.051 UJ
ENDRIN KETONE HEPTACHLOR	μg/L μg/L	0.052 U 0.052 U	0.051 U 0.051 U	0.051 U 0.051 U	0.051 U 0.051 U	0.058 U 0.058 U	0.051 UJ 0.051 R	0.051 U 0.051 B	0.05 U 0.05 U	0.053 U 0.053 U	0.05 U 0.05 U	0.05 U 0.05 U	0.05 U 0.05 U	0.051 U 0.051 U	0.052 U 0.052 U	0.05 U 0.05 U	0.051 U 0.051 U
HEPTACHLOR EPOXIDE	μg/L	0.052 U	0.051 U	0.051 U	0.051 U	0.058 U	0.051 N 0.051 UJ	0.051 U	0.05 U	0.053 U	0.05 U	0.05 U	0.05 U	0.051 U	0.052 U	0.05 U	0.051 U
p,p'-DDD	μg/L	0.052 U	0.051 U	0.051 U	0.051 U	0.058 U	0.051 UJ	0.051 U	0.05 U	0.053 U	0.05 U	0.05 U	0.05 U	0.051 U	0.052 U	0.05 U	0.051 U
p,p'-DDE	μg/L	0.052 U	0.051 U	0.051 U	0.051 U	0.058 U	0.051 UJ	0.051 UJ	0.05 U	0.053 U	0.05 U	0.05 U	0.05 U	0.051 U	0.052 U	0.05 U	0.051 U
p,p'-DDT METHOXYCHLOR	μg/L μg/L	0.052 UJ 0.052 U	0.051 UJ 0.051 U	0.051 UJ 0.051 U	0.051 UJ 0.051 U	0.058 U 0.058 UJ	0.051 UJ 0.051 UJ	0.051 U 0.051 UJ	0.013 J 0.05 UJ	0.053 U 0.053 U	0.05 U 0.05 UJ	0.05 U 0.05 UJ	0.05 U 0.05 U	0.051 U 0.051 UJ	0.052 U 0.052 U	0.05 U 0.05 U	0.051 U 0.051 UJ
TOXAPHENE	μg/L	0.52 U	0.51 U	0.51 U	0.51 U	0.58 U	0.51 UJ	0.51 U	0.5 U	0.53 U	0.5 U	0.5 U	0.5 U	0.51 U	0.52 U	0.5 U	0.51 U
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	Location:	LAKE	MW-1	MW-1	MW-2	LAKE	MW-1	MW-1	MW-2	LAKE	MW-1	MW-1	MW-2	LAKE	MW-1	MW-1	MW-2
	Event:	Event 4	Event 4	Event 4	Event 4	Event 5	Event 5	Event 5	Event 5	Event 6	Event 6	Event 6	Event 6	Event 7	Event 7	Event 7	Event 7
	SJRWMD No.:	None	S-0334	S-0334	S-0335	None	S-0334	S-0334	S-0335	None	S-0334	S-0334	S-0335	None	S-0334	S-0334	S-0335
	SampleID: DateCollected:	LO-04-LAKE 07-Sep-05	LO-04-01 08-Sep-05	LO-04-Dupe 08-Sep-05	LO-04-02 07-Sep-05	LO-05-LAKE 05-Oct-05	LO-05-01 05-Oct-05	LO-05-DUPE 05-Oct-05	LO-05-02 05-Oct-05	LO-06-LAKE 31-Oct-05	LO-06-01 31-Oct-05	LO-06-DUP 31-Oct-05	LO-06-02 31-Oct-05	LO-07-LAKE 05-Dec-05	LO-07-01 05-Dec-05	LO-07-Dupe 05-Dec-05	LO-07-02 05-Dec-05
	Matrix:	Surface Water	Groundwater	Groundwater	Groundwater	Surface Water	Groundwater	Groundwater	Groundwater	Surface Water	Groundwater	Groundwater	Groundwater	Surface Water	Groundwater	Groundwater	Groundwater
	SampleType:	Normal	Normal	Field Duplicate	Normal	Normal	Normal	Field Duplicate	Normal	Normal	Normal	Field Duplicate	Normal	Normal	Normal	Field Duplicate	Normal
Parameter Group and Name	Unit	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual								
KEPONE METHAPYRILENE	μg/L μg/L	4 U 4 H	4.1 UJ 4.1 U	4.1 UJ 4.1 I I	4.2 U 4.2 U	4.1 UJ 4.1 UJ	4.1 UJ 4.1 I.I	4.1 UJ 4.1 I.I	4.1 UJ 4.1 II.I	4 U 4 H	4.2 U 4.2 U	4.2 U 4.2 U	4.1 U	4.1 U 4.1 I I	4.2 U 4.2 U	4.4 U	4 U
METHYL METHANESULFONATE	μg/L	20 U	20.5 U	20.5 U	21 U	20.5 U	20.5 U	20.5 U	20.5 U	20.2 U	20.8 U	20.8 U	20.4 U	20.5 U	21 U	22.2 U	20 U
2-METHYLNAPHTHALENE	μg/L	4 U	4.1 U	4.1 U	4.2 U	4.1 U	4.1 U	4.1 U	4.1 U	4 U	4.2 U	4.2 U	4.1 U	4.1 U	4.2 U	4.4 U	4 U
2-METHYLPHENOL (o-CRESOL)	μg/L	4 U	4.1 U	4.1 U	4.2 U	4.1 U	4.1 U	4.1 U	4.1 U	4 UJ	4.2 UJ	4.2 UJ	4.1 UJ	4.1 U	4.2 U	4.4 U	4 U
3-METHYLCHOLANTHRENE 4-METHYLPHENOL (p-CRESOL)	μg/L	4 U 10 U	4.1 U 10.2 U	4.1 U 10.2 U	4.2 U 10.5 U	4.1 U 10.2 U	4.1 U 10.2 U	4.1 U 10.2 U	4.1 U 10.2 U	4 U 10.1 UJ	4.2 U 10.4 UJ	4.2 U 10.4 UJ	4.1 U 10.2 UJ	4.1 U 10.2 U	4.2 U 10.5 U	4.4 U 11.1 U	4 U 10 U
1,4-NAPHTHOQUINONE	μg/L μg/L	4 U	4.1 U	4.1 U	4.2 U	4.1 U	4.1 U	4.1 U	4.1 U	4 UJ	4.2 U	4.2 U	4.1 U	4.1 U	4.2 U	4.4 U	4 U
1-NAPHTHYLAMINE	μg/L	10 U	10.2 U	10.2 U	10.5 U	10.2 U	10.2 U	10.2 U	10.2 U	10.1 U	10.4 U	10.4 U	10.2 U	10.2 U	10.5 U	11.1 U	10 U
2-NITROANILINE	μg/L	4 U	4.1 U	4.1 U	4.2 U	4.1 U	4.1 U	4.1 U	4.1 U	4 U	4.2 U	4.2 U	4.1 U	4.1 U	4.2 U	4.4 U	4 U
3-NITROANILINE 4-NITROANILINE	μg/L	4 U	4.1 U	4.1 U 4.1 I I	4.2 U	4.1 U 4.1 II	4.1 U 4.1 II	4.1 U 4.1 II	4.1 U 4.1 U	4 U	4.2 U	4.2 U	4.1 U 4.1 II	4.1 U 4.1 II	4.2 U	4.4 U 4.4 II	4 U
4-NITROANILINE 4-NITROQUINOLINE-N-OXIDE	μg/L	20 UJ	4.1 U 20.5 U	20.5 U	4.2 U 21 UJ	4.1 U 20.5 UJ	20.5 UJ	20.5 UJ	20.5 UJ	20.2 UJ	4.2 U 20.8 UJ	4.2 U 20.8 UJ	20.4 UJ	4.1 U 20.5 UJ	4.2 U 21 UJ	4.4 U 22.2 UJ	20 UJ
5-NITRO-0-TOLUIDINE	μg/L μg/L	4 U	4.1 U	4.1 U	4.2 U	4.1 U	4.1 U	4.1 U	4.1 U	4 U	4.2 U	4.2 U	4.1 U	4.1 U	4.2 U	4.4 U	4 U
N-NITROSO-DI-N-BUTYLAMINE	μg/L	4 U	4.1 U	4.1 U	4.2 U	4.1 U	4.1 U	4.1 U	4.1 U	4 U	4.2 U	4.2 U	4.1 U	4.1 U	4.2 U	4.4 U	4 U
N-NITROSODI-n-PROPYLAMINE	μg/L	4 U	4.1 U	4.1 U	4.2 U	4.1 U	4.1 U	4.1 U	4.1 U	4 U	4.2 U	4.2 U	4.1 U	4.1 U	4.2 U	4.4 U	4 U
N-NITROSODIETHYLAMINE N-NITROSODIMETHYLAMINE	μg/L	4 U 4 U	4.1 U 4.1 U	4.1 U 4.1 U	4.2 U 4.2 U	4.1 U 4.1 U	4.1 U 4.1 U	4.1 U 4.1 U	4.1 U 4.1 U	4 U 4 U	4.2 U 4.2 U	4.2 U 4.2 U	4.1 U 4.1 U	4.1 U 4.1 U	4.2 U 4.2 U	4.4 U 4.4 U	4 U
N-NITROSODIMETHYLAMINE N-NITROSODIPHENYLAMINE	μg/L	4 U	4.1 UJ	4.1 U	4.2 U	4.1 U 4.1 U	4.1 U	4.1 U	4.1 U	4 U	4.2 U	4.2 U	4.1 U	4.1 U 4.1 II	4.2 U	4.4 U	4 U
N-NITROSOMORPHOLINE	μg/L μg/L	4 U	4.1 U	4.1 U	4.2 U	4.1 U	4.1 U	4.1 U	4.1 U	4 U	4.2 U	4.2 U	4.1 U	4.1 U	4.2 U	4.4 U	4 U
1,3,5-TRINITROBENZENE	μg/L	4 U	4.1 U	4.1 U	4.2 U	20.5 U	20.5 U	20.5 U	20.5 U	20.2 U	20.8 U	20.8 U	20.4 U	20.5 UJ	21 UJ	22.2 UJ	20 UJ
N-NITROSOPIPERIDINE	μg/L	20 U	20.5 U	20.5 U	21 U	4.1 U	4.1 U	4.1 U	4.1 U	4 U	4.2 U	4.2 U	4.1 U	4.1 U	4.2 U	4.4 U	4 U
N-NITROSOPYRROLIDINE NITROBENZENE	μg/L	4 U 4 U	4.1 U 4.1 U	4.1 U 4.1 U	4.2 U 4.2 U	4.1 U 4.1 U	4.1 U 4.1 U	4.1 U 4.1 U	4.1 U 4.1 U	4 U 4 U	4.2 U 4.2 U	4.2 U 4.2 U	4.1 U 4.1 U	4.1 U 4.1 U	4.2 U 4.2 U	4.4 U 4.4 U	4 U
NITROSOMETHYLETHYLAMINE	μg/L μg/L	4 UJ	4.1 U	4.1 UJ	4.2 UJ	4.1 U	4.10	4.1 U	4.1 U	4 U	4.2 U	4.2 U	4.1 U	4.1 0	4.2 U	4.4 U	4 U
O,O,O-TRIETHYL PHOSPHOROTHIOATE	μg/L	4 U	4.1 U	4.1 U	4.2 U	4.1 U	4.1 U	4.1 U	4.1 U	4 U	4.2 U	4.2 U	4.1 U	4.1 U	4.2 U	4.4 U	4 U
o-TOLUIDINE	μg/L	4 U	4.1 U	4.1 U	4.2 U	4.1 U	4.1 U	4.1 U	4.1 U	4 U	4.2 U	4.2 U	4.1 U	4.1 U	4.2 U	4.4 U	4 U
2-PICOLINE (ALPHA-PICOLINE)	μg/L	20 U	20.5 U	20.5 U	21 U	20.5 U	20.5 U	20.5 U	20.5 U	20.2 U	20.8 U	20.8 U	20.4 U	20.5 U	21 U	22.2 U	20 U
p-PHENYLENEDIAMINE PENTACHLOROBENZENE	μg/L μg/L	20 U	20.5 U 4.1 U	20.5 U 4.1 U	21 U 4.2 U	20.5 U 4.1 U	20.5 U 4.1 U	20.5 U	20.5 U 4.1 U	20.2 U 4 U	20.8 U 4.2 U	20.8 U 4.2 U	20.4 U	20.5 U 4.1 U	21 U 4.2 U	22.2 U 4.4 U	20 U 4 U
PENTACHLOROETHANE	μg/L	20 U	20.5 U	20.5 U	21 U	20.5 U	20.5 U	20.5 U	20.5 U	20.2 U	20.8 U	20.8 U	20.4 U	20.5 U	21 U	22.2 U	20 U
PENTACHLORONITROBENZENE	μg/L	4 U	4.1 U	4.1 U	4.2 U	4.1 U	4.1 U	4.1 U	4.1 U	4 U	4.2 U	4.2 U	4.1 U	4.1 U	4.2 U	4.4 U	4 U
PENTACHLOROPHENOL	μg/L	20 UJ	20.5 U	20.5 U	21 UJ	20.5 UJ	20.5 UJ	20.5 UJ	20.5 UJ	20.2 U	20.8 U	20.8 U	20.4 U	20.5 U	21 U	22.2 U	20 U
PHENACETIN PHENOI	μg/L	4 U 20 U	4.1 U 20.5 U	4.1 U 20.5 U	4.2 U 21 U	4.1 U 20.5 U	4.1 U 20.5 U	4.1 U 20.5 U	4.1 U 20.5 U	4 U 20.2 U	4.2 U 20.8 U	4.2 U 20.8 U	4.1 U 20.4 U	4.1 U 20.5 U	4.2 U 21 U	4.4 U 22.2 U	4 U 20 U
PRONAMIDE	μg/L μg/L	4 U	4.1 U	4.1 U	4.2 U	4.1 U	4.1 U	4.1 U	4.1 U	20.2 U	4.2 U	4.2 U	4.1 U	4.1 U	4.2 U	4.4 U	4 U
PYRIDINE	μg/L	4 U	4.1 U	4.1 U	4.2 U	4.1 UJ	4.1 UJ	4.1 UJ	4.1 UJ	4 UJ	4.2 UJ	4.2 UJ	4.1 UJ	4.1 U	4.2 U	4.4 U	4 U
SAFROLE	μg/L	10 U	10.2 U	10.2 U	10.5 U	10.2 U	10.2 U	10.2 U	10.2 U	10.1 U	10.4 U	10.4 U	10.2 U	10.2 U	10.5 U	11.1 U	10 U
1,2,4,5-TETRACHLOROBENZENE 2,3,4,6-TETRACHLOROPHENOL	μg/L	4 U 4 UJ	4.1 U 4.1 UJ	4.1 U 4.1 UJ	4.2 U 4.2 UJ	4.1 U 4.1 U	4.1 U 4.1 U	4.1 U 4.1 U	4.1 U 4.1 U	4 U 4 U	4.2 U 4.2 U	4.2 U 4.2 U	4.1 U 4.1 U	4.1 U 4.1 UJ	4.2 U 4.2 UJ	4.4 U 4.4 UJ	4 U 4 UJ
1,2,4-TRICHLOROBENZENE	μg/L μg/L	4 03 4 B	4.1 U	4.1 U	4.2 UJ 4.2 R	4.1 U	4.1 U	4.1 U	4.1 U	4 U	4.2 U	4.2 U	4.1 U	4.1 U	4.2 U	4.4 U	4 U
2,4,5-TRICHLOROPHENOL	μg/L	4 U	4.1 U	4.1 U	4.2 U	4.1 U	4.1 U	4.1 U	4.1 U	4 U	4.2 U	4.2 U	4.1 U	4.1 U	4.2 U	4.4 U	4 U
2,4,6-TRICHLOROPHENOL	μg/L	4 U	4.1 U	4.1 U	4.2 U	4.1 U	4.1 U	4.1 U	4.1 U	4 U	4.2 U	4.2 U	4.1 U	4.1 U	4.2 U	4.4 U	4 U
Organochlorine Pesticides ALDRIN	μg/L	0.01 U	I 0.01 I ∪	0.01 U	I 0.01I∪	0.05 U	I 0.051 I ∪	0.05 ∪	I 0.05I∪	0.051 U	I 0.051Ĭ∪	I 0.051I∪	I 0.051I∪	0.051 U	0.051 ∪	l 0.05l∪	0.05 ∪
ALPHA-CHLORDANE	μg/L	0.01 U	0.01 U	0.01 U	0.01 U	0.05 U	0.051 U	0.05 U	0.05 U	0.051 U	0.051 U	0.051 U	0.051 U	0.051 U	0.051 U	0.05 U	0.05 U
GAMMA-CHLORDANE	μg/L	0.01 U	0.01 U	0.01 U	0.01 U	0.05 U	0.051 U	0.05 U	0.05 U	0.051 U	0.051 U	0.051 U	0.051 U	0.051 U	0.051 U	0.05 U	0.05 U
ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE)	μg/L	0.01 U	0.01 U	0.01 U	0.01 U	0.05 U	0.051 U	0.05 U	0.05 U	0.051 U	0.051 U	0.051 U	0.051 U	0.051 U	0.051 U	0.05 ∪	0.05 U
BETA BHC (BETA HEXACHLOROCYCLOHEXANE)	μg/L	0.01 U	0.01 U	0.01 U	0.01 U	0.05 U	0.051 U	0.05 U	0.05 U	0.051 U	0.051 U	0.051 U	0.051 U	0.051 U	0.051 U	0.05 U	0.05 U
DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE) GAMMA BHC (LINDANE)	μg/L μg/L	0.01 U 0.01 U	0.01 U 0.01 U	0.01 U 0.01 U	0.01 U 0.01 U	0.05 U 0.05 U	0.051 U 0.051 U	0.05 U 0.05 U	0.05 U 0.05 U	0.051 U 0.051 U	0.051 U 0.051 U	0.051 U 0.051 U	0.051 U 0.051 U	0.051 U 0.051 U	0.051 U 0.051 U	0.05 U 0.05 U	0.05 U 0.05 U
DIELDRIN	μg/L μg/L	0.01 U	0.01 U	0.01 U	0.01 U	0.05 U	0.051 U	0.05 U	0.05 U	0.051 U	0.051 U	0.051 U	0.051 U	0.051 U	0.051 U	0.05 U	0.05 U
ALPHA ENDOSULFAN	μg/L	0.01 U	0.01 U	0.01 U	0.01 U	0.05 U	0.051 U	0.05 U	0.05 U	0.051 U	0.051 U	0.051 U	0.051 U	0.051 U	0.051 U	0.05 U	0.05 U
BETA ENDOSULFAN	μg/L	0.01 U	0.01 U	0.01 U	0.01 U	0.05 U	0.051 U	0.05 U	0.05 U	0.051 U	0.051 U	0.051 U	0.051 U	0.051 U	0.051 U	0.05 U	0.05 U
ENDOSULFAN SULFATE ENDRIN	μg/L	0.01 U 0.01 U	0.01 U	0.01 U 0.01 U	0.01 U	0.05 U	0.051 U 0.051 U	0.05 U	0.05 U	0.051 U 0.051 U	0.051 U	0.051 U 0.051 U	0.051 U 0.051 U	0.051 U	0.051 U	0.05 U	0.05 U
ENDRIN ALDEHYDE	μg/L μg/L	0.01 U 0.01 UJ	0.01 U 0.01 UJ	0.01 U 0.01 UJ	0.01 U 0.01 UJ	0.05 U 0.05 U	0.051 U 0.051 U	0.05 U 0.05 U	0.05 U 0.05 U	0.051 U 0.051 U	0.051 U 0.051 U	0.051 U 0.051 U	0.051 U 0.051 U	0.051 U 0.051 U	0.051 U 0.051 U	0.05 U 0.05 U	0.05 U 0.05 U
ENDRIN KETONE	μg/L	0.01 U	0.01 UJ	0.01 UJ	0.01 U	0.05 U	0.051 U	0.05 U	0.05 U	0.051 U	0.051 U	0.051 U	0.051 U	0.051 U	0.051 U	0.05 U	0.05 U
HEPTACHLOR	μg/L	0.01 U	0.01 U	0.01 U	0.01 U	0.05 U	0.051 U	0.05 U	0.05 U	0.051 U	0.051 U	0.051 U	0.051 U	0.051 U	0.051 U	0.05 U	0.05 U
HEPTACHLOR EPOXIDE	μg/L	0.01 U	0.01 U	0.01 U	0.01 U	0.05 U	0.051 U	0.05 U	0.05 U	0.051 U	0.051 U	0.051 U	0.051 U	0.051 U	0.051 U	0.05 U	0.05 U
p,p'-DDD	μg/L	0.01 U	0.01 U	0.0026 J	0.01 U	0.05 U	0.051 U	0.05 U	0.05 U	0.051 U	0.051 U	0.051 U	0.051 U	0.051 U	0.051 U	0.05 U	0.05 U
p,p'-DDE p,p'-DDT	μg/L μg/L	0.01 U 0.01 UJ	0.01 U 0.01 UJ	0.01 U 0.0057 J	0.01 U 0.01 UJ	0.05 U 0.05 U	0.051 U 0.051 U	0.05 U 0.05 U	0.05 U 0.05 U	0.051 U 0.051 U	0.051 U 0.051 U	0.051 U 0.051 U	0.051 U 0.051 U	0.051 U 0.051 U	0.051 U 0.051 U	0.05 U 0.05 U	0.05 U 0.05 U
METHOXYCHLOR	μg/L	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.05 U	0.051 U	0.05 U	0.05 U	0.051 U	0.051 U	0.051 U	0.051 U	0.051 U	0.051 U	0.05 U	0.05 U
TOXAPHENE	μg/L	0.1 U	0.1 UJ	0.1 UJ	0.1 U	0.5 U	0.51 U	0.5 U	0.5 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.5 U	0.5 U
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	Location:	LAKE	MW-1	MW-1	MW-2	LAKE	MW-1	MW-1	MW-2	LAKE	MW-1	MW-1	MW-2	LAKE	MW-1	MW-1	MW-2
	Event:	Baseline	Baseline	Baseline	Baseline	Event 1	Event 1	Event 1	Event 1	Event 2	Event 2	Event 2	Event 2	Event 3	Event 3	Event 3	Event 3
	SJRWMD No.:		S-0334			None	S-0334	S-0334	S-0335		S-0334	S-0334			S-0334	S-0334	S-0335
	SampleID:	None L0-00-Lake	L0-00-MW1	S-0334 L0-00-Dupe	S-0335 L0-00-MW2	L0-01-Lake	L0-01-MW1	L0-01-Dup	L0-01-MW-2	None L0-02-LAKE	L0-01-MW-1	L0-01-DUPE	S-0335 L0-02-MW2	None LO-03-Lake	LO-03-MW1	LO-03-Dup	LO-03-MW-2
	DateCollected:	13-Jul-05	13-Jul-05	13-Jul-05	12-Jul-05	20-Jul-05	21-Jul-05	21-Jul-05	20-Jul-05	27-Jul-05	28-Jul-05	28-Jul-05	27-Jul-05	08-Aug-05	09-Aug-05	09-Aug-05	08-Aug-05
	Matrix:	Surface Water	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Surface Water	Groundwater	Groundwater	Groundwater	Surface Water	Groundwater	Groundwater	Groundwater
	SampleType:	Normal	Normal	Field Duplicate	Normal	Normal	Normal	Field Duplicate	Normal	Normal	Normal	Field Duplicate	Normal	Normal	Normal	Field Duplicate	Normal
Parameter Group and Name	Unit	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual
Organophosphorous Pesticides	O.I.I.	7100011 Quai	riocait daa.	riobalt qua	Tiodait Quai	riocai qua	Tiodan Quai	riodan daar	riocan qua	Tioodit Quai	riocait dad	riodan quai	riocait dadi	1100an Godi	7100011 Quai	1100uit Quai	rioduit duai
ATRAZINE	μg/L	5.2 U	5.1 U	5 U	5 U	5.4 U	5.1 U	5.2 U	5.3 U	5.2 U	5 U	5 U	5 U	5.3 U	5.1 U	5.1 U	5.4 U
AZINPHOS, METHYL (GUTHION)	μg/L	5.2 U	5.1 U	5 U	5 U	5.4 U	5.1 U	5.2 U	5.3 U	5.2 U	5 U	5 U	5 U	5.3 U	5.1 U	5.1 U	5.4 U
BOLSTAR	μg/L	5.2 U	5.1 U	5 U	5 U	5.4 U	5.1 U	5.2 U	5.3 U	5.2 U	5 U	5 U	5 U	5.3 U	5.1 U	5.1 U	5.4 U
CHLORPYRIFOS	μg/L	5.2 U	5.1 U	5 U	5 U	5.4 U	5.1 U	5.2 U	5.3 U	5.2 U	5 U	5 U	5 U	5.3 U	5.1 U	5.1 U	5.4 U
COUMAPHOS	μg/L	5.2 U	5.1 U	5 U	5 U	5.4 U	5.1 U	5.2 U	5.3 U	5.2 U	5 U	5 U	5 U	5.3 U	5.1 U	5.1 U	5.4 U
DEMETON-O	μg/L	5.2 U	5.1 U	5 U	5 U	5.4 U	5.1 U	5.2 U	5.3 U	5.2 U	5 U	5 U	5 U	5.3 U	5.1 U	5.1 U	5.4 U
DEMETON-S	μg/L	5.2 U	5.1 U	5 U	5 U	5.4 U	5.1 U	5.2 U	5.3 U	5.2 U	5 U	5 U	5 U	5.3 U	5.1 U	5.1 U	5.4 U
DIAZINON	μg/L	5.2 U	5.1 U	5 U	5 U	5.4 U	5.1 U	5.2 U	5.3 U	5.2 UJ	5 U	5 U	5 UJ	5.3 U	5.1 UJ	5.1 UJ	5.4 U
DICHLORVOS	μg/L	5.2 U	5.1 U	5 U	5 U	5.4 UJ	5.1 UJ	5.2 UJ	5.3 UJ	5.2 UJ	5 UJ	5 UJ	5 UJ	5.3 U	5.1 UJ	5.1 UJ	5.4 U
DIMETHOATE	μg/L	5.2 U	5.1 U	5 U	5 U	5.4 U	5.1 U	5.2 U	5.3 U	5.2 U	5 U	5 U	5 U	5.3 U	5.1 U	5.1 U	5.4 U
DISULFOTON	μg/L	5.2 U	5.1 U	5 U	5 U	5.4 U	5.1 U	5.2 U	5.3 ∪	5.2 U	5 U	5 U	5 U	5.3 U	5.1 U	5.1 U	5.4 U
ETHOPROP	μg/L	5.2 U	5.1 U	5 U	5 U	5.4 U	5.1 U	5.2 U	5.3 UJ	5.2 U	5 U	5 U	5 U	5.3 U	5.1 U	5.1 U	5.4 ∪
FAMPHUR	μg/L	5.2 U	5.1 U	5 U	5 U	5.4 U	5.1 U	5.2 U	5.3 U	5.2 U	5 U	5 U	5 U	5.3 U	5.1 U	5.1 U	5.4 U
FENSULFOTHION	μg/L	5.2 U	5.1 U	5 U	5 U	5.4 U	5.1 U	5.2 U	5.3 U	5.2 U	5 U	5 U	5 U	5.3 U	5.1 U	5.1 U	5.4 U
FENTHION	μg/L	5.2 U	5.1 U	5 U	5 U	5.4 U	5.1 U	5.2 U	5.3 U	5.2 U	5 U	5 U	5 U	5.3 R	5.1 U	5.1 U	5.4 R
MERPHOS	μg/L	5.2 U	5.1 U	5 ∪	5 U	5.4 U	5.1 U	5.2 U	5.3 ∪	5.2 U	5 ∪	5 ∪	5 U	5.3 U	5.1 U	5.1 U	5.4 ∪
MEVINPHOS	μg/L	5.2 U	5.1 U	5 U	5 U	5.4 UJ	5.1 UJ	5.2 UJ	5.3 UJ	5.2 U	5 UJ	5 UJ	5 U	5.3 U	5.1 U	5.1 U	5.4 U
NALED	μg/L	5.2 UJ	5.1 UJ	5 UJ	5 UJ	5.4 UJ	5.1 UJ	5.2 U	5.3 UJ	5.2 U	5 UJ	5 UJ	5 U	5.3 U	5.1 U	5.1 U	5.4 U
PARATHION, ETHYL	μg/L	5.2 U	5.1 U	5 U	5 U	5.4 U	5.1 U	5.2 U	5.3 UJ	5.2 U	5 U	5 U	5 U	5.3 U	5.1 U	5.1 U	5.4 U
PARATHION, METHYL	μg/L	5.2 U	5.1 U	5 U	5 U	5.4 U	5.1 U	5.2 U	5.3 U	5.2 U	5 U	5 U	5 U	5.3 U	5.1 U	5.1 U	5.4 U
PHORATE	μg/L	5.2 U	5.1 U	5 U	5 U	5.4 UJ	5.1 UJ	5.2 UJ	5.3 UJ	5.2 U	5 UJ	5 UJ	5 U	5.3 U	5.1 U	5.1 U	5.4 U
RONNEL	μg/L	5.2 U	5.1 U	5 U	5 U	5.4 UJ	5.1 UJ	5.2 UJ	5.3 UJ	5.2 U	5 U	5 U	5 U	5.3 U	5.1 U	5.1 U	5.4 U
SIMAZINE	μg/L	5.2 U	5.1 U	5 U	5 U	5.4 U	5.1 U	5.2 U	5.3 U	5.2 U	5 U	5 U	5 U	5.3 U	5.1 U	5.1 U	5.4 U
STIROFOS (TETRACHLORVINPHOS)	μg/L	5.2 U	5.1 U	5 U	5 U	5.4 U	5.1 U	5.2 U	5.3 U	5.2 UJ	5 U	5 U	5 UJ	5.3 U	5.1 UJ	5.1 UJ	5.4 U
THIODIPHOSPHORIC ACID TETRAETHYL ESTER	μg/L	5.2 U	5.1 U	5 U	5 U	5.4 UJ	5.1 UJ	5.2 UJ	5.3 UJ	5.2 U	5 U	5 U	5 U	5.3 U	5.1 U	5.1 U	5.4 U
TOKUTHION (PROTHIOFOS)	μg/L	5.2 U	5.1 U	5 U	5 U	5.4 U	5.1 U	5.2 U	5.3 U	5.2 U	5 U	5 U	5 U	5.3 U	5.1 U	5.1 U	5.4 U
TRICHLORONATE	μg/L	5.2 U	5.1 U	5 U	5 U	5.4 U	5.1 U	5.2 U	5.3 U	5.2 U	5 U	5 U	5 U	5.3 U	5.1 U	5.1 U	5.4 U
ZINOPHOS	μg/L	5.2 U	5.1 U	5 U	5 U	5.4 U	5.1 U	5.2 U	5.3 U	5.2 U	5 U	5 U	5 U	5.3 U	5.1 U	5.1 U	5.4 U
Polychlorinated biphenols (PCBs)		0.50	l a saluu	I osilii l	0.54	0.50 111	l osilii	l asilii	l a shiii	0.50	o elu	l a elu	l a slu	0.54111	o solu	l oslu	L o selve
PCB-1016 (AROCHLOR 1016)	μg/L	0.52 UJ	0.51 UJ	0.51 UJ	0.51 UJ	0.58 UJ	0.51 U	0.51 U	0.5 UJ	0.53 U	0.5 U	0.5 U	0.5 U	0.51 U	0.52 U	0.5 U	0.51 U
PCB-1221 (AROCHLOR 1221)	μg/L	0.52 U	0.51 U	0.51 U	0.51 U	0.58 U	0.51 U	0.51 U	0.5 U	0.53 U	0.5 U	0.5 U	0.5 U	0.51 U	0.52 U	0.5 U	0.51 U
PCB-1232 (AROCHLOR 1232)	μg/L	0.52 U	0.51 U	0.51 U	0.51 U	0.58 U	0.51 U	0.51 U	0.5 U	0.53 U	0.5 U	0.5 U	0.5 U	0.51 U	0.52 ∪	0.5 U	0.51 U
PCB-1242 (AROCHLOR 1242)	μg/L	0.52 U	0.51 U	0.51 U	0.51 U	0.58 U	0.51 U	0.51 U	0.5 U	0.53 U	0.5 U	0.5 U	0.5 U	0.51 U	0.52 U	0.5 U	0.51 U
PCB-1248 (AROCHLOR 1248)	μg/L	0.52 U	0.51 U	0.51 U	0.51 U	0.58 U	0.51 U	0.51 U	0.5 U	0.53 U	0.5 U	0.5 U	0.5 U	0.51 U	0.52 U	0.5 U	0.51 U
PCB-1254 (AROCHLOR 1254)	μg/L	0.52 U	0.51 U	0.51 U	0.51 U	0.58 U	0.51 U	0.51 U	0.5 U	0.53 U	0.5 U	0.5 U	0.5 U	0.51 UJ	0.52 UJ	0.5 UJ	0.51 UJ
PCB-1260 (AROCHLOR 1260)	μg/L	0.52 U	0.51 U	0.51 U	0.51 U	0.58 U	0.51 U	0.51 U	0.5 U	0.53 U	0.5 U	0.5 U	0.5 U	0.51 U	0.52 ∪	0.5 U	0.51 U
Herbicides		1			111						1			1			
2,4,5-T (TRICHLOROPHENOXYACETIC ACID)	μg/L	0.53 U	0.51 U	0.52 U	0.51 U	0.5 UJ	0.5 UJ	0.53 U	0.52 UJ	0.54 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.51 U	0.5 U
2,4-D (DICHLOROPHENOXYACETIC ACID) DALAPON	μg/L	0.53 U	0.51 U	0.52 U	0.51 U	0.5 U	0.5 U	0.53 U 0.66 U	0.52 U	0.54 UJ	0.5 U	0.5 U 0.62 U	0.5 U	0.5 U	0.5 U	0.51 U 0.63 U	0.5 U 0.63 U
	μg/L	0.66 UJ	0.64 UJ	0.65 UJ	0.64 UJ	0.62 U	0.62 U		0.64 U	0.68 UJ	0.62 U		0.62 U	0.63 U	0.62 U		
DICAMBA DICHLOROPROP	μg/L	0.53 U 0.53 U	0.51 U 0.51 U	0.52 U 0.52 U	0.51 U 0.51 U	0.5 UJ 0.5 U	0.5 U 0.5 U	0.53 UJ 0.53 U	0.52 UJ 0.52 U	0.54 UJ 0.54 UJ	0.5 U 0.5 U	0.5 UJ 0.5 U	0.5 U 0.5 U	0.5 U 0.5 U	0.5 U 0.5 U	0.51 U 0.51 U	0.5 U 0.5 U
DINOSEB	μg/L				0.51 U	0.5 U	0.5 U	0.53 U		0.54 UJ			0.5 U		0.5 U	0.51 U	0.5 U
PICLORAM	μg/L	0.53 U	0.51 U	0.52 U					0.52 U	0.54 UJ	0.5 U	0.5 U		0.5 U			
SILVEX (2,4,5-TP)	μg/L	0.53 U 0.53 U	0.51 U 0.51 U	0.52 U 0.52 U	0.51 U 0.51 U	0.5 U 0.5 UJ	0.5 U 0.5 UJ	0.53 U 0.53 U	0.52 U 0.52 UJ	0.54 UJ	0.5 U 0.5 U	0.5 U 0.5 U	0.5 U 0.5 U	0.5 U 0.5 U	0.5 U 0.5 U	0.51 U 0.51 U	0.5 U 0.5 U
OILVLA (2,4,0"TF)	μg/L	0.55 0	0.51	0.52 0	0.31 0	0.5 0.5	0.5 00	0.55	0.32 00	0.54 0.0	0.5 0	0.5 0	0.50	0.5 0	0.5 0	0.31 0	0.50

Notes:
Shaded cells with bolded values represent detections equal to or above promulgated regulatory criteria. Shaded and boxed cells represent detections equal to or above Risk-Based Criteria.

Shaded cells with bolded and boxed values represent detections equal to or above promulgated regulatory and Risk-Based Criteria.

Shaded cells with bolded and boxed values represent detections equal to or above promulgated regulatory and Risk-Based Cri
Bolded values represent reporting limits equal or above promulgated regulatory criteria.

Boxed values represent reporting limits equal or above promulgated regulatory criteria and Risk-Based Criteria.

Bolded and boxed values represent reporting limits equal or above promulgated regulatory criteria and Risk-Based Criteria.

Explanation of Qualifiers

"=" Represents a detection at the value shown

"U" Represents an estimated value between the method detection limit and the practical quantitation limit.

"U" Represents a nondetection above the value shown

R" Represents a nondetection above the value shown

R" Represents rejected data

Blanks for the criteria and screening values represent no established values.

Explanation of Units

pCi/L - picoCuries per liter

NTU - Nephelometric Turbidity Units

µg/L - micrograms per liter

- Sources:

 1 Florida Ground Water Guidance Concentrations, 62-520.400 FAC, June 2, 1994: Chapter 62-550 Drinking Water Standards, Monitoring and Reporting, April 10, 2003

- Printing Water Regulations and Health Advisories, Office of Water, USEPA, October 1996.

 3 Brownfield's Cleanup Criteria Rule, Groundwater Cleanup Target Levels, Draft Chapter 62-785 F.A.C., 1997.

 4 EPA Region III Risk-Based Concentration Table, Tap Water Values, R.L. Smith, October 1997.

 5 EPA Region IV Supplemental Guidance to RAGS: Region 4 Bulletins, Human Health Risk Assessment, November 1995; HQ=0.1 applied to noncarcinogens.

Definitions:
MCL - Maximum Contaminant Level
SMCL - Secondary MCL
GCTL - Groundwater Cleanup Target Level
LY/PQ - Low Yield/Poor Quality
RBC - Risk-based Concentration

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	Location:	LAKE	MW-1	MW-1	MW-2	LAKE	MW-1	MW-1	MW-2	LAKE	MW-1	MW-1	MW-2	LAKE	MW-1	MW-1	MW-2
	Event:	Event 4	Event 4	Event 4	Event 4	Event 5	Event 5	Event 5	Event 5	Event 6	Event 6	Event 6	Event 6	Event 7	Event 7	Event 7	Event 7
	SJRWMD No.:	None	S-0334	S-0334	S-0335	None	S-0334	S-0334	S-0335	None	S-0334	S-0334	S-0335	None	S-0334	S-0334	S-0335
	SampleID:	LO-04-LAKE	LO-04-01	LO-04-Dupe	LO-04-02	LO-05-LAKE	LO-05-01	LO-05-DUPE	LO-05-02	LO-06-LAKE	LO-06-01	LO-06-DUP	LO-06-02	LO-07-LAKE	LO-07-01	LO-07-Dupe	LO-07-02
	DateCollected:	07-Sep-05	08-Sep-05	08-Sep-05	07-Sep-05	05-Oct-05	05-Oct-05	05-Oct-05	05-Oct-05	31-Oct-05	31-Oct-05	31-Oct-05	31-Oct-05	05-Dec-05	05-Dec-05	05-Dec-05	05-Dec-05
	Matrix:	Surface Water	Groundwater	Groundwater	Groundwater	Surface Water	Groundwater	Groundwater	Groundwater	Surface Water	Groundwater	Groundwater	Groundwater	Surface Water	Groundwater	Groundwater	Groundwater
	SampleType:	Normal	Normal	Field Duplicate	Normal	Normal	Normal	Field Duplicate	Normal	Normal	Normal	Field Duplicate	Normal	Normal	Normal	Field Duplicate	Normal
Parameter Group and Name	Unit	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual
Organophosphorous Pesticides																	
ATRAZINE	μg/L	5 U	5 U	5.2 U	5 U	5.1 U	5.1 U	5.1 U	5.1 U	5 U	5 U	5 U	5 U	5.1 UJ	5.3 U	5.3 U	5.1 U
AZINPHOS, METHYL (GUTHION)	μg/L	5 U	5 U	5.2 U	5 U	5.1 U	5.1 U	5.1 U	5.1 U	5 U	5 U	5 U	5 U	5.1 UJ	5.3 U	5.3 U	5.1 U
BOLSTAR	μg/L	5 U	5 U	5.2 U	5 U	5.1 U	5.1 U	5.1 U	5.1 U	5 U	5 U	5 U	5 U	5.1 UJ	5.3 UJ	5.3 UJ	5.1 UJ
CHLORPYRIFOS	μg/L	5 U	5 U	5.2 U	5 U	5.1 U	5.1 U	5.1 U	5.1 U	5 U	5 U	5 U	5 U	5.1 U	5.3 U	5.3 U	5.1 U
COUMAPHOS	μg/L	5 U	5 U	5.2 U	5 U	5.1 U	5.1 U	5.1 U	5.1 U	5 U	5 U	5 U	5 U	5.1 UJ	5.3 UJ	5.3 UJ	5.1 UJ
DEMETON-O	μg/L	5 U	5 U	5.2 U	5 U	5.1 U	5.1 U	5.1 U	5.1 U	5 U	5 U	5 U	5 U	5.1 U	5.3 U	5.3 U	5.1 U
DEMETON-S	μg/L	5 U	5 U	5.2 U	5 U	5.1 U	5.1 U	5.1 U	5.1 U	5 U	5 U	5 U	5 U	5.1 UJ	5.3 UJ	5.3 UJ	5.1 UJ
DIAZINON	μg/L	5 U	5 U	5.2 U	5 U	5.1 U	5.1 U	5.1 U	5.1 U	5 U	5 U	5 U	5 U	5.1 UJ	5.3 U	5.3 U	5.1 U
DICHLORVOS	μg/L	5 U	5 U	5.2 U	5 U	5.1 U	5.1 U	5.1 ∪	5.1 ∪	5 UJ	5 UJ	5 UJ	5 UJ	5.1 UJ	5.3 U	5.3 ∪	5.1 U
DIMETHOATE	μg/L	5 U	5 U	5.2 U	5 U	5.1 U	5.1 U	5.1 U	5.1 U	5 U	5 U	5 U	5 U	5.1 U	5.3 U	5.3 U	5.1 U
DISULFOTON	μg/L	5 U	5 U	5.2 U	5 U	5.1 U	5.1 U	5.1 U	5.1 U	5 U	5 U	5 U	5 U	5.1 UJ	5.3 UJ	5.3 UJ	5.1 UJ
ETHOPROP	μg/L	5 U	5 U	5.2 U	5 U	5.1 U	5.1 U	5.1 U	5.1 U	5 U	5 U	5 U	5 U	5.1 UJ	5.3 UJ	5.3 UJ	5.1 UJ
FAMPHUR	μg/L	5 U	5 U	5.2 U	5 U	5.1 U	5.1 U	5.1 U	5.1 U	5 U	5 U	5 U	5 U	5.1 U	5.3 U	5.3 U	5.1 U
FENSULFOTHION	μg/L	5 U	5 U	5.2 U	5 U	5.1 U	5.1 U	5.1 U	5.1 U	5 U	5 U	5 U	5 U	5.1 UJ	5.3 U	5.3 U	5.1 U
FENTHION	μg/L	5 U	5 U	5.2 U	5 U	5.1 U	5.1 U	5.1 U	5.1 U	5 U	5 U	5 U	5 U	5.1 U	5.3 U	5.3 U	5.1 U
MERPHOS	μg/L	5 U	5 U	5.2 U	5 U	5.1 U	5.1 U	5.1 U	5.1 U	5 U	5 U	5 U	5 U	5.1 UJ	5.3 UJ	5.3 UJ	5.1 UJ
MEVINPHOS	μg/L	5 U	5 U	5.2 U	5 U	5.1 U	5.1 U	5.1 U	5.1 U	5 U	5 U	5 U	5 U	5.1 U	5.3 U	5.3 U	5.1 U
NALED	μg/L	5 U	5 U	5.2 U	5 U	5.1 U	5.1 U	5.1 U	5.1 U	5 U	5 U	5 U	5 U	5.1 U	5.3 U	5.3 U	5.1 U
PARATHION, ETHYL	μg/L	5 U	5 U	5.2 U	5 U	5.1 U	5.1 U	5.1 U	5.1 U	5 U	5 U	5 U	5 U	5.1 UJ	5.3 UJ	5.3 UJ	5.1 UJ
PARATHION, METHYL	μg/L	5 U	5 U	5.2 U	5 U	5.1 UJ	5.1 UJ	5.1 UJ	5.1 UJ	5 U	5 U	5 U	5 U	5.1 U	5.3 U	5.3 U	5.1 U
PHORATE	μg/L	5 U	5 U	5.2 U	5 U	5.1 U	5.1 U	5.1 U	5.1 U	5 U	5 U	5 U	5 U	5.1 UJ	5.3 UJ	5.3 UJ	5.1 UJ
RONNEL	μg/L	5 U	5 U	5.2 U	5 U	5.1 U	5.1 U	5.1 U	5.1 UJ	5 U	5 U	5 U	5 U	5.1 U	5.3 U	5.3 U	5.1 U
SIMAZINE	μg/L	5 U	5 U	5.2 U	5 U	5.1 U	5.1 U	5.1 U	5.1 U	5 U	5 U	5 U	5 U	5.1 UJ	5.3 U	5.3 U	5.1 U
STIROFOS (TETRACHLORVINPHOS)	μg/L	5 U	5 U	5.2 U	5 U	5.1 U	5.1 U	5.1 U	5.1 U	5 U	5 U	5 U	5 U	5.1 U	5.3 U	5.3 U	5.1 U
THIODIPHOSPHORIC ACID TETRAETHYL ESTER	μg/L	5 U	5 U	5.2 U	5 U	5.1 U	5.1 U	5.1 U	5.1 U	5 U	5 U	5 U	5 U	5.1 UJ	5.3 UJ	5.3 UJ	5.1 UJ
TOKUTHION (PROTHIOFOS)	μg/L	5 U	5 U	5.2 U	5 U	5.1 U	5.1 U	5.1 U	5.1 U	5 U	5 U	5 U	5 U	5.1 UJ	5.3 UJ	5.3 UJ	5.1 UJ
TRICHLORONATE	μg/L	5 U	5 U	5.2 U	5 U	5.1 U	5.1 U	5.1 U	5.1 U	5 U	5 U	5 U	5 U	5.1 UJ	5.3 UJ	5.3 UJ	5.1 UJ
ZINOPHOS	μg/L	5 U	5 U	5.2 U	5 U	5.1 U	5.1 U	5.1 U	5.1 U	5 U	5 U	5 U	5 U	5.1 U	5.3 U	5.3 U	5.1 U
Polychlorinated biphenols (PCBs)																	
PCB-1016 (AROCHLOR 1016)	μg/L	0.51 U	0.51 U	0.51 U	0.51 U	0.5 UJ	0.51 UJ	0.5 UJ	0.5 UJ	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.5 U	0.5 U
PCB-1221 (AROCHLOR 1221)	μg/L	0.51 U	0.51 U	0.51 U	0.51 U	0.5 U	0.51 U	0.5 U	0.5 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.5 U	0.5 U
PCB-1232 (AROCHLOR 1232)	μg/L	0.51 U	0.51 U	0.51 U	0.51 U	0.5 U	0.51 U	0.5 U	0.5 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.5 U	0.5 U
PCB-1242 (AROCHLOR 1242)	μg/L	0.51 U	0.51 U	0.51 U	0.51 U	0.5 U	0.51 U	0.5 U	0.5 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.5 U	0.5 U
PCB-1248 (AROCHLOR 1248)	μg/L	0.51 U	0.51 U	0.51 U	0.51 U	0.5 U	0.51 U	0.5 U	0.5 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.5 U	0.5 U
PCB-1254 (AROCHLOR 1254)	μg/L	0.51 U	0.51 U	0.51 U	0.51 U	0.5 U	0.51 U	0.5 U	0.5 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.5 U	0.5 U
PCB-1260 (AROCHLOR 1260)	μg/L	0.51 U	0.51 U	0.51 U	0.51 U	0.5 U	0.51 ∪	0.5 U	0.5 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.5 U	0.5 U
Herbicides																	
2,4,5-T (TRICHLOROPHENOXYACETIC ACID)	μg/L	0.5 UJ	0.51 U	0.51 U	0.53 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.51 U	0.5 U	0.5 U	0.5 U	0.51 U	0.51 U	0.51 U	0.51 U
2,4-D (DICHLOROPHENOXYACETIC ACID)	μg/L	0.5 U	0.51 U	0.51 U	0.53 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.51 U	0.5 U	0.5 U	0.5 U	0.51 U	0.51 U	0.51 U	0.51 U
DALAPON	μg/L	0.62 UJ	0.64 U	0.64 U	0.66 UJ	0.62 UJ	0.62 UJ	0.62 UJ	0.62 UJ	0.64 UJ	0.62 UJ	0.62 UJ	0.62 UJ	0.64 U	0.64 U	0.64 U	0.64 U
DICAMBA	μg/L	0.5 UJ	0.51 U	0.51 U	0.53 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.51 U	0.5 U	0.5 U	0.5 U	0.51 U	0.51 U	0.51 U	0.51 U
DICHLOROPROP	μg/L	0.5 U	0.51 U	0.51 U	0.53 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.51 U	0.5 U	0.5 U	0.5 U	0.51 U	0.51 U	0.51 U	0.51 U
DINOSEB	μg/L	0.5 U	0.51 U	0.51 U	0.53 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.51 U	0.5 U	0.5 U	0.5 U	0.51 U	0.51 U	0.51 U	0.51 U
PICLORAM	μg/L	0.5 U	0.51 U	0.51 U	0.53 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.51 U	0.5 U	0.5 U	0.5 U	0.51 U	0.51 U	0.51 U	0.51 U
SILVEX (2,4,5-TP)	μg/L	0.5 U	0.51 U	0.51 U	0.53 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.51 U	0.5 U	0.5 U	0.5 U	0.51 U	0.51 U	0.51 U	0.51 U

Notes:
Shaded cells with bolded values represent detections equal to or above promulgated regulatory criteria.
Shaded and boxed cells represent detections equal to or above Risk-Based Criteria.

Shaded cells with bolded and boxed values represent detections equal to or above promulgated regulatory and Risk-Based Cri
Bolded values represent reporting limits equal or above promulgated regulatory criteria.

Boxed values represent reporting limits equal or above promulgated regulatory criteria and Risk-Based Criteria.

Bolded and boxed values represent reporting limits equal or above promulgated regulatory criteria and Risk-Based Criteria.

Explanation of Qualifiers

"=" Represents a detection at the value shown

"U" Represents an estimated value between the method detection limit and the practical quantitation limit.

"U" Represents a nondetection above the value shown

R" Represents a nondetection above the value shown

R" Represents rejected data

Blanks for the criteria and screening values represent no established values.

Explanation of Units

pCi/L - picoCuries per liter

NTU - Nephelometric Turbidity Units

µg/L - micrograms per liter Shaded cells with bolded and boxed values represent detections equal to or above promulgated regulatory and Risk-Based Criteria.

- Sources:

 1 Florida Ground Water Guidance Concentrations, 62-520.400 FAC, June 2, 1994: Chapter 62-550 Drinking Water Standards, Monitoring and Reporting, April 10, 2003

- Printing Water Regulations and Health Advisories, Office of Water, USEPA, October 1996.

 3 Brownfield's Cleanup Criteria Rule, Groundwater Cleanup Target Levels, Draft Chapter 62-785 F.A.C., 1997.

 4 EPA Region III Risk-Based Concentration Table, Tap Water Values, R.L. Smith, October 1997.

 5 EPA Region IV Supplemental Guidance to RAGS: Region 4 Bulletins, Human Health Risk Assessment, November 1995; HQ=0.1 applied to noncarcinogens.

Definitions:
MCL - Maximum Contaminant Level
SMCL - Secondary MCL
GCTL - Groundwater Cleanup Target Level
LY/PQ - Low Yield/Poor Quality
RBC - Risk-based Concentration

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Table 3. Microbial Analyses Results Lake Orienta Site

	Site Location	Lake	MW-1	MW-2	Lake	MW-1	MW-2	Lake	MW-1	MW-2	Lake	MW-1	MW-2	Lake	MW-1	MW-2	Lake	MW-1	MW-2	Lake	MW-1	MW-2	Lake	MW-1	MW-2
	Event SJRWMD No.:	Baseline None	Baseline S-0334	Baseline S-0335	Event 1 None	Event 1 S-0334	Event 1 S-0335	Event 2 None	Event 2 S-0334	Event 2 S-0335	Event 3 None	Event 3 S-0334	Event 3 S-0335	Event 4 None	Event 4 S-0334	Event 4 S-0335	Event 5 None	Event 5 S-0334	Event 5 S-0335	Event 6 None	Event 6 S-0334	Event 6 S-0335	Event 7 None	Event 7 S-0334	Event 7 S-0335
	SOLIVATOR NO.	None	3-0004	3-0003	None	3-0334	3-0000	None	3-0004	3-0000	LO-03-03	LO-03-01	LO-03-02	None	3-0334	3-0333	None	3-0334	3-0333	None	3-0334	3-0000	None	3-0004	3-0333
	Sample ID		LO-00-MW1		LO-01-Lake		LO-01-MW2	LO-02-Lake		LO-02-MW2	Lake	MW1	MW2	LO-04-03	LO-04-01	LO-04-02	LO-05-03	LO-05-01	LO-05-02	LO-06-03	LO-06-01	LO-06-02	L0-07-03	L0-07-01	L0-07-02
	Date Collected Unit	7/11/2005	7/11/2005	7/11/2005	7/20/2005	7/20/2005	7/20/2005	7/27/2005	7/27/2005	7/27/2005	8/8/2005	8/8/2005	8/8/2005	9/7/2005	9/7/2005	9/7/2005	10/6/2005	10/6/2005	10/6/2005	10/31/2005	10/31/2005	10/31/2005	12/6/2005	12/6/2005	12/6/2005
Volume Collected	Liters	27.6	98.41	99.5	27.75	98.8	98.41	27.25	99.17	99.17	27.25	31.8	99.2	27	99.17	98.41	13.25	98.41	98.41	7.95	102.2	98.41	11.7	98.41	98.41
Sample Volume																									
Examined Method	Liters	8.625 Filtering	24.6 Filtering	37.3 Filtering	10.41 Filtering	37.05 Filtering	36.9 Filtering	11.9 Filtering	37.2 Filtering	37.2 Filtering	12.9 Filtering	11.9 Filtering	36.1 Filtering	12.66 Filtering	37.2 Filtering	36.9 Filtering	7.6 Filtering	36.9 Filtering	36.9 Filtering	2.96 Filtering	57.5 Filtering	36.9 Filtering	10.97 Filtering	36.9 Filtering	36.9 Filtering
Turbidity (Lab.)	NTU	6.23			6.5	_		6.1	1.26		9.0	2.13	0.34	6.25	1.36	0.49	6.42	1.12	0.91	6.54		0.67	10.6	0.18	0.45
Sample										-															
Temperature upon																	_	_	_						
arrival Cooler	°C	17	1/	1/	17	17	1/	8	8	8	8	8	8	7.5	7.5	7.5	5	5	5	6.9	6.9	6.9	5.9	5.9	5.9
Temperature	℃	no data no data	no data	no data	3	2	3	4	4	4	3	3	3	5.4	5.4	5.4	0.8	0.8	0.8						
Organism								,																	
Bacteria	0511/4001	400b			0.7	0 00b	0 ob	40	0.7	0.00	oob	0.0	0.0	4 400 ^b	o ooab	0.00	050	→ →b	0.00	000	0.40	2.00	4.47	0.00	20
Total Coliform Fecal Coliform	CFU/100mL CFU/100mL	103 ^b			27 32		2.6° <0.1	48 42	2.7 <0.09		90° 65°	0.6 <0.4 ^a	<0.2 <0.2	1400° 833°	0.09 ^{ab} 0.65 ^b	<0.09 <0.09	853 237	7.7° <0.09	<0.09 <0.09	360 290		<0.09 <0.33	147 60	0.09 <0.09	<0.09
E.coli ^c	CFU/100mL	21 ^b			15 ^a		<0.1	33	<0.09		50 ^b	<0.4ª	<0.2	167 ^b	<0.09	<0.09	70 ^b	<0.09	<0.09	23			47	<0.09	<0.09
Enterococci	CFU/100mL	36,000	<3	<3	2.7 ^b	0.28 ^b	<0.1	33	0.18	<0.09	20.5	0.09 ^{ab}	0.83	3633	<0.09	<0.09	570	<0.09	<0.09	52.7	0.37 ^b	<0.9	95	<0.09	0.19
Virus																									
Coliphage (<i>E.coli</i> C3000 host)	pfu/100 mL	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Coliphage	pia/100 iii2													110											
(E.coli p(Famp)R																									
host) Parasites	pfu/100 mL	<9.5	<9.5	<9.5	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
1 diasites	Total Organisms																								
	Detected	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Number with	0		_			0		0		0		0		0	0	0	0	0			0	0		0
	Internal Features Equivalent	0	U	0	-	U	U	U	U	U	U	U	0	U	U	U	U	U	U	U	U	U	U	U	
Giardia	Concentration																								
Giaiuia	(oo)cysts/100L	<11.6	<4.07	<2.70	<9.61	<2.70	<2.71	<8.40	<2.7	<2.7	<7.8	<8.4	<2.77	<7.9	<2.69	<2.71	<13.2	<2.71	<2.71	<33.6	<1.74	<2.71	<9.1	<2.71	<2.71
	Equivalent																								
	Concentration with																								
	internal structure																								
	(oo)cysts/100L	<11.6	<4.07	<2.70	<9.61	<2.70	<2.71	<8.40	<2.7	<2.7	<7.8	<8.4	<2.77	<7.9	<2.69	<2.71	<13.2	<2.71	<2.71	<33.6	<1.74	<2.71	<9.1	<2.71	<2.71
	Total Organisms Detected	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0
	Number with					,		- J			0				-								J		
	Internal Features	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0
	Equivalent																								
Cryptosporidium	Concentration (oo)cysts/100L	<11.6	<4.07	<2.70	<9.61	<2.70	<2.71	<8.40	<2.7	<2.7	<7.8	<8.4	<2.77	7.9	<2.69	<2.71	13.2	<2.71	<2.71	<33.6	<1.74	<2.71	<9.1	<2.71	<2.71
	(11)1)310,1002	1.7.0	107	12.70	10.01	12.70		10.10			10	30.1		7.0	12.00	3=.71	.5.2		/ I	,,,,,,	51171	3=.71		3=17 1	<u> </u>
	Equivalent																								
	Concentration with internal structure																								
	(oo)cysts/100L	<11.6	<4.07	<2.70	<9.61	<2.70	<2.71	<8.40	<2.7	<2.7	<7.8	<8.4	<2.77	7.9	<2.69	<2.71	13.2	<2.71	<2.71	<33.6	<1.74	<2.71	<9.1	<2.71	<2.71
					-			-				-						-						-	

Notes:

Problem with media batch - Positive control failure

a Qualified data - data from one plate

Dualified data - less than 20 colonies per plate

Filter transferred from fecal coliform (mFC agar) plates to *E.coli* (EC with MUG agar) plates

cfu - Colony forming units pfu - plaque forming units

¹ Indicator Guidelines for Ambient Surface Water Quality (used for Class III Waters)

Total Coliforms State of Florida guidelines for a single sample 1000 cfu/100mL, average of 400 cfu/100mL

Fecal Coliforms EPA and the state of Florida recommended guidelines for a single sample of 800 cfu/100 mL, for a geometric mean, 200 cfu/100 mL

E.coli EPA recommended guideline for a geometric mean sample 126 cfu/100 mL

Enterococci EPA recommended guidelines for a single sample of 104 cfu/100 mL, for a geometric mean , 33-35 cfu/100 mL for marine and fresh water respectively.

Coliphage Level used - 100 pfu/100 mL based on previous research by Dr. Joan Rose, USF

Lake Orienta Screening Table final.xls, Microbial Data by Event

CFARE Status Report No. 10

Status Report No. 10 – Central Florida Aquifer Recharge Enhancement Program, Artificial Recharge Well Study

Introduction

This report provides Status Report No. 10 for the Central Florida Aquifer Recharge Enhancement Program, Artificial Recharge Well Study. The reports are issued at project milestones. The last report was April 24, 2006. Status Report No. 9 provided the results of the Baseline Characterization and the Operational Characterization tasks of the project conducted at the Lake Orienta site in Altamonte Springs, Florida. This status report presents comparison and contrasts of the sites and results of project activities. The project progress and schedule are presented in Table 1.

TABLE 1 Project Tasks, Progress, and Schedule

Task	Site and Type of	of Recharge Well
	Festival Park	Lake Orienta
	Direct Runoff	Lake-Level Control
Literature Review	Completed	Completed
Dry Period Characterization	N/A	Completed
Water Supply Well Survey	Completed	Completed
Groundwater Tracer Test	Completed	Completed
Baseline Characterization	Completed	Completed
Operational Site Characterization	Completed	Completed
Enhanced Treatment Site Characterization	Not recommended	Not recommended
Final Report	(2006)	(2006)

The overriding observations from this project are

- The recharge well systems at the two locations have been operating for 40 to 60 years implying that these results are indicative of groundwater conditions resulting from long-term recharge of surface water.
- The recharge wells at Festival Park receive flow in direct response to rainfall, with an
 observed component of baseflow. The recharge wells at Lake Orienta receive flow in
 response to the lake level rising to above the inlets. Flow at Lake Orienta tends to be more
 steady and seasonal with the period of August through October being the most active
 time.

- 2 orders-of-magnitude and up to 6 orders-of-magnitude reductions in bacteria concentrations were observed from source locations to monitoring wells that were demonstrated to be in hydraulic connection with the recharge wells.
- Arsenic from the monitoring well samples showed concentrations up to approximately 20 micrograms per liter ($\mu g/L$) and greater than the Drinking Water Standard (DWS) of 10 $\mu g/L$. Arsenic was not detected in seven source location samples from Festival Park, and was detected in one of eight lake samples from Lake Orienta below at a concentration below the DWS. The activity of surface water recharge to the Upper Floridan aquifer appears to increase the occurrence and concentration of arsenic in groundwater.
- Synthetic organic chemicals were largely undetected, and when selected volatile organic
 chemicals were detected they were detected at low concentrations below regulatory
 standards and guidance concentrations.

The organization of this status report is

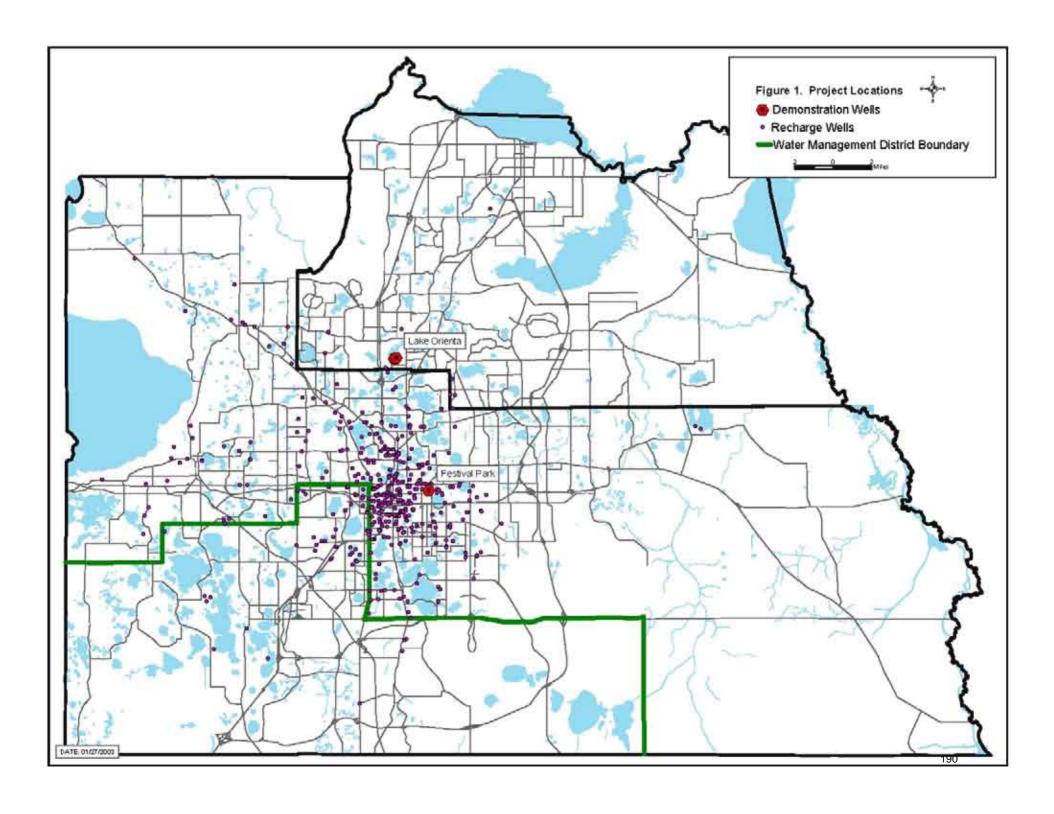
- 1. Settings of the sites
- 2. Operations
- 3. Results and Conclusions
 - Dry-period characterization
 - Qualitative groundwater tracer test
 - Baseline and Operational characterization
 - Microbiological
 - Chemical
- 4. Preliminary Recommendations

Settings of the Sites

Greater than 400 recharge wells were installed between 1904 and the late 1960's to manage stormwater runoff as urban development occurred in Orlando and vicinity. The vast majority of the recharge wells are completed into the Upper Floridan aquifer. Two types of wells are present: urban runoff and lake level control. The relative locations of the sites are presented in Figure 1.

Festival Park

Festival Park is located immediately west of Orlando Executive Airport. Two recharge wells are present at the site. They receive direct urban runoff. The wells are typical of numerous wells installed in the area to manage storm water runoff to alleviate local flooding while Orlando was urbanized. The drainage area for the wells is primarily commercial property in an urban setting. The earliest record of information on the wells were U.S. Geological Survey (USGS) inventory cards that were dated May 14, 1943, therefore the wells was constructed and operating prior to then. The completion characteristics of the wells are presented in Table 2. A site map is presented in Figure 2.



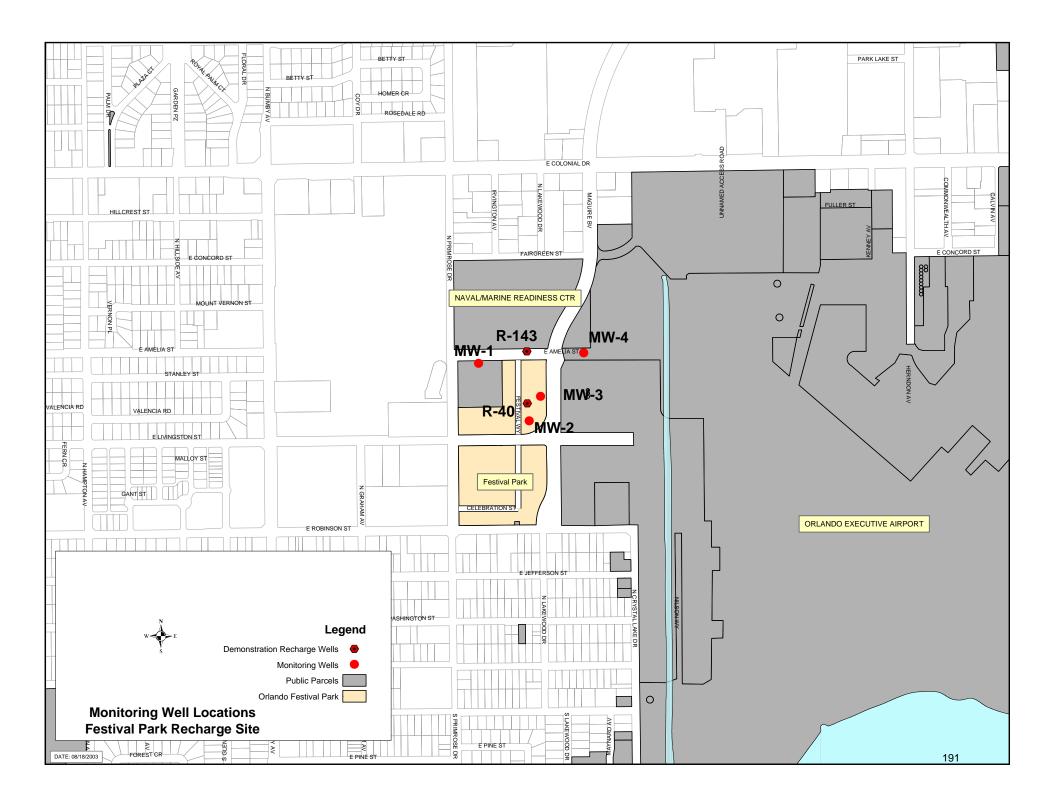


TABLE 2
Completion Characteristics of the Recharge Wells

Well	Diameter (Inches)	Cased Depth (Feet)	Total Depth (Feet)		
Festival Park (Well 40)	12	195	490 ^b		
Festival Park (Well 143)	10	140	315		
Lake Orienta 319 Barclay Avenue (S-1513)	10	Unknown	120		
Lake Orienta 421 Barclay Avenue (S-1514)	12	270	326		
Lake Orienta 505 Barclay Avenue (S-1515)	10	56	125		

^a Original reported total depth was 450 feet (PEC, 1999)

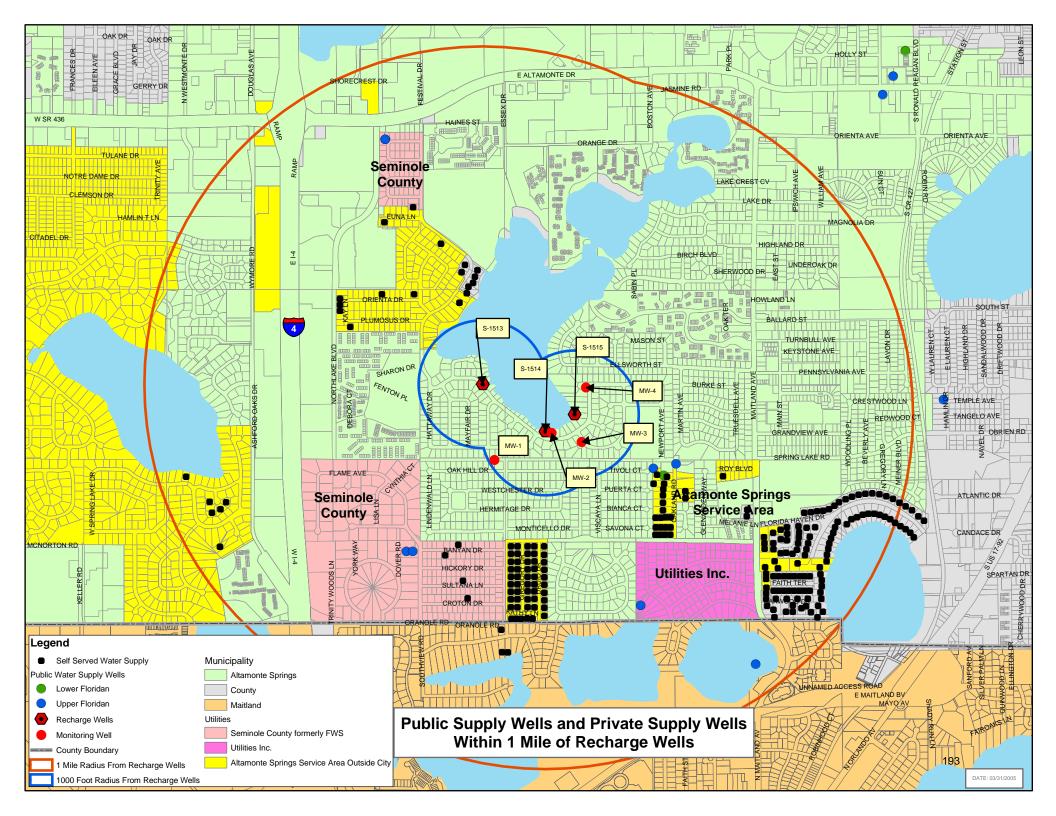
Lake Orienta

Lake Orienta is located in south central Altamonte Springs, Florida. The drainage basin for the lake consists of 135-acre lake with a 916-acre tributary watershed for a total basin area of 1,015 acres (CH2M HILL, 1998). The area around and near the lake is developed by residential and commercial land uses in a suburban setting. The properties around Lake Orienta are prone to chronic flooding when the runoff from rainfall and direct rainfall exceeds the capacity of the two recharge wells on the southern shore of the lake. The dates of the installations of the recharge wells are unknown. However, they were constructed prior to promulgation of the Safe Drinking Water Act in 1972. Completion characteristics of the wells are presented in Table 2. A site map is presented in Figure 3.

Surveys for private wells were conducted that concluded with the finding that numerous public and private water supply well were within 1 mile of the site. Discussions with City of Altamonte Springs staff indicated that very few records on locations construction characteristics are available on the private wells in the area based on previous searches and coordination with the Health Department. Therefore, the four water supply utilities within 1 mile of the recharge wells were contacted for locations that were not served potable water by the utilities. By inference, these locations are served water through private wells. The locations of the private water supply wells or suspected locations of private supply wells are shown in Figure 3.

The City's Water Treatment Plant (WTP) No. 2 is located southeast of the lake. In personal communications with City staff, two Upper Floridan aquifer supply wells (Well No. 3 and Well No. 4) were abandoned in 1995 because of chronic bacteriological exceedences. WTP No. 2 is currently provided water by three Lower Floridan aquifer wells.

^b Total depth through geophysical logging (8/3/00), reported total constructed depth - 1049 feet, USGS inventory card depth – 350 feet.



Operations

Festival Park

The recharge wells at Festival Park receive direct runoff from gravity flow of the storm water collection system without an interceding surface water body. As a result, when it the rainfall exceed a certain intensities and durations, runoff occurs that is collected by the system and is routed to the recharge well. As a result, the durations of recharge events from rainfall are short and intensities of the events are consistent with the intensities of rainfall events. However, it was observed during the project that wells consistently receive inflow of water even during prolonged rainless periods. The source of this water is unknown and could be intercepted surficial aquifer water.

Four monitoring wells (MW-1 through MW-4) were installed at the site to monitor for changes of water quality during the project. The subsequent use of the wells for monitoring was verified through the groundwater tracer test. Their locations are presented in Figure 2.

Lake Orienta Park

The recharge wells at Lake Orienta receive water through gravity flow when the lake stage exceeds the elevation of the intake structures. Lake stage elevation data from the City indicate that the stage generally exceeds the inlet elevations during August through October. As a result of the intervening storage characteristics of the lake, the recharge through the wells is prolonged, steady, and seasonally consistent with the end of the summer rainy season.

Additionally, the wells at 421 and 505 Barclay are fitted with lower elevation inlets than the normal operations inlets. The lower inlets can be opened to lower the lake stage to provide additional storage in preparation of unusually wet conditions. The lower inlets can opened after the receipt of an Emergency Order from FDEP. The City of Altamonte Springs must apply for an Emergency Order.

Four monitoring wells (MW-1 through MW-4) were installed at the site to allow groundwater sampling to measure changes of water quality during the project. The subsequent use of the wells for monitoring was verified through the groundwater tracer test. Their locations are presented in Figure 3.

Conclusion

The primary observation on the operations of the two recharge well systems is that the Festival Park well receive water wells on an ephemeral basis directly related to rainfall events with a baseflow component, while the Lake Orienta receive water on a seasonal basis with relatively steady flow conditions when the level of the lake rises above the inlet elevations.

Results and Conclusions

Results from three tasks will be presented: qualitative groundwater tracer test, dry-period characterization, baseline characterization, and operational characterization.

Dry-Period Characterization

Dry-period characterization was conducted during August 2001 to take advantage of an abnormally prolonged period of low rainfall when the lake-level control recharge wells did not receive water. Since the recharge wells have been present and operating on an as-needed basis for over 40 years, this represented a reasonable opportunity to evaluate baseline conditions of groundwater quality. One well at Lake Sherwood and two wells at Lake Orienta (S-1514 and S-1515) were sampled. During this event, the recharge wells (not monitoring wells) were directly sampled. During subsequent characterization events, inflow or lake waters were sampled for influent water quality, and monitoring wells were sampled for groundwater quality.

The water quality from the three recharge wells exhibited characteristics and influence of surface water contribution relative to Upper Floridan aquifer water, for example:

- Total Coliform concentration of 210 to 250 colony forming units per 100 milliliters (cfu/100 mL). Floridan aquifer concentrations are expected to be less than 1 cfu/100 mL.
- Color measurement of 10 to 50 color units. Floridan aquifer concentrations are expected to be less than 1 color unit.
- Total organic carbon (TOC) concentrations between 1.2 and 22 mg/L. Floridan aquifer concentrations are expected to be less than 1 mg/L.
- Turbidity measurement of 0.75 to 36J (estimated) Nephelometric Turbidity Units (NTU). Measurement of Floridan aquifer water is expected to be less than 1 NTU.
- The presence of ammonia nitrogen between 0.13 and 1.2 milligrams per liter (mg/L). Ammonia nitrogen is expected to be undetected in Floridan aquifer groundwater.
- Iron concentrations of 0.29 to 6.3 mg/L. Iron is expected to be undetected in Floridan aquifer groundwater.

The Lake Sherwood site was not investigated beyond dry-period characterization because the lake level was sufficiently low that it was considered unlikely that the level would rise to greater than the inlet of the well during the time period of the project.

The presence of S-1513 was not identified at the time, and therefore dry-period characterization was not performed. The relevant results of the dry-period characterization will be included the section operational characterization phase for Lake Orienta.

The Festival Park site was not formally established as a project site at the time, and therefore dry-period characterization was not performed.

A more detailed description of the dry-period characterization and its results was presented in Status Report 3, distributed through email on December 28, 2001.

Conclusion

The primary conclusion from the Dry Period Characterization is that the water in the recharge wells has characteristics of surface water.

Qualitative Groundwater Tracer Test

The qualitative groundwater tracer tests were performed at each site to provide evidence of which monitoring wells were in hydraulic connection with which recharge wells through the aquifer. This led to modification of the sampling plans for better focused sampling for the characterization phases of the project.

At both sites different tracers were introduced into each of the recharge wells while the recharge wells were receiving water. Two tracers were used at Festival Park: fluorescein and eosine. Three tracers were used at Lake Orienta: fluorescein, eosine, and Rhodamine WT. Prior to tracer introduction, the monitoring wells were sampled for background indications of the tracers that could interfere with the interpretation of the results of the tests. Tracers were either not detected or detected at sufficiently low concentrations to not interfere with the interpretation the laboratory results. The use of different tracers allowed the verification of hydraulic connection between individual recharge wells and individual monitoring wells.

For the tests at both sites, strings of activated carbon sample packs were positioned over the open-hole intervals of the monitoring wells to intercept tracers in the groundwater flowing past the monitoring wells. Sample packs were spaced on the strings at intervals between 10 and 15 feet. The strings were replaced at approximately 2-week intervals then sample packs were preserved and transported to the laboratory for analysis. Laboratory results represent the accumulation of tracer on the activated carbon during a particular 2-week interval when the sample packs were in the monitoring wells. The durations of the tracer tests were 12 weeks.

Festival Park

The results of the tracer test at Festival Park were

- Tracer from one recharge well was recovered from two monitoring wells.
- Tracer (fluorescein) introduced into R-143 was recovered in sample packs from MW-1 and MW-2 within the first 2-week interval of the tracer test indicating that the two monitoring wells are in hydraulic connection with the recharge well. This further indicates that the groundwater travel time between the recharge well and the two monitoring wells is less than 2 weeks. MW-1 is approximately 350 feet west of R-143; MW-2 is approximately 500 feet south of R-143.
- The strength of the tracer signature from MW-1 was approximately 200 times greater than the strength of the tracer signature from MW-2. This suggests that the pathway between R-143 to MW-1 is more robust than the pathway between R-143 and MW-2.
- Tracer (eosine) from R-40 was not recovered from the four monitoring wells during the 12-week interval of the tracer test.
- Tracers were not recovered in sample packs placed in MW-3 and MW-4.
- The sampling plan for the operational characterization phase was modified as a result of the tracer test. MW-3 was removed from the sampling plan and MW-4 was retained as the site reference sampling location for the characterization phase.

A more detailed description of the Festival Park tracer test and its results was presented in Status Report 6, distributed through email on October 2, 2003.

Lake Orienta

The results of the tracer test at Lake Orienta were

- Tracers introduced into two recharge wells were recovered from one monitoring well.
- Tracer (eosine) from S-1514 was recovered in sample packs from MW-2 within the first 2-week interval of the tracer test indicating that the two monitoring well is in hydraulic connection with the recharge well. This indicates that the travel time between S-1514 and MW-2 is less than 2 weeks. MW-2 is located approximately 100 feet east of S-1514.
- Tracer (fluorescein) from S-1513 was positively identified in sample packs from MW-2 within the fourth 2-week interval of the tracer test indicating that the two monitoring well is in hydraulic connection with the recharge well. This indicates that the travel time between S-1513 and MW-2 is between 6 and 8 weeks. MW-2 is located approximately 1350 feet east of S-1513.
- Tracer (Rhodamine WT) from S-1515 was not recovered from the four monitoring wells during the 12-week interval of the tracer test.
- Traces were not recovered in sample packs from MW-1, MW-3, and MW-4.
- The sampling plan for the Operational Characterization task was modified as a result of the tracer test. MW-3 and MW-4 were removed from the sampling plan and MW-1 was retained as the site reference sampling location for the characterization phase.

A more detailed description of the Festival Park tracer test and its results was presented in Status Report 8, distributed through email on May 24, 2005.

Conclusion

The tracer tests resulted in verifying that one or more monitoring wells are in hydraulic connection with one or more monitoring wells through the Upper Floridan aquifer. Sampling plans for subsequent characterization tasks were modified to focus on monitoring well(s) that are in connection with the recharge well(s), plus one well for each site not in hydraulic connection to monitor site reference conditions.

Baseline and Operational Characterizations

Samples were collected from both sites during the baseline and operational characterization tasks as presented in Table 3.

TABLE 3. Sampling Locations for Operational Characterization Tasks

Site	Source Water Location	Characterization Locations	Reference Location		
Festival Park	Inflow to R-143	MW-1 and MW-2	MW-4		
Lake Orienta	Lake Orienta	MW-2	MW-1		

QA/QC samples were collected for each characterization event for duplicate, matrix spike, and matrix spike duplicate, for all chemical analyses, and trip blank for volatile organic chemicals.

One baseline characterization sample and six operational characterization samples were collected from the Festival Park site. The opportunity to collect a true baseline characterization sample set at Lake Orienta was missed because the City received an Emergency Order to operate the lower inlets of the wells before the characterization sampling could occur. The City applied for and received the order to be prepared for stormwater management volume in anticipation in a more active than usual hurricane season. One baseline characterization sample and seven operational characterization samples were collected from the Lake Orienta site.

The differing flow characteristics (more ephemeral at Festival Park versus more seasonal and steady at Lake Orienta) between the sites and the groundwater travel times for both sites will be considered to compare the results of the characterization samplings.

Microbiological Results

The microbiological parameters were bacteria (total coliform, fecal coliform, *Escherichia coli* [*E. coli*], and enterococci), virus (coliphage), and parasites (*Giardia* spp. and *Cryptosporidium* spp.). Coliphage (virus that attacks coliform bacteria) were not detected in the samples at either site and will not be presented further. *Giardia* were not detected in the samples from either site and will not be presented further. *Cryptosporidium* was detected in one lake sample from Lake Orienta at 1 (oo)cyst per 100 mL and will not be presented further.

The range of bacteria concentrations of the influent water at the two sites are presented in Table 4 and the range of bacteria concentrations in the groundwater from the characterization monitoring wells from the two sites are presented in Table 5.

TABLE 4
Range of Bacteria Concentrations of Source Water

		Festival Inflow to		Lake Orie	enta
Organism	Units	Low	High	Low	High
Total Coliform	cfu/100 mL	990	1,000,000	27	1,400
Fecal Coliform	cfu/100 mL	860	980,000	32	833
E. coli	cfu/100 mL	180	2,400	15	167
Enterococcus	cfu/100 mL	69	3,400	2.7	36,000

Festival Park - 1 Baseline characterization and 6 Operational Characterization sample sets Lake Orienta - 1 Baseline characterization and 7 Operational Characterization sample sets

TABLE 5
Range of Bacteria Concentrations of Floridan Aguifer Water

	Location			Festiva	al Park	Lake Orienta					
	(erization		Reference		Characterization		Reference			
	Well	MW	'-1	MW-2		MW-4		MW-2		MW-1	
Organism	Units	Low	High	Low	High	Low	High	Low	High	Low	High
Total Coliform	cfu/100 mL	<0.2	7.4	<0.2	474	<0.2	5.5	<0.09	60	<0.09	7.7
Fecal Coliform	cfu/100 mL	<0.2	5.9	<0.2	585	<0.2	5.3	<0.09	0.09	<0.09	0.65
E. coli	cfu/100 mL	<0.2	2.3	<0.2	1.52	<0.2	<0.2	<0.09	0.09	<0.09	<3
Enterococcus	cfu/100 mL	<0.2	23	<0.2	3.16	<0.2	13	0.19	0.83	<0.09	0.37

Festival Park - 1 Baseline characterization and 6 Operational Characterization sample sets Lake Orienta - 1 Baseline characterization and 7 Operational Characterization sample sets

Conclusions

Inspection of the tables provides the following conclusions:

- Concentrations of bacteria measured from the influent to R-143 at Festival Park were significantly higher than measured from Lake Orienta water.
- Comparison of the values indicates that groundwater concentrations are at least 2 orders-of-magnitude lower and up to 6 orders-of-magnitude lower than the source waters.
- For Festival Park, the concentrations for the reference sampling location (MW-4) compare well with the lesser of the two characterization sampling locations (MW-1); and for Lake Orienta the concentrations for the reference sampling location (MW-1) compare well with the characterization sampling location (MW-2), but to a lesser degree. This indicates that the groundwater is impacted more broadly than indicated by the results of the tracer test would imply. This is expected considering the long period of recharge operation at the sites.

Chemical Results

Chemical analyte groups were field parameter measurements, general chemistry, nutrients, metals, radioligicals, total recoverable petroleum hydrocarbons (TRPH), volatile organic chemicals (VOCs), semi-volatile organic chemicals (SVOCs), organochlorine pesticides, polychlorinated byphenols (PCBs), organophosphorous pesticides, and chlorinated herbicides. With the exception of the detection of several VOCs from several locations at Festival Park and of TRPH at one location at Festival Park, no other synthetic organic chemicals were positively detected from samples collected at either site. These nondetections will not be presented further.

Volatile Organic Chemicals

The following VOCs were positively detected during the different tasks of this project:

- Lake Sherwood recharge well during the dry-period characterization
 - Methyl ethyl keytone at 160 $\mu g/L$. The Groundwater Cleanup Target Level (GCTL) is 4200 $\mu g/L$.
- Festival Park during the baseline characterization
 - Cis-1,2-dichloroethylene at 2.3 $\mu g/L$ and 2.4 $\mu g/L$ from MW-2 and MW-3, respectively. The DWS is 70 $\mu g/L$.
 - $-1,\!1$ -dichloroethane at 1.1 $\mu g/L$ and 1.2 $\mu g/L$ from MW-1 and MW-2, respectively. The GCTL is 700 $\mu g/L$
 - -1,1-dichloroethene at 1.4 µg/L. The DWS is 7 µg/L.
- Festival Park during the operational characterization
 - Cis-1,2-dichloroethylene at three detections between 1.1 and 2.9 μ g/L from inflow to R-143, and six detections between 3.5 and 4.5 μ g/L from MW-2. The DWS is 70 μ g/L.
 - $-1,\!1$ -dichloroethane six detections between 2.1 and 2.5 $\mu g/L$ from MW-2. The GCTL is 700 $\mu g/L$
 - Tetrachloroethylene at 1.1 μ g/L from inflow to R-143. The DWS is 3 μ g/L.

Total Recoverable Petroleum Hydrocarbons

TRPH was positively detected twice from the inflow to R-143 at 0.82 mg/L. The GCTL is 5 mg/L.

Arsenic

The most pertinent result of this project is the presence of arsenic in the groundwater at concentrations that exceed the Drinking Water Standard (10 μ g/L), when it was not present in the source water. Summaries of the results of influent water and groundwater analyses for arsenic are presented in Tables 6 and 7. None of the seven samples from the inflow to R-143 at Festival Park resulted in positive detection of arsenic. One of eight samples of the surface water at Lake Orienta resulted in the positive detection of arsenic. Thirteen of fourteen groundwater samples from wells characterization wells at Festival Park resulted in positive detections of arsenic. None Zero of the eight groundwater samples from site reference well (MW-4) at Festival Park resulted in positive detections of arsenic.

TABLE 6
Range of Arsenic Concentrations of Influent Water

Parameter	Units	Festival Pa Inflow to R- Low		Lake Or Low	ienta High
Arsenic	μg/L	nd	nd	nd	7.03

nd - not detected

TABLE 7
Range of Arsenic Concentrations of Floridan Aquifer Water

	Location		Festival Park						Lake Orienta			
	Purpose Well	MW		racterization MW-2		Reference MW-4		Characterization MW-2		Reference MW-1		
Parameter	Units	Low	High	Low	High	Low	High	Low	High	Low	High	
Arsenic	μg/L	6.0	9.39	nd	19.4	nd	nd	8.88	17.2	8.16	15.3	

nd - not detected

Conclusion

These observations indicate that the recharge of surface water to the Upper Floridan aquifer at these two sites results in the increase of arsenic concentrations in the groundwater. This has been a recent topic in aquifer storage/recovery systems where a similar phenomenon has been observed. Research is being conducted on the cause and affect relationship between recharge of treated, partially treated, and untreated water to the Upper Floridan aquifer at various locations in Florida.

Overall Conclusions

Based on the tasks completed to data the following is concluded:

- The two recharge well systems active for greater than 40 to 60 years. Results represent effects of long-term operations.
- 2- to 6- orders-of-magnitude reduction of bacteria concentrations was observed in groundwater based on differences between source water concentrations and Floridan aquifer concentrations.
- Arsenic mobilization is observed at concentrations that exceed the MCL at both sites.
- Synthetic organics largely undetected at Festival Park, detections were less than the MCLs.
- Synthetic organics were undetected at Lake Orienta.
- Results of the project were different than the prevailing thought at the beginning of the project:
 - Microbial impact to groundwater was thought to be the dominant constituent set of concern.

- Significant synthetic organics were expected to be detected from urban runoff site (Festival Park) because of the nature of the runoff
- Arsenic was not considered as a decision-driving constituent. It is now because of the change on the Maximum Contaminant Level from $50 \mu g/L$ to $10 \mu g/L$ during the project.

Preliminary Recommendations

- Do not proceed with treatment facilities and subsequent characterization evaluations
- Prepare final report
- Notify public heath agencies in Orange and Seminole Counties concerning potential impacts to private groundwater supplies
- Promote and participate in increased research of microbiological survivability in the Floridan aquifer
- Participate in continued mineralogy and geochemistry research regarding mechanisms for arsenic mobilization and treatment strategies and processes to control it.
- Coordinate with FDEP on interpretation of regulations

Reference

CH2M HILL. Central Florida Artificial Recharge Demonstration Program: Alternative Water Supply Strategies in the St. Johns River Water Management District. Special Publication SJ98-SP11. SJRWMD. Palatka, FL. 1998

Appendix B Characterization Sampling Results

			-		
			Lake Orienta	Lake Orienta	Lake
		Location:	S-1515	S-1514	Sherwood
		SampleID:	LO-E-R-DP	LO-W-R-DP	LS-R
		DateCollected :	23-Aug-01	23-Aug-01	13-Aug-01
		Matrix :	WA	WA	WA
01	Demonstra Oran and Name	SampleType :	Groundwater	Groundwater	Groundwater
Class	Parameter Group and Name	Unit	Result Qual	Result Qual	Result Qual
Canaham	Radiologicals	nCi/l	5.5 =	9.8 =	3.3 =
Genchem Genchem	ALPHA, GROSS BETA, GROSS	pCi/L pCi/L	4.7 =	9.8 = 6.8 =	10.4 =
General	Ion Balance	pΟi/L	4.7 =	0.0 =	10.4 =
	Calcium	meq/L	3.0	3.3	1.8
	Magnesium	meg/L	0.2	0.8	0.9
	Sodium	meg/L	0.3	0.5	0.6
	Potassium	meg/L	0.0	0.0	0.1
	Sum of cations	meg/L	3.5	4.6	3.4
	Bicarbonate	meg/L	2.8	2.6	2.2
	Carbonate	meg/L			
	Hydroxide	meq/L			
	Chloride	meq/L	0.5	0.5	0.3
	Sulfate	meq/L	0.3	1.1	0.3
	Sum of anions	meq/L	3.6	4.3	2.8
	Balance (% difference)		0.7%	-3.3%	-9.1%
	Anions				
Genchem	ALKALINITY, BICARBONATE (AS CACO3)	mg/L	140 =	130 =	110 =
Genchem	CHLORIDE (AS CL)	mg/L	17 =	19 =	9.7 =
Genchem	CARBONATE (AS CO3)	mg/L	1.534 U	1.534 U	1.534 U
Genchem	FLUORIDE	mg/L	0.062 U	0.062 U	0.36 =
Genchem	SULFATE (AS SO4)	mg/L	14 =	55 =	16 =
Conches	Nutrients NITROGEN KIELDANI TOTAL	m e /I	0.06 1	0	1.4
Genchem Genchem	NITROGEN, KJELDAHL, TOTAL NITROGEN, AMMONIA (AS N)	mg/L mg/L	0.36 J 0.13 =	2 = 0.46 =	1.4 =
Genchem	NITROGEN, AMMONIA (AS N) NITROGEN, NITRITE	mg/L	0.13 = 0.042 U	0.46 = 0.042 U	0.042 U
Genchem	NITROGEN, NITRATE (AS N)	mg/L	0.042 U	0.042 U	0.042 U
Genchem	NITROGEN, NITRATE (AS N)	mg/L	0.054 U	0.054 U	0.054 U
Genchem	PHOSPHORUS, TOTAL (AS P)	mg/L	0.034 5	0.42 =	0.045 =
Genchem	PHOSPHORUS, TOTAL ORTHOPHOSPHATE (AS P)	mg/L	0.09 =	0.045 =	0.009 J
GGHGHGH	General Chemistry	9,	0.00	0.0.10	0.000
Genchem	TOTAL DISSOLVED SOLIDS (RESIDUE, FILTERABLE)	mg/L	240 =	270 =	150 =
Genchem	TURBIDITY	NŤU	0.75 =	12 =	36 J
Genchem	COLOR	COLOR UNIT	10 =	50 =	20 J
Genchem	BIOLOGIC OXYGEN DEMAND, FIVE DAY	mg/L	0.99 U	0.99 U	0.99 U
Genchem	TOTAL ORGANIC CARBON	mg/L	1.2 =	2.1 =	22 =
Genchem	DISSOLVED ORGANIC CARBON	mg/L	1.2 =	1.4 =	2.5 =
Genchem	METHYLENE BLUE ACTIVE SUBSTANCES Metals	mg/L	0.047 U	0.095 J	0.047 U
Metals	ALUMINUM	μg/L	120 U	1610 =	88.4 UJ
Metals	ANTIMONY	μg/L	0.14 U	0.14 U	0.14 U
Metals	ARSENIC	μg/L	0.4 U	6.36 =	1.09 =
Metals	BARIUM	μg/L	8.79 J	21 J	14.1 =
Metals	BERYLLIUM	μg/L	0.041 J	0.04 U	0.04 U
Metals	CADMIUM	μg/L	0.233 J	1.46 =	0.08 U
Metals	CALCIUM	μg/L	60000 =	65900 =	36600 =
Metals	CHROMIUM, TOTAL	μg/L	0.4 U	3.17 J	0.478 U
Metals	COBALT	μg/L	0.142 J	0.37 J	0.434 J
Metals Metals	COPPER IRON	μg/L	0.12 UJ 292 =	16.6 J 4680 =	3 U 6310 =
Metals	LEAD	μg/L	0.131 U	9.24 =	0.972 J
Metals	MAGNESIUM	μg/L μg/L	2410 =	9.24 =	10600 =
Metals	MANGANESE	μg/L	10.8 =	61.4 =	76.5 =
metals	MERCURY	μg/L	0.1 U	0.1 U	0.1 U
Metals	NICKEL	μg/L	5.08 =	6.77 =	23 =
Metals	POTASSIUM	μg/L	1380 J	1780 J	2760 J
Metals	SELENIUM	μg/L	1 U	2.38 U	1 U
Metals	SILVER	μg/L	0.047 J	0.02 U	10.3 U
Metals	SODIUM	μg/L	6630 =	10900 =	14900 J
Metals	THALLIUM	μg/L	0.02 U	0.02 U	0.02 U
Metals	VANADIUM	μg/L	0.351 J	6.95 J	0.08 U
Metals	ZINC	μg/L	1 U	26.8 =	1.66 J
	Total Petroleum Hydrocarbons			- 1:	
TPH	TPH (C8 - C40 PRO) Volatile Organic Compounds	mg/L	0.2 U	0.2 U	0.2 U
VOC	ACETONE	μg/L	50 UJ	50 UJ	50 U
VOC	ACROLEIN	μg/L	100 UJ	100 UJ	100 UJ
VOC	ACRYLONITRILE	μg/L	10 UJ	10 UJ	10 U
VOC	BENZENE	μg/L	1 U	1 U	1 U
VOC	BROMODICHLOROMETHANE	μg/L	1 U	1 U	1 U
VOC	BROMOFORM	μg/L	1 UJ	1 UJ	1 U
VOC	BROMOMETHANE	μg/L	1 U	1 U	1 U
VOC	METHYL ETHYL KETONE (2-BUTANONE)	μg/L	27 J	3.9 J	160 =
VOC	CARBON DISULFIDE	μg/L	5 U	5 U	5 U
VOC	CARBON TETRACHLORIDE	μg/L	1 U	1 U	1 U
VOC	CHLOROBENZENE	μg/L	1 U	1 U	1 U
VOC	CHLOROETHANE	μg/L	1 U	1 U	1 U
VOC	2-CHLOROETHYL VINYL ETHER	μg/L	5 UJ	5 UJ	5 U

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DIBROMOCHOROMETHANE	VOC					
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1.2 DICHLOROBENZENE						
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VOC 2 HEXANONE μgL 25 UJ <		· · · · · · · · · · · · · · · · · · ·				
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VOC METHYLENC GHLORIDE μg/L 1.9/L 1.9/L 1.0 1.0 1.0 VOC 1.1,2.7ETRACHLORGETHANE μg/L 1.0						
VOC STYRENE μg/L 1 U 2 U 2 U 2						
VOC 1,1,1,2-TETRACHLOROETHANE μg/L 1 U 1 U 1 U VOC 1,1,2-TETRACHLOROETHANE μg/L 1 U 1 U 1 U VOC TETRACHLOROETHANE μg/L 1 U 1 U 1 U VOC TOLLONE μg/L 1 U 1 U U U U VOC TOLLONE μg/L 1 U 1 U U U U VOC TOLLONE μg/L 1 U U U U U U VOC TILICHLOROETHANE μg/L 1 U U U U U U VOC TILICHLOROETHALENE TOE μg/L 5 U 5 U 5 U S U VOC TILICHLOROFTHYLENE TOE μg/L 5 U 5 U 5 U S U VOC TILICHLOROFTHYLENE TOE μg/L 5 U 5 U 5 U VOC TILICHLOROFTHYLENE μg/L 5 U 5 U S U VOC TILICHLOROFTHANE μg/L 1 U U U U U U VOC BROMODICHLOROMETHANE μg/L 1 U U U U U VOC GROMOCHLOROMETHANE μg/L 1 U U U U VOC GROMOCHLOROMETHANE μg/L 1 U U U U VOC GROMOCHMETHANE μg/L 1 U U U U VOC GROMOCHMETHANE μg/L 1 U U U U VOC CHOROFORM μg/L 1 U U U U VOC CHOROFORM μg/L 1 U U U U U VOC VINYL CHLORIDE μg/L 1 U U U U U VOC VINYL CHLORIDE μg/L 1 U U U U U VOC VINYL CHLORIDE μg/L 1 U U U U U VOC VINYL CHLORIDE μg/L 1 U U U U U U VOC VINYL CHLORIDE μg/L 1 U U U U U U VOC VINYL CHLORIDE μg/L 1 U U U U U U VOC VINYL CHLORIDE μg/L 5 U S U						
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VOC VINYL CHLORIDE μg/L 1 U						
VOC M.PXYLENE (SUM OF ISOMERS) μg/L 2 U 2 U 2 U 2 U 2 U 2 U 2 U 2 U 2 U 2 U 2 U 2 U 2 U 3 U 5						
VOC C-XYLENE (1.2-DIMETHYLBENZÉNE) μg/L 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U 3 U <th< td=""><td></td><td></td><td></td><td></td><td></td><td></td></th<>						
VOC ACENAPHTHENE		,				
Semi-volatile Organic Compound						
SVOC ACENAPHTHENE	100		μ9/ Ξ	3 3	0 0	
SYOC ACENAPHTHYLENE	svoc		ua/L	5 U	5 U	5 UJ
SYOC ACETOPHENONE						
SYOC 4-AMINOBIPHENYL (4-BIPHENYLAMINE)	SVOC					
SVOC 2-AMINONAPHTHALENE (BETA NAPHTHYLAMINE)	SVOC	4-AMINOBIPHENYL (4-BIPHENYLAMINE)		5 U	5 U	5 UJ
SVOC ANTHRACENE μg/L 5 U 5 U 5 U 5 U 5 U 5 U 5 U 5 U 5 U 5 U 5 U 5 U 5 U 5 U 5 U 5 U 5 U 5 U 5 U 2 U 20 U 30 U 50 U	SVOC	2-AMINONAPHTHALENE (BETA NAPHTHYLAMINE)		5 U	5 U	5 UJ
SVOC AZOBENZENE	SVOC	ANILINE (PHENYLAMINE, AMINOBENZENE)	μg/L	5 U	5 U	5 UJ
SYOC BENZIDINE		ANTHRACENE	μg/L			
SVOC BENZO(a)ANTHRACENE μg/L 5 U		AZOBENZENE	μg/L			
SVOC BENZO(a)PYRENE μg/L 5 U						
SYOC BENZO(b)FLUORANTHENE						
SYOC BENZO(g,h,i)PERYLENE						
SYOC BENZO(K)FLUORANTHENE						
SYOC BENZYL ALCOHOL Fig/L S U S						
SVOC bis(2-CHLOROETHOXY) METHANE μg/L 5 U 5						
SYOC						
SVOC 2,2°-OXYBIS(1-CHLORO)PROPANE μg/L 5 U						
SYOC						
SYOC 4-BROMOPHENYL PHENYL ETHER						
SVOC BENZYL BUTYL PHTHALATE μg/L 10 U 5 U		,	μg/L μα/l			
SYOC CARBAZOLE						
SVOC 4-CHLORO-3-METHYLPHENOL μg/L 5 U <						
SVOC 4-CHLOROANILINE μg/L 5 U 5 U 5 UJ 5 UJ<						
SVOC 1-CHLORONAPHTHALENE μg/L 5 U 5 U 5 UJ SVOC 2-CHLORONAPHTHALENE μg/L 5 U 5 U 5 UJ SVOC 2-CHLOROPHENOL μg/L 5 U 5 U 5 UJ SVOC 4-CHLOROPHENYL PHENYL ETHER μg/L 5 U 5 U 5 UJ SVOC CHRYSENE μg/L 5 U 5 U 5 UJ SVOC DIBENZ(a,h)ANTHRACENE μg/L 5 U 5 U 5 UJ SVOC DIBENZOFURAN μg/L 5 U 5 U 5 UJ SVOC 1,2-DICHLOROBENZENE μg/L 5 U 5 U 5 UJ SVOC 1,3-DICHLOROBENZENE μg/L 5 U 5 U 5 UJ SVOC 1,4-DICHLOROBENZENE μg/L 5 U 5 U 5 UJ SVOC 2,4-DICHLOROBENZIDINE μg/L 5 U 5 U 5 UJ SVOC 2,4-DICHLOROPHENOL μg/L 5 U 5 U 5 UJ SVOC 2,6-DICHLOROPHENOL μg/L 5 U 5 U 5 UJ SVOC DIMETHYL PHTHALATE <						
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SVOC DIBENZOFURAN μg/L 5 U 5 U 5 UJ SVOC 1,2-DICHLOROBENZENE μg/L 5 U 5 U 5 UJ SVOC 1,3-DICHLOROBENZENE μg/L 5 U 5 U 5 UJ SVOC 3,3'-DICHLOROBENZIDINE μg/L 5 U 5 U 5 UJ SVOC 2,4-DICHLOROPHENOL μg/L 5 U 5 UJ 5 UJ SVOC 2,6-DICHLOROPHENOL μg/L 5 U 5 U 5 UJ SVOC DIETHYL PHTHALATE μg/L 5 U 5 U 5 UJ SVOC DIMETHYL PHTHALATE μg/L 5 U 5 U 5 UJ SVOC D-DIMETHYLAMINOAZOBENZENE μg/L 5 U 5 U 5 UJ	SVOC					
SVOC 1,2-DICHLOROBENZENE μg/L 5 U 5 U 5 UJ SVOC 1,3-DICHLOROBENZENE μg/L 5 U 5 U 5 UJ SVOC 1,4-DICHLOROBENZIDINE μg/L 5 U 5 U 5 UJ SVOC 3,3'-DICHLOROBENZIDINE μg/L 5 U 5 U 5 UJ SVOC 2,4-DICHLOROPHENOL μg/L 5 U 5 UJ 5 UJ SVOC 2,6-DICHLOROPHENOL μg/L 5 U 5 U 5 UJ SVOC DIETHYL PHTHALATE μg/L 5 U 5 U 5 UJ SVOC DIMETHYL PHTHALATE μg/L 5 U 5 U 5 UJ SVOC P-DIMETHYLAMINOAZOBENZENE μg/L 5 U 5 U 5 UJ	SVOC	, <i>'</i>				
SVOC 1,3-DICHLOROBENZENE μg/L 5 U 5 U 5 UJ SVOC 1,4-DICHLOROBENZENE μg/L 5 U 5 U 5 UJ SVOC 3,3'-DICHLOROBENZIDINE μg/L 5 U 5 U 5 UJ SVOC 2,4-DICHLOROPHENOL μg/L 5 U 5 UJ 5 UJ SVOC 2,6-DICHLOROPHENOL μg/L 5 U 5 U 5 UJ SVOC DIETHYL PHTHALATE μg/L 5 U 5 U 5 UJ SVOC DIMETHYL PHTHALATE μg/L 5 U 5 U 5 UJ SVOC p-DIMETHYLAMINOAZOBENZENE μg/L 5 U 5 U 5 UJ	SVOC					
SVOC 1,4-DICHLOROBENZENE μg/L 5 U 5	SVOC	·		5 U	5 U	
SVOC 3,3'-DICHLOROBENZIDINE μg/L 5 U 5 U 5 UJ SVOC 2,4-DICHLOROPHENOL μg/L 5 U 5 UJ 5 UJ SVOC 2,6-DICHLOROPHENOL μg/L 5 U 5 U 5 U 5 UJ SVOC DIETHYL PHTHALATE μg/L 5 U 5 U 5 U 5 UJ SVOC DIMETHYL PHTHALATE μg/L 5 U 5 U 5 UJ 5 UJ SVOC p-DIMETHYLAMINOAZOBENZENE μg/L 5 U 5 U 5 U 5 UJ	SVOC	•		5 U	5 U	
SVOC 2,4-DICHLOROPHENOL μg/L 5 U 5 UJ 5 UJ SVOC 2,6-DICHLOROPHENOL μg/L 5 U 5 U 5 UJ SVOC DIETHYL PHTHALATE μg/L 5 U 5 U 5 UJ SVOC DIMETHYL PHTHALATE μg/L 5 U 5 U 5 UJ SVOC p-DIMETHYLAMINOAZOBENZENE μg/L 5 U 5 U 5 U 5 UJ	SVOC	·	μg/L			
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	SVOC	·	μg/L			
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	SVOC	2,6-DICHLOROPHENOL		5 U		
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	SVOC	DIETHYL PHTHALATE			5 U	5 UJ
	SVOC		μg/L			
SVOC 7,12-DIMETHYLBENZ(a)ANTHRACENE µg/L 5 U 5 U 5 UJ	SVOC					
	SVOC	7,12-DIMETHYLBENZ(a)ANTHRACENE	μg/L	5 U	5 U	5 UJ

			·		
			Lake Orienta	Lake Orienta	Lake
		Location:	S-1515	S-1514	Sherwood
		SampleID:	LO-E-R-DP	LO-W-R-DP	LS-R
		DateCollected :	23-Aug-01	23-Aug-01	13-Aug-01
		Matrix :	WA	WA	WA
Class	Parameter Group and Name	SampleType : Unit	Groundwater Result Qual	Groundwater Result Qual	Groundwater Result Qual
SVOC	3,3'-DIMETHYLBENZIDINE	μg/L	10 U	10 U	10 UJ
SVOC	2,4-DIMETHYLPHENOL	μg/L μg/L	5 U	5 U	5 UJ
SVOC	DI-n-BUTYL PHTHALATE	μg/L μg/L	5 U	5 U	5 UJ
SVOC	4,6-DINITRO-2-METHYLPHENOL	μg/L	5 U	5 U	5 UJ
SVOC	1,3-DINITROBENZENE	μg/L μg/L	5 U	5 U	5 UJ
SVOC	2,4-DINITROPHENOL	μg/L μg/L	20 U	20 U	20 UJ
SVOC	2,4-DINITROTOLUENE	μg/L	5 U	5 U	5 UJ
SVOC	2,6-DINITROTOLUENE	μg/L	5 U	5 U	5 UJ
SVOC	2,4-DINITROTOLUENE	μg/L	5 U	5 U	5 UJ
SVOC	2,6-DINITROTOLUENE	μg/L	5 U	5 U	5 UJ
SVOC	DI-n-OCTYLPHTHALATE	μg/L	10 U	10 U	10 UJ
SVOC	DIPHENYLAMINE	μg/L	5 U	5 U	5 UJ
SVOC	1,2-DIPHENYLHYDRAZINE	μg/L	5 U	5 U	5 UJ
SVOC	FLUORANTHENE	μg/L	5 U	5 U	5 UJ
SVOC	FLUORENE	μg/L	5 U	5 U	5 UJ
SVOC	HEXACHLOROBENZENE	μg/L	5 U	5 U	5 UJ
SVOC	HEXACHLOROBUTADIENE	μg/L	5 U	5 U	5 UJ
SVOC	HEXACHLOROCYCLOPENTADIENE	μg/L	5 U	5 U	5 UJ
SVOC	HEXACHLOROETHANE	μg/L	5 UJ	5 UJ	5 UJ
SVOC	HEXACHLOROPROPENE	μg/L	5 U	5 U	5 UJ
SVOC	INDENO(1,2,3-c,d)PYRENE	μg/L	5 U	5 U	5 UJ
SVOC	ISOPHORONE	μg/L	5 U	5 U	5 UJ
SVOC	3-METHYLCHOLANTHRENE	μg/L	5 U	5 U	5 UJ
SVOC	1-METHYLNAPHTHALENE	μg/L	5 U	5 U	5 UJ
SVOC	2-METHYLNAPHTHALENE	μg/L	5 U	5 U	5 UJ
SVOC	2-METHYLPHENOL (o-CRESOL)	μg/L	5 U	5 U	5 UJ
SVOC	CRESOLS, m & p	μg/L	10 U	10 U	10 UJ
SVOC	NAPHTHALENE	μg/L	5 U	5 U	5 UJ
SVOC	1-NAPHTHYLAMINE	μg/L	5 U	5 U	5 UJ
SVOC	2-NITROANILINE	μg/L	5 U	5 U	5 UJ
SVOC	3-NITROANILINE	μg/L	5 U	5 U	5 UJ
SVOC	4-NITROANILINE	μg/L	5 U	5 U	5 UJ
SVOC	NITROBENZENE	μg/L	5 U	5 U	5 UJ
SVOC	2-NITROPHENOL	μg/L	5 U	5 U	5 UJ
SVOC	4-NITROPHENOL	μg/L	20 U	20 U	20 UJ
SVOC	N-NITROSODIETHYLAMINE	μg/L	5 U	5 U	5 UJ
SVOC	N-NITROSODIMETHYLAMINE	μg/L	5 U	5 U	5 UJ
SVOC	N-NITROSO-DI-N-BUTYLAMINE	μg/L	5 U	5 U	5 UJ
SVOC	N-NITROSODI-n-PROPYLAMINE	μg/L	5 U	5 U	5 U
SVOC	N-NITROSODIPHENYLAMINE	μg/L	5 U	5 U	5 UJ
SVOC	N-NITROSOPIPERIDINE	μg/L	5 U	5 U	5 UJ
SVOC	PENTACHLOROBENZENE	μg/L	5 U	5 U	5 UJ
SVOC	PENTACHLORONITROBENZENE	μg/L	5 U	5 U	5 UJ
SVOC	PENTACHLOROPHENOL	μg/L	20 U	20 U	20 UJ
SVOC	PHENACETIN	μg/L	5 U	5 U	5 UJ
SVOC	PHENANTHRENE	μg/L	5 U	5 U	5 UJ
SVOC	PHENOL	μg/L	5 U	5 U	5 UJ
SVOC	2-PICOLINE (ALPHA-PICOLINE)	μg/L	5 U	5 U	5 UJ
SVOC	PYRENE	μg/L	5 U	5 U	5 UJ
SVOC	PYRIDINE A STEED AND A STEED A STEED AND A STEED A STEED A STEED A	μg/L	5 U	5 U	5 UJ
SVOC	1,2,4,5-TETRACHLOROBENZENE	μg/L	5 U	5 U	5 UJ
SVOC	2,3,4,6-TETRACHLOROPHENOL	μg/L	5 U	5 U	5 UJ
SVOC SVOC	1,2,4-TRICHLOROBENZENE	μg/L	5 U	5 U	5 UJ 5 UJ
SVOC	2,4,5-TRICHLOROPHENOL 2,4,6-TRICHLOROPHENOL	μg/L	5 U	5 U 5 U	5 UJ
3100	Pesticides	μg/L	อุบ	טוס	2 01
nact	ALDRIN	ua/l	0.02 U	0.02 U	0.02 U
pest	ALPHA-CHLORDANE	μg/L	0.02 U	0.02 U	0.02 U
pest	GAMMA-CHLORDANE	μg/L	0.02 U	0.02 U	0.02 U
pest	p,p'-DDD	μg/L	0.02 U	0.02 U	0.02 U
pest pest	p,p'-DDE	μg/L μg/L	0.02 U	0.02 U	0.02 U
pest pest	p,p'-DDE p,p'-DDT	μg/L μg/L	0.02 U	0.02 U	0.02 U
pesi pest	DIELDRIN		0.02 U	0.02 U	0.02 U
pest pest	ENDOSULFAN SULFATE	μg/L	0.02 U	0.02 U	0.02 U
	ALPHA ENDOSULFAN	μg/L	0.02 UJ	0.02 UJ	0.02 U
pest pest	BETA ENDOSULFAN	μg/L μg/L	0.02 UJ	0.02 UJ	0.02 UJ
pest pest	ENDRIN ENDRIN	μg/L μg/L	0.02 U	0.02 U	0.02 U
pest pest	ENDRIN ALDEHYDE	μg/L	0.02 U	0.02 U	0.02 U
pest pest	ENDRIN KETONE	μg/L	0.02 U	0.02 U	0.02 U
pest	ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE)	μg/L μg/L	0.02 U	0.02 UJ	0.02 U
pest	BETA BHC (BETA HEXACHLOROCYCLOHEXANE)	μg/L	0.02 U	0.02 U	0.02 U
pest	DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE)	μg/L μg/L	0.02 U	0.02 U	0.02 U
pest	GAMMA BHC (LINDANE)	μg/L	0.02 U	0.02 U	0.02 U
pest	ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE)	μg/L μg/L	0.02 U	0.02 UJ	0.02 U
pest	BETA BHC (BETA HEXACHLOROCYCLOHEXANE)	μg/L	0.02 U	0.02 U	0.02 U
pest	DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE)	μg/L	0.02 U	0.02 U	0.02 U
pest	GAMMA BHC (LINDANE)	μg/L μg/L	0.02 U	0.02 U	0.02 U
pest	HEPTACHLOR	μg/L	0.02 U	0.02 U	0.02 U
1,		ry' -	<u> </u>	3.02	

		Locations	Lake Orienta	Lake Orienta S-1514	Lake	
		Location: SampleID:	S-1515 LO-E-R-DP	LO-W-R-DP	Sherwood LS-R	
		DateCollected :	23-Aug-01		13-Aug-01	
		Matrix :	WA	23-Aug-01 WA	WA	
		SampleType :	Groundwater	Groundwater	Groundwater	
Class	Parameter Group and Name	Unit	Result Qual		Result Qual	
pest	HEPTACHLOR EPOXIDE	μg/L	0.02 U	0.02 U	0.02 U	
pest	METHOXYCHLOR	μg/L	0.02 U	0.02 U	0.02 U	
pest	TOXAPHENE	μg/L	0.5 U	0.5 U	0.5 U	
	Polychlorinated biphenols (PCBs)		_			
PCB	PCB, TOTAL	μg/L	0.5 U	0.5 U	0.5 U	
PCB	PCB-1016 (AROCHLOR 1016)	μg/L	0.5 U	0.5 U	0.5 U	
PCB	PCB-1221 (AROCHLOR 1221)	μg/L	0.5 U	0.5 U	0.5 U	
PCB	PCB-1232 (AROCHLOR 1232)	μg/L	0.5 U	0.5 U	0.5 U	
PCB	PCB-1248 (AROCHLOR 1248)	μg/L	0.5 U	0.5 U	0.5 U	
PCB	PCB-1254 (AROCHLOR 1254)	μg/L	0.5 U	0.5 U	0.5 U	
PCB	PCB-1260 (AROCHLOR 1260)	μg/L	0.5 U	0.5 U	0.5 U	
	Herbicides					
HERB	2,4,5-T (TRICHLOROPHENOXYACETIC ACID)	μg/L	0.2 U	0.2 U	0.2 U	
HERB	2,4-D (DICHLOROPHENOXYACETIC ACID)	μg/L	2 U	2 U	2 U	
HERB	2,4 DB	μg/L	2 U	2 U	2 U	
HERB	DALAPON	μg/L	5 U	5 U	5 U	
HERB	DICHLOROPROP	μg/L	2 U	2 U	2 U	
HERB	DICAMBA	μg/L	0.2 U	0.2 U	0.2 U	
HERB	DINOSEB	μg/L	1 U	1 U	1 U	
HERB	MCPA (Methyl-4-chlorophenoxy acetic acid, 2-)	μg/L	200 U	200 U	200 U	
HERB	MCPP ((2-Methyl-4-chlorophenoxy)butyric acid, 4-)	μg/L	200 U	200 U	200 U	
HERB	SILVEX (2,4,5-TP)	μg/L	0.2 U	0.2 U	0.2 U	

Notes:

Shaded cells with bolded values represent detections equal to or above promulgated regulatory criteria.

Shaded cells with boxed values represent detections equal to or above Risk-Based Criteria.

Shaded cells with bolded and boxed values represent detections equal to or above promulgated regulatory and Risk-Based Criteria.

Bolded values represent reporting limits equal to above promulgated regulatory criteria.

Boxed values represent reporting limits equal to above Risk-Based Criteria.

Bolded and boxed values represent reporting limits equal to above promulgated regulatory criteria and Risk-Based Criteria.

Explanation of Qualifers

- "=" Represents a detection at the value shown
- "U" Represents a nondetection above the reporting limit shown
- "J" Represents an estimated value between the method detection limit and the practical quantitation limit.
- "UJ" Represents a nondetection above the value shown

Blanks for the chemical data represent nondetections

Blanks for the criteria and screening values represent no established values.

Explanation of Units

pCi/L - picoCuries per liter

mg/L - milligrams per liter

NTU - Nephelometric Turbidity Units

 $\mu g/L$ - micrograms per liter

Initial microbiological results for stormwater recharge project, Orlando, Florida

	Sherwood Lake	Lake Orienta-West	Lake Orienta-East
Organism	8/13/01	8/23/01	8/23/01
Total coliform	235	210	250
Fecal coliform	7	36	< 1
E. coli	< 1	1	2
Enterococci	9	4	< 1
C. perfringens	< 1	< 1	<1
Cryptosporidium	< 30.5 / 100 L	< 34 / 100 L	< 2 / 100 L
Giardia	< 30.5 / 100 L	< 34 / 100 L	< 2 / 100 L
Somatic coliphage	< 5	< 5	< 5
1 liter enrichment	neg.	not done	not done
F+ coliphage	< 5	5	< 5
1liter enrichment	neg.	not done	not done

^{*} Organism concentrations in cfu/pfu per 100 ml except as noted for parasites

	Location:		Inflow to R-143	MW-1	MW-2	MW-3	MW-3 (Dup)	MW-4
	SJRWMD No. SampleID:	None FP-03-01-007	None FP-03-01-008	OR0018 FP-03-01-009	OR0819 FP-03-01-001	OR0818 FP-03-01-002	OR0818 FP-03-01-003	OR0141 FP-03-01-006
	DateCollected : Matrix :	5/28/2003 Stormwater	5/28/2003 Stormwater	5/29/2003 Groundwater	5/27/2003 Groundwater	5/27/2003 Groundwater	5/27/2003 Groundwater	5/28/2003 Groundwater
December Occurs and Name	SampleType :	Normal	Normal	Normal	Normal	Normal	Field Duplicate	Normal
Parameter Group and Name Field Measurements		Result Qual	Result Qual	Result Qual	Result Qual		Result Qual	Result Qual
pH TEMPERATURE	Std. Units ℃	5.89 32.8	6.45 29.2	9.22 25.4	7.38 25.5	11.1 25.4	11.1 25.4	10.17 24.9
CONDUCTANCE	μmhos	139	218	226	360	501	501	131
TURBIDITY DISSOLVED OXYGEN	NTU mg/L	2.95	4.79 3.19	1.2 0.82	1.24	6.72 0.22	6.72 0.22	1.45 0.24
OXIDATION/REDUCTION POTENTIAL	mV	211	195	1	252	-140	-140	10
General Chemistry TOTAL DISSOLVED SOLIDS (RESIDUE, FILTERABLE)	mg/L	102 =	125 =	117 =	361 =	386 =	274 =	265 =
TURBIDITY pH (laboratory)	NTU PH UNITS	1.6 = 6.53 =	1.7 = 6.31 =	0.12 U 7.5 =	0.12 U 7.44 =	0.12 U 11.1 =	1 = 10.6 =	0.12 U 7.79 =
COLOR	COLOR UNIT	20 =	20 =	5 J	0 U	5 J	5 J	0 U
BIOLOGIC OXYGEN DEMAND, FIVE DAY TOTAL ORGANIC CARBON	mg/L mg/L	2 U 4.85 =	2 U 27.5 =	2 U 27.8 =	2 U 3.19 U	2 U 2.18 U	2 U 2.83 U	2 U 20.8 =
DISSOLVED ORGANIC CARBON	mg/L	4.94 U	23.8 =	24.3 =	1.52 U	2.67 U	2.81 U	2.79 U
Nutrients TOTAL NITROGEN, ALL FORMS, CALCULATED	mg/L	0.484 =	0.358 =	0.198 =	1.99 =	0.901 =	0.741 =	0.453 =
NITROGEN, AMMONIA (AS N)	mg/L	0.213 J 0.484 U	0.21 U 0.358 U	0.427 = 0.198 U	1.59 = 1.322 =	1.04 = 0.901 U	0.431 = 0.741 U	0.21 U 0.453 U
NITROGEN, KJELDAHL, TOTAL NITROGEN, NITRITE	mg/L mg/L	0.484 U	0.356 U	0.196 U	0.535 =	0.901 U	0.741 U	0.453 U
NITROGEN, NITRATE-NITRITE PHOSPHORUS, TOTAL (AS P)	mg/L	0.05 U 0.148 =	0.05 U 0.103 =	0.05 U 0.226 =	0.67 =	0.05 U 0.051 =	0.05 U 0.101 =	0.05 U 0.143 =
PHOSPHORUS, TOTAL ORTHOPHOSPHATE (AS P)	mg/L mg/L	0.078 =	0.046 =	0.037 =	0.031 =	0.027 =	0.038 =	0.122 =
PHOSPHORUS, TOTAL ORGANIC (AS P) Anions	mg/L	0.102 =	0.075 =	0.082 =	0.075 =	0.054 =	0.057 =	0.048 =
ALKALINITY, BICARBONATE (AS CACO3)	mg/L	45.5 =	53 =	152 =	211 =	1 U	11 =	188 =
ALKALINITY, CARBONATE (AS CACO3) ALKALINITY, HYDROXIDE (AS CACO3)	mg/L mg/L					60 = 94 =	92 = 46 =	
CHLORIDE (AS CL) SULFATE (AS SO4)	mg/L mg/L	10.6 = 9.09 =	14.3 = 11.3 =	6.59 = 37.5 =	3.58 = 26.7 =	3.06 = 3.26 =	3.0 = 3.19 =	4.47 = 0.912 J
Metals								
ALUMINUM ANTIMONY	μg/L μg/L	73.7 U 2.5 U	76.3 U 2.5 U	150 U 2.5 U	35 U 2.66 J	37.7 U 2.5 U	35 U 2.5 U	35 U 2.5 U
ARSENIC	μg/L	2.04 U	2.04 U	10.5 =	19.4 =	3.06 J	2.04 U	2.04 U
BARIUM BERYLLIUM	μg/L μg/L	14.3 = 0.0945 U	16.6 = 0.0945 U	11.1 = 0.0945 U	35.9 = 0.0945 U	51.1 = 0.0945 U	35.3 = 0.0945 U	6 = 0.0945 U
CADMIUM	μg/L	0.356 U	0.356 U	0.356 U	0.356 U	0.356 U	0.356 U	0.356 U
CALCIUM CHROMIUM, TOTAL	μg/L μg/L	18500 = 0.712 J	21500 = 0.57 U	61800 = 0.57 U	52700 = 1.13 U	17100 = 1.79 U	20400 = 1.13 U	65600 = 0.57 U
COBALT	μg/L	0.569 U	0.569 U	0.569 U	0.569 U	0.569 U	0.569 U	0.569 U
COPPER IRON	μg/L μg/L	3.43 U 496 =	4.34 U 448 =	1.17 U 16.7 U	1.17 U 16.7 U	1.17 U 30.5 U	1.17 U 16.7 U	1.17 U 18.4 U
LEAD MAGNESIUM	μg/L	1.76 U	1.76 U 2030 =	1.76 U	1.76 U 6420 =	2.05 U	3.26 U	1.76 U 3150 =
MANGANESE	μg/L μg/L	1530 = 9.28 =	10.1 =	4700 = 3.94 =	2.21 =	1030 = 0.413 U	2080 = 0.515 U	1.35 U
MERCURY NICKEL	μg/L μg/L	0.0162 U 0.997 U	0.0162 U 2.31 J	0.0162 U 1.64 J	0.0162 U 4.66 J	0.0162 U 0.997 U	0.0162 U 0.997 U	0.0162 U 0.997 U
POTASSIUM	μg/L	1350 =	1510 =	1760 =	25400 =	56000 =	41400 =	1450 =
SELENIUM SILVER	μg/L μg/L	2.1 U 0.325 U	2.1 U 0.325 U	2.1 U 0.325 U	2.1 U 0.325 U	2.1 U 0.325 U	2.1 U 0.325 U	2.1 U 0.75 U
SODIUM	μg/L	6110 =	8000 =	5380 =	25600 =	29300 =	22900 =	10200 =
THALLIUM VANADIUM	μg/L μg/L	2.54 U 1.93 U	2.54 U 1.82 U	2.54 U 1.8 U	2.54 U 3.73 =	2.54 U 0.47 J	2.54 U 0.447 U	2.54 U 0.573 U
ZINC Ion Balance	μg/L	14.2 =	11.2 =	1.54 U	1.66 U	1.33 U	0.951 U	1.31 U
Calcium	meq/L	0.9	1.1	3.1	2.6	0.9	1.0	3.3
Magnesium Sodium	meq/L meq/L	0.1	0.2	0.4	0.5 1.1	1.3	0.2 1.0	0.3
Potassium Sum of cations	meq/L	0.0	0.0	0.0	0.6 4.9	1.4 3.6	1.1	0.0
Bicarbonate	meq/L meq/L	1.4 0.9	1.6 1.1	3.8	4.9	0.0	3.2 0.2	3.8
Carbonate Hydroxide	meq/L meq/L					1.2	1.8 0.9	
Chloride	meq/L	0.3	0.4	0.2	0.1	0.1	0.1	0.1
Sulfate Sum of anions	meq/L meq/L	0.2 1.4	0.2 1.7	0.8 4.0	0.6 4.9	0.1 3.2	0.1 3.1	3.9
Balance (% difference) Radiologicals		1.7%	2.1%	3.3%	-0.6%	-5.7%	-1.8%	-1.5%
ALPHA, GROSS	pCi/l	2.4 U	0.9 U	3.1 U	4.5 =	3.9 =	2.5 U	2.9 =
BETA, GROSS Total Petroleum Hydrocarbons	pCi/l	2.5 =	1 =	3.3 =	37.8 =	54.7 =	42.1 =	2.2 U
PETROLEUM HYDROCARBONS	mg/L	0.43 =	0.49 =	0.35 U	0.34 U	0.34 U	0.38 =	0.36 U
Volatile Organic Compounds ACETONE	μg/L	3 J	3.9 J	10 UJ				
ACROLEIN ACRYLONITRILE	μg/L μg/L	10 UJ 5 U	10 UJ 5 U	10 U 5 U	10 UJ 5 U	10 UJ 5 U	10 UJ 5 U	10 UJ 5 U
ALLYL CHLORIDE (3-CHLOROPROPENE)	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U
BENZENE BROMODICHLOROMETHANE	μg/L μg/L	1 U 1 U	0.18 J 1 U	1 U 1 U	1 U 1 U	0.64 J 1 U	0.48 J 1 U	1 U 1 U
BROMOFORM	μg/L	1 U	1 U	1 U	1 U	1 U	<u>1</u> U	1 U
BROMOMETHANE CARBON DISULFIDE	μg/L μg/L	1 U 1 U	1 U	1 U	1 U	1 U	1 U 1 U	1 U
CARBON TETRACHLORIDE	μg/L μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U
CHLOROBENZENE CHLOROETHANE	μg/L μg/L	1 U 1 UJ	1 U 1 UJ	1 U 1 U	1 U 1 U	1 U	1 U 1 U	1 U 1 UJ
CHLOROFORM	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U
CHLOROMETHANE 2-CHLORO-1,3-BUTADIENE	μg/L μg/L	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U
E STESTIO 1,0 BOTTIBLENE	μу/∟	1 0	i U	1 0	1 0	1 0	10	ı U

	Location:	Inflow to R-40	Inflow to R-143	MW-1	MW-2	MW-3	MW-3 (Dup)	MW-4
	SJRWMD No. SampleID:	None FP-03-01-007	None FP-03-01-008	OR0018 FP-03-01-009	OR0819 FP-03-01-001	OR0818 FP-03-01-002	OR0818 FP-03-01-003	
	DateCollected : Matrix :	5/28/2003 Stormwater	5/28/2003 Stormwater	5/29/2003 Groundwater	5/27/2003 Groundwater	5/27/2003 Groundwater	5/27/2003 Groundwater	5/28/2003 Groundwater
D 110	SampleType :	Normal	Normal	Normal	Normal	Normal	Field Duplicate	Normal
Parameter Group and Name cis-1,2-DICHLOROETHYLENE	Unit μg/L	Result Qual 0.54 J	Result Qual 0.52 J	Result Qual	2.3 =	2.4 =	Result Qual	1 U
cis-1,3-DICHLOROPROPENE	μg/L	1 U	1 U	1 U	1 U	1 U	<u>1</u> U	1 U
DIBROMOCHLOROMETHANE	μg/L	1 U	1 U	1 U	1 U	1 U	1 <u>U</u>	1 U
DICHLORODIFLUOROMETHANE 1,1-DICHLOROETHANE	μg/L μg/L	1 U 1.1 =	1 U	1 U	1 U 1.2 =	1 U	1 U 1 U	1 U 1 U
1,1-DICHLOROETHENE	μg/L	1.4 =	1 U	1 U	1 U	1 U	1 U	1 U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-DICHLOROBENZENE 1,2-DICHLOROETHANE	μg/L μg/L	0.34 J 1 U	0.6 J 1 U	1 U 1 U	1 U	1 U	1 U 1 U	1 U 1 U
1,2-DICHLOROPROPANE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,3-DICHLOROBENZENE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,4-DICHLOROBENZENE ETHYLBENZENE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2-HEXANONE	μg/L μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U
IODOMETHANE (METHYL IODIDE)	μg/L	2 U	2 U	2 U	2 U	2 U	2 U	2 U
METHYLENE CHLORIDE STYRENE	μg/L μg/L	1 U	1 U	1 U	1 U	1 U	1 U 1 U	1 U 1 U
TETRACHLOROETHYLENE(PCE)	μg/L	0.37 J	0.81 J	1 U	1 U	1 U	1 U	1 U
TOLUENE	μg/L	0.65 J	0.18 J	1 U	1 U	1 U	1 U	1 U
trans-1,2-DICHLOROETHENE trans-1,3-DICHLOROPROPENE	μg/L μg/L	1 U	1 U	1 U 1 UJ	1 U 1 UJ	1 U 1 UJ	0.16 J 1 UJ	1 U 1 U
trans-1,4-DICHLORO-2-BUTENE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U
TRICHLOROETHYLENE (TCE) TRICHLOROFLUOROMETHANE	μg/L	1 U	1 U	1 U 1 U	1 U	1 U 1 U	1 U	1 U
1,1,1-TRICHLOROETHANE	μg/L μg/L	1 U	1 U	1 U	1 U 1 U	1 U	1 U 1 U	1 U 1 U
1,1,2,2-TETRACHLOROETHANE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2,3-TRICHLOROPROPANE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U
VINYL ACETATE VINYL CHLORIDE	μg/L μg/L	1 U 1 U	1 U	1 U	1 U	1 U	1 U 1 U	1 U
M,P-XYLENE (SUM OF ISOMERS)	μg/L	2 U	2 U	2 U	2 U	2 U	2 U	2 U
O-XYLENE (1,2-DIMETHYLBENZENE)	μg/L	1 U	0.16 J	1 U	1 U	1 U	1 U	1 U
XYLENES, TOTAL Semi-volatile Organic Compound	μg/L	2 U	2 U	2 U	2 U	2 U	2 U	2 U
ACETOPHENONE	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U
ANILINE (PHENYLAMINE, AMINOBENZENE) ARAMITE	μg/L	5 U 10.1 U	5 U	5 U	5 U 10.1 U	5 U	5 U	5.1 U 10.2 U
4-AMINOBIPHENYL (4-BIPHENYLAMINE)	μg/L μg/L	5 U	10.1 U 5 U	10.1 U 5 U	5 U	10 U	10.1 U 5 U	5.1 U
2-ACETYLAMINOFLUORENE	μg/L	10.1 U	10.1 U	10.1 U	10.1 U	10 U	10.1 U	10.2 U
2-AMINONAPHTHALENE (BETA NAPHTHYLAMINE) BENZYL ALCOHOL	μg/L μg/L	5 U 10.1 U	5 U 10.1 U	5 U 10.1 U	5 U 10.1 U	5 U 10 U	5 U 10.1 U	5.1 U 10.2 U
BENZYL BUTYL PHTHALATE	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U
4-BROMOPHENYL PHENYL ETHER	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U
4-CHLOROANILINE 4-CHLOROPHENYL PHENYL ETHER	μg/L μg/L	5 U	5 U 5 U	5 U 5 U	5 U 5 U	5 U	5 U 5 U	5.1 U 5.1 U
2-CHLORONAPHTHALENE	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U
2-CHLOROPHENOL	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U
1,3-DINITROBENZENE 2,4-DICHLOROPHENOL	μg/L μg/L	10.1 U 5 U	10.1 U 5 U	10.1 U 5 U	10.1 U 5 U	10 U	10.1 U 5 U	10.2 U 5.1 U
2,6-DICHLOROPHENOL	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U
2,4-DIMETHYLPHENOL 2,4-DINITROPHENOL	μg/L μg/L	5 U 10.1 UJ	5 U 10.1 UJ	5 U 10.1 UJ	5 U 10.1 UJ	5 U 10 UJ	5 U 10.1 UJ	5.1 U 10.2 UJ
2,4-DINITROTOLUENE	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U
bis(2-CHLOROETHOXY) METHANE	μg/L	5 U	5 U	5 U	5 U	5 U	<u>5</u> U	5.1 U
bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHER) bis(2-CHLOROISOPROPYL) ETHER	μg/L	5 U	5 U	5 U	5 U	5 U	5 U 5 U	5.1 U 5.1 U
CHLOROBENZILATE	μg/L μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U
DIALLATE	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U
DIBENZOFURAN DIETHYL PHTHALATE	μg/L μg/L	5 U 5 U	5 U	5 U 5 U	5 U 5 U	5 U	5 U 5 U	5.1 U 5.1 U
DIMETHYL PHTHALATE	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U
DIMETHYLPHENYLETHYLAMINE	μg/L	20.2 UJ 5 U	20.2 UJ 5 U	20.2 UJ 5 U	20.2 UJ 5 U	20.1 UJ	20.2 UJ	20.4 UJ 5.1 U
7,12-DIMETHYLBENZ(a)ANTHRACENE p-DIMETHYLAMINOAZOBENZENE	μg/L μg/L	10.1 U	10.1 U	10.1 U	10.1 U	5 U 10 U	5 U 10.1 U	10.2 U
3,3'-DICHLOROBENZIDINE	μg/L	5 UJ	5 UJ	5 U	5 U	5 U	5 U	5.1 UJ
3,3'-DIMETHYLBENZIDINE ETHYL METHANESULFONATE	μg/L	10.1 U 5 U	10.1 U 5 U	10.1 UJ 5 U	10.1 U 5 U	10 U 5 U	10.1 U 5 U	10.2 U 5.1 U
HEXACHLOROPROPENE	μg/L μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U
ISODRIN	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U
ISOPHORONE ISOSAFROLE	μg/L μg/L	5 U 5 U	5 U	5 U	5 U 5 U	5 U	5 U 5 U	5.1 U 5.1 U
KEPONE	μg/L μg/L	20.2 U	20.2 U	20.2 U	20.2 U	20.1 U	20.2 U	20.4 U
METHAPYRILENE	μg/L	10.1 UJ	10.1 UJ	10.1 UJ	10.1 UJ	10 UJ	10.1 UJ	10.2 UJ
METHYL METHANESULFONATE 2-METHYLNAPHTHALENE	μg/L μg/L	5 U	5 U 5 U	5 U	5 U	5 U	5 U 5 U	5.1 U 5.1 U
2-METHYLPHENOL (o-CRESOL)	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U
3-METHYLCHOLANTHRENE	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U
4-METHYLPHENOL (p-CRESOL) 1,4-NAPHTHOQUINONE	μg/L μg/L	5 UJ 10.1 U	5 UJ 10.1 U	5 UJ 10.1 U	5 UJ 10.1 U	5 UJ 10 U	5 UJ 10.1 U	5.1 UJ 10.2 U
1-NAPHTHYLAMINE	μg/L	5 U	5 U	5 U	5 U	5 U	<u>5</u> U	5.1 U
2-NITROANILINE	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U
3-NITROANILINE 4-NITROANILINE	μg/L μg/L	5 U 5 UJ	5 U 5 UJ	5 U 5 UJ	5 U 5 UJ	5 U 5 UJ	5 U 5 U	5.1 U 5.1 UJ
4-NITROQUINOLINE-N-OXIDE	μg/L	10.1 U	10.1 U	10.1 UJ	10.1 UJ	10 UJ	10.1 UJ	10.2 U
5-NITRO-o-TOLUIDINE N-NITROSO-DI-N-BUTYLAMINE	μg/L	10.1 U 5 U	10.1 U 5 U	10.1 U 5 U	10.1 U 5 U	10 U 5 U	10.1 U 5 U	10.2 U 5.1 U
N-NITROSODI-N-BUTYLAMINE N-NITROSODI-n-PROPYLAMINE	μg/L μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U
N-NITROSODIETHYLAMINE	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U
N-NITROSODIMETHYLAMINE	μg/L	5 U	5 U	5 U	5 U	5 U	5 ∪	5.1 U

	Location:	Inflow to R-40	Inflow to R-143	MW-1	MW-2	MW-3	MW-3 (Dup)	MW-4
	SJRWMD No. SampleID:	None FP-03-01-007	None FP-03-01-008	OR0018 FP-03-01-009	OR0819 FP-03-01-001	OR0818 FP-03-01-002	OR0818 FP-03-01-003	OR0141 FP-03-01-006
	DateCollected :	5/28/2003	5/28/2003	5/29/2003	5/27/2003	5/27/2003	5/27/2003	5/28/2003
	Matrix : SampleType :	Stormwater Normal	Stormwater Normal	Groundwater Normal	Groundwater Normal	Groundwater Normal	Groundwater Field Duplicate	Groundwater Normal
Parameter Group and Name N-NITROSODIPHENYLAMINE	Unit μg/L	Result Qual 5 U	Result Qual 5 U	Result Qual 5 U	Result Qual 5 U	Result Qual 5 U	Result Qual 5 UJ	Result Qual 5.1 U
N-NITROSOMORPHOLINE	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U
1,3,5-TRINITROBENZENE N-NITROSOPIPERIDINE	μg/L	20.2 U 5 U	20.2 U 5 U	20.2 U 5 U	20.2 U 5 U	20.1 U 5 U	20.2 U 5 U	20.4 U 5.1 U
N-NITROSOPIPERIDINE N-NITROSOPYRROLIDINE	μg/L μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U
NITROBENZENE	μg/L	5 ∪	5 ∪	5 U	5 U	5 U	5 ∪	5.1 U
NITROSOMETHYLETHYLAMINE O,O,O-TRIETHYL PHOSPHOROTHIOATE	μg/L	5 UJ 5 U	5 UJ 5 U	5 UJ 5 U	5 UJ 5 U	5 UJ 5 U	5 UJ 5 U	5.1 UJ 5.1 U
o-TOLUIDINE	μg/L μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U
2-PICOLINE (ALPHA-PICOLINE)	μg/L	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5.1 UJ
p-PHENYLENEDIAMINE PENTACHLOROBENZENE	μg/L μg/L	10.1 U 5 U	10.1 U	10.1 U 5 U	10.1 U 5 U	10 U	10.1 U 5 U	10.2 U 5.1 U
PENTACHLOROETHANE	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U
PENTACHLORONITROBENZENE	μg/L	5 U	5 U	5 U 10.1 U	5 U 10.1 U	5 U 10 U	5 U 10.1 U	5.1 U 10.2 U
PENTACHLOROPHENOL PHENACETIN	μg/L μg/L	10.1 U 10.1 U	10.1 U 10.1 U	10.1 U	10.1 U	10 U	10.1 U	10.2 U
PHENOL	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U
PRONAMIDE PYRIDINE	μg/L	5 U 5 UJ	5 U 5 UJ	5 U 5 UJ	5 U	5 U	5 U 5 U	5.1 U 5.1 UJ
SAFROLE	μg/L μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U
1,2,4,5-TETRACHLOROBENZENE	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U
2,3,4,6-TETRACHLOROPHENOL 1,2,4-TRICHLOROBENZENE	μg/L μg/L	10.1 U 5 U	10.1 U	10.1 U 5 U	10.1 U	10 U	10.1 U 5 U	10.2 U 5.1 U
2,4,5-TRICHLOROPHENOL	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U
2,4,6-TRICHLOROPHENOL Organochlorine Pesticides	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U
ALDRIN	μg/L	0.052 ∪	0.053 ∪	0.052 ∪	0.053 ∪	0.052 ∪	0.051 U	0.052 ∪
ALPHA-CHLORDANE	μg/L	0.052 U	0.053 U	0.052 U	0.053 U	0.052 U	0.051 U	0.052 U
GAMMA-CHLORDANE ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE)	μg/L μg/L	0.052 U 0.052 U	0.053 U 0.053 U	0.052 U 0.052 U	0.053 U 0.053 U	0.052 U 0.052 U	0.051 U 0.051 U	0.052 U 0.052 U
BETA BHC (BETA HEXACHLOROCYCLOHEXANE)	μg/L	0.052 U	0.053 U	0.052 U	0.053 U	0.052 U	0.051 U	0.052 U
DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE)	μg/L	0.062 UJ	0.064 UJ	0.062 U	0.063 UJ	0.062 UJ	0.061 UJ	0.062 UJ
GAMMA BHC (LINDANE) DIELDRIN	μg/L μg/L	0.052 U 0.052 U	0.053 U 0.053 U	0.052 U 0.052 U	0.053 U 0.053 U	0.052 U 0.052 U	0.051 U 0.051 U	0.052 U 0.052 U
ALPHA ENDOSULFAN	μg/L	0.052 U	0.053 U	0.052 U	0.053 U	0.052 U	0.051 U	0.052 U
BETA ENDOSULFAN	μg/L	0.052 U	0.053 U	0.052 U	0.053 U	0.052 U	0.051 U	0.052 U
ENDOSULFAN SULFATE ENDRIN	μg/L μg/L	0.052 U 0.052 U	0.053 U 0.053 U	0.052 U 0.052 U	0.053 U 0.053 U	0.052 U 0.052 U	0.051 U 0.051 U	0.052 U 0.052 U
ENDRIN ALDEHYDE	μg/L	0.062 U	0.064 U	0.062 U	0.063 U	0.062 U	0.061 U	0.062 U
ENDRIN KETONE	μg/L	0.052 U	0.053 U	0.052 U	0.053 U	0.052 U	0.051 U	0.052 U
HEPTACHLOR HEPTACHLOR EPOXIDE	μg/L μg/L	0.052 U 0.052 U	0.053 U 0.028 J	0.052 U 0.052 U	0.053 U 0.053 U	0.052 U 0.052 U	0.051 U 0.051 U	0.052 U 0.052 U
p,p'-DDD	μg/L	0.052 U	0.053 U	0.052 U	0.053 U	0.052 U	0.051 U	0.052 U
p,p'-DDE p,p'-DDT	μg/L	0.062 U 0.052 U	0.064 U 0.053 U	0.062 U 0.052 U	0.063 U 0.053 U	0.062 U 0.052 U	0.061 U 0.051 U	0.062 U 0.052 U
METHOXYCHLOR	μg/L μg/L	0.052 U	0.053 U	0.052 U	0.053 U	0.052 U	0.051 U	0.052 U
TOXAPHENE	μg/L	3.1 U	3.2 ∪	3.1 UJ	3.2 UJ	3.1 UJ	3.1 UJ	3.1 U
Organophosphorous Pesticides ATRAZINE	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
AZINPHOS, METHYL (GUTHION)	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BOLSTAR	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CHLORPYRIFOS COUMAPHOS	μg/L μg/L	10 U 10 U	10 U	10 U 10 U	10 U	10 U	10 U 10 U	10 U 10 U
DEMETON-O	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
DEMETON-S DIAZINON	μg/L	10 U 10 U	10 U 10 U	10 U 10 U	10 U	10 U	10 U 10 U	10 U 10 U
DICHLORVOS	μg/L μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
DIMETHOATE	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
DISULFOTON	μg/L	10 U 10 U	10 U 10 U	10 U 10 U	10 U 10 U	10 U 10 U	10 U 10 U	10 U 10 U
ETHOPROP FAMPHUR	μg/L μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
FENSULFOTHION	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
FENTHION MERPHOS	μg/L μg/L	10 U 10 U	10 U	10 U 10 U	10 U	10 U	10 U 10 U	10 U
MEVINPHOS	μg/L	10 UJ	10 UJ	10 UJ	10 U	10 U	10 U	10 UJ
NALED	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
PARATHION, ETHYL PARATHION, METHYL	μg/L μg/L	10 UJ 10 U	10 UJ 10 U	10 UJ 10 U	10 UJ 10 U	10 UJ 10 U	10 UJ 10 U	10 UJ 10 U
PHORATE	μg/L	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
RONNEL	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
SIMAZINE STIROFOS (TETRACHLORVINPHOS)	μg/L μg/L	10 U 10 U	10 U	10 U 10 U	10 U	10 U	10 U 10 U	10 U 10 U
THIODIPHOSPHORIC ACID TETRAETHYL ESTER	μg/L μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
TOKUTHION (PROTHIOFOS)	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
TRICHLORONATE ZINOPHOS	μg/L μg/L	10 U 10 U	10 U	10 U 10 U	10 U	10 U	10 U 10 U	10 U
Polychlorinated biphenols (PCBs)								
PCB-1016 (AROCHLOR 1016)	μg/L	0.52 U	0.53 U	0.52 U	0.53 U	0.52 U	0.51 U	0.52 U
PCB-1221 (AROCHLOR 1221) PCB-1232 (AROCHLOR 1232)	μg/L μg/L	1 U 0.52 U	1.1 U 0.53 U	1 U 0.52 U	1 U 0.53 U	1 U 0.52 U	1 U 0.51 U	1 U 0.52 U
PCB-1232 (AROCHLOR 1232)	μg/L	0.52 U	0.53 U	0.52 U	0.53 U	0.52 U	0.51 U	0.52 U
PCB-1248 (AROCHLOR 1248)	μg/L	0.52 ∪	0.53 ∪	0.52 ∪	0.53 ∪	0.52 ∪	0.51 ∪	0.52 ∪
PCB-1254 (AROCHLOR 1254)	μg/L	0.52 U	0.53 U	0.52 U	0.53 U	0.52 U	0.51 U	0.52 U
PCB-1260 (AROCHLOR 1260)	μg/L	0.52 ∪	0.53 ∪	0.52 ∪	0.53 U	0.52 U	0.51 U	0.52 ∪

	Location:	Inflow to R-40	Inflow to R-143	MW-1	MW-2	MW-3	MW-3 (Dup)	MW-4
	SJRWMD No.	None	None	OR0018	OR0819	OR0818	OR0818	OR0141
	SampleID :	FP-03-01-007	FP-03-01-008	FP-03-01-009	FP-03-01-001	FP-03-01-002	FP-03-01-003	FP-03-01-006
	DateCollected :	5/28/2003	5/28/2003	5/29/2003	5/27/2003	5/27/2003	5/27/2003	5/28/2003
	Matrix :	Stormwater	Stormwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
	SampleType :	Normal	Normal	Normal	Normal	Normal	Field Duplicate	Normal
Parameter Group and Name	Unit	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual
Herbicides								, i
2,4,5-T (TRICHLOROPHENOXYACETIC ACID)	μg/L	0.53 U	0.53 U	0.53 R	0.52 U	0.51 U	0.51 U	0.53 U
2,4-D (DICHLOROPHENOXYACETIC ACID)	μg/L	0.53 U	0.53 U	0.53 R	0.52 U	0.51 U	0.51 U	0.53 U
DALAPON	μg/L	0.53 UJ	0.53 UJ	0.53 R	0.52 U	0.51 U	0.51 U	0.53 UJ
DICAMBA	μg/L	0.53 U	0.53 U	0.53 R	0.52 U	0.51 U	0.51 U	0.53 U
DICHLOROPROP	μg/L	0.53 U	0.53 U	0.53 R	0.52 U	0.51 U	0.51 U	0.53 U
DINOSEB	μg/L	0.53 UJ	0.53 UJ	0.53 R	0.52 U	0.51 U	0.51 U	0.53 UJ
PICLORAM	μg/L	11 UJ	10 UJ	11 R	10 UJ	10 UJ	10 UJ	11 UJ
SILVEX (2,4,5-TP)	μg/L	0.53 U	0.53 U	0.53 R	0.52 U	0.51 U	0.51 U	0.53 U

Notes:
Shaded cells with bolded values represent detections equal to or above promulgated regulatory criteria.
Shaded cells with boxed values represent detections equal to or above Risk-Based Criteria.
Shaded cells with bolded and boxed values represent detections equal to or above promulgated regulatory criteria and Risk-Based Criteria.
Bolded values represent reporting limits equal or above promulgated regulatory criteria.
Boxed values represent reporting limits equal or above Risk-Based Criteria.
Bolded and boxed values represent reporting limits equal or above promulgated regulatory criteria and Risk-Based Criteria.

- Bolded and boxed values represent reporting limits equal or above promulgated regulatory criteria and Risk-Based Criteria.

 Explanation of Qualifiers

 "=" Represents a detection at the value shown

 "U" Represents a nondetection above the reporting limit shown

 "J" Represents an estimated value between the method detection limit and the or nepresents an estimated value between the internod detection limit and in practical quantitation limit.

 "U.J" Represents a nondetection above the value shown

 "R" Represents rejected data

 Blanks for the criteria and screening values represent no established values.

Blanks for the criteria and screening vexplanation of Units
pCi/L - picoCuries per liter
mg/L - milligrams per liter
NTU - Nephelometric Turbidity Units
µg/L - micrograms per liter

REPORT

Central Florida Artificial Recharge Demonstration Program Festival Park, Baseline Sampling Event- Orlando, FL

Microbial Baseline Sampling Results

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Central Florida Artificial Recharge Demonstration Program Festival Park, Baseline Sampling Event – Orlando, FL

SAMPLING METHODS:

FIELD SAMPLING METHODS:

Four groundwater monitoring wells (MW1, MW2, MW3, MW4) and two storm-water recharge wells (Well R-143, the north recharge well and Well R-40, the south recharge well) were sampled for *Cryptosporidium spp.*, *Giardia spp.*, *Enterococcus spp.*, total coliforms, fecal coliforms, *E. coli*, and coliphage in order to establish baseline levels of these microbial indicators for the Artificial Recharge Well Demonstration Project. Envirochek HV filters were used, according to EPA Method 1623 to detect the presence of *Cryptosporidium spp.* and *Giardia spp.* at each site. The sampling apparatus used at the monitoring well sites consisted of the submersible pump attached to 125ft.of tubing, attached to the Envirochek HV filter, attached to a flow meter, attached to an outlet hose. The sampling apparatus was modified at the recharge site to incorporate a diaphragm pump, which was placed after the flow meter. Flow meters were attached to the sampling apparatus to provide accurate measurement of volume sampled.

Matrix spike (MS) and matrix spike duplicate (MSD) samples were processed according to USEPA method 1623 (USEPA, 2001) to determine the recovery efficiency of the sampling apparatus under specific field conditions and with differing water matrices (i.e. groundwater and stormwater wells). Following collection of filter samples for *Cryptosporidium spp.* and *Giardia spp.*, grab samples were collected in sterile one or two liter bottles for laboratory analysis of the concentration of four bacterial indicators and coliphage.

All equipment used in the sampling apparatus was new, and once used, it was "dedicated" to the site, labeled, and stored in separate plastic bags. These measures were taken to prevent cross contamination during later sample collection events at these sites. Also, to eliminate the need for decontamination, all tubing that precedes the filter in the sampling apparatus will be replaced with new tubing at each future sampling event.

General chemical and physical parameters of the source water were tested at the sampling sites. Water temperature, pH, turbidity, and conductivity were measured at each site and recorded on field data sheets (Table 1).

Groundwater Monitoring Wells:

Samples were collected from the monitoring wells using a submersible pump that was lowered to a depth of 120 to 125 feet bellow ground level. Following submersion, the water level was allowed to stabilize before sampling began. The pump was decontaminated between each use. In the future, sampling will be completed using dedicated bladder pumps.

Following the EPA Method 1623 approximately 946 liters of water were filtered through Envirochek HV filter capsules at sites MW2, MW3, and MW4 at a rate between 2.3 and 3.8 liters/minute (EPA Method 1623: *Cryptosporidium* and *Giardia* in Water by Filtration/IMS/IFA)(Table 1). Nine hundred twenty six liters were filtered at site MW1 due to

a slightly high turbidity and clogging of the filter. Also, at MW1 large amounts of air were present in the water as it entered the filter. The aeration may be due to the geological substrate in which this well was located. The degree of water aeration was not found to be correctable with slight variation in the flow rate or pump depth.

MS and MSD samples were collected at Monitoring Well 4 (MW4) to check the precision and accuracy of the equipment used to sample for *Cryptosporidium spp*. and *Giardia spp*. For each spiked sample approximately 100 liters of water were pumped into a 32 gallon plastic trash can. *Giardia* cysts and *Cryptosporidium* oocysts (100±2 and 100±2, respectively) were added to the 100 liter sample according to the ColorSeedC&G matrix spike package insert (ColorSeed C&G; BTF, Decisive Microbiology, North Ryde, BC, Australia). The final 2-3 liters of system effluent were used to rinse the inside of the garbage can in efforts to recover any affixed (00)cysts. The equipment used for the matrix spikes was dedicated to be used for matrix spikes only at MW4, if they are necessary in the future.

Following the collection of filter samples, a total of 7 liters of water was collected in sterile grab sample bottles. The filters and grab samples were placed in coolers with ice packs and transported to the Water Pollution Laboratory at Michigan State University for analysis.

Stormwater Recharge Wells:

Samples were collected from recharge wells using a car-battery operated automatic-demand diaphragm pump that drew water from the stormwater collection sumps of the well vaults at a depth of approximately 10ft. A 13 ft. piece of tubing was inserted into a 10ft long PVC pipe which was lowered through the well grate into the water. The sampling apparatus consisted of tubing encased in PVC piping attached to the Envirochek HV filter, attached to a flow meter, attached to a diaphragm pump, attached to an outlet hose.

At the north and south recharge wells 18.9 and 49.2 liters were filtered, respectively, due to clogging of the filter. The samples were collected at a rate between 4.2 and 5.7 liters/minute. Sampling at the North Recharge (R-143) site was complicated by recurring sudden rises in the water level. Approximately every 20 minutes the water level would rapidly rise from approximately 10 ft. below ground level to approximately 1ft. above ground level and would spray from the top of the well grate.

MS and MSD samples were collected at R-143. Approximately 10 liters of water were collected in a new 32 gallon plastic garbage can, to which the ColorSeed sample containing 100±2 *Giardia* cysts and 100±2 *Cryptosporidium* oocysts was added, according to the manufacturer specifications. The entire 10L sample was filtered at a rate of approximately 3.8 liters/minute and the final 2-3liters of system effluent were used to rinse the sides of the garbage can in efforts to recover any affixed (oo)cysts. A 10 liter sample was spiked instead of the recommended 100L due to the high turbidity and the observation that the R-143 sample filter became clogged after 18.9 liters had been filtered. The procedure was repeated for the matrix spike duplicate.

A total of 7 liters of grab samples were also collected at each stormwater recharge site. The filters and grab samples were placed in coolers with ice packs and transported to the Water Pollution Laboratory at Michigan State University for laboratory analysis.

LABORATORY METHODS:

The filters and grab samples were stored on ice and transported to the laboratory via Fed Ex next-day delivery service. The initial laboratory processing of samples was completed within 36 hours after collection. Recovery efficiency experiments are also routinely done in the laboratory to determine the accuracy and precision of laboratory methods and equipment.

Cryptosporidium spp. and Giardia spp.:

Cryptosporidium spp. and Giardia spp. were enumerated using standard methods for filtration, elution, concentration, purification (IMS), staining and examination by IFA according to the methods described in Method 1623 (EPA Method 1623: Cryptosporidium and Giardia in Water by Filtration/IMS/IFA) (USEPA, 2001). The concentration of the final pellet was recorded on laboratory data sheets.

The resuspended pellet containing (oo)cysts was purified using immunomagnetic separation (IMS) using a Dynal Dynabeads CG combo kit. IMS was completed according to the protocol described in EPA Method 1623 with some modification. Namely, the dissociation of the bead-(oo)cyst complex was accomplished by washing the beads with 100ul of 0.1N HCl two times, instead of the suggested 50ul (Dynabeads anti-*Cryptosporidium* and anti-*Giardia*; product 730.02; Dynal A.S., Oslo, Norway). This resulted in a 200ul suspension containing cysts and oocysts, and 50ul of solution was placed on each of four slides with 5ul NaOH to neutralize the HCL. The slides were then fixed and stained using fluorescein isothiocyanate-conjugated anti-*Cryptosporidium* sp. and anti-*Giardia* sp. monoclonal antibodies (EasyStain; BTF, Decisive Microbiology, North Ryde, BC Australia) and a solution 4',6'-diamidino-2-phenylindole and propidium iodide (DAPI-PI).

(Oo)cysts on the slides were viewed and enumerated using epifluorescence microscopy. For naturally occurring (oo)cysts, the number of cysts and oocysts per 100L of water was calculated (Table 2). Also, for the spiked samples (MS and MSD), the recovery efficiency and relative percent difference statistics were calculated (Tables 3 and 4).

Bacterial Indicators:

To assess the concentration of total coliforms, fecal coliforms, *E. coli* and *Entercoccus spp.*, in the monitoring wells, sample volumes of 1, 100, 250, 500 mL were filtered using a 0.45 um (pore size) 47mm (diameter) filter membrane (Gelman Sciences) according to the *Standard Methods for the Examination of Water and Wastewater* (APHA 1998). The same was done with samples derived from recharge wells; however, the 500 mL volume could not be processed due to clogging of the filter. The filters were plated on indicator-specific media and incubated for 24 hours at temperatures specific to each indicator.

For enumeration of *Enterococcus spp*. the filters were placed on MEI agar plates (modified medium for detection of *Enterococcus spp*.; Difco Laboratories, Detroit, MI) and incubated at 41°C. After 24 hours colonies with a blue halo were counted as *Entercoccus spp*. as described in Method 1600 (USEPA, 1996). To assess numbers of total coliform bacteria, membrane filters were placed on m-ENDO agar (Difco Laboratories, Detroit, MI) and incubated at 37°C. To detect fecal coliform bacteria the filters were placed on mFC agar (modified medium for fecal coliform bacteria; Difco Laboratories, Detroit, MI) and incubated

at 45° C. The bacterial concentrations were then quantified and expressed as the number of colony forming units per 100mL (CFU/ 100mL) (Table 5).

To assess *E.coli* concentrations the membrane filter used in the total coliform evaluation was removed from the m-ENDO agar and transferred to a plate with EC medium with MUG (Difco Laboratories, Detroit, MI). The plates were incubated at 37°C for 24 hours and then viewed under a UV lamp. Those colonies which fluoresced were counted as positive *E.coli* colonies (Table 5).

Coliphages:

Two methods were used to determine the concentration and types of coliphages present in the water samples: an agar overlay method and an enrichment method. Two different host bacterium strains were used in the agar overlay method, *E. coli* C3000 and *E. coli* p(Famp)R Each host *E. coli* was grown to logarithmic stage in tryptic soy broth (TSB) at 37° C for approximately 4 hours. 1mL of the host bacteria and 2mL of sampled water was mixed with a molten trypticase soy agar (TSA) (3mL) and then poured over a solid TSA plate. 5 replicate plates were used for each sample site and for each host. Coliphage concentration at each sampling site was determined using the following formula: (total number of plaques/ volume of sampled water analyzed)*100. The concentration is reported in numbers of plaque-forming units per 100mL (PFU/100mL) (Table 5).

The enrichment test provides information about the presence or absence of coliphages rather than a quantitative assessment of coliphage numbers, and is commonly used to detect low levels of coliphages that may be present in groundwater samples. In order to detect low numbers of coliphages in the sampled water, an enrichment experiment was run with water from each of the sites. A 1 L water sample was inoculated with 10mL of host bacterial culture (*E. coli* p(Famp)R) and 100mL of 11X tryptone broth with antibiotics (Ampicillin-Streptomycin). The sample was then incubated at 35°C for 48 hours.

Two mL of enrichment sample from the sites that were initially coliphage-negative (using the agar overlay method) was filtered through a 0.22um syringe filter. Ten ul of the filtrate was then spotted on the center of a plate with TSA base and a TSA agar overlay containing host bacterium. The plates were incubated at 37°C for 24 hours and examined for lysis zones.

Also, to determine if the samples contained F+DNA or F+RNA phages, RNase was incorporated into plating growth medium containing an *E. coli* p(Famp)R baterial lawn. Ten ul (filtered) of the enriched samples for each sample site were spotted in the center of TSA (RNase+) plates containing *E. coli* (Famp+) and incubated at 37°C for 24 hours. The plates were then scored as either F+DNA or F+RNA phages (Table 5).

Recovery Efficiency Experiments:

Recovery efficiency experiments are routinely conducted in the Water Pollution Laboratory at Michigan State University to verify that proper quality assurance standards are met. These experiments are carried out as described in the April 2001 version of USEPA method 1623 to demonstrate acceptable method performance and include: (i) initial precision and recovery tests, (IPR) (ii) ongoing precision and recovery tests (OPR), (iii) matrix spikes

(MS) and (iv) method blanks. A combination of filtered tap water and distilled water are used as the reagent water sample for blanks, IPR and OPR tests.

IPR tests are intended to establish the ability to demonstrate control over the analytical system and to generate acceptable precision and recovery (USEPA, 2001). For this purpose, 100 L of reagent water sample was filtered, eluted, concentrated, purified (IMS), stained and examined by IFA using method 1623 and the Envirochek HV cartridge filtration method. Four reagent water samples were processed and the results of these analyses were used to compute the average percent recovery (Mean) and the relative standard deviation (RSD) of the recovery. The RSD is the standard deviation divided by the mean times 100. The mean and RSD are compared with the corresponding limits for initial precision and recovery described in method 1623 (USEPA, 2001) in order to determine method performance (Tables 3 and 4).

OPR tests will be carried out throughout the study to verify all performance criteria (data not shown). For this purpose, one (to date) spike reagent water sample has been filtered, eluted, concentrated, purified (IMS), stained and examined by IFA. The frequency of OPR tests is typically one spiked reagent water sample for every 20 samples analyzed.

Matrix spike (MS) along with matrix spike duplicates (MSD) were carried out with the spiked field samples described above to determine the effect of the method's oocyst and cyst recovery. For this purpose, four spiked water matrix was processed filtered, eluted, concentrated, purified (IMS) stained and examined by IFA. MS for each water type were processed and the mean of the number of (oo)cysts were computed as follows: Matrix spike duplicate (MSD) or Mean = (MS1+MS2/2). From these results, the relative percent difference (RPD) was computed as follows: RPD = $100 \times [(oo)$ cysts detected in MS1 – oocysts detected in MS2]/Mean. The results of these calculations were then compared with the corresponding limits established in method 1623 (USEPA, 2001) to determine precision and recovery of the methods using the different water matrices (Tables 3 and 4).

The filtration device used in the study was the Envirochek HV sampling capsule (Pall Gelman Laboratory, Ann Arbor, MI). ColorSeedTM C&G (BTF, Decisive Microbiology, North Ryde, BC, Australia) was used as the spike suspensions in IPR tests, matrix spike, matrix spike duplicates, and recovery efficiency experiments. These spikes consist of 100±2 red fluorescent labeled and gamma irradiated *Cryptosporidium* oocysts and *Giardia* cysts in approximately 1 mL of saline solution. They can be used as internal quality control parameters to determine the performance or percent recovery achieved with every test (see http://www.biotechfrontiers.com). For spiked experiments, water volumes of 100 L were filtered through the Envirochek HV capsule filter. Spiked samples were filtered on-site and the filters were transported to the laboratory on ice.

RESULTS

Tables 1, 2 3, 4 and 5 show the results obtained from samples collected at the different sites.

Table 1 describes the physical-chemical parameters determined at each monitoring well and stormwater recharge site. Table 2 describes the results obtained from the analysis of protozoan parasites. Neither *Cryptosporidium* oocysts nor *Giardia* cysts were detected in any

of the samples colleted. Further sampling will allow determining the parasitological status of these sites. In detection, a lot of interferences from particles and other debris were observed for those samples collected from MW3 which significantly limited the detection step. Among the different sites, the highest turbidity (6.72 NTU) was registered at site MW3. Further sampling will include either adjustment of the volume in relation to the turbidity or two capsule filters at sites with high turbidities in an effort to eliminate/diminish interferences caused by organic and/or inorganic materials.

Table 3 and 4 describe the results obtained from the matrix spike recoveries from samples collected at monitoring well 4 and recharge well north (R-143), respectively. The data indicate that the mean recovery (as percent) and precision (as maximum relative percent difference, RPD) obtained for Cryptosporidium oocysts from water samples collected from MW4 and recharge well north falls within the quality control acceptance criteria established by US Environmental Protection Agency (USEPA, 2001) (Mean percent 13%-111%, RPD 61%). Giardia cysts spiked into samples from MW4 were efficiently recovered as determined by the mean percent and RPD obtained from this site, however the results obtained from those samples processed from recharge well north did not fall within the QC criteria of the method. Even though the results of the IPR tests obtained in the laboratory have indicated that the performance of the method for Cryptosporidium and Giardia is appropriate for testing waterborne oocysts, the effects of different unknown water matrix components still may have an adverse effect on the recovery efficiency of spiked and naturally occurring oocysts. The laboratory is intensively studying new methods and applying more sensitive techniques (molecular techniques and tissue cell culture) to assess the occurrence of waterborne Cryptosporidium and Giardia. The goal is to apply the standard method approved by USEPA with modifications including additional assays for enhancing the recovery efficiency and detection of (00)cysts in different water matrices.

The standard assay used to report the number of spiked and naturally occurring (oo)cysts in this study is based on the immunofluorescence assay and the vital dye assay (DAPI/PI) plus differential interference contrast microscopy (D.I.C) for enumeration and confirmation of spiked and recovered (oo)cysts, respectively. Additional parasite testing is recommended to determine the effect of the water matrix components on the recovery efficiency of (oo)cysts and more importantly on *Giardia* cysts from samples obtained from Festival park.

Table 5 summarizes the results of the microbial indicator analysis from monitoring wells and stormwater recharge sites. There were differences in the number of microbial indicators among the different monitoring wells. MW1 and MW2 were positive for all microbial indicators, while MW4 and MW3 were negative for microbial indicators. Nevertheless, the enrichment protocol determined the occurrence of coliphages in all monitoring wells, therefore indicating vulnerability to microbial contamination in all wells. The stormwater recharge sites had high numbers of microbial indicators of fecal contamination as determined by the levels of bacteria and coliphage detected. There may be some regrowth of some of the bacteria in the recharge wells and the quality of the water should be examined in view of the well characteristics and/or other considerations.

Table 1 Summary of chemical and physical parameters measured at the Festival Park sampling sites during the Baseline Sampling Event.

DATE COLLECTED	SITE LOCATION	Water Temperature (° C)	Turbidity	рН	Time of Collection	Flow Rate (liters/minute)
05/28/03	Monitoring Well 4	24.9	1.45	10.17	9:22-15:00	2.6
05/28/03	R-40	32.8	2.95	5.89	11:36-11:44	5.7
05/28/03	R-143	32.8	4.79	6.45	16:15-17:05	3.8
05/29/03	Monitoring Well 1	24.9	1.91	11.61	8:40-12:50	3.8
05/29/03	Monitoring Well 3	25.4	6.72	11.1	9:45-14:20	3.8
05/29/03	Monitoring Well 2	25.5	1.24	7.59	13:45-18:15	3.8

Table 2 Results of the Baseline Sampling Event in Festival Park: May 2003

DATE COLLECTED	SITE LOCATION	Total Volume Collected (Liters)	Sample Volume examined (Liters)	Organism detected	Total	# with internal features DAPI/DIC	# without internal features	Equivalent Concentration Oo(cysts)/100 L
				Giardia	0	0	0	< 0.10
05/28/03	Monitoring Well 4	946.25	946.25	Cryptosporidium	0	0	0	< 0.10
				Giardia	0	0	0	<2.0
05/28/03	R-40	49.20	49.20	Cryptosporidium	0	0	0	<2.0
				Giardia	0	0	0	<5.0
05/28/03	R-143	18.92	18.92	Cryptosporidium	0	0	0	< 5.0
				Giardia	0	0	0	< 0.10
05/29/03	Monitoring Well 1	926.25	926.25	Cryptosporidium	0	0	0	< 0.10
				Giardia	0	0	0	< 0.10
05/29/03	Monitoring Well 3	946.25	946.25	Cryptosporidium	0	0	0	<0.10
				Giardia	0	0	0	< 0.10
05/29/03	Monitoring Well 2	942.46	942.46	Cryptosporidium	0	0	0	< 0.10

Table 3 Matrix Spike and Matrix Spike Duplicate: Monitoring Wells, Baseline Sampling Event

DATE COLLECTED	SITE LOCATION	Total Volume Collected (Liters)	Organism	Recovered	% Recovery Efficiency
			Giardia	13	13
05/28/03	Monitoring Well 4	100	Cryptosporidium	39	39
			Giardia	7	7
05/28/03	Monitoring Well 4	100	Cryptosporidium	17	17

Relative Percent Difference (RPD): Cryptosporidium = 78% Giardia = 60%

Table 4 Matrix Spike and Matrix Spike Duplicate: Stormwater recharge sites, Baseline Sampling Event

DATE COLLECTED	SITE LOCATION	Total Volume Collected (Liters)	Organism	Recovered	% Recovery Efficiency
			Giardia	13	13%
05/28/03	R-143	10	Cryptosporidium	31	31%
			Giardia	3	3%
05/28/03	R-143	10	Cryptosporidium	47	47%

Relative Percent Difference (RPD): Cryptosporidium = 41 Giardia = 125%

Table 5 Summary results for bacterial indicators and coliphage: Festival Park, Baseline Sampling Event

				Indica	ator Organisms			
Date	Site location		Bacteria (C	FU/100 mL)		Colip	hage (PFU	/100 mL)
sample		Total	Fecal	E. coli	Enterococcus	Host	Host	Famp+
collection		Coliforms	Coliforms			C3000*	Overlay*	Enrichment
05/28/03	Monitoring Well 4	<0.2	< 0.2	< 0.2	<0.2	<5	<5	+/DNA
05/28/03	R-40	3.8×10^5	$2.7x10^5$	7.2×10^4	$6x10^{0}$	$30x10^{0}$	$80x10^{0}$	+/DNA
05/28/03	R-143	$6.9 \text{x} 10^4$	5.8×10^4	1.5×10^4	$30x10^{0}$	<5	<5	+/RNA
05/29/03	Monitoring Well 1	$20x10^{0}$	$20x10^{0}$	$5x10^{0}$	$0.2x10^{0}$	<5	<5	+/DNA
05/29/03	Monitoring Well 3	<0.2	< 0.2	< 0.2	<0.2	<5	<5	+/RNA
05/29/03	Monitoring Well 2	3.8×10^{0}	1.6×10^{0}	0.4×10^{0}	$0.2x10^{0}$	<5	<5	+/DNA

^{*} Strains: *E. coli* C3000 and *E.coli* Famp+. The results of these tests are expressed as plaque forming units per 100 mL of sample using the agar overlay technique for enumeration of coliphage in water samples. The enrichment protocol is used to determine presence/absence of coliphage. DNA or RNA coliphage are differentiated by incorporating RNAse in the media.

	•		•					
	Location	_	R-143	MW-1	MW-2	MW-3	MW-4	Indicator Guidelines for Ambient Surface Water Quality
_	SampleID ==>						_,_,_,	(Class III Waters) 1
Da	te Collected ==>	5/28/2003	5/28/2003	5/29/2003	5/29/2003	5/29/2003	5/28/2003	
Organism	Units							
								4.000 (6.4400 ml
								1,000 cfu/100 mL - Single Sample 400 cfu/100 mL - Average
Total Coliform	cfu/100 mL	380,000	69,000	20	3.8	<0.2	<0.2	4 cfu/100 mL - Groundwater criteria
								800 cfu/100 mL - Single Sample
Fecal Coliform	cfu/100 mL	270,000	58,000	20	1.6	<0.2	<0.2	200 cfu/100 mL - Geometric Mean
E. coli	cfu/100 mL	72,000	15,000	5	0.4	<0.2	<0.2	126 cfu/100 mL - Geometric Mean
								35 cfu/100 mL - Fresh Water
Enterococcus	cfu/100 mL	6	30	0.2	0.2	<0.2	<0.2	104 cfu/100 mL - Geometric Mean
Cryptosporidium	no./100 L	<2	<5	<0.1	<0.1	<0.1	<0.1	
Giarida	no./100 L	<2	<5	<0.1	<0.1	<0.1	<0.1	
Coliphage								100 pfu/100 mL
Host C3000 Overlay	pfu/100 mL	30	+ (<5)	+ (<5)	+ (<5)	+ (<5)	+ (<5)	
Host Famp+ Overlay	pfu/100 mL	80	+ (<5)	+ (<5)	+ (<5)	+ (<5)	+ (<5)	
Host Famp+ Enrichment	pfu/100 mL	+/DNA	+/RNA	+/DNA	+/DNA	+/RNA	+/RNA	

Notes:

cfu - Colony forming units pfu - plaque forming units

¹ Indicator Guidelines for Ambient Surface Water Quality (used for Class III Waters)

Total Coliforms State of Florida guidelines for a single sample 1000 cfu/100mL, average of 400 cfu/100mL

EPA and the state of Florida recommended guidelines for a single sample of 800 cfu/100 mL, for a

Fecal Coliforms geometric mean, 200 cfu/100 mL

E.coli EPA recommended guideline for a geometric mean sample 126 cfu/100 mL

EPA recommended guidelines for a single sample of 104 cfu/100 mL, for a geometric mean , 33-

Enterococci 35 cfu/100 mL for marine and fresh water respectively.

Coliphage Level used - 100 pfu/100 mL based on previous research by Dr. Joan Rose, USF

					Baseline Event							Sampling Event 1		
	Location:	Inflow to R-40	Inflow to R-143	MW-1	MW-2	MW-3	MW-3 (Dup)	MW-3	MW-4	Inflow to R-143	MW-1	MW-1	MW-2	MW-4
	Event:	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Sampling Event 1	Sampling Event 1	Sampling Event 1	Sampling Event 1	Sampling Event 1
	SJRWMD No.: SampleID:	None FP-03-01-007	None FP-03-01-008	OR0018 FP-03-01-009	OR0819 FP-03-01-001	OR0818 FP-03-01-002	OR0818 FP-03-01-003	OR0141 FP-03-01-006	OR0141 FP-03-01-006	None FP-03-02-005	OR0018 FP-03-02-001	OR0018 FP-03-02-002	OR0819 FP-03-02-006	OR0141 FP-03-02-007
	DateCollected:	5/28/2003	5/28/2003	5/29/2003	5/27/2003	5/27/2003	5/27/2003	5/28/2003	5/28/2003	10/01/2003	10/01/2003	10/01/2003	10/02/2003	10/03/2003
	Matrix:	Stormwater	Stormwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Stormwater	Groundwater	Groundwater	Groundwater	Groundwater
Parameter Group and Name	SampleType: Unit	Normal Result Qual	Normal Result Qual	Normal Result Qual	Normal Result Qual	Normal Result Qual	Field Duplicate Result Qual	Normal Result Qual	Normal Result Qual	Normal Result Qual	Normal Result Qual	Field Duplicate Result Qual	Normal Result Qual	Normal Result Qual
Field Measurements														
pH TEMPERATURE	Std. Units °C	5.89 32.8	6.45 29.2	9.22 25.4	7.38 25.5	11.1 25.4	11.1 25.4	10.17 24.9	10.17 24.9	8.0 27.0	7.4 24.8	7.4 24.8	7.2 25.1	7.9 25.1
CONDUCTANCE	μmhos	139	218	226	360	501	501	131	131	210	478	478	464	321
TURBIDITY	NTU	2.95	4.79	1.2	1.24	6.72	6.72	1.45	1.45	3.7	0.85	0.85	0.68	0.3
DISSOLVED OXYGEN OXIDATION/REDUCTION POTENTIAL	mg/L mV	2.7	3.19 195	0.82	1.81 252	0.22 -140	0.22 -140	0.24 10	0.24	3.25 124	3.80 135	3.80 135	0.71	0.55 -164
General Chemistry	······	211	100	'	202	140	140	10	10	124	100	100	0.0	104
TOTAL DISSOLVED SOLIDS (RESIDUE, FILTERABLE)	mg/L	102 =	125 =	117 =	361 =	386 =	274 =	265 =	265 =	125 =	295 =	297 =	328 =	270 =
TURBIDITY pH (laboratory)	NTU PH UNITS	1.6 = 6.53 =	1.7 =	0.12 U 7.5 =	0.12 U 7.44 =	0.12 U 11.1 =	1 = 10.6 =	0.12 U 7.79 =	0.12 U 7.79 =	1.4 =	1.4 = 7.12 =	0.6 = 6.99 =	0.2 J 7.24 =	2 = 8.23 =
COLOR	COLOR UNIT	20 =	20 =	5 J	0 U	5 J	5 J	0 U	0 U	25 =	5 J	5 U	5 J	5 J
BIOLOGIC OXYGEN DEMAND, FIVE DAY	mg/L	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 =	2 R
TOTAL ORGANIC CARBON DISSOLVED ORGANIC CARBON	mg/L mg/L	4.85 = 4.94 U	27.5 = 23.8 =	27.8 = 24.3 =	3.19 U 1.52 U	2.18 U 2.67 U	2.83 U 2.81 U	20.8 = 2.79 U	20.8 = 2.79 U	6.54 = 5.96 =	4.09 = 1.88 U	4.51 = 2.74 U	1.44 U 1.82 U	1.72 =
Nutrients	mg/L	4.94 0	23.0 =	24.5 =	1.32 0	2.07	2.01 0	2.790	2.79 0	5.90 -	1.00	2.74 0	1.02 0	1.71 -
TOTAL NITROGEN, ALL FORMS, CALCULATED	mg/L	0.484 =	0.358 =	0.198 =	1.99 =	0.901 =	0.741 =	0.453 =	0.453 =	0.795 =	0.469 =	0.42 =	0.446 =	0.427 =
NITROGEN, AMMONIA (AS N) NITROGEN, KJELDAHL, TOTAL	mg/L mg/L	0.213 J 0.484 U	0.21 U 0.358 U	0.427 = 0.198 U	1.59 = 1.322 =	1.04 = 0.901 U	0.431 = 0.741 U	0.21 U 0.453 U	0.21 U 0.453 U	0.381 J 0.795 J	0.203 J 0.401 =	0.107 U 0.359 J	0.127 J 0.364 =	0.247 J 0.427 =
NITROGEN, NITRITE	mg/L	0.05 U	0.05 U	0.05 U	0.535 =	0.05 U	0.05 U	0.05 U	0.05 U	0.037 J	0.0118 U	0.0118 U	0.0118 U	0.0118 U
NITROGEN, NITRATE-NITRITE	mg/L	0.05 U	0.05 U	0.05 U	0.67 =	0.05 U	0.05 U	0.05 U	0.05 U	0.0201 U	0.0677 J	0.0614 J	0.0824 J	0.0201 U
PHOSPHORUS, TOTAL (AS =P) PHOSPHORUS, TOTAL ORTHOPHOSPHATE (AS P)	mg/L mg/L	0.148 = 0.078 =	0.103 = 0.046 =	0.226 = 0.037 =	0.084 =	0.051 =	0.101 = 0.038 =	0.143 = 0.122 =	0.143 = 0.122 =	0.085 = 0.017 J	0.08 = 0.048 =	0.085 = 0.044 =	0.099 = 0.079 =	0.037 J 0.014 U
PHOSPHORUS, TOTAL ORGANIC (AS P)	mg/L	0.102 =	0.075 =	0.082 =	0.075 =	0.054 =	0.057 =	0.048 =	0.048 =	0.059 =	0.074 =	0.079 =	0.091 =	0.063 =
Anions	ma/l	AF E	E0	150	211	411	44	100	100	57.5	170	170	100	114
ALKALINITY, BICARBONATE (AS CACO3) Carbonate	mg/L mg/L	45.5 =	53 =	152 =	211 =	1 U 60 =	11 = 92 =	188 =	188 =	57.5 =	173 =	170 =	189 =	114 =
Hydroxide	mg/L					94 =	46 =							
CHLORIDE (AS CL) SULFATE (AS SO4)	mg/L	10.6 = 9.09 =	14.3 = 11.3 =	6.59 = 37.5 =	3.58 = 26.7 =	3.06 = 3.26 =	3.0 = 3.19 =	4.47 = 0.912 J	4.47 = 0.912 J	12.5 = 6.25 =	7.44 = 42.4 =	7.4 = 41 =	9.16 = 36.3 =	4.82 J 0.5 U
Metals	mg/L	9.09 =	11.3=	37.5 =	26.7 =	3.26 =	3.19 =	0.912 J	0.912 3	6.25 =	42.4 =	41 =	36.3 =	0.5 0
ALUMINUM	μg/L	73.7 U	76.3 U	150 U	35 U	37.7 U	35 U	35 U	35 U	59.4 U	41 U	42.8 U	35 U	46.6 U
ANTIMONY	μg/L	2.5 U	2.5 U	2.5 U	2.66 J	2.5 U	2.5 U	2.5 U	2.5 U	2.91 J	2.5 U	5.02 =	2.5 U	2.5 U
ARSENIC BARIUM	μg/L μg/L	2.04 U 14.3 =	2.04 U 16.6 =	10.5 = 11.1 =	19.4 = 35.9 =	3.06 J 51.1 =	2.04 U 35.3 =	2.04 U 6 =	2.04 U 6 =	2.04 U 12.5 =	6.72 = 55 =	7.25 = 47.7 =	9.51 = 35.1 =	2.04 U 5.39 =
BERYLLIUM	μg/L	0.0945 U	0.0945 U	0.0945 U	0.0945 U	0.0945 U	0.0945 U	0.0945 U	0.0945 U	0.0945 U	0.197 U	0.203 U	0.168 U	0.0945 U
CADMIUM	μg/L	0.356 U	0.356 U	0.356 U	0.356 U	0.356 U	0.356 U	0.356 U	0.356 U	0.356 U	0.522 J	0.546 J	0.369 J	0.356 U
CALCIUM CHROMIUM, TOTAL	μg/L μg/L	18500 = 0.712 J	21500 = 0.57 U	61800 = 0.57 U	52700 = 1.13 U	17100 = 1.79 U	20400 = 1.13 U	65600 = 0.57 U	65600 = 0.57 U	23300 = 0.57 U	66600 = 0.96 J	67900 = 0.774 J	77100 = 0.651 J	66300 = 0.57 U
COBALT	μg/L	0.569 U	0.569 U	0.569 U	0.569 U	0.569 U	0.569 U	0.569 U	0.569 U	0.569 U	0.569 U	0.569 U	0.569 U	0.569 U
COPPER	μg/L	3.43 U	4.34 U	1.17 U	1.17 U	1.17 U	1.17 U	1.17 U	1.17 U	8.41 =	1.17 U	1.17 U	1.17 U	1.17 U
IRON LEAD	μg/L μg/L	496 = 1.76 U	448 = 1.76 U	16.7 U 1.76 U	16.7 U 1.76 U	30.5 U 2.05 U	16.7 U 3.26 U	18.4 U 1.76 U	18.4 U 1.76 U	393 = 1.76 U	48.2 U 1.76 U	57.3 U 1.76 U	16.7 U 1.76 U	22.1 U 1.76 U
MAGNESIUM	μg/L	1530 =	2030 =	4700 =	6420 =	1030 =	2080 =	3150 =	3150 =	1900 =	7420 =	7410 =	8320 =	3100 =
MANGANESE	μg/L	9.28 =	10.1 =	3.94 =	2.21 =	0.413 U	0.515 U	1.35 U	1.35 U	8.46 =	2.05 =	2.15 =	4.28 =	1.11 U
MERCURY NICKEL	μg/L μg/L	0.0162 U 0.997 U	0.0162 U 2.31 J	0.0162 U 1.64 J	0.0162 U 4.66 J	0.0162 U 0.997 U	0.0162 U 0.997 U	0.0162 U 0.997 U	0.0162 U 0.997 U	0.0162 U 0.997 U	0.0162 U 9.12 =	0.0162 U 8.8 =	0.0162 U 5.09 =	0.0162 U 0.997 U
POTASSIUM	μg/L	1350 =	1510 =	1760 =	25400 =	56000 =	41400 =	1450 =	1450 =	1430 =	10600 =	8680 =	8110 =	1340 =
SELENIUM SILVER	μg/L	2.1 U 0.325 U	2.1 U 0.325 U	2.1 U 0.325 U	2.1 U 0.325 U	2.1 U 0.325 U	2.1 U 0.325 U	2.1 U 0.75 U	2.1 U 0.75 U	2.1 U 0.472 U	4.28 J 0.472 U	2.1 U 0.472 U	2.1 U 0.472 U	2.1 U 0.472 U
SODIUM	μg/L μg/L	6110 =	8000 =	5380 =	25600 =	29300 =	22900 =	10200 =	10200 =	7860 J	14300 J	12900 J	12600 J	11300 J
THALLIUM	μg/L	2.54 U	2.54 U	2.54 U	2.54 U	2.54 U	2.54 ∪	2.54 U	2.54 U	2.54 U	2.54 U	2.54 U	2.54 U	2.54 U
VANADIUM ZINC	μg/L	1.93 U 14.2 =	1.82 U 11.2 =	1.8 U 1.54 U	3.73 = 1.66 U	0.47 J 1.33 U	0.447 U 0.951 U	0.573 U 1.31 U	0.573 U 1.31 U	1.57 J 10.4 =	2.91 J 3.7 J	2.16 J 3.01 J	3.72 = 2.69 U	0.447 U 2.77 U
Ion Balance	μg/L	14.2 =	11.2 =	1.54 0	1.00 0	1.33 0	0.951 0	1.31 0	1.31 0	10.4 =	3.7 0	3.01 3	2.09 0	2.77
Calcium	meq/L	0.9	1.1	3.1	2.6	0.9	1.0	3.3	3.3	1.2	3.3	3.4	3.9	3.3
Magnesium Sodium	meq/L meq/L	0.1	0.2 0.3	0.4	0.5	0.1 1.3	0.2 1.0	0.3	0.3	0.2	0.6	0.6 0.6	0.7	0.3
Potassium	meq/L	0.0	0.0	0.0	0.6	1.4	1.1	0.0	0.0	0.0	0.3	0.2	0.2	0.0
Sum of cations	meq/L	1.4 0.9	1.6	3.8	4.9 4.2	3.6 0.0	3.2	4.0 3.8	4.0 3.8	1.7 1.2	4.8	4.8	5.3 3.8	4.1 2.3
Bicarbonate Carbonate	meq/L meq/L	0.9	1.1	3.0	4.2	1.2	0.2 1.8	ა.გ	3.8	1.2	3.5	3.4	3.8	۷.3
Hydroxide	meq/L					1.9	0.9							
Chloride Sulfate	meq/L meq/L	0.3	0.4	0.2	0.1	0.1	0.1 0.1	0.1	0.1	0.4	0.2	0.2 0.9	0.3	0.1
Sum of anions	meq/L	1.4	1.7	4.0	4.9	3.2	3.1	3.9	3.9	1.6	4.6	4.5	4.8	2.4
Balance (% difference)		1.7%	2.1%	3.3%	-0.6%	-5.7%	-1.8%	-1.5%	-1.5%	-2.0%	-3.0%	-3.5%	-4.8%	-20.4%
Radiologicals ALPHA, GROSS	pCi/L	2.4 U	0.9 U	3.1 U	4.5 =	3.9 =	2.5 U	2.9 =	2.9 =	2.4 =	10.2 =	4.6 =	3.7 =	2.2 =
BETA, GROSS	pCi/L	2.5 =	1 =	3.3 =	37.8 =	54.7 =	42.1 =	2.2 U	2.2 U	2.9 =	12.9 =	10.7 =	8.6 =	2 =
Total Petroleum Hydrocarbons	me /l	0.42	0.40	0.25	0.24	0.04	0.30	0.2611	0.06	0.24	0.24	0.24.11	0.24	0.24
PETROLEUM HYDROCARBONS Volatile Organic Compounds	mg/L	0.43 =	0.49 =	0.35 U	0.34 U	0.34 U	0.38 =	0.36 U	0.36 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U
ACETONE	μg/L	3 J	3.9 J	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 U	10 U	10 U	10 U
ACROLEIN	μg/L	10 UJ	10 UJ	10 U	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 U	10 U	10 U	10 U
ACRYLONITRILE ALLYL CHLORIDE (3-CHLOROPROPENE)	μg/L μg/L	5 U 1 U	5 U 1 U	5 U	5 U 1 U	5 U 1 U	5 U 1 U	5 U 1 U	5 U 1 U	5 U 1 U	5 U 1 U	5 U 1 U	5 U	5 U 1 U
BENZENE	μg/L	1 U	0.18 J	1 U	1 U	0.64 J	0.48 J	1 U	1 U	1 U	1 U	1 U	1 U	1 U
BROMODICHLOROMETHANE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
BROMOFORM BROMOMETHANE	μg/L μg/L	1 U	1 U	1 U	1 U 1 U	1 U	1 U 1 U	1 U	1 U	1 U 1 U	1 U 1 U	1 U	1 U	1 U
CARBON DISULFIDE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
CARBON TETRACHLORIDE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
CHLOROBENZENE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U 1 U	1 U 1 U	1 U	1 U 1 U
CHLOROETHANE CHLOROFORM	μg/L μg/L	1 UJ 1 U	1 UJ 1 U	1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 UJ 1 U	1 UJ 1 U	1 U 1 U	1 U	1 U	1 U 1 U	1 U
CHLOROMETHANE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2-CHLORO-1,3-BUTADIENE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U

				Sampling Event 2					Sampling Event 3					Sampling Event 4		
	Location: Event	Inflow to R-143 Sampling Event 2	MW-1 Sampling Event 2	MW-1 Sampling Event 2	MW-2 Sampling Event 2	MW-4 Sampling Event 2	Inflow to R-143 Sampling Event 3	MW-1 Sampling Event 3	MW-1 Sampling Event 3	MW-2 Sampling Event 3	MW-4 Sampling Event 3	Inflow to R-143 Sampling Event 4	MW-1 Sampling Event 4	MW-1 Sampling Event 4	MW-2 Sampling Event 4	MW-4 Sampling Event
	SJRWMD No.	None	OR0018	OR0018	OR0819	OR0141	None	OR0018	OR0018	OR0819	OR0141	None	OR0018	OR0018	OR0819	OR0141
	SampleID: DateCollected:	FP-03-03-002 10/08/2003	FP-03-03-001 10/08/2003	FP-03-03-003 10/08/2003	FP-03-03-007 10/10/2003	FP-03-03-006 10/09/2003	FP-03-04-003 10/23/2003	FP-03-04-004 10/24/2003	FP-03-04-005 10/24/2003	FP-03-04-001 10/22/2003	FP-03-04-002 10/23/2003	FP-03-05-007 11/20/2003	FP-03-05-001 11/18/2003	FP-03-05-002 11/18/2003	FP-03-05-005 11/19/2003	FP-03-05-006 11/20/2003
	Matrix	Stormwater	Groundwater	Groundwater	Groundwater	Groundwater	Stormwater	Groundwater	Groundwater	Groundwater	Groundwater	Stormwater	Groundwater	Groundwater	Groundwater	Groundwater
Parameter Group and Name	SampleType: Unit	Normal Result Qual	Normal Result Qual	Field Duplicate Result Qual	Normal Result Qual	Normal Result Qual	Normal Result Qual	Normal Result Qual	Field Duplicate Result Qual	Normal Result Qual	Normal Result Qual	Normal Result Qual	Normal Result Qual	Field Duplicate Result Qual	Normal Result Qual	Normal Result Qu
Field Measurements																
H EMPERATURE	Std. Units ℃	6.1 27.4	7.5 24.8	7.5 24.8	7.4 24.9	7.8 24.8	7.7 28.5	7.5 25.2	7.5 25.2	7.3 25.4	7.9 25.1	6.4 24.4	7.4 25.0	7.4 25.0	6.9 24.5	7.6 23.6
ONDUCTANCE	μmhos	197	328	328	455	368	246	361	361	425	411	197	319	319	408	328
URBIDITY ISSOLVED OXYGEN	NTU mg/L	3.58 1.29	4.56 0.29	4.56 0.29	1.02 0.59	0.19 0.54	32.8 3.00	1.64 0.16	1.64 0.16	0.5	0.6 0.98	6.73 4.63	5.61 0.40	5.61 0.40	0.85 0.35	0.19 0.58
XIDATION/REDUCTION POTENTIAL	mV	62	42	42	8	-185	65	-158	-158	6	-123	-47	12	12	58	-109
General Chemistry OTAL DISSOLVED SOLIDS (RESIDUE, FILTERABLE)	mg/L	100 =	240 =	190 =	270 =	230 =	137 =	233 =	245 =	296 =	268 =	143 =	246 =	255 =	295 =	278 =
JRBIDITY	NTU	1 =	1 =	0.6 =	0.3 =	0.5 =	2.5 =	0.4 =	0.5 =	0.12 U	0.12 U	2.2 =	0.3 =	0.3 =	0.12 U	0.12 U
I (laboratory) DLOR	PH UNITS COLOR UNIT	6.42 = 20 =	7.46 = 10 =	7.4 = 10 =	7.63 = 15 =	7.89 = 10 =	6.61 = 20 =	7.87 = 10 =	7.69 = 10 =	7.32 = 15 =	7.84 =	6.9 = 25 =	7.42 = 10 =	7.58 = 10 =	7.28 =	7.87 =
DLOGIC OXYGEN DEMAND, FIVE DAY	mg/L	2 =	2 =	2 =	2 UJ	2 U	2 =	2 =	2 =	2 =	2 =	3.4 =	2 U	2 U	2 =	2 U
OTAL ORGANIC CARBON SSOLVED ORGANIC CARBON	mg/L mg/L	6.15 = 5.67 =	3.47 = 2.94 =	2.68 = 3.32 =	4.15 = 3.99 =	3.9 = 3.43 =	5.18 = 5.57 =	1.23 J 1.13 J	1.17 J 1.31 J	3.8 = 3.74 =	2.65 = 2.18 =	3.95 = 5.11 =	0.54 J 2.55 U	0.64 J 3.67 U	0.368 U 3.07 U	2.2 = 2.46 U
Nutrients																
DTAL NITROGEN, ALL FORMS,CALCULATED TROGEN, AMMONIA (AS N)	mg/L mg/L	0.896 = 0.368 J	0.65 = 0.107 U	0.332 = 0.107 U	0.549 = 0.257 J	0.401 = 0.28 J	0.781 = 0.301 J	0.272 = 0.107 U	0.315 = 0.107 U	0.442 = 0.193 J	0.366 = 0.182 J	0.45 = 0.183 J	0.232 = 0.107 U	0 U 0.107 U	0.168 = 0.174 J	0.209 = 0.225 J
TROGEN, KJELDAHL, TOTÁL	mg/L	0.83 =	0.65 =	0.332 =	0.549 =	0.401 =	0.781 =	0.272 =	0.315 =	0.442 =	0.366 =	0.385 =	0.154 J	0.128 U	0.168 J	0.209 J
TROGEN, NITRITE TROGEN. NITRATE-NITRITE	mg/L mg/L	0.0147 J 0.0656 J	0.0118 U 0.0201 U	0.0118 U 0.0201 U	0.0118 U 0.0201 U	0.0118 U 0.0201 U	0.0118 U 0.0201 U	0.0118 U 0.0201 U	0.0118 U 0.0201 U	0.0118 U 0.0201 U	0.0118 U 0.0201 U	0.0243 U 0.0637 J	0.0118 U 0.108 =	0.0118 U 0.0252 J	0.021 U 0.0604 J	0.0119 U 0.0201 U
OSPHORUS, TOTAL (AS =P)	mg/L	0.062 =	0.086 =	0.103 =	0.109 =	0.04 =	0.112 =	0.097 =	0.118 =	0.138 =	0.097 =	0.089 =	0.102 =	0.098 =	0.123 =	0.093 =
HOSPHORUS, TOTAL ORTHOPHOSPHATE (AS P) HOSPHORUS, TOTAL ORGANIC (AS P)	mg/L mg/L	0.024 = 0.067 =	0.077 = 0.095 =	0.073 = 0.085 =	0.091 = 0.113 =	0.03 = 0.035 =	0.034 = 0.098 =	0.085 = 0.106 =	0.078 = 0.111 =	0.097 = 0.101 =	0.025 = 0.058 =	0.033 = 0.149 =	0.069 = 0.078 =	0.121 = 0.084 =	0.15 = 0.122 =	0.021 = 0.154 =
Anions																
LKALINITY, BICARBONATE (AS CACO3) arbonate	mg/L mg/L	65 =	157 =	157 =	203 =	197 =	74 =	151 =	157 =	194 =	200 =	81 =	151 =	154 =	192 =	189 =
/droxide	mg/L	10.0	7.54	7.54	0.50	E 07	10.0	6.10	6.00	7.70	2.0	10.0	9.00	8.50	0.00	5.10
HLORIDE (AS CL) JLFATE (AS SO4)	mg/L mg/L	16.2 = 11.2 =	7.51 = 41.7 =	7.54 = 37.7 =	9.52 = 34.7 =	5.07 = 0.785 J	13.9 = 9.04 =	6.18 = 30.2 =	6.06 = 35.9 =	7.72 = 37.6 =	3.2 = 0.609 J	13.8 = 11.2 =	8.66 = 31.2 =	8.53 = 29.5 =	9.96 = 30.6 =	5.19 = 1.18 =
Metals																
UMINUM ITIMONY	μg/L μg/L	71.7 U 2.75 J	95.5 U 2.5 U	44.1 U 2.5 U	35 U 2.5 U	220 U 2.5 U	2660 = 2.5 U	35 U 3.27 J	35 U 2.5 U	35 U 2.5 U	35 U 2.5 U	121 = 2.5 U	41 J 2.5 U	35 U 3.51 J	35 U 2.5 U	35 U 2.5 U
SENIC	μg/L	2.04 U	9.18 =	9.52 =	10.6	2.04 U	2.04 U	8.05 =	9.9 =	12.3 =	2.04 U	2.04 U	6 =	6.76 =	7.05 =	2.04 U
RIUM RYLLIUM	μg/L	13.4 = 0.304 U	16.9 = 0.108 U	16.3 = 0.0945 U	23.9 = 0.0945 U	4.52 = 0.0945 U	29.4 = 0.188 U	12.1 = 0.156 U	11.8 = 0.0945 U	19.3 = 0.265 U	4.34 = 0.104 U	13.7 = 0.0945 U	20.9 = 0.219 U	20.7 = 0.234 U	16.9 = 0.0945 U	4.45 = 0.0945 U
DMIUM	μg/L μg/L	0.356 U	0.356 U	0.356 U	0.356 U	0.356 U	0.356 U	0.356 U	0.356 U	0.372 J	0.356 U	0.356 U	0.358 J	0.548 J	0.356 U	0.356 U
LCIUM ROMIUM, TOTAL	μg/L	26700 = 0.8 J	70100 = 0.57 U	68800 = 0.57 U	77100 = 0.57 U	69500 = 0.57 U	39700 = 10.6 =	61400 = 0.57 U	62500 = 0.576 J	75500 = 0.57 U	67200 = 0.57 U	32400 = 1.01 J	62800 = 0.826 J	62500 = 0.614 J	68800 = 0.812 J	66700 = 0.57 U
DBALT	μg/L μg/L	0.569 U	0.569 U	0.569 U	0.569 U	0.569 U	1.19 J	0.569 U	0.569 U	0.779 J	0.569 U	0.569 U	0.569 U	0.569 U	0.569 U	0.569 U
DPPER ON	μg/L	5.82 = 355 =	1.17 U 89.5 U	1.22 J 68.4 U	1.17 U 40.4 U	1.17 U 16.7 U	5.25 = 4370 =	1.17 U 123 U	1.17 U 114 U	1.17 U 40.7 U	1.17 U 16.7 U	2.33 J 310 =	1.27 J 81.6 U	1.22 J 84.3 U	1.17 U 18.5 U	1.52 J 16.7 U
EAD	μg/L μg/L	1.76 U	1.76 U	1.76 U	1.76 U	1.76 U	1.76 U	1.76 U	1.76 U	1.76 U	1.76 U	4.32 J	1.76 U	1.76 U	1.76 U	1.76 U
AGNESIUM	μg/L	2610 =	7090 =	6860 =	8930 =	3210 =	3000 =	5780 =	5780 =	8870 =	3100 =	2360 =	7330 =	7230 =	8030 =	3060 =
ANGANESE ERCURY	μg/L μg/L	8.53 = 0.0162 U	18.8 = 0.0162 U	17.8 = 0.0162 U	11.8 = 0.0162 U	0.327 J 0.0162 U	24.2 = 0.0162 U	6.69 = 0.0162 U	6.48 = 0.0162 U	11.6 = 0.0162 U	1.36 U 0.0162 U	8.09 = 0.183 U	12.9 = 0.0162 U	13.3 = 0.0162 U	9.73 = 0.0162 U	0.278 U 0.16 U
CKEL	μg/L	0.997 U	4.85 J	4.68 J	4.35 J	0.997 U	5.65 =	2.38 J	2.86 J	5.1 =	0.997 U	0.997 U	5.07 =	4.73 J	3.94 J	0.997 U
DTASSIUM ELENIUM	μg/L μg/L	1870 = 3.09 U	2420 = 2.1 U	2330 = 3.8 U	5020 = 2.1 U	1230 = 2.1 U	1510 = 2.1 U	1770 = 2.18 U	1660 = 2.33 U	3730 = 2.24 U	1000 = 2.1 U	1920 = 2.1 U	3160 = 3.24 U	3050 = 2.1 U	3350 = 2.1 U	1100 = 2.1 U
VER	μg/L	0.472 U	0.472 U	0.472 U	0.472 U	0.472 U	0.472 U	0.472 U	0.472 U	0.472 U	0.472 U	0.472 U	0.472 U	0.472 U	0.504 J	0.526 J
ODIUM HALLIUM	μg/L μg/L	10500 J 2.54 U	7150 J 2.54 U	7000 J 2.54 U	10300 J 2.54 U	11700 J 2.54 U	9050 = 2.54 U	5690 = 2.54 U	5840 = 2.54 U	8620 = 2.93 U	10100 = 2.54 U	8380 = 2.54 U	8390 = 2.54 U	8150 = 2.54 U	8990 = 2.54 U	11400 = 2.54 U
ANADIUM	μg/L	1.84 J	1.52 J	1.48 J	2.08 J	0.447 U	12.5 =	1.17 J	1.31 J	1.57 J	0.447 U	1.89 J	1.07 J	0.81 J	1.89 J	0.447 U
NC Ion Balance	μg/L	8.6 J	17.5 =	5.88 J	5.57 J	67.6 =	23.9 =	1.27 J	1.51 J	0.409 U	0.409 U	14.5 =	3.67 J	3.09 J	1.23 U	0.694 U
lcium	meq/L	1.3	3.5	3.4	3.9	3.5	2.0	3.1	3.1	3.8	3.4	1.6	3.1	3.1	3.4	3.3
agnesium dium	meq/L meq/L	0.2 0.5	0.6 0.3	0.6 0.3	0.7 0.4	0.3 0.5	0.3 0.4	0.5 0.2	0.5 0.3	0.7	0.3 0.4	0.2 0.4	0.6 0.4	0.6 0.4	0.7 0.4	0.3
tassium Sum of cations	meq/L	0.0 2.1	0.1 4.5	0.1 4.4	0.1 5.2	0.0 4.3	0.0 2.7	0.0 3.8	0.0 3.9	0.1 5.0	0.0 4.1	0.0 2.2	0.1 4.2	0.1 4.2	0.1 4.6	0.0 4.1
carbonate	meq/L meq/L	1.3	3.1	3.1	4.1	3.9	1.5	3.8	3.9	3.9	4.1	1.6	3.0	4.2 3.1	3.8	3.8
rbonate droxide	meq/L															
lloride	meq/L meq/L	0.5	0.2	0.2	0.3	0.1	0.4	0.2	0.2	0.2	0.1	0.4	0.2	0.2	0.3	0.1
Ifate Sum of anions	meq/L meq/L	0.2 2.0	0.9 4.2	0.8 4.1	0.7 5.1	0.0 4.1	0.2 2.1	0.6 3.8	0.7 4.1	0.8 4.9	0.0 4.1	0.2 2.2	0.7 3.9	0.6 3.9	0.6 4.8	0.0 4.0
Balance (% difference)	meq/L	-1.6%	-2.8%	-2.7%	-1.2%	-2.1%	-11.4%	-0.3%	2.0%	-1.0%	0.2%	0.3%	-3.4%	-2.7%	1.9%	-2.0%
Radiologicals PHA, GROSS	pGi/L	3.3 =	1.6 U	3.2 =	1.3 =	2.5 =	2.1 =	2.9 =	2.8 =	4.3 =	2.6 =	1.2 =	1.7 U	1.5 U	1.4 U	2.1 =
TA, GROSS	pCi/L	3.5 =	2.8 =	3.2 = 2.4 =	4.5 =	2.6 =	1.9 =	2.9 =	3.1 =	4.8 =	4.1 =	3.5 =	4 =	3.9 =	2.6 =	2.1 =
Total Petroleum Hydrocarbons TROLEUM HYDROCARBONS	mg/L	0.82 =	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.36 U	0.35 U	0.34 U	0.34 U	0.82 =	0.34 U	0.34 U	0.35 U	0.34 U
Volatile Organic Compounds																
ETONE ROLEIN	μg/L μg/l	10 U 10 UJ	10 U 10 UJ	10 U 10 UJ	10 U 10 UJ	10 U 10 UJ	10 U 10 U	10 U 10 UJ	10 U 10 UJ	10 U 10 U	10 U 10 U	10 U 10 U	10 U 10 U	10 U 10 U	10 U 10 U	10 U 10 U
RYLONITRILE	μg/L μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
YL CHLORIDE (3-CHLOROPROPENE) NZENE	μg/L	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
NZENE OMODICHLOROMETHANE	μg/L μg/L	1 U	1 U	1U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
OMOFORM	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
OMOMETHANE RBON DISULFIDE	μg/L μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U 1 U	1 U	1 U	1 U
	P9'-	l i lŭ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	10	1 U	1 U
	μg/L	10											4 111			
ILOROBENZENE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
ARBON TETRACHLORIDE HLOROBENZENE HLOROETHANE HLOROFORM		1 U 1 U 1 U		1 U 1 U 1 U	1 U 1 U 1 U	1 U 1 U	1 U 1 U 1 U	1 U 1 U	1 U 1 U 1 U	1 U 1 U	1 U 1 U 1 U	1 U 1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U
HLOROBENZENE HLOROETHANE	μg/L μg/L		1 U 1 U		1 U											

				Sampling Event 5			I		Sampling Event 6		
	Location:	Inflow to R-143	MW-1	MW-1	MW-2	MW-4	Inflow to R-143	MW-1	MW-1	MW-2	MW-4
	Event:	Sampling Event 5	Sampling Event 5	Sampling Event 5	Sampling Event 5	Sampling Event 5	Sampling Event 6	Sampling Event 6	Sampling Event 6	Sampling Event 6	Sampling Event 6
	SJRWMD No.:	None	OR0018	OR0018	OR819	OR0141	None	OR0018	OR0018	OR819	OR0141
	SampleID: DateCollected:	FP-04-06-005 02/04/2004	FP-04-06-001 02/04/2004	FP-04-06-002 02/04/2004	FP-04-06-007 02/06/2004	FP-04-06-006 02/05/2004	FP-04-007-02 02/16/2004	FP-04-07-003 02/17/2004	FP-04-07-004 02/17/2004	FP-04-07-007 02/18/2004	FP-04-07-001 02/16/2004
	Matrix:	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
	SampleType:	Normal	Normal	Field Duplicate	Normal	Normal	Normal	Normal	Field Duplicate	Normal	Normal
Parameter Group and Name Field Measurements	Unit	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual
pH	Std. Units	6.05	7.29	7.29	7.49	7.56	6.63	7.62	7.62	6.61	7.81
TEMPERATURE	℃	20.1	24.4	24.4	24.9	24.2	20.6	24.1	24.1	24.3	23.8
CONDUCTANCE TURBIDITY	μmhos NTU	157.3 4.68	403 0.98	403 0.98	410 1.04	317 0.17	192 3.04	393 0.25	393 0.25	305 0.87	371 0.04
DISSOLVED OXYGEN	mg/L	5.02	0.34	0.34	0.29	0.37	3.10	0.20	0.20	0.07	0.20
OXIDATION/REDUCTION POTENTIAL	mV	-6	-90	-90	-19	164	no data	-237	-237	-55	-163
General Chemistry	,,	20	222		207	0.71		2.10		000	252
TOTAL DISSOLVED SOLIDS (RESIDUE, FILTERABLE) TURBIDITY	mg/L NTU	89 = 1.5 =	263 = 1.1 =	271 = 1.2 =	237 =	271 = 0.25 =	125 =	242 = 0.12 U	255 = 0.5 =	272 = 0.6 =	252 = 0.12 U
pH (laboratory)	PH UNITS	6.93 =	7.62 =	7.55 =	7.45 =	8.01 =	6.63 =	7.44 =	7.41 =	7.43 =	7.81 =
COLOR	COLOR UNIT	25 =	15 =	10 =	15 =	15 =	25 =	10 =	15 =	15 =	10 =
BIOLOGIC OXYGEN DEMAND, FIVE DAY	mg/L	2 U	2 U	2 U	2 U	3.3 =	2 U	2 U	2 U	2 U	2 U
TOTAL ORGANIC CARBON DISSOLVED ORGANIC CARBON	mg/L mg/L	2.28 =	0.368 U 1.36 U	0.368 U 1.45 U	2.1 U 2.08 U	0.368 U 1.35 U	0.368 U 4.09 =	0.368 U 0.368 UJ	0.368 U 0.62 J	0.368 UJ 0.8 J	4.19 = 0.368 U
Nutrients	IIIg/L	3.2 =	1.30 0	1.45 0	2.00 0	1.33 0	4.05 =	0.308 03	0.02 3	0.0 0	0.308 0
TOTAL NITROGEN, ALL FORMS, CALCULATED	mg/L	1.81 =	1.52 =	1.47 =	1.63 =	2.36 =	0.899 =	0.463 =	0.432 =	0.553 =	0.559 =
NITROGEN, AMMONIA (AS N)	mg/L	0.21 J	0.126 J	0.125 J	0.308 U	4.57 =	0.306 J	0.149 J	0.142 J	9.33 =	0.282 J
NITROGEN, KJELDAHL, TOTAL NITROGEN, NITRITE	mg/L mg/L	1.7 J 0.0142 J	1.48 J 0.0118 U	1.45 J 0.0118 U	1.6 U 0.0118 U	2.33 = 0.0118 U	0.867 = 0.0158 J	0.443 U 0.0118 U	0.412 U 0.0118 U	0.533 U 0.0118 U	0.521 U 0.0118 U
NITROGEN, NITRITE NITROGEN, NITRATE-NITRITE	mg/L	0.0142 3	0.0366 J	0.0118 U	0.0118 U	0.0118 U	0.0136 J	0.0201 U	0.0118 U 0.0201 U	0.0118 U	0.0118 U
PHOSPHORUS, TOTAL (AS =P)	mg/L	0.061 =	0.111 =	0.107 =	0.129 =	0.062 =	0.082 =	0.094 =	0.12 =	0.223 =	0.1 =
PHOSPHORUS, TOTAL ORTHOPHOSPHATE (AS P)	mg/L	0.029 =	0.09 =	0.097 =	0.113 =	0.037 =	0.03 =	0.083 =	0.095 =	0.127 =	0.027 =
PHOSPHORUS, TOTAL ORGANIC (AS P) Anions	mg/L	0.061 =	0.098 =	0.096 =	0.121 =	0.06 =	0.096 =	0.152 =	0.181 =	0.143 =	0.118 =
ALKALINITY, BICARBONATE (AS CACO3)	mg/L	51 =	165 =	161 =	182 =	187 =	63 =	135 =	150 =	184 =	188 =
Carbonate	mg/L										
Hydroxide CHLORIDE (AS CL)	mg/L mg/L	8.49 =	7.02 =	7.19 =	10.5 =	5.21 =	13.7 =	7.64 =	7.42 =	9.48 =	5.04 =
SULFATE (AS SO4)	mg/L	6.77 =	68.5 =	71.8 =	38.3 =	0.22 U	9.96 =	33.7 =	39.9 =	28.8 =	0.22 U
Metals	,										
ALUMINUM	μg/L	111 =	35 =	41.8 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U
ANTIMONY ARSENIC	μg/L	2.5 U 2.04 U	2.5 U 8.71 =	2.5 U 10.6 =	2.5 U 2.93 J	2.5 U 2.04 U	2.5 U 2.04 U	4.3 U 9.39 =	3.5 U 9.59 =	2.5 U 7.77 =	2.5 U 2.04 U
BARIUM	μg/L μg/L	11 =	20.9 =	19.7 =	16.3 =	5.58 =	16.4 =	19.1 =	18.6 =	15.9 =	4.47 =
BERYLLIUM	μg/L	0.0945 U	0.0945 U	0.0945 U	0.179 U	0.0945 U	0.0945 U	0.315 U	0.368 U	0.0945 U	0.0945 U
CADMIUM	μg/L	0.356 U	0.356 U	0.356 U	0.356 U	0.356 U	0.356 U	0.406 J	0.453 J	0.356 U	0.356 U
CALCIUM CHROMIUM, TOTAL	μg/L	18500 = 0.57 U	69500 = 0.57 U	69200 = 0.57 U	68400 = 0.57 U	69100 =	26300 = 1.07 J	69800 = 1.16 J	70100 =	70400 =	68700 = 0.601 J
COBALT	μg/L μg/L	0.569 U	0.569 U	0.569 U	0.57 U	0.57 U 0.569 U	0.569 U	0.569 U	0.57 U 0.569 U	0.751 J 0.569 U	0.569 U
COPPER	μg/L	1.17 U	1.17 U	1.17 U	1.17 U	1.17 U	1.67 U	1.17 U	1.17 U	1.17 U	1.17 U
IRON	μg/L	394 =	164 =	150 U	170 U	16.7 U	331 =	217 U	222 U	210 =	16.7 U
LEAD MAGNESIUM	μg/L μg/L	2.1 J 1160 =	1.76 U 8790 =	1.76 U 8600 =	1.76 U 8580 =	1.76 U 3160 =	1.76 U 1810 =	1.76 U 8530 =	1.93 J 8360 =	1.76 U 8800 =	1.76 U 3160 =
MANGANESE	μg/L	6.77 =	9.99 =	7 =	6.78 =	0.259 U	10.8 =	6.6 =	6.61 =	5.21 =	0.167 U
MERCURY	μg/L	0.0162 U	0.0162 U	0.0162 U	0.0162 U	0.0162 U	0.0162 U	0.0162 U	0.0162 U	0.0162 U	0.0162 U
NICKEL	μg/L	0.997 U	3.92 J	4.2 J	2.95 J	0.997 U	0.997 U	2.96 J	3.08 J	2.7 J	0.997 U
POTASSIUM SELENIUM	μg/L μg/L	1100 = 2.1 U	2540 = 2.1 U	2400 = 2.1 U	3450 = 2.1 U	1500 J 2.1 U	1640 J 2.1 U	2010 J 2.1 U	1960 J 2.1 U	2800 = 2.1 U	1130 J 2.1 U
SILVER	μg/L	0.587 U	0.472 U	0.472 U	0.472 U	0.472 U	0.472 U	0.695 U	0.472 U	0.54 U	0.472 U
SODIUM	μg/L	6030 =	7630 =	7400 =	9040 =	11300 =	8500 J	6550 J	6430 J	8630 J	10400 J
THALLIUM VANADIUM	μg/L	2.54 U 1.53 J	2.54 U 0.623 J	2.54 U 0.447 U	2.54 U 0.771 U	2.54 U 0.447 U	2.54 U 1.8 J	2.54 U	2.54 U 1.29 J	2.54 U 0.749 J	2.54 U 0.447 U
ZINC	μg/L μg/L	10.9 =	0.623 J	2.99 J	0.771 U	1.66 U	11.8 J	1.3 J 0.85 J	0.409 UJ	0.409 U	1.71 UJ
Ion Balance	P-5										
Calcium	meq/L	0.9	3.5 0.7	3.5 0.7	3.4	3.5	1.3 0.2	3.5 0.7	3.5 0.7	3.5 0.7	3.4
Magnesium Sodium	meq/L meq/L	0.1	0.7	0.7	0.7	0.3	0.2	0.7	0.7	0.7	0.3
Potassium	meq/L	0.0	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.0
Sum of cations	meq/L	1.3	4.6	4.6	4.6	4.2	1.9	4.5	4.5	4.7	4.2
Bicarbonate Carbonate	meq/L meq/L	1.0	3.3	3.2	3.6	3.7	1.3	2.7	3.0	3.7	3.8
Hydroxide	meq/L										
Chloride		0.2	0.2	0.2	0.3	0.1	0.4	0.2	0.2	0.3	0.1
Sulfate	meq/L				0.8	0.0	0.2	0.7	0.8	0.6	0.0
	meq/L	0.1	1.4	1.5			1.0	2.6	4.0	4.5	2.0
Sum of anions Balance (% difference)		0.1 1.4	1.4 4.9 3.5%	1.5 4.9 3.9%	4.7	3.9	1.9 -0.6%	3.6 -10.1%	4.0 -5.4%	4.5 -1.6%	3.9 -3.3%
Balance (% difference) Radiologicals	meq/L meq/L	0.1 1.4 3.4%	4.9 3.5%	4.9 3.9%	4.7 1.3%	3.9 -4.2%	-0.6%	-10.1%	-5.4%	-1.6%	-3.3%
Balance (% difference) Radiologicals ALPHA, GROSS	meq/L meq/L pCi/L	0.1 1.4 3.4% 0.838 U	4.9 3.5% 2.62 J	4.9 3.9% 0.649 U	4.7 1.3%	3.9 -4.2% 6.82 =	-0.6% 0.805 U	-10.1% 1.48 U	-5.4% 3.44 =	-1.6% 1.93 U	-3.3% 3.45 =
Balance (% difference) Radiologicals ALPHA, GROSS BETA, GROSS	meq/L meq/L	0.1 1.4 3.4%	4.9 3.5%	4.9 3.9%	4.7 1.3%	3.9 -4.2%	-0.6%	-10.1%	-5.4%	-1.6%	-3.3%
Balance (% difference) Radiologicals ALPHA, GROSS BETA, GROSS Total Petroleum Hydrocarbons PETROLEUM HYDROCARBONS	meq/L meq/L pCi/L	0.1 1.4 3.4% 0.838 U	4.9 3.5% 2.62 J	4.9 3.9% 0.649 U	4.7 1.3%	3.9 -4.2% 6.82 =	-0.6% 0.805 U	-10.1% 1.48 U	-5.4% 3.44 =	-1.6% 1.93 U	-3.3% 3.45 =
Balance (% difference) Radiologicals ALPHA, GROSS BETA, GROSS Total Petroleum Hydrocarbons PETROLEUM HYDROCARBONS Volatile Organic Compounds	meq/L meq/L pCi/L pCi/L mg/L	0.1 1.4 3.4% 0.838 U 1.36 U 0.34 U	4.9 3.5% 2.62 J 2.84 U 0.12 J	4.9 3.9% 0.649 U 2.69 U 0.12 J	4.7 1.3% 1.93 U 2.81 U	3.9 -4.2% 6.82 = 2.69 U	-0.6% 0.805 U 0.812 U 0.34 U	-10.1% 1.48 U 3.19 J 0.34 UJ	-5.4% 3.44 = 3.05 J 0.34 U	-1.6% 1.93 U 3.41 J 0.34 U	-3.3% 3.45 = 1.07 U
Balance (% difference) Radiologicals ALPHA, GROSS 3ETA, GROSS Total Petroleum Hydrocarbons PETROLEUM HYDROCARBONS Volatile Organic Compounds ACETONE	meq/L meq/L pCi/L pCi/L mg/L µg/L	0.1 1.4 3.4% 0.838 U 1.36 U 0.34 U	4.9 3.5% 2.62 J 2.84 U 0.12 J	4.9 3.9% 0.649 U 2.69 U 0.12 J 10 U	4.7 1.3% 1.93 U 2.81 U 0.34 UJ	3.9 -4.2% 6.82 = 2.69 U 0.1 J	-0.6% 0.805 U 0.812 U 0.34 U 10 UJ	1.48 U 3.19 J 0.34 UJ	-5.4% 3.44 = 3.05 J 0.34 U 10 UJ	-1.6% 1.93 U 3.41 J 0.34 U	-3.3% 3.45 = 1.07 U 0.35 U
Balance (% difference) Radiologicals ALPHA, GROSS BETA, GROSS Total Petroleum Hydrocarbons PETROLEUM HYDROCARBONS Volatile Organic Compounds ACETONE ACROLEIN	meq/L meq/L pCi/L pCi/L mg/L µg/L µg/L	0.1 1.4 3.4% 0.838 U 1.36 U 0.34 U	4.9 3.5% 2.62 J 2.84 U 0.12 J	4.9 3.9% 0.649 U 2.69 U 0.12 J	4.7 1.3% 1.93 U 2.81 U	3.9 -4.2% 6.82 = 2.69 U	-0.6% 0.805 U 0.812 U 0.34 U	-10.1% 1.48 U 3.19 J 0.34 UJ	-5.4% 3.44 = 3.05 J 0.34 U	-1.6% 1.93 U 3.41 J 0.34 U	-3.3% 3.45 = 1.07 U
Balance (% difference) Radiologicals ALPHA, GROSS BETA, GROSS Total Petroleum Hydrocarbons PETROLEUM HYDROCARBONS Volatile Organic Compounds ACETONE ACROLEIN ACRYLONITRILE ALLYL CHLORIDE (3-CHLOROPROPENE)	meq/L meq/L pCi/L pCi/L mg/L μg/L μg/L μg/L	0.1 1.4 3.4% 0.838 U 1.36 U 0.34 U 10 U	4.9 3.5% 2.62 J 2.84 U 0.12 J 10 U 10 U	4.9 3.9% 0.649 U 2.69 U 0.12 J 10 U 10 U 5 U	4.7 1.3% 1.93 U 2.81 U 0.34 UJ 10 U 10 UJ 5 U 1 U	3.9 -4.2% 6.82 = 2.69 U 0.1 J 10 UJ 10 UJ 5 U 1 UJ	-0.6% 0.805 U 0.812 U 0.34 U 10 UJ	1.48 U 3.19 J 0.34 UJ 10 UJ 10 UJ	-5.4% 3.44 = 3.05 J 0.34 U 10 UJ 10 UJ	1.93 U 3.41 J 0.34 U	3.45 = 1.07 U 0.35 U 10 UJ 10 UJ 5 U 1 UJ
Balance (% difference) Radiologicals ALPHA, GROSS 3ETA, GROSS Total Petroleum Hydrocarbons PETROLEUM HYDROCARBONS Volatile Organic Compounds ACETONE ACROLEIN ACRYLONITRILE ALLYL CHLORIDE (3-CHLOROPROPENE) BENZENE	meg/L meg/L pCi/L pCi/L mg/L µg/L µg/L µg/L µg/L µg/L	0.1 1.4 3.4% 0.838 U 1.36 U 0.34 U 10 U 10 U 5 U 1 U	4.9 3.5% 2.62 J 2.84 U 0.12 J 10 U 10 U 5 U 1 U 1 U	4.9 3.9% 0.649 U 2.69 U 0.12 J 10 U 10 U 5 U 1 U	4.7 1.3% 1.93 U 2.81 U 0.34 UJ 10 U 10 UJ 5 U 1 U	3.9 -4.2% 6.82 = 2.69 U 0.1 J 10 UJ 10 UJ 5 U 1 UJ	0.805 U 0.812 U 0.34 U 10 UJ 10 UJ 5 U 1 UJ	1.48 U 3.19 J 0.34 UJ 10 UJ 10 UJ 5 U 1 UJ	-5.4% 3.44 = 3.05 J 0.34 U 10 UJ 10 UJ 5 U	1.6% 1.93 U 3.41 J 0.34 U 10 U 10 UJ 5 U 1 U 1 U	3.45 = 1.07 U 0.35 U 10 W 5 U 1 W 1 U U 1 U U 1 U U 1 U U 1 U U 1 U U 1 U U 1 U U 1 U U 1 U U 1 U U 1 U U 1 U U 1 U U 1 U U 1 U U U 1 U U U 1 U
Balance (% difference) Radiologicals ALPHA, GROSS BETA, GROSS Total Petroleum Hydrocarbons PETROLEUM HYDROCARBONS Volatile Organic Compounds ACETONE ACROLEIN ACROLEIN ACRUL CHLORIDE (3-CHLOROPROPENE) BENZENE BROMODICHLOROMETHANE	meq/L meq/L pCi/L pCi/L mg/L µg/L µg/L µg/L µg/L µg/L µg/L µg/L	0.1 1.4 3.4% 0.838 U 1.36 U 0.34 U 0.34 U 10 U 10 U 5 U 1 U 1 U	4.9 3.5% 2.62 J 2.84 U 0.12 J 10 U 10 U 5 U 1 U 1 U	4.9 3.9% 0.649 U 2.69 U 0.12 J 10 U 10 U 5 U 1 U	4.7 1.3% 1.93 U 2.81 U 0.34 UJ 10 U 10 UJ 5 U 1 U 1 U	3.9 -4.2% 6.82 = 2.69 U 0.1 J 10 UJ 10 UJ 5 U 1 UJ 1 UJ	-0.6% 0.805 U 0.812 U 0.34 U 10 UJ 10 UJ 5 U 1 UJ 1 UJ	1.48 U 3.19 J 0.34 UJ 10 UJ 10 UU 5 U 1 UU 1 UU	-5.4% 3.44 = 3.05 J 0.34 U 10 UJ 10 UJ 5 U 1 UJ 1 UJ	1.93 U 3.41 J 0.34 U 10 U 10 U 5 U 1 U 1 U 1 U 1 U 1 U	3.45 = 1.07 U 0.35 U 10 UJ 10 UJ 5 U 1 UJ 1 UJ 1 UJ 1 UJ 1 UJ 1 UJ 1
Balance (% difference) Radiologicals ALPHA, GROSS 3ETA, GROSS Total Petroleum Hydrocarbons PETROLEUM HYDROCARBONS Volatile Organic Compounds ACETONE ACROLEIN ACROLEIN ACROLEIN ACRYLONITRILE ALLYL CHLORIDE (3-CHLOROPROPENE) 3ENZENE 3BROMODICHLOROMETHANE 3BROMODICHLOROMETHANE	meq/L meq/L pCi/L pCi/L pCi/L mg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L	0.1 1.4 3.4% 0.838 U 1.36 U 0.34 U 10 U 10 U 5 U 1 U	4.9 3.5% 2.62 J 2.84 U 0.12 J 10 U 10 U 5 U 1 U 1 U	4.9 3.9% 0.649 U 2.69 U 0.12 J 10 U 10 U 5 U 1 U	4.7 1.3% 1.93 U 2.81 U 0.34 UJ 10 U 10 UJ 5 U 1 U	3.9 -4.2% 6.82 = 2.69 U 0.1 J 10 UJ 10 UJ 1 UJ 1 UJ 1 UJ	0.805 U 0.812 U 0.34 U 10 UJ 10 UJ 5 U 1 UJ	1.48 U 3.19 J 0.34 UJ 10 UJ 10 UJ 5 U 1 UJ	-5.4% 3.44 = 3.05 J 0.34 U 10 UJ 10 UJ 5 U	1.6% 1.93 U 3.41 J 0.34 U 10 U 10 UJ 5 U 1 U 1 U	3.3% 3.45 = 1.07 U 0.35 U 10 UJ 5 U 1 UJ 1 UJ 1 UJ
Balance (% difference) Radiologicals ALPHA, GROSS 3ETA, GROSS Total Petroleum Hydrocarbons PETROLEUM HYDROCARBONS Volatile Organic Compounds ACETONE ACRYLONITRILE ALLYL CHLORIDE (3-CHLOROPROPENE) 3ENZENE 3BROMOFORM 3BROMOFETHANE	meq/L meq/L pCi/L pCi/L mg/L µg/L µg/L µg/L µg/L µg/L µg/L µg/L	0.1 1.4 3.4% 0.838 U 1.36 U 0.34 U 10 U 10 U 5 U 1 U 1 U	4.9 3.5% 2.62 J 2.84 U 0.12 J 10 U 10 U 5 U 1 U 1 U 1 U 1 U	4.9 3.9% 0.649 U 2.69 U 0.12 J 10 U 10 U 5 U 1 U	4.7 1.3% 1.93 U 2.81 U 0.34 UJ 10 U 10 UJ 5 U 1 U 1 U	3.9 -4.2% 6.82 = 2.69 U 0.1 J 10 UJ 10 UJ 5 U 1 UJ 1 UJ	0.805 U 0.812 U 0.34 U 10 UJ 10 UJ 5 U 1 UJ 1 UJ	1.48 U 3.19 J 0.34 UJ 10 UJ 10 UJ 5 U 1 UJ 1 UJ 1 UJ	-5.4% 3.44 = 3.05 J 0.34 U 10 UJ 10 UJ 5 U 1 UJ 1 UJ	1.93 U 3.41 J 0.34 U 10 U 10 U 10 UJ 5 U 1 U 1 U 1 U 1 U 1 U 1 U	3.45 = 1.07 U 0.35 U 10 UJ 10 UJ 5 U 1 UJ 1 UJ 1 UJ 1 UJ 1 UJ 1 UJ 1
Balance (% difference) Radiologicals ALPHA, GROSS BETA, GROSS Total Petroleum Hydrocarbons PETROLEUM HYDROCARBONS Volatile Organic Compounds ACETONE ACROLEIN ACROLEIN ACROLEIN BENZENE BENZENE BROMODICHLOROMETHANE BROMOFORM BROMOFTHANE CARBON DISULFIDE CARBON DISULFIDE CARBON TETRACHLORIDE	meg/L meg/L pCi/L pCi/L mg/L µg/L 0.1 1.4 3.4% 0.838 U 1.36 U 0.34 U 0.34 U 10 U 10 U 5 U 1 U 1 U 1 U 1 U 1 U 1 U	4.9 3.5% 2.62 J 2.84 U 0.12 J 10 U 10 U 5 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1	4.9 3.9% 0.649 U 2.69 U 0.12 J 10 U 10 U 5 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1	4.7 1.3% 1.93 U 2.81 U 0.34 UJ 10 U 10 UJ 5 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1	3.9 -4.2% 6.82 = 2.69 U 0.1 J 10 UJ 10 UJ 1 UJ 1 UJ 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U	0.805 U 0.812 U 0.34 U 10 UJ 5 U 1 UJ 1 UJ 1 UJ 1 U 1 UJ	1.48 U 3.19 J 0.34 UJ 10 UJ 10 UJ 11 UJ 11 U 11 U 11 U 11 U	-5.4% 3.44 = 3.05 J 0.34 U 10 UJ 10 UJ 1 UJ 1 UJ 1 UJ 1 UJ 1 UJ 1 UJ	1.93 U 3.41 J 0.34 U 10 U 10 U 5 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U	3.3% 3.45 = 1.07 U 0.35 U 10 UJ 10 UJ 5 U 1 UJ 1 UJ 1 UJ 1 U 1 U 1 U 1 U 1 U	
Balance (% difference) Radiologicals ALPHA, GROSS BETA, GROSS Total Petroleum Hydrocarbons PETROLEUM HYDROCARBONS Volatile Organic Compounds ACETONE ACRYLONITRILE ALLYL CHLORIDE (3-CHLOROPROPENE) BENZENE BROMODICHLOROMETHANE BROMODICHLOROME BROMODICHLOROME BROMOMETHANE CARBON DISULFIDE CARBON TETRACHLORIDE CHLOROBENZENE	meq/L meq/L pCi/L pCi/L pGi/L µg/L µg/L µg/L µg/L µg/L µg/L µg/L µ	0.1 1.4 3.4% 0.838 U 1.36 U 0.34 U 10 U 10 U 5 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U	4.9 3.5% 2.62 J 2.84 U 0.12 J 10 U 10 U 5 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1	4.9 3.9% 0.649 U 2.69 U 0.12 J 10 U 10 U 5 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1	4.7 1.3% 1.93 U 2.81 U 0.34 UJ 10 U 10 UJ 5 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1	3.9 -4.2% 6.82 = 2.69 U 0.1 J 10 UJ 10 UJ 5 U 1 UJ 1 U 1 U 1 U 1 U 1 U 1 U 1 U	0.805 U 0.812 U 0.34 U 10 UJ 10 UJ 5 U 1 UJ 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U	1.48 U 3.19 J 0.34 UJ 10 UJ 10 UJ 5 U 1 UJ 1 UJ 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U	-5.4% 3.44 = 3.05 J 0.34 U 10 UJ 10 UJ 5 U 1 UJ 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U	1.93 U 3.41 J 0.34 U 10 U 10 U 10 UJ 5 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1	3.3% 3.45 = 1.07 U 0.35 U 10 UJ 10 UJ 5 U 1 UJ 1 UJ 1 U 1 U 1 U 1 U 1 U 1 U 1 U
Balance (% difference) Radiologicals ALPHA, GROSS BETA, GROSS Total Petroleum Hydrocarbons PETROLEUM HYDROCARBONS Volatile Organic Compounds ACETONE ACRYLONITRILE ALLYL CHLORIDE (3-CHLOROPROPENE) BENZENE BROMODICHLOROMETHANE BROMODICHLOROMETHANE BROMOFORM BROMOMETHANE CARBON DISULFIDE CARBON TETRACHLORIDE CHLOROBENZENE CHLOROBENZENE CHLOROBENZENE CHLOROBENZENE CHLOROBENZENE CHLOROBENZENE	meg/L meg/L pCi/L pCi/L mg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L μ	0.1 1.4 3.4% 0.838 U 1.36 U 0.34 U 0.34 U 10 U 10 U 5 U 1 U 1 U 1 U 1 U 1 U 1 U	4.9 3.5% 2.62 J 2.84 U 0.12 J 10 U 10 U 5 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1	4.9 3.9% 0.649 U 2.69 U 0.12 J 10 U 10 U 5 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1	4.7 1.3% 1.93 U 2.81 U 0.34 UJ 0.34 UJ 10 U 10 UJ 5 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1	3.9 -4.2% 6.82 = 2.69 U 0.1 J 10 UJ 10 UJ 5 U 1 UJ 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U	-0.6% 0.805 U 0.812 U 10 UJ 10 UJ 11 UJ 11 U 11 U 11 U 11 U 11 U 11 U	1.48 U 3.19 J 0.34 UJ 10 UJ 10 UJ 1 UJ 1 UJ 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U	-5.4% 3.44 = 3.05 J 0.34 U 10 UJ 10 UJ 1 UJ 1 UJ 1 UJ 1 UJ 1 UJ 1 UJ	1.93 U 3.41 J 0.34 U 10 U 10 U 5 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U	3.45 = 1.07 U
Balance (% difference) Radiologicals ALPHA, GROSS BETA, GROSS Total Petroleum Hydrocarbons PETROLEUM HYDROCARBONS Volatile Organic Compounds ACETONE ACRYLONITRILE ALLYL CHLORIDE (3-CHLOROPROPENE) BENZENE BROMODICHLOROMETHANE BROMODICHLOROME BROMODICHLOROME BROMOMETHANE CARBON DISULFIDE CARBON TETRACHLORIDE CHLOROBENZENE	meq/L meq/L pCi/L pCi/L pGi/L µg/L µg/L µg/L µg/L µg/L µg/L µg/L µ	0.1 1.4 3.4% 0.838 U 1.36 U 0.34 U 10 U 10 U 5 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1	4.9 3.5% 2.62 J 2.84 U 0.12 J 10 U 10 U 5 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1	4.9 3.9% 0.649 U 2.69 U 0.12 J 10 U 10 U 5 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1	4.7 1.3% 1.93 U 2.81 U 0.34 UJ 10 U 10 UJ 5 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1	3.9 -4.2% 6.82 = 2.69 U 0.1 J 10 UJ 10 UJ 5 U 1 UJ 1 U 1 U 1 U 1 U 1 U 1 U 1 U	0.805 U 0.812 U 0.34 U 10 UJ 10 UJ 5 U 1 UJ 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U	1.48 U 3.19 J 0.34 UJ 10 UJ 10 UJ 5 U 1 UJ 1 UJ 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U	-5.4% 3.44 = 3.05 J 0.34 U 10 UJ 10 UJ 5 U 1 UJ 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U	1.6% 1.93 U 3.41 J 0.34 U 10 U 10 UJ 5 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U 1	3.3% 3.45 = 1.07 U 0.35 U 10 UJ 10 UJ 5 U 1 UJ 1 UJ 1 U 1 U 1 U 1 U 1 U 1 U 1 U

					Baseline Event							Sampling Event 1		
	Location:	Inflow to R-40	Inflow to R-143	MW-1	MW-2	MW-3	MW-3 (Dup)	MW-3	MW-4	Inflow to R-143	MW-1	MW-1	MW-2	MW-4
	Event: SJRWMD No.:	Baseline None	Baseline None	Baseline OR0018	Baseline OR0819	Baseline OR0818	Baseline OR0818	Baseline OR0141	Baseline OR0141	Sampling Event 1 None	Sampling Event 1 OR0018	Sampling Event 1 OR0018	Sampling Event 1 OR0819	Sampling Event 1 OR0141
	SampleID:	FP-03-01-007	FP-03-01-008	FP-03-01-009	FP-03-01-001	FP-03-01-002	FP-03-01-003	FP-03-01-006	FP-03-01-006	FP-03-02-005	FP-03-02-001	FP-03-02-002	FP-03-02-006	FP-03-02-007
	DateCollected: Matrix:	5/28/2003 Stormwater	5/28/2003 Stormwater	5/29/2003 Groundwater	5/27/2003 Groundwater	5/27/2003 Groundwater	5/27/2003 Groundwater	5/28/2003 Groundwater	5/28/2003 Groundwater	10/01/2003 Stormwater	10/01/2003 Groundwater	10/01/2003 Groundwater	10/02/2003 Groundwater	10/03/2003 Groundwater
	SampleType:	Normal	Normal	Normal	Normal	Normal	Field Duplicate	Normal	Normal	Normal	Normal	Field Duplicate	Normal	Normal
Parameter Group and Name cis-1.2-DICHLOROETHYLENE	Unit μg/L	Result Qual 0.54 J	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual 3 =	Result Qual	Result Qual	Result Qual 0.89 J	Result Qual	Result Qual 1 U	Result Qual 3.5 =	Result Qual
cis-1,3-DICHLOROPROPENE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	<u>1</u> U	1 U	1 U
DIBROMOCHLOROMETHANE DICHLORODIFLUOROMETHANE	μg/L μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-DICHLOROETHANE	μg/L	1.1 =	1 U	1 U	1.2 =	1 U	1 U	1 U	1 U	1 U	1 U	<u> </u>	2.2 =	1 U
1,1-DICHLOROETHENE 1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	μg/L μg/L	1.4 = 1 U	1 U	1 U	1 U	1 U	1 U 1 U	1 U	1 U	1 U 1 U	1 U	1 U	0.48 J	1 U 1 U
1,2-DICHLOROBENZENE	μg/L	0.34 J	0.6 J	1 U	1 U	1 U	<u>1</u> U	1 U	1 U	1 U	1 U	<u>1</u> U	1 U	1 U
1,2-DICHLOROETHANE 1,2-DICHLOROPROPANE	μg/L μg/L	1 U 1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,3-DICHLOROBENZENE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,4-DICHLOROBENZENE ETHYLBENZENE	μg/L μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U 1 U	1 U	1 U 1 U
2-HEXANONE	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
IODOMETHANE (METHYL IODIDE) METHYLENE CHLORIDE	μg/L μg/L	2 U 1 U	2 U	2 U 1 U	2 U 1 U	2 U	2 U 1 U	2 U 1 U	2 U 1 U	1 U	1 U	1 U 1 U	1 U	1 U 1 U
STYRENE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
TETRACHLOROETHYLENE(PCE) TOLUENE	μg/L μg/L	0.37 J 0.65 J	0.81 J 0.18 J	1 U	1 U 1 U	1 U	1 U 1 U	1 U	1 U 1 U	0.7 J 0.29 J	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U
trans-1,2-DICHLOROETHENE	μg/L	1 U	1 U 1 U	1 U	1 U	1 U	0.16 J	1 U	1 U 1 U	1 U	1 U	1 U	1 U	1 U
trans-1,3-DICHLOROPROPENE trans-1,4-DICHLORO-2-BUTENE	μg/L μg/L	1 U 1 U	1 U	1 UJ 1 U	1 UJ 1 U	1 UJ 1 U	1 UJ 1 U	1 U 1 U	1 U	3.6 UJ	1 U 3.6 UJ	1 U 3.6 UJ	1 U 3.6 U	3.6 U
TRICHLOROETHYLENE (TCE) TRICHLOROFLUOROMETHANE	μg/L	1 U 1 U	1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	0.23 J 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U
1,1,1-TRICHLOROETHANE	μg/L μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	<u>1</u> U	1 U	1 U
1,1,2,2-TETRACHLOROETHANE 1,2,3-TRICHLOROPROPANE	μg/L μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ 1 U	1 UJ 1 U	1 UJ	1 U	1 UJ 1 U
VINYL ACETATE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U	2 U	2 U	2 U	2 U
VINYL CHLORIDE M,P-XYLENE (SUM OF ISOMERS)	μg/L μg/L	1 U 2 U	1 U 2 U	1 U 2 U	1 U 2 U	1 U 2 U	1 U 2 U	1 U 2 U	1 U 2 U	1 U 2 U	1 U 2 U	1 U 2 U	1 U 2 U	1 U 2 U
O-XYLENE (1,2-DIMETHYLBENZENE)	μg/L	1 U	0.16 J	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
XYLENES, TOTAL Semi-volatile Organic Compound	μg/L	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
ACETOPHENONE	μg/L	5 U 5 U	5 U	5 U	5 U 5 U	5 U	5 U	5.1 U	5.1 U	5 U	5 U	5 U 5 U	5 U	5.1 U 5.1 UJ
ANILINE (PHENYLAMINE, AMINOBENZENE) ARAMITE	μg/L μg/L	10.1 U	10.1 U	10.1 U	10.1 U	10 U	5 U 10.1 U	5.1 U 10.2 U	5.1 U 10.2 U	5 U 10 U	5 U 10 U	10 U	5 U 10 U	10.2 U
4-AMINOBIPHENYL (4-BIPHENYLAMINE) 2-ACETYLAMINOFLUORENE	μg/L μg/L	5 U 10.1 U	5 U 10.1 U	5 U 10.1 U	5 U 10.1 U	5 U 10 U	5 U 10.1 U	5.1 U 10.2 U	5.1 U 10.2 U	5 U 10 U	5 U 10 U	5 U 10 U	5 UJ 10 U	5.1 UJ 10.2 U
2-AMINONAPHTHALENE (BETA NAPHTHYLAMINE)	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	5.1 U	5 U	5 U	5 U	5 U	5.1 UJ
BENZYL ALCOHOL BENZYL BUTYL PHTHALATE	μg/L μg/L	10.1 U	10.1 U 5 U	10.1 U	10.1 U	10 U	10.1 U 5 U	10.2 U 5.1 U	10.2 U 5.1 U	10 U 5 U	10 U 5 U	10 U 5 U	10 U 5 U	10.2 U 5.1 U
4-BROMOPHENYL PHENYL ETHER	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	5.1 U	5 U	5 U	5 U	5 U	5.1 U
4-CHLOROANILINE 4-CHLOROPHENYL PHENYL ETHER	μg/L μg/L	5 U 5 U	5 U	5 U 5 U	5 U 5 U	5 U	5 U 5 U	5.1 U 5.1 U	5.1 U 5.1 U	5 U 5 U	5 U 5 U	5 U 5 U	5 U 5 U	5.1 U 5.1 U
2-CHLORONAPHTHALENE	μg/L	5 U	5 U 5 U	5 U	5 U 5 U	5 U 5 U	5 U	5.1 U	5.1 U	5 U	5 U	5 U	5 U	5.1 U 5.1 U
2-CHLOROPHENOL 1,3-DINITROBENZENE	μg/L μg/L	5 U 10.1 U	10.1 U	5 U 10.1 U	10.1 U	10 U	5 U 10.1 U	5.1 U 10.2 U	5.1 U 10.2 U	5 U 10 UJ	5 U 10 UJ	5 U 10 UJ	5 U 10 UJ	10.2 UJ
2,4-DICHLOROPHENOL 2.6-DICHLOROPHENOL	μg/L μg/L	5 U 5 U	5 U	5 U	5 U	5 U	5 U 5 U	5.1 U 5.1 U	5.1 U 5.1 U	5 U 5 U	5 U	5 U 5 U	5 U 5 U	5.1 U
2,4-DIMETHYLPHENOL	μg/L	5 U	5 U	5 U	5 U	5 U	<u>5</u> U	5.1 U	5.1 U	5 U	5 U	<u>5</u> U	5 U	5.1 U
2,4-DINITROPHENOL 2.4-DINITROTOLUENE	μg/L μg/L	10.1 UJ 5 U	10.1 UJ 5 U	10.1 UJ 5 U	10.1 UJ 5 U	10 UJ 5 U	10.1 UJ 5 U	10.2 UJ 5.1 U	10.2 UJ 5.1 U	10 UJ 5 U	10 UJ 5 U	10 UJ 5 U	10 U 5 U	10.2 UJ 5.1 U
bis(2-CHLOROETHOXY) METHANE	μg/L	5 U	5 U	5 U	5 U	5 U	<u>5</u> U	5.1 U	5.1 U	5 U	5 U	<u>5</u> U	5 U	5.1 U
bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHER) bis(2-CHLOROISOPROPYL) ETHER	μg/L μg/L	5 U	5 U	5 U	5 U 5 U	5 U	5 U	5.1 U 5.1 U	5.1 U 5.1 U	5 U	5 U	5 U 5 U	5 U	5.1 U 5.1 U
CHLOROBENZILATE	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	5.1 U	5 U	5 U	5 U	5 U	5.1 U
DIALLATE DIBENZOFURAN	μg/L μg/L	5 U 5 U	5 U	5 U 5 U	5 U 5 U	5 U 5 U	5 U 5 U	5.1 U 5.1 U	5.1 U 5.1 U	5 U	5 U	5 U 5 U	5 U 5 U	5.1 U 5.1 U
DIETHYL PHTHALATE DIMETHYL PHTHALATE	μg/L	5 U 5 U	5 U 5 U	5 U 5 U	5 U 5 U	5 U 5 U	5 U 5 U	5.1 U 5.1 U	5.1 U 5.1 U	5 U 5 U	5 U 5 U	5 U 5 U	5 U 5 U	5.1 U 5.1 U
DIMETHYLPHENYLETHYLAMINE	μg/L μg/L	20.2 UJ	20.2 UJ	20.2 UJ	20.2 UJ	20.1 UJ	20.2 UJ	20.4 UJ	20.4 UJ	20 R	20 R	20.1 R	20 R	20.4 R
7,12-DIMETHYLBENZ(a)ANTHRACENE p-DIMETHYLAMINOAZOBENZENE	μg/L μg/L	5 U 10.1 U	5 U 10.1 U	5 U 10.1 U	5 U 10.1 U	5 U 10 U	5 U 10.1 U	5.1 U 10.2 U	5.1 U 10.2 U	5 U 10 U	5 U 10 U	5 U 10 U	5 U 10 U	5.1 U 10.2 U
3,3'-DICHLOROBENZIDINE	μg/L	5 UJ	5 UJ	5 U	5 U	5 U	5 U	5.1 UJ	5.1 UJ	5 U	5 U	5 U	5 U	5.1 U
3,3'-DIMETHYLBENZIDINE ETHYL METHANESULFONATE	μg/L μg/L	10.1 U 5 U	10.1 U	10.1 UJ 5 U	10.1 U 5 U	10 U 5 U	10.1 U 5 U	10.2 U 5.1 U	10.2 U 5.1 U	10 U 5 U	10 U 5 U	10 U 5 U	10 UJ 5 U	10.2 UJ 5.1 U
HEXACHLOROPROPENE	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	5.1 U	5 U	5 U	5 U	5 U	5.1 U
ISODRIN ISOPHORONE	μg/L μg/L	5 U 5 U	5 U	5 U 5 U	5 U 5 U	5 U 5 U	5 U 5 U	5.1 U 5.1 U	5.1 U 5.1 U	5 U 5 U	5 U 5 U	5 U 5 U	5 U 5 U	5.1 U 5.1 U
ISOSAFROLE KEPONE	μg/L	5 U 20.2 U	5 U 20.2 U	5 U 20.2 U	5 U 20.2 U	5 U 20.1 U	5 U 20.2 U	5.1 U 20.4 U	5.1 U 20.4 U	5 U 20 UJ	5 U 20 UJ	5 U 20.1 UJ	5 U 20 R	5.1 U 20.4 R
METHAPYRILENE	μg/L μg/L	10.1 UJ	10.1 UJ	10.1 UJ	10.1 UJ	10 UJ	10.1 UJ	10.2 UJ	10.2 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10.2 UJ
METHYL METHANESULFONATE 2-METHYLNAPHTHALENE	μg/L μg/l	5 U 5 U	5 U	5 U 5 U	5 U 5 U	5 U	5 U 5 U	5.1 U 5.1 U	5.1 U 5.1 U	5 U 5 U	5 U	5 U 5 U	5 U 5 U	5.1 U 5.1 U
2-METHYLPHENOL (o-CRESOL)	μg/L μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	5.1 U	5 U	5 U	5 U	5 U	5.1 U
3-METHYLCHOLANTHRENE 4-METHYLPHENOL (p-CRESOL)	μg/L μg/L	5 U 5 UJ	5 U 5 UJ	5 U 5 UJ	5 U 5 UJ	5 U 5 UJ	5 U 5 UJ	5.1 U 5.1 UJ	5.1 U 5.1 UJ	5 U 5 U	5 U 5 U	5 U 5 U	5 U 5 U	5.1 U 5.1 U
1,4-NAPHTHOQUINONE	μg/L	10.1 U	10.1 U	10.1 U	10.1 U	10 U	10.1 U	10.2 U	10.2 U	10 U	10 U	10 U	10 U	10.2 U
1-NAPHTHYLAMINE 2-NITROANILINE	μg/L μg/L	5 U 5 U	5 U 5 U	5 U 5 U	5 U 5 U	5 U 5 U	5 U 5 U	5.1 U 5.1 U	5.1 U 5.1 U	5 U	5 U 5 U	5 U 5 U	5 U 5 U	5.1 UJ 5.1 U
3-NITROANILINE	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	5.1 U	5 U	5 U	5 U	5 U	5.1 U
4-NITROANILINE 4-NITROQUINOLINE-N-OXIDE	μg/L μg/L	5 UJ 10.1 U	5 UJ 10.1 U	5 UJ 10.1 UJ	5 UJ 10.1 UJ	5 UJ 10 UJ	5 U 10.1 UJ	5.1 UJ 10.2 U	5.1 UJ 10.2 U	5 U 10 UJ	5 U 10 UJ	5 U 10 UJ	5 U 10 UJ	5.1 U 10.2 UJ
5-NITRO-0-TOLUIDINE N-NITROSO-DI-N-BUTYLAMINE	μg/L	10.1 U 5 U	10.1 U 5 U	10.1 U 5 U	10.1 U 5 U	10 U 5 U	10.1 U 5 U	10.2 U 5.1 U	10.2 U 5.1 U	10 U 5 U	10 U 5 U	10 U 5 U	10 U 5 U	10.2 U 5.1 U
N-NITROSO-DI-N-BUTYLAMINE N-NITROSODI-n-PROPYLAMINE	μg/L μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U 5.1 U	5.1 U 5.1 U	5 U	5 U	5 U	5 U	5.1 U 5.1 U
N-NITROSODIETHYLAMINE	μg/L	5 U	5 U 5 U	5 U	5 U 5 U	5 U 5 U	5 U	5.1 U	5.1 U	5 U 5 U	5 U	5 U	5 U	5.1 U
N-NITROSODIMETHYLAMINE	μg/L	5 U	ə [∪	3 U	5 U	5 U	5 U	5.1 U	5.1 U	5 U	5 U	5 U	9 U	5.1 U

				Sampling Event 2					Sampling Event 3					Sampling Event 4		
	Location: Event:	Inflow to R-143 Sampling Event 2	MW-1 Sampling Event 2	MW-1 Sampling Event 2	MW-2 Sampling Event 2	MW-4 Sampling Event 2	Inflow to R-143 Sampling Event 3	MW-1 Sampling Event 3	MW-1 Sampling Event 3	MW-2 Sampling Event 3	MW-4 Sampling Event 3	Inflow to R-143 Sampling Event 4	MW-1 Sampling Event 4	MW-1 Sampling Event 4	MW-2 Sampling Event 4	MW-4 Sampling Event 4
	SJRWMD No.: SampleID:	None FP-03-03-002	OR0018 FP-03-03-001	OR0018 FP-03-03-003	OR0819 FP-03-03-007	OR0141 FP-03-03-006	None FP-03-04-003	OR0018 FP-03-04-004	OR0018 FP-03-04-005	OR0819 FP-03-04-001	OR0141 FP-03-04-002	None FP-03-05-007	OR0018 FP-03-05-001	OR0018 FP-03-05-002	OR0819 FP-03-05-005	OR0141 FP-03-05-006
	DateCollected:	10/08/2003 Stormwater	10/08/2003 Groundwater	10/08/2003 Groundwater	10/10/2003 Groundwater	10/09/2003 Groundwater	10/23/2003 Stormwater	10/24/2003 Groundwater	10/24/2003 Groundwater	10/22/2003 Groundwater	10/23/2003 Groundwater	11/20/2003 Stormwater	11/18/2003 Groundwater	11/18/2003 Groundwater	11/19/2003 Groundwater	11/20/2003 Groundwater
Parameter Group and Name	SampleType:	Normal Result Qual	Normal Result Qual	Field Duplicate Result Qual	Normal Result Qual	Normal Result Qual	Normal Result Qual	Normal Result Qual	Field Duplicate Result Qual	Normal Result Qual	Normal Result Qual	Normal Result Qual	Normal Result Qual	Field Duplicate Result Qual	Normal Result Qual	Normal Result Qual
s-1,2-DICHLOROETHYLENE	μg/L	0.88 J	1 UJ	1 UJ	4.4 =	1 U	2.3 =	1 U	1 U	4 =	1 U	1.1 =	1 U	1 U	4 =	1 U
s-1,3-DICHLOROPROPENE IBROMOCHLOROMETHANE	μg/L μg/L	1 U	1 U	1 U	1 UJ 1 UJ	1 UJ 1 UJ	1 U 1 U	1 U	1 U	1 U 1 U	1 U	1 U	1 U	1 U	1 U	1 U 1 U
CHLORODIFLUOROMETHANE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 UJ	1 U	1 UJ
I-DICHLOROETHANE I-DICHLOROETHENE	μg/L	1 U	1 U	1 U	2.5 = 0.53 J	1 U	1 U 0.96 J	1 U	1 U	2.2 = 0.48 J	1 U	1 U 0.38 J	1 U	1 U	2.2 = 0.44 J	1 U
2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	μg/L μg/L	10	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
DICHLOROBENZENE	μg/L	0.52 J	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
DICHLOROETHANE DICHLOROPROPANE	μg/L μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
DICHLOROBENZENE	μg/L	1 U	1 U	<u>1</u> U	1 U	1 U	1 U	1 U	<u>1</u> U	1 U	1 U	1 U	1 U	<u>1</u> U	1 U	1 U
DICHLOROBENZENE IYLBENZENE	μg/L	1 U	1 U	1 U 1 U	1 U	1 U	1 U 1 U	1 U	1 U 1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
EXANONE	μg/L μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
OOMETHANE (METHYL IODIDE) THYLENE CHLORIDE	μg/L	1 U	1 U	1 U 1 U	1 U 1 U	1 U	1 U 1 U	1 U	1 U 1 U	1 U	1 U	1 U	1 U 1 U	1 U 1 U	1 U	1 U
YRENE	μg/L μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
TRACHLOROETHYLENE(PCE) _UENE	μg/L	1.1 = 0.67 J	1 U	1 U 1 U	1 U 1 U	1 U	0.81 J	1 U	1 U 1 U	1 U	1 U	1 U 0.24 J	1 U 1 U	1 U 1 U	1 U	1 U
s-1,2-DICHLOROETHENE	μg/L μg/L	0.67 J 1 U	1 U	1 U	1 U	1 U	0.56 J 1 U	1 U	1 U 1 U	1 U	1 U	0.24 J 1 U	1 U	1 U 1 U	1 U	1 U 1 U
s-1,3-DICHLOROPROPENE s-1,4-DICHLORO-2-BUTENE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U 3.6 U	1 U	1 U
S-1,4-DICHLORO-2-BUTENE CHLOROETHYLENE (TCE)	μg/L μg/L	3.6 U 0.32 J	3.6 U	3.6 U 1 U	3.6 UJ 1 U	3.6 U 1 U	3.6 U 0.27 J	3.6 U 1 U	3.6 U 1 U	3.6 U 1 U	3.6 U 1 U	3.6 U 1 U	3.6 U 1 U	3.6 U 1 U	3.6 U 1 U	3.6 U 1 U
CHLOROFLUOROMETHANE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1-TRICHLOROETHANE 2,2-TETRACHLOROETHANE	μg/L μg/L	1 U 1 U	1 U	1 U 1 U	1 U 1 UJ	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U	1 U 1 U
3-TRICHLOROPROPANE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
YL ACETATE YL CHLORIDE	μg/L μg/L	2 U 1 I I	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U 1 I I	2 U	2 U	2 U	2 U
-XYLENE (SUM OF ISOMERS)	μg/L	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
YLENE (1,2-DIMETHYLBENZENE) LENES, TOTAL	μg/L μg/L	1 U 2 U	1 U 2 U	1 U 2 U	1 U 2 U	1 U 2 U	1 U 2 U	1 U 2 U	1 U 2 U	1 U 2 U	1 U 2 U	1 U 2 U	1 U 2 U	1 U 2 U	1 U 2 U	1 U 2 U
Semi-volatile Organic Compound																
ETOPHENONE LINE (PHENYLAMINE, AMINOBENZENE)	μg/L μg/L	5 U 5 U	5 U	5.2 U 5.2 U	5 U 5 UJ	5 U 5 UJ	5 U 5 U	5.1 U 5.1 U	5.1 U 5.1 U	5 U	5 U 5 U	5 U 5 U	5 UJ 5 UJ	5 UJ 5 UJ	5 U 5 U	5 U
AMITE	μg/L	10 U	10 U	10.3 U	10 U	10 U	10 UJ	10.2 U	10.2 U	10 U	10.1 UJ	10 U	10.1 U	10 U	10 U	10 U
MINOBIPHENYL (4-BIPHENYLAMINE) CETYLAMINOFLUORENE	μg/L μg/L	5 U 10 U	5 U 10 U	5.2 U 10.3 U	5 U 10 U	5 U 10 U	5 U 10 U	5.1 U 10.2 U	5.1 U 10.2 U	5 UJ 10 UJ	5 U 10.1 U	5 U 10 U	5 U 10.1 U	5 U 10 U	5 U 10 U	5 U 10 U
MINONAPHTHALENE (BETA NAPHTHYLAMINE)	μg/L	5 UJ	5 UJ	5.2 UJ	5 U	5 U	5 U	5.1 U	5.1 U	5 UJ	5 U	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
IZYL ALCOHOL IZYL BUTYL PHTHALATE	μg/L μg/L	10 U 5 U	10 U	10.3 U 5.2 U	10 U 5 U	10 U	10 U 5 U	10.2 U 5.1 U	10.2 U 5.1 U	10 U 5 U	10.1 U 5 U	10 U 5 U	10.1 U 5 U	10 U 5 U	10 U 5 U	10 U 5 U
ROMOPHENYL PHENYL ETHER	μg/L	5 U	5 U	5.2 U	5 U	5 U	5 UJ	5.1 U	5.1 U	5 UJ	5 UJ	5 U	5 U	5 U	5 U	5 U
HLOROANILINE HLOROPHENYL PHENYL ETHER	μg/L μg/L	5 U 5 U	5 U	5.2 U 5.2 U	5 U 5 U	5 U 5 U	5 U 5 U	5.1 U 5.1 U	5.1 U 5.1 U	5 U 5 U	5 U 5 U	5 U 5 U	5 U 5 U	5 U 5 U	5 U	5 U
HLORONAPHTHALENE	μg/L	5 U	5 U	5.2 U	5 U	5 U	5 U	5.1 UJ	5.1 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
HLOROPHENOL DINITROBENZENE	μg/L μg/L	5 U 10 UJ	5 U 10 UJ	5.2 U 10.3 UJ	5 U 10 UJ	5 U 10 UJ	5 U 10 U	5.1 U 10.2 U	5.1 U 10.2 U	5 U 10 U	5 U 10.1 U	5 U 10 U	5 U 10.1 U	5 U 10 U	5 U 10 U	5 U 10 U
DICHLOROPHENOL	μg/L	5 UJ	5 U	5.2 UJ	5 U	5 U	5 U	5.1 ∪	5.1 ∪	5 U	5 U	5 U	5 U	5 U	5 U	5 U
DICHLOROPHENOL DIMETHYLPHENOL	μg/L μg/L	5 U	5 U	5.2 U 5.2 U	5 U 5 U	5 U	5 U 5 U	5.1 U 5.1 U	5.1 U 5.1 U	5 U 5 U	5 U	5 U 5 U	5 U	5 U 5 U	5 U	5 U
DINITROPHENOL	μg/L	10 U	10 U	10.3 U	10 UJ	10 UJ	10 UJ	10.2 U	10.2 U	10 U	10.1 UJ	10 UJ	10.1 UJ	10 UJ	10 UJ	10 UJ
DINITROTOLUENE 2-CHLOROETHOXY) METHANE	μg/L μg/L	5 U 5 U	5 U	5.2 U 5.2 U	5 U 5 U	5 U	5 U 5 U	5.1 U 5.1 U	5.1 U 5.1 U	5 UJ 5 U	5 U	5 U	5 U 5 U	5 U 5 U	5 U 5 U	5 U
2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHER)	μg/L	5 U	5 U	5.2 U	5 U	5 U	5 U	5.1 U	5.1 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-CHLOROISOPROPYL) ETHER	μg/L	5 U	5 U	5.2 U	5 U	5 U	5 U	5.1 U	5.1 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
OROBENZILATE LATE	μg/L μg/L	5 U 5 U	5 U	5.2 U 5.2 U	5 U 5 U	5 U 5 U	5 U 5 UJ	5.1 U 5.1 U	5.1 U 5.1 U	5 U 5 UJ	5 U 5 UJ	5 U 5 U	5 U 5 UJ	5 U 5 UJ	5 U 5 U	5 U 5 U
ENZOFURAN	μg/L	5 U	5 U	5.2 U	5 U	5 U	5 U	5.1 U	5.1 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
THYL PHTHALATE ETHYL PHTHALATE	μg/L μg/L	5 U 5 U	5 U	5.2 U 5.2 U	5 U 5 U	5 U 5 U	5 U 5 U	5.1 U 5.1 U	5.1 U 5.1 U	5 U	5 U 5 U	5 U 5 U	5 U 5 U	5 U 5 U	5 U 5 U	5 U
ETHYLPHENYLETHYLAMINE	μg/L	20 R	20 R	20.6 R	20 R	20 R	20.1 UJ	20.5 R	20.5 R	20 R	20.2 UJ	20 R	20.2 R	20 R	20 R	20 R
-DIMETHYLBENZ(a)ANTHRACENE METHYLAMINOAZOBENZENE	μg/L μg/L	5 U 10 U	5 U 10 U	5.2 U 10.3 U	5 U 10 U	5 U 10 U	5 U 10 U	5.1 U 10.2 U	5.1 U 10.2 U	5 U 10 U	5 U 1.6 J	5 U 10 U	5 U 10.1 U	5 U 10 U	5 U 10 U	5 U 10 U
DICHLOROBENZIDINE	μg/L	5 U	5 U	5.2 U	5 U	5 U	5 U	5.1 U	5.1 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
DIMETHYLBENZIDINE YL METHANESULFONATE	μg/L μg/L	10 UJ 5 U	10 UJ 5 U	10.3 UJ 5.2 U	10 UJ 5 U	10 UJ 5 U	10 U 5 U	10.2 U 5.1 U	10.2 U 5.1 U	10 UJ 5 U	10.1 U 5 U	10 U 5 U	10.1 UJ 5 U	10 UJ 5 U	10 UJ 5 U	10 U 5 U
ACHLOROPROPENE	μg/L	5 UJ	5 UJ	5.2 UJ	5 UJ	5 UJ	5 UJ	5.1 U	5.1 U	5 U	5 UJ	5 U	5 U	5 U	5 UJ	5 U
PRIN PHORONE	μg/L μg/L	5 U 5 U	5 U 5 U	5.2 U 5.2 U	5 U 5 U	5 U 5 U	5 U 5 U	5.1 U 5.1 U	5.1 U 5.1 U	5 U 5 U	5 U 5 U	5 U 5 U	5 U 5 UJ	5 U 5 U	5 U	5 U
AFROLE	μg/L	5 U	5 U	5.2 U	5 U	5 U	5 U	5.1 U	5.1 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U
DNE HAPYRILENE	μg/L μg/L	20 UJ 10 R	20 UJ 10 R	20.6 UJ 10.3 R	20 UJ 10 UJ	20 UJ 10 UJ	20.1 UJ 10 UJ	20.5 U 10.2 UJ	20.5 U 10.2 UJ	20 UJ 10 UJ	20.2 UJ 10.1 UJ	20 U 10 UJ	20.2 U 10.1 UJ	20 U 10 UJ	20 U 10 UJ	20 U 10 UJ
HYL METHANESULFONATE	μg/L μg/L	5 UJ	5 UJ	5.2 UJ	5 UJ	5 UJ	5 UJ	5.1 U	5.1 U	5 UJ	5 UJ	5 U	5 U	5 U	5 U	5 U
FHYLNAPHTHALENE FHYLPHENOL (o-CRESOL)	μg/L	5 U 5 U	5 U 5 U	5.2 U 5.2 U	5 U 5 U	5 U 5 U	5 U	5.1 U 5.1 U	5.1 U	5 U 5 U	5 U 5 U	5 U 5 U	5 U 5 U	5 U 5 U	5 U 5 U	5 U
THYLCHOLANTHRENE	μg/L μg/L	5 U	5 U	5.2 U 5.2 U	5 U	5 U	5 U 5 U	5.1 U	5.1 U 5.1 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U 5 U
THYLPHENOL (p-CRESOL)	μg/L	5 U	5 U	5.2 U	5 U	5 U	5 U	5.1 U	5.1 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U
JAPHTHOQUINONE PHTHYLAMINE	μg/L μg/L	10 U 5 UJ	10 U 5 UJ	10.3 U 5.2 UJ	10 U 5 UJ	10 U 5 UJ	10 U 5 U	10.2 U 5.1 U	10.2 U 5.1 U	10 U 5 UJ	10.1 U 5 U	10 U 5 U	10.1 U 5 U	10 U 5 U	10 U 5 UJ	10 U 5 U
FROANILINE	μg/L	5 U	5 U	5.2 U	5 U	5 U	5 U	5.1 U	5.1 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U
TROANILINE TROANILINE	μg/L ug/l	5 U 5 U	5 U 5 U	5.2 U 5.2 U	5 U 5 U	5 U 5 U	5 U 5 U	5.1 U 5.1 U	5.1 U 5.1 U	5 U 5 UJ	5 U	5 U 5 U	5 U 5 U	5 U 5 U	5 U 5 U	5 U 5 U
TROQUINOLINE-N-OXIDE	μg/L μg/L	10 UJ	10 UJ	10.3 UJ	10 UJ	10 UJ	10 UJ	10.2 UJ	10.2 UJ	10 UJ	10.1 UJ	10 UJ	10.1 UJ	10 UJ	10 UJ	10 UJ
TRO-0-TOLUIDINE	μg/L	10 U	10 U	10.3 U	10 U	10 U	10 U	10.2 U	10.2 U	10 U	10.1 U	10 U	10.1 U	10 U	10 U	10 U
ITROSO-DI-N-BUTYLAMINE ITROSODI-n-PROPYLAMINE	μg/L μg/L	5 U 5 U	5 U	5.2 U 5.2 U	5 U 5 U	5 U 5 U	5 U 5 U	5.1 U 5.1 U	5.1 U 5.1 U	5 U 5 U	5 U	5 U 5 U	5 UJ 5 U	5 UJ 5 U	5 U 5 U	5 U 5 U
ITROSODIETHYLAMINE	μg/L	5 U	5 U	5.2 U	5 U	5 U	5 U	5.1 U	5.1 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
TROSODIMETHYLAMINE	μg/L	5 R	5 R	5.2 R	5 R	5 R	5 ∪	5.1 ∪	5.1 ∪	5 U	5 U	5 U	5 U	5 U	5 UJ	5 UJ

				Sampling Event 5					Sampling Event 6		
	Location:	Inflow to R-143	MW-1	MW-1	MW-2	MW-4	Inflow to R-143	MW-1	MW-1	MW-2	MW-4
	Event:	Sampling Event 5	Sampling Event 5	Sampling Event 5	Sampling Event 5	Sampling Event 5	Sampling Event 6	Sampling Event 6	Sampling Event 6	Sampling Event 6	Sampling Event 6
	SJRWMD No.: SampleID:	None FP-04-06-005	OR0018 FP-04-06-001	OR0018 FP-04-06-002	OR819 FP-04-06-007	OR0141 FP-04-06-006	None FP-04-007-02	OR0018 FP-04-07-003	OR0018 FP-04-07-004	OR819 FP-04-07-007	OR0141 FP-04-07-001
	DateCollected:	02/04/2004	02/04/2004	02/04/2004	02/06/2004	02/05/2004	02/16/2004	02/17/2004	02/17/2004	02/18/2004	02/16/2004
	Matrix:	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Parameter Group and Name	SampleType: Unit	Normal Result Qual	Normal Result Qual	Field Duplicate Result Qual	Normal Result Qual	Normal Result Qual	Normal Result Qual	Normal Result Qual	Field Duplicate Result Qual	Normal Result Qual	Normal Result Qual
is-1,2-DICHLOROETHYLENE	μg/L	2.9 =	1 U	1 U	4.5 =	1 U	1 U	1 U	1 U	4.4 =	1 U
s-1,3-DICHLOROPROPENE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
IBROMOCHLOROMETHANE ICHLORODIFLUOROMETHANE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
,1-DICHLOROETHANE	μg/L μg/L	1 U	1 U	1 U	2.2 =	1 U	1 U	1 U	1 U	2.1 =	1 U
,1-DICHLOROETHENE	μg/L	0.96 J	1 U	1 U	0.44 J	1 U	1 U	1 U	1 U	0.49 J	1 U
,2-DIBROMOETHANE (ETHYLENE DIBROMIDE) .2-DICHLOROBENZENE	μg/L	1 U	1 U	1U	1 U	1U	1 U	1 U	1U	1 U	1 U
,2-DICHLOROBENZENE ,2-DICHLOROETHANE	μg/L μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U 1 U
,2-DICHLOROPROPANE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
,3-DICHLOROBENZENE	μg/L	1 U	1 U	<u>1</u> U	1 U	1 U	1 U	1 U	<u>1</u> U	1 U	1 U
,4-DICHLOROBENZENE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
THYLBENZENE -HEXANONE	μg/L μg/L	1 U 5 U	1 U 5 U	1 U 5 U	1 U 5 U	1 U 5 UJ	5 UJ	1 U 5 UJ	1 U 5 UJ	1 U 5 U	1 U 5 UJ
DDOMETHANE (METHYL IODIDE)	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
IETHYLENE CHLORIDE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
TYRENE ETRACHLOROETHYLENE(PCE)	μg/L μg/L	1 U 0.48 J	1 U 1 U	1 U 1 U	1 U	1 U 1 U	1 U 1 U	1 U	1 U 1 U	1 U	1 U
OLUENE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
ans-1,2-DICHLOROETHENE	μg/L	1 U	1 U	1 U	0.24 J	1 U	1 U	1 U	1 U	1 U	1 U
ans-1,3-DICHLOROPROPENE ans-1,4-DICHLORO-2-BUTENE	μg/L μg/L	1 UJ 3.6 U	1 UJ 3.6 U	1 UJ 3.6 U	1 UJ 3.6 U	1 U 3.6 U	1 U 3.6 U	1 U 3.6 U	1 U 3.6 U	1 U 3.6 U	1 U 3.6 U
RICHLOROETHYLENE (TCE)	μg/L	1 U	1 U	3.6 U 1 U	1 U	1 U	1 U	1 U	3.6 U	1 U	1 U
RICHLOROFLUOROMETHANE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
,1,1-TRICHLOROETHANE .1,2,2-TETRACHLOROETHANE	μg/L	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U
,1,2,2-1ETRACHLOROETHANE ,2,3-TRICHLOROPROPANE	μg/L μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
INYL ACETATE	μg/L	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
INYL CHLORIDE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,P-XYLENE (SUM OF ISOMERS) D-XYLENE (1,2-DIMETHYLBENZENE)	μg/L μg/L	2 U 1 U	2 U 1 U	2 U 1 U	2 U 1 U	2 U 1 U	2 U 1 U	2 U 1 U	2 U 1 U	2 U 1 U	2 U 1 U
YLENES, TOTAL	μg/L	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Semi-volatile Organic Compound											
CETOPHENONE NILINE (DIJENY) AMINE AMINOPENIZENE)	μg/L	4 UJ	4 UJ	4 UJ	4 U	4 U	4 U	4.1 U 4.1 U	4 U 4 U	4 U 4 U	4 U 4 U
NILINE (PHENYLAMINE, AMINOBENZENE) RAMITE	μg/L μg/L	4 UJ 10.1 UJ	4 UJ 10.1 UJ	4 UJ 10.1 UJ	4 UJ 10 U	4 UJ 10 U	4 UJ 10 U	10.2 U	10.1 U	10.1 U	10.1 U
-AMINOBIPHENYL (4-BIPHENYLAMINE)	μg/L	4 UJ	4 UJ	4 UJ	4 U	4 U	4 U	4.1 U	4 U	4 U	4 U
-ACETYLAMINOFLUORENE	μg/L	10.1 UJ	10.1 UJ	10.1 UJ	10 U	10 U	10 UJ	10.2 U	10.1 U	10.1 U	10.1 UJ
-AMINONAPHTHALENE (BETA NAPHTHYLAMINE) ENZYL ALCOHOL	μg/L μg/L	4 UJ 4 UJ	4 UJ 4 UJ	4 UJ 4 UJ	4 U 4 U	4 U 4 U	4 U 4 U	4.1 U 4.1 U	4 U 4 U	4 U 4 U	4 U 4 U
ENZYL BUTYL PHTHALATE	μg/L	4 UJ	4 UJ	4 UJ	4 U	4 U	4 U	4.1 U	4 U	4 U	4 U
-BROMOPHENYL PHENYL ETHER	μg/L	4 UJ	4 UJ	4 UJ	4 U	4 U	4 U	4.1 U	4 U	4 U	4 U
-CHLOROANILINE -CHLOROPHENYL PHENYL ETHER	μg/L μg/L	4 UJ 4 UJ	4 UJ 4 UJ	4 UJ 4 UJ	4 U 4 U	4 U 4 U	4 U 4 U	4.1 U 4.1 U	4 U 4 U	4 U 4 U	4 U 4 U
-CHLORONAPHTHALENE	μg/L	4 UJ	4 UJ	4 UJ	4 U	4 U	4 U	4.1 U	4 U	4 U	4 U
-CHLOROPHENOL	μg/L	4 UJ	4 UJ	4 UJ	4 U	4 U	4 U	4.1 U	4 U	4 U	4 U
,3-DINITROBENZENE ,4-DICHLOROPHENOL	μg/L μg/L	20.2 UJ 4 UJ	20.2 UJ 4 UJ	20.2 UJ 4 UJ	20.1 U 4 U	20 U 4 U	20 U 4 U	20.3 U 4.1 U	20.2 U 4 U	20.2 U 4 U	20.2 U 4 U
6-DICHLOROPHENOL	μg/L	4 UJ	4 UJ	4 UJ	4 U	4 U	4 U	4.1 U	4 U	4 UJ	4 U
,4-DIMETHYLPHENOL	μg/L	4 UJ	4 UJ	<u>4</u> UJ	4 U	4 U	4 U	4.1 U	<u>4</u> U	4 U	4 U
.4-DINITROPHENOL .4-DINITROTOLUENE	μg/L	10.1 UJ 4 II.I	10.1 UJ 4 II.I	10.1 UJ 4 UJ	10 UJ 4 U	10 UJ 4 U	10 UJ 4 U	10.2 UJ 4.1 U	10.1 UJ 4 II	10.1 U	10.1 UJ 4 I I
is(2-CHLOROETHOXY) METHANE	μg/L μg/L	4 UJ	4 UJ	4 UJ	4 U	4 U	4 U	4.1 U	4 U	4 U	4 U
is(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHER)	μg/L	4 UJ	4 UJ	4 UJ	4 U	4 U	4 U	4.1 U	4 U	4 U	4 UJ
is(2-CHLOROISOPROPYL) ETHER	μg/L	4 UJ	4 UJ	4 UJ	4 U	4 U	4 U	4.1 U	4 U	4 U	4 U
HLOROBENZILATE IALLATE	μg/L μg/L	4 UJ 4 UJ	4 UJ 4 UJ	4 UJ 4 UJ	4 U 4 U	4 U 4 U	4 U 4 U	4.1 U 4.1 U	4 U 4 U	4 U 4 UJ	4 U 4 U
IBENZOFURAN	μg/L	4 UJ	4 UJ	4 UJ	4 U	4 U	4 U	4.1 U	4 U	4 U	4 U
IETHYL PHTHALATE	μg/L	4 UJ	4 UJ	4 UJ	4 U	4 U	4 U	4.1 U	4 U	4 U	4 U
IMETHYL PHTHALATE IMETHYLPHENYLETHYLAMINE	μg/L μg/L	4 UJ 20.2 UJ	4 UJ 20.2 UJ	4 UJ 20.2 UJ	4 U 20.1 R	4 U 20 R	4 U 20 R	4.1 U 20.3 R	4 U 20.2 R	4 U 20.2 R	4 U 20.2 R
,12-DIMETHYLBENZ(a)ANTHRACENE	μg/L	4 UJ	4 UJ	4 UJ	4 UJ	4 UJ	4 UJ	4.1 U	4 U	4 U	4 UJ
-DIMETHYLAMINOAZÓBENZENE	μg/L	10.1 UJ	10.1 UJ	10.1 UJ	10 U	10 U	10 U	10.2 U	10.1 U	10.1 U	10.1 U
,3'-DICHLOROBENZIDINE ,3'-DIMETHYLBENZIDINE	μg/L	4 UJ	4 UJ	4 UJ 20.2 UJ	4 U 20.1 U	4 U	4 U 20 R	4.1 U 20.3 U	4 U 20.2 U	4 U	4 U
THYL METHANESULFONATE	μg/L μg/L	20.2 UJ 4 UJ	20.2 UJ 4 UJ	20.2 UJ 4 UJ	20.1 U	20 U 4 U	20 R 4 U	20.3 U 4.1 U	20.2 U 4 U	20.2 UJ 4 U	20.2 R 4 U
EXACHLOROPROPENE	μg/L	4 UJ	4 UJ	4 UJ	4 U	4 U	4 U	4.1 U	4 U	4 U	4 U
SODRIN	μg/L	4 UJ	4 UJ	4 UJ	4 U	4 U	4 U	4.1 U	4 U	4 U	4 U
SOPHORONE SOSAFROLE	μg/L μg/L	4 UJ 4 UJ	4 UJ 4 UJ	4 UJ 4 UJ	4 U 4 U	4 U 4 UJ	4 U 4 U	4.1 U 4.1 U	4 U 4 U	4 U 4 U	4 U 4 U
EPONE	μg/L	20.2 UJ	20.2 UJ	20.2 UJ	20.1 U	20 U	20 U	20.3 R	20.2 R	20.2 UJ	20.2 U
IETHAPYRILENE	μg/L	10.1 UJ	10.1 UJ	10.1 UJ	10 U	10 U	10 U	10.2 U	10.1 U	10.1 UJ	10.1 U
IETHYL METHANESULFONATE -METHYLNAPHTHALENE	μg/L μg/L	20.2 UJ 4 UJ	20.2 UJ 4 UJ	20.2 UJ 4 UJ	20.1 U 4 U	20 U 4 U	20 U 4 U	20.3 U 4.1 U	20.2 U 4 U	20.2 U 4 U	20.2 U 4 U
-METHYLPHENOL (0-CRESOL)	μg/L	4 UJ	4 UJ	4 UJ	4 U	4 U	4 U	4.1 U	4 U	4 U	4 U
-METHYLCHOLANTHRENE	μg/L	4 UJ	4 UJ	4 UJ	4 U	4 U	4 U	4.1 U	4 U	4 U	4 U
METHYLPHENOL (p-CRESOL)	μg/L	10.1 UJ	10.1 UJ	10.1 UJ	10 U	10 U	10 U 10 UJ	10.2 U	10.1 U	10.1 U	10.1 U
,4-NAPHTHOQUINONE -NAPHTHYLAMINE	μg/L μg/L	10.1 UJ 10.1 UJ	10.1 UJ 10.1 UJ	10.1 UJ 10.1 UJ	10 UJ 10 U	10 UJ 10 U	10 UJ 10 U	10.2 UJ 10.2 U	10.1 UJ 10.1 U	10.1 UJ 10.1 U	10.1 UJ 10.1 U
NITROANILINE	μg/L	4 UJ	4 UJ	4 UJ	4 U	4 U	4 U	4.1 U	4 U	4 U	4 U
NITROANILINE	μg/L	4 UJ	4 UJ	4 UJ	4 U	4 U	4 U	4.1 U	4 U	4 U	4 U
-NITROANILINE -NITROQUINOLINE-N-OXIDE	μg/L μg/l	4 UJ 10.1 UJ	4 UJ 10.1 UJ	4 UJ 10.1 UJ	4 U 10 UJ	4 U 10 UJ	4 U 10 UJ	4.1 U 10.2 UJ	4 U 10.1 UJ	4 U 10.1 UJ	4 U 10.1 UJ
	μg/L μg/L	10.1 UJ 10.1 UJ	10.1 UJ 10.1 UJ	10.1 UJ 10.1 UJ	10 UJ	10 UJ	10 UJ	10.2 UJ 10.2 U	10.1 UJ 10.1 U	10.1 UJ	10.1 UJ
-NITRO-o-TOLUIDINE			4 UJ	4 UJ	4 U	4 U	4 U	4.1 U	4 U	4 U	4 U
-NITROSO-DI-N-BUTYLAMINE	μg/L	4 UJ				-	-				
	μg/L μg/L μg/L	4 UJ 4 UJ	4 UJ 4 UJ	4 UJ 4 UJ	4 U	4 U	4 U	4.1 U	4 U	4 U	4 U

					Baseline Event	i						Sampling Event 1		
	Location:	Inflow to R-40	Inflow to R-143	MW-1	MW-2	MW-3	MW-3 (Dup)	MW-3	MW-4	Inflow to R-143	MW-1	MW-1	MW-2	MW-4
	Event:	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Sampling Event 1	Sampling Event 1	Sampling Event 1	Sampling Event 1	Sampling Event 1
_	SJRWMD No.: SampleID:	None FP-03-01-007	None FP-03-01-008	OR0018 FP-03-01-009	OR0819 FP-03-01-001	OR0818 FP-03-01-002	OR0818 FP-03-01-003	OR0141 FP-03-01-006	OR0141 FP-03-01-006	None FP-03-02-005	OR0018 FP-03-02-001	OR0018 FP-03-02-002	OR0819 FP-03-02-006	OR0141 FP-03-02-007
_	DateCollected:	5/28/2003	5/28/2003	5/29/2003	5/27/2003	5/27/2003	5/27/2003	5/28/2003	5/28/2003	10/01/2003	10/01/2003	10/01/2003	10/02/2003	10/03/2003
_	Matrix: SampleType:	Stormwater Normal	Stormwater Normal	Groundwater Normal	Groundwater Normal	Groundwater Normal	Groundwater Field Duplicate	Groundwater Normal	Groundwater Normal	Stormwater Normal	Groundwater Normal	Groundwater Field Duplicate	Groundwater Normal	Groundwater Normal
Parameter Group and Name	Unit	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual		Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual
N-NITROSODIPHENYLAMINE	μg/L	5 U 5 U	5 U	5 U	5 U	5 U	5 UJ	5.1 U	5.1 U	5 U	5 U	5 U	5 U	5.1 U
N-NITROSOMORPHOLINE 1,3,5-TRINITROBENZENE	μg/L μg/L	20.2 U	5 U 20.2 U	5 U 20.2 U	5 U 20.2 U	5 U 20.1 U	5 U 20.2 U	5.1 U 20.4 U	5.1 U 20.4 U	5 U 20 UJ	5 U 20 UJ	5 U 20.1 UJ	5 U 20 UJ	5.1 U 20.4 UJ
N-NITROSOPIPERIDINE	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	5.1 U	5 U	5 U	5 U	5 U	5.1 U
N-NITROSOPYRROLIDINE NITROBENZENE	μg/L μg/L	5 U 5 U	5 U	5 U 5 U	5 U	5 U	5 U 5 U	5.1 U 5.1 U	5.1 U 5.1 U	5 U 5 U	5 U 5 U	5 U 5 U	5 U 5 U	5.1 U 5.1 U
NITROSOMETHYLETHYLAMINE	μg/L	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5.1 UJ	5.1 UJ	5 U	5 U	5 U	5 U	5.1 U
O,O,O-TRIETHYL PHOSPHOROTHIOATE	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	5.1 U	5 U	5 U	5 U	5 U	5.1 U
o-TOLUIDINE 2-PICOLINE (ALPHA-PICOLINE)	μg/L μg/L	5 U 5 UJ	5 U 5 UJ	5 U 5 UJ	5 U 5 UJ	5 U 5 UJ	5 U 5 UJ	5.1 U 5.1 UJ	5.1 U 5.1 UJ	5 U 5 U	5 U 5 U	5 U 5 U	5 U 5 UJ	5.1 U 5.1 UJ
p-PHENYLENEDIAMINE	μg/L	10.1 U	10.1 U	10.1 U	10.1 U	10 U	10.1 U	10.2 U	10.2 U	10 U	10 U	10 U	10 U	10.2 U
PENTACHLOROBENZENE PENTACHLOROETHANE	μg/L	5 U 5 U	5 U	5 U	5 U	5 U	5 U 5 U	5.1 U 5.1 U	5.1 U 5.1 U	5 U 5 U	5 U	5 U 5 U	5 U	5.1 U 5.1 UJ
PENTACHLORONITROBENZENE	μg/L μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	5.1 U	5 U	5 U	5 U	5 U	5.1 U
PENTACHLOROPHENOL	μg/L	10.1 U	10.1 U	10.1 U	10.1 U	10 U	10.1 U	10.2 U	10.2 U	6.2 J	10 U	10 U	10 UJ	10.2 U
PHENACETIN PHENOL	μg/L	10.1 U 5 U	10.1 U	10.1 U 5 U	10.1 U 5 U	10 U	10.1 U 5 U	10.2 U 5.1 U	10.2 U 5.1 U	10 UJ 5 U	10 UJ 5 U	10 UJ 5 U	10 UJ 5 U	10.2 UJ 5.1 U
PRONAMIDE	μg/L μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	5.1 U	5 U	5 U	5 U	5 U	5.1 U
PYRIDINE	μg/L	5 UJ	5 UJ	5 UJ	5 U	5 U	5 U	5.1 UJ	5.1 UJ	5 U	5 U	5 U	5 U	5.1 UJ
SAFROLE 1.2.4,5-TETRACHLOROBENZENE	μg/L μg/L	5 U 5 U	5 U	5 U 5 U	5 U	5 U	5 U 5 U	5.1 U 5.1 U	5.1 U 5.1 U	5 U 5 U	5 U 5 U	5 U 5 U	5 U	5.1 U 5.1 U
2,3,4,6-TETRACHLOROPHENOL	μg/L μg/L	10.1 U	10.1 U	10.1 U	10.1 U	10 U	10.1 U	10.2 U	10.2 U	5.4 J	10 U	10 U	10 U	10.2 U
1,2,4-TRICHLOROBENZENE 2.4.5-TRICHLOROPHENOL	μg/L	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	5.1 U	5 U	5 U	5 U	5 U	5.1 U
2,4,6-TRICHLOROPHENOL	μg/L μg/L	5 U	5 U	5 U	5 U	5 U	5 U 5 U	5.1 U 5.1 U	5.1 U 5.1 U	5 U	5 U	5 U 5 U	5 U	5.1 U 5.1 U
Organochlorine Pesticides														
ALDRIN ALPHA-CHLORDANE	μg/L	0.052 U 0.052 U	0.053 U 0.053 U	0.052 U 0.052 U	0.053 U 0.053 U	0.052 U 0.052 U	0.051 U 0.051 U	0.052 U 0.052 U	0.052 U 0.052 U	0.05 U 0.05 U	0.05 U 0.05 U	0.052 U 0.052 U	0.05 U	0.051 U 0.051 U
GAMMA-CHLORDANE	μg/L μg/L	0.052 U	0.053 U	0.052 U	0.053 U	0.052 U	0.051 U	0.052 U	0.052 U	0.05 UJ	0.05 UJ	0.052 UJ	0.05 U	0.051 U
ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE)	μg/L	0.052 ∪	0.053 ∪	0.052 ∪	0.053 ∪	0.052 ∪	0.051 ∪	0.052 ∪	0.052 ∪	0.05 ∪	0.05 ∪	0.052 ∪	0.05 U	0.051 U
BETA BHC (BETA HEXACHLOROCYCLOHEXANE) DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE)	μg/L μg/L	0.052 U 0.062 UJ	0.053 U 0.064 UJ	0.052 U 0.062 U	0.053 U 0.063 UJ	0.052 U 0.062 UJ	0.051 U 0.061 UJ	0.052 U 0.062 UJ	0.052 U 0.062 UJ	0.05 U 0.06 U	0.05 U 0.06 U	0.052 U 0.062 U	0.05 U 0.061 U	0.051 U 0.061 U
GAMMA BHC (LINDANE)	μg/L	0.052 U	0.053 U	0.052 U	0.053 U	0.052 U	0.051 U	0.052 U	0.052 U	0.05 U	0.05 U	0.052 U	0.05 U	0.051 U
DIELDRIN	μg/L	0.052 ∪	0.053 ∪	0.052 ∪	0.053 U	0.052 ∪	0.051 U	0.052 ∪	0.052 U	0.05 ∪	0.05 ∪	0.052 ∪	0.05 ∪	0.051 U
ALPHA ENDOSULFAN BETA ENDOSULFAN	μg/L μg/L	0.052 U 0.052 U	0.053 U 0.053 U	0.052 U 0.052 U	0.053 U 0.053 U	0.052 U 0.052 U	0.051 U 0.051 U	0.052 U 0.052 U	0.052 U 0.052 U	0.05 U 0.05 U	0.05 U 0.05 U	0.052 U 0.052 U	0.05 U 0.05 U	0.051 U 0.051 U
ENDOSULFAN SULFATE	μg/L	0.052 U	0.053 U	0.052 U	0.053 U	0.052 U	0.051 U	0.052 U	0.052 U	0.05 U	0.05 U	0.052 U	0.05 U	0.051 U
ENDRIN ENDRINGE	μg/L	0.052 U	0.053 U	0.052 U	0.053 U	0.052 U	0.051 U	0.052 U	0.052 U	0.05 U	0.05 U	0.052 U	0.05 U	0.051 U
ENDRIN ALDEHYDE ENDRIN KETONE	μg/L μg/L	0.062 U 0.052 U	0.064 U 0.053 U	0.062 U 0.052 U	0.063 U 0.053 U	0.062 U 0.052 U	0.061 U 0.051 U	0.062 U 0.052 U	0.062 U 0.052 U	0.06 UJ 0.05 U	0.06 UJ 0.05 U	0.062 UJ 0.052 U	0.061 U 0.05 U	0.061 U 0.051 U
HEPTACHLOR	μg/L	0.052 U	0.053 U	0.052 U	0.053 U	0.052 U	0.051 U	0.052 U	0.052 U	0.05 U	0.05 U	0.052 U	0.05 U	0.051 U
HEPTACHLOR EPOXIDE	μg/L	0.052 U	0.028 J	0.052 U	0.053 U	0.052 U	0.051 U	0.052 U	0.052 U	0.05 U	0.05 U	0.052 U	0.05 U	0.051 U
p,p'-DDD p,p'-DDE	μg/L μg/L	0.052 U 0.062 U	0.053 U 0.064 U	0.052 U 0.062 U	0.053 U 0.063 U	0.052 U 0.062 U	0.051 U 0.061 U	0.052 U 0.062 U	0.052 U 0.062 U	0.05 U 0.06 U	0.05 U 0.06 U	0.052 U 0.062 U	0.05 U 0.061 U	0.051 U 0.061 U
p,p'-DDT	μg/L	0.052 U	0.053 U	0.052 U	0.053 U	0.052 U	0.051 U	0.052 U	0.052 U	0.05 UJ	0.05 UJ	0.052 UJ	0.05 U	0.051 U
METHOXYCHLOR TOXAPHENE	μg/L	0.052 U 3.1 U	0.053 U 3.2 U	0.052 U 3.1 UJ	0.053 U 3.2 UJ	0.052 U 3.1 UJ	0.051 U 3.1 UJ	0.052 U 3.1 U	0.052 U 3.1 U	0.05 U 3 U	0.05 U 3 U	0.052 U 3.1 U	0.05 U 3 U	0.051 U 3.1 U
Organophosphorous Pesticides	μg/L	3.1	3.2	3.1	3.2 00	3.1	3.1	3.1	3.1	30	30	3.1	30	3.1
ATRAZINE	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
AZINPHOS, METHYL (GUTHION) BOLSTAR	μg/L μg/L	10 U 10 U	10 U	10 U	10 U	10 U	10 U 10 U	10 U	10 U 10 U	10 U 10 U	10 U 10 U	10 U 10 U	10 U	10 U 10 UJ
CHLORPYRIFOS	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
COUMAPHOS DEMETON-O	μg/L μg/L	10 U 10 U	10 U	10 U	10 U	10 U	10 U 10 U	10 U	10 U 10 U	10 U 10 U	10 U 10 U	10 U 10 U	10 U	10 U 10 U
DEMETON-S	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
DIAZINON	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
DICHLORVOS DIMETHOATE	μg/L μg/L	10 U 10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U 10 U	10 U 10 U	10 U 10 U	10 U	10 U
DISULFOTON	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ
ETHOPROP	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
FAMPHUR FENSULFOTHION	μg/L μg/L	10 U 10 U	10 U	10 U	10 U	10 U	10 U 10 U	10 U	10 U 10 U	10 U 10 U	10 U 10 U	10 U 10 U	10 U 10 U	10 U 10 U
FENTHION	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
MERPHOS MEVINPHOS	μg/L	10 U 10 UJ	10 U 10 UJ	10 U 10 UJ	10 U 10 U	10 U 10 U	10 U 10 U	10 U 10 UJ	10 U 10 UJ	10 UJ 10 U	10 UJ 10 U	10 UJ 10 U	10 U	10 UJ 10 U
NALED NALED	μg/L μg/L	10 UJ	10 UJ	10 UJ	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 UJ
PARATHION, ETHYL	μg/L	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 U	10 U	10 U	10 U
PARATHION, METHYL PHORATE	μg/L	10 U 10 UJ	10 U 10 UJ	10 U 10 UJ	10 U 10 UJ	10 U 10 UJ	10 U 10 UJ	10 U 10 UJ	10 U 10 UJ	10 U 10 UJ	10 U 10 U	10 U 10 U	10 U	10 U 10 UJ
RONNEL	μg/L μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 U	10 U
SIMAZINE	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
STIROFOS (TETRACHLORVINPHOS) THIODIPHOSPHORIC ACID TETRAETHYL ESTER	μg/L μg/L	10 U 10 U	10 U	10 U	10 U 10 U	10 U	10 U 10 U	10 U	10 U 10 U	10 U 10 U	10 U 10 U	10 U 10 U	10 U	10 U 10 U
TOKUTHION (PROTHIOFOS)	μg/L μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ
TRICHLORONATE	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ
ZINOPHOS Polychlorinated biphenols (PCBs)	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
PCB-1016 (AROCHLOR 1016)	μg/L	0.52 U	0.53 U	0.52 U	0.53 U	0.52 U	0.51 U	0.52 U	0.52 U	0.5 UJ	0.5 UJ	0.52 UJ	0.5 UJ	0.51 U
PCB-1221 (AROCHLOR 1221)	μg/L	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
PCB-1232 (AROCHLOR 1232) PCB-1242 (AROCHLOR 1242)	μg/L μg/L	0.52 U 0.52 U	0.53 U 0.53 U	0.52 U 0.52 U	0.53 U	0.52 U 0.52 U	0.51 U	0.52 U 0.52 U	0.52 U 0.52 U	0.5 U 0.5 U	0.5 U 0.5 U	0.52 U 0.52 U	0.5 U	0.51 U 0.51 U
PCB-1248 (AROCHLOR 1248)	μg/L	0.52 ∪	0.53 U	0.52 U	0.53 U	0.52 U	0.51 U	0.52 U	0.52 ∪	0.5 U	0.5 U	0.52 ∪	0.5 U	0.51 U
PCB-1254 (AROCHLOR 1254)	μg/L	0.52 U	0.53 U	0.52 U	0.53 U	0.52 U	0.51 U	0.52 U	0.52 U	0.5 U	0.5 U	0.52 U	0.5 U	0.51 U
PCB-1260 (AROCHLOR 1260)	μg/L	0.52 U	0.53 ∪	0.52 U	0.53 U	0.52 U	0.51 U	0.52 U	0.52 U	0.5 UJ	0.5 UJ	0.52 UJ	0.5 UJ	0.51 UJ

				Sampling Event 2			I		Sampling Event 3					Sampling Event 4		
	Location:	Inflow to R-143	MW-1	MW-1	MW-2	MW-4	Inflow to R-143	MW-1	MW-1	MW-2	MW-4	Inflow to R-143	MW-1	MW-1	MW-2	MW-4
	Event:	Sampling Event 2	Sampling Event 2	Sampling Event 2	Sampling Event 2	Sampling Event 2	Sampling Event 3	Sampling Event 3	Sampling Event 3	Sampling Event 3	Sampling Event 3	Sampling Event 4	Sampling Event 4	Sampling Event 4	Sampling Event 4	Sampling Event 4
	SJRWMD No.:	None	OR0018	OR0018	OR0819	OR0141	None	OR0018	OR0018	OR0819	OR0141	None	OR0018	OR0018	OR0819	OR0141
	SampleID:	FP-03-03-002	FP-03-03-001	FP-03-03-003	FP-03-03-007	FP-03-03-006	FP-03-04-003	FP-03-04-004	FP-03-04-005	FP-03-04-001	FP-03-04-002	FP-03-05-007	FP-03-05-001	FP-03-05-002	FP-03-05-005	FP-03-05-006
	DateCollected: Matrix:	10/08/2003 Stormwater	10/08/2003 Groundwater	10/08/2003 Groundwater	10/10/2003 Groundwater	10/09/2003 Groundwater	10/23/2003 Stormwater	10/24/2003 Groundwater	10/24/2003 Groundwater	10/22/2003 Groundwater	10/23/2003 Groundwater	11/20/2003 Stormwater	11/18/2003 Groundwater	11/18/2003 Groundwater	11/19/2003 Groundwater	11/20/2003 Groundwater
	SampleType:	Normal	Normal	Field Duplicate	Normal	Normal	Normal	Normal	Field Duplicate	Normal	Normal	Normal	Normal	Field Duplicate	Normal	Normal
Parameter Group and Name	Unit	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual
N-NITROSODIPHENYLAMINE	μg/L	5 U	5 U	5.2 U	5 U	5 U	5 U	5.1 U	5.1 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
N-NITROSOMORPHOLINE 1.3.5-TRINITROBENZENE	μg/L μg/L	5 U 20 UJ	5 U 20 UJ	5.2 U 20.6 UJ	5 U 20 UJ	5 U 20 UJ	5 U 20.1 U	5.1 U 20.5 U	5.1 U 20.5 U	5 U 20 UJ	5 U 20.2 U	5 U 20 UJ	5 U 20.2 UJ	5 U 20 UJ	5 U 20 UJ	5 U 20 UJ
N-NITROSOPIPERIDINE	μg/L	5 U	5 U	5.2 U	5 U	5 U	5 U	5.1 U	5.1 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
N-NITROSOPYRROLIDINE	μg/L	5 U	5 U	5.2 U	5 U	5 U	5 UJ	5.1 U	5.1 U	5 U	5 UJ	5 U	5 U	<u>5</u> U	5 U	5 U
NITROBENZENE	μg/L	5 U	5 U	5.2 ∪	5 U	5 U	5 U	5.1 U	5.1 U	5 U	5 U	5 U	5 U	5U	5 U	5 U
NITROSOMETHYLETHYLAMINE O.O.O-TRIETHYL PHOSPHOROTHIOATE	μg/L μg/L	5 U 5 U	5 U 5 U	5.2 U 5.2 U	5 U 5 U	5 U	5 UJ 5 U	5.1 U 5.1 U	5.1 U 5.1 U	5 UJ 5 UJ	5 UJ 5 U	5 UJ 5 U	5 U 5 U	5 U 5 U	5 U	5 U 5 U
o-TOLUIDINE	μg/L μg/L	5 U	5 U	5.2 U	5 U	5 U	5 U	5.1 U	5.1 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U
2-PICOLINE (ALPHA-PICOLINE)	μg/L	5 U	5 U	5.2 U	5 U	5 U	5 UJ	5.1 U	5.1 U	5 UJ	5 UJ	5 U	5 U	5 U	5 U	5 U
p-PHENYLENEDIAMINE	μg/L	10 U	10 U	10.3 U	10 U	10 U	10 U	10.2 U	10.2 U	10 U	10.1 U	10 U	10.1 U	10 U	10 U	10 U
PENTACHLOROBENZENE PENTACHLOROETHANE	μg/L μg/L	5 U 5 U	5 U 5 UJ	5.2 U 5.2 UJ	5 U 5 UJ	5 U 5 UJ	5 U 5 UJ	5.1 U 5.1 U	5.1 U 5.1 U	5 U 5 UJ	5 U 5 UJ	5 U 5 U	5 U 5 U	5 U 5 U	5 U	5 U 5 U
PENTACHLORONITROBENZENE	μg/L	5 U	5 U	5.2 U	5 U	5 U	5 U	5.1 UJ	5.1 UJ	5 UJ	5 U	5 U	5 U	5 U	5 UJ	5 U
PENTACHLOROPHENOL	μg/L	10 UJ	10 U	10.3 U	10 U	10 U	10 U	10.2 U	10.2 U	10 U	10.1 U	10 U	10.1 U	10 U	10 U	10 U
PHENACETIN	μg/L	10 UJ	10 UJ	10.3 UJ	10 UJ	10 UJ	10 U	10.2 U	10.2 U	10 U	10.1 U	10 U	10.1 U	10 U	10 U	10 U
PHENOL PRONAMIDE	μg/L μg/L	5 U 5 UJ	5 U 5 UJ	5.2 U 5.2 UJ	5 U 5 U	5 U	5 U 5 U	5.1 U 5.1 U	5.1 U 5.1 U	5 U 5 U	5 U 5 U	5 U 5 U	5 UJ 5 U	5 UJ 5 U	5 U	5 U 5 U
PYRIDINE	μg/L	5 UJ	5 UJ	5.2 UJ	5 UJ	5 UJ	5 U	5.1 U	5.1 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U
SAFROLE	μg/L	5 U	5 U	5.2 U	5 U	5 U	5 U	5.1 U	5.1 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2,4,5-TETRACHLOROBENZENE 2,3,4,6-TETRACHLOROPHENOL	μg/L	5 UJ 10 U	5 UJ 10 U	5.2 UJ 10.3 U	5 UJ 10 U	5 UJ 10 U	5 UJ 10 U	5.1 U 10.2 U	5.1 U 10.2 U	5 UJ 10 UJ	5 UJ 10.1 U	5 U 10 U	5 U 10.1 U	5 U 10 U	5 U 10 U	5 U 10 U
1,2,4-TRICHLOROBENZENE	μg/L μg/L	10 U	10 U	10.3 U 5.2 U	10 U	10 U	10 U	10.2 U	10.2 U 5.1 U	10 UJ 5 U	10.1 U	10 U	10.1 U	10 U 5 U	10 U	10 U
2,4,5-TRICHLOROPHENOL	μg/L μg/L	5 U	5 U	5.2 U	5 U	5 U	5 U	5.1 U	5.1 UJ	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U
2,4,6-TRICHLOROPHENOL	μg/L	5 U	5 U	5.2 ∪	5 U	5 U	5 U	5.1 U	5.1 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Organochlorine Pesticides ALDRIN	ug/l	0.052 ∪	0.05]∪	0.053 ∪	0.05 ∪	0.05 ∪	0.05 ∪	0.052 ∪	0.05 ∪	0.05 ∪	0.05 ∪	0.051 ∪	0.05 ∪	0.052 ∪	0.05 UJ	0.05 ∪
ALPHA-CHLORDANE	μg/L μg/L	0.052 U	0.05 U	0.053 U	0.05 U	0.05 U	0.05 U	0.052 U	0.05 U	0.05 U	0.05 U	0.051 U	0.05 U	0.052 U	0.05 U	0.05 U
GAMMA-CHLORDANE	μg/L μg/L	0.052 U	0.05 U	0.053 U	0.05 U	0.05 U	0.05 U	0.052 U	0.05 U	0.05 U	0.05 U	0.051 U	0.05 U	0.052 U	0.05 U	0.05 U
ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE)	μg/L	0.052 UJ	0.05 UJ	0.053 UJ	0.05 UJ	0.05 UJ	0.05 ∪	0.052 U	0.05 ∪	0.05 U	0.05 U	0.051 UJ	0.05 UJ	0.052 UJ	0.05 U	0.05 UJ
BETA BHC (BETA HEXACHLOROCYCLOHEXANE)	μg/L	0.052 ∪	0.05 U	0.053 ∪	0.05 U	0.05 U	0.05 U	0.052 ∪	0.05 U	0.05 U	0.05 U	0.051 U	0.05 U	0.052 U	0.05 U	0.05 U
DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE) GAMMA BHC (LINDANE)	μg/L μg/L	0.062 UJ 0.052 U	0.06 UJ 0.05 U	0.063 UJ 0.053 U	0.061 UJ 0.05 U	0.061 UJ 0.05 U	0.06 UJ 0.05 U	0.062 UJ 0.052 U	0.061 UJ 0.05 U	0.06 UJ 0.05 U	0.06 UJ 0.05 U	0.061 UJ 0.051 UJ	0.061 UJ 0.05 UJ	0.062 UJ 0.052 UJ	0.06 UJ 0.05 U	0.06 UJ 0.05 UJ
DIELDRIN	μg/L	0.052 U	0.05 U	0.053 U	0.05 U	0.05 U	0.05 U	0.052 U	0.05 U	0.05 U	0.05 U	0.051 U	0.05 U	0.052 U	0.05 U	0.05 U
ALPHA ENDOSULFAN	μg/L	0.052 U	0.05 U	0.053 U	0.05 U	0.05 U	0.05 U	0.052 U	0.05 U	0.05 U	0.05 U	0.051 U	0.05 U	0.052 U	0.05 U	0.05 U
BETA ENDOSULFAN	μg/L	0.052 U	0.05 U	0.053 U	0.05 U	0.05 U	0.05 U	0.052 U	0.05 U	0.05 U	0.05 U	0.051 U	0.05 U	0.052 U	0.05 U	0.05 U
ENDOSULFAN SULFATE ENDRIN	μg/L	0.052 U 0.052 U	0.05 U 0.05 U	0.053 U 0.053 U	0.05 U 0.05 U	0.05 U 0.05 U	0.05 U 0.05 U	0.052 U 0.052 U	0.05 U 0.05 U	0.05 U 0.05 U	0.05 U 0.05 U	0.051 U 0.051 U	0.05 U 0.05 U	0.052 U 0.052 U	0.05 U 0.05 U	0.05 U 0.05 U
ENDRIN ALDEHYDE	μg/L μg/L	0.062 U	0.05 U	0.063 U	0.061 U	0.061 U	0.06 U	0.062 U	0.061 U	0.06 U	0.06 U	0.061 UJ	0.061 UJ	0.062 UJ	0.06 U	0.06 UJ
ENDRIN KETONE	μg/L	0.052 U	0.05 U	0.053_U	0.05 U	0.05 U	0.05 U	0.052 U	0.05 U	0.05 U	0.05 U	0.051 U	0.05 U	0.052 U	0.05 U	0.05 U
HEPTACHLOR	μg/L	0.052 U	0.05 U	0.053 U	0.05 U	0.05 U	0.05 U	0.052 U	0.05 U	0.05 U	0.05 U	0.051 U	0.05 U	0.052 U	0.05 U	0.05 U
HEPTACHLOR EPOXIDE p,p'-DDD	μg/L	0.052 U 0.052 U	0.05 U 0.05 U	0.053 U 0.053 U	0.05 U 0.05 U	0.05 U 0.05 U	0.05 U 0.05 U	0.052 U 0.052 U	0.05 U 0.05 U	0.05 U 0.05 U	0.05 U 0.05 U	0.051 U 0.051 U	0.05 U 0.05 U	0.052 U 0.052 U	0.05 U 0.05 U	0.05 U 0.05 U
p,p'-DDE	μg/L μg/L	0.062 U	0.05 U	0.063 U	0.05 U	0.05 U	0.06 U	0.062 U	0.05 U	0.05 U	0.05 U	0.051 U	0.05 U	0.062 U	0.05 U	0.06 U
p,p'-DDT	μg/L	0.052 U	0.05 U	0.053 U	0.05 U	0.05 U	0.05 U	0.052 U	0.05 U	0.05 U	0.05 U	0.051 U	0.05 U	0.052 U	0.05 U	0.05 U
METHOXYCHLOR	μg/L	0.052 U	0.05 U	0.053 U	0.05 U	0.05 U	0.05 U	0.052 U	0.05 U	0.05 U	0.05 U	0.051 U	0.05 U	0.052 U	0.05 U	0.05 U
TOXAPHENE Organophosphorous Pesticides	μg/L	3.1 ∪	3 0	3.2 ∪	3 UJ	3 UJ	<u>3</u> U	3.1 U	3 0	30	3 U	3.1 UJ	3 00	3.1 UJ	3 0	3 UJ
ATRAZINE	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
AZINPHOS, METHYL (GUTHION)	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BOLSTAR CHLORPYRIFOS	μg/L	10 U 10 U	10 U 10 U	10 U 10 U	10 U	10 U	10 U 10 U	10 U 10 U	10 U 10 U	10 U 10 U	10 U	10 U 10 U	10 U	10 U 10 U	10 U 10 U	10 U
COUMAPHOS	μg/L μg/L	10 U	10 U	10 U 10 U	10 U 10 U	10 U	10 U	10 U	10 U 10 U	10 U	10 U 10 U	10 U	10 U 10 U	10 U 10 U	10 U	10 U 10 U
DEMETON-O	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
DEMETON-S	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
DIAZINON DICHLORVOS	μg/L μg/l	10 U 10 U	10 U 10 U	10 U 10 U	10 U 10 U	10 U 10 U	10 U 10 U	10 U 10 U	10 U 10 U	10 U	10 U 10 U	10 U 10 U	10 U 10 U	10 U 10 U	10 U 10 U	10 U 10 U
DIMETHOATE	μg/L μg/L	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
DISULFOTON	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
ETHOPROP	μg/L	10 U	10 U	10 UJ	10 U	10 U	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 U	10 U	10 U	10 U
FAMPHUR FENSULFOTHION	μg/L ug/l	10 U 10 U	10 U	10 U 10 U	10 U	10 U 10 U	10 U 10 U	10 U 10 U	10 U 10 U	10 U	10 U 10 U	10 U 10 U	10 U 10 U	10 U 10 U	10 U 10 U	10 U 10 U
FENTHION	μg/L μg/L	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
MERPHOS	μg/L	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
MEVINPHOS	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
NALED PARATHION, ETHYL	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
PARATHION, ETHYL PARATHION, METHYL	μg/L μg/L	10 U 10 U	10 U 10 U	10 U 10 UJ	10 U 10 U	10 U 10 U	10 U 10 U	10 U 10 U	10 U 10 U	10 U 10 U	10 U 10 U	10 U 10 U	10 U 10 U	10 U 10 U	10 U 10 U	10 U 10 U
PHORATE	μg/L	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
RONNEL	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
SIMAZINE STIPOGOS (TETPACHI ORVINIPHOS)	μg/L	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
STIROFOS (TETRACHLORVINPHOS) THIODIPHOSPHORIC ACID TETRAETHYL ESTER	μg/L μg/L	10 U 10 U	10 U 10 U	10 U 10 U	10 U 10 U	10 U 10 U	10 U 10 U	10 U 10 U	10 U 10 U	10 U 10 U	10 U 10 U	10 U 10 U	10 U 10 U	10 U 10 U	10 U 10 U	10 U 10 U
TOKUTHION (PROTHIOFOS)	μg/L μg/L	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
TRICHLORONATE	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
ZINOPHOS Polychlorinated hiphenole (PCRe)	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Polychlorinated biphenols (PCBs) PCB-1016 (AROCHLOR 1016)	μg/L	0.52 UJ	0.5	0.53 UJ	0.5 UJ	0.5 UJ	0.5 U	0.52 U	0.5 U	0.5	0.5	0.51 U	0.5	0.52 U	0.5 U	0.5 U
PCB-1016 (AROCHLOR 1016) PCB-1221 (AROCHLOR 1221)	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	3.5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
PCB-1232 (AROCHLOR 1232)	μg/L	0.52 U	0.5 U	0.53 ∪	0.5 U	0.5 U	0.5 U	0.52 ∪	0.5 U	0.5 U	0.5 U	0.51 U	0.5 U	0.52 ∪	0.5 U	0.5 U
PCB-1242 (AROCHLOR 1242)	μg/L	0.52 U	0.5 U	0.53 U	0.5 U	0.5 U	0.5 U	0.52 U	0.5 U	0.5 U	0.5 U	0.51 U	0.5 U	0.52 U	0.5 U	0.5 U
PCB-1248 (AROCHLOR 1248) PCB-1254 (AROCHLOR 1254)	μg/L	0.52 U	0.5 U	0.53 U	0.5 U	0.5 U	0.5 U	0.52 U	0.5 U	0.5 U	0.5 U	0.51 U	0.5 U	0.52 U	0.5 U	0.5 U
PCB-1254 (AROCHLOR 1254) PCB-1260 (AROCHLOR 1260)	μg/L μg/L	0.52 U 0.52 UJ	0.5 U 0.5 UJ	0.53 U 0.53 UJ	0.5 U 0.5 UJ	0.5 U 0.5 UJ	0.5 U 0.5 UJ	0.52 U 0.52 UJ	0.5 U 0.5 UJ	0.5 U 0.5 UJ	0.5 U 0.5 UJ	0.51 U 0.51 UJ	0.5 U 0.5 UJ	0.52 U 0.52 UJ	0.5 U 0.5 U	0.5 U 0.5 UJ
. 55 .200 (ALIOSHEOTI 1200)	μg/ L	5.52 03	0.000	0.33	0.0	0.0 00	0.0	0.02 00	3.5	0.5 00	J.J UJ	5.51 00	J.J UJ	0.02	5.5 0	0.0

					Sampling Event 5			I		Sampling Event 6		
Second Company		Location:	Inflow to P 142	MM 1		MW 2	MW 4	Inflow to D 142	MM 1		MW 2	MW 4
Part												Sampling Event 6
## System Part Part Store Part Store Part Store Part Store Part												
March Marc												FP-04-07-001
Secretary Secr												02/16/2004
Section												
STATEMENT STAT	Parameter Group and Name											
3 STREET SALE SALE SALE SALE SALE SALE SALE SALE	N-NITROSODIPHENYLAMINE											
A	N-NITROSOMORPHOLINE	μg/L										
ADDITION OF COLUMN 100												
THE SECRET SHOWING STATE AND SHOW STATE AND SHOW STATE AND SHOW STATE AND SHOW SHOWS SHOW SHOW SHOW SHOW SHOW SHO										_		
Independent Transport Tr												
ACCORDINATION ACCORDINATIO				_								
TOURISH 1995 400 -000 -000 -000 -000 -000 -000 -000	O,O,O-TRIETHYL PHOSPHOROTHIOATE									_		
PRINCE PRINCE P. 1. 19 10 1.	o-TOLUIDINE	μg/L								_		
SCHOOL DESCRIPTION AND ADDRESS OF A STATE OF	2-PICOLINE (ALPHA-PICOLINE)											
Section Sect												
## CONTROLLED ##										_		
FRECH CONTROLL												
## ## ## ## ## ## ## ## ## ## ## ## ##						20.1 U				20.2 U		
Common	HENACETIN		10.1 UJ	10.1 UJ	10.1 UJ	10 U	10 U	10 U	10.2 U	10.1 U	10.1 U	10.1 U
March Marc		μg/L										
## 16-14												
2.4 SEPTRACHOROMORPIES 10.1 4.11 4.11 4.11 4.11 4.11 4.11 4.11												
ALS PETROPORTION 100 TO												
2-PRINCE CONCRETE NO. 6 (1) 4												
AST PRINCESCOPPORT 190 4 10 4			4 UJ	4 UJ	4 UJ		4 U	4 U	4.1 U	4 U		4 U
PART Commonweal Commonwea		μg/L										
Section Sect		μg/L	4 UJ	4 UJ	4 UJ	4 U	4 U	4 U	4.1 U	4 U	4 U	4 U
PARA PROPRIEME 194 205 U 0.05 U	· · · · · · · · · · · · · · · · · · ·	ua/l	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.051	0.051
WAMA-CICIORANE												
PAPA DE LOS ANA PARTICOS CONTOCK CON												
Friedrich Prince (1997) 1997						0.05 UJ	0.05 ∪	0.05 ∪		0.05 ∪		0.051 U
AMAN BELLEMONES Pip. C05 U 703 U	ETA BHC (BETA HEXACHLOROCYCLOHEXANE)		0.05 ∪	0.05 ∪	0.05 U	0.05 ∪	0.05 ∪	0.05 ∪	0.05 U	0.05 ∪	0.051 U	0.051 U
HEIGHBAY		μg/L										
PARE ADDISSEAN 191												
Fig. Processified 19th 1												
MOSELFATE 1.08												
NORTH 191												
ADDITAL ADDITAL SERVICE Spf. 0.00 U 0.00	ENDRIN											
Female F	NDRIN ALDEHYDE											
PETACHECON 196	ENDRIN KETONE											
PODD												
PODE												
PODT												
##ITHOPYPRICAGE ##ITHOPYPRICAG												
TRAZNE	METHOXYCHLOR											
TRAZINE (1974) 1997, 10 U 10	TOXAPHENE	μg/L	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3.1 U
Page 10 10 10 10 10 10 10 1	3											
OLSTAR												
HILGRAPPIRIOS												
DOMAPHOS	CHLORPYRIFOS											
EMETON-O HIGH TON-O HI											10 U	10 U
MAZINON		μg/L										
Independence Inde												
METHOATE												
SULFOTON												
THOPROP 190L 10 U												
AMPHUR												
ENTHION		μg/L										
ERPHOS μg/L 10 J I0												
EVINPHOS												
ALED ALED ALED ALED ALED ALED ALED ALED												
ARATHION, ETHYL ARATHION, METHYL ARATHION ARATHION, METHYL ARATHION, METHYL ARATHION, METHYL ARATHION ARATHION, METHYL ARATHION, METHYL ARATHION, METHYL ARATHION ARATHION, METHYL ARATHION												
ARATHION, METHYL H. g/L H. 10 U H												
HORATE ONNEL HIGH HORATE HORAT			10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
MAZINE												
TROFOS (TETRACHLORVINPHOS) μg/L 10 U 1												
HODIPHOSPHORIC ACID TETRAETHYL ESTER												
DECENTION (PROTHIOFOS) pg/L 10 U U U U U U U U U												
RICHLORONATE												
NOPHOS μg/L 10 U 10 U U 10 U U U U U U U U U U U U U U U U U U												
Polychlorinated biphenols (PCBs) μg/L 0.5 UJ 0.5	NOPHOS											
CB-1221 (AROCHLOR 1221)												
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$												
CB-1242 (AROCHLOR 1242) μg/L 0.5 U												
CB-1248 (AROCHLOR 1248) μg/L 0.5 U												
PCB-1254 (AROCHLOR 1254) μg/L 0.5 U 0.51 U 0.51 U												
	, ,											
OF LEGGING CONTROLL LEGGING TO BE A CONTROLLE TO	PCB-1260 (AROCHLOR 1260)	μg/L	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.51 UJ	0.51 U

										1						
		Baseline Event									Sampling Event 1					
	ocation:	Inflow to R-40	Inflow to R-143	MW-1	MW-2	MW-3	MW-3 (Dup)	MW-3	MW-4	Inflow to R-143	MW-1	MW-1	MW-2	MW-4		
	Event:	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Sampling Event 1						
SJRV	MD No.:	None	None	OR0018	OR0819	OR0818	OR0818	OR0141	OR0141	None	OR0018	OR0018	OR0819	OR0141		
	ampleID:	FP-03-01-007	FP-03-01-008	FP-03-01-009	FP-03-01-001	FP-03-01-002	FP-03-01-003	FP-03-01-006	FP-03-01-006	FP-03-02-005	FP-03-02-001	FP-03-02-002	FP-03-02-006	FP-03-02-007		
Date	ollected:	5/28/2003	5/28/2003	5/29/2003	5/27/2003	5/27/2003	5/27/2003	5/28/2003	5/28/2003	10/01/2003	10/01/2003	10/01/2003	10/02/2003	10/03/2003		
	Matrix:	Stormwater	Stormwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Stormwater	Groundwater	Groundwater	Groundwater	Groundwater		
San	pleType:	Normal	Normal	Normal	Normal	Normal	Field Duplicate	Normal	Normal	Normal	Normal	Field Duplicate	Normal	Normal		
Parameter Group and Name Unit		Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual		
Herbicides																
2,4,5-T (TRICHLOROPHENOXYACETIC ACID) μg/L		0.53 U	0.53 U	0.53 R	0.52 U	0.51 U	0.51 U	0.53 U	0.53 U	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U		
2,4-D (DICHLOROPHENOXYACETIC ACID) μg/L		0.53 U	0.53 U	0.53 R	0.52 U	0.51 U	0.51 U	0.53 U	0.53 U	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U		
DALAPON μg/L		0.53 UJ	0.53 UJ	0.53 R	0.52 U	0.51 U	0.51 U	0.53 UJ	0.53 UJ	0.56 U	0.56 UJ	0.56 U	0.56 U	0.56 U		
DICAMBA μg/L		0.53 U	0.53 U	0.53 R	0.52 U	0.51 U	0.51 U	0.53 U	0.53 U	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U		
DICHLOROPROP μg/L		0.53 U	0.53 U	0.53 R	0.52 U	0.51 U	0.51 U	0.53 U	0.53 U	0.56 U	0.56 U	0.56 ∪	0.56 U	0.56 U		
DINOSEB μg/L		0.53 UJ	0.53 UJ	0.53 R	0.52 U	0.51 U	0.51 U	0.53 UJ	0.53 UJ	0.56 UJ	0.56 UJ	0.56 UJ	0.56 R	0.56 R		
PICLORAM μg/L		11 UJ	10 UJ	11 R	10 UJ	10 UJ	10 UJ	11 UJ	11 UJ	11 U						
SILVEX (2,4,5-TP) μg/L		0.53 U	0.53 U	0.53 R	0.52 U	0.51 U	0.51 U	0.53 U	0.53 U	0.5 U	0.5 U	0.5 U	0.52 UJ	0.52 UJ		

Notes: Shaded cells with bolded values represent detections equal to or above

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Explanation of Units
pCi/L - picoCuries per liter
mg/L - milligrams per liter
NTU - Nephelometric Turbidity Units

""" - micrograms per liter
""" - micrograms per liter

	i	,															
		Sampling Event 2					Sampling Event 3					Sampling Event 4					
	Location:	Inflow to R-143	MW-1	MW-1	MW-2	MW-4	Inflow to R-143	MW-1	MW-1	MW-2	MW-4	Inflow to R-143	MW-1	MW-1	MW-2	MW-4	
	Event:	Sampling Event 2	Sampling Event 3	Sampling Event 4													
	SJRWMD No.:	None	OR0018	OR0018	OR0819	OR0141	None	OR0018	OR0018	OR0819	OR0141	None	OR0018	OR0018	OR0819	OR0141	
	SampleID:	FP-03-03-002	FP-03-03-001	FP-03-03-003	FP-03-03-007	FP-03-03-006	FP-03-04-003	FP-03-04-004	FP-03-04-005	FP-03-04-001	FP-03-04-002	FP-03-05-007	FP-03-05-001	FP-03-05-002	FP-03-05-005	FP-03-05-006	
	DateCollected:	10/08/2003	10/08/2003	10/08/2003	10/10/2003	10/09/2003	10/23/2003	10/24/2003	10/24/2003	10/22/2003	10/23/2003	11/20/2003	11/18/2003	11/18/2003	11/19/2003	11/20/2003	
_	Matrix:	Stormwater	Groundwater	Groundwater	Groundwater	Groundwater	Stormwater	Groundwater	Groundwater	Groundwater	Groundwater	Stormwater	Groundwater	Groundwater	Groundwater	Groundwater	
	SampleType:	Normal	Normal	Field Duplicate	Normal	Normal	Normal	Normal	Field Duplicate	Normal	Normal	Normal	Normal	Field Duplicate	Normal	Normal	
Parameter Group and Name	Unit	Result Qual															
Herbicides																	
2,4,5-T (TRICHLOROPHENOXYACETIC ACID)	μg/L	0.56 U	0.56 U	0.56 U	0.5 U	0.5 U	0.5 U	0.52 UJ	0.52 UJ	0.51 U	0.5 U	0.5 UJ	0.51 U	0.52 U	0.52 U	0.51 U	
2,4-D (DICHLOROPHENOXYACETIC ACID)	μg/L	0.56 U	0.56 U	0.56 U	0.5 U	0.5 U	0.5 U	0.52 UJ	0.52 UJ	0.51 U	0.5 U	0.5 UJ	0.51 U	0.52 U	0.52 U	0.51 U	
DALAPON	μg/L	0.56 U	0.56 U	0.56 U	0.5 UJ	0.5 UJ	0.5 UJ	0.52 UJ	0.52 UJ	0.51 UJ	0.5 UJ	0.5 UJ	0.51 UJ	0.52 UJ	0.52 UJ	0.51 UJ	
DICAMBA	μg/L	0.56 U	0.56 U	0.56 U	0.5 U	0.5 U	0.5 U	0.52 UJ	0.52 UJ	0.51 U	0.5 U	0.5 UJ	0.51 UJ	0.52 UJ	0.52 U	0.51 UJ	
DICHLOROPROP	μg/L	0.56 U	0.56 U	0.56 ∪	0.5 ∪	0.5 U	0.5 U	0.52 UJ	0.52 UJ	0.51 U	0.5 ∪	0.5 UJ	0.51 U	0.52 ∪	0.52 U	0.51 U	
DINOSEB	μg/L	0.56 UJ	0.56 UJ	0.56 UJ	0.5 R	0.5 UJ	0.5 UJ	0.52 UJ	0.52 UJ	0.51 R	0.5 UJ	0.5 UJ	0.51 U	0.52 U	0.52 U	0.51 U	
PICLORAM	μg/L	11 U	11 U	11 U	10 U	10 U	10 UJ	10 U	10 UJ								
SILVEX (2,4,5-TP)	μg/L	0.51 U	0.5 U	0.5 UJ	0.51 U	0.52 U	0.52 U	0.51 U	0.25 U	0.25 U	0.25 U	0.5 U	0.25 U	0.5 U	0.5 U	0.5 UJ	

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NTU - Nephelometric Turbidity Units

μg/L - micrograms per liter

		<u> </u>											
				Sampling Event 5			Sampling Event 6						
	Location:	Inflow to R-143	MW-1	MW-1	MW-2	MW-4	Inflow to R-143	MW-1	MW-1	MW-2	MW-4		
	Event:	Sampling Event 5	Sampling Event 6										
	SJRWMD No.:	None	OR0018	OR0018	OR819	OR0141	None	OR0018	OR0018	OR819	OR0141		
	SampleID:	FP-04-06-005	FP-04-06-001	FP-04-06-002	FP-04-06-007	FP-04-06-006	FP-04-007-02	FP-04-07-003	FP-04-07-004	FP-04-07-007	FP-04-07-001		
	DateCollected:	02/04/2004	02/04/2004	02/04/2004	02/06/2004	02/05/2004	02/16/2004	02/17/2004	02/17/2004	02/18/2004	02/16/2004		
	Matrix:	Groundwater											
	SampleType:	Normal	Normal	Field Duplicate	Normal	Normal	Normal	Normal	Field Duplicate	Normal	Normal		
Parameter Group and Name Herbicides	Unit	Result Qual											
2,4,5-T (TRICHLOROPHENOXYACETIC ACID)	μg/L	0.25 U	0.25 U	0.25 U	0.5 U	0.25 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U		
2,4-D (DICHLOROPHENOXYACETIC ACID)	μg/L	0.5 U											
DALAPON	μg/L	0.5 U	0.5 UJ	0.5 U	0.5 U								
DICAMBA	μg/L	0.5 U	0.5 UJ	0.5 U	0.5 U								
DICHLOROPROP	μg/L	0.25 U	0.25 U	0.25 U	0.5 U	0.25 U	0.5 U	0.5 U	0.5 ∪	0.5 U	0.5 U		
DINOSEB	μg/L	0.5 U											
PICLORAM	μg/L	10 U	10 UJ	10 U	10 U								
SILVEX (2,4,5-TP)	μg/L	0.5 U	0.5 U	50 μg/L	μg/L	50 μg/L	μg/L	50 μg/L	500 μg/L	290 μg/L	29 μg/L		

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""" - micrograms per liter

μg/L - micrograms per liter

REPORT

Central Florida Artificial Recharge Demonstration Program Festival Park – Orlando, FL

Microbiological Monitoring Results

Amy M. Kamarainen Mechelle Woodall Walter Quintero-Betancourt, Ph.D Joan B. Rose, Ph.D

Central Florida Artificial Recharge Demonstration Program Festival Park – Orlando, FL

SAMPLING METHODS:

FIELD SAMPLING METHODS:

Three groundwater monitoring wells (MW1, MW2, MW4) and one storm-water recharge wells (NR) were sampled for *Cryptosporidium spp.*, *Giardia spp.*, *Enterococcus spp.*,, total coliforms, fecal coliforms, *E. coli*, and coliphage in order to monitor levels of these microbial indicators for the Artificial Recharge Well Demonstration Project. Envirochek HV filters were used, according to EPA Method 1623 to detect the presence of *Cryptosporidium spp.* and *Giardia spp.* at each site. The sampling apparatus used at the monitoring well sites consisted of a submersed bladder pump attached to 125ft.of tubing, attached to the Envirochek HV filter, attached to a flow meter, attached to an outlet hose. The sampling apparatus was modified at the recharge site to incorporate a diaphragm pump, which was placed after the flow meter. Flow meters were attached to the sampling apparatus to provide accurate measurement of volume sampled.

Matrix spike (MS) and matrix spike duplicate (MSD) samples were processed according to USEPA method 1623 (USEPA, 2001) to determine the recovery efficiency of the sampling apparatus under specific field conditions and with differing water matrices (i.e. groundwater and recharge wells). Following collection of filter samples for *Cryptosporidium spp.* and *Giardia spp.*, grab samples were collected in sterile one or two liter bottles for laboratory analysis of the concentration of four bacterial indicators and coliphage.

All equipment used in the sampling apparatus was new, and once used, it was "dedicated" to the site, labeled, and stored in separate plastic bags. These measures were

taken to prevent cross contamination during later sample collection events at these sites. Also, to eliminate the need for decontamination, all tubing that precedes the filter in the sampling apparatus will be replaced with new tubing at each future sampling event.

Groundwater Monitoring Wells:

Samples were collected from the monitoring wells using a submersible bladder pump that was at a depth of 120 to 125 feet bellow ground level. Following the EPA Method 1623 approximately 946 liters of water were filtered through Envirochek HV filter capsules at a rate between 2.3 and 3.8 liters/minute (EPA Method 1623: *Cryptosporidium* and *Giardia* in Water by Filtration/IMS/IFA). Lesser amounts were consistently filtered at site MW1 due to high turbidity and clogging of the filter. Also, at MW1 large amounts of air were present in the water as it entered the filter. The aeration may be due to the geological substrate in which this well was located. The degree of water aeration was not found to be correctable with slight variation in the flow rate or pump depth. Collection of volumes less than 946 at other sites was also due to clogging of the filter.

MS and MSD samples were collected at Monitoring Well 4 (MW4) to check the precision and accuracy of the equipment used to sample for *Cryptosporidium spp*. and *Giardia spp*. For each spiked sample approximately 100 liters of water were pumped into a 32 gallon plastic trash can. 100 ± 2 *Giardia* cysts and 100 ± 2 *Cryptosporidium* oocysts were added to the 100 liter sample according to the ColorSeedC&G matrix spike package insert (ColorSeed C&G; BTF, Decisive Microbiology, North Ryde, BC, Australia). The final 2-3 liters of system effluent were used to rinse the inside of the garbage can in efforts to recover any affixed (oo)cysts. The equipment used for the matrix spikes had been dedicated to matrix spikes at MW4.

The matrix spike procedures were completed twice during this sampling period in order to analyze any potential changes in recovery efficiency due to changes in the water matrix over time. Studies have shown that significant changes in recovery efficiency result from changes in amounts of precipitation received by the watershed (Francy et al. in press).

Following the collection of filter samples, a total of 7 liters of water were collected in sterile grab sample bottles. The filters and grab samples were placed in coolers with ice packs and transported to the Water Pollution Laboratory at Michigan State University for analysis.

Stormwater Recharge Wells:

Samples were collected from recharge wells using a car-battery operated automatic-demand diaphragm pump that drew water from a depth of approximately 10ft. A 13 ft. piece of tubing was inserted into a 10ft long PVC pipe, which was lowered through the well grate into the water. The sampling apparatus consisted of tubing encased in PVC piping attached to the Envirochek HV filter, attached to a flow meter, attached to a diaphragm pump, attached to an outlet hose.

At the north recharge well, the turbidity of the water and clogging of the filter limited volume that was collected. Additionally, sampling at the North Recharge (NR) site was complicated by recurring sudden rises in the water level. Approximately every 20 minutes the water level would rapidly rise from approximately 10 ft. below ground level to approximately 1ft. above ground level and would spray from the top of the well grate.

MS and MSD samples were collected at NR. Approximately 10 liters of water were collected in a new 32 gallon plastic garbage can, to which the ColorSeed sample containing 100±2 *Giardia* cysts and 100±2 *Cryptosporidium* oocysts was added, according to the

manufacturer specifications. The entire 10L sample was filtered and the final 2-3liters of system effluent were used to rinse the sides of the garbage can in efforts to recover any affixed (oo)cysts. A 10 liter sample was spiked instead of the recommended 100L due to the high turbidity and the observation that the NR sample filters had become clogged after 10-40 liters had been filtered. The procedure was repeated for the matrix spike duplicate.

A total of 7 liters of grab samples were also collected at each stormwater recharge site.

The filters and grab samples were placed in coolers with ice packs and transported to the

Water Pollution Laboratory at Michigan State University for laboratory analysis.

LABORATORY METHODS:

The filters and grab samples were stored on ice and transported to the laboratory via Fed Ex next-day delivery service. The initial laboratory processing of samples was completed within 36 hours after collection. Recovery efficiency experiments are also routinely done in the laboratory to determine the accuracy and precision of laboratory methods and equipment.

Bacterial Indicators:

To assess the concentration of total coliforms, fecal coliforms, *E. coli* and *Entercoccus spp.*, in the monitoring wells, sample volumes of 1, 100, 250, 500 mL were filtered using a 0.45 um (pore size) 47mm (diameter) filter membrane (Gelman Sciences) according to the *Standard Methods for the Examination of Water and Wastewater* (APHA 1998). The same was done with samples derived from recharge wells; however, the 500 mL volume could not be processed due to clogging of the filter. The filters were plated on indicator-specific media and incubated for 24 hours at temperatures specific to each indicator.

For enumeration of *Enterococcus spp*. the filters were placed on MEI agar plates (modified medium for detection of *Enterococcus spp*.; Difco Laboratories, Detroit, MI) and incubated at 41°C. After 24 hours colonies with a blue halo were counted as *Entercoccus spp*. as described in Method 1600 (USEPA, 1996). To assess numbers of total coliform bacteria, membrane filters were placed on m-ENDO agar (Difco Laboratories, Detroit, MI) and incubated at 37°C. To detect fecal coliform bacteria the filters were placed on mFC agar (modified medium for fecal coliform bacteria; Difco Laboratories, Detroit, MI) and incubated at 45° C. The bacterial concentrations were then quantified and expressed as the number of colony forming units per 100mL (CFU/ 100mL) (Table 1).

To assess *E.coli* concentrations the membrane filter used in the total coliform evaluation was removed from the m-ENDO agar and transferred to a plate with EC medium with MUG (Difco Laboratories, Detroit, MI). The plates were incubated at 37°C for 24 hours and then viewed under a UV lamp. Those colonies which fluoresced were counted as positive *E.coli* colonies (Table 1).

Coliphages:

Two methods were used to determine the concentration and types of coliphages present in the water samples: an agar overlay method and an enrichment method. Two different host bacterium strains were used in the agar overlay method, *E. coli* C3000 and *E. coli* p(Famp)R Each host *E. coli* was grown to logarithmic stage in tryptic soy broth (TSB) at 37° C for approximately 4 hours. 1mL of the host bacteria and 2mL of sampled water was mixed with a molten trypticase soy agar (TSA) (3mL) and then poured over a solid TSA plate. 5 replicate plates were used for each sample site and for each host. Coliphage concentration at each sampling site was determined using the following formula: (total number of plaques/

volume of sampled water analyzed)*100. The concentration is reported in numbers of plaque-forming units per 100mL (PFU/100mL) (Table 1).

The enrichment test provides information about the presence or absence of coliphages rather than a quantitative assessment of coliphage numbers, and is commonly used to detect low levels of coliphages that may be present in groundwater samples. In order to detect low numbers of coliphages in the sampled water, an enrichment experiment was run with water from each of the sites. A 1 L water sample was inoculated with 10mL of host bacterial culture (*E. coli* p(Famp)R) and 100mL of 11X tryptone broth with antibiotics (Ampicillin-Streptomycin). The sample was then incubated at 35°C for 48 hours.

2mL of enrichment sample from the sites that were initially coliphage-negative (using the agar overlay method) was filtered through a 0.22um syringe filter. 10ul of the filtrate was then spotted on the center of a plate with TSA base and a TSA agar overlay containing host bacterium. The plates were incubated at 37°C for 24 hours and examined for lysis zones.

Also, to determine if the samples contained F+DNA or F+RNA phages, RNase was incorporated into plating growth medium containing an *E. coli* p(Famp)R baterial lawn. 10ul (filtered) of the enriched samples for each sample site were spotted in the center of TSA (RNase+) plates containing *E. coli* (Famp+) and incubated at 37°C for 24 hours. The plates were then scored as either F+DNA or F+RNA phages (Table 1).

Cryptosporidium spp. and Giardia spp.:

Cryptosporidium spp. and Giardia spp. were enumerated using standard methods for filtration, elution, concentration, purification (IMS), staining and examination by IFA according to the methods described in Method 1623 (EPA Method 1623: Cryptosporidium

and *Giardia* in Water by Filtration/IMS/IFA) (USEPA, 2001). The concentration of the final pellet was recorded on laboratory data sheets.

The resuspended pellet containing (oo) cysts was purified using immunomagnetic separation (IMS) using a Dynal Dynabeads CG combo kit. IMS was completed according to the protocol described in EPA Method 1623 with some modification. Namely, the dissociation of the bead-(oo) cyst complex was accomplished by washing the beads with 100ul of 0.1N HCl two times, instead of the suggested 50ul (Dynabeads anti-*Cryptosporidium* and anti-*Giardia*; product 730.02; Dynal A.S., Oslo, Norway). This resulted in a 200ul suspension containing cysts and oocysts. 50ul of solution was placed on each of four slides with 5ul NaOH to neutralize the HCL. The slides were then fixed and stained using fluorescein isothiacyanate-conjugated anti-*Cryptosporidium* sp. and anti-*Giardia* sp. monoclonal antibodies (EasyStain; BTF, Decisive Microbiology, North Ryde, BC Australia) and a solution 4',6'-diamidino-2-phenylindole and propidium iodide (DAPI-PI).

(Oo)cysts on the slides were viewed and enumerated using epifluorescence microscopy. For naturally occurring (oo)cysts, the number of cysts and oocysts per 100L of water was calculated (Table 2). Also, for the spiked samples (MS and MSD), the recovery efficiency and relative percent difference statistics were calculated (Tables 3 and 4).

Recovery Efficiency Experiments:

Recovery efficiency experiments are routinely conducted in the Water Pollution

Laboratory at Michigan State University to verify that proper quality assurance standards are

met. These experiments are carried out as described in the April 2001 version of USEPA

method 1623 to demonstrate acceptable method performance and include: (i) initial precision

and recovery tests, (IPR) (ii) ongoing precision and recovery tests (OPR), (iii) matrix spikes (MS) and (iv) method blanks. A combination of filtered tap water and distilled water are used as the reagent water sample for blanks, IPR and OPR tests.

IPR tests are intended to establish the ability to demonstrate control over the analytical system and to generate acceptable precision and recovery (USEPA, 2001). For this purpose, 100 L of reagent water sample was filtered, eluted, concentrated, purified (IMS), stained and examined by IFA using method 1623 and the Envirochek HV cartridge filtration method. Four reagent water samples were processed and the results of these analyses were used to compute the average percent recovery (Mean) and the relative standard deviation (RSD) of the recovery. The RSD is the standard deviation divided by the mean times 100. The mean and RSD are compared with the corresponding limits for initial precision and recovery described in method 1623 (USEPA, 2001) in order to determine method performance.

OPR tests will be carried out throughout the study to verify all performance criteria (data not shown). For this purpose, two spike reagent water samples have been filtered, eluted, concentrated, purified (IMS), stained and examined by IFA. The frequency of OPR tests is typically one spiked reagent water sample for every 20 samples analyzed.

Matrix spike (MS) along with matrix spike duplicates (MSD) were carried out with the spiked field samples described above to determine the effect of the method's oocyst and cyst recovery. For this purpose, four spiked water matrices were processed filtered, eluted, concentrated, purified (IMS) stained and examined by IFA. MS for each water type was processed and the mean of the number of (oo)cysts were computed as follows: Matrix spike duplicate (MSD) or Mean = (MS1+MS2/2). From these results, the relative percent difference (RPD) was computed as follows: RPD = $100 \times [(oo)cysts]$ detected in MS1 – oocysts detected

in MS2]/Mean. The results of these calculations were then compared with the corresponding limits established in method 1623 (USEPA, 2001) to determine precision and recovery of the methods using the different water matrices (Tables 3 and 4).

The filtration device used in the study was the Envirochek HV sampling capsule (Pall Gelman Laboratory, Ann Arbor, MI). ColorSeedTM C&G (BTF, Decisive Microbiology, North Ryde, BC, Australia) was used as the spike suspensions in IPR tests, matrix spike, matrix spike duplicates, and recovery efficiency experiments. These spikes consist of 100±2 red fluorescent labeled and gamma irradiated *Cryptosporidium* oocysts and *Giardia* cysts in approximately 1 mL of saline solution. They can be used as internal quality control parameters to determine the performance or percent recovery achieved with every test (see http://www.biotechfrontiers.com). For spiked experiments, water volumes of 100 L were filtered through the Envirochek HV capsule filter. Spiked samples were filtered on-site and the filters were transported to the laboratory on ice.

Results:

Table 1. Summary Results for Bacterial Indicators and Coliphage: Festival Park 2003-2004

				In	dicator Organi	isms		
Date sample	Site location		Bacteria (Cl	FU/100 m	L)	Co	oliphage Enr	ichment
collection		Total	Fecal	E. coli	Enterococcus	Host	Host	Famp+
		Coliforms	Coliforms			C3000*	Overlay*	DNA/RNA
10/1/03	Monitoring Well 1	5.2	1.1	0.2	0.3	ı	-	N/A
10/2/03	Monitoring Well 2	3.7	2	0.6	< 0.2	-	+	DNA+
10/3/03	Monitoring Well 4	< 0.2	< 0.2	< 0.2	0.3	+	+	DNA+
10/1/03	North Recharge Well	4.5x10^4	2.2x10^4	4.1x10^2	1.7x10^3	ı	+	DNA+
10/8/03	Monitoring Well 1	7.4	2.9	< 0.2	9.4	+	+	DNA+
10/10/03	Monitoring Well 2	0.3	0.7	< 0.2	< 0.2	+	+	DNA+
10/9/03	Monitoring Well 4	< 0.2	< 0.2	< 0.2	1.3x10^1	+	+	DNA+
10/8/03	North Recharge Well	5.9x10^3	3.4x10^3	4.1x10^2	1.4x10^2	+	+	DNA+
10/24/03	Monitoring Well 1	< 0.2	< 0.2	< 0.2	< 0.2	-	+	DNA+
10/22/03	Monitoring Well 2	2.2	1.6	0.3	< 0.2	+	+	DNA+
10/22/03	Monitoring Well 4	< 0.2	< 0.2	< 0.2	< 0.2	+	-	N/A
10/23/03	North Recharge Well	9.9x10^2	8.6x10^2	1.8x10^2	6.9x10^1	ı	+	DNA+
11/19/03	Monitoring Well 1	7.4	5.9	2.3	2.3x10^1	+	+	DNA+
11/20/03	Monitoring Well 2	0.9	1	< 0.2	< 0.2	+	+	DNA+
11/21/03	Monitoring Well 4	5.5	5.3	< 0.2	0.7	-	+	DNA+
11/21/03	North Recharge Well	1.0x10^6	9.8x10^5	2.4x10^3	3.4x10^3	+	+	DNA+
2/4/04	Monitoring Well 1	0.8	1.8	0.2	< 0.2	-	+	DNA+
2/6/04	Monitoring Well 2	< 0.2	< 0.2	< 0.2	2.2	-	+	DNA+
2/5/04	Monitoring Well 4	< 0.2	< 0.2	< 0.2	< 0.2	-	+	RNA+
2/4/04	North Recharge Well	3.3x10^3	1.9x10^3	6.8x10^2	4.5x10^1	+	+	DNA+
2/17/04	Monitoring Well 1	< 0.2	< 0.2	< 0.2	< 0.2	+	+	DNA+
2/18/04	Monitoring Well 2	4.74x10^2	5.85x10^2	1.52	3.16x10^1	-	+	DNA+
2/16/04	Monitoring Well 4	< 0.2	< 0.2	< 0.2	< 0.2	+	+	DNA+
2/16/04	North Recharge Well	1.61x10^5	7.7x10^4	7.2x10^2	1.22x10^3	+	+	DNA+

Table 2. Cryptosporidium and Giardia Detected: Festival Park 2003-2004

Date	Site	Total	Organisms	Total	# with	# without	Equivalent
Collected	Location	Volume Collected (Liters)	Detected		internal features (DAPI/DIC)	internal features	concentration of (oo)cysts/ 100L
10/1/03	Monitoring Well 1	317.94	Cryptosporidium Giardia	0	0	0	<0.3
10/2/03	Monitoring Well 2	435.28	Cryptosporidium Giardia	0	0	0	<0.2
10/3/03	Monitoring Well 4	946.25	Cryptosporidium Giardia	0	0	0	<0.1
10/1/03	North Recharge Well	34.06	Cryptosporidium Giardia	0	0	0	<3.0
10/8/03	Monitoring Well 1	745.65	Cryptosporidium Giardia	0	0	0	<0.1
10/10/03	Monitoring Well 2	946.25	Cryptosporidium Giardia	0	0	0	<0.1
10/9/03	Monitoring Well 4	946.25	Cryptosporidium Giardia	0	0	0	<0.1
10/8/03	North Recharge Well	39.74	Cryptosporidium Giardia	0	0	0	<3.0
10/24/03	Monitoring Well 1	818.7	Cryptosporidium Giardia	0	0	0	<0.1
10/22/03	Monitoring Well 2	560.18	Cryptosporidium Giardia	0	0	0	<0.2
10/22/03	Monitoring Well 4	632.1	Cryptosporidium Giardia	0	0	0	<0.2

10/23/03	North Recharge	20.44	Cryptosporidium Giardia	0	0	0	<5.0
	Well						
11/19/03	Monitoring Well 1	563.97	Cryptosporidium Giardia	0	0	0	<0.2
11/20/03	Monitoring Well 2	946.25	Cryptosporidium Giardia	0	0	0	<0.1
11/21/03	Monitoring Well 4	946.25	Cryptosporidium Giardia	0	0	0	<0.1
11/21/03	North Recharge Well	9.84	Cryptosporidium Giardia	0	0	0	<10.0
2/4/04	Monitoring Well 1	757.0	Cryptosporidium Giardia	0	0	0	<0.1
2/6/04	Monitoring Well 2	518.5	Cryptosporidium Giardia	0	0	0	<0.2
2/5/04	Monitoring Well 4	946.25	Cryptosporidium Giardia	0	0	0	<0.1
2/4/04	North Recharge Well	14.0	Cryptosporidium Giardia	0	0	0	<7.0
2/17/04	Monitoring Well 1	946.25	Cryptosporidium Giardia	0	0	0	<0.1
2/18/04	Monitoring Well 2	946.25	Cryptosporidium Giardia	0	0	0	<0.1
2/16/04	Monitoring Well 4	946.25	Cryptosporidium Giardia	0	0	0	<0.1
2/16/04	North Recharge	18.93	Cryptosporidium	0	0	0	<5.0
	Well		Giardia	9	J		\3.0

1/19/04

Table 3. Matrix Spike and Matrix Spike Duplicate: Monitoring Well – Festival Park 2003-2004

Date Collected	Site Location	Total Volume Collected (Liters)	Organism	Recovered	% Recovery Efficiency
10/23/03	Monitoring Well 4	100	Cryptosporidium	0	0
	6		Giardia	3	3
10/23/03	Monitoring Well 4	100	Cryptosporidium	1	1
			Giardia	4	4
11/20/03	Monitoring Well 4	100	Cryptosporidium	48	48
			Giardia	42	42
11/20/03	Monitoring Well 4	100	Cryptosporidium	31	31
			Giardia	36	36
2/16/04	Monitoring Well 4	100	Cryptosporidium	45	45
			Giardia	29	29
2/16/04	Monitoring Well 4	100	Cryptosporidium	36	36
			Giardia	35	35

Relative Percent Difference (RPD) 10/23/03: Cryptosporidium = 200.0%

Giardia = 28.6%

Relative Percent Difference (RPD) 11/20/03: Cryptosporidium = 43.0 %

Giardia = 15.4%

Relative Percent Difference (RPD) 2/16/04: Cryptosporidium = 22.2%

Giardia = 18.8%

Table 4. Matrix Spike and Matrix Spike Duplicate: Recharge Well – Festival Park 2003-2004

Date Collected	Site Location	Total Volume	Organism	Recovered	% Recovery
		Collected (Liters)			Efficiency
10/23/03	North Recharge	10	Cryptosporidium	2	2
	Well		Giardia	17	17
10/23/03	North Recharge	10	Cryptosporidium	2	2
	Well		Giardia	12	12
11/20/03	North Recharge	10	Cryptosporidium	17	17
	Well		Giardia	21	21
11/20/03	North Recharge	10	Cryptosporidium	25	25
	Well		Giardia	31	31
2/16/04	North Recharge	10	Cryptosporidium	9	9
	Well		Giardia	7	7
2/16/04	North Recharge	10	Cryptosporidium	7	7
			Giardia	9	9

Relative Percent Difference (RPD) 10/23/03: Cryptosporidium = 0.0%

Giardia = 34.5%

Relative Percent Difference (RPD) 11/20/03: Cryptosporidium = 38.1%

Giardia = 38.5%

Relative Percent Difference (RPD) 2/16/04: Cryptosporidium = 25%

Giardia = 25%

General Conclusions

Consistently high levels of all bacterial indicators were found during all sampling events at the North Recharge Well. It was expected that the recharge sites would have the highest levels of indicators compared to other sites sampled, as the recharge sites represent the point of stormwater input into the aquifer.

Levels of bacterial indicators present in Monitoring Well 1 were routinely higher than those found in the other monitoring wells. Meanwhile Monitoring Well 4 had consistently low levels of bacterial indicators relative to the other monitoring wells. Levels of microbial indicators were significantly lower in all monitoring wells compared to the recharge well.

There were no Cryptosporidium oocysts or Giardia cysts found in any of the wells during any of the sampling events.

Festival Park Operational Characterization Microbial Sampling Results SJRWMD CFARE1

	Location	R-143	MW-1	MW-2	MW-4	R-143	MW-1	MW-2	MW-4	R-143	MW-1	MW-2	MW-4	Quality
Da	te Collected ==>	10/1/2003	10/1/2003	10/2/2003	10/3/2003	10/8/2003	10/8/2003	10/10/2003	10/9/2003	10/23/2003	10/24/2003	10/22/2003	10/23/2003	(Class III Waters) 1
Organism	Units		Sampling	g Event 1			Sampling	g Event 2			Sampling	Event 3		
														1,000 cfu/100 mL - Single
														Sample
Total Coliform	cfu/100 mL	45,000	5.2	3.7	<0.2	5,900	7.4	0.3	<0.2	990	<0.2	2.2		400 cfu/100 mL - Average
														800 cfu/100 mL - Single Sample
Fecal Coliform	cfu/100 mL	22,000	1.1	2	<0.2	3,400	2.9	0.7	<0.2	860	<0.2	1.6	<0.2	200 cfu/100 mL - Geometric Mean
E. coli	cfu/100 mL	410	0.2	0.6	<0.2	410	<0.2	<0.2	<0.2	180	<0.2	0.3	<0.2	126 cfu/100 mL - Geometric Mea
														35 cfu/100 mL - Fresh Water
Enterococcus	cfu/100 mL	1,700	0.3	<0.2	0.3	140	9.4	<0.2	13	69	<0.2	<0.2	<0.2	104 cfu/100 mL - Geometric
Cryptosporidium	no./100 L	< 0.01	< 0.01	< 0.01	<3	< 0.01	< 0.01	<0.01	<3	< 0.01	< 0.01	< 0.01	<5	
Giarida	no./100 L	< 0.01	< 0.01	< 0.01	<3	< 0.01	< 0.01	<0.01	<3	< 0.01	< 0.01	< 0.01	<5	
Coliphage														100 pfu/100 mL
Host C3000 Overlay	pfu/100 mL	-	-	-	+ (<5)	+ (<5)	+ (<5)	+ (<5)	+ (<5)	-	-	+ (<5)	+ (<5)	
Host Famp+ Overlay	pfu/100 mL	+ (<5)	-	+ (<5)	+ (<5)	+ (<5)	+ (<5)	+ (<5)	+ (<5)		+ (<5)	+ (<5)	-	
Host Famp+ Enrichment	pfu/100 mL	+/DNA	n/a	+/DNA	+/DNA	+/DNA	+/DNA	+/DNA	+/DNA	+/DNA	+/DNA	+/DNA	n/a	

		Inflow to				Inflow to				Inflow to				Indicator Guidelines for Ambient Surface Water
	Location	R-143	MW-1	MW-2	MW-4	R-143	MW-1	MW-2	MW-4	R-143	MW-1	MW-2	MW-4	Quality
Da	ate Collected ==>	11/21/2003	11/19/2003	11/20/2003	11/21/2003	2/4/2004	2/4/2004	2/6/2004	2/5/2004	2/16/2004	2/17/2004	2/18/2004	2/16/2004	(Class III Waters) 1
Organism	Units		Sampling	g Event 4			Sampling	g Event 5			Sampling	Event 6		
														1,000 cfu/100 mL - Single
														Sample
Total Coliform	cfu/100 mL	1,000,000	7.4	0.9	5.5	3,300	8.0	<0.2	<0.2	161,000	<0.2	474	<0.2	400 cfu/100 mL - Average
														800 cfu/100 mL - Single Sample
Fecal Coliform	cfu/100 mL	980,000	5.9	1	5.3	1,900	1.8	<0.2	<0.2	77,000	<0.2	585		200 cfu/100 mL - Geometric Mean
E. coli	cfu/100 mL	2,400	2.3	<0.2	<0.2	680	0.2	<0.2	<0.2	720	<0.2	1.52	<0.2	126 cfu/100 mL - Geometric Mea
Enterococcus	cfu/100 mL	3,400	23	<0.2	0.7	45	<0.2	2.2	<0.2	1,220	<0.2	3.16	<0.2	35 cfu/100 mL - Fresh Water
Cryptosporidium	no./100 L	<0.01	<0.01	<0.01	<10	<7.0	<0.1	<0.2	<0.1	<5	<0.1	<0.1	<0.1	
Giarida	no./100 L	<0.01	<0.01	<0.01	<10	<7.0	<0.1	<0.2	<0.1	<5	<0.1	<0.1	<0.1	
Coliphage														100 pfu/100 mL
Host C3000 Overlay	pfu/100 mL	+ (<5)	+ (<5)		+ (<5)	+ (<5)	-	-	-	+ (<5)	+ (<5)	+ (<5)	+ (<5)	
Host Famp+ Overlay	pfu/100 mL	+ (<5)	+ (<5)		+ (<5)		+ (<5)	-	+ (<5)		+ (<5)	+ (<5)	+ (<5)	
Host Famp+ Enrichmen	t pfu/100 mL	+/DNA	+/DNA	+/DNA	+/DNA	+/DNA	+/DNA	+/DNA	+/RNA	+/DNA	+/DNA	+/DNA	+/DNA	

Notes:

cfu - Colony forming units pfu - plaque forming units

¹ Indicator Guidelines for Ambient Surface Water Quality (used for Class III Waters)

Total Coliforms State of Florida guidelines for a single sample 1000 cfu/100mL, average of 400 cfu/100mL

Fecal Coliforms EPA and the state of Florida recommended guidelines for a single sample of 800 cfu/100 mL, for a geometric mean, 200 cfu/100 mL

E.coli EPA recommended guideline for a geometric mean sample 126 cfu/100 mL

Enterococci EPA recommended guidelines for a single sample of 104 cfu/100 mL, for a geometric mean , 33-35 cfu/100 mL for marine and fresh water respectively.

Coliphage Level used - 100 pfu/100 mL based on previous research by Dr. Joan Rose, USF

A "+" indicates that the samples tested positive for the presence of coliphage. When the enrichment method provides a "+" with a "<5" pfu/100 mL for the overlay methods results,

then coliphage is interpreted to be present at concentrations less than that value. A "-" indicates that the the presence of coliphage was not detected in the sample.

			Eve	ent 1			Eve	ent 2			Eve	nt 3			Eve	nt 4	
	Location: Event:	LAKE Event 1	MW-1 Event 1	MW-1 Event 1	MW-2 Event 1	LAKE Event 2	MW-1 Event 2	MW-1 Event 2	MW-2 Event 2	LAKE Event 3	MW-1 Event 3	MW-1 Event 3	MW-2 Event 3	LAKE Event 4	MW-1 Event 4	MW-1 Event 4	MW-2 Event 4
	SJRWMD No.: SampleID:	None L0-00-Lake	S-0334 L0-00-MW1	S-0334 L0-00-Dupe	S-0335 L0-00-MW2	None L0-01-Lake	S-0334 L0-01-MW1	S-0334 L0-01-Dup	S-0335 L0-01-MW-2	None L0-02-LAKE	S-0334 L0-01-MW-1	S-0334 L0-01-DUPE	S-0335 L0-02-MW2	None LO-03-Lake	S-0334 LO-03-MW1	S-0334 LO-03-Dup	S-0335 LO-03-MW-2
	DateCollected: Matrix:	13-Jul-05 Surface Water	13-Jul-05 Groundwater	13-Jul-05 Groundwater	12-Jul-05 Groundwater	20-Jul-05 Groundwater	21-Jul-05 Groundwater	21-Jul-05 Groundwater	20-Jul-05 Groundwater	27-Jul-05 Surface Water	28-Jul-05 Groundwater	28-Jul-05 Groundwater	27-Jul-05 Groundwater	08-Aug-05 Surface Water	09-Aug-05 Groundwater	09-Aug-05 Groundwater	08-Aug-05 Groundwater
Parameter Group and Name	SampleType: Unit	Normal Result Qual	Normal Result Qual	Field Duplicate Result Qual	Normal Result Qual	Normal Result Qual	Normal Result Qual	Field Duplicate Result Qual	Normal Result Qual	Normal Result Qual	Normal Result Qual	Field Duplicate Result Qual	Normal Result Qual	Normal Result Qual	Normal Result Qual	Field Duplicate Result Qual	Normal Result Qual
Field Measurements PH TEMPERATURE	Std. Units	7.96 32.2	7.65 24.2	7.65 24.2	7.59 24.3	7.30 30.4	7.40 23.9	7.40 23.9	7.47 24.2	no data	8.29 23.5	8.29 23.5	7.32 23.6	no data	7.56 23.3	7.56 23.3	7.65 23.8
CONDUCTANCE TURBIDITY	μmhos NTU	248 4.66	277 2.35	277 2.35	409 0.55	197 6.5	299 1.08	299 1.08	257 0.37	no data no data	300 0.69	300 0.69	339 1.01	no data no data	198 0.58	198 0.58	25.6 254 0.23
DISSOLVED OXYGEN OXIDATION/REDUCTION POTENTIAL	mg/L mV	7.39 no data	0.17 no data	0.17 no data	0.36 no data	5.28 no data	0.13 no data	0.13 no data	0.62 no data	no data no data	0.26 -215	0.26 -215	0.25	no data no data	0.1 -87	0.1 -87	0.17 -158
General Chemistry TOTAL DISSOLVED SOLIDS (RESIDUE, FILTERABLE)	mg/L	120 =	160 =	175 =	206 =	28 =	257 =	298 =	282 =	187 =	137 =	146 =	119 =	115 =	174 =	174 =	168 =
TURBIDITY pH (laboratory)	NTU PH UNITS	4 = 7.4 =	0.3 U 7.5 =	0.3 U 7.68 =	0.3 UJ 7.33 J	33 = 7.12 =	3 = 7.52 =	3 = 7.52 =	3 = 7.36 =	20 = 6.62 =	5 = 7.32 =	8 = 7.36 =	3 = 7.18 =	30 = 7.2 =	2 = 7.42 =	2 = 7.45 =	3 = 7.33 =
COLOR BIOLOGIC OXYGEN DEMAND, FIVE DAY	COLOR UNIT mg/L	40 = 10 U	10 = 10 U	10 = 10 U	15 = 2 U	45 = 10 U	15 = 10 U	15 = 10 U	15 = 4 U	60 = 3 J	25 = 10 U	15 = 10 U	20 = 10 U	50 = 3 J	15 = 3 J	15 = 3 J	15 = 3 J
TOTAL ORGANIC CARBON DISSOLVED ORGANIC CARBON	mg/L mg/L	9.9 = 0.368 U	1 U 1.36 =	1.31 U 1.88 =	0.53 U 0.68 UJ	62.9 J 7.85 =	2.57 = 0.685 U	1.52 U 2.69 U	4.19 J 1.3 U	28.1 J 42.1 J	2.73 = 1.86 U	1.97 U 1.66 U	3.9 J 3.2 J	10.5 J 8.48 J	2.86 = 2.33 U	2.47 = 2.4 U	5.94 J 4.94 J
Nutrients TOTAL NITROGEN, ALL FORMS, CALCULATED NITROGEN, AMMONIA (AS N)	mg/L	1.22 = 0.0568 U	0.766 = 0.206 U	0.844 = 0.18 U	0.808 =	1.6 = 0.07 J	0.743 = 0.14 J	0.684 =	1.26 =	1.29 = 0.001 U	0.93 = 0.07 J	0.662 = 0.07 J	0.776 =	0.661 J 0.001 U	0.27 = 0.14 J	0.218 = 0.07 J	0.377 J 0.21 =
NITROGEN, AMMONIA (AS N) NITROGEN, KJELDAHL, TOTAL NITROGEN, NITRITE	mg/L mg/L	1.2 = 0.0118 U	0.746 =	0.18 U 0.823 = 0.0118 U	0.781 J 0.0118 U	1.6 J	0.743 = 0.0118 U	0.14 J 0.684 = 0.0118 U	0.35 = 1.26 J 0.0118 U	1.29 = 0.0143 J	0.07 J 0.93 = 0.0118 U	0.07 J 0.662 = 0.0118 U	0.28 = 0.776 = 0.0118 U	0.661 J 0.0245 J	0.14 J 0.27 = 0.0118 U	0.218 J	0.21 = 0.377 J 0.0118 U
NITROGEN, NITRATE-NITRITE PHOSPHORUS, TOTAL (AS P)	mg/L mg/L	0.0118 U 0.0201 U 0.056 =	0.0118 U 0.0201 U 0.143 =	0.0118 U 0.0205 J 0.152 =	0.0269 J 0.249 =	0.0118 U 0.0206 J 0.041 =	0.0118 U 0.0201 U 0.219 =	0.0201 U 0.202 =	0.0318 J 0.217 =	0.0201 U 0.126 J	0.0201 U 0.185 =	0.0118 U 0.0201 U 0.169 =	0.0118 U 0.0201 U 0.241 J	0.0245 J 0.0201 UJ 0.034 J	0.0118 U 0.0201 U 0.24 =	0.0118 U 0.0201 U 0.259 =	0.0118 U 0.0201 UJ 0.236 J
PHOSPHORUS, TOTAL (AS F) PHOSPHORUS, TOTAL ORTHOPHOSPHATE (AS P) PHOSPHORUS, DISSOLVED (AS P)	mg/L mg/L mg/L	0.014 U 0.048 =	0.143 = 0.138 = 0.24 =	0.137 = 0.188 =	0.249 = 0.213 = 0.253 =	0.041 = 0.014 U 0.046 =	0.131 = 0.207 =	0.202 = 0.13 = 0.201 =	0.197 = 0.185 =	0.014 U 0.131 =	0.171 = 0.213 =	0.169 = 0.157 = 0.199 =	0.204 = 0.286 =	0.034 J 0.021 J 0.09 =	0.24 = 0.206 = 0.253 =	0.259 = 0.207 = 0.266 =	0.236 J 0.198 = 0.37 =
Anions ALKALINITY, BICARBONATE (AS CaCO3)	mg/L	27 =	141 =	141 =	127 =	28 =	141 =	129 =	132 =	28 =	137 =	140 =	119 =	32 =	141 =	139 =	115 =
ALKALINITY, TOTAL (AS CaCO3) Alkalinity, carbonate (as CaCO3)	mg/L mg/L	27 = 0.5 U	141 = 0.5 U	141 = 0.5 U	127 = 0.5 U	301 = 0.5 U	141 = 0.5 U	129 = 0.5 U	132 = 0.5 U	28 = 0.5 U	185 = 0.5 U	140 = 0.5 U	331 = 0.5 U	32 = 0.5 U	141 = 0.5 U	139 = 0.5 U	115 = 0.5 U
Alkalinity, hydroxide (as CaCO3) Alkalinity, phenolphthalein	mg/L mg/L	0.5 U 0.5 U	0.5 U 0.5 U	0.5 U 0.5 U	0.5 U 0.5 U	0.5 U 0.5 U	0.5 U 0.5 U	0.5 U 0.5 U	0.5 U 0.5 U	0.5 U 0.5 U	0.5 U 0.5 U	0.5 U 0.5 U	0.5 U 0.5 U	0.5 U 0.5 U	0.5 U 0.5 U	0.5 U 0.5 U	0.5 U 0.5 U
CHLORIDE (AS CL) SULFATE (AS SO4)	mg/L mg/L	30.6 = 25.4 =	13 = 2.61 =	12.9 = 2.91 =	26.4 = 21.4 =	30.8 = 24.2 =	13.2 = 4.55 =	13.3 = 4.69 =	26.3 = 30.3 =	29.3 = 25.2 =	12.5 = 4.45 =	12.5 = 3.71 =	24.4 = 30.8 =	28.9 = 25.4 =	12.5 = 3.68 =	12.2 = 3.48 =	24.3 = 33.6 =
Metals ALUMINUM	μg/L	69.9 J	23.4 J	18 J	24 U	83.9 J	15 U	15 U	24.3 U	142 =	15 U	15 U	18.8 J	144 U	24.8 U	29 U	15 U
ANTIMONY ARSENIC	μg/L μg/L	2.3 U 8.41 U	2.3 U 13.2 =	2.3 U 10.5 U	2.3 U 14 =	2.3 U 8.58 U	2.3 U 8.16 =	2.3 U 9.7 =	4.88 J 13.5 =	2.3 U 8.88 U	2.3 U 10.9 =	2.3 U 10.3 =	2.73 J 12.4 U	2.3 U 9.27 U	2.3 U 11 U	2.3 U 10.9 U	2.3 U 10 U
BARIUM BERYLLIUM	μg/L μg/L	1.78 J 0.2 U	6.37 = 0.2 U	6.21 = 0.2 U	5.4 = 0.218 J	5.13 = 0.2 U	5.21 = 0.2 U	5.31 = 0.2 U	5.26 = 0.2 U	7.13 = 0.2 U	5.18 = 0.2 U	5.05 = 0.2 U	5.17 = 0.218 J	11 = 0.2 U	5 = 0.2 U	5.22 = 0.2 U	5.22 = 0.2 U
CADMIUM CALCIUM	μg/L μg/L	0.35 U 14300 =	0.35 U 50300 =	0.35 U 50000 =	0.35 U 51900 =	0.35 U 13600 =	0.35 U 50500 =	0.35 U 51700 =	0.35 U 51800 =	0.35 U 13900 =	0.35 U 51200 =	0.35 U 51400 =	0.35 U 50300 =	0.35 U 13900 =	0.35 U 51100 =	0.35 U 52700 =	0.35 U 50000 =
CHROMIUM, TOTAL COBALT	μg/L μg/L	1.3 U 0.76 U	1.3 U 0.76 U	1.3 U 0.76 U	1.3 U 0.76 U	1.3 U 0.76 U	1.3 U 0.76 U	1.3 U 0.76 U	1.3 U 0.76 U	1.3 U 0.76 U	1.3 U 0.76 U	1.3 U 0.76 U	1.3 U 0.76 U	1.3 U 0.76 U	1.3 U 0.76 U	1.3 U 0.76 U	1.3 U 0.76 U
COPPER IRON LEAD	μg/L μg/L	1.6 J 27.6 U	0.62 U 34.8 U	0.62 U 33.6 U	0.62 U 22.8 U	4.42 U 29.9 J	0.62 U 20.7 J	0.62 U 19.1 J	9.58 = 28.6 J 9.81 =	2.07 U 48.3 J	0.62 U 17.5 J	0.62 U 17.8 J	1.9 U 24.5 J	0.62 U 31.2 U	0.62 U 186 =	0.62 U 80.2 =	0.62 U 12.3 U
MAGNESIUM MANGANESE	μg/L μg/L	2.2 U 2520 = 15.5 =	2.2 U 5350 = 4.36 J	2.2 U 5320 = 4.34 J	2.2 U 6330 = 4.79 J	2.2 U 2520 = 17.2 =	2.2 U 5080 = 4.81 J	2.2 U 5240 = 6.17 =	9.81 = 6170 = 4.88 J	2.2 U 2520 = 16.7 =	2.2 U 5310 = 4.82 J	2.2 U 5320 = 4.77 J	2.2 U 5750 = 4.91 J	2.2 U 2620 = 17.4 =	2.2 U 5200 = 5.36 =	2.2 U 5350 = 5.35 =	2.2 U 5990 = 4.44 J
MERCURY NICKEL	μg/L μg/L μg/L	0.025 U 2.79 J	0.025 U 1.7 U	0.025 U 1.7 U	0.025 U 1.7 U	0.025 U 1.7 U	0.025 U 1.7 U	0.025 U 1.7 U	0.025 U 1.7 U	0.025 U 1.7 U	0.025 U 1.7 U	0.025 U 1.7 U	0.025 U 1.7 U	0.025 U 1.7 U	0.025 U 1.7 U	0.025 U 1.7 U	0.025 U 1.7 U
POTASSIUM SELENIUM	μg/L μg/L	3100 = 2.6 U	1290 = 2.6 U	1250 = 2.6 U	2120 = 2.6 U	3110 = 2.6 UJ	916 = 2.6 U	933 = 2.6 U	2210 = 2.6 UJ	3040 = 2.6 U	914 = 2.6 U	878 = 2.6 U	2010 = 2.6 U	3230 = 2.6 U	829 = 2.6 U	885 = 2.6 U	2360 = 2.6 U
SILVER SODIUM	μg/L μg/L	0.65 U 20100 =	0.65 U 8330 =	0.65 U 8210 =	0.65 U 12600 =	0.65 U 19200 =	0.65 U 7280 =	0.65 U 7390 =	0.65 U 13000 =	0.65 U 19600 =	0.65 U 7130 =	0.65 U 7120 =	0.65 U 12600 =	0.65 U 20100 =	0.65 U 6980 =	0.65 U 7270 =	0.678 J 14200 =
THALLIUM VANADIUM	μg/L μg/L	4.2 U 1.98 J	4.2 U 1.1 U	4.2 U 1.1 U	4.2 U 1.28 J	4.2 U 1.96 J	4.2 U 1.1 U	4.2 U 1.1 U	4.2 U 1.16 J	4.2 U 2.27 J	4.2 U 1.1 U	4.2 U 1.1 U	4.2 U 1.1 U	4.2 U 2.05 J	4.2 U 1.1 U	4.2 U 1.1 U	4.2 U 1.1 U
ZINC Ion Balance	μg/L	13.1 U	0.94 U	0.94 U	4.86 U	3.21 U	0.94 U	7.28 J	14.3 =	4.98 U	3.32 U	0.94 U	4.48 U	4.26 U	0.94 U	0.94 U	3.03 U
Calcium Magnesium	meq/L meq/L	0.72 0.21	2.52 0.45	2.50 0.44	2.60 0.53	0.68 0.21	2.53 0.42	2.59 0.44	2.59 0.51	0.70 0.21	2.56 0.44	2.57 0.44	2.52 0.48	0.70 0.22	2.56 0.43	2.64 0.45	2.50 0.50
Sodium Potassium	meq/L meq/L	0.87 0.08	0.36	0.36 0.03	0.55	0.83	0.32	0.32 0.02	0.57 0.06	0.85	0.31	0.31 0.02	0.55 0.05	0.87 0.08	0.30	0.32 0.02	0.62 0.06
Sum of cations Bicarbonate Carbonate	meq/L meq/L meq/L	1.9 0.54	3.36 2.82	3.33 2.82	3.72 2.54	1.80 0.56	3.29 2.82	3.37 2.58	3.73 2.64	1.83 0.56	3.34 2.74	3.35 2.80	3.59 2.38	1.87 0.64	3.31 2.82	3.42 2.78	3.68 2.30
Carbonate Hydroxide Chloride	meq/L meq/L	0.86	0.37	0.36	0.75	0.87	0.37	0.38	0.74	0.83	0.35	0.35	0.69	0.82	0.35	0.34	0.69
Sulfate Sum of anions	meq/L meq/L	0.53 1.9	0.05 3.24	0.06 3.25	0.45 3.73	0.50 1.93	0.09	0.10 3.05	0.63 4.01	0.53	0.09	0.08 3.23	0.64 3.71	0.53 1.99	0.08 3.25	0.07 3.20	0.70 3.69
Balance (% difference) Radiologicals		1.5%	-1.7%	-1.3%	0.1%	3.6%	0.0%	-4.7%	3.9%	2.1%	-2.2%	-1.7%	1.6%	3.1%	-1.0%	-3.3%	0.1%
Alpha, gross Beta, gross	pCi/L pCi/L	2.36 U 3.64 U	2.47 U 3.77 U	2.45 U 3.68 U	2.61 U 3.98 J	2.08 U 5.58 =	2.49 U 3.82 U	1.69 U 3.83 U	1.94 U 4.77 J	5.07 = 4.96 U	2.51 U 4.11 U	3.09 U 4.36 U	2.61 U 4.15 U	4.55 J 5.53 =	1.63 U 3.77 U	2.32 U 4.97 =	2.89 UJ 4.83 U
Total Petroleum Hydrocarbons PETROLEUM HYDROCARBONS	mg/L	0.358 U	0.349 U	0.349 U	0.356 U	0.349 U	0.34 U	0.34 U	0.358 U	0.12 J	0.34 U	0.34 U	0.34 U	0.12 J	0.368 U	0.368 U	0.354 U
Volatile Organic Compounds ACETONE ACROLEIN	μg/L	10 U 10 UJ	10 U 10 UJ	10 U 10 UJ	10 U	10 U 10 UJ	10 U 10 UJ	10 U 10 UJ	10 U 10 UJ	10 U 10 UJ	10 U 10 UJ	10 U 10 UJ	10 U 10 UJ	10 U 10 UJ	10 U 10 UJ	10 U 10 UJ	10 U 10 UJ
ACRYLONITRILE ALLYL CHLORIDE (3-CHLOROPROPENE)	μg/L μg/L μg/L	10 UJ 5 U 1 U	10 UJ 5 U 1 U	10 UJ 5 U 1 U	5 U	5 U 1 U	5 U	5 U 1 U	10 UJ 5 U 1 U	5 U 1 U	10 UJ 5 U 1 U	10 UJ 5 U 1 U	5 U 1 U	10 UJ 5 U 1 U	5 U	10 UJ 5 U 1 U	10 UJ 5 U 1 U
BENZENE BROMODICHLOROMETHANE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 1 1	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
BROMOFORM BROMOETHANE	μg/L μg/L	1 U 1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U 1 U	1 U	1 U	1 U	1 U 1 U	1 U	1 U	1 U
BHOMOME I HANE CARBON DISULFIDE CARBON TETRACHLORIDE	μg/L μg/L	1 U 1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
CALOROBENZENE CHLOROETHANE	μg/L μg/L	1 U 1 U	1 U 1 U	1 U 1 U 1 U	1 U 1 U	1 U 1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U 1 U	1 U 1 U
CHLOROFORM CHLOROMETHANE	μg/L μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2-CHLORO-1,3-BUTADIENE	μg/L μg/L	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U

			Eve	ent 5			Eve	ent 6			Eve	nt 7			Eve	nt 8	
	Location: Event:	LAKE Event 5	MW-1 Event 5	MW-1 Event 5	MW-2 Event 5	LAKE Event 6	MW-1 Event 6	MW-1 Event 6	MW-2 Event 6	LAKE Event 7	MW-1 Event 7	MW-1 Event 7	MW-2 Event 7	LAKE Event 8	MW-1 Event 8	MW-1 Event 8	MW-2 Event 8
	SJRWMD No.: SampleID:	None LO-04-LAKE	S-0334 LO-04-01	S-0334 LO-04-Dupe	S-0335 LO-04-02	None LO-05-LAKE	S-0334 LO-05-01	S-0334 LO-05-DUPE	S-0335 LO-05-02	None LO-06-LAKE	S-0334 LO-06-01	S-0334 LO-06-DUP	S-0335 LO-06-02	None LO-07-LAKE	S-0334 LO-07-01	S-0334 LO-07-Dupe	S-0335 LO-07-02
	DateCollected: Matrix:	07-Sep-05 Surface Water	08-Sep-05 Groundwater	08-Sep-05 Groundwater	07-Sep-05 Groundwater	05-Oct-05 Surface Water	05-Oct-05 Groundwater	05-Oct-05 Groundwater	05-Oct-05 Groundwater	31-Oct-05 Surface Water	31-Oct-05 Groundwater	31-Oct-05 Groundwater	31-Oct-05 Groundwater	05-Dec-05 Surface Water	05-Dec-05 Groundwater	05-Dec-05 Groundwater	05-Dec-05 Groundwater
Parameter Group and Name	SampleType: Unit	Normal Result Qual	Normal Result Qual	Field Duplicate Result Qual	Normal Result Qual	Normal Result Qual	Normal Result Qual	Field Duplicate Result Qual	Normal Result Qual	Normal Result Qual	Normal Result Qual	Field Duplicate Result Qual	Normal Result Qual	Normal Result Qual	Normal Result Qual	Field Duplicate Result Qual	Normal Result Qual
Field Measurements pH	Std. Units	no data	7.38	7.38	7.35	7.85	7.39	7.39	7.42	8.19	7.40	7.40	7.62	8.03	7.43	7.43	7.39
TEMPERATURE CONDUCTANCE	°C μmhos	no data no data	23.5 217	23.5 217	23.8 311	28.3 231	23.5 310	23.5 310	23.2 306	21.8 176	23.5 298	23.5 298	23.8 319	20.3	23.4 297	23.4 297	23.7 278
TURBIDITY DISSOLVED OXYGEN	NTU mg/L	no data no data	0.75 0.24	0.75 0.24	0.28	5.97 9.38	0.07 0.13	0.07 0.13	1.05 0.21	6.54 7.58	0.15 0.15	0.15 0.15	0.45	10.6 7.69	0.28 0.11	0.28 0.11	0.47 0.41
OXIDATION/REDUCTION POTENTIAL General Chemistry TOTAL DISSOLVED SOLIDS (RESIDUE, FILTERABLE)	mV	no data	-74 115 =	-74 125 =	-143 165 =	no data	-81	-81	-194	2	-85	-85 197 =	-152 259 =	no data	-214 160 =	-214	no data
TURBIDITY DH (laboratory)	mg/L NTU PH UNITS	110 = 2.6 = 7.2 =	0.4 = 7.46 =	0.4 = 7.42 =	0.4 = 7.36 =	2.5 = 7.45 =	1.2 = 7.56 =	231 = 0.4 = 7.58 =	250 = 1.23 = 7.56 =	138 = 3.4 = 7.52 =	0.3 U 7.78 =	0.3 U 7.74 =	1.1 = 7.62 =	2.86 = 7.1 =	0.3 U 7.41 =	174 = 0.3 U 7.66 =	0.3 U 7.49 =
COLOR BIOLOGIC OXYGEN DEMAND, FIVE DAY	COLOR UNIT	7.2 = 45 = 3 J	7.46 = 15 = 2 U	15 = 2 U	7.36 = 15 = 10 U	40 = 3 =	7.56 = 15 = 2 U	7.56 = 15 = 2 U	7.56 = 15 = 2 U	45 = 3 =	7.76 = 15 = 2 U	7.74 = 15 = 2 U	7.62 = 15 = 2 U	40 = 2.6 =	15 = 2 U	7.66 = 15 = 2 U	7.49 = 15 = 2 U
TOTAL ORGANIC CARBON DISSOLVED ORGANIC CARBON	mg/L mg/L	13.1 J 7.5 =	1.93 U 2.34 U	3.41 U 2.65 U	8.98 J 2.59 U	10.6 =	2.18 U 2.28 U	2.21 U 1.97 U	2.37 U 2.46 U	11.1 =	2.79 = 3.01 =	2.96 = 3.27 =	3.02 = 3.19 =	10.6 =	1.78 = 1.86 =	2.15 = 1.75 =	2.63 = 2.04 =
Nutrients TOTAL NITROGEN, ALL FORMS, CALCULATED	mg/L	1.57 =	0.668 =	0.619 =	0.762 =	0.415 U	0.323 U	0.156 U	0.435 U	0.174 =	0.232 =	0.289 =	0.222 =	1.82 =	0.478 U	1.86 =	1.01 =
NITROGEN, AMMONIA (AS N) NITROGEN, KJELDAHL, TOTAL	mg/L mg/L	0.07 J 1.55 =	0.21 =	0.21 = 0.599 =	0.35 = 0.742 =	0.14 = 0.415 U	0.28 = 0.323 U	0.21 = 0.156 U	0.35 = 0.435 U	0.017 UJ 1.14 =	0.0316 J 0.603 =	0.0339 J 0.609 =	0.179 J 0.481 =	0.0322 =	0.108 J 0.478 U	0.114 J 1.86 =	0.474 J 1.01 =
NITROGEN, NITRITE NITROGEN, NITRATE-NITRITE	mg/L mg/L	0.0195 J 0.0201 U	0.0118 U 0.0201 U	0.0118 U 0.0201 U	0.0118 U 0.0201 U	0.0118 U 0.0201 U	0.0118 U 0.0201 U	0.0118 U 0.0201 U	0.0118 U 0.0201 U	0.0118 U 0.0201 U	0.0118 U 0.0201 U	0.0118 U 0.0201 U	0.0118 U 0.0201 U	0.0449 J 0.0201 U	0.0449 J 0.0201 U	0.0449 J 0.0201 U	0.0449 J 0.0201 U
PHOSPHORUS, TOTAL (AS P) PHOSPHORUS, TOTAL ORTHOPHOSPHATE (AS P)	mg/L mg/L	0.114 J 0.017 J	0.235 =	0.217 = 0.133 =	0.305 = 0.172 =	0.217 = 0.027 J	0.254 = 0.137 =	0.322 = 0.141 =	0.258 = 0.197 =	0.017 U 0.014 U	0.097 = 0.15 =	0.017 U 0.147 =	0.08 =	0.12 = 0.02 J	0.174 = 0.142 =	0.165 = 0.126 =	0.171 = 0.202 =
PHOSPHORUS, DISSOLVED (AS P) Anions	mg/L	0.029 J	0.103 =	0.143 =	0.195 =	0.017 U	0.093 =	0.105 =	0.151 =	0.017 U	0.056 =	0.017 U	0.058 =	0.034 J	0.093 =	0.116 =	0.117 =
ALKALINITY, BICARBONATE (AS CaCO3) ALKALINITY, TOTAL (AS CaCO3)	mg/L mg/L	29 = 29 =	150 = 150 =	138 = 138 =	119 = 119 =	27.8 = 27.8 =	138 = 138 =	138 = 138 =	127 = 127 =	28.8 J 28.8 J	141 J 141 J	141 J 141 J	127 J 127 J	42 = 42 =	146 = 146 =	140 = 140 =	136 = 136 =
Alkalinity, carbonate (as CaCO3) Alkalinity, hydroxide (as CaCO3)	mg/L mg/L	0.5 U 0.5 U	0.5 U 0.5 U	0.5 U 0.5 U	0.5 U 0.5 U	0.5 U 0.5 U	0.5 U 0.5 U	0.5 U 0.5 U	0.5 U 0.5 U	0.5 U 0.5 U	0.5 U 0.5 U	0.5 U 0.5 U	0.5 U 0.5 U	0.5 U 0.5 U	0.5 U 0.5 U	0.5 U 0.5 U	0.5 U 0.5 U
Alkalinity, phenolphthalein CHLORIDE (AS CL)	mg/L mg/L	0.5 U 32.6 =	0.5 U 14.5 =	0.5 U 14.1 =	0.5 U 28.5 =	0.5 U 33.9 =	0.5 U 15.2 =	0.5 U 15.4 =	0.5 U 29.7 =	0.5 U 30 =	0.5 U 14.3 =	0.5 U 29.6 =	0.5 U 29.5 =	0.5 U 34.3 =	0.5 U 15.2 =	0.5 U 15.1 =	0.5 U 30.7 =
SULFATE (AS SO4) Metals	mg/L	27.1 =	3.17 =	2.95 =	21.3 =	24.9 =	3.84 =	5.36 =	29.7 =	21.6 =	2.89 =	0.92 J	27.1 =	22.1 =	0.64 J	0.608 J	21.8 =
ALUMINUM ANTIMONY	μg/L μg/L	120 = 2.3 U	17.8 U 2.3 U	15 U 2.3 U	15 U 2.3 U	93.4 J 2.3 U	15 U 2.3 U	15 U 2.3 U	87 J 2.3 U	143 = 2.3 U	49.4 J 2.3 U	223 = 2.3 U	18.3 J 2.3 U	277 = 2.3 U	37.7 J 2.3 U	15 U 2.3 U	19.3 J 2.3 U
ARSENIC BARIUM	μg/L μg/L	6.96 U 9.03 =	13.2 = 5 =	11.5 = 4.98 J	14.9 = 5.25 =	11.8 U 6.91 =	15.3 = 5.24 =	19.1 = 5.16 =	17.1 = 5.32 =	8.05 U 9.31 =	14.9 = 5.39 =	14.2 = 5.42 =	9.85 U 5.69 =	7.03 = 11.9 =	12.4 = 5.12 =	12.8 = 5.02 =	8.88 = 6.47 =
BERYLLIUM CADMIUM	μg/L μg/L	0.2 U 0.35 U	0.2 U 0.35 U	0.2 U 0.35 U	0.2 U 0.35 U	0.2 U 1.32 U	0.2 U 3.38 J	0.2 U 3.6 J	0.2 U 3.7 J	0.2 U 0.35 U	0.2 U 1.7 J	0.2 U 0.902 J	0.2 U 0.664 J	0.2 U 0.35 U	0.2 U 0.35 U	0.2 U 0.35 U	0.2 U 0.35 U
CALCIUM CHROMIUM, TOTAL	μg/L μg/L	13500 = 1.3 U	52300 = 1.3 U	52300 = 1.3 U	50400 = 1.3 U	12900 = 1.77 J	50000 = 2.89 J	49800 = 2.7 J	53800 = 3.27 J	13300 = 1.3 U	52100 = 1.91 J	51800 = 2.21 J	51100 = 2.15 J	14400 = 2.17 J	51500 = 3.73 J	50100 = 3.54 J	52500 = 3.22 J
COBALT COPPER	μg/L μg/L	0.76 U 1.31 J	0.76 U 0.956 U	0.76 U 0.62 U	0.76 U 2.78 J	0.76 U 0.76 J	0.76 U 0.62 U	0.76 U 0.62 U	0.76 U 0.984 J	0.76 U 1.59 U	0.76 U 0.879 U	0.76 U 0.62 U	0.76 U 3.07 U	0.76 U 2.82 U	0.76 U 2.35 U	0.76 U 0.62 U	0.76 U 1.4 U
IRON LEAD	μg/L μg/L	24.7 J 2.2 U	28.3 U 2.2 U	26.5 U 2.2 U	41.2 J 2.2 U	20.6 J 2.2 U	29.1 J 2.2 U	29 J 2.2 U	78.6 = 2.2 U	59.5 = 2.2 U	22.7 J 2.2 U	62.3 = 2.2 U	38.9 J 2.2 U	33.2 J 2.2 U	23.4 J 5.15 =	19.1 J 2.51 J	13.9 J 2.2 U
MAGNESIUM MANGANESE	μg/L μg/L	2650 = 14.4 =	5310 = 5.24 U	5310 = 5.14 U	5470 = 4.87 J	2570 = 13.1 =	5180 = 4.85 J	5140 = 4.77 J	5760 = 5.48 =	2520 = 14 =	5390 = 4.8 J	5350 = 5.07 =	5980 = 4.51 J	2620 = 11.2 =	5260 = 4.56 J	5150 = 4.41 J	6490 = 4.67 J
MERCURY NICKEL	μg/L μg/L	0.025 U 1.7 U	0.025 U 1.7 U	0.025 U 1.7 U	0.025 U 1.7 U	0.025 U 1.7 U	0.025 U 2.61 J	0.025 U 1.7 U	0.0808 U 1.7 U	0.0262 J 1.7 U	0.025 U 1.84 J	0.025 U 2.08 J	0.025 U 1.7 U	0.025 U 1.7 U	0.025 U 1.88 J	0.025 U 1.7 U	0.025 U 1.7 U
POTASSIUM SELENIUM	μg/L μg/L	3310 = 2.6 U	1010 = 13 U	969 = 2.6 U	2300 = 2.6 U	3100 = 2.6 U	857 = 2.6 U	925 = 2.6 U	2070 = 2.6 U	3120 = 2.6 U	1010 = 13 U	980 = 13 U	2180 = 2.6 U	3220 = 6.01 U	1040 = 27.3 =	995 = 24.7 =	2100 = 23.8 =
SILVER SODIUM	μg/L μg/L	0.65 U 20900 =	0.65 U 8130 =	0.65 U 7590 =	0.65 U 14400 =	0.65 U 19500 =	0.65 U 6910 =	0.65 U 7080 =	0.65 U 13000 =	0.65 U 19300 =	0.65 U 7510 =	0.65 U 7410 =	0.65 U 12500 =	0.65 U 20100 =	0.722 U 7460 =	0.65 U 7230 =	0.65 U 13100 =
THALLIUM VANADIUM	μg/L μg/L	4.2 U 2.42 J	4.2 U 1.1 U	4.2 U 1.1 U	4.2 U 1.3 J	4.2 U 1.94 J	4.2 U 1.1 U	4.2 U 1.1 U	4.2 U 1.1 U	4.2 U 2.35 J	4.2 U 1.1 U	4.2 U 1.1 U	4.2 U 1.1 U	4.2 U 2.57 J	4.2 U 1.1 U	4.2 U 1.1 U	4.2 U 1.42 J
ZINC Ion Balance	μg/L	3.51 J	0.94 U	0.94 U	5.43 J	1.75 J	0.94 UJ	0.94 UJ	0.94 UJ	16.6 =	6.2 J	7.48 J	10.3 =	13.2 =	0.94 U	0.94 U	0.94 U
Calcium Magnesium	meq/L meq/L	0.68 0.22	2.62 0.44	2.62 0.44	2.52 0.46	0.65 0.21	2.50 0.43	2.49 0.43	2.69 0.48	0.67 0.21	2.61 0.45	2.59 0.45	2.56 0.50	0.72 0.22	2.58 0.44	2.51 0.43	2.63 0.54
Sodium Potassium	meq/L meq/L	0.91 0.08	0.35	0.33 0.02	0.63 0.06	0.85 0.08	0.30 0.02	0.31 0.02	0.57 0.05	0.84	0.33	0.32 0.03	0.54 0.06	0.87 0.08	0.32	0.31 0.03	0.57 0.05
Sum of cations Bicarbonate Carbonate	meq/L meq/L	1.89 0.58	3.44 3.00	3.41 2.76	3.66 2.38	1.79 0.56	3.25 2.76	3.25 2.76	3.79 2.54	1.79 0.58	3.41 2.82	3.38 2.82	3.65 2.54	1.89 0.84	3.36 2.92	3.27 2.80	3.79 2.72
Carbonate Hydroxide	meq/L meq/L	0.92	0.41	0.40	0.81	0.96	0.43	0.44	0.84	0.85	0.40	0.84	0.03	0.97	0.43	0.43	0.87
Chloride Sulfate Sum of anions	meq/L meq/L meq/L	0.92 0.56 2.07	0.41 0.07 3.48	0.40 0.06 3.22	0.81 0.44 3.63	0.96 0.52 2.03	0.43 0.08 3.27	0.44 0.11 3.31	0.84 0.62 4.00	0.85 0.45 1.87	0.40 0.06 3.28	0.84 0.02 3.68	0.83 0.56 3.94	0.97 0.46 2.27	0.43 0.01 3.36	0.43 0.01 3.24	0.87 0.45 4.04
Balance (% difference) Radiologicals	шефс	4.7%	0.6%	-2.8%	-0.4%	6.9%	0.2%	0.9%	2.8%	2.2%	-1.8%	4.3%	3.9%	9.9%	0.0%	-0.5%	3.3%
Alpha, gross Beta, gross	pCi/L pCi/L	2.73 J 5.26 U	1.77 U 4.3 U	1.21 U 3.66 U	3.52 U 4.73 U	4.17 J 5.02 =	2.53 U 4.57 U	1.72 U 3.56 U	3.77 U 4.83 U	2.87 J 4.63 U	4.04 U 4.66 U	2.23 U 4.51 U	1.98 J 4.39 U	2.89 U 5.19 =	2.68 U 4.48 U	2.84 U 4.5 U	1.91 U 4.18 U
Total Petroleum Hydrocarbons PETROLEUM HYDROCARBONS	mg/L	0.358 U	0.34 U	0.349 UJ	0.349 U	0.349 U	0.34 U	0.349 U	0.349 U	0.349 U	0.358 U	0.349 U	0.349 U	0.349 U	0.358 UJ	0.349 U	0.349 UJ
Volatile Organic Compounds ACETONE	μg/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	9.4 J	10 U	10 U	10 U	10 U	10 U
ACROLEIN ACRYLONITRILE	μg/L μg/L	10 U 5 U	10 U	10 U 5 U	10 U	10 U 5 U	10 U	10 U 5 U	10 U	10 U 5 U	10 U	10 U 5 U	10 U	10 UJ 4 U	10 UJ 4 U	10 UJ 4 U	10 UJ 4 U
ALLYL CHLORIDE (3-CHLOROPROPENE) BENZENE	μg/L μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U 1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
BROMODICHLOROMETHANE BROMOFORM	μg/L μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 1 1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
BROMOMETHANE CARBON DISULFIDE	μg/L μg/L	1 UJ 1 U	1 UJ	1 UJ	1 UJ	1 U	1 U	1 1 1 1	1 U	1 U	1 U	1 1 1 II	1 U	1 U	1 U	1 1 1 1	1 U
CARBON TETRACHLORIDE CHLOROBENZENE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
CHLOROEDHANE CHLOROFORM	μg/L μg/L	1 U 1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U 1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
CHLOROMETHANE	μg/L μg/L	1 U	1 U	1 U	1 U	1 U 1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2-CHLORO-1,3-BUTADIENE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U

Location: LAKE Event: Event 1 SJRWMD No.: None	Event 1 MW-1 MW-1 MW-1 Event 1 Event 1 Event 1		Event 2 MW-1 MW-2	LAKE MW-1	MW-1 MW-2	Event 4 LAKE MW-1 MW-1 MW-2
						LAIL IVIV-1 IVIV-2
S.IRWMD No. 1 None			Event 2 Event 2	Event 3 Event 3	Event 3 Event 3	Event 4 Event 4 Event 4 Event 4
	S-0334 S-0334 S-03 0-00-MW1 L0-00-Dupe L0-00-N		S-0334 S-0335 L0-01-Dup L0-01-MW-2	None S-0334 L0-02-LAKE L0-01-MW-1	S-0334 S-0335 L0-01-DUPE L0-02-MW2	None S-0334 S-0334 S-0335 LO-03-Lake LO-03-MW1 LO-03-Dup LO-03-MW-
DateCollected: 13-Jul-05	13-Jul-05 13-Jul-05 12-Jul	05 20-Jul-05 21-Jul-05	21-Jul-05 20-Jul-05	27-Jul-05 28-Jul-05	28-Jul-05 27-Jul-05	08-Aug-05 09-Aug-05 09-Aug-05 08-Aug-05
Matrix: Surface Water Gi SampleType: Normal	roundwater Groundwater Ground Normal Field Duplicate Norm		Groundwater Groundwater Field Duplicate Normal	Surface Water Groundwater Normal Normal	Groundwater Groundwater Field Duplicate Normal	Surface Water Groundwater Groundwater Groundwater Groundwater Groundwater Normal Field Duplicate Normal
Parameter Group and Name Unit Result Qual Result cis-1,2-DICHLOROETHYLENE μg/L 1 U	ult Qual Result Qual Result	Qual Result Qual Result Qu	al Result Qual Result Qual	Result Qual Result Qual F	Result Qual Result Qual	Result Qual Result Qua
cis-1,3-DICHLOROPROPENE µg/L 1 U	1 U 1 U 1 L	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U 1 U 1 U
DIBROMOCHLOROMETHANE μg/L 1 U DICHLORODIFLUOROMETHANE μg/L 1 U	1 U 1 U 1 L	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U 1 U 1 U 1 U
1,1-DICHLOROETHANE µg/L 1 U	1 U 1 U 1 L	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U 1 U
1,1-DICHLOROETHENE	1 U 1 U 1 L	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U 1 U 1 U 1 U
1,2-DICHLOROBENZENE µg/L 1 U	1 U 1 U 1 L	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U 1 U
1,2-DICHLOROETHANE	10 10	1 U 1 U	1 U 1 U	1 U 1 U	1 0 1 0	1 U 1 U 1 U 1 U 1 U
1,2-DICHLOROPROPANE	1 U 1 U 1 L	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U 1 U 1 U
1,4-DICHLOROBENZENE µg/L 1 U	10 10	1 U 1 U	1 U 1 U	1 U 1 U	10 10	1 U 1 U 1 U
ETHYLBENZENE μg/L 1 U 2-HEXANONE μg/L 5 U	1 U 1 U 1 L 5 U 5 U 5 U	1 U 1 U 5 U	1 U 1 U 5 U	1 U 1 U	1 U 1 U 5 U	1 U 1 U 1 U 1 U 1 U 5 U 5 U
IODOMETHANE (METHYL IODIDE) μg/L 2 U	2 U 2 U 2 L 1 U 1 U 1 U	2 U 2 U 1 U 1 U	2 U 2 U 1 U	2 U 2 U	2 U 2 U 1 U	2 U 2 U 2 U 2 U
STYRENE µg/L 1 U	1 U 1 U 1 L	1 U 1 U	1 U 1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U 1 U 1 U 1 U 1 U
TETRACHLOROETHYLENE(PCE) μg/L 1 U TOLUENE μg/L 1 U	1 U 1 U 1 L	1 U 1 U	1 U 1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U 1 U 1 U 1 U
trans-1,2-DICHLOROETHENE µg/L 1 U	1 U 1 U 1 L	1 U 1 U 1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 UJ 1 UJ 1 U
trans-1,3-DICHLOROPROPENE µg/L 1 U trans-1,4-DICHLORO-2-BUTENE µg/L 4 U	1 U 1 U 1 L	1 U 1 U 4 U 4 U	1 U 1 U 4 U	1 U 1 U 4 UJ 4 UJ	1 U 1 U 4 UJ	1 U 1 U 1 U 1 U 1 U 4 UJ 4 UJ 4 UJ
TRICHLOROETHYLENE (TCE) µg/L 1 U	1 U 1 U 1 L	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U 1 U
TRICHLOROFLUOROMETHANE μg/L 1 U 1,1,1-TRICHLOROETHANE μg/L 1 U	1 U 1 U 1 L	1 U 1 U	1 U 1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U 1 U 1 U 1 U
1,1,2,2-TETRACHLOROETHANE μg/L 1 U	1 U 1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U 1 U 1 U
1,2,3-TRICHLOROPROPANE μg/L 1 U VINYL ACETATE μg/L 2 U	1 U 1 U 1 L 2 U 2 U 2 U	1 U 1 U 2 U	1 U 1 U 2 U	1 U 1 U	1 U 1 U 2 U	1 U 1 U 1 U 1 U 1 U 2 U 2 U 2 U
VINYL CHLORIDE µg/L 1 U	1 U 1 U 1 L	1 UJ 1 U	1 U 1 UJ	1 U 1 U	1 U 1 U	1 U 1 U 1 U
M,P-XYLENE (SUM OF ISOMERS) μg/L 2 U O-XYLENE (1,2-DIMETHYLBENZENE) μg/L 1 U	2 U 2 U 2 L	2 U 2 U	2 U 2 U 1 U	2 U 2 U	2 U 2 U 1 U	2 U 2 U 2 U 2 U 2 U 1 U 1 U 1 U
XYLENES, TOTAL μg/L 2 U	2 U 2 U 2 L	2 U 2 U	2 U 2 U	2 U 2 U	2 U 2 U	2 U 2 U 2 U
Semi-volatile Organic Compounds ACETOPHENONE μg/L 4.3 UJ	4.2 UJ 4.2 UJ 4 L	4.2 UJ 4 U	4 U 4.2 UJ	4 U 4 U	4 U 4 U	4.2 U 4.1 U 4.1 U 4.2 U
ANILINE (PHENYLAMINE, AMINOBENZENE) µg/L 4.3 UJ	4.2 UJ 4.2 UJ 4 L	4.2 UJ 4 U	4 U 4.2 UJ	4 U 4 U	4 U 4 U	4.2 U 4.1 U 4.1 U 4.2 U
ARAMITE μg/L 4.3 UJ 4-AMINOBIPHENYL (4-BIPHENYLAMINE) μg/L 4.3 UJ	4.2 UJ 4.2 UJ 4 L 4.2 UJ 4.2 UJ 4 L	4.2 UJ 4 R 4.2 UJ 4 U	4 R 4.2 UJ 4.2 UJ 4.2 UJ	4 UJ 4 UJ 4 U	4 UJ 4 UJ 4 U	4.2 U 4.1 U 4.1 U 4.2 U 4.2 U 4.1 U 4.1 U 4.2 U
2-ACETYLAMINOFLUORENE µg/L 4.3 UJ 2-AMINONAPHTHALENE (BETA NAPHTHYLAMINE) µg/L 4.3 UJ	4.2 UJ 4.2 UJ 4 U 4.2 UJ 4.2 UJ 4 U	4.2 UJ 4 UJ 4.2 UJ 4 U	4 UJ 4.2 UJ 4 U 4.2 UJ	4 UJ 4 UJ 4 U 4 U	4 UJ 4 UJ 4 U	4.2 U 4.1 UJ 4.1 UJ 4.2 U 4.2 U 4.1 U 4.1 U 4.2 U
	4.2 UJ 4.2 UJ 5 F	4.2 UJ 4 U 10.5 UJ 10 UJ	4 U 4.2 UJ 10 UJ 10.5 UJ	10 U 10 U	10 U 10 U	4.2 U 4.1 U 4.1 U 4.2 U 10.5 UJ 10.2 U 10.2 U 10.5 UJ
BENZYL BUTYL PHTHALATE μg/L 4.3 UJ 4-BROMOPHENYL PHENYL ETHER μg/L 4.3 UJ	4.2 UJ 4.2 UJ 4 L 4.2 UJ 4.2 UJ 4 L	4.2 UJ 4 U 4.2 UJ 4 U	4 U 4.2 UJ 4 U 4.2 UJ	4 U 4 U	4 U 4 U	4.2 U 4.1 U 4.1 U 4.2 U 4.2 U 4.1 U 4.1 U 4.2 U
4-CHLOROANILINE µg/L 4.3 UJ	4.2 UJ 4.2 UJ 4 L	4.2 UJ 4 U	4 U 4.2 UJ	4 U 4 U	4 U 4 U	4.2 UJ 4.1 U 4.1 U 4.2 UJ
4-CHLOROPHENYL PHENYL ETHER μg/L 4.3 UJ 2-CHLORONAPHTHALENE μg/L 4.3 UJ	4.2 UJ 4.2 UJ 4 L 4.2 UJ 4.2 UJ 4 L	4.2 UJ 4 U 4.2 UJ 4 U	4 U 4.2 UJ 4 U 4.2 UJ	4 U 4 U 4 U	4 U 4 U	4.2 U 4.1 U 4.1 U 4.2 U 4.2 U 4.1 U 4.1 U 4.2 U
2-CHLOROPHENOL µg/L 4.3 UJ	4.2 UJ 4.2 UJ 2 L	4.2 UJ 4 UJ	4 UJ 4.2 UJ	4 U 4 U	4 U 4 U	4.2 U 4.1 U 4.1 U 4.2 U
1,3-DINITROBENZENE μg/L 21.6 UJ 2,4-DICHLOROPHENOL μg/L 4.3 UJ	21 UJ 21 UJ 20 U 4.2 UJ 4.2 UJ 2 U	21 UJ 20 U 4.2 UJ 4 UJ	20 U 21 UJ 4 UJ 4.2 UJ	20 UJ 20 U 4 U 4 U	20 U 20 UJ 4 U 4 U	21 U 20.5 U 20.5 U 21 U 4.2 UJ 4.1 U 4.1 U 4.2 UJ
2,6-DICHLOROPHENOL µg/L 4.3 UJ	4.2 UJ 4.2 UJ 2 U 4.2 UJ 4.2 UJ 2 U	4.2 UJ 4 UJ	4 UJ 4.2 UJ	4 UJ 4 UJ 4 U 4 U	4 UJ 4 UJ 4 U 4 U	4.2 U 4.1 U 4.1 U 4.2 U 4.2 U 4.1 U 4.1 U 4.2 U
2,4-DIMETHYLPHENOL μg/L 4.3 UJ 2,4-DINITROPHENOL μg/L 21.6 UJ	21 UJ 21 UJ 10 U	4.2 UJ 4 UJ 21 UJ 20 UJ	4 UJ 4.2 UJ 20 UJ 21 UJ	20 U 20 U	20 U 20 U	21 U 20.5 U 20.5 U 21 U
	4.2 UJ 4.2 UJ 4 U 4.2 UJ 4.2 UJ 4 U	4.2 UJ 4 U 4.2 UJ 4 U	4 U 4.2 UJ 4 U 4.2 UJ	4 U 4 U	4 U 4 U	4.2 R 4.1 UJ 4.1 UJ 4.2 U 4.2 U 4.1 U 4.1 U 4.2 U
	4.2 UJ 4.2 UJ 4 U	4.2 UJ 4 U	4 U 4.2 UJ	4 U 4 U	40 40	4.2 U 4.1 U 4.1 U 4.2 U
bis(2-CHLOROISOPROPYL) ETHER μg/L 4.3 UJ CHLOROBENZILATE μg/L 4.3 UJ	4.2 UJ 4.2 UJ 4 U 4.2 UJ 4.2 UJ 4.1 F	4.2 UJ 4 U 4.2 UJ 4 R	4 U 4.2 UJ 4 R 4.2 UJ	4 U 4 U	4 U 4 U 4 U	4.2 U 4.1 U 4.1 U 4.2 U 4.2 U 4.1 U 4.1 U 4.2 U
DIALLATE μg/L 4.3 UJ	4.2 UJ 4.2 UJ 4 L	4.2 UJ 4 U	4 U 4.2 UJ	4 U 4 U	4 U 4 U	4.2 U 4.1 U 4.1 U 4.2 U
DIBENZOFURAN μg/L 4.3 UJ DIETHYL PHTHALATE μg/L 4.3 UJ	4.2 UJ 4.2 UJ 4 L 4.2 UJ 4.2 UJ 4.1 F	4.2 UJ 4 U 4.2 UJ 4 R	4 U 4.2 UJ 4 R 4.2 UJ	4 U 4 U 4 U 4 U	4 U 4 U 4 U	4.2 U 4.1 U 4.1 U 4.2 U 4.2 U 4.1 U 4.1 U 4.2 U
DIMETHYL PHTHALATE µg/L 4.3 UJ	4.2 UJ 4.2 UJ 4.1 F	4.2 UJ 4 R	4 R 4.2 UJ	4 U 4 U	4 U 4 U	4.2 U 4.1 U 4.1 U 4.2 U
	21 UJ 21 UJ 20 U 4.2 UJ 4.2 UJ 4 U	21 UJ 20 U 4.2 UJ 4 U	20 U 21 UJ 4 U 4.2 UJ	20 UJ 20 UJ 4 U 4 U	20 UJ 20 UJ 4 U 4 U	21 R 20.5 R 20.5 R 21 R 4.2 U 4.1 U 4.1 U 4.2 U
p-DIMETHYLAMINOAZÓBENZENE µg/L 4.3 UJ	4.2 UJ 4.2 UJ 4 L	4.2 UJ 4 U	4 U 4.2 UJ	4 UJ 4 UJ	4 UJ 4 UJ 4 U 4 U	4.2 U 4.1 U 4.1 U 4.2 U
3,3'-DIMETHYLBENZIDINE µg/L 21.6 UJ	4.2 UJ 4.2 UJ 4 U 21 UJ 21 UJ 20 U	21 UJ 20 U	4 U 4.2 UJ 20 U 21 UJ	4 U 4 U 20 UJ 20 UJ	20 UJ 20 UJ	4.2 U 4.1 U 4.1 U 4.2 U 21 U 20.5 U 20.5 U 21 U
ETHYL METHANESULFONATE μg/L 4.3 UJ	4.2 UJ 4.2 UJ 4 U 4.2 UJ 4.2 UJ 4 U	4.2 UJ 4 U 4.2 UJ 4 U	4 U 4.2 UJ 4 U 4.2 UJ	4 U 4 U 4 U 4 U	4 U 4 U 4 U	4.2 U 4.1 U 4.1 U 4.2 U 4.2 U 4.1 U 4.1 U 4.2 U
ISODRIN µg/L 4.3 UJ	4.2 UJ 4.2 UJ 4 L	4.2 UJ 4 U	4 U 4.2 UJ	4 U 4 U	4 U 4 U	4.2 U 4.1 U 4.1 U 4.2 U
ISOPHORONE μg/L 4.3 UJ	4.2 UJ 4.2 UJ 4 U 4.2 UJ 4.2 UJ 4 U	4.2 UJ 4 U 4.2 UJ 4 U	4 U 4.2 UJ 4 U 4.2 UJ	4 U 4 U 4 U 4 U	4 U 4 U 4 U	4.2 U 4.1 U 4.1 U 4.2 U 4.2 U 4.1 U 4.1 U 4.2 U
KEPONE μg/L 4.3 UJ	4.2 UJ 4.2 UJ 4 L	4.2 UJ 4 UJ	4 UJ 4.2 UJ	4 UJ 4 UJ	4 UJ 4 UJ	4.2 U 4.1 U 4.1 U 4.2 U
METHAPYRILENE μg/L 4.3 UJ METHYL METHANESULFONATE μg/L 21.6 UJ	4.2 UJ 4.2 UJ 4 L 21 UJ 21 UJ 20 U	4.2 UJ 4 UJ 21 UJ 20 U	4 UJ 4.2 UJ 20 U 21 UJ	4 U 4 U 20 U 20 U	4 U 4 U 20 U 20 U	4.2 U 4.1 U 4.1 U 4.2 U 21 U 20.5 U 20.5 U 21 U
2-METHYLNAPHTHALENE μg/L 4.3 UJ	4.2 UJ 4.2 UJ 4 L	4.2 UJ 4 U	4 U 4.2 UJ	4 U 4 U	4 U 4 U	4.2 U 4.1 U 4.1 U 4.2 U
2-METHYLPHENOL (ο-CRESOL) μg/L 4.3 UJ 3-METHYLCHOLANTHRENE μg/L 4.3 UJ	4.2 UJ 4.2 UJ 2 U 4.2 UJ 4.2 UJ 4 U	4.2 UJ 4 UJ 4.2 UJ 4 UJ	4 UJ 4.2 UJ 4 UJ 4.2 UJ	4 U 4 U 4 U 4 U	4 U 4 U	4.2 U 4.1 U 4.1 U 4.2 U 4.2 U 4.1 U 4.1 U 4.2 U
4-METHYLPHENOL (p-CRESOL) µg/L 10.8 UJ 1	10.5 UJ 10.5 UJ 5 L	10.5 UJ 10 UJ	10 UJ 10.5 UJ	10 U 10 U	10 U 10 U	10.5 U 10.2 U 10.2 U 10.5 U
1,4-NAPHTHOQUINONE μg/L 4.3 UJ 1-NAPHTHYLAMINE μg/L 10.8 UJ 1	4.2 UJ 4.2 UJ 4.1 F 10.5 UJ 10.5 UJ 10 U	4.2 UJ 4 R 10.5 UJ 10 U	4 R 4.2 UJ 10 U 10.5 UJ	4 UJ 4 UJ 10 U 10 U	4 UJ 4 UJ 10 U 10 U	4.2 U 4.1 UJ 4.1 UJ 4.2 U 10.5 U 10.2 U 10.2 U 10.5 U
2-NITROANILINE µg/L 4.3 UJ	4.2 UJ 4.2 UJ 4 U	4.2 UJ 4 U	4 U 4.2 UJ	4 U 4 U	4 U 4 U	4.2 U 4.1 UJ 4.1 UJ 4.2 U
3-NITROANILINE μg/L 4.3 UJ 4-NITROANILINE μg/L 4.3 UJ	4.2 UJ 4.2 UJ 4 L 4.2 UJ 4.2 UJ 4 L	4.2 UJ 4 U 4.2 UJ 4 U	4 U 4.2 UJ 4 U 4.2 UJ	4 U 4 U	4 U 4 U	4.2 U 4.1 UJ 4.1 UJ 4.2 U 4.2 U 4.1 U 4.1 U 4.2 U
4-NITROQUINOLINE-N-OXIDE μg/L 21.6 UJ	21 UJ 21 UJ 20 U 4.2 UJ 4.2 UJ 4 U	21 UJ 20 UJ 4.2 UJ 4 U	20 UJ 21 UJ 4 U 4.2 UJ	20 UJ 20 UJ 4 UJ 4 UJ	20 UJ 20 UJ 4 UJ 4 UJ	21 U 20.5 U 20.5 U 21 U
N-NITROSO-DI-N-BUTYLAMINE µg/L 4.3 UJ	4.2 UJ 4.2 UJ 4 L	4.2 UJ 4 U	4 U 4.2 UJ	4 U	4 U 4 U	4.2 U 4.1 U 4.1 U 4.2 U
	4.2 UJ 4.2 UJ 4 U 4.2 UJ 4.2 UJ 4 U	4.2 UJ 4 U 4.2 UJ 4 U	4 U 4.2 UJ 4 U 4.2 UJ	4 U 4 U	4 U 4 U	4.2 U 4.1 U 4.1 U 4.2 U 4.2 U 4.2 U
	4.2 UJ 4.2 UJ 4 L	4.2 UJ 4 U	4 U 4.2 UJ	4 U 4 U	4 U 4 U	4.2 U 4.1 U 4.1 U 4.2 U

			Eve	ent 5			Eve	ent 6			E	Event 7			Eve	ent 8	
	Location:	LAKE	MW-1	MW-1	MW-2	LAKE	MW-1	MW-1	MW-2	LAKE	MW-1	MW-1	MW-2	LAKE	MW-1	MW-1	MW-2
	Event: SJRWMD No.:	Event 5 None	Event 5 S-0334	Event 5 S-0334	Event 5 S-0335	Event 6 None	Event 6 S-0334	Event 6 S-0334	Event 6 S-0335	Event 7 None	S-0334	Event 7 S-0334	Event 7 S-0335	Event 8 None	Event 8 S-0334	Event 8 S-0334	Event 8 S-0335
	SampleID:	LO-04-LAKE	LO-04-01	LO-04-Dupe	LO-04-02	LO-05-LAKE	LO-05-01	LO-05-DUPE	LO-05-02	LO-06-LAKE	LO-06-01	LO-06-DUP	LO-06-02	LO-07-LAKE	LO-07-01	LO-07-Dupe	LO-07-02
	DateCollected: Matrix:	07-Sep-05 Surface Water	08-Sep-05 Groundwater	08-Sep-05 Groundwater	07-Sep-05 Groundwater	05-Oct-05 Surface Water	05-Oct-05 Groundwater	05-Oct-05 Groundwater	05-Oct-05 Groundwater	31-Oct-05 Surface Water	31-Oct-05 Groundwater	31-Oct-05 Groundwater	31-Oct-05 Groundwater	05-Dec-05 Surface Water	05-Dec-05 Groundwater	05-Dec-05 Groundwater	05-Dec-05 Groundwater
Parameter Group and Name	SampleType: Unit	Normal Result Qual	Normal Result Qual	Field Duplicate Result Qual	Normal Result Qual	Normal Result Qual	Normal Result Qual	Field Duplicate Result Qual	Normal Result Qual	Normal Result Qual	Normal Result Qual	Field Duplicate Result Qual	Normal Result Qual	Normal Result Qual	Normal Result Qual	Field Duplicate Result Qual	Normal Result Qual
cis-1,2-DICHLOROETHYLENE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,3-DICHLOROPROPENE DIBROMOCHLOROMETHANE	μg/L μg/L	1 U	1 U	1 U 1 U	1 U 1 U	1 U	1 U	1 U 1 U	1 U	1 U	1 U 1 U	1 U 1 U	1 U	1 U	1 U	1 U 1 U	1 U
DICHLORODIFLUOROMETHANE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-DICHLOROETHANE 1,1-DICHLOROETHENE	μg/L μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-DICHLOROBENZENE 1,2-DICHLOROETHANE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ 1 U	1 UJ	1 UJ	1 UJ
1,2-DICHLOROPROPANE	μg/L μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 1 U	1 U	1 U	1 U	1 1 U	1 U
1,3-DICHLOROBENZENE 1,4-DICHLOROBENZENE	μg/L	1 U	1 U	1 U	1 U	1 U 1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U 1 UJ	1 U	1 U	1 U
ETHYLBENZENE	μg/L μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2-HEXANONE	μg/L	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
IODOMETHANE (METHYL IODIDE) METHYLENE CHLORIDE	μg/L μg/L	2 UJ 1 U	2 UJ 1 U	2 UJ 1 U	2 UJ 1 U	2 U 1 U	2 U 1 U	2 U 1 U	2 U 1 U	2 U 1 U	2 U 1 U	2 U 1 U	2 U 1 U	2 U 1 U	2 U 1 U	2 U 1 U	2 U 1 U
STYRENE TETRACHI ODOETHVI ENE/DCE)	μg/L	1 U 1 U	1 U 1 U	1 U	1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U	1 U	1 U	1 U	1 U	1 U 1 U	1 U	1 U 1 U	1 U
TETRACHLOROETHYLENE(PCE) TOLUENE	μg/L μg/L	1 U	1 U	1 U 1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U 1 U	1 U	1 U	1 U	1 U	1 U
trans-1,2-DICHLOROETHENE trans-1,3-DICHLOROPROPENE	μg/L	1 U 1 U	1 U 1 U	1 U 1 U	1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U	1 U	1 U	1 U 1 U	1 U	1 U 1 U	1 U	1 U 1 U	1 U
trans-1,4-DICHLORO-2-BUTENE	μg/L μg/L	4 UJ	4 UJ	4 UJ	4 UJ	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U
TRICHLOROETHYLENE (TCE) TRICHLOROFLUOROMETHANE	μg/L μg/L	1 U 1 U	1 U 1 U	1 U 1 U	1 U	1 U 1 U	1 U 1 U	1 U 1 U	1 U	1 U	1 U	1 U 1 U	1 U	1 U 1 U	1 U	1 U 1 U	1 U
1,1,1-TRICHLOROETHANE	μg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2,2-TETRACHLOROETHANE 1,2,3-TRICHLOROPROPANE	μg/L μg/L	1 UJ 1 UJ	1 UJ	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
VINYL ACETATE	μg/L	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
VINYL CHLORIDE	μg/L	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
M,P-XYLENE (SUM OF ISOMERS) O-XYLENE (1,2-DIMETHYLBENZENE)	μg/L μg/L	2 U 1 U	2 U 1 U	2 U 1 U	2 U 1 U	2 U 1 U	2 U 1 U	2 U 1 U	2 U 1 U	2 U 1 U	2 U 1 U	2 U 1 U	2 U 1 U	2 U 1 U	2 U 1 U	2 U 1 U	2 U 1 U
XYLENES, TOTAL Semi-volatile Organic Compounds	μg/L	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
ACETOPHENONE	μg/L	4 U	4.1 U	4.1 U	4.2 U	4.1 U	4.1 U	4.1 U	4.1 U	4 U	4.2 U	4.2 U	4.1 U	4.1 U	4.2 U	4.4 U	4 U
ANILINE (PHENYLAMINE, AMINOBENZENE) ARAMITE	μg/L μg/L	4 U 4 U	4.1 UJ 4.1 U	4.1 UJ 4.1 U	4.2 U 4.2 U	4.1 U 4.1 UJ	4.1 U 4.1 UJ	4.1 U 4.1 UJ	4.1 U 4.1 UJ	4 UJ 4 U	4.2 UJ 4.2 U	4.2 UJ 4.2 U	4.1 UJ 4.1 U	4.1 UJ 4.1 UJ	4.2 UJ 4.2 UJ	4.4 UJ 4.4 UJ	4 UJ 4 UJ
4-AMINOBIPHENYL (4-BIPHENYLAMINE)	μg/L	4 U	4.1 U	4.1 U	4.2 U	4.1 U	4.1 U	4.1 U	4.1 U	4 U	4.2 U	4.2 U	4.1 U	4.1 U	4.2 U	4.4 U	4 U
2-ACETYLAMINOFLUORENE 2-AMINONAPHTHALENE (BETA NAPHTHYLAMINE)	μg/L μg/L	4 U 4 U	4.1 U 4.1 U	4.1 U 4.1 U	4.2 U 4.2 U	4.1 UJ 4.1 U	4.1 UJ 4.1 U	4.1 UJ 4.1 U	4.1 UJ 4.1 U	4 U 4 U	4.2 U 4.2 U	4.2 U 4.2 U	4.1 U 4.1 U	4.1 U 4.1 U	4.2 U 4.2 U	4.4 U 4.4 U	4 U 4 U
BENZYL ALCOHOL	μg/L	10 U	10.2 U	10.2 U	10.5 U	10.2 U	10.2 U	10.2 U	10.2 U	10.1 U	10.4 U	10.4 U	10.2 U	10.2 U	10.5 U	11.1 U	10 U
BENZYL BUTYL PHTHALATE 4-BROMOPHENYL PHENYL ETHER	μg/L μg/L	4 U 4 U	4.1 U 4.1 U	4.1 U 4.1 U	4.2 U 4.2 U	4.1 U 4.1 U	4.1 U 4.1 U	4.1 U 4.1 U	4.1 U 4.1 U	4 U 4 U	4.2 U 4.2 U	4.2 U 4.2 U	4.1 U 4.1 U	4.1 U 4.1 U	4.2 U 4.2 U	4.4 U 4.4 U	4 U 4 U
4-CHLOROANILINE	μg/L	4 U	4.1 U	4.1 U	4.2 U	4.1 U	4.1 U	4.1 U	4.1 U	4 UJ	4.2 UJ	4.2 UJ	4.1 UJ	4.1 U	4.2 U	4.4 U	4 U
4-CHLOROPHENYL PHENYL ETHER 2-CHLORONAPHTHALENE	μg/L μg/L	4 U 4 U	4.1 U 4.1 U	4.1 U 4.1 U	4.2 U 4.2 U	4.1 U 4.1 U	4.1 U 4.1 U	4.1 U 4.1 U	4.1 U 4.1 U	4 U 4 U	4.2 U 4.2 U	4.2 U 4.2 U	4.1 U 4.1 U	4.1 U 4.1 U	4.2 U 4.2 U	4.4 U 4.4 U	4 U 4 U
2-CHLOROPHENOL 1,3-DINITROBENZENE	μg/L	4 U 20 U	4.1 U 20.5 U	4.1 U 20.5 U	4.2 U 21 U	4.1 U 20.5 UJ	4.1 U 20.5 UJ	4.1 U 20.5 UJ	4.1 U 20.5 UJ	4 U 20.2 U	4.2 U 20.8 U	4.2 U 20.8 U	4.1 U 20.4 U	4.1 U 20.5 U	4.2 U 21 U	4.4 U 22.2 U	4 U 20 U
2,4-DICHLOROPHENOL	μg/L μg/L	4 U	4.1 U	4.1 U	4.2 U	4.1 UJ	4.1 UJ	4.1 UJ	4.1 UJ	4 U	4.2 U	4.2 U	4.1 U	4.1 U	4.2 U	4.4 U	4 U
2,6-DICHLOROPHENOL 2,4-DIMETHYLPHENOL	μg/L	4 U 4 U	4.1 U 4.1 U	4.1 U 4.1 U	4.2 U 4.2 U	4.1 U 4.1 U	4.1 U 4.1 U	4.1 U 4.1 U	4.1 U 4.1 U	4 U 4 U	4.2 U 4.2 U	4.2 U 4.2 U	4.1 U 4.1 U	4.1 U 4.1 U	4.2 U 4.2 U	4.4 U 4.4 U	4 U 4 U
2,4-DINITROPHENOL	μg/L μg/L	20 UJ	20.5 U	20.5 U	21 UJ	20.5 U	20.5 U	20.5 U	20.5 U	20.2 U	20.8 U	20.8 U	20.4 U	20.5 U	21 U	22.2 U	20 U
2,4-DINITROTOLUENE bis(2-CHLOROETHOXY) METHANE	μg/L	4 U 4 U	4.1 U 4.1 U	4.1 U 4.1 U	4.2 U 4.2 U	4.1 U 4.1 U	4.1 U 4.1 U	4.1 U 4.1 U	4.1 U 4.1 U	4 U 4 U	4.2 U 4.2 U	4.2 U 4.2 U	4.1 U 4.1 U	4.1 U 4.1 U	4.2 U 4.2 U	4.4 U 4.4 U	4 U 4 U
bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHER)	μg/L μg/L	4 U	4.1 U	4.1 U	4.2 U	4.1 U	4.1 U	4.1 U	4.1 U	4 U	4.2 U	4.2 U	4.1 U	4.1 U	4.2 U	4.4 U	4 U
bis(2-CHLOROISOPROPYL) ETHER CHLOROBENZILATE	μg/L	4 U 4 U	4.1 U 4.1 U	4.1 U 4.1 U	4.2 U 4.2 U	4.1 U 4.1 U	4.1 U 4.1 U	4.1 U 4.1 U	4.1 U 4.1 U	4 U	4.2 U 4.2 U	4.2 U 4.2 U	4.1 U 4.1 U	4.1 UJ 4.1 U	4.2 UJ 4.2 U	4.4 UJ 4.4 U	4 UJ 4 U
DIALLATE	μg/L μg/L	4 U	4.1 U	4.1 U	4.2 U	4.1 U	4.1 U	4.1 U	4.1 U	4 U	4.2 U	4.2 U	4.1 U	4.1 U	4.2 U	4.4 U	4 U
DIBENZOFURAN DIETHYL PHTHALATE	μg/L μg/L	4 U 4 U	4.1 U 4.1 U	4.1 U 4.1 U	4.2 U 4.2 U	4.1 U 4.1 U	4.1 U 4.1 U	4.1 U 4.1 U	4.1 U 4.1 U	4 UJ 4 U	4.2 UJ 4.2 U	4.2 UJ 4.2 U	4.1 UJ 4.1 U	4.1 U 4.1 U	4.2 U 4.2 U	4.4 U 4.4 U	4 U 4 U
DIMETHYL PHTHALATE	μg/L	4 U	4.1 U	4.1 U	4.2 U	4.1 U	4.1 U	4.1 U	4.1 U	4 U	4.2 U	4.2 U	4.1 U	4.1 U	4.2 U	4.4 U	4 U
DIMETHYLPHENYLETHYLAMINE 7,12-DIMETHYLBENZ(a)ANTHRACENE	μg/L μg/L	20 R 4 U	20.5 R 4.1 U	20.5 R 4.1 U	21 R 4.2 U	20.5 UJ 4.1 U	20.5 UJ 4.1 U	20.5 UJ 4.1 U	20.5 UJ 4.1 U	20.2 UJ 4 U	20.8 UJ 4.2 U	20.8 UJ 4.2 U	20.4 UJ 4.1 U	20.5 UJ 4.1 U	21 UJ 4.2 U	22.2 UJ 4.4 U	20 UJ 4 U
p-DIMETHYLAMINOAZOBENZENE	μg/L	4 U	4.1 U	4.1 U	4.2 U	4.1 U	4.1 U	4.1 U	4.1 U	4 U	4.2 U	4.2 U	4.1 U	4.1 U	4.2 U	4.4 U	4 U
3,3'-DICHLOROBENZIDINE 3,3'-DIMETHYLBENZIDINE	μg/L μg/L	4 U 20 U	4.1 U 20.5 U	4.1 U 20.5 U	4.2 U 21 U	4.1 U 20.5 UJ	4.1 U 20.5 UJ	4.1 U 20.5 UJ	4.1 U 20.5 UJ	4 U 20.2 U	4.2 U 20.8 U	4.2 U 20.8 U	4.1 U 20.4 U	4.1 U 20.5 U	4.2 U 21 U	4.4 U 22.2 U	4 U 20 U
ETHYL METHANESULFONATE	μg/L	4 U	4.1 U	4.1 U	4.2 U	4.1 U	4.1 U	4.1 U	4.1 U	4 U	4.2 U	4.2 U	4.1 U	4.1 U	4.2 U	4.4 U	4 U
HEXACHLOROPROPENE ISODRIN	μg/L μg/L	4 U 4 U	4.1 U 4.1 U	4.1 U 4.1 U	4.2 U 4.2 U	4.1 U 4.1 U	4.1 U 4.1 U	4.1 U 4.1 U	4.1 U 4.1 U	4 UJ 4 U	4.2 UJ 4.2 U	4.2 UJ 4.2 U	4.1 UJ 4.1 U	4.1 U 4.1 U	4.2 U 4.2 U	4.4 U 4.4 U	4 U 4 U
ISOPHORONE ISOSAFROLE	μg/L	4 U 4 U	4.1 U 4.1 U	4.1 U 4.1 U	4.2 U 4.2 U	4.1 U 4.1 U	4.1 U 4.1 U	4.1 U 4.1 U	4.1 U 4.1 U	4 U 4 U	4.2 U 4.2 U	4.2 U 4.2 U	4.1 U 4.1 U	4.1 U 4.1 U	4.2 U 4.2 U	4.4 U 4.4 U	4 U 4 U
KEPONE	μg/L μg/L	4 U	4.1 UJ	4.1 UJ	4.2 U	4.1 UJ	4.1 UJ	4.1 UJ	4.1 UJ	4 U	4.2 U	4.2 U	4.1 U	4.1 U	4.2 U	4.4 U	4 U
METHAPYRILENE METHYL METHANESULFONATE	μg/L μg/L	4 U 20 U	4.1 U 20.5 U	4.1 U 20.5 U	4.2 U 21 U	4.1 UJ 20.5 U	4.1 UJ 20.5 U	4.1 UJ 20.5 U	4.1 UJ 20.5 U	4 U 20.2 U	4.2 U 20.8 U	4.2 U 20.8 U	4.1 U 20.4 U	4.1 U 20.5 U	4.2 U 21 U	4.4 U 22.2 U	4 U 20 U
2-METHYLNAPHTHALENE	μg/L	4 U	4.1 U	4.1 U	4.2 U	4.1 U	4.1 U	4.1 U	4.1 U	4 U	4.2 U	4.2 U	4.1 U	4.1 U	4.2 U	4.4 U	4 U
2-METHYLPHENOL (0-CRESOL) 3-METHYLCHOLANTHRENE	μg/L μg/L	4 U 4 U	4.1 U 4.1 U	4.1 U 4.1 U	4.2 U 4.2 U	4.1 U 4.1 U	4.1 U 4.1 U	4.1 U 4.1 U	4.1 U 4.1 U	4 UJ 4 U	4.2 UJ 4.2 U	4.2 UJ 4.2 U	4.1 UJ 4.1 U	4.1 U 4.1 U	4.2 U 4.2 U	4.4 U 4.4 U	4 U 4 U
4-METHYLPHENOL (p-CRESOL)	μg/L	10 U	10.2 U	10.2 U	10.5 U	10.2 U	10.2 U	10.2 U	10.2 U	10.1 UJ	10.4 UJ	10.4 UJ	10.2 UJ	10.2 U	10.5 U	11.1 U	10 U
1,4-NAPHTHOQUINONE 1-NAPHTHYLAMINE	μg/L μg/L	4 U 10 U	4.1 U 10.2 U	4.1 U 10.2 U	4.2 U 10.5 U	4.1 U 10.2 U	4.1 U 10.2 U	4.1 U 10.2 U	4.1 U 10.2 U	4 UJ 10.1 U	4.2 U 10.4 U	4.2 U 10.4 U	4.1 U 10.2 U	4.1 U 10.2 U	4.2 U 10.5 U	4.4 U 11.1 U	4 U 10 U
2-NITROANILINE	μg/L	4 U	4.1 U	4.1 U	4.2 U	4.1 U	4.1 U	4.1 U	4.1 U	4 U	4.2 U	4.2 U	4.1 U	4.1 U	4.2 U	4.4 U	4 U
3-NITROANILINE 4-NITROANILINE	μg/L	4 U 4 U	4.1 U 4.1 U	4.1 U 4.1 U	4.2 U 4.2 U	4.1 U 4.1 U	4.1 U 4.1 U	4.1 U 4.1 U	4.1 U 4.1 U	4 U 4 U	4.2 U 4.2 U	4.2 U 4.2 U	4.1 U 4.1 U	4.1 U 4.1 U	4.2 U 4.2 U	4.4 U 4.4 U	4 U 4 U
4-NITROQUINOLINE-N-OXIDE	μg/L μg/L	20 UJ	20.5 U	20.5 U	21 UJ	20.5 UJ	20.5 UJ	20.5 UJ	20.5 UJ	20.2 UJ	20.8 UJ	20.8 UJ	20.4 UJ	20.5 UJ	21 UJ	22.2 UJ	20 UJ
5-NITRO-o-TOLUIDINE N-NITROSO-DI-N-BUTYLAMINE	μg/L μg/L	4 U 4 U	4.1 U 4.1 U	4.1 U 4.1 U	4.2 U 4.2 U	4.1 U 4.1 U	4.1 U 4.1 U	4.1 U 4.1 U	4.1 U 4.1 U	4 U 4 U	4.2 U 4.2 U	4.2 U 4.2 U	4.1 U 4.1 U	4.1 U 4.1 U	4.2 U 4.2 U	4.4 U 4.4 U	4 U 4 U
N-NITROSODI-n-PROPYLAMINE	μg/L	4 U	4.1 U	4.1 U	4.2 U	4.1 U	4.1 U	4.1 U	4.1 U	4 U	4.2 U	4.2 U	4.1 U	4.1 U	4.2 U	4.4 U	4 U
N-NITROSODIETHYLAMINE N-NITROSODIMETHYLAMINE	μg/L	4 U 4 U	4.1 U 4.1 U	4.1 U 4.1 U	4.2 U 4.2 U	4.1 U 4.1 U	4.1 U 4.1 U	4.1 U 4.1 U	4.1 U 4.1 U	4 U 4 U	4.2 U 4.2 U	4.2 U 4.2 U	4.1 U 4.1 U	4.1 U 4.1 U	4.2 U 4.2 U	4.4 U 4.4 U	4 U
IN-INTERCOODINE LELEVANIINE	μg/L	4 U	4.1∪	4.1 U	4.2 U	4.1 U	4.1∪	4.1 U	4.1 0	4 U	4.∠ ∪	4.2 ∪	4.10	4.1 U	4.∠∪	4.4 U	4O

			Ev	ent 1			Eve	ent 2			Eve	nt 3			Eve	ent 4	
	Location:	LAKE	MW-1	MW-1	MW-2	LAKE	MW-1	MW-1	MW-2	LAKE	MW-1	MW-1	MW-2	LAKE	MW-1	MW-1	MW-2
	Event:	Event 1	Event 1	Event 1	Event 1	Event 2	Event 2	Event 2	Event 2	Event 3	Event 3	Event 3	Event 3	Event 4	Event 4	Event 4	Event 4
	SJRWMD No.:	None	S-0334	S-0334	S-0335	None	S-0334	S-0334	S-0335	None	S-0334	S-0334	S-0335	None	S-0334	S-0334	S-0335
	SampleID:	L0-00-Lake	L0-00-MW1	L0-00-Dupe	L0-00-MW2	L0-01-Lake	L0-01-MW1	L0-01-Dup	L0-01-MW-2	L0-02-LAKE	L0-01-MW-1	L0-01-DUPE	L0-02-MW2	LO-03-Lake	LO-03-MW1	LO-03-Dup	LO-03-MW-2
	DateCollected: Matrix:	13-Jul-05 Surface Water	13-Jul-05 Groundwater	13-Jul-05 Groundwater	12-Jul-05 Groundwater	20-Jul-05 Groundwater	21-Jul-05 Groundwater	21-Jul-05 Groundwater	20-Jul-05 Groundwater	27-Jul-05 Surface Water	28-Jul-05 Groundwater	28-Jul-05 Groundwater	27-Jul-05 Groundwater	08-Aug-05 Surface Water	09-Aug-05 Groundwater	09-Aug-05 Groundwater	08-Aug-05 Groundwater
	SampleType:	Normal	Normal	Field Duplicate	Normal	Normal	Normal	Field Duplicate	Normal	Normal	Normal	Field Duplicate	Normal	Normal	Normal	Field Duplicate	Normal
Parameter Group and Name	Unit	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual		Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual
N-NITROSODIPHENYLAMINE	μg/L	4.3 UJ	4.2 UJ	4.2 UJ	4 U	4.2 UJ	4 U	4 U	4.2 UJ	4 U	4 U	4 U	4 U	4.2 U	4.1 U	4.1 U	4.2 U
N-NITROSOMORPHOLINE	μg/L	4.3 UJ	4.2 UJ	4.2 UJ	4 U	4.2 UJ	4 U	4 U	4.2 UJ	4 U	4 U	4 U	4 U	4.2 U	4.1 U	4.1 U	4.2 U
1,3,5-TRINITROBENZENE N-NITROSOPIPERIDINE	μg/L	21.6 UJ 4.3 UJ	21 UJ 4.2 UJ	21 UJ 4.2 UJ	4 U	4.2 UJ	4 U 20 UJ	4 U	4.2 UJ 21 UJ	4 U	4 U 20 UJ	20 UJ 4 U	4 U	4.2 U	4.1 U	4.1 U 20.5 U	4.2 U 21 U
N-NITROSOPIPERIDINE N-NITROSOPYRROLIDINE	μg/L μg/L	4.3 UJ	4.2 UJ	4.2 UJ	20 U 4 U	21 UJ 4.2 UJ	4 U	20 UJ 4 U	4.2 UJ	20 UJ 4 U	4 U	4 U	20 UJ 4 U	21 U 4.2 U	20.5 U 4.1 U	4.1 U	4.2 U
NITROBENZENE	μg/L	4.3 UJ	4.2 UJ	4.2 UJ	4 U	4.2 UJ	4 U	4 U	4.2 UJ	4 U	4 U	4 U	4 U	4.2 U	4.1 U	4.1 U	4.2 U
NITROSOMETHYLETHYLAMINE	μg/L	4.3 UJ	4.2 UJ	4.2 UJ	4 U	4.2 UJ	4 U	4 U	4.2 UJ	4 U	4 U	4 U	4 U	4.2 U	4.1 U	4.1 U	4.2 U
O,O,O-TRIETHYL PHOSPHOROTHIOATE	μg/L	4.3 UJ	4.2 UJ	4.2 UJ	4 U	4.2 UJ	4 U	4 U	4.2 UJ	4 U	4 U	4 U	4 U	4.2 U	4.1 U	4.1 U	4.2 U
o-TOLUIDINE	μg/L	4.3 UJ	4.2 UJ	4.2 UJ	4 U	4.2 UJ	4 U	4 U	4.2 UJ	4 U	4 U	4 U	4 U	4.2 U	4.1 U	4.1 U	4.2 U
2-PICOLINE (ALPHA-PICOLINE) p-PHENYLENEDIAMINE	μg/L	21.6 UJ 21.6 UJ	21 UJ 21 UJ	21 UJ 21 UJ	20 U 20 U	21 UJ 21 UJ	20 U 20 U	20 U 20 U	21 UJ 21 UJ	20 U 20 UJ	20 U 20 UJ	20 U 20 UJ	20 U 20 UJ	21 U 21 U	20.5 U 20.5 U	20.5 U 20.5 U	21 U 21 U
PENTACHLOROBENZENE	μg/L μg/L	4.3 UJ	4.2 UJ	4.2 UJ	4 U	4.2 UJ	4 U	4 U	4.2 UJ	4 U	4 U	4 U	4 U	4.2 U	4.1 U	4.1 U	4.2 U
PENTACHLOROETHANE	μg/L	21.6 UJ	21 UJ	21 UJ	20.5 R	21 UJ	20 R	20 R	21 UJ	20 U	20 U	20 U	20 U	21 U	20.5 U	20.5 U	21 U
PENTACHLORONITROBENZENE	μg/L	4.3 UJ	4.2 UJ	4.2 UJ	4 U	4.2 UJ	4 U	<u>4</u> U	4.2 UJ	4 UJ	4 UJ	<u>4</u> UJ	4 UJ	4.2 U	4.1 UJ	4.1 UJ	4.2 U
PENTACHLOROPHENOL	μg/L	21.6 UJ	21 UJ	21 UJ	10 U	21 UJ	20 UJ	20 UJ	21 UJ	20 U	20 U	20 U	20 U	21 UJ	20.5 ∪	20.5 ∪	21 UJ
PHENACETIN PHENOL	μg/L	4.3 UJ 21.6 UJ	4.2 UJ 21 UJ	4.2 U	4 U 10 U	4.2 UJ 21 UJ	4 U 20 UJ	4 U	4.2 UJ 21 UJ	4 UJ	4 UJ	4 UJ	4 UJ	4.2 U	4.1 U	4.1 U	4.2 U
PRONAMIDE	μg/L μg/L	4.3 UJ	4.2 UJ	21 UJ 4.2 UJ	10 U	21 UJ 4.2 UJ	20 UJ 4 U	20 UJ 4 U	4.2 UJ	20 U 4 U	20 U 4 U	20 ∪ 4 ∪	20 U 4 U	21 U 4.2 U	20.5 U 4.1 U	20.5 U 4.1 U	21 U 4.2 U
PYRIDINE	μg/L	4.3 UJ	4.2 UJ	4.2 UJ	4 U	4.2 UJ	4 U	4 U	4.2 UJ	4 UJ	4 UJ	4 UJ	4 UJ	4.2 R	4.1 U	4.1 U	4.2 R
SAFROLE	μg/L	10.8 UJ	10.5 UJ	10.5 UJ	10 U	10.5 UJ	10 U	10 U	10.5 UJ	10 U	10 U	10 U	10 U	10.5 U	10.2 U	10.2 U	10.5 U
1,2,4,5-TETRACHLOROBENZENE	μg/L	4.3 UJ	4.2 UJ	4.2 UJ	4 U	4.2 UJ	4 U	4 U	4.2 UJ	4 U	4 U	4 U	4 U	4.2 U	4.1 U	4.1 U	4.2 U
2,3,4,6-TETRACHLOROPHENOL 1,2,4-TRICHLOROBENZENE	μg/L	4.3 UJ	4.2 UJ	4.2 UJ	2 U	4.2 UJ	4 UJ 4 U	4 UJ	4.2 UJ	4 UJ 4 U	4 UJ 4 U	4 UJ	4 UJ 4 U	4.2 U	4.1 UJ 4.1 U	4.1 UJ	4.2 U
2,4,5-TRICHLOROPHENOL	μg/L μg/L	4.3 UJ 4.3 UJ	4.2 UJ 4.2 UJ	4.2 UJ 4.2 UJ	4 U 2 U	4.2 UJ 4.2 UJ	4 UJ	4 U 4 UJ	4.2 UJ 4.2 UJ	4 U	4 U	4 U 4 U	4 U	4.2 U 4.2 U	4.1 U	4.1 U 4.1 U	4.2 U 4.2 U
2,4,6-TRICHLOROPHENOL	μg/L	4.3 UJ	4.2 UJ	4.2 UJ	2 U	4.2 UJ	4 UJ	4 UJ	4.2 UJ	4 U	4 U	4 U	4 U	4.2 U	4.1 U	4.1 U	4.2 U
Organochlorine Pesticides																	
ALDRIN ALBUM ORDANIS	μg/L	0.052 U	0.051 U	0.051 U	0.051 U	0.058 U	0.051 UJ	0.051 U	0.05 U	0.053 U	0.05 U	0.05 U	0.05 U	0.051 U	0.052 U	0.05 U	0.051 U
ALPHA-CHLORDANE GAMMA-CHLORDANE	μg/L	0.052 U	0.051 U 0.051 U	0.051 U	0.051 U	0.058 UJ	0.051 UJ 0.051 UJ	0.051 UJ 0.051 UJ	0.05 UJ 0.05 U	0.053 U	0.05 U 0.05 UJ	0.05 U 0.05 UJ	0.05 U 0.05 U	0.051 U	0.052 U 0.052 U	0.05 U	0.051 U 0.051 U
ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE)	μg/L μg/L	0.052 U 0.052 UJ	0.051 UJ	0.051 U 0.051 UJ	0.051 U 0.051 UJ	0.058 U 0.058 U	0.051 UJ	0.051 UJ	0.05 U	0.053 U 0.053 U	0.05 UJ	0.05 U	0.05 U	0.051 U 0.051 U	0.052 U	0.05 U 0.05 U	0.051 U
BETA BHC (BETA HEXACHLOROCYCLOHEXANE)	μg/L	0.052 U	0.051 U	0.051 U	0.051 U	0.058 U	0.051 UJ	0.051 U	0.05 U	0.053 U	0.05 U	0.05 U	0.05 U	0.051 UJ	0.052 U	0.05 U	0.051 UJ
DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE)	μg/L	0.052 UJ	0.051 UJ	0.051 UJ	0.051 UJ	0.058 U	0.051 UJ	0.051 U	0.05 U	0.053 U	0.05 U	0.05 U	0.05 U	0.051 U	0.052 U	0.05 U	0.051 U
GAMMA BHC (LINDANE)	μg/L	0.052 U	0.051 U	0.051 U	0.051 U	0.058 U	0.051 UJ	0.051 U	0.05 U	0.053 U	0.05 U	0.05 U	0.05 U	0.051 U	0.052 U	0.05 U	0.051 U
DIELDRIN	μg/L	0.052 U	0.051 U	0.051 U	0.051 U	0.058 U	0.051 UJ	0.051 U	0.05 U	0.053 U	0.05 U	0.05 U	0.05 U	0.051 U	0.052 U	0.05 U	0.051 U
ALPHA ENDOSULFAN	μg/L	0.052 U	0.051 U	0.051 U	0.051 U	0.058 U	0.051 UJ	0.051 U	0.05 U	0.053 U	0.05 U	0.05 U	0.05 U	0.051 U	0.052 U	0.05 U	0.051 U
BETA ENDOSULFAN	μg/L	0.052 U 0.052 U	0.051 U 0.051 U	0.051 U	0.051 U 0.051 U	0.058 UJ 0.058 U	0.051 UJ 0.051 UJ	0.051 U 0.051 U	0.05 U 0.05 U	0.053 U 0.053 U	0.05 U 0.05 U	0.05 U	0.05 U 0.05 U	0.051 U 0.051 U	0.052 U 0.052 U	0.05 U	0.051 U 0.051 U
ENDOSULFAN SULFATE ENDRIN	μg/L μg/L	0.052 U	0.051 U	0.051 U 0.051 U	0.051 U	0.058 U	0.051 UJ	0.051 U	0.05 U	0.053 U	0.05 U	0.05 U 0.05 U	0.05 U	0.051 U	0.052 U	0.05 U 0.05 U	0.051 U
ENDRIN ALDEHYDE	μg/L	0.052 U	0.051 U	0.051 U	0.051 U	0.058 UJ	0.051 UJ	0.051 UJ	0.05 UJ	0.053 U	0.05 UJ	0.05 UJ	0.05 U	0.051 UJ	0.052 U	0.05 U	0.051 UJ
ENDRIN KETONE	μg/L	0.052 U	0.051 U	0.051 U	0.051 U	0.058 U	0.051 UJ	0.051 U	0.05 U	0.053 U	0.05 U	0.05 U	0.05 U	0.051 U	0.052 U	0.05 U	0.051 U
HEPTACHLOR	μg/L	0.052 U	0.051 U	0.051 U	0.051 U	0.058 U	0.051 R	0.051 R	0.05 U	0.053 U	0.05 U	0.05 U	0.05 U	0.051 U	0.052 U	0.05 U	0.051 U
HEPTACHLOR EPOXIDE	μg/L	0.052 U 0.052 U	0.051 U	0.051 U	0.051 U	0.058 U	0.051 UJ	0.051 U	0.05 U	0.053 U 0.053 U	0.05 U	0.05 U	0.05 U	0.051 U	0.052 U	0.05 U	0.051 U
p,p'-DDD p,p'-DDE	μg/L μg/L	0.052 U	0.051 U 0.051 U	0.051 U 0.051 U	0.051 U 0.051 U	0.058 U 0.058 U	0.051 UJ 0.051 UJ	0.051 U 0.051 UJ	0.05 U 0.05 U	0.053 U	0.05 U 0.05 U	0.05 U 0.05 U	0.05 U 0.05 U	0.051 U 0.051 U	0.052 U 0.052 U	0.05 U 0.05 U	0.051 U 0.051 U
p,p'-DDT	μg/L	0.052 UJ	0.051 UJ	0.051 UJ	0.051 UJ	0.058 U	0.051 UJ	0.051 U	0.013 J	0.053 U	0.05 U	0.05 U	0.05 U	0.051 U	0.052 U	0.05 U	0.051 U
METHOXYCHLOR	μg/L	0.052 U	0.051 U	0.051 U	0.051 U	0.058 UJ	0.051 UJ	0.051 UJ	0.05 UJ	0.053 U	0.05 UJ	0.05 UJ	0.05 U	0.051 UJ	0.052 U	0.05 U	0.051 UJ
TOXAPHENE	μg/L	0.52 U	0.51 U	0.51 U	0.51 U	0.58 U	0.51 UJ	0.51 U	0.5 U	0.53 U	0.5 U	0.5 U	0.5 U	0.51 U	0.52 U	0.5 U	0.51 U
Organophosphorous Pesticides		5.011	e alu	5.11	E I I	5.411	5.4 11	5011	5.011	5011	511	5.11	511	5.0	5411	5411	5.411
ATRAZINE AZINPHOS, METHYL (GUTHION)	μg/L μg/L	5.2 U 5.2 U	5.1 U 5.1 U	5 U 5 U	5 U	5.4 U 5.4 U	5.1 U 5.1 U	5.2 U 5.2 U	5.3 U 5.3 U	5.2 U 5.2 U	5 U	5 U 5 U	5 U	5.3 U 5.3 U	5.1 U 5.1 U	5.1 U 5.1 U	5.4 U 5.4 U
BOLSTAR	μg/L	5.2 U	5.1 U	5 U	5 U	5.4 U	5.1 U	5.2 U	5.3 U	5.2 U	5 U	5 U	5 U	5.3 U	5.1 U	5.1 U	5.4 U
CHLORPYRIFOS	μg/L	5.2 U	5.1 U	5 U	5 U	5.4 U	5.1 U	5.2 U	5.3 U	5.2 U	5 U	5 U	5 U	5.3 U	5.1 U	5.1 U	5.4 U
COUMAPHOS	μg/L	5.2 U	5.1 U	5 U	5 U	5.4 U	5.1 U	5.2 U	5.3 U	5.2 U	5 U	5 U	5 U	5.3 U	5.1 U	5.1 U	5.4 U
DEMETON-O DEMETON-S	μg/L	5.2 U 5.2 U	5.1 U 5.1 U	5 U 5 U	5 U	5.4 U 5.4 U	5.1 U 5.1 U	5.2 U 5.2 U	5.3 U 5.3 U	5.2 U 5.2 U	5 U	5 U 5 U	5 U	5.3 U 5.3 U	5.1 U 5.1 U	5.1 U 5.1 U	5.4 U 5.4 U
DIAZINON	μg/L μg/L	5.2 U	5.1 U	50	5 U	5.4 U	5.1 U	5.2 U	5.3 U	5.2 UJ	5 11	50	5 11.1	5.3 U	5.1 UJ	5.1 UJ	5.4 U
DICHLORVOS	μg/L	5.2 U	5.1 U	5 U	5 U	5.4 UJ	5.1 UJ	5.2 UJ	5.3 UJ	5.2 UJ	5 UJ	5 UJ	5 0	5.3 U	5.1 UJ	5.1 UJ	5.4 U
DIMETHOATE	μg/L	5.2 U	5.1 U	5 U	5 U	5.4 U	5.1 U	5.2 U	5.3 U	5.2 U	5 U	5 U	5 U	5.3 U	5.1 U	5.1 U	5.4 U
DISULFOTON	μg/L	5.2 U	5.1 U	5 U	5 U	5.4 U	5.1 U	5.2 U	5.3 U	5.2 U	5 U	5 U	5 U	5.3 U	5.1 U	5.1 U	5.4 U
ETHOPROP	μg/L	5.2 U	5.1 U	5 U	5 U	5.4 U	5.1 U	5.2 U	5.3 UJ	5.2 U	5 U	5 U	5 U	5.3 U	5.1 U	5.1 U	5.4 U
FAMPHUR FENSULFOTHION	μg/L μg/l	5.2 U 5.2 U	5.1 U 5.1 U	5 U 5 U	5 U 5 U	5.4 U 5.4 U	5.1 U 5.1 U	5.2 U 5.2 U	5.3 U 5.3 U	5.2 U 5.2 U	5 U	5 U 5 U	5 U 5 U	5.3 U 5.3 U	5.1 U 5.1 U	5.1 U 5.1 U	5.4 U 5.4 U
FENTHION	μg/L μg/L	5.2 U	5.1 U	5 U	5 U	5.4 U	5.1 U	5.2 U	5.3 U	5.2 U	5 U	5 U	5 U	5.3 R	5.1 U	5.1 U	5.4 R
MERPHOS	μg/L	5.2 U	5.1 U	5 U	5 U	5.4 U	5.1 U	5.2 U	5.3 U	5.2 U	5 U	5 U	5 U	5.3 U	5.1 U	5.1 U	5.4 U
MEVINPHOS	μg/L	5.2 U	5.1 U	5 U	5 U	5.4 UJ	5.1 UJ	5.2 UJ	5.3 UJ	5.2 U	5 UJ	5 UJ	5 U	5.3 U	5.1 U	5.1 ∪	5.4 U
NALED	μg/L	5.2 UJ	5.1 UJ	5 UJ	5 UJ	5.4 UJ	5.1 UJ	5.2 U	5.3 UJ	5.2 U	5 UJ	5 UJ	5 U	5.3 U	5.1 U	5.1 U	5.4 U
PARATHION, ETHYL PARATHION, METHYL	μg/L	5.2 U 5.2 U	5.1 U 5.1 U	5 U 5 U	5 U	5.4 U 5.4 U	5.1 U 5.1 U	5.2 U 5.2 U	5.3 UJ 5.3 U	5.2 U 5.2 U	5 U	5 U 5 U	5 U	5.3 U 5.3 U	5.1 U 5.1 U	5.1 U 5.1 U	5.4 U 5.4 U
PHORATE	μg/L μg/L	5.2 U	5.1 U	5 U	5 U	5.4 UJ	5.1 UJ	5.2 UJ	5.3 UJ	5.2 U	5 UJ	5 UJ	5 U	5.3 U	5.1 U	5.1 U 5.1 U	5.4 U
RONNEL	μg/L	5.2 U	5.1 U	5 U	5 U	5.4 UJ	5.1 UJ	5.2 UJ	5.3 UJ	5.2 U	5 U	5 U	5 U	5.3 U	5.1 U	5.1 U	5.4 U
SIMAZINE	μg/L	5.2 U	5.1 U	5 U	5 U	5.4 U	5.1 U	5.2 U	5.3 U	5.2 U	5 U	5 U	5 U	5.3 U	5.1 U	5.1 U	5.4 U
STIROFOS (TETRACHLORVINPHOS)	μg/L	5.2 U	5.1 U	5 U	5 U	5.4 U	5.1 U	5.2 U	5.3 U	5.2 UJ	5 U	5 U	5 UJ	5.3 U	5.1 UJ	5.1 UJ	5.4 U
THIODIPHOSPHORIC ACID TETRAETHYL ESTER	μg/L	5.2 U	5.1 U	5 U	5 U	5.4 UJ	5.1 UJ	5.2 UJ	5.3 UJ	5.2 U	5 U	5 U	5 U	5.3 U	5.1 U	5.1 U	5.4 U
TOKUTHION (PROTHIOFOS) TRICHLORONATE	μg/L ug/l	5.2 U 5.2 U	5.1 U 5.1 U	5 U 5 U	5 U	5.4 U 5.4 U	5.1 U 5.1 U	5.2 U 5.2 U	5.3 U 5.3 U	5.2 U 5.2 U	5 U	5 U 5 U	5 U	5.3 U 5.3 U	5.1 U 5.1 U	5.1 U 5.1 U	5.4 U 5.4 U
ZINOPHOS	μg/L μg/L	5.2 U	5.1 U 5.1 U	5 U	5 U	5.4 U 5.4 U	5.1 U 5.1 U	5.2 U 5.2 U	5.3 U	5.2 U	5 U	5 U	5 U	5.3 U 5.3 U	5.1 U 5.1 U	5.1 U 5.1 U	5.4 U
Polychlorinated biphenols (PCBs)	μg-L	J.E U	0.1		3,5	5.7	5.1 5	3.E 0	3.0 0	3.2 3	5.5	- 0	3,5	5.5	3.1	0.1 0	5.4
PCB-1016 (AROCHLOR 1016)	μg/L	0.52 UJ	0.51 UJ	0.51 UJ	0.51 UJ	0.58 UJ	0.51 U	0.51 U	0.5 UJ	0.53 U	0.5 U	0.5 U	0.5 U	0.51 U	0.52 U	0.5 U	0.51 U
PCB-1221 (AROCHLOR 1221)	μg/L	0.52 U	0.51 U	0.51 U	0.51 U	0.58 U	0.51 U	0.51 U	0.5 U	0.53 U	0.5 U	0.5 U	0.5 U	0.51 U	0.52 ∪	0.5 U	0.51 U
PCB-1232 (AROCHLOR 1232)	μg/L	0.52 U	0.51 U	0.51 U	0.51 U	0.58 U	0.51 U	0.51 U	0.5 U	0.53 U	0.5 U	0.5 U	0.5 U	0.51 U	0.52 ∪	0.5 U	0.51 U
PCB-1242 (AROCHLOR 1242) PCB-1248 (AROCHLOR 1248)	μg/L	0.52 U 0.52 U	0.51 U 0.51 U	0.51 U	0.51 U 0.51 U	0.58 U	0.51 U 0.51 U	0.51 U	0.5 U	0.53 U	0.5 U	0.5 U	0.5 U	0.51 U	0.52 U	0.5 U	0.51 U 0.51 U
PCB-1248 (AROCHLOR 1248) PCB-1254 (AROCHLOR 1254)	μg/L μg/L	0.52 U 0.52 U	0.51 U	0.51 U 0.51 U	0.51 U 0.51 U	0.58 U 0.58 U	0.51 U	0.51 U 0.51 U	0.5 U 0.5 U	0.53 U 0.53 U	0.5 U 0.5 U	0.5 U 0.5 U	0.5 U	0.51 U 0.51 UJ	0.52 U 0.52 UJ	0.5 U 0.5 UJ	0.51 UJ
PCB-1260 (AROCHLOR 1260)	μg/L	0.52 U	0.51 U	0.51 U	0.51 U	0.58 U	0.51 U	0.51 U	0.5 U	0.53 U	0.5 U	0.5 U	0.5 U	0.51 U	0.52 U	0.5 U	0.51 U
	r-5-																

## STREET, STR				Eve	ent 5			Eve	ent 6			Eve	nt 7			Eve	nt 8	Ī
Column C		Location:	LAKE	MW-1	MW-1	MW-2	LAKE	MW-1	MW-1	MW-2	LAKE	MW-1	MW-1	MW-2	LAKE	MW-1	MW-1	MW-2
Part																		
Part																		
Part																		
Section Sect																		
The Proposal																		
## STREET, STR	Parameter Group and Name																	
Color	N-NITROSODIPHENYLAMINE																	
Company																		
## AT COLOR PROPERTY 150 1																		
THE COLOR OF THE C																		
Company Comp	NITROBENZENE																	
## Comment of the Com	NITROSOMETHYLETHYLAMINE		4 UJ	4.1 U			4.1 U							4.1 U	4.1 U			4 U
Service programme of the control of	O,O,O-TRIETHYL PHOSPHOROTHIOATE																	
## 15	o-TOLUIDINE																	
## Company Com																		
## 1960	PENTACHLOROBENZENE																	
## Company of the com	PENTACHLOROETHANE		20 U	20.5 U			20.5 U				20.2 U							
Property	PENTACHLORONITROBENZENE																	
## A PART																		
Company Comp	PHENACETIN																	
THE COLOR OF THE C																		
# CALL 18	PYRIDINE																	
ACCOUNTS (1987) ACCOUN	SAFROLE		10 U	10.2 U	10.2 U	10.5 U	10.2 U	10.2 U	10.2 U	10.2 U	10.1 U	10.4 U	10.4 U	10.2 U	10.2 U	10.5 U	11.1 U	10 U
## PRINCEMENT MALE 15 15 15 15 15 15 15 1	1,2,4,5-TETRACHLOROBENZENE																	
## 20 PERSONNELLA ## 15																		
6 PRIL PRILATE	1,2,4-1 HICHLOROBENZENE 2,4,5-TRICHLOROPHENOL																	
Company	2,4,6-TRICHLOROPHENOL																	
THE CALLED SECTION Sec	Organochlorine Pesticides																	
AMACAGAME	ALDRIN ALBUM ORDANIS																	
Processor Proc																		
THE DESTRUCTION ASSOCIATION OF THE PROPERTY OF																		
TAMES 19 19 19 19 19 19 19 1																		
AMARI RELIAMAS. 195. 1961	DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE)																	
PART STATES STATE	GAMMA BHC (LINDANE)		0.01 U	0.01 U	0.01 U	0.01 U	0.05 U	0.051 U	0.05 U	0.05 U	0.051 U	0.051 U	0.051 U	0.051 U	0.051 U	0.051 U	0.05 U	0.05 U
INDESCRIPTION PROPERTY OF THE	DIELDRIN	μg/L																
ACCOUNT ACCO	ALPHA ENDOSULFAN																	
Seminary (a) (a) (b) (b) (c) (c) (c) (c) (c) (c) (c) (c) (c) (c																		
Column C	ENDRIN																	
Control Fig. Control	ENDRIN ALDEHYDE																	
### CASH PROMISE 194	ENDRIN KETONE	μg/L		0.01														
## 200 ## 1																		
Fig.																		
Part	p,p'-DDE																	
EIROPACHICAE	p,p'-DDT																	
TRADITION STATE	METHOXYCHLOR													0.051 U				
THEATHER 1941 510 520 520 520 510 510 510 510 510 510 510 510 520 520 520 520 510 510 510 510 510 510 520	TOXAPHENE	μg/L	0.1 U	0.1 UJ	0.1 UJ	0.1 U	0.5 U	0.51 U	0.5 U	0.5 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.5 U	0.5 U
SEMENT (OUTHON)		ug/l	5 11	511	5211	5 11	5.111	5.1 []	5.1.11	5.111	511	511	5.11	5 11	5.1 111	5311	5311	5.1 11
OLSTAR	AZINPHOS, METHYL (GUTHION)																	
COMMAPING	BOLSTAR																	
EMETON 1991 50 50 52 25 50 510 510 510 510 510 510 510 510 510	CHLORPYRIFOS																	
EMETONS 100																		
MAZNON 1901 510 510 520 510	DEMETON-O DEMETON-S																	
CHLORNOS	DIAZINON			5 U		5 U						5 U	5 U	5 U				
SULFOTON SQL	DICHLORVOS	· -	5 U	5 ∪	5.2 U	5 ∪	5.1 U				5 UJ	5 UJ	5 UJ	5 UJ		5.3 U		5.1 U
THOPRIOP 1901 510 510 520 510 531	DIMETHOATE		5 U	5 U		5 U	4						5 U	5 U				
AMPHUR				5 U		5 U							5 U	5 U				
ENSULPTION POL SIU ETHOPROP FAMPHUR																		
ENTHON Ippl. S U	FENSULFOTHION		5 U								5 U							
ENNPHOS	FENTHION		5 U		5.2 U		5.1 U	5.1 U	5.1 U	5.1 U	5 U				5.1 U	5.3 U	5.3 U	5.1 U
ALED	MERPHOS			5 U		5 U						5 U	5 U	5 ∪				
ARATHON, ETHYL ARATHON, ETHYL BPL BU BU BU BU BU BU BU BU BU B	MEVINPHOS NALED																	
ARATHON, METHYL ARATHON, METHYL ARATHON, METHYL ARATHON, METHYL BYL BYL BYL BYL BYL BYL BYL																		
HORATE HO	PARATHION, METHYL																	
ONNEL DATE	PHORATE												5 U					
TIROFOS (TETRACHLORVINPHOS) pgL 5 5 5 5 5 5 5 5 5	RONNEL			5 U	5.2 U											5.3 U	5.3 U	
HINDIPHOSPHORIC ACID TETRAÉTHYL ESTER	SIMAZINE STIPOFOS (TETPACHI ORVINDUOS)																	
OKUTHION (PROTHIOFOS) Mg/L S U																		
RICHLORONATE	TOKUTHION (PROTHIOFOS)																	
NOPHOS	TRICHLORONATE		- 1															
CB-1016 (AROCHLOR 1016)	ZINOPHOS																	
CB-1221 (AROCHLOR 1221)			0.54	1 05/5:	1	o sub-		1	1 0.51		0.51	I agric	0.545	1 05/5:	0.541	l ordin		0.5%
CB-1232 (AROCHLOR 1232)		· -																
CB-1242 (AROCHLOR 1242) μg/L 0.51 U																		
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$																		
CB-1254 (AROCHLOR 1254) µg/L 0.51 U 0	PCB-1242 (AROCHLOR 1242)																	
	PCB-1254 (AROCHLOR 1254)							0.51 U										
	PCB-1260 (AROCHLOR 1260)	μg/L	0.51 U	0.51 U	0.51 U	0.51 U	0.5 U	0.51 ∪	0.5 U	0.5 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.5 U	0.5 U

	_																
			Ev	ent 1		Event 2			Event 3				Event 4				
	Location:	LAKE	MW-1	MW-1	MW-2	LAKE	MW-1	MW-1	MW-2	LAKE	MW-1	MW-1	MW-2	LAKE	MW-1	MW-1	MW-2
	Event:	Event 1	Event 1	Event 1	Event 1	Event 2	Event 2	Event 2	Event 2	Event 3	Event 3	Event 3	Event 3	Event 4	Event 4	Event 4	Event 4
	SJRWMD No.:	None	S-0334	S-0334	S-0335	None	S-0334	S-0334	S-0335	None	S-0334	S-0334	S-0335	None	S-0334	S-0334	S-0335
	SampleID:	L0-00-Lake	L0-00-MW1	L0-00-Dupe	L0-00-MW2	L0-01-Lake	L0-01-MW1	L0-01-Dup	L0-01-MW-2	L0-02-LAKE	L0-01-MW-1	L0-01-DUPE	L0-02-MW2	LO-03-Lake	LO-03-MW1	LO-03-Dup	LO-03-MW-2
	DateCollected:	13-Jul-05	13-Jul-05	13-Jul-05	12-Jul-05	20-Jul-05	21-Jul-05	21-Jul-05	20-Jul-05	27-Jul-05	28-Jul-05	28-Jul-05	27-Jul-05	08-Aug-05	09-Aug-05	09-Aug-05	08-Aug-05
	Matrix:	Surface Water	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Surface Water	Groundwater	Groundwater	Groundwater	Surface Water	Groundwater	Groundwater	Groundwater
	SampleType:	Normal	Normal	Field Duplicate	Normal	Normal	Normal	Field Duplicate	Normal	Normal	Normal	Field Duplicate	Normal	Normal	Normal	Field Duplicate	Normal
Parameter Group and Name	Unit	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual
Herbicides																	
2,4,5-T (TRICHLOROPHENOXYACETIC ACID)	μg/L	0.53 U	0.51 U	0.52 U	0.51 U	0.5 UJ	0.5 UJ	0.53 U	0.52 UJ	0.54 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.51 U	0.5 U
2,4-D (DICHLOROPHENOXYACETIC ACID)	μg/L	0.53 U	0.51 U	0.52 U	0.51 U	0.5 U	0.5 U	0.53 U	0.52 U	0.54 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.51 U	0.5 U
DALAPON	μg/L	0.66 UJ	0.64 UJ	0.65 UJ	0.64 UJ	0.62 U	0.62 U	0.66 U	0.64 U	0.68 UJ	0.62 U	0.62 U	0.62 U	0.63 U	0.62 U	0.63 U	0.63 U
DICAMBA	μg/L	0.53 U	0.51 U	0.52 U	0.51 U	0.5 UJ	0.5 U	0.53 UJ	0.52 UJ	0.54 UJ	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.51 U	0.5 U
DICHLOROPROP	μg/L	0.53 U	0.51 U	0.52 ∪	0.51 U	0.5 U	0.5 U	0.53 ∪	0.52 U	0.54 UJ	0.5 U	0.5 ∪	0.5 U	0.5 U	0.5 U	0.51 U	0.5 U
DINOSEB	μg/L	0.53 U	0.51 U	0.52 U	0.51 U	0.5 U	0.5 U	0.53 U	0.52 U	0.54 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.51 U	0.5 U
PICLORAM	μg/L	0.53 U	0.51 U	0.52 U	0.51 U	0.5 U	0.5 U	0.53 U	0.52 U	0.54 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.51 U	0.5 U
SILVEX (2,4,5-TP)	μα/L	0.53 U	0.51 U	0.52 U	0.51 U	0.5 UJ	0.5 UJ	0.53 U	0.52 UJ	0.54 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.51 U	0.5 U

Notes: Shaded cells with bolded values represent detections equal to or above

promulgated regulatory criteria.

Shaded cells with boxed values represent detections equal to or above Risk-Based Criteria.

promugated regulatory crienta.

Shaded cells with boxed values represent detections equal to or above Risk-Based Criteria.

Shaded cells with bolded and boxed values represent detections equal to or above promulgated regulatory criteria and Risk-Based Criteria.

Bolded values represent reporting limits equal or above promulgated regulatory criteria.

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Explanation of Qualifiers

"=" Represents a detection at the value shown

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"L" Represents a nondetection above the value shown

"R" Represents rejected data

Blanks for the criteria and screening values represent no established values.

Explanation of Units

pci/L - picoCuries per liter

mg/L - milligrams per liter

NTU - Nephelometric Turbidity Units

µg/L - micrograms per liter

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		Event 5				Event 6			Event 7				Event 8				
	Location:	LAKE	MW-1	MW-1	MW-2												
	Event:	Event 5	Event 5	Event 5	Event 5	Event 6	Event 6	Event 6	Event 6	Event 7	Event 7	Event 7	Event 7	Event 8	Event 8	Event 8	Event 8
	SJRWMD No.:	None	S-0334	S-0334	S-0335												
	SampleID:	LO-04-LAKE	LO-04-01	LO-04-Dupe	LO-04-02	LO-05-LAKE	LO-05-01	LO-05-DUPE	LO-05-02	LO-06-LAKE	LO-06-01	LO-06-DUP	LO-06-02	LO-07-LAKE	LO-07-01	LO-07-Dupe	LO-07-02
	DateCollected:	07-Sep-05	08-Sep-05	08-Sep-05	07-Sep-05	05-Oct-05	05-Oct-05	05-Oct-05	05-Oct-05	31-Oct-05	31-Oct-05	31-Oct-05	31-Oct-05	05-Dec-05	05-Dec-05	05-Dec-05	05-Dec-05
	Matrix:	Surface Water	Groundwater	Groundwater	Groundwater	Surface Water	Groundwater	Groundwater	Groundwater	Surface Water	Groundwater	Groundwater	Groundwater	Surface Water	Groundwater	Groundwater	Groundwater
	SampleType:	Normal	Normal	Field Duplicate	Normal	Normal	Normal	Field Duplicate	Normal	Normal	Normal	Field Duplicate	Normal	Normal	Normal	Field Duplicate	Normal
Parameter Group and Name	Unit	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual	Result Qual
Herbicides																	
2,4,5-T (TRICHLOROPHENOXYACETIC ACID)	μg/L	0.5 UJ	0.51 U	0.51 U	0.53 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.51 U	0.5 U	0.5 U	0.5 U	0.51 U	0.51 U	0.51 U	0.51 U
2,4-D (DICHLOROPHENOXYACETIC ACID)	μg/L	0.5 U	0.51 U	0.51 U	0.53 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.51 U	0.5 U	0.5 U	0.5 U	0.51 U	0.51 U	0.51 U	0.51 U
DALAPON	μg/L	0.62 UJ	0.64 U	0.64 U	0.66 UJ	0.62 UJ	0.62 UJ	0.62 UJ	0.62 UJ	0.64 UJ	0.62 UJ	0.62 UJ	0.62 UJ	0.64 U	0.64 U	0.64 U	0.64 U
DICAMBA	μg/L	0.5 UJ	0.51 U	0.51 U	0.53 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.51 U	0.5 U	0.5 U	0.5 U	0.51 U	0.51 U	0.51 U	0.51 U
DICHLOROPROP	μg/L	0.5 U	0.51 U	0.51 U	0.53 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.51 U	0.5 U	0.5 ∪	0.5 U	0.51 U	0.51 U	0.51 U	0.51 U
DINOSEB	μg/L	0.5 U	0.51 U	0.51 U	0.53 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.51 U	0.5 U	0.5 U	0.5 U	0.51 U	0.51 U	0.51 U	0.51 U
PICLORAM	μg/L	0.5 U	0.51 U	0.51 U	0.53 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.51 U	0.5 U	0.5 U	0.5 U	0.51 U	0.51 U	0.51 U	0.51 U
SILVEX (2,4,5-TP)	μg/L	0.5 U	0.51 U	0.51 U	0.53 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.51 U	0.5 U	0.5 U	0.5 U	0.51 U	0.51 U	0.51 U	0.51 U

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REPORT

Central Florida Artificial Recharge Demonstration Program Lake Orienta – Orlando, FL

Microbiological Monitoring Results 2005

Rebecca Ives Joan B. Rose, Ph.D

March 9, 2006

Central Florida Artificial Recharge Demonstration Program Lake Orienta – Altamonte Springs, FL

SAMPLING METHODS:

FIELD SAMPLING METHODS:

Two groundwater monitoring wells (MW1, MW2) and one surface water site were sampled for *Cryptosporidium spp.*, *Giardia spp.*, *Enterococcus spp.*,, total coliforms, fecal coliforms, *E. coli*, and coliphage in order to monitor levels of these microbial indicators for the Artificial Recharge Well Demonstration Project. Envirochek HV filters were used, according to EPA Method 1623 to detect the presence of *Cryptosporidium spp.* and *Giardia spp.* at each site. The sampling apparatus used at the monitoring well sites consisted of a submersed bladder pump attached to 75 ft.of tubing, attached to the Envirochek HV filter, attached to a flow meter, attached to an outlet hose. Flow meters were attached to the sampling apparatus to provide accurate measurement of volume sampled.

Matrix spike (MS) samples were processed according to USEPA method 1623 (USEPA, 2001) to determine the recovery efficiency of the sampling apparatus under specific field conditions and with differing water matrices (i.e. groundwater and surface water). Following collection of filter samples for *Cryptosporidium spp.* and *Giardia spp.*, grab samples were collected in sterile one or two liter bottles for laboratory analysis of the concentration of the four bacterial indicators and coliphage.

All equipment used in the sampling apparatus was newly purchased for this project, and once used, it was "dedicated" to the site, labeled, and stored in separate plastic bags.

These measures were taken to prevent cross contamination during subsequent sample collection events at the same sites.

Groundwater Monitoring Wells:

Samples were collected from the monitoring wells using a submersible bladder pump that was at a depth of 75 to 80 feet bellow ground level. Following the EPA Method 1623 approximately 100 liters of water were filtered through Envirochek HV filter capsules at a rate between 0.75 and 2.3 liters/minute (EPA Method 1623: *Cryptosporidium* and *Giardia* in Water by Filtration/IMS/IFA). Lesser amounts were consistently filtered at the surface water site due to high turbidity and clogging of the filter. Collection of volumes less than 100L at other sites was also due to clogging of the filter.

MS samples were collected at Monitoring Well 1(MW1) and Monitoring Well 2 (MW2) to check the precision and accuracy of the equipment used to sample for *Cryptosporidium spp.* and *Giardia spp.* For each spiked sample approximately 100 liters of water were pumped into a 32 gallon plastic trash can. 100±1.4 *Giardia* cysts and 100±1.5 *Cryptosporidium* oocysts were added to the sample according to the ColorSeedC&G matrix spike package insert (ColorSeed C&G; BTF, North Ryde, BC, Australia). In the spiked monitoring well samples, the final 2-3 liters of system effluent were used to rinse the inside of the garbage can in efforts to recover any affixed (oo)cysts. The equipment used for the matrix spikes had been dedicated to matrix spikes. The matrix spike procedures were completed once during this sampling period.

Following the collection of filter samples, a total of 4 liters of water were collected in sterile grab sample bottles. The filters and grab samples were placed in coolers with ice packs and transported to the Water Pollution Laboratory at Michigan State University for analysis.

Surface Water:

Surface water samples were collected from Lake Orienta using an automatic-demand diaphragm pump. The sampling apparatus consisted of tubing attached to the Envirochek HV filter, attached to a flow meter, attached to a diaphragm pump, attached to an outlet hose.

Matrix Spike (MS) samples were collected at the lake site. The equipment used for the matrix spikes had been dedicated to the matrix spike samples. The matrix spike procedures were completed once during this sampling period. Approximately 100 liters of water were pumped into a 32 gallon plastic trash can and 100 ± 1.4 *Giardia* cysts and 100 ± 1.5 *Cryptosporidium* oocysts were added to the 100 liter sample according to the ColorSeedC&G matrix spike package insert (ColorSeed C&G; BTF, North Ryde, BC, Australia). The filter for the surface water site clogged after filtering 9.08L. Four liter grab samples were also collected at each sampling event. The filters and grab samples were placed in coolers with frozen ice packs and transported to the Water Pollution Laboratory at Michigan State University for laboratory analysis.

LABORATORY METHODS:

The filters and grab samples were stored on ice and transported to the laboratory via Fed Ex next-day delivery service. The initial laboratory processing of samples was completed within 36 hours after collection. Recovery efficiency experiments are also routinely done in the laboratory to determine the accuracy and precision of laboratory methods and equipment.

Bacterial Indicators:

To assess the concentration of total coliforms, fecal coliforms, *E. coli* and *Entercoccus spp.*, in the monitoring wells, sample volumes of 1, 100, 250mL were filtered using a 0.45 um (pore size) 47mm (diameter) filter membrane (Gelman Sciences) according

to the *Standard Methods for the Examination of Water and Wastewater* (APHA 1998). The same was done with samples derived from north recharge well; however, sample volumes of 1, 10, and 100mL were filtered. The filters were plated on indicator-specific media and incubated for 24 hours at temperatures specific to each indicator.

For enumeration of *Enterococcus spp*. the filters were placed on MEI agar plates (modified medium for detection of *Enterococcus spp*.; Difco Laboratories, Detroit, MI) and incubated at 41°C. After 24 hours colonies with a blue halo were counted as *Entercoccus spp*. as described in Method 1600 (USEPA, 1996). To assess numbers of total coliform bacteria, membrane filters were placed on m-ENDO agar (Difco Laboratories, Detroit, MI) and incubated at 37°C. To detect fecal coliform bacteria the filters were placed on mFC agar (modified medium for fecal coliform bacteria; Difco Laboratories, Detroit, MI) and incubated at 45° C. The bacterial concentrations were then quantified and expressed as the number of colony forming units per 100mL (CFU/ 100mL) (Table 1).

To assess *E.coli* concentrations the membrane filter used in the total coliform evaluation was removed from the m-ENDO agar and transferred to a plate with EC medium with MUG (Difco Laboratories, Detroit, MI). The plates were incubated at 37°C for 24 hours and then viewed under a UV lamp. Those colonies that fluoresced were counted as positive *E.coli* colonies (Table 1).

Coliphages:

An agar overlay method was used to determine the concentration of coliphages present in the water samples. Two different host bacterium strains were used in the agar overlay method, *E. coli* C3000 and *E. coli* p(Famp)R. Each host *E. coli* was grown to logarithmic stage in tryptic soy broth (TSB) at 37° C for approximately 4 hours. 1mL of the host bacteria

and 2mL of sampled water was mixed with a molten trypticase soy agar (TSA) (3mL) and then poured over a solid TSA plate. Five replicate plates were used for each sample site and for each host. Coliphage concentration at each sampling site was determined using the following formula: (total number of plaques/ volume of sample water analyzed)*100. The concentration is reported in numbers of plaque-forming units per 100mL (PFU/100mL).

Cryptosporidium spp. and Giardia spp.:

Cryptosporidium spp. and Giardia spp. were enumerated using standard methods for filtration, elution, concentration, purification (IMS), staining and examination by IFA according to the methods described in Method 1623 (EPA Method 1623: Cryptosporidium and Giardia in Water by Filtration/IMS/IFA) (USEPA, 2001). The concentration of the final pellet was recorded on laboratory data sheets.

The resuspended pellet containing (oo)cysts was purified using immunomagnetic separation (IMS) using a Dynal Dynabeads CG combo kit. IMS was completed according to the protocol described in EPA Method 1623 with some modification. Namely, the dissociation of the bead-(oo)cyst complex was accomplished by washing the beads with 100ul of 0.1N HCl two times, instead of the suggested 50ul (Dynabeads anti-*Cryptosporidium* and anti-*Giardia*; product 730.02; Dynal A.S., Oslo, Norway). This resulted in a 200ul suspension containing cysts and oocysts. 50ul of solution was placed on each of four slides with 5ul NaOH to neutralize the HCL. The slides were then fixed and stained using fluorescein isothiacyanate-conjugated anti-*Cryptosporidium* sp. and anti-*Giardia* sp. monoclonal antibodies (EasyStain; BTF, Decisive Microbiology, North Ryde, BC Australia) and a solution of 4',6'-diamidino-2-phenylindole and propidium iodide (DAPI-PI).

(Oo)cysts on the slides were viewed and enumerated using epifluorescence microscopy. For naturally occurring (oo)cysts, the number of cysts and oocysts per 100L of water was calculated (Table 2). Also, for the spiked samples (MS), the recovery efficiencies were calculated (Tables 3 and 4).

The filtration device used in the study was the Envirochek HV sampling capsule (Pall Gelman Laboratory, Ann Arbor, MI). ColorSeedTM C&G (BTF, Decisive Microbiology, North Ryde, BC, Australia) was used as the spike suspensions in IPR tests, matrix spike, and recovery efficiency experiments. These spikes consist of 100±1.5 red fluorescent labeled and gamma irradiated *Cryptosporidium* oocysts and 100±1.4 red fluorescent labeled and gamma irradiated *Giardia* cysts in approximately 1 mL of saline solution. They can be used as internal quality control parameters to determine the performance or percent recovery achieved (see http://www.biotechfrontiers.com).

Results:

Results of eight sampling events over 6 months are presented in the four tables below.

Table 1 contains information detailing the presence and abundance of bacterial indicators and coliphage in each of the monitoring wells and the surface water site sampled. Coliphage were not found in the source water, using the agar overlay method, at any of the sites during any of the sampling events. All four bacterial indicators were detected in all surface water samples. Bacterial indicators were present less often and at lower levels in the monitoring wells compared to the surface water. Enterococcus was detected in four out of the eight samples from MW1 and in 2 out of eight samples from MW2. Enterococcus was present

in both monitoring wells during the same sampling event on August 8, 2005. Seven of eight samples from MW1 and two of seven samples from MW2 tested positive for total coliform bacteria. One of the seven total coliform positive MW1 samples was also positive for fecal coliform bacteria (9/7/2005 sample event), no sample from MW1 tested positive for the presence of *E. coli*.

There were four samples during this study where the level of fecal coliforms was higher than total coliforms. In surface water samples collected 7/11/2005 and 7/20/2005, and the MW1 samples collected 9/7/2005, high levels of non-coliform bacteria were observed during analysis of the total coliform plates. In these samples, higher fecal coliform counts than total coliform counts may be due to growth suppression of the total coliform population by non-coliform bacteria. The growth conditions of the total coliform assay are not as selective as the growth conditions for the fecal coliform assay, which uses a higher incubation temperature. In the total coliform assay, non-coliform bacteria may outgrow the coliform bacteria, reducing the availability of nutrients and therefore suppressing growth of coliform bacteria. Fecal coliforms and *E.coli* were detected in the MW2 sample collected 7/27/2005, but no total coliforms were present. The levels of fecal coliforms and *E.coli* were at the detection limit of the assay, so the non-detection of total coliforms in this sample may have been affected by Poisson distribution.

Table 1. Summary Results for Bacterial Indicators and Coliphage: Lake Orienta 2005

		Indicator Organisms								
Date sample	Site location		Bacteria (C				lay (PFU/100mL)			
collection		Total Coliforms	Fecal Coliforms	E. coli	Enterococcus	Host C3000*	Host Famp+			
7/11/2005	Lake Orienta	$1.03 \times 10^{2 \text{ b}}$	3.90×10^2	$2.10 \times 10^{1 \text{ b}}$	3.60×10^4	$<1.0 \text{ x}10^{1}$	$<9.5 \times 10^{0}$			
7/11/2005	Monitoring Well 1	$<3 \times 10^{0}$	$<3 \times 10^{0}$	$<3 \times 10^{0}$	$<3 \times 10^{0}$	$<1.0 \text{ x}10^{1}$	$<9.5 \times 10^{0}$			
7/11/2005	Monitoring Well 2	$<3 \times 10^{0}$	$<3 \times 10^{0}$	$<3 \times 10^{0}$	$<3 \times 10^{0}$	$<1.0 \text{ x}10^{1}$	$<9.5 \times 10^{0}$			
7/20/2005	Lake Orienta	2.7×10^{1}	3.2×10^{1}	1.50×10^{1} a		$<1.0 \text{ x}10^{1}$	$<1.0 \text{ x}10^{1}$			
7/20/2005	Monitoring Well 1	2.6×10^{-1} b	<1 x 10 ⁻¹	<1 x10 ⁻¹	2.8 x10 ^{-1 b}	$<1.0 \times 10^{1}$	$<1.0 \times 10^{1}$			
7/20/2005	Monitoring Well 2	$2.6 \times 10^{0 \text{ b}}$	<1 x 10 ⁻¹	<1 x 10 ⁻¹	<1 x 10 ⁻¹	$<1.0 \times 10^{1}$	$<1.0 \text{ x}10^{1}$			
7/27/2005	Lake Orienta	4.8×10^{1}	4.2×10^{1}	3.30×10^{1}	3.30×10^{1}	$<1.0 \times 10^{1}$	$<1.0 \text{ x}10^{1}$			
7/27/2005	Monitoring Well 1	2.7×10^{0}	<9 x 10 ⁻²	<9 x 10 ⁻²	1.8 x10 ⁻¹	$<1.0 \times 10^{1}$	$<1.0 \times 10^{1}$			
7/27/2005	Monitoring Well 2	<9 x 10 ⁻²	9 x 10 ^{-2 ab}	$9 \times 10^{-2 \text{ ab}}$	<9 x 10 ⁻²	$<1.0 \times 10^{1}$	$<1.0 \times 10^{1}$			
8/8/2005	Lake Orienta	$9.0 \times 10^{1 \text{ b}}$	$6.5 \times 10^{1 \text{ b}}$	$5.00 \times 10^{1 \text{ b}}$	2.05×10^{1}	$<1.0 \times 10^{1}$	$<1.0 \times 10^{1}$			
8/8/2005	Monitoring Well 1	6 x 10 ⁻¹	$<4 \text{ x} 10^{-1 \text{ a}}$	$<4 \times 10^{-1}$ a	9 x 10 ^{-2 ab}	$<1.0 \times 10^{1}$	$<1.0 \times 10^{1}$			
8/8/2005	Monitoring Well 2	<2 x 10 ⁻¹	$<2 \times 10^{-1}$	$<2 \times 10^{-1}$	8.3 x10 ⁻¹	$<1.0 \text{ x}10^{1}$	$<1.0 \text{ x}10^{1}$			
9/7/2005	Lake Orienta	$1.4 \times 10^{3 \text{ b}}$	$8.33 \times 10^{2 \text{ b}}$	$1.67 \times 10^{2 \text{ b}}$	3.63×10^3	$<1.0 \text{ x} 10^{1}$	$<1.0 \text{ x}10^{1}$			
9/7/2005	Monitoring Well 1	9 x 10 ^{-2 ab}	6.5 x 10 ^{-1 b}	<9 x 10 ⁻²	<9 x 10 ⁻²	$<1.0 \text{ x}10^{1}$	$<1.0 \text{ x}10^{1}$			
9/7/2005	Monitoring Well 2	<9 x 10 ⁻²	$<9 \times 10^{-2}$	<9 x 10 ⁻²	<9 x 10 ⁻²	$<1.0 \text{ x}10^{1}$	$<1.0 \text{ x}10^{1}$			
10/6/2005	Lake Orienta	8.53×10^2	2.37×10^2	$7.00 \times 10^{1 \text{ b}}$		$<1.0 \text{ x}10^{1}$	$<1.0 \text{ x}10^{1}$			
10/6/2005	Monitoring Well 1	$7.7 \times 10^{0 \text{ b}}$	<9 x 10 ⁻²	<9 x10 ⁻²	$<9 \times 10^{-2}$	$<1.0 \text{ x}10^{1}$	$<1.0 \text{ x}10^{1}$			
10/6/2005	Monitoring Well 2	<9 x 10 ⁻²	<9 x 10 ⁻²	$<9 \times 10^{-2}$	<9 x 10 ⁻²	$<1.0 \times 10^{1}$	$<1.0 \times 10^{1}$			
10/31/2005	Lake Orienta	3.6×10^2	2.90×10^2	2.30×10^{1}	5.27×10^{1}	$<1.0 \times 10^{1}$	$<1.0 \times 10^{1}$			
10/31/2005	Monitoring Well 1	1.9 x10 ⁻¹	<9 x 10 ^{-1 b}	<9 x 10 ⁻¹	3.7 x10 ^{-1 b}	$<1.0 \times 10^{1}$	$<1.0 \text{ x}10^{1}$			
10/31/2005	Monitoring Well 2	<9 x 10 ⁻²	$<3.3 \times 10^{-1}$	<3.3 x10 ⁻¹		$<1.0 \text{ x}10^{1}$	$<1.0 \text{ x}10^{1}$			
12/6/2005	Lake Orienta	1.47×10^2	6.0×10^{1}	4.70×10^{1}	9.50×10^{1}	$<1.0 \text{ x}10^{1}$	$<1.0 \text{ x}10^{1}$			
12/6/2005	Monitoring Well 1	9 x 10 ⁻²	$<9 \times 10^{-2}$	<9 x 10 ⁻²	<9 x 10 ⁻²	$<1.0 \text{ x}10^{1}$	$<1.0 \text{ x}10^{1}$			
12/6/2005	Monitoring Well 2	6×10^{1}	$<9 \times 10^{-2}$	$<9 \times 10^{-2}$	1.9 x10 ⁻¹	$<1.0 \text{ x}10^{1}$	$<1.0 \times 10^{1}$			

Notes on Table 1. Summary Results for Bacterial Indicators and Coliphage: Lake Orienta 2005

- < symbol indicates samples were below the level of detection
- ^a Bacterial counts from one plate
- b Less than 20 colonies per plate

Table 2 contains information on the collection and detection of *Cryptosporidium* oocysts and *Giardia* cysts at each site. There were no *Giardia* detected in any of the samples during any of the sampling events during the project (Table 2). One *Cryptosporidium* oocyst was detected in the Lake Orienta surface water site on two dates, 9/7/2005 and 10/6/2005 (Table 2). Volumes of water collected at the surface water sites varied from 7.95 liters 27.75 liters. Volumes collected at the monitoring well sites varied from 31.8 liters to 102.2 liters. EPA Method 1623 recommends collecting 1000 liters of a groundwater sample for detection of *Cryptosporidium* and *Giardia*. However, collection volumes were limited by time constraints and sometimes by the physical and chemical properties of the water matrix. For example, high turbidity greatly reduces the volume of water that can be collected using the Envirochek HV sampling capsule.

Method 1623 recommends collecting 10 liters of a surface water sample for detection of *Cryptosporidium* and *Giardia*. Yet, maximum volumes of water were collected at the surface water site in order maximize our ability to detect potential (00)cysts present in the samples. Therefore, the volume of water collected for parasite analysis ranged from 7.95 liters 27.75 liters.

Table 2. Cryptosporidium and Giardia Detected: Lake Orienta 2005

Date	Site	Total	Organisms	Total	# with	# without	Equivalent	
Collected	Location	Volume	Detected		internal	internal	concentration	
		Collected			features	features	of (oo)cysts/	
		(Liters)			(DIC)		100L	
7/11/2005	Lake Orienta	27.6	Cryptosporidium Giardia	0	0	0	<11.6	
7/11/2005	Monitoring Well 1	98.41	Cryptosporidium Giardia	0	0	0	<4.07	
	Manitarina		Cryptosporidium					
7/11/2005	Monitoring Well 2	99.5	Giardia	0	0	0	<2.70	
7/11/2003	W CII Z		Giardia					
7/20/2005	Lake	27.75	Cryptosporidium	0	0	0	<9.61	
112012003	Orienta	21.13	Giardia	U	U	U	<9.01	
7/20/2005	Monitoring	98.8	Cryptosporidium	0	0	0	<2.70	
772072003	Well 1	76.6	Giardia	U	U	U	\2.70	
	Monitoring		Cryptosporidium					
7/20/2005	Well 2	98.41	Giardia	0	0	0	<2.71	
7/27/2005	Lake	27.25	Cryptosporidium	0	0	0	<8.40	
112112003	Orienta	21.23	Giardia	U	U	U	<0.40	
7/27/2005	Monitoring	99.17	Cryptosporidium	0	0	0	<2.7	
112112003	Well 1	99.17	Giardia	U	U	U	\2.1	
7/27/2005	Monitoring	99.17	Cryptosporidium	0	0	0	<2.7	
112112003	Well 2	77.17	Giardia	U	U	U	\2. 1	
8/8/2005	Lake	27.25	Cryptosporidium	0	0	0	<7.8	
0/0/2003	Orienta	21,23	Giardia	Ü	Ü	Ü	\$7.0	
8/8/2005	Monitoring	31.8	Cryptosporidium	0	0	0	<8.4	
3,0,2003	Well 1	51.0	Giardia				30.1	

8/8/2005	Monitoring Well 2	99.2	Cryptosporidium Giardia	0	0	0	<2.77
9/7/2005	Lake Orienta	27	Cryptosporidium Giardia	1 0	1 0	0	7.9 <7.9
9/7/2005	Monitoring Well 1	99.17	Cryptosporidium Giardia	0	0	0	<2.69
9/7/2005	Monitoring Well 2	98.41	Cryptosporidium Giardia	0	0	0	<2.71
10/6/2005	Lake	12.05	Cryptosporidium	1	1	0	13.2
10/6/2005	Orienta	13.25	Giardia	0	0	0	<13.2
10/6/2005	Monitoring Well 1	98.41	Cryptosporidium Giardia	0	0	0	<2.71
10/6/2005	Monitoring Well 2	98.41	Cryptosporidium Giardia	0	0	0	<2.71
10/31/2005	Lake Orienta	7.95	Cryptosporidium Giardia	0	0	0	<33.6
10/31/2005	Monitoring Well 1	102.2	Cryptosporidium Giardia	0	0	0	<1.74
10/31/2005	Monitoring Well 2	98.41	Cryptosporidium Giardia	0	0	0	<2.71
12/6/2005	Lake Orienta	11.7	Cryptosporidium Giardia	0	0	0	<9.1
12/6/2005	Monitoring Well 1	98.41	Cryptosporidium Giardia	0	0	0	<2.71
12/6/2005	Monitoring Well 2	98.41	Cryptosporidium Giardia	0	0	0	<2.71

Table 3 contains details on the Matrix Spike samples that were collected from each of the three sites October 6, 2005. The Lake Orienta site recovery efficiencies for *Cryptosporidium* and *Giardia* did not meet the acceptance criteria outlined in Method 1623. The method mandates quality control acceptance criteria for *Cryptosporidium* to have recovery efficiencies between 13 and 100%, For *Giardia*, the method dictates efficiencies between 15 and 100%. The MS samples collected from the monitoring wells conformed to these criteria.

One possible reason why the Lake Orienta sample did not meet acceptance criteria is that the filter clogged before a sufficient amount of the seeded volume was filtered. The volume filtered before the filtered clogged would be expected to have one *Giardia* cyst and 1 *Cryptosporidium* oocyst. The recovery efficiencies may have also been affected by physical and chemical constituents within the water.

Table 3. Matrix Spike Samples:- Lake Orienta 2005

Date Collected	Site Location	Total Volume	Organism	Recovered	% Recovery
		Seeded (Liters)			Efficiency
10/6/2005	Lake Orienta*	98.4	Cryptosporidium	0	0
			Giardia	3	48.8
10/6/2005	Monitoring Well 1	81.98	Cryptosporidium	14	28
			Giardia	10	20
10/6/2005	Monitoring Well 2	79.79	Cryptosporidium	25	50
			Giardia	24	48

^{*} Filter clogged after filtering 9.08L (~9.2% of seeded volume). 9.2 *Cryptosporidium* oocysts and 9.2 *Giardia* cysts are expected in this volume.

General Conclusions

- Bacterial indicator concentrations were consistently higher at the Lake Orienta surface water site compared to the Monitoring Wells.
- Bacterial indicators were found in each of the wells at some point during the project, thus each of the wells sampled are susceptible to microbial contamination.
- No coliphage were found using the overlay procedure, at any of the sites during all sampling events
- There were no *Giardia* cysts collected at any of the sites during any of the sampling events.
- One *Cryptosporidium* oocyst was detected in the Lake Orienta surface water site on two dates, 9/7/2005 and 10/6/2005.

Lake Orienta Operational Characterization Microbial Sampling Results SJRWMD CFARE1

Selection Sele		Ī		Event 1			Event 2			Event 3			Event 4			Event 5			Event 6			Event 7			Event 8	
Probability		Site Location	Lako		M/M-2	Lako		M/M-2	Lako		V//V/~2	Lake		V//V/~3	Lako		M\M_2	Lako		M/M/_2	Lako		M/M/-2	Lako		MW-2
Substitution Subs																										Event 8
Service Color Co																										S-0335
Sample No. Col-Side Col-Sid		00		0 000 .	0 0000	110.10	0 000 .	3 3333	110.110	5 555 .	0 0000				110110	0 000 .	0 0000	110.10	3 333 .	0 0000		0 000 .	3 3333		0 000 .	- 0 0000
Part		Sample ID	LO-00-Lake	LO-00-MW1	LO-00-MW2	LO-01-Lake	LO-01-MW1	LO-01-MW2	LO-02-Lake	LO-02-MW1	LO-02-MW2				LO-04-03	LO-04-01	LO-04-02	LO-05-03	LO-05-01	LO-05-02	LO-06-03	LO-06-01	LO-06-02	L0-07-03	L0-07-01	L0-07-02
Sumple Number Sumple Numbe		Date Collected		7/11/2005	7/11/2005	7/20/2005	7/20/2005	7/20/2005	7/27/2005	7/27/2005	7/27/2005	8/8/2005	8/8/2005	8/8/2005	9/7/2005	9/7/2005	9/7/2005	10/6/2005	10/6/2005	10/6/2005	10/31/2005	10/31/2005	10/31/2005	12/6/2005	12/6/2005	12/6/2005
Series Clark Clark Sept Sep		Unit																								
Examined Lines 8,865 24 8 373 10,41 370 38,8 119 372 372 128 113 38,1 126 373 2 38,5 7,6 38,9 36,9 2,68 575 58,9 139 7,7 130 130 140		Liters	27.6	98.41	99.5	27.75	98.8	98.41	27.25	99.17	99.17	27.25	31.8	99.2	27	99.17	98.41	13.25	98.41	98.41	7.95	102.2	98.41	11.7	98.41	98.41
Plearing	·																									
Turberisty (abc) NTU 5.23 2.88 0.79 5.6 1.10 0.37 6.1 1.26 1.01 9.0 2.13 0.34 6.25 1.38 0.49 6.42 1.12 0.01 6.64 0.1 0.67 10.6 1.0 0.07 10.6 1.0 0.07 10.6 1.0 0.07 10.6 1.0 0.07 10.6 1.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0		Liters				-			-			-													36.9	36.9
Sample (Frequenting come and all and a		NITH							-			-														Filtering
Temperature upon aminary C 17 17 17 17 17 17 17		NIU	6.23	2.88	0.79	6.5	1.19	0.37	6.1	1.26	1.01	9.0	2.13	0.34	6.25	1.36	0.49	6.42	1.12	0.91	6.54	0.1	0.67	10.6	0.18	0.45
American C																										
Cooler Temperative "C no data		%	17	17	17	17	17	17	8	8	8	8	8	8	7.5	7.5	7.5	5	5	5	6.9	6.9	6.9	5.9	5.9	5.9
Temperature (C no data) no data no dat							.,	.,	0	J		-			7.10	7.0	7.10				0.0	0.0	0.0	0.0	0.0	0.0
Organism Basteria CFU100mL 103" <3 <3 27 0.26" 2.6" 4.8 2.7 <0.005 90" 0.6 <0.2 1400" 0.00" <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.005 <0.		∞	no data	no data	no data	no data	no data	no data	no data	no data	no data	3	2	3	4	4	4	3	3	3	5.4	5.4	5.4	0.8	0.8	0.8
Total Collision CFU100mL 103	Organism																									
Feat Celform CFU100mL 296	Bacteria																									
Ecos CEU100ml 21° 43 43 15° 40.1 40.1 33 40.09 0.08° 50° 40.4° 40.2 167° 40.09 40.09 70° 40.09 40.09 23 40.9 40.33 47 40.09				<3	<3																				0.09	60
February																									<0.09	<0.09
Virus Coliphage Ecol pfu/100 mL < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 10 <																									<0.09	< 0.09
Colphage (E.coli C3000 host) pfu/100 mL < 10 < 10 < 10 < 10 < 10 < 10 < 10 < 1		CFU/100mL	36,000	<3	<3	2.7	0.28	<0.1	33	0.18	<0.09	20.5	0.09	0.83	3633	<0.09	<0.09	5/0	<0.09	<0.09	52.7	0.37	<0.9	95	<0.09	0.19
Coliphage Coli																										
Colphage (E.coli pflagm)	, ,	nfu/100 ml	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	<10	<10
Control Francisco Franci		piu/100 IIIL	<u> </u>	<10	V10	<10	<10	<u> </u>	<10	<10	<10	V10	<10	<u> </u>	V10	<10	V10	<10	210	<u> </u>	V 10	<10	<10	<10	<u> </u>	<10
Parasites Put/100 mL 49.5 49.																										
Parasites Formal Cransims Detected O O O O O O O O O		pfu/100 mL	<9.5	<9.5	<9.5	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Defected																										
Number with Internal Features 0 0 0 0 0 0 0 0 0		Total Organisms																								
Internal Features 0 0 0 0 0 0 0 0 0		Detected	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Equivalent Concentration (concentration (concentr																										
Giardia Concentration (co)cysts/100L <11.6 <4.07 <2.70 <9.61 <2.70 <2.71 <8.40 <2.7 <2.7 <7.8 <8.4 <2.77 <7.9 <2.69 <2.71 <13.2 <2.71 <2.71 <33.6 <1.74 <2.71 <9.1 <2.71 <9.1 <2.71 <9.1 <2.71 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <1.00 <			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Giardia (oo)cysts/100L <11.6 <4.07 <2.70 <9.61 <2.70 <2.71 <8.40 <2.7 <7.8 <8.4 <2.77 <7.9 <2.69 <2.71 <13.2 <2.71 <2.71 <33.6 <1.74 <2.71 <9.1 <4.60 <1.74 <2.71 <9.1 <4.60 <1.74 <2.71 <9.1 <4.60 <1.74 <2.71 <9.1 <4.60 <1.74 <1.74 <2.71 <9.1 <4.60 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.74 <1.7		'																								
Equivalent Concentration with internal structure (oo)cysts/100L <11.6 <4.07 <2.70 <9.61 <2.71 <8.40 <2.7 <7.8 <8.4 <2.77 <7.9 <2.69 <2.71 <13.2 <2.71 <2.71 <33.6 <1.74 <2.71 <9.1 <2.71 <9.1 <2.71 <9.1 <2.71 <9.1 <2.71 <9.1 <2.71 <9.1 <2.71 <9.1 <2.71 <9.1 <2.71 <9.1 <2.71 <9.1 <2.71 <9.1 <9.1 <2.71 <9.1 <2.71 <9.1 <9.1 <2.71 <9.1 <9.1 <2.71 <9.1 <9.1 <9.1 <9.1 <9.1 <9.1 <9.1 <9.	Giardia		.116	-4.07	-0.70	-0.61	-0.70	-0.71	-9.40	-0.7	.0.7	.7 0	.0.4	-0.77	-7.0	-0.60	-0.71	.10.0	-0.71	-0.71	-22.6	-1.74	-0.71	-0.1	<2.71	<2.71
Concentration with internal structure (oo)cysts/100L <11.6 <4.07 <2.70 <9.61 <2.71 <8.40 <2.7 <7.8 <8.4 <2.77 <7.9 <2.69 <2.71 <13.2 <2.71 <33.6 <1.74 <2.71 <9.1 <2.71 <9.1 <2.71 <9.1 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1		(00)Cysts/100L	<11.0	<4.07	<2.70	<9.61	<2.70	<2.71	<0.40	<2.1	<2.1	<1.0	<0.4	<2.11	<7.9	<2.09	<2.71	<13.2	<2.71	<2.71	<33.0	<1.74	<2.71	<9.1	<2.71	<2.71
Concentration with internal structure (oo)cysts/100L <11.6 <4.07 <2.70 <9.61 <2.71 <8.40 <2.7 <7.8 <8.4 <2.77 <7.9 <2.69 <2.71 <13.2 <2.71 <33.6 <1.74 <2.71 <9.1 <2.71 <9.1 <2.71 <9.1 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1.71 <1		Fauivalent																								
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Total Organisms Detected 0 0 0 0 0 0 0 0 0																										
Detected 0<		(oo)cysts/100L	<11.6	<4.07	<2.70	<9.61	<2.70	<2.71	<8.40	<2.7	<2.7	<7.8	<8.4	<2.77	<7.9	<2.69	<2.71	<13.2	<2.71	<2.71	<33.6	<1.74	<2.71	<9.1	<2.71	<2.71
Number with Internal Features 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		Total Organisms																								
Internal Features 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0			0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0
			_	_				_															_			
Equivalent			0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0
Cryptosporidium Concentration	Cryptosporidium		_11 6	-4.07	<i>-</i> 2 7∩	-Q 61	-2 70	_9 71	-8 40	-27	-07	_7 Q	-2.1	_2 77	7 0	-2 60	~2 71	13.2	-2 71	√ 2 71	-33 G	-1 74	_2 71	-0.1	<2.71	<2.71
(00/09/06/1002 11.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.		(OO)Cysts/ TOUL	×11.0	<u>\</u> 4.07	\2.70	₹3.01	٧٤.70	ζ2.71	₹0.40	\Z.1	\2.7	<7.6	\0.4	\c.11	7.5	\2.09	ζ2./1	13.2	\2.71	\2.71	₹55.0	<1.74	\2.71	₹3.1	ζζ./1	\c.11
Equivalent		Equivalent																								
Concentration with		· ·																								
internal structure																										
			<11.6	<4.07	<2.70	<9.61	<2.70	<2.71	<8.40	<2.7	<2.7	<7.8	<8.4	<2.77	7.9	<2.69	<2.71	13.2	<2.71	<2.71	<33.6	<1.74	<2.71	<9.1	<2.71	<2.71

Problem with media batch - Positive control failure Qualified data - data from one plate

Qualified data - less than 20 colonies per plate
Filter transferred from fecal coliform (mFC agar) plates to *E.coli* (EC with MUG agar) plates

cfu - Colony forming units pfu - plaque forming units

¹ Indicator Guidelines for Ambient Surface Water Quality (used for Class III Waters)

Total Coliforms State of Florida guidelines for a single sample 1000 cfu/100mL, average of 400 cfu/100mL

Fecal Coliforms EPA and the state of Florida recommended guidelines for a single sample of 800 cfu/100 mL, for a geometric mean, 200 cfu/100 mL

EPA recommended guideline for a geometric mean sample 126 cfu/100 mL

Enterococci EPA recommended guidelines for a single sample of 104 cfu/100 mL, for a geometric mean , 33-35 cfu/100 mL for marine and fresh water respectively.

Coliphage Level used - 100 pfu/100 mL based on previous research by Dr. Joan Rose, USF

Appendix C Chemical Regulatory Criteria

		Maximum		aminant Levels		Florida B	rownfields	Risk-based Concentrations	
		Florida MCL / SMCL		Federal MCL/SMCL ²	Federal MCL/SMCL ²	Florida Brownfield	Florida Brownfield	Regional USEPA RBC	
								-	
		Chapter 62-550, FAC)				(62-785) ³	(62-785) 3	EPA Region III	EPA Region IV
		MCL	SMCL	MCL	SMCL	GCTL	Groundwater LY/PQ	Tap Water	
					_				
Parameter Group and Name Field Measurements	Unit	Criteria Unit	Criteria Unit	Criteria Unit	Criteria Unit	Criteria Unit	Criteria Unit	Criteria Unit	Criteria Unit
pH	Std. Units								
TEMPERATURE	℃	j							
CONDUCTANCE	μmhos								
TURBIDITY DISSOLVED OXYGEN	NTU mg/L	-							
OXIDATION/REDUCTION POTENTIAL	mV								
General Chemistry									
TOTAL DISSOLVED SOLIDS (RESIDUE, FILTERABLE) TURBIDITY	mg/L NTU	mg/L	500 mg/L	mg/L	500 mg/L	500 mg/L	500 mg/L	mg/L	mg/L
pH (laboratory)	PH UNITS	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L
COLOR	COLOR UNIT	1	15 CU	1.0	1.5		1	10	10
BIOLOGIC OXYGEN DEMAND, FIVE DAY	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
TOTAL ORGANIC CARBON	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
DISSOLVED ORGANIC CARBON Nutrients	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
TOTAL NITROGEN, ALL FORMS, CALCULATED	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
NITROGEN, AMMONIA (AS N)	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
NITROGEN, KJELDAHL, TOTAL NITROGEN, NITRITE	mg/L mg/L	mg/L 1 mg/L	mg/L mg/L	mg/L 1 mg/L	mg/L mg/L	mg/L 1 mg/L	mg/L mg/L	mg/L 3.7 mg/L	mg/L 3.7 mg/L
NITROGEN, NITRATE-NITRITE	mg/L	mg/L	mg/L	10 mg/L	mg/L	10 mg/L	mg/L	mg/L	mg/L
PHOSPHORUS, TOTAL (AS =P)	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
PHOSPHORUS, TOTAL ORGANIC (AS P)	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
PHOSPHORUS, TOTAL ORGANIC (AS P) Anions	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
ALKALINITY, BICARBONATE (AS CACO3)	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Carbonate	mg/L								
Hydroxide CHLORIDE (AS CL)	mg/L mg/L	μg/L	250 mg/L	mg/L	250 mg/L	250 mg/L	250 mg/L	mg/L	mg/L
SULFATE (AS SO4)	mg/L	mg/L	250 mg/L	mg/L	250 mg/L	250 mg/L	2500 mg/L	mg/L	mg/L
Metals									
ALUMINUM	μg/L	μg/L	200 μg/L	μg/L	50 μg/L	μg/L	200 μg/L	37000 μg/L	3700 μg/L
ANTIMONY ARSENIC	μg/L μg/L	6 μg/L 50 μg/L	μg/L μg/L	6 μg/L 50 μg/L	μg/L μg/L	6 μg/L 50 μg/L	60 μg/L 5000 μg/L	15 μg/L 0.045 μg/L	1.5 μg/L 0.045 μg/L
BARIUM	μg/L	2000 μg/L	μg/L	2000 μg/L	μg/L	2000 μg/L	20000 μg/L	2600 μg/L	260 μg/L
BERYLLIUM	μg/L	4 μg/L	μg/L	4 μg/L	μg/L	4 μg/L	400 μg/L	0.016 μg/L	0.016 μg/L
CADMIUM	μg/L	5 μg/L	μg/L	5 μg/L	μg/L	5 μg/L	515 μg/L	18 μg/L	1.8 μg/L
CALCIUM CHROMIUM, TOTAL	μg/L	μg/L 100 μg/L	μg/L	μg/L 100 μg/L	μg/L	μg/L 100 μg/L	μg/L 1000 μg/L	μg/L μg/L	μg/L μg/L
COBALT	μg/L μg/L	μg/L	μg/L μg/L	μg/L	μg/L μg/L	μg/L	µg/L	2200 µg/L	220 μg/L
COPPER	μg/L	μg/L	1000 μg/L	μg/L	1000 μg/L	1000 μg/L	10000 μg/L	130000 μg/L	13000 μg/L
IRON	μg/L	μg/L	300 μg/L	μg/L	300 μg/L	300 μg/L	μg/L	11000 μg/L	1100 μg/L
LEAD MAGNESIUM	μg/L μg/L	15 μg/L μg/L	μg/L μg/L	15 μg/L μg/L	μg/L μg/L	15 μg/L μg/L	150 μg/L μg/L	μg/L μg/L	μg/L μg/L
MANGANESE	μg/L	μg/L	50 μg/L	μg/L	50 μg/L	50 μg/L	500 μg/L	840 μg/L	84 μg/L
MERCURY	μg/L	2 μg/L	μg/L	2 μg/L	μg/L	2 μg/L	20 μg/L	11 μg/L	1.1 μg/L
NICKEL	μg/L	100 μg/L	μg/L	100 μg/L	μg/L	100 μg/L	1000 μg/L	730 µg/L	73 μg/L
POTASSIUM SELENIUM	μg/L μg/L	μg/L 50 μg/L	μg/L μg/L	μg/L 50 μg/L	μg/L μg/L	μg/L 50 μg/L	µg/L 500 µg/L	μg/L 180 μg/L	μg/L 18 μg/L
SILVER	μg/L	μg/L	100 μg/L	μg/L	100 μg/L	100 μg/L	1000 μg/L	180 μg/L	18 μg/L
SODIUM	μg/L	160000 μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
THALLIUM VANADIUM	μg/L μg/L	2 μg/L μg/L	μg/L μg/L	2 μg/L μg/L	μg/L μg/L	2 μg/L 49 μg/L	μg/L 490 μg/L	μg/L 260 μg/L	μg/L 26 μg/L
ZINC	μg/L	μg/L	5000 μg/L	μg/L	5000 μg/L	5000 μg/L	50000 μg/L	11000 μg/L	1100 μg/L
Radiologicals									
ALPHA, GROSS BETA, GROSS	pCi/L pCi/L	15 pCi/L	pCi/L	15 pCi/L	pCi/L pCi/L	pCi/L pCi/L	pCi/L pCi/L	pCi/L	pCi/L pCi/L
Total Petroleum Hydrocarbons	pol/L	pCi/L	pCi/L	pCi/L	pGI/L	pGI/L	pG//L	pCi/L	poi/L
PETROLEUM HYDROCARBONS	mg/L	mg/L	mg/L	mg/L	mg/L	5 mg/L	50 mg/L	mg/L	mg/L
Volatile Organic Compounds		1				700	7000	2700//	270
ACETONE ACROLEIN	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	700 μg/L μg/L	7000 μg/L μg/L	3700 μg/L μg/L	370 μg/L μg/L
ACRYLONITRILE	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
ALLYL CHLORIDE (3-CHLOROPROPENE)	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
BENZENE BROMODICHI OROMETHANE	μg/L	1 μg/L	μg/L	5 μg/L	μg/L	1 μg/L	100 μg/L	0.36 µg/L	0.36 µg/L
BROMODICHLOROMETHANE BROMOFORM	μg/L μg/L	100 μg/L 100 μg/L	μg/L μg/L	100 μg/L 100 μg/L	μg/L μg/L	0.6 μg/L 4 μg/L	60 μg/L 40 μg/L	0.17 μg/L 2.4 μg/L	0.17 μg/L 2.4 μg/L
BROMOMETHANE	μg/L	μg/L	μg/L	μg/L	μg/L	9.8 µg/L	μg/L	8.7 µg/L	0.87 μg/L
CARBON DISULFIDE	μg/L	μg/L	μg/L	μg/L	μg/L	700 μg/L	7000 μg/L	1000 μg/L	100 μg/L
CARBON TETRACHLORIDE	μg/L	3 μg/L	μg/L	5 μg/L	μg/L	3 µg/L	300 μg/L	0.16 μg/L	0.16 μg/L
CHLOROBENZENE CHLOROETHANE	μg/L μg/l	100 μg/L	μg/L	100 μg/L	μg/L	100 μg/L 2800 μg/L	1000 μg/L 28000 μg/L	39 μg/L 3.6 μg/L	3.9 μg/L 3.6 μg/L
S. I.E. S. I.E. III WINE	μg/L	μg/L	μg/L	μg/L	μg/L	2000 μg/L	20000 μg/L	0.0 μg/L	5.0 μg/L

			M			Fig. 14. B.		Risk-based Concentrations		
				aminant Levels		Florida Br				
		Florida MCL / SMCL	Florida MCL / SMCL	Federal MCL/SMCL ²	Federal MCL/SMCL ²	Florida Brownfield	Florida Brownfield	Regional USEPA RBC	egional USEPA RBC 4	
		Chapter 62-550, FAC)	Chapter 62-550 EAC)			(62-785) ³	(62-785) ³	EPA Region III	EPA Region IV	
		MCL	SMCL	MCL	SMCL	GCTL	Groundwater LY/PQ	Tap Water	LIAREGIOTIV	
		WIOL	OWICE	WIOL	OWICE	GOIL	Groundwater E1/1 Q	rap water		
Parameter Group and Name	Unit	Criteria Unit	Criteria Unit	Criteria Unit	Criteria Unit	Criteria Unit	Criteria Unit	Criteria Unit	Criteria Unit	
CHLOROFORM	μg/L	100 μg/L	μg/L	100 μg/L	μg/L	6 μg/L	600 μg/L	0.15 μg/L	0.15 μg/L	
CHLOROMETHANE	μg/L	μg/L	μg/L	μg/L	μg/L	2.7 μg/L	270 μg/L	1.4 μg/L	1.4 μg/L	
2-CHLORO-1,3-BUTADIENE	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	
cis-1,2-DICHLOROETHYLENE	μg/L	70 μg/L	μg/L	70 μg/L	μg/L	70 μg/L	700 μg/L	61 μg/L	6.1 μg/L	
cis-1,3-DICHLOROPROPENE	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	
DIBROMOCHLOROMETHANE	μg/L	100 μg/L	μg/L	100 μg/L	μg/L	0.4 μg/L	40 μg/L	0.13 μg/L	0.13 μg/L	
DICHLORODIFLUOROMETHANE	μg/L	μg/L	μg/L	μg/L	μg/L	1400 μg/L	μg/L	390 μg/L	39 μg/L	
1,1-DICHLOROETHANE	μg/L	μg/L	μg/L	μg/L	μg/L	700 μg/L	7000 μg/L	810 μg/L	81 μg/L	
1,1-DICHLOROETHENE	μg/L	7 μg/L	μg/L	7 μg/L	μg/L	7 μg/L	700 μg/L	0.044 µg/L	0.044 μg/L	
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	μg/L	0.02 μg/L	μg/L	0.05 μg/L	μg/L	0.02 μg/L	2 μg/L	0.00075 μg/L	0.00075 μg/L	
1,2-DICHLOROBENZENE	μg/L	600 μg/L	μg/L	600 μg/L	μg/L	600 μg/L	6000 μg/L	64 μg/L	6.4 µg/L	
1,2-DICHLOROETHANE	μg/L	3 μg/L	μg/L	5 μg/L	μg/L	3 μg/L	300 μg/L	0.12 μg/L	0.12 μg/L	
1,2-DICHLOROPROPANE	μg/L	5 μg/L	μg/L	5 μg/L	μg/L	5 μg/L	500 μg/L	0.16 μg/L	0.16 μg/L	
1,3-DICHLOROBENZENE	μg/L	μg/L	μg/L	μg/L	μg/L	10 μg/L	100 μg/L	540 μg/L	54 μg/L	
1,4-DICHLOROBENZENE	μg/L	75 μg/L	μg/L	75 μg/L	μg/L	75 μg/L	7500 µg/L	0.44 μg/L	0.44 μg/L	
ETHYLBENZENE	μg/L	700 μg/L	30 μg/L	700 μg/L	μg/L	30 μg/L	300 μg/L	1300 μg/L	130 μg/L	
2-HEXANONE	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	1500 μg/L	150 μg/L	
IODOMETHANE (METHYL IODIDE)	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	
METHYLENE CHLORIDE	μg/L	5 μg/L	μg/L	5 μg/L	μg/L	5 μg/L	500 μg/L	4.1 μg/L	4.1 μg/L	
STYRENE	μg/L	100 μg/L	μg/L	100 μg/L	μg/L	100 μg/L	1000 μg/L	1600 μg/L	160 μg/L	
TETRACHLOROETHYLENE(PCE)	μg/L	3 μg/L	μg/L	5 μg/L	μg/L	3 μg/L	300 μg/L	1.1 μg/L	1.1 μg/L	
TOLUENE	μg/L	1000 μg/L	40 μg/L	1000 μg/L	μg/L	40 μg/L	400 μg/L	750 μg/L	75 μg/L	
trans-1,2-DICHLOROETHENE	μg/L	100 μg/L	μg/L	100 μg/L	μg/L	100 μg/L	1000 μg/L	120 μg/L	12 μg/L	
trans-1,3-DICHLOROPROPENE	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	
trans-1,4-DICHLORO-2-BUTENE	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	
TRICHLOROETHYLENE (TCE)	μg/L	3 μg/L	μg/L	5 μg/L	μg/L	3 μg/L	300 μg/L	1.6 μg/L	1.6 μg/L	
TRICHLOROFLUOROMETHANE	μg/L	μg/L	μg/L	μg/L	μg/L	2100 μg/L	21000 μg/L	1300 μg/L	130 μg/L	
1,1,1-TRICHLOROETHANE	μg/L	200 μg/L	μg/L	200 μg/L	μg/L	200 μg/L	2000 μg/L	540 μg/L	54 μg/L	
1,1,2,2-TETRACHLOROETHANE	μg/L	μg/L	μg/L	μg/L	μg/L	0.5 μg/L	50 μg/L	0.052 μg/L	0.052 μg/L	
1,2,3-TRICHLOROPROPANE	μg/L	μg/L	μg/L	μg/L	μg/L	5 μg/L	μg/L	0.0015 μg/L	0.0015 μg/L	
VINYL ACETATE	μg/L	μg/L	μg/L	μg/L	μg/L	90 μg/L	900 μg/L	37000 μg/L	3700 μg/L	
VINYL CHLORIDE	μg/L	1 μg/L	μg/L	2 μg/L	μg/L	1 μg/L	100 μg/L	0.019 μg/L	0.019 μg/L	
M,P-XYLENE (SUM OF ISOMERS)	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	12000 μg/L	12000 μg/L	
O-XYLENE (1,2-DIMETHYLBENZENE)	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	12000 μg/L	12000 μg/L	
XYLENES, TOTAL	μg/L	10000 μg/L	20 μg/L	10000 μg/L	μg/L	20 μg/L	200 μg/L	12000 μg/L	1200 μg/L	

Mile			Maximum Contaminant Levels		Florida Brownfields		Risk-based Concentrations			
March Marc			Florida MCL / SMCL	Florida MCL / SMCL	Federal MCL/SMCL ²	Federal MCL/SMCL ²	Florida Brownfield	Florida Brownfield	Regional USEPA RBC	egional USEPA RBC ⁶
Page and forg pricings Unit Cites Unit Unit Cites Unit Unit Cites Unit Cites Unit Unit Cites Unit Unit Cites Unit					MOI	01401				EPA Region IV
ACCUMENT NUMBER 1985 198			MCL	SMCL	MGL	SMCL	GCTL	Groundwater LY/PQ	rap water	
ACTOMPHONE AND STREET OF THE S		Unit	Criteria Unit	Criteria Unit	Criteria Unit	Criteria Unit	Criteria Unit	Criteria Unit	Criteria Unit	Criteria Unit
AMONTE AMONTEMENT LERE SELVENTE BELL 191 191 191 191 191 191 191 191 191 1	ACETOPHENONE									μg/L
### AMMORPHEN (### AMMORPHEN 100 101										10 μg/L μg/L
2AMONDAMPHINA ERE BETA ARPHYM ANNEY 191		μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
BRIVEY ALCOHOL 191										μg/L
### ### ### ### ### ### ### ### ### ##							2100 μg/L	21000 µg/L	11000 µg/L	1100 μg/L
GP-IGP-MAINE 101		μg/L	μg/L	μg/L	μg/L	μg/L	1400 μg/L	14000 μg/L	7300 μg/L	730 μg/L
ACPUIR OPPENTER U.S. U.S								μg/L 280 μg/l		210 μg/L
20-01-00N-MPH-MALERE										μg/L
1.3 DEMTOREMENT 1.00		μg/L	μg/L	μg/L	μg/L	μg/L	560 μg/L	5600 μg/L	2900 μg/L	290 μg/L
2 & DOIS-GROPHENDL										18 μg/L
2.6 DOCH OFFINAL 1. 190										11 μg/L
2.4 DINTROPIENDE 1901	2,6-DICHLOROPHENOL	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
2.4 DATEST COLUMN TETRAN 191. 191. 191. 191. 191. 191. 191. 191										73 µg/L
Big CALGORDETHONY METHANE										7.3 µg/L 7.3 µg/L
Daily CHOROSOPROPOLITER	bis(2-CHLOROETHOXY) METHANE									μg/L
OFFICE 1991										0.0092 μg/L
DALATE										μg/L
DIRECTOR PART DIRECTOR DI										μg/L
DMETHYLPHTHALATE		μg/L	μg/L	μg/L	μg/L	μg/L		280 μg/L	150 μg/L	15 μg/L
DMETHYPHENNETHYRAMNE								56000 μg/L 700000 μg/L	29000 μg/L 370000 μg/L	
7.12 DMETHYLBENZ(plANTHACENE										μg/L
3.5 OIGHORDENZIDNE		μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L		μg/L
33-30METHYLBENZIDINE										μg/L 0.15 μg/l
ETHYL METHANESULFONATE										μg/L
ISODRIN ISOTRONE				μg/L	μg/L		μg/L	μg/L		μg/L
ISOPHORONE										μg/L
REPONE										71 μg/L
METHAPYRILENE		μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
METHYL METHANESULFONATE										μg/L μg/L
2METHYLPHENOL (0-CRESOL)										μg/L
3-METHYLCHOLANTHENE								200 μg/L		1500 μg/L
4-METHYLPHENOL (p-CRESQL) μg/L μg/L <th< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>180 μg/L μg/L</td></th<>										180 μg/L μg/L
1.NAPHTHYLAMINE	4-METHYLPHENOL (p-CRESOL)									μg/L
2.NITROANILINE										μg/L
SANTROANILINE										μg/L 0.22 μg/L
4-NITROANLINE μg/L	3-NITROANILINE			μg/L	μg/L		μg/L	μg/L	110 μg/L	11 μg/L
5-NITRO-0-TOLUIDINE										11 μg/L
N-NITROSO-DI-N-BUTYLAMINE										μg/L μg/L
N-NITROSODIETHYLAMINE	N-NITROSO-DI-N-BUTYLAMINE				μg/L		μg/L	μg/L	μg/L	μg/L
N-NITROSODIMETHYLAMINE										0.0096 μg/L
N-NITROSODIPHENYLAMINE										μg/L 0.0013 μg/L
N-NITROSOMORPHOLINE										14 μg/L
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$		μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
N-NTROSOPYRROLIDINE										μg/L
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$										μg/L μg/L
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	NITROBENZENE	μg/L	μg/L	μg/L	μg/L	μg/L	4 μg/L	40 μg/L	3.4 μg/L	0.34 μg/L
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$					μg/L					μg/L
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$					μg/L lua/L					μg/L μg/L
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	2-PICOLINE (ALPHA-PICOLINE)									μg/L
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$		μg/L	μg/L	μg/L		μg/L	μg/L	μg/L	μg/L	μg/L
PENTACHLORONITROBENZENE $\mu g'L$										μg/L μg/L
PENTAGUI OPORUENOI	PENTACHLORONITROBENZENE									μg/L
10 10 10 10	PENTACHLOROPHENOL	μg/L	1 μg/L	μg/L	1 μg/L	μg/L	1 μg/L	μg/L	0.56 μg/L	0.56 μg/L
								μg/L 100 μg/l		μg/L 2200 μg/L

Fords MCL / SMCL Fords MCL / SMCL Federal MCLSMCL Federal				Maximum Con	taminant Levels		Florida B	rownfields	Risk-based Concentrations		
Chapter 62-550, FAC) Chapter 62-550, FAC) MCL SMCL SMCL GC785) GC785) GC785) EPA Region III EPA Region III Tap Water			Florida MCL / SMCL			Endoral MCL/CMCL 2			Regional LISERA RRC agional LISERA RRC 4		
MCL SMCL MCL SMCL GCTL Groundwater LY/PQ Tap Water			FIUIUA WICE / SWICE	FIORIDA MICE / SMICE	rederal MCL/SMCL	rederal MCL/SMCL	Florida Brownileid	Fiorida Browniileid	Regional USEPA RBC	egional USEPA RBC	
MCL SMCL MCL SMCL GCTL Groundwater LY/PQ Tap Water			Chanter 62-550 FAC)	Chanter 62-550 FAC)			(62-785) ³	(62-785) ³	FPA Region III	FPA Region IV	
Parameter Group and Name					MCL	SMCL				Li A riogion iv	
PROMMICE									. пр. 11 пл. 1		
PROMMICE											
PROMMICE											
PYRIDINE											
SAFROLE											
12.4.5-ТЕТРАСН-LOROBENZENE											
2.3.4 FETRACHLOROPHENOL											
12.4-TRICHCROPENZENE											
2,45-TRICHLOROPHENOL 197L											
Part											
Organochlorine Pesticides											
ALDRIN μg/L 2 μg/L μg/L 2 μg/L μg/L 0.004 μg/L 0.19 μg/L 0.11 μg/L 0.11 μg/L 0.11 μg/L 0.00 μg/L 0.6 μg/L 0.037 μg/L 0.011 μg/L 0.037 μg/L		μg/L	μg/L	μg/L	μg/L	μg/L	5 μg/L	μg/L	6.1 μg/L	6.1 μg/L	
ALPHA-CHLORDANE											
GAMMA-CHLORDANE											
ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE)											
BETA BHC (BETA HEXACHLOROCYCLOHEXANE)											
DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE) μg/L μg/L μg/L μg/L μg/L μg/L μg/L 0.21 μg/L 0.037 μg/L 0.032 μg/L 0.032 μg/L 0.032 μg/L 0.032 μg/L 0.052 μg/L 0.0		μg/L	μg/L	μg/L	μg/L	μg/L	0.006 μg/L	0.6 μg/L			
GAMMA BHG (LINDANE) μg/L 0.2 μg/L μg/L 0.2 μg/L μg/L μg/L 0.2 μg/L μg/L μg/L 0.05 μg/L 0.052 μg/L 0.052 μg/L 0.052 μg/L 0.052 μg/L 0.052 μg/L 0.0042 μg/L </td <td></td> <td>μg/L</td> <td>μg/L</td> <td>μg/L</td> <td>μg/L</td> <td>μg/L</td> <td></td> <td></td> <td></td> <td></td>		μg/L	μg/L	μg/L	μg/L	μg/L					
DIELDRIN	DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE)	μg/L	μg/L	μg/L	μg/L	μg/L	2.1 μg/L	21 μg/L	0.037 μg/L	0.037 μg/L	
ALPHA ENDOSULFAN µg/L µg/	GAMMA BHC (LINDANE)	μg/L	0.2 μg/L	μg/L	0.2 μg/L	μg/L	0.2 μg/L	20 μg/L	0.052 μg/L	0.052 μg/L	
BETA ENDOSULFAN μg/L	DIELDRIN	μg/L	μg/L	μg/L	μg/L	μg/L	0.005 μg/L	0.5 μg/L	0.0042 μg/L	0.0042 μg/L	
BETA ENDOSULFAN	ALPHA ENDOSULFAN	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μα/L	
ENDOSULFAN SULFATE μg/L μg/L </td <td>BETA ENDOSULFAN</td> <td>μg/L</td> <td>μg/L</td> <td></td> <td>μg/L</td> <td>μg/L</td> <td></td> <td></td> <td></td> <td></td>	BETA ENDOSULFAN	μg/L	μg/L		μg/L	μg/L					
ENDRIN	ENDOSULFAN SULFATE	μg/L	μg/L					μα/L		μα/L	
ENDRIN ALDEHYDE	ENDRIN	μg/L	2 µg/L	μg/L	2 µg/L	μg/L	2 µg/L	20 μg/L	11 μg/L	1.1 μg/L	
ENDRIN KETONE	ENDRIN ALDEHYDE	μg/L	μg/L						μg/L	μg/L	
HEPTACHLOR EPOXIDE	ENDRIN KETONE	μg/L	μg/L		μg/L				μg/L	μg/L	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	HEPTACHLOR	μg/L	0.4 μg/L	μg/L	0.4 μg/L	μg/L	0.4 μg/L	40 μg/L	0.0023 μg/L	0.0023 µg/L	
p.p-DDD μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L 0.2 μg/L 0.2 μg/L 0.28 μg/L 0.28 μg/L 0.28 μg/L 0.2 μg/L 0.	HEPTACHLOR EPOXIDE									0.0012 µg/L	
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	p,p'-DDD								0.28 μg/L	0.28 µg/L	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	p,p'-DDE										
METHOXYCHLOR μg/L 40 μg/L 40 μg/L 40 μg/L 40 μg/L 40 μg/L 40 μg/L 180 μg/L 18 μg/L 18 μg/L			μg/L					10 μg/L			
	METHOXYCHLOR		40 μg/L		40 μg/L						
	TOXAPHENE	μg/L	3 μg/L	μg/L	3 μg/L	μg/L	3 μg/L	300 μg/L	0.061 µg/L	0.061 μg/L	

			Maximum Cont	aminant Levels		Florida B	rownfields	Risk-based Concentrations		
		Florida MCL / SMCL	Florida MCL / SMCL	Federal MCL/SMCL ²	Federal MCL/SMCL ²	Florida Brownfield	Florida Brownfield	Regional USEPA RBC	egional USEPA RBC 4	
								_		
		Chapter 62-550, FAC)				(62-785) ³	(62-785) ³	EPA Region III	EPA Region IV	
		MCL	SMCL	MCL	SMCL	GCTL	Groundwater LY/PQ	Tap Water	I	
Parameter Group and Name	Unit	Criteria Unit	Criteria Unit	Criteria Unit	Criteria Unit	Criteria Unit	Criteria Unit	Criteria Unit	Criteria Unit	
Organophosphorous Pesticides										
ATRAZINE	μg/L	3 μg/L	μg/L	3 μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	
AZINPHOS, METHYL (GUTHION)	μg/L	μg/L	μg/L	μg/L	μg/L	10.5 μg/L	105 μg/L	μg/L	μg/L	
BOLSTAR	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	
CHLORPYRIFOS	μg/L	μg/L	μg/L	μg/L	μg/L	21 μg/L	210 μg/L	110 μg/L	11 μg/L	
COUMAPHOS	μg/L	μg/L	μg/L	μg/L	μg/L	2.1 μg/L	21 μg/L	μg/L	μg/L	
DEMETON-O DEMETON-S	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	
DIAZINON	μg/L μg/L	μg/L	μg/L	μg/L μg/L	μg/L	μg/L	μg/L	μg/L 33 μg/L	μg/L 3.3 μg/L	
DICHLORVOS	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L	μg/L μg/L	μg/L 0.1 μg/L	μg/L 1 μg/L	0.23 μg/L	0.23 µg/L	
DIMETHOATE	μg/L	μg/L	μg/L	μg/L	μg/L	0.1 μg/L	μg/L	0.23 μg/L μg/L	0.23 μg/L μg/L	
DISULFOTON	μg/L	μg/L	μg/L	μg/L	μg/L	0.3 μg/L	3 μg/L	1.5 μg/L	0.15 μg/L	
ETHOPROP	μg/L	μg/L	μg/L	μg/L	μg/L	0.11 μg/L	1.1 μg/L	μg/L	0.13 μg/L μg/L	
FAMPHUR	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	
FENSULFOTHION	μg/L	μg/L	μg/L	μg/L	μg/L	1.75 µg/L	17.5 µg/L	μg/L	μg/L	
FENTHION	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	
MERPHOS	μg/L	μg/L	μg/L	μg/L	μg/L	0.21 μg/L	μg/L	1.1 µg/L	0.11 μg/L	
MEVINPHOS	μg/L	μg/L	μg/L	μg/L	μg/L	1.75 µg/L	17.5 μg/L	μg/L	μg/L	
NALED	μg/L	μg/L	μg/L	μg/L	μg/L	14 μg/L	140 μg/L	73 μg/L	7.3 µg/L	
PARATHION, ETHYL	μg/L	μg/L	μg/L	μg/L	μg/L	42 μg/L	420 μg/L	220 μg/L	22 μg/L	
PARATHION, METHYL	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	
PHORATE	μg/L	μg/L	μg/L	μg/L	μg/L	1.4 μg/L	14 μg/L	7.3 µg/L	0.73 μg/L	
RONNEL	μg/L	μg/L	μg/L	μg/L	μg/L	350 μg/L	3500 μg/L	1800 μg/L	180 μg/L	
SIMAZINE	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	
STIROFOS (TETRACHLORVINPHOS)	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	
THIODIPHOSPHORIC ACID TETRAETHYL ESTER TOKUTHION (PROTHIOFOS)	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	µg/L	μg/L	μg/L	
TRICHLORONATE	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	μg/L μg/L	
ZINOPHOS	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	
Polychlorinated biphenols (PCBs)	r-5 -	F5 -	IP9 -	1-9-	rs -	1-9-	IF5 -	1-9-	F-5 -	
PCB-1016 (AROCHLOR 1016)	μg/L	μg/L	μq/L	μα/L	μg/L	1 µg/L	10 μg/L	2.6 µg/L	0.26 µg/L	
PCB-1221 (AROCHLOR 1221)	μg/L	μg/L	μg/L	0.5 μg/L	μg/L	0.5 μg/L	50 μg/L	0.034 μg/L	0.034 µg/L	
PCB-1232 (AROCHLOR 1232)	μg/L	μg/L	μg/L	0.5 μg/L	μg/L	0.5 μg/L	50 μg/L	0.034 μg/L	0.034 μg/L	
PCB-1242 (AROCHLOR 1242)	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	
PCB-1248 (AROCHLOR 1248)	μg/L	μg/L	μg/L	0.5 μg/L	μg/L	0.5 μg/L	50 μg/L	0.034 μg/L	0.034 μg/L	
PCB-1254 (AROCHLOR 1254)	μg/L	μg/L	μg/L	μg/L	μg/L	1 μg/L	10 μg/L	0.73 μg/L	0.073 μg/L	
PCB-1260 (AROCHLOR 1260)	μg/L	μg/L	μg/L	0.5 μg/L	μg/L	0.5 μg/L	50 μg/L	0.034 μg/L	0.034 μg/L	
Herbicides										
2,4,5-T (TRICHLOROPHENOXYACETIC ACID)	μg/L	μg/L	μg/L	μg/L	μg/L	70 μg/L	700 μg/L	370 μg/L	37 μg/L	
2,4-D (DICHLOROPHENOXYACETIC ACID)	μg/L	70 μg/L	μg/L	70 μg/L	μg/L	70 μg/L	700 μg/L	61 μg/L	6.1 μg/L	
DALAPON	μg/L	200 μg/L	μg/L	200 μg/L	μg/L	200 μg/L	μg/L	1100 μg/L	110 μg/L	
DICAMBA DICHLOROPROP	μg/L	μg/L	μg/L	μg/L	μg/L	210 μg/L	μg/L	1100 μg/L	110 µg/L	
DINOSEB	μg/L	μg/L 7 μg/L	μg/L μg/L	μg/L 7 μg/L	μg/L μg/L	0.1 μg/L 7 μg/L	1 μg/L 70 μg/L	μg/L 37 μg/L	μg/L 3.7 μg/L	
PICLORAM	μg/L μg/L	/ μg/L μg/L	μg/L μg/L	/ μg/L μg/L	μg/L μg/L	7 μg/L μg/L	/0 μg/L μg/L	37 μg/L μg/L	3.7 μg/L μg/L	
SILVEX (2,4,5-TP)	μg/L	50 29	P9/L	P9'L	P9'L	P9'L	P9'L	PA	ha.r	
OIL V LA (4,4,0-11')	μg/L									

Sources:

Definitions: MCL - Maximum Contaminant Level SMCL - Secondary MCL

GCTL - Groundwater Cleanup Target Level LY/PQ - Low Yield/Poor Quality RBC - Risk-based Concentration

¹ Florida Ground Water Guidance Concentrations, 62-520.400 FAC, June 2, 1994: Chapter 62-550 Drinking Water Standards, Monitoring and Reporting, April 10, 2003

² Drinking Water Regulations and Health Advisories, Office of Water, USEPA, October 1996.

Brownfield's Cleanup Criteria Rule, Groundwater Cleanup Target Levels, Draft Chapter 62-785 F.A.C., 1997.
 EPA Region III Risk-Based Concentration Table, Tap Water Values, R.L. Smith, October 1997.

⁵ EPA Region IV Supplemental Guidance to RAGS: Region 4 Bulletins, Human Health Risk Assessment, November 1995; HQ=0.1 applied to noncarcinogens.

Appendix D Monitoring Well Construction Reports

LICENSE AGREEMENT

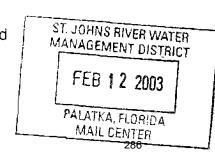
THIS LICENSE AGREEMENT, hereinafter the "Agreement", is hereby made and entered into this 54 day of 2003, by and between the GREATER ORLANDO AVIATION AUTHORITY, a public and governmental body, existing under and by virtue of the laws of the State of Florida, whose address is One Airport Boulevard, Orlando, Florida 32827-4399, (hereinafter referred to as the "LICENSOR"), and the ST. JOHNS RIVER WATER MANAGEMENT DISTRICT, a public body existing under *Chapter 373, Florida Statutes*, whose address is P. O. Box 1429, Palatka, Florida 32178-1429, (hereinafter referred to as the "LICENSEE").

WITNESSETH:

WHEREAS, the City of Orlando (hereinafter the "City") is the owner of certain real property located at the northeast corner of the intersection of Amelia Avenue and Maguire Boulevard in Section 30, Township 22S, Range 30E, Latitude 28° 32' 50", Longitude 81° 20' 40", Orange County, Florida, Parcel Number 302230111208010, hereinafter referred to as "LICENSE AREA", as more particularly identified in Exhibit "A", a copy of which is attached hereto.

WHEREAS, pursuant to an operation and use agreement dated September 27, 1976, as amended (City Document Number 13260-1), between the City and LICENSOR, the LICENSOR controls, operates, and maintains an airport in Orange County, State of Florida, known as Orlando Executive Airport (hereinafter referred to as the "Airport"); and

WHEREAS, the LICENSE AREA is located at the Airport; and



WHEREAS, LICENSEE desires to utilize LICENSE AREA for the purpose of monitoring and observing hydrogeologic conditions by drilling, constructing, operating and maintaining one (1) new well completed flush to grade within a 2 ft. x 2ft. concrete pad, and fitted with a lockable well cap to prevent vandalism, upon the LICENSE AREA; and

WHEREAS, LICENSOR is desirous of granting to LICENSEE a license to accomplish the aforementioned purpose.

NOW THEREFORE, for and in consideration of the terms, conditions, and mutual covenants hereinafter contained, LICENSOR and LICENSEE, both intending to be legally bound, hereby agree as follows:

- 1. **LICENSOR** hereby grants **LICENSEE**, its agents and employees, the right, privilege and license to utilize the LICENSE AREA to locate, construct, install, operate, inspect, alter, improve, maintain, repair, remove and rebuild a monitoring well as described above, for research and scientific purposes on, upon and across said LICENSE AREA; and attain ingress and egress to and upon said LICENSE AREA for the purpose of exercising the rights, privileges and license granted herein.
- 2. This Agreement shall be effective as of the date of execution of this Agreement by both parties and shall continue in full force and effect for a period of 12 months. This Agreement shall automatically renew for four (4) consecutive 12 month periods unless either party gives the other party written notice 90 days prior to the conclusion of the then existing 12 month term. Upon the conclusion of the initial term and the four subsequent renewal periods described above, this Agreement shall to

remain in full force and effect unless terminated by either party upon ninety (90) days written notice to the other party, which notice may be given at any time.

- 3. A. LICENSEE shall obtain LICENSOR'S written approval prior to any improvements or alterations to the LICENSE AREA. LICENSEE's activities associated with operation and maintenance (as defined below) of the LICENSE AREA shall not require LICENSOR's prior approval, unless such operation and maintenance involve the use of any equipment with a height in excess of fifteen (15) feet above ground level, whereby, in such event, LICENSEE shall give LICENSOR thirty (30) days advance written notice of such use for Federal Aviation Authority ("FAA") air traffic notification compliance.
- B. For purposes of this Agreement, "operating" or "operation" is defined as access to the LICENSE AREA by LICENSEE, its agents and employees, to collect groundwater level measurements and/or groundwater samples from the monitoring well during the term of this Agreement.
- C. For purposes of this Agreement, "maintaining" or "maintenance" is defined as access to the LICENSE AREA by **LICENSEE**, its agents and employees, to remove, repair, and/or replace equipment within the monitoring well, and repair and/or replace the concrete pad surrounding the monitoring well during the license period.
- D. LICENSEE, its agents and employees shall be granted access to the access road, located on Amelia Street east of Maguire Boulevard, for the sole purpose of ingress and egress to the LICENSE AREA. Such access will permit the use of vehicles, pumps, pump control devices, water level sensors, water quality measuring

devices, data collection devices, and/or temporary electrical power generating equipment at the site for the collection of data and samples.

- E. LICENSEE may leave equipment and/or vehicles at the LICENSE AREA overnight during the installation of the monitoring well. Security of the equipment and/or vehicles left on-site during installation is the sole responsibility of the LICENSEE, its agents and employees. All other equipment will be removed from the site daily during operating activities, except equipment that is installed in the monitoring well. Equipment installed in the monitoring well installation. Security of the equipment installed in the monitoring well is the sole responsibility of the LICENSEE.
- 4. **LICENSOR** retains the right to use the LICENSE AREA in any manner not inconsistent with the rights herein granted to **LICENSEE**.
- 5. A. Each party to this Agreement is responsible for all personal injury and property damage attributable to the negligent acts or omissions of that party and the officers and employees acting within the scope of their employment thereof. In addition, each party is subject to the provisions of Section 768.28, Fla. Stat. (2001). Neither this provision nor any other in this Agreement shall be construed as a waiver of Sovereign Immunity by either party.
- B. The **LICENSEE** may hire a third party contractor to construct the monitoring well. In addition to the **LICENSEE**'S standard insurance requirements for contractors, it shall require the third party contractor to show both the **LICENSEE** and the **LICENSOR** as additional insured parties under all of the insurance policies, with the exception of the workers' compensation insurance policy. Prior to the contractor

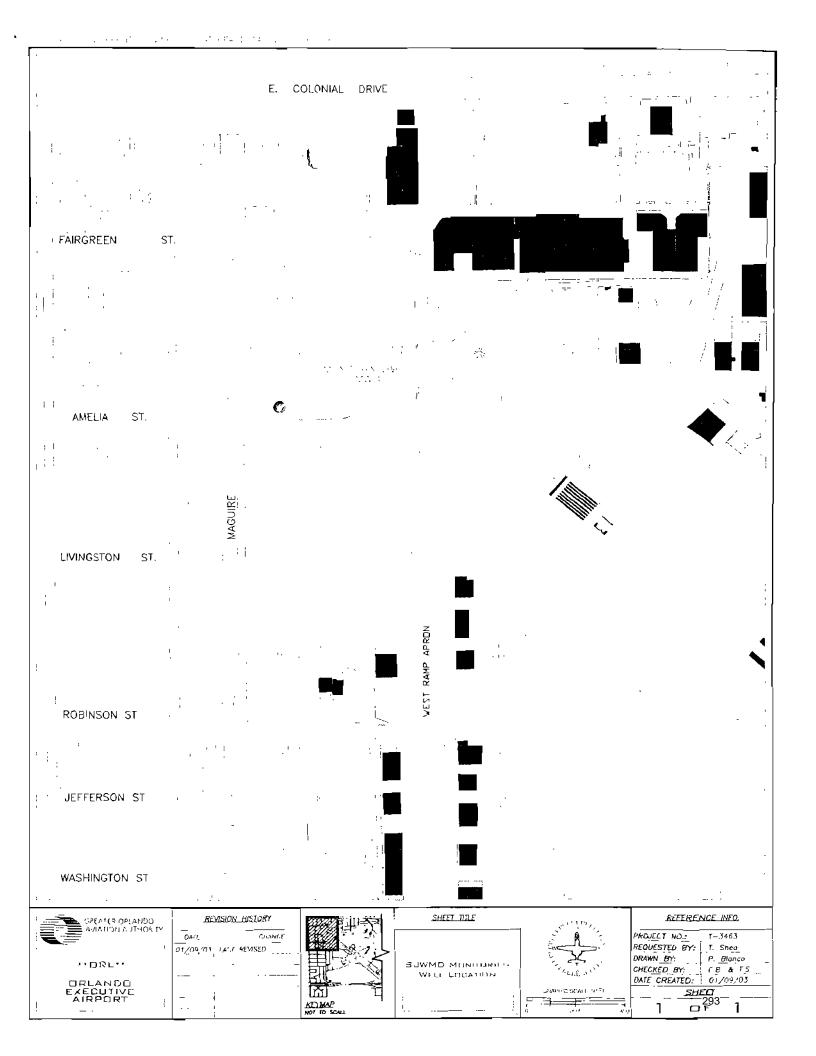
commencing installation of the wells, all plans and specifications of such construction shall be approved by LICENSOR as described in Section 3(A) of this Agreement and the LICENSEE shall provide the LICENSOR with a certificate of insurance evidencing the required coverages and naming the LICENSEE and LICENSOR as additional insureds.

- C. The LICENSEE and LICENSOR, as public entities, warrant and represent that they are self-funded for liability insurance, or have liability insurance, both public and property, with such protection being applicable to its officers, employees, servants, and agents while acting within the scope of their employment with LICENSEE or LICENSOR, respectively.
- D. The **LICENSEE** shall also acquire and maintain throughout the term of this Agreement such general liability, automobile insurance, and workers' compensation insurance as required by its current rules and regulations.
- 6. The **LICENSOR** does not warrant or represent that the LICENSE AREA is safe or suitable for the purpose for which the **LICENSEE** is permitted to use it, and the **LICENSEE** assumes all risks in its use.
- 7. Prior to initial use of LICENSE AREA by LICENSEE, LICENSEE shall give LICENSOR at least twenty-four (24) hours notification. LICENSEE agrees that any and all work performed in the LICENSE AREA and in association with the purpose of the Agreement shall be accomplished in a good, safe and workmanlike manner and in accordance with applicable Federal, State and local statutes, rules, regulations and ordinances.

- 8. LICENSOR may provide LICENSEE, its agents and employees, one set of paper or electronic file copies of appropriate maps, data tables, and/or reports sufficient to identify the type, concentrations, and horizontal and vertical extent of soil and groundwater contamination at the LICENSE AREA and vicinity to allow the preparation of health and safety plans to comply with OSHA regulations through 29 CFR 1910.120 and 29 CFR 1926.65 during well drilling, installation and monitoring activities. LICENSEE shall bear all of LICENSOR's costs associated with this Section 8.
- 9. Upon termination of this Agreement, or revocation by the LICENSOR, LICENSEE shall, at LICENSEE's sole cost and expense, remove all equipment, accessories, and materials owned by LICENSEE from the LICENSE AREA within ninety (90) days and restore said LICENSE AREA to as good a condition as it was before LICENSEE entered upon it and otherwise comply with all applicable Federal, State and local statutes, rules, regulations and ordinances.
- 10. LICENSEE shall not allow the public to access, utilize or go upon the LICENSE AREA.
- 11. **LICENSEE** shall, upon request, provide to **LICENSOR** an annual copy of any and all data collected as a result of **LICENSEE's** hydrogeological monitoring activities in the LICENSE AREA.
- 12. The license herein granted is subject to revocation by the **LICENSOR** if the LICENSE AREA is not utilized for the purposes outlined in this Agreement or if there is a change in ownership of the LICENSE AREA.

IN WITNESS WHEREOF, the undersigned parties have executed this License Agreement on the day and year first above written.

Agreement on the day and year first above written.									
	"LICENSOR"								
ATTEST:	GREATER ORLANDO AVIATION AUTHORITY								
By: Printed Name: DAYCI S BURNETTE-SNYDER ASSISTANT SECRETARY	C.W. JENNINGS, Executive Director Date: \$\frac{1}{2028}\$								
	APPROVED AS TO FORM AND LEGALITY for the use and reliance of the Greater Orlando Aviation Authority, only. Marchena and Graham, P.A. Counsel By: Marcos R. Marchena Date: 17703								
	"LICENSEE"								
ATTEST:	ST. JOHNS RIVER WATER MANAGEMENT DISTRICT								
By: W. Col- Printed Name: / William (-1. Congdon	By: KIRBY GREEN III, Executive Director								
	Date: 01/23/03								
	APPROVED BY Office of General Counsel								
	By: John W. Williams Deputy General Counsel								
	Date: () A								



ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

NOV 15 2002

PALATKA, FLORIDA

MAIL CENTER



November 13, 2002

Ms. Carolyn W. Brown
Right of Way Specialist
Division of Land Acquisition
St. Johns River Water Management District
P. O. Box 1429
Palatka, Florida 32178-1429

RE: Festival Park Well Monitoring License Agreement

Dear Carolyn:

Enclosed please find one original fully-executed License Agreement for your records. If I can be of further assistance, please give me a call.

Sincerely yours,

John H. Somsen

Assistant City Attorney

JHS/bcj Enclosure

c: Rick M. Howard, P.E., City Engineer (w/encl.)

LICENSE AGREEMENT

THIS LICENSE AGREEMENT made and entered into this the day of New 10.00 and the laws of the State of Florida, whose mailing address is 400 South Orange Avenue, Orlando, Florida, 32801 (hereinafter referred to as "CITY") and St. Johns River Water Management District, a public body existing under Chapter 373, Florida Statutes, whose mailing address is Highway 100 West, Palatka, Florida 32178 (hereinafter referred to as "DISTRICT").

WITNESSETH:

WHEREAS, the CITY is the Owner of that certain parcel of real property known as Festival Park, located in Orange County, Florida; and

WHEREAS, the DISTRICT desires to install, monitor and maintain three (3) wells to monitor hydrogeologic conditions within that portion of Festival Park generally south of Amelia Street, west of Maguire Boulevard, north of Livingston Street and east of Festival Way, as well as the right-of-way on the south side of Amelia Street between Primrose Drive and Festival Way (hereinafter collectively referred to as the "premises" or "property").

WHEREAS, the CITY is desirous of granting to the DISTRICT a License Agreement to accomplish the aforementioned purpose.

NOW, THEREFORE, for and in consideration of the mutual covenants, promises, terms and conditions set forth herein, the CITY hereby grants to the DISTRICT a non-exclusive license in and upon the premises described above.

The CITY and the DISTRICT agree that this License Agreement shall be subject to the following terms and conditions:

1. The term of this License Agreement shall be for a term of five (5) years from the date of full execution of this License Agreement. The term may be extended by annual renewal(s) subject to the mutual written agreement of both parties. The CITY agrees that the DISTRICT shall have the right and privilege of ingress and egress to and from the premises and over and across that portion of the CITY's lands as currently anticipated to generally be as in Exhibit "A" attached hereto, and by reference made a part hereof, to carry out the purposes of this License Agreement. The actual field location of the three (3) wells must be approved by the City prior to installation. Well caps must be flush with the surface of the ground. None of the wells shall be installed on or within the volleyball courts and ingress and egress shall not include the area on, over, or below the volleyball courts. Well caps may be set within a 2' x 2' concrete pad and fitted with a lockable cap.

City Council Meeting: 11-04-03
Item: 6-9 Documentary: 02 11 04 609

- 2. The CITY does not warrant its title to the subject property; however, the CITY does warrant that it has the power and authority to grant this License Agreement and the use granted herein. The DISTRICT takes this License Agreement subject to the restrictions and conditions of record, both public and private. The CITY does not represent the suitability of the subject property for monitoring wells and the DISTRICT hereby represents that it has not relied on the CITY's representations, statements, information, or otherwise and accepts the subject property "as is" and with all defects patent or latent and assumes all risks in its use.
- The DISTRICT agrees to occupy and use the premises for the exclusive purpose necessary and in connection with 1) the installation, operation, maintenance, and repair of three (3) monitoring wells and 2) the routine monitoring and observation of hydrogeologic conditions, and for no other purposes. All costs incurred or required for installation, construction, operation, maintenance and repair of the well shall be at the sole expense of the DISTRICT. Further, the activities permitted by this Section shall be subject to the following restrictions:
- a. The DISTRICT shall provide and shall drill, install, construct, operate, maintain, and repair the monitoring wells pursuant to plans and specifications approved in advance by the CITY and shall submit the plans and specifications in such detail as reasonably acceptable to the CITY regarding the proposed project. The DISTRICT shall provide as-built drawings showing in detail the exact location of each well which shall then become part of this License Agreement.
- b. The drilling and installation of the proposed project shall not take place during public events on or near the site and the DISTRICT shall be required to coordinate their activities in this respect with the CITY's Parks Bureau or its successor.
- c. The DISTRICT's drilling, installation, construction, operation, maintenance, and repair activities shall not unreasonably interfere with other CITY or non-CITY activities, including public access and use of the Park.
- d. Any power or utilities needed to service the premises shall be obtained at the expense of the DISTRICT and must be reviewed and approved in advance by the CITY.
- 4. The DISTRICT, its officers, employees, agents, consultants, independent contractors and others working on behalf of the DISTRICT shall comply with all applicable laws, regulations, ordinances, and policies regarding the granting, or use of the premises including, but not limited to, the security of the premises, safety and zoning laws. The granting of this License Agreement by the CITY is not an automatic grant of zoning approval for the use of the premises for any particular use. The DISTRICT shall, if necessary, make all required applications in this regard and approval shall be obtained before any construction commences on the premises.
- 5. All information obtained by the DISTRICT shall be shared with the CITY and the CITY shall have the opportunity to visit and inspect the site with DISTRICT personnel to observe measurement techniques and other actions. A copy of the hydrogeologic report on the DISTRICT's findings shall be provided to the City by the DISTRICT.

- 6. The CITY shall continue to operate the property as a park and recreation site and may also enter the premises to ensure compliance with this License Agreement and to determine compliance with all other laws, regulations and policies.
- The DISTRICT shall pay all lawful debts incurred by the DISTRICT with respect 7. to the premises and shall satisfy all liens of contractors, sub-contractors, mechanics, laborers, and materialmen with respect to any construction, alteration and repair in and on the premises, and improvements thereon authorized by the DISTRICT, its agents or employees and shall indemnify and hold harmless the CITY, its employees and elected and appointed officials, against all costs and expenses, including attorneys' fees (and attorneys' fees and costs on appeal) reasonably incurred in any suit involving any claims, liens, judgments or encumbrances suffered by the CITY as a result of the use or occupancy of the premises or any part thereof by the DISTRICT, its agents, contractors, or employees. Furthermore, the DISTRICT shall have no authority to create any liens for labor or material on or against the CITY's interest in the premises, and all persons contracting with the DISTRICT for the construction or removal, or for the exection. installation, alteration or repair of any improvement on the premises, including all materialmen, contractors, mechanics and laborers involved in such work, shall be notified by the DISTRICT that they must look to the DISTRICT only to secure the payment of any bill or account for any material furnished during the term of this License Agreement.
- 8. The CITY reserves the right to require relocation of the well(s) (to another site on the premises and at the CITY's sole option) at no cost to the CITY upon thirty (30) days written notice to the DISTRICT after the beginning of this License Agreement, reserving unto the DISTRICT the right of termination pursuant to Paragraph 12 herein. The CITY shall not exercise this right arbitrarily. In any event, such relocation shall occur simultaneously with abandonment of the existing well to avoid interruption in the DISTRICT's monitoring program.
- 9. The DISTRICT must start construction and make (and continue to make) reasonable progress toward completion of the project within six (6) months from the date of this License Agreement, unless otherwise agreed by the parties.
- 10. Any destruction, damage, impairment, or other diminution by the DISTRICT employees, its agents, contractors, subcontractors and those working for them, to the premises that result from well-construction, monitoring-related activities, maintenance or operation activities, or other activities carried out under this License Agreement, improvements thereto, or other appurtenances, shall be repaired or restored within a reasonable time at the DISTRICT's expense so as to prevent an aesthetic or visual impairment of the surrounding property or a health, safety or welfare violation or threat.
- 11. The CITY reserves the right to use or authorize others to use the premises in any manner not inconsistent with or which will not unreasonably interfere with the rights granted herein, provided that the CITY shall not physically disturb the well-casing or well-cover in any way without prior approval from the DISTRICT. It is recognized, however, that the CITY cannot

guarantee, warranty and does not represent the security of the well, equipment, or improvements to the premises, and hereby disclaims liability or responsibility.

- In the event the DISTRICT determines that the premises are no longer needed for the purposes set forth herein, the DISTRICT may terminate this License Agreement by notifying the CITY, in writing, at least thirty (30) days prior to the date of such termination. Upon termination in this manner or any other termination or expiration of this License Agreement, the DISTRICT shall abandon and plug the monitoring wells in accordance with all then applicable rules and regulations governing the abandonment of wells and in accordance with the requirements of the CITY, and shall submit a plan for approval to the CITY in advance of such abandonment. In addition, the DISTRICT shall restore the premises as nearly as practicable to its condition prior to the granting of this license provided, however, the CITY by giving notice in writing to the DISTRICT at least ten (10) days prior to the date of such termination, shall retain the option to require the improvements to remain in their then-current condition (including but not limited to, the well, well casing, and any and all improvements or appurtenances utilized in any manner previously on or in connection with the monitor well) in lieu of the removal and restoration requirements contained herein; in which event, upon receipt of such notification by the DISTRICT, all responsibilities and liabilities of the DISTRICT contained herein shall cease and such improvements shall become the sole responsibility of CITY.
- 13. a. Each party to this License Agreement is responsible for all personal injury and property damage attributable to the negligent acts or omissions of that party and the officers and employees acting within the scope of their employment thereof. In addition, each party is subject to the provisions of Section 768.28, Fla. Stat. (2001). Neither this provision nor any other in this License Agreement shall be construed as a waiver of Sovereign Immunity by either party.
- b. The DISTRICT may hire a third party contractor to construct the three new monitoring wells. In addition to the DISTRICT'S standard insurance requirements for contractors, it shall require the third party contractor to show both the DISTRICT and the CITY as additional insured parties under all of the insurance policies, with the exception of the workers' compensation insurance policy. Prior to the contractor commencing installation of the wells, the DISTRICT shall provide the CITY with a certificate of insurance evidencing the required coverages and naming the DISTRICT and CITY as additional insureds.
- c. The DISTRICT and CITY, as public entities, warrant and represent that they are self-funded for liability insurance, or have liability insurance with such protection being applicable to its officers, employees, servants, and agents while acting within the scope of their employment with DISTRICT or CITY respectively.
- d. The DISTRICT shall also acquire and maintain throughout the term of this License Agreement such general liability, automobile insurance, and workers' compensation insurance as required by its current rules and regulations.

- e. All personal property or improvements placed upon or moved in or upon the premises shall be at the risk of the DISTRICT and the CITY shall not be liable for any damage to said personal property or improvements.
- 14. As to all rights and obligations under this License Agreement, the parties hereby agree that time is of the essence.
- 15. All heavy equipment, tools, machinery, and other items utilized in the drilling of the well for construction of any improvements to the premises shall, if stored on the construction site, be safely enclosed and secured so as not to present a public health, safety or welfare threat.
- a. This License Agreement does not constitute a waiver of the CITY's regulatory and police powers and is entered into pursuant to its proprietary powers only.
- b. It shall be the responsibility of the DISTRICT at its sole cost and expense, to obtain or renew any and all permits, licenses, or other approvals which may be required by the CITY or any other federal, regional, state or local governmental agency or regulatory body.
- 16. In the event the DISTRICT shall breach, fail to observe, or be in default with respect to any of the provisions of this License Agreement or fail to comply with or observe a lawful order by the CITY or other entity with jurisdiction and such breach, failure, default or violation is not remedied by the DISTRICT within fifteen (15) days after written notice of same is given by the CITY (or the appropriate entity), then this License Agreement and the rights herein shall terminate immediately and the CITY shall not be liable for any damages caused by such termination and the wells will be abandoned by the DISTRICT in accordance with the provisions of Paragraph 12 herein.
- 17. All notices, consents, approvals, waivers and elections which any party shall be required or shall desire to make or give under this License Agreement shall be in writing and shall be sufficiently made or given by hand delivery or when mailed by certified mail, postage prepaid, return receipt requested, addressed as follows to the parties listed below or such other address as any party hereto shall designate by like notice given to the other party hereto:

DISTRICT: St. Johns River Water Management District

P. O. Box 1429

Palatka, Florida 32178-1429

CITY: City of Orlando, Florida

ATTN: City Engineer 400 S. Orange Avenue Orlando, Florida 32801

18. Notices, consents, approvals, waivers and elections given or made aforesaid shall be deemed to have been given and received on the date of the mailing thereof.

- 19. This License Agreement shall not be assigned or transferred by the DISTRICT; any such attempted assignment or transfer shall be null, void, and of no legal effect.
- 20. This License Agreement constitutes the entire agreement of the parties, and there are no understandings dealing with the subject matter of this License Agreement other than those contained herein. This License Agreement may not be modified, changed or amended, except in writing, signed by the parties hereto, or their authorized representatives.
- 21. This License Agreement shall be construed and interpreted according to the laws of the State of Florida and any suit filed shall be in the courts of Orange County, Florida.

IN WITNESS WHEREOF, the parties hereto have duly executed this License Agreement on the date and year first above written.

St. Johns River Water Management District

Vielu D Gener II

Executive Director

Approved by Office of General Counsel

John W. Williams

Deputy General Counsel

City of Orlando, Florida

Mayor Pro Te

ATTEST:

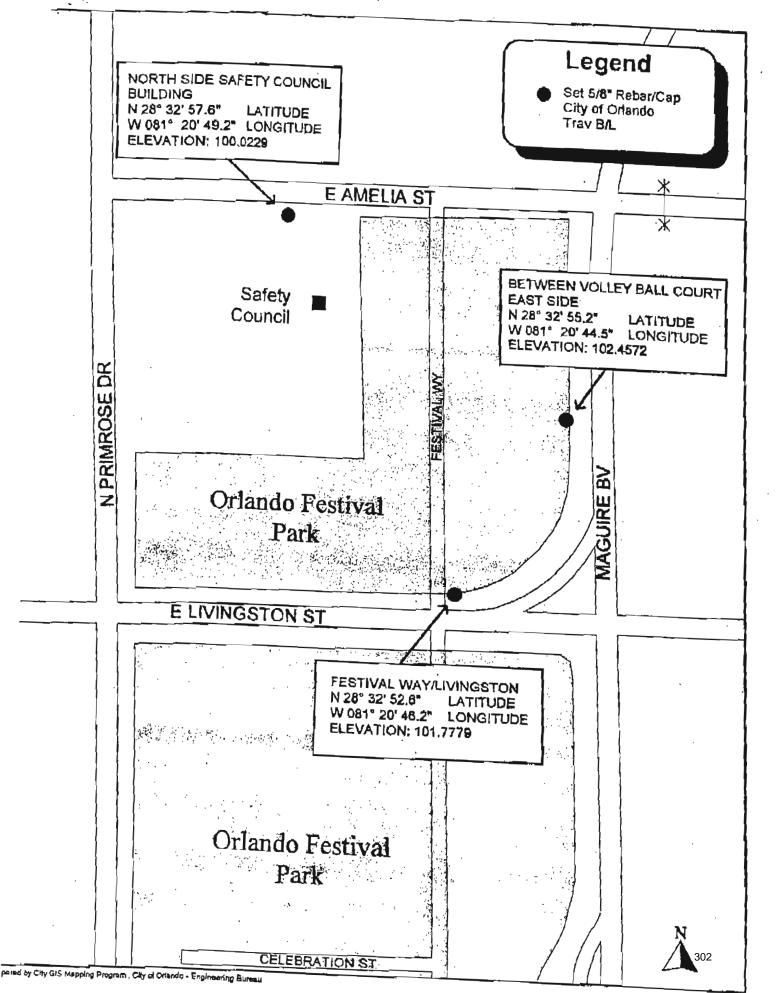
Candice J. Crawford, Lity Clerk,

(SEAL)

APPROVED AS TO FORM AND LEGALITY for the use and reliance of the City of Orlando, Florida only.

2000

Assistant City Attorney Orlando, Florida





Field Services Construction Preliminary Data

Festival Park Orange County, Florida

Aquifer System Monitor Wells:

Floridan OR-0018

Floridan OR-0032

Floridan OR-0140

Floridan OR-0141

Floridan OR-0818

Floridan OR-0819

SJRWMD Program No. 5111-03001

May 20, 2003

Division of Ground Water Programs
Department of Resource Management
St. Johns River Water Management District
Palatka, Florida

This report was generated for the Division of Ground Water Program's use.

All data, figures, tables and information are provisional.

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General Information

Site: Festival Park Floridan Monitoring Wells

Service Request: Al Aikens, CH2MHill

Purpose: Install monitor wells as part of Central Florida Artificial Recharge Project. Wells will be used to help quantify the impact to groundwater quality from recharge wells.

Work:

Monitor Well/Testhole Construction:

Diversified Drilling Corporation, Inc.

Project Management:

CH2MHill

Health & Safety Monitoring:

Nodarse & Associates

Geophysical Logging:

Advanced Borehole Services

Report: Laura Nelms

Notes:

OR0-0018 03/19/03, drilled to 250 ft bls using mud rotary drilling method. Lithologic samples collected at ten foot intervals for FGS analysis. Eight inch surface casing set @ 67 ft bls in intermediate clay confining unit and four inch casing set 180 ft bls into basal hawthorne dolostone. Well Mud Rotary drilled to approximately 250 ft bls. Circulation loss @188 ft bls.and 230 ft bls. Well developed using rig pump at 150 gpm for 4 hours. Development water remained cloudy. Water quality samples collected at total depth for field analysis. Completion report reflects well construction start date of 03/13/03.

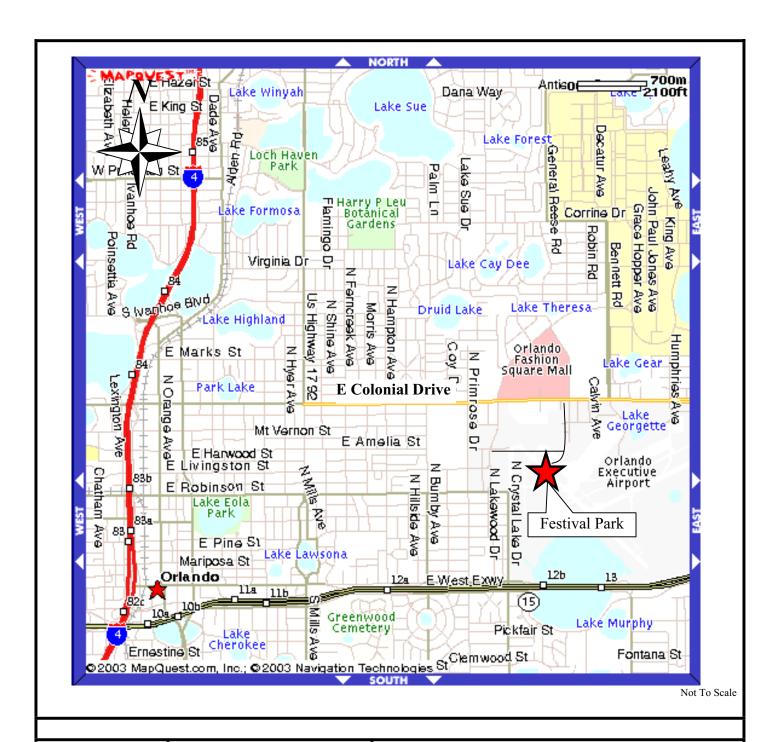
OR-0032 03/06/03, drilled to 600 ft bls using mud rotary drilling method. Lithologic samples collected at ten foot intervals for FGS analysis. Twelve inch surface casing set 65 ft bls in intermediate clay confining unit and four inch casing set 230 ft bls into top of rock. Well Mud Rotary drilled to approximately 600 ft bls. No circulation loss during drilling. Well developed using rig pump at 150 gpm for 2.2 hours. Water quality samples collected at total depth for field analysis. Development water clear. 02/28/03, Rods locked in borehole at 450 ft bls in limy/ clayey mud. Diversified used crane to free rods. Swival bent during lift but drilling resumed. Swival was replaced after well completion. Completion report reflects well construction start date of 02/24/03.

OR-0140 03/13/03, drilled to 400 ft bls using mud rotary drilling method. Eight inch surface casing set 65 ft bls in intermediate clay confining unit and four inch casing set 210 ft bls into top of rock. Well Mud Rotary drilled to approximately 400 ft bls. No circulation loss during drilling. Well developed using rig pump at 100 gpm for 2.2 hours. Development water clear. Water quality samples collected at total depth for field analysis. Skate park sewer drain installed next to well site and fill dirt piled on grass. No sod was added during final site rehabilitation due to the unfinished sewer project.

OR-0141 03/24/03, drilled to 250 ft bls using mud rotary drilling method. Lithologic samples collected at formation changes. Eight inch surface casing set 120 ft bls in intermediate clay confining unit and four inch casing set 190 ft bls into basal hawthorne dolostone. Well Mud Rotary drilled to approximately 250 ft bls. No circulation loss observed during drilling. Well developed using rig pump at 100 gpm for 2.8 hours. Development water clear. Water quality samples collected at total depth for field analysis.

OR-0818 04/03/03, drilled to 250 ft bls using mud rotary drilling method. Eight inch surface casing set 65 ft bls in intermediate clay confining unit and four inch casing set 180 ft bls into basal hawthorne dolostone. Well Mud Rotary drilled to approximately 250 ft bls. No circulation loss observed during drilling. Well developed using rig pump at >100 gpm for 2 hours. Development water clear. Water quality samples collected at total depth for field analysis.

OR-0819 03/28/03, drilled to 250 ft bls using mud rotary drilling method. Eight inch surface casing set 65 ft bls in intermediate clay confining unit and four inch casing set 185 ft bls into basal hawthorne dolostone. Well Mud Rotary drilled to approximately 250 ft bls. No circulation loss observed during drilling. Well developed using rig pump at >100 gpm for 1.8 hours. Development water clear. Water quality samples collected at total depth for field analysis. 03/31/03, Below grade vault vandalized after pad was set and compression cap removed. 04/01/03, Well checked to TD with tremie for debris and redeveloped. Pad and below grade vault reset.

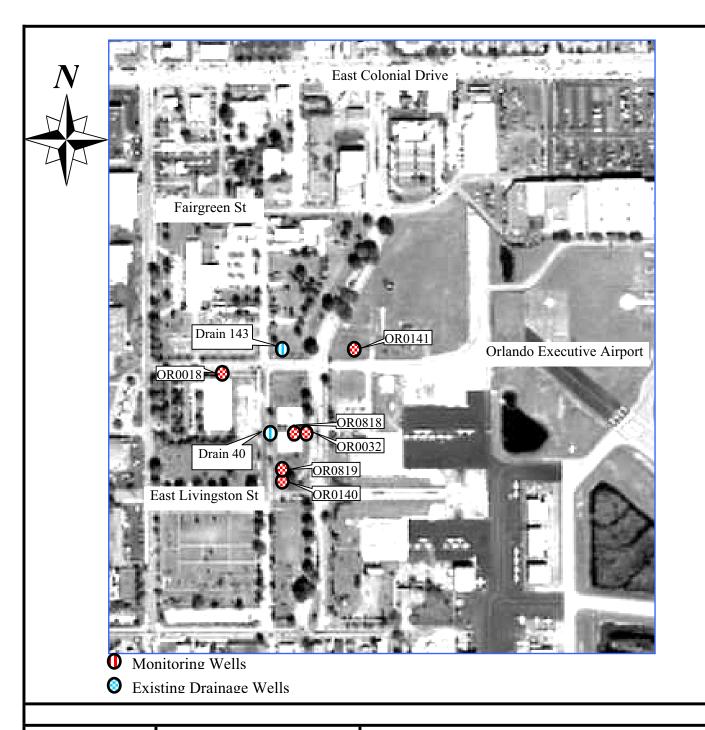


Site: Festival Park

GPS Lat/Long: 283252/812046 TRS: T22sR30eSec30 Topo: Orlando East

Site Elevation 102 ft NGVD

Figure 1. Map of Festival Park



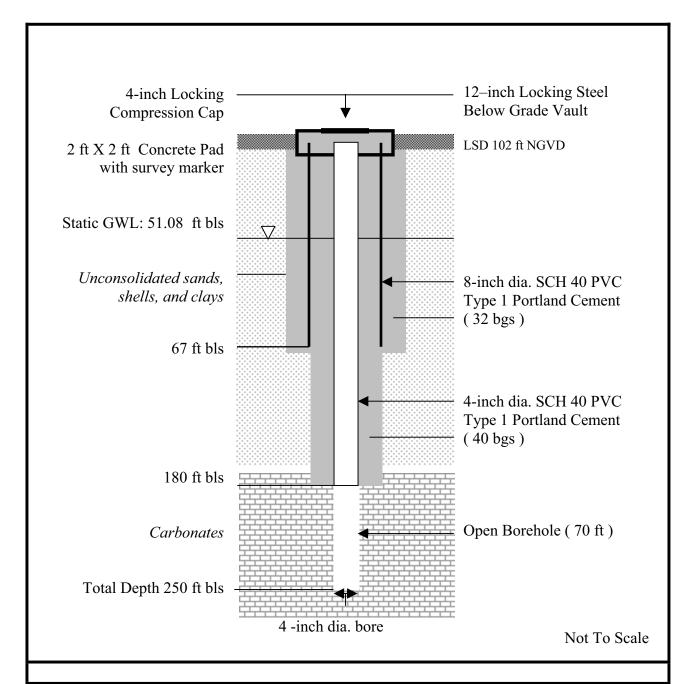
Site: Festival Park

GPS Lat/Long: 283252/812046

TRS: T22sR30eSec30
Topo: Orlando East

Site Elevation 102 ft NGVD

Figure 2. Map of Festival Park Wells

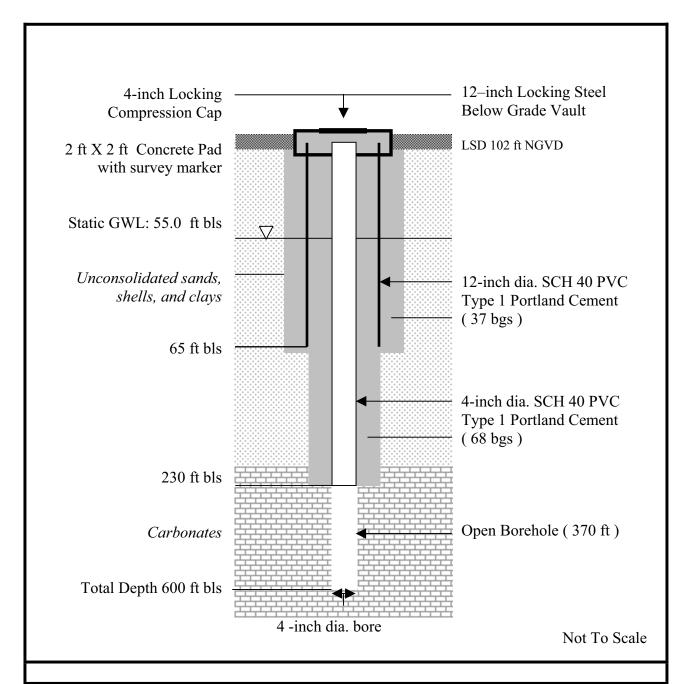


Site: Safety Council GPS Lat/Long: 283257/812049

Driller: Diversified Drilling Corp.

Well Completed: 03/19/03

Figure 3. Floridan Monitor Well OR-0018

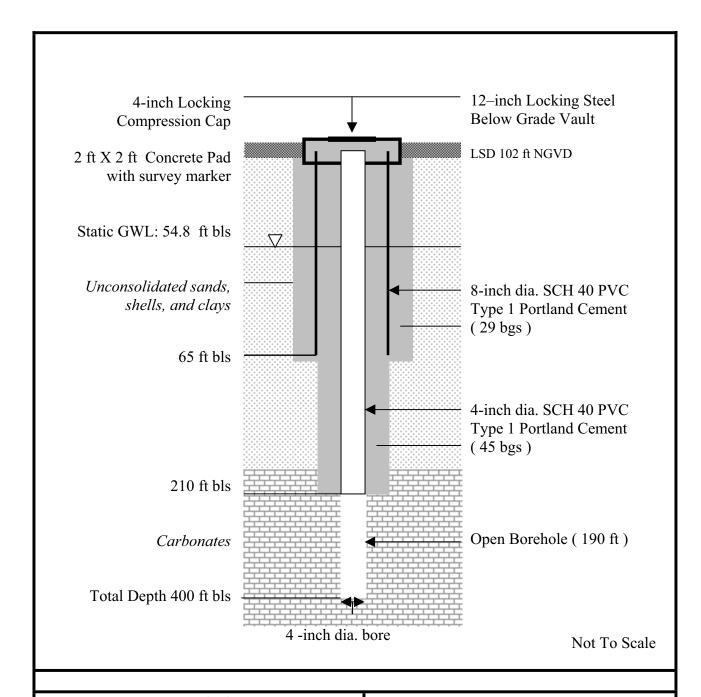


Site: Volley Ball Court **GPS Lat/Long:** 283255/812044

Driller: Diversified Drilling Corp.

Well Completed: 03/06/03

Figure 4. Floridan Monitor Well OR-0032

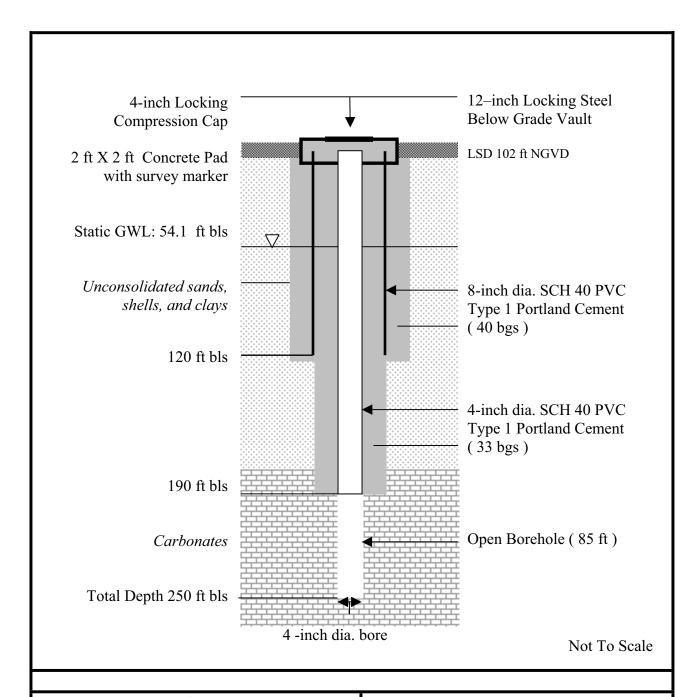


Site: Festival Way
GPS Lat/Long: 283252/812046

Driller: Diversified Drilling Corp.

Well Completed: 03/13/03

Figure 5. Floridan Monitor Well OR-0140



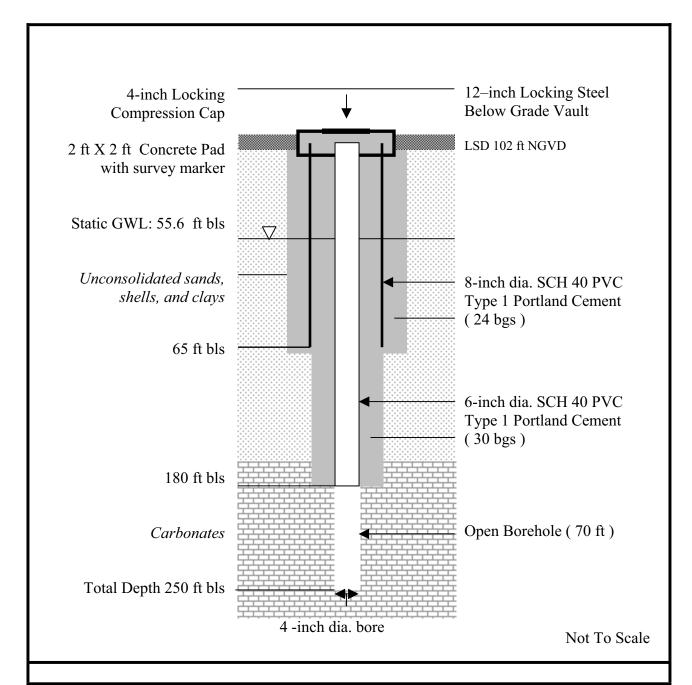
Site: Airport

GPS Lat/Long: 283259/812045

Driller: Diversified Drilling Corp.

Well Completed: 03/24/03

Figure 6. Floridan Monitor Well OR-0141

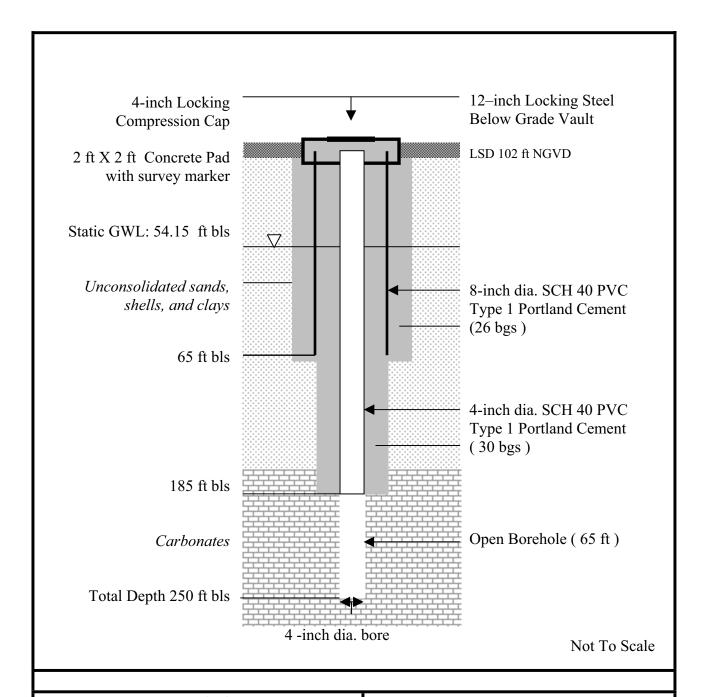


Site: Volley Ball Court GPS Lat/Long: 283255/812045

Driller: Diversified Drilling Corp.

Well Completed: 04/03/03

Figure 7. Floridan Monitor Well OR-0818



Site: Festival Way
GPS Lat/Long: 283253/812046

Driller: Diversified Drilling Corp.

Well Completed: 03/28/03

Figure 8. Floridan Monitor Well OR-0819

Table 1. Grout Data

Site: Safety Council
Well ID: OR-0018

Data Collection: L Nelms

DATE	TAG	ANNULUS/	QUANITY	MATERIAL	COMMENTS
	DEPTH	BORE	(yds/bags)	*	
	(ft)	(inch)			
03/13/03	70	A-6	-	-	Pilothole
03/13/03	67	A-12	32 bgs	P-94	Set 67 ft of 8-inch SCH 40 PVC
					casing and pumped grout through
					1-inch steel tremie
03/17/03	180	A-8	40 bgs	P-94	Set 180 ft of 4-inch SCH-40 PVC
					casing and pumped grout through
					1-inch steel tremie
03/19/03	250	B-4	2 bgs	Q-40	Hand mix grout for 2 x 2 concrete
					pad and complete grout around
					4-inch casing, set below grade
					vault

^{*}P-94 = Type 1 Portland Cement *Q-40 = Quickrete 40 lbs

Table 2. Grout Data

Site: Volley Ball Court

Well ID: OR-0032

Data Collection: L Nelms

DATE	TAG	ANNULUS/	QUANITY	MATERIAL	COMMENTS
	DEPTH	BORE	(yds/bags)	*	
	(ft)	(inch)			
02/24/03	65	6	-	-	Pilothole
02/24/03	65	A-15	37 bgs	P-94	Set 65 ft of 12-inch SCH 40 PVC casing and pumped grout through 1-inch steel tremie
02/26/03	230	A-8	68 bgs	P-94	Set 230 ft of 4-inch SCH 40 PVC casing and pumped grout through 1-inch steel tremie
03/04/03	600	B-4	2 bgs	Q-40	Hand mix grout for 2 x 2 concrete pad and complete grout around 4-inch casing, set below grade vault

^{*}P-94 = Type 1 Portland Cement *Q-40 = Quickrete 40 lbs

Table 3. Grout Data

Site: Festival Way

Well ID: OR-0140

Data Collection: L Nelms

DATE	TAG	ANNULUS/	QUANITY	MATERIAL	COMMENTS
	DEPTH	BORE	(yds/bags)	*	
	(ft)	(inch)			
03/05/03	65	6	-	-	Pilothole
03/06/03	65	A-12	29 bgs	P-94	Set 65 ft of 8-inch SCH 40 PVC
					casing and pumped grout through
					1-inch steel tremie
03/10/03	210	A-8	45 bgs	P-94	Set 210 ft of 4-inch SCH 40 PVC
					casing and pumped grout through
					1-inch steel tremie
03/13/03	400	B-4	2 bgs	Q-40	Hand mix grout for 2 x 2 concrete
					pad and complete grout around
					4-inch casing, set below grade
					vault

^{*}P-94 = Type 1 Portland Cement *Q-40 = Quickrete 40 lbs

Table 4. Grout Data

Site: Airport Well ID: OR-0141

Data Collection: L Nelms

DATE	TAG	ANNULUS/	QUANITY	MATERIAL	COMMENTS
	DEPTH	BORE	(yds/bags)	*	
	(ft)	(inch)			
03/19/03	120	B-12	40 bgs	P-94	Set 120 ft of 8-inch SCH 40 PVC
					casing and pumped grout through
					1-inch steel tremie
03/20/03	190	A-8	33 bgs	P-94	Set 190 ft of 4-inch SCH 40 PVC
					casing and pumped grout through
					1-inch steel tremie
03/24/03	250	B-4	2 bgs	Q-40	Hand mix grout for 2 x 2 concrete
					pad and complete grout around
					4-inch casing, set below grade
					vault

^{*}P-94 = Type 1 Portland Cement *Q-40 = Quickrete 40 lbs

Table 5. Grout Data

Site: Volley Ball Court

Well ID: OR-0818

Data Collection: L Nelms

DATE	TAG	ANNULUS/	QUANITY	MATERIAL	COMMENTS
	DEPTH	BORE	(yds/bags)	*	
	(ft)	(inch)			
03/31/03	65	B-12	24 bgs	P-94	Set 65 ft of 8-inch SCH 40 PVC
					casing and pumped grout through
					1-inch steel tremie
04/01/03	180	A-8	30 bgs	P-94	Set 180 ft of 4-inch SCH 40 PVC
			_		casing and pumped grout through
					1-inch steel tremie
04/03/03	250	B-4	-	-	Hand mix grout for 2 x 2 concrete
					pad and complete grout around
					4-inch casing, set below grade
					vault

^{*}P-94 = Type 1 Portland Cement *Q-40 = Quickrete 40 lbs

Table 6. Grout Data

Site: Festival Way

Well ID: OR-0819

Data Collection: L Nelms

DATE	TAG	ANNULUS/	QUANITY	MATERIAL *	COMMENTS
	DEPTH	BORE	(yds/bags) *		
	(ft)	(inch)			
03/25/03	65	B-12	26 bgs	P-94	Set 65 ft of 8-inch SCH 40 PVC
					casing and pumped grout through
					1-inch steel tremie
03/27/03	185	A-8	30 bgs	P-94	Set 185 ft of 4-inch SCH 40 PVC
			_		casing and pumped grout through
					1-inch steel tremie
03/28/03	250	B-4	-	-	Hand mix grout for 2 x 2 concrete
					pad and complete grout around
					4-inch casing, set below grade
					vault

^{*}P-94 = Type 1 Portland Cement *Q-40 = Quickrete 40 lbs

Table 7. **Drilling Data**

Site: Volley Ball Court

Data Collection: L Nelms **Well ID:** <u>OR-0032</u>

Data Collec	eron: Erven		Method				
Date (yymmdd)	From (ft, bls)	To (ft, bls)	Mud/ Rev Air	Bit Size (inch)	Time (min)	Rate (ft/hr)	Comments
02/24/03	0	65	Mud	6	36	108	
02/24/03	0	65	Mud	15	100	39	
02/25/03	65	120	Mud	8	136	24.3	
02/25/03	120	140	Mud	8	10	120	
02/25/03	140	150	Mud	8	55	10.9	
02/25/03	150	170	Mud	8	115	10.4	
02/25/03	170	180	Mud	8	35	17.1	
02/26/03	180	190	Mud	8	30	20	
02/26/03	190	195	Mud	8	50	6	
02/26/03	195	200	Mud	8	25	12	
02/26/03	200	210	Mud	8	55	10.9	
02/26/03	210	220	Mud	8	35	17.1	
02/26/03	220	230	Mud	8	10	60	
02/27/03	230	240	Mud	4	50	12	
02/27/03	240	250	Mud	4	40	15	
02/27/03	250	260	Mud	4	15	40	
02/27/03	260	270	Mud	4	19	31.5	
02/27/03	270	280	Mud	4	11	54.5	
02/27/03	280	290	Mud	4	10	60	
02/27/03	290	300	Mud	4	12	50	
02/27/03	300	310	Mud	4	38	15.8	
02/27/03	310	320	Mud	4	14	43	
02/27/03	320	330	Mud	4	24	25	
02/27/03	330	340	Mud	4	20	30	
02/27/03	340	350	Mud	4	10	60	
02/27/03	350	360	Mud	4	12	50	
02/27/03	360	370	Mud	4	12	50	
02/27/03	370	380	Mud	4	6	100	
02/27/03	380	390	Mud	4	20	30	
02/27/03	390	400	Mud	4	15	40	
02/28/03	400	410	Mud	4	80	7.5	
02/28/03	410	420	Mud	4	33	18.8	
02/28/03	420	430	Mud	4	37	16.2	
02/28/03	430	440	Mud	4	25	24	
02/28/03	440	450	Mud	4	54	11.1	
03/03/03	450	460	Mud	4	55	10.9	
03/03/03	460	470	Mud	4	28	21.4	
03/03/03	470	472	Mud	4	22	27.2	

Drilling Data Table 7.

Site: Volley Ball Court Well ID: <u>OR-0032</u>

Data Collection: L Nelms

Date (yymmdd)	From (ft, bls)	To (ft, bls)	Method Mud/ Rev Air	Bit Size (inch)	Time (min)	Rate (ft/hr)	Comments
03/04/03	472	480	Mud	4	-	-	
03/04/03	480	490	Mud	4	21	28.6	
03/04/03	490	500	Mud	4	60	10	
03/04/03	500	510	Mud	4	44	13.6	
03/04/03	510	520	Mud	4	88	6.8	
03/04/03	520	530	Mud	4	69	8.7	
03/04/03	530	540	Mud	4	31	19.4	
03/04/03	540	550	Mud	4	12	50	
03/04/03	550	560	Mud	4	19	31.6	
03/04/03	560	570	Mud	4	16	37.5	
03/04/03	570	580	Mud	4	9	66.6	
03/04/03	580	590	Mud	4	15	40	
03/04/03	590	600	Mud	4	16	37.5	TD

Table 8. **Drilling Data**

Site: Festival Way
Data Collection: L Nelms Well ID: <u>OR-0140</u>

Data Conce	<u> </u>	<u> </u>				1	
Date (yymmdd)	From (ft, bls)	To (ft, bls)	Method Mud/ Rev Air	Bit Size (inch)	Time (min)	Rate (ft/hr)	Comments
03/06/03	0	20	Mud	6	15	80	
03/06/03	20	60	Mud	6	60	60	
03/06/03	0	15	Mud	15	-	_	
03/06/03	15	20	Mud	12	-	-	
03/06/03	20	50	Mud	12	60	30	
03/06/03	50	65	Mud	12	40	22.5	
03/06/03	65	90	Mud	8	45	33.3	
03/06/03	90	105	Mud	8	50	18	
03/07/03	105	120	Mud	8	58	16	
03/07/03	120	145	Mud	8	32	46.8	
03/10/03	145	150	Mud	8	20	15	
03/10/03	150	160	Mud	8	50	12	
03/10/03	160	170	Mud	8	25	24	
03/10/03	170	180	Mud	8	36	16.6	
03/10/03	180	190	Mud	8	36	16.6	
03/10/03	190	200	Mud	8	59	10.2	
03/10/03	200	210	Mud	8	25	24	

Table 8. Drilling Data

Site: Festival Way

Well ID: OR-0140

Data Collection: L Nelms

Date (yymmdd)	From (ft, bls)	To (ft, bls)	Method Mud/ Rev Air	Bit Size (inch)	Time (min)	Rate (ft/hr)	Comments
03/11/03	210	215	Mud	4	-	-	
03/11/03	215	220	Mud	4	13	23	
03/11/03	220	230	Mud	4	30	20	
03/11/03	230	240	Mud	4	11	54.5	
03/11/03	240	250	Mud	4	11	54.5	
03/11/03	250	260	Mud	4	20	30	
03/11/03	260	270	Mud	4	13	46.1	
03/11/03	270	280	Mud	4	7	85.7	
03/11/03	280	290	Mud	4	16	37.5	
03/11/03	290	300	Mud	4	11	54.5	
03/11/03	300	310	Mud	4	6	100	
03/11/03	310	320	Mud	4	15	40	
03/11/03	320	330	Mud	4	32	18.7	
03/11/03	330	340	Mud	4	6	100	
03/11/03	340	350	Mud	4	15	40	
03/11/03	350	360	Mud	4	7	85.7	
03/11/03	360	370	Mud	4	10	60	
03/11/03	370	380	Mud	4	15	40	
03/11/03	380	390	Mud	4	9	66.6	
03/11/03	390	400	Mud	4	-		TD

Table 9. Drilling Data

155

160

03/14/03

03/17/03

67

155

Site: Safety Council

Data Collection: L Nelms

Well ID: OR-0018

Method

Mud

Mud

Bit Size Date **From** To Time Rate Mud/ **Comments** (yymmdd) (ft, bls) (ft, bls) (inch) (min) (ft/hr) **Rev Air** 03/13/03 0 10 Mud 6 9 66.6 03/13/03 10 20 6 6 100 Mud 03/13/03 20 30 Mud 7 85.7 6 03/13/03 40 4 30 Mud 6 150 50 4 03/13/03 40 Mud 6 150 03/13/03 50 60 6 10 60 Mud 03/13/03 70 7 85.7 60 Mud 6 03/13/03 67 0 Mud 12 87 46.2

8

8

55

offsite

5.45

Table 9. **Drilling Data**

Site: Safety Council Well ID: <u>OR-0018</u>

Data Collection: L Nelms

Date (yymmdd)	From (ft, bls)	To (ft, bls)	Method Mud/ Rev Air	Bit Size (inch)	Time (min)	Rate (ft/hr)	Comments
03/17/03	160	170	Mud	8	20	30	
03/17/03	170	180	Mud	8	55	10.9	
03/17/03	180	190	Mud	8	14	42.8	Circulation loss
03/18/03	190	200	Mud	4	18	33.3	
03/18/03	200	210	Mud	4	18	33.3	
03/18/03	210	220	Mud	4	13	46.2	
03/18/03	220	230	Mud	4	27	22.2	
03/18/03	230	240	Mud	4	28	21.4	
03/18/03	240	250	Mud	4	-	-	TD

Table 10. **Drilling Data**

Site: Airport

Data Collection: L Nelms **Well ID:** <u>OR-0141</u>

Data Collection: L Neims										
Date (yymmdd)	From (ft, bls)	To (ft, bls)	Method Mud/ Rev Air	Bit Size (inch)	Time (min)	Rate (ft/hr)	Comments			
03/19/03	0	20	Mud	12	25	48				
03/19/03	20	50	Mud	12	40	45				
03/19/03	50	70	Mud	12	15	80				
03/19/03	70	80	Mud	12	13	46.1				
03/19/03	80	100	Mud	12	57	21.1				
03/19/03	100	120	Mud	12	65	18.5				
03/20/03	120	130	Mud	8	35	17.1				
03/20/03	130	140	Mud	8	12	50				
03/20/03	140	150	Mud	8	14	42.8				
03/20/03	150	160	Mud	8	23	26.1				
03/20/03	160	170	Mud	8	35	17.1				
03/20/03	170	180	Mud	8	18	33.3				
03/20/03	180	190	Mud	8	15	40				
03/21/03	190	200	Mud	4	35	17.1				
03/21/03	200	210	Mud	4	9	66.6				
03/21/03	210	220	Mud	4	40	15				
03/21/03	220	230	Mud	4	19	31.6				
03/21/03	230	240	Mud	4	12	50				
03/21/03	240	250	Mud	4	15	40	TD			

Table 11. **Drilling Data**

Site: <u>Festival Way</u> **Data Collection:** <u>L Nelms</u> **Well ID:** <u>OR-0819</u>

Date (yymmdd)	From (ft, bls)	To (ft, bls)	Method Mud/ Rev Air	Bit Size (inch)	Time (min)	Rate (ft/hr)	Comments
03/25/03	0	30	Mud	12	79	25.7	
03/25/03	30	40	Mud	12	30	20	
03/25/03	40	50	Mud	12	20	30	
03/25/03	50	60	Mud	12	15	40	
03/25/03	60	65	Mud	12	25	12	
03/26/03	65	70	Mud	8	-	-	
03/26/03	70	80	Mud	8	13	46.1	
03/26/03	80	90	Mud	8	12	50	
03/26/03	90	100	Mud	8	13	46.1	
03/26/03	100	110	Mud	8	22	27.3	
03/26/03	110	120	Mud	8	28	21.4	
03/26/03	120	130	Mud	8	40	15	
03/26/03	130	140	Mud	8	25	24	
03/26/03	140	150	Mud	8	40	15	
03/26/03	150	160	Mud	8	16	37.5	
03/26/03	160	165	Mud	8	-	-	
03/27/03	165	170	Mud	8	35	8.57	
03/27/03	170	180	Mud	8	40	15	
03/27/03	180	185	Mud	8	5	60	
03/28/03	185	190	Mud	4	20	15	
03/28/03	190	200	Mud	4	14	42.8	
03/28/03	200	210	Mud	4	28	21.4	
03/28/03	210	220	Mud	4	24	25	
03/28/03	220	230	Mud	4	14	42.8	
03/28/03	230	240	Mud	4	9	66.6	
03/28/03	240	250	Mud	4	20	30	TD

Drilling Data Table 12.

Site: Volley Ball Court
Data Collection: L Nelms **Well ID:** <u>OR-0818</u>

Date (yymmdd)	From (ft, bls)	To (ft, bls)	Method Mud/ Rev Air	Bit Size (inch)	Time (min)	Rate (ft/hr)	Comments
03/31/03	0	20	Mud	12	40	30	
03/31/03	20	40	Mud	12	50	24	
03/31/03	40	60	Mud	12	20	60	
03/31/03	60	65	Mud	12	10	30	
04/01/03	65	70	Mud	8	15	20	
04/01/03	70	80	Mud	8	10	60	
04/01/03	80	90	Mud	8	15	40	
04/01/03	90	100	Mud	8	15	40	
04/01/03	100	110	Mud	8	13	46.2	
04/01/03	110	120	Mud	8	15	40	
04/01/03	120	130	Mud	8	43	13.9	
04/01/03	130	140	Mud	8	-	-	Change bit
04/01/03	140	150	Mud	8	25	24	
04/01/03	150	160	Mud	8	60	10	
04/01/03	160	170	Mud	8	50	12	
04/01/03	170	180	Mud	8	20	30	
04/02/03	180	190	Mud	4	80	7.5	
04/02/03	190	200	Mud	4	34	17.6	
04/02/03	200	210	Mud	4	12	50	
04/02/03	210	220	Mud	4	6	100	
04/02/03	220	230	Mud	4	23	26.1	
04/02/03	230	240	Mud	4	15	40	
04/02/03	240	250	Mud	4	45	13.3	TD

Table 13. Groundwater Levels

Site: Festival Park

Data Collection: L Nelms

	Static Water Levels					
Well ID:	Date/Time (yymmdd/hhmm)	Water Level (ft, bls)	Casing (ft, bls)	Diameter (inches)	Total Depth (ft, bls)	Open Hole (ft)
OR-0018	032403/1500	51.08	190	4	250	60
OR-0032	031203/0710	54.87	230	4	600	370
OR-0140	031803/0750	52.86	210	4	400	190
OR-0141	032503/0945	54.11	190	4	250	60
OR-0818	040303/1215	55.6	180	4	250	70
OR-0819	040203/0945	54.15	185	4	250	65

Table 14. Groundwater Quality / Development

Site: Festival Park

Data Collection: L Nelms

Development Method: Air

Well ID:	Date	Rate	ΣVol	Temp	PH	Cl	Specific
						(mg/l)	Conductivity
	(yymmdd/hhmm)	(gpm)	(gal)	(Deg C)			(us/cm)
OR-0018	030319/1305	150	36,000	25.1	7	8	460
OR-0032	030306/0825	150	20,000	23.4	7	6	325
OR-0140	030312/1218	100	13,400	24.5	7	4	265
OR-0141	030324/1430	100	17,000	23.5	7	6	294
OR-0818	030403/0945	100	12,000	23.4	7	6	337
OR-0819	030331/0958	100	11,000	23.1	7	6	354

Lithologic Description

Site: Safety Council

Well/Testhole: OR-0018

Samples Described By: L. Nelms

From	To	Lithology
0	5	Sand, tan fine - medium
5	10	Clay, pale gray, soft
10	40	Sand, pale yellowish brown, fine - medium
40	60	Sand , light brownish gray/ pale yellowish brown, fine – medium, heavy minerals
60	70	Clay, light olive gray, soft, sandy, heavy minerals, dolomitic sand
70	80	Clay, olive gray, soft, phosphatic
80	100	Clay, light olive gray, soft, heavy minerals, phosphate, sand, mica
100	120	Clay, light olive gray, soft, heavy minerals, phosphate, sand
120	170	Clay, light olive gray, sandy, phosphatic, dolomitic sand, HCL reaction – none
170	180	Dolomitic sand , clayey, mottled dark/pale yellowish brown, phosphate, heavy minerals
180	200	Dolomitic sand , gray/ yellowish brown, peloidal phosphate
190	200	Limestone , very pale orange, fossiliferous, HCL reaction – vigorous
200	230	Limestone, very pale orange, HCL reaction - moderate
230	240	Limestone, very pale/yellowish orange, fossils and fossil molds, dictyconus
240	250	Limestone, light gray/ brown, HCL reaction - vigorous

^{*}Lithologic samples will be sent to Florida Geological Survey for detailed description.

Lithologic Description

Site: Airport Well/Testhole: OR-0141

Samples Described By: L. Nelms

From	To	Lithology
0	15	Clay, pale gray, soft
15	50	Sand, pale yellowish brown
50	65	Sand, clayey, olive gray, phosphatic
65	80	Shell bed, clayey, olive gray, decreasing shell by 80 ft
80	120	Clay, light olive gray, soft, shell fragments, heavy minerals, phosphate
120	172	Clay, olive gray/ pale olive gray, phosphatic, shell fragments
172	183	Clay, olive gray/ pale olive gray, sandy, dolomitic sand stringers, phosphate, heavy
		minerals
183	210	Dolomitic sand , clayey, mottled dark/pale yellowish brown/ gray, phosphate, heavy
		minerals
210	250	Limestone, very pale orange, fossiliferous, lepidocyclina

Lithologic Description

Site: Volley Ball Court Well/Testhole: OR-0032

Samples Described By: L. Nelms

From	To	Lithology
0	60	Sand, pale yellowish brown, heavy minerals, black, fine - medium
60	80	Clay, olive green/ gray, moderately stiff, shell fragments
80	100	Clay, olive green/ gray, soft, sandy, phosphatic, some shell fragments
100	140	Clay, sandy, dolomitic sand, pale olive green/ gray, shell fragments, fossil teeth,
		phosphate, heavy minerals
140	160	Clay, olive gray/ pale olive gray, sandy, dolomitic sand, phosphate, heavy minerals
160	180	Clay, pale olive gray, some cherty dolostone, phosphate, heavy minerals
180	210	Dolomitic sand , clayey, mottled dark/pale yellowish brown, phosphate, heavy minerals
210	220	Limestone, very pale orange, dolomitic sand, pale yellowish brown, phosphatic
220	250	Limestone, very pale orange, fossiliferous, lepidocyclina, portions chalky, some remnant
		dolomitic sand
250	280	Limestone, light gray/ very pale orange, fossiliferous, mildly indurated
280	320	Limestone, very pale orange, indurated, some limy mud
320	360	Limestone, dolomitic, pale yellowish brown, sucrosic, soft, HCL reaction - moderate
360	400	Limestone, very pale orange/ pale yellowish brown, fossiliferous, dictyconus
400	410	Limestone, very pale orange, fossiliferous
410	430	Dolostone , grayish orange, sucrosic, HCL reaction - mild
430	450	Limestone, grayish orange, limy mud
450	490	Dolostone , moderate yellowish brown, indurated
490	520	Dolostone , dark yellowish brown, indurated, mild reaction to 10%HCL
520	600	Dolostone , moderate yellowish brown, indurated

^{*}Lithologic samples will be sent to Florida Geological Survey for detailed description.

Lithologic Description

Site: Festival Way

Well/Testhole: OR-0140

Samples Described By: L. Nelms

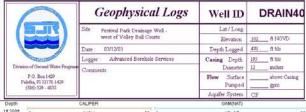
From	To	Lithology
0	60	Sand, tan fine - medium
60	80	Clay, light olive gray, moderately stiff
80	145	Clay, light olive gray, soft, shell fragments, heavy minerals, phosphate, sand
145	170	Clay, olive gray/ pale olive gray, sandy, dolomitic sand stringers, phosphate, heavy
		minerals
170	200	Dolomitic sand , clayey, mottled dark/pale yellowish brown/ gray, phosphate, heavy
		minerals
200	250	Limestone, very pale orange, fossiliferous, lepidocyclina, portions chalky

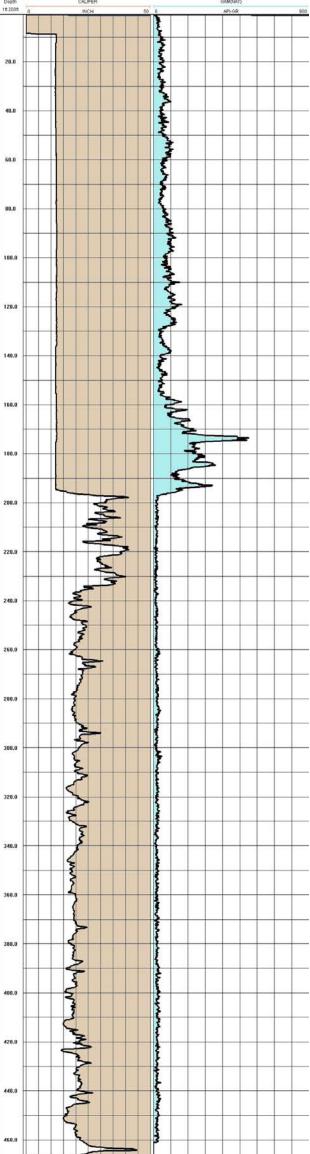




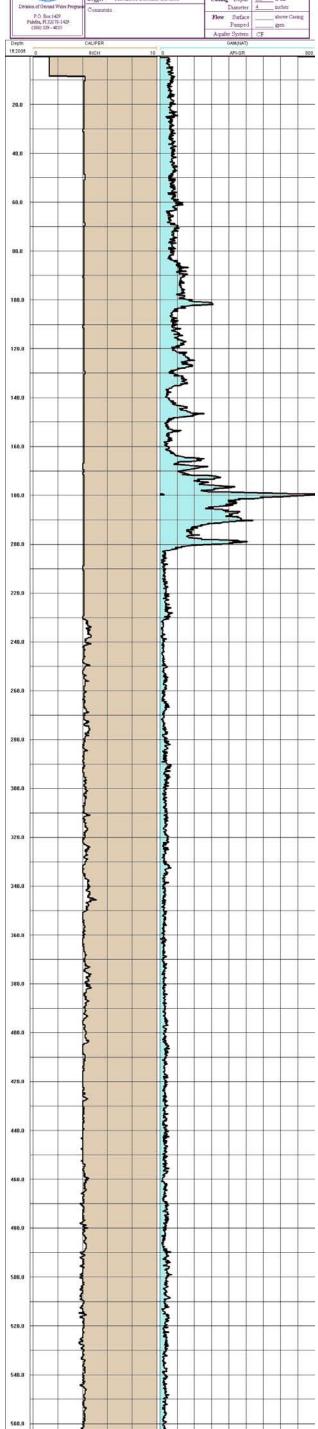






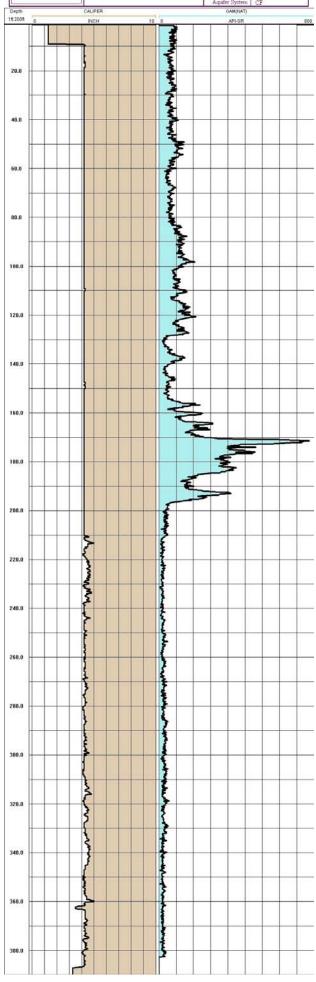


The state of the s	Geophysical Logs	Well ID	OR0032
	Site Ferrival Park - Volley Ball Court	Lat / Long	
	LUCUL STREET, STORY OF STREET, STORY	Elevation	102 ft NGVD
	Date: 03/12/03	Depth Logged	600 ft bls
The same of the sa	Logger : Advanced Borehole Services	Casing Depth	230 ft bls
levators of Ground Water Program	Comments	Diameter	4 inches
P.O. Box 1429 Palatha, FI 32178-1429 (386) 329 - 4833	O Manual Control of the Control of t	Flow Surface Pumped	above Caring
1,5007,325,4055		Aquafer System	CF



580.0

	Geophysical Logs	Well ID	OR0140
	Site Festival Park - Festival Way	Lat/Long	
	ST. A. C. I LONG TO COMPANY A STATE OF THE S	Elevation	102 ft NGVD
	Date: 03/12/03	Depth Logged	400 ft bls
The same of the sa	Logger: Advanced Borehole Services	Casing Depth	210 ft bls
Devision of Ground Water Programs	Comments	Diameter	4 inches
P.O. Box 1429 Palatha, F132178-1429 (386) 329 - 4835	Para and para	Flow Surface Pumped	above Caring
100 March (1990)		A moles Contain	OT



CITY OF ALTAMONTE SPRINGS

Building/Life Safety Services

225 Newburyport Avenue, Alternonte Springe, FL 32701 Phone: 407-571-8433 Fax: 407-571-8445

RIGHT-OF-WAY UTILIZATION PERMIT

PERMIT #: PW03-0080 Issued Date: 09/25/2003

Address

Location: WEST OF MT VERNON PKWY LEASEMENT BETWEEN OAK HILL DR. & BROADVIEW AVE.

Parcel #: Subdivision:

Project Name:

Work Description: INSTALLATION OF MONITORING WELL MW-1 - SEE ATTACHED APPLICATION FOR COMMENTS.

OWNER INFORMATION

CONTRACTOR INFORMATION

CH2MHILL

225 E ROBINSON ST SUITE 503

ORLANDO FL 32801-4321

407-423-0030

Cert#: CH2MHILL

CONTACT NAME: CH2MHILL 407-423-0030

PERMIT FEES

\$0.00 Permit.

Other Fermit Fee: \$0.00

\$0.00 Engineering Inspection:

80.00 TOTAL FEES.......

ALL FEES WAIVED - NO BALANCE DUE

I certify that all the foregoing information is accurate and that all work will be done in compliance with all applicable laws regarding [] Contractor

construction and zoning.

[] Owner/Agent

Please Print Name

This Application Shall Be Subject To All City and State Regulations Now in Effect 24 HOUR NOTICE IS REQUIRED PRIOR TO CONSTRUCTION/INSPECTION.

PLEASE CONTACT 407-571-8334 TO SCHEDULE

THIS PERMIT WILL EXPIRE FOUR (4) MONTHS AFTER DATE OF ISSUANCE

	·
	PLO 03-6080
. D <i>]</i>	SPIZING LAKE TOAD RW98-019
I.	CITY OF ALTAMONTE SPRINGS
L	PHONE 407-571-8433 FAX: 407-571-8445
	PHONE: 407-571-8433 FAX: 407-571-84451
مسرب	JOB NAME: Lake Orienta Recharge Wells
	JOB ADDRESS: West of Mt. Vernon Pkwy., Easement between Oak Hill Dr. & Broadview Ave.
	APPLICANT'S FIRM NAME: _ CH2M HILL (on behalf of SJRWMD)
	ADDRESS: 225 E. Robinson St., Suite 505, Orlando, FL 32801
	ADDRESS: 225 E. Robinson St., Suite 505, Orlando, FL 32801 CONTACT NAME: Al Aikens / CH2M HILL 407-423-0030 DESCRIPTION OF WORK: Installation of Monitoring Well MW - 1 (see attached map) WORK
	DESCRIPTION OF WORK: Installation of Monitoring Well MW - 1 (see attached map)WORK
,	CECTION: 23 TOWNCHID: 245 DANCE: 00 F
	SECTION: 23 TOWNSHIP: 215 RANGE: 30 E
	NUMBER AND TYPE OF ROAD CROSSINGS: OPEN CUT (PAVED) OPEN CUT (UNPAVED) BORE/JACK
	LETTER OF NOTIFICATION HAS BEEN SENT TO THE FOLLOWING AGENCIES ON
	DATE No contractor is reg'd. (INDICATE NAME OF AGENCY) to call Sunshine One Call 1-800-432-4770 prior to installation of wells
	WATER SEWER
	ELECTRIC GAS
	TELEPHONE OTHER
	**24 HOUR NOTICE IS REQUIRED PRIOR TO CONSTRUCTION/INSPECTION. PLEASE CONTACT 407,671-8634 TO SCHEDULE.
	THIS PERMIT WILL EXPIRE FOUR (4) MONTHS AFTER DATE OF ISSUANCE
	9/22/03
	PUBLIC WORK'S SIGNATURE - date
*	COMMENTS: The above is part of a joint project involving the city, SJRWMD, and to a
	lesser extent FDEP. Project Name: PW98-019 Lake Orienta Arcificial Recharge Demonstr

tion Project. The SJRWMD CONTRACTOR (to be named later) has been given the burden of

locating utilities and has been instructed to install the monitoring wells in the R/W between sidewalk and back of curb without conflict of existing utilities.

/¹/2

RIGHT-OF-WAY UTILIZATION PERMIT CONDITIONS OF PERMIT

1.	O	Submit Maintenance of Traffic Plan (applicable if marked) for approval prior to start
		of construction.

- 2 0 Submit construction schedule and estimated completion date.
- 3. X Restore and/or sod all disturbed areas within five (5) working days form the date of disturbance.
- X 4. No dirt, debris, or construction materials are to be piled or stored on the street side of the curb, or on the pavement if no curb exists.
- X 5. The contractor shall provide all necessary erosion control as required by the City, to prevent soil from washing into storm drains, water bodies, or swales.
- 6. X The Department of Public Works shall be notified 48 hours prior to the start of construction. The contractor shall notify the Site Inspector 48 hours prior to the start of construction. Phone (407) 571-8334.
- X 7. The permit is to remain on site during construction and restoration.
- The excavator is required to notify the pipeline or utility owner immediately if their 8. X work damages a pipeline or utility and to call 911 if the damage results in a release of natural gas or other hazardous substance or potentially endangers life, health, or property.

Date

Mile Drey

Signed

48 HOURS BEFORE YOU DIG CALL SUNSHINE 1-800-432-4770 IT'S THE LAW

CITY OF ALTAMONTE SPRINGS

Building/Life Safety Services

225 Newburyport Avenue, Altamonte Springs, FL 32701
Phone: 407-571-8433

Fax: 407-571-8445

RIGHT-OF-WAY UTILIZATION PERMIT

	PW03-0079	Issued I	ate:	09/25/2003
Address: Location: Parcel #. Project Name:	BETWEEN 421 & 425 BARCLAY - LIFT STATION 8 SITE Subdivision: INSTALLATION OF MONITORING WELL MW- 2 - SEE ATTACHED APPLICATION FOR COMMENTS.			
•				
OWNER INFORMATION		CONTRACTOR INFORMATION CH2MHILL 225 E ROBINSON ST SUITE 505 ORLANDO FL 32801-4321		
		407-423-0030	Cert	#: CH2MHILL
CONTACT NAM		-		
•	Engineering Inspection TOTAL FEESALL FEES WAIVED - NO BALANCE DU	: \$0.00		
I certify that all the fo	pregoing information is accurate and that all work ing. [] Owner/Agent [] Contractor		all app	licable laws regarding
GAMBPA Please Print Name	J. Becktu	Signature R	-	

This Application Shall Be Subject To All City and State Regulations Now in Effect 24 HOUR NOTICE IS REQUIRED PRIOR TO CONSTRUCTION/INSPECTION.

PLEASE CONTACT 407-571-8334 TO SCHEDULE
THIS PERMIT WILL EXPIRE FOUR (4) MONTHS AFTER DATE OF ISSUANCE

Tony Apterbeck

PLO03-0079 DATE LITT STATION 8 - BARCLAY AVE 24L98 - 019 I.D. NL CITY OF ALTAMONTE SPRINGS RIGHT OF WAY UTILIZATION PERMIT APPLICATION LOGGED IN PHONE: 407-571-8433 FAX: 407-571-84 JOB NAME: Lake Orlenta Recharge Wells JOB ADDRESS: Between 421 & 425 Barclay - Lift Station 8 site APPLICANT'S FIRM NAME: CH2M HILL (on behalf of SJRWMD) SEP 23 2003 PUBLIC WORK ADMIN. ADDRESS: 225 E. Robinson St., Suite 505, Orlando, FL 32801 CONTACT NAME: Al Aikens / CH2M HILL 407-423-0030 DESCRIPTION OF WORK: ___ Installation of Monitoring Well MW - 2 (see attached map) SECTION: 24 TOWNSHIP: 215 RANGE: NUMBER AND TYPE OF ROAD CROSSINGS: OPEN CUT (PAVED) ____ OPEN CUT (UNPAVED) ✓ NONE BORE/JACK LETTER OF NOTIFICATION HAS BEEN SENT TO THE FOLLOWING AGENCIES ON DATE No. contractor is req'd. (INDICATE NAME OF AGENCY) to call Sunshine One CAll 1-800-432-4770 prior to installation of wells SEWER ____ GAS ____ ELECTRIC _____ _____OTHER TELEPHONE **24 HOUR NOTICE IS REQUIRED PRIOR TO CONSTRUCTION/INSPECTION. PLEASE CONTACT 407-571-8334 TO SCHEDULE. THIS PERMIT WILL EXPIRE FOUR (4) MONTHS AFTER DATE OF ISSUANCE

APPLICANT'S SIGNATURE - date

PUBLIC WORK'S SIGNATURE

Aut may, 9/22/3) COMMENTS: The above is part of a joint project involving the city, SJRWMD, and to a lesser extent FDEP. Project Name: PW98-019 Lake Orienta Artificial Recharge Demonstration Project. The SJRWMD contractor (to be named later) has been given the burden of locating utilities and has been instructed to install the monitoring wells in the R/W between sidewalk and back of curb without conflict of existing utilities.

PERMIT # 03/39

RIGHT-OF-WAY UTILIZATION PERMIT CONDITIONS OF PERMIT

1.	O	Submit Maintenance of Traffic Plan (applicable if marked) for approval prior to start
		of construction.

- 2. O Submit construction schedule and estimated completion date.
- 3. X Restore and/or sod all disturbed areas within five (5) working days form the date of disturbance.
- 4. X No dirt, debris, or construction materials are to be piled or stored on the street side of the curb, or on the pavement if no curb exists.
- 5. X The contractor shall provide all necessary erosion control as required by the City, to prevent soil from washing into storm drains, water bodies, or swales.
- 6. X The Department of Public Works shall be notified 48 hours prior to the start of construction. The contractor shall notify the Site Inspector 48 hours prior to the start of construction. Phone (407) 571-8334.
- 7. X The permit is to remain on site during construction and restoration.
- 8. X The excavator is required to notify the pipeline or utility owner immediately if their work damages a pipeline or utility and to call 911 if the damage results in a release of natural gas or other hazardous substance or potentially endangers life, health, or property.

9/22/03 Date Nix Day

Signed

48 HOURS BEFORE YOU DIG CALL SUNSHINE 1-800-432-4770 IT'S THE LAW

CITY OF ALTAMONTE SPRINGS

Building/Life Safety Services

225 Newburyport Avenue, Altamonte Springs, FL 32701 Phone: 407-571-8433 Fax: 407-571-8445

RIGHT-OF-WAY UTILIZATION PERMIT

	PW03-0077	Isaued Da	uto: 09/25/2003	
Parcel #: Project Name:	432 BARCLAY (SR CORNER) Subdivision:			
Work Description:	INSTALLATION OF MONITORING WELL MW - 3 - SEE ATTACHED APPLICATION FOR COMMENTS			
OWNER INFORMATION		CONTRACTOR INFORMATION CH2MHILL 225 E ROBINSON ST SUITE 505 ORLANDO FL 32801-4321		
		407-423-0030	Cent #: CH2MHILL	
CONTACTNAM	IE: CH2MHILL 407-423-0030	T FEES		
	Permit			
	Other Permit Fee:	\$0.00		
	Engineering Inspection: TOTAL FEES	4 0.0 0		
I certify that all the & construction and zon	oregoing information is accurate and that all work wing. [] Owner/Agent [] Contractor	ill be done in compliance with all	gribneger swal eldsoilqqa	

This Application Shall Be Subject To All City and State Regulations Now in Effect 24 HOUR NOTICE IS REQUIRED PRIOR TO CONSTRUCTION/INSPECTION.

PLEASE CONTACT 407-571-8334 TO SCHEDULE

THIS PERMIT WILL EXPIRE FOUR (4) MONTHS AFTER DATE OF ISSUANCE

RIVIERA BRIVE

PW 98 - 019

CITY OF ALTAMONTE SPRINGS RIGHT OF WAY UTILIZATION PERMIT APPLICATION PHONE: 407-571-8433 FAX: 407-571-844 JOB NAME: Lake Orienta Recharge Wells JOB ADDRESS: 432 Barclay (SE corner) APPLICANT'S FIRM NAME: CH2M HILL (on behalf of SJRWMD) ADDRESS: 225 E. Robinson St., Suite 505, Orlando, FL 32801 DESCRIPTION OF WORK: Installation of Monitoring Well MW - 3 (see attached map) CONTACT NAME: Al Aikens / CH2M HILL 407-423-0030 SECTION: 24 TOWNSHIP: 215 RANGE: 30 E NUMBER AND TYPE OF ROAD CROSSINGS: ✓ NONE OPEN CUT (PAVED) OPEN CUT (UNPAVED) BORE/JACK LETTER OF NOTIFICATION HAS BEEN SENT TO THE FOLLOWING AGENCIES ON DATE No, contractor is req'd. (INDICATE NAME OF AGENCY) to call Sunshine One Call 1-800-432-4770 prior to installation of wells SEWER ____ ELECTRIC _____ GAS ____ TELEPHONE ______OTHER ____

**24 HOUR NOTICE IS REQUIRED PRIOR TO CONSTRUCTION/INSPECTION. PLEASE CONTACT 407-5/11-8334/TO SCHEDULE.

THIS PERMIT WILL EXPIRE FOUR (4) MONTHS AFTER DATE OF ISSUANCE

PALICANTS SIGNATURE - date

PUBLIC/WORK'S SIGNATURE

ancil Derud 19/21/2)

* Tecs COMMENTS: The above is part of a joint project involving the city, SJRWMD, and to a lesser extent FDEP. Project Name: PW98-019 Lake Orienta Artificial Recharge Demonstration Project. The SJRWMD contractor (to be named later) has been given the burden of Tocating utilities and has been instructed to install the monitoring wells in the R/W between sidewalk and back of curb without conflict of existing utilities.

RIGHT-OF-WAY UTILIZATION PERMIT **CONDITIONS OF PERMIT**

1.	0	Submit Maintenance of Traffic Plan (applicable if marked) for approval prior to start
		of construction.

- 2. 0 Submit construction schedule and estimated completion date.
- 3. X Restore and/or sod all disturbed areas within five (5) working days form the date of disturbance.
- X No dirt, debris, or construction materials are to be piled or stored on the street side of 4. the curb, or on the pavement if no curb exists.
- 5. X The contractor shall provide all necessary erosion control as required by the City, to prevent soil from washing into storm drains, water bodies, or swales.
- 6. X The Department of Public Works shall be notified 48 hours prior to the start of construction. The contractor shall notify the Site Inspector 48 hours prior to the start of construction. Phone (407) 571-8334.
- 7. X The permit is to remain on site during construction and restoration.
- 8. X The excavator is required to notify the pipeline or utility owner immediately if their work damages a pipeline or utility and to call 911 if the damage results in a release of natural gas or other hazardous substance or potentially endangers life, health, or property.

Date Sich Drey

48 HOURS BEFORE YOU DIG CALL SUNSHINE 1-800-432-4770 IT'S THE LAW

CITY OF ALTAMONTE SPRINGS

Building/Life Safety Services

225 Newburyport Avenue, Alternante Springs, FL 32701 Phone: 407-571-8433 Fax: 407-571-8445

RIGHT-OF-WAY UTILIZATION PERMIT

PERMIT #: PW03-0078

Issued Date: 09/25/2003

Address:

Location: 514 BARCLAY AVE

Parcel #:

Subdivision:

Project Name:

Work Description: INSTALLATION OF MONITORING WELL MW- 4 - SEE ATTACHED APPLICATION FOR COMMENTS.

OWNER INFORMATION

CONTRACTOR INFORMATION

CH2MHILL.

225 E ROBINSON ST SUITE 505

ORLANDO FL 32801-4321

407-423-0030

Cart #: CH2MHILL

CONTACT NAME: CH2MHILL

407-423-0030

PERMIT PERS

Permit.

\$0.00

Other Permit Fee

\$0.00

Engineering Inspection:

\$0.00

TOTAL PEES.....:

80.00

ALL FERS WAIVED - NO BALANCE DUE

I certify that all the foregoing information is accurate and that all work will be done in compliance with all applicable laws regarding

construction and zoning.

Owner/Agent

[] Contractor

Sionature

This Application Shall Be Subject To All City and State Regulations Now in Effect 24 HOUR NOTICE IS REQUIRED PRIOR TO CONSTRUCTION/INSPECTION.

PLEASE CONTACT 407-571-8334 TO SCHEDULE

THIS PERMIT WILL EXPIRE FOUR (4) MONTHS AFTER DATE OF ISSUANCE

)	PL003 CO78	
DATE	BARCLAY AVENUE	,	PW 98 - 019
I.D.	CITY OF ALTAMO		
LOGGE	RIGHT OF WAY UTILIZATIO PHONE: 407-571-8433	実第 「 - ・ ・ ・ ・ ・ ・ ・ ・ ・ ・ ・ ・ ・ ・ ・ ・ ・ ・	7.77.35
\	FHONE: 407-37-1-0933	FAX. 407-37 1-0443	
JOB NAME:	Lake Orienta Recharge Wells		SEP
JOB ADDRESS	S:514 Barclay Ave.		23 2003
APPLICANT'S	FIRM NAME: CH2M HILL (on b	ehalf of SJRWMD)	
ADDRESS: _2	25 E. Robinson St., Suite 505, Orlar	ndo, FL 32801	RECEIVED.
CONTACT NAI	ME: Al Alkens / CH2M HILL 407-4	23-0030	PUBLIC WORK ADMIN
DESCRIPTION	OF WORK:Installation of Mo	onitoring Well MW - 4 (see a	tached map)
CECTION.	24 TOWNSHIP (ME DANCE.	20 5
SECTION	24 TOWNSHIP: 2	RANGE;	30 E
_ ✓ NONE _	NUMBER AND TYPE OF I		BORE/JACK
LETTER OF N	OTIFICATION HAS BEEN SEN	IT TO THE FOLLOWING	AGENCIES ON
DAT to call su	TE No, contractor is req'd. nshine One Call 1-800-432-47	(INDICATE NAME OF A	GENCY)
		SEWER	
ELECTRIC	<u></u>	GA9	
TELEPHONE	·	OTHER	
1 .1.a	AT (A DESIVER ADIAS TA ASIV	TD1107101111110000071011	N GAGE GONTAGT
	CE IS REQUIRED PRIOR TO CONS 407-571-8334 TO SC	CHEDULE.	
THIS F	PERMIT WILL EXPIRE FOUR (4) MO	ONTHS AFTER DATE OF ISS	UANCE
	APPLICANT'S SIG	NATURE - date	
		//	
	PUBLIC WORK'S S	GNATURE data	
X FEES Wan	red Mu (are 1/22/3)	POINT I OVER - POIG	*(
COMMENTS:	The above is part of a joint	project involving the	city, SJRWMD, and to a

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RIGHT-OF-WAY UTILIZATION PERMIT CONDITIONS OF PERMIT

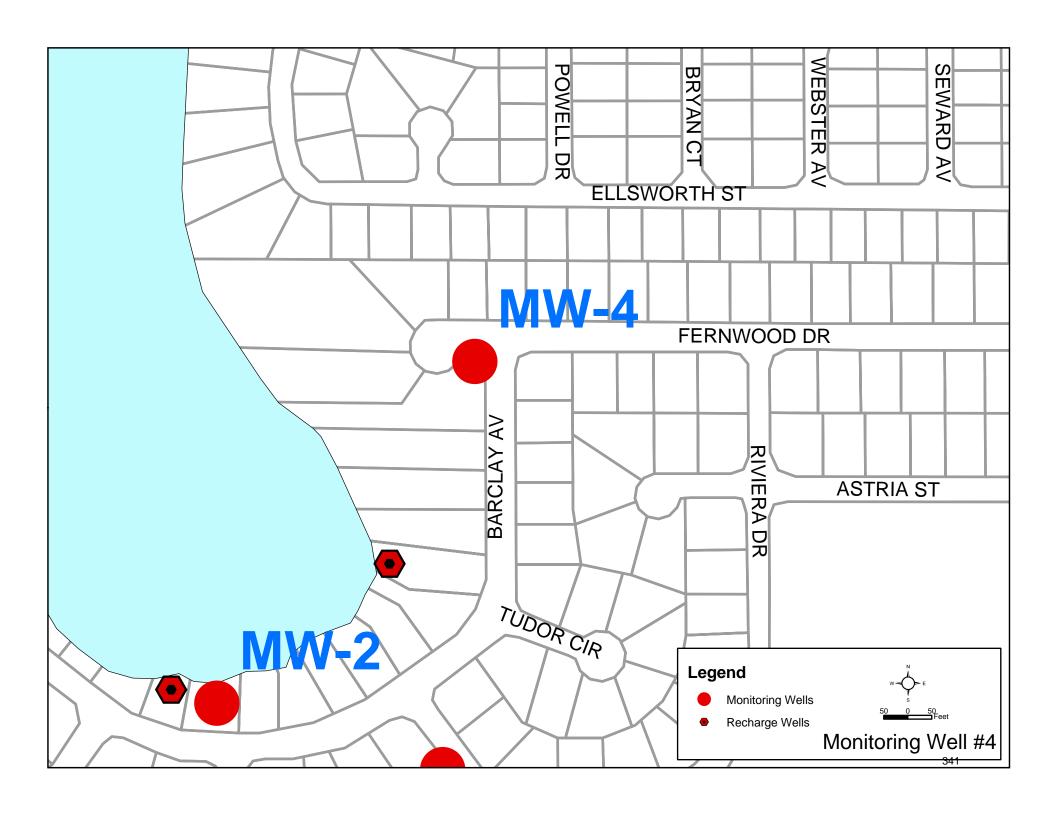
1.	O	Submit Maintenance of Traffic Plan (applicable if marked) for approval prior to start
		of construction.

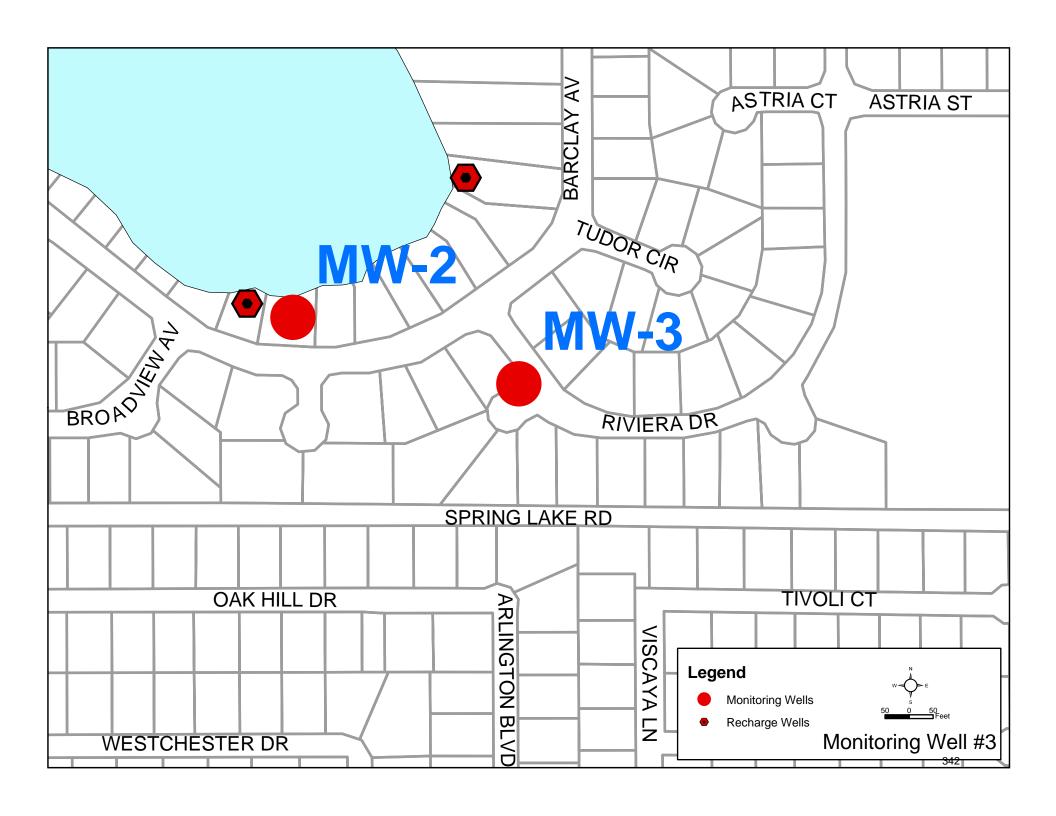
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- 8. X The excavator is required to notify the pipeline or utility owner immediately if their work damages a pipeline or utility and to call 911 if the damage results in a release of natural gas or other hazardous substance or potentially endangers life, health, or property.

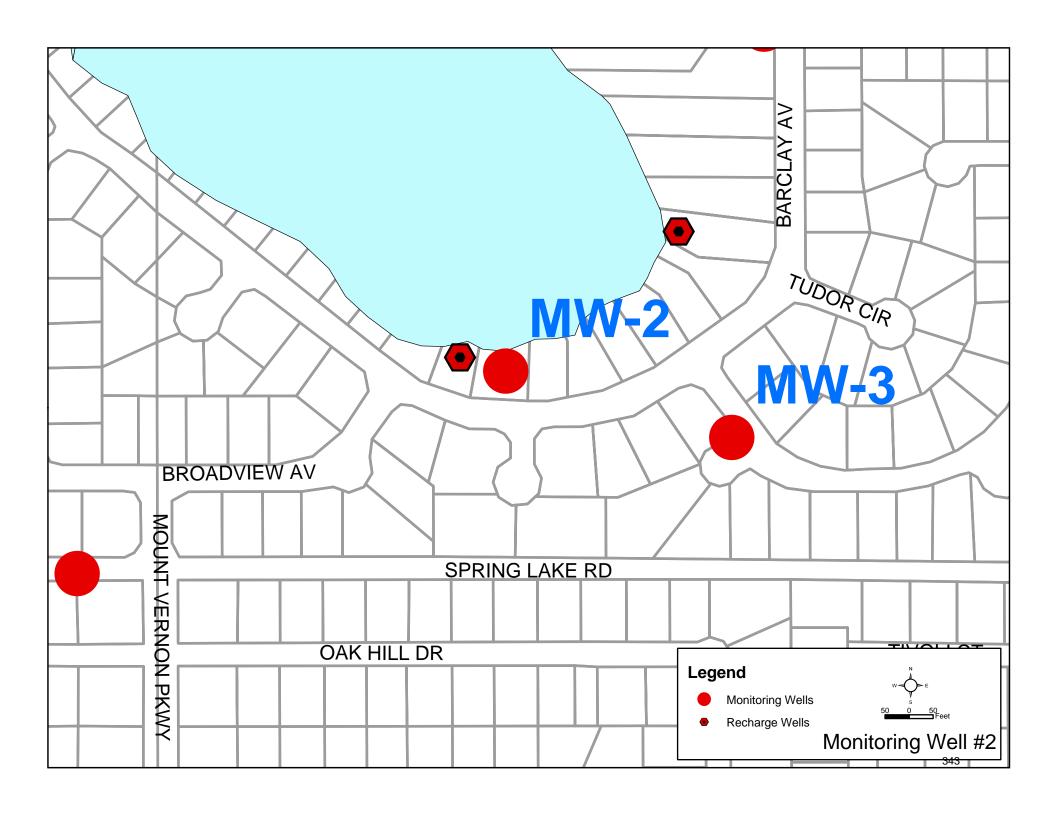
9/22/03 Date Thil Ora

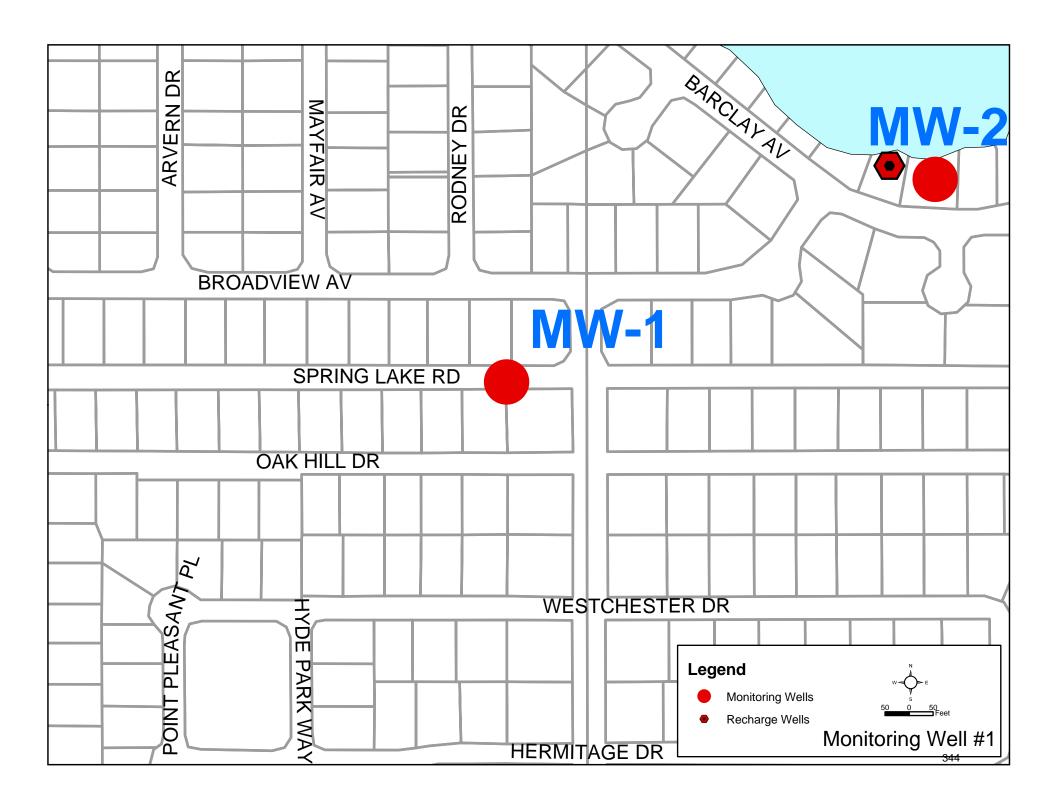
Signed

48 HOURS BEFORE YOU DIG CALL SUNSHINE 1-800-432-4770 IT'S THE LAW









Field Services
Construction
Preliminary Data
Lake Orienta
Seminole County, Florida

Aquifer System Monitor Wells:

Floridan S-0344 Floridan S-0345 Floridan S-0346 Floridan S-0347

SJRWMD Program No. 5111-04001

March 23, 2004

Division of Ground Water Programs
Department of Resource Management
St. Johns River Water Management District
Palatka, Florida

This report was generated for the Division of Ground Water Program's use.

All data, figures, tables and information are provisional.

General Information

Site: Lake Orienta

Access: City of Altamonte Springs

Service Request: Al Aikens, CH2MHill

Purpose: Install monitor wells as part of Central Florida Artificial Recharge Project. Wells will be used to help quantify the impact to groundwater quality from recharge wells.

Work:

Monitor Well/Testhole Construction:

Diversified Drilling Corporation, Inc.

Project Management:

CH2MHill

Geophysical Logging:

Advanced Borehole Services

Video Survey

Advanced Borehole Services

Report: Laura Nelms

Notes:

S-0344

01/09/04, Drilled to 82 ft bls using mud rotary drilling method.

01/12/04, Eight inch surface casing set @ 82 ft bls in dolostone confining unit.

01/13/04, Circulation loss @95 ft bls.

01/14/04, Four inch casing set 210 ft bls into limestone.

01/15/04, Well Mud Rotary drilled from 210 ft bls to approximately 290 ft bls. Circulation loss @ 235 ft bls. Well developed using rig pump at 100 gpm for 4 hours. Development water remained slightly cloudy. Water quality samples collected at total depth for field and Lab analysis. Well completed with below grade vault, 2'X 2'concrete pad.

02/25/04, Video survey. Borehole clear to TD.

-----, Geophysical survey.



01/05/04, Drilled to 65 ft bls using mud rotary drilling method.

01/06/04, Eight inch surface casing set @ 65 ft bls in dolomitic sand.

01/07/04, Four inch casing set 130 ft bls into limestone.

01/08/04, Well Mud Rotary drilled from 130 ft bls to approximately 320 ft bls. Circulation loss @ 190 ft bls \sim 30 % and @203 ft bls 100%.

01/12/04, Well completed with below grade vault, 2' X 2' concrete pad.

01/15/04, Well developed using rig pump at 100 gpm for 4 hours. Development water remained slightly cloudy. Water quality samples collected at total depth for field and Lab analysis

02/25/04, Video survey conducted. Borehole filled in with cuttings from 292 ft bls to 320 ft bls. .

03/09/04, Well redeveloped to remove cuttings in borehole from 292 ft bls to 320 ft bls.

-----, Video survey.

-----, Geophysical survey.

S-0346

02/02/04, Drilled to 82 ft bls using mud rotary drilling method. Eight inch surface casing set @ 82 ft bls in dolomitic sand.

02/04/04, Four inch casing set 170 ft bls into limestone.

02/05/04, Well Mud Rotary drilled from 170 ft bls to approximately 290 ft bls. Circulation loss @ 230 ft bls ~90 %. Well developed using rig pump at 100 gpm for 3.5 hours. Development water remained slightly cloudy. Water quality samples collected at total depth for field and Lab analysis **02/06/04**, Well completed with below grade vault, 2'X 2' concrete pad.

02/25/04, Video survey conducted. Borehole turbid, low visibility 190 ft bls to 281 ft bls.

03/09/04, Well redeveloped to remove cuttings in borehole from 190 ft bls to 290 ft bls.

-----, Video survey.

-----, Geophysical survey.

S-0347

01/26/04, Drilled to 70 ft bls using mud rotary drilling method. Eight inch surface casing set @ 70 ft bls in sand, phosphate., dolostone.

01/28/04, Four inch casing set 160 ft bls into limestone.

01/29/04, Well Mud Rotary drilled from 160 ft bls to approximately 300 ft bls. Circulation loss @ 164 ft bls. Well completed with below grade vault, 2'X 2' concrete pad.

02/05/04, Well developed using rig pump at 100 gpm for 5.5 hours. Development water remained slightly cloudy. Water quality samples collected at total depth for field and Lab analysis

02/25/04, Video survey conducted. Borehole turbid, low visibility 190 ft bls to 281 ft bls.

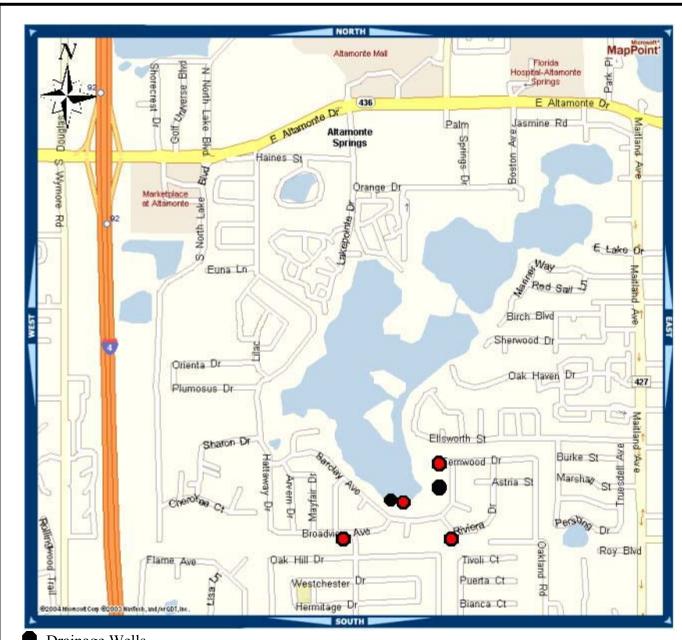
03/09/04, Well redeveloped to remove boulder @162 ft bls and cuttings in borehole to 300 ft bls.

-----, Video survey.

-----, Geophysical survey.

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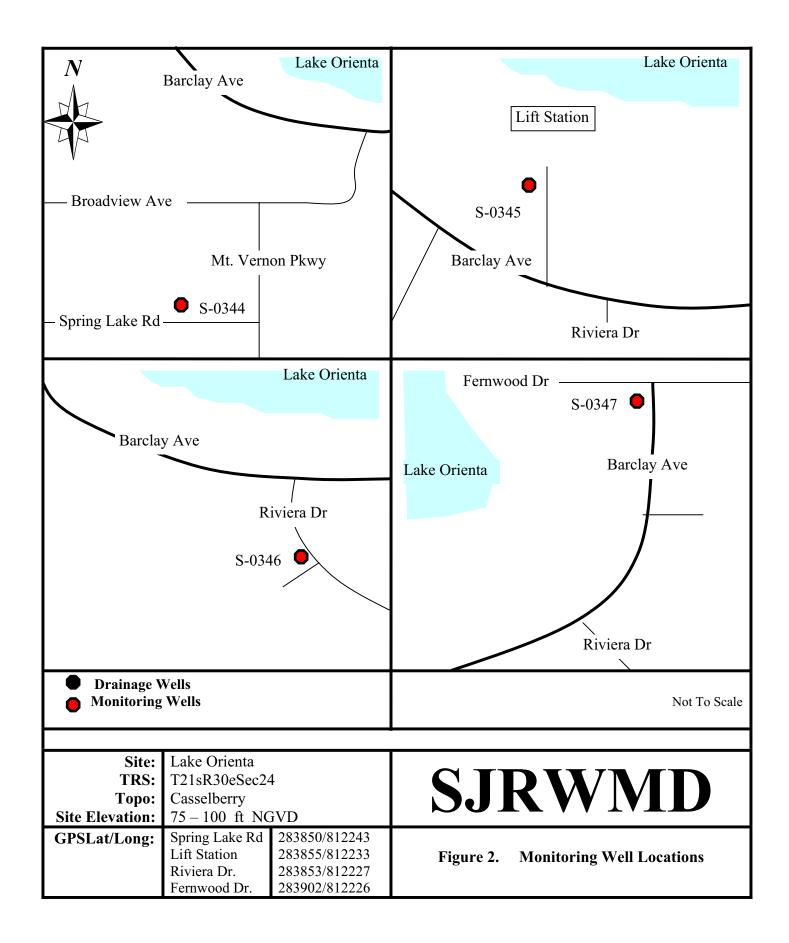


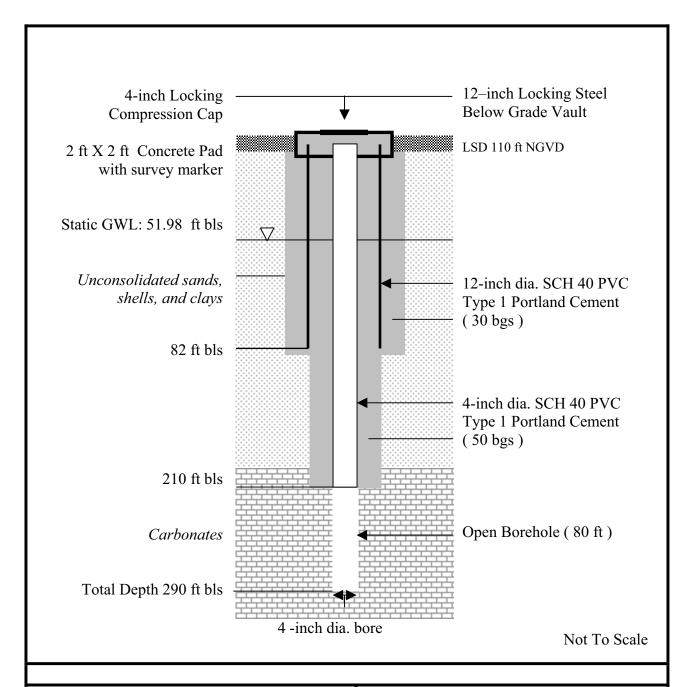
Drainage Wells

Monitoring Wells

Sites: TRS: Topo: Site Elevation Lake Orienta T21sR30eSec24 Casselberry 75 – 100 ft NGVD

Figure 1. Lake Orienta MW Sites



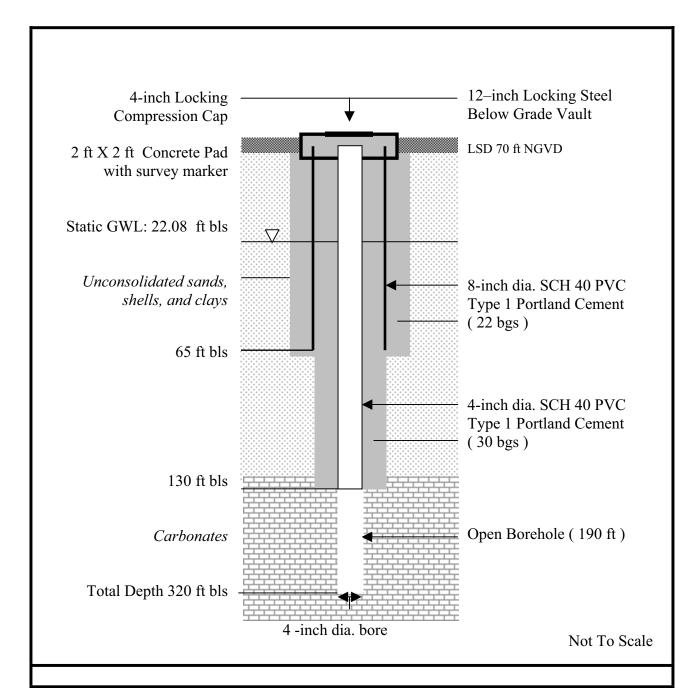


Site: Spring Lake Rd GPS Lat/Long: 283850/812243

Driller: Diversified Drilling Corp.

Well Completed: 01/15/03

Figure 3. Floridan Monitor Well S-0344

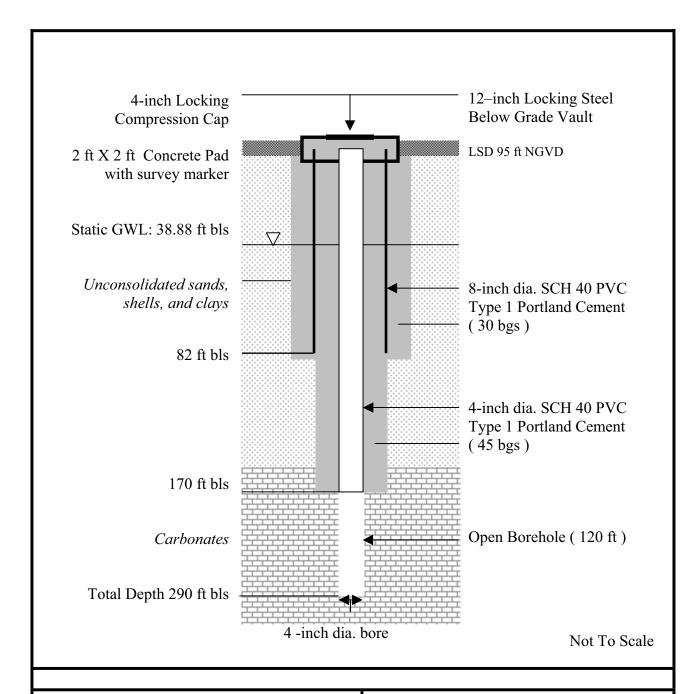


Site: Lift Station
GPS Lat/Long: 283855/812233

Driller: Diversified Drilling Corp.

Well Completed: 01/15/04

Figure 4. Floridan Monitor Well S-0345

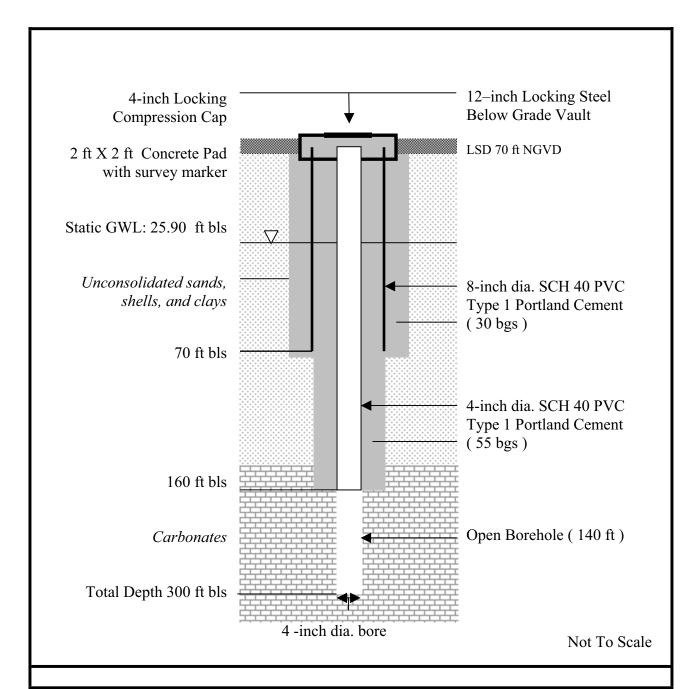


Site: Riviera Drive GPS Lat/Long: 283853/812227

Driller: Diversified Drilling Corp.

Well Completed: 02/05/04

Figure 5. Floridan Monitor Well S-0346



Site: Fernwood Drive GPS Lat/Long: 283902/812226

Driller: Diversified Drilling Corp.

Well Completed: 02/10/04

Figure 6. Floridan Monitor Well S-0347

Table 1. Grout Data

Site: Spring Lake Rd Well ID: S-0344

Data Collection: L Nelms

DATE	TAG	ANNULUS/	QUANITY	MATERIAL	COMMENTS
	DEPTH	BORE	(yds/bags)	*	
	(ft)	(inch)			
01/09/04	82	A-6	-	-	Pilothole – 6-inch
01/12/04	82	A-12	30 bgs	P-94	Set 82 ft of 8-inch SCH 40 PVC
					casing and pumped grout through
					1-inch PVC tremie
01/13/04	210	A-8	50 bgs	P-94	Set 210 ft of 4-inch SCH 40 PVC
					casing and pumped grout through
					1-inch PVC tremie
01/15/04	-	-	2 bgs	Q-40	Hand mix grout for 2' x 2'
					concrete pad and complete grout
					around 12-inch manhole cover,
					set below grade vault

^{*}P-94 = Type 1 Portland Cement *Q-40 = Quickrete 40 lbs

Table 2. Grout Data

Site: <u>Lift Station</u> Well ID: <u>S-0345</u>

Data Collection: <u>L Nelms</u>

DATE	TAG DEPTH	ANNULUS/ BORE	QUANITY (yds/bags)	MATERIAL *	COMMENTS
	(ft)	(inch)	• 0 /		
01/05/04	65	A-6	-	-	Pilothole – 6-inch
01/06/04	65	A-12	22	P-94	Set 65 ft of 8-inch SCH 40 PVC
					casing and pumped grout through
					1-inch PVC tremie
01/07/04	130	A-8	30 bgs	P-94	Set 130 ft of 4-inch SCH 40 PVC
					casing and pumped grout through
					1-inch PVC tremie
01/12/04	-	-	2 bgs	Q-40	Hand mix grout for 2' x 2'
					concrete pad and complete grout
					around 12-inch manhole cover,
					set below grade vault

^{*}P-94 = Type 1 Portland Cement *Q-40 = Quickrete 40 lbs

Table 3. Grout Data

Site: Riviera Drive

Well ID: S-0346

Data Collection: L Nelms

DATE	TAG	ANNULUS/	QUANITY	MATERIAL	COMMENTS
	DEPTH	BORE	(yds/bags)	*	
	(ft)	(inch)			
02/02/04	82	A-6	-	-	Pilothole – 6-inch
02/02/04	82	A-12	30 bgs	P-94	Set 82 ft of 8-inch SCH 40 PVC
					casing and pumped grout through
					1-inch PVC tremie
02/04/04	160	A-8	45 bgs	P-94	Set 170 ft of 4-inch SCH 40 PVC
					casing and pumped grout through
					1-inch PVC tremie
02/06/04	-	-	2 bgs	Q-40	Hand mix grout for 2' x 2'
					concrete pad and complete grout
					around 12-inch manhole cover,
					set below grade vault

^{*}P-94 = Type 1 Portland Cement *Q-40 = Quickrete 40 lbs

Table 4. Grout Data

Site: Fernwood Drive
Well ID: S-0347

Data Collection: <u>L Nelms</u>

Data Conection. L'INCHIIS								
DATE	TAG	ANNULUS/	QUANITY	MATERIAL	COMMENTS			
	DEPTH	BORE	(yds/bags)	*				
	(ft)	(inch)						
01/26/04	70	A-6	-	-	Pilothole – 6-inch			
01/26/04	70	A-12	30 bgs	P-94	Set 70 ft of 8-inch SCH 40 PVC			
					casing and pumped grout through			
					1-inch PVC tremie			
01/27/04	160	A-8	55 bgs	P-94	Set 160 ft of 4-inch SCH 40 PVC			
					casing and pumped grout through			
					1-inch PVC tremie			
01/29/04	-	-	2 bgs	Q-40	Hand mix grout for 2' x 2'			
					concrete pad and complete grout			
					around 12-inch manhole cover,			
					set below grade vault			

^{*}P-94 = Type 1 Portland Cement *Q-40 = Quickrete 40 lbs

Table 5. **Drilling Data**

Site: Spring Lake Rd
Data Collection: L Nelms **Well ID:** <u>S-0344</u>

Data Conec (yymmdd)	From (ft, bls)	To (ft, bls)	Method Mud/ Rev Air	Bit Size (inch)	Time (min)	Rate (ft/hr)	Comments
01/09/04	0	82	Mud	6	65	76	
01/12/04	0	82	Mud	12	180	27	Set 8-inch Casing
01/13/04	80	90	Mud	8	31	19	
01/13/04	90	95	Mud	8	10	30	
01/13/04	95	100	Mud	Core	33	9	Circulation Loss
01/13/04	95	105	Mud	8	15	40	
01/13/04	105	110	Mud	8	-	-	
01/13/04	110	120	Mud	8	11	55	
01/13/04	120	130	Mud	Core	25	24	
01/13/04	130	132	Mud	8	7	103	
01/13/04	132	140	Mud	8	7	69	
01/13/04	140	150	Mud	8	16	38	
01/13/04	150	160	Mud	Core	20	30	
01/13/04	160	170	Mud	Core	13	46	
01/13/04	170	180	Mud	Core	20	30	
01/13/04	180	184	Mud	Core	_	-	
01/13/04	184	190	Mud	4	30	12	
01/13/04	190	200	Mud	Core	35	17	
01/14/04	195	205	Mud	Core	-	-	
01/14/04	205	210	Mud	Core	-	-	
01/14/04	145	210	Mud	8	130	30	Set 4-inch Casing
01/15/04	206	210	Mud	4	-	-	
01/15/04	210	220	Mud	4	3	200	
01/15/04	220	230	Mud	4	8	75	
01/15/04	230	240	Mud	4	12	50	
01/15/04	240	250	Mud	4	8	75	
01/15/04	250	260	Mud	4	7	85	
01/15/04	260	270	Mud	4	6	100	
01/15/04	270	280	Mud	4	5	120	
01/15/04	280	290	Mud	4	6	100	TD

Table 6.Drilling Data

Site: Lift Station Well ID: S-0345

Data Collection: L Nelms

Data Collec			Method			_	
Date (yymmdd)	From (ft, bls)	To (ft, bls)	Mud/ Rev Air	Bit Size (inch)	Time (min)	Rate (ft/hr)	Comments
01/05/04	0	65	Mud	6	125	31	
01/06/04	0	65	Mud	12	85	46	Set 8-inch Casing
01/07/04	61	70	Mud	8	70	7.7	
01/07/04	70	80	Mud	8	25	24	
01/07/04	80	90	Mud	8	16	38	
01/07/04	90	100	Mud	8	17	35	
01/07/04	100	110	Mud	8	14	43	
01/07/04	110	120	Mud	8	18	33	
01/07/04	120	130	Mud	8	44	14	Set 4-inch Casing
01/08/04	125	140	Mud	4	18	50	
01/08/04	150	160	Mud	4	13	46	
01/08/04	160	170	Mud	4	5	120	
01/08/04	170	180	Mud	4	5	120	
01/08/04	190	200	Mud	4	23	26	
01/08/04	200	210	Mud	4	-	-	Circulation Loss
01/08/04	210	220	Mud	4	12	50	
01/08/04	220	230	Mud	4	4	150	
01/08/04	230	240	Mud	4	3	200	
01/08/04	240	250	Mud	4	4	150	
01/08/04	250	260	Mud	4	11	55	
01/08/04	260	270	Mud	4	7	86	
01/08/04	270	280	Mud	4	2	300	
01/08/04	280	290	Mud	4	4	150	
01/08/04	290	300	Mud	4	7	86	
01/08/04	300	310	Mud	4	3	200	
01/08/04	310	320	Mud	4	5	120	TD

Table 7. **Drilling Data**

Site: <u>Riviera Drive</u> **Data Collection:** L Nelms **Well ID:** <u>S-0346</u>

Date (yymmdd)	From (ft, bls)	To (ft, bls)	Method Mud/ Rev Air	Bit Size (inch)	Time (min)	Rate (ft/hr)	Comments
02/02/04	0	30	Mud	6	20	90	
02/02/04	30	40	Mud	6	6	100	
02/02/04	40	50	Mud	6	8	75	
02/02/04	50	60	Mud	6	4	150	
02/02/04	60	70	Mud	6	7	86	
02/02/04	70	80	Mud	6	10	60	
02/02/04	80	82	Mud	6	11	11	
02/02/04	0	82	Mud	12	-	-	Set 8-inch Casing
02/03/04	82	90	Mud	8	53	9	
02/03/04	90	100	Mud	8	24	25	
02/03/04	100	110	Mud	8	55	11	
02/03/04	110	120	Mud	8	14	43	
02/03/04	120	130	Mud	8	23	26	
02/03/04	130	140	Mud	8	22	27	
02/03/04	140	150	Mud	8	23	26	
02/03/04	150	160	Mud	8	37	16	
02/03/04	160	170	Mud	Core	30	20	Set 4-inch Casing
02/05/04	170	180	Mud	4	8	75	
02/05/04	180	190	Mud	4	10	60	
02/05/04	190	200	Mud	4	8	75	
02/05/04	200	210	Mud	4	16	38	
02/05/04	210	220	Mud	4	9	67	
02/05/04	220	230	Mud	4	14	43	
02/05/04	230	240	Mud	4	10	60	
02/05/04	240	250	Mud	4	-	_	~10 % Circulation
02/05/04	250	260	Mud	4	9	67	
02/05/04	260	270	Mud	4	6	100	
02/05/04	270	280	Mud	4	7	86	
02/05/04	280	290	Mud	4	7	86	

Table 8. **Drilling Data**

Site: Fernwood Drive
Data Collection: L Nelms **Well ID:** <u>S-0347</u>

Data Collect Date	From	То	Method Mud/	Bit Size	Time	Rate	Comments
(yymmdd)	(ft, bls)	(ft, bls)	Rev Air	(inch)	(min)	(ft/hr)	
01/26/04	0	70	Mud	6	71	59	
01/26/04	0	70	Mud	12	52	81	Set 8-inch Casing
01/27/04	68	72	Mud	8	ı	-	
01/27/04	72	80	Mud	8	18	27	
01/27/04	80	90	Mud	8	40	15	
01/27/04	90	100	Mud	8	35	17	
01/27/04	100	110	Mud	8	16	38	
01/27/04	110	120	Mud	8	19	32	
01/27/04	120	130	Mud	8	17	35	
01/27/04	130	140	Mud	8	23	26	
01/27/04	140	160	Mud	8	1	-	
01/27/04	160	164	Mud	Core	1	-	Set 4-inch Casing
01/29/04	157	167	Mud	4	ı	-	Circulation Loss
01/29/04	167	170	Mud	4	ı	-	
01/29/04	170	180	Mud	4	5	120	
01/29/04	180	190	Mud	4	5	120	
01/29/04	190	200	Mud	4	-	-	Sand caving into borehole
01/29/04	200	210	Mud	4	20	30	Circulation Loss
01/29/04	210	220	Mud	4	20	30	
01/29/04	220	230	Mud	4	7	86	
01/29/04	230	240	Mud	4	7	86	
01/29/04	240	250	Mud	4	7	86	
01/29/04	250	260	Mud	4	6	100	
01/29/04	260	270	Mud	4	9	67	
01/29/04	270	280	Mud	4	9	67	
01/29/04	280	290	Mud	4	9	67	
01/29/04	290	300	Mud	4	8	75	

Table 9. Groundwater Levels

Site: Lake Orienta

Data Collection: L Nelms

	Static Water Levels						
Well ID:	Date/Time (yymmdd/hhmm)	Water Level (ft, bls)	Casing (ft, bls)	Diameter (inches)	Total Depth (ft, bls)	Open Hole (ft)	
S-0344	032403/1500	51.98	210	4	320	80	
S-0345	031203/0710	22.08	130	4	290	190	
S-0346	031803/0750	38.88	170	4	290	120	
S-0347	020904/1520	25.90	160	4	300	140	

Table 10.Groundwater Quality / Development

Site: <u>Lake Orienta</u>

Data Collection: L Nelms Development Method: Air

Well ID:	Date	Rate	ΣVol	Temp	PH	Cl (mg/l)	Specific Conductivity
	(yymmdd/hhmm)	(gpm)	(gal)	(Deg C)		(8)	(us/cm)
S-0344	011604/0940	150	36,000	20.1	7.6	7	300.1
S-0345	020404/1355	150	20,000	23.3	7.9	8	380.9
S-0346	020504/1700	100	13,400	23.3	8.2	5	267
S-0347	020504/0935	100	17,000	23.3	8.2	3	340

Table 11. Laboratory Groundwater Quality

Site: Lake Orienta

Well ID:	S-0344	S-0345	S-0346	S-0347
Sample Date	02/04/04	01/16/04	02/05/04	02/05/04
Casing Depth	210	130	160	170
Well Depth	290	320	300	290
Water Temp	20.1	23.3	23.3	23.3
Conductivity-Field	300.1	380.9	267.6	340.3
Conductivity	295	362	260	324
pH-Field	7.6	7.91	8.25	8.27
Alkalinity	141	145	120	154
Ca-T	65.9	95.4	82.2	83
Mg-T	5.49	7.94	7.07	4.96
Na-T	5.89	9.55	11.5	9.17
K-T	0.554	1.36	1.04	2.59
Cl	12.1	19.7	12.5	11.5
SO4	3.32	32.7	13.1	14.9
F	0.229	0.229	0.28	0.213
Si-T	6.36	3.9	6.84	7.28
Ba-T	8.63	6.98	7.64	23.7
Fe-T	740	327	163	1850
Sr-T	167	134	140	307
TDS	172	234	155	208

Lithologic Description

Site: Spring Lake Rd Samples Described By: <u>L. Nelms</u> Well/Testhole: $\underline{S-0344}$

		L: Abole over
From	To	Lithology
0	10	Sand, pale yellowish brown, fine-medium
10	20	Sand, medium yellowish brown, fine-medium
20	22	Clay, pale yellowish brown, soft
22	30	Sand, pale yellowish brown, fine-medium
30	40	Sand, pale yellowish brown, fine-medium, clay stringer mid rod
40	50	Sand, pale yellowish brown, fine-medium
50	60	Sand, medium yellowish brown/gray, fine-medium
60	70	Shell bed, yellowish brown/gray, fragments pale orange
70	82	Shell bed, yellowish brown/gray, large fragments, pale orange, ~25% phosphatic gravel,
		sand
82		Sand, dolomitic, phosphatic, clayey, shell
82	90	Dolostone , phosphatic, olive gray/ black, shell
95	100	Dolostone , clayey, phosphatic, olive gray, bottom of core has shell and gastropod molds
100	110	Lost Circulation Zone
110	120	Dolostone , clayey, phosphatic, olive gray
120	150	Lost Circulation Zone
150	160	Dolostone , pale gray, phosphatic, minor clay
160	170	Sand, lightly cemented, heavy minerals
170	180	Core barrel empty
180	195	Core barrel empty, lime mud, phosphate on end of barrel bit
195	205	Lost Circulation Zone
205	210	Limestone, very pale orange, fossiliferous
210	220	Limestone, very pale orange, fossiliferous
220	235	Limestone, very pale orange, fossiliferous
235	290	Lost Circulation Zone

Lithologic Description

Site: Lift Station Well/Testhole: S-0345

Samples Described By: L. Nelms

From	To	Lithology
0	10	Sand, dark/ moderateyellowish brown, organics, fine - medium
10	20	Sand, dark/ moderateyellowish brown, organics, fine - medium
20	30	Sand, moderateyellowish brown, fine - medium
30	40	Sand, moderateyellowish brown, fine - medium
40	50	Sand, clear/white, fine-coarse, phosphate, heavy minerals, b,lack,, limestone fragments
		very pale orange
50	60	Sand, clear/white, fine-coarse, phosphate, heavy minerals, black,, limestone fragments
		very pale orange
60	65	Dolostone, sandy, clayey, pale brown, phosphate, heavy minerals, b,lack,, limestone
		fragments very pale orange
65	70	Dolostone clayey, olive/ pale brown, phosphate
70	80	Dolostone clayey, olive/ pale brown, phosphate
80	90	Dolostone clayey, olive/ pale brown, phosphate
90	100	Dolostone / phosphate mix
100	110	Dolostone / phosphate mix
110	120	Dolostone / phosphate mix
120	130	Limestone, pale yellowish brown, fossiliferous
130	177	Limestone, very pale orange, fossiliferous, lepids
177	203	Limestone, very pale orange/ mottled gray, fossil molds
203	320	Lost Circulation Zone

^{*}Lithologic samples will be sent to Florida Geological Survey for detailed description.

Lithologic Description

Site: Riviera Drive

Well/Testhole: S-0346

Samples Described By: L. Nelms

From	To	Lithology
0	10	Sand, pale yellowish brown, fine-medium
10	40	Sand, dark yellowish brown/ black, heavy minerals, fine-medium
40	50	Sand, pale yellowish brown, fine-medium, heavy minerals, black
50	60	Sand, pale yellowish brown, fine-medium, heavy minerals, black
60	70	Sand, pale yellowish brown, fine-coarse, heavy minerals, black, phosphate gravel
70	80	Sand, phosphate gravel, pale yellowish brown, fine-very coarse, heavy minerals, black
80	82	Sand, Dolomitic, coarse pebble size, pale yellowish brown, large phosphatic gravel
82	100	Dolostone , pale yellowish brown, crystal growth indicates solution cavities, cuttings
		smaller, less phosphate
100	120	Dolostone , pale yellowish brown, clayey, sand, pebble size
120	140	Dolostone , conglomerate, pale yellowish brown/black/brown, clayey, phosphatic, sand
140	150	Dolostone , clayey, cuttings much finer, pale yellowish brown/ black, phosphatic gravel,
		sand
150	159	Dolostone , clayey, cuttings much finer, pale yellowish brown/ black, phosphatic gravel,
		sand
159	170	Limestone, very pale orange, fossiliferous
170	180	Limestone, very pale orange, fossil molds
180	200	Limestone, very pale orange, fossiliferous, micritic
200	220	Limestone, wafer shaped cuttings, drills harder, very pale orange, fossil molds
220	230	Limestone, drills softer, very pale orange, micritic
230	290	No sample 10% circulation

^{*}Lithologic samples will be sent to Florida Geological Survey for detailed description.

Lithologic Description

Site: Fernwood Drive

Well/Testhole: S-0347

Samples Described By: L. Nelms

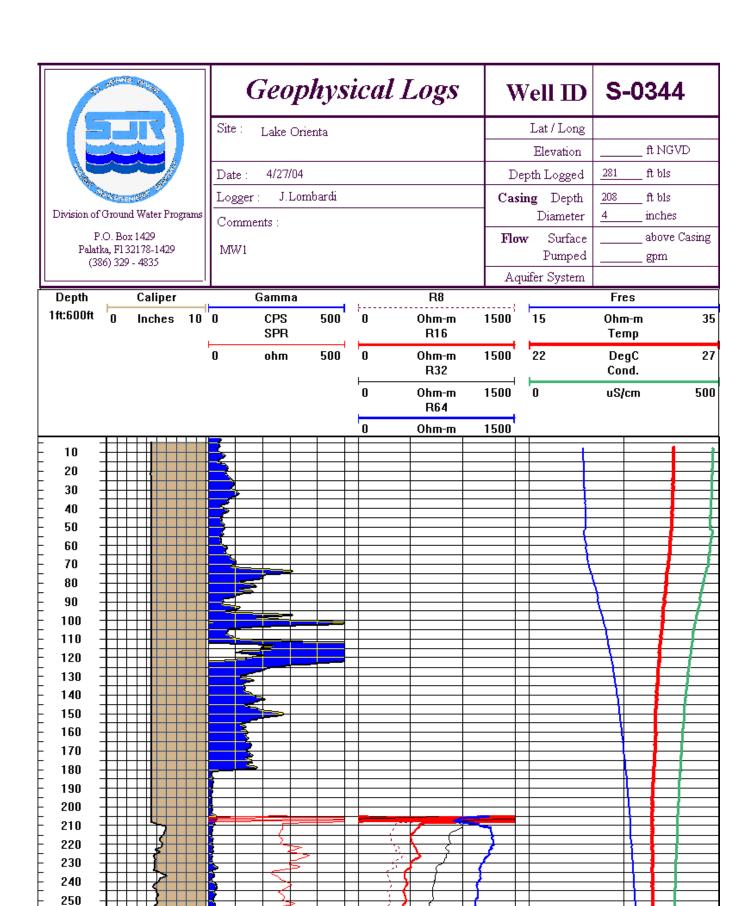
From	To	Lithology
0	10	Sand, pale yellowish brown, fine
10	20	Sand, pale yellowish brown, fine
20	30	Sand, very pale orange/ yellowish brown, fine
30	40	Sand, light olive gray, fine, heavy minerals, some shell
40	50	Sand, light olive gray, fine, heavy minerals, some shell
50	60	Sand, phosphatic gravel, shell, olive gray
60	70	Phosphate, dolostone, some shell, sand, coarse pebble size
70	80	Dolostone, olive gray, phosphate, shell
80	90	Clay, olive gray, dolostone, phosphate, shell, sand, coarse pebble size
90	100	Dolostone, olive gray, phosphate
100	110	Clay, olive gray, phosphate, minor dolostone, white blebs of calcilutite
110	120	Clay, olive gray, phosphate, minor dolostone, white blebs of calcilutite
120	130	Clay, olive gray, phosphate, minor dolostone, sand, white blebs of calcilutite
130	142	Clay, olive gray, phosphate, minor dolostone, sand, white blebs of calcilutite
142	152	Void
160	164	Limestone, very pale orange, fossiliferous
164	300	Lost Circulation Zone

Table 9. Video Logs

Survey By: Advanced Borehole Services

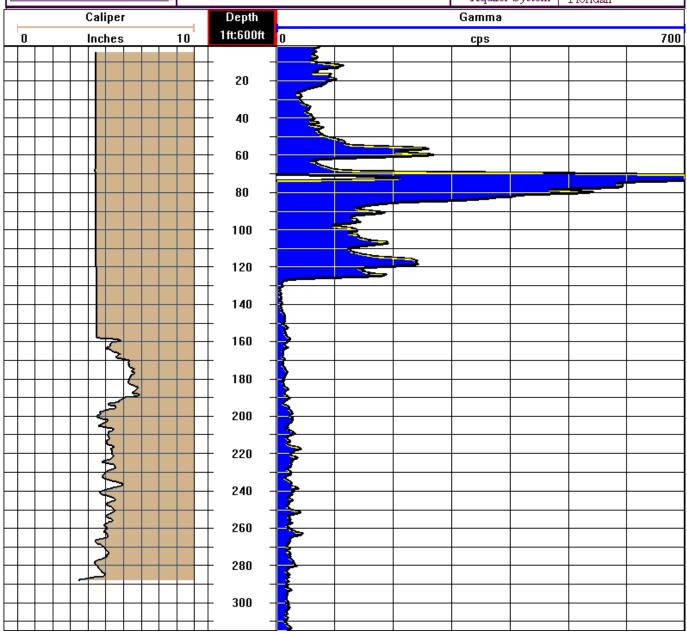
Date	Well ID:	Survey	Depth	Comments
		Depth	(ft bls)	
02/25/04	S-0344	281 ft	51	Water Level 51 ft bls
			0 - 213	4-inch Casing some joints show staining/ grout/ growth
			227	Vuggy, some large
			236 - 249	Fractures, voids, some large
			256	Vertical fractures
			258	Ledge, vuggy
			273	Vertical fractures, ledge
02/25/04	S-0345	292 ft	20	Water Level 20 ft bls
			0 - 131	4-inch Casing some joints show staining/ grout/ growth
			142	Fractures, vugs
			144	Vertical fractures, ledge
			153 - 185	Lithology change, vuggy
			185 - 196	Fractures, deep, large
			203 - 225	Borehole round, Fracture @210, Bedding obvious
				@220
			229	Fractures
			230 - 264	Bedding planes obvious, minor vugs, Fracture @255
			265 - 292	Vuggy, no visibility below 275 ft bls
02/25/04	S-0346	281 ft	37.6	Water Level 37.6 ft bls
			0 - 171	4-inch Casing small black debris along casing wall
			174	vuggy
			190	Turbid, visibility very low
			281	TD
02/25/04	S-0347	162 ft	24.09	Water Level 24.09 ft bls
			0 - 161	4-inch Casing
			161.8	Boulder blocking borehole

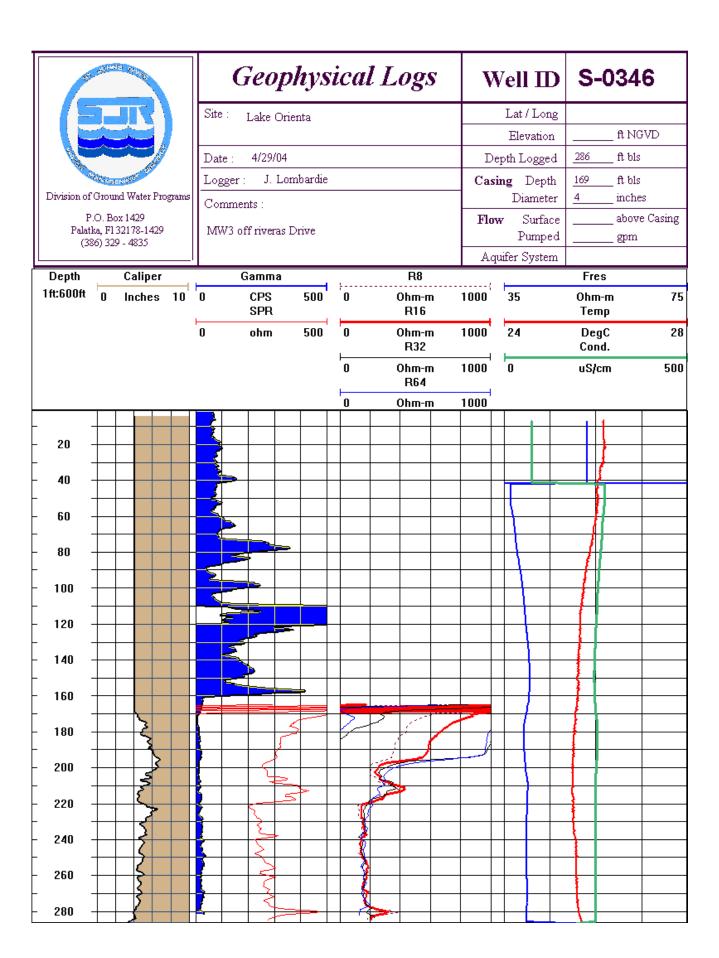
Appendix A Geophysical Logs

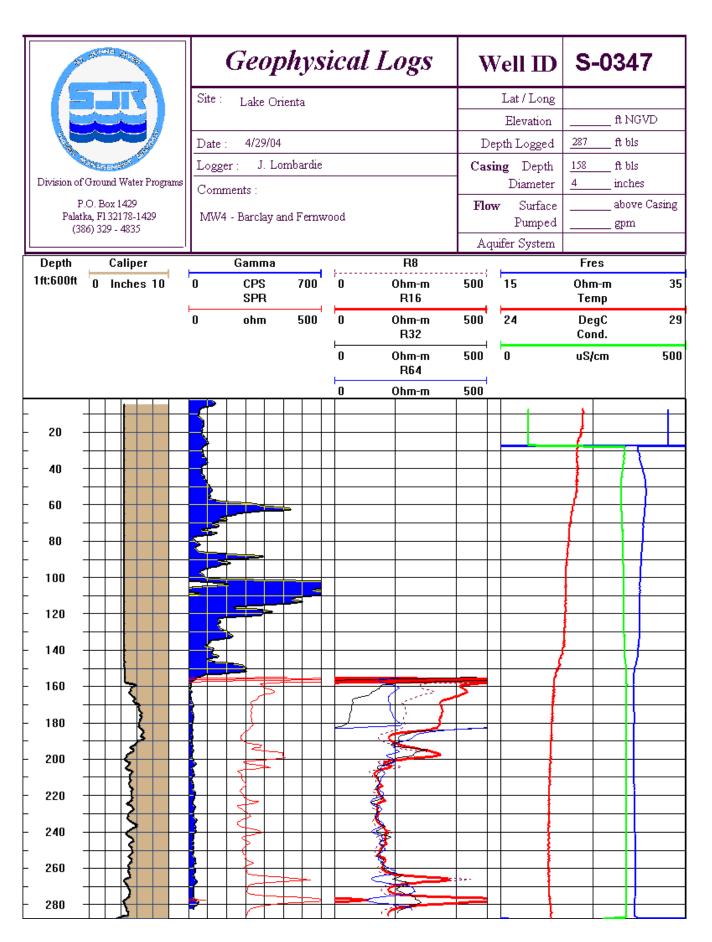


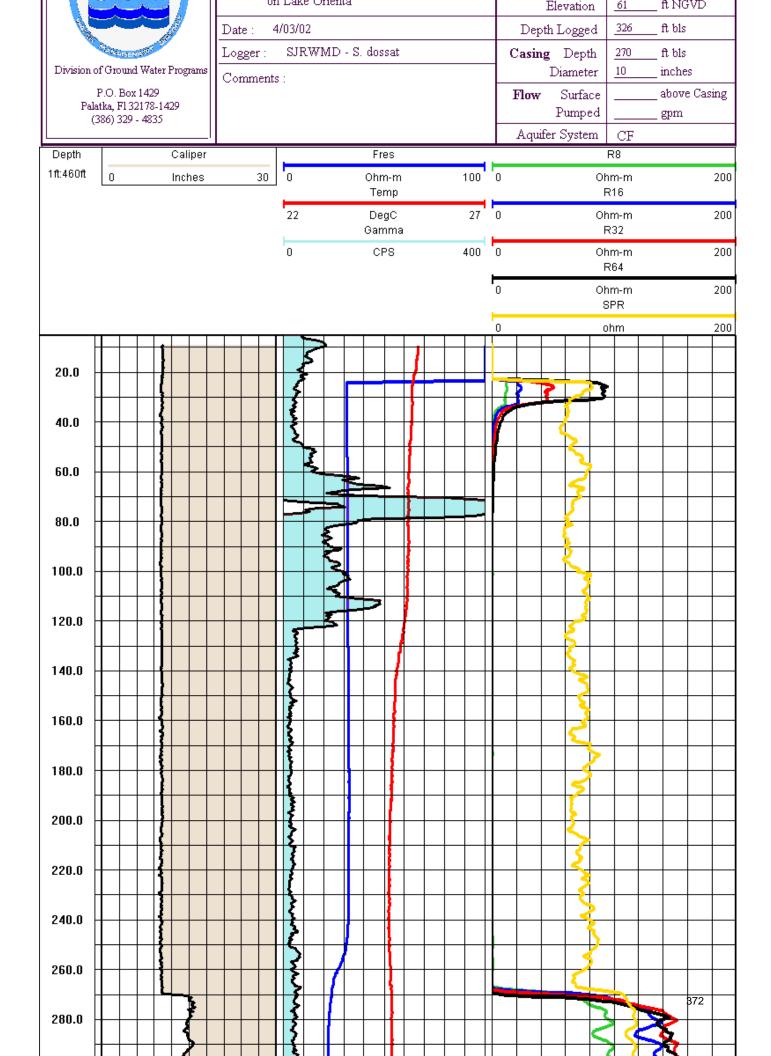
P.O. Box 1429 Palatka, F1 32178-1429 (386) 329 - 4835

Geophysical Logs	Well ID	S-0345				
Site: Lake Orienta	Lat / Long					
	Elevation	ft NGVD				
Date: 4/29/04	Depth Logged	315 ft bls				
Logger: J. Lombardie	Casing Depth	157 ft bls				
Comments:	Diameter	4 inches				
1.500	Flow Surface	above Casing				
MW2 on Barclay Ave. at lift station	Pumped	gpm				
	Aguifer System	Floridan				

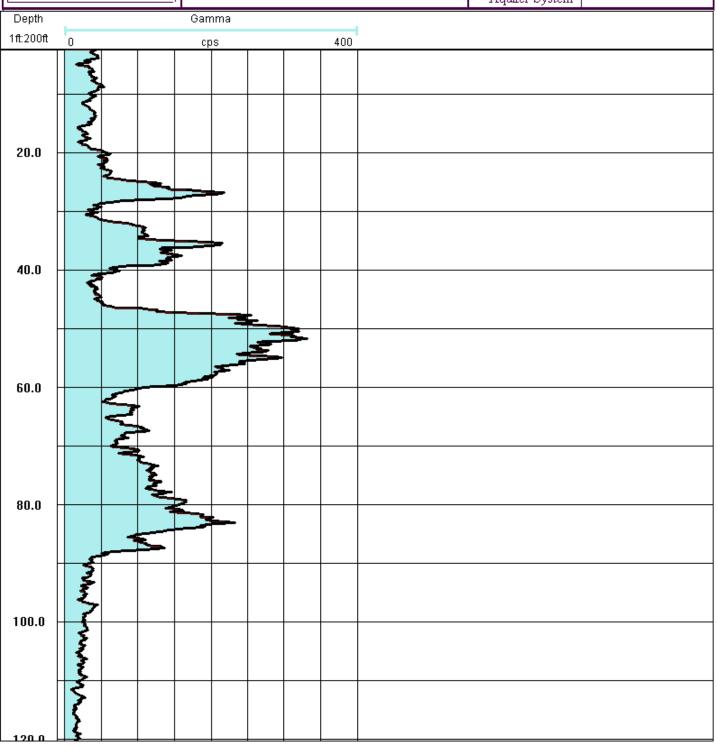








		319 Barclay, Lake Orienta dramage well.	Elevation	61 ft NGVD
		Date: 04/25/02	Depth Logged	<u>120</u> ft bls
	Control of the Contro	Logger: SJRWMD - S. Dossat	Casing Depth	ft bls
	Division of Ground Water Programs	Comments :	Diameter	inches
	P.O. Box 1429		Flow Surface	above Casing
	Palatka, F1 32178-1429 (386) 329 - 4835		Pumped	gpm
l	,,		Aquifer System	



Т											EMENATION	-01	_ ******	
				Date: 0	4/25/02				Dep	th Logged	ft bls			
		A Paris	ENISO	Logger:	SJRW	MD-SI	Dossat		Casin	g Depth	56	ft bls		
	Division (of Grow	nd Water Programs	Comments	:					Diameter	12	inches		
		P.O. Bo							Flow			above (Casing	
	Pali (iatka, F1 (386) 32	32178-1429 9 - 4835							Pumped		gpm		
										Aqui	fer System			
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Appendix E Groundwater Tracer Test Laboratory Reports



1572 Aley Lane

Protem, MO 65733

(417) 785-4289

fax (417) 785-4290

oul@tri-lakes.net

May 19, 2003

RECEIVED
MAY 2 1 2003
CH2M Hill/ORL

CERTIFICATE OF ANALYSIS

Alan W. Aikens, P.G. CH2MHill 225 East Robinson Street, Suite 505 Orlando, Florida 32801

Re: Festival Park - Dye analysis results for background water samples shipped on May 13, 2003 Ozark Underground Laboratory (OUL) numbers M6626 and M6627.

Dear Mr. Aikens:

We have completed analysis of the background water samples received by the OUL on May 14, 2003. We have indicated the OUL number for each of these samplers on the enclosed table.

The fluorescein, eosine and rhodamine WT (RWT) dye concentrations are based upon standards routinely used at the OUL. The fluorescein and eosine are mixtures of 75% dye and 25% diluent; the RWT is a 20% solution. The concentrations are based upon the as-sold weight of the dye.

A summary of the results is presented in Table 1. Additional sampling information is available on the enclosed analysis graphs.

Sincerely,

Enclosures:

Thomas J. Aley, PHG, RG

Thomas J. Alex

1. Table 1. Analysis results for water samples

2. Sample Collection Data Sheet

3. Sample analysis graphs

f:\docs\coa\festival01.doc

Ozark Underground Laboratory, Inc. for CH2MHill

Project:

Festival Park

Samples Collected by:

Mike Burns

Date Samples Shipped:

May 13, 2003

Date Samples Rec'd at OUL:

May 14, 2003

Date Analyzed by OUL:

May 14, 2003

Table 1. Results for background water samples analyzed for the presence of fluorescein, eosine and rhodamine WT (RWT) dyes. Peak wavelengths are reported in nanometers (nm); dye concentrations are reported in parts per billion (ppb).

OUL Lab#	OUL Stn#	Sample Identification	Date/Time Collected	Fluor	Fluorescein		ine	RWT		
			2003	Peak	Conc.	Peak	Conc.	Peak	Conc.	
M6626	1	South Recharge	5/13 NT	ND		ND		ND		
M6627	2	North Recharge	5/13 NT	ND			ND			

FOOTNOTES:

NT = No time given

ND = No dye detected

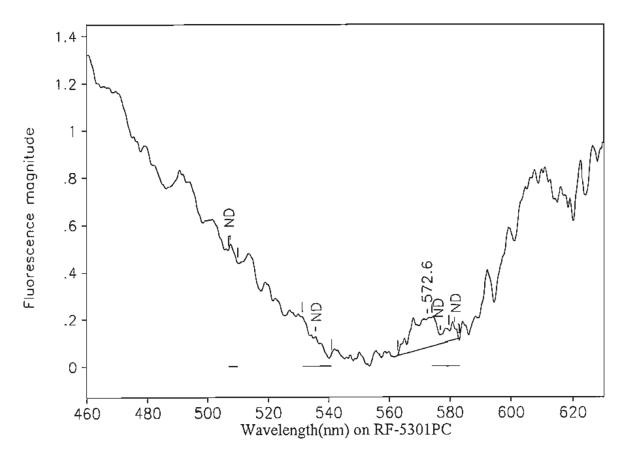
407.359.7194 (FAX) 407-359-7197

Chain or Custody

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SAMPLE	Mike B	vrns	SIGN;	MIDE	0			.	SRA		% १५ ११												of Containers
PHONE:	407-740-	6110	FAX: 707-	740-6	112			<u>る</u>	46		# 4	<u> </u>										<u> </u>	
#	SAMPLE			E/TIME		SULPGE XIN	DRG. LIDUD					OU Lab	上上	<u> 19</u>	ESERVAT)	<u>NO</u>							Number
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Ozark Underground Laboratory

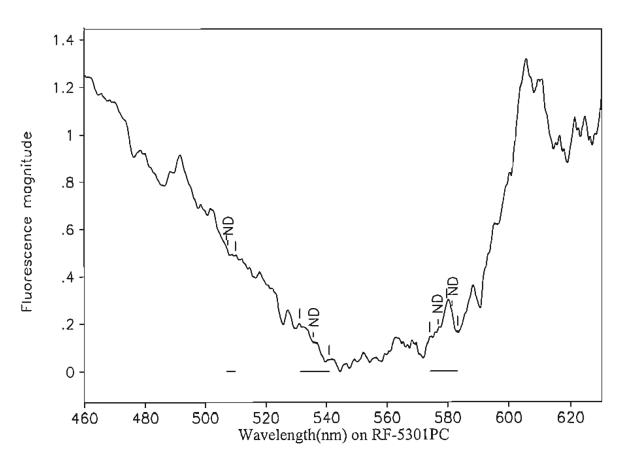


Station 1: South Recharge OUL number: M6626 Matrix: Water Collected: 05/13/03

Analyzed: 05/14/03

Peaks with	nin the norm	nal range of	tracer dyes:						
Peak nm	Left X	Right X	Height	Area	H/A	Conc.			
507.4	506.9	509.9	0.00	0.00	0.00	ND			
535.6	531.2	540.9	0.00	0.00	0.00	ND			
576.8	574.1	579.5	0.00	0.00	0.00	ND			
581.4	579.7	583.2	0.00	0.00	0.00	ND			
Peaks close to the normal range of tracer dyes:									
572.6	562.8	582.8	0.12	1.53	0.08	-0.018 ND			

Ozark Underground Laboratory



Station 2: North Recharge OUL number: M6627 Matrix: Water

Collected: 05/13/03

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
507.4	506.9	509.9	0.00	0.00	0.00	ND
535.6	531.2	540.9	0.00	0.00	0.00	ND
576.8	574.1	579.5	0.00	0.00	0.00	ND
581.4	579.7	583.2	0.00	0.00	0.00	ND

Analyzed: 05/14/03

Peaks close to the normal range of tracer dyes:

May 29, 2003

CERTIFICATE OF ANALYSIS

Alan W. Aikens, P.G. CH2MHill 225 East Robinson Street, Suite 505 Orlando, Florida 32801

Re: Festival Park - Dye analysis results for background charcoal samplers shipped on May 20, 2003 Ozark Underground Laboratory (OUL) numbers M6717 and M6727.

Dear Mr. Aikens:

We have completed analysis of the background charcoal samplers received by the OUL on May 21, 2003. We have indicated the OUL number for each of these samplers on the enclosed table.

The fluorescein and eosine dye concentrations are based upon standards routinely used at the OUL. The fluorescein and eosine are mixtures of 75% dye and 25% diluent. The concentrations are based upon the as-sold weight of the dye.

A summary of the results is presented in Table 1. Additional sampling information is available on the enclosed analysis graphs.

Sincerely,

Thomas J. Aley, PHG, RG

Enclosures: 1. Table 1. Analysis results for charcoal samplers

2. OUL Sample Collection Data Sheet

3. Nodarse & Associates Chain-of-Custody

4. Discrepancy sheet

5. Sample analysis graphs

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Ozark Underground Laboratory, Inc. for CH2MHill

Project:

Festival Park

Samples Collected by:

Mike Burns / Tiffany F.

Date Samples Shipped:

May 20, 2003

Date Samples Rec'd at OUL:

May 21, 2003

Date Analyzed by OUL:

May 23, 2003

Table 1. Results for background charcoal samplers analyzed for the presence of fluorescein and eosine dyes. Peak wavelengths are reported in nanometers (nm); dye concentrations are reported in parts per billion (ppb).

OUL Lab#	OUL Stn#	Sample Identification	Date/Time Placed	Date/Time Collected	Fluorescein		Eosine		
				2003	Peak	Conc.	Peak	Сопс.	
M6717	Ī	South Recharge Well	NDT	5/20 NT	ND		ND		
M6718	2	North Recharge Well	NDT	5/20 NT	ND		ND		
M6719	3	MW-1 167'	NDT	5/20 NT	515.2 *	0.213	ND		
M6720	Laboratory Control Charcoal Blank								
M6721	4	MW-1 197'	NDT	5/20 NT	513.8 *	0.233	ND		
M6722	5	MW-2 195'	NDT	5/20 NT	ND		ND		
M6723	6	MW-2 225'	NDT	5/20 NT	517.2 *	0.215	ND		
M6724	7	MW-3 195'	NDT	5/20 NT	ND		ND		
M6725	8	MW-3 225'	NDT	5/20 NT	ND		ND		
M6726	9	MW-4 195'	NDT	5/20 NT	516.6 *	0.476	ND		
M6727	10	MW-4 225'	NDT	5/20 NT	516.4 *	0.549	ND		

FOOTNOTES:

NDT = No date or time given

NT = No time given

ND = No dye detected

* = A fluorescence peak is present that does not meet all the criteria for a positive dye result but has been calculated as though it were the dye for background purposes.

OZARK UNDERGROUND LABORATORY, INC.

1572 Aley Lane Protem, MO 65733 (417) 785-4289 fax (417) 785-4290 email: oul@tri-lakes.net

SAMPLE COLLECTION DATA SHEET for FLUORESCENCE ANALYSIS

Project:	Festival	Park	Week No: 2 Samples Collected By: 1	Burns	Tiffing F.	·
Samples	Shipped By	· M.Ri	Samples Received By: M. Arnold			
Date Sai	nples Shipp	ed: <u>5 /2</u> 0	0/03 Date Samples Received: 5/21/03 Time Samples Received: 13:00	Return	Cooler? Yes	No
Bill to:_			Send Results to: Ship cooler to:			
Analyze	for: Fluore	scein <u>/</u> E	osine Rhodamine WTOther Ship cooler to:			
	OUL se only		Please indicate stations where dye was visible in the field			OUL use only
			for field technician use - use black ink only			·
# CHAR REC'D	LAB NUMBER	STATION NUMBER 1-4 Numbers		LACED -00 3 TIME	COLLECTED 2003 DATE TIME	WATER REC'D
ā	M6717	1	South Recharge Well		5/20	0
	M6718	_			5/20	6
-	M6719	ال م	North Recharge Well MW-1 167		5/20	Ö
1	M6721	4	MW-1 197		5/20	٥_
1	M6722	5	MW-2 195'		5/20	0
1	M6723	6	MW-2 225'		5/20	0
1	M6724	7	MW-3 195'		5/20	0
1	MG125		MW-3 225' MW-4 195'		5/20 5/20	0
l	MG726	9			5/20	0
}	M6727	10	MW-4 225'		5/20	0
COMM	ents: CF	arcoal	BRUNK - M6720 .	'		
This she	et filled out	by OUL sta	ff? Yes X No Charts for samples on this page proofed by OUL:		mmv	
			lyong of 5/28/03 by MPage 1 of 1	f:\sl	•	33 Rev. 8/99

TEGE EDVITORMONTAL

246 Park R / Oviedo, FL-92765 407-359-7194 (FAX) 407-359-7197

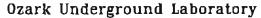
Chain o. Custody

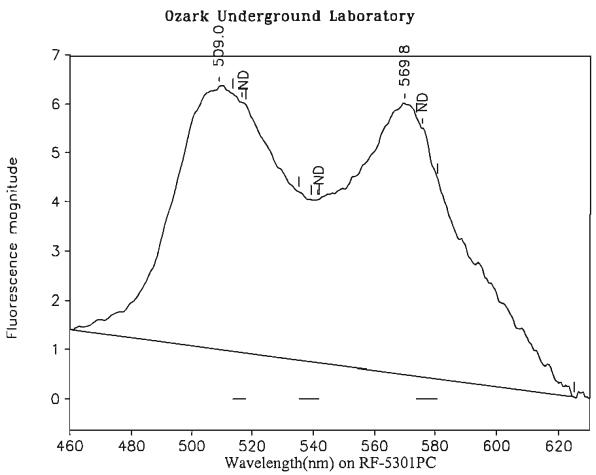
Work Order:_		_	·	· •
Date: 5/20/07	Page	t	of 1	31.

		Date: 5 /24/	Page \ ot
COMPANY: Nodgrse 3 Assoc.		ANALYSIS REQUESTED	
ADDRESS: 11.75 / in Rd.			
SAMPLED BY: Breas / Tiffing Fishing ALBO PHONE: 407-240-6110 FAX: 407-740-6112	1.		
SAMPLED BY: Burns /Tiffing Fichach ALB	2 2		Number of Containers
PHONE: 407-740-6110 FAX: 407-740-6112	Dye		0 0
MATRIX 8 8		PRESERVATION	age.
# SAMPLE ID DATE/TIME WE BY	752		
1 mw-1 167'+ 187' 5/20/03	~		2
2 mw-2 1951+2251 3 mw-3 1951+2251	<i>v</i>		2
4 MW-4 195' + 225'			2
5 South Recharge Well 6 Worth Recharge Wall			1
6 Worth Recharge Wall &			
8			
9			
10			
11			
12			
13			
RELINQUISHED BY DATE/TIME RECEIVED BY	DATE/TIME	PROJECT INFORMATION	SAMPLE RECEIPT
Mil 600 5/20/07 M. amoed 10	5/21/03 VL 1300	Festival Park CH2MHig	Total # of Containers
2:		PROJECY #:	Chain of Custody Seals
3:	,	SITE ADDRESS:	Recy'd in Good Condition
SPECIAL INSTRUCTIONS/COMMENTS:		PROJECT MANAGER:	PO#: .
		INVOICE TO:	
		(IF DIFFERENT FROM ABOVE)	
	·		
QUOTE/CONTRACT #:	`.	DUL Page 1 11 1	384

OZARK UNDERGROUN ω LABORATORY, INC.

DISCRE	PANCIE	S BETWEEN	CHAIN-OF-CUST	ODY SHEET	S AND ACTUAL SAMPLES RECEIV	ED Page of
Company	& Proj	ect Name: C	12MHILL /Fest	val Park	Date Rec'd by OUL	
Lab#	Sta#	S	tation Name	Date	Problem	Solution
				Pulled		
		MW-I	167'	5/20	MW-1@167' & MW-1@197	OUL Short Filled Out h
		MW-1	197	5/20	were listed together on same line	Stamberd OUL Sample
		MW-2	195′	5/20	were listed together on same line MW-20195'+MW-20225' were	Collection Data Sheet.
		MW-2	225′	5/20	listed together on Same line. MW-3@ 195' + MW-3@ 225' were listed together on Same line. MW-4@ 195' + MW-4@ 225' were listed together on Same line.	Listing each Sample from
}	-	MW 3	195	5/20	MW-3@195' +MW-3@ 225' were	each depth separately
		MW-3	225'	5/20	listed together on same line.	So they could be given
		MW-4	195'	5/20	MW-40 195 + MW-40 225 were	individual lab#3
		MW-4	2251	5/20	litted together on Same line.	
					0	
						•
Commen	ts:	•		•		





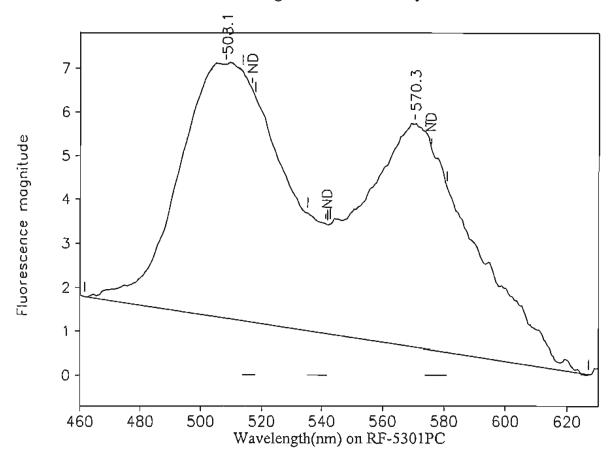
Station 1: South Recharge Well OUL number: M6717 Analyzed: 05/23/03

Matrix: Elutant

Collected: 05/20/03 Placed: //

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.	
516.7	513.6	517.9	0.00	0.00	0.00	ND	
541.3	535.2	541.8	0.00	0.00	0.00	ND	
569.8	539.1	625.0	5.52	258.27	0.02	-37.7	
575.8	573.8	580.8	0.00	0.00	0.00	ND	
Peaks clos	e to the no	rmal range of	f tracer dyes	3:			
509.0	460.4	539.1	5.35	228.95	0.02	- 5.43 N()	



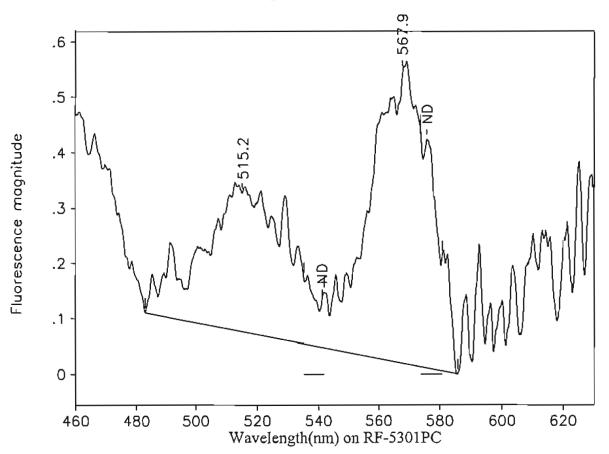
Station 2: North Recharge Well OUL number: M6718 Analyzed: 05/23/03

Matrix: Elutant

Placed: // Collected: 05/20/03

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.7	513.6	517.9	0.00	0.00	0.00	ND
541.3	535.2	541.8	0.00	0.00	0.00	ND
570.3	542.7	626.9	5.08	216.20	0.02	31:5
575.8	573.8	580.8	0.00	0.00	0.00	ND
Peaks close	e to the norm	nal range of	tracer dyes:			
508.1	461.6	542.7	5.78	240.80	0.02	-5.71 ND



Station 3: MW-1 167' OUL number: M6719

Matrix: Elutant Placed: //

Analyzed: 05/23/03

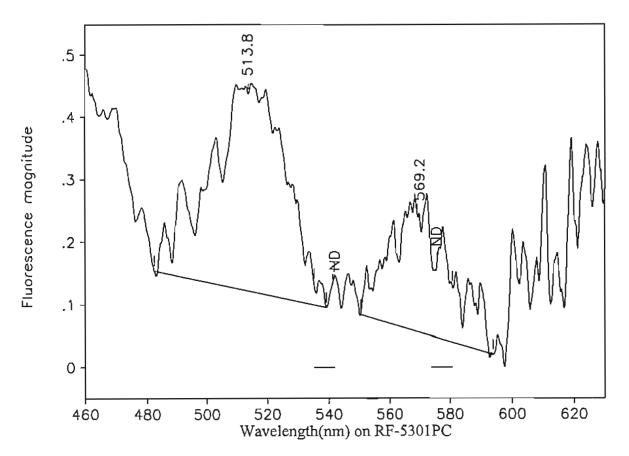
Collected: 05/20/03

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
515.2	483.0	542.0	0.25	9.00	0.03	0.213
541.3	535.2	541.8	0.00	0.00	0.00	ND
567.9	542.0	585.8	0.53	12,72	0.04	1.86
575.8	573.8	580.8	0.00	0.00	0.00	ND

Peaks close to the normal range of tracer dyes:





Station 4: MW-1 197' OUL number: M6721

ber: M6721 Analyzed: 05/23/03

Matrix: Elutant

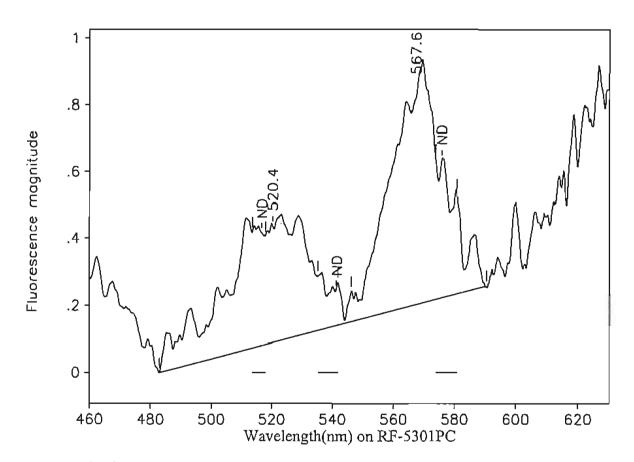
Placed: // Collected: 05/20/03

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
513.8	482.4	539.2	0.32	9.82	0.03	0.233
541.3	535.2	541.8	0.00	0.00	0.00	ND
569.2	550.4	593.8	0.19	4.84	0.04	0.706 -
575.8	573.8	580.8	0.00	0.00	0.00	ND

Peaks close to the normal range of tracer dyes:

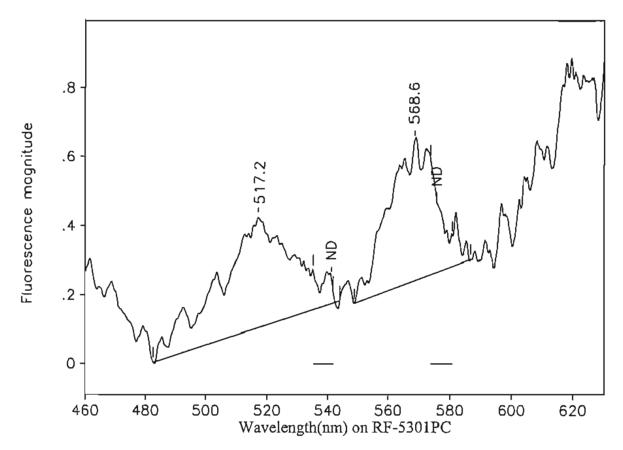




Station 5: MW-2 195' OUL number: M6722 Matrix: Elutant Placed: //

Analyzed: 05/23/03

Peaks within the normal range of tracer dyes:									
Peak nm	Left X	Right X	Height	Area	H/A	Conc.			
516.7	513.6	517.9	0.00	0.00	0.00	ND			
541.3	535.2	541.8	0.00	0.00	0.00	ND			
567.6	546.2	590.4	0.64	14.39	0.04	2.10			
575.8	573.8	580.8	0.00	0.00	0.00	ND			
Peaks close to the normal range of tracer dyes:									
520.4	483.0	546.2	0.35	12.81	0.03	0.303 ND			



Station 6: MW-2 225' OUL number: M6723

Matrix: Elutant

Placed: //

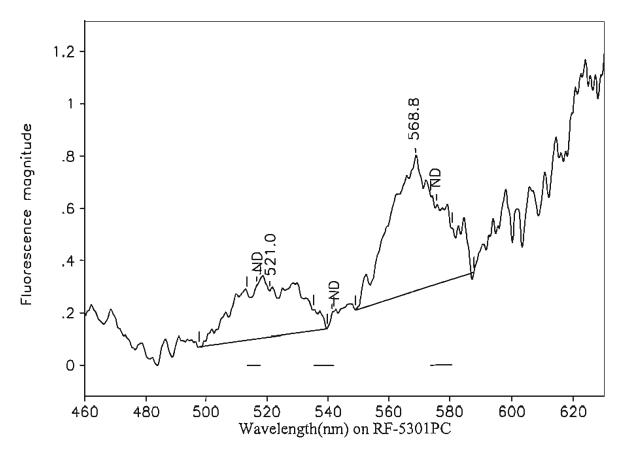
Analyzed: 05/23/03

Collected: 05/20/03

Peaks within the normal range of tracer dyes:

1 Canada Willi	mir mic non	mai rungo or	u acci a y cs.			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
517.2	482.6	544.0	0.32	9.06	0.04	0.215
541.3	535.2	541.8	0.00	0.00	0.00	ND
568.6	548.8	586.6	0.41	7.40	0.06	1.08
575.8	573.8	580.8	0.00	0.00	0.00	ND

Peaks close to the normal range of tracer dyes:



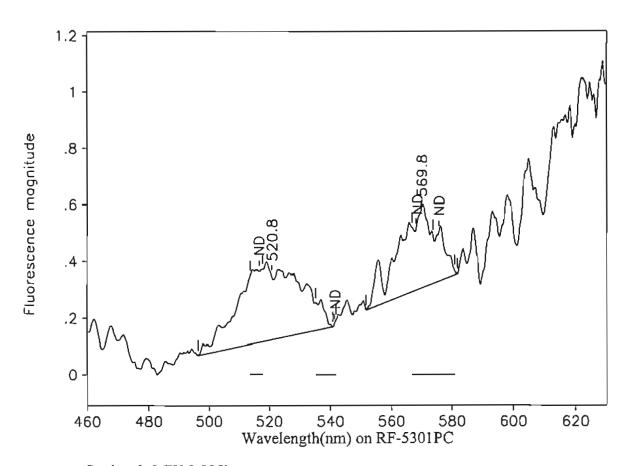
Station 7: MW-3 195'

OUL number: M6724

Matrix: Elutant Placed: //

Analyzed: 05/23/03

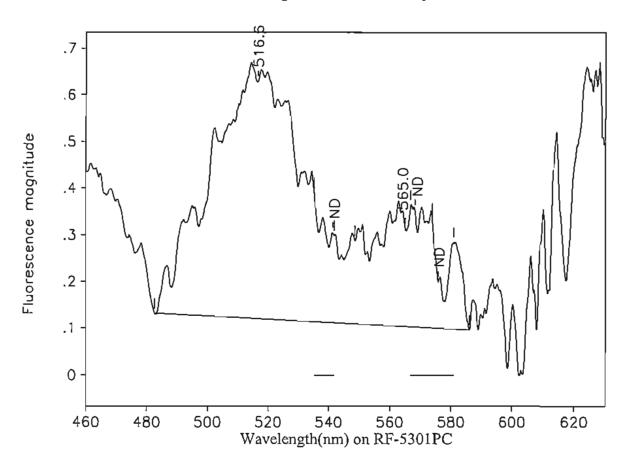
Peaks within the normal range of tracer dyes:									
Peak nm	Left X	Right X	Height	Area	H/A	Conc.			
516.7	513.6	517.9	0.00	0.00	0.00	ND			
541.3	535.2	541.8	0.00	0.00	0.00	ND			
568.8	549.0	587.8	0.51	10.12	0.05	1.48			
575.8	573.8	580.8	0.00	0.00	0.00	ND			
Peaks close to the normal range of tracer dyes:									
521.0	497.8	539.6	0.18	5.49	0.03	0.130 №Û			



Station 8: MW-3 225'
OUL number: M6725
Matrix: Elutant
Placed: //

Analyzed: 05/23/03

Peaks with	nin the non	mal range of	tracer dyes:					
Peak nm	Left X	Right X	Height	Area	H/A	Conc.		
516.7	513.6	517.9	0.00^{-}	0.00	0.00	ND		
541.3	535.2	541.8	0.00	0.00	0.00	ND		
568.2	566.8	573.8	0.00	0.00	0.00	ND		
575.8	573.8	580.8	0.00	0.00	0.00	ND		
Peaks close to the normal range of tracer dyes:								
520.8	496.4	540.8	0.23	6.63	0.03	- 0.157 ND		
569.8	551.6	581.8	0.27	4.32	0.06	0.630		



Station 9: MW-4 195' OUL number: M6726

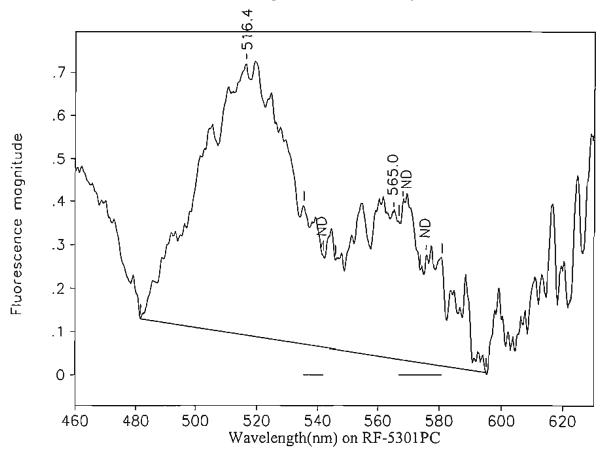
Matrix: Elutant

Placed: //

Analyzed: 05/23/03

Peaks with	in the norn	nal range of	tracer dyes:			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.6	482.6	548.5	0.51	20.08	0.03	0.476
541.3	535.2	541.8	0.00	0.00	0.00	ND
568.2	566.8	573.8	0.00	0.00	0.00	ND
575.8	573.8	580.8	0.00	0.00	0.00	ND
Peaks clos	e to the nor	mal range of	f tracer dyes	s:		
565.0	548.5	586.0	0.21	6.87	0.03	1.00-





Station 10: MW-4 225'

OUL number: M6727 Matrix: Elutant

Placed: //

Analyzed: 05/23/03

Peaks with	un the norn	nal range of t	tracer dyes:			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.4	481.6	545.8	0.63	23.15	0.03	0.549
541.3	535.2	541.8	0.00	0.00	0.00	ND
568.2	566.8	573.8	0.00	0.00	0.00	ND
575.8	573.8	580.8	0.00	0.00	0.00	ND
Peaks clos	e to the nor	mal range of	f tracer dyes	3:		
565.0	545.8	595.0	0.34	11.62	0.03	-1.70-



June 2, 2003

CERTIFICATE OF ANALYSIS

Alan W. Aikens, P.G. CH2MHill 225 East Robinson Street, Suite 505 Orlando, Florida 32801

Re: Festival Park - Dye analysis results for background charcoal samplers shipped on May 27, 2003 Ozark Underground Laboratory (OUL) numbers M6838 through M6847.

Dear Mr. Aikens:

We have completed analysis of the background charcoal samplers received by the OUL on May 28, 2003. We have indicated the OUL number for each of these samplers on the enclosed table.

The fluorescein and eosine dye concentrations are based upon standards routinely used at the OUL. The fluorescein and eosine are mixtures of 75% dye and 25% diluent. The concentrations are based upon the as-sold weight of the dye.

A summary of the results is presented in Table 1. Additional sampling information is available on the enclosed analysis graphs.

Sincerely,

Thomas J. Aley, PHG, RG

Enclosures:

- 1. Table 1. Analysis results for charcoal samplers
- 2. OUL Sample Collection Data Sheet
- 3. Nodarse & Associates Chain-of-Custody
- 4. Discrepancy sheet
- 5. Sample analysis graphs

f:\docs\coa\festival03.doc

Ozark Underground Laboratory, Inc. for CH2MHill

Project:

Festival Park

Samples Collected by:

Mike Burns

Date Samples Shipped:

May 27, 2003 May 28, 2003

Date Samples Rec'd at OUL: Date Analyzed by OUL:

May 30, 2003

Table 1. Results for background charcoal samplers analyzed for the presence of fluorescein and eosine dyes. Peak wavelengths are reported in nanometers (nm); dye concentrations are reported in parts per billion (ppb).

OUL Lab #	OUL Stn #	Sample Identification	Date/Time Placed	Date/Time Collected	Fluo	rescein	Eos	sine
				2003	Peak	Conc.	Peak	Conc.
M6838	2	North Recharge Well	NDT	5/27 NT	ND		ND	
M6839	3	MW-1 @ 167'	NDT	5/27 NT	515.4 *	0.877	ND	
M6840	Laborat	tory Control Charcoal Blank				4 3 3		SALITY SALITY
M6841	4	MW-1 @ 197'	NDT	5/27 NT	514.2 *	0.533	ND	
M6842	5	MW-2 @ 195'	NDT	5/27 NT	517.0 *	0.345	ND	
M6843	6	MW-2 @ 225'	NDT	5/27 NT	517.4 *	0.352	ND	
M6844	7	MW-3 @ 195'	NDT	5/27 NT	ND		ND	
M6845	8	MW-3 @ 225'	NDT	5/27 NT	ND		ND	
M6846	9	MW-4 @ 195'	NDT	5/27 NT	516.2 *	0.350	ND	
M6847	10	MW-4 @ 225'	NDT	5/27 NT	516.4 *	0.842	ND	

FOOTNOTES:

NDT = No date or time given

NT = No time given

ND = No dye detected

* A fluorescence peak is present that does not meet all the criteria for a positive dye result but has been calculated as though it were the dye for background purposes.

210 Park Ro. ., Oviedo, FL 32765 407-359-7194 (FAX) 407-359-7197

Chain of Sustody

Work Order:_

All - Man 1 D /-

407	359-7194 (FAX) 40	07-359-7	7197				III	111 0		Jus		y		Date:_	5/2	2763		Page	. (_of	_
COM	Wodarse Stesser	1.										ANALY	SIS REQ	UESTED							Г
ADD	ESS: 1675 L+0 Kd-												,								1
	Wint Park FC	3278	9																		١.
8AM	Mille Burns	SIGN:	ElR				չ չ		.												盲
PHO	E 407-140-640	FAX: Un	7-740-				₩ ₹<														§
	101740.000	10	7- 140-			· •	3	-	\dashv		 	PF	ESERVAT	DN		-		-			ا الأ
#	SAMPLE ID	DATE	TIME	1	RADOR	DO NO	TCE													:	MEN
1	mu-(2 H7 /47' 5	127/03					~														2
2	MW-2 2 /957/2151						V								,						12
3	MH. 27 195/2001						V														2
4	MU-4 & 1951/2251							}													2
5	Mur. 4 @ 1951/2351 North Recharge could			I			1														ĭ
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REL	NQUISHED BY DA	TE/TIME	RECEIVE	DBY				DATE/TIM	E.L	٠,	PROJE	CT INFO	DRMATI	ON			S	AMPLE F	ECEIP	Ϋ́	_
s: //	MI 1 5/2/02		11 Mas	ngor.	et	Ri	ممنده	5/28/ - 123	PR	QUECT NAME:	tival	Park	CH	SAA		Tota	ıl#ofC	ontainer	s		
2:			2;	0	-		32	7 7-0	PR	OJECT #!				ALVV LI	4			4	•	\dashv	
3;			3:						1	E ADDRESS:	1-6-1	20-1				Cha	IN OT CI	ıstody S	eais	\perp	
•.		41	,						311		ludo ,	FC				Rec	v'd i n G	ood Cor	dition		
SPEC	AL INSTRUCTIONS/COMMENTS:								PR	DJECY MANAG		,		. 1		PO #	<i>‡</i> :				
										VOICE TO:		1 140	- 146			<u> </u>					\dashv
								•	400	FFERENT PROMADION	Æ}										\dashv
								-													
QUO	TE/CONTRACT #:								1										398		
									_			_		WHITE	Project FI	le YE	LLOW: L	boratory	PIMC:	Bornier	_

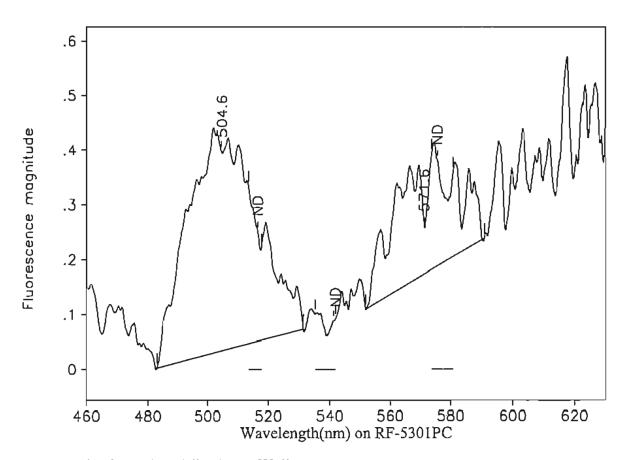
OZARK UNDERGROI D LABORATORY, INC.

1572 Aley Lane Protem, MO 65733 (417) 785-4289 fax (417) 785-4290 email: oul@tri-lakes.net SAMPLE COLLECTION DATA SHEET for FLUORESCENCE ANALYSIS

Project:	Festivo	I Park	Week No: 3 Samples Collected	ву: <u>М</u>	Ke B	uns		
Samples	Shipped By	/ :	Samples Received By: M. ICCCA	meen	<u>-cui</u>			
		ed: <u>5</u> /2 <u>3</u>	7/03 Date Samples Received: $5/28/03$ Time Samples Received: 12	_: <u>39</u> _	Return	Couler? Y	esN	lo
Bill to:_		. /	Send Results to:					
Analyze	for: Fluore	scein <u> </u>	osine Rhodamine WT Other Ship cooler to:					
	OUL se only		Please indicate stations where dye was visible in the	field				OUL use anly
		CTATION.	for field technician use - use black ink only					
# CHAR REC'D	LAB NUMBER	STATION NUMBER	STATION NAME		CED	COLLE 200	<u> </u>	WATER
		1-4 Numbers	0 1/ 0 1 1 1 1	DATE	TIME	DATE	TIME	REC'D
0	W 5/20	/	South Recharge Well No Sample rec'd	<u> </u>		51		0
	M6838	<u>L</u>	North Recharge Well	NOT		5/27	NT	0
	M6839	3	MW-1@1678			5/27		٥
	W6841	4	MW-1@197			10/271		0
- 1	M6842	5	Mw-2@195'			5/27		0
1	116843	6	MW-2@ 225			5/27		0
1	M6844	7	MW-3@195 -			5/27		0
	M6845		NW-3@ 225'			5/27	1.	0
\overline{l}	116846	\sim	MW-4@195-			5/27		0
(M6841	10	MW-4@225'			5/27	V	0
		-				/ /		
				1				
								\vdash
COMM	L Ents:	Char	coal Blank=M6840 NT= no time given 1	VDT =	no de	teorle	un CH) L
							0	
This she	et filled out	by OUL sta	ff? Yes X No Charts for samples on this page proofed b	y OUL:	Som	K-		
107	CC 22	Justice)	org.d 5/30/03 by MC Page of		f:\sh	ared\forms\co	c.doc,3 R 9:	v. 8/99

OZARK UNDERGRO _ . ID LABORATORY, INC.

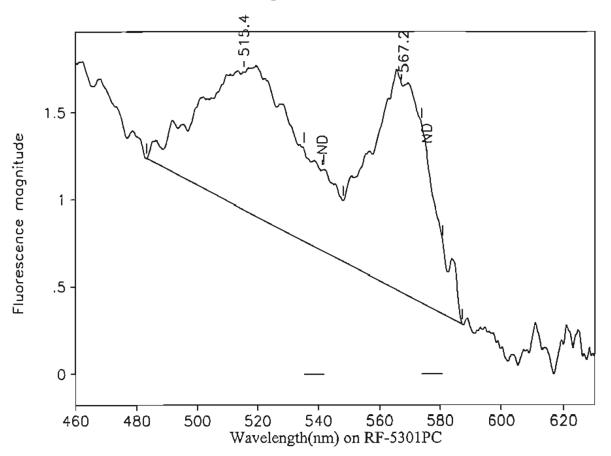
Company	& Proje	ect Name: 1	danse & Assoc /	estival	Park Date Rec'd by OUL:	
Lab#	Sta#		Station Name	Date Pulled	Problem	Solution
		MW-I	167'	5/27	MW-10 161 & MW-10 197	OUL Staff filled out a
		MW-1	197	5/27	were listed together on same line	Standard Out Sample
		MW-2	195	5/27	MW-Z@ 1954 MW-Z@225' Were	Collection Data Sheet,
		MW-2	225	5/27	listed together on same line	
		MW-3	195′		MW-3 195'4 MW-30 225'Were	
		MW-3	225	5/27	listed together on some line	So they Could Segiven
		MW-4	195'		MW-4@ A5'4MW40225-	individual ab to
		MW-4	225'	5/27	were listed together on	
					Same line.	
					·	
					·	
	<u> </u>					
Commen	ts: no	-Deina	& data of lains	1 0x 70	man Collected was Qui	on Cocy regard with
100000		10 D - 1 -	1) Collected 1	o hatta	mes Collected were gu	Top Your
JOHN	<u>, , , , , , , , , , , , , , , , , , , </u>	<u> </u>	D COMPAGE O	- /00	De Charles	
					· · · · · · · · · · · · · · · · · · ·	



Station 2: North Recharge Well OUL number: M6838 Matrix: Elutant Placed: //

Analyzed: 05/30/03

Peaks with	Peaks within the normal range of tracer dyes:											
Peak nm	Left X	Right X	Height	Area	H/A	Conc.						
516.7	513.6	517.9	0.00	0.00	0.00	ND						
541.3	535.2	541.8	0.00	0.00	0.00	ND						
571.6	551.8	590.8	0.08	4.85	0.02	· 0.795 ·						
575.8	573.8	580.8	0.00	0.00	0.00	ND						
Peaks clos	se to the not	rmal range of	f tracer dyes	3:								
504.6	483.0	531.4	0.36	10.84	0.03	0.282 ND						



Station 3: MW-1 167' OUL number: M6839

Matrix: Elutant

Placed: //

Analyzed: 05/30/03

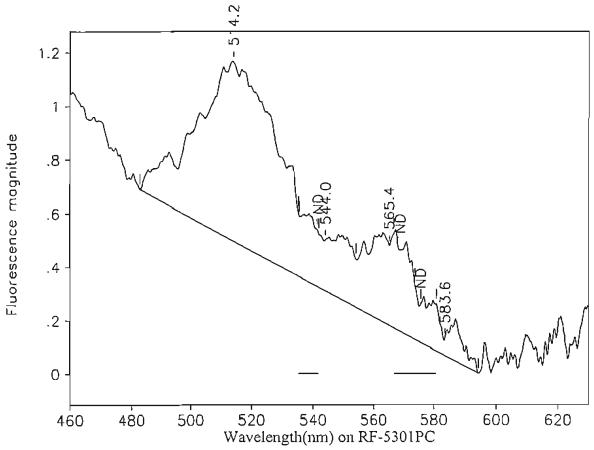
Collected: 05/27/03

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
515.4	483.2	548.0	0.79	33.70	0.02	0.877 🖈
541.3	535.2	541.8	0.00	0.00	0.00	ND
567.2	548.0	587.2	1.20	29.35	0.04	~ 4.81
575.8	573.8	580.8	0.00	0.00	0.00	ND

Peaks close to the normal range of tracer dyes:





Station 4: MW-1 197' OUL number: M6841

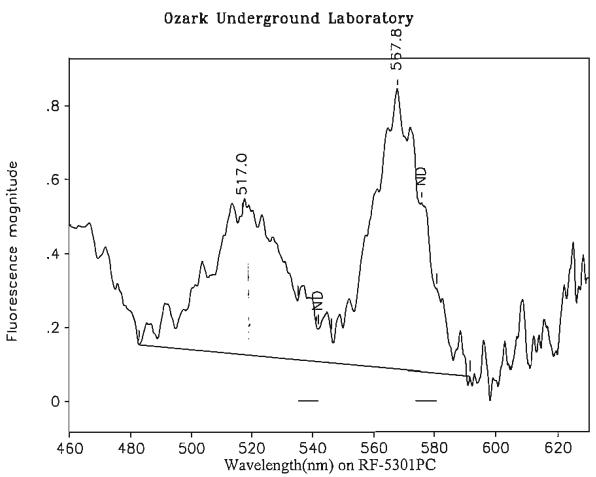
Matrix: Elutant Placed: //

Analyzed: 05/30/03

Peaks within the norm	al range of tracer dyes:
reaks within the norm	iai range or nacei uyes.

T Carra Min	HII HIC HOLL	na range or	nacci dycs.			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
514.2	482.8	535.5	0.67	20.49	0.03	0.533 🛪
541.3	535.2	541.8	0.00	0.00	0.00	ND
568.2	566.8	573.8	0.00	0.00	0.00	ND
575.8	573.8	580.8	0.00	0.00	0.00	ND
Peaks clos	e to the no	rmal range of	f tracer dyes	s:		
544.0	535.5	554.1	0.19	4.07	0.05	0.202 ND
565.4	554.1	575.8	0.30	6.03	0.05	0 .988
583.6	575.8	594.2	0.06	2.01	0.03	0.168-





Station 5: MW-2 195' OUL number: M6842

Matrix: Elutant

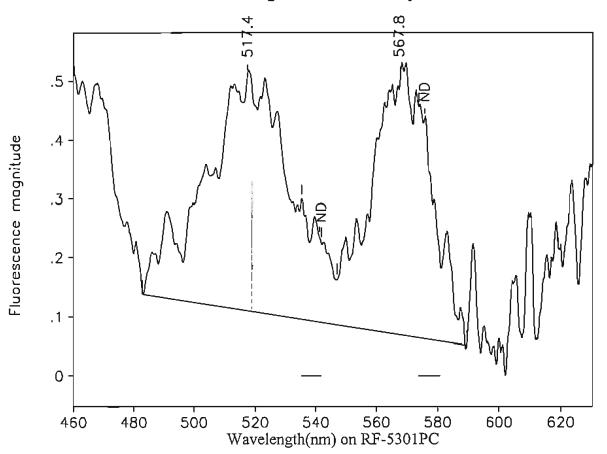
Collected: 05/27/03 Placed: //

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area 13.28	H/A	Conc. 0.345 ★
517.0 541.3	482.6 535.2	546.1 541.8	0.38 0.00	0.00	0.03 0.00	0.343 <i>~</i> ND
567.8	546.1	591.6	0.76	15.29	0.05	-2:50 -
575.8	573.8	580.8	0.00	0.00	0.00	ND

Peaks close to the normal range of tracer dyes:

Analyzed: 05/30/03



Station 6: MW-2 225' OUL number: M6843

Matrix: Elutant

Placed: //

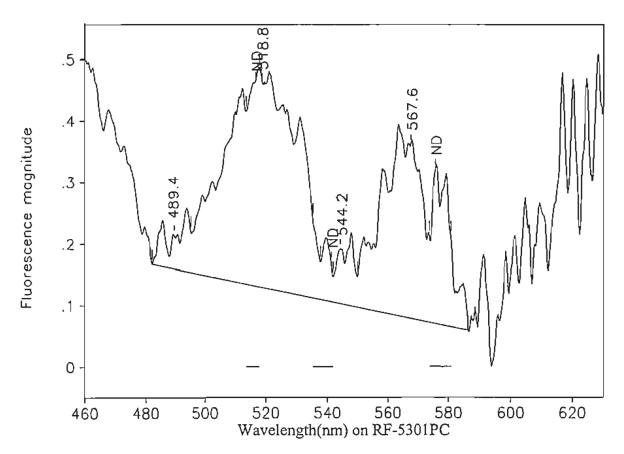
Analyzed: 05/30/03

Collected: 05/27/03

Peaks with	nin the non	nal range of	tracer dyes:				
Peak nm	Left X	Right X	Height	Area	H/A	Conc.	
517.4	483.0	547.1	0.40	13.54	0.03	0.352	ح
541.3	535.2	541.8	0.00	0.00	0.00	ND	
567.8	547.1	589.4	0.44	10.47	0.04	-1.72	
575.8	573.8	580.8	0.00	0.00	0.00	ND	

Peaks close to the normal range of tracer dyes:



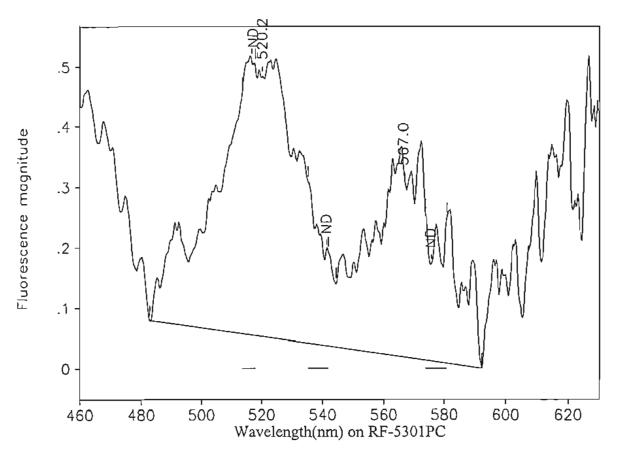


Station 7: MW-3 195' OUL number: M6844

Matrix: Elutant Placed: //

Analyzed: 05/30/03

Peaks within the normal range of tracer dyes:										
Peak nm	Left X	Right X	Height	Area	H/A	Conc.				
516.7	513.6	517.9	0.00	0.00	0.00	ND				
541.3	535.2	541.8	0.00	0.00	0.00	ND				
567.6	549.9	586.4	0.28	6.55	0.04	-1.07-				
575.8	573.8	580.8	0.00	0.00	0.00	ND				
Peaks clos	e to the no	rmal range of	f tracer dye	s:						
489.4	482.0	495.2	0.06	0.67	0.09	0.000				
518.8	495.2	537.7	0.33	9.89	0.03	0.257 ND				
544.2	537.7	549.9	0.09	0.95	0.09	0.047 ND				



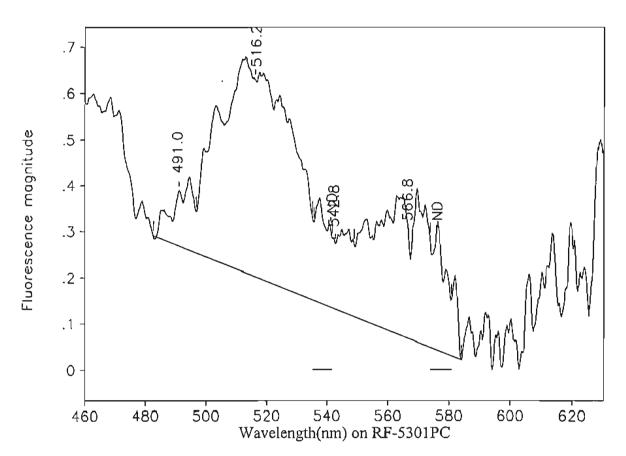
Station 8: MW-3 225' OUL number: M6845

Matrix: Elutant

Placed: //

Analyzed: 05/30/03

Peaks with	hin the nor	mal range of	tracer dyes:			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.7	513.6	517.9	0.00	0.00	0.00	ДИ
541.3	535.2	541.8	0.00	0.00	0.00	ND
567.0	544.3	592.2	0.29	9.60	0.03	- 1.57 -
575.8	573.8	580.8	0.00	0.00	0.00	ND
Peaks clos	se to the no	rmal range of	f tracer dyes	s:		
520.2	482.8	544.3	0.43	15.71	0.03	0 .409 NC

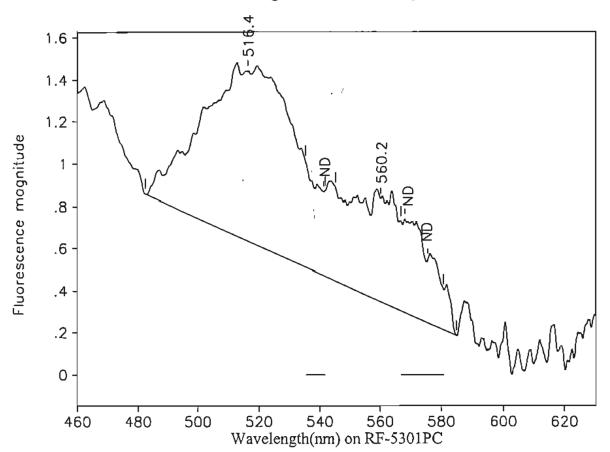


Station 9: MW-4 195' OUL number: M6846 Matrix: Elutant Placed: //

Analyzed: 05/30/03

Peaks within the normal range of tracer dyes:										
Peak nm	Left X	Right X	Height	Area	H/A	Conc.				
516.2	496.8	535.7	0.43	13.44	0.03	0.350 🛧				
541.3	535.2	541.8	0.00	0.00	0.00	ND				
566.8	549.0	584.0	0.22	7.72	0.03	1.27				
575.8	573.8	580.8	0.00	0.00	0.00	ND				
Peaks close	e to the norr	nal range of	tracer dyes:							
491.0	482.6	496.8	0.12	1.10	0.11	0.000				
542.8	535.7	549.0	0.14	2.33	0.06	0.116 ND				
						, , ,				





Station 10: MW-4 225'

OUL number: M6847

Matrix: Elutant

Placed: //

Analyzed: 05/30/03

Peaks with	Peaks within the normal range of tracer dyes:											
Peak nm	Left X	Right X	Height	Area	H/A	Conc.						
516.4	482.4	545.2	0.81	32.35	0.03	0.842 🛠						
541.3	535.2	541.8	0.00	0.00	0.00	ND						
568.2	566.8	573.8	0.00	0.00	0.00	ND						
575.8	573.8	580.8	0.00	0.00	0.00	ND						
Peaks close	e to the nor	mal range of	f tracer dyes:	:		•						
560.2	545.2	584.8	0.49	15.29	0.03	0.398_						



June 27, 2003

CERTIFICATE OF ANALYSIS

RECEIVED
JUL 0 1 2003
CH2M Hill/ORL

Alan W. Aikens, P.G. CH2MHill 225 East Robinson Street, Suite 505 Orlando, Florida 32801

Re: Festival Park - Dye analysis results for charcoal samplers shipped on June 13, 2003 Ozark Underground Laboratory (OUL) numbers M7330 through M7358.

Dear Mr. Aikens:

We have completed analysis of the charcoal samplers received by the OUL on June 17, 2003. We have indicated the OUL number for each of these samplers on the enclosed table.

The fluorescein and eosine dye concentrations are based upon standards routinely used at the OUL. The fluorescein and eosine are mixtures of 75% dye and 25% diluent. The concentrations are based upon the as-sold weight of the dye.

A summary of the results is presented in Table 1. Additional sampling information is available on the enclosed analysis graphs.

Sincerely,

Thomas J. Aley, PHG, RG

Enclosures:

- 1. Table 1. Analysis results for charcoal samplers
- 2. OUL Sample Collection Data Sheets
- 3. Field Sample Log and Chain-of-Custody Record
- 4. Discrepancy sheet
- 5. Sample analysis graphs

f:\docs\coa\festival04.doc

Ozark Underground Laboratory, Inc. for CH2MHill

Project:

Festival Park - Project CH2MHill 177652

Date Samples Shipped:

June 13, 2003

Date Samples Rec'd at OUL:

June 17, 2003

Date Analyzed by OUL:

June 20, 2003

Table 1. Results for charcoal samplers analyzed for the presence of fluorescein and eosine dyes. Peak wavelengths are reported in nanometers (nm); dye concentrations are reported in parts per billion (ppb).

OUL Lab#	OUL Stn #	Sample Identification	Date/Time Placed	Date/Time Collected	ı		Eo	sine
				2003	Peak	Conc.	Peak	Conc.
M7330	11	MW-1 @ 130'	NDT	6/13 1110	514.7	98.5	ND	
M7331	12	MW-1 @ 140'	NDT	6/13 1110	514.7	89.7	ND	
M7332	13	MW-1 @ 150'	NDT	6/13 1110	514.8	121	ND	
M7333	14	MW-1 @ 160'	NDT	6/13 1110	514.9	192	ND	
M7334	15	MW-1 @ 170'	NDT	6/13 1110	514.7	192	ND	
M7335	16	MW-1 @ 180'	NDT	6/13 1110	514.7	207	ND	
M7336	17	MW-1 @ 190'	NDT	6/13 1110	514.9	206	ND	
M7337	18	MW-2 @ 190'	NDT	6/13 1020	517.3	4.28	ND	
M7338	19	MW-2 @ 200'	NDT	6/13 1020	517.0	1.41	ND	
M7339	20	MW-2 @ 210'	NDT	6/13 1020	517.4	1.54	ND	
M7340	Laborat	ory Control Charcoal Blank					# 10 L Pul	
M7341	21	MW-2 @ 220'	NDT	6/13 1020	516.4	1.10	ND	
M7342	22	MW-2 @ 230'	NDT	6/13 1020	517.4	1.17	ND	
M7343	23	MW-2 @ 240'	NDT	6/13 1020	517.6	1.22	ND	
M7344	24	MW-2 @ 250'	NDT	6/13 1020	516.6	0.809	ND	
M7345	25	MW-3 @ 190'	NDT	6/13 0950	ND		ND	
M7346	26	MW-3 @ 200'	NDT	6/13 0950	ND		ND	
M7347	27	MW-3 @ 210'	NDT	6/13 0950	ND		ND	
M7348	28	MW-3 @ 220'	NDT	6/13 0950	ND		ND	
M7349	29	MW-3 @ 230'	NDT	6/13 0950	ND		ND	
M7350	30	MW-3 @ 240'	NDT	6/13 0950	ND		ND	
M7351	31	MW-4 @ 190'	NDT	6/13 1140	ND		ND	
M7352	32	MW-4 @ 200'	NDT	6/13 1140	ND		ND	
M7353	33	MW-4 @ 210'	NDT	6/13 1140	ND		ND	
M7354	34	MW-4 @ 220'	NDT	6/13 1140	ND		ND	
M7355	35	MW-4 @ 230'	NDT	6/13 1140	ND		ND	
M7356	36	MW-4 @ 240'	NDT	6/13 1140	ND		ND	
M7357	37	MW-4 @ 250'	NDT	6/13 1140	ND		ND	
M7358	38	MW-3 @ 230'	NDT	6/13 0950	ND		ND	

FOOTNOTES: NDT = No date or time given; ND = No dye detected

OZARK UNDERGRO D LABORATORY, INC.

1572 Aley Lane Protem, MO 65733 (417) 785-4289 fax (417) 785-4290 email: oul@tri-lakes.net

SAMPLE COLLECTION DATA SHEET for FLUORESCENCE ANALYSIS

Project:	Festiv	al Park	C-17765 2 Week No: Samples Collected I	3×;						
Samples	Shipped By	/:	Samples Received By: Mongaint T	ading	zer -	-0UL				
Date Sa	mples Shipp	ed: <u>6113</u>	3/03 Date Samples Received: 6/17/03 Time Samples Received: 13							
	CH2m		Send Results to: Clt 2 m Hill, Alan							
Analyze	for: Fluore	scein <u>/</u> E	osine Rhodamine WT Other Ship cooler to:	te 505,	Octor	ndo, FL	3280	<u>'</u>		
	OUL se only		Please indicate stations where dye was visible in the	field				OUL use only		
		000 t 001 0 P.I	for field technician use - use black ink only			1				
# CHAR REC'D	NUMBER CHARCOA	STATION NUMBER 1-4 Numbers	STATION NAME	DATE	TIME	DATE	TIME	WATER REC'D		
1	<i>M133</i> 0	[]	mw-1 @ 130'	NOT		6/13	11/0	Ò		
1	m331	12	mw-1 @ 140-	NOT		6/13	1110	0		
l	M1332	13	mw-1 @ 150'	NOT	ı	4/13	1110	Ò		
1	M1333	14	MW-1 @ 160'	NOT		6/13	1110	δ		
	M334	15	MW-1 9 170'	NDT		6/13	1110	0		
	M13.35	16	MW-1 @ 180°	NDT		6/13	1110	0		
1	m1336	17	mw-1 0 190'	NDT		6/13	1/110	0		
1	M7337	18	mw-2 @ 190'	NDT		6/13	1020	0		
1	M7338	19	mw-2 @ 200°	NDT		6/13	1020	0		
1	M7339	న్లం	Mw 2 @ 210'	NOT		6/13	1020	0		
1	M7341	21	MW-2 @ 220'	NDT		6/13	1020	0		
	M7342	22	MW-2 @ 230'	NOT		6/13	1020	0		
1	M7343	23	MW-2 @ 240'	NDT		6/13	1020	0		
1	M7344	219	mw-2 @ 250'	NDT		6/13	1020	Ö		
COMM	ENTS:(Laccoo	P Blank M1340 NDT = no dite or time ges	the						
This she	This sheet filled out by OUL staff? Yes X No Charts for samples on this page proofed by OUL:									
Pr	ofect.	551 A	rating of 6/20/03 by 142 Page / of 2		f:\sh	ared\forms\c	412 coc.doc, Rev	v. 8/99		

OZARK UNDERGRO D LABORATORY, INC.

1572 Aley Lane Protem, MO 65733 (417) 785-4289 fax (417) 785-4290 email: oul@tri-lakes.net SAMPLE COLLECTION DATA SHEET for FLUORESCENCE ANALYSIS

	- 1	15	SAMPLE COLLECTION DATA SHEET for FLUORESCENCE	ANALYS	SIS					
Project	: Festil	ial Har	K - 177652 Week No: Samples Collected	Ву:						
Sample	s Shipped By	/:	Samples Received By: Margaril 3 103 Date Samples Received: 6 17 103 Time Samples Received: 13	Ridin	417/ -	-DUL				
Date Sa	mples Shipp	ed: <u>@ 1/3</u>				Cooler? Y	esN	ο		
	CH Zon		Send Results to: CH2MH/II							
Analyze	for: Fluore	escein <u> </u>	osine Rhodamine WT Other Ship cooler to:							
	OUL		Planna indianta stationes subara dua mag visible in th	a Gald				OUL		
1	se only		<u>Please indicate stations where dye was visible in the</u> for field technician use - use black ink only	e fieta				use only		
# CHAR	LAB	STATION	STATION NAME	PLA	CED	COLL	ECTED	Ħ		
REC'D	NUMBER	NUMBER 1-4 Numbers		DATE	TIME	DATE	TIME	WATER REC'D		
1	m7345	25	MW-3 € 190	NDT		6/13	0950	0		
1	M7346	26	MW-3 @ 200'	NDT		6/13	0950	0		
- 1	M7347	27	MW-3 @ 210'	NOT		6/13	0950	0		
1	M7348	28	MW-3 @ 220'	NOT		6/13	0950	0		
1	M7349	29	MW-3 @ 230'	NDT		6/13	0950	0		
1	M7350	30	MW-3 @ 240'	NDT		6/13	0950	0		
	m7351	31	MW-4 @ 190'	NDT		6/13	1140	0		
	M7352	32	MW-4 @ 200°	NDT		6/13	1140	0		
1	M7353	33	MW40 210'	NDT		4/13	1140	0		
- 1	M7354	34	MW-40 220'	NOT		4/13	1140	0		
- 1	M7355	35	MW-40 230'	YOT		4/13	1140	0		
- (m356	36	MW-4 0 240	NDT		6/13	1140	0		
1	M1351	37	MW-4 @ 250	NDT		4/13	1140	n		
1	m1358	38	MW3@ 230 27 whist-par labeled@230'	NDT		6/13	0950	8		
COMM	ENTS:									
					7					
	This sheet filled out by OUL start? Yes X No Charts for samples on this page proofed by OUL:									
4	Holono	fg 6/2	rolas by me Page 2 of 2		f:\sh	ared\forms\	coc.doc, Rev	ı. 8/99		

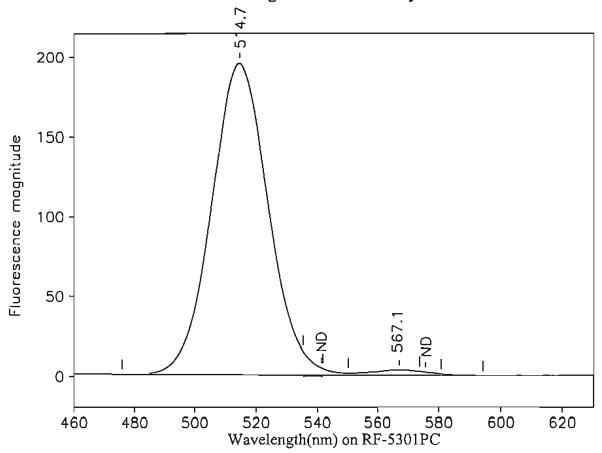
FIELD SAMPLE LOG AND CHAIN OF CUSTODY RECORD

	1	11:0 147/53			<u> </u>			\neg	• ,	,					ſ	,	REQU	ESTED	ANALY	'S15	
SITE NAME	٠.	utill 177652 Fostival Park					4/								2/_	10/3	L	1	1		
STREET ADDRES	Ä.	Airons - Porc	E N	CON.	oger	}									7	/ ,	/ ,	/ · ,	/ /	/ /	/. _/
				_				s	AMP	LE	 TYP	e.E									
MEN 45.	SAMPL	E IDENTIFICATION / DESCRIPTION		DATE			TINE	COMP	GRAIB	WATER	SOIL	отнеж			/		1	\'			ĺ.
MW-30	190	210 730.	6	[13	03	9	150an	$\overline{}$	K				1			extstyle ext			 	T	1:
MW-70	190	77017601250	6	(3)	03	10	050	24	d				X				ļ.,				1
MW -1 @	130	160' 150' 190'	6	13	03]	NO		1				٨								1
mu-40	190	210, 540, 529	6	(3	03		160		d	<i>.</i>			×								
		•	'			j ,	4					[
							<u>:</u> .												\top	7.~	-
								1													-
		<u> </u>											_			1			+	1	1.
							-	\top									\top		+	\dagger	†
]	SIGNATURE			ם	ATF	TIME		_	_			AD	DITION	AL REW	ARKS					$\stackrel{\perp}{\neg}$
KIT RELLYQUISHED	1				10	130	n Zpr	$\overline{\downarrow}$]	<u></u>	- 6	an	49	le	Stic	21	,			/ //	
KIT RECIEVED		\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\				1	; ,		(al	1.	ly	hic	W	INO	y @	. 4	70	440	611	
SAMPLE COLLECTION	N						, .		6	G(- (Αĺ	Air	en	S (c	HZM	ucil	(i)	740 2 3 0		
LAB ACCEPTANCE	M	largarit Ridinger	<u></u>		6/	17/2	3 1315	5				_				4	07	47	30) <u>S</u> (2
TTORF	/	ENT /OV		1	-	. 0	//-						1	1.	0-	/					_

14

OZARK UNDERGRO ID LABORATORY, INC.

DISCRE	DISCREPANCIES BETWEEN CHAIN-OF-CUSTODY SHEETS AND ACTUAL SAMPLES RECEIVED Page / of /											
Company	y & Proje	ct Name: (HJM Hill /	Festival Par	Date Rec'd by OUL:	6/17/03 Wk#							
Lab#	Sta#	Station Name	Date Pulled	Problem	Solution							
		mw-3	6/13	Rec'd 2 whist-pak bags labeled MW-3 0 230								
				labeled MW-3 0 230								
				The CH2MHill COC indicated	<u> </u>							
		18		there were 6 packets								
				Here were 6 pockets sent for Station mw-3								
				OUL rec'd 7 packets.								
	_			,								
					,							
		- <u>- J.</u>		<u> </u>								
		<u> </u>										
		<u> </u>										
Commen	ts:				<u> </u>							
		×										
		22										



Station 11: MW-1 @ 130' OUL number: M7330

Matrix: Elutant

Placed: //

Analyzed: 06/20/03

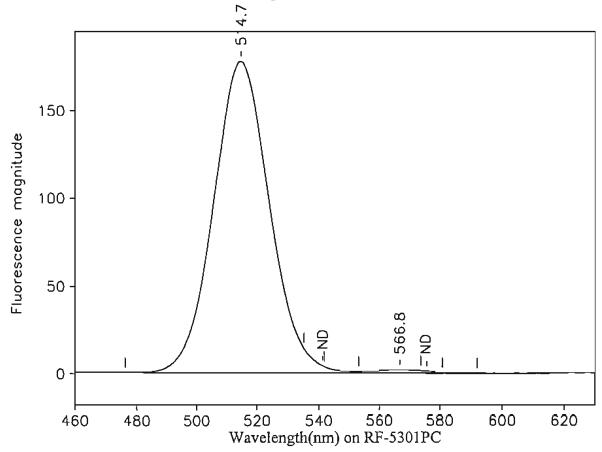
Collected: 06/13/03 1110

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
514.7	475.8	550.3	195.46	4,191.85	0.05	98.5
541.3	535.2	541.8	0.00	0.00	0.00	ND
567.1	550.3	594.1	3.47	80.99	0.04	-13.3
575.8	573.8	580.8	0.00	0.00	0.00	ND
	-	_				

Peaks close to the normal range of tracer dyes:





Station 12: MW-1 @ 140' OUL number: M7331 Matrix: Elutant

Placed: //

Analyzed: 06/20/03

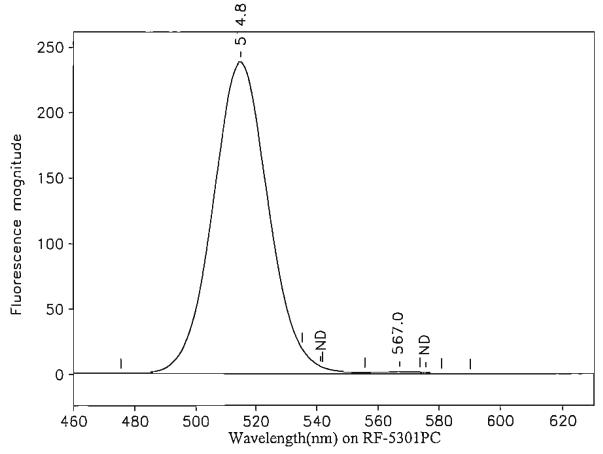
Collected: 06/13/03 1110

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
514.7	476.2	55 3.1	177.58	3,817.55	0.05	89.7
541.3	535.2	541.8	0.00	0.00	0.00	ND
566.8	553.1	592.0	1.91	39.89	0.05	7.56
575.8	573.8	580.8	0.00	0.00	0.00	ND

Peaks close to the normal range of tracer dyes:





Station 13: MW-1 @ 150' OUL number: M7332

Matrix: Elutant

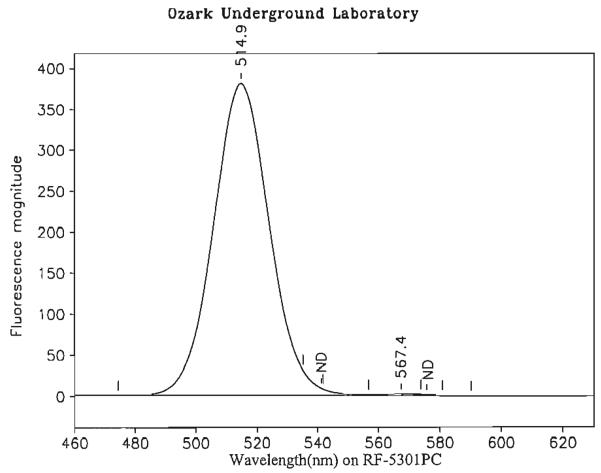
Placed: // Collected: 06/13/03 1110

Peaks within the normal range of tracer dves:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
514.8	475.5	555.5	238.12	5,153.59	0.05	121
541.3	535.2	541.8	0.00	0.00	0.00	ND
567.0	555.6	590.2	1.69	35.57	0.05	-6.74
575.8	573.8	580.8	0.00	0.00	0.00	ND

Peaks close to the normal range of tracer dyes:

Analyzed: 06/20/03



Station 14: MW-1 @ 160' OUL number: M7333

Matrix: Elutant

Placed: //

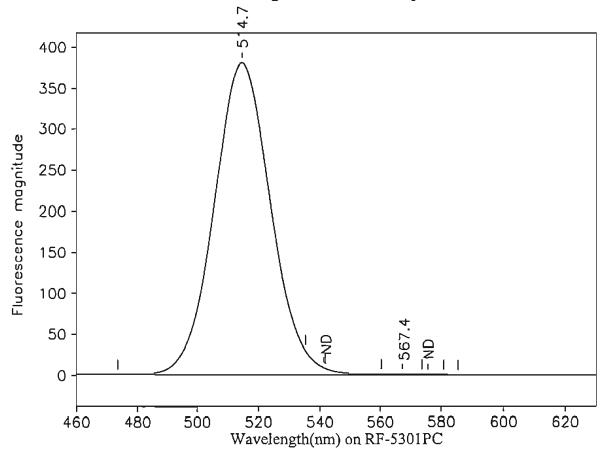
Analyzed: 06/20/03

Collected: 06/13/03 1110

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
514.9	474.4	556.8	380.59	8,186.46	0.05	192
541.3	535.2	541.8	0.00	0.00	0.00	ND
567.4	556.8	590.0	2.39	45.69	0.05	-8 -66
575.8	573.8	580.8	0.00	0.00	0.00	ND
	_					





Station 15: MW-1 @ 170' OUL number: M7334

Matrix: Elutant

Placed: //

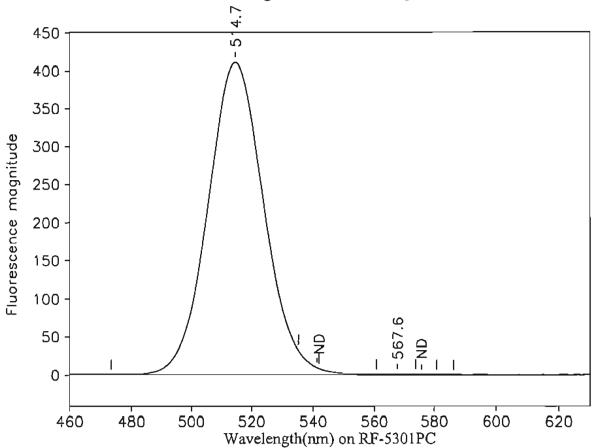
Analyzed: 06/20/03

Collected: 06/13/03 1110

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
514.7	473.5	560.3	379.89	8,164.92	0.05	192
541.3	535.2	541.8	0.00	0.00	0.00	ND
567.4	560.3	585.4	1.22	21.01	0.06	3.98
575.8	573.8	580.8	0.00	0.00	0.00	ND
	_	_				





Station 16: MW-1 @ 180' OUL number: M7335

Matrix: Elutant

Placed: //

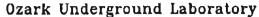
Analyzed: 06/20/03

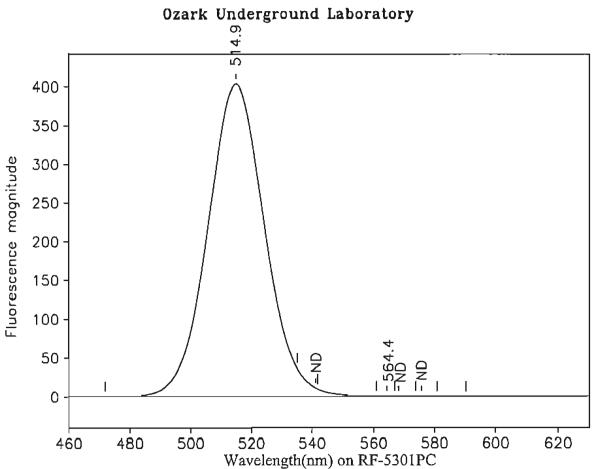
Collected: 06/13/03 1110

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Атеа	H/A	Conc.
514.7	473.5	560.7	410.95	8,821.59	0.05	207
541.3	535.2	541.8	0.00	0.00	0.00	ND
567.6	560.8	586.2	1.10	19.02	0.06	3.60
575.8	573.8	580.8	0.00	0.00	0.00	ND
× 1 1		1	C . 1			







Station 17: MW-1 @ 190' OUL number: M7336

Matrix: Elutant

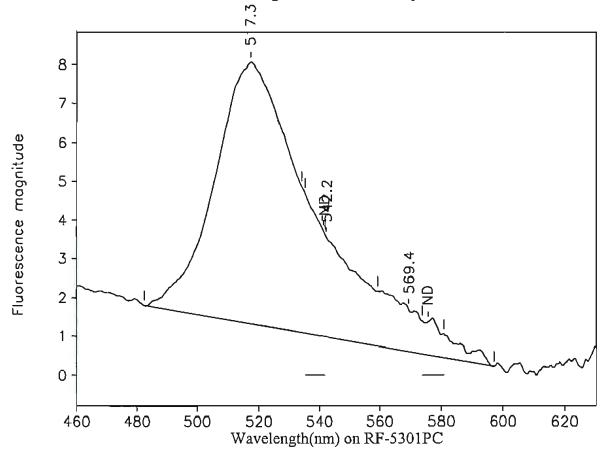
Placed: //

Analyzed: 06/20/03

Collected: 06/13/03 1110

Peaks within the normal range of tracer dyes:

	reaks within the normal range of tracer dyes.									
	Peak nm	Left X	Right X	Height	Area	H/A	Conc.			
	514.9	472.0	560.9	402.82	8,786.58	0.05	206			
	541.3	535.2	541.8	0.00	0.00	0.00	ND			
	568.2	566.8	573.8	0.00	0.00	0.00	ND			
	575.8	573.8	580.8	0.00	0.00	0.00	ND			
Peaks close to the normal range of tracer dyes:										
	564.4	560.9	590.2	1.12	19.77	0.06	3.75 -			



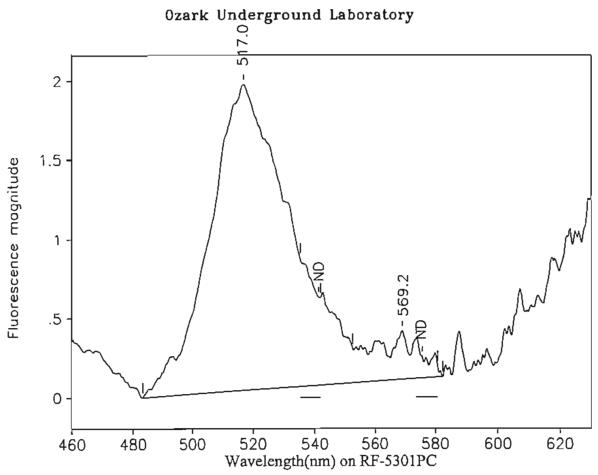
Station 18: MW-2 @ 190' OUL number: M7337

Matrix: Elutant

Placed: //

Analyzed: 06/20/03

Peaks within the normal range of tracer dyes:									
Peak nm	Left X	Right X	Height	Area	H/A	Conc.			
517.3	482.4	534.0	6.74	182.19	0.04	4.28			
541.3	535.2	541.8	0.00	0.00	0.00	ND			
569.4	559.3	597.0	1.11	28.68	0.04	5.43 ND			
575.8	573.8	580.8	0.00	0.00	0.00	ND			
Peaks close to the normal range of tracer dyes:									
542.2	534.0	559.3	2.59	59.30	0.04	- 2.97 -			



Station 19: MW-2 @ 200' OUL number: M7338

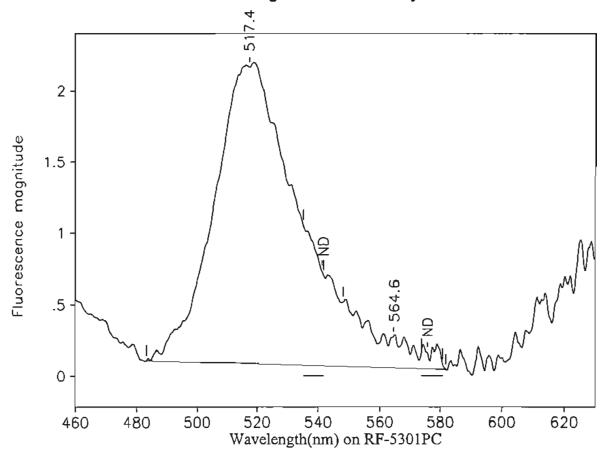
Matrix: Elutant Placed: //

Analyzed: 06/20/03

Collected: 06/13/03 1020

Peaks within the normal range of tracer dyes:

			_			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
517.0	483.2	552.6	1.93	60.03	0.03	1.41
541.3	535.2	541.8	0.00	0.00	0.00	ND
569.2	552.6	582.4	0.30	5.45	0.06	4.03
575.8	573.8	580.8	0.00	0.00	0.00	ND



Station 20: MW-2 @ 210 ' OUL number: M7339

Matrix: Elutant

Placed: //

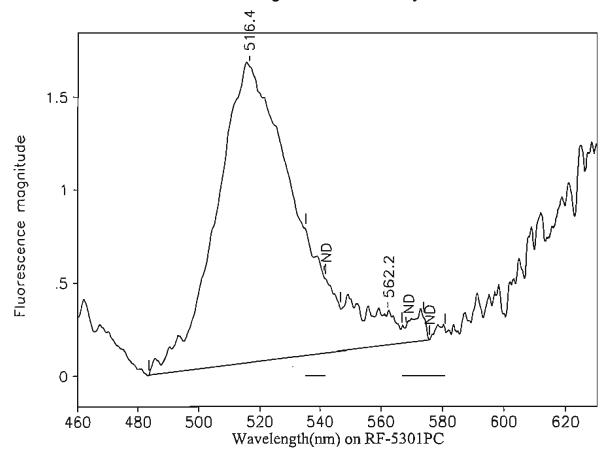
Analyzed: 06/20/03

Collected: 06/13/03 1020

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
517.4	483.2	548.1	2.07	65.72	0.03	1.54
541.3	535.2	541.8	0.00	0.00	0.00	ND
564.6	548.1	581.8	0.22	7.02	0.03	4 1.33
575.8	573.8	580.8	0.00	0.00	0.00	ND
D (1	4 41	1 .	٠, ١,	_		





Station 21: MW-2 @ 220' OUL number: M7341 Matrix: Elutant

Placed: //

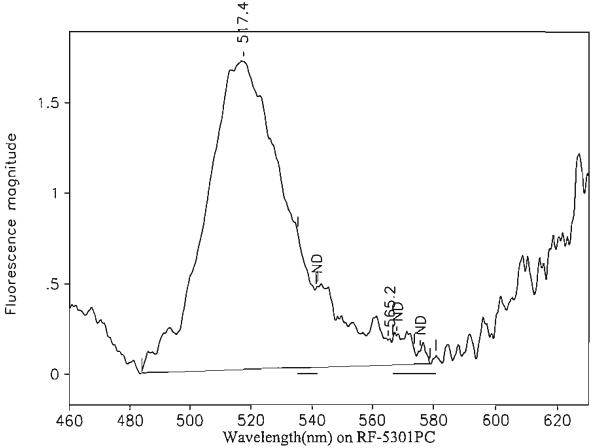
Analyzed: 06/20/03

Collected: 06/13/03 1020

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.			
516.4	483.6	546.7	1.59	46.90	0.03	1.10			
541.3	535.2	541.8	0.00	0.00	0.00	ND			
568.2	566.8	573.8	0.00	0.00	0.00	ND			
<i>575.</i> 8	573.8	580.8	0.00	0.00	0.00	ND			
Peaks close to the normal range of tracer dyes:									
562.2	546.7	575.8	0.18	4.80	0.04	0.909-			





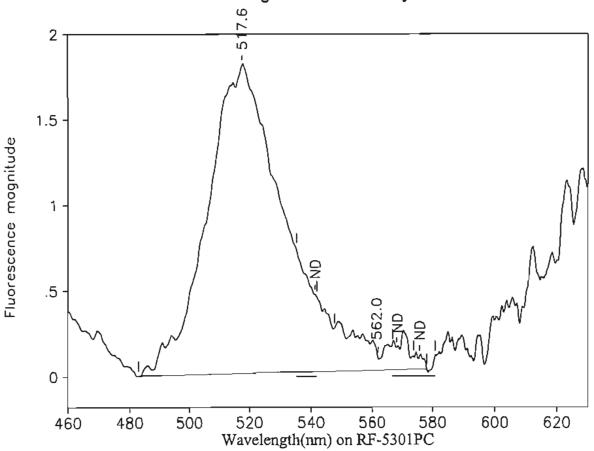
Station 22: MW-2 @ 230' OUL number: M7342 Matrix: Elutant

Placed: //

Analyzed: 06/20/03

Peaks with	nin the non	nal range of	tracer dyes:					
Peak nm	Left X	Right X	Height	Area	H/A	Conc.		
517.4	483.8	541.3	1.70	49.84	0.03	1.17		
541.3	535.2	541.8	0.00	0.00	0.00	ND		
568.2	566.8	573.8	0.00	0.00	0.00	ND		
575.8	573.8	580.8	0.00	0.00	0.00	ND		
Peaks close to the normal range of tracer dyes:								
565.2	541 3	578.8	0.13	8.09	0.02	سهجيل		





Station 23: MW-2 @ 240' OUL number: M7343 Matrix: Elutant

Placed: //

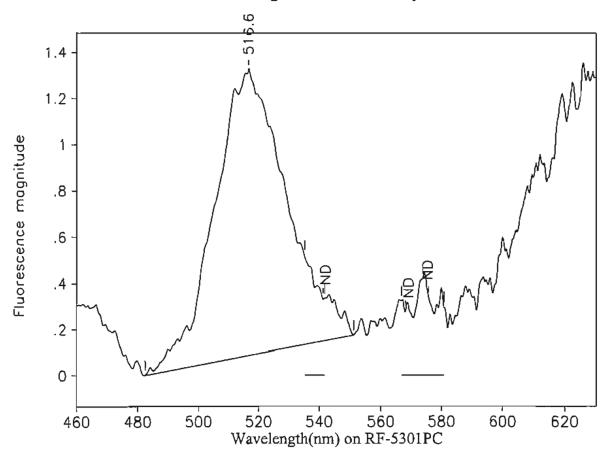
Analyzed: 06/20/03

Collected: 06/13/03 1020

Peaks within the normal range of tracer dyes:

T COULTED ILLICI	M11 W10 11011		~~~ ~						
Peak nm	Left X	Right X	Height	Area	H/A	Conc.			
517.6	483.0	547.7	1.80	52.03	0.03	1.22			
541.3	535.2	541.8	0.00	0.00	0.00	ND			
568.2	566.8	573.8	0.00	0.00	0.00	ND			
575.8	573.8	580.8	0.00	0.00	0.00	ND			
Peaks close to the normal range of tracer dyes:									
562.0	547.7	578.2	0.07	4.74	0.01	0.897	-		





Station 24: MW-2 @ 250' OUL number: M7344

Matrix: Elutant

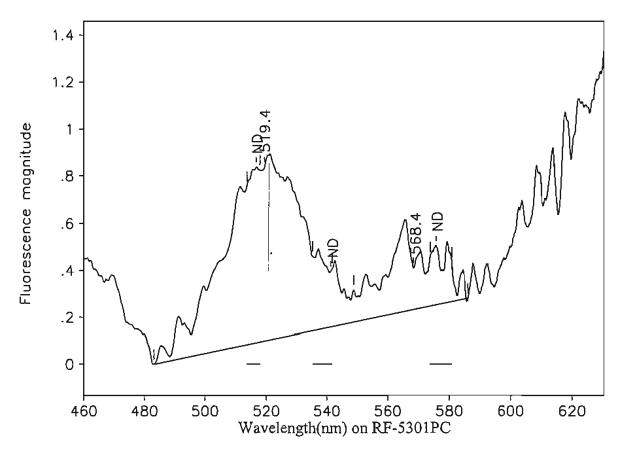
Placed: //

Analyzed: 06/20/03

Collected: 06/13/03 1020

Peaks within the normal range of tracer dyes:

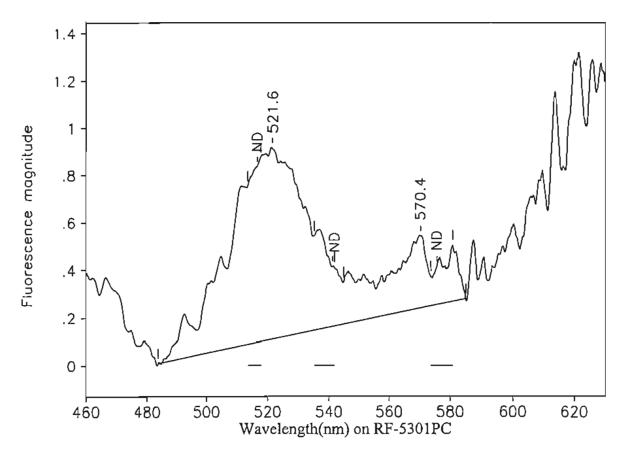
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.6	482.4	551.2	1.23	34.41	0.04	0.809
541.3	535.2	541.8	0.00	0.00	0.00	ND
568.2	566.8	573.8	0.00	0.00	0.00	ND
575.8	573.8	580.8	0.00	0.00	0.00	ND



Station 25: MW-3 @ 190' OUL number: M7345 Matrix: Elutant Placed: //

Analyzed: 06/20/03

Peaks with	Peaks within the normal range of tracer dyes:									
Peak nm	Left X	Right X	Height	Area	H/A	Conc.				
516.6	513.6	517.9	0.00	0.00	0.00	ND				
541.3	535.2	541.8	0.00	0.00	0.00	ND				
568.4	548.8	586.0	0.18	6.75	0.03	1-28				
575.8	573.8	580.8	0.00	0.00	0.00	ND				
Peaks close to the normal range of tracer dyes:										
519.4	483.2	548.8	0.74	25.34	0.03	0,595 ND				



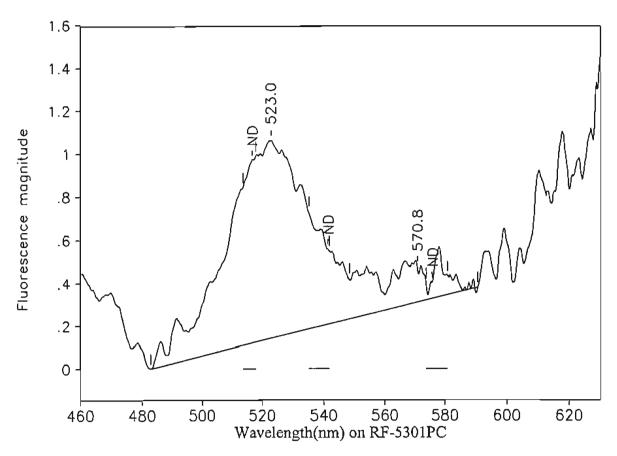
Station 26: MW-3 @ 200' OUL number: M7346

Matrix: Elutant

Placed: //

Analyzed: 06/20/03

Peaks with	nin the nor	mal range of t	tracer dyes:					
Peak nm	Left X	Right X	Height	Area	H/A	Conc.		
516.6	513.6	517.9	0.00	0.00	0.00	ND		
541.3	535.2	541.8	0.00	0.00	0.00	ND		
570.4	544.9	585.0	0.30	7.21	0.04	137		
<i>575.</i> 8	573.8	580.8	0.00	0.00	0.00	ND		
Peaks clos	Peaks close to the normal range of tracer dyes:							
521.6	483.8	544.9	0.81	25.24	0.03	0.593 ND		

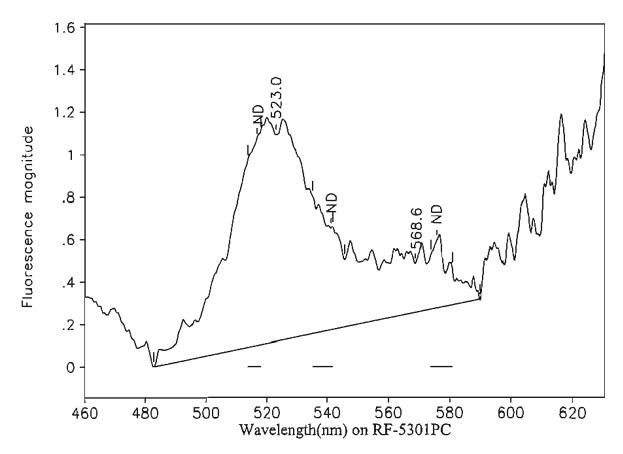


Station 27: MW-3 @ 210' OUL number: M7347

Matrix: Elutant Placed: //

Analyzed: 06/20/03

Peaks with	iin the nori	nal range of	tracer dyes:			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.6	513.6	517.9	0.00°	0.00	0.00	ND
541.3	535.2	541.8	0.00	0.00	0.00	ND
570.8	548.3	590.6	0.17	5.36	0.03	1.01
575.8	573.8	580.8	0.00	0.00	0.00	ND
Peaks clos	e to the no	rmal range of	f tracer dyes	3:		
523.0	482.8	548.3	0.92	30.41	0.03	0.715 NO



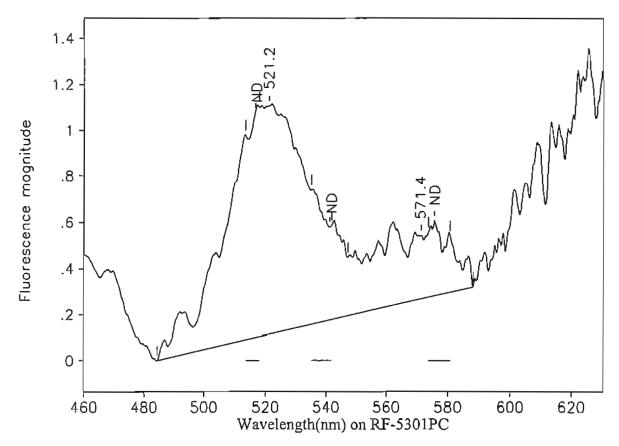
Station 28: MW-3 @ 220' OUL number: M7348

Matrix: Elutant

Placed: //

Analyzed: 06/20/03

Peaks with	nin the norm	ial range of t	tracer dyes:			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.6	513.6	517.9	0.00	0.00	0.00	ND
541.3	535.2	541.8	0.00	0.00	0.00	ND
568.6	545.7	589.8	0.23	10.64	0.02	2.02
575.8	573.8	580.8	0.00	0.00	0.00	ND
Peaks clos	e to the non	mal range of	f tracer dyes:			
523.0	482.8	545.7	0.97	34.70	0.03	0.8 15 ND



Station 29: MW-3 @ 230' OUL number: M7349

Matrix: Elutant

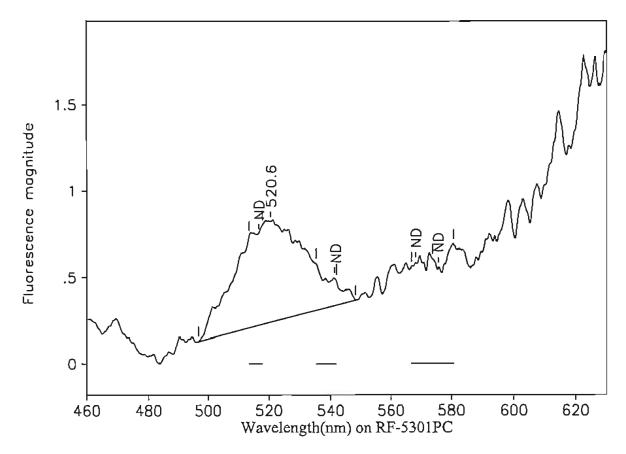
Placed: //

Analyzed: 06/20/03

Collected: 06/13/03 0950

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.	
516.6	513.6	517.9	0.00	0.00	0.00	ND	
541.3	535.2	541.8	0.00	0.00	0.00	ND	
571.4	547.3	588.0	0.27	9.59	0.03	1 .82	
575.8	573.8	580.8	0.00	0.00	0.00	ND	
Peaks clos	e to the no	rmal range of	f tracer dyes	s:			
521.2	484.4	547.3	0.99	33.15	0.03	0.779 N)



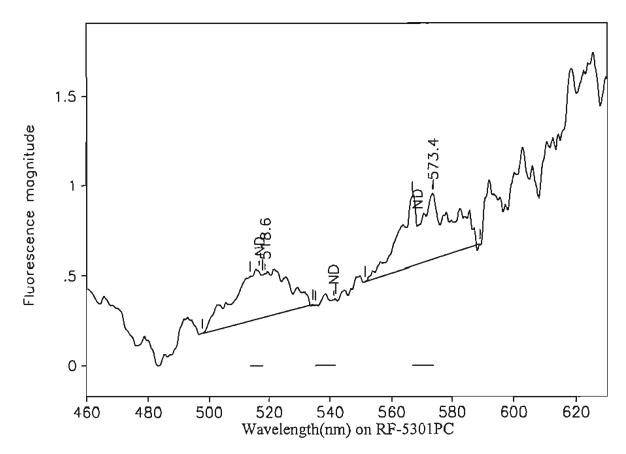
Station 30: MW-3 @ 240' OUL number: M7350

Matrix: Elutant

Placed: //

Analyzed: 06/20/03

Peaks with	nin the nor	nal range of	tracer dyes:			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.6	513.6	517.9	0.00	0.00	0.00	ND
541.3	535.2	541.8	0.00	0.00	0.00	ND
568.2	566.8	573.8	0.00	0.00	0.00	ND
575.8	573.8	580.8	0.00	0.00	0.00	ND
Peaks clos	se to the no	rmal range of	f tracer dyes	s:		. 0
520.6	496.8	548.2	0.58	16.04	0.04	0:377 <i>NÛ</i>



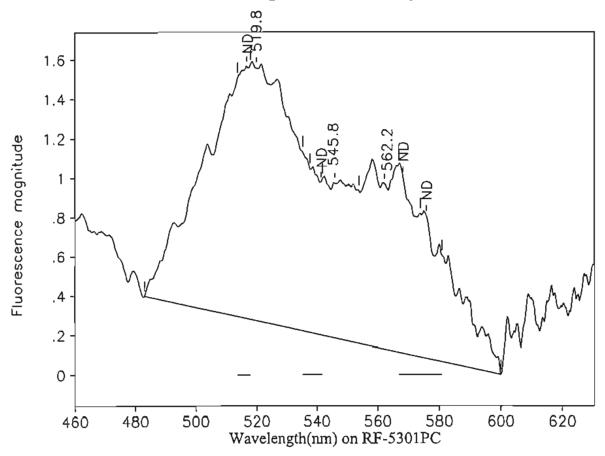
Station 31: MW-4 @ 190' OUL number: M7351

Matrix: Elutant

Placed: //

Analyzed: 06/20/03

Peaks with	nin the norr	nal range of	tracer dyes:			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.6	513.6	517.9	0.00	0.00	0.00	ND
541.3	535.2	541.8	0.00	0.00	0.00	ND
568.2	566.8	573.8	0.00	0.00	0.00	ND
573.4	551.4	589.0	0.36	6.65	0.05	0.557
Peaks clos	se to the no	rmal range of	f tracer dyes	s:		
518.6	497.8	534.4	0.24	5.68	0.04	0:133 N()

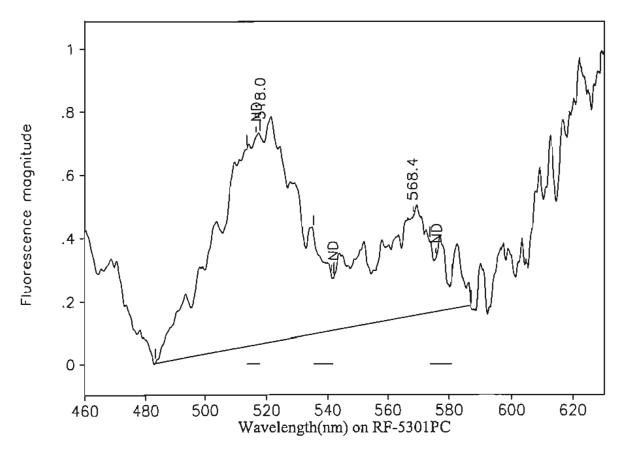


Station 32: MW-4 @ 200' OUL number: M7352 Matrix: Elutant

Placed: //

Analyzed: 06/20/03

Peaks wit	hin the non	mal range of	tracer dyes:				
Peak nm	Left X	Right X	Height	Area	H/A	Conc.	
516.6	513.6	517.9	0.00	0.00	0.00	ND	
541.3	535.2	541.8	0.00	0.00	0.00	ND	
568.2	566.8	573.8	0.00	0.00	0.00	ND	
575.8	573.8	580.8	0.00	0.00	0.00	ND	
Peaks clo	se to the no	rmal range o	f tracer dye	s:		. 0	
519.8	483.0	537.6	1.29	45.43	0.03	1.07- ND	
545.8	537.6	553.8	0.79	12.98	0.06	0.000	
562.2	553.8	600.0	0.84	26.62	0.03	5.04	

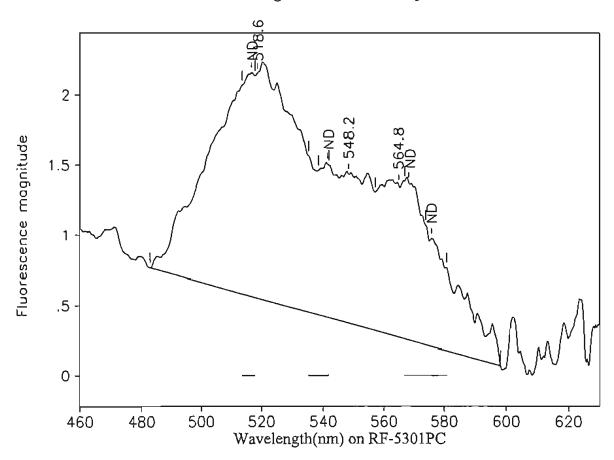


Station 33: MW-4 @ 210' OUL number: M7353

Matrix: Elutant Placed: //

Analyzed: 06/20/03

Peaks within the normal range of tracer dyes:								
Peak nm	Left X	Right X	Height	Area	H/A	Conc.		
516.6	513.6	517.9	0.00^{-}	0.00	0.00	ND		
541.3	535.2	541.8	0.00	0.00	0.00	ND		
568.4	542.1	587.0	0.31	9.45	0.03	1.79		
575.8	573.8	580.8	0.00	0.00	0.00	ND		
Peaks close to the normal range of tracer dyes:								
518.0	483.2	542.1	0.66	22.04	0.03	0.518 ND		



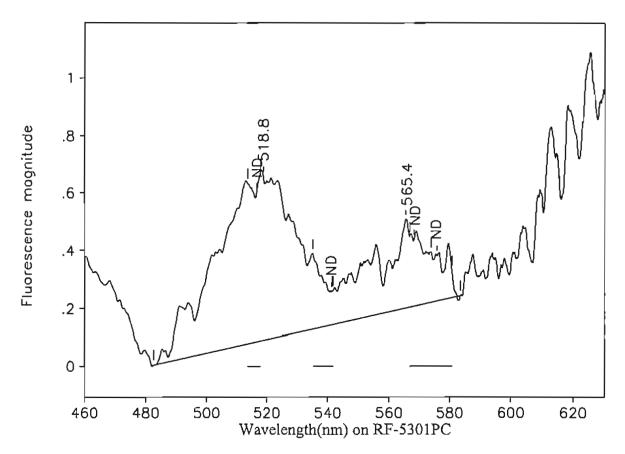
Station 34: MW-4 @ 220' OUL number: M7354

Matrix: Elutant Placed: //

Analyzed: 06/20/03

Collected: 06/13/03 1140

Peaks within the normal range of tracer dyes:								
Peak nm	Left X	Right X	Height	Area	H/A	Conc.		
516.6	513.6	517.9	0.00	0.00	0.00	ND		
541.3	535.2	541.8	0.00	0.00	0.00	ND		
568.2	566.8	573.8	0.00	0.00	0.00	ND		
575.8	573.8	580.8	0.00	0.00	0.00	ND		
Peaks clos	e to the nor	mal range of	f tracer dyes			40		
518.6	482.8	538.5	1.60	56.97	0.03	1.34 ND		
548.2	538.5	557.2	1.06	19.75	0.05	0 .988		
564.8	557.2	598.2	1.08	28.39	0.04	5.38		

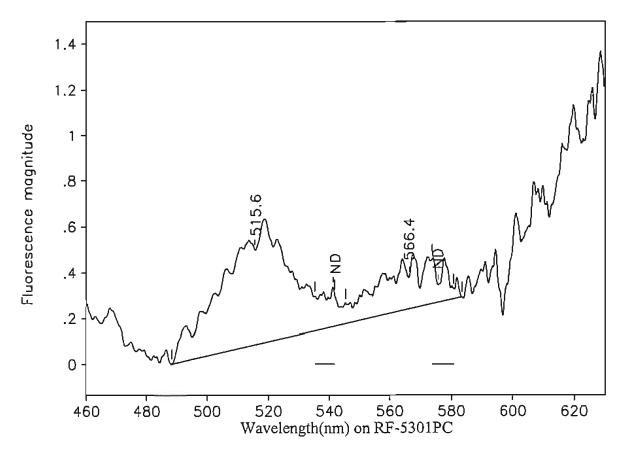


Station 35: MW-4 @ 230' OUL number: M7355 Matrix: Elutant

Placed: //

Analyzed: 06/20/03

Peaks within the normal range of tracer dyes:								
_								
NP								



Station 36: MW-4 @ 240' OUL number: M7356 Matrix: Elutant

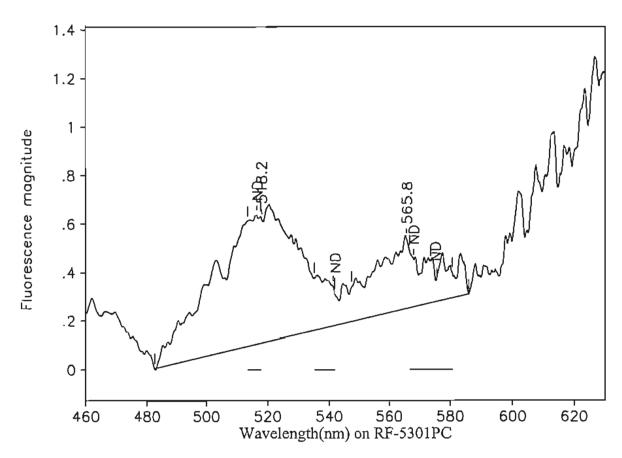
Placed: //

Analyzed: 06/20/03

Collected: 06/13/03 1140

Peaks with	in the norn	nal range of	tracer dyes:
Peak nm	Left X	Right X	Height

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
515.6	488.4	545.5	0.41	14.89	0.03	-0.35 0 ND
541.3	535.2	541.8	0.00	0.00	0.00	ND
566.4	545.5	583.4	0.14	4.97	0.03	0.942
575.8	573.8	580.8	0.00	0.00	0.00	ND

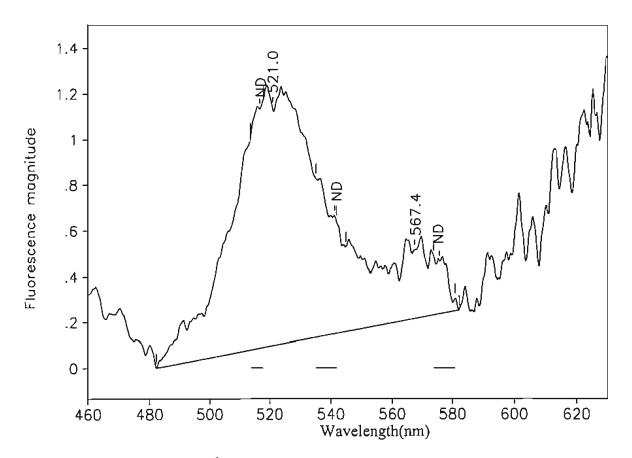


Station 37: MW-4 @ 250' OUL number: M7357 Matrix: Elutant

Placed: //

Analyzed: 06/20/03

Peaks with	hin the nor	mal range of	tracer dyes:	;		
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.6	513.6	517.9	0.00	0.00	0.00	ND
541.3	535.2	541.8	0.00	0.00	0.00	ND
568.2	566.8	573.8	0.00	0.00	0.00	ND
575.8	573.8	580.8	0.00	0.00	0.00	ND
Peaks clos	se to the no	rmal range of	f tracer dye	s:		
518.2	482.6	547.5	0.51	19.25	0.03	-0.452 ND
565.8	547.5	586.0	0.29	6.60	0.04	1.25



Station 29: MW-3 @ 230' OUL number: M7358

Matrix: Elutant

Collected: 06/13/03 0950 Placed: //

Analyzed: 06/20/03

Comment: 2nd whirl-pak labeled MW-3 @ 230'

Peaks with	in the norm	al range of	tracer dyes:			
Peak nm	Left X	Right X	Height	Агеа	H/A	Conc.
516.6	513.6	517.9	0.00	0.00	0.00	ND
541.3	535.2	541.8	0.00	0.00	0.00	ND
567.4	544.8	582.2	0.30	9.58	0.03	1.81
575.8	573.8	580.8	0.00	0.00	0.00	ND
Peaks close	e to the non	mal range of	f tracer dyes	:		
521.0	482.2	544.8	1.04	37.11	0.03	0.872



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oul@tri-lakes.net

July 25, 2003

JUL 2 9 2003 CH2M Hill/ORL

CERTIFICATE OF ANALYSIS

Alan W. Aikens, P.G. CH2MHill 225 East Robinson Street, Suite 505 Orlando, Florida 32801

Re: Festival Park - Dye analysis results for charcoal samplers shipped on July 14, 2003 Ozark Underground Laboratory (OUL) numbers M7839 through M7868.

Dear Mr. Aikens:

We have completed analysis of the charcoal samplers received by the OUL on July 15, 2003. We have indicated the OUL number for each of these samplers on the enclosed table.

The fluorescein and eosine dye concentrations are based upon standards routinely used at the OUL. The fluorescein and eosine are mixtures of 75% dye and 25% diluent. The concentrations are based upon the as-sold weight of the dye.

A summary of the results is presented in Table 1. Additional sampling information is available on the enclosed analysis graphs.

Sincerely,

Thomas J. Aley, PHG, RG

Enclosures:

- 1. Table 1. Analysis results for charcoal samplers
- 2. OUL Sample Collection Data Sheets
- 3. Nodarse & Assoc. Chain-of-Custody Record
- 4. Discrepancy sheet
- 5. Sample analysis graphs

f:\docs\coa\festival05.doc

Ozark Underground Laboratory, Inc. for CH2MHill

Project: Festival Park – Project CH2MHill 177652

Samples Collected By: Mike Burns
Date Samples Shipped: July 14, 2003
Date Samples Rec'd at OUL: July 15, 2003
Date Analyzed by OUL: July 17, 2003

Table 1. Results for charcoal samplers analyzed for the presence of fluorescein and eosine dyes. Peak wavelengths are reported in nanometers (nm); dye concentrations are reported in parts per billion (ppb).

OUL Lab#	OUL Stn#	Sample Identification	Date/Time Placed	Date/Time Collected	Fluo	rescein	Eo	sine
				2003	Peak	Conc.	Peak	Conc
M7839	39	MW-1 @ 149'	NDT	7/14 1045	515.3	310	ND	
M7840	Laborat	ory Control Charcoal Blank	> / • / 4 .					_ al[0
M7841	40	MW-1 @ 159'	NDT	7/14 1045	515.5	291	ND	
M7842	41	MW-1 @ 169	NDT	7/14 1045	515.4	314	ND	
M7843	42	MW-1 @179'	NDT	7/14 1045	515.3	384	ND	
M7844	43	MW-1 @ 189'	NDT	7/14 1045	515.3	375	ND	
M7845	44	MW-1 @ 199'	NDT	7/14 1045	515.3	484	ND	
M7846	45	MW-1 @ 209'	NDT	7/14 1045	515.4	513	ND	
M7847	18	MW-2 @ 190'	NDT	7/14 1030	517.6	4.89	ND	
M7848	19	MW-2 @ 200'	NDT	7/14 1030	517.4	2.55	ND	
M7849	20	MW-2 @ 210'	NDT	7/14 1030	517.7	2.23	ND	
M7850	21	MW-2 @ 220'	NDT	7/14 1030	517.6	1.28	ND	
M7851	22	MW-2 @ 230'	NDT	7/14 1030	517.6	1.42	ND	
M7852	23	MW-2 @ 240'	NDT	7/14 1030	516.9	0.989	ND	
M7853	24	MW-2 @ 250'	NDT	7/14 1030	518.6 *	0.700	ND	
M7854	25	MW-3 @ 190'	NDT	7/14 0950	ND		ND	
M7855	26	MW-3 @ 200'	NDT	7/14 0950	ND		ND	
M7856	27	MW-3 @ 210'	NDT	7/14 0950	ND		ND	
M7857	28	MW-3 @ 220'	NDT	7/14 0950	ND		ND	
M7858	29	MW-3 @ 230'	NDT	7/14 0950	ND		ND	
M7859	30	MW-3 @ 240'	NDT	7/14 0950	ND		ND	
M7860	Laborat	ory Control Charcoal Blank	FOE HAVE	5 5 H		V		
M7861	46	MW-3 @ 250'	NDT	7/14 0950	ND		ND	
M7862	31	MW-4 @ 190'	NDT	7/14 1115	ND		ND	
M7863	32	MW-4 @ 200'	NDT	7/14 1115	ND		ND	
M7864	33	MW-4 @ 210'	NDT	7/14 1115	ND		ND	
M7865	34	MW-4 @ 220'	NDT	7/14 1115	ND		ND	
M7866	35	MW-4 @ 230'	NDT	7/14 1115	ND		ND	
M7867	36	MW-4 @ 240'	NDT	7/14 1115	ND		ND	
M7868	35	MW-4 @ 230'	NDT	7/14 1115	ND		ND	

1

(Footnotes on next page)

Ozark Underground Laboratory, Inc. for CH2MHill

FOOTNOTES:

NDT = No date or time given

ND = No dye detected

* = A fluorescence peak is present that does not meet all the criteria for a positive dye result but has been calculated for background purposes as though it were the dye.

2 446

OZARK UNDERGROUND LABORATORY, INC.

1572 Aley Lane Protem, MO 65733 (417) 785-4289 fax (417) 785-4290 email: oul@tri-lakes.net SAMPLE COLLECTION DATA SHEET for FLUORESCENCE ANALYSIS

Project:	Festiva	(Park	Week No: Samples Collected B			ums		
	Shipped By		Samples Received By: M. Arnold -					
			103 Date Samples Received: 115103 Time Samples Received: 13	30	Return	Cooler? Y	esN	0
Bill to:_			Send Results to:					
Analyze	for: Fluore	scein <u> </u>	osine Rhodamine WT Other Ship cooler to:					
	OUL se only		Please indicate stations where dye was visible in the	field				OUL use only
		P. C.	for field technician use - use black ink only					_
# CHAR REC'D	NUMBER	STATION NUMBER	STATION NAME	PLA		COLLE	3	# WATER
	Charcoal			DATE	TIME	DATE	TIME	REC'D
	M7939	39	MW-1 @ 149'			2/14	1045	0
)	m7841	40	MW-1 @ 159'			1/14	1045	0
- 1	m7842	41	MW-1 @ 169'			7/14	1045	0
1	M7843	42	MW-1 @ 179'			7/14	1045	0
1	M7844	43	MW-1 @ 189'			7/14	1045	0
1	M7845	44	MW-1 @ 199'			7/14	1045	0
l	M7846	45	MW-1 @ 209'			7/14	1045	0
1	M847	18	mw-2 @ 190°			7/14	1030	Ô
1	M7848	19	MW-2 @ 200°			1/14	1030	0
	m7849	20	MW-2 @ 210'			1/14	1030	0
1	M7850	21	MW-7 @ 220			7/14	1030	Ô
1	MPBSI	22	MW-2 @ 230			7/14	1030	0
1	M7852	23	MW-2 @ 240			7/14	1636	0
- 1	M1853	24	MW-2 @ 250			1/14	1030	0
		,						
COMM	ENTS: Unle	ss otherwis	e noted, all water samples were collected at the date and time listed in the "collected" colu	mn.	Charc	60 B1	CUIC M	1840
This she	et filled out	by OUL sta	off? Yes No Charts for samples on this page proofed by	OIII ·				
		-		,, OUL	/ <i>p</i>	Mma-	447	
Die	spect 3	or And	elyzed 7/17/03 by me or Page 1 of 2		f:\sha	ared\forms\c	oc.doc, Rev	r. 7/03

OZARK UNDERGROUND LABORATORY, INC.

1572 Aley Lane Protem, MO 65733 (417) 785-4289 fax (417) 785-4290 email: oul@tri-lakes.net SAMPLE COLLECTION DATA SHEET for FLUORESCENCE ANALYSIS

Project:	Festiva	& Park	Week No: Samples Collected	_		urns		
	Shipped By		Samples Received By: M. arnola					
_			1/03 Date Samples Received: 1/15/03 Time Samples Received: 13			Cooler? Y	esN	0
Bill to:_			Send Results to:					
Analyze	for: Fluore	sceinE	Cosine Rhodamine WT Other Ship cooler to:					
1	O UL		Please indicate stations where dye was visible in the	e field				OUL
	se only		for field technician use - use black ink only					use only
# CHAR REC'D	LAB NUMBER	STATION NUMBER	STATION NAME	PLA	CED	COLL	ECTED	# WATER
	Charcoul			DATE	TIME	DATE	TIME	REC'D
	M7854	25	MW-3 @ 190'			7/14	0950	0
1	M1855	26	MU-3 @ 200°			1/14	0250	O
1	M7856	27	MW-3 9 210'			1/14	0950	0
1	M7857	28	MW-3 @ 220'	}		7/14	0950	0
1	M7858	29	MW-3 @ 230'			1/14	0950	0
ı	M7859	30	MW-3 @ 240°			7/14	0950	6
1	m1861	46	MW-3 8 250°			1/14	0956	0
	M7862	31	MU-4 0 190°	_		7/14	1115	0
	M1863	32	MW-40 200			7/14	1/15	0
1_	M7864	33	mw-4 @ 210			7/14	1115	0
1	M7865	34	MW-4 8 220			1/14	1115	0
1	M7866	35	MW-4 @ 230			7/14	1115	Ò
1	N7867	36	MW-4 @ 240			7/14	1115	Q
1	M7868	35	MW-40 230	1		7/14	1115	Ò
COMM	ENTS: Unle	ss otherwise	e noted, all water samples were collected at the date and time listed in the "collected" co	Iumn. Z	harcoa	O Bkn/C	N 180	00
This she	et filled out l	by OUL sta	off? YesNoCharts for samples on this page proofed	l by OUL:	~~	me		
			by me OUL Page 2 of 2	- J, OOLI	.,	ared\forms\c	448 -	

PC&F For itemplement

210 Park Road, Oviedo, FL 32765 407-359-7194 (FAX) 407-359-7197

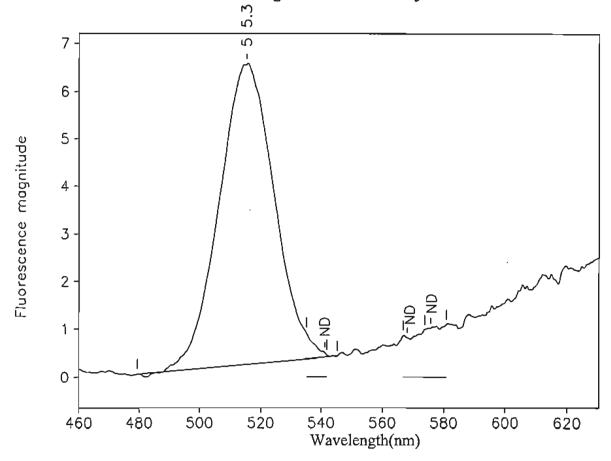
Protein, missouri 65733 30367 Chain of Custody

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1	mw-1 149; 154'-	209 8/14	03 1045																		7
2	mw-2 190' thru	250	1030			_ _	1														7
3	mw-3 190'thre 2		0950			<u>.</u>	~										$oxed{oxed}$				17
4	mw-4 190'tha	250	1115	lacksquare									<u> </u>								7
5				\bot	_																
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1:	ilpa	7/14/03	l "m	. 0		~ 8 4	0.0.0	VL 7/15/05	PROJEC	T NAME:	estic	/ /	0 .10			Tol	al#ofC	Contain	ers		
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3:			3:						SITE AD		Orlan	14,	Fl.			Red	cv'd in C	Good Co	onditior	1	
	alinstructions/comments:	H2M1	1111							y die	GER:	15	/A	AK	ens	РО	#:				
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OZARK UNDERGRU _.ND LABORATORY, INC.

		ect Name: CH2MHIII - From			: 7-15-03 Wk#
Lab#	Sta#	Station Name	Date Pulled	Problem	Solution
M786b		MW-4	7/14	Rec'd a whint-pat bago labiled MW-4 @ 230'	Pockets Doth
N7868				labiled MW-4 @ 230'	Packets
		MW-5@ 250'	7/14	Chain - Q - unitody	
				be a sample for This	
				sto but it was	
				mot recide at OUL	
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<u> </u>					
				 	
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Station 39: MW-1 @ 149'

OUL number: M7839

Matrix: Elutant

Placed: //

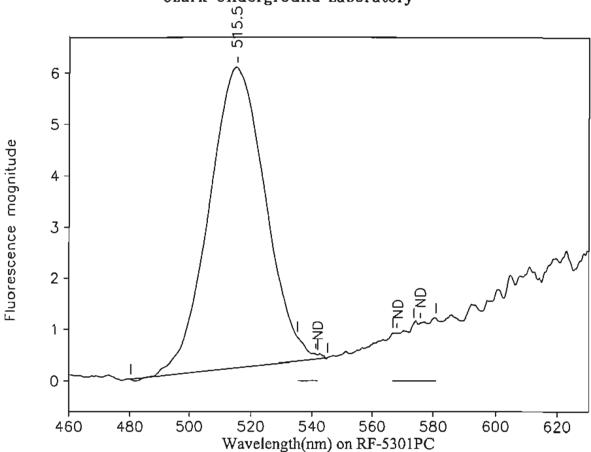
Diluted: 1 to 100 Analyzed: 07/17/03

Collected: 07/14/03 1045

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
515.3	479.5	545.3	6.29	132.59	0.05	310
541.3	535.2	541.8	0.00	0.00	0.00	ND
568.2	566.8	573.8	0.00	0.00	0.00	ND
575.8	573.8	580.8	0.00	0.00	0.00	ND
		_				





Station 40: MW-1 @ 159'

OUL number: M7841

Matrix: Elutant Placed: //

Diluted: 1 to 100 Analyzed: 07/17/03

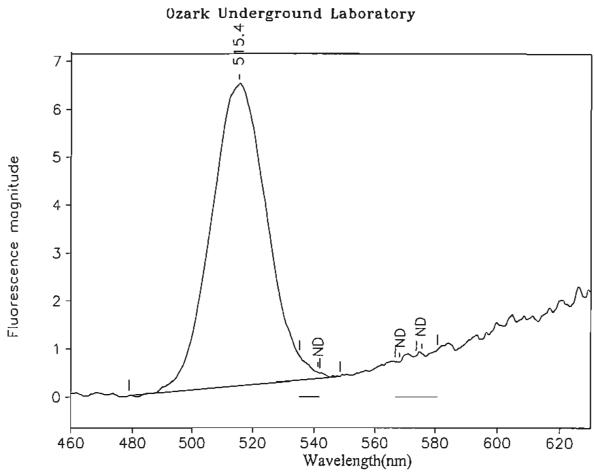
Collected: 07/14/03 1045

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
515.5	480.3	545.1	5.86	124.18	0.05	291
541.3	535.2	541.8	0.00	0.00	0.00	ND
568.2	566.8	573.8	0.00	0.00	0.00	ND
575.8	573.8	580.8	0.00	0.00	0.00	ND

Peaks close to the normal range of tracer dyes:

M



Station 41: MW-1 @ 169' OUL number: M7842

Matrix: Elutant

Placed: //

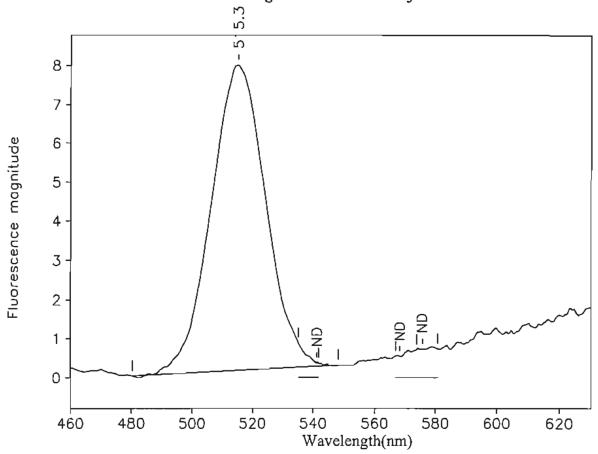
Diluted: 1 to 100 Analyzed: 07/17/03

Collected: 07/14/03 1045

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
515.4	478.9	548.4	6.28	134.12	0.05	314
541.3	535.2	541.8	0.00	0.00	0.00	ND
568.2	566.8	573.8	0.00	0.00	0.00	ND
575.8	573.8	580.8	0.00	0.00	0.00	ND





Station 42: MW-1 @ 179' OUL number: M7843

Matrix: Elutant

Placed: //

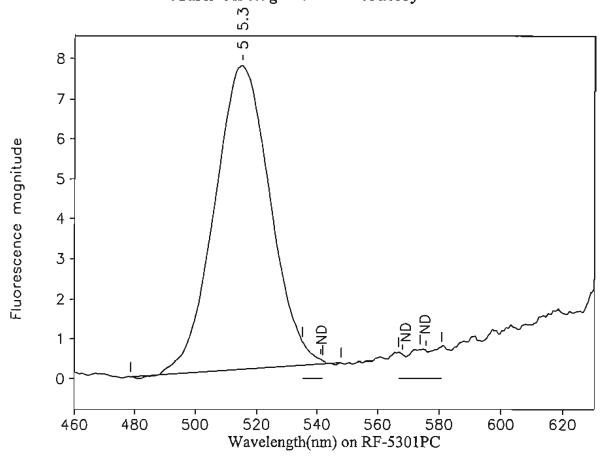
Diluted: 1 to 100 Analyzed: 07/17/03

Collected: 07/14/03 1045

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
515.3	480.4	548.1	7.82	164.13	0.05	384
541.3	535.2	541.8	0.00	0.00	0.00	ND
568.2	566.8	573.8	0.00	0.00	0.00	ND
575.8	573.8	580.8	0.00	0.00	0.00	ND





Station 43: MW-1 @ 189' OUL number: M7844

Matrix: Elutant

Placed: //

Diluted: 1 to 100 Analyzed: 07/17/03

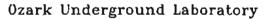
Collected: 07/14/03 1045

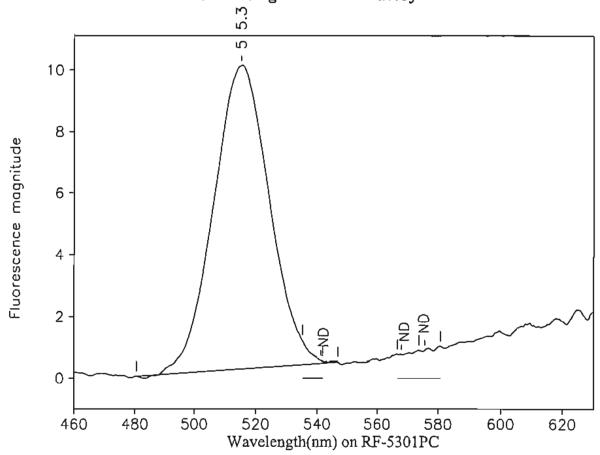
Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
515.3	478.7	548.0	7.60	160.23	0.05	375
541.3	535.2	541.8	0.00	0.00	0.00	ND
568.2	566.8	573.8	0.00	0.00	0.00	ND
575.8	573.8	580.8	0.00	0.00	0.00	ND

Peaks close to the normal range of tracer dyes:







Station 44: MW-1 @ 199' OUL number: M7845

Matrix: Elutant Placed: //

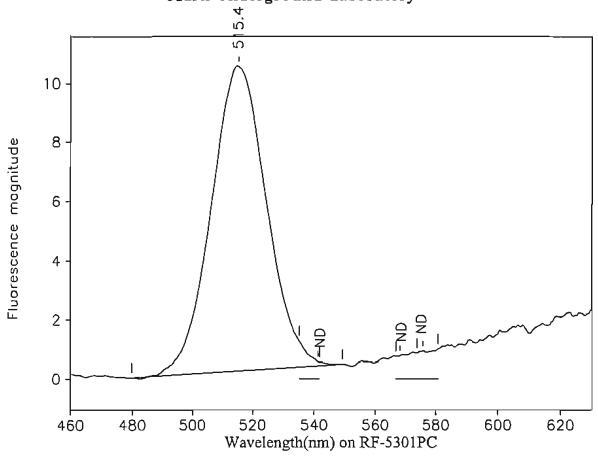
Diluted: 1 to 100 Analyzed: 07/17/03

Collected: 07/14/03 1045

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
515.3	480.5	546.9	9.83	206.65	0.05	484
541.3	535.2	541.8	0.00	0.00	0.00	ND
568.2	566.8	573.8	0.00	0.00	0.00	ND
575.8	573.8	580.8	0.00	0.00	0.00	ND

Peaks close to the normal range of tracer dyes:



Station 45: MW-1 @ 209' OUL number: M7846

Matrix: Elutant

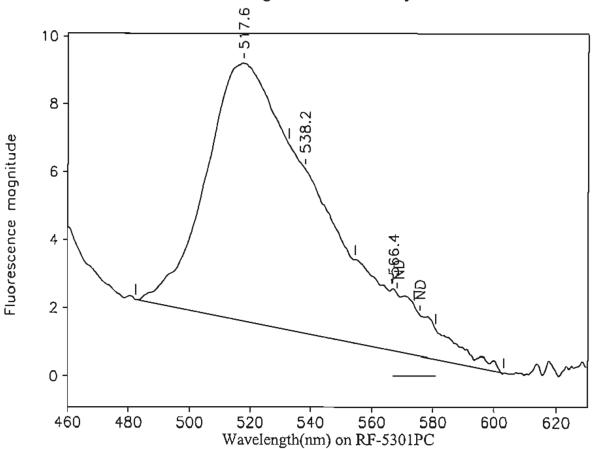
Placed: //

Diluted: 1 to 100 Analyzed: 07/17/03

Collected: 07/14/03 1045

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.	
515.4	479.7	549.2	10.30	219.17	0.05	513	
541.3	535.2	541.8	0.00	0.00	0.00	ND	
568.2	566.8	573.8	0.00	0.00	0.00	ND	
575.8	573.8	580.8	0.00	0.00	0.00	ND	
Peaks close to the normal range of tracer dyes:							



Station 18: MW-2 @ 190' OUL number: M7847

Matrix: Elutant

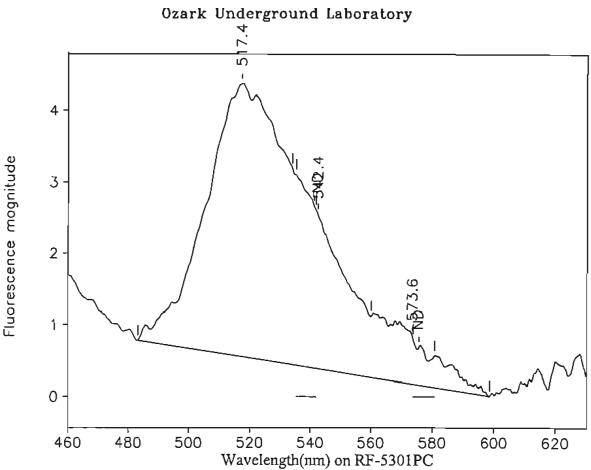
Placed: //

Analyzed: 07/17/03

Collected: 07/14/03 1030

Peaks within the normal range of tracer dyes:

Peak nm Left X Right X Height Area H/A	Conc.
	4 00
517.6 482.4 532.7 7.59 209.14 0.04	4.89
538.2 532.7 554.6 4.85 87.64 0.06	4.28 ND
568.2 566.8 573.8 0.00 0.00 0.00	ND
575.8 573.8 580.8 0.00 0.00 0.00	ND
Peaks close to the normal range of tracer dyes:	
566.4 554.6 603.2 1.81 54.99 0.03	-8.16-



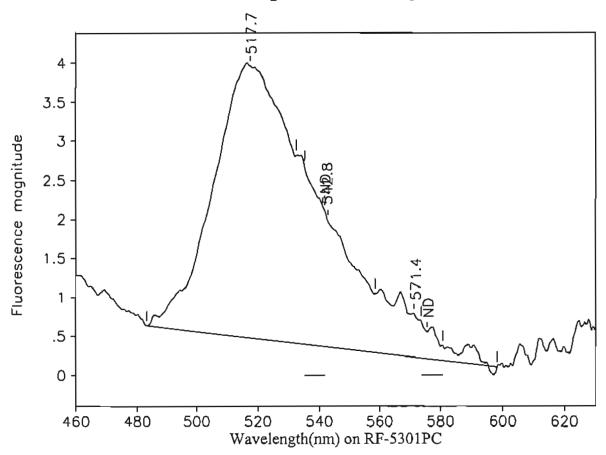
Station 19: MW-2 @ 200' OUL number: M7848 Matrix: Elutant Placed: //

Analyzed: 07/17/03

Peaks with	in the nor	nal range of	tracer dyes:
Peak nm	Left X	Right X	Height

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
517.4	483.2	534.0	3.82	109.01	0.04	2.55
541.3	535.2	541.8	0.00	0.00	0.00	ND
573.6	560.2	598.6	0.66	18.34	0.04	-2.72 .
575.8	573.8	580.8	0.00	0.00	0.00	ND
Peaks close	e to the nom	nal range of	tracer dyes:			
542.4	534.0	560.2	2.17	46.24	0.05	-2.26- ND





Station 20: MW-2 @ 210' OUL number: M7849

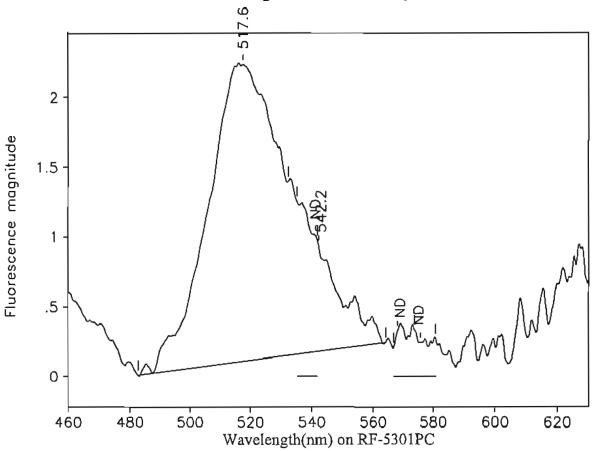
Matrix: Elutant

Placed: //

Analyzed: 07/17/03

Peaks within the normal range of tracer dyes:								
Peak nm	Left X	Right X	Height	Area	H/A	Conc.		
517.7	483.2	532.6	3.49	95.08	0.04	2.23		
541.3	535.2	541.8	0.00	0.00	0.00	ND		
571.4	558.5	598.2	0.56	14.49	0.04	2.15		
575.8	573.8	580.8	0.00	0.00	0.00	ND		
Peaks close to the normal range of tracer dyes:								
542.8	532.6	558.5	1.63	39.71	0.04	194 ND		





Station 21: MW-2 @ 220' OUL number: M7850

Matrix: Elutant

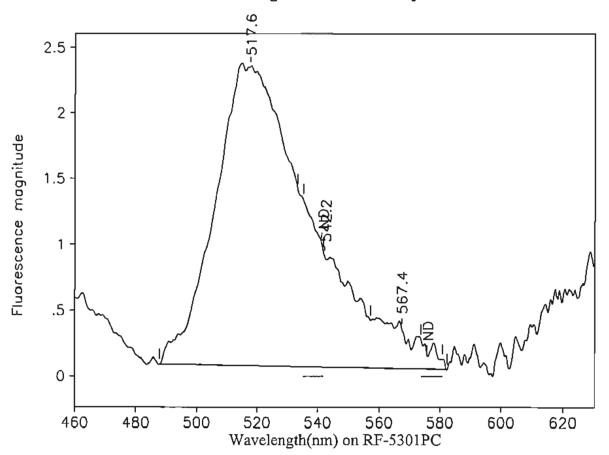
Placed: // Collected: 07/14/03 1030

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
517.6	482.6	532.4	2.12	54.77	0.04	1.28
541.3	535.2	541.8	0.00	0.00	0.00	ND
568.2	566.8	573.8	0.00	0.00	0.00	ND
575.8	573.8	580.8	0.00	0.00	0.00	ND
Peaks clos	e to the norr	nal range of	tracer dyes:			
542.2	532.4	564.2	0.76	17.06	0.04	0.833 ND
342.2	332.4	304.2	0.76	17.00	0.04	AN CCO.D



Analyzed: 07/17/03



Station 22: MW-2 @ 230' OUL number: M7851

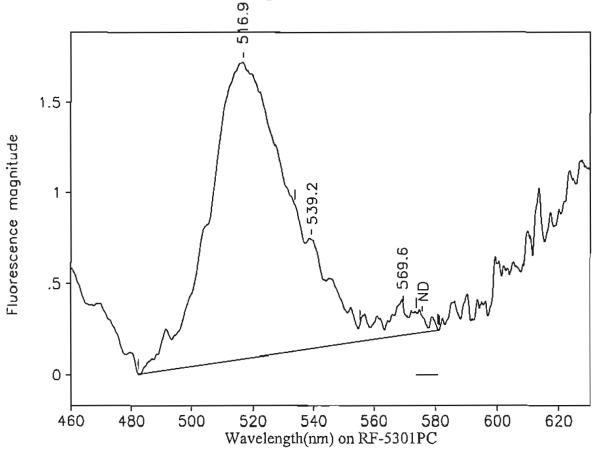
Matrix: Elutant

Placed: //

Analyzed: 07/17/03

Peaks within the normal range of tracer dyes:								
Peak nm	Left X	Right X	Height	Area	H/A	Conc.		
517.6	487.8	533.4	2.27	60.70	0.04	1.42		
541.3	535.2	541.8	0.00	0.00	0.00	ND		
567.4	557.3	582.4	0.30	5.97	0.05	0.885		
575.8	573.8	580.8	0.00	0.00	0.00	ND		
Peaks close	e to the norm	nal range of	tracer dyes:					
542.2	533.4	557.3	0.85	19.51	0.04	0.952	ND	





Station 23: MW-2 @ 240' OUL number: M7852

Matrix: Elutant

Placed: //

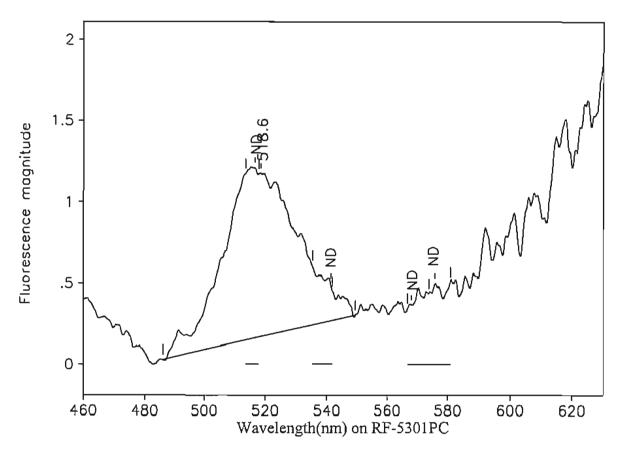
Analyzed: 07/17/03

Collected: 07/14/03 1030

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.9	482.4	533.6	1.63	42.25	0.04	0.989
539.2	533.6	555.4	0.60	8.79	0.07	0.429 NO
569.6	555.4	581.2	0.16	2.54	0.06	0.377
575.8	573.8	580.8	0.00	0.00	0.00	ND

Peaks close to the normal range of tracer dyes:



Station 24: MW-2 @ 250' OUL number: M7853

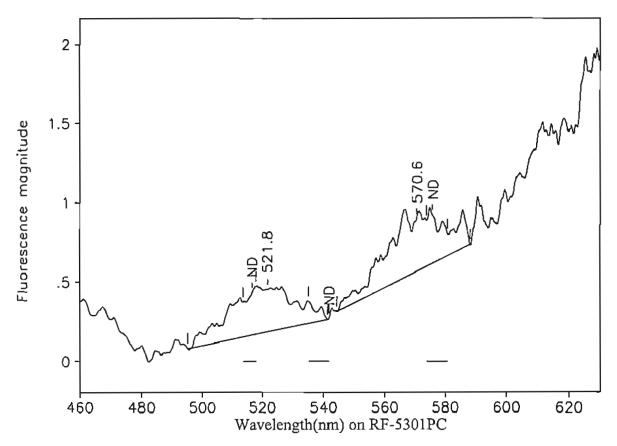
Matrix: Elutant

Placed: //

Analyzed: 07/17/03

Peaks within the normal range of tracer dyes:								
Peak nm	Left X	Right X	Height	Агеа	H/A	Conc.		
516.6	513.6	517.9	0.00	0.00	0.00	ND		
541.3	535.2	541.8	0.00	0.00	0.00	ND		
568.2	566.8	573.8	0.00	0.00	0.00	ND		
575.8	573.8	580.8	0.00	0.00	0.00	ND		
Peaks clos	e to the no	rmal range of	f tracer dyes	3:				
518.6	486.0	549.4	1.01	29.92	0.03	0.700 米		





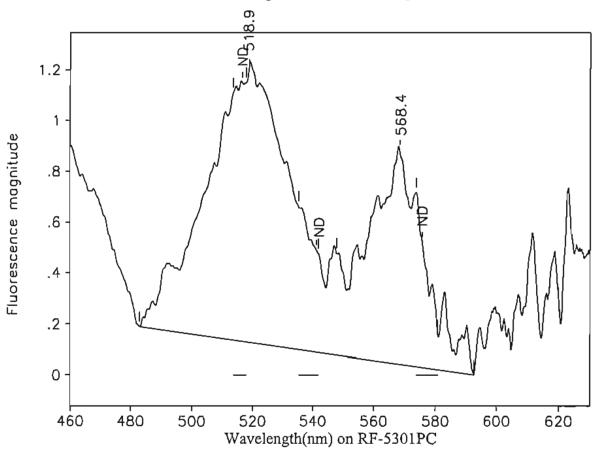
Station 25: MW-3 @ 190' OUL number: M7854

Matrix: Elutant

Placed: //

Analyzed: 07/17/03

Peaks within the normal range of tracer dyes:							
Peak nm	Left X	Right X	Height	Area	H/A	Conc.	
516.6	513.6	517.9	0.00	0.00	0.00	ND	
541.3	535.2	541.8	0.00	0.00	0.00	ND	
570.6	544.4	588.2	0.33	8.52	0.04	1.26	
575.8	573.8	580.8	0.00	0.00	0.00	ND	
Peaks close to the normal range of tracer dyes:							
521.8	495.2	541.4	0.27	7.51	0.04	0.176 ND	

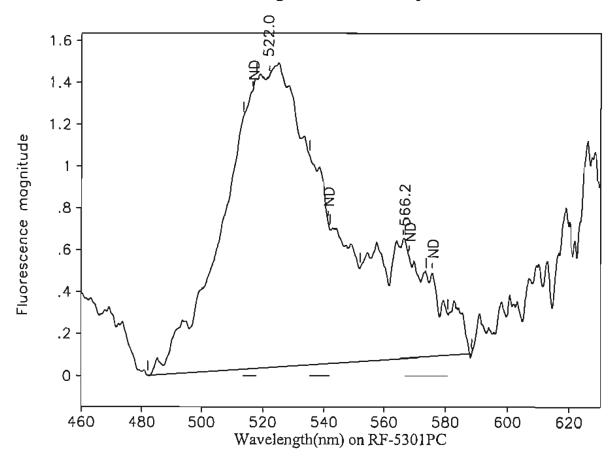


Station 26: MW-3 @ 200' OUL number: M7855 Matrix: Elutant

Placed: //

Analyzed: 07/17/03

Peaks with	nin the norr	nal range of	tracer dyes:					
Peak nm	Left X	Right X	Height	Area	H/A	Conc.		
516.6	513.6	517.9	0.00	0.00	0.00	ND		
541.3	535.2	541.8	0.00	0.00	0.00	ND		
568.4	547.9	592.6	0.84	18.85	0.04	-2.80 -		
575.8	573.8	580.8	0.00	0.00	0.00	ND		
Peaks close to the normal range of tracer dyes:								
518.9	483.0	547.9	1.08	37.23	0.03	0 .87 1 ND		

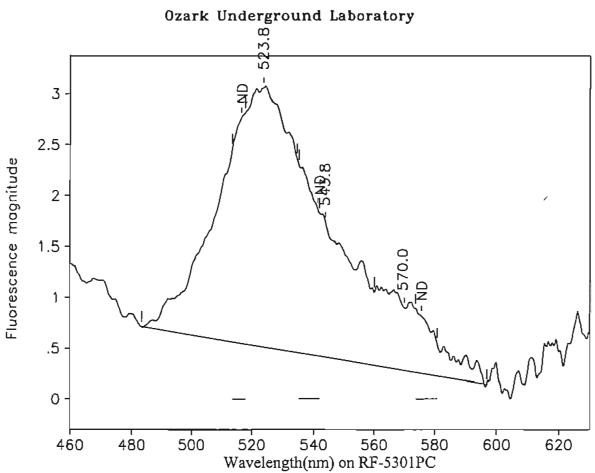


Station 27: MW-3 @ 210' OUL number: M7856 Matrix: Elutant

Placed: //

Analyzed: 07/17/03

Peaks with	hin the nori	nal range of	tracer dyes:	•					
Peak nm	Left X	Right X	Height	Area	H/A	Conc.			
516.6	513.6	517.9	0.00	0.00	0.00	ND			
541.3	535.2	541.8	0.00	0.00	0.00	ND			
568.2	566.8	573.8	0.00	0.00	0.00	ND			
575.8	573.8	580.8	0.00	0.00	0.00	ND			
Peaks clos	Peaks close to the normal range of tracer dyes:								
522.0	482.0	552.0	1.39	52.41	0.03	1.23 ND			
566.2	552.0	588.4	0.57	13.66	0.04	2.03			

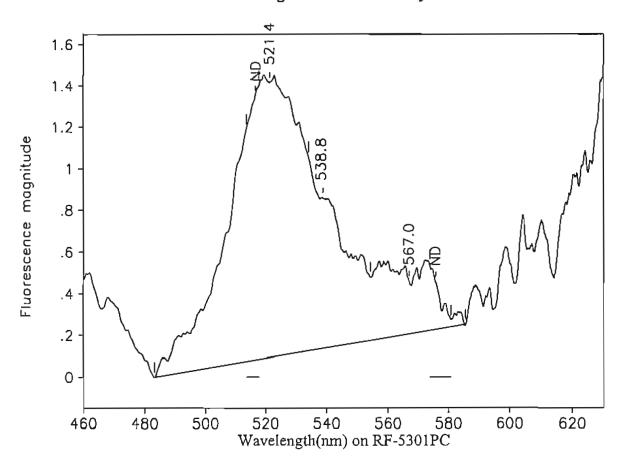


Station 28: MW-3 @ 220' OUL number: M7857 Matrix: Elutant

Placed: // Collected: 07/14/03 0950

Analyzed: 07/17/03

Peaks with	hin the non	mal range of	tracer dyes:			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.6	513.6	517.9	0.00	0.00	0.00	ND
541.3	535.2	541.8	0.00	0.00	0.00	ND
570.0	560.0	596.8	0.62	16.51	0.04	- 2.45
575.8	573.8	580.8	0.00	0.00	0.00	ND
Peaks clos	se to the no	rmal range of	f tracer dye	s:		
523.8	483.2	534.6	2.55	68.89	0.04	1.61 ND
543.8	534.6	560.0	1.33	31.43	0.04	1.53 ND



Station 29: MW-3 @ 230' OUL number: M7858

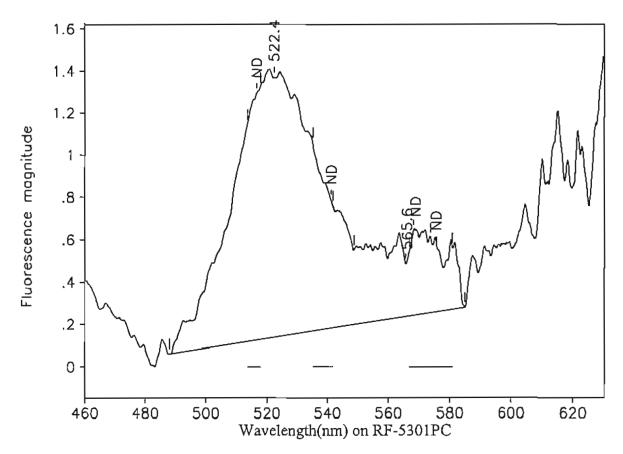
Matrix: Elutant

Collected: 07/14/03 0950 Placed: //

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.		
516.6	513.6	517.9	0.00	0.00	0.00	ND		
538.8	534.2	554.2	0.72	11.45	0.06	- 0.559 N	10	
567.0	554.2	585.6	0.25	7.54	0.03	1.12		
575.8	573.8	580.8	0.00	0.00	0.00	ND		
Peaks close to the normal range of tracer dyes:								
521.4	483.2	534.2	1.32	36.96	0.04	~ 0.8 65 ^	VD.	

Analyzed: 07/17/03



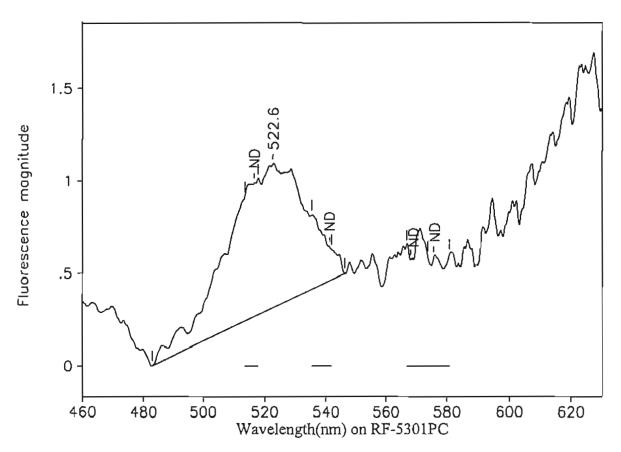
Station 30: MW-3 @ 240' OUL number: M7859

Matrix: Elutant

Placed: //

Analyzed: 07/17/03

Peaks wi	thin the nor	mal range of	tracer dyes:					
Peak nm	Left X	Right X	Height	Area	H/A	Conc.		
516.6	513.6	517.9	0.00	0.00	0.00	ND		
541.3	535.2	541.8	0.00	0.00	0.00	ND		
568.2	566.8	573.8	0.00	0.00	0.00	ND		
575.8	573.8	580.8	0.00	0.00	0.00	ND		
Peaks close to the normal range of tracer dyes:								
522.4	488.0	548.7	1.23	42.75	0.03	1.00 ND		
565.6	548.7	584.8	0.25	11.40	0.02	1.69		
541.3 568.2 575.8 Peaks clo 522.4	535.2 566.8 573.8 ose to the no 488.0	541.8 573.8 580.8 ormal range o 548.7	0.00 0.00 0.00 f tracer dye 1.23	0.00 0.00 0.00 s: 42.75	0.00 0.00 0.00 0.03	ND ND ND		



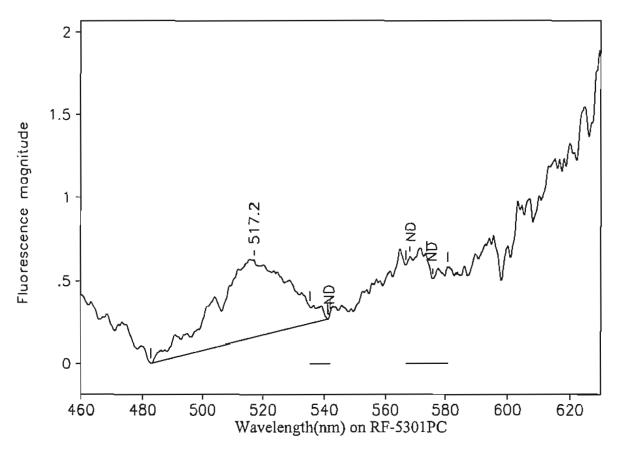
Station 46: MW-3 @ 250' OUL number: M7861

Matrix: Elutant

Placed: //

Analyzed: 07/17/03

Peaks within the normal range of tracer dyes:									
Peak nm	Left X	Right X	Height	Area	H/A	Conc.			
516.6	513.6	517.9	0.00	0.00	0.00	ND			
541.3	535.2	541.8	0.00	0.00	0.00	ND			
568.2	566.8	573.8	0.00	0.00	0.00	ND			
575.8	573.8	580.8	0.00	0.00	0.00	ND			
Peaks close to the normal range of tracer dyes:									
522.6	483.0	546.2	0.78	24.00	0.03	0.562 ND			



Station 31: MW-4 @ 190' OUL number: M7862

Matrix: Elutant

Placed: //

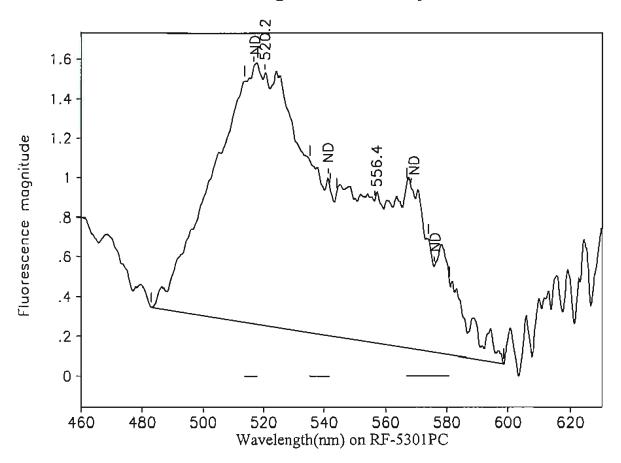
Analyzed: 07/17/03

Collected: 07/14/03 1115

Peaks within the normal range of tracer dyes:

Peak nm 517.2	Left X 482.6	Right X 541.0	Height 0.46	Area 13.32	H/A 0.03	Conc. 0.31 2 ND
541.3	535.2	541.8	0.00	0.00	0.00	ND
568.2	566.8	573.8	0.00	0.00	0.00	ND
575.8	573.8	580.8	0.00	0.00	0.00	ND

Peaks close to the normal range of tracer dyes:



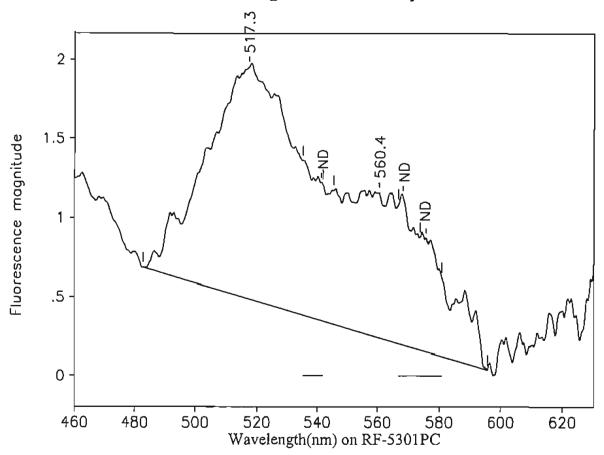
Station 32: MW-4 @ 200' OUL number: M7863

Matrix: Elutant Placed: //

Collected: 07/14/03 1115

Analyzed: 07/17/03

Peaks with	un the nor	mal range of	tracer dyes:			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.6	513.6	517.9	0.00	0.00	0.00	ND
541.3	535.2	541.8	0.00	0.00	0.00	ND
568.2	566.8	573.8	0.00	0.00	0.00	ND
575.8	573.8	580.8	0.00	0.00	0.00	ND
Peaks clos	e to the no	rmal range of	f tracer dyes	s:		
520.2	483.0	544.0	1.27	48.33	0.03	1.13 ND
556.4	544.0	598.6	0.72	28.30	0.03	4.20



Station 33: MW-4 @ 210' OUL number: M7864

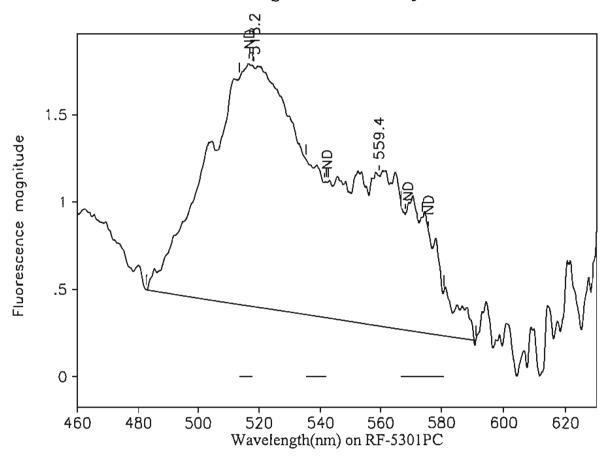
Matrix: Elutant

Placed: // Collected: 07/14/03 1115

Analyzed: 07/17/03

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
517.3	482.8	545.5	1.47	55.27	0.03	1.29 ND
541.3	535.2	541.8	0.00	0.00	0.00	ND
568.2	566.8	573.8	0.00	0.00	0.00	ND
575.8	573.8	580.8	0.00	0.00	0.00	ND
Peaks close	e to the norr	mal range of	f tracer dyes	i:		
560.4	545.5	595.6	0.92	33.39	0.03	0.781



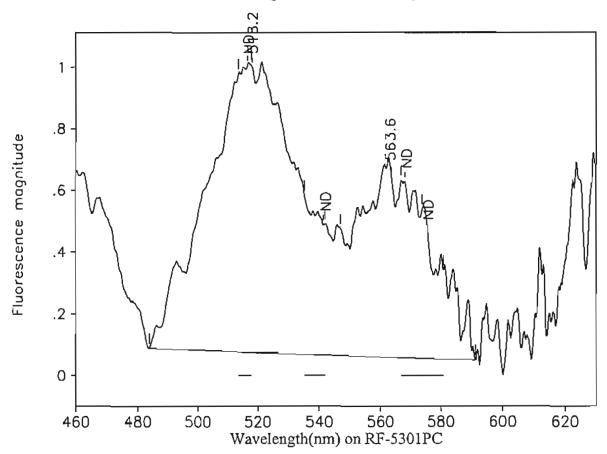
Station 34: MW-4 @ 220' OUL number: M7865

Matrix: Elutant

Placed: //

Analyzed: 07/17/03

Peaks with	hin the norr	mal range of	tracer dyes:	:					
Peak nm	Left X	Right X	Height	Area	H/A	Conc.			
516.6	513.6	517.9	0.00	0.00	0.00	ND			
541.3	535.2	541.8	0.00	0.00	0.00	ND			
568.2	566.8	573.8	0.00	0.00	0.00	ND			
575.8	573.8	580.8	0.00	0.00	0.00	ND			
Peaks clos	Peaks close to the normal range of tracer dyes:								
518.2	482.6	542.4	1.38	51.08	0.03	1.20 ND			
559.4	542.4	591.0	0.87	30.19	0.03	4.48			



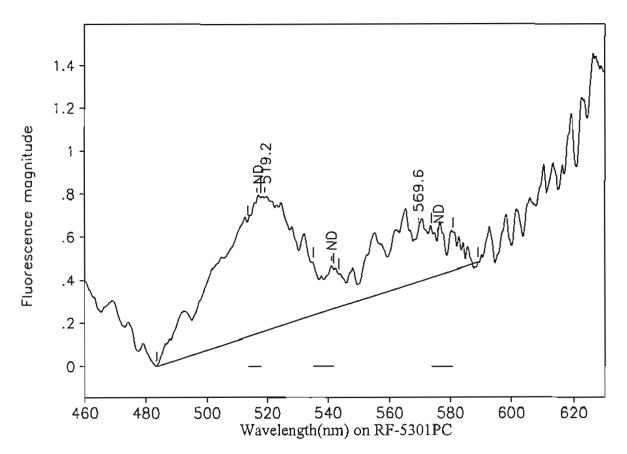
Station 35: MW-4 @ 230' OUL number: M7866

Matrix: Elutant

Placed: //

Analyzed: 07/17/03

Peaks with	Peaks within the normal range of tracer dyes:								
Peak nm	Left X	Right X	Height	Area	H/A	Conc.			
516.6	513.6	517.9	0.00^{-}	0.00	0.00	ND			
541.3	535.2	541.8	0.00	0.00	0.00	ND			
568.2	566.8	573.8	0.00	0.00	0.00	ND			
575.8	573.8	580.8	0.00	0.00	0.00	ND			
Peaks clos	Peaks close to the normal range of tracer dyes:								
518.2	483.8	546.8	0.92	34.50	0.03	0 .80 7 ND			
563.6	546.8	591.2	0.58	17.63	0.03	2.61			



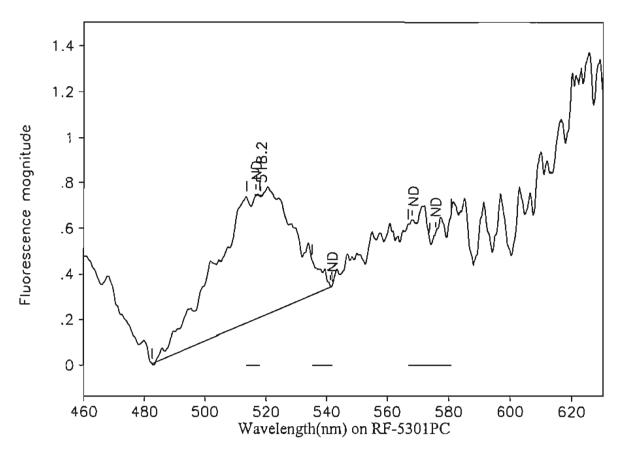
Station 36: MW-4 @ 240' OUL number: M7867

Matrix: Elutant

Placed: //

Analyzed: 07/17/03

Peaks with	nin the nor	nal range of	tracer dyes:					
Peak nm	Left X	Right X	Height	Area	H/A	Conc.		
516.6	513.6	517.9	0.00	0.00	0.00	ND		
541.3	535.2	541.8	0.00	0.00	0.00	ND		
569.6	543.6	589.2	0.25	8.16	0.03	-1.21 -		
575.8	573.8	580.8	0.00	0.00	0.00	ND		
Peaks close to the normal range of tracer dyes:								
519.2	483.4	543.6	0.62	20.85	0.03	0.488 ND		



Station 35: MW-4 @ 230' OUL number: M7868

Matrix: Elutant

Placed: //

Analyzed: 07/17/03

Peaks with	nin the norr	nal range of	tracer dyes:						
Peak nm	Left X	Right X	Height	Area	H/A	Conc.			
516.6	513.6	517.9	0.00	0.00	0.00	ND			
541.3	535.2	541.8	0.00	0.00	0.00	ND			
568.2	566.8	573.8	0.00	0.00	0.00	ND			
575.8	573.8	580.8	0.00	0.00	0.00	ND			
Peaks clos	Peaks close to the normal range of tracer dyes:								
518.2	482.6	541.8	0.53	16.59	0.03	0.388 MP			

August 1, 2003

CERTIFICATE OF ANALYSIS

Alan W. Aikens, P.G. CH2MHill 225 East Robinson Street, Suite 505 Orlando, Florida 32801

Re: Festival Park - Dye analysis results for charcoal samplers shipped on July 29, 2003 Ozark Underground Laboratory (OUL) numbers M8074 through M8103.

Dear Mr. Aikens:

We have completed analysis of the charcoal samplers received by the OUL on July 30, 2003. We have indicated the OUL number for each of these samplers on the enclosed table.

The fluorescein and eosine dye concentrations are based upon standards routinely used at the OUL. The fluorescein and eosine are mixtures of 75% dye and 25% diluent. The concentrations are based upon the as-sold weight of the dye.

A summary of the results is presented in Table 1. Additional sampling information is available on the enclosed analysis graphs.

Sincerely,

Thomas J. Aley, PHG, RG

Enclosures:

- 1. Table 1. Analysis results for charcoal samplers
- 2. OUL Sample Collection Data Sheets
- 3. Nodarse & Assoc. Chain-of-Custody Record
- 4. Discrepancy sheet
- 5. Sample analysis graphs

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Ozark Underground Laboratory, Inc. for CH2MHill

Project:

Festival Park - Project CH2MHill 177652

Samples Collected By:

Lydia Wing/Mike Burns

Date Samples Shipped:

July 29, 2003

Date Samples Rec'd at OUL:
Date Analyzed by OUL:

July 30, 2003 August 1, 2003

Table 1	Table 1. Results for charcoal samplers analyzed for the presence of fluorescein and eosine dyes. Peak										
wavelen	gths are rep	orted in nanometers (nm); d	lye concentration	ons are reported	d in parts per billion	(ppb).					
OUL	OUL	Sample Identification	Date/Time	Date/Time	Fluorescein	Fosin	e				

OUL Lab#	OUL Stn#	Sample Identification	Date/Time Placed	Date/Time Collected	Fluo	rescein	Eo	sine
				2003	Peak	Conc.	Peak	Conc.
M8074	39	MW-1 @ 149'	NDT	7/29 1042	515.4	945	ND	
M8075	40	MW-1 @ 159'	NDT	7/29 1042	515.4	1200	ND	
M8076	41	MW-1 @ 169'	NDT	7/29 1042	515.4	1160	ND	
M8077	42	MW-1 @ 179'	NDT	7/29 1042	515.6	1090	ND	
M8078	43	MW-1 @ 189'	NDT	7/29 1042	514.3	171	ND	
M8079	44	MW-1 @ 199'	NDT	7/29 1042	514.3	182	ND	
M8080	Laborat	ory Control Charcoal Blank			100		1	
M8081	45	MW-1 @ 209'	NDT	7/29 1042	514.3	147	ND	
M8082	18	MW-2 @ 190'	NDT	7/29 0944	517.0	3.74	ND	
M8083	19	MW-2 @ 200'	NDT	7/29 0944	516.9	1.70	ND	_
M8084	20	MW-2 @ 210'	NDT	7/29 0944	517.1	1.42	ND	
M8085	21	MW-2 @ 220'	NDT	7/29 0944	517.0	1.43	ND	
M8086	22	MW-2 @ 230'	NDT	7/29 0944	516.9	1.16	ND	
M8087	23	MW-2 @ 240'	NDT	7/29 0944	515.4	1.43	ND	
M8088	24	MW-2 @ 250'	NDT	7/29 0944	516.0	1.17	ND	
M8089	25	MW-3 @ 190'	NDT	7/29 1016	ND		ND	
M8090	26	MW-3 @ 200'	NDT	7/29 1016	ND		ND	
M8091	27	MW-3 @ 210'	NDT	7/29 1016	ND		ND	
M8092	28	MW-3 @ 220'	NDT	7/29 1016	ND		ND	
M8093	29	MW-3 @ 230'	NDT	7/29 1016	ND		ND	
M8094	30	MW-3 @ 240'	NDT	7/29 1016	ND		ND	
M8095	46	MW-3 @ 250'	NDT	7/29 1016	ND		ND	
M8096	31	MW-4 @ 190'	NDT	7/29 1111	ND		ND	
M8097	32	MW-4 @ 200'	NDT	7/29 1111	ND		ND	
M8098	33	MW-4 @ 210'	NDT	7/29 1111	ND		ND	
M8099	34	MW-4 @ 220'	NDT	7/29 1111	ND		ND	
M8100	Laborate	ory Control Charcoal Blank			1		-	_
M8101	35	MW-4 @ 230'	NDT	7/29 1111	ND		ND	
M8102	36	MW-4 @ 240'	NDT	7/29 1111	ND		ND	
M8103	37	MW-4 @ 250'	NDT	7/29 1111	ND		ND	

FOOTNOTES: NDT = No date or time given; ND = No dye detected

OZARK UNDERGROUND LABORATORY, INC.

1572 Aley Lane Protem, MO 65733 (417) 785-4289 fax (417) 785-4290 email: oul@tri-lakes.net SAMPLE COLLECTION DATA SHEET for FLUORESCENCE ANALYSIS

Project <u>:</u>	Festival Pa	rk/CH2M I	Hill Week No: Samples Collected	By <u>: Lydia</u>	Wing/Mi	ike Burn					
Samples	Shipped By	: Mike	Burns Samples Received By: John Arnold								
Date Sai	mples Shipp	ed <u>: 07/ 29 /</u>	Date Samples Received: 07/30/03 Time Samples Received: 12:30	Reti	ırn Coole	r? Yes :	No:	<u>X</u>			
Bill to <u>:</u>			Send Results to: Al Akens with CH2M								
Analyze	for: Fluore	escein : X	Eosine: Khodamine WT Other Ship cooler to:				٠.				
1	OUL se only		Please indicate stations where dye was visible in the	e field				OUL use only			
-			for field technician use - use black ink only								
# CHAR REC'D	LAB NUMBER Charcoal	STATION NUMBER 1-4 Numbers	STATION NAME	DATE	CED TIME	DATE TIME		WATER REC'D			
1	M8074	39	MW-1 @ 149'			7/29/03	1042	0			
1	M8075	40	MW-1 @ 159'			7/29/03	1042	0			
1	M8076	41	MW-1 @ 169'			7/29/03	1042	0			
1	M8077	42	MW-1 @ 179'			7/29/03	1042	0			
1	M8078	43	MW-1 @ 189'			7/29/03	1042	0			
1	M8079	44	MW-1 @ 199'			7/29/03	1042	0			
1	M8081	45	MW-1 @ 209'			7/29/03	1042	0			
1	M8082	18	MW-2 @ 190'			7/29/03	0944	0			
1	M8083	19	MW-2 @ 200'			7/29/03	0944	0			
1	M8084	20	MW-2 @ 210'			7/29/03	0944	0			
1	M8085	21	MW-2 @ 220'			7/29/03	0944	0			
1	M8086	22	MW-2 @ 230'			7/29/03	0944	0			
1	M8087	23	MW-2 @ 240'			7/29/03	0944	0			
1	M8088	24	MW-2 @ 250'			7/29/03	0944	0			
COMM	ENTS: Char	coal Blank l	M8080		•						
						_					
This she	et filled out	by OUL sta	Charts for samples on this page proofed to	oy OUL:		MAN	✓ 481	`			
۲۰۰	7501 3	~ , ,,,,,,	dyzed 8/1103 by we Page 1 of 2		f:\sh	ared\forms\	coc.doc, R	ev. 8/99			

OZARK UNDERGROUND LABORATORY, INC.

1572 Aley Lane Protem, MO 65733 (417) 785-4289 fax (417) 785-4290 email: oul@tri-lakes.net SAMPLE COLLECTION DATA SHEET for FLUORESCENCE ANALYSIS

Project <u>:</u>	Festival Pa	rk/CH2M I		By: Lydia	Wing/Mil	ke Burn		
Samples	Shipped By	: Mike	Samples Received By: John Arnold					
Date Sa	mples Shipp	ed <u>: 07/ 29 /</u>	Date Samples Received: 07/30/03 Time Samples Received: 12:30		rn Coole	r? Yes :	No <u>:</u>	<u>X</u>
Bill to <u>:</u>			Send Results to: Al Akens with CH2M	(Hill				
Analyze	for: Fluore	scein : X	Eosine: X Rhodamine WT Other Ship cooler to:					
	OUL		Please indicate stations where dye was visible in the	field				OUL use only
щ.	se only		for field technician use - use black ink only					·
# CHAR REC'D	LAB NUMBER	STATION NUMBER	STATION NAME	PLA	PLACED COLLE		ECTED	# WATER
	Charcoal	1-4 Numbers		DATE	TIME	DATE	TIME	REC'D
1	M8089	25	MW-3 @ 190'	-		7/29/03	1016	0
1	M8090	26	MW-3 @ 200'			7/29/03	1016	0
1	M8091	27	MW-3 @ 210'			7/29/03	1016	0
1	M8092	28	MW-3 @ 220'			7/29/03	1016	0
1	M8093	29	MW-3 @ 230'			7/29/03	1016	0
1	M8094	30	MW-3 @ 240'			7/29/03	1016	0
1	M8095	46	MW-3 @ 250'			7/29/03	1016	0
1	M8096	31	MW-4 @ 190'			7/29/03	1111	0
1	M8097	32	MW-4 @ 200'			7/29/03	1111	0
1	M8098	33	MW-4 @ 210'			7/29/03	1111	0
1	M8099	34	MW-4 @ 220'			7/29/03	1111	0
1	M8101	35	MW-4 @ 230'			7/29/03	1111	0
1	M8102	36	MW-4 @ 240'			7/29/03	1111	0
1	M8103	37	MW-4 @ 250'			7/29/03	1111	0
COMM	ENTS:	Charc	oal Blamk M8100					
This she			aff? Yes X No Charts for samples on this page proofed by O	UL:	Much			
	ano	lened	8/103 by OUC Page 2 of 2		f:\sh	ared\forms\c	oc.doc, R	ev. 8/99

OZARK UNDERGROUND LABORATORY, INC.

DISCRE	DISCREPANCIES BETWEEN CHAIN-OF-CUSTODY SHEETS AND ACTUAL SAMPLES RECEIVED Page _/_ of _/_										
		Nadarse / Festival Fo									
Lab#	Sta#	Station Name	Date Pulled	Problem	Solution						
	Pmw-1		7/29	Rac'd Toamples for each	OUL Staff filled out						
	PMW-Z		1/29	of the 4 Stations. Each	a Sample Collection data						
	BMW-3		7/29	Group of 7 Were @ different	Shoot, Listing each Somple						
	PMW-4		7/29	depths. On Coc read w/	separtly, Wed information						
				samples the Isamples	From Ziplac bogo and Coc						
		<u> </u>	,	were grouped together	to fill in information on						
				EX MW-1/149 thru 209	data sheet.						
_											
•			_								
_	-		-								
			 								
Commen	ts:			,							

Ozark underground Labora 50ry

PC&L Environmental

Chain of Custody

•••	· · · ·			
	5/0	0/12	1.	1

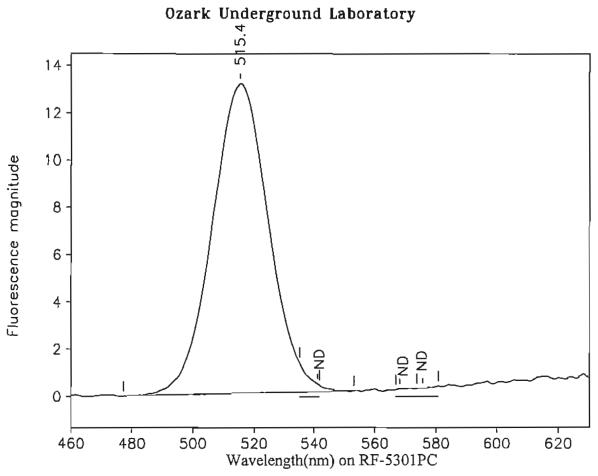
Work Order

WHITE: Project File

YELLOW: Laboratory

PINK: Sampler

(, , , , , , , , , , , , , , , , , , ,			Date. 17 A 11	<u> </u>	<u> </u>
COMPANY: Nodaise 3 Assoc.		ANALYSIS	REQUESTED		
ADDRESS: 1675 Lee Rd. Orlando, FL. 32789 SAMPLED BY: BURNS PHONE: 407-740-6110 FAX: 407-740-6112	2				7.
Orlando, FL. 32789	[e e]				ers
SAMPLED BY: SIGN: SIGN:	Cace				of Containers
PHONE: 407-740-6110 FAX: 407-740-6112	150				
# SAMPLE ID DATE/TIME WATRIX OF THE SAMPLE ID DATE/TIME	Ice	PRESE	RVATION		Number
1 MW-1/149' They 209' 7/29/03/042	<i>-</i>				7
2 MW2/190'The 250' 1 9944	V				17
3 mw-3/190' Thro 250' 1016 4 mw-4/190' Thro 250' V 1111	<u></u>				
4 mw-4/190 Thrusso V 1111					17
5					44
6					44
7					
8					\perp
9					44
10					+
11					\bot
12					44
13 RELINQUISHED BY DATE/TIME RECEIVED BY	DATECTME	DRO (FOX INFORM	IATION T	CAMADI E DECEIDA	_
1 Mile for 7/29/03 15 J. Arnold (OU)	DATE/TIME	PROJECT INFORM PROJECT NAME:		SAMPLE RECEIPT	
Mile Du 7/29/03 J. Hrnd & (OUL	-) 7/30/03 12:30	D Festival Park		Total # of Containers	
<u> </u>		WOI-E-120-1		Chain of Custody Seals	
3;		orlando, FC		Recv'd in Good Condition	
SPECIAL INSTRUCTIONS/COMMENTS:		PROJECT MANAGER: Lydia Wing		PO #:	
Send result data to AL Akens cui	+4	INVOICE TO:			
CH2M H; II.		fa muttefut sede vonsel			
				484	
QUOTE/CONTRACT#:					



Station 39: MW-1 @ 149' OUL number: M8074

Matrix: Elutant

Placed: //

Diluted: 1 to 100 Analyzed: 08/01/03

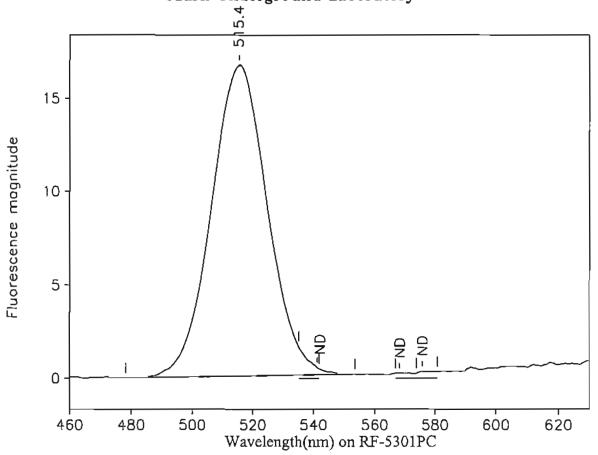
Collected: 07/29/03 1042

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
515.4	477.3	553.1	13.08	282.47	0.05	945
541.3	535.2	541.8	0.00	0.00	0.00	ND
568.2	566.8	573.8	0.00	0.00	0.00	ND
575.8	573.8	580.8	0.00	0.00	0.00	ND

Peaks close to the normal range of tracer dyes:





Station 40: MW-1 @ 159' OUL number: M8075

Matrix: Elutant Placed: //

Diluted: 1 to 100 Analyzed: 08/01/03

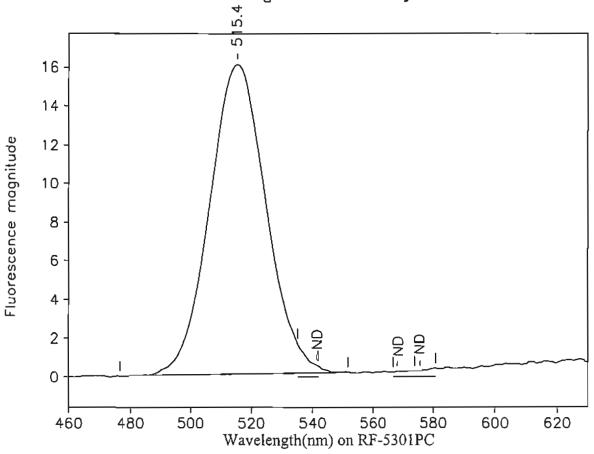
Collected: 07/29/03 1042

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
515.4	478.3	553.5	16.66	359.55	0.05	1,200
541.3	535.2	541.8	0.00	0.00	0.00	ŃD
568.2	566.8	573.8	0.00	0.00	0.00	ND
575.8	573.8	580.8	0.00	0.00	0.00	ND

Peaks close to the normal range of tracer dyes:





Station 41: MW-1 @ 169' OUL number: M8076

Matrix: Elutant

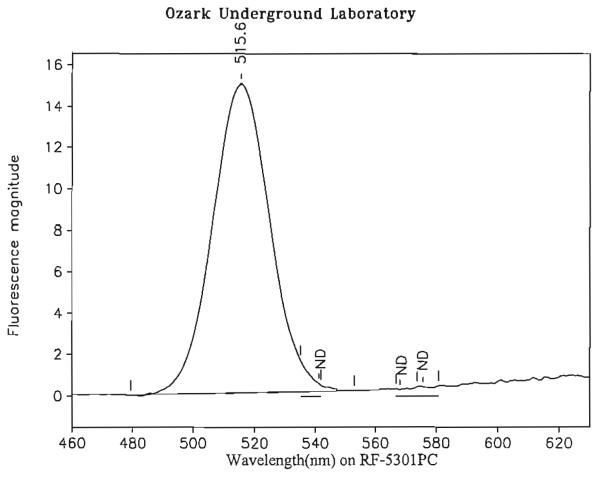
Placed: //

Diluted: 1 to 100 Analyzed: 08/01/03

Collected: 07/29/03 1042

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.			
515.4	476.6	551.6	16.03	345.68	0.05	1,160			
541.3	535.2	541.8	0.00	0.00	0.00	ND			
568.2	566.8	573.8	0.00	0.00	0.00	ND			
<i>575.</i> 8	573.8	580.8	0.00	0.00	0.00	ND			
Peaks clos	Peaks close to the normal range of tracer dyes:								



Station 42: MW-1 @ 179' OUL number: M8077

Matrix: Elutant Placed: //

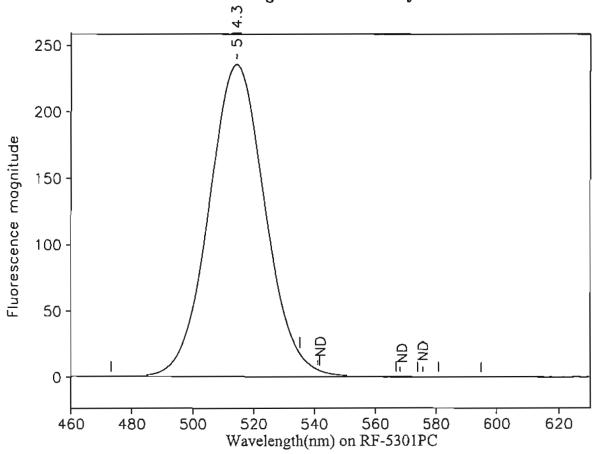
Diluted: 1 to 100 Analyzed: 08/01/03

Collected: 07/29/03 1042

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
515.6	479.4	553.1	14.95	325.28	0.05	1,090
541.3	535.2	541.8	0.00	0.00	0.00	ND
568.2	566.8	573.8	0.00	0.00	0.00	ND
575.8	573.8	580.8	0.00	0.00	0.00	ND

Peaks close to the normal range of tracer dyes:



Station 43: MW-1 @ 189' OUL number: M8078

Matrix: Elutant

Placed: //

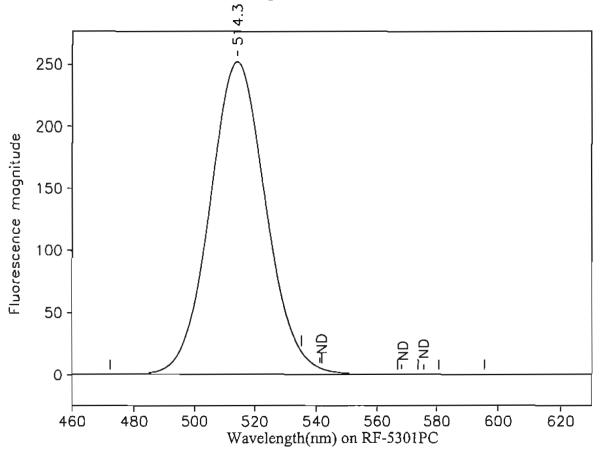
Analyzed: 08/01/03

Collected: 07/29/03 1042

Peaks within the normal range of tracer dves:

x canto manta tine moninariambe or made, of eo.											
Peak nm	Left X	Right X	Height	Area	H/A	Conc.					
514.3	473.3	594.9	235.80	5,104.63	0.05	171					
541.3	535.2	541.8	0.00	0.00	0.00	ND					
568.2	566.8	573.8	0.00	0.00	0.00	ND					
575.8	573.8	580.8	0.00	0.00	0.00	ND					
Peaks close to the normal range of tracer dyes:											





Station 44: MW-1 @ 199' OUL number: M8079

Matrix: Elutant

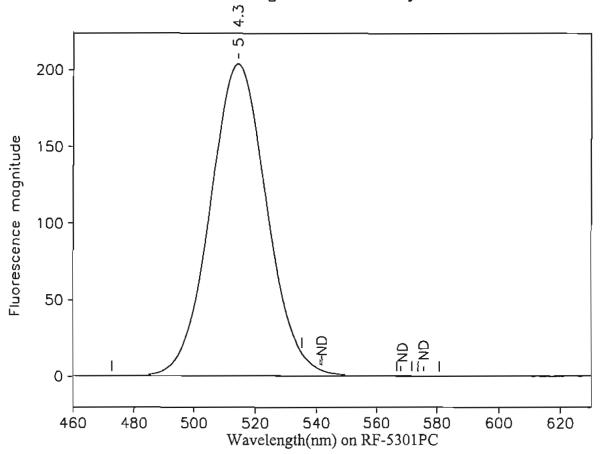
Placed: //

Analyzed: 08/01/03

Collected: 07/29/03 1042

Peaks within the normal range of tracer dves:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.			
514.3	472.4	595.5	252.00	5,447.20	0.05	182			
541.3	535.2	541.8	0.00	0.00	0.00	ND			
568.2	566.8	573.8	0.00	0.00	0.00	ND			
575.8	573.8	580.8	0.00	0.00	0.00	ND			
Peaks close to the normal range of tracer dyes:									



Station 45: MW-1 @ 209' OUL number: M8081

Matrix: Elutant

Placed: //

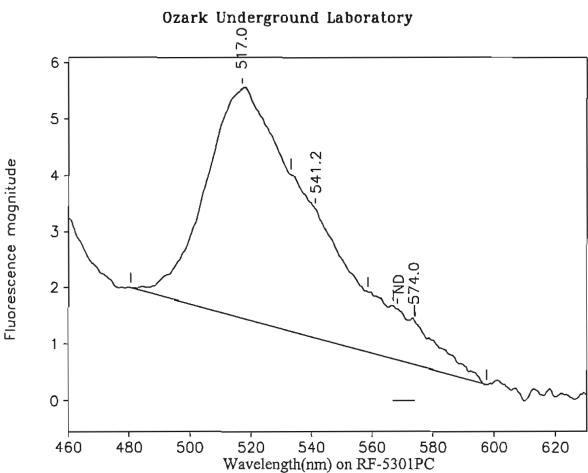
Analyzed: 08/01/03

Collected: 07/29/03 1042

Peaks within the normal range of tracer dyes:

1 00000 11101	The state of the s									
Peak nm	Left X	Right X	Height	Area	H/A	Conc.				
514.3	472.7	571.8	203.77	4,379.98	0.05	147				
541.3	535.2	541.8	0.00	0.00	0.00	ND				
568.2	566.8	573.8	0.00	0.00	0.00	ND				
575.8	573.8	580.8	0.00	0.00	0.00	ND				





Station 18: MW-2 @ 190' OUL number: M8082 Matrix: Elutant

Placed: // Collected: 07/29/03 0944

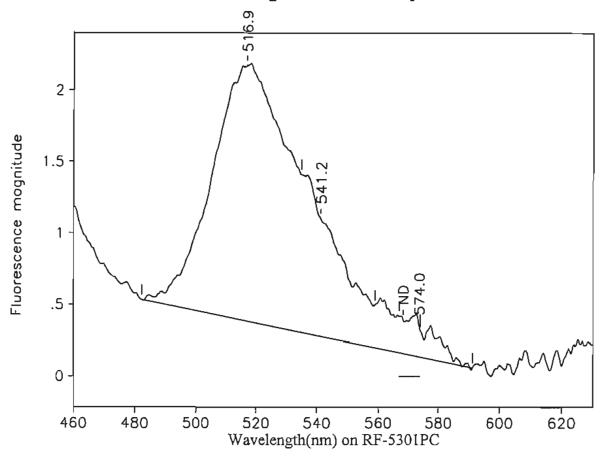
Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
		•			0.04	3.74
517.0	480.4	533.0	4.08	111.65	0.0.	211 .
541.2	533.0	558.6	2.30	48.66	0.05	-3.33
568.2	566.8	573.8	0.00	0.00	0.00	ND
574.0	558.6	597.6	0.77	22.33	0.03	2.78
						,•

Peaks close to the normal range of tracer dyes:



Analyzed: 08/01/03



Station 19: MW-2 @ 200' OUL number: M8083

Matrix: Elutant

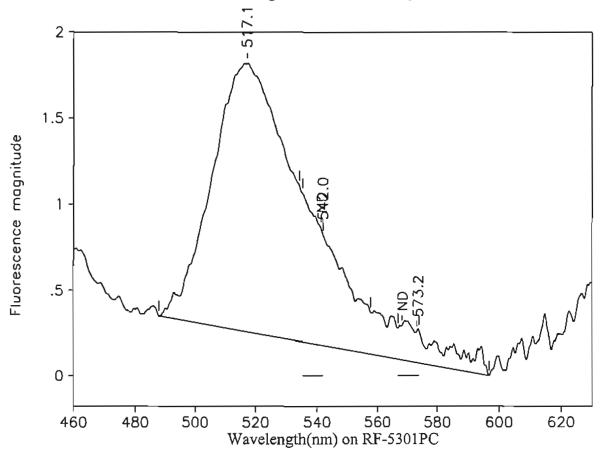
Placed: //

Analyzed: 08/01/03

Collected: 07/29/03 0944

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.			
516.9	482.2	534.9	1.79	50.74	0.04	1.70			
541.2	534.9	558.9	0.82	15.69	0.05	1.08			
568.2	566.8	573.8	0.00	0.00	0.00	ND			
574.0	558.9	591.2	0.18	5.80	0.03	0.721			
Peaks clos	Peaks close to the normal range of tracer dyes:								

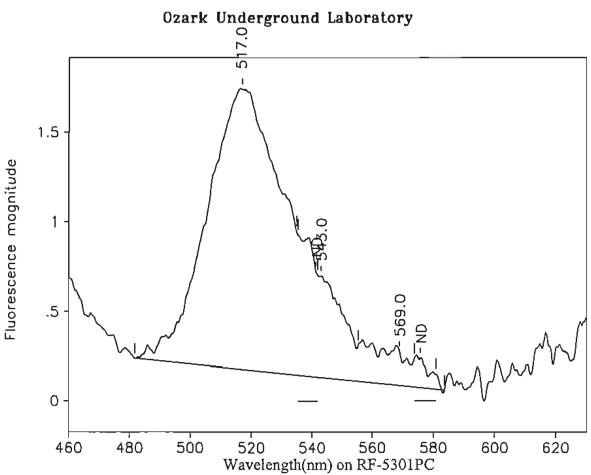


Station 20: MW-2 @ 210' OUL number: M8084 Matrix: Elutant

Placed: //

Analyzed: 08/01/03

Peaks with	iin the nom	nal range of t	tracer dyes:			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
517.1	487.8	534.2	1.56	42.28	0.04	1.42
541.3	535.2	541.8	0.00	0.00	0.00	ND
568.2	566.8	573.8	0.00	0.00	0.00	ND
573.2	557.6	596.8	0.18	6.02	0.03	0.74 8
Peaks clos	e to the nor	mal range of	f tracer dyes	3:		
542.0	534.2	557.6	0.64	12.65	0.05	0.867-



Station 21: MW-2 @ 220' OUL number: M8085

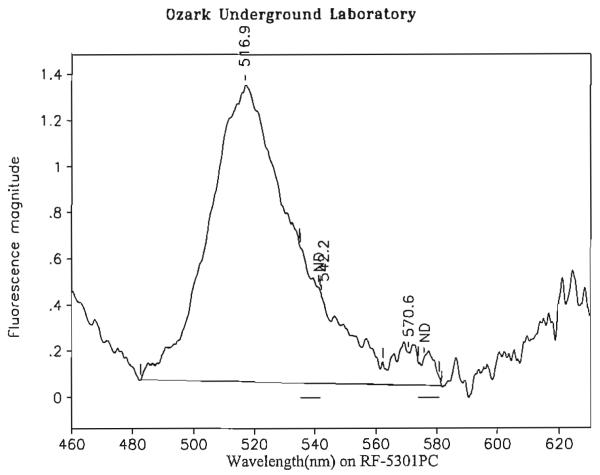
Matrix: Elutant Placed: //

Analyzed: 08/01/03

Collected: 07/29/03 0944

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.		
517.0	481.8	534.8	1.57	42.85	0.04	1.43		
541.3	535.2	541.8	0.00	0.00	0.00	ND		
569.0	555.4	583.6	0.19	4.28	0.04	-0.965 -		
575.8	573.8	580.8	0.00	0.00	0.00	ND		
Peaks close to the normal range of tracer dyes:								
543.0	534.8	555.4	0.57	10.76	0.05	0.738		



Station 22: MW-2 @ 230' OUL number: M8086

Matrix: Elutant

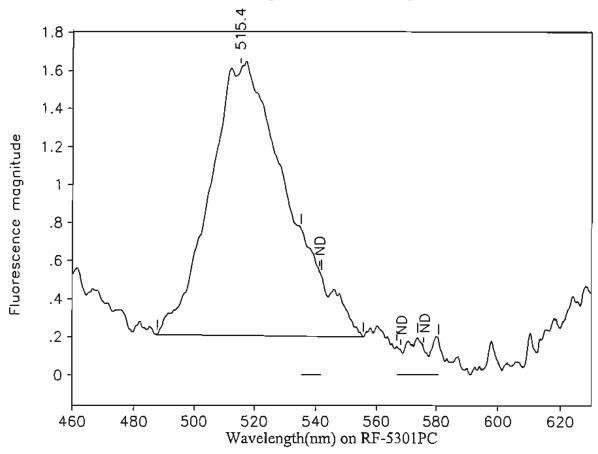
Placed: //

Analyzed: 08/01/03

Collected: 07/29/03 0944

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.			
516.9	482.8	534.9	1.29	34.70	0.04	1.16			
541.3	535.2	541.8	0.00	0.00	0.00	ND			
570.6	562.4	581.6	0.14	2.25	0.06	€ 0.506			
<i>575.</i> 8	573.8	580.8	0.00	0.00	0.00	ND			
Peaks close to the normal range of tracer dyes:									
542.2	534.9	562.4	0.38	7.92	0.05	D-543			



Station 23: MW-2 @ 240' OUL number: M8087

Matrix: Elutant

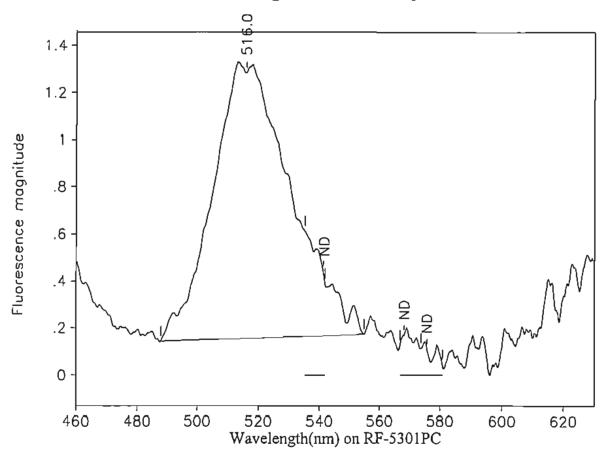
Placed: //

Analyzed: 08/01/03

Collected: 07/29/03 0944

Peaks within the normal range of tracer dyes:

I tall within the mornior range of tracer a) to:							
Peak nm	Left X	Right X	Height	Area	H/A	Conc.	
515.4	487.6	555.6	1.41	42.62	0.03	1.43	
541.3	535.2	541.8	0.00	0.00	0.00	ND	
568.2	566.8	573.8	0.00	0.00	0.00	ND	
575.8	573.8	580.8	0.00	0.00	0.00	ND	



Station 24: MW-2 @ 250' OUL number: M8088

Matrix: Elutant

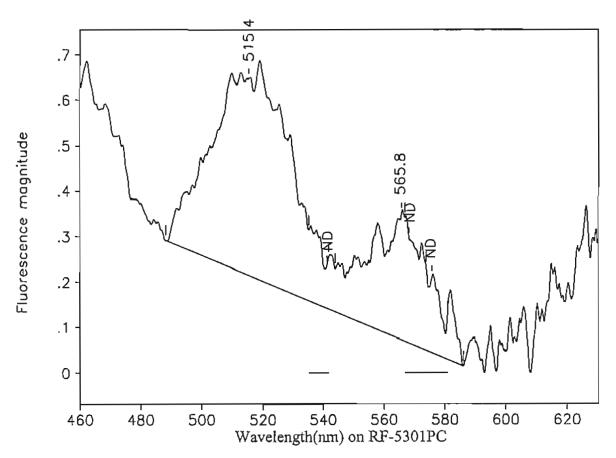
Placed: //

Analyzed: 08/01/03

Collected: 07/29/03 0944

Peaks within the normal range of tracer dyes:

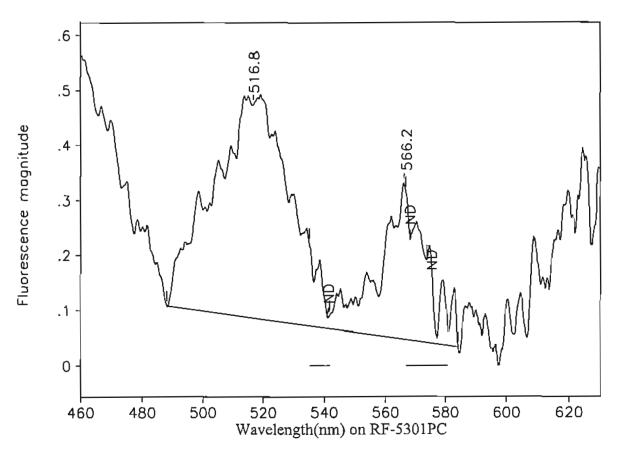
			·			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.0	487.8	554.8	1.13	34.86	0.03	1.17
541.3	535.2	541.8	0.00	0.00	0.00	ND
568.2	566.8	573.8	0.00	0.00	0.00	ND
575.8	573.8	580.8	0.00	0.00	0.00	ND



Station 25: MW-3 @ 190' OUL number: M8089 Matrix: Elutant Placed: //

Analyzed: 08/01/03

Peaks with	Peaks within the normal range of tracer dyes:										
Peak nm	Left X	Right X	Height	Area	H/A	Conc.					
515.4	488.2	544.0	0.43	14.57	0.03	-0.488 ND					
541.3	535.2	541.8	0.00	0.00	0.00	ND					
568.2	566.8	573.8	0.00	0.00	0.00	ND					
575.8	573.8	580.8	0.00	0.00	0.00	ND					
Peaks close to the normal range of tracer dyes:											
565.8	544.0	586.0	0.28	6.72	0.04	1.51					

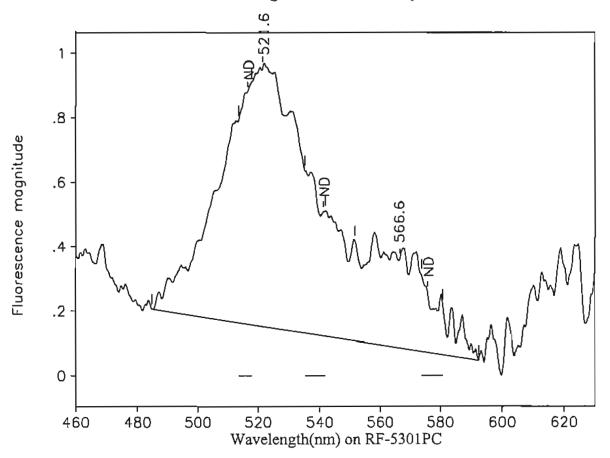


Station 26: MW-3 @ 200' OUL number: M8090 Matrix: Elutant

Placed: //

Analyzed: 08/01/03

Peaks with	nin the norm	nal range of	tracer dyes:					
Peak nm	Left X	Right X	Height	Area	H/A	Conc.		
516.8	488.2	541.6	$0.3\bar{9}$	12.10	0.03	0.405 ND		
541.3	535.2	541.8	0.00	0.00	0.00	ND		
568.2	566.8	573.8	0.00	0.00	0.00	ND		
575.8	573.8	580.8	0.00	0.00	0.00	ND		
Peaks close to the normal range of tracer dyes:								
566.2	541 6	584 2	0.28	5.05	0.06	1-14-		



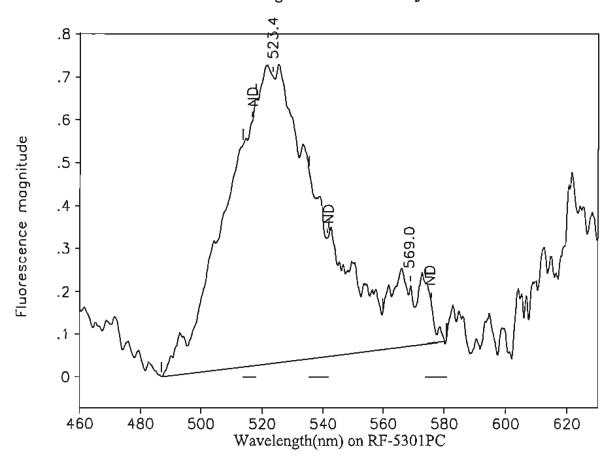
Station 27: MW-3 @ 210' OUL number: M8091

Matrix: Elutant

Placed: //

Analyzed: 08/01/03

Peaks with	Peaks within the normal range of tracer dyes:										
Peak nm	Left X	Right X	Height	Area	H/A	Conc.					
516.6	513.6	517.9	0.00	0.00	0.00	ND					
541.3	535.2	541.8	0.00	0.00	0.00	ЙD					
566.6	551.7	592.4	0.28	8.19	0.03	1.85					
575.8	573.8	580.8	0.00	0.00	0.00	ND					
Peaks close to the normal range of tracer dyes:											
521.6	484.6	551.7	0.81	29.15	0.03	0.976 ND					



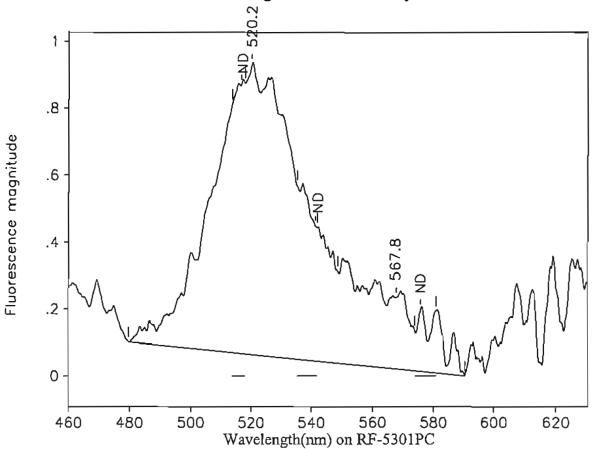
Station 28: MW-3 @ 220' OUL number: M8092

Matrix: Elutant

Placed: //

Analyzed: 08/01/03

Peaks with	Peaks within the normal range of tracer dyes:										
Peak nm	Left X	Right X	Height	Area	H/A	Conc.					
516.6	513.6	517.9	0.00	0.00	0.00	ND					
541.3	535.2	541.8	0.00	0.00	0.00	ND					
569.0	559.8	580.6	0.14	2.30	0.06	0.518					
575.8	573.8	580.8	0.00	0.00	0.00	ND					
Peaks close to the normal range of tracer dyes:											
523.4	487.0	559.8	0.67	24.15	0.03	0.808 ND					



Station 29: MW-3 @ 230' OUL number: M8093

Matrix: Elutant

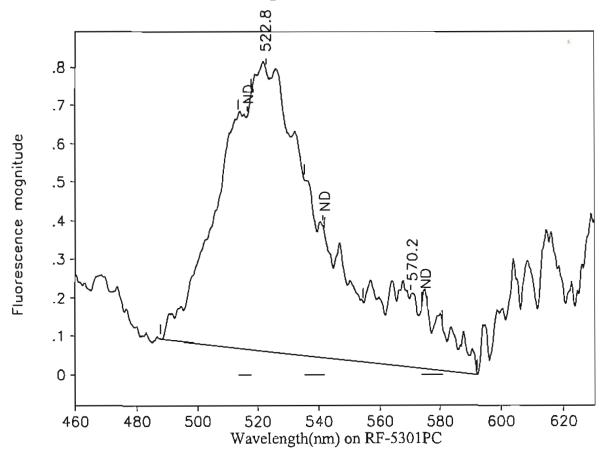
Placed: //

Analyzed: 08/01/03

Collected: 07/29/03 1016

Peaks within the normal range of tracer dves:

T OUTED WITEE	HII 1110 1101111	ui ruigo or c	tuoct ayou.			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.6	513.6	517.9	0.00	0.00	0.00	ND
541.3	535.2	541.8	0.00	0.00	0.00	ND
567.8	548.6	590.4	0.21	7.58	0.03	-1.71
575.8	573.8	580.8	0.00	0.00	0.00	ND
Peaks close	e to the non	nal range of	tracer dyes:			
520.2	479.8	548.6	0.87	30.14	0.03	1.0T ND



Station 30: MW-3 @ 240' OUL number: M8094

Matrix: Elutant

Placed: // Collected: 07/29/03 1016

Analyzed: 08/01/03

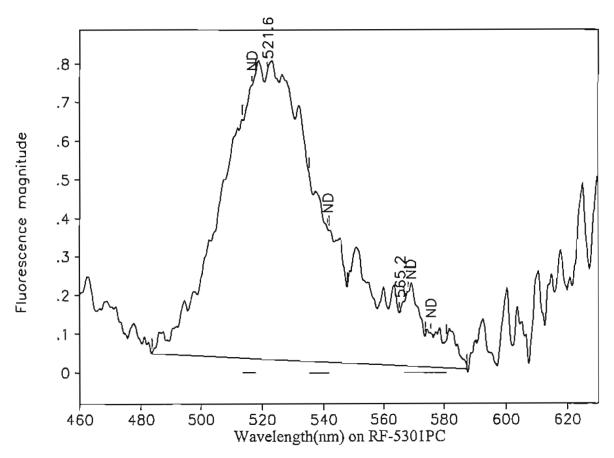
H/A

Conc.

Peaks within the normal range of tracer dyes: Peak nm Left X Right X Height

516.6	513.6	517.9	0.00	0.00	0.00	ND
541.3	535.2	541.8	0.00	0.00	0.00	ND
570.2	554.5	592.2	0.19	5.37	0.04	-1.21
575.8	573.8	580.8	0.00	0.00	0.00	ND
Peaks clo	se to the no	rmal range o	of tracer dy	es:		
522.8	487.6	554.5	0.73	26.05	0.03	0.872 NO

Area

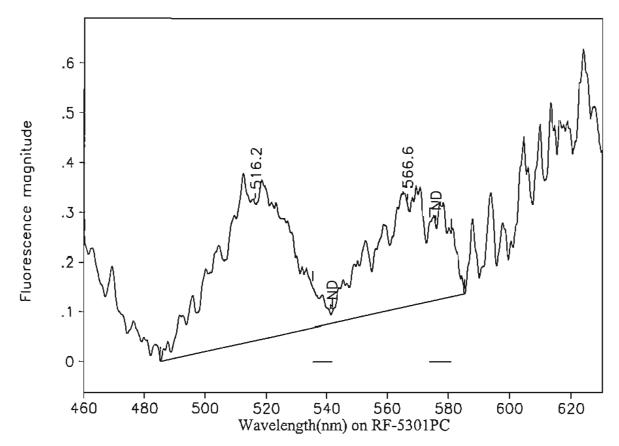


Station 46: MW-3 @ 250' OUL number: M8095 Matrix: Elutant

Placed: //

Analyzed: 08/01/03

Peaks with	hin the nor	mal range of	tracer dyes:			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.6	513.6	517.9	0.00	0.00	0.00	ND
541.3	535.2	541.8	0.00	0.00	0.00	ND
568.2	566.8	573.8	0.00	0.00	0.00	ND
575.8	573.8	580.8	0.00	0.00	0.00	ND
Peaks clos	se to the no	rmal range of	f tracer dyes	s:		
521.6	483.6	547.8	0.75	26.59	0.03	0.890 ND
565.2	547.8	587.4	0.14	5.93	0.02	1.33



Station 31: MW-4 @ 190' OUL number: M8096 Matrix: Elutant

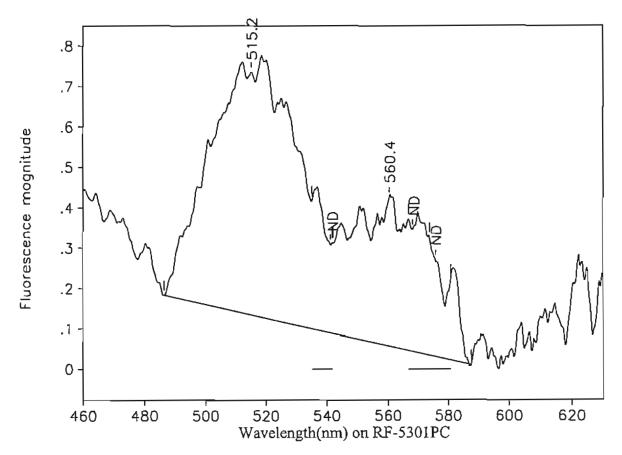
Placed: //

Analyzed: 08/01/03

Collected: 07/29/03 1111

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.2	485.2	541. 7	0.28	9.19	0.03	-0.308 NO
541.3	535.2	541.8	0.00	0.00	0.00	ND
566.6	541.7	585.2	0.21	5.95	0.04	1-34-
575.8	573.8	580.8	0.00	0.00	0.00	ND

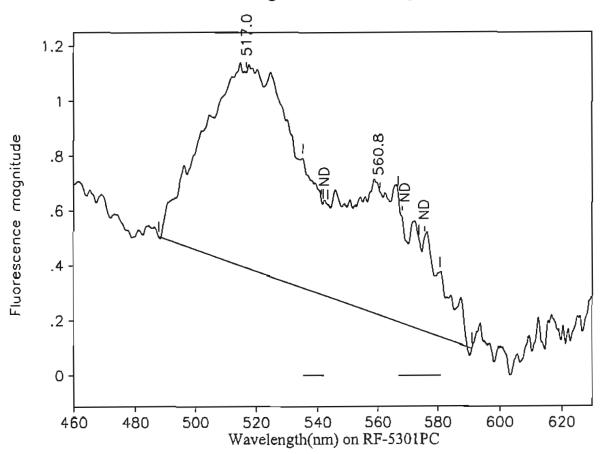


Station 32: MW-4 @ 200' OUL number: M8097

OUL number: M8097 Analyzed: 08/01/03

Matrix: Elutant
Placed: // Collected: 07/29/03 1111

Peaks within the normal range of tracer dyes: Right X H/A Conc. Peak nm Left X Height Area 0.751 ND 515.2 486.4 542.1 0.60 22.44 0.03 541.3 535.2 541.8 0.00 0.00 0.00 ND 568.2 566.8 573.8 0.00 0.00 0.00 ND 575.8 573.8 580.8 0.00 0.00 0.00 ND Peaks close to the normal range of tracer dyes: 0.03 2.63-560.4 542.1 587.6 0.37 11.68

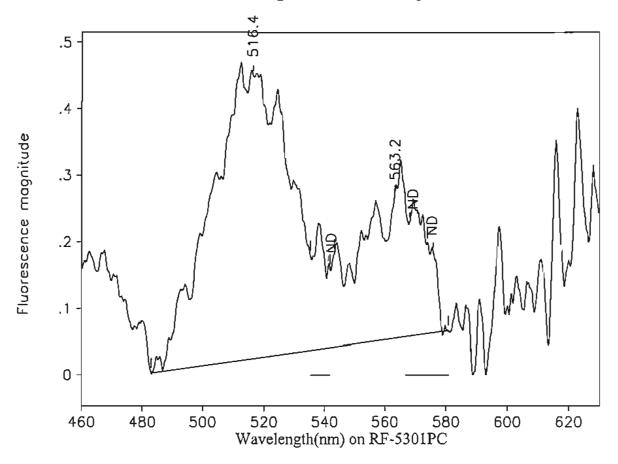


Station 33: MW-4 @ 210' OUL number: M8098 Matrix: Elutant

Placed: //

Analyzed: 08/01/03

Peaks with										
Peak nm	Left X	Right X	Height	Area	H/A	Conc.				
517.0	487.8	543.3	0.71	26.92	0.03	0.901 ND				
541.3	535.2	541.8	0.00	0.00	0.00	ND				
568.2	566.8	573.8	0.00	0.00	0.00	ND				
575.8	573.8	580.8	0.00	0.00	0.00	ND				
517.0 487.8 543.3 0.71 26.92 0.03 0.901 ND 541.3 535.2 541.8 0.00 0.00 0.00 ND 568.2 566.8 573.8 0.00 0.00 0.00 ND										
					0.03	-3.44 -				

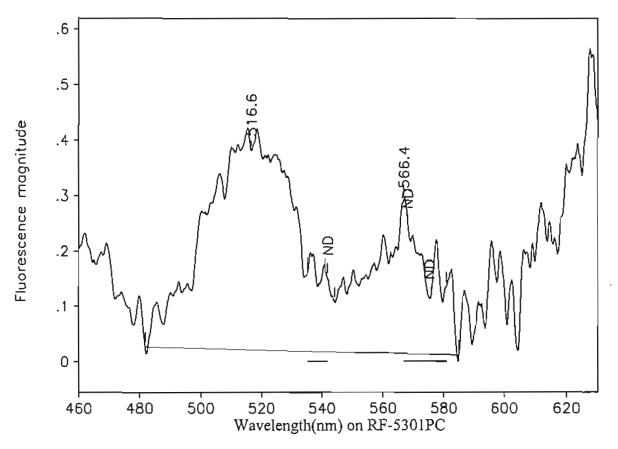


Station 34: MW-4 @ 220' OUL number: M8099 Matrix: Elutant Placed: //

Analyzed: 08/01/03

Peaks with	nin the norr	nal range of	tracer dyes:
Peak nm	Left X	Right X	Height
F1 C 4	100 0	~ 40 0	^ 40

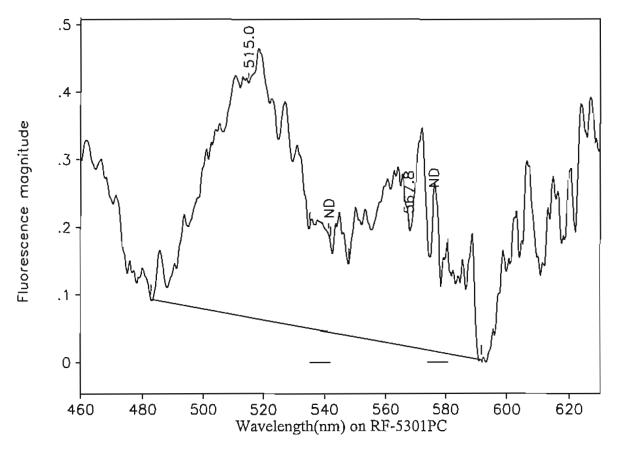
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.4	483.0	543.2	0.43	13.99	0.03	0.468 ND
541.3	535.2	541.8	0.00	0.00	0.00	ND
568.2	566.8	573.8	0.00	0.00	0.00	ND
575.8	573.8	580.8	0.00	0.00	0.00	ND
Peaks clos	e to the no	rmal range of	f tracer dyes	s:		
563.2	543.2	580.8	0.21	5.56	0.04	1.25



Station 35: MW-4 @ 230' OUL number: M8101 Matrix: Elutant Placed: //

Analyzed: 08/01/03

Peaks with	in the norm	al range of t	racer dyes:			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.6	481.8	544.2	0.36	13.93	0.03	0 .466 ND
541.3	535.2	541.8	0.00	0.00	0.00	ND
568.2	566.8	573.8	0.00	0.00	0.00	ND
575.8	573.8	580.8	0.00	0.00	0.00	ND
Peaks clos	e to the nor	mal range of	tracer dyes:			
566.4	544.2	585.0	0.27	6.27	0.04	1.41



Station 36: MW-4 @ 240' OUL number: M8102 Matrix: Elutant

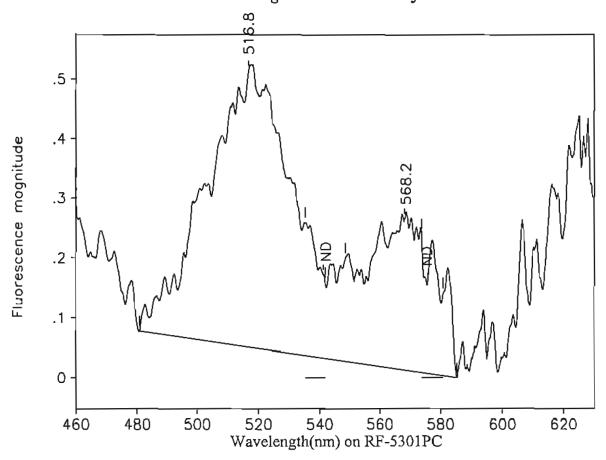
Placed: //

Analyzed: 08/01/03

Collected: 07/29/03 1111

Peaks within the normal range of tracer dyes:

Left X	Right X	Height	Area	H/A	Conc.
482.6	547.8	0.35	13.96	0.03	0:467 ND
535.2	541.8	0.00	0.00	0.00	ND
547.8	591.8	0.17	7.88	0.02	1.78
573.8	580.8	0.00	0.00	0.00	ND
	482.6 535.2 547.8	482.6 547.8 535.2 541.8 547.8 591.8	482.6 547.8 0.35 535.2 541.8 0.00 547.8 591.8 0.17	482.6 547.8 0.35 13.96 535.2 541.8 0.00 0.00 547.8 591.8 0.17 7.88	482.6 547.8 0.35 13.96 0.03 535.2 541.8 0.00 0.00 0.00 547.8 591.8 0.17 7.88 0.02



Station 37: MW-4 @ 250' OUL number: M8103

Placed: //

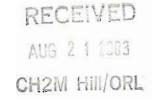
Analyzed: 08/01/03 Matrix: Elutant

Collected: 07/29/03 1111

Peaks within the normal range of tracer dyes:

Left X	Right X	Height	Area	H/A	Conc.
480.8	548.6	0.46	16.27	0.03	0.545 ND
535.2	541.8	0.00	0.00	0.00	ND
548.6	585.2	0.25	6.84	0.04	1-54
573.8	580.8	0.00	0.00	0.00	ND
	480.8 535.2 548.6	480.8 548.6 535.2 541.8 548.6 585.2	480.8 548.6 0.46 535.2 541.8 0.00 548.6 585.2 0.25	480.8 548.6 0.46 16.27 535.2 541.8 0.00 0.00 548.6 585.2 0.25 6.84	480.8 548.6 0.46 16.27 0.03 535.2 541.8 0.00 0.00 0.00 548.6 585.2 0.25 6.84 0.04

August 18, 2003



CERTIFICATE OF ANALYSIS

Alan W. Aikens, P.G. CH2MHill 225 East Robinson Street, Suite 505 Orlando, Florida 32801

Re: Festival Park - Dye analysis results for charcoal samplers shipped on August 11, 2003 Ozark Underground Laboratory (OUL) numbers M8227 through M8255.

Dear Mr. Aikens:

We have completed analysis of the charcoal samplers received by the OUL on August 12, 2003. We have indicated the OUL number for each of these samplers on the enclosed table.

The fluorescein and eosine dye concentrations are based upon standards routinely used at the OUL. The fluorescein and eosine are mixtures of 75% dye and 25% diluent. The concentrations are based upon the as-sold weight of the dye.

A summary of the results is presented in Table 1. Additional sampling information is available on the enclosed analysis graphs.

Sincerely,

Thomas J. Aley, PHG, RG

Enclosures:

- 1. Table 1. Analysis results for charcoal samplers
- 2. OUL Sample Collection Data Sheets
- 3. Nodarse & Assoc. Chain-of-Custody Record
- 4. Sample analysis graphs

f:\docs\coa\festival07.doc

Ozark Underground Laboratory, Inc. for CH2MHill

Project:

Festival Park - Project CH2MHill 177652

Samples Collected By: Date Samples Shipped: Mike Burns

Date Samples Shipped:
Date Samples Rec'd at OUL:

August 11, 2003 August 12, 2003

Date Analyzed by OUL:

August 14, 2003

Table 1. Results for charcoal samplers analyzed for the presence of fluorescein and eosine dyes. Peak wavelengths are reported in nanometers (nm); dye concentrations are reported in parts per billion (ppb).

OUL Lab#	OUL Stn #	Sample Identification	Date/Time Placed	Date/Time Collected	Fluo	rescein	Eosine	
				2003	Peak	Conc.	Peak	Conc
M8227	39	MW-1 @ 149'	NDT	8/11 1015	515.1	641	ND	
M8228	40	MW-1 @ 159'	NDT	8/11 1015	515.1	681	ND	
M8229	41	MW-1 @ 169'	NDT	8/11 1015	515.1	1050	ND	
M8230	42	MW-1 @ 179'	NDT	8/11 1015	515	687	ND	
M8231	43	MW-1 @ 189'	NDT	8/11 1015	514.7	127	ND	
M8232	44	MW-1 @ 199'	NDT	8/11 1015	514.6	162	ND	
M8233	45	MW-1 @ 209'	NDT	8/11 1015	514.7	174	ND	
M8234	18	MW-2 @ 190'	NDT	8/11 0910	517.6	3.09	536.4 **	4.93
M8235	19	MW-2 @ 200'	NDT	8/11 0910	517.7	1.23	ND	
M8236	20	MW-2 @ 210'	NDT	8/11 0910	517.8	1.35	ND	
M8237	21	MW-2 @ 220'	NDT	8/11 0910	516.7	1.12	ND	
M8238	22	MW-2 @ 230'	NDT	8/11 0910	516.8	1.07	ND	
M8239	23	MW-2 @ 240'	NDT	8/11 0910	516.5	0.789	ND	
M8240	Labor	atory control charcoal blank	× 2.2					
M8241	24	MW-2 @ 250'	NDT	8/11 0910	516.6	0.756	ND	
M8242	25	MW-3 @ 190'	NDT	8/11 0945	ND		ND	
M8243	26	MW-3 @ 200'	NDT	8/11 0945	ND		ND	
M8244	27	MW-3 @ 210'	NDT	8/11 0945	ND		ND	
M8245	28	MW-3 @ 220'	NDT	8/11 0945	ND		ND	
M8246	29	MW-3 @ 230'	NDT	8/11 0945	ND		ND	
M8247	30	MW-3 @ 240'	NDT	8/11 0945	ND		ND	
M8248	46	MW-3 @ 250'	NDT	8/11 0945	ND		ND	
M8249	31	MW-4 @ 190'	NDT	8/11 1050	ND		ND	
M8250	32	MW-4 @ 200'	NDT	8/11 1050	ND		ND	
M8251	33	MW-4 @ 210'	NDT	8/11 1050	ND		ND	
M8252	34	MW-4 @ 220'	NDT	8/11 1050	ND		ND	
M8253	35	MW-4 @ 230'	NDT	8/11 1050	ND		ND	
M8254	36	MW-4 @ 240'	NDT	8/11 1050	ND		ND	
M8255	37	MW-4 @ 250'	NDT	8/11 1050	ND		ND	

Footnotes on next page

Ozark Underground Laboratory, Inc. for CH2MHill

FOOTNOTES:

NDT = No date or time given

ND = No dye detected

** = a fluorescence peak is present that does not meet all the criteria for a positive dye result but has been calculated as though it were dye.

OZARK UNDERGROUND LABORATORY, INC.
1572 Aley Lane Protem, MO 65733 (417) 785-4289 fax (417) 785-4290 email: oul@tri-lakes.net
SAMPLE COLLECTION DATA SHEET for FLUORESCENCE ANALYSIS

Project:	roject: Festival Park/CH2M Hill			Week N	Vo <u>:</u>	Samples (Collected B	y <u>: -Lydia</u>	Wing/Mi	ke Burns		
Samples	Shipped By	: Mike	Burns	Samp	les Received E	y: John Arı	nold					
Date Sa	mples Shipp	ed <u>: 08/11/</u>	03 Date Samples Received:		~	les Received:			ırn Coole	r? Yes :	No <u>:_</u>	<u>X</u>
Bill to:					Results to:		•					
Analyze	for: Fluore	scein <u>: X</u>	Eosine: X Rhodamine WT_	Other		_Ship cooler	to:					
OUL use only			Please	Please indicate stations where dye was visible in the field for field technician use - use black ink only								OUL use only
# CHAR REC'D	LAB NUMBER Charcoal	STATION NUMBER 1-4 Numbers		STATION N				PLA DATE	CED	COLLECTED DATE TIME		# WATER REC'D
1	M8227	39	MW-1 @ 149'							8-11-03	1015	0
1	M8228	40	MW-1 @ 159'		·					8-11-03	1015	0
1	M8229	41	MW-1 @ 169'							8-11-03	1015	0
1	M8230	42	MW-1 @ 179'							8-11-03	1015	0
1	M8231	43	MW-1 @ 189'	_						8-11-03	1015	0
1	M8232	44	MW-1 @ 199'							8-11-03	1015	0
1	M8233	45	MW-1 @ 209'							8-11-03	1015	0
1	M8234	18	MW-2 @ 190'							8-11-03	0910	0
1	M8235	19	MW-2 @ 200'							8-11-03	0910	0
1	M8236	20	MW-2 @ 210'							8-11-03	0910	0
1	M8237	21	MW-2 @ 220'							8-11-03	0910	0
1	M8238 -	22	MW-2 @ 230'							8-11-03	0910	0
1	M8239 `	23	MW-2 @ 240'							8-11-03	0910	0
1	M8241	24	MW-2 @ 250'							8-11-03	0910	0
		}										
COMM	ENTS:Char	coal Blank	M8240	,								
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OZARK UNDERGRO UND LABORATORY, INC.

1572 Aley Lane Protem, MO 65733 (417) 785-4289 fax (417) 785-4290 email: oul@tri-lakes.net SAMPLE COLLECTION DATA SHEET for FLUORESCENCE ANALYSIS

Project	Festival P	ark/CH2M	Hill Week No: Samples Collected	By <u>: Lydia</u>	Wing/Mi	ke Burns						
Samples	s Shipped B	y : Mike										
			_ · · <u>— · · — </u>		urn Coole	r? Yes :	No <u>:</u>	X				
Bill to:			Send Results to: Al Akens with CH2M									
Analyze	for: Fluor	escein : X	Eosine: X Rhodamine WT Other Ship cooler to:									
	OUL se only		Please indicate stations where dye was visible in the field									
# CHAR	LAB	STATION	for field technician use - use black ink only STATION NAME	T BY A	CED	6011	ECTED	#				
REC'D	NUMBER Charcoal	NUMBER 1-4 Numbers	STATIONNALVIE	DATE TIME DATE								
1	M8242	25	MW-3 @ 190'			8-11-03	0945	REC'D				
1	M8243	26	MW-3 @ 200'			8-11-03	0945	0				
1	M8244	27	MW-3 @ 210'			8-11-03	0945	0				
1	M8245	28	MW-3 @ 220'			8-11-03	0945	0				
1	M8246	29	MW-3 @ 230'			8-11-03	0945	0				
1	M8247	30	MW-3 @ 240'			8-11-03	0945	0				
1	M8248	46	MW-3 @ 250'			8-11-03	0945	0				
1	M8249	31	MW-4 @ 190'			8-11-03	1050	0				
1	M8250	32	MW-4 @ 200'	-		8-11-03	1050	0				
1	M8251	33	MW-4 @ 210'			8-11-03	1050	0				
1	M8252	34	MW-4 @ 220'			8-11-03	1050	0				
1	M8253	35	MW-4 @ 230'			8-11-03	1050	0				
1	M8254	36	MW-4 @ 240'			8-11-03	1050	0				
1	M8255	37	MW-4 @ 250'			8-11-03	1050	0				
COMM	ENTS:	•		_								
					<u> </u>							
This she	et filled out	by OUL sta	aff? Yes X No Charts for samples on this page proofed by C	OUL:	(/			_				
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Ozark Undergra 38

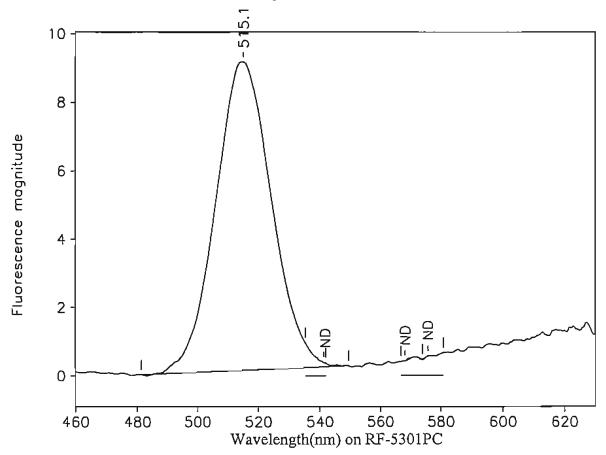
PC&B Environmental

210 Park Road, Oviedo, FL 32765 407-359-7194 (FAX) 407-359-7197

Chain of Custody

Work	Order:		
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2	mw-2 199'-209'		0910				-															7
3 4	mw-3 1910-2501		0945				~															7
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Station 39: MW-I @ 149' OUL number: M8227

Matrix: Elutant

Placed: //

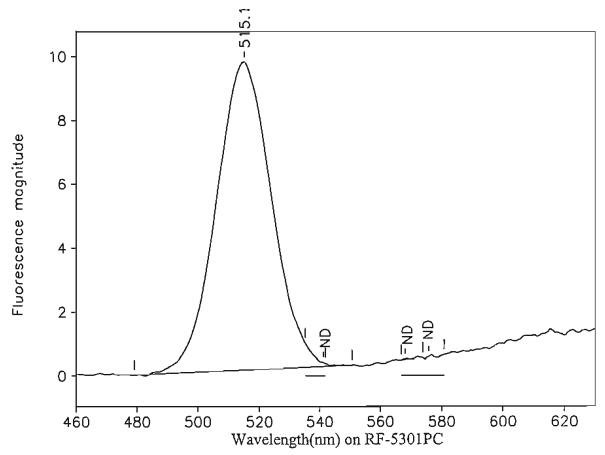
Diluted: 1 to 100 Analyzed: 08/14/03

Collected: 08/11/03 1015

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.						
515.1	481.3	549.4	9.00	191.64	0.05	641						
541.3	535.2	541.8	0.00	0.00	0.00	ND						
568.2	566.8	573.8	0.00	0.00	0.00	ND						
575.8	573.8	580.8	0.00	0.00	0.00	ND						
Peaks clos	Peaks close to the normal range of tracer dyes:											

Ca



Station 40: MW-1 @ 159' OUL number: M8228

Matrix: Elutant Placed: //

Diluted: 1 to 100 Analyzed: 08/14/03

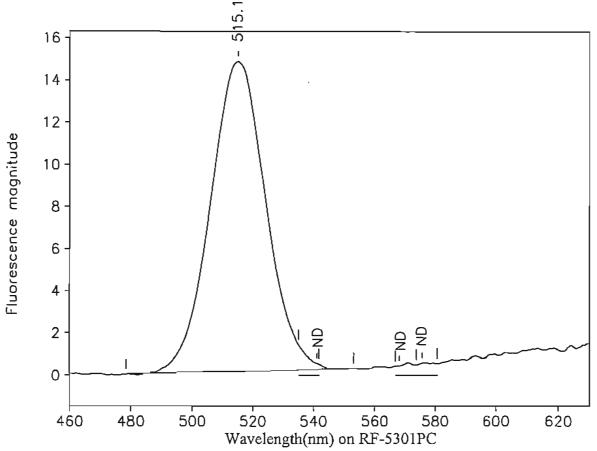
Collected: 08/11/03 1015

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.					
515.1	479.1	55 0 .7	9.65	203.60	0.05	681					
541.3	535.2	541.8	0.00	0.00	0.00	ND					
568.2	566.8	573.8	0.00	0.00	0.00	ND					
575.8	573.8	580.8	0.00	0.00	0.00	ND					
Peaks close to the normal range of tracer dyes:											

520

Cin



Station 41: MW-1 @ 169' OUL number: M8229

Matrix: Elutant

Placed: //

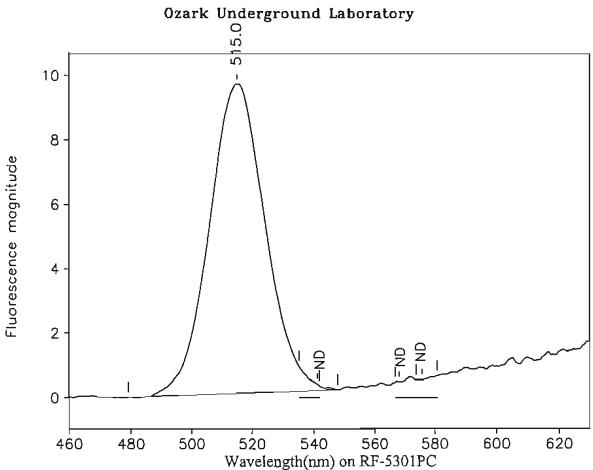
Diluted: 1 to 100 Analyzed: 08/14/03

Collected: 08/11/03 1015

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.							
515.1	478.6	553.2	14.69	313.00	0.05	1,050							
541.3	535.2	541.8	0.00	0.00	0.00	ND							
568.2	566.8	573.8	0.00	0.00	0.00	ND							
575.8	573.8	580.8	0.00	0.00	0.00	ND							





Station 42: MW-1 @ 179' OUL number: M8230

Matrix: Elutant

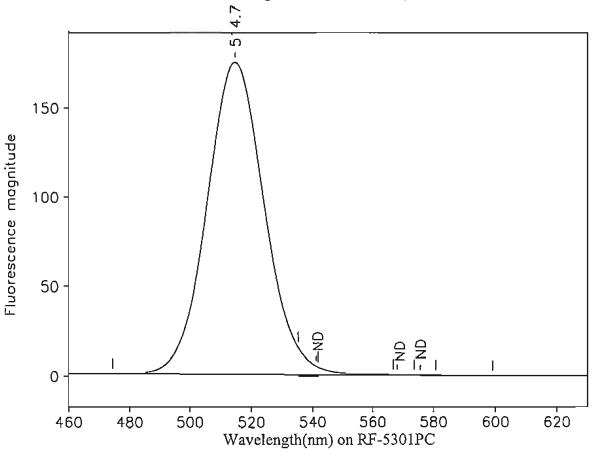
Placed: //

Diluted: 1 to 100 Analyzed: 08/14/03

Collected: 08/11/03 1015

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.	
							A.C
515.0	479.1	547 <i>.</i> 7	9.59	205.44	0.05	687	16
541.3	535.2	541.8	0.00	0.00	0.00	ND	0
568.2	566.8	573.8	0.00	0.00	0.00	ND	
575.8	573.8	580.8	0.00	0.00	0.00	ND	



Station 43: MW-1 @ 189' OUL number: M8231

Matrix: Elutant

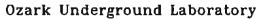
Placed: //

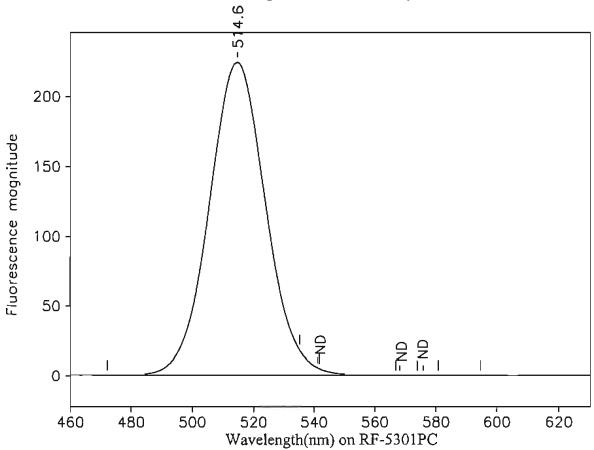
Analyzed: 08/14/03

Collected: 08/11/03 1015

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.						
514.7	474.2	5 99.0	174.69	3,812.64	0.05	127						
541.3	535.2	541.8	0.00	0.00	0.00	ND						
568.2	566.8	573.8	0.00	0.00	0.00	ND						
575.8	573.8	580.8	0.00	0.00	0.00	ND						
Peaks clos	Peaks close to the normal range of tracer dyes:											





Station 44: MW-1 @ 199' OUL number: M8232

Matrix: Elutant Placed: //

Analyzed: 08/14/03

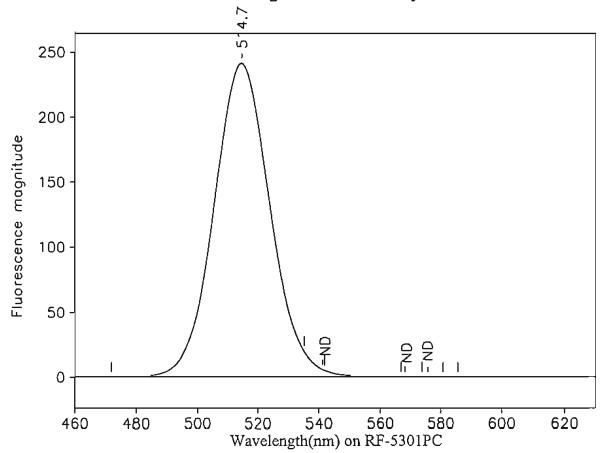
Collected: 08/11/03 1015

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
514.6	472.2	594.6	223.97	4,846.64	0.05	162
541.3	535.2	541.8	0.00	0.00	0.00	ND
568.2	566.8	573.8	0.00	0.00	0.00	ND
575.8	573.8	580.8	0.00	0.00	0.00	ND

Peaks close to the normal range of tracer dyes:

Cu



Station 45: MW-1 @ 209' OUL number: M8233

Matrix: Elutant

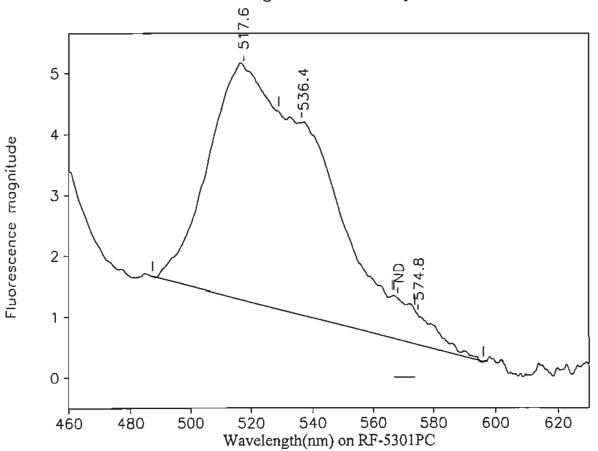
Placed: //

Analyzed: 08/14/03

Collected: 08/11/03 1015

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
514.7	472.1	585.6	241.28	5,217.88	0.05	174
541.3	535.2	541.8	0.00	0.00	0.00	ND
568.2	566.8	573.8	0.00	0.00	0.00	ND
575.8	573.8	580.8	0.00	0.00	0.00	ND



Station 18: MW-2 @ 190' OUL number: M8234

Matrix: Elutant

Placed: //

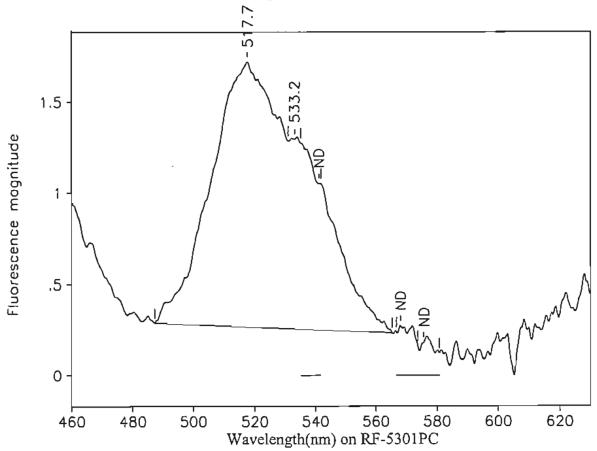
Analyzed: 08/14/03

Collected: 08/11/03 0910

Peaks within the normal range of tracer dyes:

T COURS MITTI	i cars within the normal range of tracer dyes.										
Peak nm	Left X	Right X	Height	Area	H/A	Conc.					
517.6	487.2	529.0	3.85	92.43	0.04	3.09					
536.4	529.0	566.3	3.13	76.07	0.04	4.93					
568.1	566.8	573.8	0.00	0.00	0.00	ND					
574.8	566.3	596.0	0.50	9.82	0.05	0.997					
Peaks close to the normal range of tracer dyes:											

526

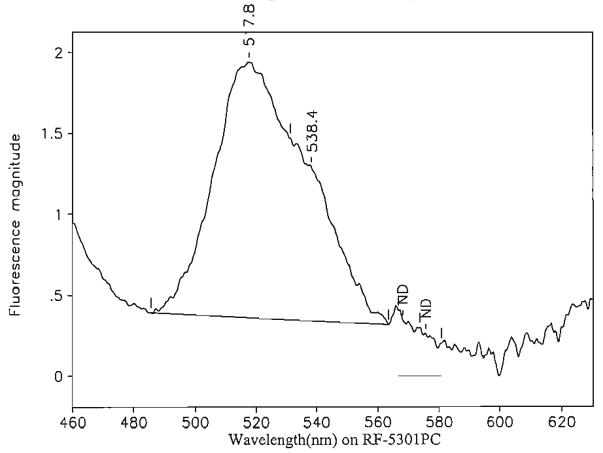


Station 19: MW-2 @ 200' OUL number: M8235 Matrix: Elutant

Placed: //

Analyzed: 08/14/03

Peaks with	nin the nor	mal range of	tracer dyes:			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
517.7	487.2	531.0	1.45	36.72	0.04	1.23
541.2	535.2	541.8	0.00	0.00	0.00	ND
568.2	566.8	573.8	0.00	0.00	0.00	ND
575.8	573.8	580.8	0.00	0.00	0.00	ND
Peaks clos	e to the no	rmal range of	f tracer dye	s:		
533.2	531.0	565.4	1.04	17.56	0.06	1.14 ND



Station 20: MW-2 @ 210' OUL number: M8236

Matrix: Elutant

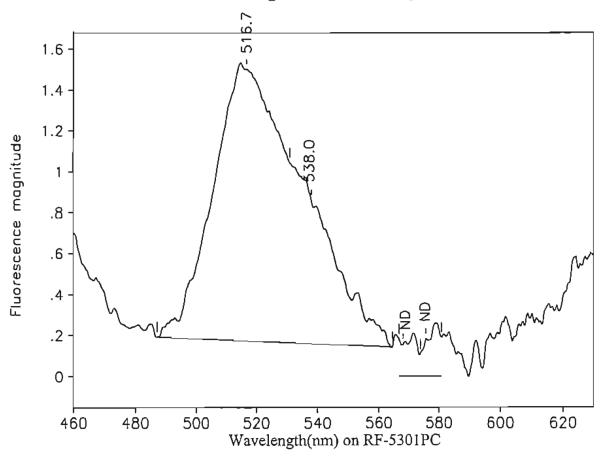
Placed: //

Analyzed: 08/14/03

Collected: 08/11/03 0910

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
517.8	485.8	531.5	1.58	40.30	0.04	1.35
538.4	531.5	563.6	0.95	17.01	0.06	LHOWN
568.2	566.8	573 <i>.</i> 8	0.00	0.00	0.00	ND .
575.8	573.8	580.8	0.00	0.00	0.00	ND



Station 21: MW-2 @ 220' OUL number: M8237

Matrix: Elutant

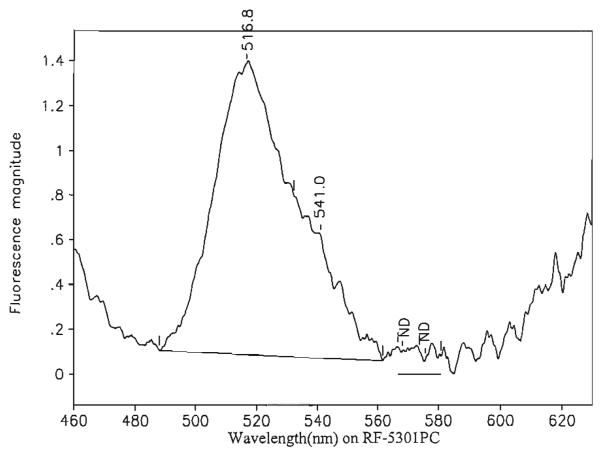
Placed: //

Analyzed: 08/14/03

Collected: 08/11/03 0910

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.	
516.7	487.0	53 1.0	1.33	33.41	0.04	1.12	1
538.0	531.0	564.6	0.70	13.73	0.05	9890 MD	Co
568.2	566.8	573.8	0.00	0.00	0.00	ND	
575 8	573 R	580 R	ስ ስስ	ለ በበ	በ በበ	MD	



Station 22: MW-2 @ 230' OUL number: M8238

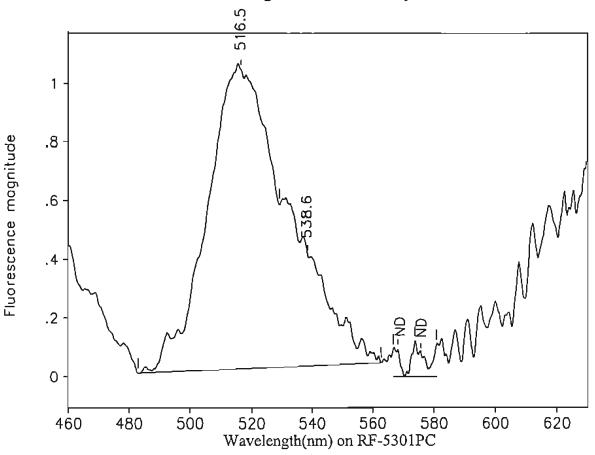
Matrix: Elutant Placed: //

Analyzed: 08/14/03

Collected: 08/11/03 0910

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.		
516.8	488.0	532.2	1.30	32.06	0.04	1.07	1	
541.0	532.2	561.6	0.55	10.05	0.05	0.651NO		
568.2	566.8	573 <i>.</i> 8	0.00	0.00	0.00	ND		
575.8	573.8	580.8	0.00	0.00	0.00	ND		
Peaks close to the normal range of tracer dyes:								



Station 23: MW-2 @ 240' OUL number: M8239

Matrix: Elutant

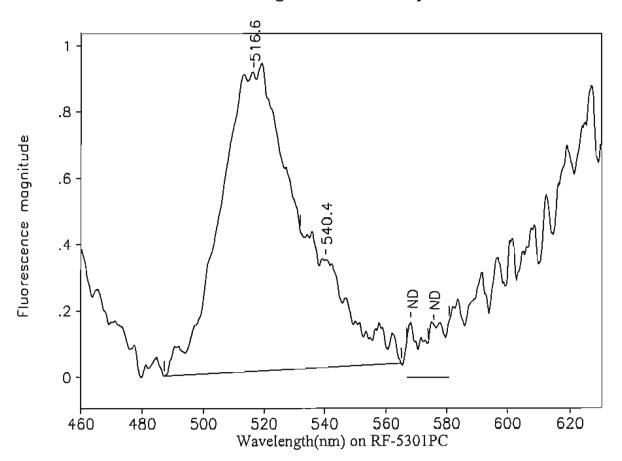
Placed: //

Analyzed: 08/14/03

Collected: 08/11/03 0910

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.	
516.5	483.0	529.1	1.02	23.59	0.04	0.789	
<i>5</i> 38.6	529.1	562.8	0.38	8.63	0.04	0.559MD	/ ~
568.2	566.8	573.8	0.00	0.00	0.00	ND	
575.8	573.8	580.8	0 0 0	በ በበ	0.00	ND	



Station 24: MW-2 @ 250' OUL number: M8241

Matrix: Elutant

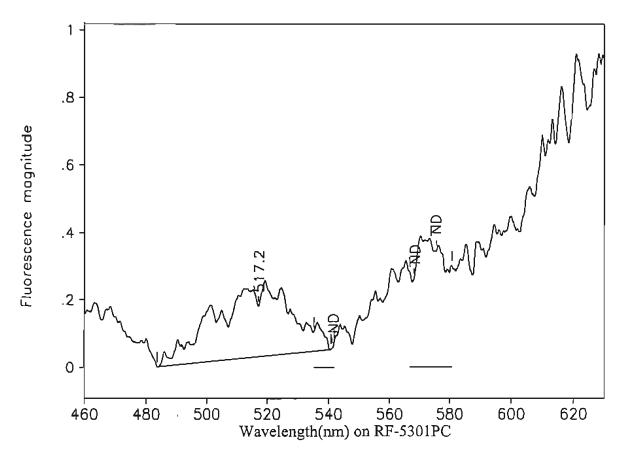
Placed: //

Analyzed: 08/14/03

Collected: 08/11/03 0910

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.6	487.2	532.0	0.90	22.62	0.04	0.756
540.4	532.0	565.0	0.33	6.60	0.05	D428-ND
568.2	566.8	573.8	0.00	0.00	0.00	ND
575.8	573.8	580.8	0.00	0.00	0.00	ND



Station 25: MW-3 @ 190' OUL number: M8242

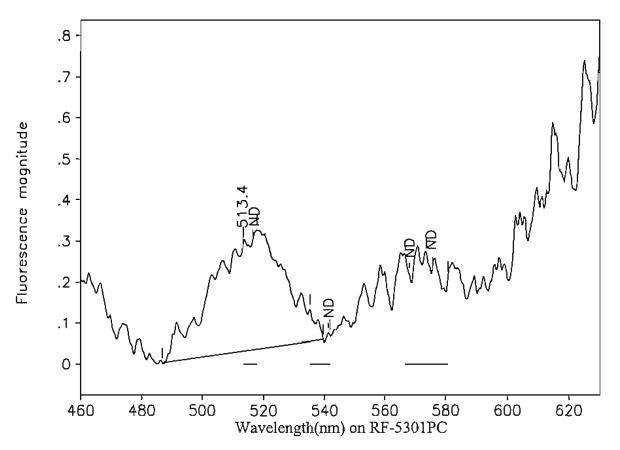
Matrix: Elutant Placed: //

Analyzed: 08/14/03

Collected: 08/11/03 0945

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
517.2	483.6	540.8	0.15	6.44	0.02	1215 NO
541.3	535.2	541.8	0.00	0.00	0.00	ND
568.2	566.8	573.8	0.00	0.00	0.00	ND
575.8	573.8	580.8	0.00	0.00	0.00	ND
		-	A . 1			



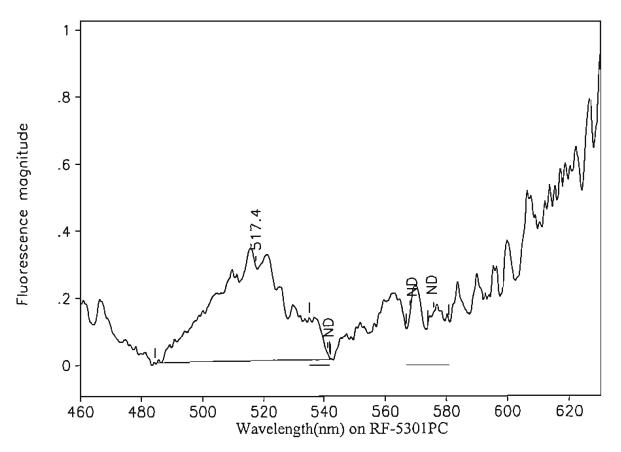
Station 26: MW-3 @ 200' OUL number: M8243

OUL number: M8243 Analyzed: 08/14/03

Matrix: Elutant Placed: //

Placed: // Collected: 08/11/03 0945

Peaks within the normal range of tracer dyes:								
Peak nm	Left X	Right X	Height	Area	H/A	Conc.		
516.6	513.6	517.9	0.00	0.00	0.00	ND		
541.2	535.2	541.8	0.00	0.00	0.00	ND		
568.1	566.8	573.8	0.00	0.00	0.00	ND		
575.8	573.8	580.8	0.00	0.00	0.00	ND		
Peaks close to the normal range of tracer dyes:								
513.4	486.8	539.6	0.26	7.98	0.03	0267 ND		



Station 27: MW-3 @ 210' OUL number: M8244

Matrix: Elutant

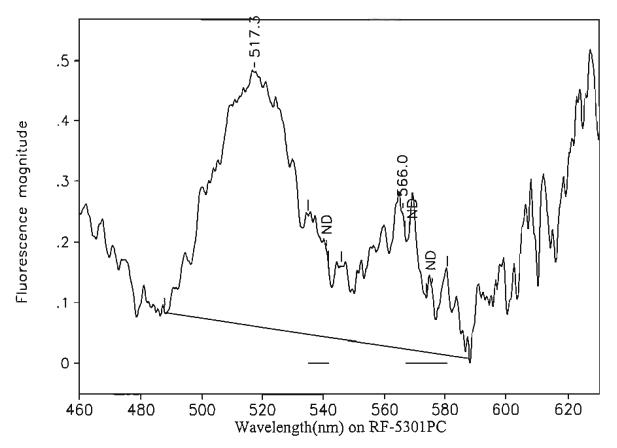
Placed: //

Analyzed: 08/14/03

Collected: 08/11/03 0945

Peaks within the normal range of tracer dyes:

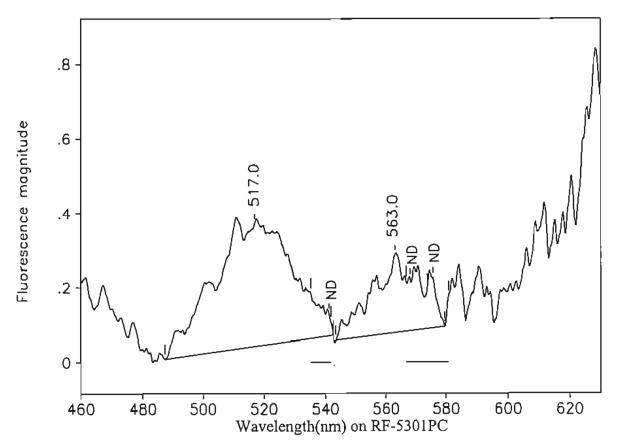
Peak nm	Left X	Right X	Height	Area	H/A	Conc.		
517.4	484.4	542.2	0.28	9.33	0.03	0312 ND		
541.3	535.2	541.8	0.00	0.00	0.00	ND		
568.2	566.8	573.8	0.00	0.00	0.00	ND		
575.8	573.8	580.8	0.00	0.00	0.00	ND		
Peaks close to the normal range of tracer dyes:								



Station 28: MW-3 @ 220' OUL number: M8245 Matrix: Elutant Placed: //

Analyzed: 08/14/03

Peaks with	nin the nor	nal range of	tracer dyes:					
Peak nm	Left X	Right X	Height	Area	H/A	Conc.		
517.3	487.6	546.0	0.42	13.92	0.03	DA63 ND		
541.2	535.2	541.8	0.00	0.00	0.00	ND		
568.2	566.8	573.8	0.00	0.00	0.00	ND		
575.8	573.8	580.8	0.00	0.00	0.00	ND		
Peaks clos	Peaks close to the normal range of tracer dyes:							
566.0	546.0	588.0	0.22	5.61	0.04	1.03 M		



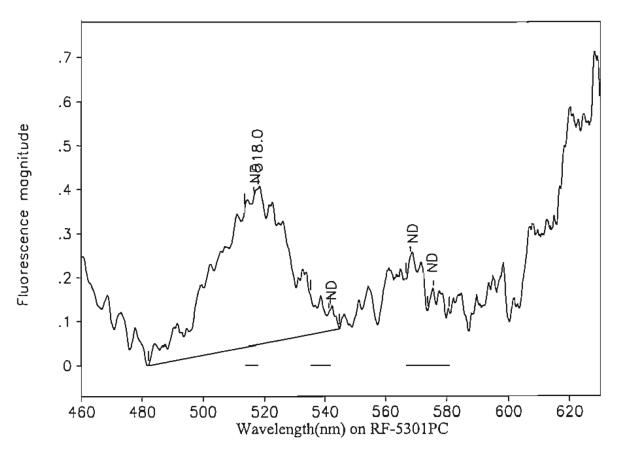
Station 29: MW-3 @ 230' OUL number: M8246

Matrix: Elutant

Placed: //

Analyzed: 08/14/03

Peaks with	nin the norr	nal range of	tracer dyes:				
Peak nm	Left X	Right X	Height	Area	H/A	Conc.	
517.0	487.2	542.6	0.33	10.30	0.03	D.344 NO	
541.2	535.2	541.8	0.00	0.00	0.00	ND	
568.1	566.8	573.8	0.00	0.00	0.00	ND	
575.8	573.8	580.8	0.00	0.00	0.00	ND	
Peaks close to the normal range of tracer dyes:							
563.0	543.4	579.6	0.21	3 <i>.</i> 95	0.05	D.723 NO	



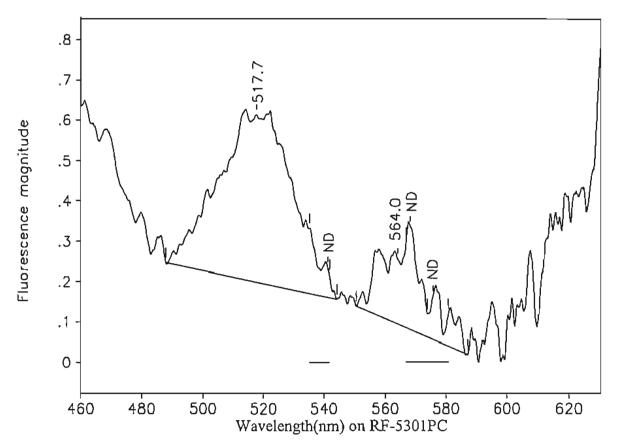
Station 30: MW-3 @ 240' OUL number: M8247

Matrix: Elutant

Placed: //

Analyzed: 08/14/03

Peaks within the normal range of tracer dyes:								
Peak nm	Left X	Right X	Height	Area	H/A	Conc.		
516.6	513.6	517.9	0.00	0.00	0.00	ND		
541.3	535.2	541.8	0.00	0.00	0.00	ND		
568.2	566.8	573.8	0.00	0.00	0.00	ND		
575.8	573.8	580.8	0.00	0.00	0.00	ND		
Peaks clos	Peaks close to the normal range of tracer dyes:							
518.0	482.0	544.8	0.35	10.17	0.03	0340 ND		



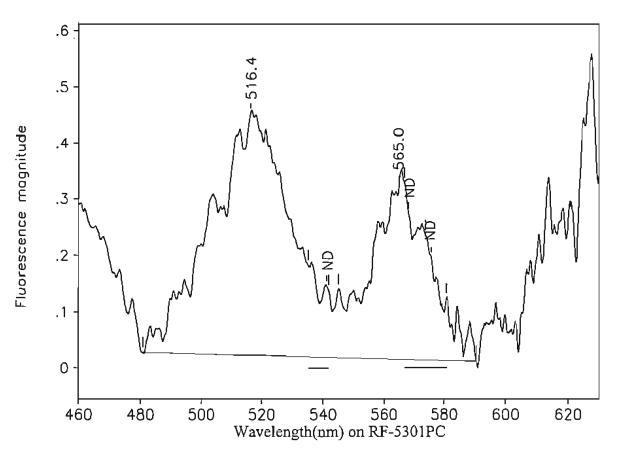
Station 46: MW-3 @ 250' OUL number: M8248

Matrix: Elutant Placed: //

Analyzed: 08/14/03

Peaks	within	the	normal	range	of tr	acer dyes	s:
	_	•					

Peak nm	Left X	Right X	Height	Area	H/A	Conc.		
517.7	487.8	544.2	0.42	12.29	0.03	DATT NO		
541.3	535.2	541.8	0.00	0.00	0.00	ND		
568.2	566.8	573.8	0.00	0.00	0.00	ND		
575.8	573.8	580.8	0.00	0.00	0.00	ND		
Peaks close to the normal range of tracer dyes:								
564.0	550.6	587.2	0.16	4.02	0.04	0.735 NM		



Station 31: MW-4 @ 190' OUL number: M8249

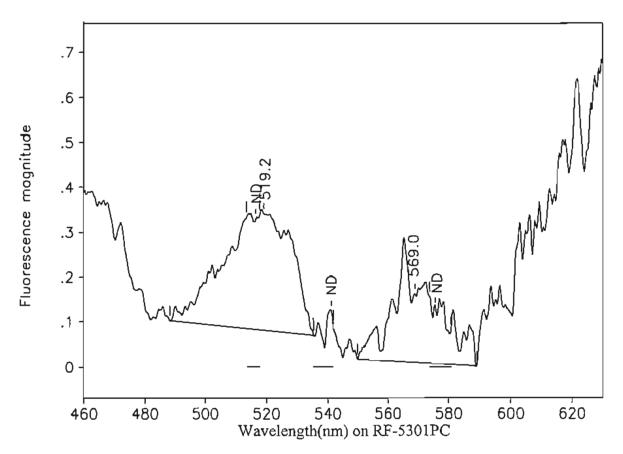
Matrix: Elutant Placed: // Collected: 08/11/03 1050

Peaks within the normal range of tracer dyes:

Peak pm Left Y Right Y Height

Peak nm	Left X	Right X	Height	Area	H/A	Conc.			
516.4	480.8	545.1	0.43	13.56	0.03	D.453 NV			
541.2	535.2	541.8	0.00	0.00	0.00	ND			
568.2	566.8	573.8	0.00	0.00	0.00	ND			
<i>5</i> 75 <i>.</i> 8	573.8	580.8	0.00	0.00	0.00	ND			
Peaks close to the normal range of tracer dyes:									
565.0	545.1	590.6	0.31	7.25	0.04	133- NO			

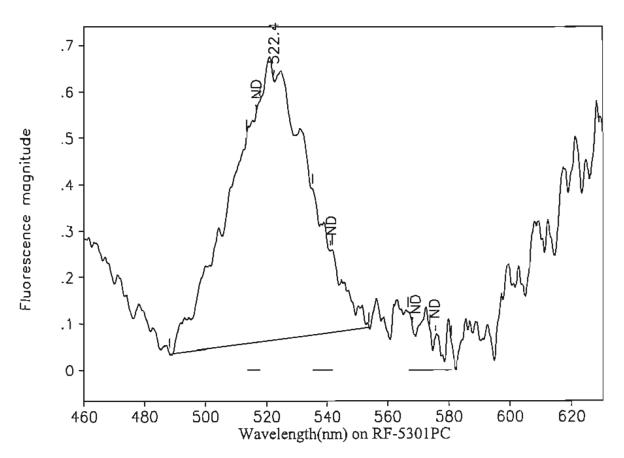
Analyzed: 08/14/03



Station 32: MW-4 @ 200' OUL number: M8250 Matrix: Elutant Placed: //

Analyzed: 08/14/03

Peaks with	nin the nor	nal range of	tracer dyes	;					
Peak nm	Left X	Right X	Height	Area	H/A	Conc.			
516.6	513.6	51 7 .9	0.00	0.00	0.00	ND			
541.2	535.2	541.8	0.00	0.00	0.00	ND _			
569.0	549.8	589.0	0.15	4.01	0.04	0.733			
575.8	573.8	580.8	0.00	0.00	0.00	ND			
Peaks clos	Peaks close to the normal range of tracer dyes:								
519.2	488.2	535.4	0.26	6.86	0.04	D.229			



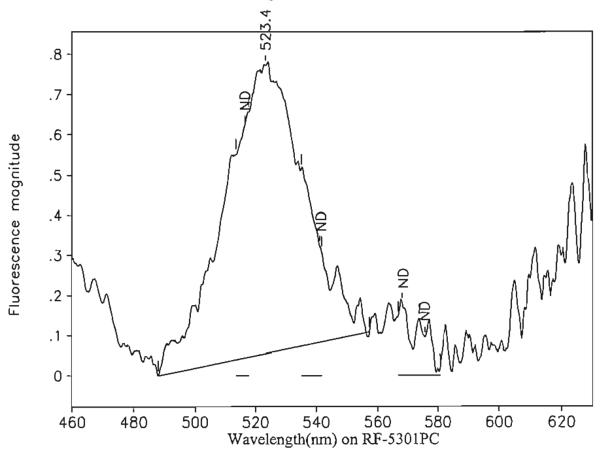
Station 33: MW-4 @ 210' OUL number: M8251

Matrix: Elutant

Placed: //

Analyzed: 08/14/03

Peaks with	nin the nor	mal range of	tracer dyes:	:					
Peak nm	Left X	Right X	Height	Area	H/A	Conc.			
516.6	513.6	517.9	0.00	0.00	0.00	ND			
541.3	535.2	541.8	0.00	0.00	0.00	ND			
568.2	566.8	573.8	0.00	0.00	0.00	ND			
575.8	573.8	580.8	0.00	0.00	0.00	ND			
Peaks clos	Peaks close to the normal range of tracer dyes:								
522.4	488.4	554.0	0.56	18.08	0.03	0.604			



Station 34: MW-4 @ 220' OUL number: M8252

Matrix: Elutant

Placed: //

Analyzed: 08/14/03

0.03

Collected: 08/11/03 1050

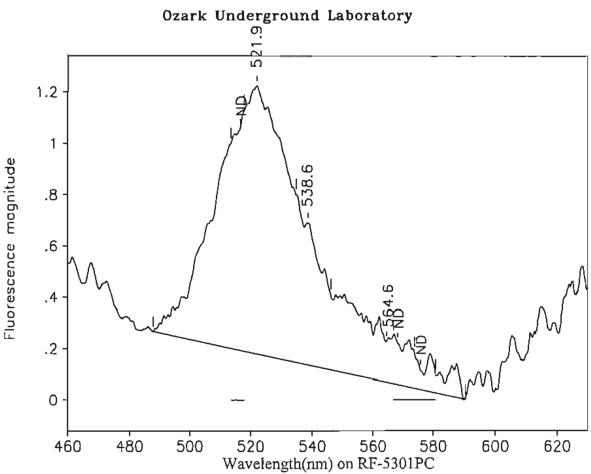
Peaks within the normal range of tracer dyes:							
Peak nm	Left X	Right X	Height	Area			
516.6	513.6	517.9	0.00	0.00			

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.6	513.6	517.9	0.00	0.00	0.00	ND
541.3	535.2	541.8	0.00	0.00	0.00	ND
568.2	566.8	573.8	0.00	0.00	0.00	ND
575.8	573.8	580.8	0.00	0.00	0.00	ND
Dooles ales			ftun oan drin	• •		

Peaks close to the normal range of tracer dyes: 488.0 557.4 523.4 0.72

22.31

2746 NO

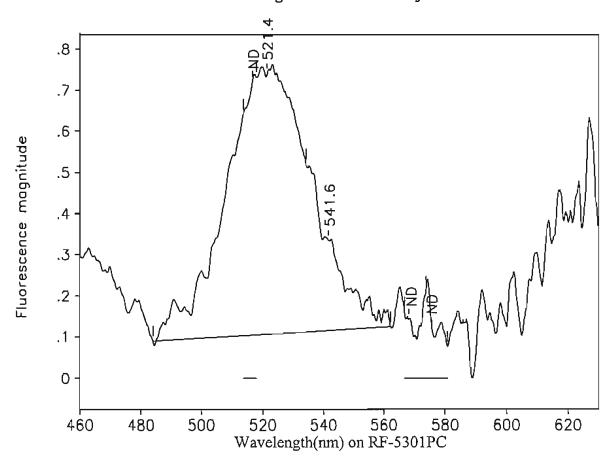


Station 35: MW-4 @ 230' OUL number: M8253

Matrix: Elutant Placed: //

Analyzed: 08/14/03

Peaks within the normal range of tracer dyes:									
/A Conc.									
.00 ND									
10 0.356 NO									
.00 ND									
.00 ND									
Peaks close to the normal range of tracer dyes:									
.04 - 0.89 T NO									
.02 138 ND									



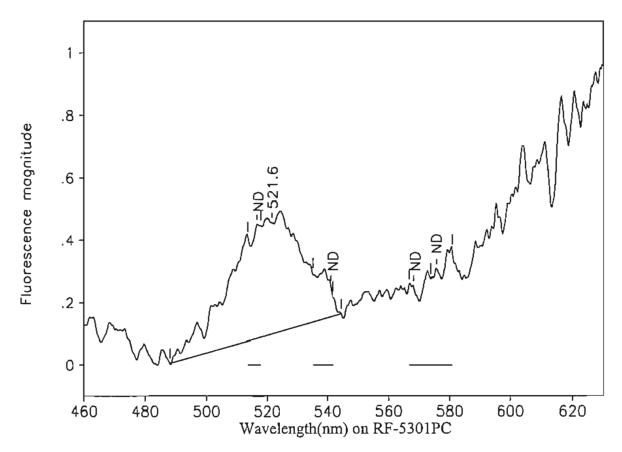
Station 36: MW-4 @ 240' OUL number: M8254

Matrix: Elutant

Placed: //

Analyzed: 08/14/03

Peaks with	in the norr	nal range of	tracer dyes:			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.6	513.6	517.9	0.00	0.00	0.00	ND
541.6	534.3	562.2	0.22	4.16	0.05	0.270 ND
568.1	566.8	573.8	0.00	0.00	0.00	ND
575.8	573.8	580.8	0.00	0.00	0.00	ND
Peaks clos	e to the no	rmal range of	f tracer dyes	S:		
521.4	484.0	534.2	0.64	17.47	0.04	0584 ND



Station 37: MW-4 @ 250' OUL number: M8255

Matrix: Elutant

Placed: //

Analyzed: 08/14/03

Peaks within the normal range of tracer dyes:										
Peak nm	Left X	Right X	Height	Area	H/A	Conc.				
516.6	513.6	517.9	0.00	0.00	0.00	ND				
541.3	535.2	541.8	0.00	0.00	0.00	ND				
568.2	566.8	573.8	0.00	0.00	0.00	ND				
575.8	573.8	580.8	0.00	0.00	0.00	ND				
Peaks clos	Peaks close to the normal range of tracer dyes:									
521.6	488.2	544.6	0.36	11.10	0.03	0.371				



1572 Aley Lane

Protem, MO 65733

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fax (417) 785-4290

oul@tri-lakes.net

September 5, 2003



CERTIFICATE OF ANALYSIS

Alan W. Aikens, P.G. CH2MHill 225 East Robinson Street, Suite 505 Orlando, Florida 32801

Re: Festival Park - Dye analysis results for charcoal samplers shipped on August 25, 2003 Ozark Underground Laboratory (OUL) numbers M8457 through M8486.

Dear Mr. Aikens:

We have completed analysis of the charcoal samplers received by the OUL on August 26, 2003. We have indicated the OUL number for each of these samplers on the enclosed table.

The fluorescein and eosine dye concentrations are based upon standards routinely used at the OUL. The fluorescein and eosine are mixtures of 75% dye and 25% diluent. The concentrations are based upon the as-sold weight of the dye.

A summary of the results is presented in Table 1. Additional sampling information is available on the enclosed analysis graphs.

Sincerely,

Thomas J. Aley, PHG, RG

Enclosures:

- 1. Table 1. Analysis results for charcoal samplers
- 2. OUL Sample Collection Data Sheets
- 3. Nodarse & Assoc. Chain-of-Custody Record
- 4. Sample analysis graphs

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Ozark Underground Laboratory, Inc. for CH2MHill

Project:

Festival Park - Project CH2MHill 177652

Samples Collected By:

Mike Burns

Date Samples Shipped:

August 25, 2003

Date Samples Rec'd at OUL: Date Analyzed by OUL: August 26, 2003 August 29, 2003

Table 1. Results for charcoal samplers analyzed for the presence of fluorescein and eosine dyes. Peak wavelengths are reported in nanometers (nm); dye concentrations are reported in parts per billion (ppb).

OUL Lab#	OUL Stn #	Sample Identification	Date/Time Placed	Date/Time Collected	Fluo	rescein	Eosine	
				2003	Peak	Conc.	Peak	Conc
M8457	39	MW-1 @ 149'	NDT	8/25/03	515.4	494	מא	
M8458	40	MW-1 @ 159'	NDT	8/25/03	515.5	577	ND	
M8459	41	MW-I @ 169'	NDT	8/25/03	515.5	527	ND	
M8460	Labor	ratory control charcoal blank	k a					
M8461	42	MW-1 @ 179'	NDT	8/25/03	515.4	497	ND	
M8462	43	MW-1 @ 189'	NDT	8/25/03	515.0	121	ND	
M8463	44	MW-1 @ 199'	NDT	8/25/03	514.5	144	ND	
M8464	45	MW-1 @ 209'	NDT	8/25/03	514.9	216	ND	
M8465	18	MW-2 @ 190'	NDT	8/25/03	517.4	3.53	536.6 **	5.18
M8466	19	MW-2 @ 200'	NDT	8/25/03	516.4	1.17	536.6 **	1.32
M8467	20	MW-2 @ 210'	NDT	8/25/03	516.4	1.42	ND	
M8468	21	MW-2 @ 220'	NDT	8/25/03	517.2	0.749	ND	
M8469	22	MW-2 @ 230'	NDT	8/25/03	517.4	0.737	ND	
M8470	23	MW-2 @ 240'	NDT	8/25/03	516.8	0.908	ND	
M8471	24	MW-2 @ 250'	NDT	8/25/03	ND		ND	
M8472	25	MW-3 @ 190'	NDT	8/25/03	ND		ND	
M8473	26	MW-3 @ 200'	NDT	8/25/03	ND		DM	
M8474	27	MW-3 @ 210'	NDT	8/25/03	ND		ND	
M8475	28	MW-3 @ 220'	NDT	8/25/03	ND		ND	
M8476	29	MW-3 @ 230'	NDT	8/25/03	ND		ND	
M8477	30	MW-3 @ 240'	NDT	8/25/03	ND		ND	
M8478	46	MW-3 @ 250'	NDT	8/25/03	ND		ND	
M8479	31	MW-4 @ 190'	NDT	8/25/03	ND		ND	
M8480	Labo	ratory control charcoal blan	k	Programme and the	V4 1930 A T		u a ka	
M8481	32	MW-4 @ 200'	NDT	8/25/03	ND		ND	
M8482	33	MW-4 @ 210'	NDT	8/25/03	ND		ND	
M8483	34	MW-4 @ 220'	NDT	8/25/03	ND		ND	
M8484	35	MW-4 @ 230'	NDT	8/25/03	ND		ND	
M8485	36	MW-4 @ 240'	NDT	8/25/03	ND		ND	
M8486	37	MW-4 @ 250'	NDT	8/25/03	ND		ND	

(Footnotes on next page)

Ozark Underground Laboratory, Inc. for CH2MHill

FOOTNOTES:

NDT = No date or time given

ND = No dye detected

** = A fluorescence peak is present that does not meet all the criteria for a positive dye result but has been calculated as though it were dye.

OZARK UNDERGROUND LABORATORY, INC.

1572 Aley Lane Protem, MO 65733 (417) 785-4289 fax (417) 785-4290 email: oul@tri-lakes.net SAMPLE COLLECTION DATA SHEET for FLUORESCENCE ANALYSIS

Project <u>:</u>	Festival Pa	ark/CH2M)	Hill	Week No:	_Samples Collected B	y: Mike	Burns			
Samples	Shipped By	y : Mike	Burns	Samples Received By	: Julie Stearman					
Date Sa				• — -	s Received: 1230		n Cooler	? Yes :	_No:	<u>x</u> .
Bill to <u>:</u>			-	Send Results to:	Al Akens with CH2M	Hill				
Analyze	for: Fluore	escein : X	Eosine:	X_Rhodamine WTOther	Ship cooler to:					
OUL use only				Please indicate stations where dy for field technician use - u.		<u>field</u>				OUL use only
# CHAR	LAB	STATION		STATION NAME	se diack lik only	PLA	CED	COLLE	CTED	Ħ
REC'D	NUMBER Charcoal	NUMBER 1-4 Numbers		SITTION		DATE	TIME	DATE	TIME	WATER REC'D
1	M8457	39	MW-1	@ 149'	^_			8/25/03		0
1	M8458	40	MW-1	@ 159'				8/25/03		0
1	M8459	41	MW-1	@ 169'				8/25/03		0
1	M5461	42	MW-1	@ 179'				8/25/03		0
1	M8462	43	MW-1	@ 189'				8/25/03		0
1	M8463	44	MW-1	@ 199'				8/25/03		0
1	M8464	45	MW-1	@ 209'			_	8/25/03		0
1	M8465	18	MW-2	@ 190'				8/25/03		0
1	M8466	19	MW-2	@ 200'				8/25/03		0
1	M8467	20	MW-2	@ 210'				8/25/03		0
1	M8468	21	MW-2	@ 220'				8/25/03		0
1	M8469	22	MW-2	@ 230'				8/25/03		0
1	M8470	23	MW-2	@ 240'				8/25/03		0
1	M8471	24	MW-2	@ 250'				8/25/03		0
COMM	ENTS: Ch	arcoal Blank	k = M846	0						
			400 5-				(%			
\sim				X No Charts for samples of Page 1 of 2	on this page proofed by	y OUL:		arcd\forms\c	55 oc.doc, R	-

OZARK UNDERGROUND LABORATORY, INC.

1572 Aley Lane Protem, MO 65733 (417) 785-4289 fax (417) 785-4290 email: oul@tri-lakes.net

_		: Mike									
Date Sa			03 Date Samples Received: 08/26/03 Time Samples Received:		rn Cooler	? Yes :	_No:	<u>X</u>			
Bill to <u>:</u>			Send Results to: Al Akens w								
Analyze	for: Fluore	escein : X	Eosine: Rhodamine WT Other Ship cooler	to:							
	OUL		Please indicate stations where dye was visib	le in the field				OUL use only			
use only				for field technician use - use black ink only							
# CHAR REC'D	LAB NUMBER	STATION NUMBER	STATION NAME		PLACED		COLLECTED				
	Charcoal	1-4 Numbers	MUL 2 Q 1002	DATE	TIME	8/25/03	TIME	REC'D			
1	M8472	25	MW-3 @ 190'		1	+		1			
1	M8473	26	MW-3 @ 200'			8/25/03		0			
1	M8474	27	MW-3 @ 210'			8/25/03		0			
1	M8475	28	MW-3 @ 220'			8/25/03		0			
1	M8476	29	MW-3 @ 230'			8/25/03		0			
1	M8477	30	MW-3 @ 240'			8/25/03		0			
1	M8478	46	MW-3 @ 250'			8/25/03		0			
1	M8479	31	MW-4 @ 190'			8/25/03		0			
1	M8481	32	MW-4 @ 200'			8/25/03		0			
1	M8482	33	MW-4 @ 210'			8/25/03		0			
1	M8483	34	MW-4 @ 220'			8/25/03		0			
1	M8484	35	MW-4 @ 230'			8/25/03		0			
1	M8485	36	MW-4 @ 240'			8/25/03	_	0			
1	M8486	37	MW-4 @ 250'			8/25/03		0			
COMM	ENTS:	Cha	rcoal Blank = M8480	•							

analyzed 8/29/03 by mma

Page 2 of 2

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PG&P =nvironmental

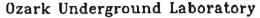
210 Park Road: Oviedo, FL-32765

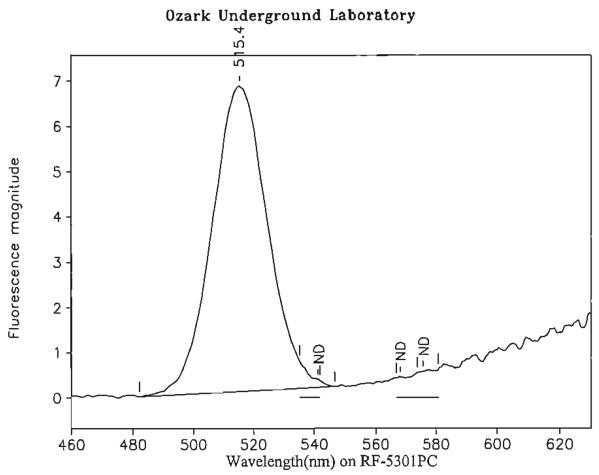
Chain or Custody

36344

			•	•	``•
Work	Order:				

Date: 8 25/03 407-359-7194 (FAX) 407-359-7197 Page COMPANY: Nodarse 3. **ANALYSIS REQUESTED** PHONE: 407-740-6110 PRESERVATION MATER MOCCE SOLJONO SAMPLE ID DATE/TIME mu-1 1491-209 8/25/03 MW-2 190-250' mw-3 190-250' mm-4 190'-250' 6 RELINQUISHED BY DATE/TIME | RECEIVED BY DATE/TIME PROJECT INFORMATION SAMPLE RECEIPT PROJECT NAME: Festival Parik Total # of Containers WO [-E-120-] Chain of Custody Seals Recv'd in Good Condition SPECIAL INSTRUCTIONS/COMMENTS: Lydia Wing /AL Akens CH2M PO #: Please send results to ACAKens with CH2M Hill 552. QUOTE/CONTRACT #:





Station 39: MW-1 @ 149' OUL number: M8457

Matrix: Elutant

Placed: //

Diluted: 1 to 100 Analyzed: 08/29/03

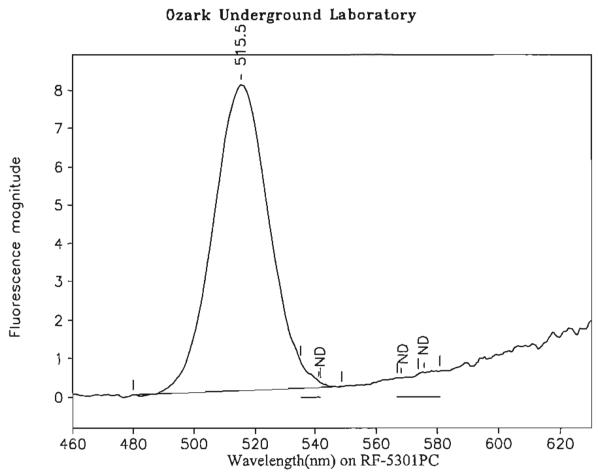
Collected: 08/25/03

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
515.4	482.2	546.6	6.75	145.99	0.05	494
541.2	535.2	541.8	0.00	0.00	0.00	ND
568.1	566.8	573.8	0.00	0.00	0.00	ND
575.8	573.8	580.8	0.00	0.00	0.00	ND

Peaks close to the normal range of tracer dyes:

LL



Station 40: MW-1 @ 159' OUL number: M8458

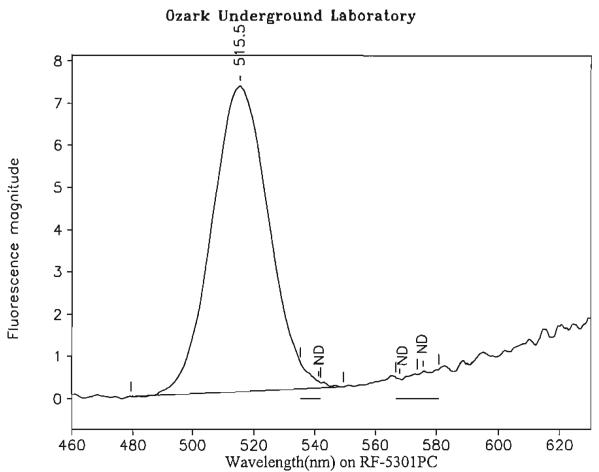
Matrix: Elutant Placed: //

Diluted: 1 to 100 Analyzed: 08/29/03

Collected: 08/25/03

Peaks within the normal range of tracer dyes:

T CERTO MITE	THE CHICALOTT	The object that	dacer a jes.			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
515.5	480.0	548.8	7.97	170.34	0.05	577
541.2	535.2	541.8	0.00	0.00	0.00	ND
568.1	566.8	573.8	0.00	0.00	0.00	ND
575.8	573.8	580.8	0.00	0.00	0.00	ND



Station 41: MW-1 @ 169' OUL number: M8459

Matrix: Elutant

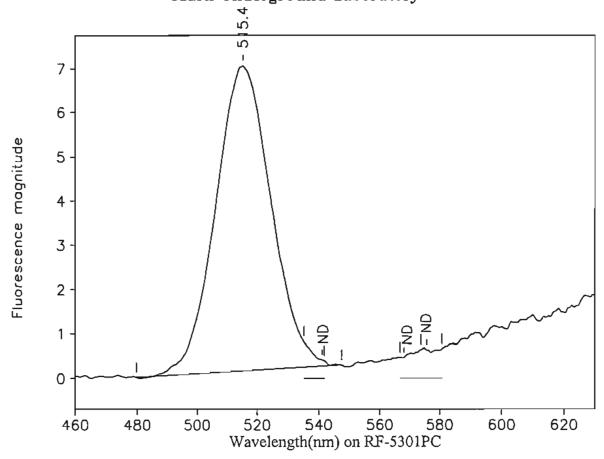
Placed: //

Diluted: 1 to 100 Analyzed: 08/29/03

Collected: 08/25/03

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.			
515.5	479.4	549.4	7.24	155.67	0.05	527			
541.2	535.2	541.8	0.00	0.00	0.00	ND			
568.1	566.8	573.8	0.00	0.00	0.00	ND			
575.8	573.8	580.8	0.00	0.00	0.00	ND			
Peaks close to the normal range of tracer dyes:									



Station 42: MW-1 @ 179' OUL number: M8461

Matrix: Elutant

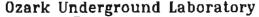
Placed: //

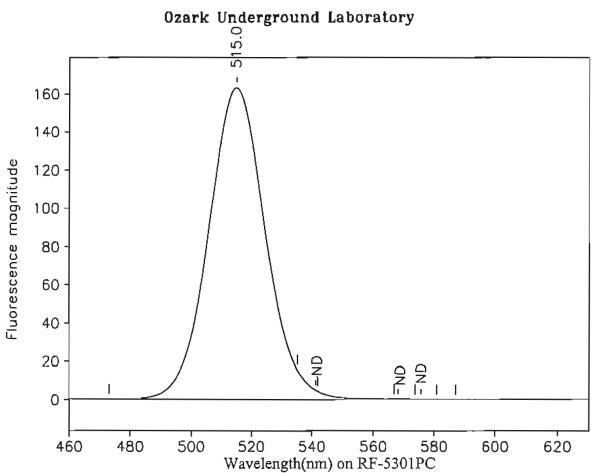
Diluted: 1 to 100 Analyzed: 08/29/03

Collected: 08/25/03

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
515.4	479.7	547.3	6.90	146.99	0.05	497
541.2	535.2	541.8	0.00	0.00	0.00	ND
568.1	566.8	573.8	0.00	0.00	0.00	ND
575.8	573.8	580.8	0.00	0.00	0.00	ND
	_					





Station 43: MW-1 @ 189' OUL number: M8462

Matrix: Elutant

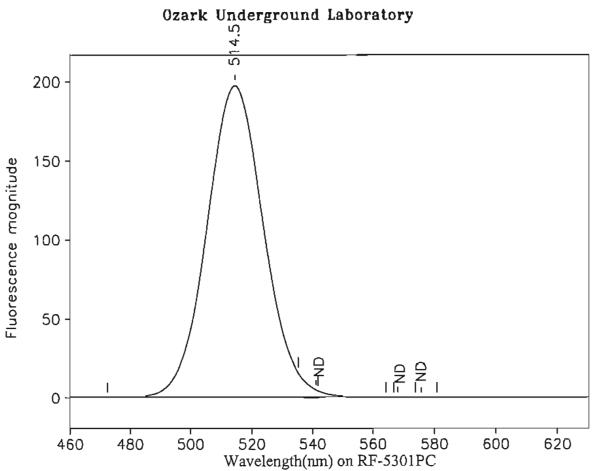
Placed: //

Analyzed: 08/29/03

Collected: 08/25/03

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
515.0	473.2	586.9	163.12	3,579.53	0.05	121
541.2	535.2	541.8	0.00	0.00	0.00	ND
568.1	566.8	573.8	0.00	0.00	0.00	ND
575.8	573.8	580.8	0.00	0.00	0.00	ND



Station 44: MW-1 @ 199' OUL number: M8463

Matrix: Elutant

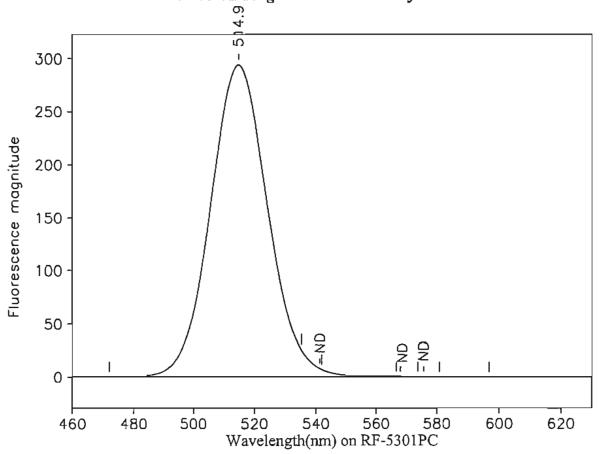
Placed: //

Analyzed: 08/29/03

Collected: 08/25/03

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
514.5	472.5	564.1	197.54	4,264.16	0.05	144
541.2	535.2	541.8	0.00	0.00	0.00	ND
568.1	566.8	573.8	0.00	0.00	0.00	ND
575.8	573.8	580.8	0.00	0.00	0.00	ND



Station 45: MW-1 @ 209' OUL number: M8464

Matrix: Elutant

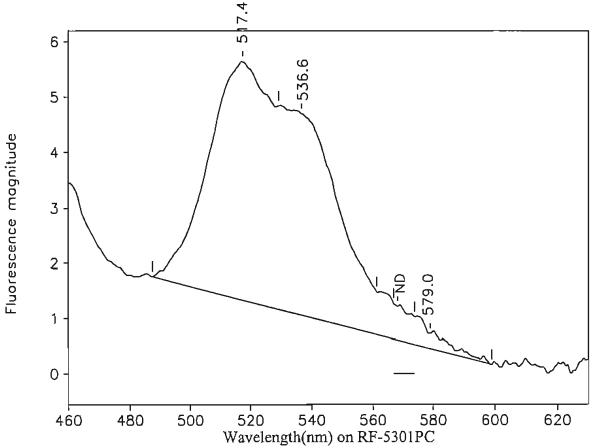
Placed: //

Analyzed: 08/29/03

Collected: 08/25/03

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
514.9	471.9	596.7	294.04	6,390.26	0.05	216
541.2	535.2	541.8	0.00	0.00	0.00	ND
568.1	566.8	573.8	0.00	0.00	0.00	ND
575.8	573.8	580.8	0.00	0.00	0.00	ND



Station 18: MW-2 @ 190' OUL number: M8465

Matrix: Elutant

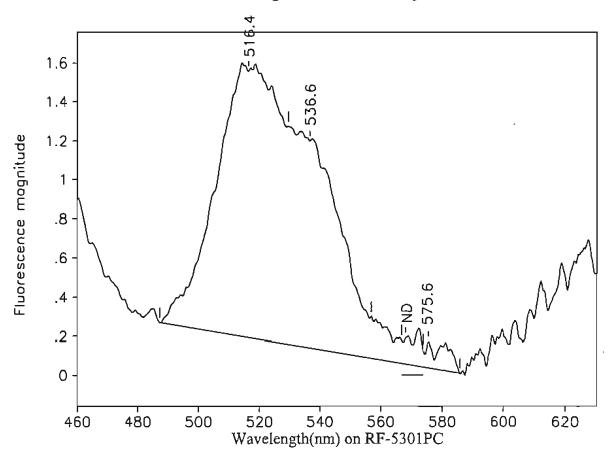
Placed: //

Analyzed: 08/29/03

Collected: 08/25/03

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.			
517.4	487.4	529.3	4.31	104.18	0.04	3.53			
536.6	529.3	561.2	3.64	81.54	0.04	5.18 * *			
568.1	566.8	573.8	0.00	0.00	0.00	ND ,			
579.0	561.2	599.0	0.27	13.38	0.02	1.32			
Peaks close to the normal range of tracer dyes:									



Station 19: MW-2 @ 200' OUL number: M8466

Matrix: Elutant

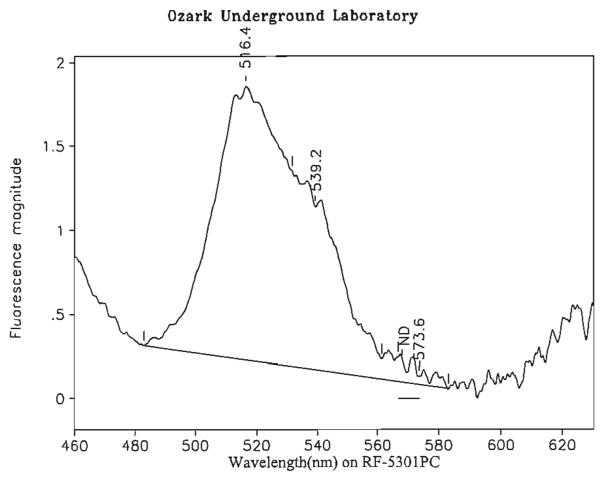
Placed: //

Analyzed: 08/29/03

Collected: 08/25/03

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.		
516.4	487.2	529.5	1.37	34.48	0.04	1.17		
536.6	529.5	556.9	1.06	20.85	0.05	1.32 **		
568.1	566.8	573.8	0.00	0.00	0.00	ND		
575.6	556.9	585.8	0.13	3.65	0.04	0.359		
Peaks close to the normal range of tracer dyes:								



Station 20: MW-2 @ 210' OUL number: M8467

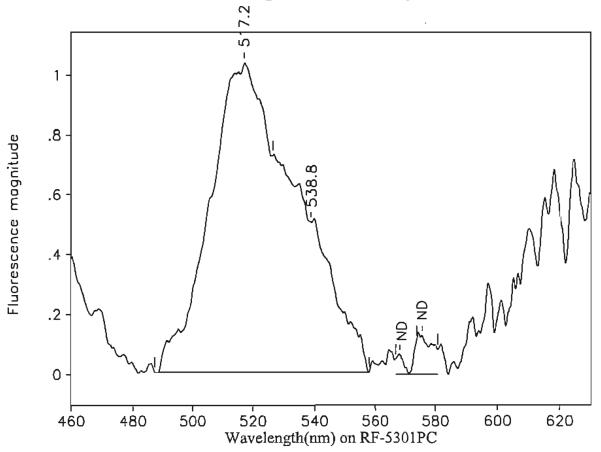
Matrix: Elutant

Collected: 08/25/03 Placed: //

Peaks within the normal range of tracer dyes:

T	VIII VIIVII					
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.4	483.0	531.5	1.63	41.99	0.04	1.42
539.2	531.5	561.4	0.97	20.27	0.05	رود ل
568.1	566.8	573.8	0.00	0.00	0.00	ND
573.6	561.4	583.2	0.05	2.09	0.02	0.203

Analyzed: 08/29/03



Station 21: MW-2 @ 220' OUL number: M8468

Matrix: Elutant

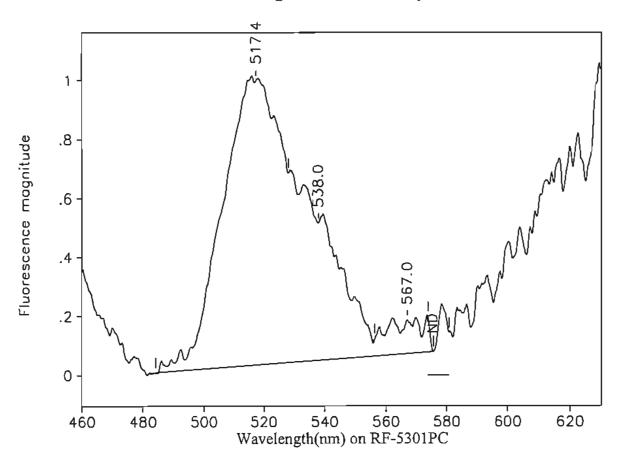
Placed: //

Analyzed: 08/29/03

Collected: 08/25/03

Peaks within the normal range of tracer dyes:

I Carro MID	WILL FILE HOLL	mai range or	macer dyes.			
Peak nm	Left X	Rìght X	Height	Area	H/A	Conc.
517.2	487.2	526.6	1.03	22.13	0.05	0.749
538.8	526.6	558.0	0.50	12.66	0.04	_0_804
568.1	566.8	573.8	0.00	0.00	0.00	ND
575.8	573.8	580.8	0.00	0.00	0.00	ND



Station 22: MW-2 @ 230' OUL number: M8469

Matrix: Elutant

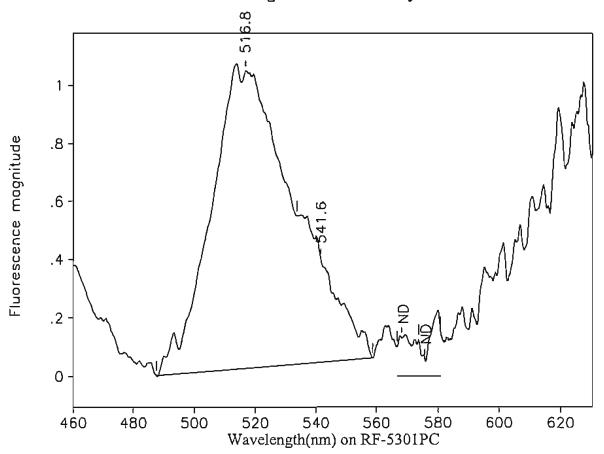
Placed: //

Analyzed: 08/29/03

Collected: 08/25/03

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
517.4	484.2	528.3	0.97	21.79	0.04	0.737
538.0	528.3	556.4	0.47	10.53	0.04	-0.669
567.0	556.4	575.6	0.11	1.67	0.07	-0.300
575.8	573.8	580.8	0.00	0.00	0.00	ND



Station 23: MW-2 @ 240' OUL number: M8470

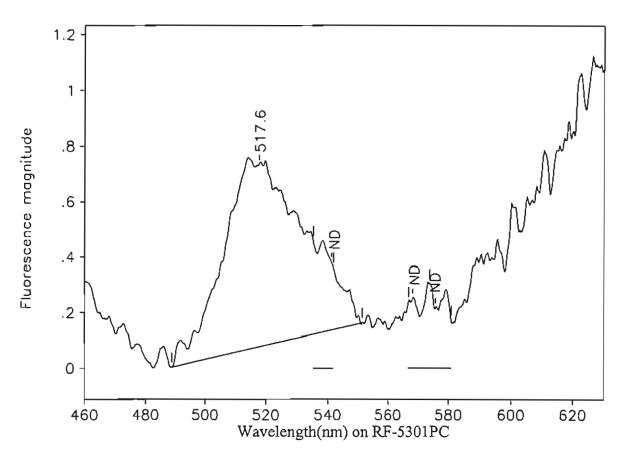
Matrix: Elutant

Placed: // Collected: 08/25/03

Peaks within the normal range of tracer dyes:

Left X	Right X	Height	Area	H/A	Conc.
487.6	533.6	1.02	26.82	0.04	0.908
533.6	558.8	0.35	6.68	0.05	0.424
566.8	573.8	0.00	0.00	0.00	ND
573.8	580.8	0.00	0.00	0.00	ND
	487.6 533.6 566.8	487.6 533.6 533.6 558.8 566.8 573.8	487.6 533.6 1.02 533.6 558.8 0.35 566.8 573.8 0.00	487.6 533.6 1.02 26.82 533.6 558.8 0.35 6.68 566.8 573.8 0.00 0.00	487.6 533.6 1.02 26.82 0.04 533.6 558.8 0.35 6.68 0.05 566.8 573.8 0.00 0.00 0.00

Analyzed: 08/29/03



Station 24: MW-2 @ 250' OUL number: M8471

Matrix: Elutant

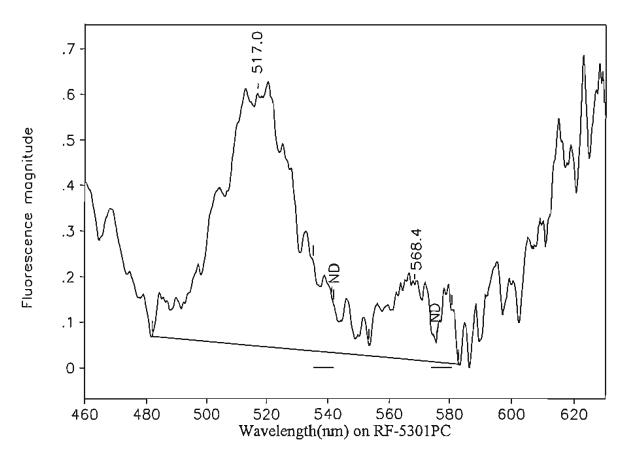
Placed: //

Analyzed: 08/29/03

Collected: 08/25/03

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.			
517.6	488.6	551.4	0.65	21.01	0.03	0.711			
541.2	535.2	541.8	0.00	0.00	0.00	ND			
568.1	566.8	573.8	0.00	0.00	0.00	ND			
575.8	573.8	580.8	0.00	0.00	0.00	ND			
Peaks close to the normal range of tracer dyes:									

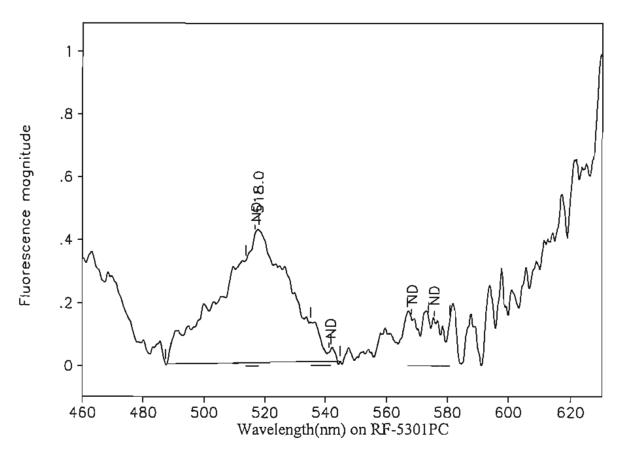


Station 25: MW-3 @ 190' OUL number: M8472 Matrix: Elutant Analyzed: 08/29/03

Placed: // Collected: 08/25/03

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.		
517.0	481.8	553.2	0.55	18.01	0.03	-0.610		
541.2	535.2	541.8	0.00	0.00	0.00	ND		
568.4	553.2	583.0	0.17	3.64	0.05	2.656		
575.8	573.8	580.8	0.00	0.00	0.00	ND		
Peaks close to the normal range of tracer dyes:								



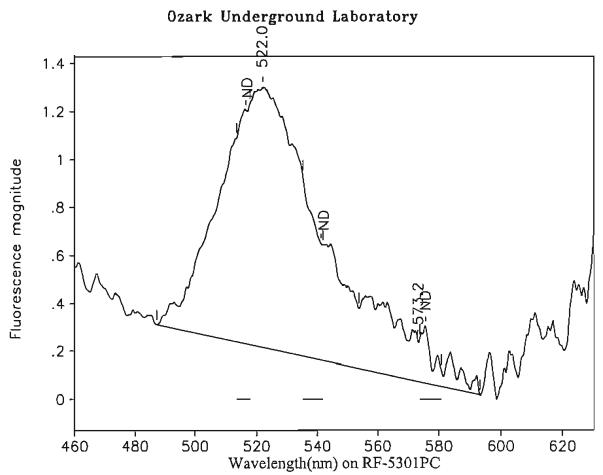
Station 26: MW-3 @ 200' OUL number: M8473

Matrix: Elutant

Placed: //

Analyzed: 08/29/03

Peaks with	un the nor	nal range of	tracer dyes:					
Peak nm	Left X	Right X	Height	Area	H/A	Conc.		
516.6	513.6	517.9	0.00	0.00	0.00	ND		
541.2	535.2	541.8	0.00	0.00	0.00	ND		
568.1	566.8	573.8	0.00	0.00	0.00	ND		
575.8	573.8	580.8	0.00	0.00	0.00	ND		
Peaks close to the normal range of tracer dyes:								
518.0	487.4	544.8	0.42	11.41	0.04	0.386		



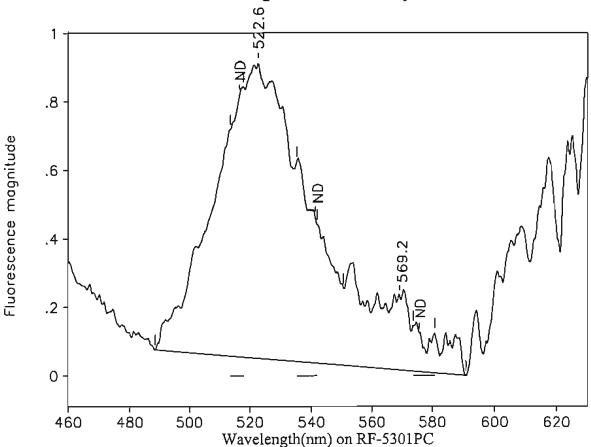
Station 27: MW-3 @ 210' OUL number: M8474 Matrix: Elutant

Placed: // Collected: 08/25/03

Peaks within the normal range of tracer dyes:

I Calco Witti	LII UIO IIOIIII	ar range or c	acout ayou.			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.6	513.6	517.9	0.00	0.00	0.00	ND
541.2	535.2	541.8	0.00	0.00	0.00	ND
573.2	553.8	593.2	0.17	6.84	0.02	1.23
575.8	573.8	580.8	0.00	0.00	0.00	ND
Peaks close	e to the norr	nal range of	tracer dyes:			
522.0	487.2	553.8	1.09	38.51	0.03	1.30

Analyzed: 08/29/03



Station 28: MW-3 @ 220' OUL number: M8475

Matrix: Elutant

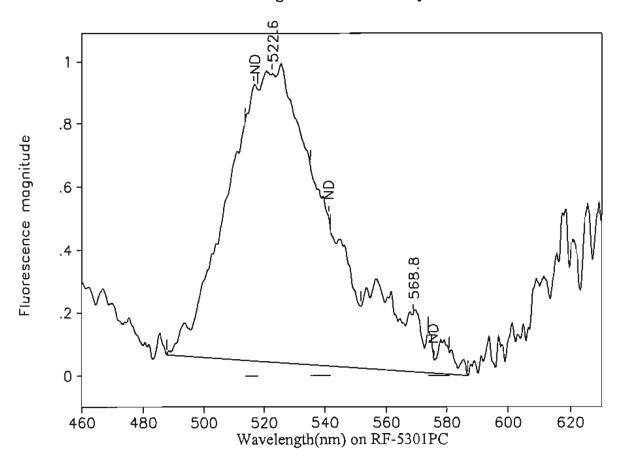
Placed: //

Analyzed: 08/29/03

Collected: 08/25/03

Peaks within the normal range of tracer dyes:

I cars will		lai lalige oi	macci uyes.			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.6	513.6	517.9	0.00	0.00	0.00	ND
541.2	535.2	541.8	0.00	0.00	0.00	ND
569.2	550.5	590.8	0.22	6.30	0.03	1.14
575.8	573.8	580.8	0.00	0.00	0.00	ND
Peaks clos	e to the nor	mal range of	f tracer dyes	s:		
522.6	488.4	550.5	0.86	29.26	0.03	0.990

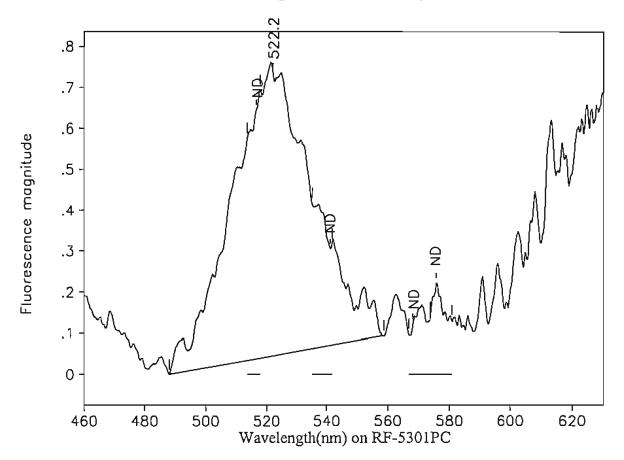


Station 29: MW-3 @ 230' OUL number: M8476 Matrix: Elutant

Placed: //

Analyzed: 08/29/03

Peaks with	nin the nom	nal range of	tracer dyes:					
Peak nm	Left X	Right X	Height	Area	H/A	Conc.		
516.6	513.6	517.9	0.00°	0.00	0.00	ND		
541.2	535.2	541.8	0.00	0.00	0.00	ND		
568.8	551.7	586.8	0.18	5.28	0.03	0.952		
575.8	573.8	580.8	0.00	0.00	0.00	ND		
Peaks close to the normal range of tracer dyes:								
522.6	487.6	551.7	0.92	32.79	0.03	1.11		

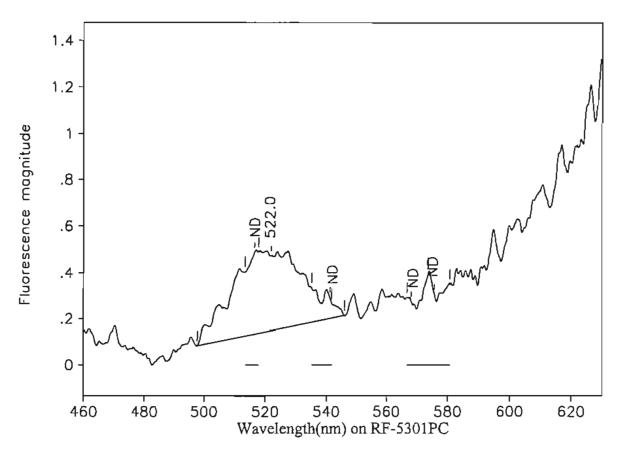


Station 30: MW-3 @ 240' OUL number: M8477 Matrix: Elutant

Placed: //

Analyzed: 08/29/03

Peaks with	nin the norr	nal range of	tracer dyes:			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.6	513.6	51 7 .9	0.00	0.00	0.00	ND
541.2	535.2	541.8	0.00	0.00	0.00	ND
568.1	566.8	573.8	0.00	0.00	0.00	ND
575.8	573.8	580.8	0.00	0.00	0.00	ND
Peaks clos	se to the no	rmal range of	f tracer dyes	3:		
522.2	488 N	558 R	0 6 9	22 37	0.03	0.757

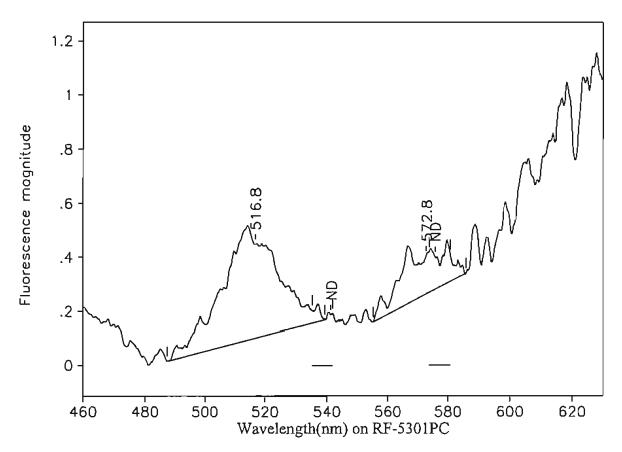


Station 46: MW-3 @ 250' OUL number: M8478 Matrix: Elutant

Placed: //

Analyzed: 08/29/03

Peaks with	in the norr	nal range of	tracer dyes:					
Peak nm	Left X	Right X	Height	Area	H/A	Conc.		
516.6	513.6	517.9	0.00	0.00	0.00	ND		
541.2	535.2	541.8	0.00	0.00	0.00	ND		
568.1	566.8	573.8	0.00	0.00	0.00	ND		
575.8	573.8	580.8	0.00	0.00	0.00	ND		
Peaks close to the normal range of tracer dyes:								
522.0	497.8	546.0	0.32	9.61	0.03	0.325		



Station 31: MW-4 @ 190' OUL number: M8479

Matrix: Elutant

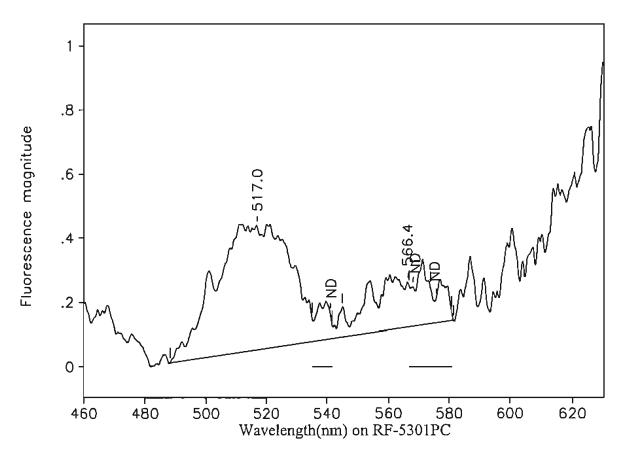
Placed: //

Analyzed: 08/29/03

Collected: 08/25/03

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc
516.8	487.2	539.4	$0.3\bar{5}$	9.14	0.04	-0.309
541.2	535.2	541.8	0.00	0.00	0.00	ND
572.8	555.2	585.8	0.14	3.01	0.05	0.542 ND
575.8	573.8	580.8	0.00	0.00	0.00	ND

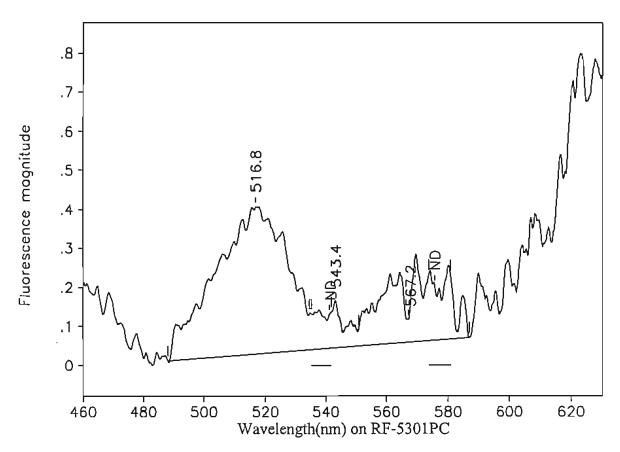


Station 32: MW-4 @ 200' OUL number: M8481 Matrix: Elutant

Analyzed: 08/29/03

Collected: 08/25/03 Placed: //

Peaks with	nin the non	nal range of	tracer dyes:	ı. I					
Peak nm	Left X	Right X	Height	Area	H/A	Conc.			
517.0	488.2	545.1	0.38	12.18	0.03	0.412			
541.2	535.2	541.8	0.00	0.00	0.00	ND			
568.1	566.8	573.8	0.00	0.00	0.00	ND			
575.8	573.8	580.8	0.00	0.00	0.00	ND			
Peaks clos	Peaks close to the normal range of tracer dyes:								
566.4	545.1	581.4	0.14	4.05	0.03	0.730			



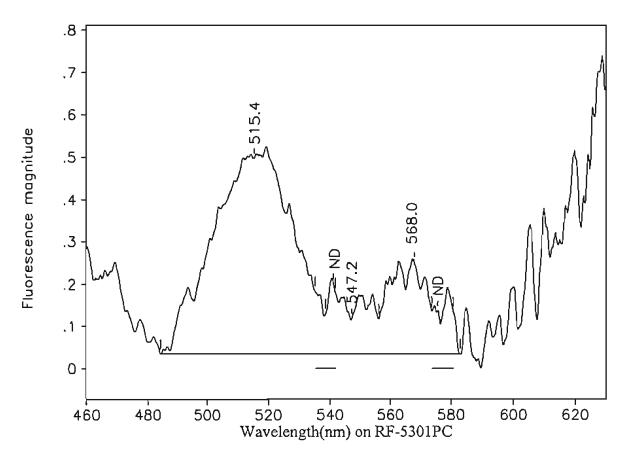
Station 33: MW-4 @ 210' OUL number: M8482

Analyzed: 08/29/03

Matrix: Elutant

Collected: 08/25/03 Placed: //

Peaks with	nin the non	mal range of	tracer dyes:						
Peak nm	Left X	Right X	Height	Area	H/A	Conc.			
516.8	488.2	534.6	0.38	10.33	0.04	- 0.35 0			
541.2	535.2	541.8	0.00	0.00	0.00	ND _			
567.2	550.9	586.8	0.06	4.29	0.01	0774			
575.8	573.8	580.8	0.00	0.00	0.00	ND			
Peaks clos	Peaks close to the normal range of tracer dyes:								
543.4	534.6	550.9	0.12	1.24	0.10	0.079			



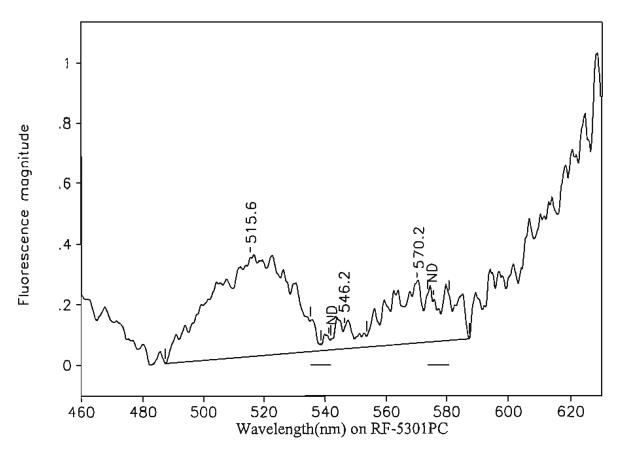
Station 34: MW-4 @ 220' OUL number: M8483 Matrix: Elutant

Analyzed: 08/29/03

Placed: // Collected: 08/25/03

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc
515.4	484.2	538.5	0.46	14.91	0.03	2.505
541.2	535.2	541.8	0.00	0.00	0.00	ND
568.0	556.2	583.0	0.22	3.91	0.06	0.704
575.8	573.8	580.8	0.00	0.00	0.00	ND
Peaks clos	e to the no	rmal range of	f tracer dye	s:		
547.2	538.5	556.2	0.08	2.18	0.04	0.139

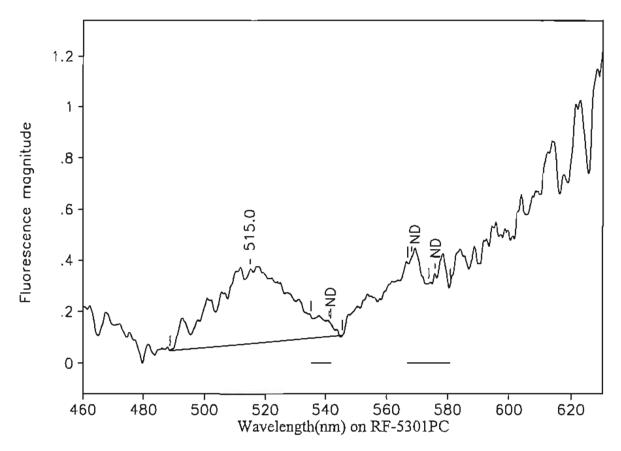


Station 35: MW-4 @ 230' OUL number: M8484 Matrix: Elutant

Placed: //

Analyzed: 08/29/03

Peaks with	un the non	mal range of	tracer dyes:	•					
Peak nm	Left X	Right X	Height	Area	H/A	Conc.			
515.6	487.2	538.6	0.33	10.41	0.03	0.352			
541.2	535.2	541.8	0.00	0.00	0.00	ND			
570.2	553.5	587.4	. 0.20	4.36	0.05	0.785			
575.8	573.8	580.8	0.00	0.00	0.00	ND			
Peaks clos	Peaks close to the normal range of tracer dyes:								
546.2	538.6	553.5	0.07	0.83	0.08	0.053			



Station 36: MW-4 @ 240' OUL number: M8485

Matrix: Elutant

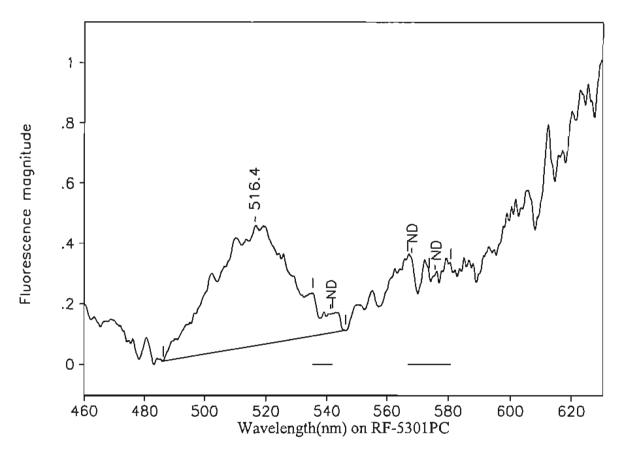
Placed: //

Analyzed: 08/29/03

Collected: 08/25/03

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
515.0	488.8	545.6	0.29	8.91	0.03	-0.30 1
541.2	535.2	541.8	0.00	0.00	0.00	ND
568.1	566.8	573.8	0.00	0.00	0.00	ND
575.8	573.8	580.8	0.00	0.00	0.00	ND
	_	_				



Station 37: MW-4 @ 250' OUL number: M8486

Matrix: Elutant

Placed: //

Analyzed: 08/29/03

Collected: 08/25/03

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.4	486.2	546.2	0.39	11.85	0.03	0.401
541.2	535.2	541.8	0.00	0.00	0.00	ND
568.1	566.8	573.8	0.00	0.00	0.00	ND
575.8	573.8	580.8	0.00	0.00	0.00	ND

August 19, 2004

CERTIFICATE OF ANALYSIS

Alan W. Aikens, P.G. CH2MHill 225 East Robinson Street, Suite 505 Orlando, Florida 32801

RE: Lake Orienta

> Dye analysis results for background water samples shipped August 11, 2004 Ozark Underground Laboratory (OUL) numbers N4990 through N4994.

Dear Mr. Aikens:

We have completed analysis of the background water samples received by the OUL on August 12, 2004. We have indicated the OUL number for each of these samples on the enclosed table.

The fluorescein, eosine and rhodamine WT (RWT) dye concentrations are based upon standards routinely used at the OUL. The fluorescein and eosine are mixtures of 75% dye and 25% diluent; the RWT is a 20% solution. The concentrations are based upon the as-sold weight of the dye.

A summary of the results is presented in Table 1. Additional sampling information is available on the enclosed analysis graphs.

Sincerely,

Thomas J. Aley, PHG, RG

Thomas J. Al

Enclosures: 1. Table 1. Analysis results for water samples

2. Sample Collection Data Sheet

3. Letter from Nodarse & Assoc., Inc.

4. Discrepancy sheet

5. Sample analysis graphs

f:\docs\coa\LakeOrienta01.doc

Ozark Underground Laboratory for CH2MHill

Project: Lake Orienta

Date Samples Shipped: August 11, 2004

Date Samples Rec'd at OUL: August 12, 2004

Date Analyzed by OUL: August 17, 2004

Table 1. Results for background water samples analyzed for the presence of fluorescein, eosine and rhodamine WT (RWT) dyes. Peak wavelengths are reported in nanometers (nm); dye concentrations are reported in parts per billion (ppb).

OUL Lab#	OUL Stn. #	Station Name	Date/Time Placed	Date/Time Collected	Fluorescein Eosine		ine	RWT		
				2004	Peak	Conc.	Peak	Conc.	Peak	Conc.
N4990	1-WA	MW-1	Water	8/11 NT	ND		ND		ND	
N4991	2-WA	MW-2	Water	8/11 NT	ND		ND		ND	
N4992	3-W A	MW-3	Water	8/11 NT	ND		ND		ND	
N4993	4-WA	MW-4	Water	8/11 NT	ND		ND		ND	
N4994	Lake	Lake	Water	8/11 0935	ND		ND		575.0 *	0.116

FOOTNOTES:

ND = No dye detected

* = A fluorescence peak is present that is in the normally acceptable wavelength range for this dye and has been calculated as though it were dye for background purposes.

OZARK UNDERGROUND LABORATORY, INC.

1572 Aley Lane Protem, MO 65733 (417) 785-4289 fax (417) 785-4290 email: oul@tri-lakes.net

	\mathcal{A}		SAMPLE COLLEC	CHON DATA SH	EET TOLK	LUOKESCENC	E ANAL X	213			
Project:_	Kar	e) (IA	ientas	Week No:	<u>BG-</u>	Samples Collect	ed By:	darso	2 dlls	soc.	
Samples S	Shipped By	: Nocl	arae	Samples	Received B	s: Martines	mold -	014			
Date Sam	ples Shipp	ed: <u> </u>	Date Samples R	eceived: <u>8 / 12 / 0 4</u>	Y Time S	Samples Received:	2:35	Return	Cooler?	YesN	10 <u>·L</u>
Bill to:			Date Samples R	Send Re	sults to: 📿	l Willens	- CH20	nHill			
Analyze f	or: Fluore	scein <u>L</u> E	osineRhodamine W	TOther		_Ship cooler to:					
	UL I		70								OUL
1	only		Ple	ease indicate station							use onl
# CHAR	LAB	STATION	I	STATION NAM		use black ink only	_	CED		COTED	#
REC'D	C'D NUMBER NUMBER			STATION NAM	VIE.			CED		ECTED	WATER
	Water	I-4 Numbers				_	DATE	TIME	DATE	TIME	REC'D
	N4990		MW-1						8(11		2
0	V4991	2 ~ W/	MW-2						8/n		2
0	N4992		MW-3						18/11		2
	V4993		AMW-4						8/11	1	2
	V4994		Lake						8/11	0935	1
$\vdash $	<u> </u>	Lake	Lake					}	1-11	10,00	 ~
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COMME	NTS: Unle	ss otherwise	noted, all water samples we	ere collected at the date	and time list	ted in the "collected"	columп.				
	. —		4m vi 1 /				<i>a</i>			583	
This shee	t filled out	by OUL sta	No.	Char	is for sampl	les on this page proo	fed by OUL:_	mm	a _		
ť	reflect	Odi W	maloged 9/17/04	, OUL Page 1	of /			f:\sh	ared\forms\	coc.doc, Rev	v. 7/03

OZARK UNDERGRO AD LABORATORY, INC.

	DISCREPANCIES BETWEEN CHAIN-OF-CUSTODY SHEETS AND ACTUAL SAMPLES RECEIVED Page of										
Company	y & Proje	et Name: CH2MHIII- Bake)	Orien	ta Date Rec'd by OUL:	8-12-04 Wk#						
Lab #	Sta#	Station Name	Date Pulled	Problem	Solution						
				· · · · · · · · · · · · · · · · · · ·	· · ·						
			-								
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Commen	its: Oc	placed in styras	am s	aller with samples	+ There as olen						
V-Son	od in		ol Co	C(letter) may wet in a Sample Collection Data 8							
OUL.	Staff,		inform		ples.						

Leila Nodarse, P.E.

SENIOR VICE PRESIDENTS
Maureen Boettger
Doniel Dunhom, P.E.
S.E. "Jim" January, P.E.

PRESIDENTS

Jordene Brudley
Joy Casper, P.E.
James Hamil
Sylvia Jammel
Found Massri, P.E.
John Phillips, P.E.
Davie Twedell
Leroy Winkler

1675 Lee Road

Winter Park, FL 32789

Phone: 407.740.6110 Fax: 407.740.6112

nodorse@nodorse.com

Sampled recd@OUL

on 8-12-04 1235

by Marty arrold

out page i of 1



Geotechnical, Environmental Consulting & Materials Engineering

Enclosed water samples for Tracer Test

Project: Lake Orienta

Client: Al Aikens CHZMHill

MW-1 mw-2 mw-3 mw-4 Lake Location

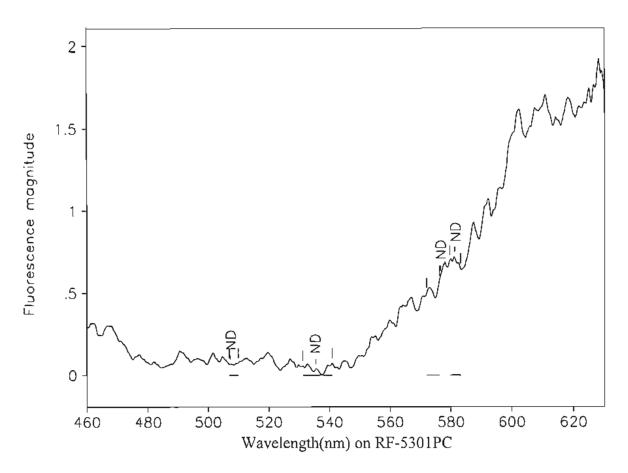
Please Call Lydia Wing 407 740 6110 work 407 509 3429 cell

Thuks

all parroles on walleted on 8/11/04 per

BUILD ON OUR EXPERIENCE585

JACKSONVILLE . ORMORD BEACH . TAMPA . WEST PALM BEACH . WINTER PARK



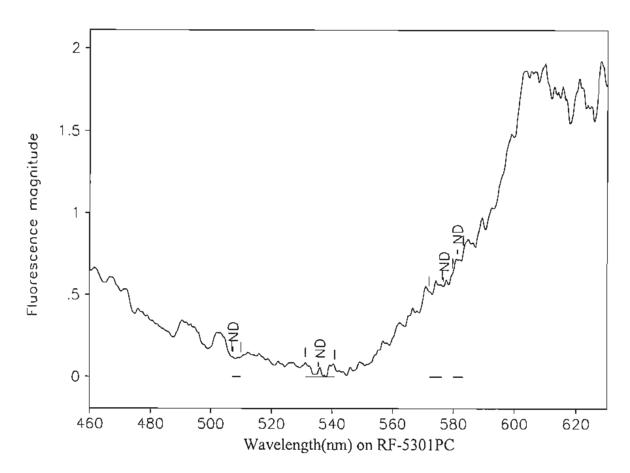
Station 1-WA: MW-1 - Water

OUL number: N4990 Analyzed: 08/17/04

Matrix: Water Collected: 08/11/04

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
507.3	506.9	509.9	0.00	0.00	0.00	ND
535.5	531.2	540.9	0.00	0.00	0.00	ND
576.7	572.0	576.3	0.00	0.00	0.00	ND
581.3	579.7	583.2	0.00	0.00	0.00	ND



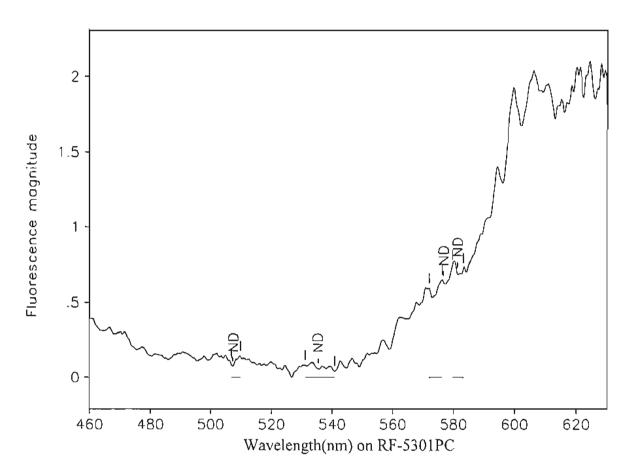
Station 2-WA: MW-2 - Water

OUL number: N4991 Analyzed: 08/17/04

Matrix: Water Collected: 08/11/04

Peaks within the normal range of tracer dyes:

Left X	Right X	Height	Area	H/A	Conc.
506.9	509.9	0.00	0.00	0.00	ND
531.2	540.9	0.00	0.00	0.00	ND
572.0	576.3	0.00	0.00	0.00	ND
579.7	583.2	0.00	0.00	0.00	ND
	506.9 531.2 572.0	506.9 509.9 531.2 540.9 572.0 576.3	506.9 509.9 0.00 531.2 540.9 0.00 572.0 576.3 0.00	506.9 509.9 0.00 0.00 531.2 540.9 0.00 0.00 572.0 576.3 0.00 0.00	506.9 509.9 0.00 0.00 0.00 531.2 540.9 0.00 0.00 0.00 572.0 576.3 0.00 0.00 0.00



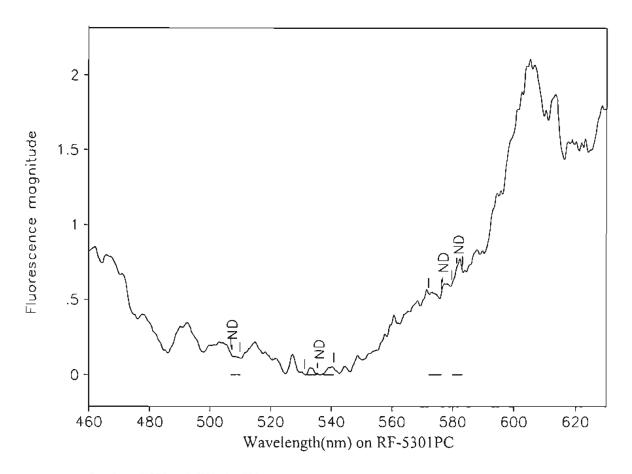
Station 3-WA: MW-3 - Water

OUL number: N4992 Analyzed: 08/17/04

Matrix: Water Collected: 08/11/04

Peaks within the normal range of tracer dyes:

Peak nın	Left X	Right X	Height	Area	H/A	Conc.
507.3	506.9	509.9	0.00	0.00	0.00	ND
535.5	531.2	540.9	0.00	0.00	0.00	ND
576.7	572.0	576.3	0.00	0.00	0.00	ND
581.3	579.7	583.2	0.00	0.00	0.00	ND



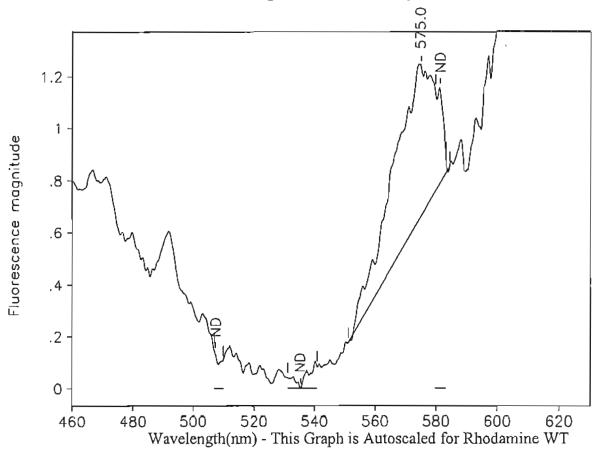
Station 4-WA: MW-4 - Water

OUL number: N4993 Analyzed: 08/17/04

Matrix: Water Collected: 08/11/04

Peaks within the normal range of tracer dyes:

Peak nın	Left X	Right X	Height	Area	H/A	Conc.
507.3	506.9	509.9	0.00	0.00	0.00	ND
535.5	531.2	540.9	0.00	0.00	0.00	ND
576.7	572.0	576.3	0.00	0.00	0.00	ND
581.3	579.7	583.2	0.00	0.00	0.00	ND



Station Lake: Lake OUL number: N4994

Matrix: Water

Collected: 08/11/04 0935

Peaks within the normal range of tracer dyes:

Peak nm Left X Right X Height Area H/A	A Conc.
507.3 506.9 509.9 0.00 0.00 0.0	0 ND
535.5 531.2 540.9 0.00 0.00 0.0	0 ND
575.0 551.2 584.4 0.58 9.83 0.0	6 0.116
581.3 579.7 583.2 0.00 0.00 0.0	0 ND

Analyzed: 08/17/04

August 31, 2004

CERTIFICATE OF ANALYSIS

Alan W. Aikens, P.G. CH2MHill 225 East Robinson Street, Suite 505 Orlando, Florida 32801

RE: Lake Orienta

Dye analysis results for charcoal samplers shipped August 24, 2004 Ozark Underground Laboratory (OUL) numbers N5174 through N5184.

Dear Mr. Aikens:

We have completed analysis of the charcoal samplers received by the OUL on August 25, 2004. We have indicated the OUL number for each of these samplers on the enclosed table.

The fluorescein, eosine and rhodamine WT (RWT) dye concentrations are based upon standards routinely used at the OUL. The fluorescein and eosine are mixtures of 75% dye and 25% diluent; the RWT is a 20% solution. The concentrations are based upon the as-sold weight of the dye.

A summary of the results is presented in Table 1. Additional sampling information is available on the enclosed analysis graphs.

Sincerely,

Thomas J. Aley, PHG, RG

Enclosures: 1. Table 1. Analysis results for charcoal samplers

2. Sample Collection Data Sheet

3. Sample analysis graphs

f:\docs\coa\LakeOrienta02.doc

Ozark Underground Laboratory for CH2MHill

Project:

Lake Orienta

Samples Collected By: Date Samples Shipped: Mike Burns August 24, 2004

Date Samples Rec'd at OUL:

August 25, 2004

Date Analyzed by OUL:

August 26, 2004

Table 1. Results for background charcoal samplers analyzed for the presence of fluorescein, eosine and rhodamine WT (RWT) dyes. Peak wavelengths are reported in nanometers (nm); dye concentrations are reported in parts per billion (ppb).

OUL Lab#	Station #	Station Name	Date/Time Placed	Date/Time Collected	Fluo	rescein	Eos	Eosine		RWT	
			2004	2004	Peak	Conc.	Peak	Conc.	Peak	Conc.	
N5174	Lakel	1.6' depth above Lake bottom	8/11 0900	8/24 0905	514.2 *	0.649	ND		569.8 *	9.23	
N5175	Lake2	2.6' depth above Lake bottom	8/11 0900	8/24 0905	515.4 *	0.655	ND		570.4 *	7.96	
N5176	1-215	MW-1 - 215 ft	8/11 1230	8/24 1135	511.8 *	0.443	ND		ND		
N5177	1-240	MW-1 - 240 ft	8/11 1230	8/24 1135	515.6 *	0.502	ND		ND		
N5178	2-135	MW-2 - 135 ft	8/11 1030	8/24 0755	513.4 *	0.387	ND		ND		
N5179	2-170	MW-2 - 170 ft	8/11 1030	8/24 0755	514.8 *	0.401	ND		ND		
N5180	Laborate	ory Control Charcoal Blank						• • •			
N5181	3-175	MW-3 - 175 ft	8/11 1345	8/24 1030	515.0 *	0.521	ND		ND		
N5182	3-210	MW-3 - 210 ft	8/11 1345	8/24 1030	515.2 *	0.468	ND		ND		
N5183	4-165	MW-4 - 165 ft	8/11 1130	8/24 0930	514.4 *	0.602	ND		ND		
N5184	4-200	MW-4 - 200 ft	8/11 1130	8/24 0930	515.8 *	0.709	ND		ND		

FOOTNOTES:

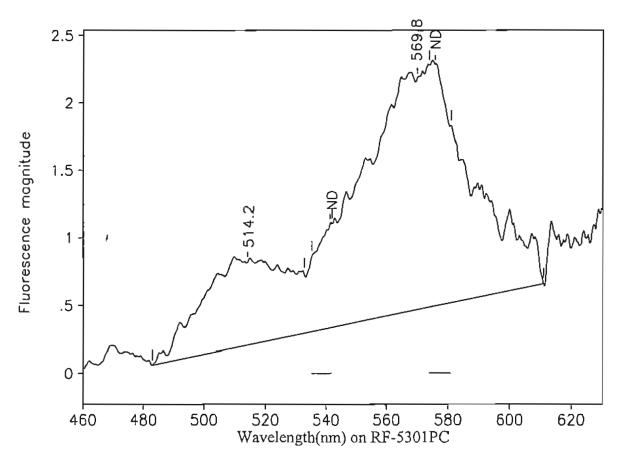
= No dye detected ND

= A fluorescence peak is present that does not meet all the criteria for a positive dye result but has been calculated as though it were dye for background purposes.

OZARK UNDERGRO D LABORATORY, INC.

1572 Aley Lane Protem, MO 65733 (417) 785-4289 fax (417) 785-4290 email: oul@tri-lakes.net SAMPLE COLLECTION DATA SHEET for FLUORESCENCE ANALYSIS

roject:	Lake Orio	enta (CH2M	hill) Week No: One Samples Collected By	y: Mike	Burns			
amples	Shipped By	: Nodars	se & Associates Samples Received By: M. Ridinge	2-01	ul			
Date San	nples Shipp	ed: <u>8</u> /24	_/04_ Date Samples Received: 8 /25 / 04 Time Samples Received: 12	: 58	Return (Cooler? Ye	s XN	·
			Send Results to: Al Aikens with CH2MH					<u>·</u>
Analyze	for: Muore:	scein X 1	Eosine X Rhodamine WT X Other Ship cooler to:Ozar	rk Undergro	ound Labs			
	OUL e only		Please indicate stations where dye was visible in the	field				OUL .
			for field technician use - use black ink only					· .
# CHAR LAB STATION REC'D NUMBER NUMBER			STATION NAME	PLACED		COLLECTED		WATER
	Charroa	1-4 Numbers		DATE TIME		DATE	TIME	REC'D
()		Lake	Lake (Water sample)	8/1/04	·	2/24/04	09/0	1
	N5174	Lake	Carbon at _1,6 depth above Lake bottom	$\perp \downarrow$	0900		0905	0.
	15/15	Lake Z	Carbpn at 2,6 depth above Lake bottom		0900		0905	0.
	N5176	1-215	MW-1 - 215 ft		1230		1135	
_ [N5/77	1-240	MW-1 – 240 ft		1230		1135	0
Ō		1-WA	MW-1 – Water Sample		`		1201	1:
1	15178	2-135	MW-2 – 135 ft		1030		0755	0
_	N5179	2-170	MW-2 – 170 ft		1038		0755	()
0		2-WA	MW-2 – Water Sample				0833	- 1
-	N5181	3-175	MW-3 – 175 ft		1345		1030	0.
{ .	N5182	3-210	MW-3 - 210 ft	\	1345		1030	6:
0		^ 3-WA	MW-3 – Water Sample				1058	1 .
	NS183	4-165	MW-4 – 165 ft		1130		0930	0
(N5184	4-200	MW-4 – 200 ft		1130		0930	3
G	,	4-WA	MW-4 - Water Sample	1			0.957	1 :
СОММ	ENTS:F	lease note ti	hat the water sample collected from the Lake may be contaminated with raw sewage from	a sewage l	ine break o			
This she	et filled out		,	_				
	Charco	&Blank	K NS180					
	Projec	t 621	analyzed 8/26/04 2: Page of	10.1		Morms\coc2	.doc5Rev.	4/12/04
				1001	Recd b	y out		



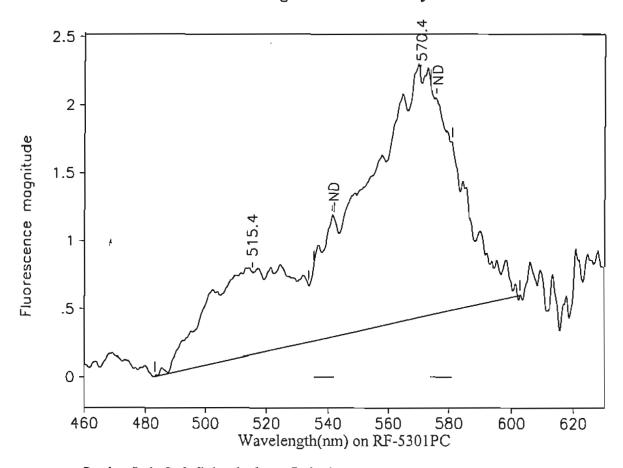
Station Lake1: 1.6' depth above Lake bottom OUL number: N5174 Analyzed: 08/26/04

Matrix: Elutant

Placed: 08/11/04 0900 Collected: 08/24/04 0905

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.	
514.2	483.0	532.7	0.62	21.42	0.03	0.649	*
541.1	535.2	541.8	0.00	0.00	0.00	ND	
569.8	532.7	611.0	1.71	78.06	0.02	9.23	女
575.7	573.8	580.8	0.00	0.00	0.00	ND	



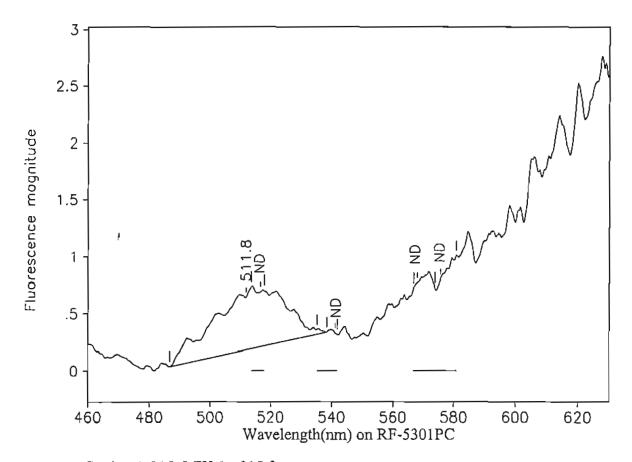
Station Lake2: 2.6' depth above Lake bottom OUL number: N5175 Analyzed: 08/26/04

Matrix: Elutant

Collected: 08/24/04 0905 Placed: 08/11/04 0900

Peaks within the normal range of tracer dyes:

Left X	Right X	Height	Area	H/A	Conc.
483.0	533.5	0.60	21.60	0.03	0.655 ⊁
535.2	541.8	0.00	0.00	0.00	ND
533.5	602.6	1.78	67.31	0.03	7.96 *×
573.8	580.8	0.00	0.00	0.00	ND
	483.0 535.2 533.5	483.0 533.5 535.2 541.8 533.5 602.6	483.0 533.5 0.60 535.2 541.8 0.00 533.5 602.6 1.78	483.0 533.5 0.60 21.60 535.2 541.8 0.00 0.00 533.5 602.6 1.78 67.31	483.0 533.5 0.60 21.60 0.03 535.2 541.8 0.00 0.00 0.00 533.5 602.6 1.78 67.31 0.03



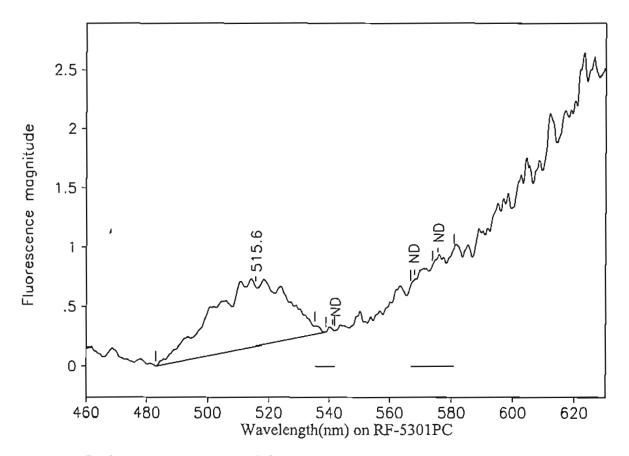
Station 1-215: MW-1 - 215 ft OUL number: N5176 Analyzed: 08/26/04

Matrix: Elutant

Placed: 08/11/04 1230 Collected: 08/24/04 1135

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.			
516. 5	513.6	517.9	0.00	0.00	0.00	ND			
541.1	535.2	541.8	0.00	0.00	0.00	ND			
568.0	566.8	573.8	0.00	0.00	0.00	ND			
575.7	<i>5</i> 73 <i>.</i> 8	580.8	0.00	0.00	0.00	ND			
Peaks close to the normal range of tracer dyes:									
511.8	486.6	538.4	0.46	14.61	0.03	0.443	*		



Station 1-240: MW-1 - 240 ft

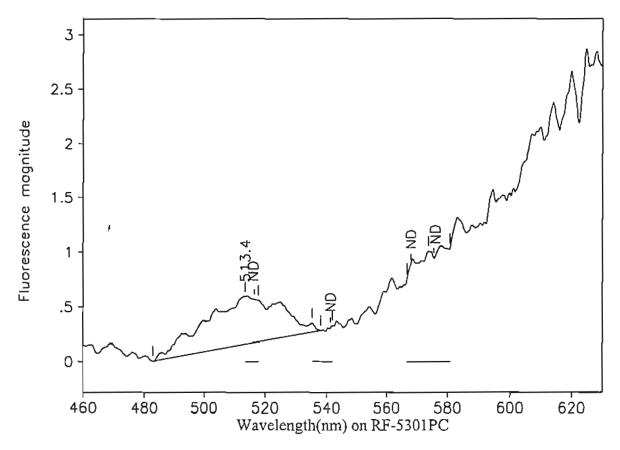
OUL number: N5177 Analyzed: 08/26/04

Matrix: Elutant

Placed: 08/11/04 1230 Collected: 08/24/04 1135

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
515.6	483.0	538.8	0.50	16.56	0.03	0.502 💥
541.1	535.2	541.8	0.00	0.00	0.00	ND
568.0	566.8	573.8	0.00	0.00	0.00	ND
575.7	573.8	580.8	0.00	0.00	0.00	ND



Station 2-135: MW-2 - 135 ft OUL number: N5178

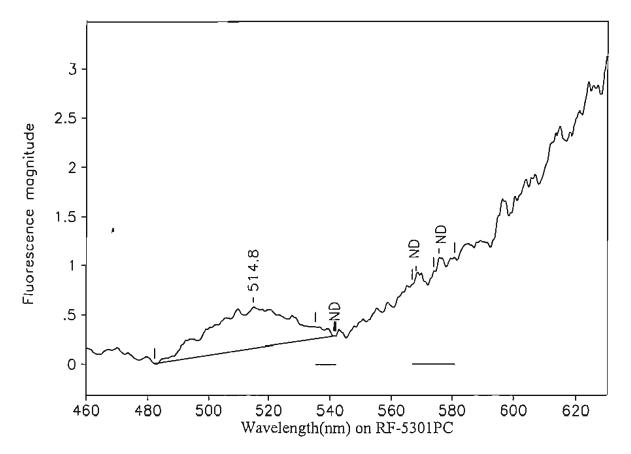
Matrix: Elutant

Placed: 08/11/04 1030

Analyzed: 08/26/04

Collected: 08/24/04 0755

Peaks within the normal range of tracer dyes:									
575.7 573.8 580.8 0.00 0.00 0.00 ND Peaks close to the normal range of tracer dyes:									
<									



Station 2-170: MW-2 - 170 ft

OUL number: N5179

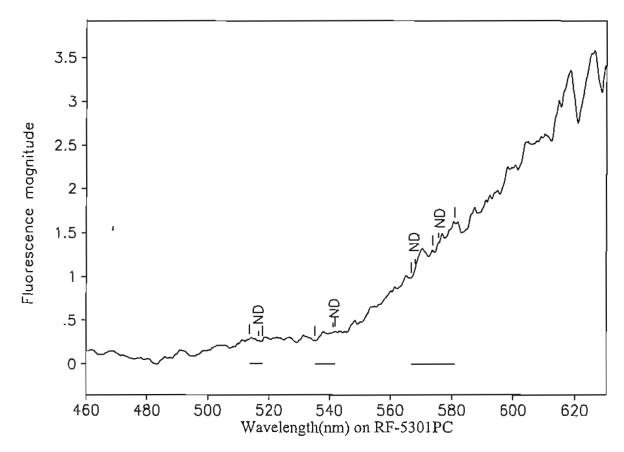
Matrix: Elutant

Placed: 08/11/04 1030

Analyzed: 08/26/04

Collected: 08/24/04 0755

Peaks with	an the norn	nal range of t	tracer dyes:						
Peak nm	Left X	Right X	Height	Area	H/A	Conc.			
514.8	482.2	541.4	0.42	13.22	0.03	0.401 💥			
541.1	535.2	541.8	0.00	0.00	0.00	ND			
568.0	566.8	573.8	0.00	0.00	0.00	ND			
575.7	573.8	580.8	0.00	0.00	0.00	ND			
Peaks close to the normal range of tracer dyes:									



Station 2: Blank

OUL number: N5180

Matrix: Elutant

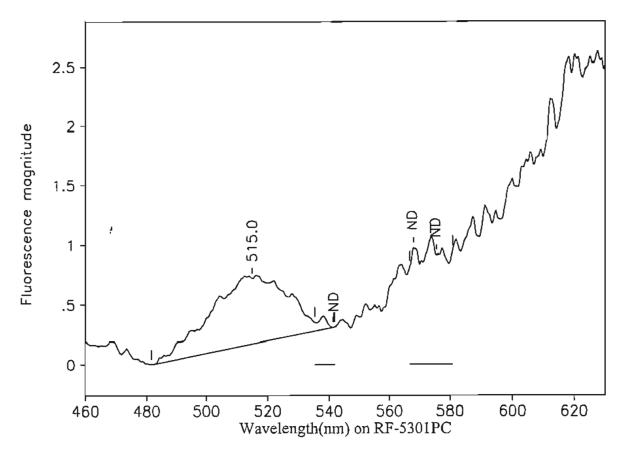
Placed: 08/26/04 1550

Analyzed: 08/26/04

Collected: 08/26/04 1550

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	541.8	0.00	0.00	0.00	ND
568.0	566.8	573.8	0.00	0.00	0.00	ND
575.7	573.8	580.8	0.00	0.00	0.00	ND



Station 3-175: MW-3 - 175 ft

OUL number: N5181

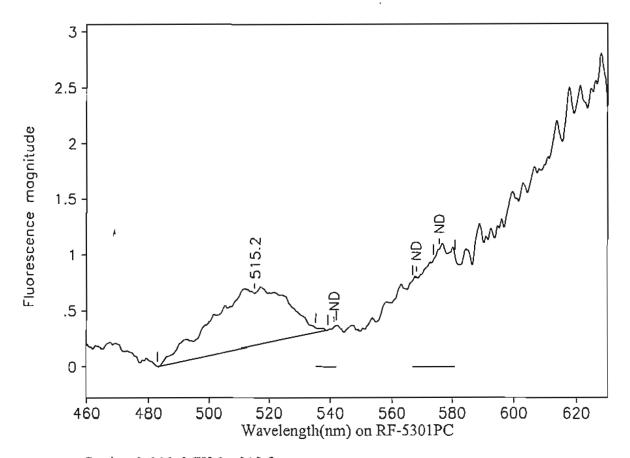
Matrix: Elutant

Placed: 08/11/04 1345

Analyzed: 08/26/04

Collected: 08/24/04 1030

Peaks with	hin the nori	nal range of	tracer dyes:			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
515.0	481.6	541.4	0.55	17.21	0.03	0.521 🗶
541.1	535.2	541.8	0.00	0.00	0.00	ND
568.0	566.8	573.8	0.00	0.00	0.00	ND
575.7	573.8	580.8	0.00	0.00	0.00	ND



Station 3-210: MW-3 - 210 ft

OUL number: N5182

Matrix: Elutant

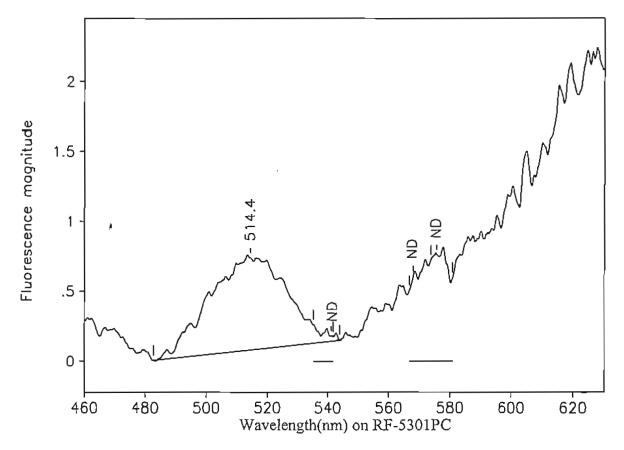
Placed: 08/11/04 1345

Analyzed: 08/26/04

Collected: 08/24/04 1030

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
515.2	483.0	539.2	0.47	15.44	0.03	0.468 ⊀
541.1	535.2	541.8	0.00	0.00	0.00	ND
568.0	566.8	573.8	0.00	0.00	0.00	ND
575.7	573.8	580.8	0.00	0.00	0.00	ND



Station 4-165: MW-4 - 165 ft

OUL number: N5183

Matrix: Elutant

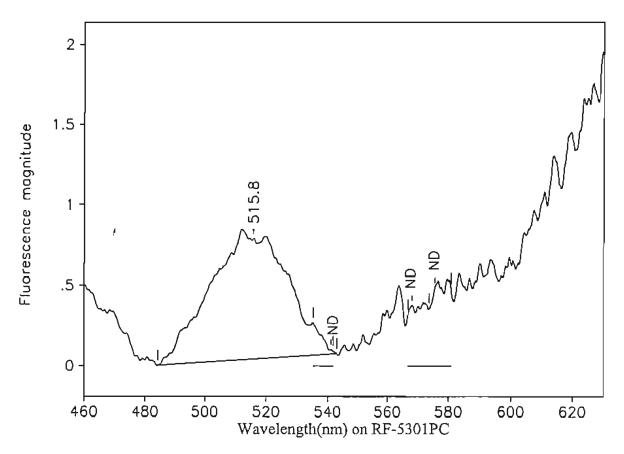
Placed: 08/11/04 1130

Analyzed: 08/26/04

Collected: 08/24/04 0930

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
514.4	482.8	544.0	$0.6\bar{6}$	19.85	0.03	0.602 🕌
541.1	535.2	541.8	0.00	0.00	0.00	ND
568.0	566.8	573.8	0.00	0.00	0.00	ND
575.7	573.8	580.8	0.00	0.00	0.00	ND
	_	_				



Station 4-200: MW-4 - 200 ft

OUL number: N5184 Analyzed: 08/26/04

Matrix: Elutant

Placed: 08/11/04 1130 Collected: 08/24/04 0930

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
515.8	484.2	543.0	0.75	23.41	0.03	0.709 📉
541.1	535.2	541.8	0.00	0.00	0.00	ND
568.0	566.8	<i>5</i> 73.8	0.00	0.00	0.00	ND
575.7	573.8	580.8	0.00	0.00	0.00	ND

September 14, 2004

CERTIFICATE OF ANALYSIS

Alan W. Aikens, P.G. CH2MHill 225 East Robinson Street, Suite 505 Orlando, Florida 32801

RE: Lake Orienta

Dye analysis results for charcoal samplers shipped September 7, 2004 Ozark Underground Laboratory (OUL) numbers N5389 through N5398.

Dear Mr. Aikens:

We have completed analysis of the charcoal samplers received by the OUL on September 8, 2004. We have indicated the OUL number for each of these samplers on the enclosed table.

The fluorescein, eosine and rhodamine WT (RWT) dye concentrations are based upon standards routinely used at the OUL. The fluorescein and eosine are mixtures of 75% dye and 25% diluent; the RWT is a 20% solution. The concentrations are based upon the as-sold weight of the dye.

A summary of the results is presented in Table 1. Additional sampling information is available on the enclosed analysis graphs.

Sincerely,

Thomas J. Aley, PHG, RG

home J. Ale

- Enclosures: 1. Table 1. Analysis results for charcoal samplers
 - 2. Sample Collection Data Sheet
 - 3. Discrepancy sheet
 - 4. Sample analysis graphs

f:\docs\coa\LakeOrienta03.doc

Project:
Samples Collected By:

Lake Orienta Mike Burns

Date Samples Shipped:

September 7, 2004

Date Samples Rec'd at OUL:
Date Analyzed by OUL:

September 8, 2004 September 10, 2004

Table 1. Results for background charcoal samplers analyzed for the presence of fluorescein, eosine and rhodamine WT (RWT) dyes. Peak wavelengths are reported in nanometers (nm); dye concentrations are reported in parts per billion (ppb).

OUL Lab#	Station #	Station Name	Date/Time Placed	Date/Time Collected	Fluorescein		Eos	sine	RWT	
			2004	2004	Peak	Conc.	Peak	Conc.	Peak	Conc.
N5389	1-215	MW-1 - 215 ft	8/24 1230	9/7 1150	515.4 *	0.550	ND		ND	
N5390	1-240	MW-1 - 240 ft	8/24 1230	9/7 1151	516.2 *	0.621	ND		ND	
N5391	2-135	MW-2 - 135 ft	8/24 0820	9/7 0936	514.8 *	0.447	ND		ND	
N5392	2-170	MW-2 - 170 ft	8/24 0820	9/7 0937	516.4 *	0.410	ND		ND	
N5393	3-175	MW-3 - 175 ft	8/24 1105	9/7 1310	517.0 *	0.807	ND _		ND	
N5394	3-210	MW-3 - 210 ft	8/24 1105	9/7 1311	513.8 *	0.385	ND		ND	
N5395	4-165	MW-4 - 165 ft	8/24 1005	9/7 1052	513.8 *	0.797	ND		ND	
N5396	4-200	MW-4 - 200 ft	8/24 1005	9/7 1053	515.4 *	0.949	ND		ND	
N5397	Lake 1	1.6' depth above Lake bottom	8/24 NT	9/7 1032	514.4 *	0.811	ND		569.8 *	10.3
N5398	Lake2	3.4' depth above Lake bottom	8/24 NT	9/7 1032	514.0 *	0.599	ND		571.3 *	8.07

FOOTNOTES:

ND = No dye detected

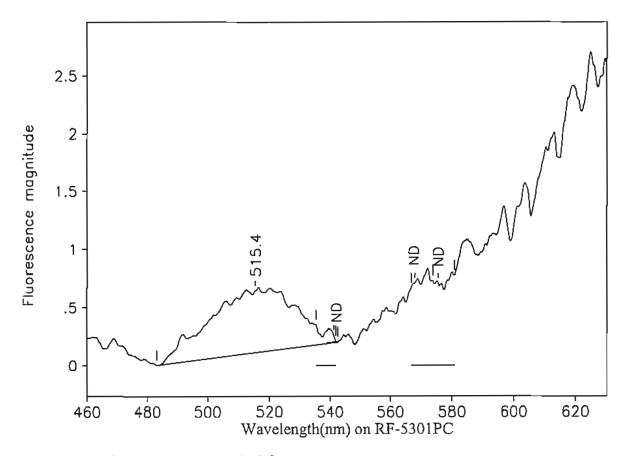
NT = No time given

* = A fluorescence peak is present that does not meet all the criteria for a positive dye result but has been calculated as though it were dye for background purposes.

maiyzc	for: Fluores	scein X)	Eosine X Rhodamine WT X Other Ship cooler to: Ship cooler to:	امري	<u> 3 A</u>	1750 < 1	675	520	e Rd. U	327
	OUL se only		Please indicate stations where dye was visible in the for field technician use - use black ink only	<u>fie</u> li	<u>d</u>					OUL use only
# CHAR	LAB NUMBER	STATION NUMBER	STATION NAME	PLACED			COLLECTED			# WATER
RECD	Charcoa	n	· · · · · · · · · · · · · · · · · · ·	DATE TIME			1.			REC'D
	N5389	1-215	MW-1 − 215 ft	8/.	24/04	1230	91	2104	1150	0
ĺ	N5390	1-240	MW-1 – 240 ft			1230			1151	0
Ò			MW-1 - Water Sample					<i>)</i>	1223	
Ĭ	N5391	2-135	MW-2 – 135 ft			0820			0936	0
	N5392	2-170	MW-2 – 170 ft			0220			0937	0
0		2-WA	MW-2 - Water Sample						10/0	1
1	N5393	3-175	MW-3 – 175 ft			1105		_	1310	0
1	N5394	3-210	MW-3 – 210 ft			1105			1311	
0		3-WA	MW-3 – Water Sample						1336	1
1	N5395	4-165	MW-4 - 165 ft	1		1005		_	1052	0
1	15396	4-200	MW-4 – 200 ft			105			1053	\bigcirc
0		- 4-WA	MW-4 - Water Sample	\sqcap		,			1128	1
1	w5397	Lakel	Lake Sample 1.6' off Button	17					1032	\triangle
	15398		Lake Samphi 3.4' off botton		_		-1		1032	0
0			Lake Samphe Water	T-*			Ι,		1035	1
COMM	ENTS:	,						¥		1

OZARK UNDERGRO... (D LABORATORY, INC.

DISCRE	PANCIES	S BETWE	EN CHAIN-OF-C	USTODY	SHEETS	S AND ACTUAL SAMPLES RECEIVE	· — —
Company	y & Proje	ct Name: (CH2M Due	Jaked	Orienta	Date Rec'd by OUL:	9/8/04 Wk#
Lab#	Sta#		Station Name		Date Pulled	Problem	Solution
N5394	3-210	MW-3	-210 F-1		9/7	whil-pak has depth	J. Arnold Said to come
,						as 275	Station as it appears
N5396	4200	MW4-	200 Ft		9/7	whirl-wak has depth	on Coc and he will
						as 285'	Check W/M. Burns
							Confirmed w/ Lydia
							Wing 9/14/04 /A
							(une coc data)
						<u></u>	
							:
						· · · · · · · · · · · · · · · · · · ·	·
	<u> </u>						
Commen	ıts:						
							:
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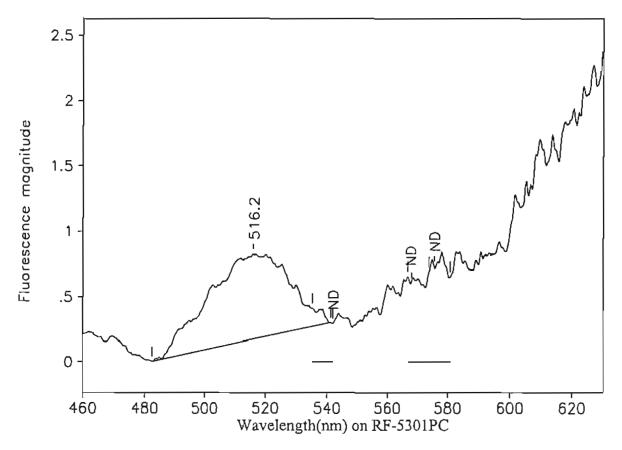
Station 1-215: MW-1 - 215 ft

OUL number: N5389 Analyzed: 09/10/04

Matrix: Elutant

Placed: 08/24/04 1230 Collected: 09/07/04 1150

Peak nm	Left X	Right X	Height	Area	H/A	Conc.			
515.4	483.2	542.6	0.53	18.13	0.03	0.550			
541.1	535.2	541.8	0.00	0.00	0.00	ND			
568.0	566.8	573.8	0.00	0.00	0.00	ND			
575.7	573.8	580.8	0.00	0.00	0.00	ND			
Peaks close to the normal range of tracer dyes:									



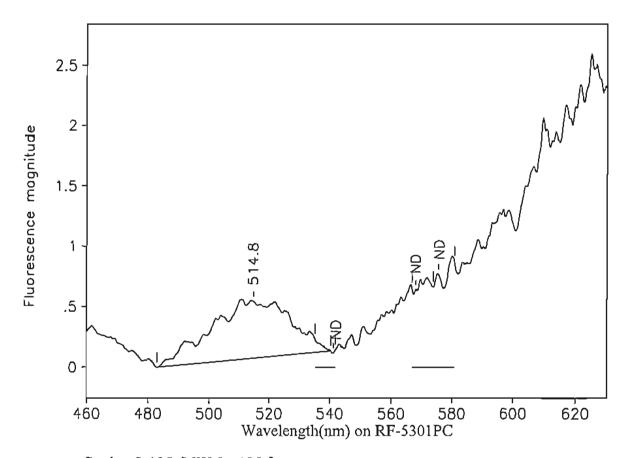
Station 1-240: MW-1 - 240 ft

OUL number: N5390 Analyzed: 09/10/04

Matrix: Elutant

Placed: 08/24/04 1230 Collected: 09/07/04 1151

Peak nm	Left X	Right X	Height	Area	H/A	Conc.			
516.2	482.4	541.2	0.65	20.46	0.03	Conc. * 0.621 *			
541.1	535.2	541.8	0.00	0.00	0.00	ND			
568.0	566.8	573.8	0.00	0.00	0.00	ND			
575.7	573.8	580.8	0.00	0.00	0.00	ND			
Peaks close to the normal range of tracer dyes:									



Station 2-135: MW-2 - 135 ft OUL number: N5391

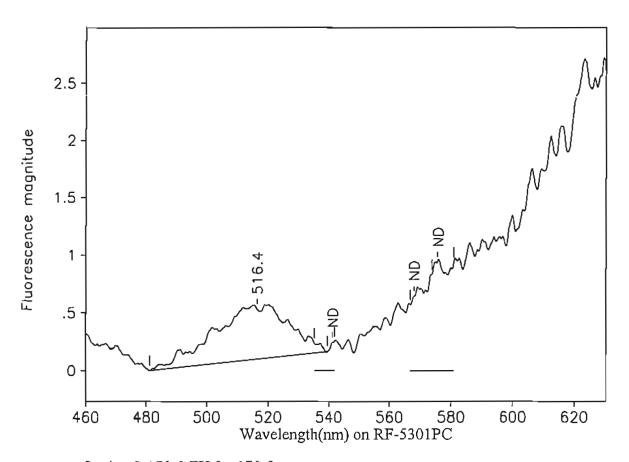
Matrix: Elutant

Placed: 08/24/04 0820

Analyzed: 09/10/04

Collected: 09/07/04 0936

Peak nm	Left X	Right X	Height	Атеа	H/A	Conc.			
514.8	483.0	540.4	0.47	14.74	0.03	0.447			
541.1	535.2	541.8	0.00	0.00	0.00	ND			
568.0	566.8	573.8	0.00	0.00	0.00	ND			
575.7	573.8	580.8	0.00	0.00	0.00	ND			
Peaks close to the normal range of tracer dyes:									



Station 2-170: MW-2 - 170 ft

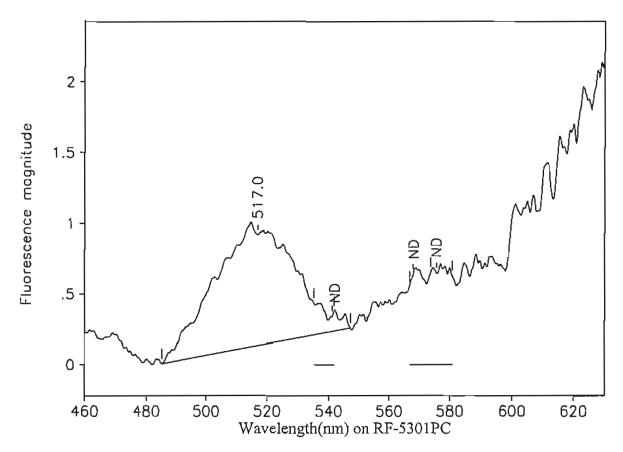
OUL number: N5392 Analyzed: 09/10/04

Matrix: Elutant

Placed: 08/24/04 0820 Collected: 09/07/04 0937

Peaks within the normal range of tracer dyes:

Left X	Right X	Height	Area	H/A	Conc. *
481.2	539.6	0.43	13.53	0.03	0.410 🤏
535.2	541.8	0.00	0.00	0.00	ND
566.8	573.8	0.00	0.00	0.00	ND
573.8	580.8	0.00	0.00	0.00	ND
	481.2 535.2 566.8	481.2 539.6 535.2 541.8 566.8 573.8	481.2 539.6 0.43 535.2 541.8 0.00 566.8 573.8 0.00	481.2 539.6 0.43 13.53 535.2 541.8 0.00 0.00 566.8 573.8 0.00 0.00	481.2 539.6 0.43 13.53 0.03 535.2 541.8 0.00 0.00 0.00 566.8 573.8 0.00 0.00 0.00



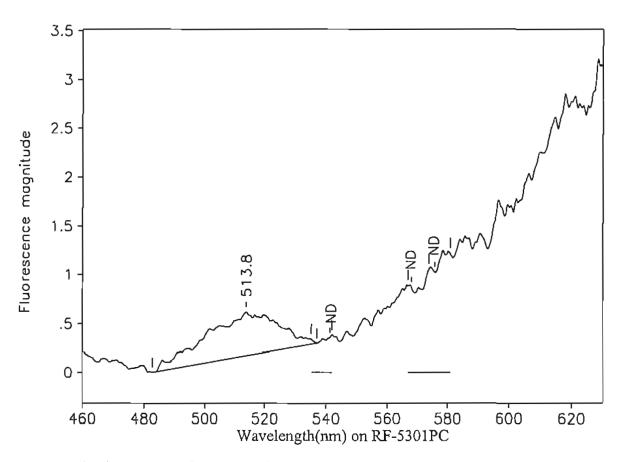
Station 3-175: MW-3 - 175 ft OUL number: N5393

Matrix: Elutant

Placed: 08/24/04 1105 Collected: 09/07/04 1310

Analyzed: 09/10/04

Peak nm	Left X	Right X	Height	Агеа	H/A	Conc.
517.0	485.2	547.2	0.78	26.59	0.03	0.807 *
541.1	535.2	541.8	0.00	0.00	0.00	ND
568.0	566.8	573.8	0.00	0.00	0.00	ND
575.7	573.8	580.8	0.00	0.00	0.00	ND
Peaks clos	se to the no	rmal range of	f tracer dyes	5:		



Station 3-210: MW-3 - 210 ft

OUL number: N5394

Matrix: Elutant

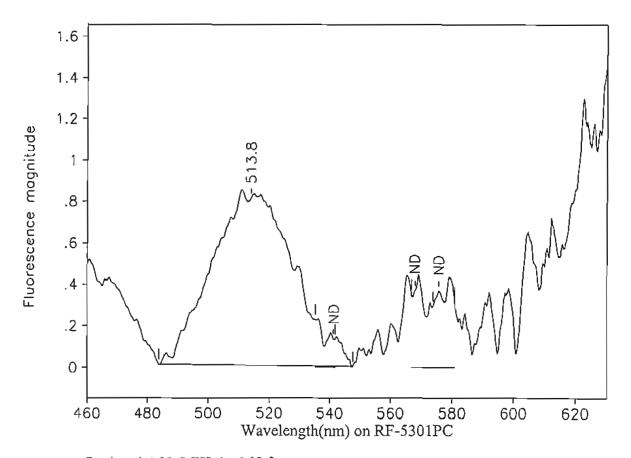
Placed: 08/24/04 1105

Analyzed: 09/10/04

Collected: 09/07/04 1311

Peaks within the normal range of tracer dyes:

Peak nm Left X Right X Height Area H/A	Conc. 0.385 **
513.8 482.6 537.0 0.45 12.68 0.04	0.385
541.1 535.2 541.8 0.00 0.00 0.00	ND
568.0 566.8 573.8 0.00 0.00 0.00	ND
575.7 573.8 580.8 0.00 0.00 0.00	ND



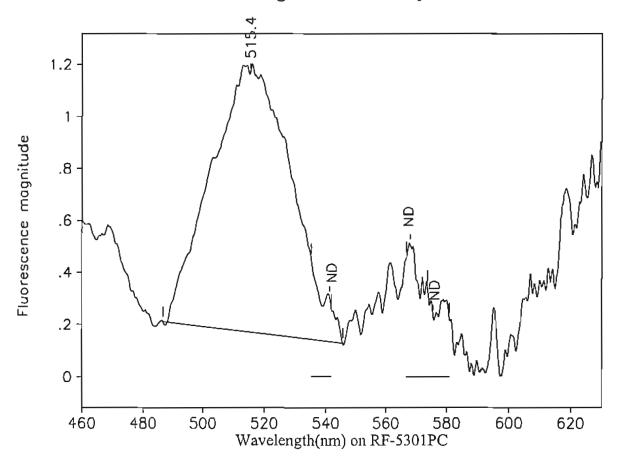
Station 4-165: MW-4 - 165 ft OUL number: N5395

Matrix: Elutant

Placed: 08/24/04 1005 Collected: 09/07/04 1052

Analyzed: 09/10/04

Peak nm	Left X	Right X	Height	Area	H/A	Conc. *	
513.8	483.8	547.6	0.80	26.26	0.03	0.797	
541.1	535.2	541.8	0.00	0.00	0.00	ND	
568.0	566.8	573.8	0.00	0.00	0.00	ND	
575.7	573.8	580.8	0.00	0.00	0.00	ND	
Peaks close	e to the norr	nal range of	tracer dyes:				



Station 4-200: MW-4 - 200 ft

OUL number: N5396

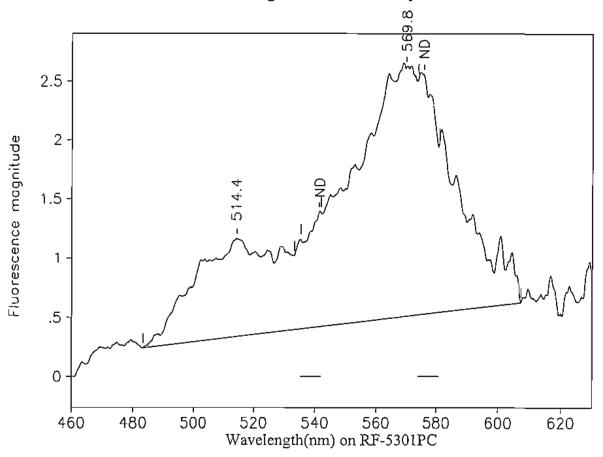
Matrix: Elutant

Placed: 08/24/04 1005

Analyzed: 09/10/04

Collected: 09/07/04 1053

Peak nm	Left X	Right X	Height	Area	H/A	Conc. ,
515.4	486.6	545.6	1.00	31.30	0.03	0.949 *
541.1	535.2	541.8	0.00	0.00	0.00	ND
568.0	566.8	573.8	0.00	0.00	0.00	ND
575.7	573.8	580.8	0.00	0.00	0.00	ND
Peaks clos	e to the non	mal range of	tracer dyes:	:		

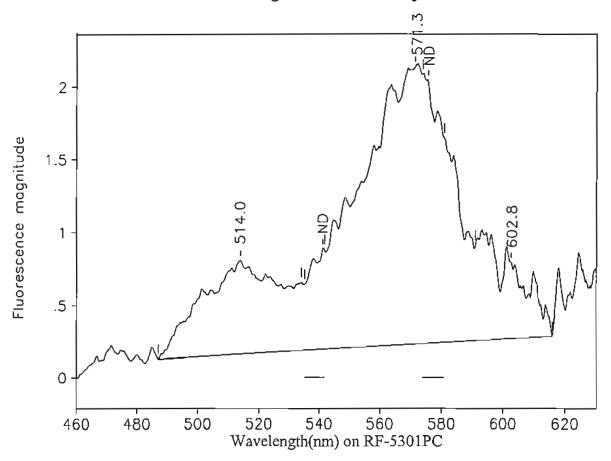


Station Lake1: 1.6' depth above Lake bottom OUL number: N5397 Analyzed: 09/10/04

Matrix: Elutant

Placed: 08/24/04 Collected: 09/07/04 1032

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
514.4	483.2	533.2	0.83	26.75	0.03	Conc. 0.811 *
541.1	535.2	541.8	0.00	0.00	0.00	ND
569.8	533.3	607.2	2.11	87.93	0.02	10.3 🗶
575.7	573.8	580.8	0.00	0.00	0.00	ND
Peaks clos	se to the not	rmal range of	f tracer dyes	s:		



Station Lake2: 3.4' depth above Lake bottom

OUL number: N5398

Matrix: Elutant

Placed: 08/24/04

Analyzed: 09/10/04

H/A 0.03

0.00

Collected: 09/07/04 1032

Peaks with	nin the norr	nal range of	tracer dyes:	
Peak nm	Left X	Right X	Height	Area
514.0	487.0	534.1	0.64	19.73
541.1	535.2	541.8	0.00	0.00

571.3 534.1 590.9 1.90 68.99 575.7 573.8 580.8 0.00 0.00 Peaks close to the normal range of tracer dyes: 602.8 590.9 616.0 0.52 11.21

68.99 0.03 8.07 ***** 0.00 ND

0.05 0.000

Conc. **
0.599

ND



1572 Aley Lane

Protem, MO 65733

(417) 785-4289

fax (417) 785-4290

oul@tri-lakes.net

December 7, 2004

CERTIFICATE OF ANALYSIS

Alan W. Aikens, P.G. CH2MHill 225 East Robinson Street, Suite 505 Orlando, Florida 32801

RE: Lake Orienta

> Dye analysis results for charcoal and water samples shipped December 2, 2004 Ozark Underground Laboratory (OUL) numbers N7424 through N7465 and N7471.

Dear Mr. Aikens:

We have completed analysis of the charcoal and water samples received by the OUL on December 3, 2004. We have indicated the OUL number for each of these samples on the enclosed table.

The fluorescein, eosine and rhodamine WT (RWT) dye concentrations are based upon standards routinely used at the OUL. The fluorescein and eosine are mixtures of 75% dye and 25% diluent; the RWT is a 20% solution. The concentrations are based upon the as-sold weight of the dye.

A summary of the results is presented in Table 1. Additional sampling information is available on the enclosed analysis graphs.

Sincerely,

Thomas J. Aley, PHG, RG

Thomas J. Ale

- Enclosures: 1. Table 1. Analysis results for charcoal and water samples
 - 2. Sample Collection Data Sheets
 - 3. Sample analysis graphs

f:\docs\coa\LakeOrienta04.doc

Project:

Lake Orienta

Samples Collected By:

Mike Burns

Date Samples Shipped:

December 2, 2004

Date Samples Rec'd at OUL: Date Analyzed by OUL: December 3, 2004 December 6 and 7, 2004

Table 1. Results for charcoal and water samples analyzed for the presence of fluorescein, eosine and rhodamine WT (RWT) dyes. Peak wavelengths are reported in nanometers (nm); dye concentrations are reported in parts per billion (ppb). All results are for charcoal unless otherwise indicated.

OUL Lab#	Station #	Station Name	Date/Time Placed	Date/Time Collected	Fluor	escein	E	osine	RV	VT
			2004	2004	Peak	Conc.	Peak	Conc.	Peak	Conc.
N7424	1-215	MW-1 - 215 ft	11/17 1345	12/2 1100	ND		ND		ND	
N7425	1-225	MW-1 - 225 ft	11/17 1345	12/2 1100	ND		ND		ND	
N7426	1-235	MW-1 - 235 ft	11/17 1345	12/2 1100	ND		ND _		ND	
N7427	1-245	MW-1 - 245 ft	11/17 1345	12/2 1100	ND		ND		ND	
N7428	1-255	MW-1 - 255 ft	11/17 1345	12/2 1100	ND		ND		ND	
N7429	1-265	MW-1 - 265 ft	11/17 1345	12/2 1100	ND		ND		ND	
N7430	1-275	MW-1 -275 ft	11/17 1345	12/2 1100	ND		ND		ND	
N7431	1-285	MW-1 - 285 ft	11/17 1345	12/2 1135	ND		ND		ND_	
N7432	2-135	MW-2 - 135 ft	11/17 1400	12/2 1200	ND		542.1	1,290	ND	
N7433	2-150	MW-2 - 150 ft	11/17 1400	12/2 1200	ND		541.9	2,550	ND	
N7434	2-165	MW-2 - 165 ft	11/17 1400	12/2 1200	ND		541.9	2,040	ND	
N7435	2-180	MW-2 - 180 ft	11/17 1400	12/2 1200	ND		541.9	2,580	ND	
N7436	2-195	MW-2 - 195 ft	11/17 1400	12/2 1200	ND		541.9	5,240	ND	
N7437	2-210	MW-2 - 210 ft	11/17 1400	12/2 1200	ND		541.9	5,950	ND	
N7438	2-225	MW-2 - 225 ft	11/17 1400	12/2 1200	ND		541.8	2,920	ND	
N7439	2-240	MW-2 - 240 ft	11/17 1400	12/2 1200	ND		541.9	3,670	ND	
N7440	Laborat	ory Control Charcoal Blank	THE WHAT WE			12		Hyath Eac		100
N7441	2-255	MW-2 - 255 ft	11/17 1400	12/2 1200	ND		541.8	2,470	ND	
(Footnot	es at end of	Table)	1						•	(continued

Table 1. Results for charcoal and water samples analyzed for the presence of fluorescein, eosine and rhodamine WT (RWT) dyes. Peak wavelengths are reported in nanometers (nm); dye concentrations are reported in parts per billion (ppb). All results are for charcoal unless otherwise indicated.

OUL Lab#	Station #	Station Name	Date/Time Placed	Date/Time Collected	Fluor	escein	E	osine	RV	ХT
			2004	2004	Peak	Conc.	Peak	Conc.	Peak	Conc.
(continue	ed)			•				•	•	
N7442	2-270	MW-2 - 270 ft	11/17 1400	12/2 1200	ND		541.9	5,340	ND	
N7443	2-285	MW-2 - 285 ft	11/17 1400	12/2 1200	ND		541.1	25.8	ND	
N7444	2-300	MW-2 - 300 ft	11/17 1400	12/2 1200	ND		540.9	26.8	ND	
N7445	3-175	MW-3 - 175 ft	11/17 1330	12/2 1010	ND		ND		ND	
N7446	3-185	MW-3 - 185 ft	11/17 1330	12/2 1010	ND		ND		ND	
N7447	3-195	MW-3 - 195 ft	11/17 1330	12/2 1010	ND		ND		ND	
N7448	3-205	MW-3 - 205 ft	11/17 1330	12/2 1010	ND		ND		ND	
N7449	3-215	MW-3 - 215 ft	11/17 1330	12/2 1010	ND		ND		ND	
N7450	3-225	MW-3 - 225 ft	11/17 1330	12/2 1010	ND		ND		ND	
N7451	3-235	MW-3 - 235 ft	11/17 1330	12/2 1010	ND		ND		ND	
N7452	3-245	MW-3 - 245 ft	11/17 1330	12/2 1010	ND		ND		ND	
N7453	3-255	MW-3 - 255 ft	11/17 1330	12/2 1010	ND		ND		ND	
N7454	3-265	MW-3 - 265 ft	11/17 1330	12/2 1010	ND		ND		ND	
N7455	3-275	MW-3 - 275 ft	11/17 1330	12/2 1010	ND		ND		ND	
N7456	4-165	MW-4 - 165 ft	11/17 1310	12/2 0850	ND		ND		ND	
N7457	4-180	MW-4 - 180 ft	11/17 1310	12/2 0850	ND		ND		ND	
N7458	4-195	MW-4 - 195 ft	11/17 1310	12/2 0850	ND		ND		ND	
N7459	4-210	MW-4 - 210 ft	11/17 1310	12/2 0850	ND		ND		ND	
N7460	Laborate	ory Control Charcoal Blank	THE SECTION AND PROPERTY.			NEW YEAR				
N7461	4-225	MW-4 - 225 ft	11/17 1310	12/2 0850	ND		ND		ND	
N7462	4-240	MW-4 - 240 ft	11/17 1310	12/2 0850	ND		ND		ND	
N7463	4-255	MW-4 - 255 ft	11/17 1310	12/2 0850	ND		ND		ND	
(Footnote	es at end of	Table)	,	t.						continue

Table 1. Results for charcoal and water samples analyzed for the presence of fluorescein, eosine and rhodamine WT (RWT) dyes. Peak wavelengths are reported in nanometers (nm); dye concentrations are reported in parts per billion (ppb). All results are for charcoal unless otherwise indicated.

OUL Lab#	Station #	Station Name	Date/Time Placed	Date/Time Collected	Fluor	escein	Eos	sine	RV	VT
			2004	2004	Peak	Conc.	Peak	Conc.	Peak	Conc.
(continue	ed)									
N7464	4-270	MW-4 - 270 ft	11/17 1310	12/2 0850	ND		ND		ND	
N7465	4~285	MW-4 - 285 ft	11/17 1310	12/2 0850	ND		ND		ND	
N7471	2-WA	MW-2 - Water	Water	12/2 1200	ND		534.3	8.18	ND	

FOOTNOTES:

ND = No dye detected

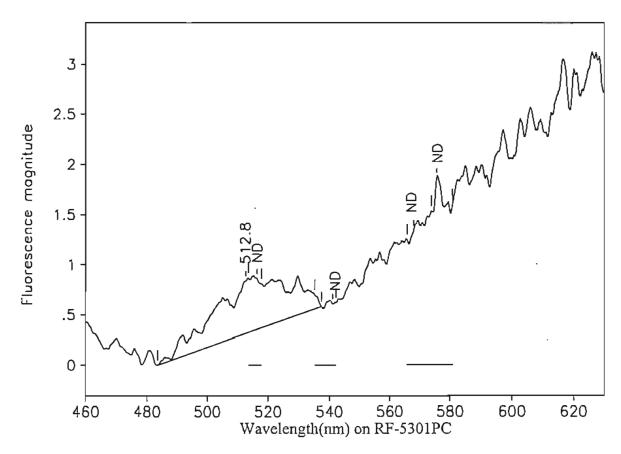
			Eosine X Rhodamine WT				durse 3	As	500,		_		•
	OUL se only		Plea			s visible in th	e field						OUL use only
# CHAR REC'D	LAB NUMBER	STATION			ON NAME	 The state of the s	_	PLA	CED	co	LLEC	TED	WATER
1002	charcal	1-4 Numbers				·	DAT	E	TIME	DATÉ	I	TIME	REC'D
	N7424	1-215	MW-1 – 215 ft				11/17	64	1345	12/0	y 1	100	0
1	W1425	1-225	MW-1 – 225 ft			٠.						1	O
1	M426	1-235	MW-1 - 235 ft								1	1	0
1	W7427	1-245	MW-1 – 245 ft									\top	0
1	17420	1-255	MW-1 - 255 ft	_							1		0
<u> </u>	17429	1-265	MW-1 – 265 ft						1		1		0
<u> </u>	W1420	1-275	MW-1 – 275 ft			. *					\uparrow		0
ì	N7431	1-285	MW-1 - 285 ft				 				\top	1135	1
D		1-WA	MW-1 - Water Sample							_	╅	1100	'
						·					\top		
						 					\dagger		
								-			+		
							+-				+	·	
<u> </u>	_						_	_			+		
			·			·	+	_			+		1
COMM	n nite.												
COMIN	EN 13.				424	 							

		SCEII X	Eosine X Rhodamine WT X Other Ship cooler to:							
	OUL ne only	•	Please indicate stations where dye was visible in the for field technician use - use black ink only							OUL use only
CHAR REC'D	LAB NUMBER A	STATION NUMBER	STATION NAME		PLA	CED	Ţ	corri	CTED	WATER
	chancoal	1-4 Numbers		DA	TE	TIME	DA	TE	TIME	REC'D
	W7432	2-135	MW-2 – 135 ft	_ 1111	104	1400	12/2	104	1200	0
	N7433	2-150	MW-2 – 150 ft				-			0
	N7434	2-165	MW-2 - 165 ft	\Box						0
	N7435	2-180	MW-2 - 180 ft							0
}	W1436	2-195	MW-2 – 195 ft							0
i	N7437	2-210	MW-2 - 210 ft				$\exists \exists$			0
	N7438	27-225	MW-2 - 225 ft				\top			0
	N7439	2-240	MW-2 – 240 ft							0
1	111441	2-255	MW-2 – 255 ft					-		0
1	N1442	2-270	MW-2 – 270 ft				1			9
	1144	2-285	MW-2 – 285 ft							Ĭ
i	N1444	2-300	MW-2 - 300 ft		Y	,				1
<u>,</u>	77777	2-WA	MW-2 – Water Sample				─ `			+
0		2 1/11	TATE TRACE Sample			-				+-
				\dashv			+			+-
) 60 m	IB/ONK N7440							

- Inalyze	for: Fluore	scein X	Send Results to: Cosine X Rhodamine WT X Other Ship cool	er to: <u> </u>	lars	e 3	Assoc				
	OUL se only		Please indicate stations where dye was vi for field technician use - use black	sible in the							OUL use only
# CHAR REC'D	LAB NUMBER	STATION NUMBER	STATION NAME			LLEC	TED	w Water			
	Charcoal	3-175	MW-3 – 175 ft	_		ATÉ	TIME	DATE	\neg	TIME	REC'D
 ,	M445			· .	11/1	7/04	1330	12/2/0	1	1010	0
- {	N7446	3-185	MW-3 – 185 ft						\dashv		0
	N7447	3-195	MW-3 – 195 ft						+	+	-
	M448	3-205	MW-3 − 205 ft		-			1 /	\perp	-	0
	N 1449	3-215	MW-3 – 215 ft	_							0
	W7450	3-225	MW-3 – 225 ft				.				. 0
<u> </u>	N145[3-235	MW-3 – 235 ft		Ш						0
1	N1452	3-245	MW-3 – 245 ft								<u> </u>
- (W7453	3-255	MW-3 – 255 ft								0
1	N7454	3-265	MW-3 – 265 ft								0
1	N455	3-275	MW-3 – 275 ft		\ \ \ \					J	O
0		3-WA	MW-3 – Water Sample					12/2/0	4 /	1040	1
			·	_						,	
			<u>.</u>								
									\top		
COMM	ENTS:					ķ	•	•			

	ior. Fluore	scein X	Eosine X Rhodamine WT X Other Ship cooler to:	Nodar	<u> </u>	ASSO			
	OUL se only		Please indicate stations where dye was visible for field technician use - use black ink of	,					
#CHAR REC'D	LAB NUMBER Charcoa	STATION NUMBER 1-4 Numbers	STATION NAME		PLA	CED	COL	WATER REC'D	
1	N456		MW-4 - 165 ft			1310		TIME	
1.	W7457	4-180	MW-4 - 180 ft			1			0
/	17458	4-195	MW-4 195 ft						0
/	N7459	4-210	MW-4 - 210 ft						0
1	1746	4-225	MW-4 – 225 ft						0
1	N7462	4-240	MW-4 – 240 ft						0
7.	V7463	4-255	MW-4 – 255 ft					-	0
1	N7464	4-270	MW-4 - 270 ft					17	0
(N465	4-285	MW-4 – 285 ft		,		1		Ø
0		4-WA	MW-F - Water Sample				12/2/04	0935	1
			1	,					
									<u> </u>
		1							1

Project:	Lake Or	ienta (CH2M	1hill) Week No: A Samples Collected	Ву:	Mi	Le_	Bu	rns		
Samples	Shipped By	y:	Samples Received By: Marty (تتمتا	olo	<u>- را</u>	D٧	<u> </u>		
Date Sai	mples Shipp	ed: 12 / 62	Date Samples Received: 12/3/04 Time Samples Received 17	<u>∷ 3</u>	0	Retu	11.11	Cooler? Y	es <u> </u>	No
Analyze	for: Fluore	escein X	Send Results to: Send Results to: Eosine X Rhodamine WT X Other Ship cooler to: \(\nabla_2 \)	oderse	2 3	Asso	<i>د</i> ،			
ı	OUL se only		Please indicate stations where dye was visible in the for field technician use - use black ink only	e field	!					OUL use only
#CHAR	LAB	STATION	STATION NAME					ECTED		
REC'D	NUMBER Water	NUMBER 1-4 Numbers		DATE TIME DATE					TIME	WATER REC'D
1	/	2-135	MW-2 - 135 ft	lith	1/04	140	ъ	12/2/04	1200	Ø
(2-150	MW-2 - 150 ft							Ø
l		2-165	MW-2 - 165 ft							0
i		2-180	MW-2 - 180 ft				,			
· {		2-195	MW-2 – 195 ft				,			Ø
1		2-210	MW-2 – 210 ft							Ø
- 1		3-225	MW-2 – 225 ft							Ø
ı		2-240	MW-2 – 240 ft							Ø
l		2-255	MW-2 – 255 ft							7
1	/	2-270	MW-2 – 270 ft							
	1	2-285	MW-2 – 285 ft							Ø
1	V	2-300	MW-2 – 300 ft					1		Ø
Ø	N7471	2-WA	MW-2 - Water Sample							
<u> </u>						_			<u> </u>	
COMM	Ents:									
This she	et filled out	by OUL st	aff? Yes No Charts for samples on this page proofed	by Ot	 ЛL:		sp.	ma	627	
proj	ect 62	1 ainal	2 and 12/7/04 by me Page 2 of 4 OUL page	sc 2	21.	/ f:\sh	ared	√orms\coc2	.doc, Rev.	4/12/04



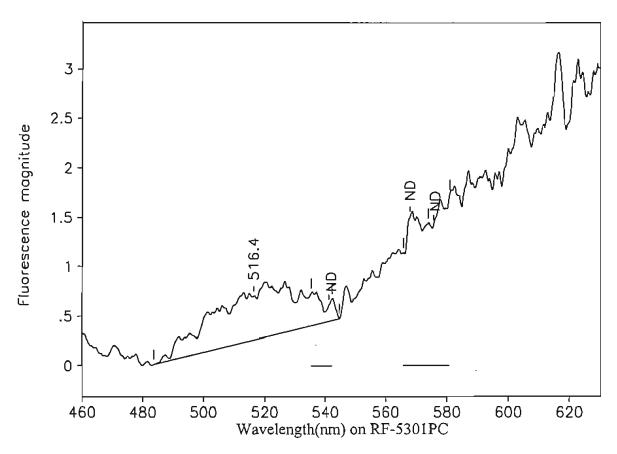
Station 1-215: MW-1 - 215 ft

OUL number: N7424 Analyzed: 12/06/04

Matrix: Elutant

Placed: 11/17/04 1345 Collected: 12/02/04 1100

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND
Peaks clos	se to the no	rmal range o	f tracer dye	s:		_
512.8	483.4	537.4	0.52	15.26	0.03	0.444



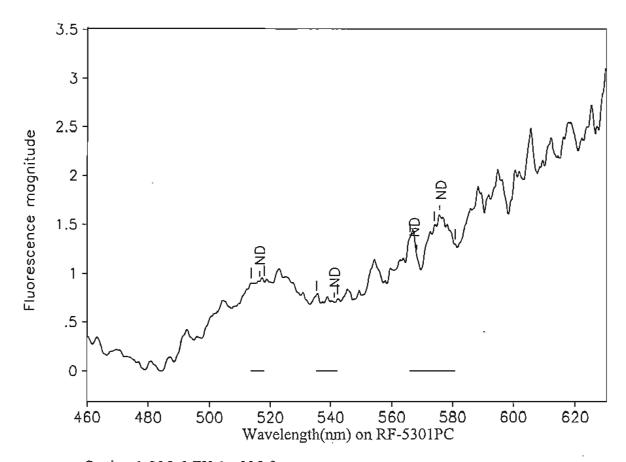
Station 1-225: MW-1 - 225 ft OUL number: N7425 Analyzed: 12/06/04

Matrix: Elutant

Placed: 11/17/04 1345 Collected: 12/02/04 1100

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.4	483.6	544.6	0.44	18.65	0.02	0.543
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND
and the second s			and the second s			



Station 1-235: MW-1 - 235 ft

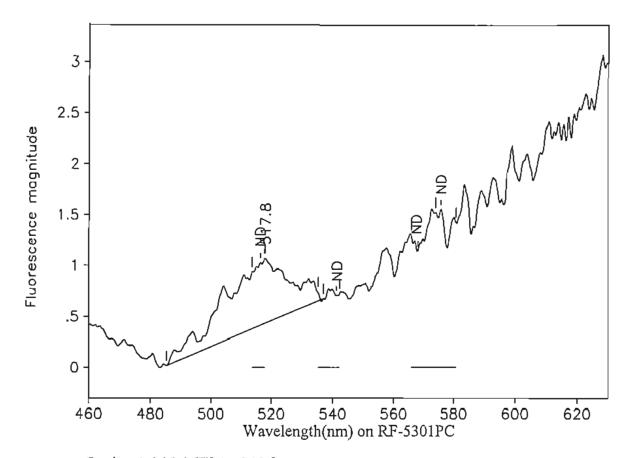
OUL number: N7426 Analyzed: 12/06/04

Matrix: Elutant

Placed: 11/17/04 1345 Collected: 12/02/04 1100

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND
	_	_				

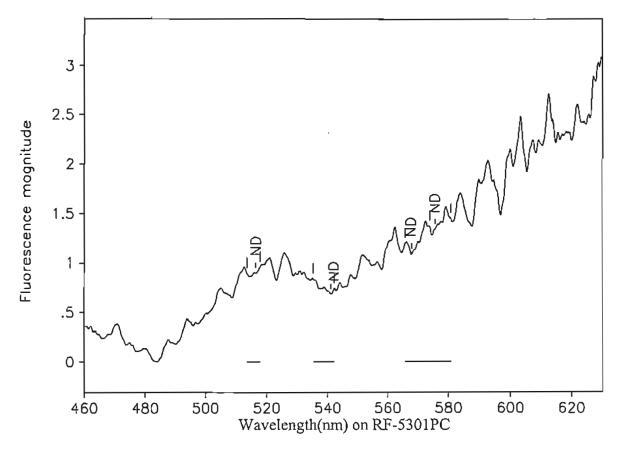


Station 1-245: MW-1 - 245 ft

OUL number: N7427 Analyzed: 12/06/04

Matrix: Elutant Placed: 11/17/04 1345 Collected: 12/02/04 1100

Peaks with	nin the norr	nal range of	tracer dyes:			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND
Peaks clos	e to the nor	rmal range of	f tracer dyes	3:		
517.8	485.2	537.0	0.64	16.44	0.04	0.478



Station 1-255: MW-1 - 255 ft OUL number: N7428

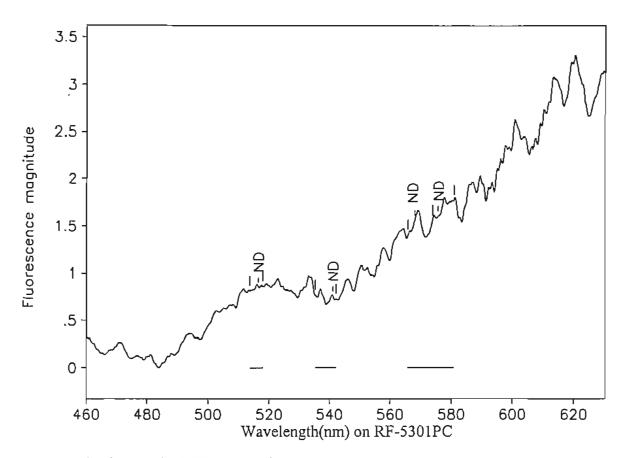
Matrix: Elutant

Placed: 11/17/04 1345

Analyzed: 12/06/04

Collected: 12/02/04 1100

Peaks with	hin the norr	nal range of	tracer dyes:			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



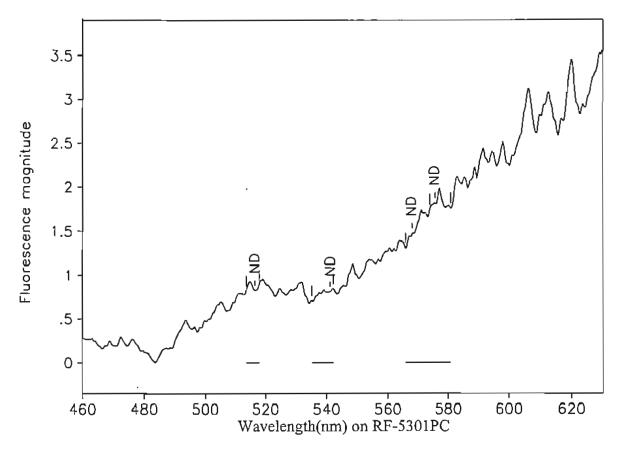
Station 1-265: MW-1 - 265 ft

OUL number: N7429 Analyzed: 12/06/04

Matrix: Elutant Placed: 11/17/04 1345 Collected: 12/02/04 1100

Peaks within the normal ra	ange of tracer dyes:
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Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 1-275: MW-1 -275 ft

OUL number: N7430

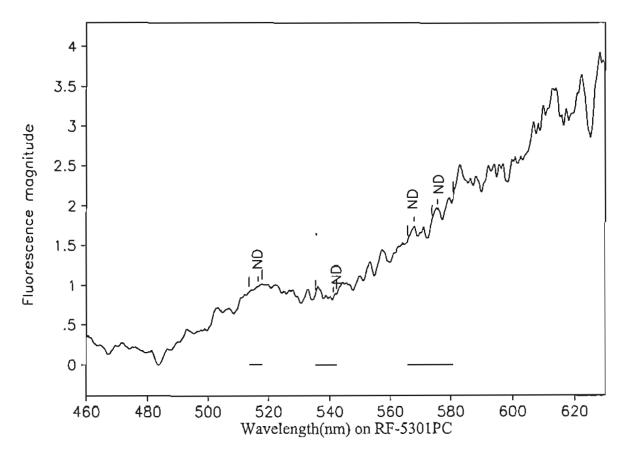
Matrix: Elutant

Placed: 11/17/04 1345 Collected: 12/02/04 1100

Analyzed: 12/06/04

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



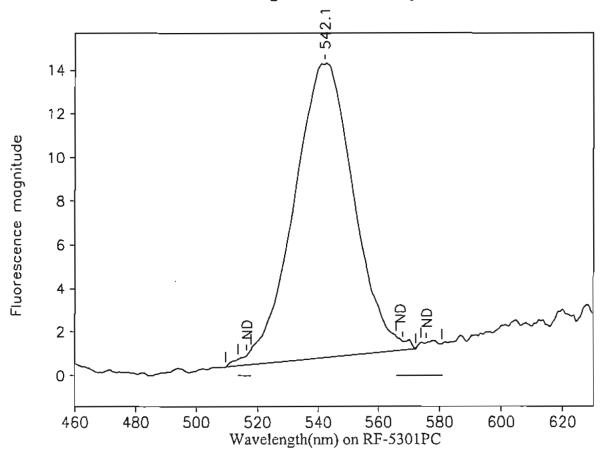
Station 1-285: MW-1 - 285 ft OUL number: N7431 Analyzed: 12/06/04

Matrix: Elutant

Collected: 12/02/04 1135 Placed: 11/17/04 1345

Peaks with	nin the norr	nal range of t	tracer dyes:
Peak nm	Left X	Right X	Height

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	<i>5</i> 73.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 2-135: MW-2 - 135 ft

OUL number: N7432

Matrix: Elutant

Placed: 11/17/04 1400

Diluted: 1 to 100 Analyzed: 12/07/04

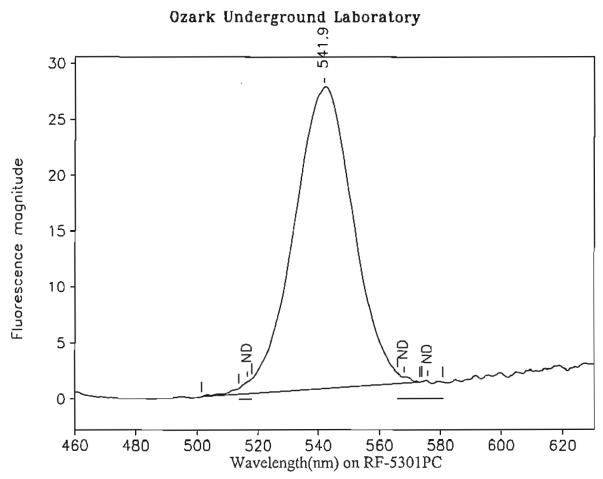
Collected: 12/02/04 1200

Peaks within the normal range of tracer dyes:

Left X	Right X	Height	Area	H/A	Conc.
513.6	51 7 .9	0.00	0.00	0.00	ND
509.6	572.2	13.43	311.76	0.04	1,290
565.8	573.8	0.00	0.00	0.00	ND
573.8	580.8	0.00	0.00	0.00	ND
	513.6 509.6 565.8	513.6 517.9 509.6 572.2	513.6 517.9 0.00 509.6 572.2 13.43 565.8 573.8 0.00	513.6 517.9 0.00 0.00 509.6 572.2 13.43 311.76 565.8 573.8 0.00 0.00	513.6 517.9 0.00 0.00 0.00 509.6 572.2 13.43 311.76 0.04 565.8 573.8 0.00 0.00 0.00

Peaks close to the normal range of tracer dyes:

W



Station 2-150: MW-2 - 150 ft

OUL number: N7433

Matrix: Elutant

Placed: 11/17/04 1400

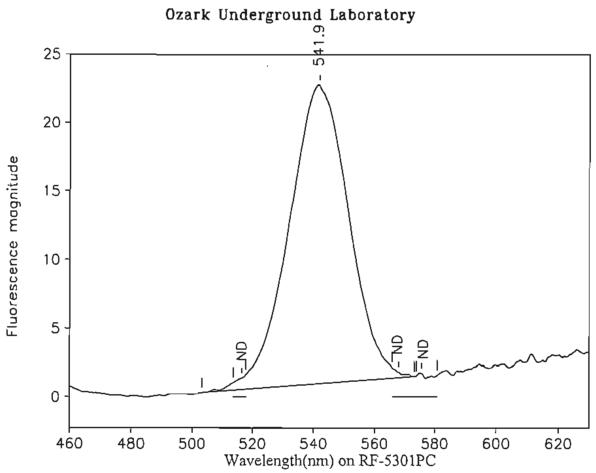
Diluted: 1 to 100 Analyzed: 12/07/04

Collected: 12/02/04 1200

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.9	501.4	573.2	26.88	618.05	0.04	2,550
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND





Station 2-165: MW-2 - 165 ft

OUL number: N7434

Matrix: Elutant

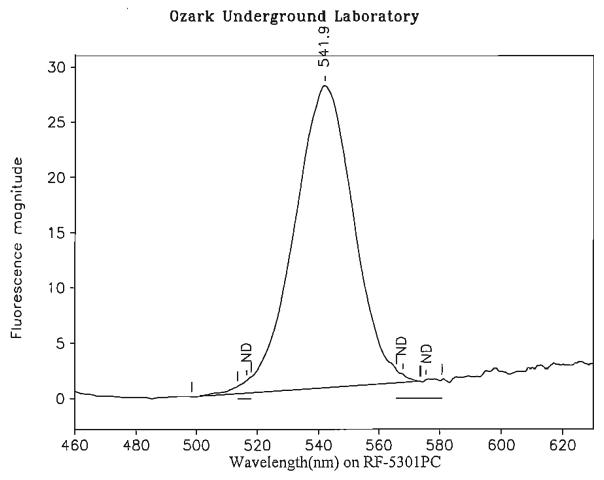
Placed: 11/17/04 1400

Diluted: 1 to 100 Analyzed: 12/07/04

Collected: 12/02/04 1200

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.9	503.2	573.2	21.76	495.12	0.04	2,040
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 2-180: MW-2 - 180 ft

OUL number: N7435

Matrix: Elutant

Placed: 11/17/04 1400

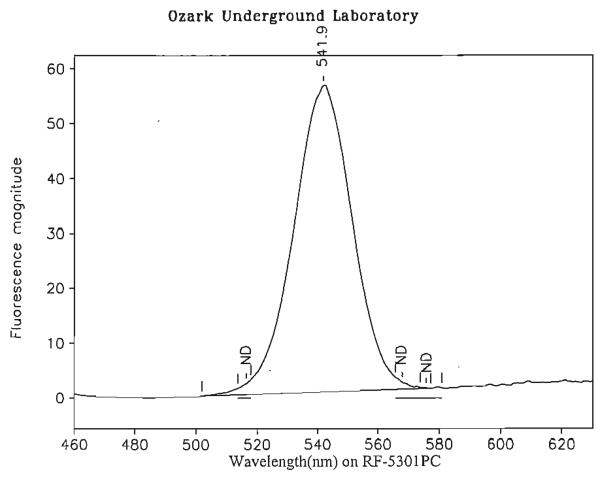
Diluted: 1 to 100 Analyzed: 12/07/04

Collected: 12/02/04 1200

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.9	498.4	573.6	27.31	625.94	0.04	2,580
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND





Station 2-195: MW-2 - 195 ft OUL number: N7436

Matrix: Elutant

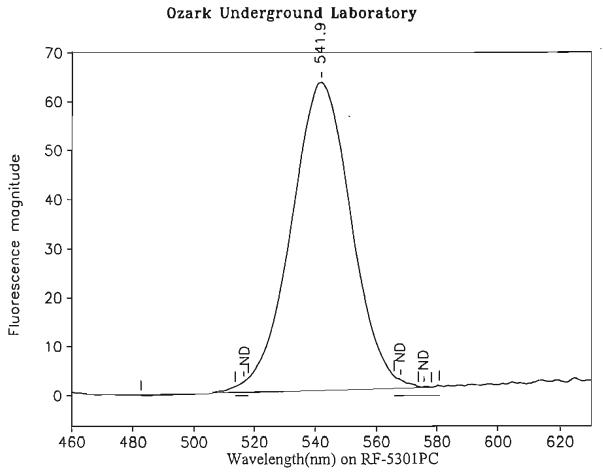
Placed: 11/17/04 1400

Diluted: 1 to 100 Analyzed: 12/07/04

Collected: 12/02/04 1200

Peaks within the normal range of tracer dyes:

			J				
Peak nm	Left X	Right X	Height	Area	H/A	Conc.	
516.5	513.6	517.9	0.00	0.00	0.00	ND	
541.9	502.0	577.2	55.65	1,271.35	0.04	5,240	
568.0	565.8	573.8	0.00	0.00	0.00	ND	
575.6	573.8	580.8	0.00	0.00	0.00	ND	
Peaks close to the normal range of tracer dyes:							



Station 2-210: MW-2 - 210 ft

OUL number: N7437

Matrix: Elutant

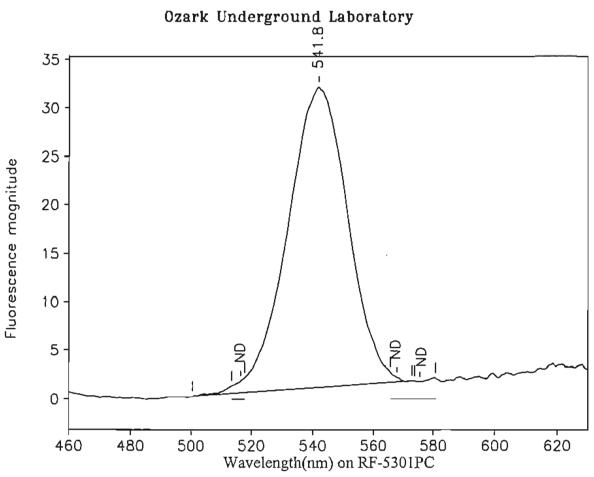
Placed: 11/17/04 1400

Diluted: 1 to 100 Analyzed: 12/07/04

Collected: 12/02/04 1200

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.	
516.5	513.6	51 7 .9	0.00	0.00	0.00	ND	
541.9	482.6	578.1	62.86	1,441.77	0.04	5,950	
568.0	565.8	573.8	0.00	0.00	0.00	ND	
575.6	573.8	580.8	0.00	0.00	0.00	ND	
Peaks close to the normal range of tracer dyes:							



Station 2-225: MW-2 - 225 ft

OUL number: N7438

Matrix: Elutant

Placed: 11/17/04 1400

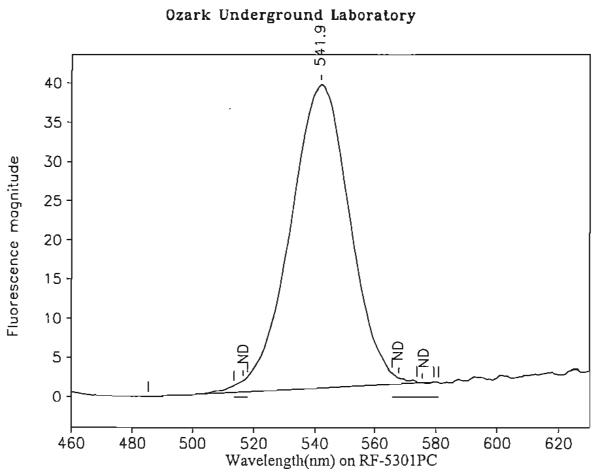
Diluted: 1 to 100 Analyzed: 12/07/04

Collected: 12/02/04 1200

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.8	500.6	573.0	31.03	709.07	0.04	2,920
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND





Station 2-240: MW-2 - 240 ft OUL number: N7439

Matrix: Elutant

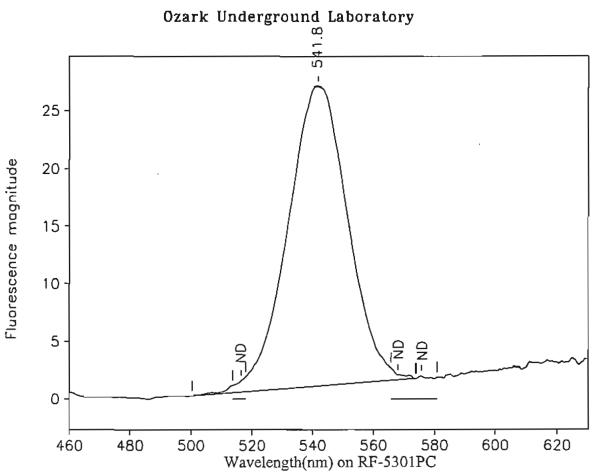
Placed: 11/17/04 1400

Diluted: 1 to 100 Analyzed: 12/07/04

Collected: 12/02/04 1200

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Rìght X	Height	Area	H/A	Conc.
516.5	513.6	517 <i>.</i> 9	0.00	0.00	0.00	ND
541.9	485.3	579.2	38.66	890.38	0.04	3,670
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND
D 1 1		•				



Station 2-255: MW-2 - 255 ft

OUL number: N7441

Matrix: Elutant

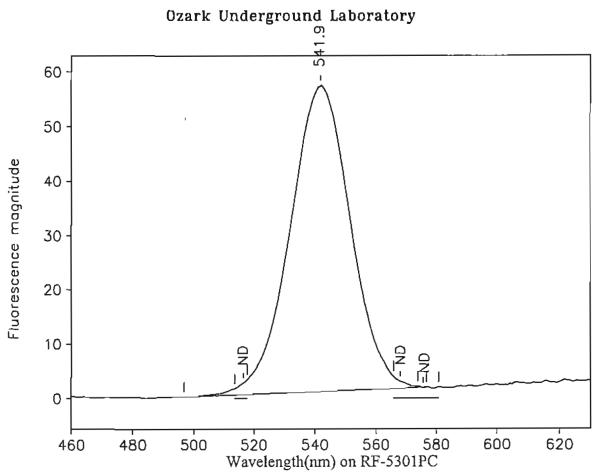
Placed: 11/17/04 1400

Diluted: 1 to 100 Analyzed: 12/07/04

Collected: 12/02/04 1200

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00^{-}	0.00	0.00	ND
541.8	500.4	574.0	25.97	599.63	0.04	2,470
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 2-270: MW-2 - 270 ft

OUL number: N7442

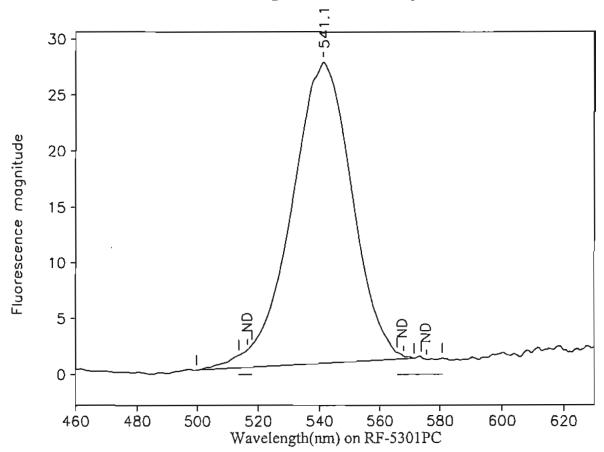
Matrix: Elutant Placed: 11/17/04 1400

Diluted: 1 to 100 Analyzed: 12/07/04

Collected: 12/02/04 1200

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height .	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.9	496.8	576.8	56.23	1,294.67	0.04	5,340
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 2-285: MW-2 - 285 ft

OUL number: N7443

Matrix: Elutant

Placed: 11/17/04 1400

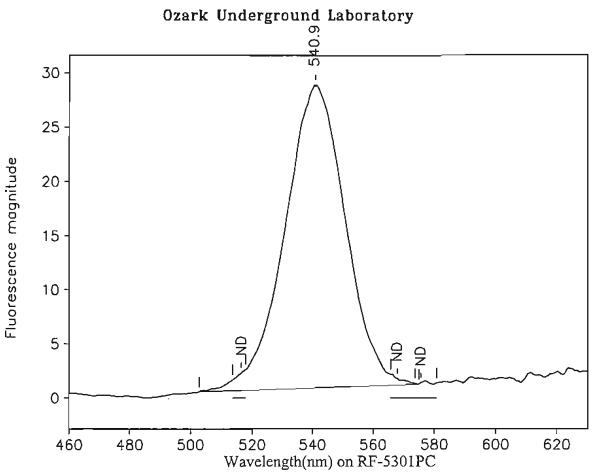
Analyzed: 12/07/04

Collected: 12/02/04 1200

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	499.8	571.4	26.93	625.48	0.04	25.8
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND
Peaks close to the normal range of tracer dyes:						

W



Station 2-300: MW-2 - 300 ft

OUL number: N7444

Matrix: Elutant

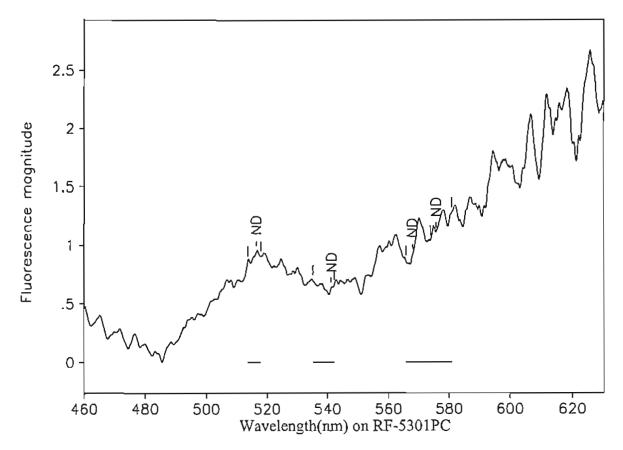
Placed: 11/17/04 1400

Analyzed: 12/07/04

Collected: 12/02/04 1200

Peaks within the normal range of tracer dyes:

I Carro With	HII 6110 11011	1141 14150 01	dacor ayou.			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
540.9	502.8	575.0	27.93	650.77	0.04	26.8
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



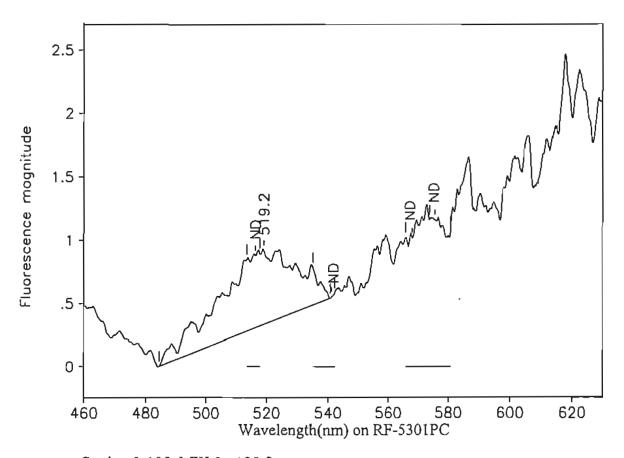
Station 3-175: MW-3 - 175 ft

OUL number: N7445 Analyzed: 12/07/04

Matrix: Elutant

Placed: 11/17/04 1330 Collected: 12/02/04 1010

Peaks within the normal range of tracer dyes: Right X H/A Conc. Left X Height . Peak nm Area 516.5 513.6 517.9 0.00 0.00 0.00ND 0.00 0.00 0.00 ND 541.1 535.2 542.2 573.8 0.00 568.0 565.8 0.00 ND 0.00 575.6 580.8 0.00 0.00 0.00 ND 573.8



Station 3-185: MW-3 - 185 ft OUL number: N7446 Analyzed: 12/07/04

Matrix: Elutant

Placed: 11/17/04 1330 Collected: 12/02/04 1010

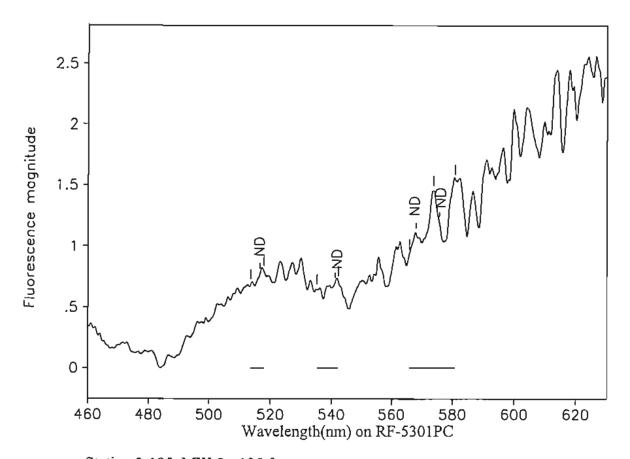
H/A

Area

Conc.

Peaks with	in the nor	nal range of t	racer dyes:
Peak nm	Left X	Right X	Height

516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND
Peaks clo	ose to the no	rmal range	of tracer dy	es:		_
519.2	484 4	540 8ั	0.58	17 69	0.03	0314



Station 3-195: MW-3 - 195 ft

OUL number: N7447

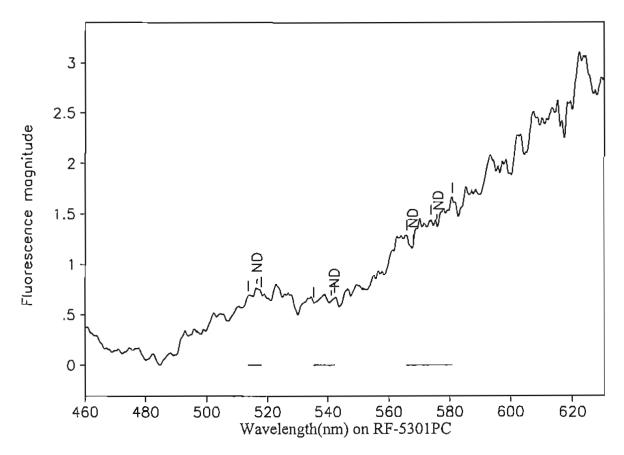
Matrix: Elutant

Placed: 11/17/04 1330 Collected: 12/02/04 1010

Analyzed: 12/07/04

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 3-205: MW-3 - 205 ft

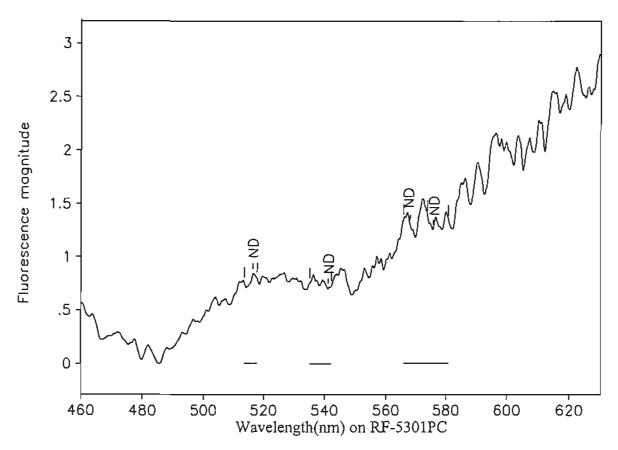
OUL number: N7448 Analyzed: 12/07/04

Matrix: Elutant

Placed: 11/17/04 1330 Collected: 12/02/04 1010

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	. Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 3-215: MW-3 - 215 ft

OUL number: N7449

Matrix: Elutant

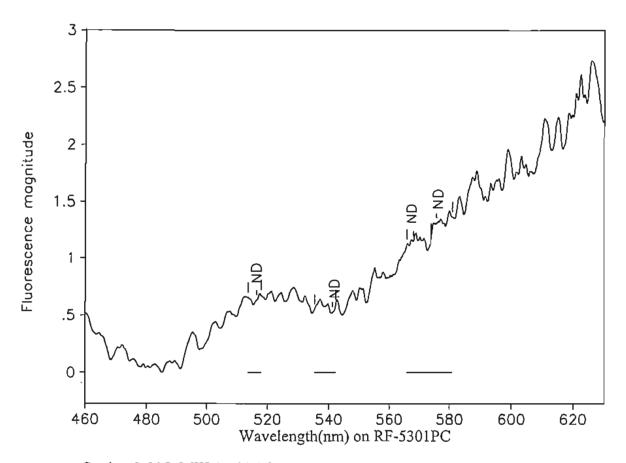
Placed: 11/17/04 1330

Analyzed: 12/07/04

Collected: 12/02/04 1010

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	. Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 3-225: MW-3 - 225 ft

OUL number: N7450

Matrix: Elutant

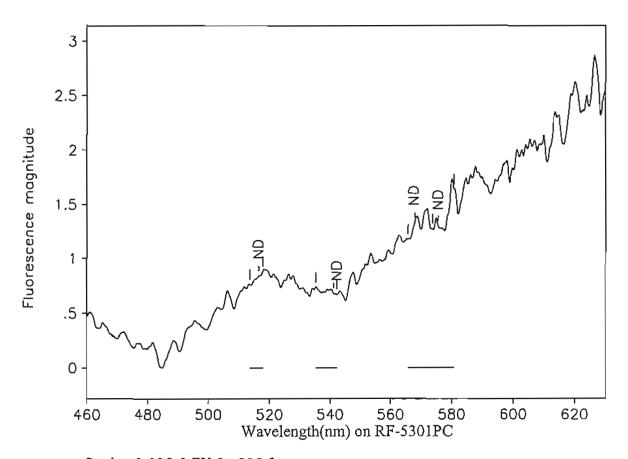
Placed: 11/17/04 1330

Analyzed: 12/07/04

Collected: 12/02/04 1010

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 3-235: MW-3 - 235 ft

OUL number: N7451

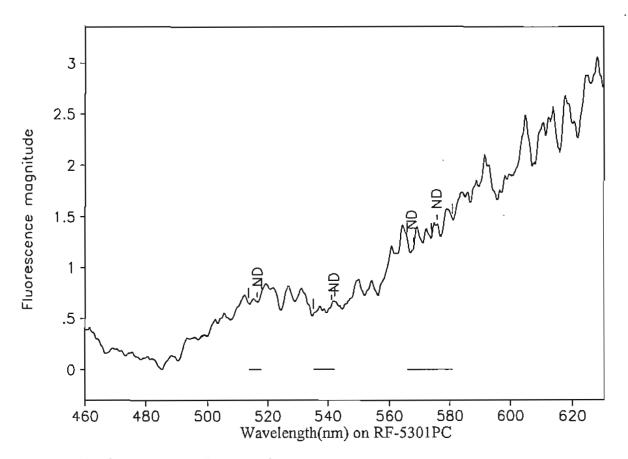
Matrix: Elutant

Placed: 11/17/04 1330

Analyzed: 12/07/04

Collected: 12/02/04 1010

Peaks with	un the norr	nal range of	tracer dyes:			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00^{-}	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND
Peaks close to the normal range of tracer dyes:						



Station 3-245: MW-3 - 245 ft

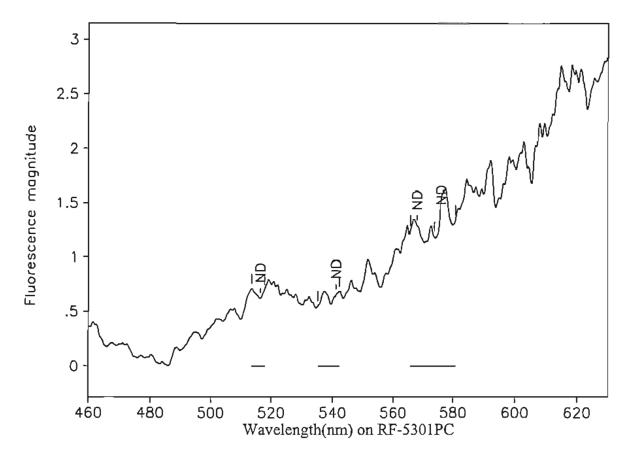
OUL number: N7452 Analyzed: 12/07/04

Matrix: Elutant

Placed: 11/17/04 1330 Collected: 12/02/04 1010

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 3-255: MW-3 - 255 ft

OUL number: N7453

Matrix: Elutant

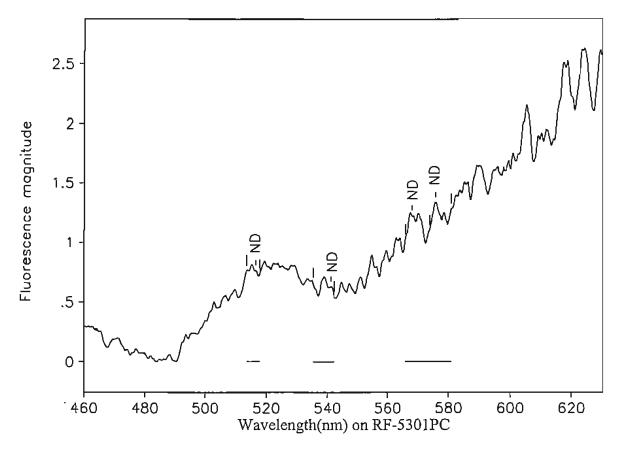
Placed: 11/17/04 1330

Analyzed: 12/07/04

Collected: 12/02/04 1010

Peaks within the normal range of tracer dyes: Peak nm Left X Right X Height

Left X	Right X	Height	Area	H/A	Conc.
513.6	517.9	0.00	0.00	0.00	ND
535.2	542.2	0.00	0.00	0.00	ND
565.8	573.8	0.00	0.00	0.00	ND
573.8	580.8	0.00	0.00	0.00	ND
	535.2 565.8	513.6 517.9 535.2 542.2 565.8 573.8	513.6 517.9 0.00 535.2 542.2 0.00 565.8 573.8 0.00	513.6 517.9 0.00 0.00 535.2 542.2 0.00 0.00 565.8 573.8 0.00 0.00	513.6 517.9 0.00 0.00 0.00 535.2 542.2 0.00 0.00 0.00 565.8 573.8 0.00 0.00 0.00



Station 3-265: MW-3 - 265 ft

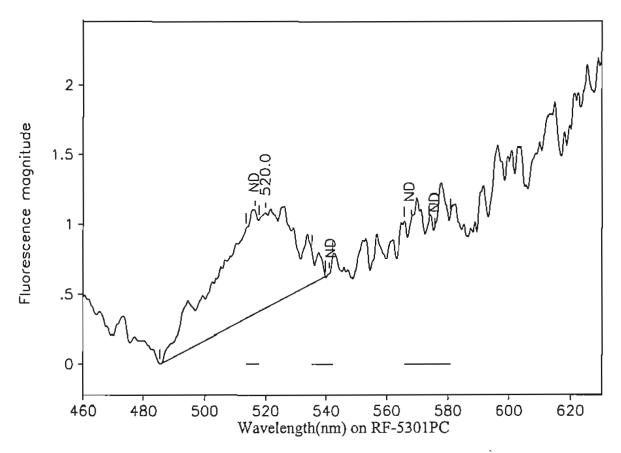
Analyzed: 12/07/04 OUL number: N7454

Matrix: Elutant

Placed: 11/17/04 1330 Collected: 12/02/04 1010

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND
Peaks close to the normal range of tracer dyes:						

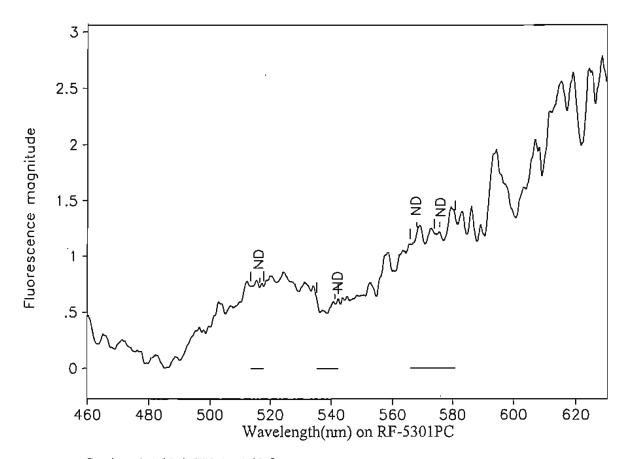


Station 3-275: MW-3 - 275 ft OUL number: N7455 Analyzed: 12/07/04

Matrix: Elutant

Placed: 11/17/04 1330 Collected: 12/02/04 1010

Peaks with	nin the norr	nal range of	tracer dyes:			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND
Peaks clos	e to the no	rmal range of	f tracer dye	s:		,
520.0	485 4	539 R	0.68	21.76	0.03	0-637



Station 4-165: MW-4 - 165 ft

OUL number: N7456

Matrix: Elutant

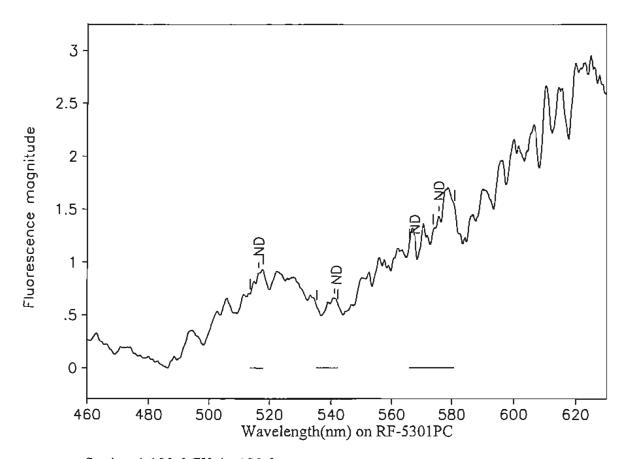
Placed: 11/17/04 1310

Analyzed: 12/07/04

Collected: 12/02/04 0850

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	. Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 4-180: MW-4 - 180 ft

OUL number: N7457

Matrix: Elutant

Placed: 11/17/04 1310

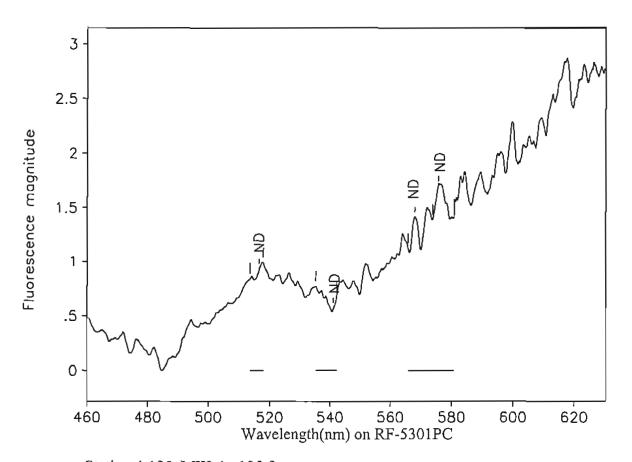
Analyzed: 12/07/04

Collected: 12/02/04 0850

Conc.

Peaks within the normal range of tracer dyes:										
Peak nm	Left X	Right X	Height	Area	H/A					
516.5	513.6	517.9	0.00	0.00	0.00					

00 ND 541.1 535.2 542.2 0.00 0.00 0.00 ND 573.8 568.0 565.8 0.00 0.00 0.00 ND 575.6 573.8 580.8 0.00 0.00 0.00 ND



Station 4-195: MW-4 - 195 ft

OUL number: N7458

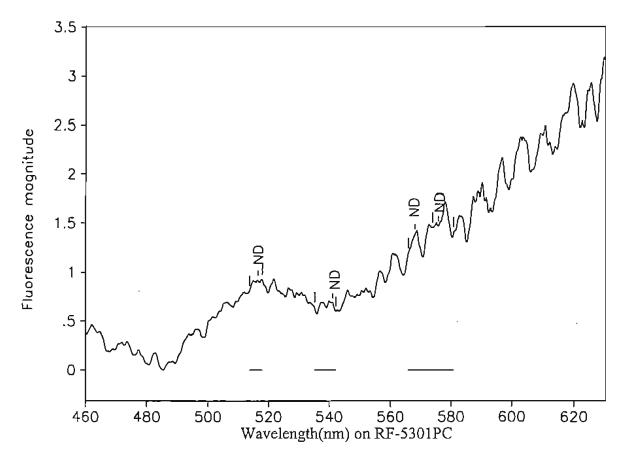
Matrix: Elutant

Placed: 11/17/04 1310 Collected: 12/02/04 0850

Analyzed: 12/07/04

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 4-210: MW-4 - 210 ft

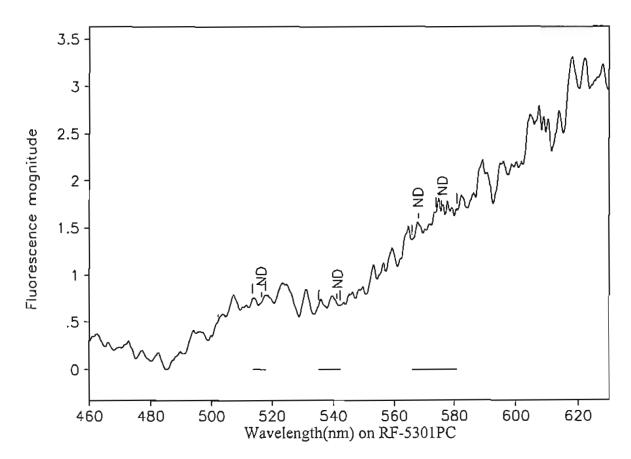
OUL number: N7459 Analyzed: 12/07/04

Matrix: Elutant

Placed: 11/17/04 1310 Collected: 12/02/04 0850

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.				
516.5	513.6	517.9	0.00	0.00	0.00	ND				
541.1	535.2	542.2	0.00	0.00	0.00	ND				
568.0	565.8	573 <i>.</i> 8	0.00	0.00	0.00	ND				
575.6	573.8	580.8	0.00	0.00	0.00	ND				
Peaks close to the normal range of tracer dyes:										



Station 4-225: MW-4 - 225 ft

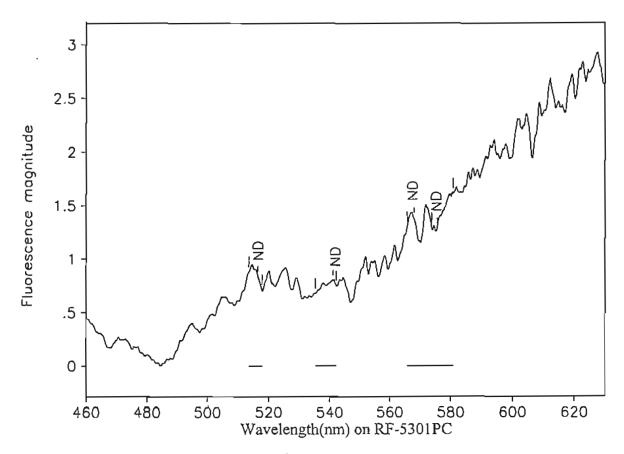
OUL number: N7461 Analyzed: 12/07/04

Matrix: Elutant

Placed: 11/17/04 1310 Collected: 12/02/04 0850

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	. Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND
Peaks clos	e to the no	rmal range of	f tracer dye	s:		



Station 4-240: MW-4 - 240 ft

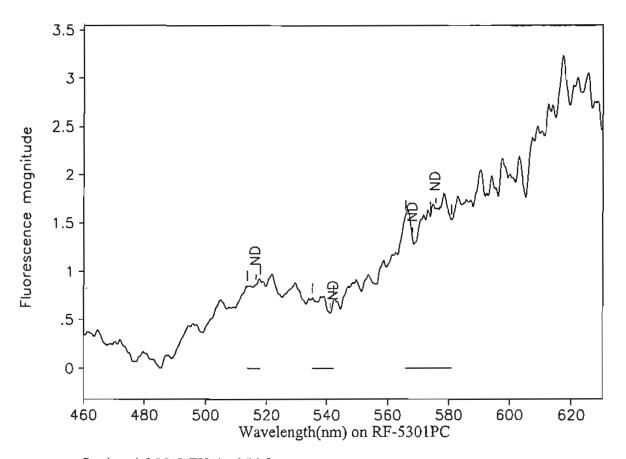
OUL number: N7462 Analyzed: 12/07/04

Matrix: Elutant

Placed: 11/17/04 1310 Collected: 12/02/04 0850

Peaks within the normal range of tracer dyes:

T 0 001 1 . I . I			,			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	51 7 .9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 4-255: MW-4 - 255 ft

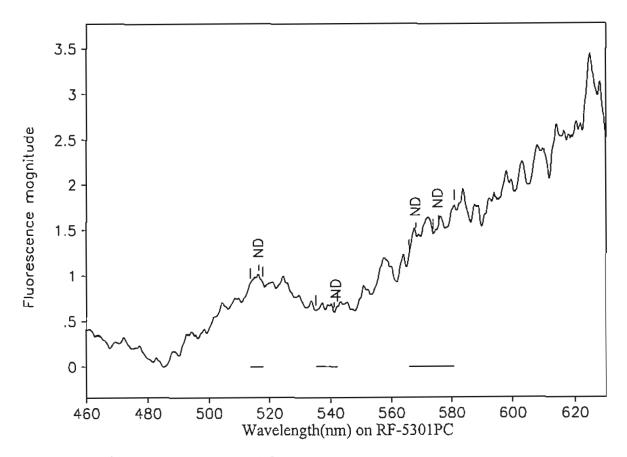
OUL number: N7463 Analyzed: 12/07/04

Matrix: Elutant

Placed: 11/17/04 1310 Collected: 12/02/04 0850

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height .	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND
Peaks clos	se to the no	rmal range of	f tracer dyes	s:		



Station 4-270: MW-4 - 270 ft

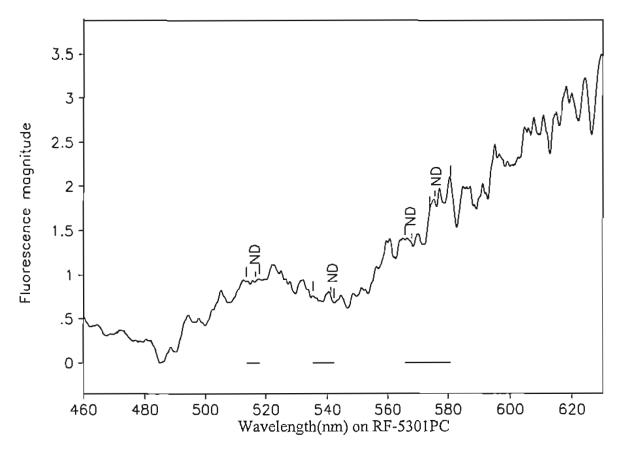
OUL number: N7464 Analyzed: 12/07/04

Matrix: Elutant

Placed: 11/17/04 1310 Collected: 12/02/04 0850

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND
Peaks clos	se to the no	rmal range of	f tracer dye	s:		



Station 4-285: MW-4 - 285 ft

OUL number: N7465

Matrix: Elutant

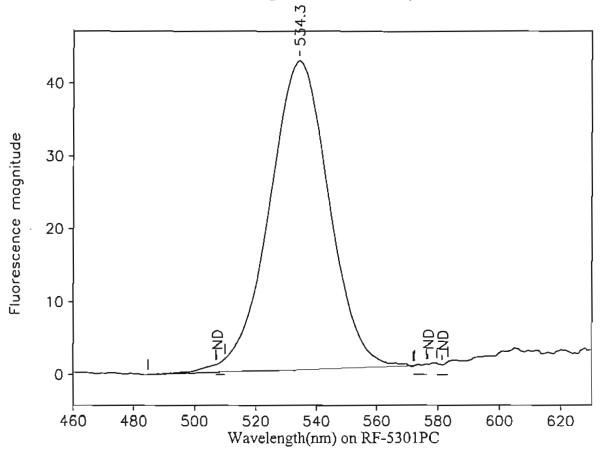
Placed: 11/17/04 1310

Analyzed: 12/07/04

Collected: 12/02/04 0850

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 2-WA: MW-2 - Water

OUL number: N7471

Matrix: Water

Collected: 12/02/04 1200

Analyzed: 12/07/04

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
507.3	506.9	509.9	0.00	0.00	0.00	ND
534.3	484.7	572.3	42.27	972.50	0.04	8.18
576.6	572.0	576.3	0.00	0.00	0.00	ND
581.2	579.7	583.2	0.00	0.00	0.00	ND

Peaks close to the normal range of tracer dyes:

M

December 23, 2004

CERTIFICATE OF ANALYSIS

Alan W. Aikens, P.G. CH2MHill 225 East Robinson Street, Suite 505 Orlando, Florida 32801

RE: Lake Orienta

Dye analysis results for charcoal and water samples shipped December 16, 2004 Ozark Underground Laboratory (OUL) numbers N7669 through N7710 and N7721.

Dear Mr. Aikens:

We have completed analysis of the charcoal and water samples received by the OUL on December 17, 2004. We have indicated the OUL number for each of these samples on the enclosed table.

The fluorescein, eosine and rhodamine WT (RWT) dye concentrations are based upon standards routinely used at the OUL. The fluorescein and eosine are mixtures of 75% dye and 25% diluent; the RWT is a 20% solution. The concentrations are based upon the as-sold weight of the dye.

A summary of the results is presented in Table 1. Additional sampling information is available on the enclosed analysis graphs.

Sincerely,

Thomas J. Aley, PHG, RG

Thomas J. Ale

Enclosures: 1. Table 1. Analysis results for charcoal and water samples

2. Sample Collection Data Sheets

3. Discrepancy sheet

4. Sample analysis graphs

f:\docs\coa\LakeOrienta05.doc

Ozark Underground Laboratory for CH2MHill

Project: Samples Collected By: Lake Orienta Mike Burns

Date Samples Shipped:
Date Samples Rec'd at OUL:

December 16, 2004 December 17, 2004

Date Samples Rec'd at OUL

Date Analyzed by OUL:

December 21, 2004

Table 1. Results for charcoal and water samples analyzed for the presence of fluorescein, eosine and rhodamine WT (RWT) dyes. Peak wavelengths are reported in nanometers (nm); dye concentrations are reported in parts per billion (ppb). All results are for charcoal unless otherwise indicated.

OUL Lab #	Station #	Station Name	Date/Time Placed	Date/Time Collected	Fluor	escein	Eosine		R	ХT
			2004	2004	Peak	Conc.	Peak	Conc.	Peak	Conc.
N7669	1-215	MW-1 - 215 ft	12/2 1100	12/16 1000	ND		ND		ND	
N7670	1-225	MW-1 - 225 ft	12/2 1100	12/16 1000	ND		ND		ND	
N7671	1-235	MW-1 - 235 ft	12/2 1100	12/16 1000	ND		ND		ND	
N7672	1-245	MW-1 - 245 ft	12/2 1100	12/16 1000	ND		ND		ND	1
N7673	1-255	MW-1 - 255 ft	12/2 1100	12/16 1000	ND		ND		ND	
N7674	1-265	MW-1 - 265 ft	12/2 1100	12/16 1000	ND		ND		ND	
N7675	1-275	MW-1 -275 ft	12/2 1100	12/16 1000	ND		ND		ND	
N7676	1-285	MW-1 - 285 ft	12/2 1100	12/16 1000	ND		ND		ND	
N7677	2-135	MW-2 - 135 ft	12/2 1200	12/16 1105	ND		541.7	2,000	ND	
N7678	2-150	MW-2 - 150 ft	12/2 1200	12/16 1105	ND		541.5	3,880	ND	
N7679	2-165	MW-2 - 165 ft	12/2 1200	12/16 1105	ND		541.5	6,060	ND	
N7680	Laborat	ory Control Charcoal Blank	14.00.76			New York			0.00	
N7681	2-180	MW-2 - 180 ft	12/2 1200	12/16 1105	ND		541.6	6,270	ND	
N7682	2-195	MW-2 - 195 ft	12/2 1200	12/16 1105	ND		541.7	6,040	ND	
N7683	2-210	MW-2 - 210 ft	12/2 1200	12/16 1105	ND		541.5	7,640	ND	
N7684	2-225	MW-2 - 225 ft	12/2 1200	12/16 1105	ND		541.5	5,660	ND	
N7685	2-240	MW-2 - 240 ft	12/2 1200	12/16 1105	ND		541.5	7,480	ND	
N7686	2-255	MW-2 - 255 ft	12/2 1200	12/16 1105	ND		541.5	5,330	ND	
(Footnot	es at end of	Table)	•		•			<u>'</u>		(continued)

Ozark Underground Laboratory for CH2MHill

Table 1. Results for charcoal and water samples analyzed for the presence of fluorescein, eosine and rhodamine WT (RWT) dyes. Peak wavelengths are reported in panometers (nm); dye concentrations are reported in parts per billion (ppb). All results are for charcoal unless otherwise indicated.

OUL Lab#	Station #	Station Name	Date/Time Placed	Date/Time Collected	Fluor	escein	E	osine	RV	VT
			2004	2004	Peak	Conc.	Peak	Conc.	Peak	Conc.
(continue	:d)	•				•		•		
N7687	2-270	MW-2 - 270 ft	12/2 1200	12/16 1105	ND		541.5	2,450	ND	
N7688	2-285	MW-2 - 285 ft	12/2 1200	12/16 1105	ND		541.0	123	ND	
N7689	2-300	MW-2 - 300 ft	12/2 1200	12/16 1105	ND		541.1	92.0	ND	
N7690	3-175	MW-3 - 175 ft	12/2 1010	12/16 0910	ND		ND		ND	
N7691	3-185	MW-3 - 185 ft	12/2 1010	12/16 0910	ND		ND		ND	
N7692	3-195	MW-3 - 195 ft	12/2 1010	12/16 0910	ND		ND		ND	
N7693	3-205	MW-3 - 205 ft	12/2 1010	12/16 0910	ND		ND		ND	
N7694	3-215	MW-3 - 215 ft	12/2 1010	12/16 0910	ND		ND		ND	
N7695	3-225	MW-3 - 225 ft	12/2 1010	12/16 0910	ND		ND		ND	
N7696	3-235	MW-3 - 235 ft	12/2 1010	12/16 0910	ND		ND		ND	
N7697	3-245	MW-3 - 245 ft	12/2 1010	12/16 0910	ND		ND		ND	
N7698	3-255	MW-3 - 255 ft	12/2 1010	12/16 0910	ND	1	ND		ND	
N7699	3-265	MW-3 - 265 ft	12/2 1010	12/16 0910	ND		ND		ND	
N7700 ¹²	Laborat	ory Control Charcoal Blank							ير العالم ا	
N7701	3-275	MW-3 - 275 ft	12/2 1010	12/16 0930	ND		ND		ND	
N7702	4-165	MW-4 - 165 ft	12/2 0850	12/16 0815	ND		ND		ND	
N7703	4-180	MW-4 - 180 ft	12/2 0850	12/16 0815	ND		ND		ND	
N7704	4-195	MW-4 - 195 ft	12/2 0850	12/16 0815	ND		ND		ND	
N7705	4-210	MW-4 - 210 ft	12/2 0850	12/16 0815	ND		ND		ND	
N7706	4-225	MW-4 - 225 ft	12/2 0850	12/16 0815	ND		ND		ND	
N7707	4-240	MW-4 - 240 ft	12/2 0850	12/16 0815	ND		ND		ND	
N7708	4-255	MW-4 - 255 ft	12/2 0850	12/16 0815	ND		ND		ND	
(Footnot	es at end of	Table)	'	•				_		(continue

Ozark Underground Laboratory for CH2MHill

Table 1. Results for charcoal and water samples analyzed for the presence of fluorescein, eosine and rhodamine WT (RWT) dyes. Peak wavelengths are reported in nanometers (nm); dye concentrations are reported in parts per billion (ppb). All results are for charcoal unless otherwise indicated.

OUL Lab#	Station #	Station Name	Date/Time Placed	Date/Time Collected	Fluor	Fluorescein		sine	RV	VT
			2004	2004	Peak	Conc.	Peak	Conc.	Peak	Conc.
(continue	ed)									
N7709	4-270	MW-4 - 270 ft	12/2 0850	12/16 0815	ND		ND		ND	
N7710	4-285	MW-4 - 285 ft	12/2 0850	12/16 0815	ND		ND		ND	
N7721	2-WA	MW-2 - Water	Water	12/16 1130	ND		534.4	30.3	ND	

FOOTNOTES:

ND = No dye detected

OZARK UNDERGROUN LABORATORY, INC.

1572 Aley Lanc Protem, MO 65733 (417) 785-4289 fax (417) 785-4290 email: oul@tri-lakes.net SAMPLE COLLECTION DATA SHEET for FLUORESCENCE ANALYSIS

Project:	Lake Ori	enta (CH2N	Mhill) (Ne Burns Fed X	Week No:	<u> 3 </u>	_Samples C	Collected By	y:	_///	ike	_/3	Urn	5		
Samples	Shipped By	: _ <i>Mi</i>	The Burns Fed X	Samples	Received I	Ву: 🏒 🛆	rnald	<u>/_</u>							
			Date Samples Received					20	_	Retur	n Coo	ler? Y	es <u>v</u>	No	·
Bill to: _	fort Fluore	onnoim V	Eosine X Rhodamine WT X	Other	ults to:	Chin cooler	to. 1/0	1~	* ×	A 550					
Апануге	ior: Fluore	scem x	Eosine A Knodamine w 1 A	_Other	<u></u>)	Ship cooler	10: <u>/008</u>		76 6	عدد احر	<u> </u>				
1	OUL e only			ndicate stations				field	<u>d</u>						OUL use only
# CHAR	LAB	NOTFATE		or field technici STATION NAMI		ise viack in	ik Only		PLAC	CED		COLL	ECTE	,	#
KEC'D	NUMBER	NUMBER 1-4 Numbers					_	D,	ATE	ТІМ Е		DATE	TI	ME	WATER REC'D
1	Noide9	1-215	MW-1 - 215 ft				_	121	2/04	11,00	12	16/04	10	<i>1</i> 0	0
1	NTGTO	1-225	MW-1 – 225 ft											,	0
1	NTG71	1-235	MW-1 – 235 ft												0
	N7672	1-245	MW-1 – 245 ft							(0
	N7673	1-255	MW-1 ~ 255 ft												0
	N7674	1-265	MW-1 – 265 ft												0
	N7675	1-275	MW-1 – 275 ft												0
1	N/1076	1-285	MW-1 – 285 ft											ļ,	0
0		1-WA	MW-1 - Water Sample								1.	\downarrow	10	30	
								· .							
										_					
-															
COMM	ENTS:												_		
_			taff? Yes No		_	on this page	c proofed h	y 01	UL: _	m	W)	0		(673
Pulle	ナレジ	Maly	ged 12/21/04 by MR	Page	of			l		f;\shar	cd/ſom	ns\coc2.	doc,	Rcv. 4	/12/04

OZARK UNDERGROUND LABORATORY, INC.
1572 Alcy Lanc Protem, MO 65733 (417) 785-4289 fax (417) 785-4290 email: oul@tri-lakes.net SAMPLE COLLECTION DATA SHEET for FLUORESCENCE ANALYSIS

			Send Results to: Eosine X Rhodamine WT X Other Ship cooler to:						
	OUL se only		<u>Please indicate stations where dye was visible in the</u> for field technician use - use black ink only	e fiela	<u> </u>				OUL use only
# CHAR REC'D	LAB NUMBER	STATION NUMBER	STATION NAME		PLAC		COLL	ECTED	# WATER
	C'harcoch W7677	1-4 Numbers 2-135	MW-2 – 135 ft	\neg	TE	1200	12/16/04	TIME	REC'D
	N2078	2-150	MW-2 – 150 ft	121	2 104	1200	12110109	1103	0
	N7619	2-165	MW-2 – 165 ft						()
1	W7681	2-180	MW-2 – 180 ft						0
_	11682	2-195	MW-2 – 195 ft						0
_ {	N7683	2-210	MW-2 – 210 ft		\prod				0
1	NIGH	28-225	MW-2 – 225 ft						0
1	N7685	2-240	MW-2 – 240 ft						0
1	N7686	2-255	MW-2 – 255 ft				/		0
	NKEST	2-270	MW-2 – 270 ft						0
- 1	1/168	2-285	MW-2 – 285 ft						0
	NUFIG	2-300	MW-2 – 300 ft	_ \	/)	0
Q		2-WA	MW-2 - Water Sample				1	1130	1
			COL Black ATTIOSO			_			

OZARK UNDERGROUN LABORATORY, INC.
1572 Aley Lane Protem, MO 65733 (417) 785-4289 fax (417) 785-4290 email: oul@tri-lakes.net SAMPLE COLLECTION DATA SHEET for FLUORESCENCE ANALYSIS

alyzc	for: Fluore	scein X I	Eosine X Rhodamine WT X Other Ship cooler to: N	100	(405.	e ?	: A.	510C	·			
	OUL e only		Please indicate stations where dye was visible in the for field technician use - use black ink only	fiel	<u>'d</u>						-	OUL use anly
CHAR EC'D	LAB NUMBER	STATION NUMBER	STATION NAME		PL	CED		T (COLLI	ECTED		# WATER
	Charcoaf	1-4 Numbers		DATE TIME DATE TIME					REC'D			
<u>/</u>	N7690	3-175	MW-3 – 175 ft	11	2/04	10	ļΟ	12/11	6/04	09	10	0
	N7691	3-185	MW-3 - 185 ft									0
	N1692	3-195	MW-3 ~ 195 ft									0
/	N 1693	3-205	MW-3 – 205 ft	_								0
\perp	N7694	3-215	MW-3 – 215 ft					<u>L</u> . [0
Ϊ΄	N7695	3-225	MW-3 – 225 ft									0
/	N7696	3-235	MW-3 – 235 ft									0
/	N7697	3-245	MW-3 - 245 ft							\exists		0
/	N7698	3-255	MW-3 – 255 ft									0
/	N7699	3-265	MW-3 – 265 ft			\prod					,	0
/	N7701	3-275	MW-3 – 275 ft		1	\sqcap	<u></u>	1		83	30	1
)		3-WA	MW-3 – Water Sample									
MM	ENTS:	Cha: co	al Blank N1700	1	(9)		ncs	LAR	1.10	L15	N	Kait

OZARK UNDERGROL / LABORATORY, INC.

1572 Aley Lane Protem, MO 65733 (417) 785-4289 fax (417) 785-4290 email: oul@tri-lakes.net

SAMPLE COLLECTION DATA SHEET for FLUORESCENCE ANALYSIS

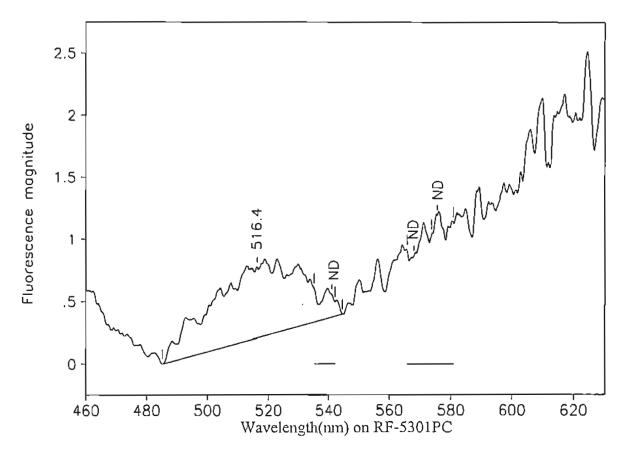
Project	Lake Or	icnia (CH2N	Mill) Week No: 3 Samples Collected E	Ву: _	m:	the Bo	rns			
Sample	s Shipped B	y: <u>Mil</u>	Ly Burns Samples Received By: J. Arnal	2_						
Date Sa	mples Shipp	red: 12/16	Date Samples Received: 174104 Time Samples Received: 13	:07)	Return	Cooler	' Yc	8N	σ
Bill to:	,		Send Results to: Eosine X Rhodamine WT X Other Ship cooler to:							
Analyze	for: Fluore	scein X	Eosine X Rhodamine WT X Other Ship cooler to:							
Д.	OUL se only		Please indicate stations where dye was visible in the	fiel	d					OUL use only
# CHAR	LAD	STATION	for field technician use - use black ink only STATION NAME	\top	PLA	CED		OLLE	CTED	W
REC'D	NUMBER	NUMBER L-4 Numbers	·	<u> </u>	ATE	TIME	DAT		TIME	WATER REC'D
		2-135	MW-2 – 135 ft	12	204	1200	12/16	04	/105	0
		2-150	MW-2 – 150 ft							0
		2-165	MW-2 - 165 ft	1					}	0
		2-180	MW-2 – 180 ft							0
		2-195	MW-2 – 195 ft							0
		2-210	MW-2 - 210 ft	1						0
		3-225	MW-2 – 225 ft							0
_		2-240	MW-2 – 240 ft							0
1		2-255	MW-2 – 255 ft	\perp						0
		2-270	MW-2 ~ 270 ft							0
- 1		2-285	MW-2 – 285 ft							0
		2-300	MW-2 - 300 ft							0
0	W7721	2-WA	MW-2 – Water Sample				1		1130	1
<u> </u>				1	<u> </u>					
			<u> </u>							
COMM	ENTS:									
This she	eet filled out	by OUL st	aff? Yes No Charts for samples on this page proofed	by O	UL:	N		4	<u>-</u> -	
			3cd 12/21/04 by 4R . Page 2 of 4 DUL				l/lorms/c	oc2.	doc, Rev. 4	576 1/12/04
		14.			ł				-	

OZARK UNDERGROUND LABORATORY, INC. ;
1572 Aley Lane Protem, MO 65733 (417) 785-4289 fax (417) 785-4290 email: oul@tri-lakes.net SAMPLE COLLECTION DATA SHEET for FLUORESCENCE ANALYSIS

Bill to:			Date Samples Received: 1017104 Time Send Results to: osine X_ Rhodamine WT X_ Other							? Yes 	<u>~</u> N	0
	OUL e only		Please indicate stations where a	ye was visible in the								OUL use only
# CHAR REC'D	LAB NUMBER	STATION NUMBER	for field technician use - STATION NAME	use black ink only	D	PLA	CED	1E	C	OLLEC	TED	# WATER REC'D
1	NTTOZ	4-165	MW-4 – 165 ft		12	2)44		_	12/16	$\overline{}$	3815	0
	N7703	4-180	MW-4 ~ 180 ft									0
1	W1104	4-195	MW-4 – 195 ft									0
	N7705	4-210	MW-4 – 210 ft			_				\perp	}	0
1	N1706	4-225	MW-4 – 225 ft									0
- (W7707	4-240	MW-4 – 240 ft							\perp		0
1	N7708	4-255	MW-4 – 255 ft				\Box					0
1	N7709	4 - 270	MW-4 – 270 ft		<u> </u>					_		0
	NTIO	4-285	MW-4 – 285 ft		L		1				<u> </u>	0
0		4-WA	MW-5 – Water Sample						 	- 0	835	1
					_					_		-
COMM	ENTS:											
This she	ect filled out	by OUL st	M? Yes No Charts for sample	s on this page proofed b	y Ol	UL:_		 :/Y	m	J.		

OZARK UNDERGROU D LABORATORY, INC.

DISCRE	DISCREPANCIES BETWEEN CHAIN-OF-CUSTODY SHEETS AND ACTUAL SAMPLES RECEIVED Page of											
Сотрап	y & Proje	ct Name: CHZM Hill /Lake	Driew	Date Rec'd by OUL:	:12/17/04 Wk#							
Lab#	Sta#	Station Name	Date Pulled	Problem	Solution							
	MW-3	all desths	12/16	date as 1/2/04,	12/2/04 was last							
		<u> </u>		date asi 1/2/dy,	collected date Will							
					mos 12/2 as placed							
			-		dote mma							
												
				<u> </u>								
				•								
	 											
Commer	its:											



Station 1-215: MW-1 - 215 ft

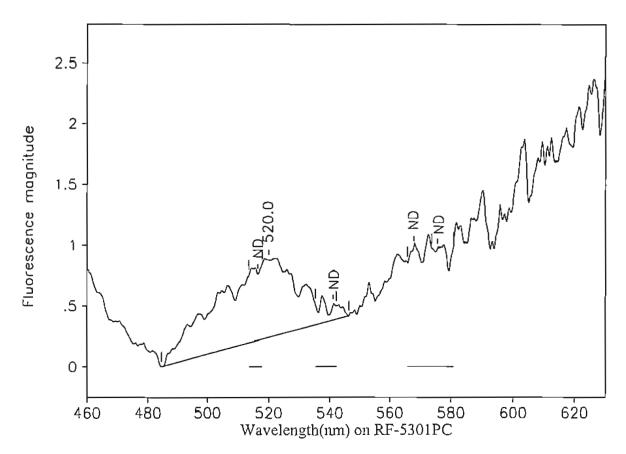
OUL number: N7669 Analyzed: 12/21/04

Matrix: Elutant

Placed: 12/02/04 1100 Collected: 12/16/04 1000

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.4	485.2	544.6	0.57	21.38	0.03	0.608 ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND
Peaks clos	se to the no	rmal range of	f tracer dyes	s:		

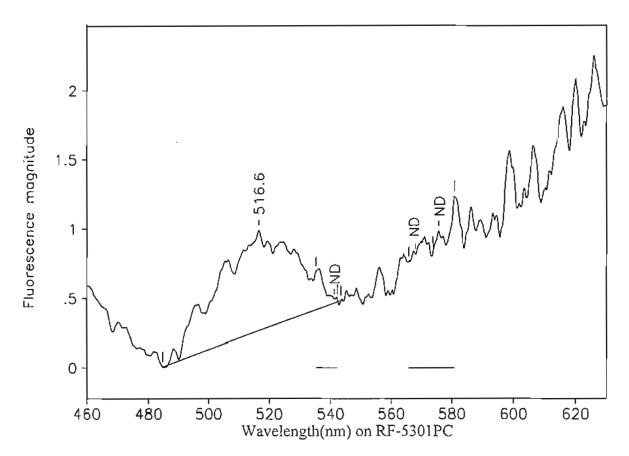


Station 1-225: MW-1 - 225 ft OUL number: N7670 Analyzed: 12/21/04

Matrix: Elutant

Placed: 12/02/04 1100 Collected: 12/16/04 1000

Peaks with	nin the nor	nal range of	tracer dyes:			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND
Peaks clos	e to the no	rmal range of	f tracer dyes	5:		
520.0	484.6	546.4	0.64	21.10	0.03	0.600



Station 1-235: MW-1 - 235 ft

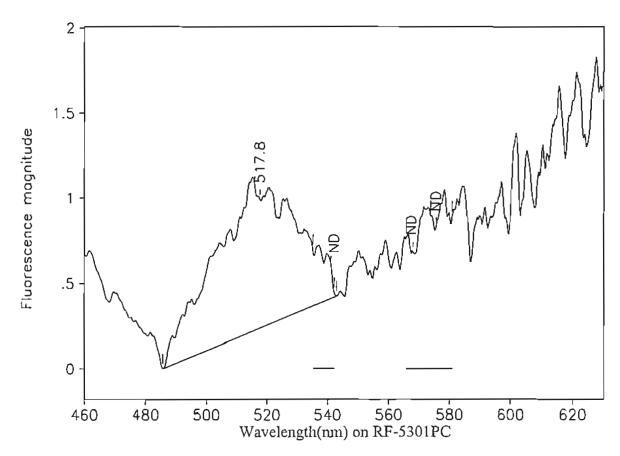
OUL number: N7671 Analyzed: 12/21/04

Matrix: Elutant

Placed: 12/02/04 1100 Collected: 12/16/04 1000

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.6	484.6	543.4	0.73	21.49	0.03	0.6H
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND
			~ .			



Station 1-245: MW-1 - 245 ft OUL number: N7672

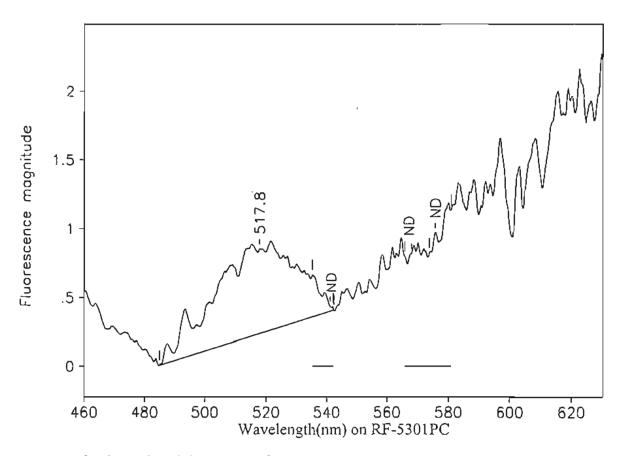
OUL number: N7672 Analyzed: 12/21/04

Matrix: Elutant

Placed: 12/02/04 1100 Collected: 12/16/04 1000

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
517.8	485.6	543.0	0.75	27.80	0.03	0.290
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND
D 1	4	1	C . 1			



Station 1-255: MW-1 - 255 ft

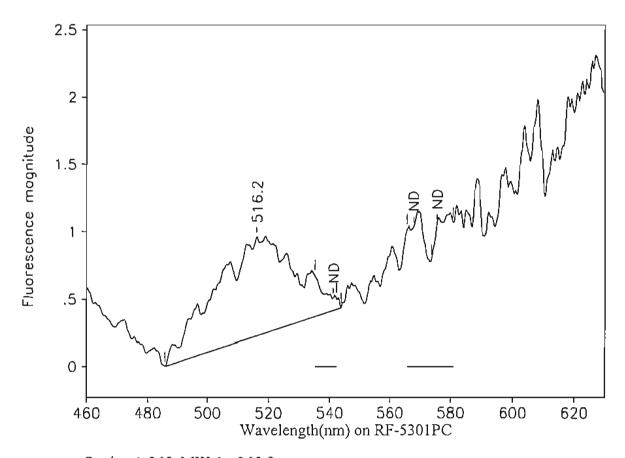
OUL number: N7673 Analyzed: 12/21/04

Matrix: Elutant

Placed: 12/02/04 1100 Collected: 12/16/04 1000

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
517.8	485.0	542.4	0.61	20.86	0.03	D.593
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 1-265: MW-1 - 265 ft

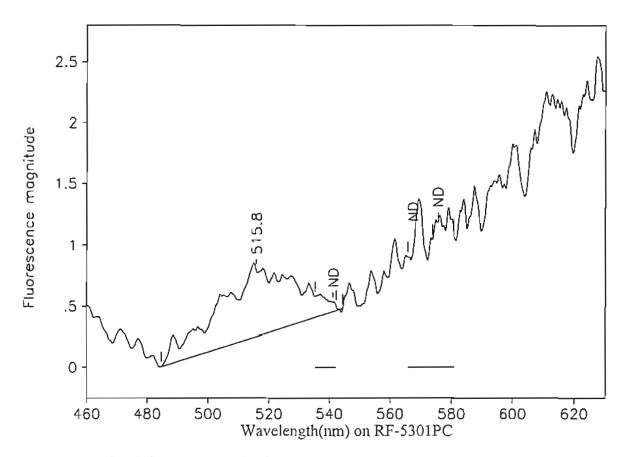
OUL number: N7674 Analyzed: 12/21/04

Matrix: Elutant

Placed: 12/02/04 1100 Collected: 12/16/04 1000

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.		
516.2	485.8	543.8	0.73	22.49	0.03	0.639		
541.1	535.2	542.2	0.00	0.00	0.00	ND		
568.0	565.8	573.8	0.00	0.00	0.00	ND		
575.6	573.8	580.8	0.00	0.00	0.00	ND		
Peaks close to the normal range of tracer dyes:								



Station 1-275: MW-1 -275 ft

OUL number: N7675

Matrix: Elutant

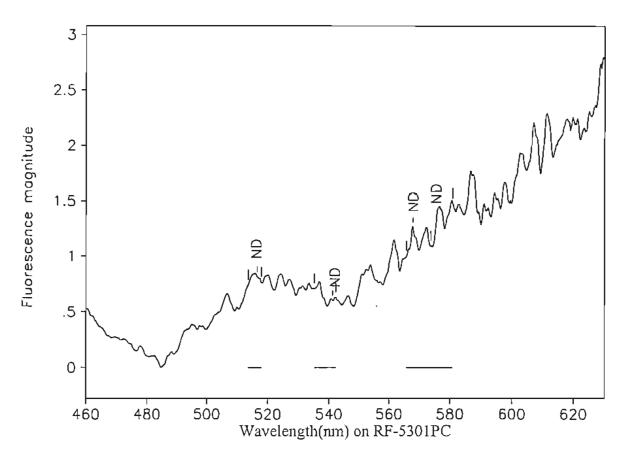
Placed: 12/02/04 1100

Analyzed: 12/21/04

Collected: 12/16/04 1000

Peaks within the normal range of tracer dyes:

Peak 11m	Left X	Right X	Height	Area	H/A	Conc.
515.8	484.6	544.4	0.55	17.21	0.03	0.489
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 1-285: MW-1 - 285 ft

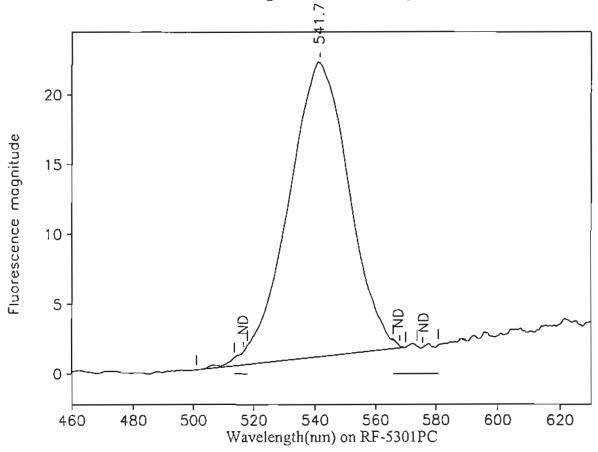
OUL number: N7676 Analyzed: 12/21/04

Matrix: Elutant

Placed: 12/02/04 1100 Collected: 12/16/04 1000

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517 <i>.</i> 9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 2-135: MW-2 - 135 ft

OUL number: N7677

Matrix: Elutant

Placed: 12/02/04 1200

Diluted: 1 to 100 Analyzed: 12/21/04

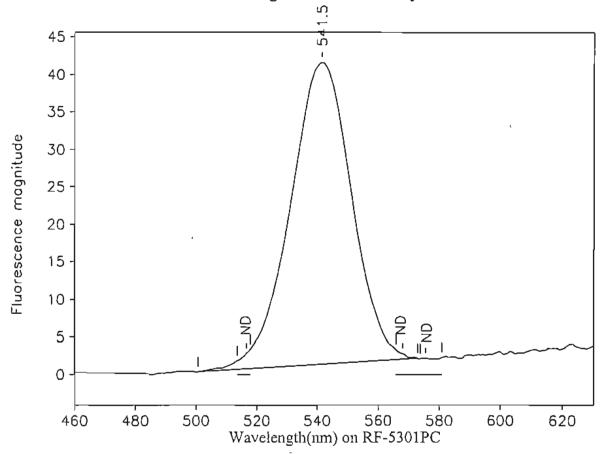
Collected: 12/16/04 1105

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.7	501.0	570.0	21.06	485.92	0.04	2,000
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND

Peaks close to the normal range of tracer dyes:

W



Station 2-150: MW-2 - 150 ft

OUL number: N7678

Matrix: Elutant

Placed: 12/02/04 1200

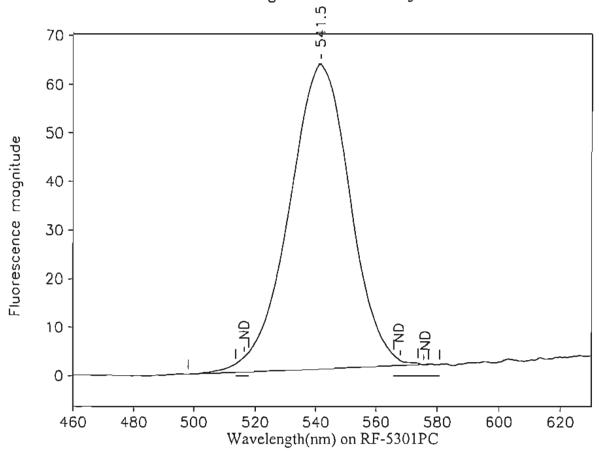
Diluted: 1 to 100 Analyzed: 12/21/04

Collected: 12/16/04 1105

Peaks within the normal range of tracer dves:

t cours with	1111 1110 11011	114, 14,150 01	naver a jeb.			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.5	500.6	573.0	40.22	943.50	0.04	3,880
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND





Station 2-165: MW-2 - 165 ft

OUL number: N7679

Matrix: Elutant

Placed: 12/02/04 1200

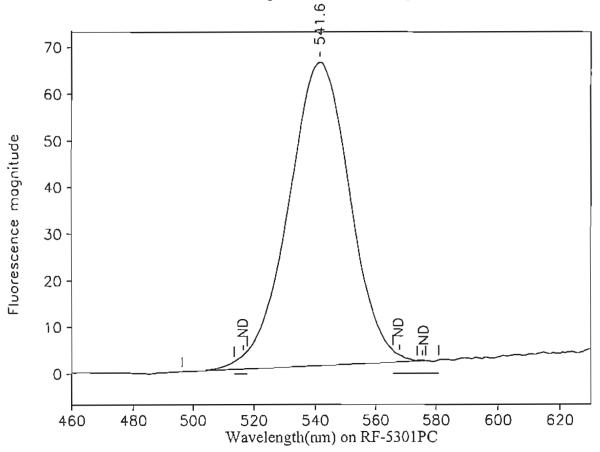
Diluted: 1 to 100 Analyzed: 12/21/04

Collected: 12/16/04 1105

Peaks within the normal range of tracer dyes:

Peak nin	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.5	498.2	577.2	62.70	1,475.72	0.04	6,060
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND





Station 2-180: MW-2 - 180 ft

OUL number: N7681

Matrix: Elutant

Placed: 12/02/04 1200

Diluted: 1 to 100 Analyzed: 12/21/04

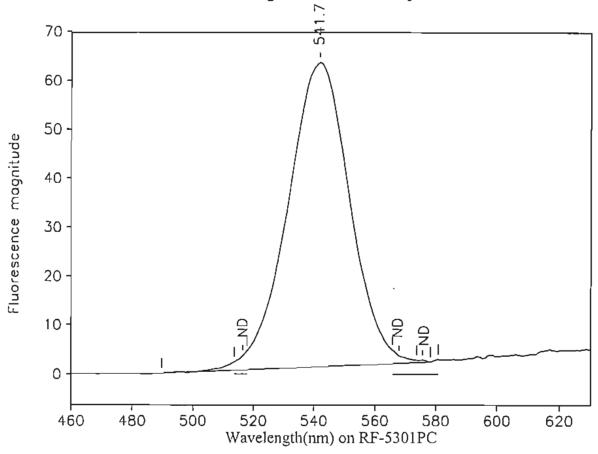
Collected: 12/16/04 1105

Peaks within the normal range of tracer dves:

I COLLEG () III	1111 1110 11011	1141 14115 0				
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.6	496.4	576.6	65.07	1,525.35	0.04	6,270
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND

Peaks close to the normal range of tracer dyes:

 \mathcal{M}



Station 2-195: MW-2 - 195 ft

OUL number: N7682

Matrix: Elutant

Placed: 12/02/04 1200

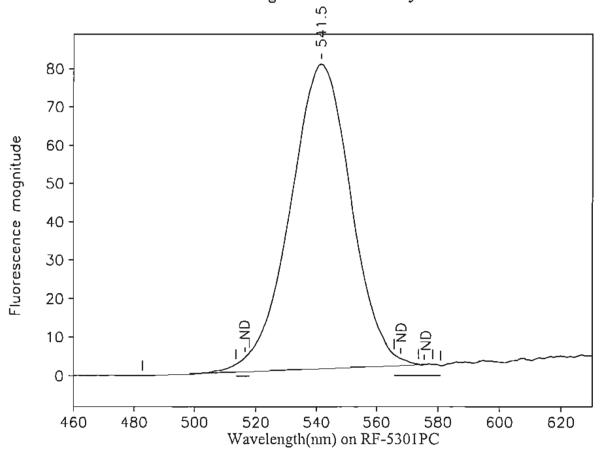
Diluted: 1 to 100 Analyzed: 12/21/04

Collected: 12/16/04 1105

Peaks within the normal range of tracer dves:

516.5 513.6 517.9 0.00 0.00 0.00 ND	1 Cuits Witt	1111 1110 11011	mai rungo or	naver ayes.			
541.7 489.6 578.2 62.12 1,469.95 0.04 6,040 568.0 565.8 573.8 0.00 0.00 0.00 ND	Peak nm	Left X	Right X	Height	Area	H/A	Conc.
568.0 565.8 573.8 0.00 0.00 0.00 ND	516.5	513.6	517.9	0.00	0.00	0.00	ND
	541.7	489.6	578.2	62.12	1,469.95	0.04	6,040
575.6 573.8 580.8 0.00 0.00 0.00 ND	568.0	565.8	573.8	0.00	0.00	0.00	ND
	575.6	573.8	580.8	0.00	0.00	0.00	ND





Station 2-210: MW-2 - 210 ft

OUL number: N7683

Matrix: Elutant

Placed: 12/02/04 1200

Diluted: 1 to 100 Analyzed: 12/21/04

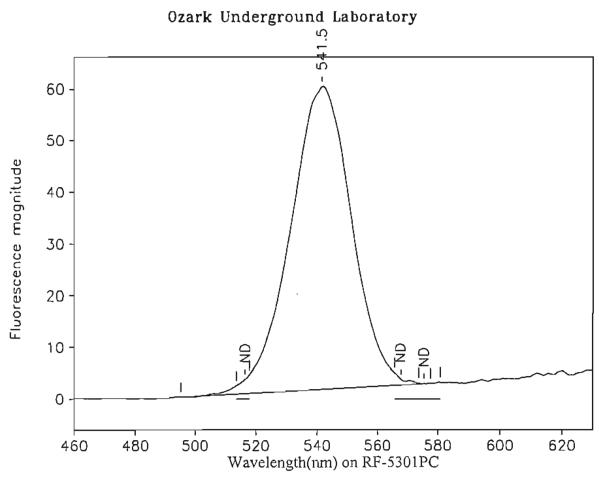
Collected: 12/16/04 1105

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.5	482.7	578.3	79.28	1,860.04	0.04	7,640
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND

Peaks close to the normal range of tracer dyes:

W



Station 2-225: MW-2 - 225 ft

OUL number: N7684

Matrix: Elutant

Placed: 12/02/04 1200

Diluted: 1 to 100 Analyzed: 12/21/04

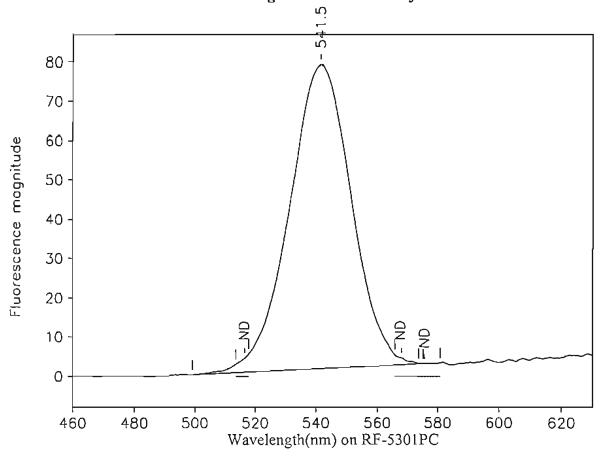
Collected: 12/16/04 I105

Peaks within the normal range of tracer dyes:

Left X	Right X	Height	Area	H/A	Conc.
513.6	517.9	0.00	0.00	0.00	ND
495.2	577.6	58.52	1,376.96	0.04	5,660
565.8	573.8	0.00	0.00	0.00	ND
573.8	580.8	0.00	0.00	0.00	ND
	513.6 495.2 565.8	513.6 517.9 495.2 577.6 565.8 573.8	513.6 517.9 0.00 495.2 577.6 58.52 565.8 573.8 0.00	513.6 517.9 0.00 0.00 495.2 577.6 58.52 1,376.96 565.8 573.8 0.00 0.00	513.6 517.9 0.00 0.00 0.00 495.2 577.6 58.52 1,376.96 0.04 565.8 573.8 0.00 0.00 0.00

Peaks close to the normal range of tracer dyes:

W



Station 2-240: MW-2 - 240 ft

OUL number: N7685

Matrix: Elutant

Placed: 12/02/04 1200

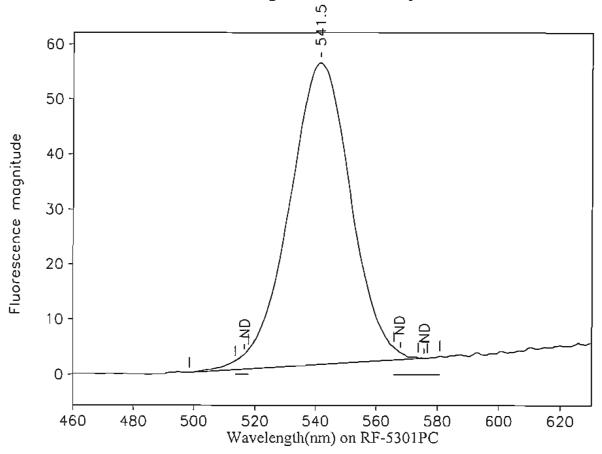
Diluted: 1 to 100 Analyzed: 12/21/04

Collected: 12/16/04 1105

Peaks within the normal range of tracer dyes:

Peak nin	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.5	499.2	575.2	77.28	1,819.98	0.04	7,480
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND





Station 2-255: MW-2 - 255 ft

OUL number: N7686

Matrix: Elutant

Placed: 12/02/04 1200

Diluted: 1 to 100 Analyzed: 12/21/04

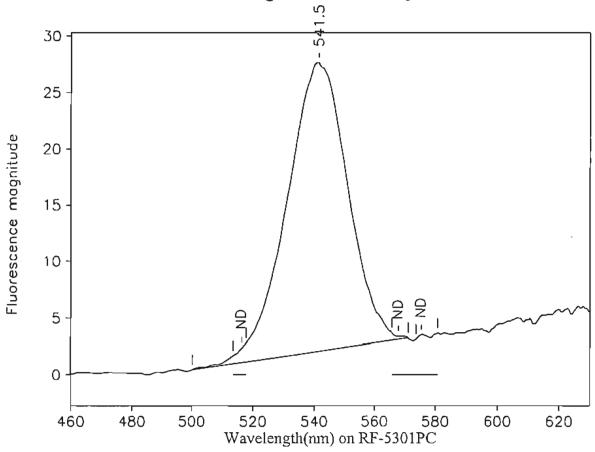
Collected: 12/16/04 1105

Peaks within the normal range of tracer dyes:

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Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.5	498.6	576.8	54.83	1,297.85	0.04	5,330
568.0	565.8	<i>5</i> 73.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND

Peaks close to the normal range of tracer dyes:

W



Station 2-270: MW-2 - 270 ft

OUL number: N7687

Matrix: Elutant

Placed: 12/02/04 1200

Diluted: 1 to 100 Analyzed: 12/21/04

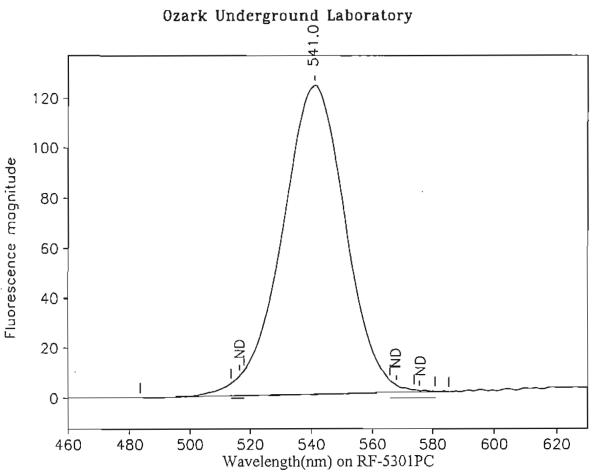
Collected: 12/16/04 1105

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.5	500.2	571.2	25.57	596.23	0.04	2,450
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND

Peaks close to the normal range of tracer dyes:

M



Station 2-285: MW-2 - 285 ft

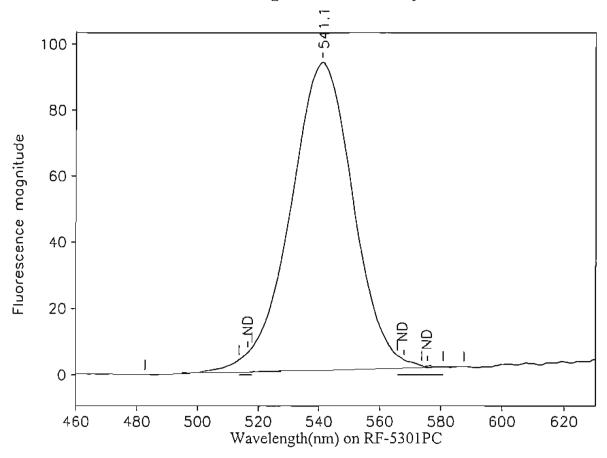
OUL number: N7688 Analyzed: 12/21/04

Matrix: Elutant

Placed: 12/02/04 1200 Collected: 12/16/04 1105

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.		
516.5	513.6	517.9	0.00	0.00	0.00	ND		
541.0	483.4	585.2	123.51	2,988.28	0.04	123		
568.0	565.8	573.8	0.00	0.00	0.00	ND		
575.6	573.8	580.8	0.00	0.00	0.00	ND		
Peaks close to the normal range of tracer dyes:								



Station 2-300: MW-2 - 300 ft

OUL number: N7689 Analyzed: 12/21/04

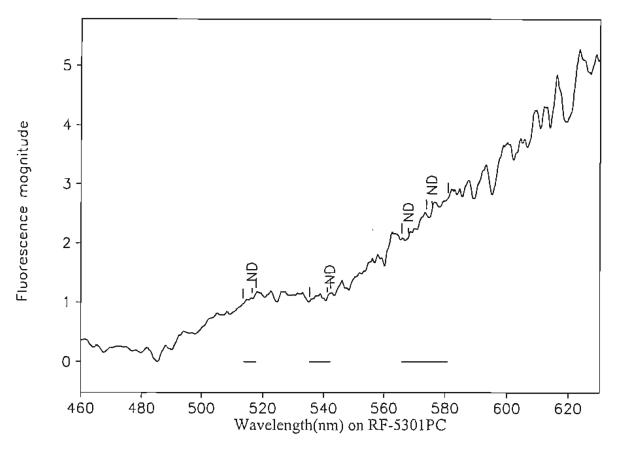
Matrix: Elutant

Placed: 12/02/04 1200 Collected: 12/16/04 1105

Peaks within the normal range of tracer dves:

Peak nın	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	482.7	587.4	92.95	2,238.58	0.04	92.0
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND





Station 3-175: MW-3 - 175 ft

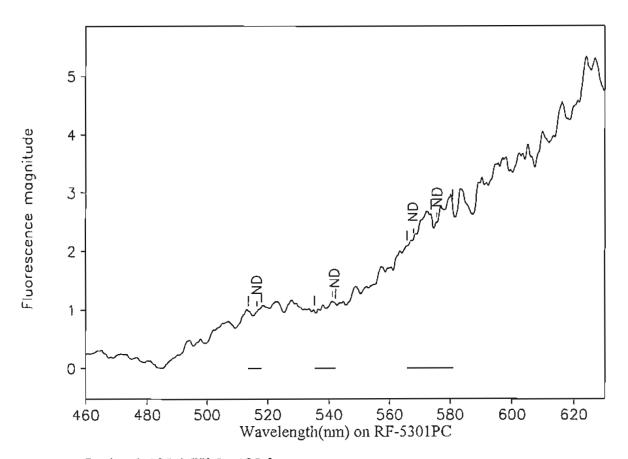
OUL number: N7690 Analyzed: 12/21/04

Matrix: Elutant

Placed: 12/02/04 1010 Collected: 12/16/04 0910

Peaks within the normal range of tracer dyes: Peak nm Left X Right X Height

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 3-185: MW-3 - 185 ft

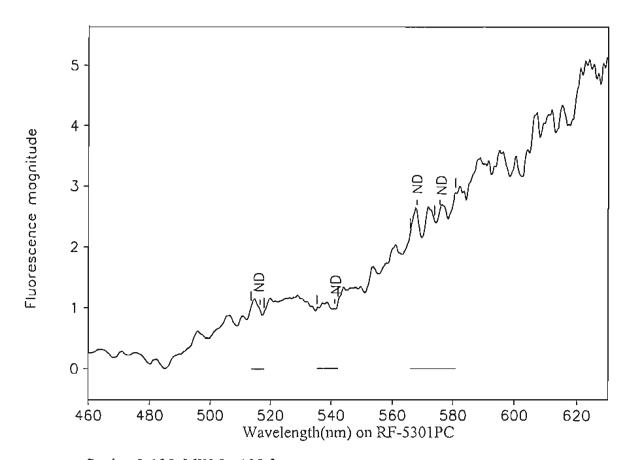
OUL number: N7691 Analyzed: 12/21/04

Matrix: Elutant

Placed: 12/02/04 1010 Collected: 12/16/04 0910

Peaks within the normal range of tracer dyes: Peak nm Left X Right X Height

Peak nin	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



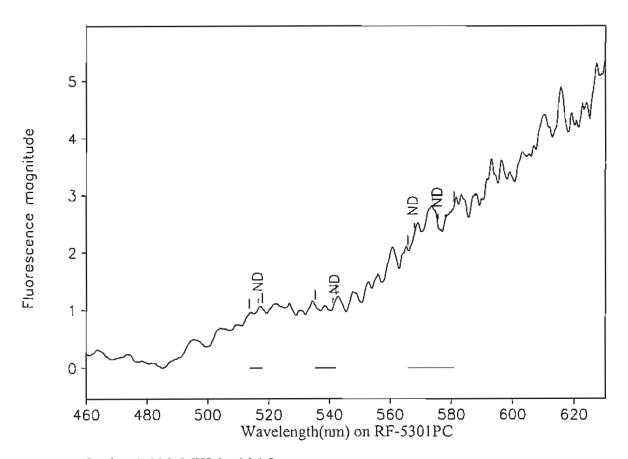
Station 3-195: MW-3 - 195 ft

OUL number: N7692 Analyzed: 12/21/04

Matrix: Elutant

Placed: 12/02/04 1010 Collected: 12/16/04 0910

Peaks within the normal range of tracer dyes:										
Peak nin	Left X	Right X	Height	Area	H/A	Conc.				
516.5	513.6	517.9	0.00^{-}	0.00	0.00	ND				
541.1	535.2	542.2	0.00	0.00	0.00	ND				
568.0	565.8	573.8	0.00	0.00	0.00	ND				
575.6	573.8	580.8	0.00	0.00	0.00	ND				
Peaks close to the normal range of tracer dyes:										



Station 3-205: MW-3 - 205 ft

OUL number: N7693

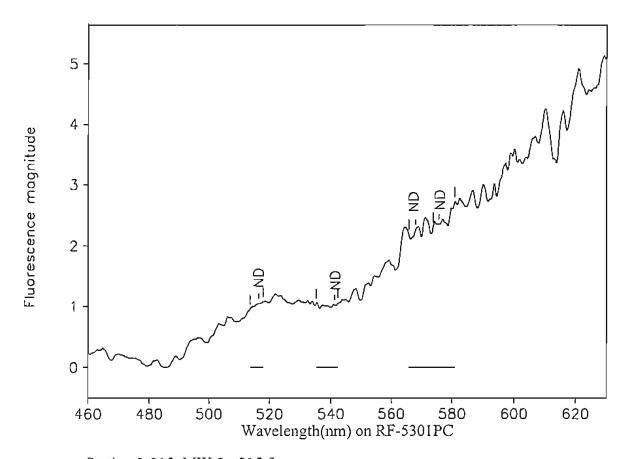
Matrix: Elutant

Placed: 12/02/04 1010 Collected: 12/16/04 0910

Analyzed: 12/21/04

Peaks within the normal range of tracer dyes:

~ ~ ~ ~						
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 3-215: MW-3 - 215 ft

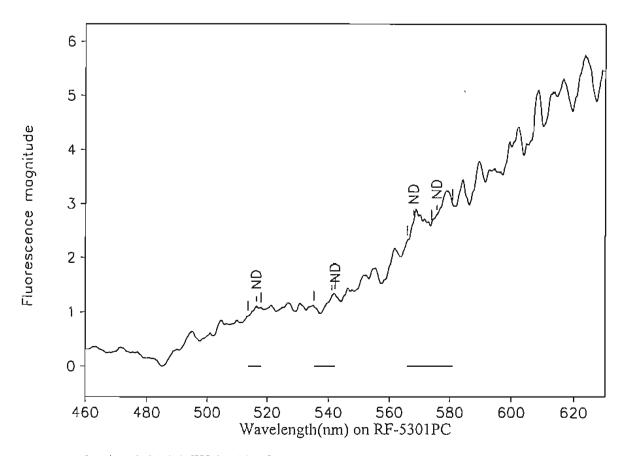
OUL number: N7694 Analyzed: 12/21/04

Matrix: Elutant

Placed: 12/02/04 1010 Collected: 12/16/04 0910

Peaks	within	the nom	nal range of	tracer dyes:
75 1	Ψ.	A 77	70. 1. 77	TY ' 1 '

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 3-225: MW-3 - 225 ft

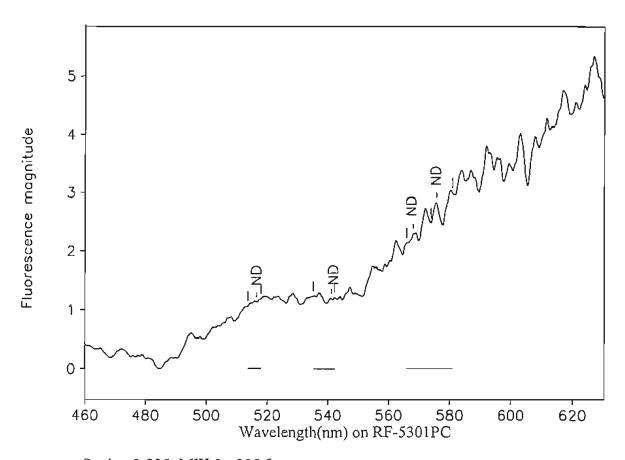
OUL number: N7695 Analyzed: 12/21/04

Matrix: Elutant

Placed: 12/02/04 1010 Collected: 12/16/04 0910

Peaks within the normal range of tracer dyes:

Left X	Right X	Height	Area	H/A	Conc.
513.6	517.9	0.00	0.00	0.00	ND
535.2	542.2	0.00	0.00	0.00	ND
565.8	573.8	0.00	0.00	0.00	ND
573.8	580.8	0.00	0.00	0.00	ND
	513.6 535.2 565.8	513.6 517.9 535.2 542.2 565.8 573.8	513.6 517.9 0.00 535.2 542.2 0.00 565.8 573.8 0.00	513.6 517.9 0.00 0.00 535.2 542.2 0.00 0.00 565.8 573.8 0.00 0.00	513.6 517.9 0.00 0.00 0.00 535.2 542.2 0.00 0.00 0.00 565.8 573.8 0.00 0.00 0.00



Station 3-235: MW-3 - 235 ft OUL number: N7696

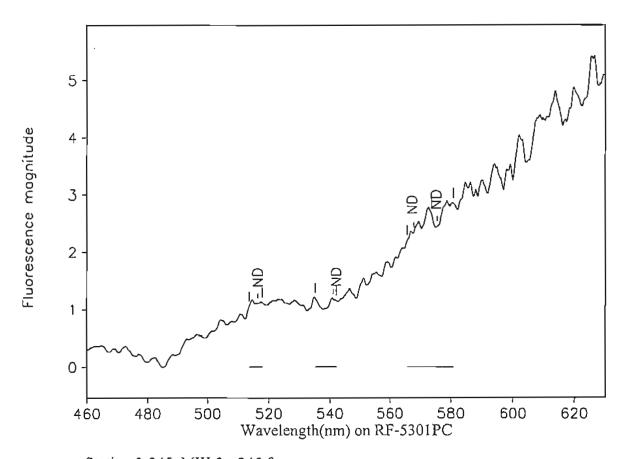
Analyzed: 12/21/04

Matrix: Elutant

Placed: 12/02/04 1010 Collected: 12/16/04 0910

Peaks within the normal range of tracer dyes:

Peak nın	Left X	Rìght X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568,0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 3-245: MW-3 - 245 ft

OUL number: N7697

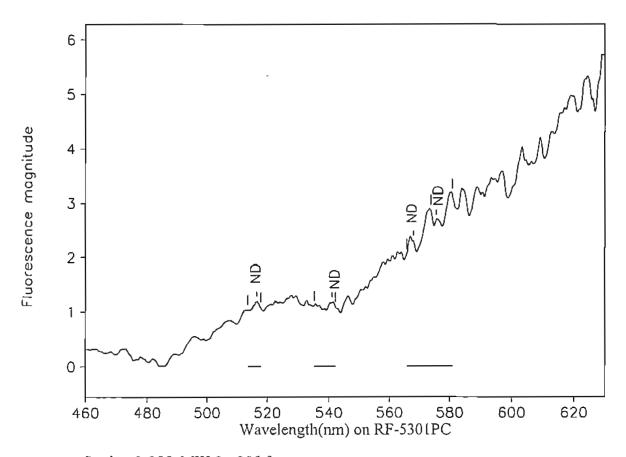
Matrix: Elutant

Placed: 12/02/04 1010 Collected: 12/16/04 0910

Analyzed: 12/21/04

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 3-255: MW-3 - 255 ft

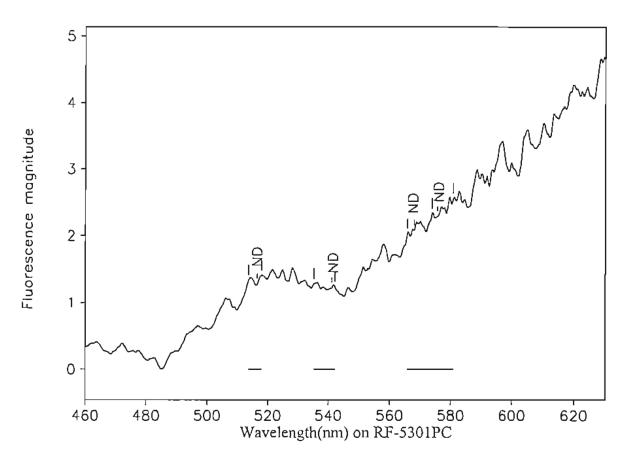
OUL number: N7698 Analyzed: 12/21/04

Matrix: Elutant

Placed: 12/02/04 1010 Collected: 12/16/04 0910

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND
m 1 1	1	•	C . 1			

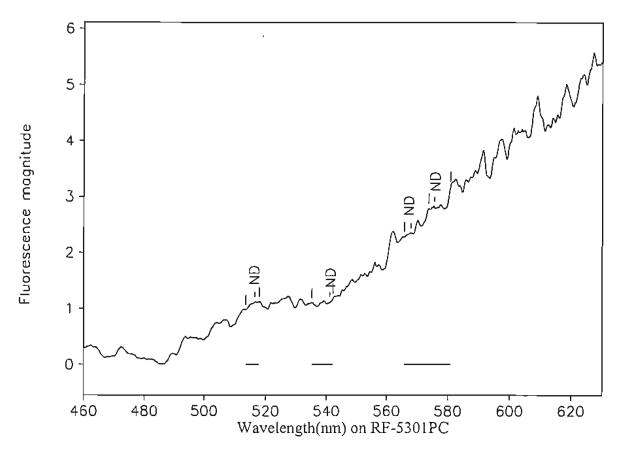


Station 3-265: MW-3 - 265 ft

OUL number: N7699 Analyzed: 12/21/04

Matrix: Elutant

Peaks with	hin the norm	nal range of	tracer dyes:				
Peak nm	Left X	Right X	Height	Area	H/A	Conc.	
516.5	513.6	517.9	0.00	0.00	0.00	ND	
541.1	535.2	542.2	0.00	0.00	0.00	ND	
568.0	565 <i>.</i> 8	573.8	0.00	0.00	0.00	ND	
575.6	573.8	580.8	0.00	0.00	0.00	ND	
Peaks close to the normal range of tracer dyes:							

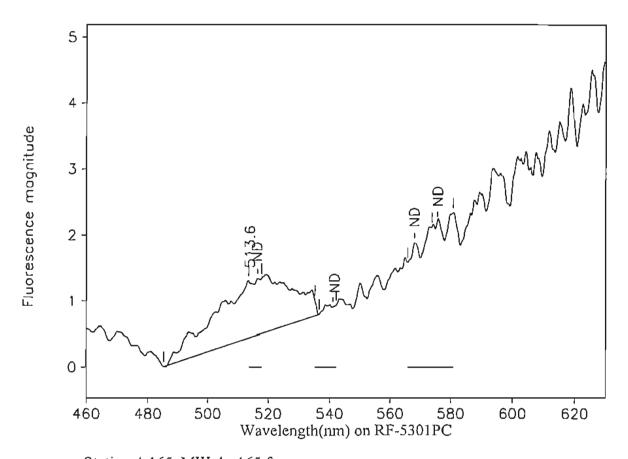


Station 3-275: MW-3 - 275 ft

OUL number: N7701 Analyzed: 12/21/04

Matrix: Elutant

Peaks with	nin the norr	nal range of	tracer dyes:			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND
Peaks clos	e to the no	rmal range of	f tracer dyes	s:		



Station 4-165: MW-4 - 165 ft

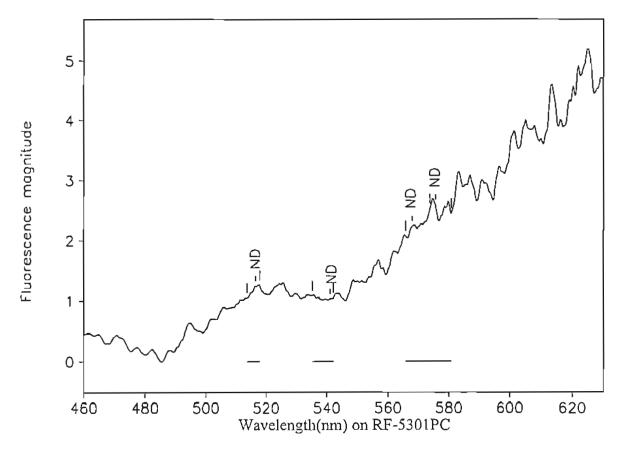
OUL number: N7702 Analyzed: 12/21/04

Matrix: Elutant

Placed: 12/02/04 0850 Collected: 12/16/04 0815

Peaks within the normal range of tracer dyes: Peak nm Left X Right X Height

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND
Peaks clo	ose to the no	rmal range o	of tracer dyes	s:		/
513.6	485.2	536.6	0.86	25.82	0.03	0.734

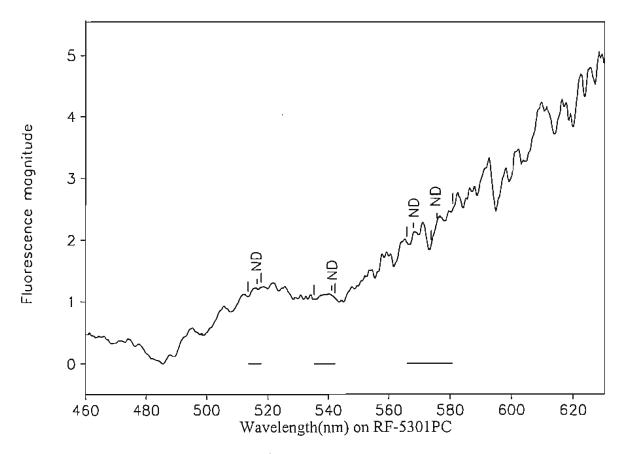


Station 4-180: MW-4 - 180 ft

OUL number: N7703 Analyzed: 12/21/04

Matrix: Elutant

Peaks with	nin the norm	nal range of	tracer dyes:			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND
Peaks close to the normal range of tracer dyes:						

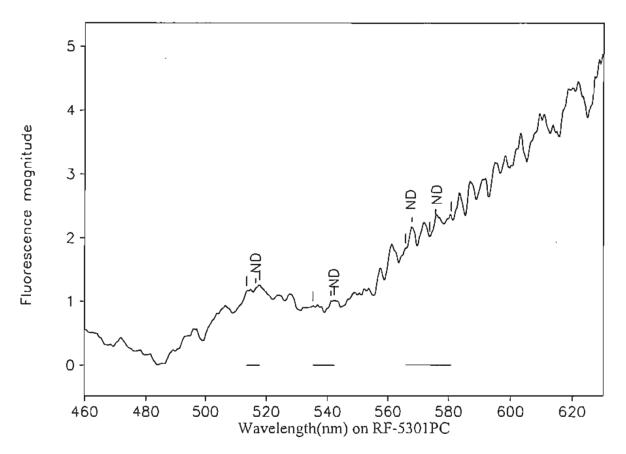


Station 4-195: MW-4 - 195 ft

OUL number: N7704 Analyzed: 12/21/04

Matrix: Elutant

Peaks with	nin the norr	nal range of	tracer dyes:			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00^{-}	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND
Peaks close to the normal range of tracer dyes:						

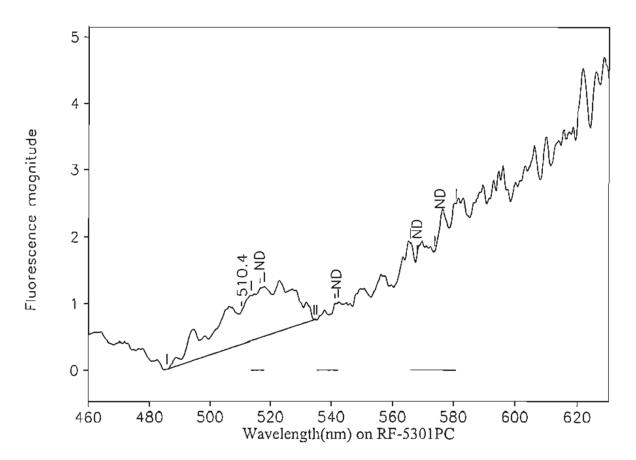


Station 4-210: MW-4 - 210 ft

OUL number: N7705 Analyzed: 12/21/04

Matrix: Elutant

Peaks with	hin the norr	nal range of	tracer dyes:			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND
Peaks clos	se to the noi	mal range of	f tracer dyes	s:		

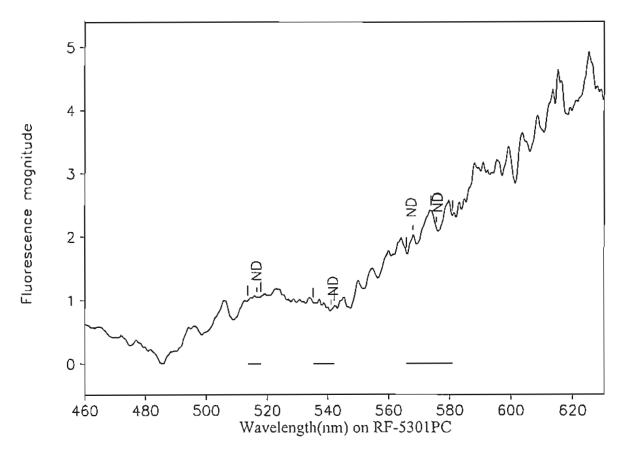


Station 4-225: MW-4 - 225 ft

OUL number: N7706 Analyzed: 12/21/04

Matrix: Elutant

Peaks with	hin the norr	nal range of	tracer dyes:			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND
Peaks clos	se to the nor	rmal range of	f tracer dyes	s:		
510.4	485.6	534.4	0.49	21.32	0.02	0.000



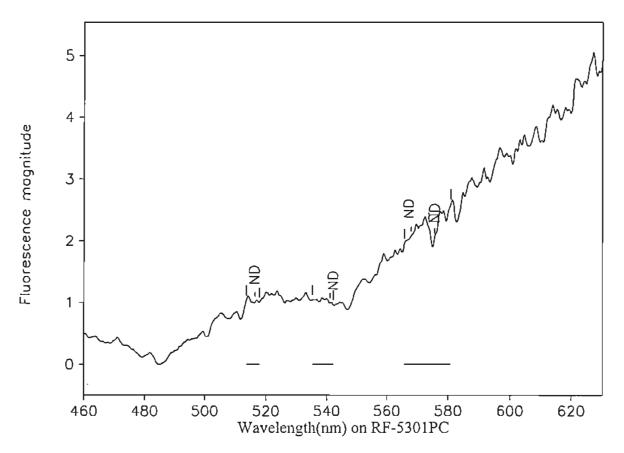
Station 4-240: MW-4 - 240 ft

OUL number: N7707 Analyzed: 12/21/04

Matrix: Elutant

Placed: 12/02/04 0850 Collected: 12/16/04 0815

Peaks with	nin the non	mal range of	tracer dyes:			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND

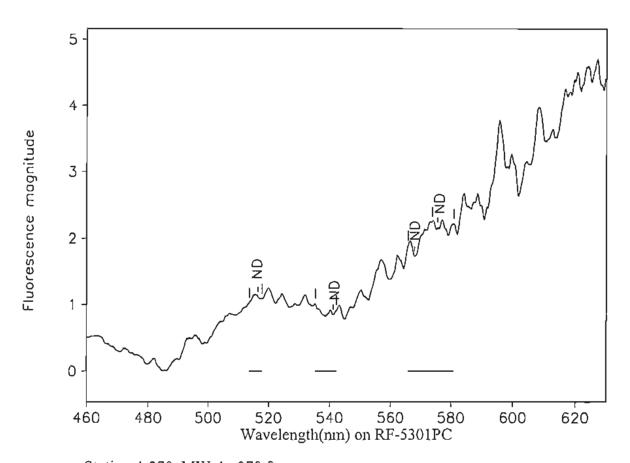


Station 4-255: MW-4 - 255 ft

OUL number: N7708 Analyzed: 12/21/04

Matrix: Elutant

Peaks with	nin the nor	nal range of	tracer dyes:				
Peak nm	Left X	Right X	Height	Area	H/A	Conc.	
516.5	513.6	517.9	0.00	0.00	0.00	ND	
541.1	535.2	542.2	0.00	0.00	0.00	ND	
568.0	565.8	573.8	0.00	0.00	0.00	ND	
575.6	573.8	580.8	0.00	0.00	0.00	ND	
Peaks close to the normal range of tracer dyes:							



Station 4-270: MW-4 - 270 ft

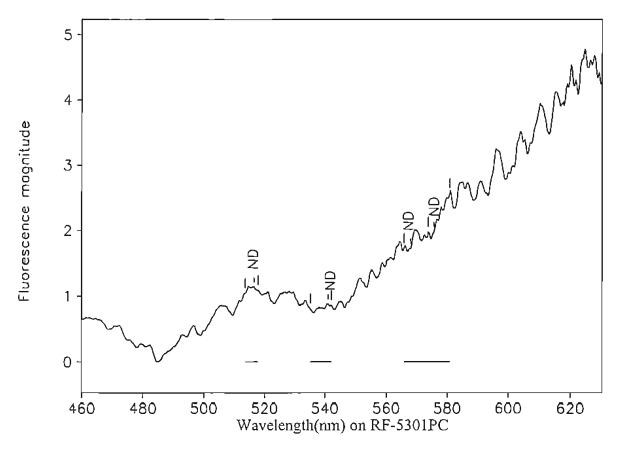
OUL number: N7709 Analyzed: 12/21/04

Matrix: Elutant

Placed: 12/02/04 0850 Collected: 12/16/04 0815

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00^{-}	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND

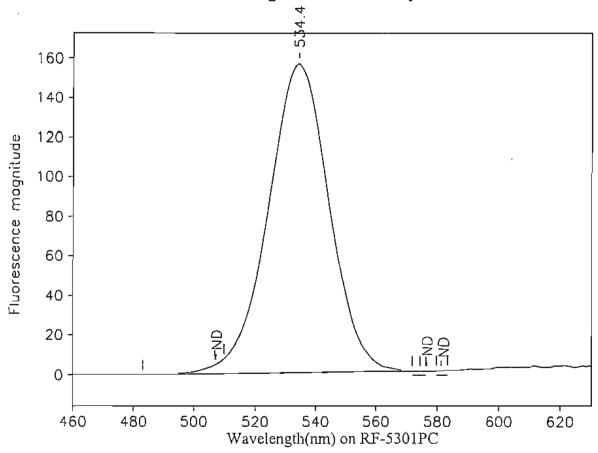


Station 4-285: MW-4 - 285 ft

OUL number: N7710 Analyzed: 12/21/04

Matrix: Elutant

Peaks with	nin the norr	nal range of	tracer dyes:			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00^{-}	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND
Peaks close to the normal range of tracer dyes:						



Station 2-WA: MW-2 - Water

OUL number: N7721

Matrix: Water

Collected: 12/16/04 1130

Analyzed: 12/21/04

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
507.3	506.9	509 <i>.</i> 9	0.00	0.00	0.00	ND
534.4	483.0	574.4	156.33	3,654.39	0.04	30.3
576.6	572.0	576.3	0.00	0.00	0.00	ND
581.2	579.7	583.2	0.00	0.00	0.00	ND

1572 Aley Lane

Protem, MO 65733

(417) 785-4289

fax (417) 785-4290

oul@tri-lakes.net

January 13, 2005

CERTIFICATE OF ANALYSIS

Alan W. Aikens, P.G. CH2MHill 225 East Robinson Street, Suite 505 Orlando, Florida 32801

RE: Lake Orienta

> Dye analysis results for charcoal and water samples shipped January 10, 2005 Ozark Underground Laboratory (OUL) numbers N7943 through N7984 and N7990.

Dear Mr. Aikens:

We have completed analysis of the charcoal and water samples received by the OUL on January 11, 2005. We have indicated the OUL number for each of these samples on the enclosed table.

The fluorescein, eosine and rhodamine WT (RWT) dye concentrations are based upon standards routinely used at the OUL. The fluorescein and eosine are mixtures of 75% dye and 25% diluent; the RWT is a 20% solution. The concentrations are based upon the as-sold weight of the dye.

A summary of the results is presented in Table 1. Additional sampling information is available on the enclosed analysis graphs.

Sincerely,

Thomas J. Aley, PHG, RG

women J. At

- Enclosures: 1. Table 1. Analysis results for charcoal and water samples
 - 2. Sample Collection Data Sheets
 - 3. Discrepancy sheet
 - 4. Sample analysis graphs

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Ozark Underground Laboratory for CH2MHill

Project:

Lake Orienta

Samples Collected By:

Mike Burns

Date Samples Shipped:
Date Samples Rec'd at OUL:

January 10, 2005 January 11, 2005

Date Analyzed by OUL:

January 13, 2005

Table 1. Results for charcoal and water samples analyzed for the presence of fluorescein, eosine and rhodamine WT (RWT) dyes. Peak wavelengths are reported in nanometers (nm); dye concentrations are reported in parts per billion (ppb). All results are for charcoal unless otherwise indicated.

OUL Lab#	Station #	Station Name	Date/Time Placed	Date/Time Collected	Fluor	escein	Ec	sine	R	WT
	!		2004	2005	Peak	Conc.	Peak	Conc.	Peak	Conc.
N7943	1-215	MW-1 - 215 ft	12/16 1040	1/7 0915	ND		ND		ND	
N7944	1-225	MW-1 - 225 ft	12/16 1040	1/7 0915	ND	ĺ	ND		ND	
N7945	1-235	MW-1 - 235 ft	12/16 1040	1/7 0915	ND		ND		ND	
N7946	1-245	MW-1 - 245 ft	12/16 1040	1/7 0915	ND		ND		ND	
N7947	1-255	MW-1 - 255 ft	12/16 1040	1/7 0915	ND		ND		ND	
N7948	1-265	MW-1 - 265 ft	12/16 1040	1/7 0915	ND		ND		ND	
N7949	1-275	MW-1 -275 ft	12/16 1040	1/7 0915	ND		ND		ND	
N7950	1-285	MW-1 - 285 ft	12/16 1040	1/7 0915	ND		ND		ND	
N7951	2-135	MW-2 - 135 ft	12/16 1140	1/7 0950	ND		540.9	856	ND	
N7952	2-150	MW-2 - 150 ft	12/16 1140	1/7 0950	ND		540.7	1,910	ND	
N7953	2-165	MW-2 - 165 ft	12/16 1140	1/7 0950	ND		540.6	1,420	ND	
N7954	2-180	MW-2 - 180 ft	12/16 1140	1/7 0950	ND		540.9	2,660	ND	
N7955	2-195	MW-2 - 195 ft	12/16 1140	1/7 0.950	ND		540.7	1,920	ND	
N7956	2-210	MW-2 - 210 ft	12/16 1140	1/7 0950	ND		540.9	3,390	ND	
N7957	2-225	MW-2 - 225 ft	12/16 1140	1/7 0950	ND		540.9	3,640	ND	
N7958	2-240	MW-2 - 240 ft	12/16 1140	1/7 0950	ND		540.9	7,330	ND	
N7959	2-255	MW-2 - 255 ft	12/16 1140	1/7 0950	ND		541.1	6,150	ND	
N7960	Laborate	ory Control Charcoal Blank	Land Caracilla		100 mm	100000000000000000000000000000000000000				
N7961	2-270	MW-2 - 270 ft	12/16 1140	1/7 0950	ND		541.0	6,630	ND	
(Footnote	s at end of	Table)	•	•			•	•	(continued)

Ozark Underground Laboratory for CH2MHill

Table 1. Results for charcoal and water samples analyzed for the presence of fluorescein, cosine and rhodamine WT (RWT) dyes. Peak wavelengths are reported in panometers (pm); due concentrations are reported in parts per billion (ppb). All results are for charcoal unless otherwise indicated.

OUL Lab#	Station #	Station Name	Date/Time Placed	Date/Time Collected	Fluor	escein	E	osine	RV	VT
			2004	2005	Peak	Conc.	Peak	Conc.	Peak	Conc.
(continue	ed)									
N7962	2-285	MW-2 - 285 ft	12/16 1140	1/7 0950	ND		540.9	304	ND	
N7963	2-300	MW-2 - 300 ft	12/16 1140	1/7 0950	ND		540.6	79.3	ND	
V 7964	3-175	MW-3 - 175 ft	12/16 0910	1/7 0840	ND		ND		ND	
N7965	3-185	MW-3 - 185 ft	12/16 0910	1/7 0840	ND		ND		ND	
N7966	3-195	MW-3 - 195 ft	12/16 0910	1/7 0840	ND		ND		ND	
N7967	3-205	MW-3 - 205 ft	12/16 0910	1/7 0840	ND		ND		ND	
N7968	3-215	MW-3 - 215 ft	12/16 0910	1/7 0840	ND		ND		ND	
N7969	3-225	MW-3 - 225 ft	12/16 0910	1/7 0840	ND		ND		ND	
N7970	3-235	MW-3 - 235 ft	12/16 0910	1/7 0840	NĎ		ND		ND	
N7971	3-245	MW-3 - 245 ft	12/16 0910	1/7 0840	ND		ND		ND	
N7972	3-255	MW-3 - 255 ft	12/16 0910	1/7 0840	ND		ND		ND	
N7973	3-265	MW-3 - 265 ft	12/16 0910	1/7 0840	ND		ND		ND	
N7974	3-275	MW-3 - 275 ft	12/16 0910	1/7 0840	ND		ND		ND	
N7975	4-165	MW-4 - 165 ft	12/16 0815	1/7 0805	ND		ND		ND	
N7976	4-180	MW-4 - 180 ft	12/16 0815	1/7 0805	ND		ND		ND	
N7977	4-195	MW-4 - 195 ft	12/16 0815	1/7 0805	ND		ND		ND	
N7978	4-210	MW-4 - 210 ft	12/16 0815	1/7 0805	ND		ND		ND	
N7979	4-225	MW-4 - 225 ft	12/16 0815	1/7 0805	ND		ND		ND	
N7980	Laborat	ory Control Charcoal Blank			71 = t = 5 mily _ 3	1,1913		A PHILIP	Sight reyn	1000
N7981	4-240	MW-4 - 240 ft	12/16 0815	1/7 0805	ND		ND		ND	
N7982	4-255	MW-4 - 255 ft	12/16 0815	1/7 0805	ND		ND		ND	
N7983	4-270	MW-4 - 270 ft	12/16 0815	1/7 0805	ND		NĎ		ND	
N7984	4-285	MW-4 - 285 ft	12/16 0815	1/7 0805	ND		ND		ND	
Footnote	es at end of	Table)	•						(continue

Ozark Underground Laboratory for CH2MHill

Table 1. Results for charcoal and water samples analyzed for the presence of fluorescein, eosine and rhodamine WT (RWT) dyes. Peak wavelengths are reported in nanometers (nm); dye concentrations are reported in parts per billion (ppb). All results are for charcoal unless otherwise indicated.

OUL Lab#	Station #	Station Name	Date/Time Placed	Date/Time Collected	Fluor	escein	Eos	Eosine RWT		VT
			2004	2005	Peak	Conc.	Peak	Conc.	Peak	Conc.
(continue	ed)									
N7990	2-WA	MW-2 - Water	Water	1/7 1005	ND		534.2	30.0	ND	

FOOTNOTES:

ND = No dye detected

OZARK UNDERGROUND LABORATORY, INC.
1572 Aley Lane Protem, MO 65733 (417) 785-4289 fax (417) 785-4290 email: oul@tri-lakes.net SAMPLE COLLECTION DATA SHEET for FLUORESCENCE ANALYSIS

oalyzo	for: Fluore	scein X I	Eosine X Rhodamine WT X Other Ship cooler to:/L	side	مسيخ ٢		 				
	OUL re only		Please indicate stations where dye was visible in the for field technician use - use black ink only	fiel	<u>d</u>				_	OUI use or	
CHAR REC'D	LAB NUMBER YCLYCOCY	STATION NUMBER 1-4 Numbers	STATION NAME	PLACED COLLI						TIME	
1	N7943	1-215	MW-1 - 215 ft		116/04		1/7/03	_		REC	
1	W7944	1-225	MW-1 – 225 ft							Ò	
	W7945	1-235	MW-1 – 235 ft			1				Ò	
	N7946	1-245	MW-1 – 245 ft							C	
1	W7947	1-255	MW-1 – 255 ft							0	
1	W7948	1-265	MW-1 – 265 ft			}				0	
1	W7949	1-275	MW-1 – 275 ft							0	
l	W7950	1-285	MW-1 – 285 ft			{		\perp	<u> </u>	0	
0		1-WA	MW-1 - Water Sample	+	<u> </u>		1	//	<u> </u>	1	
				<u> </u>		_		-			
OMM	ENTS:										

OZARK UNDERGROUND LABORATORY, INC.
1572 Aley Lane Protem, MO 65733 (417) 785-4289 fax (417) 785-4290 email: oul@tri-lakes.net SAMPLE COLLECTION DATA SHEET for FLUORESCENCE ANALYSIS

Project:	Lake Ori	enta (CH2N	Mhill) Week No: 4 Samples Collected F	Ву:	Mi	Ke Bu	145		
Samples	Shipped By	: M.K	e Brans Samples Received By: Martin (1)	MAC	<u>A</u> -	-004			
Date Sa	mples Shipp	ed: <u>/</u> / <u>/0</u>	Date Samples Received: 1 11 05 Time Samples Received: 12	4.4	5	Return	Cooler? Y	cs N	o
Bill to:			Send Results to: CH2M Hill		—.				
Analyzo	for: Fluore	scein X	Eosine X Rhodamine WT X Other Ship cooler to:	16,05	<u>c</u> 3	4550	<u>. </u>		
4	OUI.		Please indicate stations where dye was visible in the	field					OUI.
4.	se only		for field technician use - use black ink only						nse outh
# CHAR REC'D	LAB NUMBER	STATION NUMBER	STATION NAME	PLACED			COLLECTED		WATER
	Charcool			DA	TE	TIME	DATE	USSU	REC'D
l	W7951	2-135	MW-2 – 135 ft	12/1	664	1140	1/2/65	1	0
_ (N7952	2-150	MW-2 ~ 150 ft						0
1	W7953	2-165	MW-2 ~ 165 ft						0
	W7954	2-180	MW-2 – 180 ft						0
	w7955	2-195	MW-2 – 195 ft						0
{	W1956	2-210	MW-2 - 210 ft	\top			17		0
{	N1957	V 3-225	MW-2 – 225 ft						0
(N7958	2-240	MW-2 – 240 ft						0
	N1959	2-255	MW-2 – 255 ft						0
(W7961	2-270	MW-2 - 270 ft	}					0
	W7962	2-285	MW-2 – 285 ft						0
_ {	W7963	2-300	MW-2 – 300 ft		<u>, </u>				0
0		2-WA	MW-2 – Water Sample	_				1005	1
	ļ			_					
						L			
COMM	ENTS:	Chare	val Blank N7960						
This she	ect filled out	by OUL st	aff? Yes No Charts for samples on this page proofed	by Ol	L:	asm	ia_	725	
		-	13/05 by we Page 2 or 4	-		f:\shared	Nonnskoc2	.doc, Rev.	1/12/04

OZARK UNDERGROUND LABORATORY, INC.
1572 Aley Lane Protem, MO 65733 (417) 785-4289 fax (417) 785-4290 email: oul@tri-lakes.net SAMPLE COLLECTION DATA SHEET for FLUORESCENCE ANALYSIS

Project:	Lake Ori	enta (CH2N	1hill) Week No: Samples Collected I	By:	ike 1	9-1.17		
Samples	Shipped By	: <u>mi</u>	Week No: Samples Collected I Week No: Samples Collected I Week No: Samples Received By: Samples Received By: Samples Received: Modern Samples Received:	wild				
						Cooler? Y	csN	o
			Send Results to: CH2M H: U					
Analyzo	for: Fluore	scein X	Eosine X Rhodamine WT X Other Ship cooler to:	Nodar	2-			
ı	OUL		Please indicate stations where dye was visible in the	e field				OUL
	se only		for field technician use - use black ink only					use only
# CILAR REC'D	NUMBER	STATION NUMBER	STATION NAME		PIACED COLLECTED			WATER
1	N7964	3-175	MW-3 – 175 ft	DATE	TIME	DATE	TIME,	REC'D
1	 	3-185	MW-3 – 185 ft	12/16/04	0910	1111/05	08 40	0
	W7965				 	1	 	0
	W7966	3-195	MW-3 – 195 ft	+ ($-$			 	0
	W7967	3-205	MW-3 – 205 ft		\Box	 		0
/	W7968	3-215	MW-3 – 215 ft					0
	W7969	3-225	MW-3 – 225 ft					0
	W7970	3-235	MW-3 – 235 ft					0
	W7971	3-245	MW-3 – 245 ft		}			0
17	WANZ	3-255	MW-3 – 255 ft		}		\prod	0
1	W1973	3-265	MW-3 – 265 ft					0
7	W974	3-275	MW-3 – 275 ft		}			0
		3-WA	MW-3 - Water Sample				0850	1
						\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	0475	
	 						 	
COMPA	LENTS.							
COMM		· · · · · · · · · · · · · · · · · · ·						
			aff? Yes No Charts for samples on this page proofed	by OUL:	m	man	726	
O	nolyne	1 413	105 by WR Page 3 of 4		f:\shared	Vorms/coc2	.doc, Rev. 4	1/12/04
	- 0		,		001	Page	3 17	4

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1572 Aley Lane Protem, MO 65733 (417) 785-4289 fax (417) 785-4290 email: oul@tri-lakes.net SAMPLE COLLECTION DATA SHEET for FLUORESCENCE ANALYSIS

	Lake_Or			Зу:	M	ile	Du,	117			
Samples	Shipped By	y: <u>/^</u>	Samples Received By: Thirty (is	mic	1	-00	<u>۔ ر</u>				
Date Sa	mples Shipp	ed: <u>/ / ८</u>	Date Samples Received: 1 / 11 / 0 5 Time Samples Received 12	: 4	5	Ret	urn (Cooler?	Yes	N	0
Bill to:			Send Results to: CH2M 14:1/								
Analyzo	for: Fluore	escein X	Eosine X Rhodamine WT X Other Ship cooler to:	<u>Vod</u>	414	1 3	_4	1100			
	OUL se only		Please indicate stations where dye was visible in the	field	'						OUL use only
# CHAR	LAB	STATION	for field technician use - use black ink only STATION NAME	т	PLA	CED	—	COLLECTED			#
REC'D	Charcoal	NUMBER 1-4 Numbers	STATION NAME	DA		TIN	1E	DATE		TIME	WATER REC'D
	W1975	4-165	MW-4 – 165 ft			σδ	_	1/1/05	\neg		0
(W7976	4-180	MW-4 180 ft								0
(N7977	4-195	MW-4 – 195 ft								0
(W7978	4-210	MW-4 – 210 ft								0
	W1979	4-225	MW-4 – 225 ft								0
(W7981	4-240	MW-4 – 240 ft								0
_ (W7982	4-255	MW-4 – 255 ft								0
	W7983	4-270	MW-4 – 270 ft								0
l	W7984	4-285	MW-4 – 285 ft	<u> </u>	_						<u></u>
0		4-WA	MW-5 - Water Sample						0	315	J
									\perp		
					_						
COMM	ENTS:		Charcoal Blank N7980								
This st	at Clied and	h. OIII -4	offe Ver							727	
Ans she	er imea out	13/05	aff? Yes No Charts for samples on this page proofed to	Dy OU	L: _	,					
Misser	gryd 1	110,000	Page 4 of 4			f;\sh	arcd\	forms/cod	2.do	, Rev. 4	/12/04

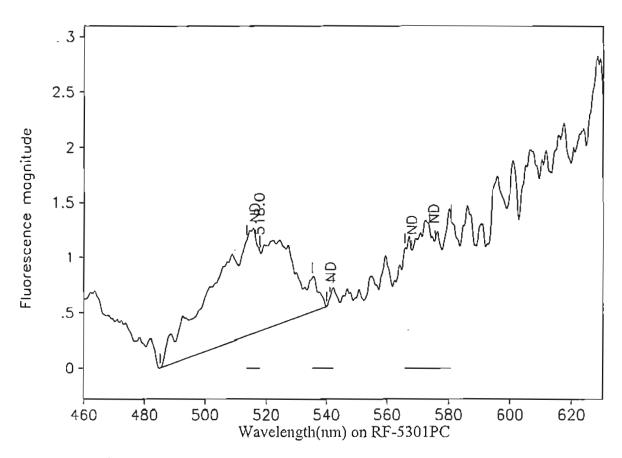
OZARK UNDERGROUND LABORATORY, INC.

1572 Aley Lane Protem, MO 65733 (417) 785-4289 fax (417) 785-4290 email: oul@tri-lakes.net SAMPLE COLLECTION DATA SHEET for FLUORESCENCE ANALYSIS

Project:	<u>Lake Or</u>	ienta (CH2N	Mill) Week No: 4 Samples Collected 1	Ву:	Mi)	Ke Bu	148		
Samples	Shipped By	y: <u>M.K</u>	e Bons Samples Received By: Marty ()	MAC	D-	-004			
Date Sa	mples Shipp	ed: <u>/ / / / 2</u>	Date Samples Received: 1 11105 Time Samples Received: 12	-: Ÿ.	5	Return	Cooler?	Yes 🗸	No
Bill to:			Send Results to: CH2M Hill Eosine X_ Rhodamine WT X_ Other Ship cooler to:						
Analyzo	for: Fluore	escein X	Eosine X Rhodamine WT X Other Ship cooler to:	16.15	c 3	4550	<u> </u>		
	OUL		Please indicate stations where dye was visible in the	e fiela	 I				OUL
ц	se only		for field technician use - use black ink only						use only
# CILAR REC'D	LAB NUMBER	STATION NUMBER	STATION NAME		PLA	CED	COL	LECTED	WATER
	Wester	1-4 Numbers		D/	TE	TIME	DATE	TIME	,, -
(2-135	MW-2 135 ft	12/1	664	1140	1/7/07	100	0
		2-150	MW-2 - 150 ft						0
		2-165	MW-2 – 165 ft						0
1		2-180	MW-2 – 180 ft						0
ĺ		2-195	MW-2 – 195 ft			1			0
		2-210	MW-2 - 210 ft				\top / \top		0
(3-225	MW-2 – 225 ft				1		0
)		2-240	MW-2 - 240 ft						0
		2-255	MW-2 – 255 ft				T}		0
ĺ		2-270	MW-2 – 270 ft	}					0
		2-285	MW-2 – 285 ft						0
1		2-300	MW-2 – 300 ft		/				0
0	W7990	2-WA	MW-2 – Water Sample					100	5 1
COMM	ENTS:								
This cha	eet filled out	hy OIII et	aff? YesNoCharts for samples on this page proofed	L by Ω!		m	mell		
4 1113 3110	.c. micu out		charts for samples on this page proofed	by O	0.0.				.8
		un	alog & 1/13/05 by UR Page 2 of 4			Elshare	d/lonns/co	cz.doc, Re	ev. <i>9</i> /12/04

OZARK UNDERGROUNL ABORATORY, INC.

DISCREPANCIES BETWEEN CHAIN-OF-CUSTODY SHEETS AND ACTUAL SAMPLES RECEIVED Page of											
Company	y & Projec	ct Name: CH2MH:11- Rake	Orien	ta Date Rec'd by OUL:	1-11-05 Wk#						
Lab#	Sta#	Station Name	Date Pulled	Problem	Solution						
N7957	2-225	mw-2 -225 ft	1/1/05	Stn # on (00 12	Used 7-225						
, ,			.,	au 3-225,	mma						
	}										
·											
	}										
				<i>:</i>							
				·							
		· ·									
Commen	its:				·						



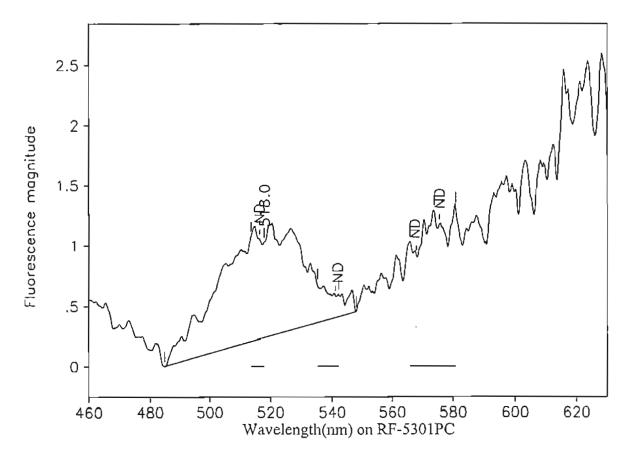
Station 1-215: MW-1 - 215 ft

OUL number: N7943 Analyzed: 01/13/05

Matrix: Elutant

Placed: 12/16/04 1040 Collected: 01/07/05 0915

Peaks with	hin the norr	nal range of	tracer dyes:			
Peak nin	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND
Peaks clos	se to the no	rmal range of	f tracer dyes	3:		
518.0	485.2	540.0	0.71	27.77	0.03	0703 NO



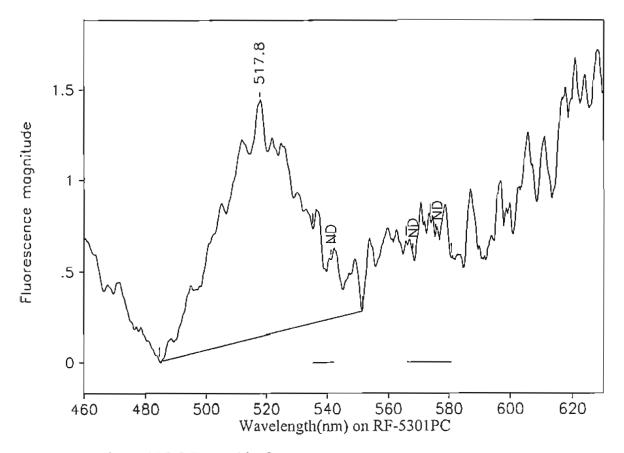
Station 1-225: MW-1 - 225 ft

OUL number: N7944 Analyzed: 01/13/05

Matrix: Elutant

Placed: 12/16/04 1040 Collected: 01/07/05 0915

Peaks with	nin the nor	mal range of	tracer dyes:			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND
Peaks clos	se to the no	rmal range of	f tracer dye	s:		
518.0	484.8	548.0	0.79	30.81	0.03	D.779 ND

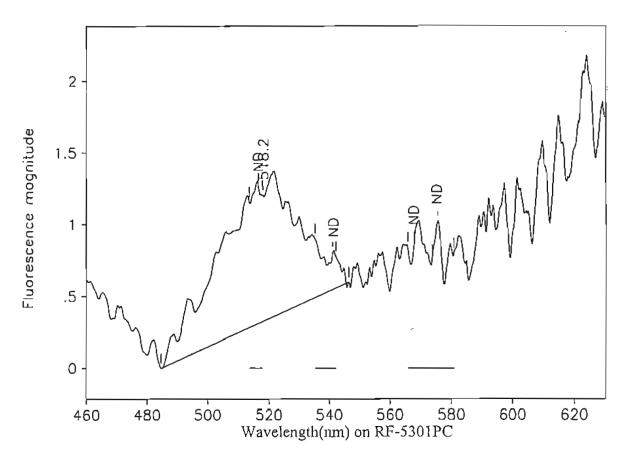


Station 1-235: MW-1 - 235 ft

Analyzed: 01/13/05 OUL number: N7945

Matrix: Elutant Placed: 12/16/04 1040 Collected: 01/07/05 0915

Peaks with	nin the norr	nal range of	tracer dyes:				
Peak nm	Left X	Right X	Height	Area	H/A	Conc.	
517.8	484.6	551.4	1.29	39.53	0.03	1.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND	
568.0	565.8	573.8	0.00	0.00	0.00	ND	
575.6	573.8	580.8	0.00	0.00	0.00	ND	
Peaks close to the normal range of tracer dyes:							

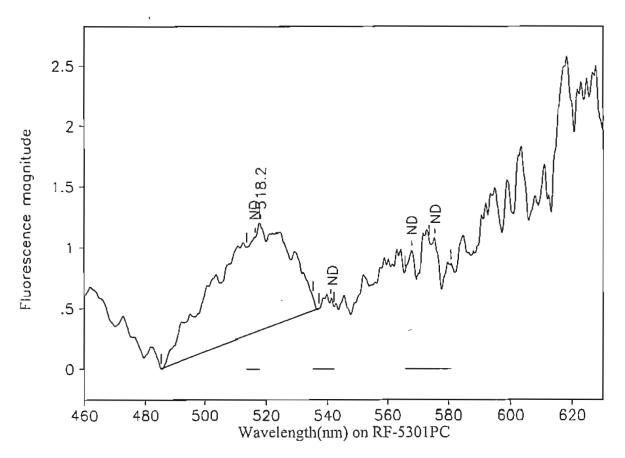


Station 1-245: MW-1 - 245 ft OUL number: N7946 Analyzed: 01/13/05

Matrix: Elutant

Collected: 01/07/05 0915 Placed: 12/16/04 1040

Peaks with	hin the norr	mal range of	tracer dyes:			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND
Peaks clos	se to the no	rmal range of	f tracer dyes	s:		
518.2	484.6	546.4	0.87	31.47	0.03	2.796 ND

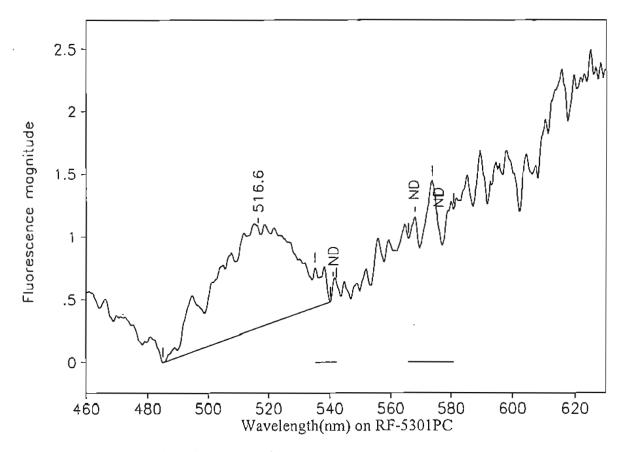


Station 1-255: MW-1 - 255 ft OUL number: N7947 Analyzed: 01/13/05

Matrix: Elutant

Collected: 01/07/05 0915 Placed: 12/16/04 1040

Peaks within the normal range of tracer dyes:								
Peak nm	Left X	Right X	Height	Area	H/A	Conc.		
516 <i>.</i> 5	513.6	517.9	0.00	0.00	0.00	ND		
541.1	535.2	542.2	0.00	0.00	0.00	ND		
568.0	565.8	573.8	0.00	0.00	0.00	ND		
575.6	573.8	580.8	0.00	0.00	0.00	ND		
Peaks close to the normal range of tracer dyes:								
518.2	485.2	537.2	0.88	25.44	0.03	D644 ND		



Station 1-265: MW-1 - 265 ft

565.8

573.8

OUL number: N7948

Matrix: Elutant

568.0

575.6

Collected: 01/07/05 0915 Placed: 12/16/04 1040

0.00

0.00

0.00

Analyzed: 01/13/05

0.00

0.00

Conc.

ND

ND

ND

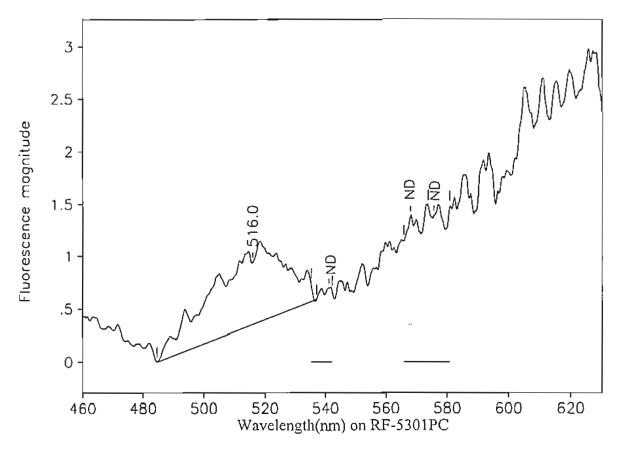
0.652 NP

Peaks within the normal range of tracer dyes: Right X Area H/A Peak nm Left X Height 25.76 516.6 485.0 540.2 0.800.03 0.00 541.1 535.2 542.2 0.00 0.00 0.00

Peaks close to the normal range of tracer dyes:

573.8

580.8



Station 1-275: MW-1 -275 ft

OUL number: N7949

Matrix: Elutant

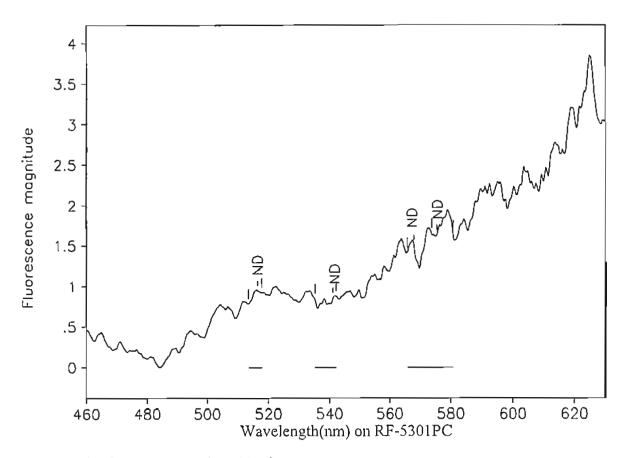
Placed: 12/16/04 1040

Analyzed: 01/13/05

Collected: 01/07/05 0915

Peaks within the normal range of tracer dyes:

Left X	Right X	Height	Area	H/A	Conc.
484.6	537.0	0.59	21.56	0.03	D.545 ND
535.2	542.2	0.00	0.00	0.00	ND
565.8	573.8	0.00	0.00	0.00	ND
573.8	580.8	0.00	0.00	0.00	ND
	484.6 535.2 565.8	484.6 537.0 535.2 542.2 565.8 573.8	484.6 537.0 0.59 535.2 542.2 0.00 565.8 573.8 0.00	484.6 537.0 0.59 21.56 535.2 542.2 0.00 0.00 565.8 573.8 0.00 0.00	484.6 537.0 0.59 21.56 0.03 535.2 542.2 0.00 0.00 0.00 565.8 573.8 0.00 0.00 0.00



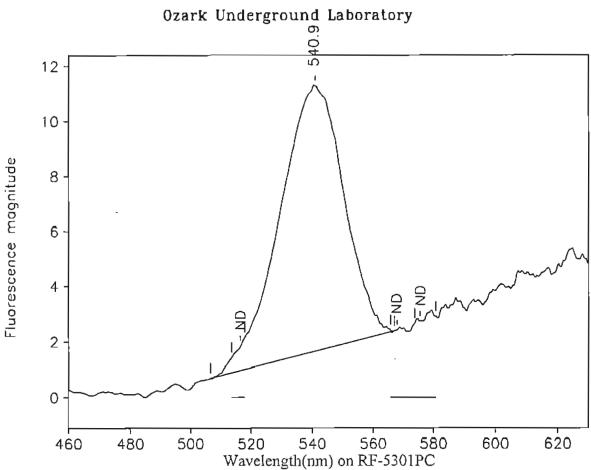
Station 1-285: MW-1 - 285 ft

OUL number: N7950 Analyzed: 01/13/05

Matrix: Elutant

Placed: 12/16/04 1040 Collected: 01/07/05 0915

Peaks with	in the norn	nal range of t	tracer dyes:			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND
Peaks clos	e to the nor	rmal range of	f tracer dyes	s:		



Station 2-135: MW-2 - 135 ft

OUL number: N7951

Matrix: Elutant

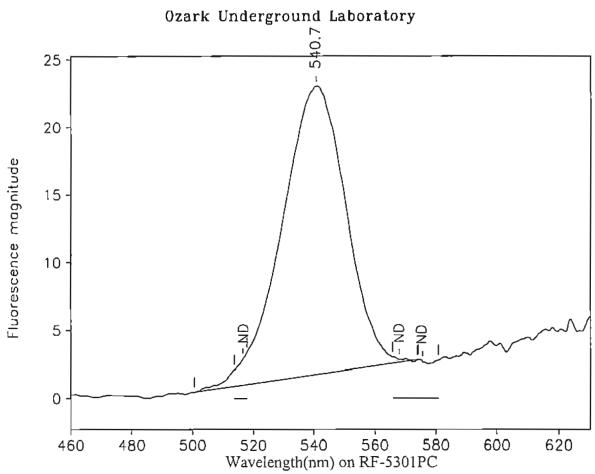
Placed: 12/16/04 1140

Diluted: 1 to 100 Analyzed: 01/13/05

Collected: 01/07/05 0950

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
540.9	506.6	567.0	9.63	234.12	0.04	856
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 2-150: MW-2 - 150 ft

OUL number: N7952

Matrix: Elutant

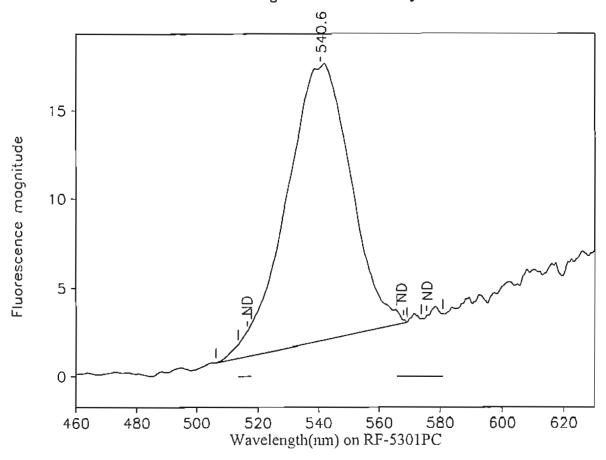
Placed: 12/16/04 1140

Diluted: 1 to 100 Analyzed: 01/13/05

Collected: 01/07/05 0950

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
540.7	500.6	574.2	21.28	521.32	0.04	1,910
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 2-165: MW-2 - 165 ft

OUL number: N7953

Matrix: Elutant

Placed: 12/16/04 1140

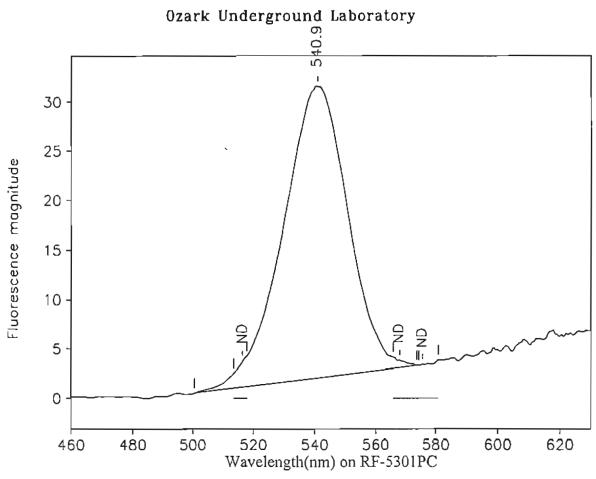
Diluted: 1 to 100 Analyzed: 01/13/05

Collected: 01/07/05 0950

Peaks within the normal range of tracer dyes:

	,					
Peak nin	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
540.6	506.4	569.2	15.45	387.65	0.04	1,420
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND





Station 2-180: MW-2 - 180 ft

OUL number: N7954

Matrix: Elutant

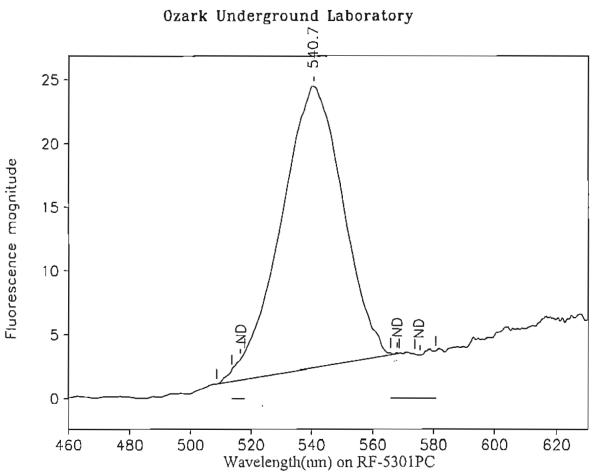
Placed: 12/16/04 1140

Diluted: 1 to 100 Analyzed: 01/13/05

Collected: 01/07/05 0950

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
540.9	500.6	574.4	29.49	727.49	0.04	2,660
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 2-195: MW-2 - 195 ft

OUL number: N7955

Matrix: Elutant

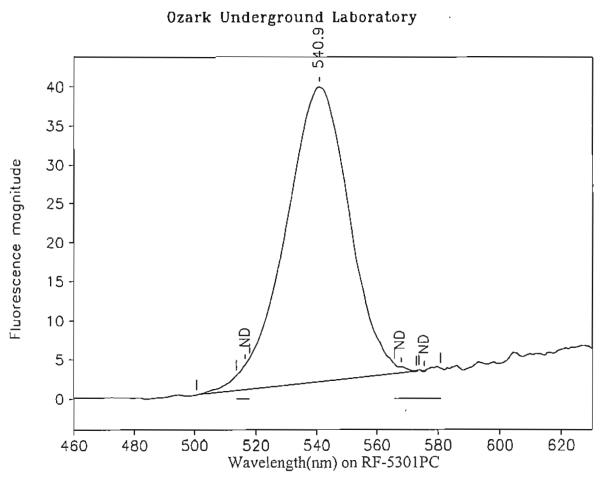
Placed: 12/16/04 1140

Diluted: 1 to 100 Analyzed: 01/13/05

Collected: 01/07/05 0950

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
540.7	508.6	568.6	22.07	524.05	0.04	1,920
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 2-210: MW-2 - 210 ft

OUL number: N7956

Matrix: Elutant

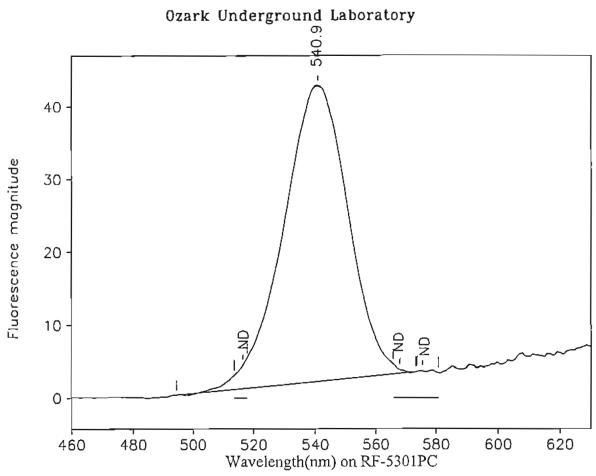
Placed: 12/16/04 1140

Diluted: 1 to 100 Analyzed: 01/13/05

Collected: 01/07/05 0950

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
540.9	500.6	573.0	37.75	926.54	0.04	3,390
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 2-225: MW-2 - 225 ft

OUL number: N7957

Matrix: Elutant

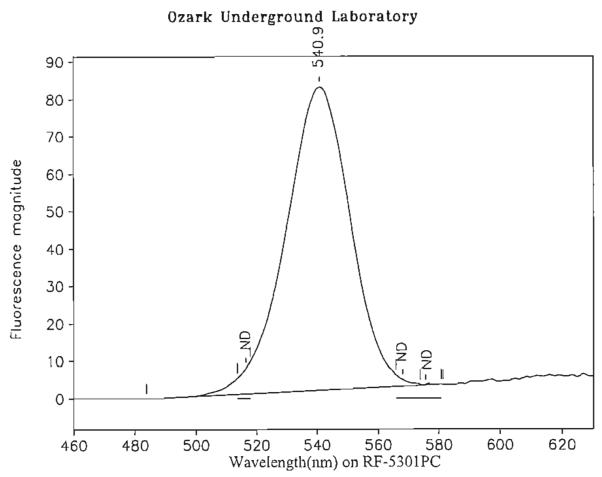
Placed: 12/16/04 1140

Diluted: 1 to 100 Analyzed: 01/13/05

Collected: 01/07/05 0950

Peaks within the normal range of tracer dyes:

I Caixs Will	mii tiio iioii	nai range or	uucci ayee.			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
540.9	494.4	573.4	40.53	996.24	0.04	3,640
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 2-240: MW-2 - 240 ft

OUL number: N7958

Matrix: Elutant

Placed: 12/16/04 1140

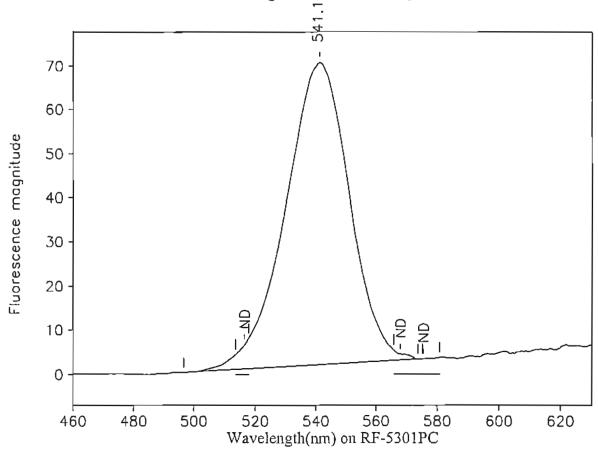
Diluted: 1 to 100 Analyzed: 01/13/05

Collected: 01/07/05 0950

Peaks within the normal range of tracer dyes:

T CHICS WILL	1111 1110 11011	maj rango or	macer dyes.			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
540.9	483.7	581.3	81.09	2,006.00	0.04	7,330
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND





Station 2-255: MW-2 - 255 ft

OUL number: N7959

Matrix: Elutant

Placed: 12/16/04 1140

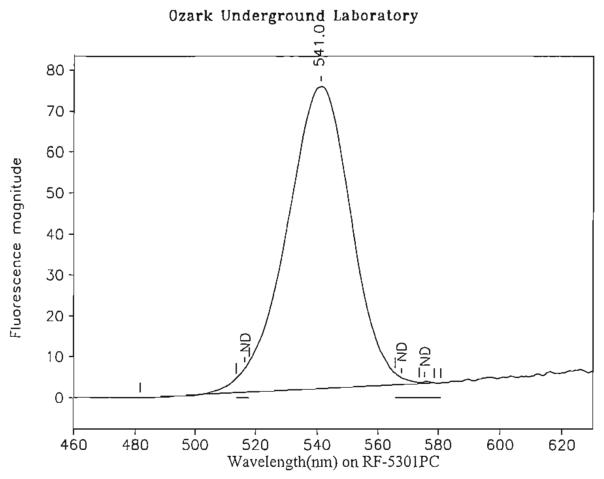
Diluted: 1 to 100 Analyzed: 01/13/05

Collected: 01/07/05 0950

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	496.6	575.2	68.56	1,683.12	0.04	6,150
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND





Station 2-270: MW-2 - 270 ft

OUL number: N7961

Matrix: Elutant

Placed: 12/16/04 1140

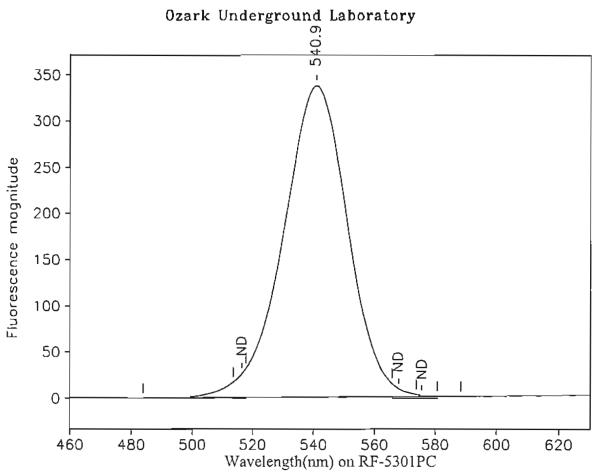
Diluted: 1 to 100 Analyzed: 01/13/05

Collected: 01/07/05 0950

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.0	481.5	578.6	73.80	1,813.00	0.04	6,630
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND





Station 2-285: MW-2 - 285 ft

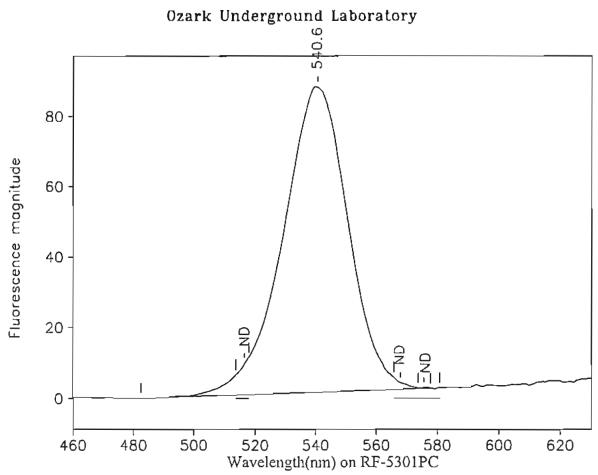
Analyzed: 01/13/05 OUL number: N7962

Matrix: Elutant

Placed: 12/16/04 1140 Collected: 01/07/05 0950

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
540.9	483.9	588.4	337.57	8,311.44	0.04	304
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 2-300: MW-2 - 300 ft

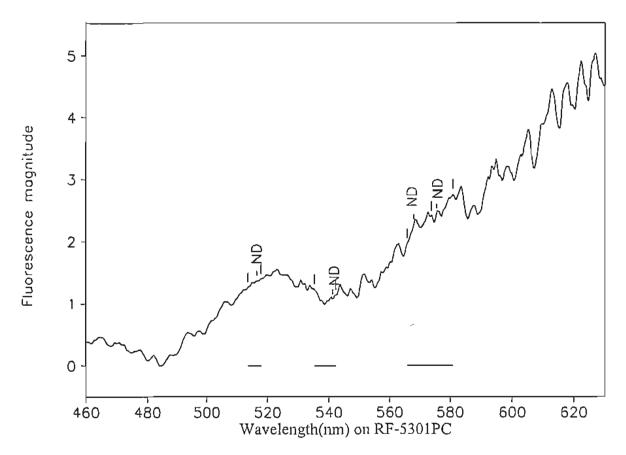
Analyzed: 01/13/05 OUL number: N7963

Matrix: Elutant

Collected: 01/07/05 0950 Placed: 12/16/04 1140

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
540.6	482.5	577.8	86.63	2,169.04	0.04	79.3
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 3-175: MW-3 - 175 ft

OUL number: N7964

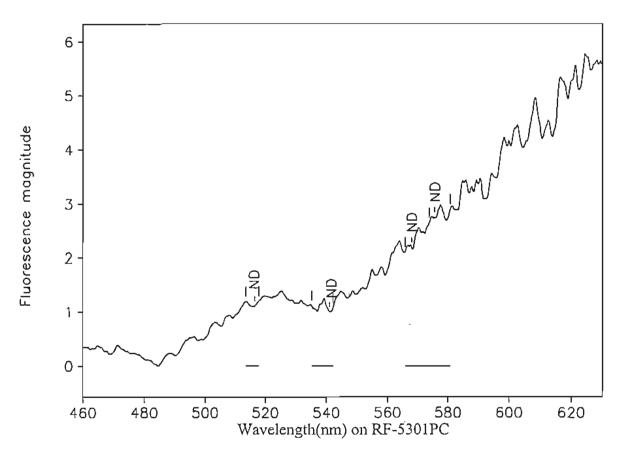
Matrix: Elutant

Placed: 12/16/04 0910 Collected: 01/07/05 0840

Analyzed: 01/13/05

Peaks within the normal range of tracer dyes:
Peak nm Left X Right X Height

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 3-185: MW-3 - 185 ft

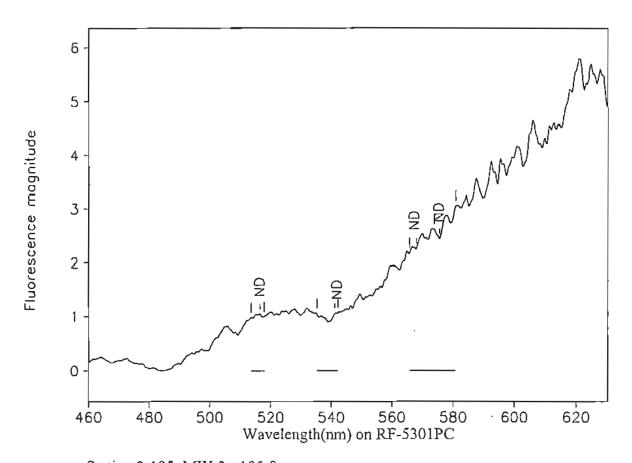
OUL number: N7965 Analyzed: 01/13/05

Matrix: Elutant

Placed: 12/16/04 0910 Collected: 01/07/05 0840

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND
	_					



Station 3-195: MW-3 - 195 ft

OUL number: N7966

Matrix: Elutant

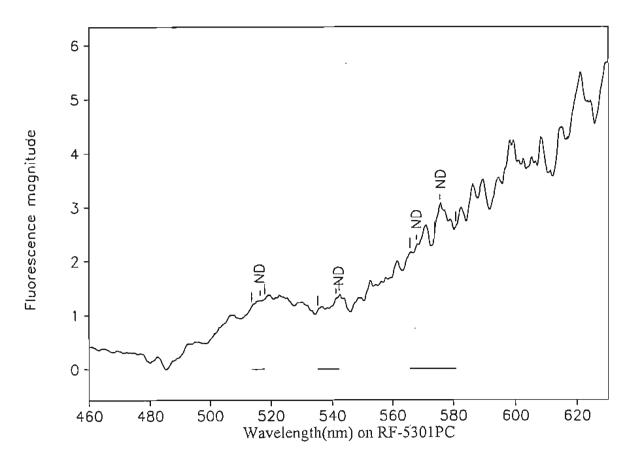
Placed: 12/16/04 0910

Analyzed: 01/13/05

Collected: 01/07/05 0840

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 3-205: MW-3 - 205 ft

OUL number: N7967

Matrix: Elutant

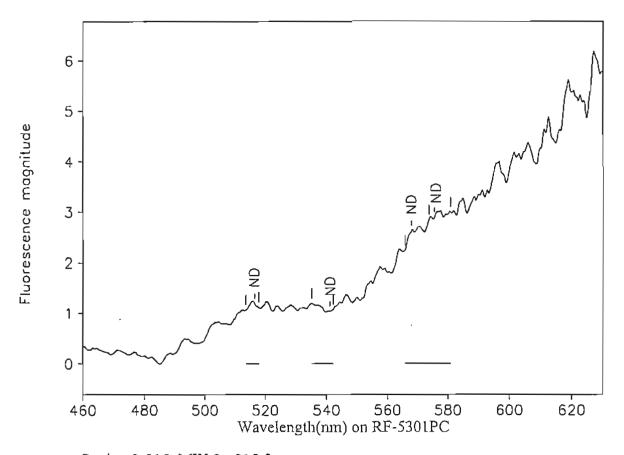
Placed: 12/16/04 0910

Analyzed: 01/13/05

Collected: 01/07/05 0840

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 3-215: MW-3 - 215 ft

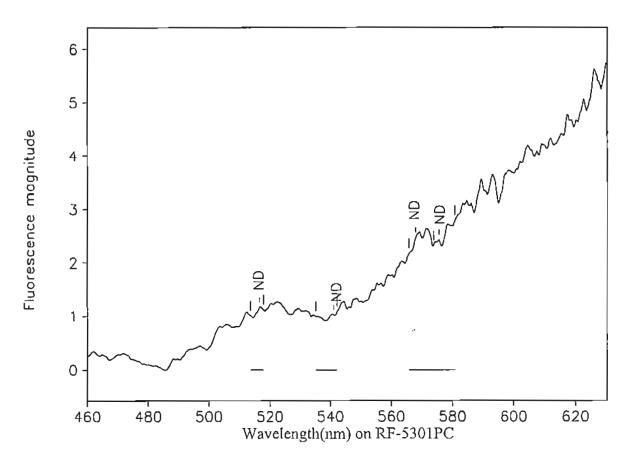
OUL number: N7968 Analyzed: 01/13/05

Matrix: Elutant

Placed: 12/16/04 0910 Collected: 01/07/05 0840

Peaks within the normal	range of tracer d	lyes:
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Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 3-225: MW-3 - 225 ft

OUL number: N7969

Matrix: Elutant

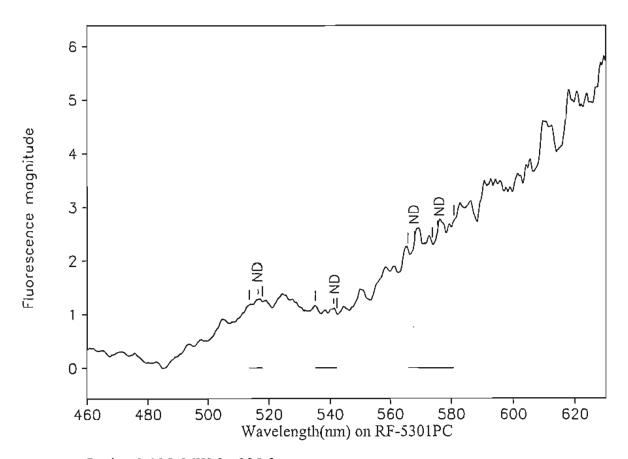
Placed: 12/16/04 0910

Analyzed: 01/13/05

Collected: 01/07/05 0840

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 3-235: MW-3 - 235 ft

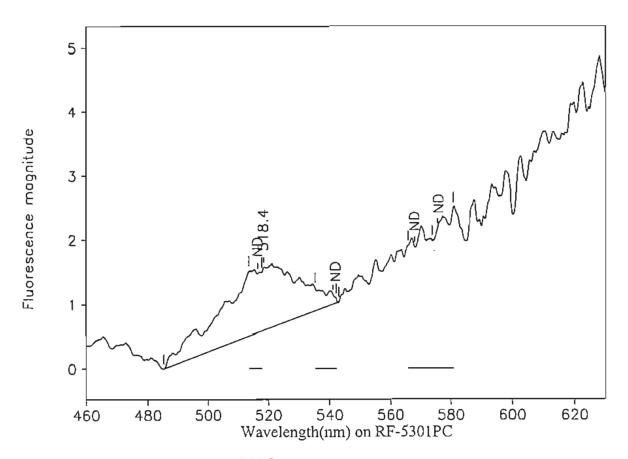
Analyzed: 01/13/05 OUL number: N7970

Matrix: Elutant

Collected: 01/07/05 0840 Placed: 12/16/04 0910

Peaks with	in the nor	mal range of	tracer dyes:
Peak nm	Left X	Right X	Height

1 000100	1 care within the normal range of about by to.									
Peak nm	Left X	Right X	Height	Area	H/A	Conc.				
516.5	513.6	517.9	0.00	0.00	0.00	ND				
541.1	535.2	542.2	0.00	0.00	0.00	ND				
568.0	565.8	573.8	0.00	0.00	0.00	ND				
575.6	573.8	580.8	0.00	0.00	0.00	ND				



Station 3-245: MW-3 - 245 ft

OUL number: N7971

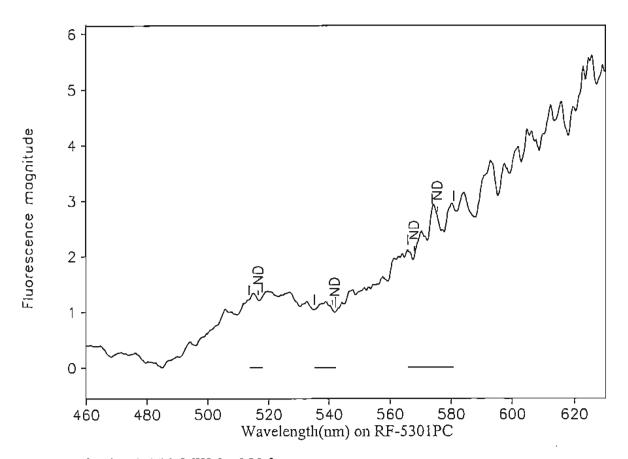
Matrix: Elutant

Placed: 12/16/04 0910

Analyzed: 01/13/05

Collected: 01/07/05 0840

Peaks with	hin the non	mal range of	tracer dyes:				
Peak nm	Left X	Right X	Height	Area	H/A	Conc.	
516.5	513.6	517.9	0.00	0.00	0.00	ND	
541.1	535.2	542.2	0.00	0.00	0.00	ND	
568.0	565.8	573.8	0.00	0.00	0.00	ND	
575.6	573.8	580.8	0.00	0.00	0.00	ND	
Peaks close to the normal range of tracer dyes:							
518.4	485.2	543.0	0.97	30.73	0.03	D-777 ND	



Station 3-255: MW-3 - 255 ft

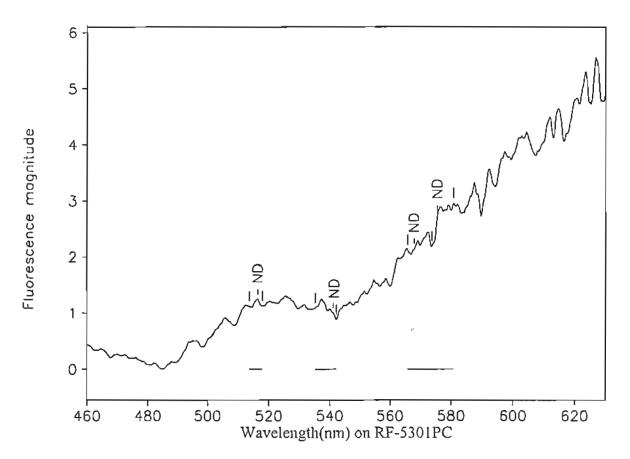
Analyzed: 01/13/05 OUL number: N7972

Matrix: Elutant

Collected: 01/07/05 0840 Placed: 12/16/04 0910

Peaks with	in the non	mal range of t	tracer dyes:
Peak nın	Left X	Right X	Height
5165	C12 (6170	0.00

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 3-265: MW-3 - 265 ft

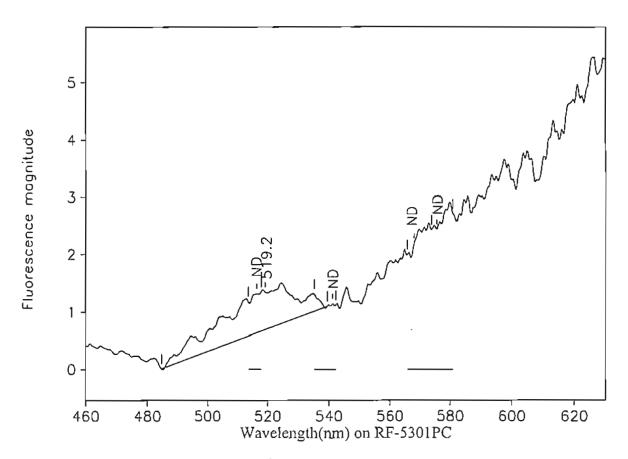
OUL number: N7973 Analyzed: 01/13/05

Matrix: Elutant

Placed: 12/16/04 0910 Collected: 01/07/05 0840

Peaks within the normal range of tracer dyes:

Peak nin	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND
	_					



Station 3-275: MW-3 - 275 ft

OUL number: N7974

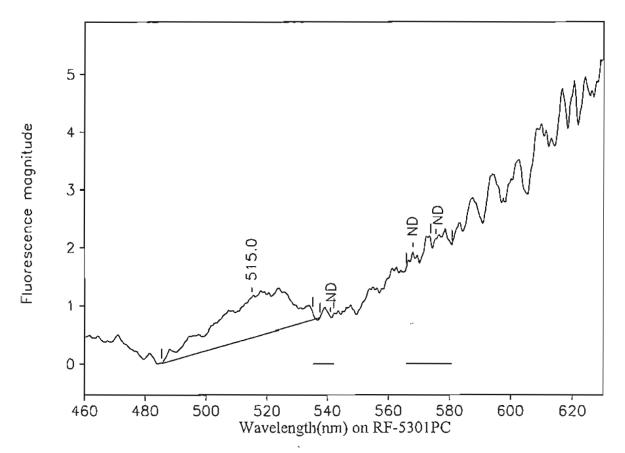
Matrix: Elutant

Placed: 12/16/04 0910

Analyzed: 01/13/05

Collected: 01/07/05 0840

Peaks with	nin the non	nal range of	tracer dyes:			
Peak nin	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND
Peaks clos	e to the no	rmal range of	f tracer dyes	S:		
519.2	484.6	539.4	0.65	21.09	0.03	0.534



Station 4-165: MW-4 - 165 ft

OUL number: N7975

Matrix: Elutant

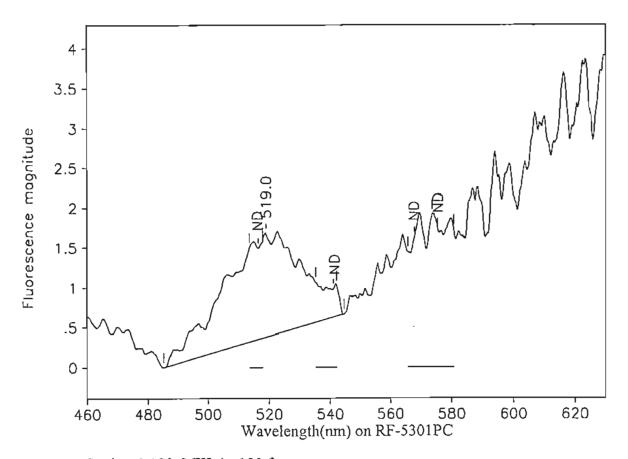
Placed: 12/16/04 0815

Analyzed: 01/13/05

Collected: 01/07/05 0805

Peaks within the normal range of tracer dyes:

			,				
Peak nm	Left X	Right X	Height	Area	H/A	Conc.	
515.0	485.4	537.6	0.69	21.39	0.03	D-541	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND	
568.0	565.8	573.8	0.00	0.00	0.00	ND	
575.6	573.8	580.8	0.00	0.00	0.00	ND	



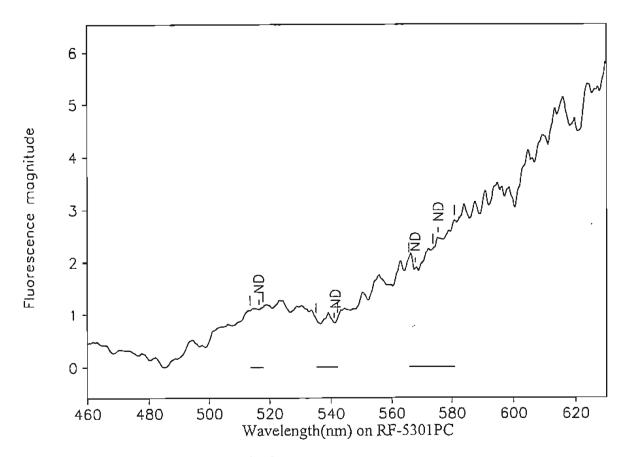
Station 4-180: MW-4 - 180 ft

OUL number: N7976 Analyzed: 01/13/05

Matrix: Elutant

Placed: 12/16/04 0815 Collected: 01/07/05 0805

Peaks witl	nin the non	mal range of	tracer dyes:					
Peak nm	Left X	Right X	Height	Area	H/A	Conc.		
516.5	513.6	517.9	0.00	0.00	0.00	ND		
541.1	535.2	542.2	0.00	0.00	0.00	ND		
568.0	565.8	573.8	0.00	0.00	0.00	ND		
575.6	573.8	580.8	0.00	0.00	0.00	ND		
Peaks close to the normal range of tracer dyes:								
519.0	485.2	544.6	1.30	39.70	0.03	100 ND		



Station 4-195: MW-4 - 195 ft

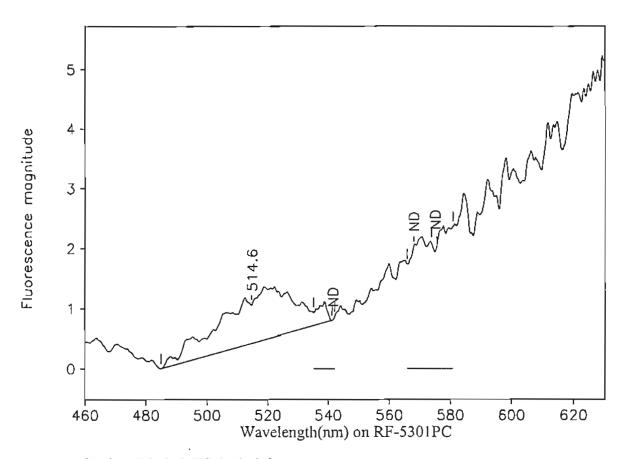
OUL number: N7977 Analyzed: 01/13/05

Matrix: Elutant

Placed: 12/16/04 0815 Collected: 01/07/05 0805

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 4-210: MW-4 - 210 ft

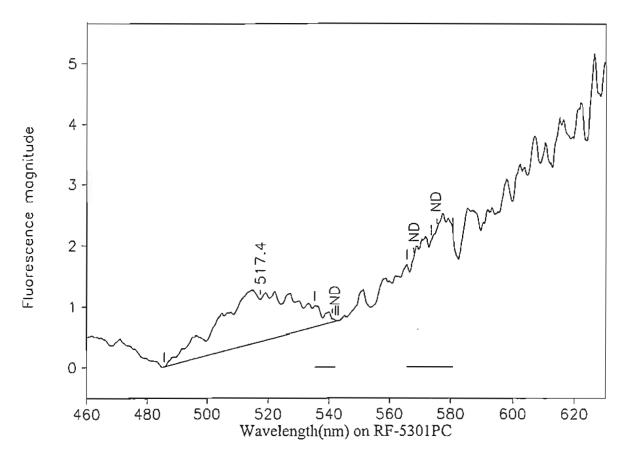
OUL number: N7978 Analyzed: 01/13/05

Matrix: Elutant

Placed: 12/16/04 0815 Collected: 01/07/05 0805

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
514.6	485.0	541.4	0.64	25.60	0.03	0.648 ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND
Peaks clos	se to the no	rinal range of	f tracer dyes	s:		



Station 4-225: MW-4 - 225 ft

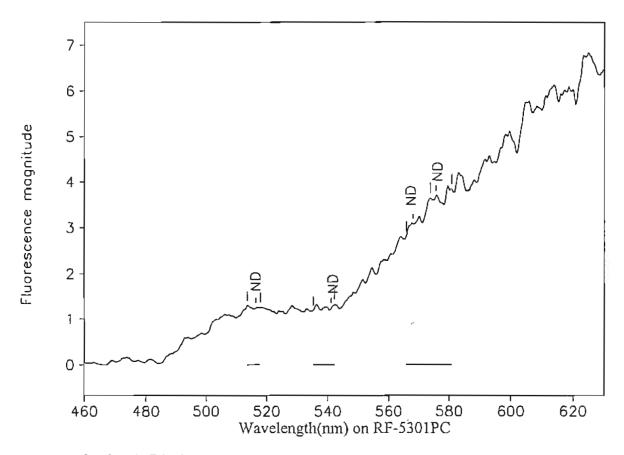
Analyzed: 01/13/05 OUL number: N7979

Matrix: Elutant

Placed: 12/16/04 0815 Collected: 01/07/05 0805

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
517.4	485.6	543.0	0.69	25.56	0.03	0.647
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND
Peaks clos	e to the no	rmal range of	f tracer dye	s:		



Station 2: Blank OUL number: N7980

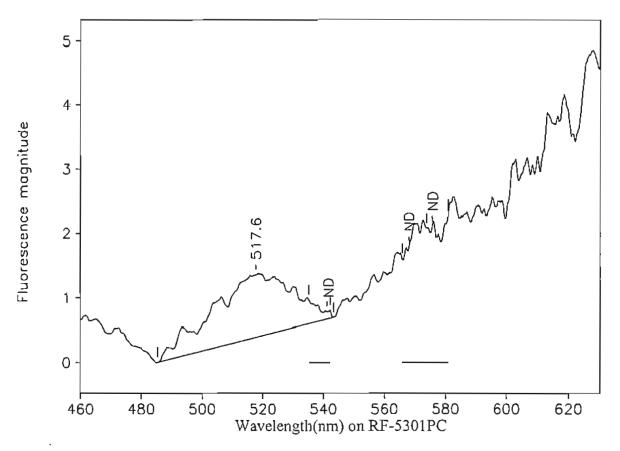
Matrix: Elutant

Placed: 01/13/05 1424

Analyzed: 01/13/05

Collected: 01/13/05 1424

Peaks with	nin the norr	nal range of	tracer dyes:			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 4-240: MW-4 - 240 ft

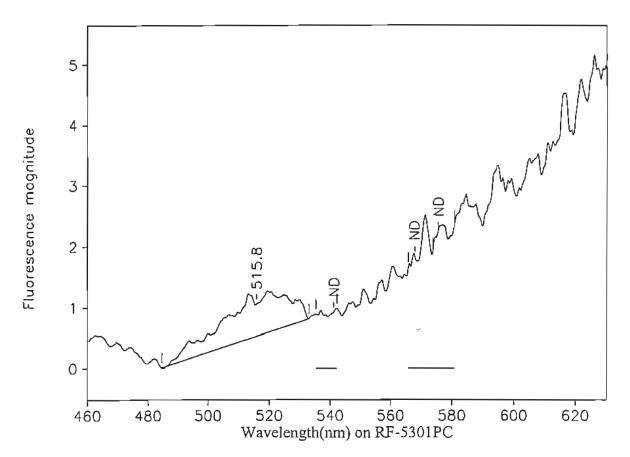
OUL number: N7981 Analyzed: 01/13/05

Matrix: Elutant

Placed: 12/16/04 0815 Collected: 01/07/05 0805

Peaks within the normal range of tracer dyes:

Left X	Right X	Height	Area	H/A	Conc.
485.4	543.4	0.97	30.72	0.03	0.777 ND
535.2	542.2	0.00	0.00	0.00	ND
565.8	573.8	0.00	0.00	0.00	ND
573.8	580.8	0.00	0.00	0.00	ND
	485.4 535.2 565.8	485.4 543.4 535.2 542.2 565.8 573.8	485.4 543.4 0.97 535.2 542.2 0.00 565.8 573.8 0.00	485.4 543.4 0.97 30.72 535.2 542.2 0.00 0.00 565.8 573.8 0.00 0.00	485.4 543.4 0.97 30.72 0.03 535.2 542.2 0.00 0.00 0.00 565.8 573.8 0.00 0.00 0.00



Station 4-255: MW-4 - 255 ft

OUL number: N7982

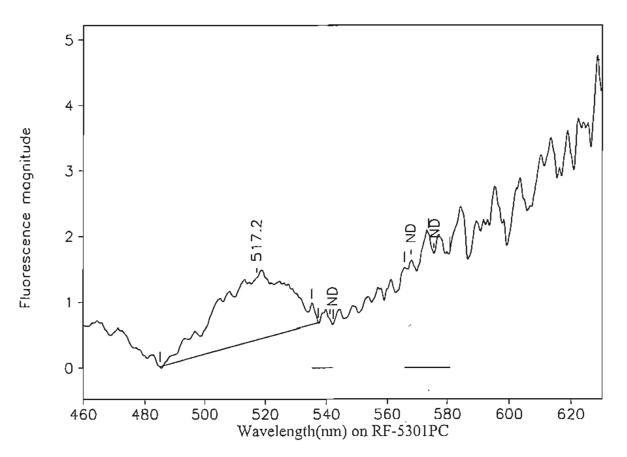
Matrix: Elutant

Placed: 12/16/04 0815 Collected: 01/07/05 0805

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.	. ^
515.8	484.6	533.0	0.53	17.87	0.03	D.452 N	10
541.1	535.2	542.2	0.00	0.00	0.00	ND	
568.0	565.8	573.8	0.00	0.00	0.00	ND	
575.6	573.8	580.8	0.00	0.00	0.00	ND	
Peaks clos	e to the no	rmal range of	f tracer dyes	s:			

Analyzed: 01/13/05



Station 4-270: MW-4 - 270 ft

OUL number: N7983

Matrix: Elutant

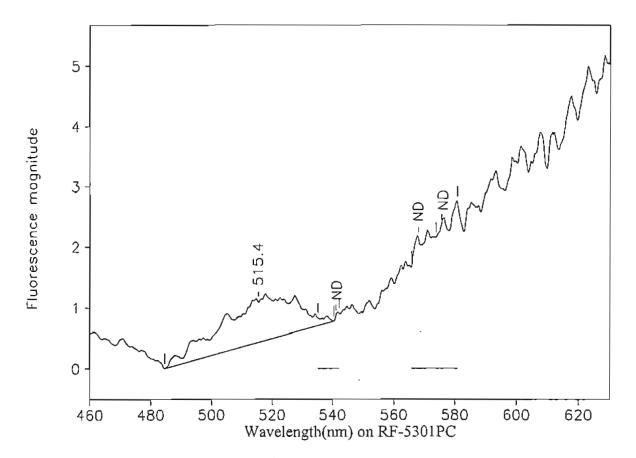
Placed: 12/16/04 0815

Analyzed: 01/13/05

Collected: 01/07/05 0805

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
517.2	485.0	537.4	0.95	29.20	0.03	2739 ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND
Peaks clos	se to the noi	rmal range of	f tracer dyes	S:		



Station 4-285: MW-4 - 285 ft

OUL number: N7984

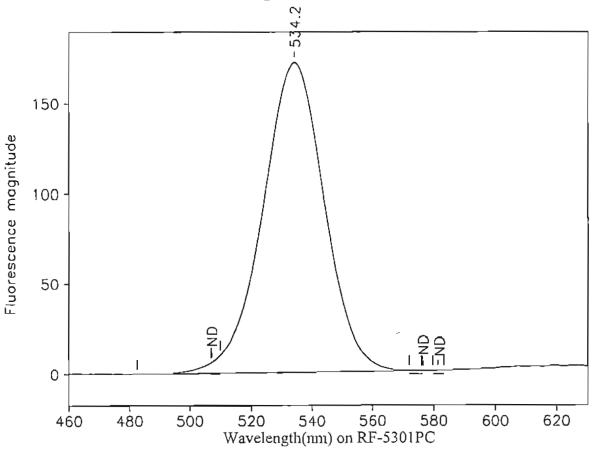
Matrix: Elutant

Placed: 12/16/04 0815

Analyzed: 01/13/05

Collected: 01/07/05 0805

Peaks with	nin the nor	nal range of	tracer dyes:			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
515.4	484.6	540.4	0.67	21.86	0.03	0.553
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 2-WA: MW-2 - Water

OUL number: N7990

Matrix: Water Collected: 01/07/05 1005

Analyzed: 01/13/05

Peaks v	within t	the normal	range of	ftracer d	Ves
FCARS	~~!!!!!!	1116 11111111111	CALIBE OF	וומנגנו נו	VES.

I OHILL WILL	1111 0110 11011	1100 1000	naver aj es.			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
507.3	506.9	509.9	0.00^{-}	0.00	0.00	ND
534.2	482.6	575.9	172.15	4,074.53	0.04	30.0
576.6	572.0	576.3	0.00	0.00	0.00	ND
581.2	579.7	583.2	0.00	0.00	0.00	ND



January 25, 2005

CERTIFICATE OF ANALYSIS

Alan W. Aikens, P.G. CH2MHill 225 East Robinson Street, Suite 505 Orlando, Florida 32801

RE: Lake Orienta

Dye analysis results for charcoal and water samples shipped January 20, 2005. Ozark Underground Laboratory (OUL) numbers N8127 through N8168 and N8264.

Dear Mr. Aikens:

We have completed analysis of the charcoal and water samples received by the OUL on January 21, 2005. We have indicated the OUL number for each of these samples on the enclosed table.

The fluorescein, cosine and rhodamine WT (RWT) dye concentrations are based upon standards routinely used at the OUL. The fluorescein and cosine are mixtures of 75% dye and 25% diluent; the RWT is a 20% solution. The concentrations are based upon the as-sold weight of the dye.

A summary of the results is presented in Table 1. Additional sampling information is available on the enclosed analysis graphs.

Sincerely,

Thomas J. Aley, PHG, RG

Enclosures: 1. Table 1. Analysis results for charcoal and water samples

2. Sample Collection Data Sheets

3. Discrepancy sheets

4. Sample analysis graphs

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Ozark Underground Laboratory for CH2MHill

Project: Samples Collected By: Lake Orienta

Date Samples Shipped:

Mike Burns January 20, 2005

Date Samples Rec'd at OUL:

January 21, 2005

Date Analyzed by OUL:

January 24 and 25, 2005

Table 1. Results for charcoal and water samples analyzed for the presence of fluorescein, eosine and rhodamine WT (RWT) dyes. Peak wavelengths
are reported in papemeters (nm): due concentrations are reported in parts per billion (ppb). All results are for charcoal unless otherwise indicated.

OUL Lab#	Station #	Station Name	Date/Time Placed	Date/Time Collected	Fluor	escein	Ec	osine	RV	WT
			2005	2005	Peak	Conc.	Peak	Conc.	Peak	Conc.
N8127	1-215	MW-1 - 215 ft	1/7 0930	1/20 0900	ND		ND		ND	
N8128	1-225	MW-1 - 225 ft	1/7 0930	1/20.0900	ND		ND		ND	
N8129	1-235	MW-1 - 235 ft	1/7 0930	1/20 0900	ND		ND		ND	
N8130	1-245	MW-1 - 245 ft	1/7 0930	1/20 0900	ND		ND		ND	
N8131	1-255	MW-1 - 255 ft	1/7 0930	1/20 0900	ND		ND		ND	
N8132	1-265	MW-1 - 265 ft	1/7 0930	1/20 0900	ND		ND		ND	
N8133	1-275	MW-1 -275 ft	1/7 0930	1/20 0900	ND		ND		ND	
N8134	1-285	MW-1 - 285 ft	1/7 0930	1/20 0900	ND		ND		ND	
N8135	2-135	MW-2 - 135 ft	1/7 1005	1/20 0925	ND		539.6	325	ND	
N8136	2-150	MW-2 - 150 ft	1/7 1005	1/20 0925	ND		539.7	430	ND	
N8137	2-165	MW-2 - 165 ft	1/7 1005	1/20 0925	ND		539.7	369	ND	
N8138	2-180	MW-2 - 180 ft	1/7 1005	1/20 0925	ND		539.6	702	ND	
N8139	2-195	MW-2 - 195 ft	1/7 1005	1/20 0925	ND		539.6	546	ND	
N8140	Laborate	ory Control Charcoal Blank								
N8141	2-210	MW-2 - 210 ft	1/7 1005	1/20 0925	ND		540.1	1,090	ND	
N8142	2-225	MW-2 - 225 ft	1/7 1005	1/20 0925	ND		539.9	1,670	ND	
N8143	2-240	MW-2 - 240 ft	1/7 1005	1/20 0925	ND		540.1	1,270	ND	
N8144	2-255	MW-2 - 255 ft	1/7 1005	1/20 0925	ND		540.1	1,510	ND	
N8145	2-270	MW-2 - 270 ft	1/7 1005	1/20 0925	ND		540.0	1,810	ND	
N8146	2-285	MW-2 - 285 ft	1/7 1005	1/20 0925	ND		539.9	205	ND	
(Footnote	es at end of	Table)								(continued

Ozark Underground Laboratory for CH2MHill

Table 1. Results for charcoal and water samples analyzed for the presence of fluorescein, eosine and rhodamine WT (RWT) dyes. Peak wavelengths are reported in nanometers (nm); dye concentrations are reported in parts per billion (ppb). All results are for charcoal unless otherwise indicated.

OUL Lab#	Station #	Station Name	Date/Time Placed	Date/Time Collected	Fluor	rescein	E	osine	ine R'	
			2005	2005	Peak	Conc.	Peak	Conc.	Peak	Conc.
(continue	ed)									
N8147	2-300	MW-2 - 300 ft	1/7 1005	1/20 0925	ND		540.2	69.5	ND	
N8148	3-175	MW-3 - 175 ft	1/7 0900	1/20 0830	ND		ND		ND	
N8149	3-185	MW-3 - 185 ft	1/7 0900	1/20 0830	ND		ND		ND	
N8150	3-195	MW-3 - 195 ft	1/7 0900	1/20 0830	ND		ND		ND	
N8151	3-205	MW-3 - 205 ft	1/7 0900	1/20 0830	ND		ND		ND	
N8152	3-215	MW-3 - 215 ft	1/7 0900	1/20 0830	ND		ND		ND	
N8153	3-225	MW-3 - 225 ft	1/7 0900	1/20 0830	ND		ND		ND	
N8154	3-235	MW-3 - 235 ft	1/7 0900	1/20 0830	ND		ND		ND	
N8155	3-245	MW-3 - 245 ft	1/7 0900	1/20 0830	ND		ND		ND	
N8156	3-255	MW-3 - 255 ft	1/7 0900	1/20 0830	ND		ND		ND	
N8157	3-265	MW-3 - 265 ft	1/7 0900	1/20 0830	ND		ND		ND	
N8158	3-275	MW-3 - 275 ft	1/7 0900	1/20 0830	ND		ND		ND	
N8159	4-165	MW-4 - 165 ft	1/7 0825	1/20 0745	ND		ND		ND	
N8160	Laborate	ory Control Charcoal Blank								
N8161	4-180	MW-4 - 180 ft	1/7 0825	1/20 0745	ND		ND		ND	
N8162	4-195	MW-4 - 195 ft	1/7 0825	1/20 0745	ND		ND		ND	
N8163	4-210	MW-4 - 210 ft	1/7 0825	1/20 0745	ND		ND		ND	
N8164	4-225	MW-4 - 225 ft	1/7 0825	1/20 0745	ND		ND		ND	
N8165	4-240	MW-4 - 240 ft	1/7 0825	1/20 0745	ND		ND		ND	
N8166	4-255	MW-4 - 255 ft	1/7 0825	1/20 0745	ND		ND _		ND	
N8167	4-270	MW-4 - 270 ft	1/7 0825	1/20 0745	ND		ND		ND	
N8168	4-285	MW-4 - 285 ft	1/7 0825	1/20 0745	ND		ND		ND	
N8264	2-WA	MW-2 - Water	Water	1/20 0940	ND		534.0	28.9	ND	

FOOTNOTES:

 \overline{ND} = No dye detected

OZARK UNDERGROUND LABORATORY, INC.

1572 Aley Lane Protem, MO 65733 (417) 785-4289 fax (417) 785-4290 email: oul@tri-lakes.net SAMPLE COLLECTION DATA SHEET for FLUORESCENCE ANALYSIS

Project:	Lake Ori	ienta (CH2N	1hill) Week No: Samples Colle 2 1/2 2000 Samples Received By: A	cted By:	1	rike B	رسي		
									o
			Send Results to: CH2 M H:1						
Analyze	for: Fluore	escein X	Eosine X Rhodamine WT X Other Ship cooler to: _	No.15	<u> ۲</u>	Fasser			
	OUL se only		Please indicate stations where dye was visible if for field technician use - use black ink o		<u>ld</u>				OUI.
# CHAR REC'D	LAR NUMBER Charcoal	STATION NUMBER 1-4 Numbers	STATION NAME		PLA	TOME	COLL	ECTED	WATER
1	NB127		MW-1 – 215 ft			0930	1 .	OTCO	REC'D
_/	N8128	1-225	MW-1 – 225 ft						0
1	N8129	1-235	MW-1 – 235 ft						0
	N8130	1-245	MW-1 – 245 ft		_				0
1	N8131	1-255	MW-1 – 255 ft			}			0
1	N8/32	1-265	MW-1 – 265 ft				 	,	0
	N8133	1-275	MW-1 – 275 ft			}			0
	N8134	1-285	MW-1 – 285 ft		1	1.			0
0		1-WA	MW-1 – Water Sample		_		}	0910	/_
							4		
								<u> </u>	
<u> </u>									
СОММ	ENTS:								
This she	eet filled out	by OUL st	aff? Yes No Charts for samples on this page pr	oofed by (OUL: _	\mathcal{M}	ma	775	
0	malyn	6/1 be	4/05 by Mr Page of OUL 20	74			Vorms\coc2	.doc, Rev. 4	1/12/04

OZARK UNDERGROUND LABORATORY, INC.
1572 Aley Lane Protem, MO 65733 (417) 785-4289 fax (417) 785-4290 email: oul@tri-lakes.nct SAMPLE COLLECTION DATA SHEET for FLUORESCENCE ANALYSIS

	Lake Ori			By:	ηi	he b.	11KS			
Samples	Shipped By	: <u>Mil</u>	Samples Received By: V. Avud	1/2/						
V2*11.4			_/ Date Samples Received:/						N	0
Analyze	for: Fluore	scein X	Send Results to: CH2M N;) Eosine X_ Rhodamine WT X_ Other Ship cooler to:	voder	٠ <u>٠</u>	3 A:	5500,			
						-W				,
1	OUL se only		Please indicate stations where dye was visible in the	e field						OUI. use only
#CHAR LAB		for field technician use - use black ink only STATION NAME		1	PLACED			COLLECTED		
REC'D	NUMBER	NUMBER 1-4 Numbers	02122011112112	DATE TIME			DATE TIME			WATER REC'D
1	N8135	2-135	MW-2 – 135 ft	1/7/0	5	1005	1/20/	25 0	925	0
/	N8136	2-150	MW-2 – 150 ft			1	11		-{	.0
/	N8137	2-165	MW-2 - 165 ft						7	0
7	N8138	2-180	MW-2-180 A * see cleareporar sheet							0
1	N8139	2-195	MW-2 – 195 ft			1				0
1	N8141	2-210	MW-2 – 210 ft		\neg				1	0
\overline{I}	N8142	2-225	MW-2 – 225 ft							0
1	N8143	2-240	MW-2 – 240 ft							0
/	N8144	2-255	MW-2 – 255 ft			·				0
1	N8145	2-270	MW-2 – 270 ft							0
7	N8146	2-285	MW-2 – 285 ft)	0
/	N 8147	2-300	MW-2 – 300 ft	'				C	9/1/0	0
0		2-WA	MW-2 – Water Sample							<i>f</i>
СОММ	ENTS:	V 8140	- checoal blank							
Thie chy	ret filled aut	hy OIII. et	aff? Vos No Charts for samples on this name proofed	by OIII	<u>.</u>	m	~ R/		776	
4 1113 3111	.c. illica dui	D, OODSI	aft? Yes No Charts for samples on this page proofed analyzed 1/24/05 by Mage of OUL 1 of	-4	_	f:\shared	llfonns\c	oc2.do	c, Rev. 4	1/12/04

OZARK UNDERGROUND LABORATORY, INC.
1572 Aley Lane Protem, MO 65733 (417) 785-4289 fax (417) 785-4290 email: oul@tri-lakes.net SAMPLE COLLECTION DATA SHEET for FLUORESCENCE ANALYSIS

nalyze f	or: Fluore	scein X	Send Results to: CH2MH:(/ Eosine X_ Rhodamine WT X_ Other Ship cooler to:	Nilar	. سد	5 Ass	· e C .			
0	PUL : only		Please indicate stations where dye was visible in for field technician use - use black ink on	the field						OUL use only
REC'D	LAB NUMBER	STATION NAME STATION NAME			PLACED			COLLECTED		
,	.100	1-4 Numbers	NOV 3 175 0		TE	TIME	DATE		ME	REC'D
	N8[48	3-175	MW-3 ~ 175 ft	1171	05	0900	1/20/0	<u>:20 </u>	330	
· ·	V8149	3-185	MW-3 – 185 ft							0
	N8150	3-195	MW-3 – 195 ft					+		0
-	N8151	3-205	MW-3 – 205 ft		<u> </u>			,		0
	N 8152	3-215	MW-3 – 215 ft					$\perp \perp \perp$		O
_//	N8153	3-225	MW-3 – 225 ft					$\perp \downarrow$		0
	N8154	3-235	MW-3 − 235 ft					11		0
/	N8155	3-245	MW-3 – 245 ft							0
1	N815L	3-255	MW-3 – 255 ft					\perp		0
1	N,8157	3-265	MW-3 – 265 ft		}					0
1	N8158	3-275	MW-3 – 275 ft					11		0
0		3-WA	MW-3 – Water Sample					08	340	/-
				}						
							1			-
	23100									

OZARK UNDERGROUND LABORATORY, INC.

1572 Aley Lane Protem, MO 65733 (417) 785-4289 fax (417) 785-4290 email: oul@tri-lakes.net SAMPLE COLLECTION DATA SHEET for FLUORESCENCE ANALYSIS

			Eosine X Rhodamine WT X Other Ship cooler to:/L					
	OUL e only		<u>Please indicate stations where dye was visible in th</u> for field technician use - use black ink only	<u>ie field</u>				OUL use only
CHAR REC'D	D NUMBER NUMBER	STATION NAME		CED	COLL	# WATER		
1	10160	1-4 Numbers 4-165	MW-4 – 165 ft	DATE	ПМЕ	DATE	TIME	RECT
	N8159	4-180	MW-4 – 180 ft	117105	0825	1/20/05	0775	0
· 1	N 8161	4-180	MW-4 – 195 ft	+				0
	N8162	4-193	MW-4 – 210 ft		$\vdash \vdash$			0
	N8163	_		+ (-				0
	N8164	4-225	MW-4 – 225 ft					
$\overline{}$	N8165	4-240	MW-4 – 240 ft		 			0
' 	N8166	4-255	MW-4 - 255 ft	+		1	\vdash	0
_	N8167	4-270	MW-4 – 270 ft	- - - - - - - - - -				
	N8168	4-285	MW-4 – 285 ft		'-	 	01800	0
0		4-WA	MW-5 – Water Sample			1	0800	/
								-
								·
						}		

OZARK UNDERGRG AND LABORATORY, INC.

1572 Aley Lane Protem, MO 65733 (417) 785-4289 fax (417) 785-4290 email: oul@tri-lakes.net

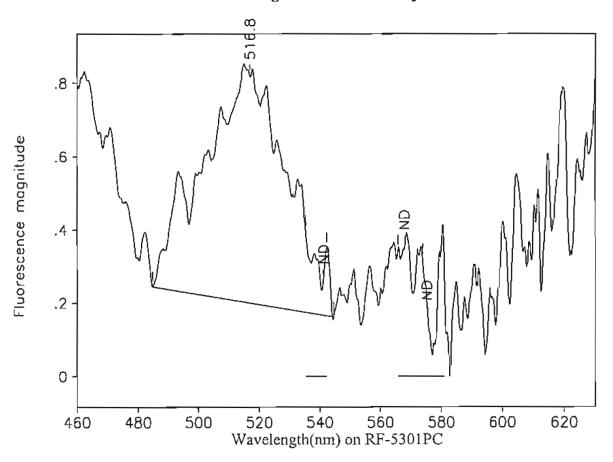
Samples Shi	By Mile Burns Samples Received By J. Arnold Speed: / / / / Date Samples Received: / / / / / / Time Samples Received: / / / / / / / / / / / / / / / / / / /	:30 Return C	ooler? Yes	No_
to:Flux	Send Results to: CH2MHill rescein × Eosine × Rhodamine WT × Other Ship cooler to: 7	adams of Ass		
nyze tor. Fine	Tescent_/\ Eosme_/\ Rhodamme \ \(\frac{1}{\sigma}\) Other			
	Please indicate stations where dye was visible in the field			OUL use only
Wai				# WATER
LAB STAT	BÉR	COLLE		
1-4 Nu		1-20-5	0910	REC'D
324 2-	WA MW-1- Water Sample WA MW-2- Water Sample WA MW-3- Water Sample WA MW-4- Water Sample WA MW-4- Water Sample	1-20-5		
3-	MA MU-3- Water Samely		0840	
4-	WA MW-4- Water Samuele * see discrepancy sheet	1-20-5		/
				•
MMENTS:	Chart of	Noumple		Thia
	folled out by out-ca analyzed Page / of / out 1/24/65 by we	prooped	· ling of	779 rcoc.doc Rev

OZARK UNDERGROUNL LABORATORY, INC.

DISCRE	DISCREPANCIES BETWEEN CHAIN-OF-CUSTODY SHEETS AND ACTUAL SAMPLES RECEIVED Page 1 of 1								
Compan	y & Projec	ct Name: CHZMHill/Lake	Oricuta	Date Rec'd by OUL:	:1/21/05 Wk#				
Lab#	Sta#	Station Name	Date	Problem	Solution				
			Pulled						
18138	MW2	180'	1/20/05	a while pac bag in with.	analyze as MW2-180'				
•••				all the MW2's was labelled	07				
				MW 1-180 ft. Since we					
	,			didn't receive a bag					
				labeled MW2-180H lost					
				The COC indicates there					
				should be one, OUL will					
				analyse as MWZ					
	4-WA	MW-4		Vial Probled MW-4, COC lists it as 4-WA, MW5 water	analyse as MW4 water				
				lists it as 4-WA, MW5 water					
				,					
N8142		MW-2 - 225ft	1/20/05	COC indicates station	analyzed as 2-225.				
		<u> </u>		number is 3-225,	13				
	}								
N 8264	2-WA	MW-2 - Water Cample	1/20/05	no date oftime	Used last date &				
		<u> </u>		collected on cocor time	Time recorded on COC				
				collected on Nial.	which is 1/20/05 0940.				
					· ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' '				
Commen	its: Mo	times written on b	op ar	was. Timis on Coc me	<u></u>				
			0	·					
		·		_					

OZARK UNDERGROUND LABORATORY, INC.

DISCREPANCIES BETWEEN CHAIN-OF-CUSTODY SHEETS AND ACTUAL SAMPLES RECEIVED Page 2 of 2								
Company	y & Projec	et Name: CH2MHill /	bake	Orien	fa Date Rec'd by OUL:	1-21-05 Wk#		
Lab#	Sta#	Station Name		Date Pulled	Problem	Solution		
N8147	2-300	MW-2-300ft		1/20/05	COC indicates time	Used 0925 for		
					Collected as 0940.	Used og 25 for Time collected i.e. Dame on other Damplers on stringer		
					Delieve This time is	same on other		
1					when water rollected,	samplers on stringer		
					_			
		_						
		_		_				
Commen	its:							
		<u>-</u>						



Station 1-215: MW-1 - 215 ft OUL number: N8127

Matrix: Elutant

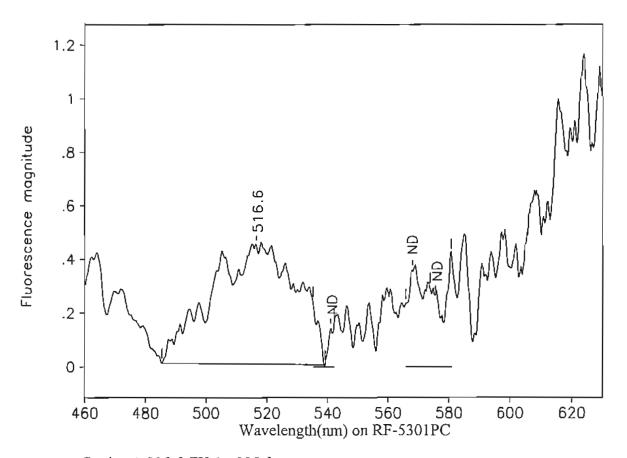
Placed: 01/07/05 0930

Analyzed: 01/24/05

Collected: 01/20/05 0900

Peaks within the normal range of tracer dyes:

Peak nin	Left X	Right X	Height	Area	H/A	Conc.	
516.8	484.8	544.6	0.62	20.62	0.03	D485 N	Ω
541.1	535.2	542.2	0.00	0.00	0.00	ND	.,
568.0	565.8	573.8	0.00	0.00	0.00	ND	
575.6	573.8	580.8	0.00	0.00	0.00	ND	



Station 1-225: MW-1 - 225 ft

OUL number: N8128

Matrix: Elutant

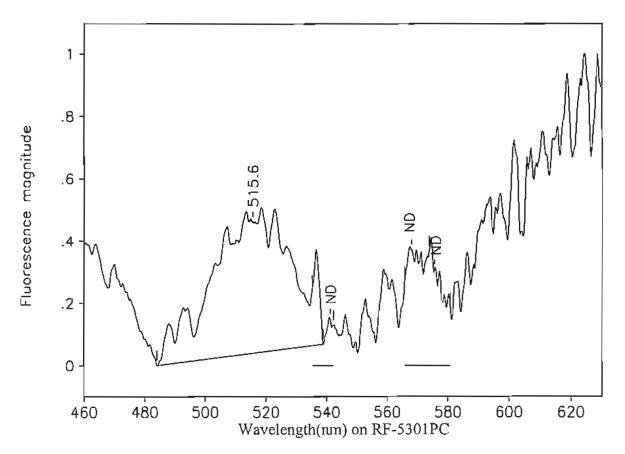
Placed: 01/07/05 0930

Analyzed: 01/24/05

Collected: 01/20/05 0900

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.6	485.4	539.2	0.44	14.58	0.03	.0.343 ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 1-235: MW-1 - 235 ft OUL number: N8129

Matrix: Elutant

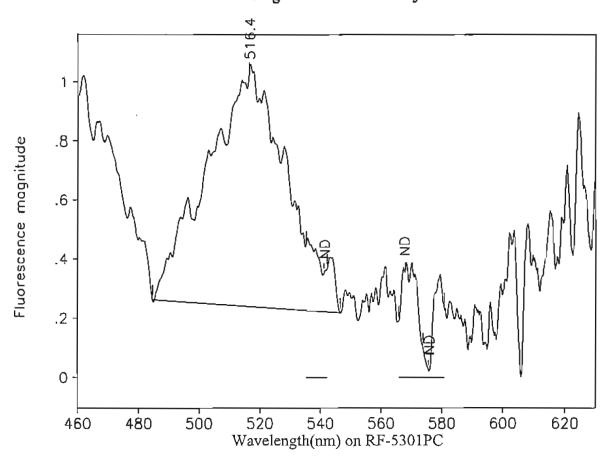
Placed: 01/07/05 0930

Analyzed: 01/24/05

Collected: 01/20/05 0900

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
515.6	484.0	538.8	0.42	14.20	0.03	0.334 ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 1-245: MW-1 - 245 ft

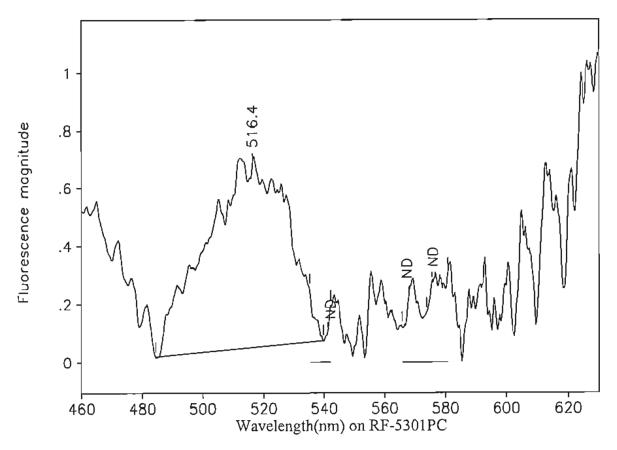
OUL number: N8130 Analyzed: 01/24/05

Matrix: Elutant

Placed: 01/07/05 0930 Collected: 01/20/05 0900

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.4	484.6	546.6	0.79	24.71	0.03	D-581 ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573 <i>.</i> 8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 1-255: MW-1 - 255 ft

OUL number: N8131

Matrix: Elutant

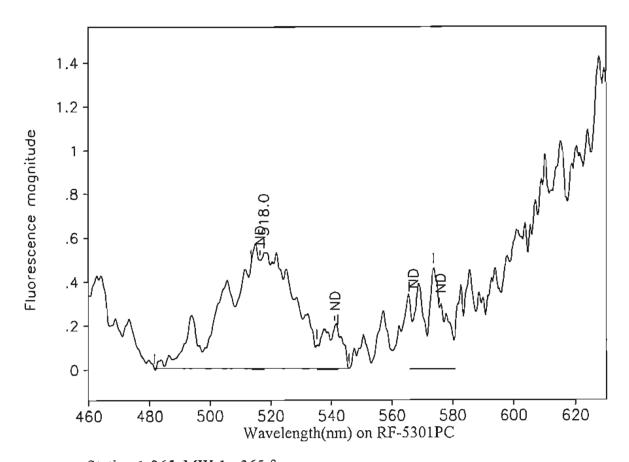
Placed: 01/07/05 0930

Analyzed: 01/24/05

Collected: 01/20/05 0900

Peaks within the normal range of tracer dyes:

A 44-11-4 11-11-1						
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.4	484.4	539.8	0.63	20.36	0.03	0.478 ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 1-265: MW-1 - 265 ft OUL number: N8132

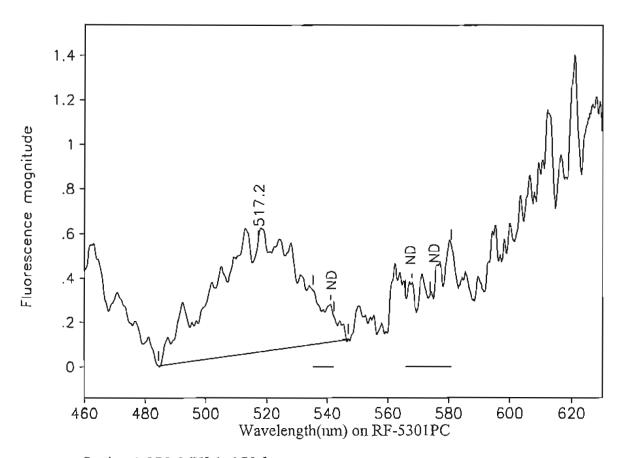
Matrix: Elutant

Placed: 01/07/05 0930

Analyzed: 01/24/05

Collected: 01/20/05 0900

Peaks with	nin the non	nal range of	tracer dyes:					
Peak nm	Left X	Right X	Height	Area	H/A	Conc.		
516.5	513.6	517.9	0.00^{-}	0.00	0.00	ND		
541.1	535.2	542.2	0.00	0.00	0.00	ND		
568.0	565.8	573.8	0.00	0.00	0.00	ND		
575.6	573.8	580.8	0.00	0.00	0.00	ND		
Peaks clos	Peaks close to the normal range of tracer dyes:							
518.0	481.6	545.8	0.53	15.99	0.03	0376 1		



Station 1-275: MW-1 -275 ft

OUL number: N8133

Matrix: Elutant

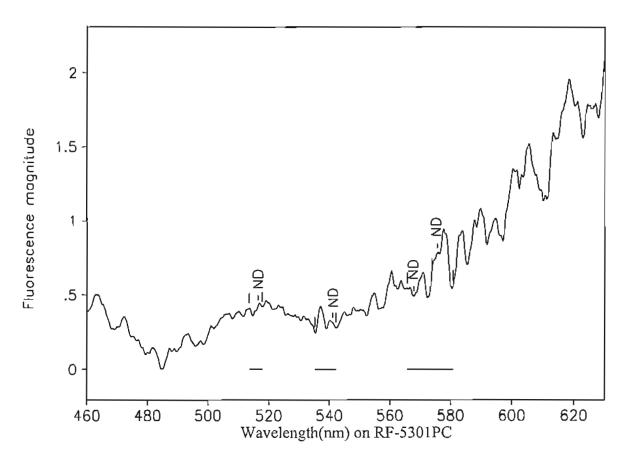
Placed: 01/07/05 0930

Analyzed: 01/24/05

Collected: 01/20/05 0900

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
517.2	484.4	547.0	0.50	18.18	0.03	D.427 ND
541.1	535.2	542.2	0.00	0.00	0.00	ND ·
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 1-285: MW-1 - 285 ft

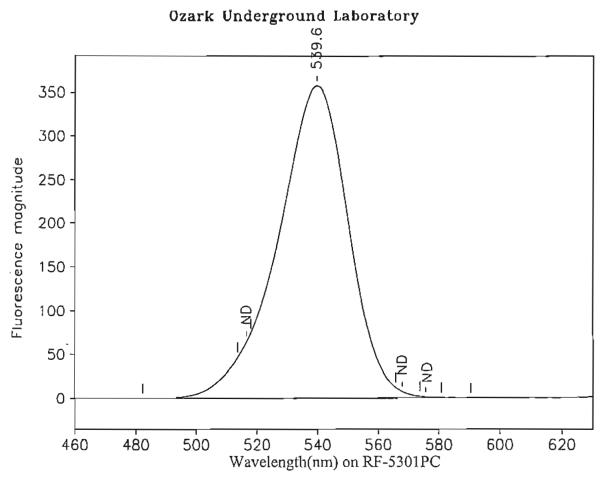
OUL number: N8134 Analyzed: 01/24/05

Matrix: Elutant

Placed: 01/07/05 0930 Collected: 01/20/05 0900

Peaks within the normal range of tracer dyes:

I COMED WITH	Tours within the stormar range of accordages.								
Peak nm	Left X	Right X	Height	Area	H/A	Conc.			
516.5	513.6	517.9	0.00	0.00	0.00	ND			
541.1	535.2	542.2	0.00	0.00	0.00	ND			
568.0	565.8	573.8	0.00	0.00	0.00	ND			
575.6	573.8	580.8	0.00	0.00	0.00	ND			



Station 2-135: MW-2 - 135 ft

Analyzed: 01/24/05 OUL number: N8135

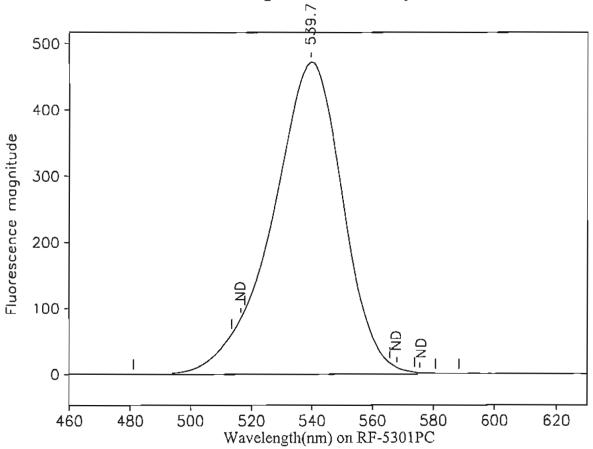
Matrix: Elutant

Collected: 01/20/05 0925 Placed: 01/07/05 1005

Peaks within the normal range of tracer dves:

I Canto With		min imize or	nacci ajes.				
Peak nm	Left X	Right X	Height	Area	H/A	Conc.	
516.5	513.6	517.9	0.00	0.00	0.00	ND	
539.6	482.3	590.4	356.83	9,692.76	0.04	325	
568.0	565.8	573.8	0.00	0.00	0.00	ND	
575.6	573.8	580.8	0.00	0.00	0.00	ND	
Peaks close to the normal range of tracer dyes:							





Station 2-150: MW-2 - 150 ft

OUL number: N8136 Analyzed: 01/24/05

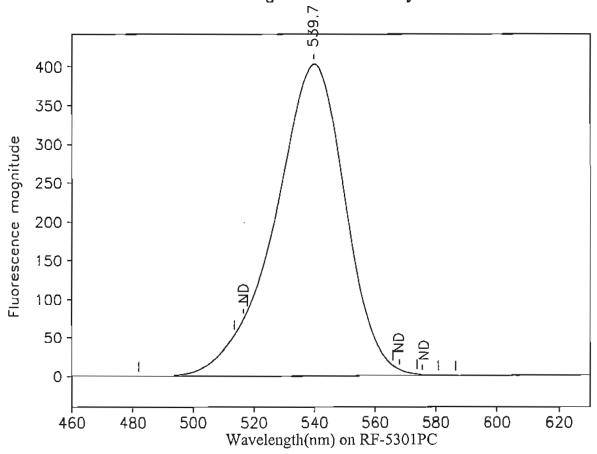
Matrix: Elutant

Placed: 01/07/05 1005 Collected: 01/20/05 0925

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
539.7	481.2	588.3	471.46	12,797.00	0.04	430
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND





Station 2-165: MW-2 - 165 ft

OUL number: N8137 Analyzed: 01/24/05

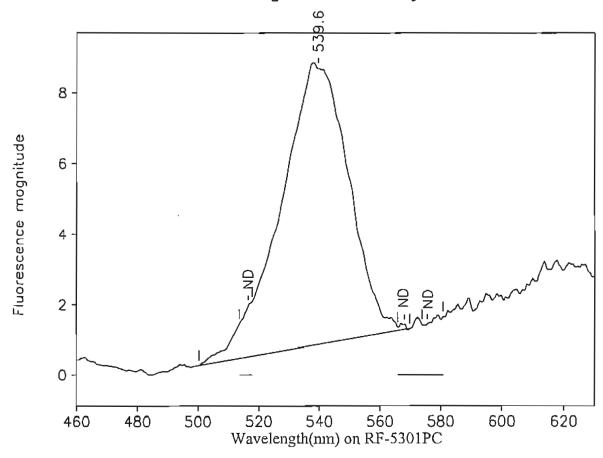
Matrix: Elutant

Placed: 01/07/05 1005 Collected: 01/20/05 0925

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.	
516.5	513.6	517.9	0.00^{-}	0.00	0.00	ND	
539.7	482.0	586.5	403.12	10,975.40	0.04	369	
568.0	565.8	573.8	0.00	0.00	0.00	ND	
575.6	573 <i>.</i> 8	580.8	0.00	0.00	0.00	ND	
Peaks close to the normal range of tracer dyes:							





Station 2-180: MW-2 - 180 ft

OUL number: N8138

Matrix: Elutant

Placed: 01/07/05 1005

Diluted: 1 to 100 Analyzed: 01/24/05

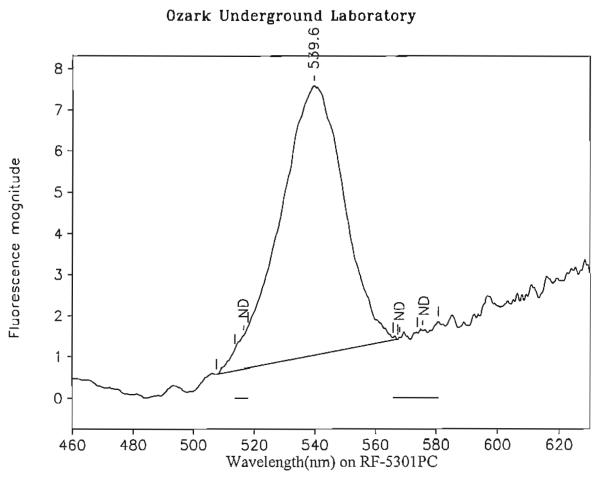
Collected: 01/20/05 0925

Peaks within the normal range of tracer dyes:

I Cares with	ши шю поп	mar range or	cracor ayou.	1		
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
539.6	500.4	569.8	7.83	209.11	0.04	702
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND

Peaks close to the normal range of tracer dyes:

M



Station 2-195: MW-2 - 195 ft

OUL number: N8139

Matrix: Elutant

Placed: 01/07/05 1005

Diluted: 1 to 100

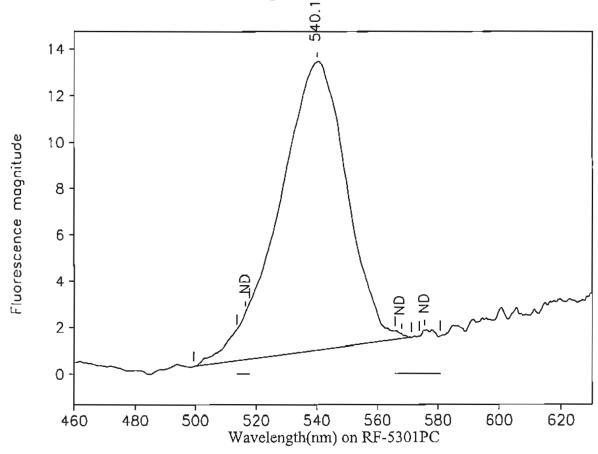
Analyzed: 01/24/05

Collected: 01/20/05 0925

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
539.6	507.6	567.4	6.55	162.55	0.04	546
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND





Station 2-210: MW-2 - 210 ft

OUL number: N8141

Matrix: Elutant

Placed: 01/07/05 1005

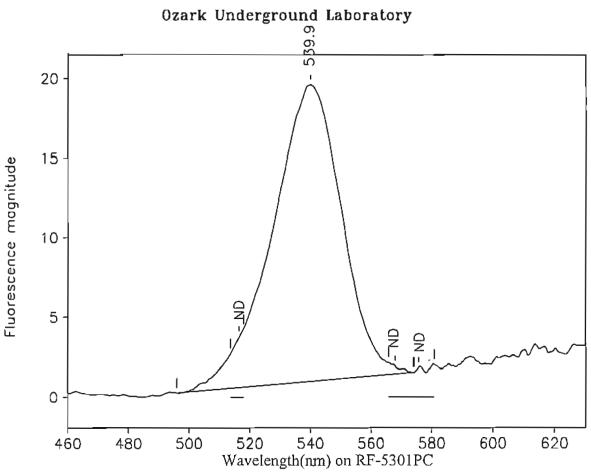
Diluted: 1 to 100 Analyzed: 01/24/05

Collected: 01/20/05 0925

Peaks within the normal range of tracer dyes:

T 1	Y 0 37	D: 1437	TT - 1 - 1 4	A -	TT/A	<u> </u>
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
540.1	499.4	571.2	12.40	323.84	0.04	1,090
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND





Station 2-225: MW-2 - 225 ft

OUL number: N8142

Matrix: Elutant

Placed: 01/07/05 1005

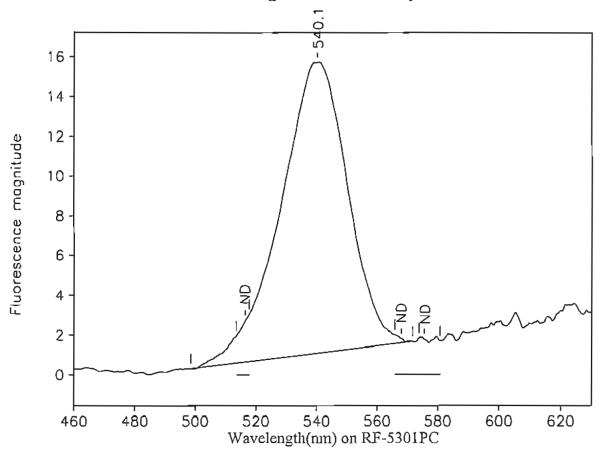
Diluted: 1 to 100 Analyzed: 01/24/05

Collected: 01/20/05 0925

Peaks within the normal range of tracer dyes:

n Left X	Right X	Height	Area	H/A	Conc.
513.6	517.9	0.00	0.00	0.00	ND
496.0	574.2	18.64	497.42	0.04	1,670
565.8	573.8	0.00	0.00	0.00	ND
573.8	580.8	0.00	0.00	0.00	ND
	513.6 496.0 565.8	513.6 517.9 496.0 574.2 565.8 573.8	513.6 517.9 0.00 496.0 574.2 18.64 565.8 573.8 0.00	513.6 517.9 0.00 0.00 496.0 574.2 18.64 497.42 565.8 573.8 0.00 0.00	513.6 517.9 0.00 0.00 0.00 496.0 574.2 18.64 497.42 0.04 565.8 573.8 0.00 0.00 0.00





Station 2-240: MW-2 - 240 ft

OUL number: N8143

Matrix: Elutant

Placed: 01/07/05 1005

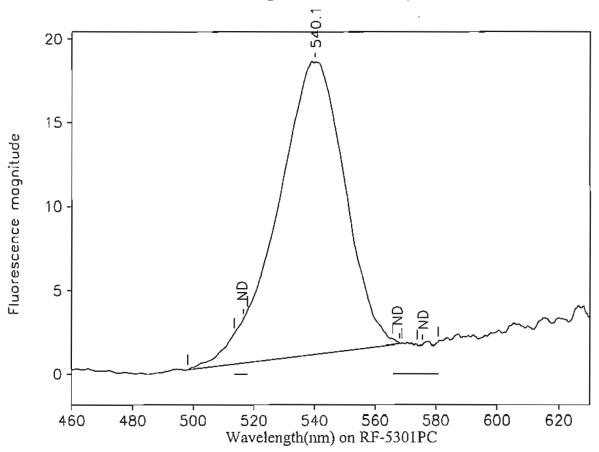
Diluted: 1 to 100 Analyzed: 01/24/05

Collected: 01/20/05 0925

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
540.1	498.6	571.8	14.62	377.34	0.04	1,270
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND
_ , _ , _ ,		200.0		0.00	0.00	





Station 2-255: MW-2 - 255 ft

OUL number: N8144

Matrix: Elutant

Placed: 01/07/05 1005

Diluted: 1 to 100 Analyzed: 01/24/05

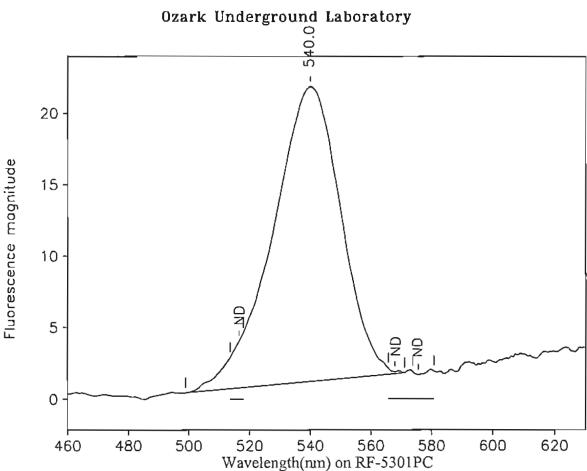
Collected: 01/20/05 0925

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
540.1	498.2	568.8	17.40	450.71	0.04	1,510
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573 <i>.</i> 8	580.8	0.00	0.00	0.00	ND

Peaks close to the normal range of tracer dyes:

W



Station 2-270: MW-2 - 270 ft

OUL number: N8145

Matrix: Elutant

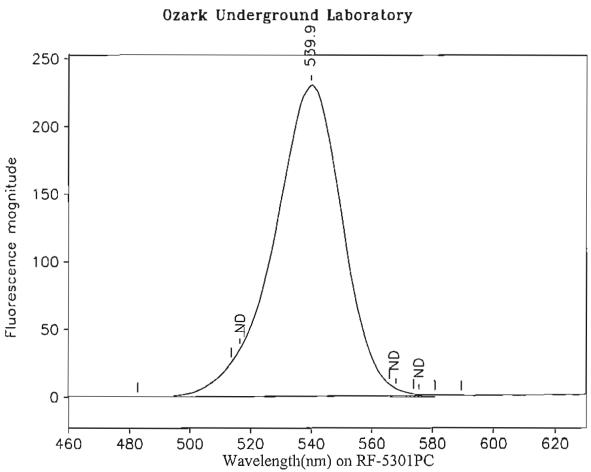
Placed: 01/07/05 1005

Diluted: 1 to 100 Analyzed: 01/24/05

Collected: 01/20/05 0925

Peaks within the normal range of tracer dyes:

Left X	Right X	Height	Area	H/A	Conc.
513.6	517.9	0.00	0.00	0.00	ND
499.0	571.0	20.64	540.19	0.04	1,810
565.8	573.8	0.00	0.00	0.00	ND
573.8	580.8	0.00	0.00	0.00	ND
	513.6 499.0 565.8	513.6 517.9 499.0 571.0 565.8 573.8	513.6 517.9 0.00 499.0 571.0 20.64 565.8 573.8 0.00	513.6 517.9 0.00 0.00 499.0 571.0 20.64 540.19 565.8 573.8 0.00 0.00	513.6 517.9 0.00 0.00 0.00 499.0 571.0 20.64 540.19 0.04 565.8 573.8 0.00 0.00 0.00



Station 2-285: MW-2 - 285 ft

OUL number: N8146

Matrix: Elutant

Placed: 01/07/05 1005

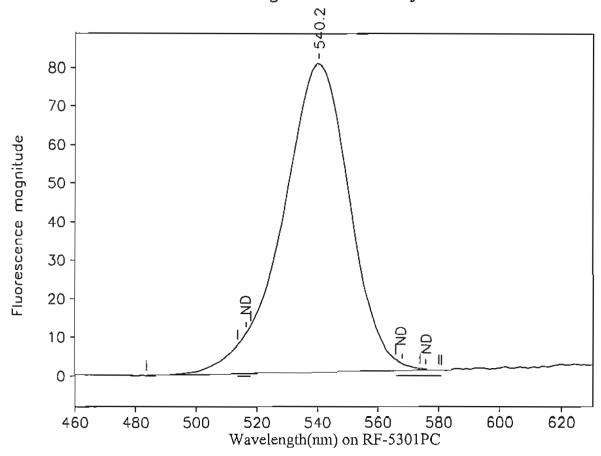
Analyzed: 01/24/05

Collected: 01/20/05 0925

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
539.9	482.7	589.4	229.78	6,105.69	0.04	205
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND





Station 2-300: MW-2 - 300 ft

OUL number: N8147 Analyzed: 01/24/05

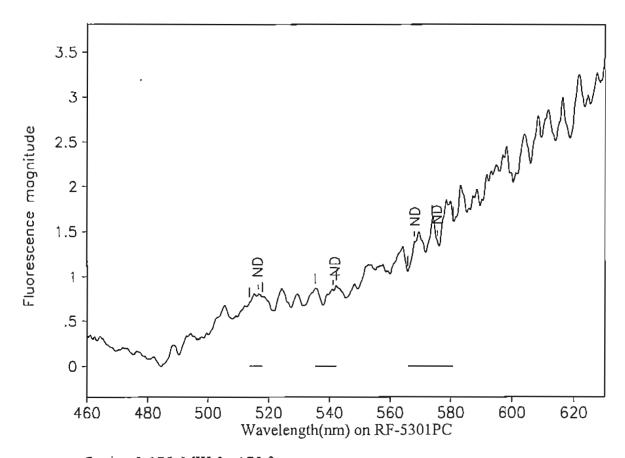
Matrix: Elutant

Placed: 01/07/05 1005 Collected: 01/20/05 0925

Peaks within the normal range of tracer dves:

I Cuito Will	i date within the norther range of theory ayes.								
Peak nm	Left X	Right X	Height	Area	H/A	Conc.			
516.5	513.6	517.9	0.00	0.00	0.00	ND			
540.2	483.5	580.0	79.96	2,069.55	0.04	69.5			
568.0	565.8	573 <i>.</i> 8	0.00	0.00	0.00	ND			
575.6	573.8	580.8	0.00	0.00	0.00	ND			





Station 3-175: MW-3 - 175 ft

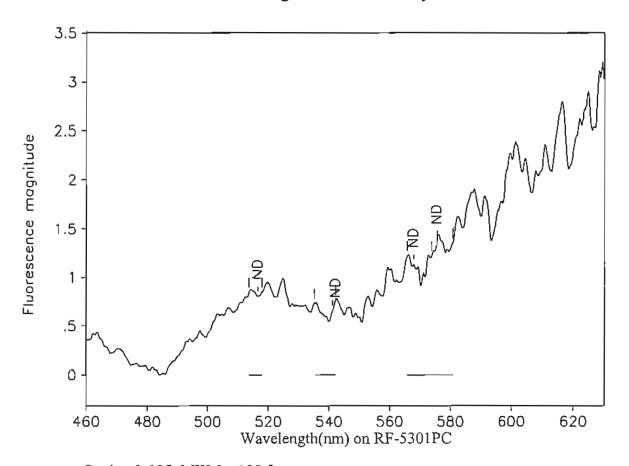
OUL number: N8148 Analyzed: 01/24/05

Matrix: Elutant

Placed: 01/07/05 0900 Collected: 01/20/05 0830

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 3-185: MW-3 - 185 ft

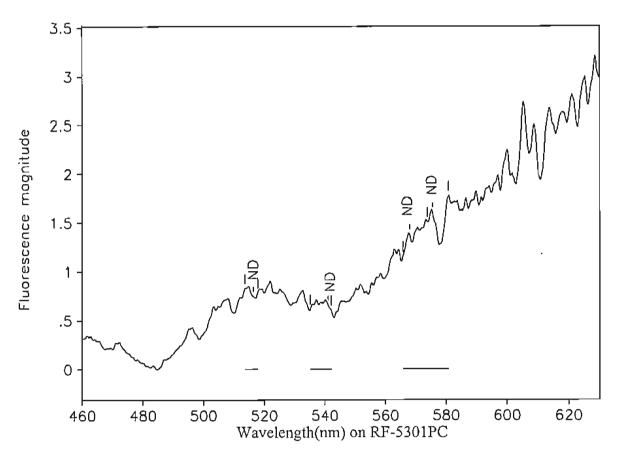
OUL number: N8149 Analyzed: 01/24/05

Matrix: Elutant

Placed: 01/07/05 0900 Collected: 01/20/05 0830

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



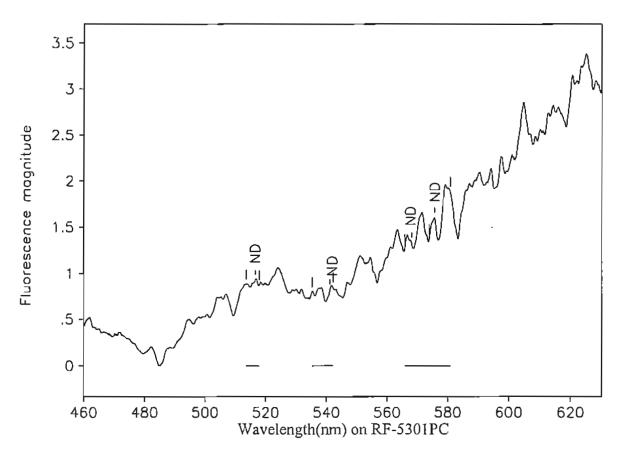
Station 3-195: MW-3 - 195 ft

OUL number: N8150 Analyzed: 01/24/05

Matrix: Elutant

Placed: 01/07/05 0900 Collected: 01/20/05 0830

Peaks with	nin the norr	nal range of	tracer dyes:			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



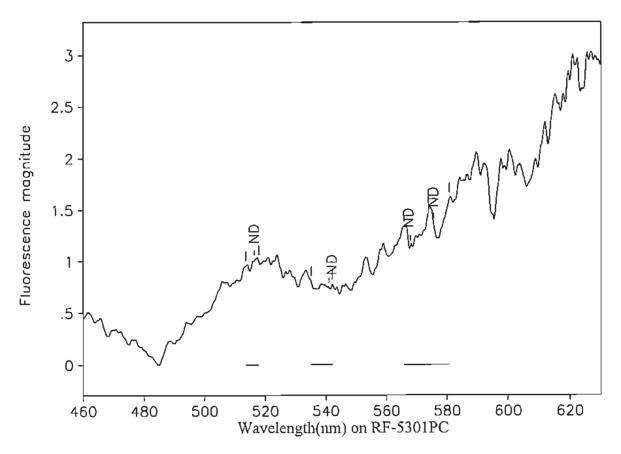
Station 3-205: MW-3 - 205 ft

OUL number: N8151 Analyzed: 01/24/05

Matrix: Elutant

Placed: 01/07/05 0900 Collected: 01/20/05 0830

Peaks with	nin the norr	nal range of	tracer dyes:			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 3-215: MW-3 - 215 ft

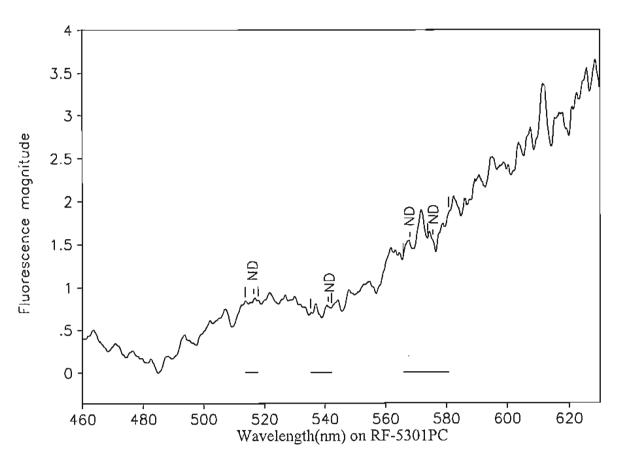
OUL number: N8152

Matrix: Elutant

Collected: 01/20/05 0830 Placed: 01/07/05 0900

Analyzed: 01/24/05

Peaks with	in the norr	nal range of	tracer dyes:			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND
Peaks close to the normal range of tracer dyes:						



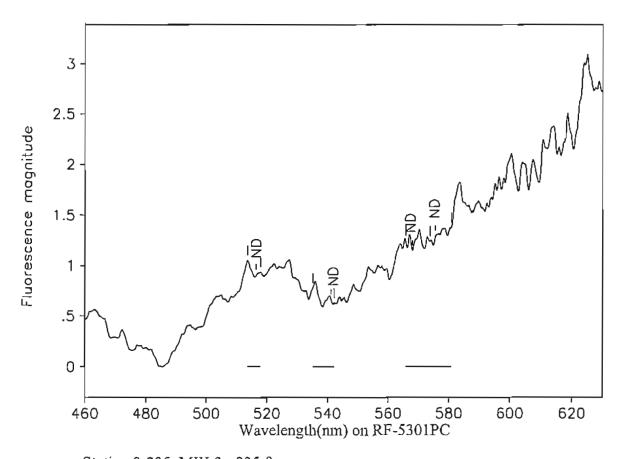
Station 3-225: MW-3 - 225 ft

OUL number: N8153 Analyzed: 01/24/05

Matrix: Elutant

Placed: 01/07/05 0900 Collected: 01/20/05 0830

Peaks with	nin the nor	nal range of	tracer dyes:			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND
Peaks clos	se to the no	rmal range of	f tracer dyes	s:		



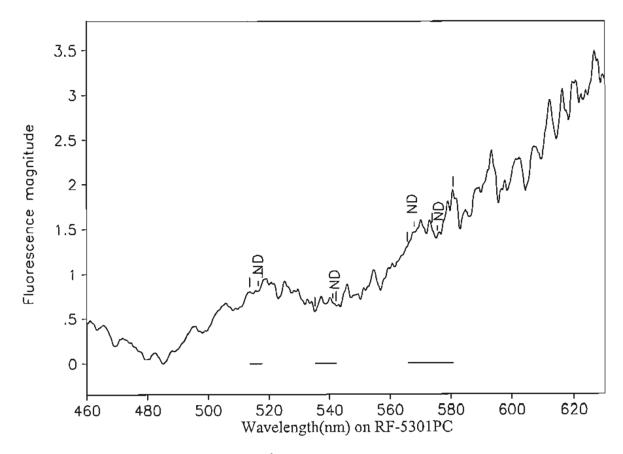
Station 3-235: MW-3 - 235 ft

OUL number: N8154 Analyzed: 01/24/05

Matrix: Elutant

Placed: 01/07/05 0900 Collected: 01/20/05 0830

Peaks with	in the norr	nal range of	tracer dyes:			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575 6	573 8	580 S	0.00	0.00	0.00	MD



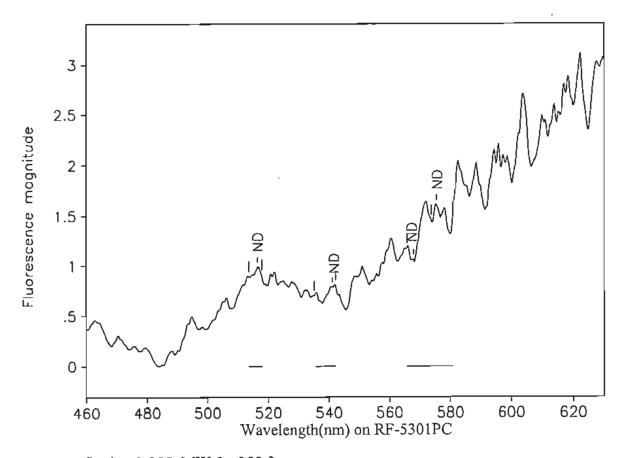
Station 3-245: MW-3 - 245 ft

OUL number: N8155 Analyzed: 01/24/05

Matrix: Elutant

Placed: 01/07/05 0900 Collected: 01/20/05 0830

Peaks with	nin the norr	nal range of	tracer dyes:			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND
Peaks close to the normal range of tracer dyes:						



Station 3-255: MW-3 - 255 ft

OUL number: N8156

Matrix: Elutant

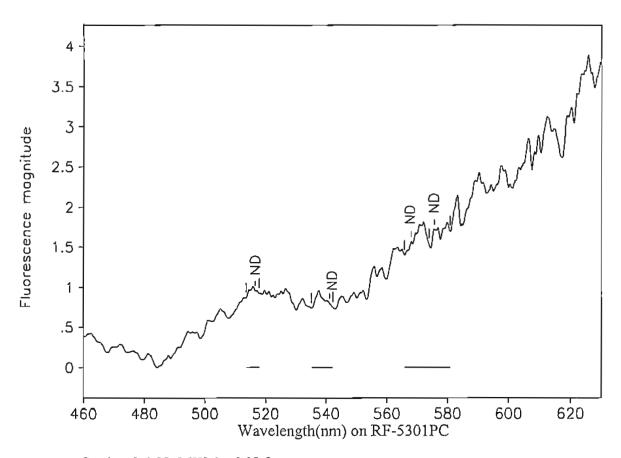
Placed: 01/07/05 0900

Analyzed: 01/24/05

Collected: 01/20/05 0830

Peaks within the normal range of tracer dyes:

T COULTED ICI	HII 616 14611					
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



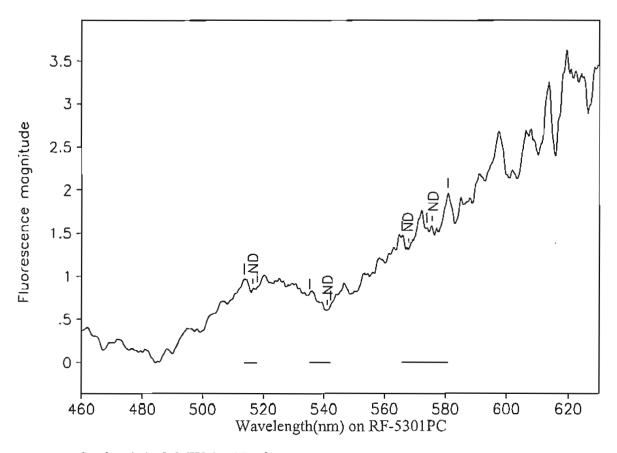
Station 3-265: MW-3 - 265 ft

OUL number: N8157 Analyzed: 01/24/05

Matrix: Elutant

Placed: 01/07/05 0900 Collected: 01/20/05 0830

Peaks with	nin the norr	nal range of	tracer dyes:			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



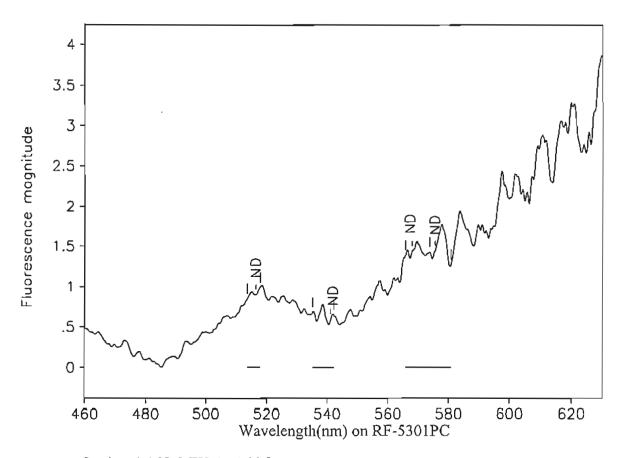
Station 3-275: MW-3 - 275 ft

OUL number: N8158 Analyzed: 01/24/05

Matrix: Elutant

Placed: 01/07/05 0900 Collected: 01/20/05 0830

Peaks with	hin the norr	nal range of	tracer dyes:			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 4-165: MW-4 - 165 ft

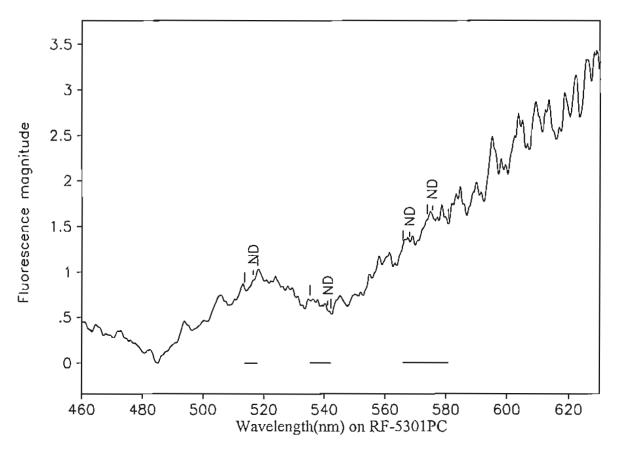
OUL number: N8159 Analyzed: 01/24/05

Matrix: Elutant

Placed: 01/07/05 0825 Collected: 01/20/05 0745

Peaks within the normal	range of tracer dy	es:
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Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 4-180: MW-4 - 180 ft

OUL number: N8161

Matrix: Elutant

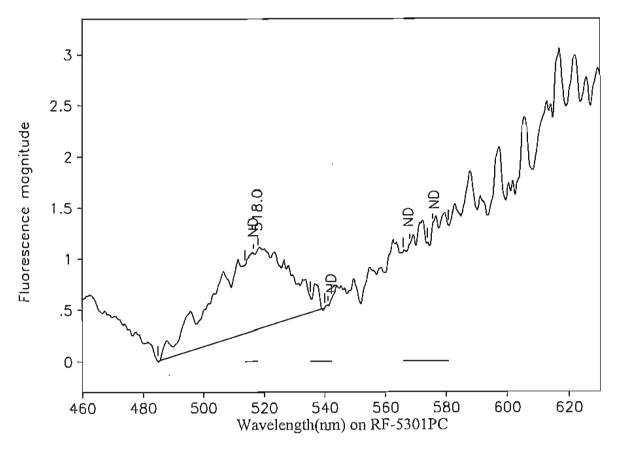
Placed: 01/07/05 0825

Analyzed: 01/24/05

Collected: 01/20/05 0745

Peaks within the normal range of tracer dyes: Peak nm Left X Right X Height

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 4-195: MW-4 - 195 ft

OUL number: N8162

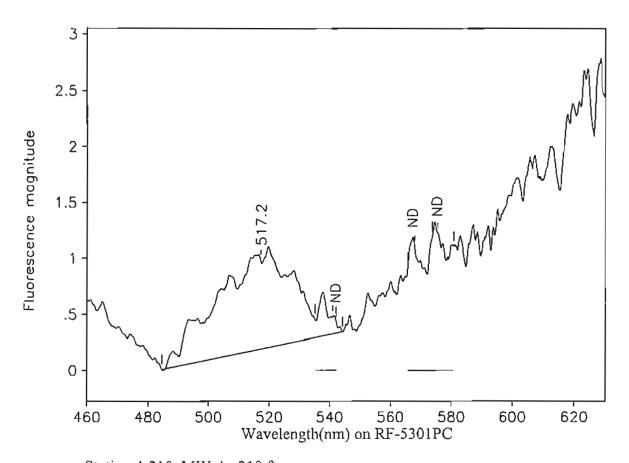
Matrix: Elutant

Placed: 01/07/05 0825

Analyzed: 01/24/05

Collected: 01/20/05 0745

Peaks witl	nin the nort	nal range of	tracer dyes:			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00^{-}	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND
Peaks clos	se to the no	rmal range o	f tracer dyes	s:		.0
518.0	484.8	540.0	0.79	23.56	0.03	0.554 ND



Station 4-210: MW-4 - 210 ft

OUL number: N8163

Matrix: Elutant

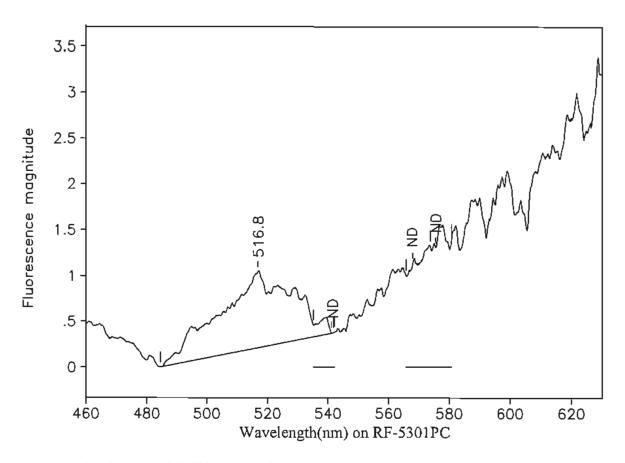
Placed: 01/07/05 0825

Analyzed: 01/24/05

Collected: 01/20/05 0745

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
517.2	484.6	544.2	0.80	27.10	0.03	0.637 NA
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 4-225: MW-4 - 225 ft

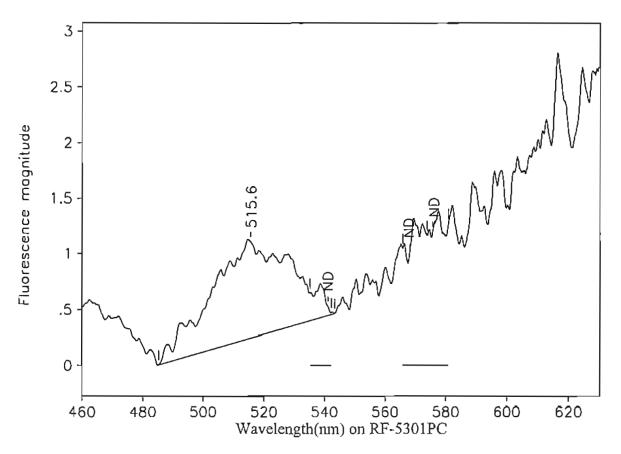
Analyzed: 01/24/05 OUL number: N8164

Matrix: Elutant

Collected: 01/20/05 0745 Placed: 01/07/05 0825

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.8	484.6	541.8	0.83	23.03	0.04	_0.547 NO
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND
Peaks clos	se to the no	rmal range of	f tracer dyes	S:		



Station 4-240: MW-4 - 240 ft

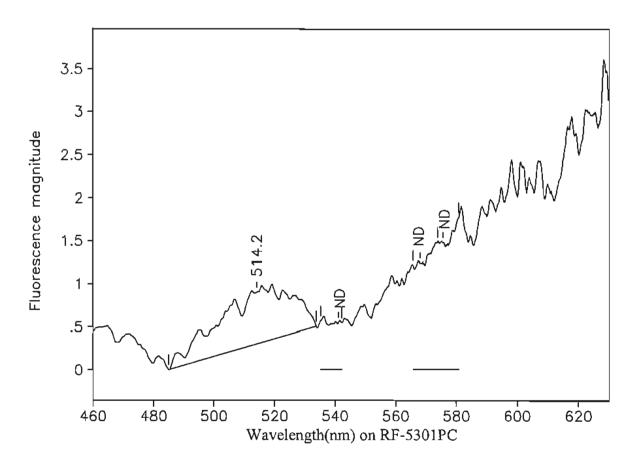
OUL number: N8165 Analyzed: 01/24/05

Matrix: Elutant

Placed: 01/07/05 0825 Collected: 01/20/05 0745

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
515.6	485.2	543.4	0.86	26.76	0.03	0.629 ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND
	_	_				



Station 4-255: MW-4 - 255 ft

OUL number: N8166

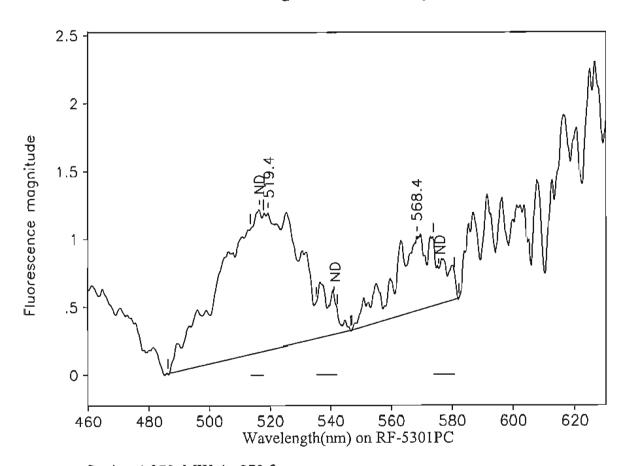
Matrix: Elutant

Placed: 01/07/05 0825 Collected: 01/20/05 0745

Analyzed: 01/24/05

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
514.2	485.0	533.8	0.60	18.44	0.03	0.433 NO
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



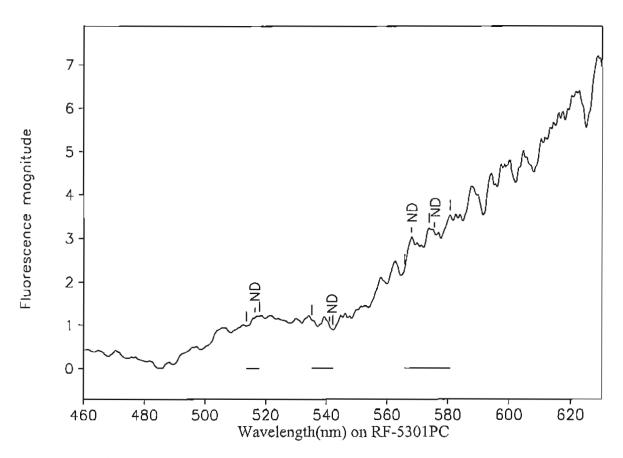
Station 4-270: MW-4 - 270 ft OUL number: N8167

Matrix: Elutant Placed: 01/07/05 0825

Analyzed: 01/24/05

Collected: 01/20/05 0745

Peaks with	nin the nor	mal range of	tracer dyes:			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.4	547.0	582.2	0.55	9.76	0.06	1.14 NO
575.6	573.8	580.8	0.00	0.00	0.00	ND
Peaks clos	se to the no	rmal range o	f tracer dye	s:		
519.4	486.2	546.6	1.01	33.25	0.03	0.78T N1)



Station 4-285: MW-4 - 285 ft

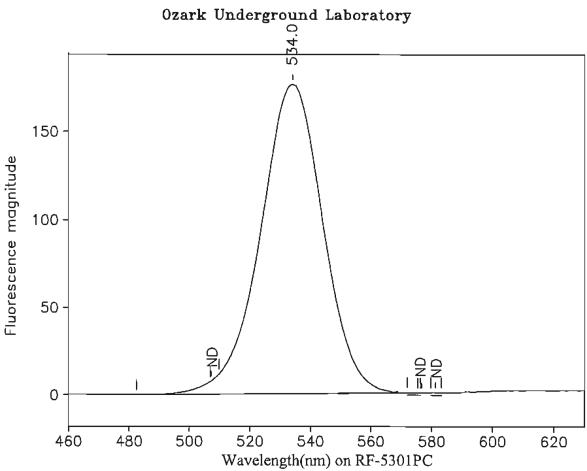
OUL number: N8168 Analyzed: 01/25/05

Matrix: Elutant

Placed: 01/07/05 0825 Collected: 01/20/05 0745

Peaks with	nin the norr	nal range of	tracer dyes:			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00^{-}	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND
Peaks clos	e to the no	rmal range of	f tracer dyes	5:		





Station 2-WA: MW-2 - Water

OUL number: N8264 Analyzed: 01/24/05

Matrix: Water

Collected: 01/20/05 0940

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Dicht V	Hairbt	A ====	TT/A	Cama
геак шп	Len A	Right X	Height	Area	H/A	Conc.
507.3	506.9	509.9	0.00	0.00	0.00	ND
534.0	482.4	575.4	176.35	4,243.51	0.04	28.9
576.6	572.0	576.3	0.00	0.00	0.00	ND
581.2	579.7	583.2	0.00	0.00	0.00	ND



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February 11, 2005

CERTIFICATE OF ANALYSIS

Alan W. Aikens, P.G. CH2MHill 225 East Robinson Street, Suite 505 Orlando, Florida 32801

RE: Lake Orienta

> Dye analysis results for charcoal and water samples shipped February 3, 2005 Ozark Underground Laboratory (OUL) numbers N8364 through N8405 and N8423.

Dear Mr. Aikens:

We have completed analysis of the charcoal and water samples received by the OUL on February 4, 2005. We have indicated the OUL number for each of these samples on the enclosed table.

The fluorescein, eosine and rhodamine WT (RWT) dye concentrations are based upon standards routinely used at the OUL. The fluorescein and eosine are mixtures of 75% dye and 25% diluent; the RWT is a 20% solution. The concentrations are based upon the as-sold weight of the dye.

A summary of the results is presented in Table 1. Additional sampling information is available on the enclosed analysis graphs.

Sincerely,

Thomas J. Aley, PHG, RG

- Enclosures: 1. Table 1. Analysis results for charcoal and water samples
 - 2. Sample Collection Data Sheets
 - 3. Sample analysis graphs

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Ozark Underground Laboratory for CH2MHill

Project:

Lake Orienta

Samples Collected By:

Mike Burns

Date Samples Shipped:

February 3, 2005

Date Samples Rec'd at OUL:

February 4, 2005

Date Analyzed by OUL:

February 8, 2005

Table 1. Results for charcoal and water samples analyzed for the presence of fluorescein, eosine and rhodamine WT (RWT) dyes. Peak wavelengths are reported in nanometers (nm); dye concentrations are reported in parts per billion (ppb). All results are for charcoal unless otherwise indicated.

OUL Lab#	Station #	Station Name	Date/Time Placed	Date/Time Collected	Fluor	escein	E	osine	RV	WT
			2005	2005	Peak	Conc.	Peak	Conc.	Peak	Conc.
18364	1-215	MW-1 - 215 ft	1/20 0915	2/3 0925	ND		ND		ND	
18365	1-225	MW-1 - 225 ft	1/20 0915	2/3 0925	ND		ND		ND	
18366	1-235	MW-1 - 235 ft	1/20 0915	2/3 0925	ND		ND		ND	
V8367	1-245	MW-1 - 245 ft	1/20 0915	2/3 0925	ND		ND		ND	
N8368	1-255	MW-1 - 255 ft	1/20 0915	2/3 0925	ND		ND		ND	
N8369	1-265	MW-1 - 265 ft	1/20 0915	2/3 0925	ND		ND		ND	
N8370	1-275	MW-1 - 275 ft	1/20 0915	2/3 0925	ND		ND		ND	
V8371	1-285	MW-1 - 285 ft	1/20 0915	2/3 0925	ND		ND		ND	
N8372	2-135	MW-2 - 135 ft	1/20 0925	2/3 1000	ND (1)		538.9	339	ND	
N8373	2-150	MW-2 - 150 ft	1/20 0925	2/3 1000	ND (1)		538.9	656	ND	
N8374	2-165	MW-2 - 165 ft	1/20 0925	2/3 1000	ND (1)		538.5	341	ND	
N8375	2-180	MW-2 - 180 ft	1/20 0925	2/3 1000	ND (1)		539.3	597	ND	
N8376	2-195	MW-2 - 195 ft	1/20 0925	2/3 1000	ND (1)		539.2	1,510	ND	
N8377	2-210	MW-2 - 210 ft	1/20 0925	2/3 1000	ND (1)		539.5	1,200	ND	
N8378	2-225	MW-2 - 225 ft	1/20 0925	2/3 1000	ND (1)		539.5	1,840	ND	
N8379	2-240	MW-2 - 240 ft	1/20 0925	2/3 1000	ND (1)		539.3	821	ND	
N8380	Laborat	ory Control Charcoal Blank				7-94	1921			
N8381	2-255	MW-2 - 255 ft	1/20 0925	2/3 1000	ND (1)		539.0	1,040	ND	
N8382	2-270	MW-2 - 270 ft	1/20 0925	2/3 1000	ND (1)		539.5	955	ND	
(Footnote	es at end of	Table)		•				•		(continued

Ozark Underground Laboratory for CH2MHill

Table 1. Results for charcoal and water samples analyzed for the presence of fluorescein, eosine and rhodamine WT (RWT) dyes. Peak wavelengths are reported in nanometers (nm); dye concentrations are reported in parts per billion (ppb). All results are for charcoal unless otherwise indicated.

OUL Lab#	Station #	Station Name	Date/Time Placed	Date/Time Collected	Fluor	escein	E	osine	RV	VT
			2005	2005	Peak	Conc.	Peak	Conc.	Peak	Conc.
(continue	ed)	•			·		•			
18383	2-285	MW-2 - 285 ft	1/20 0925	2/3 1000	ND (1)		539.5	259	ND	
V8384	2-300	MW-2 - 300 ft	1/20 0925	2/3 1000	ND (1)		539.5	58.1	ND	
18385	3-175	MW-3 - 175 ft	1/20 0830	2/3 0850	ND		ND		ND	
18386	3-185	MW-3 - 185 ft	1/20 0830	2/3 0850	ND		ND		ND	
18387	3-195	MW-3 - 195 ft	1/20 0830	2/3 0850	ND		ND		ND	
18388	3-205	MW-3 - 205 ft	1/20 0830	2/3 0850	ND		ND		ND	
18389	3-215	MW-3 - 215 ft	1/20 0830	2/3 0850	ND		ND		ND	
18390	3-225	MW-3 - 225 ft	1/20 0830	2/3 0850	ND		ND		ND	
18391	3-235	MW-3 - 235 ft	1/20 0830	2/3 0850	ND		ND	Ì	ND	
18392	3-245	MW-3 - 245 ft	1/20 0830	2/3 0850	ND		ND		ND	
18393	3-255	MW-3 - 255 ft	1/20 0830	2/3 0850	ND		ND		ND	
V8394	3-265	MW-3 - 265 ft	1/20 0830	2/3 0850	ND		ND		ND)
18395	3-275	MW-3 - 275 ft	1/20 0830	2/3 0850	ND		ND		ND	
18396	4-165	MW-4 - 165 ft	1/20 0745	2/3 0810	ND		ND		ND	
18397	4-180	MW-4 - 180 ft	1/20 0745	2/3 0810	ND		ND		ND	
V8398	4-195	MW-4 - 195 ft	1/20 0745	2/3 0810	ND		ND		ND	
V8399	4-210	MW-4 - 210 ft	1/20 0745	2/3 0810	ND		ND		ND	
V8400	Laborat	ory Control Charcoal Blank					diam'r.			120
18401	4-225	MW-4 - 225 ft	1/20 0745	2/3 0810	ND		ND		ND	
18402	4-240	MW-4 - 240 ft	1/20 0745	2/3 0810	ND		ND		ND	
N8403	4-255	MW-4 - 255 ft	1/20 0745	2/3 0810	ND		ND		ND	
18404	4-270	MW-4 - 270 ft	1/20 0745	2/3 0810	ND		ND		ND	
N8405	4-285	MW-4 - 285 ft	1/20 0745	2/3 0810	ND		ND	1	ND	

Ozark Underground Laboratory for CH2MHill

Table 1. Results for charcoal and water samples analyzed for the presence of fluorescein, cosine and rhodamine WT (RWT) dyes. Peak wavelengths are reported in nanometers (nm); dye concentrations are reported in parts per billion (ppb). All results are for charcoal unless otherwise indicated.

OUL Lab#	Station #	Station Name	Date/Time Placed	Date/Time Collected	Fluore	Fluorescein		Eosine		VT
			2005	2005	Peak	Conc.	Peak	Conc.	Peak	Conc.
(continue	ed)									
N8423	2-WA	MW-2 - Water	Water	2/3 1015	ND		534.0	25.6	ND	

FOOTNOTES:

ND = No dye detected

(1) = An eosine peak is present which is asymmetrical and skewed towards the lower wavelenths.

This type of peak could mask the presence of fluorescein dye.

OZARK UNDERGROU. LABORATORY, INC.

1572 Aley Lane Protem, MO 65733 (417) 785-4289 fax (417) 785-4290 email: oul@tri-lakes.net SAMPLE COLLECTION DATA SHEET for FLUORESCENCE ANALYSIS

	<u>Lake Ori</u>									
			"Ke Burns Samples Received By: Marting (
Date Sar	nples Shipp	ed: <u>2 / 3</u>	105 Date Samples Received: 2 / 4 / 05 Time Samples Received: (12	<u>-:_! </u>	_	Return	Cooler? Y	cs <u>~</u>	<u>_</u> No	,
Bill to: _			Send Results to: CH2MH: 11			-				
Analyze	for: Fluore	scein X	Eosine X Rhodamine WT X Other Ship cooler to:	odai	56	3 A3	500.			
1	ovi.		Please indicate stations where dye was visible in the	e field					\neg	OUL
(L)	e only		for field technician use - use black ink only		_					use only
# CHAR REC'D	LAB NUMBER	STATION NUMBER	STATION NAME		PLA	CED	COLL	ECTED		# WATER
	10	1-4 Numbers		DΛ	TE	TIME	DATE	אנד	AE .	REC'D
	N8364	1-215	MW-1 – 215 ft	1/201	io5	0915	2/3/05	092	.5	0_
	W8365	1-225	MW-1 – 225 ft							0
	N836	1-235	MW-1 – 235 ft				1 1			\bigcirc
	N8367	1-245	MW-1 – 245 ft							0
	1/8368	1-255	MW-1 – 255 ft	7 (0
	NB369	1-265	MW-1 – 265 ft	17						0
	N9370	1-275	MW-1 – 275 ft					\sqcap		0
<u> </u>	W8371	1-285	MW-1 ~ 285 ft	11				17		0
0	770311	1-WA	MW-1 - Water Sample					094	10	
				+-			 	-		
		 -		1		-	 	}—		
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COMM	ENTS:									
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1572 Aley Lane Protem, MO 65733 (417) 785-4289 fax (417) 785-4290 email: oul@tri-lakes.net SAMPLE COLLECTION DATA SHEET for FLUORESCENCE ANALYSIS

			Eosine X Rhodamine WT X Other Ship cooler to:				_			
	OUL se only		<u>Please indicate stations where dye was visible in the</u> for field technician use - use black ink only	e ficlo	<u>l</u>					OUL use on
CILAR REC'D	LAB NUMBER	STATION	STATION NAME	PLACED			Т	COLL	RCTED	WATE
	1-	1-4 Numbers		D	ATE	TIME	#	DATE	TIME	REC
	N8372	2-135	MW-2 – 135 ft	1/2	0/05	0925	- 2	13/05	1000	0
1	W8373	2-150	MW-2 – 150 ft				\perp			0
	W8374	2-165	MW-2 - 165 ft							
1	N8375	2-180	MW-2 – 180 ft							0
1	W8376	2-195	MW-2 – 195 ft					\neg		0
1	N8377	2-210	MW-2 ~ 210 ft		ackslash					0
1	NB378	23.222	MW-2 – 225 ft							0
1	W8379	2-240	MW-2 – 240 ft					7		0
1	W8381	2-255	MW-2 – 255 ft							
 J	NB382	2-270	MW-2 – 270 ft		1		7			0
	M383	2-285	MW-2 - 285 ft	\top	1		_			0
	W8384	2-300	MW-2 − 300 ft		 		1	_		0
<u>,</u>	10207	2-WA	MW-2 – Water Sample	+			\dashv	 	1015	_ <u>_</u>
							-		1	 '
				+			\dashv		 	+-
			l Black N9380			<u> </u>				

OZARK UNDERGROU. J LABORATORY, INC. 1572 Aley Lane Protem, MO 65733 (417) 785-4289 fax (417) 785-4290 email: oul@tri-lakes.nct

SAMPLE COLLECTION DATA SHEET for FLUORESCENCE ANALYSIS

Project:	Lake Ori	enta (CH2N	(hill) Week No: Samples Collected I	Ву:	Mile	<u>le 130,</u>	<u> </u>	<u> </u>		
Samples	Shipped By	: <u>m</u> :	Ke Borns Samples Received By: Marty.	lsn	9706	-01	16			
			105 Date Samples Received: 214105 Time Samples Received 12					oler? Ye	esN	0
			Send Results to: Ship cooler to: //o						· -	
Anaiyze	ior. Fluore	scem A	Eosine X Rhodamine WT X Other Ship cooler to:	~ ~ / /	<u> </u>					
1	OUI. e only		Please indicate stations where dye was visible in the for field technician use - use black ink only	field	l					OUL use only
# CHAR REC'D	LAB Number	STATION	STATION NAME	PLACED			Т	COLU	ECTED	# WATER
ALC D	NOMBER	1-4 Numbers		D.	ATE	TIME	\perp	DATE	TIME	REC'D
1	W8385	3-175	MW-3 – 175 ft	1/20	105	08,30	7 2	3/05	0850	0
1	W8386	3-185	MW-3 - 185 ft							0
/	N8387	3-195	MW-3 - 195 ft			}				0
J	1/8388	3-205	MW-3 – 205 ft] [0
1	NB 399	3-215	MW-3 – 215 ft	17						0
	NB390	3-225	MW-3 – 225 ft	11						0
1	W8391	3-235	MW-3 ~ 235 ft							0
	N8392	3-245	MW-3 – 245 ft							0
1	N8393	3-255	MW-3 – 255 ft							0
1	N9394	3-265	MW-3 – 265 ft							0
1	NR395	3-275	MW-3 – 275 ft							0
0		3-WA	MW-3 - Water Sample						0910	
										1
				+-			+			
COMM	ENTS.									
COMM	ER (3									
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	V		,							

OZARK UNDERGROU. LABORATORY, INC.
1572 Aley Lanc Protem, MO 65733 (417) 785-4289 fax (417) 785-4290 email: oul@tri-lakes.net SAMPLE COLLECTION DATA SHEET for FLUORESCENCE ANALYSIS

	<u>Lake Ori</u>								
Samples	Shipped By	: <i>M</i> ;	Samples Received By: Manty	عله	1. 5	<u> </u>) U L		
			105 Date Samples Received: 2 / 4 / 05 Time Samples Received: 12	<u>-: 16</u>	2	Return	Cooler?	csN	о
			Send Results to: CH2 M H;(1	/					
Analyze	ior: Fluore	scein X	Eosine X Rhodamine WT X Other Ship cooler to:&	000	(1)2				
1	OUI. e only		Please indicate stations where dye was visible in the for field technician use - use black ink only	field	<u>d</u>				OUL use only
# CHAR	IAB	STATION	STATION NAME	PLACED			COL	LECTED	#
REC'D	NUMBER	NUMBER 1-4 Numbers		D	ATE	TIME	DATE	TIME	WATER REC'D
1	NB396	4-165	MW-4 – 165 ft	1/20	105	0745	2/3/05	0810	
1	N8397	4-180	MW-4 - 180 ft				1	1	
1	N8398	4-195	MW-4 – 195 ft				77		
	N9399	4-210	MW-4 - 210 ft		\Box				
	N8401	4-225	MW-4 – 225 ft						
	N9402	4-240	MW-4 – 240 ft					Π	
1	N9403	4-255	MW-4 – 255 ft	17					
1	N9404	4-270	MW-4 – 270 ft	\top					1
	N840	4-285	MW-4 – 285 ft						
0		4-WA	MW-5 - Water Sample					0830	1
		•					1		
					_				\top
								1	
				+			+	_	+
COMM	L ENTS:	Charl	nol Blank N8400						-—
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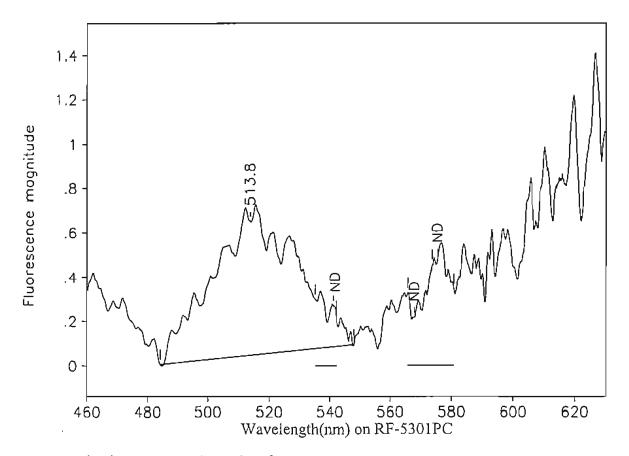
OZARK UNDERGROUND LABORATORY, INC.

1572 Aley Lane Protem, MO 65733 (417) 785-4289 fax (417) 785-4290 email: oul@tri-lakes.net

SAMPLE COLLECTION DATA SHEET for FLUORESCENCE ANALYSIS Project: Lake Orienta (CHZM Hill) Week No: 6 Samples Collected By: Mike Bown S Samples Shipped By Mike Kruns Samples Received By M. Ironold

Date Samples Shipped: 2 13 105 Date Samples Received: 2 14 105 Time Samples Received: 15 Return Cooler? Yes V No Bill to: Send Results to: CHZ M Hill

Analyze for: Fluorescein Y Eosine X Rhodamine WT Y Other Ship cooler to: 1/0 dorse 3 Assoc. OUL Please indicate stations where dve was visible in the field use only water only for field technician use - use black ink only # WATER STATION NAME NUMBER NUMBER REC'D 1-4 Numbers 1015 1910 0830 COMMENTS: This Sheet filledout by our Staff wh f:\shared\margarct\watercoc.doc Rev. 12/99 of



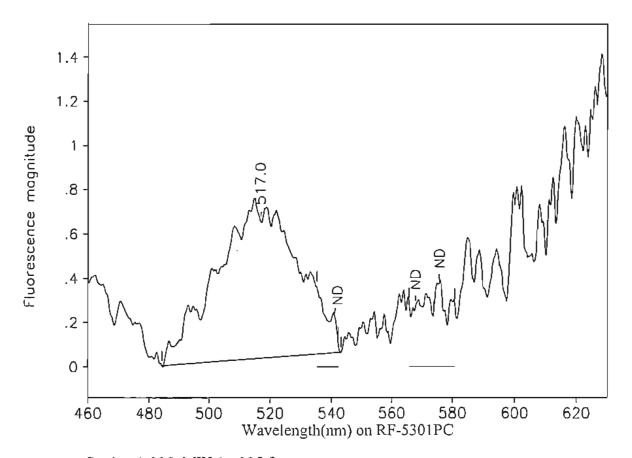
Station 1-215: MW-1 - 215 ft OUL number: N8364 Analyzed: 02/08/05

Matrix: Elutant

Placed: 01/20/05 0915 Collected: 02/03/05 0925

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.	
513.8	484.2	548.0	0.60	21.30	0.03	0.481	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND	
568.0	565.8	573.8	0.00	0.00	0.00	ND	
575.6	573.8	580.8	0.00	0.00	0.00	ND	
			_				



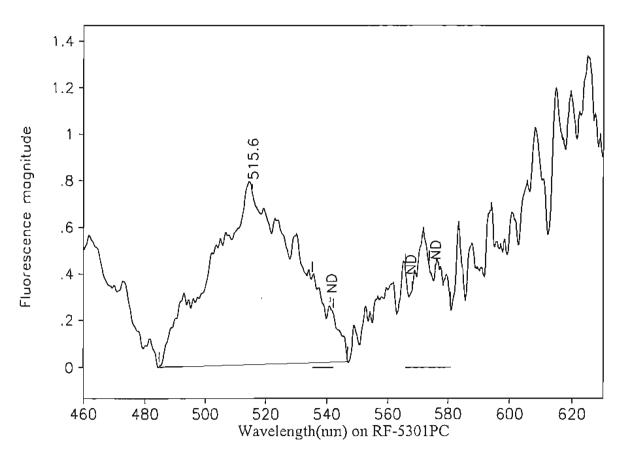
Station 1-225: MW-1 - 225 ft

OUL number: N8365 Analyzed: 02/08/05

Matrix: Elutant
Placed: 01/20/05 0915
Collected: 02/03/05 0925

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
517.0	484.2	543.2	0.62	22.20	0.03	D-501 ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 1-235: MW-1 - 235 ft

OUL number: N8366

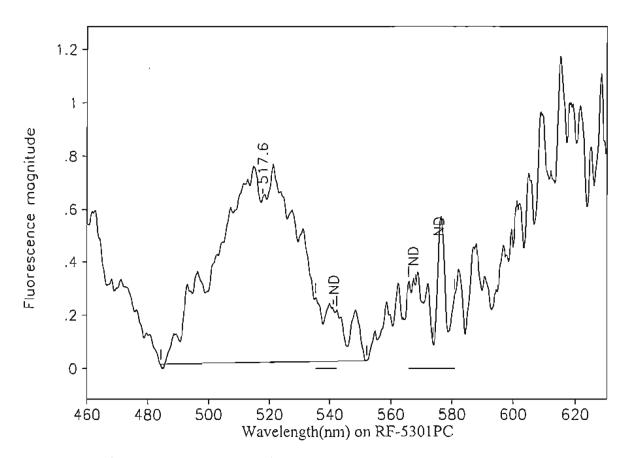
Matrix: Elutant

Placed: 01/20/05 0915 Collected: 02/03/05 0925

Analyzed: 02/08/05

Peaks within the normal range of tracer dyes:

		m	•		
Left X	Right X	Height	Area	H/A	Conc.
484.6	546.8	0.73	25.34	0.03	2572 NO
535.2	542.2	0.00	0.00	0.00	ND
565.8	573.8	0.00	0.00	0.00	ND
573.8	580.8	0.00	0.00	0.00	ND
	Left X 484.6 535.2 565.8	Left X Right X 484.6 546.8 535.2 542.2 565.8 573.8	Left X Right X Height 484.6 546.8 0.73 535.2 542.2 0.00 565.8 573.8 0.00	Left X Right X Height Area 484.6 546.8 0.73 25.34 535.2 542.2 0.00 0.00 565.8 573.8 0.00 0.00	484.6 546.8 0.73 25.34 0.03 535.2 542.2 0.00 0.00 0.00 565.8 573.8 0.00 0.00 0.00



Station 1-245: MW-1 - 245 ft

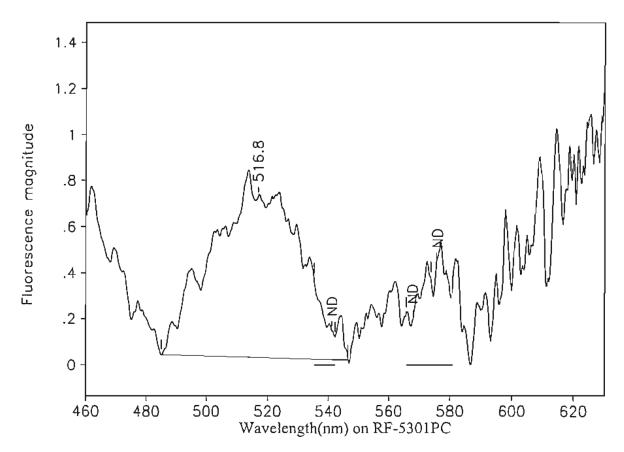
OUL number: N8367 Analyzed: 02/08/05

Matrix: Elutant

Placed: 01/20/05 0915 Collected: 02/03/05 0925

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
517.6	484.2	552.2	0.61	24.71	0.02	D.558 ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 1-255: MW-1 - 255 ft

OUL number: N8368

Matrix: Elutant

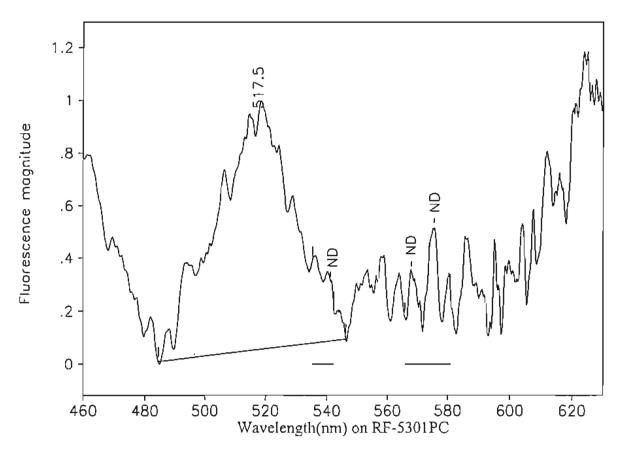
Placed: 01/20/05 0915

Analyzed: 02/08/05

Collected: 02/03/05 0925

Peaks within the normal range of tracer dyes:

	- valle within the northwar range of traver all as										
	Peak nin	Left X	Right X	Height	Area	H/A	Conc.				
	516.8	485.0	546.6	0.69	26.02	0.03	_0.58 7	ND			
	541.1	535.2	542.2	0.00	0.00	0.00	ND				
	568.0	565.8	573.8	0.00	0.00	0.00	ND				
575.6 573.8 580.8 0.00 0.00 0.00 ND											
	Peaks close to the normal range of tracer dyes:										



Station 1-265: MW-1 - 265 ft

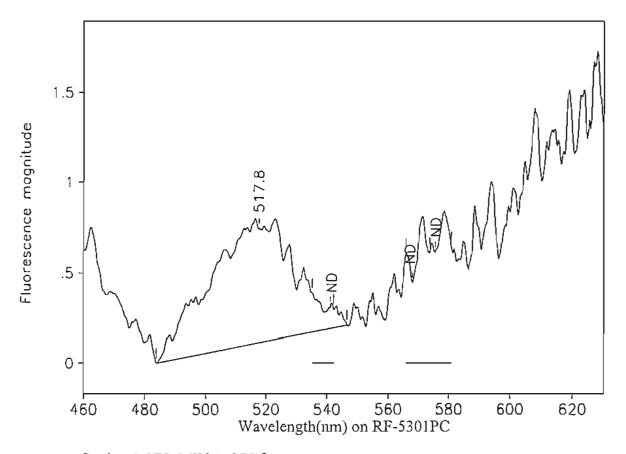
OUL number: N8369 Analyzed: 02/08/05

Matrix: Elutant

Placed: 01/20/05 0915 Collected: 02/03/05 0925

Peaks within the normal range of tracer dves:

I COMIC ITIM	Table William Meridian Table of Mader ayes.										
Peak nm	Left X	Right X	Height	Area	H/A	Conc.					
517.5	484.4	546.2	0.86	27.83	0.03	2628 ND					
541.1	535.2	542.2	0.00	0.00	0.00	ND					
568.0	565.8	573.8	0.00	0.00	0.00	ND					
575.6	573.8	580.8	0.00	0.00	0.00	ND					



Station 1-275: MW-1 -275 ft

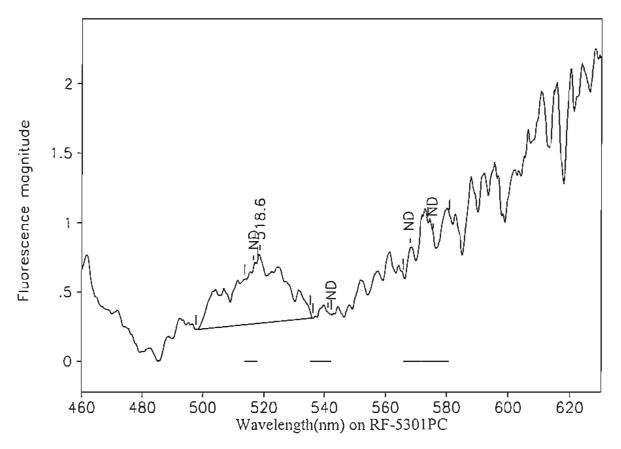
OUL number: N8370 Analyzed: 02/08/05

Matrix: Elutant

Placed: 01/20/05 0915 Collected: 02/03/05 0925

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
517.8	483.8	546.6	0.63	22.42	0.03	2.506 ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



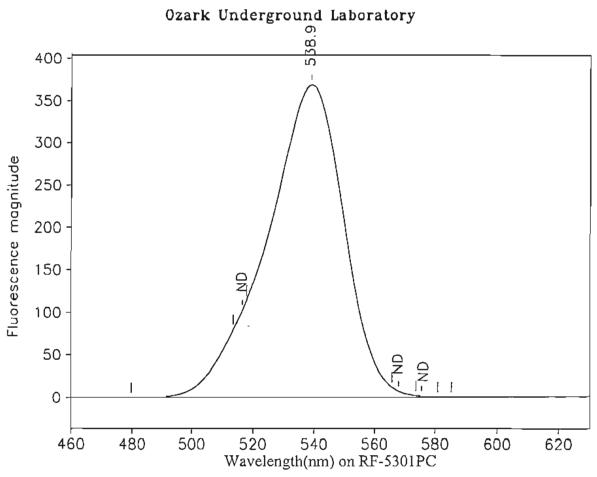
Station 1-285: MW-1 - 285 ft OUL number: N8371 Analyzed: 02/08/05

Matrix: Elutant

Collected: 02/03/05 0925 Placed: 01/20/05 0915

1	Deaks	within	the normal	range of tracer dyes:
	L CAK	s willilli	THE HOLLIA	FIAMEC OF HACCI (IVCS.)

I CALLD VIIII	,	a	, 400. 4, 50.			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND
Peaks clos	e to the norr	nal range of	tracer dyes:			
518.6	497.8	536.2	0.49	9.99	0.05	D.225 ND



Station 2-135: MW-2 - 135 ft

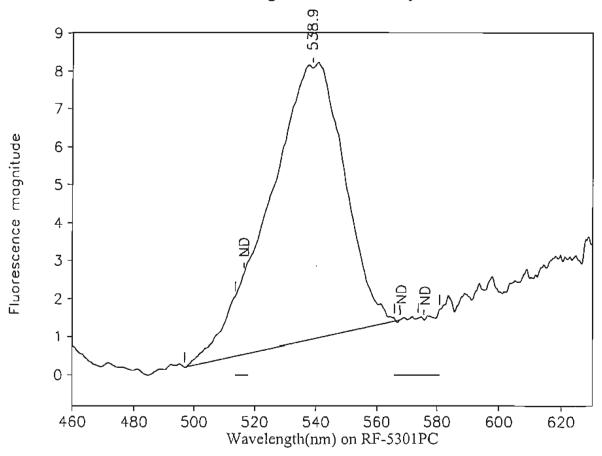
OUL number: N8372 Analyzed: 02/08/05

Matrix: Elutant

Placed: 01/20/05 0925 Collected: 02/03/05 1000

Peaks within the normal range of tracer dyes:

× 000,00 11,10	y date within the nerman lange of hacer a jee.							
Peak nm	Left X	Right X	Height	Area	H/A	Conc.		
516.5	513.6	517.9	0.00^{-}	0.00	0.00	ND(I)		
538.9	479.7	585.1	368.16	10,826.80	0.03	339		
568.0	565.8	573.8	0.00	0.00	0.00	ND		
575.6	573.8	580.8	0.00	0.00	0.00	ND		
Peaks close to the normal range of tracer dyes:								



Station 2-150: MW-2 - 150 ft

OUL number: N8373

Matrix: Elutant

Placed: 01/20/05 0925

Diluted: 1 to 100 Analyzed: 02/08/05

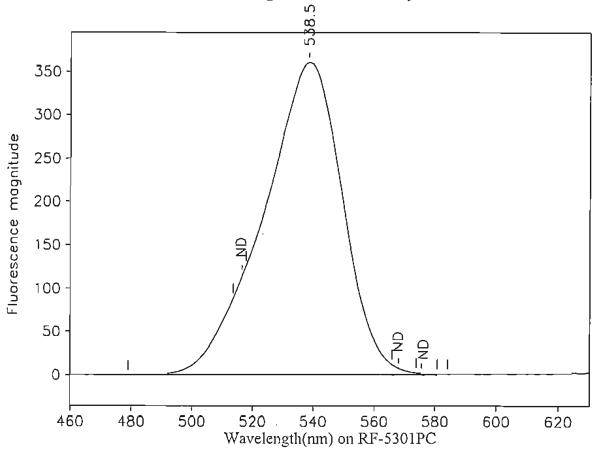
Collected: 02/03/05 1000

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND (I)
538.9	496.8	567.6	7.15	209.37	0.03	656
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND
3/3.0	2/2/8	290.9	U.ŲU	0.00	0.00	ND

Peaks close to the normal range of tracer dyes:

M



Station 2-165: MW-2 - 165 ft

OUL number: N8374

Matrix: Elutant

Placed: 01/20/05 0925

Analyzed: 02/08/05

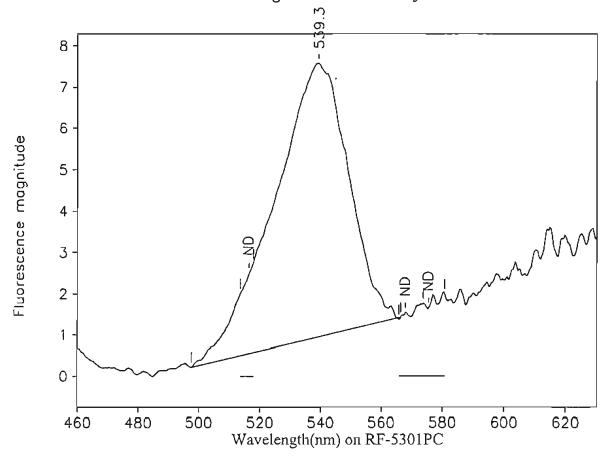
Collected: 02/03/05 1000

Peaks within the normal range of tracer dyes:

i care within the normal ratige of fracer dyes.								
Peak nm	Left X	Right X	Height	Area	H/A	Conc.		
516.5	513.6	517.9	0.00	0.00	0.00	Conc.		
538 <i>.</i> 5	479.1	584.1	359.76	10,868.80	0.03	341		
568.0	565 <i>.</i> 8	573.8	0.00	0.00	0.00	ND		
575.6	573.8	580.8	0.00	0.00	0.00	ND		
~								

Peaks close to the normal range of tracer dyes:

M



Station 2-180: MW-2 - 180 ft OUL number: N8375

Matrix: Elutant

Placed: 01/20/05 0925

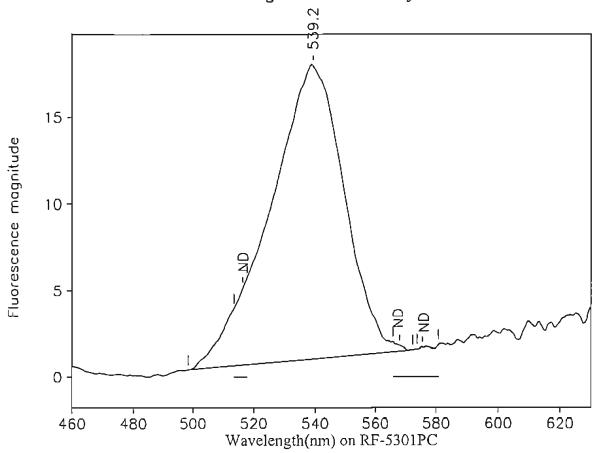
Diluted: 1 to 100 Analyzed: 02/08/05

Collected: 02/03/05 1000

Peaks within the normal range of tracer dves:

L Carso With	t outs within the normal range of dubbi a jos.							
Peak nm	Left X	Right X	Height	Area	H/A	Conc.		
516.5	513.6	517.9	0.00	0.00	0.00	ND		
539.3	497.6	566.4	6.61	190.42	0.03	597		
568.0	565.8	573 <i>.</i> 8	0.00	0.00	0.00	ND		
575.6	573.8	580.8	0.00	0.00	0.00	ND		





Station 2-195: MW-2 - 195 ft

OUL number: N8376

Matrix: Elutant

Placed: 01/20/05 0925

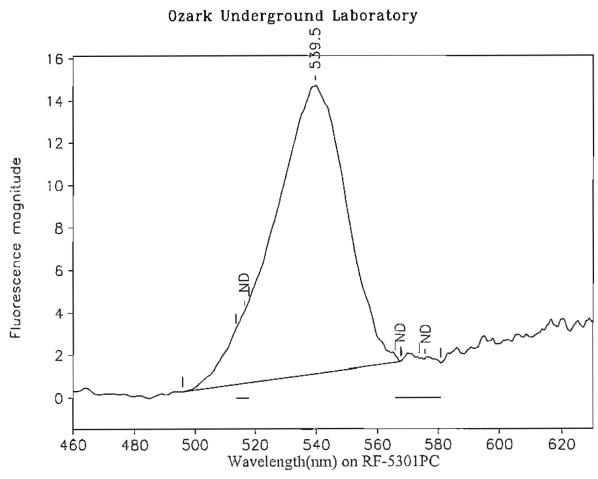
Diluted: 1 to 100 Analyzed: 02/08/05

Collected: 02/03/05 1000

Peaks within the normal range of tracer dyes:

a H/A Conc.
0.00 ND (\cdot)
.48 0.04 1,510
0.00 ND
0.00 ND
)





Station 2-210: MW-2 - 210 ft

OUL number: N8377

Matrix: Elutant

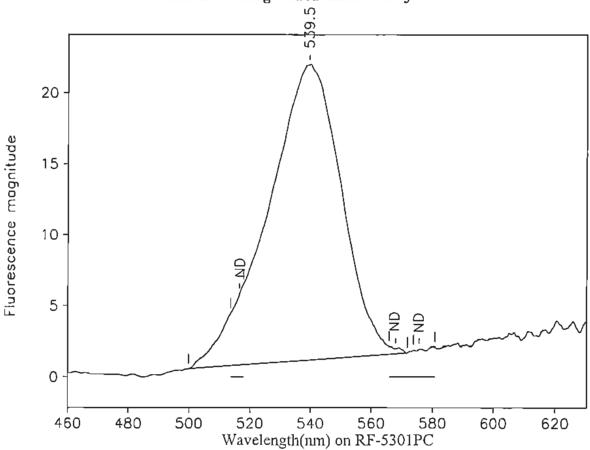
Placed: 01/20/05 0925

Diluted: 1 to 100 Analyzed: 02/08/05

Collected: 02/03/05 1000

Peaks within the normal range of tracer dyes:

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((
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Station 2-225: MW-2 - 225 ft

OUL number: N8378

Matrix: Elutant

Placed: 01/20/05 0925

Diluted: 1 to 100 Analyzed: 02/08/05

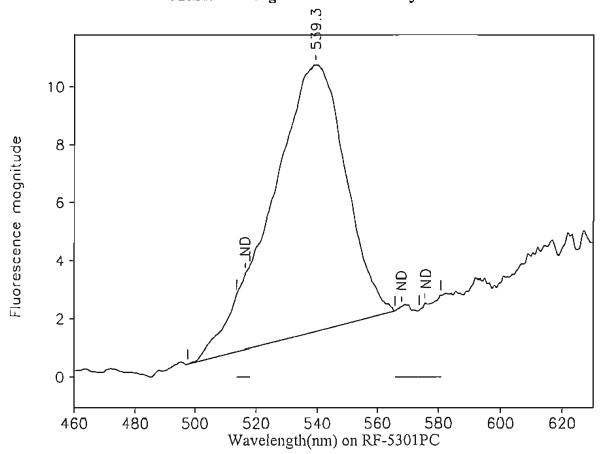
Collected: 02/03/05 1000

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND (i)
539.5	499.8	571.8	20.76	586.37	0.04	1,840
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND

Peaks close to the normal range of tracer dyes:

M



Station 2-240: MW-2 - 240 ft OUL number: N8379

Matrix: Elutant

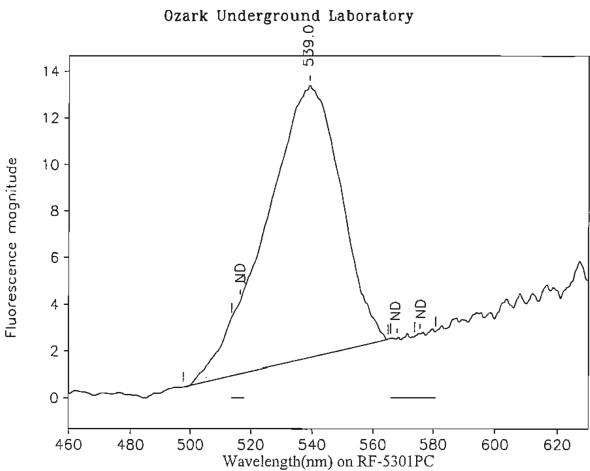
Placed: 01/20/05 0925

Diluted: 1 to 100 Analyzed: 02/08/05

Collected: 02/03/05 1000

Peaks within the normal range of tracer dyes:

I Cuito "I'I'	1111 1110 11011	mar range or	auco, ajoo.			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND(i)
539.3	497.6	565.8	9.18	261.83	0.04	821
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 2-255: MW-2 - 255 ft

OUL number: N8381

Matrix: Elutant

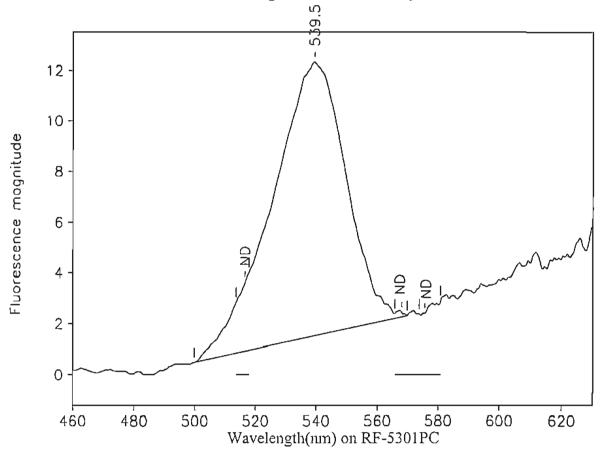
Placed: 01/20/05 0925

Diluted: 1 to 100 Analyzed: 02/08/05

Collected: 02/03/05 1000

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND(1)
539.0	497.6	565.0	11.66	331.45	0.04	1,040
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 2-270: MW-2 - 270 ft

OUL number: N8382

Matrix: Elutant

Placed: 01/20/05 0925

Diluted: I to 100 Analyzed: 02/08/05

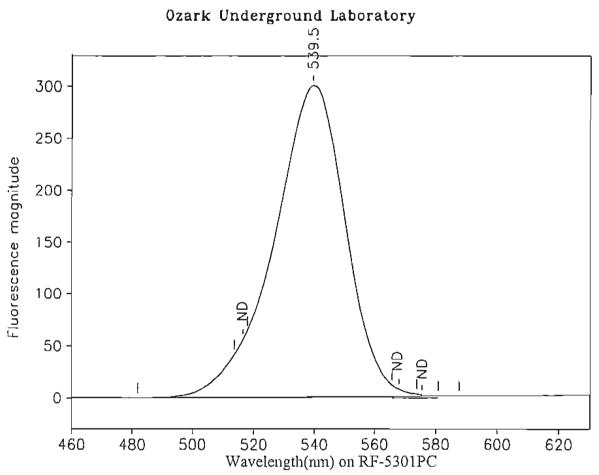
Collected: 02/03/05 1000

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517 <i>.</i> 9	0.00	0.00	0.00	ND (I)
539.5	499.8	569.8	10.81	304.51	0.04	955
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND

Peaks close to the normal range of tracer dyes:

M



Station 2-285: MW-2 - 285 ft

OUL number: N8383

Matrix: Elutant

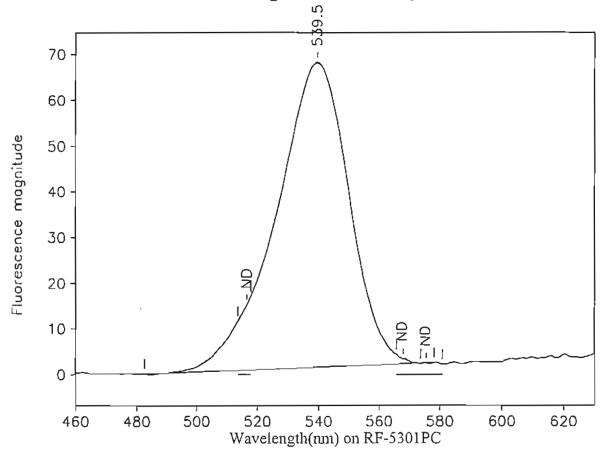
Placed: 01/20/05 0925

Analyzed: 02/08/05

Collected: 02/03/05 1000

Peaks within the normal range of tracer dyes:

1 00110	T water to the motion in the state of the st								
Peak nm	Left X	Right X	Height	Area	H/A	Conc.			
516.5	513.6	517.9	0.00	0.00	0.00	ND(i)			
539.5	481.8	587.5	299.91	8,257.51	0.04	259			
568.0	565.8	573.8	0.00	0.00	0.00	ND			
575.6	573.8	580.8	0.00	0.00	0.00	ND			
Peaks close to the normal range of tracer dyes:									



Station 2-300: MW-2 - 300 ft

OUL number: N8384

Matrix: Elutant

Placed: 01/20/05 0925

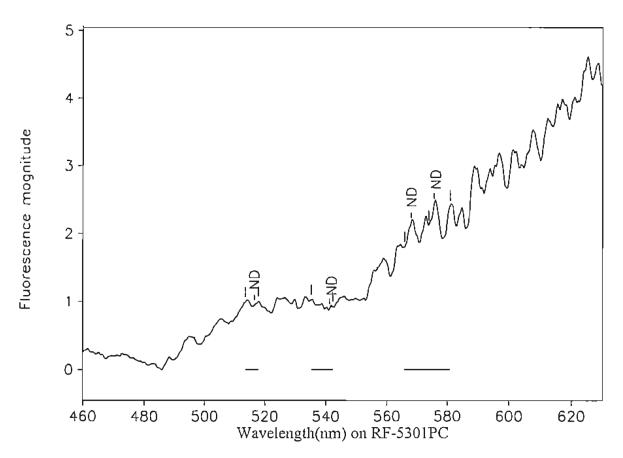
Analyzed: 02/08/05

Collected: 02/03/05 1000

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	Conc. ND (1)
539.5	482.5	578.0	66.63	1,854.39	0.04	58.1
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND
373.0	575.0	500.0	0.00	0.00	0.00	1.2





Station 3-175: MW-3 - 175 ft

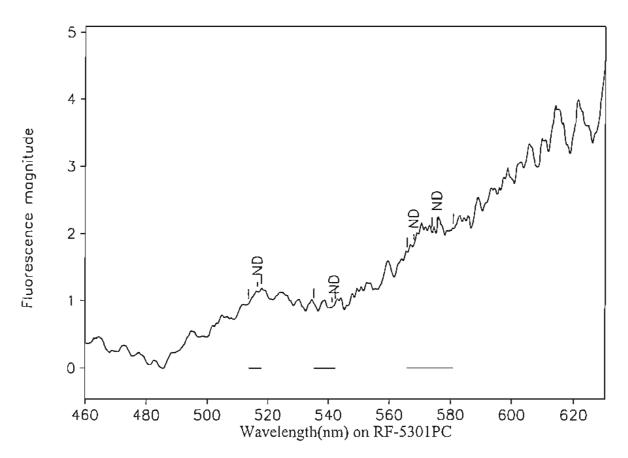
OUL number: N8385 Analyzed: 02/08/05

Matrix: Elutant

Placed: 01/20/05 0830 Collected: 02/03/05 0850

Peaks within the normal range of tracer dyes: Peak nm Left X Right X Height

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 3-185: MW-3 - 185 ft

OUL number: N8386

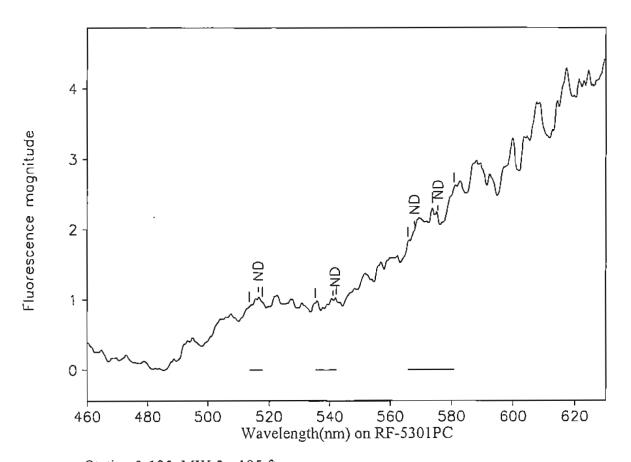
Matrix: Elutant

Placed: 01/20/05 0830

Analyzed: 02/08/05

Collected: 02/03/05 0850

Peaks with	nin the norr	nal range of	tracer dyes:			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 3-195: MW-3 - 195 ft

OUL number: N8387

Matrix: Elutant

Placed: 01/20/05 0830

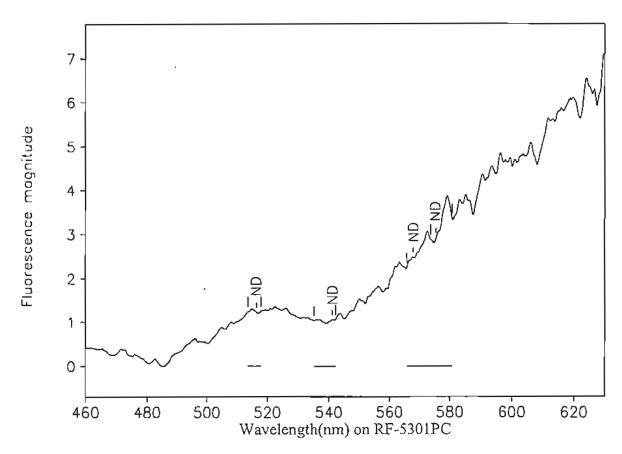
Analyzed: 02/08/05

Collected: 02/03/05 0850

Conc.

Peaks with	nin the nor	nal range of	tracer dyes:		
Peak nm	Left X	Right X	Height	Area	H/A
516 5	5126	5170	0.00	\wedge \wedge	$\wedge \wedge \wedge$

516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



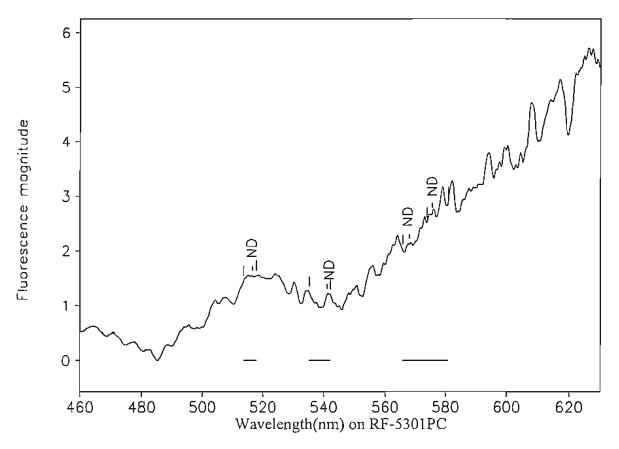
Station 3-205: MW-3 - 205 ft OUL number: N8388 Analyzed: 02/08/05

Matrix: Elutant

Collected: 02/03/05 0850 Placed: 01/20/05 0830

Peaks with	iin the non	mal range of t	tracer dyes:
Deale nm	Left Y	Right V	Height

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 3-215: MW-3 - 215 ft

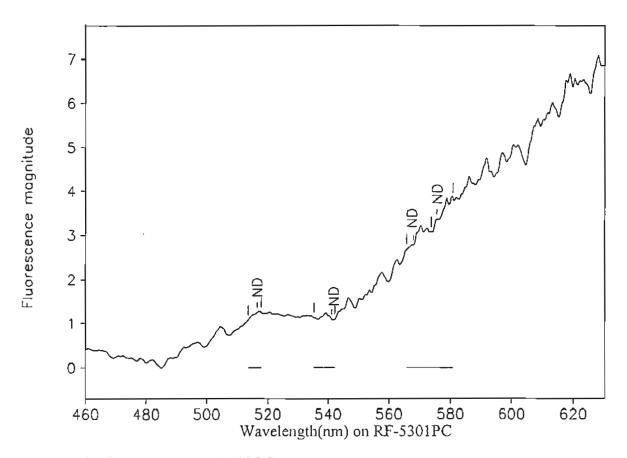
OUL number: N8389 Analyzed: 02/08/05

Matrix: Elutant

Placed: 01/20/05 0830 Collected: 02/03/05 0850

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND
		-				



Station 3-225: MW-3 - 225 ft

OUL number: N8390

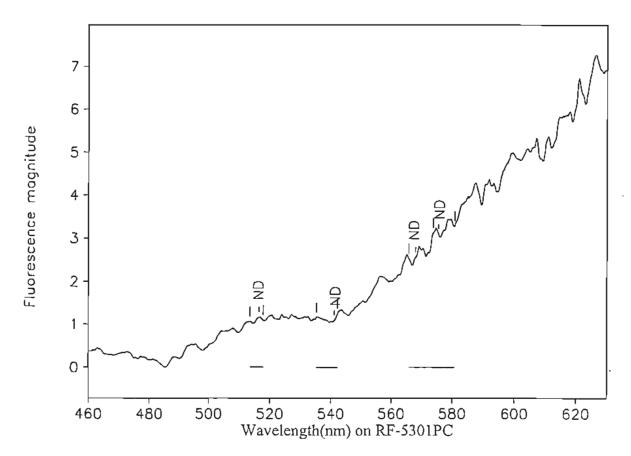
Matrix: Elutant

Placed: 01/20/05 0830

Analyzed: 02/08/05

Collected: 02/03/05 0850

Peaks with	in the norr	nal range of	tracer dyes:			
Peak nın	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



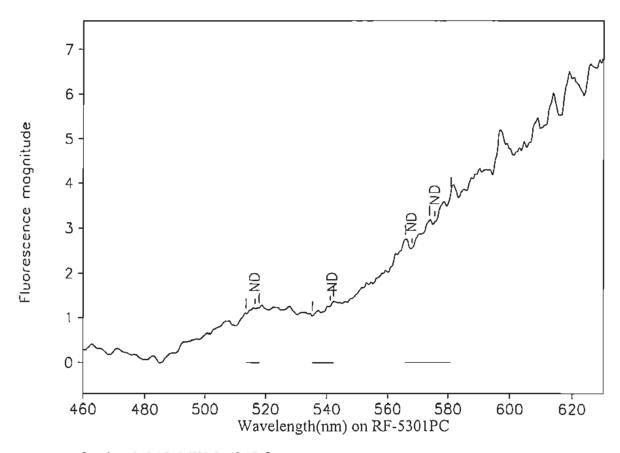
Station 3-235: MW-3 - 235 ft

OUL number: N8391 Analyzed: 02/08/05

Matrix: Elutant

Placed: 01/20/05 0830 Collected: 02/03/05 0850

Peaks with	in the norr	nal range of	tracer dyes:			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



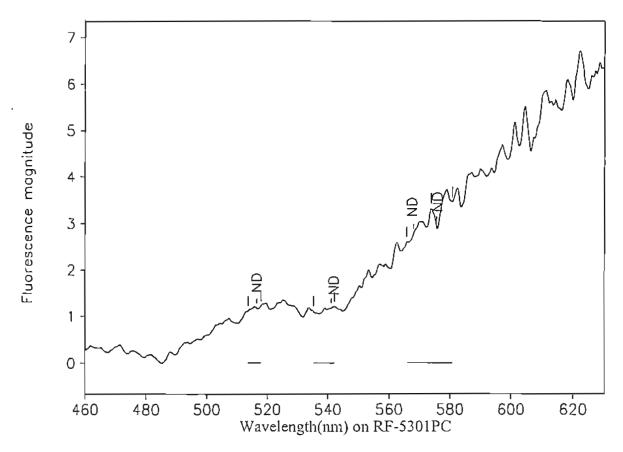
Station 3-245: MW-3 - 245 ft

OUL number: N8392 Analyzed: 02/08/05

Matrix: Elutant

Placed: 01/20/05 0830 Collected: 02/03/05 0850

Peaks with	nin the nor	nal range of	tracer dyes:			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND
D 1 1			C . 1			



Station 3-255: MW-3 - 255 ft

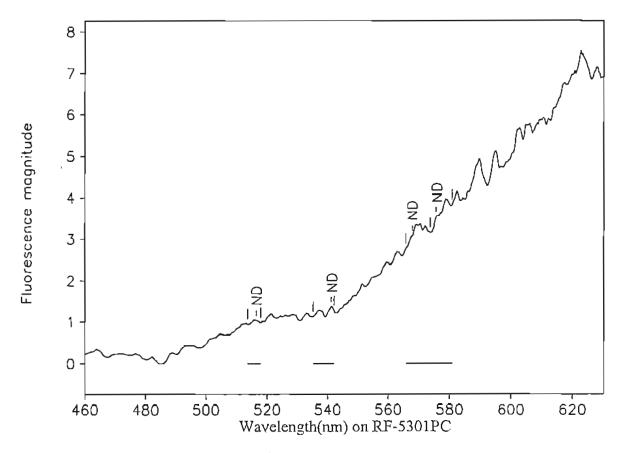
OUL number: N8393 Analyzed: 02/08/05

Matrix: Elutant

Placed: 01/20/05 0830 Collected: 02/03/05 0850

Peaks within the normal range of tracer dyes:

Peak nin	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND
D 1 1			A . 1			

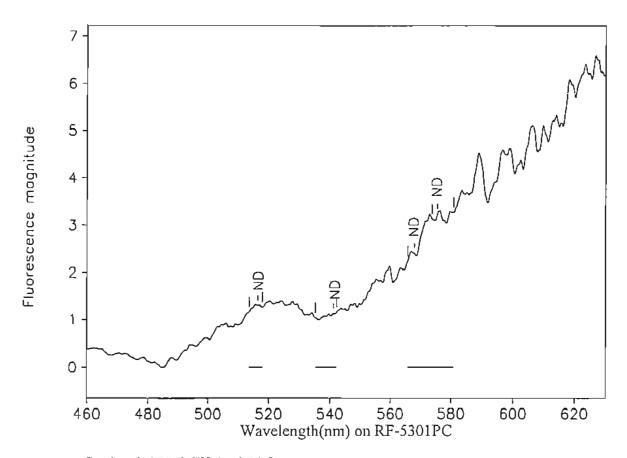


Station 3-265: MW-3 - 265 ft

OUL number: N8394 Analyzed: 02/08/05

Matrix: Elutant

Peaks within the normal range of tracer dyes:							
Peak run	Left X	Right X	Height	Area	H/A	Conc.	
516.5	513.6	517.9	0.00	0.00	0.00	ND	
541.1	535.2	542.2	0.00	0.00	0.00	ND	
568.0	565 <i>.</i> 8	573.8	0.00	0.00	0.00	ND	
575.6	573.8	580.8	0.00	0.00	0.00	ND	
Peaks close to the normal range of tracer dyes:							

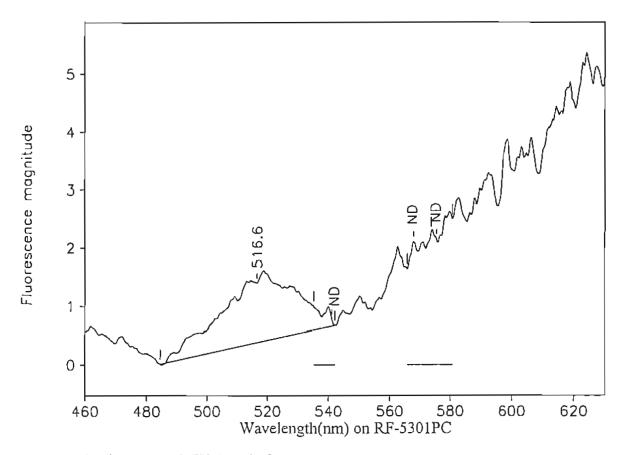


Station 3-275: MW-3 - 275 ft

OUL number: N8395 Analyzed: 02/08/05

Matrix: Elutant

Peaks with	nin the norr	nal range of	tracer dyes:			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND
Peaks close to the normal range of tracer dyes:						



Station 4-165: MW-4 - 165 ft

OUL number: N8396

Matrix: Elutant

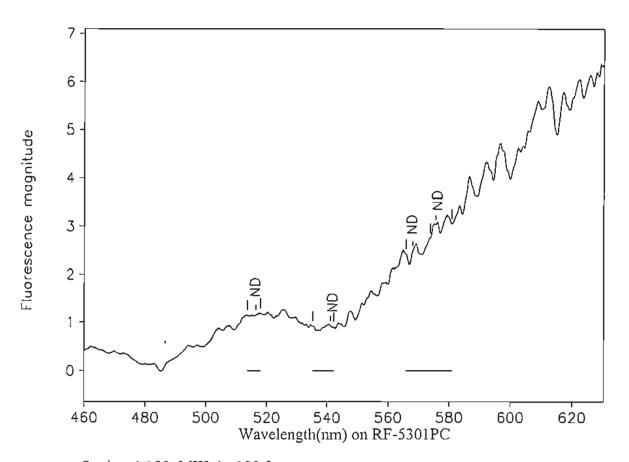
Placed: 01/20/05 0745

Analyzed: 02/08/05

Collected: 02/03/05 0810

Peaks within the normal range of tracer dyes:

Peak mn	Left X	Right X	Height	Area	H/A	Conc.	
516.6	484.4	542.2	1.02	34.26	0.03	D773 N	0
541.1	535.2	542.2	0.00	0.00	0.00	ND	
568.0	565.8	573.8	0.00	0.00	0.00	ND	
575.6	573.8	580.8	0.00	0.00	0.00	ND	



Station 4-180: MW-4 - 180 ft

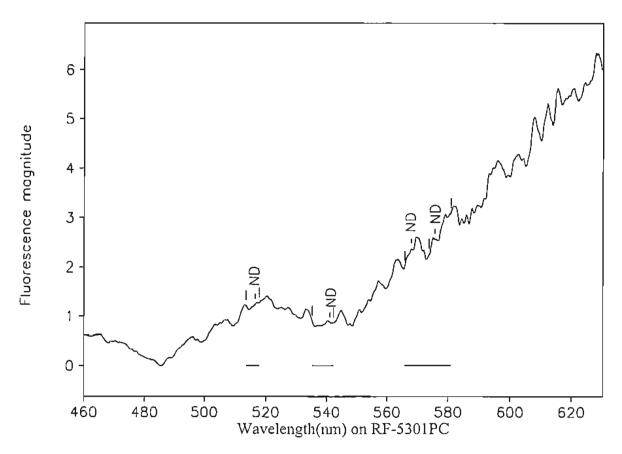
OUL number: N8397 Analyzed: 02/08/05

Matrix: Elutant

Placed: 01/20/05 0745 Collected: 02/03/05 0810

Peaks within the normal range of tracer dyes:

Peak nın	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 4-195: MW-4 - 195 ft

OUL number: N8398

Matrix: Elutant

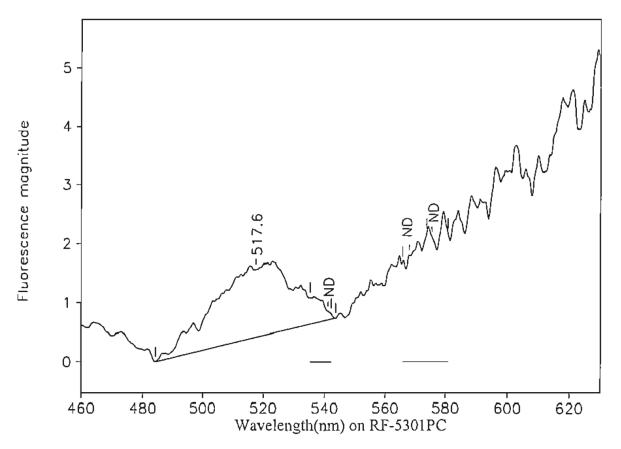
Placed: 01/20/05 0745

Analyzed: 02/08/05

Collected: 02/03/05 0810

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



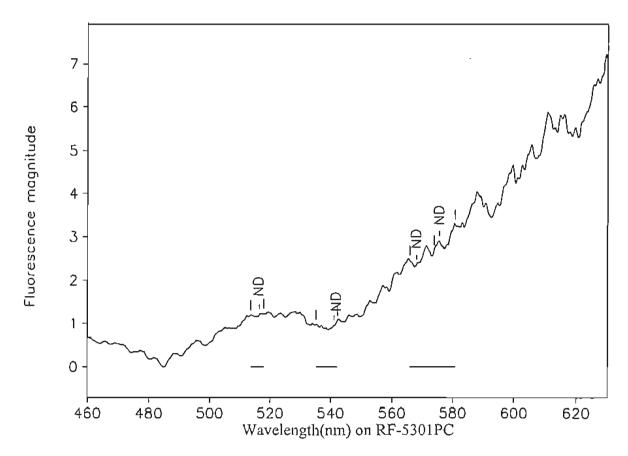
Station 4-210: MW-4 - 210 ft

OUL number: N8399 Analyzed: 02/08/05

Peaks close to the normal range of tracer dyes:

Matrix: Elutant

Peaks with	un the nor	mal range of	tracer dyes:			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
517.6	484.2	543.6	1.15	38.92	0.03	0.878 NO
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND

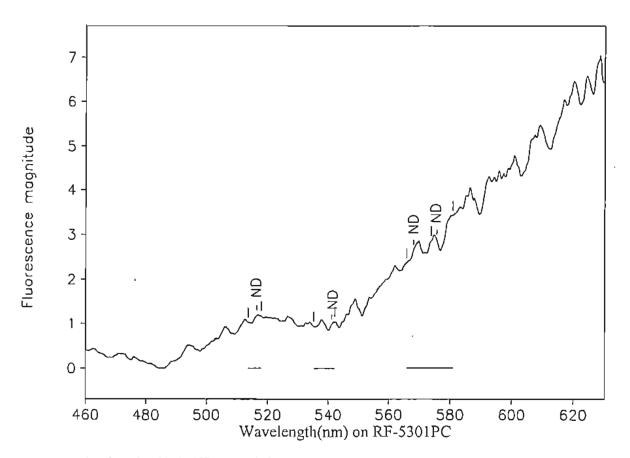


Station 4-225: MW-4 - 225 ft

OUL number: N8401 Analyzed: 02/08/05

Matrix: Elutant

Peaks witl	in the norr	nal range of	tracer dyes:			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565 <i>.</i> 8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND
Peaks close to the normal range of tracer dyes:						

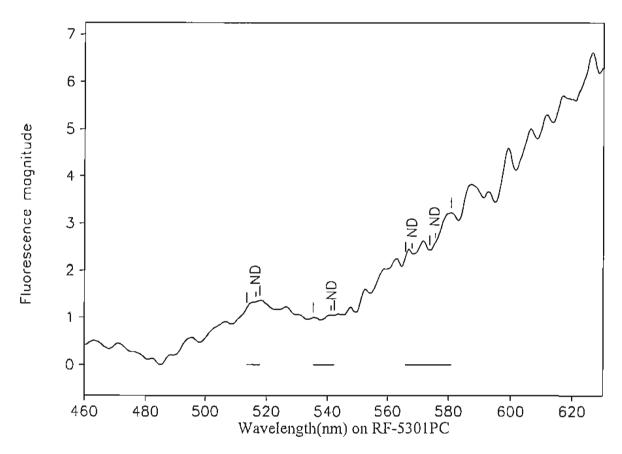


Station 4-240: MW-4 - 240 ft

OUL number: N8402 Analyzed: 02/08/05

Matrix: Elutant

Peaks with	nin the norr	nal range of	tracer dyes:			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	<i>573.</i> 8	580.8	0.00	0.00	0.00	ND
Peaks close to the normal range of tracer dyes:						

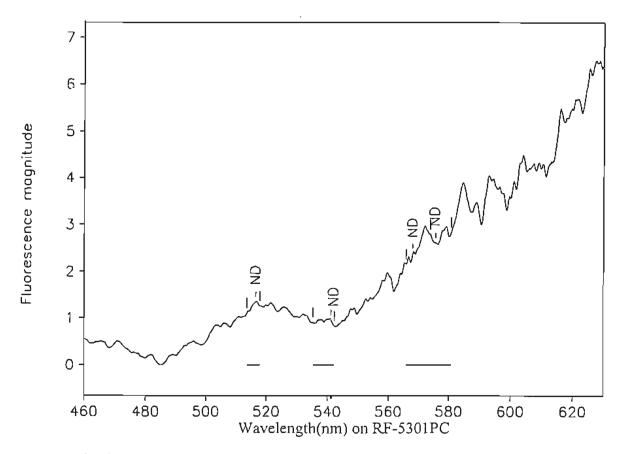


Station 4-255: MW-4 - 255 ft

OUL number: N8403 Analyzed: 02/08/05

Matrix: Elutant

Peaks with	nin the norm	nal range of	tracer dyes:			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND
Peaks close to the normal range of tracer dyes:						



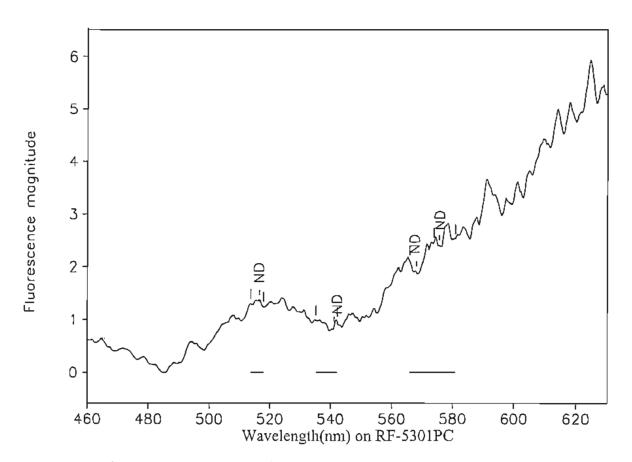
Station 4-270: MW-4 - 270 ft

OUL number: N8404 Analyzed: 02/08/05

Matrix: Elutant

Placed: 01/20/05 0745 Collected: 02/03/05 0810

Peaks with	nin the non	nal range of	tracer dyes:			
Peak nın	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND
Dealer des	- 4- 41	1	C 4			



Station 4-285: MW-4 - 285 ft

OUL number: N8405

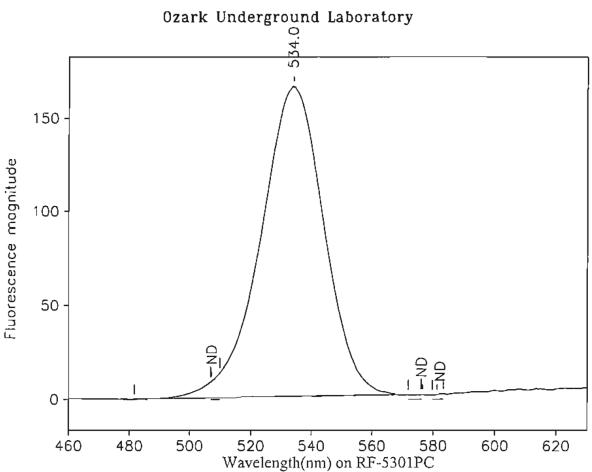
Matrix: Elutant

Placed: 01/20/05 0745 Collected: 02/03/05 0810

Analyzed: 02/08/05

Peaks within the normal range of tracer dyes: Peak nm Left X Right X Height

516.5 513.6 517.9 0.00 0.00 0.00	ND
541.1 535.2 542.2 0.00 0.00 0.00	ND
568.0 565.8 573.8 0.00 0.00 0.00	ND
575.6 573.8 580.8 0.00 0.00 0.00	ND



Station 2-WA: MW-2 - Water

OUL number: N8423 Analyzed: 02/08/05

Matrix: Water

Collected: 02/03/05 1015

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
507.3	506.9	509.9	0.00	0.00	0.00	ND
534.0	481.7	576.0	165.18	4,002.66	0.04	25.6
576.6	572.0	576.3	0.00	0.00	0.00	ND
581.2	579.7	583.2	0.00	0.00	0.00	ND
	4					



February 25, 2005

CERTIFICATE OF ANALYSIS

Alan W. Aikens, P.G. CH2MHill 225 East Robinson Street, Suite 505 Orlando, Florida 32801

RE: Lake Orienta

Dye analysis results for charcoal and water samples shipped February 17, 2005 Ozark Underground Laboratory (OUL) numbers N8650 through N8691 and N8773.

Dear Mr. Aikens:

We have completed analysis of the charcoal and water samples received by the OUL on February 18, 2005. We have indicated the OUL number for each of these samples on the enclosed table.

The fluorescein, eosine and rhodamine WT (RWT) dye concentrations are based upon standards routinely used at the OUL. The fluorescein and eosine are mixtures of 75% dye and 25% diluent; the RWT is a 20% solution. The concentrations are based upon the as-sold weight of the dye.

A summary of the results is presented in Table 1. Additional sampling information is available on the enclosed analysis graphs.

Sincerely,

Thomas J. Aley, PHG, RG

Women J. Ale

- Enclosures: 1. Table 1. Analysis results for charcoal and water samples
 - 2. Sample Collection Data Sheets
 - 3. Sample analysis graphs

f:\docs\coa\LakeOrien(a09.doc

Ozark Underground Laporatory for CH2MHill

Project:

Lake Orienta

Samples Collected By:

Mike Burns

Date Samples Shipped:

February 17, 2005

Date Samples Rec'd at OUL:

February 18, 2005

Date Analyzed by OUL:

February 23, 2005

Table 1. Results for charcoal and water samples analyzed for the presence of fluorescein, eosine and rhodamine WT (RWT) dyes. Peak wavelengths
are reported in nanometers (nm); dye concentrations are reported in parts per billion (ppb). All results are for charcoal unless otherwise indicated.

OUL Lab#	Station #	Station Name	Date/Time Placed	Date/Time Collected	Fluor	rescein	Eosine		R	WT
			2005	2005	Peak	Conc.	Peak	Conc.	Peak	Conc.
18650	1-215	MW-1 - 215 ft	2/3 0945	2/17 1015	ND		ND		ND	
18651	1-225	MW-1 - 225 ft	2/3 0945	2/17 1015	ND		ND		ND	
18652	1-235	MW-1 - 235 ft	2/3 0945	2/17 1015	ND		ND		ND	
18653	1-245	MW-1 - 245 ft	2/3 0945	2/17 1015	ND		ND		ND	
V8654	1-255	MW-1 - 255 ft	2/3 0945	2/17 1015	ND		ND		ND	
N8655	1-265	MW-1 - 265 ft	2/3 0945	2/17 1015	ND		ND		ND	
N8656	1-275	MW-1 -275 ft	2/3 0945	2/17 1015	ND		ND		ND	
N8G57	1-285	MW-1 - 285 ft	2/3 0945	2/17 1015	ND		ND		ND	
N8658	2-135	MW-2 - 135 ft	2/3 1020	2/17 1045	ND		537.7 (1)	349	ND	
N8G59	2-150	MW-2 - 150 ft	2/3 1020	2/17 1045	ND		537.3 (1)	316	ND	
18660	Labora	ory control charcoal blank				(eb. 302	1 2/			
N8661	2-165	MW-2 - 165 ft	2/3 1020	2/17 1045	ND		537.7 (1)	373	ND	
N8662	2-180	MW-2 - 180 ft	2/3 1020	2/17 1045	ND		537.9 (1)	613	ND	
18663	2-195	MW-2 - 195 ft	2/3 1020	2/17 1045	ND		538.4 (1)	980	ND	
18664	2-210	MW-2 - 210 ft	2/3 1020	2/17 1045	ND		537.8 (1)	1,310	ND	
18665	2-225	MW-2 - 225 ft	2/3 1020	2/17 1045	ND		538.7 (1)	607	ND	
18666	2-240	MW-2 - 240 ft	2/3 1020	2/17 1045	ND		538.0 (1)	569	ND	
V8667	2-255	MW-2 - 255 ft	2/3 1020	2/17 1045	ND		538.3 (1)	1,020	ND	\top
18668	2-270	MW-2 - 270 ft	2/3 1020	2/17 1045	ND		538.1 (1)	1,430	ND	
ootnotes	at end of	table			•				,	(continued)

Ozark Underground Laooratory for CH2MHill

Table 1. Results for charcoal and water samples analyzed for the presence of fluorescein, cosine and rhodamine WT (RWT) dyes. Peak wavelengths are reported in panometers (nm); dye concentrations are reported in parts per billion (ppb). All results are for charcoal unless otherwise indicated.

OUL Lab#	Station #	Station Name	Date/Time Placed	Date/Time Collected	Fluor	rescein	E	Eosine		WT
			2005	2005	Peak	Conc.	Peak	Conc.	Peak	Conc.
(continue	:d)						•		•	•
N8669	2-285	MW-2 - 285 ft	2/3 1020	2/17 1045	ND		538.5 (1)	271	ND	
N8670	2-300	MW-2 - 300 ft	2/3 1020	2/17 1045	ND		538.8 (1)	96.7	ND	
N8671	3-175	MW-3 - 175 ft	2/3 0915	2/17 0940	ND		ND		ND	
N8672	3-185	MW-3 - 185 ft	2/3 0915	2/17 0940	ND		ND		ND	
N8673	3-195	MW-3 - 195 ft	2/3 0915	2/17 0940	ND		ND		ND	
N8674	3-205	MW-3 - 205 ft	2/3 0915	2/17 0940	ND		ND		ND	
N8675	3-215	MW-3 - 215 ft	2/3 0915	2/17 0940	ND		ND		ND	
N8676	3-225	MW-3 - 225 ft	2/3 0915	2/17 0940	ND		ND		ND	
N8677	3-235	MW-3 - 235 ft	2/3 0915	2/17 0940	ND		ND		ND	
N8678	3-245	MW-3 - 245 ft	2/3 0915	2/17 0940	ND		ND		ND	
N8679	3-255	MW-3 - 255 ft	2/3 0915	2/17 0940	ND		ND		ND	
N8680	Laborate	ory control charcoal blank	A.特特。	\$	3757-1		i i i i jeri	elli sul.		
N8681	3-265	MW-3 - 265 ft	2/3 0915	2/17 0940	ND		ND		ND	
N8682	3-275	MW-3 - 275 ft	2/3 0915	2/17 0940	ND		ND		ND	
N8683	4-165	MW-4 - 165 ft	2/3 0835	2/17 0905	ND		ND		ND	
N8684	4-180	MW-4 - 180 ft	2/3 0835	2/17 0905	ND		ND		ND	
N8685	4-195	MW-4 - 195 ft	2/3 0835	2/17 0905	ND		ND		ND	
N8686	4-210	MW-4 - 210 ft	2/3 0835	2/17 0905	ND		ND		ND	
N8687	4-225	MW-4 - 225 ft	2/3 0835	2/17 0905	ND		ND		ND	
N8688	4-240	MW-4 - 240 ft	2/3 0835	2/17 0905	ND		ND		ND	
N8689	4-255	MW-4 - 255 ft	2/3 0835	2/17 0905	ND		ND		ND	
N8690	4-270	MW-4 - 270 ft	2/3 0835	2/17 0905	ND		ND		ND	
N8691	4-285	MW-4 - 285 ft	2/3 0835	2/17 0905	ND		ND		ND	
Footnote	s at end of	able	· -	•					(cc	ontinued)

Ozark Underground Laboratory for CH2MHill

Table 1. Results for charcoal and water samples analyzed for the presence of fluorescein, eosine and rhodamine WT (RWT) dyes. Peak wavelengths are reported in nanometers (nm); dye concentrations are reported in parts per billion (ppb). All results are for charcoal unless otherwise indicated.

OUL Lab#	Station #	Station Name	Date/Time Placed	Date/Time Collected	Fluor	Fluorescein		sine	RV	VT
			2005	2005	Peak	Conc.	Peak	Conc.	Peak	Conc.
(continue	ed)									
N8773	2-WA	MW-2 - Water	Water	2/17 1100	ND		533.7	26.1	ND	

FOOTNOTES:

ND = No dye detected

(1) = An eosine peak is present which is asymmetrical and skewed towards the lower wavelenths.

This type of peak could mask the presence of fluorescein dye.

OZARK UNDERGROUND LABORATORY, INC.

1572 Aley Lane Protem, MO 65733 (417) 785-4289 fax (417) 785-4290 email: oul@tri-lakes.net SAMPLE COLLECTION DATA SHEET for FLUORESCENCE ANALYSIS

Project: Lake Orienta (CH2Mhill)			(hill) Week No: Samples Collected	By:		Milhe	Burns		
Samples	Shipped By	r: Mila	Samples Received By:	m	ld	-000			
Date San	aples Shipp	ed: <u>고/17</u>	1 c5 Date Samples Received: 2/18/05 Time Samples Received 11	کِـــا:ــ	٤	Return	Cooler? Yo	es LN	о
Bill to: _			Send Results to: CH2 M (4:11			÷ 1			
Analyze	for: Fluore	scein X	Eosine X_ Rhodamine WT X_ Other Ship cooler to:	<u> </u>	176	3 A55	σc,		
	OUL ne only		Please indicate stations where dye was visible in the	e field	<u>i</u>				OUL use only
Cha	MAD LAB		for field technician use - use black ink only						
# CHAR REC'D	NUMBER	STATION NUMBER	STATION NAME	PLACED			COLL	WATER	
	<u>c</u>	1-4 Numbers		1	ATB	TIME	DATE	TIME	REC'D
	N8650	1-215	MW-1 – 215 ft	213	05	0945	2/17/05	1015	Ø
	N865/	1-225	MW-1 – 225 ft						Ø
_ 1	N8652	1-235	MW-1 ~ 235 ft	\perp					Į Q
1	N8653	1-245	MW-1 - 245 ft						Ø
1	N8654	1-255	MW-1 – 255 ft						g
1	N8655		MW-1 – 265 ft						O
1	N8656		MW-1 – 275 ft						Ø.
1	N 8657	1-285	MW-1 – 285 ft						Ø
Ø		1-WA	MW-1 - Water Sample					1030	
				\perp					
				\perp			4		
				4					
				\perp				<u> </u>	<u> </u>
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		1							
COMM	ENTS:								
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	eet filled out		0.00	עט ו	or: ~	Charles	416		
Thos	ect 621	- ans	3200 2/23/05 OUL Page 1 of 4			1. Share	d\forms\coc2.	uoc, Kev.	11 12104

OZARK UNDERGROUND LABORATORY, INC.
1572 Aley Lane Protem, MO 65733 (417) 785-4289 fax (417) 785-4290 email: oul@tri-lakes.net SAMPLE COLLECTION DATA SHEET for FLUORESCENCE ANALYSIS

Project:	<u>Lake Ori</u>	ake Orienta (CH2Mhill) Week No: Samples Collected By:									
			Samples Received By: Marty Cla	27A	رك	-00	<u>ے ر</u>				
			105 Date Samples Received: 2/18/05 Time Samples Received: 11					Cool	er? Ye	8N	o
Bill to: _			Send Results to: CH2 M H:								
Analyze	for: Fluore	scein X	Eosine X Rhodamine WT X Other Ship cooler to:	04	4150						
	OUL		Please indicate stations where dye was visible in the	fiel			_				OUL
Cha	conly		for field technician use - use black ink only								use only
# CHAR REC'D	LAB' NUMBER	STATION NUMBER	STATION NAME		PLA				COLLE		WATER
		1-4 Numbers	N 5 W 2 125 A	+-	ATE	TIM		T	ATE	TIME	REC'D
	N8658	2-135	MW-2 ~ 135 ft	2/3	105	102	٥	211	7/05	1045	P
	N8659	2-150	MW-2 – 150 ft	┼-	}						Ø
{	N866)	2-165	MW-2 ~ 165 ft	\perp	-						Ø
	N8662	2-180	MW-2 - 180 ft								Ø
1	N8663	2-195	MW-2 – 195 ft								0
	N.8664	2-210	MW-2 ~ 210 ft								p
l	N8665	73-225	MW-2 – 225 ft					Ц			Ø
1_	N8666	2-240	MW-2 – 240 ft	_				Ц			Ø
1	N8667	2-255	MW-2 – 255 ft				·	\coprod			7
l_	N8668	2-270	MW-2 - 270 ft					Ц			
_ 1_	N8669	2-285	MW-2 – 285 ft					Ш			Ø
1	N8670	2-300	MW-2 – 300 ft							1	0
P		2-WA	MW-2 - Water Sample							1100	1
<u> </u>				\perp		<u> </u>		_			
						<u></u>		_			<u> </u>
COMM	ents: 🍂	8660=	Charcoal Blank				_				
This she	et filled out	by OUL st	aff? Yes No Charts for samples on this page proofed	by O	UL:	7]	7			878	<u></u>
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ma	challe o		Million Colored Colore								

OZARK UNDERGROUND LABORATORY, INC.
1572 Aley Lane Protem, MO 65733 (417) 785-4289 fax (417) 785-4290 email: oul@tri-lakes.net SAMPLE COLLECTION DATA SHEET for FLUORESCENCE ANALYSIS

Project:	Lake Or	ienta (CH2N	Thill)	Week No:7	Samples Collected I	Ву:	_//	2: Ke	Buin			
	-	•	e burns	Samples Receiv	ed By: Marty O	کممک	ed	1-0	JL			
			_/ Date Samples Received: 2				_	Return	Cooler?	Yes _	No	
Bill to:				Send Results to:	CH2M H:1							
Analyze	for: Fluore	scein X	Eosine X Rhodamine WT X Ot	ther	Ship cooler to: <i>\lambda</i>	100	415	<u></u>				
1	OUL	_	Please indic	ate stations where	dye was visible in the	e field						OUL
Cha	re only				- use black ink only							use only
# CĤĂŘ REC'D	LAB NUMBER	STATION NUMBER	STA	TION NAME		_	PLA	CED	cor	ED	# WATER	
<u> </u>		1-4 Numbers	·			7	TE	TIME	DATE	\neg	TIME	REC'D
-	N8671	3-175	MW-3 – 175 ft			2/3/	-20	0915	17/0	J 🛱	940	10
	N8672	3-185	MW-3 – 185 ft				L_			\perp		
	N8673	3-195	MW-3 – 195 ft				L_					Ø
	N8674	3-205	MW-3 – 205 ft									Ø Ø Ø
1	N8675	3-215	MW-3 – 215 ft									'D'
1	N8676	3-225	MW-3 – 225 ft									Ø
}	N8677	3-235	MW-3 – 235 ft							$\perp \downarrow$		0
	18678	3-245	MW-3 – 245 ft			\perp				$\perp \downarrow$		Ø
}	N8679	3-255	MW-3 – 255 ft									Ø
	N8681	3-265	MW-3 – 265 ft									Ø
_ 1_	N8682	3-275	MW-3 - 275 ft							\perp	\	Ø
0		3-WA	MW-3 – Water Sample							Ø	950	
												· _
										\bot		
		<u> </u>										
COMM	ENTS:/	V8680	= Charcoal Blank									
This at	est filled sw	by OIII ~	aff? YesNo	Charts for som	nles on this name numbed	hy Oi		77.			87	9
_		-		_		Dy O	, L					
(and	. 0	ala alne	by M. Wanded OUL	- Page <u>3</u> of <u>7</u>				f:\share	d/forms/cod	:2.doc	Rev. 4/	12/04

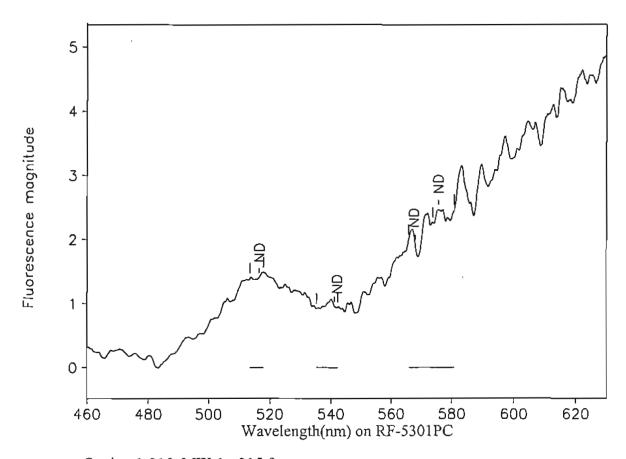
OZARK UNDERGROUND LABORATORY, INC.
1572 Aley Lane Protem, MO 65733 (417) 785-4289 fax (417) 785-4290 email: oul@tri-lakes.net SAMPLE COLLECTION DATA SHEET for FLUORESCENCE ANALYSIS

Project:	Lake Ori	enta (CH2N	<u>(hill)</u>	Week No: _		Samples Collecte	d By: _	M:	Le	Bul	' ~ '			
Samples	Shipped By	:	Le burns Date Samples Receiv		s Received B	y: Marty	arn	eal	-0	VL				
Date Sai	mples Shipp	ed:/	_/ Date Samples Receiv	ed: <u>2 1/18 1 0 5</u>	Time Sa	mples Received /_/	لا:ك	>_	Ret	iurn (Cooler	? Ye	8 <u>N</u>	ó
						,								
Analyze	for: Fluore	scein X	Eosine X Rhodamine WT X	Other	S	hip cooler to:	Noda	120						
	OUL		Please	indicate stations	s where dye	was visible in t	he fiel	d						OUL
Cha	se only SCOCI			for field technic	cian use - us	se black ink only								use only
# CHAR REC'D	LAB NUMBER	STATION NUMBER		STATION NAM	Œ			PLACED ·			C	OLLE	CTED	WATER
_		1-4 Numbers					D	ATE	TO	TIME DATE 7			TIME	REC'D
	N8683	4-165	MW-4 – 165 ft				2/3	105	08	35	2/17/0	5	0905	Ø
_ 1_	N8684	4-180	MW-4 – 180 ft			· ·				<u>_</u>			\rightarrow	Ø
1	N8685	4-195	MW-4 – 195 ft	·										Ø
1	N8686	4-210	MW-4 – 210 ft											Ø
1	N8487	4-225	MW-4 – 225 ft											0
1	N8688	4-240	MW-4 – 240 ft						17		\prod			Ø
1	18689	4-255	MW-4 – 255 ft											7
	N869D	4-270	MW-4 – 270 ft											α
1	N8691	4-285	MW-4 - 285 ft										1	Ø
Ø		4-WA	MW-5 - Water Sample						,				0915	
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COMM	ENTS:								_					
										٧,				380
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OZARK UNDERGROUND LABORATORY, INC.

1572 Alcy Lane Protem, MO 65733 (417) 785-4289 fax (417) 785-4290 cmail: oul@trl-takes.net SAMPLE COLLECTION DATA SHEET for FLUORESCENCE ANALYSIS

Project:	<u>Lake Ori</u>	cnia (CH2N	(Inill) Week No: Samples Collected B	y:	M:	Ke	Bc	10)			
Samples	Shipped By	: Mil	Samples Received By: Tract (UL) 105 Date Samples Received: 2/18/05 Time Samples Received: 11	20	call	-(UL				
Bill to: _ Apolyzo	for Fluore	scoin V	Send Results to: CH2 M H: BEOSING X_ Rhodamine WT X_ Other Ship cooler to: N	1 ala							
Anaiyze	tor: Fluore	scein X	Easine X_ Rhodamine W1 X_ Other Ship cooler to:		1/36	_					
	OUL e only		Please indicate stations where dye was visible in the	field	1						OUL use only
# CHAR	e only	STATION	for field technician use - use black ink only	_				_			N N
REC'D	NUMBER	NUMBER	STATION NAME		PLACED COLLECTED DATE TIME DATE TIME					TIME	WATER REC'D
1		2-135	MW-2 – 135 ft	1	105			1	$\overline{}$	1042	Ø
		2-150	MW-2 - 150 ft	17	-	73		1211		10,75	Ø
1		2-165	MW-2 – 165 ft	1						\top	V
		2-180	MW-2 – 180 ft			\Box		П		7	10
		2-195	MW-2 – 195 ft								8
1		2-210	MW-2 – 210 ft								M
		3-225	MW-2 – 225 ft								Ø
1	•	2-240	MW-2 – 240 ft								2
1		2-255	MW-2 – 255 ft								12
<u> </u>		2-270	MW-2 – 270 ft								Ø
1		2-285	MW-2 – 285 ft					Ц			Ø
11		2-300	MW-2 – 300 ft								0
0	N8773	2-WA	MW-2 – Water Sample							1100	1
COMM	ENTS:										
This she	et filled out	by OUL st	aff? Yes No Charts for samples on this page proofed	by Ω							381
	t 621-	0	ed 2-23-05 OUL Page 2 of 4	-, 0			share	Nam	us/coc)	——— .doc, Rev.	
		may 3	ed 2-23-05 OUL Page 2 of 4								



Station 1-215: MW-1 - 215 ft

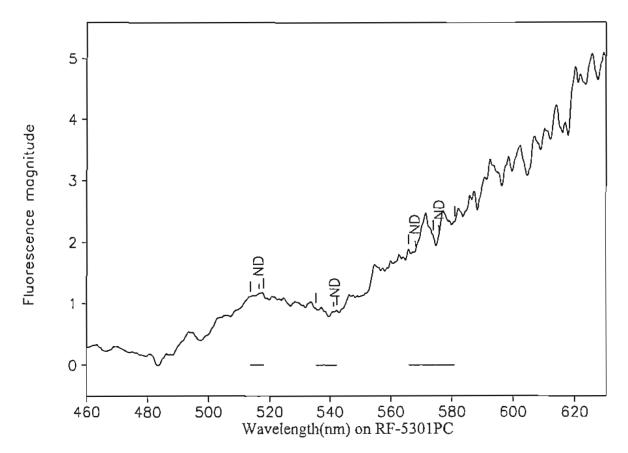
OUL number: N8650 Analyzed: 02/23/05

Matrix: Elutant

Placed: 02/03/05 0945 Collected: 02/17/05 1015

Peaks within the normal range of tracer dyes:

Left X	Right X	Height	Area	H/A	Conc.
513.6	517.9	0.00	0.00	0.00	ND
535.2	542.2	0.00	0.00	0.00	ND
565.8	573.8	0.00	0.00	0.00	ND
573.8	580.8	0.00	0.00	0.00	ND
	513.6 535.2 565.8	513.6 517.9 535.2 542.2 565.8 573.8	513.6 517.9 0.00 535.2 542.2 0.00 565.8 573.8 0.00	513.6 517.9 0.00 0.00 535.2 542.2 0.00 0.00 565.8 573.8 0.00 0.00	513.6 517.9 0.00 0.00 0.00 535.2 542.2 0.00 0.00 0.00 565.8 573.8 0.00 0.00 0.00



Station 1-225: MW-1 - 225 ft

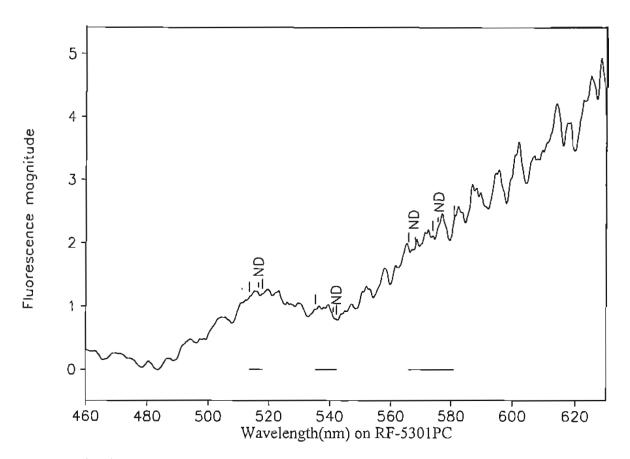
OUL number: N8651 Analyzed: 02/23/05

Matrix: Elutant

Placed: 02/03/05 0945 Collected: 02/17/05 1015

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND
		•	0. 1			



Station 1-235: MW-1 - 235 ft

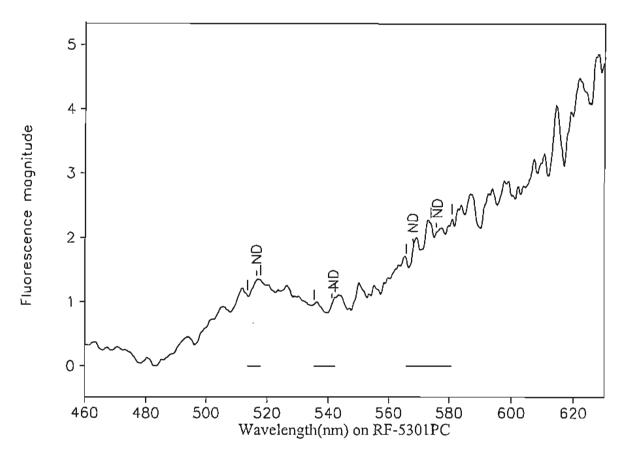
OUL number: N8652 Analyzed: 02/23/05

Matrix: Elutant

Placed: 02/03/05 0945 Collected: 02/17/05 1015

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.							
516.5	513.6	517.9	0.00^{-}	0.00	0.00	ND							
541.1	535.2	542.2	0.00	0.00	0.00	ND							
568.0	565.8	573.8	0.00	0.00	0.00	ND							
575.6													
Peaks close to the normal range of tracer dyes:													



Station 1-245: MW-1 - 245 ft

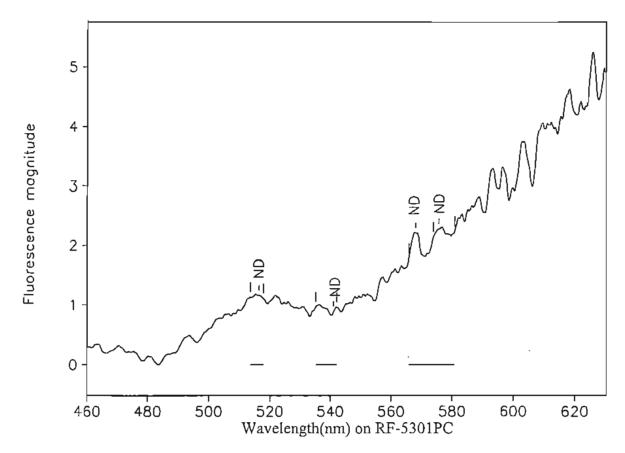
OUL number: N8653 Analyzed: 02/23/05

Matrix: Elutant

Placed: 02/03/05 0945 Collected: 02/17/05 1015

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565 <i>.</i> 8	573.8	0.00	0.00	0.00	ND
575.6	573 <i>.</i> 8	580.8	0.00	0.00	0.00	ND
D - 1 1	4 11	•	C			



Station 1-255: MW-1 - 255 ft

OUL number: N8654

Matrix: Elutant

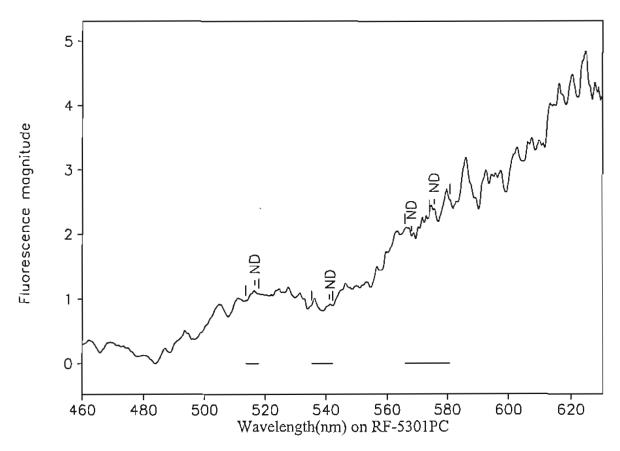
Placed: 02/03/05 0945

Analyzed: 02/23/05

Collected: 02/17/05 1015

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.				
516.5	513.6	517.9	0.00	0.00	0.00	ND				
541.1	535.2	542.2	0.00	0.00	0.00	ND				
568.0	565.8	573.8	0.00	0.00	0.00	ND				
575.6	573.8	580.8	0.00	0.00	0.00	ND				
Peaks close to the normal range of tracer dyes:										



Station 1-265: MW-1 - 265 ft

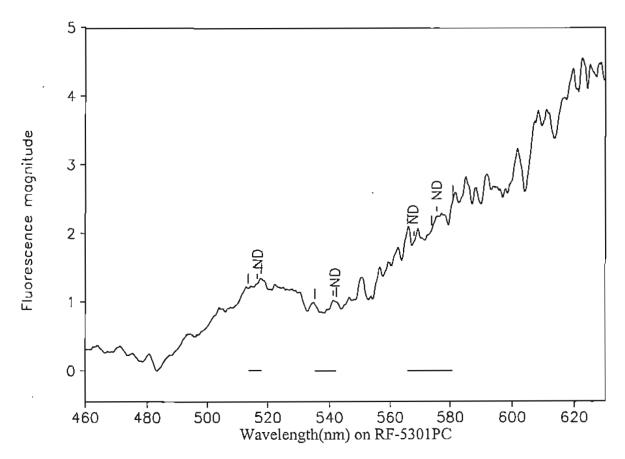
OUL number: N8655 Analyzed: 02/23/05

Matrix: Elutant

Placed: 02/03/05 0945 Collected: 02/17/05 1015

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND
Peaks close to the normal range of tracer dyes:						



Station 1-275: MW-1 -275 ft

Peaks close to the normal range of tracer dyes:

OUL number: N8656

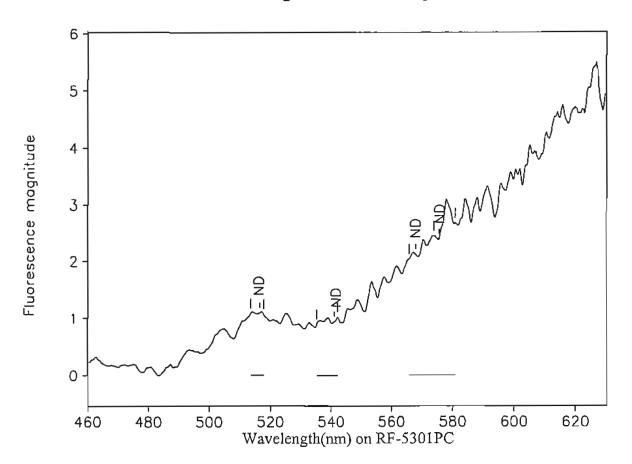
Matrix: Elutant

Placed: 02/03/05 0945

Analyzed: 02/23/05

Collected: 02/17/05 1015

Peaks with	nin the nor	nal range of	tracer dyes:			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 1-285: MW-1 - 285 ft

OUL number: N8657

Matrix: Elutant

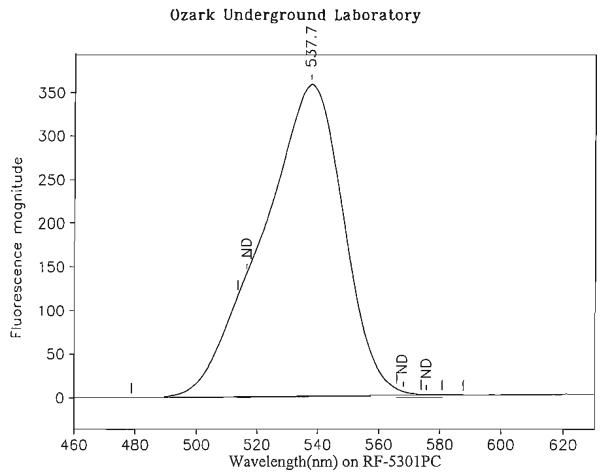
Placed: 02/03/05 0945

Analyzed: 02/23/05

Collected: 02/17/05 1015

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00^{-}	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 2-135: MW-2 - 135 ft

OUL number: N8658

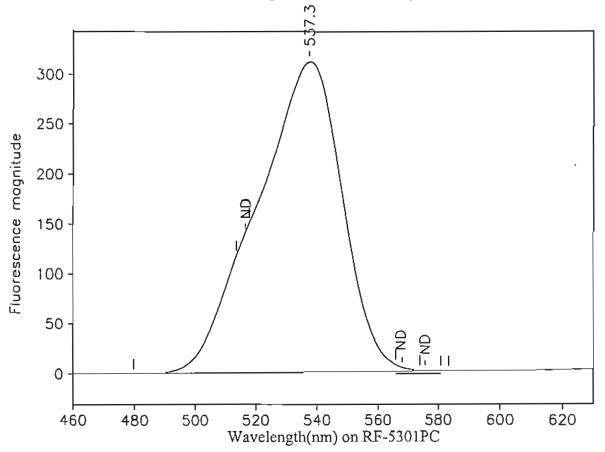
Matrix: Elutant

Placed: 02/03/05 1020 Collected: 02/17/05 1045

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.	
516.5	513.6	517.9	0.00	0.00	0.00	ND	۸.
537.7	478.9	587.6	357.64	11,096.40	0.03	349	Ch
568.0	565.8	573.8	0.00	0.00	0.00	ND	-
575.6	573.8	580.8	0.00	0.00	0.00	ND	

Analyzed: 02/23/05



Station 2-150: MW-2 - 150 ft

OUL number: N8659 Analyzed: 02/23/05

Matrix: Elutant

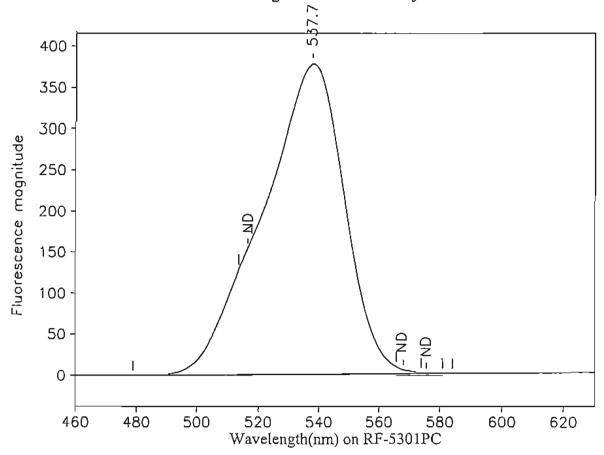
Placed: 02/03/05 1020 Collected: 02/17/05 1045

Peaks within the normal range of tracer dyes:

, , , , , , ,	WILL ALLA 11A1		,			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
537.3	479.6	583.5	311.24	10,039.70	0.03	316
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND

Peaks close to the normal range of tracer dyes:

Ch



Station 2-165: MW-2 - 165 ft

OUL number: N8661 Analyzed: 02/23/05

Matrix: Elutant

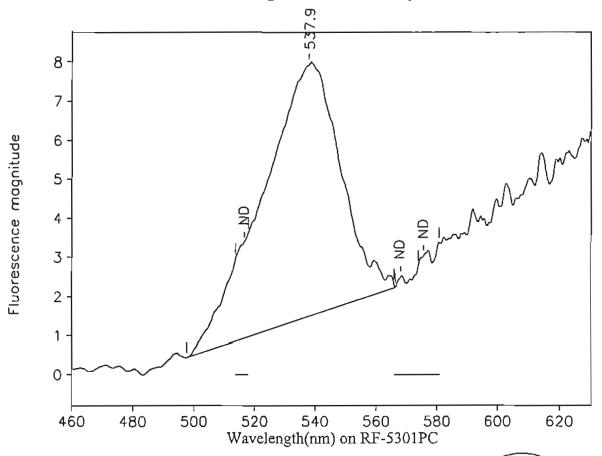
Placed: 02/03/05 1020 Collected: 02/17/05 1045

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
537.7	478.9	583.9	378.16	11,852.00	0.03	373
568.0	565.8	573.8	0.00	0.00	0.00	ND
				• • • •		- 12
575.6	573.8	580.8	0.00	0.00	0.00	ND

Peaks close to the normal range of tracer dyes:

Ca



Station 2-180: MW-2 - 180 ft

OUL number: N8662

Matrix: Elutant

Placed: 02/03/05 1020

Diluted: 1 to 100 Analyzed: 02/23/05

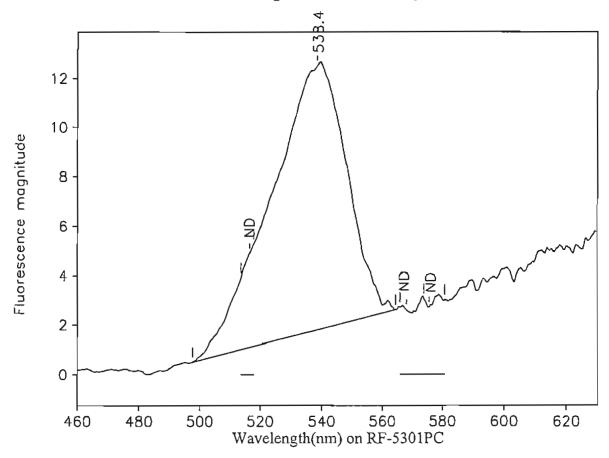
Collected: 02/17/05 1045

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
537.9	497.6	566.2	6.46	195.05	0.03	613
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND
Peaks close to the normal range of tracer dyes:						

893

En



Station 2-195: MW-2 - 195 ft

OUL number: N8663

Matrix: Elutant

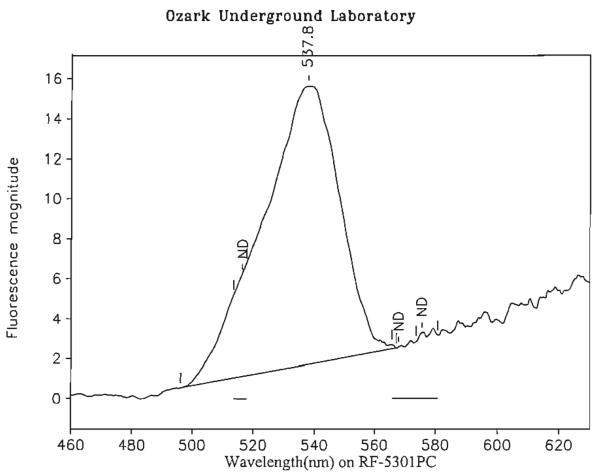
Placed: 02/03/05 1020

Diluted: 1 to 100 Analyzed: 02/23/05

Collected: 02/17/05 1045

Peaks within the normal range of tracer dyes:

Left X	Right X	Height	Area	H/A	Conc.
513.6	517.9	0.00	0.00	0.00	ND
497.6	564.4	10.71	311.65	0.03	980
565.8	573.8	0.00	0.00	0.00	ND
573.8	580.8	0.00	0.00	0.00	ND
	513.6 497.6 565.8	513.6 517.9 497.6 564.4 565.8 573.8	513.6 517.9 0.00 497.6 564.4 10.71 565.8 573.8 0.00	513.6 517.9 0.00 0.00 497.6 564.4 10.71 311.65 565.8 573.8 0.00 0.00	513.6 517.9 0.00 0.00 0.00 497.6 564.4 10.71 311.65 0.03 565.8 573.8 0.00 0.00 0.00



Station 2-210: MW-2 - 210 ft

OUL number: N8664

Matrix: Elutant

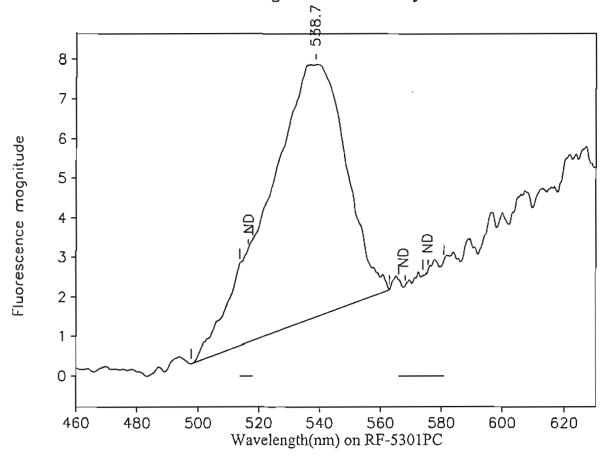
Placed: 02/03/05 1020

Diluted: 1 to 100 Analyzed: 02/23/05

Collected: 02/17/05 1045

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
537.8	496.2	567.2	13.96	416.05	0.03	1,310
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 2-225: MW-2 - 225 ft

OUL number: N8665

Matrix: Elutant

Placed: 02/03/05 1020

Diluted: 1 to 100 Analyzed: 02/23/05

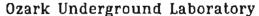
Collected: 02/17/05 1045

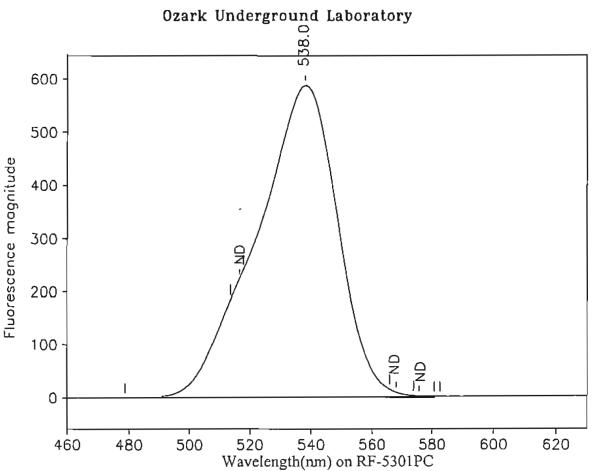
Peaks within the normal range of tracer dyes:

Conc.
7 III
ND
607
ND
ND

Peaks close to the normal range of tracer dyes:

Cu





Station 2-240: MW-2 - 240 ft

OUL number: N8666

Matrix: Elutant

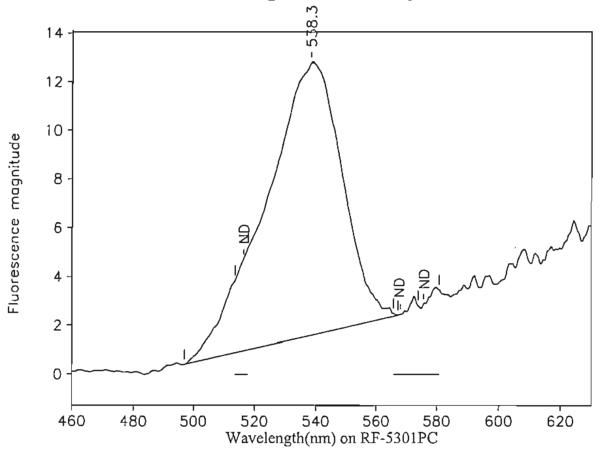
Placed: 02/03/05 1020

Analyzed: 02/23/05

Collected: 02/17/05 1045

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
538.0	478.7	582.5	587.53	18,098.90	0.03	569
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND
Peaks close to the normal range of tracer dyes:						



Station 2-255: MW-2 - 255 ft

OUL number: N8667

Matrix: Elutant

Placed: 02/03/05 1020

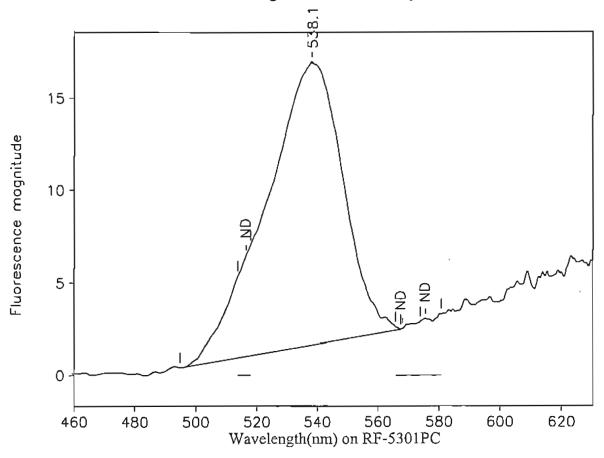
Diluted: 1 to 100 Analyzed: 02/23/05

Collected: 02/17/05 1045

Peaks within the normal range of tracer dyes:

Peak nın	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
538.3	497.0	567.2	11.21	325.87	0.03	1,020
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND
Peaks close to the normal range of tracer dyes:						

Cu



Station 2-270: MW-2 - 270 ft

OUL number: N8668

Matrix: Elutant

Placed: 02/03/05 1020

Diluted: 1 to 100 Analyzed: 02/23/05

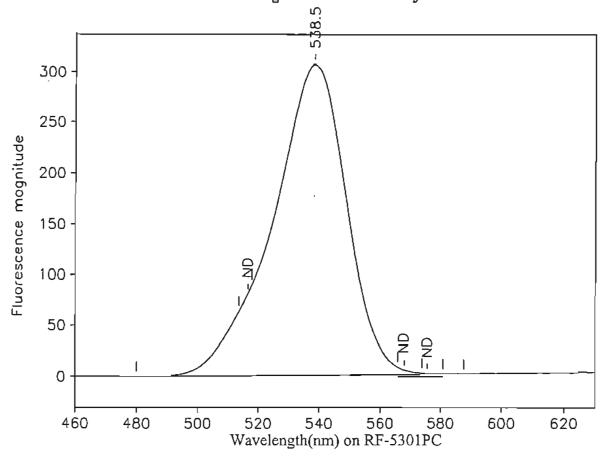
Collected: 02/17/05 1045

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	. Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
538.1	494.8	567.4	15.31	453.63	0.03	1,430
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND

Peaks close to the normal range of tracer dyes:

Ch



Station 2-285: MW-2 - 285 ft

OUL number: N8669 Analyzed: 02/23/05

Matrix: Elutant

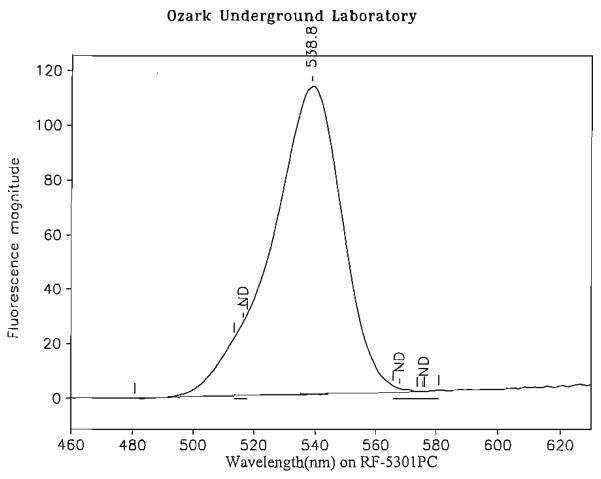
Placed: 02/03/05 1020 Collected: 02/17/05 1045

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
538.5	480.0	587.6	306.12	8,628.78	0.04	271
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND

Peaks close to the normal range of tracer dyes:

00



Station 2-300: MW-2 - 300 ft

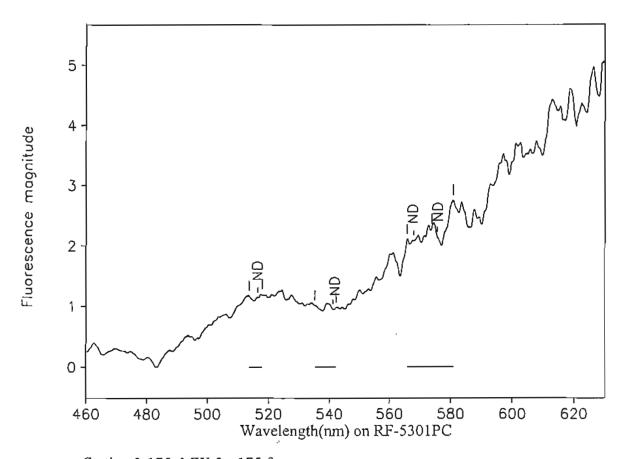
Analyzed: 02/23/05 OUL number: N8670

Matrix: Elutant

Placed: 02/03/05 1020 Collected: 02/17/05 1045

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
538.8	480.7	576.1	112.78	3,075.98	0.04	96.7
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND
	_	_	_			



Station 3-175: MW-3 - 175 ft

OUL number: N8671

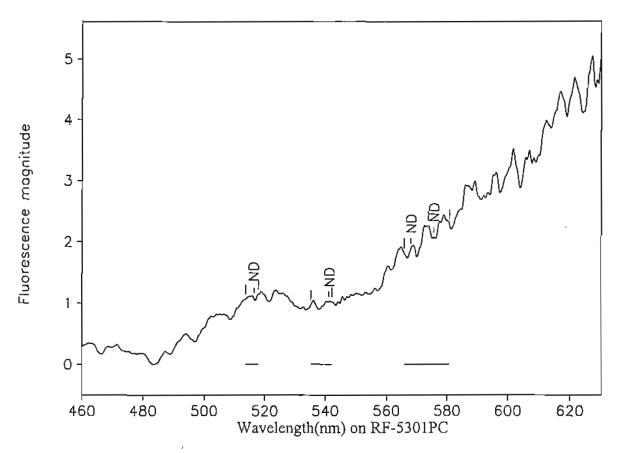
Matrix: Elutant

Placed: 02/03/05 0915 Collected: 02/17/05 0940

Analyzed: 02/23/05

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 3-185: MW-3 - 185 ft

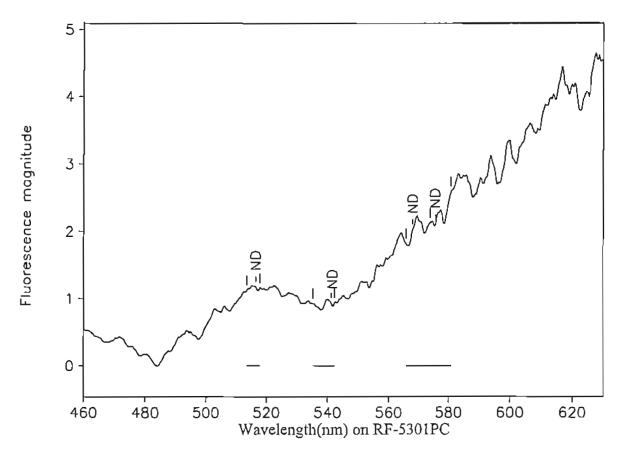
OUL number: N8672 Analyzed: 02/23/05

Matrix: Elutant

Placed: 02/03/05 0915 Collected: 02/17/05 0940

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517 <i>.</i> 9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND
Peaks close to the normal range of tracer dyes:						



Station 3-195: MW-3 - 195 ft

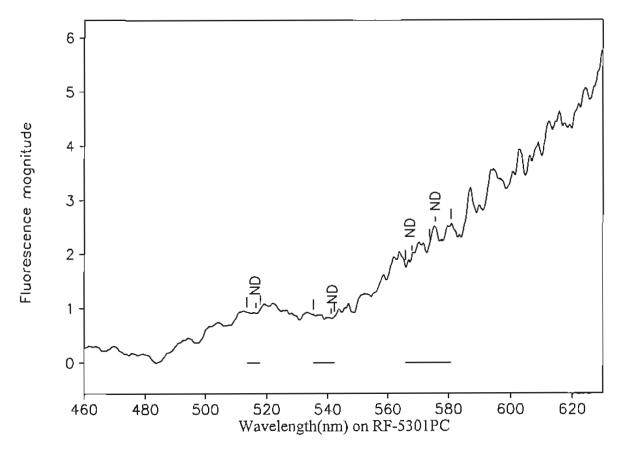
Analyzed: 02/23/05 OUL number: N8673

Matrix: Elutant

Placed: 02/03/05 0915 Collected: 02/17/05 0940

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND
Peaks close to the normal range of tracer dyes:						



Station 3-205: MW-3 - 205 ft

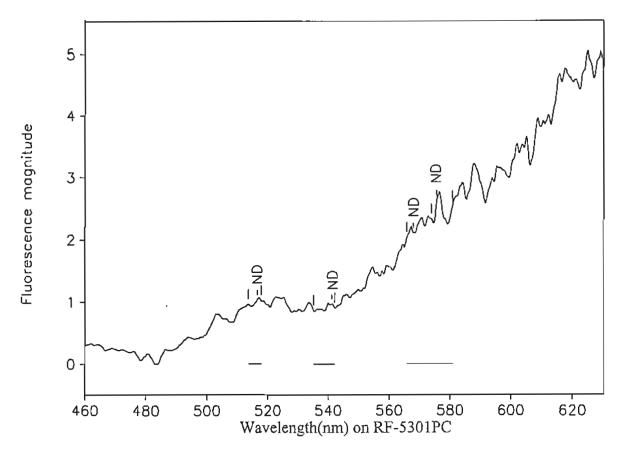
OUL number: N8674 Analyzed: 02/23/05

Matrix: Elutant

Placed: 02/03/05 0915 Collected: 02/17/05 0940

		•	
Peaks within	the normal	range of	tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 3-215: MW-3 - 215 ft

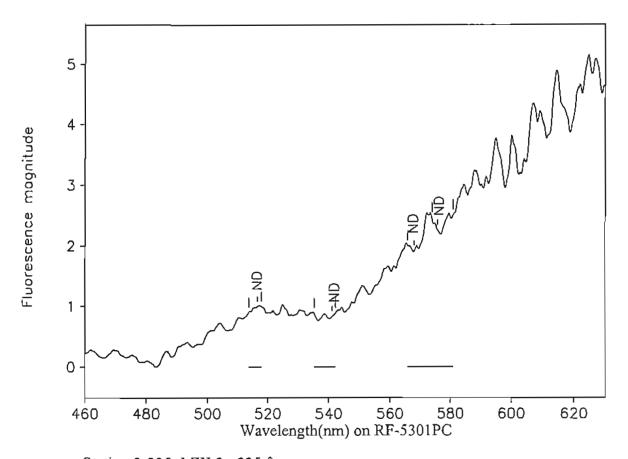
OUL number: N8675 Analyzed: 02/23/05

Matrix: Elutant

Placed: 02/03/05 0915 Collected: 02/17/05 0940

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Peaks within	the normal	range of tracer	dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00^{-}	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 3-225: MW-3 - 225 ft

OUL number: N8676

Matrix: Elutant

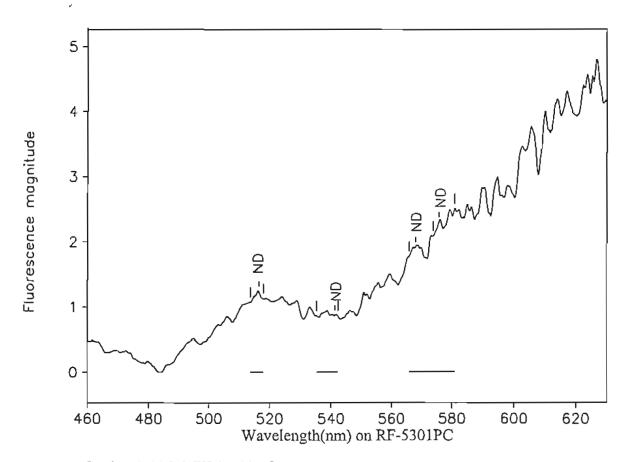
Placed: 02/03/05 0915

Analyzed: 02/23/05

Collected: 02/17/05 0940

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 3-235: MW-3 - 235 ft

OUL number: N8677

Matrix: Elutant

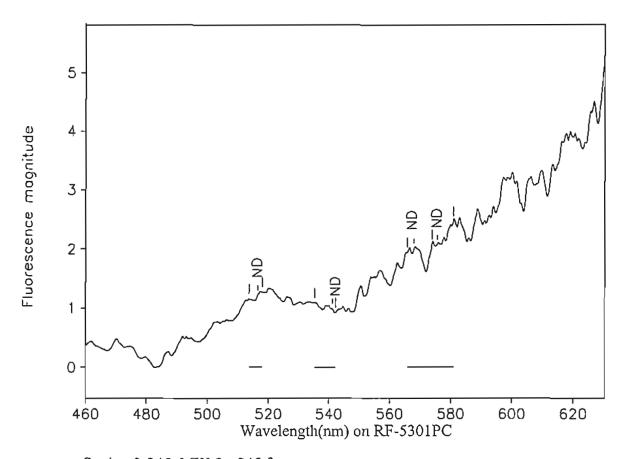
Placed: 02/03/05 0915

Analyzed: 02/23/05

Collected: 02/17/05 0940

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 3-245: MW-3 - 245 ft

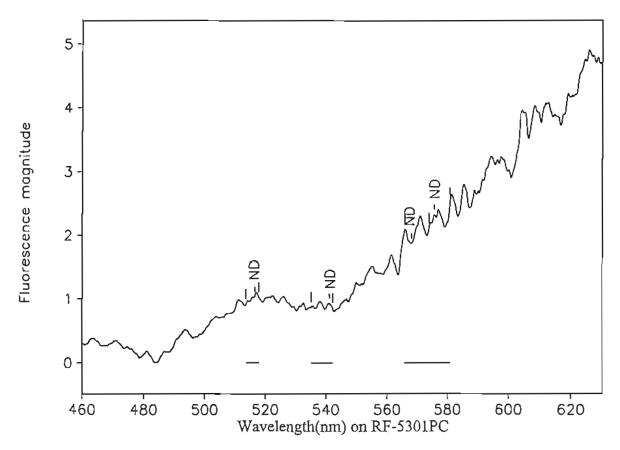
OUL number: N8678 Analyzed: 02/23/05

Matrix: Elutant

Placed: 02/03/05 0915 Collected: 02/17/05 0940

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00^{-}	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 3-255: MW-3 - 255 ft

OUL number: N8679

Matrix: Elutant

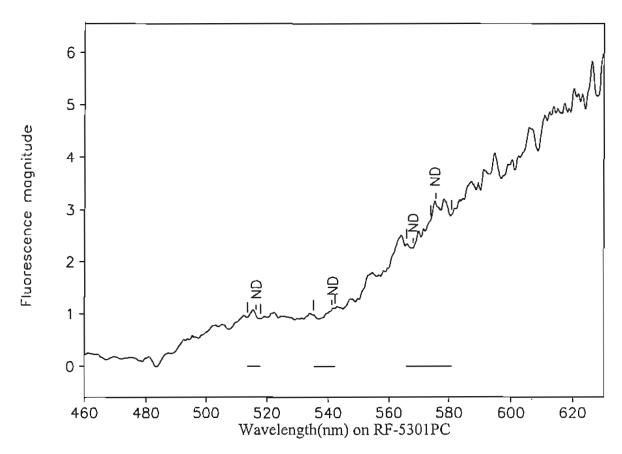
Placed: 02/03/05 0915

Analyzed: 02/23/05

Collected: 02/17/05 0940

Peaks within the normal range of tracer dyes:

Left X	Right X	Height	Area	H/A	Conc.
513.6	517.9	0.00^{-}	0.00	0.00	ND
535.2	542.2	0.00	0.00	0.00	ND
565.8	573.8	0.00	0.00	0.00	ND
573.8	580.8	0.00	0.00	0.00	ND
	513.6 535.2 565.8	513.6 517.9 535.2 542.2 565.8 573.8	513.6 517.9 0.00 535.2 542.2 0.00 565.8 573.8 0.00	513.6 517.9 0.00 0.00 535.2 542.2 0.00 0.00 565.8 573.8 0.00 0.00	513.6 517.9 0.00 0.00 0.00 535.2 542.2 0.00 0.00 0.00 565.8 573.8 0.00 0.00 0.00



Station 2: Blank

OUL number: N8680

Matrix: Elutant

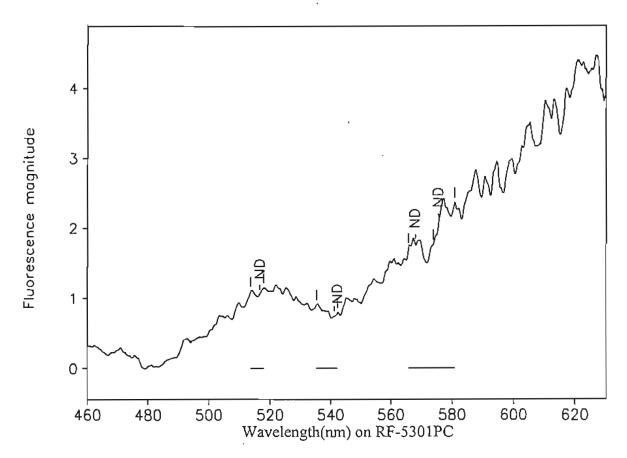
Placed: 02/23/05 1705

Analyzed: 02/23/05

Collected: 02/23/05 1706

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 3-265: MW-3 - 265 ft

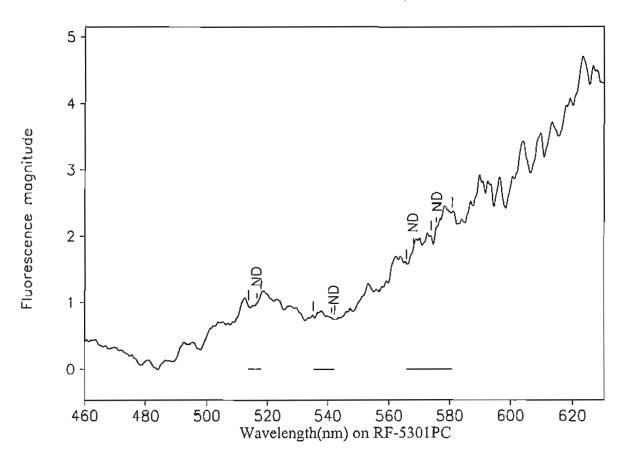
OUL number: N8681 Analyzed: 02/23/05

Matrix: Elutant

Placed: 02/03/05 0915 Collected: 02/17/05 0940

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2 -	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



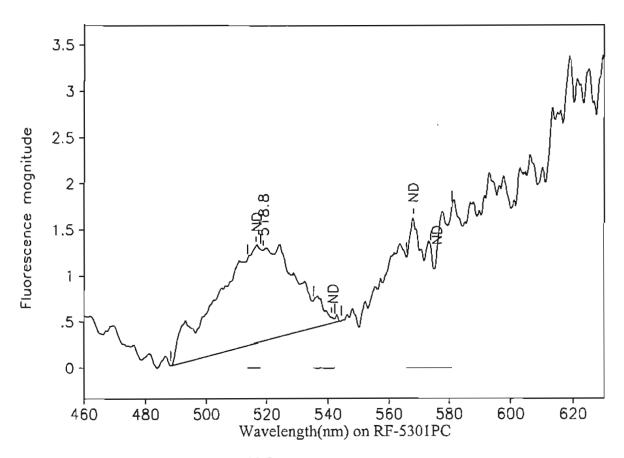
Station 3-275: MW-3 - 275 ft OUL number: N8682 Analyzed: 02/23/05

Matrix: Elutant

Placed: 02/03/05 0915 Collected: 02/17/05 0940

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 4-165: MW-4 - 165 ft

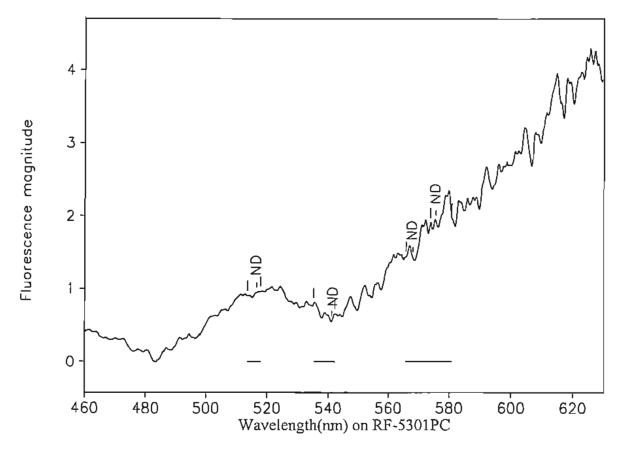
OUL number: N8683 Analyzed: 02/23/05

Matrix: Elutant

Placed: 02/03/05 0835 Collected: 02/17/05 0905

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.	
516.5	513.6	517.9	0.00	0.00	0.00	ND	
541.1	535.2	542.2	0.00	0.00	0.00	ND	
568.0	565.8	573.8	0.00	0.00	0.00	ND	
575.6	573.8	580.8	0.00	0.00	0.00	ND	
Peaks close to the normal range of tracer dyes:							
518.8	488.2	544.4	0.98	32.10	0.03	0.722	



Station 4-180: MW-4 - 180 ft

OUL number: N8684

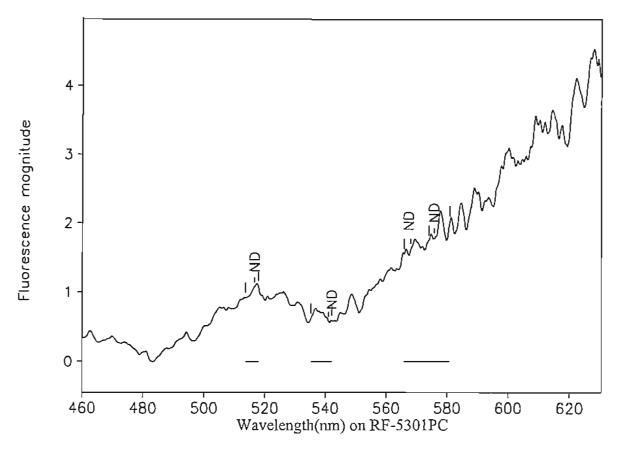
Matrix: Elutant

Placed: 02/03/05 0835 Collected: 02/17/05 0905

Analyzed: 02/23/05

Peaks within the normal range of tracer dyes:

Left X	Right X	Height	Area	H/A	Conc.
513.6	517.9	0.00	0.00	0.00	ND
535.2	542.2	0.00	0.00	0.00	ND
565.8	573.8	0.00	0.00	0.00	ND
573.8	580.8	0.00	0.00	0.00	ND
	513.6 535.2 565.8	513.6 517.9 535.2 542.2 565.8 573.8	513.6 517.9 0.00 535.2 542.2 0.00 565.8 573.8 0.00	513.6 517.9 0.00 0.00 535.2 542.2 0.00 0.00 565.8 573.8 0.00 0.00	513.6 517.9 0.00 0.00 0.00 535.2 542.2 0.00 0.00 0.00 565.8 573.8 0.00 0.00 0.00



Station 4-195: MW-4 - 195 ft

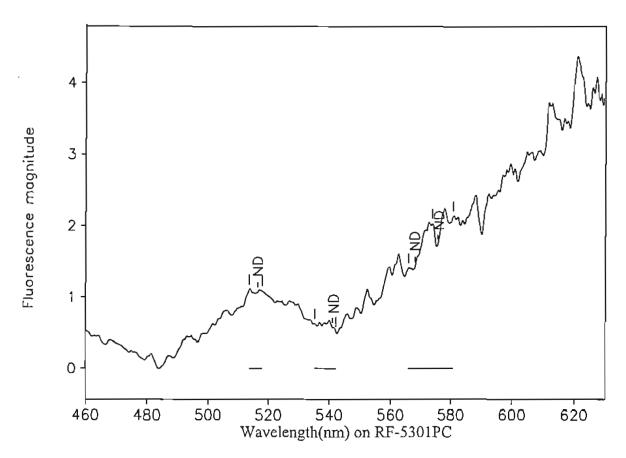
OUL number: N8685 Analyzed: 02/23/05

Matrix: Elutant

Placed: 02/03/05 0835 Collected: 02/17/05 0905

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 4-210: MW-4 - 210 ft

565.8

OUL number: N8686

Matrix: Elutant

568.0

Placed: 02/03/05 0835

Analyzed: 02/23/05

0.00

0.00

Collected: 02/17/05 0905

Conc. ND ND

ND

ND

Peaks with	nin the norr	nal range of	tracer dyes:			
Peak nm	Left X	Right X	Height	Area	H/A	
516.5	513.6	517.9	0.00	0.00	0.00	
541.1	535.2	542.2	0.00	0.00	0.00	

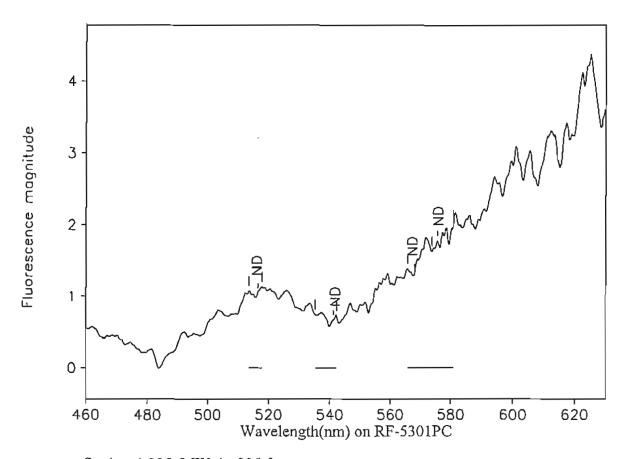
0.00

0.00

0.00

575.6 573.8 580.8 0.00 Peaks close to the normal range of tracer dyes:

573.8



Station 4-225: MW-4 - 225 ft

OUL number: N8687

Matrix: Elutant

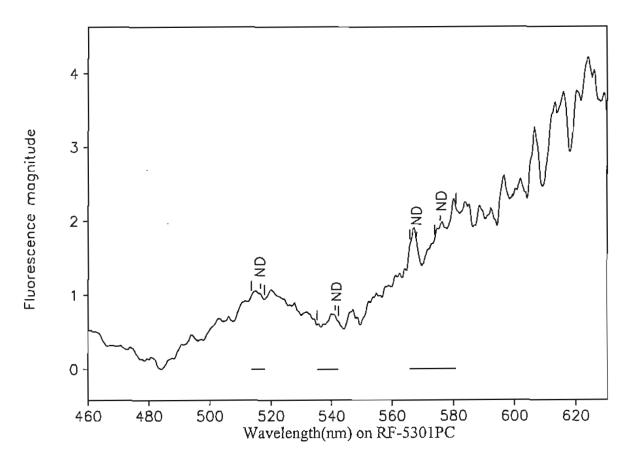
Placed: 02/03/05 0835

Analyzed: 02/23/05

Collected: 02/17/05 0905

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565 <i>.</i> 8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 4-240: MW-4 - 240 ft

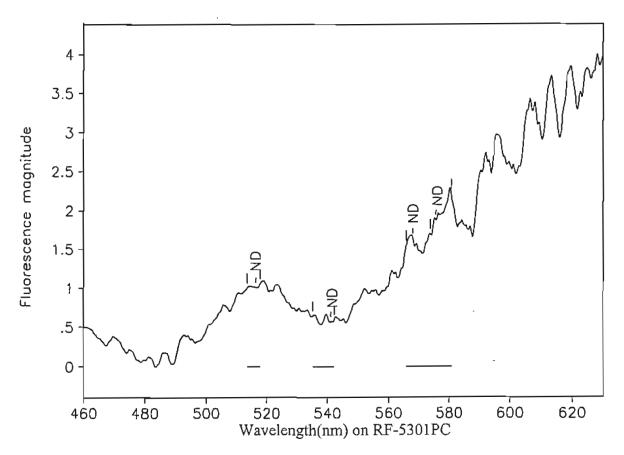
OUL number: N8688 Analyzed: 02/23/05

Matrix: Elutant

Placed: 02/03/05 0835 Collected: 02/17/05 0905

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND
D 1 1		1	C . 1			



Station 4-255: MW-4 - 255 ft

OUL number: N8689

Matrix: Elutant

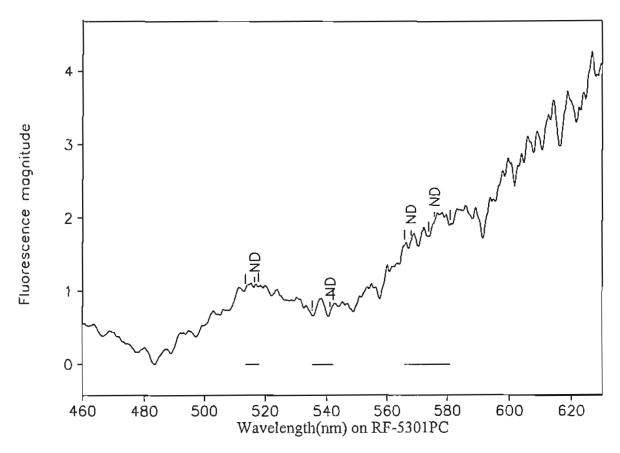
Placed: 02/03/05 0835

Analyzed: 02/23/05

Collected: 02/17/05 0905

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND
	_	_				



Station 4-270: MW-4 - 270 ft

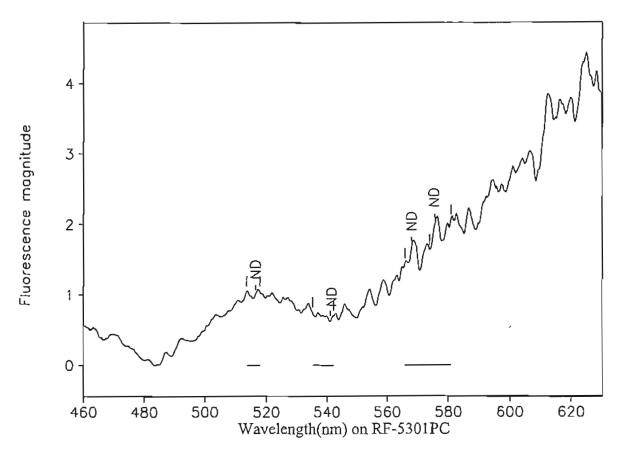
OUL number: N8690 Analyzed: 02/23/05

Matrix: Elutant

Placed: 02/03/05 0835 Collected: 02/17/05 0905

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	. Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 4-285: MW-4 - 285 ft

OUL number: N8691

Matrix: Elutant

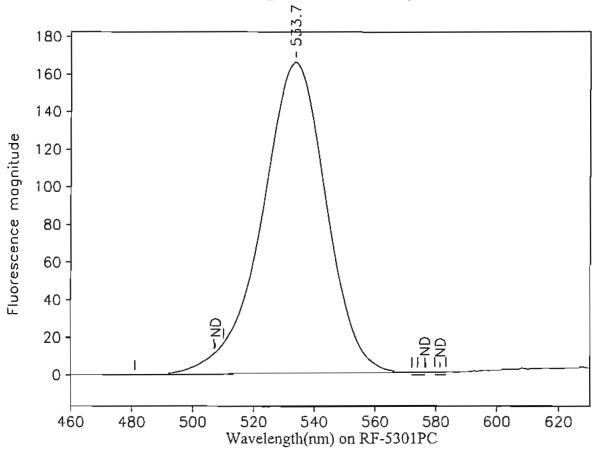
Placed: 02/03/05 0835

Analyzed: 02/23/05

Collected: 02/17/05 0905

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
516.5	513.6	517.9	0.00	0.00	0.00	ND
541.1	535.2	542.2	0.00	0.00	0.00	ND
568.0	565.8	573.8	0.00	0.00	0.00	ND
575 <i>.</i> 6	573.8	580.8	0.00	0.00	0.00	ND



Station 2-WA: MW-2 - Water

OUL number: N8773

Matrix: Water Collected: 02/17/05 1100

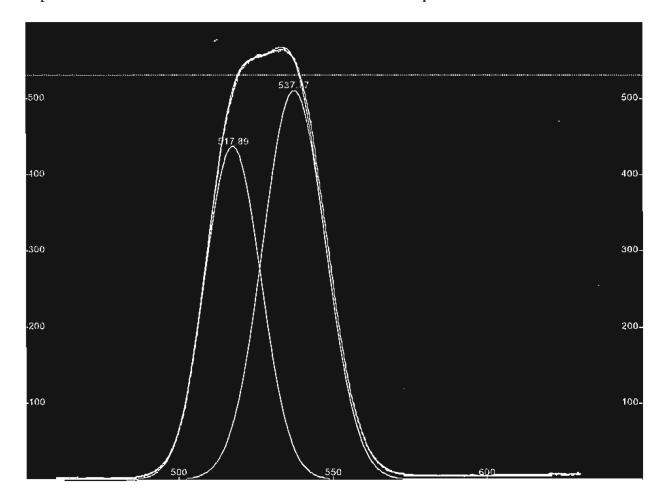
Analyzed: 02/23/05

Peaks with	nin the norr	nal range of	tracer dyes:	
Peak nm		Right X	Height	,

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
<i>5</i> 07 <i>.</i> 3	506.9	509.9	0.00	0.00	0.00	ND
533.7	481.0	573.9	165.85	4,094.68	0.04	26.1
576.6	572.0	576.3	0.00	0.00	0.00	ND
581.2	579.7	583.2	0.00	0.00	0.00	ND
Peaks clos	se to the no	rmal range of	f tracer dyes	s:		

co

A possible solution for fluorescein and eosine mixture in sample N8990A



Peak in the acceptable wavelength range of fluorescein: Area of peak at 517.89 = 9,952 9952/44.155 = 225 ppb

Peak in the acceptable wavelength range of eosine: Area of peak at 537.77 = 12,950 12,950/32.255 = 401 ppb March 10, 2005

CERTIFICATE OF ANALYSIS

Alan W. Aikens, P.G. CH2MHill 225 East Robinson Street, Suite 505 Orlando, Florida 32801

RE: Lake Orienta

Dye analysis results for charcoal and water samples shipped March 3, 2005 Ozark Underground Laboratory (OUL) numbers N8990, N8991 and N9030.

Dear Mr. Aikens:

We have completed analysis of the charcoal and water samples received by the OUL on March 4, 2005. We have indicated the OUL number for each of these samples on the enclosed table.

The fluorescein, eosine and rhodamine WT (RWT) dye concentrations are based upon standards routinely used at the OUL. The fluorescein and eosine are mixtures of 75% dye and 25% diluent; the RWT is a 20% solution. The concentrations are based upon the as-sold weight of the dye.

A summary of the results is presented in Table 1. Additional sampling information is available on the enclosed analysis graphs.

Sincerely,

Thomas J. Aley, PHG, RG

Thomas J. Ale

Enclosures: 1. Table 1. Analysis results for charcoal and water samples

2. Sample Collection Data Sheets

3. Sample analysis graphs

f:\docs\coa\LakeOrienta10.doc

Ozark Underground Laboratory for CH2MHill

Project:

Lake Orienta

Samples Collected By:

Mike Burns

Date Samples Shipped:

March 3, 2005

Date Samples Rec'd at OUL:

March 4, 2005

Date Analyzed by OUL:

March 9, 2005

Table 1. Results for charcoal and water samples analyzed for the presence of fluorescein, eosine and rhodamine WT (RWT) dyes. Peak wavelengths are reported in nanometers (nm); dye concentrations are reported in parts per billion (ppb). All results are for charcoal unless otherwise indicated.

OUL Lab#	Station #	Station Name	Date/Time Placed	Date/Time Collected	T .	Fluorescein		sine	RWT	
			2005	2005	Peak	Conc.	Peak	Conc.	Peak	Conc.
N8990	2-240	MW-2 - 240 ft	2/17 1110	3/3 0815	517.6 (2)	227	537.6	400	ND	
N8991	2-255	MW-2 - 255 ft	2/17 1110	3/3 0815	517.6 (2)	1,150	537.4	2,170	ND	
N9030	2-WA	MW-2 - Water	Water	3/3 0835	ND		533.7 (1)	25.4	ND	

FOOTNOTES:

ND = No dye detected

- (1) = An eosine peak is present which is asymmetrical and skewed towards the lower wavelengths.

 This type of peak could mask the presence of fluorescein dye.
- (2) = Although this peak does not meet the normal criteria for a positive recovery of fluorescein dye, a careful review of all background samples from this well and all the previous samples collected from this well at this depth lead to the conclusion that fluorescein dye is present. The concentrations of dye reported are based on the estimated proportion of the area under the curve that results from each of the two dyes (eosine and fluorescein). Also based on this review of previous samples from this well, we have determined that fluorescein dye was first observably present in the elutant from charcoal samplers collected from MW-2 on January 7, 2005.

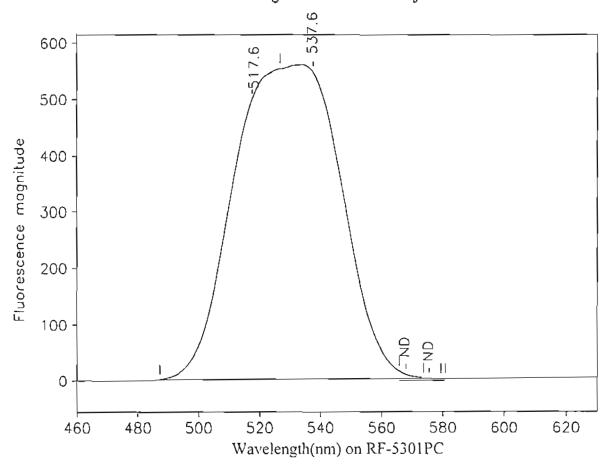
OZARK UNDERGRE IND LABORATORY, INC.

1572 Aley Lane Protem, MO 65733 (417) 785-4289 fax (417) 785-4290 email: oul@tri-lakes.net SAMPLE COLLECTION DATA SHEET for FLUORESCENCE ANALYSIS

Bill to:			105 Date Samples Received: 3/4/05 Time Samples Received (1)					es N	0
	OUL ne only	d							
# CHAR REC'D	LAB NUMBER	STATION NUMBER	STATION NAME		PLAC	CED	COLL	ECTED	WATER
	Charcoce			D	STA	TIME	DATE	TIME	REC'D
		2-135	MW-2 – 135 ft	4					
		2-150	MW-2 – 150 ft				L		
		2-165	MW-2 – 165 ft						
	}	2-180	MW-2 – 180 ft	1					
		2-195	MW-2 – 195 ft		$\neg \neg$				
		2-210	MW-2 – 210 ft						
		3-225	MW-2 - 225 ft						
-1	18990	2-240	MW-2 - 240 ft	泉	17/09	1110	3/3/05	0815	0
1	N8991	2-255	MW-2 – 255 ft					I	0
		2-270	MW-2 - 270 ft			•	•	<u> </u>	
		2-285	MW-2 ~ 285 ft						
		2-300	MW-2 – 300 ft	\top					
0		2-WA	MW-2 – Water Sample				3/3/05	0835	
									<u> </u>
				Щ.					
COMM	ENTS:								
	-A (*1) - 1 4	L. OIII	aff? YesNo Charts for samples on this page proofed						

OZARK UNDERGRO .D LABORATORY, INC.
1572 Aley Lane Protem, MO 65733 (417) 785-4289 fax (417) 785-4290 email: oul@tri-lakes.net SAMPLE COLLECTION DATA SHEET for FLUORESCENCE ANALYSIS

Lake Orio	enta (CH2M	ulill) Week No: Samples Collected B	y:	1/2 /:	DUNUS		
Shipped By	:Mik	Samples Received By:	soll	2-0U	<u></u>		
nples Shippe	ed: <u>313</u>	105 Date Samples Received: 3/4/05 Time Samples Received: 12:	في	Return (Cooler? Ye	s N	o
		Send Results to: CH2M H: 11		,			
for: Fluore	scein X	Eosine X Rhodamine WT X Other Ship cooler to:S	odarse.	3/19	500,		
DUL		Please indicate stations where dye was visible in the	field				OUL use only
e only		for field technician use - use black ink only				_	
LAB NUMBER	STATION NUMBER	STATION NAME					WATER REC'D
What!	2-135	MW-2 – 135 ft	,	*			
	2-150	MW-2 – 150 ft					
	2-165	MW-2 – 165 ft					
	2-180	MW-2 - 180 ft.					
	2-195	MW-2 – 195 ft					
	2-210	MW-2 - 210 ft				_	
	3-225	MW-2 – 225 ft					
	2-240	MW-2 – 240 ft	2/17/05	1110	3/3/05	0815	0
	2-255	MW-2 – 255 ft	__		L-L		0
	2-270	MW-2 – 270 ft					
	2-285	MW-2 – 285 ft					
	2-300	MW-2 – 300 ft					
W9030	2-WA	MW-2 - Water Sample			3/3/05	0835	
·		·					
		-			<u> </u>		
ients:							
oot filled ev	t by OIII a	fatt? Ves No Charte for samples on this page proofed I	hy OIII >	Mari			
	•		nt Onn:	,		928	(112/04
	for: Fluore OUL LAB NUMBER LACK MANAGE MANAGE LAB NUMBER LACK LACK LAB NUMBER LACK LAB NUMBER LACK Tor: Fluorescein X	Date Samples Received: 3/3/05 Send Results to: CH2M N: Note	Date Shipped: 3/3/05 Date Samples Received 2/4/05 Time Samples Received 1/2:	Date Shipped: 3/3/95 Date Samples Received: 3/4/95 Time Samples Received: 3/3/95 Return Control	Date Samples Shipped: 3/3/05 Date Samples Received: 2/4/05 Time Samples Received: 3/3/05 Send Results to: CH2M H:	Please indicate stations where die was visible in the field for field technician use - use black ink only Please indicate stations where die was visible in the field for field technician use - use black ink only PLACED COLLECTED	



Station 2-240: MW-2 - 240 ft

OUL number: N8990 Analyzed: 03/09/05

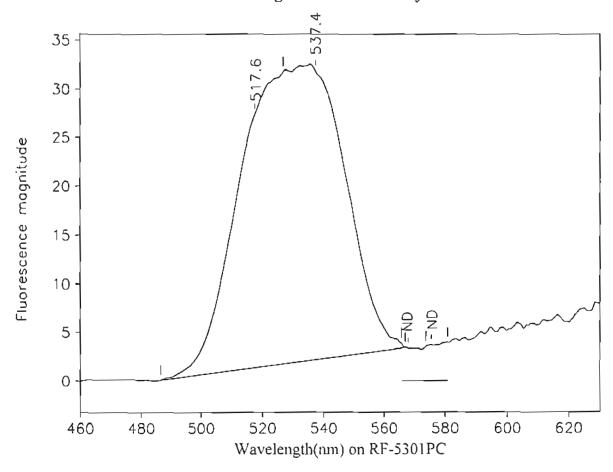
Matrix: Elutant

Placed: 02/17/05 1110

Collected: 03/03/05 0815

Peaks within the normal range of tracer dyes:

			_			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
517.6	487.2	526.7	498.65	10.025.80	0.05	227
537.6	526.7	579.4	545.83	12,901.10	0.04	400
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 2-255: MW-2 - 255 ft

OUL number: N8991 Matrix: Elutant

Placed: 02/17/05 1110

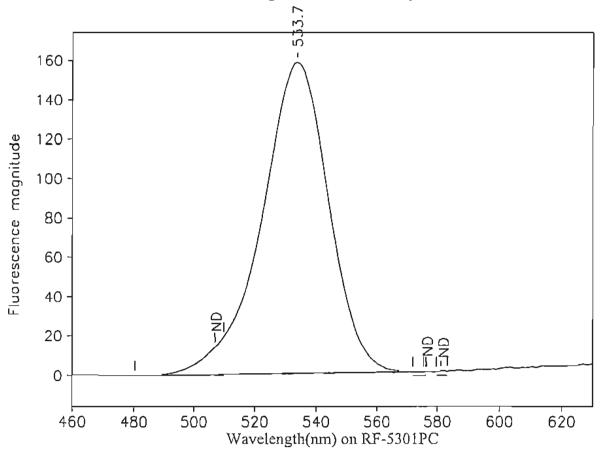
Diluted: 1 to 100

Analyzed: 03/09/05

Collected: 03/03/05 0815

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
517.6	486.4	526.7	26.01	508.87	0.05	1,150
537.4	526.7	567.0	29.64	700.31	0.04	2.170
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND



Station 2-WA: MW-2 - Water OUL number: N9030

Matrix: Water

Collected: 03/03/05 0835

Analyzed: 03/09/05

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
507.3	506.9	509.9	0.00	0.00	0.00	ND
533.7	480.3	575.5	158.00	4,013.82	0.04	25.4
576.6	572.0	576.3	0.00	0.00	0.00	ND
581.2	579.7	583.2	0.00	0.00	0.00	ND



March 23, 2005

CERTIFICATE OF ANALYSIS

Alan W. Aikens, P.G. CH2MHill 225 East Robinson Street, Suite 505 Orlando, Florida 32801

RE: Lake Orienta

Dye analysis results for charcoal and water samples shipped March 17, 2005 Ozark Underground Laboratory (OUL) numbers N9327, N9328 and N9364.

Dear Mr. Aikens:

We have completed analysis of the charcoal and water samples received by the OUL on March 18, 2005. We have indicated the OUL number for each of these samples on the enclosed table.

The fluorescein, eosine and rhodamine WT (RWT) dye concentrations are based upon standards routinely used at the OUL. The fluorescein and eosine are mixtures of 75% dye and 25% diluent; the RWT is a 20% solution. The concentrations are based upon the as-sold weight of the dye.

A summary of the results is presented in Table 1. Additional sampling information is available on the enclosed analysis graphs.

Sincerely,

Thomas J. Aley, PHG, RG

Thomas J. Ale

Enclosures: 1. Table 1. Analysis results for charcoal and water samples

2. Sample Collection Data Sheets

3. Sample analysis graphs

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Ozark Underground Laboratory for CH2MHill

Project:

Lake Orienta

Samples Collected By:

Mike Burns

Date Samples Shipped:
Date Samples Rec'd at OUL:

March 17, 2005 March 18, 2005

Date Analyzed by OUL:

March 22, 2005

Table 1. Results for charcoal and water samples analyzed for the presence of fluorescein, eosine and rhodamine WT (RWT) dyes. Peak wavelengths are reported in nanometers (nm); dye concentrations are reported in parts per billion (ppb). All results are for charcoal unless otherwise indicated.

OUL Lab#	Station #	Station Name	Date/Time Placed	Date/Time Collected	Fluorescein		Eosine		RWT	
			2005	2005	Peak	Conc.	Peak	Conc.	Peak	Conc.
N9327	2-240	MW-2 - 240 ft	3/3 0845	3/17 0855	517.8 (2)	1,290	537.8	1,330	ND	
N9328	2-255	MW-2 - 255 ft	3/3 0845	3/17 0855	517.8 (2)	1,510	537.0	1,610	ND	
N9364	2-WA	MW-2 - Water	Water	3/17 0925	ND		533.6 (1)	22.7	ND	

FOOTNOTES:

ND = No dye detected

- (1) = An eosine peak is present which is asymmetrical and skewed towards the lower wavelengths.

 This type of peak <u>could</u> mask the presence of fluorescein dye.
- (2) = Although this peak does not meet the normal criteria for a positive recovery of fluorescein dye, a careful review of all background samples from this well and all the previous samples collected from this well at this depth lead to the conclusion that fluorescein dye is present. The concentrations of dye reported are based on the estimated proportion of the area under the curve that results from each of the two dyes (eosine and fluorescein). Also based on this review of previous samples from this well, we have determined that fluorescein dye was first observably present in the elutant from charcoal samplers collected from MW-2 on January 7, 2005.

OZARK UNDERGR(ID LABORATORY, INC.
1572 Aley Lane Protem, MO 65733 (417) 785-4289 fax (417) 785-4290 email: oul@tri-lakes.nct SAMPLE COLLECTION DATA SHEET for FLUORESCENCE ANALYSIS

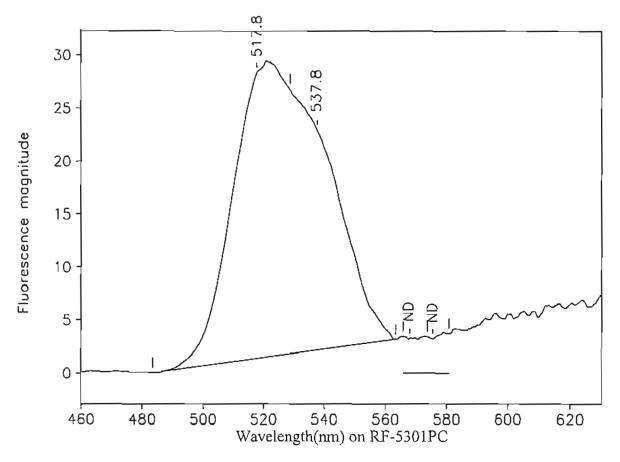
Bill to:	CHA	M H:1/	Mhill) Le Sorn S 105 Date Samples Reco Eosine X_ Rhodamine WT	Send Results	to:		V							
Analyze	for: Fluore	escein X	Eosine X Rhodamine WT	X Other	Ship c	ooler to:	Nε	darsi	5 A15	» (.				
	OUL se only		Please indicate stations where dye was visible in the field for field technician use - use black ink only											
# CHAR REC'D	LAB NUMBER	STATION NUMBER		STATION NAME	_			PLA	CED	COLL	ECTED	WATER REC'D		
	Charles	2-135	MW-2 – 135 ft											
		2-150	MW-2 ~ 150 ft		_				,					
		2-165	MW-2 – 165 ft .	£855.5%			7							
		2-180	MW-2 – 180 ft	₹"			•							
		2-195	MW-2 – 195 ft	,										
_		2-210	MW-2 – 210 ft											
		3-225	MW-2 – 225 ft											
	N9321	2-240	MW-2 – 240 ft					3/3/05	0845	3/17/05	0855	0		
	N9328	2-255	MW-2 – 255 ft									0		
		2-270	MW-2 – 270 ft			<u> </u>				<u> </u>				
		2-285	MW-2 – 285 ft											
		2-300	MW-2 – 300 ft											
O		2-WA	MW-2 – Water Sample							3/17/05	0925	1		
COMM	ENTS:													

OZARK UNDERGROL. LABORATORY, INC.

1572 Aley Lanc Protem, MO 65733 (417) 785-4289 fax (417) 785-4290 email: oul@tri-lakes.net

SAMPLE COLLECTION DATA SHEET for FLUORESCENCE ANALYSIS

Bill to: _ Analyze	<u>で日スト</u> for: Fluore	<u> </u>	Send Results to: V Eosine X_ Rhodamine WT X_ Other Ship cooler to: _/	Vodárso	5 A15	o (;		
(OUL e only		Please indicate stations where dye was visible in for field technician use - use black ink only	the field				OUL.
# CHAR REC'D	NUMBER NUMBER	STATION NUMBER	STATION NAME	$\overline{}$	CED	COLL	ECTED	WATER REC'D
	WOMOR	2-135	MW-2 135 ft					
		2-150	MW-2 – 150 ft					
		2-165	MW-2 – 165 ft					
		2-180	MW-2 – 180 ft					
		2-195	MW-2 - 1953th					_
		2-210	MW-2 - 210 ft					
		3-225	MW-2 – 225 ft					
		2-240	MW-2 – 240 ft	3/3/05	0845	3/17/05	0855	0
\overline{I}	·	2-255	MW-2 - 255 ft		1		1	0
		2-270	MW-2 ~ 270 ft			,		
_		2-285	MW-2 - 285 ft			_		
		2-300	MW-2 - 300 ft			,		
0	W9364	2-WA	MW-2 - Water Sample			3/17/05	0925	
COMM	ENTS:							



Station 2-240: MW-2 - 240 ft

OUL number: N9327

Matrix: Elutant

Placed: 03/03/05 0845

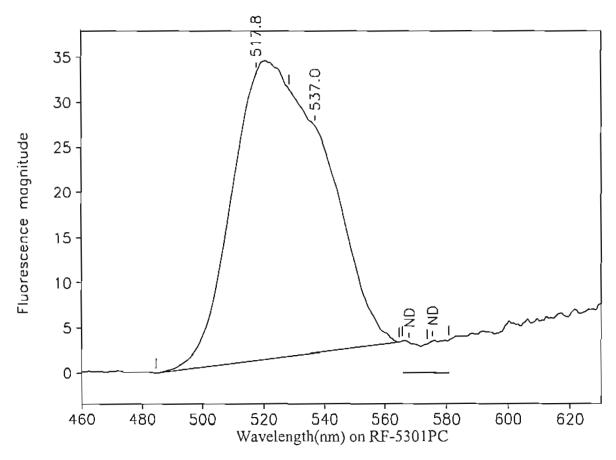
Diluted: 1 to 100 Analyzed: 03/22/05

Collected: 03/17/05 0855

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
517.8	483.4	528.9	27.06	568.77	0.05	1,290(2)
537.8	528.9	563.4	20.76	434.05	0.05	1,330
568.0	565.8	573.8	0.00	0.00	0.00	ŃD
575.6	573.8	580.8	0.00	0.00	0.00	ND
Peaks clos	se to the no	rmal range of	f tracer dyes	5:		

936



Station 2-255: MW-2 - 255 ft

OUL number: N9328

Matrix: Elutant

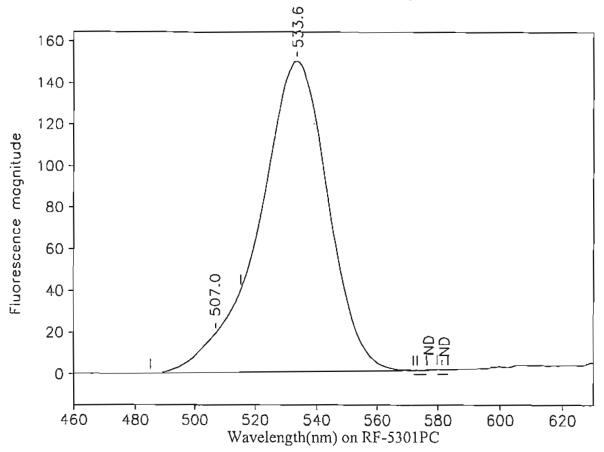
Placed: 03/03/05 0845

Diluted: 1 to 100 Analyzed: 03/22/05

Collected: 03/17/05 0855

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
517.8	484.6	528.5	31.86	664.80	0.05	1,510 (2)
537.0	528.5	564.8	25.17	522.36	0.05	1,610
568.0	565.8	573.8	0.00	0.00	0.00	ND
575.6	573.8	580.8	0.00	0.00	0.00	ND
			C . 1			



Station 2-WA: MW-2 - Water

OUL number: N9364

Matrix: Water

Collected: 03/17/05 0925

Analyzed: 03/22/05

Peaks with	nn the nom	nal range of	tracer dyes:			
Peak nm	Left X	Right X	Height	Area	H/A	Conc.
507.0	485.0	515.3	19.06	369.83	0.05	_0:605
522 6	515.3	573 2	140 00	2 552 71	0.04	22.7

505 22.7 533.6 149.00 3,553.71 0.04576.6 576.3 572.0 0.00 0.00 0.00 ND 581.2 579.7 583.2 0.00 0.00 0.00 ND

CERTIFICATE OF ANALYSIS

Alan W. Aikens, P.G. CH2MHill 225 East Robinson Street, Suite 505 Orlando, Florida 32801

RE: Lake Orienta

Dye analysis results for charcoal and water samples shipped March 17, 2005 Ozark Underground Laboratory (OUL) numbers N9327, N9328 and N9364.

Dear Mr. Aikens:

We have completed analysis of the charcoal and water samples received by the OUL on March 18, 2005. We have indicated the OUL number for each of these samples on the enclosed table.

The fluorescein, eosine and rhodamine WT (RWT) dye concentrations are based upon standards routinely used at the OUL. The fluorescein and eosine are mixtures of 75% dye and 25% diluent; the RWT is a 20% solution. The concentrations are based upon the as-sold weight of the dye.

A summary of the results is presented in Table 1. Additional sampling information is available on the enclosed analysis graphs.

Sincerely,

Thomas J. Aley, PHG, RG

Enclosures: 1. Table 1. Analysis results for charcoal and water samples

- 2. Sample Collection Data Sheets
- 3. Sample analysis graphs

f:\docs\coa\LakcOrientall.doc

Ozark Underground : boratory for CH2MHill

Project:

Lake Orienta

Samples Collected By:

Mike Bums

Date Samples Shipped:

March 17, 2005

Date Samples Rec'd at OUL:

March 18, 2005

Date Analyzed by OUL:

March 22, 2005

Table 1. Results for charcoal and water samples analyzed for the presence of fluorescein, eosine and rhodamine WT (RWT) dyes. Peak wavelengths are reported in nanometers (nm); dye concentrations are reported in parts per billion (ppb). All results are for charcoal unless otherwise indicated.

OUL Lab#	Station #	Station Name	Date/Time Placed	Date/Time Collected	Fluor	Fluorescein		Eosine		VT
			2005	2005	Peak	Conc.	Peak	Conc.	Peak	Conc.
N9327	2-240	MW-2 - 240 ft	3/3 0845	3/17 0855	517.8 (2)	1,290	537.8	1,330	ND	
N9328	2-255	MW-2 - 255 ft	3/3 0845	3/17 0855	517.8 (2)	1,510	537.0	1,610	ND	
N9364	2-WA	MW-2 - Water	Water	3/17 0925	ND		533.6 (1)	22.7	ND	

FOOTNOTES:

ND = No dye detected

- (1) = An eosine peak is present which is asymmetrical and skewed towards the lower wavelengths.

 This type of peak could mask the presence of fluorescein dye.
- (2) = Although this peak does not meet the normal criteria for a positive recovery of fluorescein dye, a careful review of all background samples from this well and all the previous samples collected from this well at this depth lead to the conclusion that fluorescein dye is present. The concentrations of dye reported are based on the estimated proportion of the area under the curve that results from each of the two dyes (eosine and fluorescein). Also based on this review of previous samples from this well, we have determined that fluorescein dye was first observably present in the elutant from charcoal samplers collected from MW-2 on January 7, 2005.

1572 Aley Lane

Protein, MO 65733

(417) 785-4289

fux (417) 785-4290

oul@tri-lakes.net

April 8, 2005

CERTIFICATE OF ANALYSIS

Alan W. Aikens, P.G. CH2MHill 225 East Robinson Street, Suite 505 Orlando, Florida 32801

RE: Lake Orienta

> Dye analysis results for charcoal and water samples shipped March 31, 2005 Ozark Underground Laboratory (OUL) numbers N9739 through N9742.

Dear Mr. Aikens:

We have completed analysis of the charcoal and water samples received by the OUL on April 1, 2005. We have indicated the OUL number for each of these samples on the enclosed table.

The fluorescein, eosine and rhodamine WT (RWT) dye concentrations are based upon standards routinely used at the OUL. The fluorescein and eosine are mixtures of 75% dye and 25% diluent; the RWT is a 20% solution. The concentrations are based upon the as-sold weight of the dye.

A summary of the results is presented in Table 1. Additional sampling information is available on the enclosed analysis graphs.

Sincerely,

Thomas J. Aley, PHG, RG

- Enclosures: 1. Table 1. Analysis results for charcoal and water samples
 - 2. Sample Collection Data Sheets
 - 3. Sample analysis graphs

f\docs\coa\LakeOrienta12.doc

Ozark Underground Laboratory for CH2MHill

Project:

Lake Orienta

Samples Collected By:

Mike Burns

Date Samples Shipped:

March 31, 2005

Date Samples Rec'd at OUL:
Date Analyzed by OUL:

April 1, 2005 April 5, 2005

Table 1. Results for charcoal and water samples analyzed for the presence of fluorescein, eosine and rhodamine WT (RWT) dyes. Peak wavelengths are reported in nanometers (nm); dye concentrations are reported in parts per billion (ppb). All results are for charcoal unless otherwise indicated.

OUL Lab#	Station #	Station Name	Date/Time Placed	Date/Time Collected	Fluc	Fluorescein Eosine		Eosine		WT
			2005	2005	Peak	Conc.	Peak	Conc.	Peak	Conc.
N9739	2-240	MW-2 - 240 ft	3/17 0925	3/31 0730	517.6 *	739	535.8 *	484	ND	
N9740	Laborator	y control charcóal blank	Harry State			:	_			
N9328	2-255	MW-2 - 255 ft	3/17 0925	3/31 0730	517.8 *	1,140	537.8 *	878	ND	
N9364	2-WA	MW-2 - Water	Water	3/31 0745	508.6 **	0.824	533.2	22.4	ND	

FOOTNOTES:

ND = No dye detected

- * = The concentrations of dye reported are based on the estimated proportion of the area under the curve that results from each of the two dyes (eosine and fluorescein).
- ** = A fluorescence peak is present that does not meet all the criteria for a positive dye result, but has been calculated as though it were dye because this dye is present in the corresponding charcoal sample.

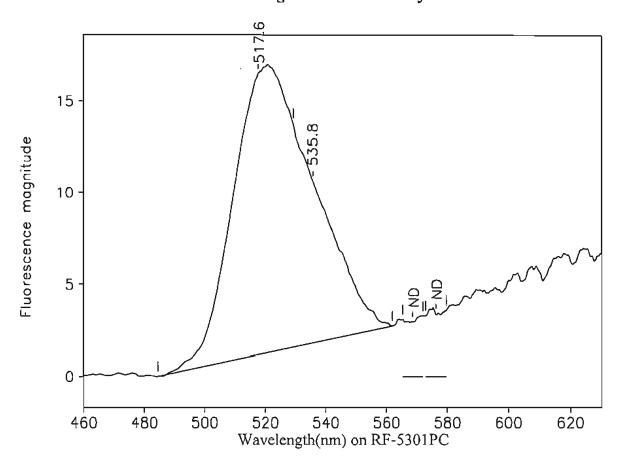
OZARK UNDERGR. VD LABORATORY, INC.
1572 Aley Lane Protem, MO 65733 (417) 785-4289 fax (417) 785-4290 email: oul@tri-lakes.net SAMPLE COLLECTION DATA SHEET for FLUORESCENCE ANALYSIS

Project:	Lake Or	ienta (CH2)	Week No: 10 Samples Collected I	Ву:	Mi	He Bu	1114		
Sample	Shipped By	: Mil	Samples Received By: J. Aruala 1/05 Date Samples Received: 4/1/05 Time Samples Received: 12	<u>l</u>					
Date Sa	mples Shipp	ed: <u>3 / 3</u>	1/05 Date Samples Received: 4/1/05 Time Samples Received: 12	:15		Return	Cooler? Y	esN	o
Bill to:	$ \cup$ $H \times I$	T H : 1/	Senu Results 10;						
Analyzo	for; Fluore	scein X	Eosine X Rhodamine WT X Other Ship cooler to: V c	clars		3 A850	· · ·		
1	OUL se only		Please indicate stations where dye was visible in the	field					OUL use only
		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	for field technician use - use black ink only	_	**				#
# CHAR REC'D	LAB NUMBER	STATION NUMBER 1-4 Numbers	STATION NAME	DAT	PLAC E	TIME	DATE	TIME	WATER REC'D
		2-135	MW-2 – 135 ft						
		2-150	'MW-2 − 150 ft						
		2-165	MW-2 – 165 ft :			, •			
		2-180	MW-2 – 180 ft						
		2-195	MW-2 – 195 ñ						
		2-210	MW-2 - 210 ft						
		25-225	MW-2 – 225 ft						
1	N9739	2-240	MW-2 – 240 ft	3/17	105	0925	3/31/05	0730	D
/	N9741	2-255	MW-2 – 255 ft					1	0
		2-270	MW-2 – 270 ft						
		2-285	MW-2 - 285 ft						
		2-300	MW-2 – 300 ft						
0		2-WA	MW-2 – Water Sample				3/31/05	0745	1
					-				
COMM	ENTS:	Charco	xel 1810m R 1819740						
This she	et filled out	by OUL st	aff? Yes No Charts for samples on this page proofed !	LIO vd		On	ma		
200100	ct 621	Anales	aff? Yes No Charts for samples on this page proofed to god 4/5/05 by UR Page of	7-1		f:\shared\	forms\coc2.		/12/04
			100	'		1, 51144 001	111,5 1000D.	_50, 100, 4	. ,

OZARK UNDERGI TND LABORATORY, INC.

1572 Aley Lane Protem, MO 65733 (417) . . . 4289 fax (417) 785-4290 email: oul@tri-lakes.net SAMPLE COLLECTION DATA SHEET for FLUORESCENCE ANALYSIS

Project:	Lake Or	ienta (CH2)	Mhill) Week No: 10 Samples Collected I	3x:	The Bu	111 +		,		
Sample	Shipped B	y:Mik	Ce Burns Samples Received By: T, Aruala	<u></u>			· .			
Date Sa	mples Shipp	ed: <u>3</u> /3	Week No: 18 Samples Collected Forms Samples Received By: 7, Arusia  105 Date Samples Received: 4/1/05 Time Samples Received: 12	:	Return	Cooler? Y	es <u> </u>	٥		
Bill to:	CH2I	MH:1/	Send Results to:							
Analyzo	for: Fluore	escein X	Eosine X_ Rhodamine WT X_ Other Ship cooler to: _/Vc	darso	3 A150	· c .				
1	OUL se only			Please indicate stations where dye was visible in the field for field technician use - use black ink only						
# CHAR	LAB	STATION	STATION NAME	PLA	CED	COLL	ECTED	#		
R.BC'D	NUMBER WHATEY	NUMBER 1-4 Numbers		DATE	TIME	DATE	TIME	WATER REC'D		
		2-135	MW-2 – 135 ft							
		2-150	MW-2 – 150 ft			,				
		2-165	MW-2 – 165 ft							
		2-180	MW-2 – 180 ft							
		2-195	MW-2 – 195 ft							
		2-210	MW-2 - 210 ft		}					
		3-225	MW-2 – 225 ft							
		2-240	MW-2 – 240 ft	3/17/03	0925	3/31/05	0730	Ø		
1		2-255	MW-2 – 255 ft					0		
		2-270	MW-2 – 270 ft							
		2-285	MW-2 – 285 ft							
		2-300	MW-2 – 300 ft							
0	19742	2-WA	MW-2 – Water Sample			3/31/05	07.45			
						1				
СОММ	ENTS:									
This sho	at filled aut	hu OIII ata	669 V	- OXII						
	Ava	byd	Aff? Yes No Charts for samples on this page proofed to 4/5/05 by WC Page of	, , , , , , , , , , , , , , , , , , ,	f;\shared		d944Rev. 4	/12/04		



Station 2-240: MW-2 - 240 ft

OUL number: N9739

Matrix: Elutant

Placed: 03/17/05 0925

Diluted: 1 to 100

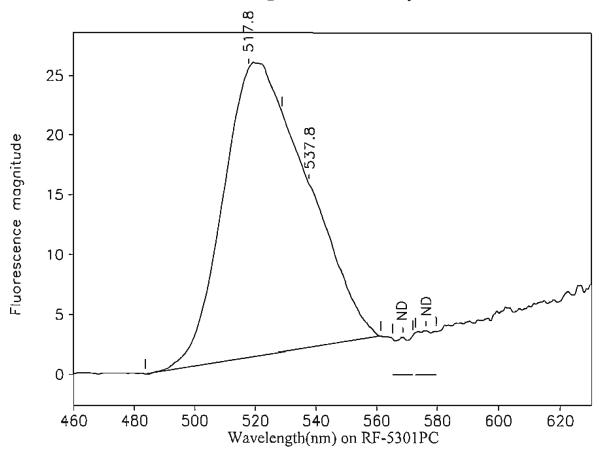
Analyzed: 04/05/05

Collected: 03/31/05 0730

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
517.6	484.4	529.3	15.26	325.46	0.05	739
535.8	529.3	562.0	8.80	159.71	0.06	484
568.7	565.4	572.0	0.00	0.00	0.00	ND
576.2	572.8	579.6	0.00	0.00	0.00	ND
Peaks clos	se to the no	rmal range of	f tracer dyes	s:		

Ca



Station 2-255: MW-2 - 255 ft

OUL number: N9741

Matrix: Elutant

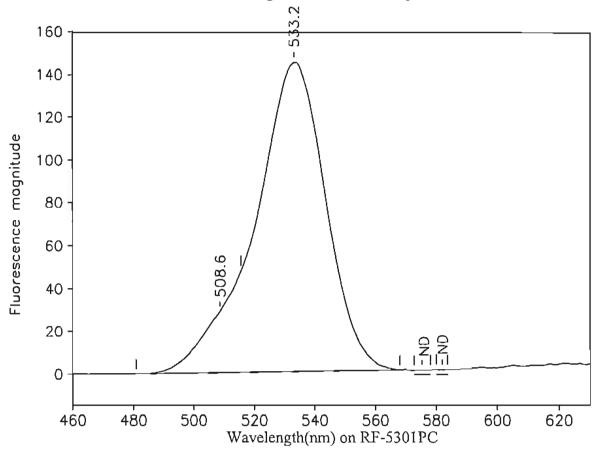
Placed: 03/17/05 0925

Diluted: 1 to 100 Analyzed: 04/05/05

Collected: 03/31/05 0730

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
517.8	483.6	528.8	24.14	501.11	0.05	1,140
537.8	528.8	561.4	13.66	289.63	0.05	878
568.7	565.4	572.0	0.00	0.00	0.00	ND
576.2	572.8	579.6	0.00	0.00	0.00	ND



Station 2-WA: MW-2 - Water

OUL number: N9742 Analyzed: 04/05/05

Matrix: Water

Collected: 03/31/05 0745

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
508.6	480.8	515.6	28.74	498.29	0.06	0.824
533.2	515.6	568.0	144.39	3,500.86	0.04	22.4
575 <i>.</i> 3	572.7	578.0	0.00	0.00	0.00	ND
581.9	580.1	583.7	0.00	0.00	0.00	ND



1572 Aley Lane

Protem, MO 65733

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oul@tri-kikes.net

April 26, 2005

### CERTIFICATE OF ANALYSIS

Alan W. Aikens, P.G. CH2MHill 225 East Robinson Street, Suite 505 Orlando, Florida 32801

RE: Lake Orienta

Dye analysis results for charcoal and water samples shipped April 14, 2005 Ozark Underground Laboratory (OUL) numbers P0248, P0249 and P0342.

Dear Mr. Aikens:

We have completed analysis of the charcoal and water samples received by the OUL on April 15, 2005. We have indicated the OUL number for each of these samples on the enclosed table.

The fluorescein, eosine and rhodamine WT (RWT) dye concentrations are based upon standards routinely used at the OUL. The fluorescein and eosine are mixtures of 75% dye and 25% diluent; the RWT is a 20% solution. The concentrations are based upon the as-sold weight of the dye.

A summary of the results is presented in Table 1. Additional sampling information is available on the enclosed analysis graphs.

Sincerely,

Thomas J. Alcy, PHG, RG,

Enclosures:

- 1. Table 1. Analysis results for charcoal and water samples
- 2. Sample Collection Data Sheets
- 3. Sample analysis graphs

f:\docs\coa\LakeOrienta13.doc

# Ozark Underground Laboratory for CH2MHill

Project:

Lake Orienta

Samples Collected By:

Mike Burns

Date Samples Shipped:

April 14, 2005

Date Samples Rec'd at OUL:

April 14, 2005 April 15, 2005

Date Analyzed by OUL:

April 20, 2005

Table 1. Results for charcoal and water samples analyzed for the presence of fluorescein, cosine and rhodamine WT (RWT) dyes. Peak wavelengths are reported in nanometers (nm); dye concentrations are reported in parts per billion (ppb). All results are for charcoal unless otherwise indicated.

OUL Lab#	Station #	Station Name	Date/Time Placed	Date/Time Collected	Fluor	escein	Eosine		in Eosine RW		/ <b>T</b>
			2005	2005	Peak	Сопс.	Peak	Conc.	Peak	Conc.	
P0248	2-240	MW-2 - 240 ft	3/31 0755	4/14 0730	517.6 *	578	537.04 *	313	ND		
P0249	2-255	MW-2 - 255 ft	3/31 0755	4/14 0730	517.4 *	438	537.0 *	246	ND		
P0342	2-WA	MW-2 - Water	Water	4/14 0745	508.2 **	1.42	532.8	20.9	ND		

### FOOTNOTES:

ND = No dye detected

- * = The concentrations of dye reported are based on the estimated proportion of the area under the curve that results from each of the two dyes (eosine and fluorescein).
- ** = A fluorescence peak is present that does not meet all the criteria for a positive dye result, but has been calculated as though it were dye because this dye is present in the corresponding charcoal sample.

OZARK UNDERGROUND LABORATORY, INC.
1572 Aley Lane Protem, MO 65733 (417) 785-4289 fax (417) 785-4290 email: oul@tri-lakes.net SAMPLE COLLECTION DATA SHEET for FLUORESCENCE ANALYSIS

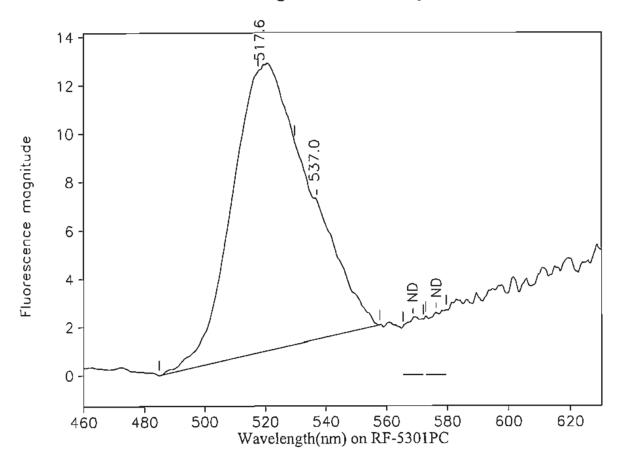
Project:	Lake Or	ienta (CH2N	Thill)  Week No: 11 Samples Collected  (Le Burns Samples Received By: 7. Arno	Ву:	Mille	Burn	5				
Samples	Shipped By	y: <i>M</i>	Ke Burns Samples Received By: T. Arno	10'							
Date Sa	mples Shipp	ed: <u>4 / 7</u>	<u>105</u> Date Samples Received: <u>4/15/05</u> Time Samples Received: <u>11</u>	<u>:30</u>	Return	Cooler? Y	es <u> </u>	0			
Bill to:	<u>CH2</u>	SIN H:	Send Results to:	/ /							
Analyze	for: Fluore	esceiņ X	Eosine X Rhodamine WT X Other Ship cooler to:	1001915	e 3 /-	1550C	<u> </u>				
1	OUL se only		Please indicate stations where dye was visible in the for field technician use - use black ink only	Please indicate stations where dye was visible in the field for field technician use - use black ink only							
#CHAR REC'D	LAB NUMBER	STATION NUMBER	STATION NAME	PLA	CED	COLL	ECTED	₩ WATER			
	Charcon)	1-4 Numbers		DATE	TIME	DATE	TIME	REC'D			
		2-135	MW-2 – 135 ft		<u>.</u>	_					
		2-150	MW-2 – 150 ft								
		2-165	MW-2 ~ 165 ft 2								
		2-180	MW-2 − 180 €								
		2-195	MW-2 – 195 ît								
		2-210	MW-2 - 210 ft								
		^3-225	MW-2 – 225 ft								
	PØ248	2-240	MW-2 – 240 ft	3/31/05	0755	4/14/05	0730	Ø			
1	90249	2-255	MW-2 – 255 ft			1.	1	Ø			
	<del>, , , , , ,</del>	2-270	MW-2 – 270 ft								
		2-285	MW-2 – 285 ft		1						
		2-300	MW-2 ~ 300 ft								
Ø		2-WA	MW-2 – Water Sample			1	<b>^</b>	1			
						4/14/05	0745				
COMM	ENTS:										
	et filled out	-		by OUL: _	ww		950				
(	malynj	2d 7/2	0105 by up OULPage of		f:\shared\	forms/coc2.	doc, Rev. 4	/12/04			

OZARK UNDERGAOUND LABORATORY, INC.

1572 Aley Lane Protem, MO 65733 (417) 785-4289 fax (417) 785-4290 email: oul@tri-lakes.net

SAMPLE COLLECTION DATA SHEET for FLUORESCENCE ANALYSIS

Project: Lake Orienta (CH2Mhill) Week No:     Samples Collected By: - Mile Dyrn 5												
Samples	s Shipped By	y: <u> </u>	Ke Burns		Samples Recei	ved By:	trnol	<i>Đ</i>				
Date Sa	mples Shipp	ed: <u>4 1 /9</u>	105 Date Sample	es Received: 4/_	15105 Ti	ne Samples Recei	ved: 1/	:30	Return	Cooler? Y	esNo	·
Bill to:	C H2	CM H:	)		Send Results to	<b>:</b>		/ . /	- 3 /	1		
Analyze	for: Fluore	escein X	Eosine X Rhodamin	ne WT X Other	·	Ship cooler to	o:	100(9r5	e 7 /-	1550C	-	
OUL				Please indicate	Please indicate stations where dye was visible in the field							OUL
изе опіу		for field technician use - use black ink only										use only
# CHAR REC'D	LAB NUMBER	STATION NUMBER		STATIO	ON NAME			PLACED		COLLECTED		WATER
	Water	,1-4 Numbers						DATE	TIME	DATE	TIME	RECTO
		2-135	MW-2 – 135 ft		•				-		٠	
	· ·	2-150	MW-2 – 150 ft		•			\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		<b></b>		
		2-165	MW-2 - 165 ft =		New York		.:					
		2-180	MW-2 – 180 ft		Ž.	•						
	ļ	2-195	MW-2 - 195 H				•					
	·	2-210	M₩-2 – 210 ft			·						
		^3-225	MW-2 – 225 ft .									
_1	}	2-240	MW-2 – 240 ft					3/31/05	0755	4/14/05	0730	Ø
1		2-255	MW-2 – 255 ft						)		1	Ø
		2-270	MW-2 - 270 ft			_					}	
		2-285	MW-2 – 285 ft									
		2-300	MW-2 - 300 ft									<u> </u> '
Ø	P6342	2-WA	MW-2 - Water Sam	ple						1	<b>^</b>	
										4/14/05	0745	
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COMM	ENTS:		••									
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Station 2-240: MW-2 - 240 ft

OUL number: P0248

Matrix: Elutant

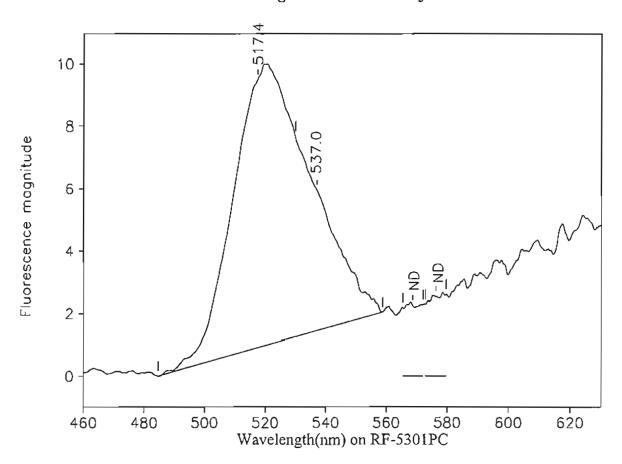
Placed: 03/31/05 0755

Diluted: 1 to 100 Analyzed: 04/20/05

Collected: 04/14/05 0730

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
517.6	484.8	529.6	11.66	250.22	0.05	578
537.0	529.6	557.8	5.78	102.10	0.06	313
568.7	565.4	572.0	0.00	0.00	0.00	ND
576.2	572.8	579.6	0.00	0.00	0.00	ND



Station 2-255: MW-2 - 255 ft

OUL number: P0249

Matrix: Elutant

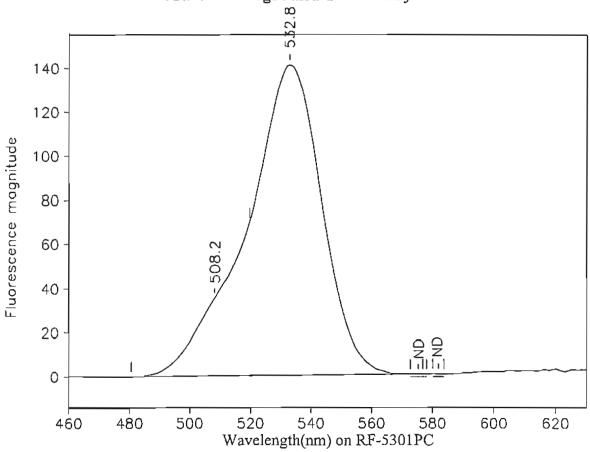
Placed: 03/31/05 0755

Diluted: 1 to 100 Analyzed: 04/20/05

Collected: 04/14/05 0730

Peaks within the normal range of tracer dyes:

Peak nm	Left X	Right X	Height	Area	H/A	Conc.
517.4	484.6	529.9	8.59	189.51	0.05	438
537.0	529.9	558.8	4.52	80.31	0.06	246
568.7	565.4	572.0	0.00	0.00	0.00	ND
576.2	572.8	579.6	0.00	0.00	0.00	ND



Station 2-WA: MW-2 - Water

OUL number: P0342 Matrix: Water

Collected: 04/14/05 0745

Analyzed: 04/20/05

Y 1 1/1 1		Z . 1
- Deale mathes	the normal	range of tracer dyes:
L Caks William	THE HUBBIA	Tallee of Hacci uves.

Peak nin	Left X	Right X	Height	Area	H/A	Conc.
508.2	480.6	519.7	35.33	868.76	0.04	1.42
532.8	519.7	576.8	140.83	3,211.41	0.04	20.9
575.3	572.7	578.0	0.00	0.00	0.00	ND
581.9	580.1	583.7	0.00	0.00	0.00	ND
70 1 1	1		C . 1			

# Appendix F Material Safety Data Sheets

# CROMPTON & KNOWLES CORP -- INTRACID RHODAMINE WT LIQUID 4517100 -- 6810-00N018097

============ Product Identification =================== Product ID: INTRACID RHODAMINE WT LIQUID 4517100 MSDS Date:05/04/1988 FSC:6810 NIIN:00N018097 MSDS Number: BLXRY === Responsible Party === Company Name: CROMPTON & KNOWLES CORP Address:ROUTE 724 City:GIBRALTOR State:PA ZIP:19508 Country: US Info Phone Num: 215-582-8765 Emergency Phone Num:215-582-8765 Preparer's Name: J M WARNQUIST, CHEM SFTY CAGE:69389 === Contractor Identification === Company Name: CROMPTON & KNOWLERS CORP Box:341 City: READING State: PA ZIP:19603 Country: US Phone: 215-582-8705 CAGE: 69389 ======= Composition/Information on Ingredients ======== Ingred Name:SODIUM HYDROXIDE CAS:1310-73-2 RTECS #:WB4900000 Fraction by Wt: <1% OSHA PEL:2 MG/M3 ACGIH TLV:C 2 MG/M3; 9293 EPA Rpt Qty:1000 LBS DOT Rpt Qty:1000 LBS ========== Hazards Identification ====================== LD50 LC50 Mixture: NONE SPECIFIED BY MANUFACTURER. Routes of Entry: Inhalation:YES Skin:NO Ingestion:NO Reports of Carcinogenicity:NTP:NO IARC:NO OSHA:NO Health Hazards Acute and Chronic:LIQUID IN CONTACT W/EYES MAY CAUSE IRRITATION. Explanation of Carcinogenicity: NOT RELEVANT. Effects of Overexposure: NONE SPECIFIED BY MANUFACTURER. Medical Cond Aggravated by Exposure: NONE SPECIFIED BY MANUFACTURER. ========= First Aid Measures ==============

First Aid:INHAL:MOVE TO FRESH AIR. IF BREATHING IS DIFFICULT, GIVE O2 & GET MD IMMED. EYE:FLUSH W/FLOWING WATER FOR AT LEAST 15 MINS,

HOLDING EYELIDS APART TO IRRIGATE THOROUGHLY. GET MD IMMED. SKIN: WASH AFFEC TED AREAS THOROUGHLY W/SOAP & WATER. IFIRRITATION DEVELOPS, CALL MD. INGEST:IF SWALLOWED, DILUTE W/WATER & INDUCE VOM. GET MD IMMED. NEVER GIVE FLUIDS OR INDUCE VOM IF PATIENT IS UNCON OR HAS CONVL.

Flash Point:N/A AQUEOUS Extinguishing Media: WATER, DRY CHEMICAL & CARBON DIOXIDE. Fire Fighting Procedures: WEAR NIOSH/MSHA APPROVED SCBA & FULL PROTECTIVE EQUIPMENT . Unusual Fire/Explosion Hazard: NONE EXPECTED. ======= Accidental Release Measures ============ Spill Release Procedures: USING AN ABSORBENT, SWEEP OR SHOVEL INTO A CONTAINER. PRODUCT IS USED AS A TRACER DYE; DO NOT ALLOW TO RUN INTO STREAMS OR WATERWAYS. Neutralizing Agent: NONE SPECIFIED BY MANUFACTURER. ========= Handling and Storage ============= Handling and Storage Precautions: IN ACCORDANCE W/GOOD INDUSTRIAL PRACTICE, HANDLE W/CARE & AVOID PERSONAL CONTACT. Other Precautions: NONE SPECIFIED BY MANUFACTURER. ====== Exposure Controls/Personal Protection ======== Respiratory Protection: NIOSH/MSHA APPROVED RESPIRATOR APPROPRIATE FOR EXPOSURE OF CONCERN . Ventilation:LOCAL. Protective Gloves: RUBBER GLOVES. Eye Protection: CHEMICAL WORKERS GOGGLES . Other Protective Equipment: APRON, & COVERALL TO MINIMIZE SKIN CONTACT. Work Hygienic Practices: NONE SPECIFIED BY MANUFACTURER. Supplemental Safety and Health PH:10.8 +/- 0.7======== Physical/Chemical Properties ========== HCC:N1 Boiling Pt:B.P. Text:AQUEOUS Melt/Freeze Pt:M.P/F.P Text:14F,-10C Spec Gravity:1.19 pH:SUPDAT Solubility in Water: SOLUBLE Appearance and Odor: DARK RED LIQUID, NO ODOR. ======= Stability and Reactivity Data ========= Stability Indicator/Materials to Avoid:YES NONE KNOWN.

Hazardous Decomposition Products: BURNING WILL PRODUCE OXIDES OF CARBON

Stability Condition to Avoid: NONE.

& NITROGEN.

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====== Disposal Considerations ===========

Waste Disposal Methods: BURY OR INCINERATE ACCORDING TO FEDERAL, STATE & LOCAL REGULATIONS. CONTAINERS SHOULD BE TRIPLE RINSED W/WATER BEFORE DISPOSAL.

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## Material Safety Data Sheet Fluorescein ACC# 90367

## Section 1 - Chemical Product and Company Identification

MSDS Name: Fluorescein Catalog Numbers: NC9481589

Synonyms: 9-(o-Carboxyphenyl)-6-hydroxy-3-isoxanthenone; Dihydroxyfluorane; 3,6-

Fluorandiol.

## Company Identification:

Fisher Scientific 1 Reagent Lane Fair Lawn, NJ 07410

For information, call: 201-796-7100 Emergency Number: 201-796-7100 For CHEMTREC assistance, call: 800-424-9300

For International CHEMTREC assistance, call: 703-527-3887

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name		EINECS/ELINCS		
2321-07-5	Fluorescein	100 %	219-031-8		

Hazard Symbols: XI Risk Phrases: 36

#### Section 3 - Hazards Identification

#### **EMERGENCY OVERVIEW**

Appearance: red-orange solid. Caution! May cause respiratory and digestive tract irritation. The toxicological properties of this material have not been fully investigated. May cause dermatitis. Causes eye irritation. May cause skin irritation.

Target Organs: Eyes.

#### **Potential Health Effects**

Eye: Causes eye irritation. May cause chemical conjunctivitis.

**Skin:** May cause skin irritation.

Ingestion: May cause gastrointestinal irritation with nausea, vomiting and diarrhea. The toxicological properties of this substance have not been fully investigated.

**Inhalation:** May cause respiratory tract irritation. The toxicological properties of this

substance have not been fully investigated.

Chronic: No information found.

## Section 4 - First Aid Measures

Eyes: Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.

Skin: Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid if irritation develops or persists.

Ingestion: If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give

anything by mouth to an unconscious person. Get medical aid.

**Inhalation:** Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

Notes to Physician: Treat symptomatically and supportively.

## Section 5 - Fire Fighting Measures

**General Information:** As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

**Extinguishing Media:** In case of fire, use water, dry chemical, chemical foam, or alcohol-resistant foam.

Flash Point: Not applicable.

**Autoignition Temperature:** Not applicable. **Explosion Limits, Lower:** Not available.

**Upper:** Not available.

NFPA Rating: (estimated) Health: 1; Flammability: 0; Instability: 0

#### Section 6 - Accidental Release Measures

**General Information:** Use proper personal protective equipment as indicated in Section 8. **Spills/Leaks:** Vacuum or sweep up material and place into a suitable disposal container. Reduce airborne dust and prevent scattering by moistening with water. Clean up spills immediately, observing precautions in the Protective Equipment section.

## Section 7 - Handling and Storage

**Handling:** Wash thoroughly after handling. Wash hands before eating. Remove contaminated clothing and wash before reuse. Use with adequate ventilation. Avoid contact with eyes, skin, and clothing. Avoid ingestion and inhalation.

Storage: Store in a cool, dry place. Keep container closed when not in use.

## Section 8 - Exposure Controls, Personal Protection

**Engineering Controls:** Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

## **Exposure Limits**

Chemical Name	ACGIH	INIOSH	OSHA - Final PELs
Fluorescein	none listed	none listed	none listed

**OSHA Vacated PELs:** Fluorescein: No OSHA Vacated PELs are listed for this chemical. **Personal Protective Equipment** 

**Eyes:** Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard

#### EN166.

**Skin:** Wear appropriate protective gloves to prevent skin exposure.

**Clothing:** Wear appropriate protective clothing to prevent skin exposure.

**Respirators:** Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Always use a NIOSH or European Standard EN 149 approved

respirator when necessary.

## Section 9 - Physical and Chemical Properties

Physical State: Solid
Appearance: red-orange
Odor: None reported.
pH: Not available.

Vapor Pressure: Not available. Vapor Density: Not available. Evaporation Rate: Not available.

**Viscosity:** Not available. **Boiling Point:** Not available.

Freezing/Melting Point:290 deg C

**Decomposition Temperature:** Not available.

**Solubility:** Insoluble in water.

**Specific Gravity/Density:**Not available.

Molecular Formula:C20H12O5 Molecular Weight:332.081

## Section 10 - Stability and Reactivity

**Chemical Stability:** Stable under normal temperatures and pressures.

**Conditions to Avoid:** Incompatible materials, dust generation. **Incompatibilities with Other Materials:** Strong oxidizing agents.

Hazardous Decomposition Products: Carbon monoxide, carbon dioxide.

Hazardous Polymerization: Has not been reported.

## Section 11 - Toxicological Information

RTECS#:

CAS# 2321-07-5: LM5075000

**LD50/LC50:** CAS# 2321-07-5:

Draize test, rabbit, eye: 100 uL/24H Severe; < BR.

Carcinogenicity:

CAS# 2321-07-5: Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.

**Epidemiology:** No data available. **Teratogenicity:** No data available.

Reproductive Effects: No data available.

Neurotoxicity: No data available. Mutagenicity: No data available. Other Studies: No data available.

## Section 12 - Ecological Information

No information available.

## Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

RCRA P-Series: None listed. RCRA U-Series: None listed.

## Section 14 - Transport Information

	US DOT	IATA	RID/ADR	IMO	Canada TDG
Shipping Name:	No information available.				No information available.
Hazard Class:					
UN Number:					
Packing Group:					

## Section 15 - Regulatory Information

## **US FEDERAL**

#### **TSCA**

CAS# 2321-07-5 is listed on the TSCA inventory.

## **Health & Safety Reporting List**

None of the chemicals are on the Health & Safety Reporting List.

#### **Chemical Test Rules**

None of the chemicals in this product are under a Chemical Test Rule.

#### Section 12b

None of the chemicals are listed under TSCA Section 12b.

#### **TSCA Significant New Use Rule**

None of the chemicals in this material have a SNUR under TSCA.

#### SARA

## **CERCLA Hazardous Substances and corresponding RQs**

None of the chemicals in this material have an RQ.

## **SARA Section 302 Extremely Hazardous Substances**

None of the chemicals in this product have a TPQ.

#### Section 313

No chemicals are reportable under Section 313.

## Clean Air Act:

This material does not contain any hazardous air pollutants. This material does not contain any Class 1 Ozone depletors. This material does not contain any Class 2 Ozone depletors.

#### **Clean Water Act:**

None of the chemicals in this product are listed as Hazardous Substances under the CWA. None of the chemicals in this product are listed as Priority Pollutants under the CWA. None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

#### OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA. **STATE** 

CAS# 2321-07-5 is not present on state lists from CA, PA, MN, MA, FL, or NJ. California No Significant Risk Level: None of the chemicals in this product are listed.

## European/International Regulations European Labeling in Accordance with EC Directives Hazard Symbols:

ΧI

**Risk Phrases:** 

R 36 Irritating to eyes.

## **Safety Phrases:**

WGK (Water Danger/Protection)

CAS# 2321-07-5: 1

Canada - DSL/NDSL

CAS# 2321-07-5 is listed on Canada's DSL List.

Canada - WHMIS

This product has a WHMIS classification of D2B.

**Canadian Ingredient Disclosure List** 

**Exposure Limits** 

## Section 16 - Additional Information

**MSDS Creation Date:** 12/12/1997 **Revision #2 Date:** 3/18/2003

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Fisher be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the possibility of such damages.

MSDS Number: E0825 * * * * * Effective Date: 08/10/04 * * * * * Supercedes: 11/02/01

# **EOSIN Y**

## 1. Product Identification

Synonyms: Acid red 87; CI 45380; Eosin Y Certified (Yellowish); 2',4',5',7'-tetra bromo

fluorescein

**CAS No.:** 17372-87-1 **Molecular Weight:** 691.91

Chemical Formula: C20H6Br4Na2O5

Product Codes: J.T. Baker: L088 Mallinckrodt: 0460

# 2. Composition/Information on Ingredients

Ingredient	CAS No	Percent	
Hazardous			
Eosin Y	17372-87-1	90 - 100%	
Yes			

## 3. Hazards Identification

# Emergency Overview

CAUTION! MAY IRRITATE EYES, RESPIRATORY TRACT.

**J.T. Baker SAF-T-DATA** (tm) Ratings (Provided here for your convenience)

.....

Health Rating: 1 - Slight

Flammability Rating: 1 - Slight Reactivity Rating: 0 - None Contact Rating: 0 - None

Lab Protective Equip: GOGGLES; LAB COAT Storage Color Code: Orange (General Storage)

______

#### **Potential Health Effects**

_____

#### **Inhalation:**

Inhalation of dust may cause irritation to the respiratory tract.

## **Ingestion:**

Not expected to be a health hazard via ingestion.

## **Skin Contact:**

Not expected to cause any adverse health effects from skin contact.

## **Eye Contact:**

May cause irritation.

## **Chronic Exposure:**

No information found.

## **Aggravation of Pre-existing Conditions:**

No information found.

## 4. First Aid Measures

## **Inhalation:**

Remove to fresh air. Get medical attention for any breathing difficulty.

## **Ingestion:**

Not expected to require first aid measures. If large amounts were swallowed, give water to drink and get medical advice.

## **Skin Contact:**

Wash exposed area with soap and water. Get medical advice if irritation develops.

## **Eve Contact:**

Immediately flush eyes with plenty of water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get medical attention if irritation persists.

# 5. Fire Fighting Measures

#### Fire:

Not considered to be a fire hazard.

## **Explosion:**

Not considered to be an explosion hazard.

## Fire Extinguishing Media:

Use any means suitable for extinguishing surrounding fire.

## **Special Information:**

In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

## 6. Accidental Release Measures

Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Spills: Sweep up and containerize for reclamation or disposal. Vacuuming or wet sweeping may be used to avoid dust dispersal.

# 7. Handling and Storage

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

## 8. Exposure Controls/Personal Protection

## **Airborne Exposure Limits:**

None established.

## **Ventilation System:**

A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation*, *A Manual of Recommended Practices*, most recent edition, for details.

## **Personal Respirators (NIOSH Approved):**

For conditions of use where exposure to dust or mist is apparent and engineering controls are not feasible, a particulate respirator (NIOSH type N95 or better filters) may be worn. If oil particles (e.g. lubricants, cutting fluids, glycerine, etc.) are present, use a NIOSH type R or P filter. For emergencies or instances where the exposure levels are not known, use a full-face positive-pressure, air-supplied respirator. WARNING: Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

## **Skin Protection:**

Wear protective gloves and clean body-covering clothing.

## **Eye Protection:**

Use chemical safety goggles. Maintain eye wash fountain and quick-drench facilities in work area.

## 9. Physical and Chemical Properties

## Appearance:

Brown powder.

Odor:

Odorless.

**Solubility:** 

Soluble in water.

**Specific Gravity:** 

Unknown

pH:

No information found.

% Volatiles by volume @ 21C (70F):

No information found.

**Boiling Point:** 

No information found.

**Melting Point:** 

No information found.

Vapor Density (Air=1):

No information found.

Vapor Pressure (mm Hg):

No information found.

**Evaporation Rate (BuAc=1):** 

No information found.

## 10. Stability and Reactivity

## **Stability:**

Stable under ordinary conditions of use and storage.

## **Hazardous Decomposition Products:**

Burning may produce carbon monoxide, carbon dioxide, nitrogen oxides. Combustion will produce carbon dioxide, carbon monoxide, hydrogen bromide gas.

## **Hazardous Polymerization:**

Will not occur.

**Incompatibilities:** 

Strong oxidizers.

**Conditions to Avoid:** 

Incompatibles.

## 11. Toxicological Information

No LD50/LC50 information found relating to normal routes of occupational exposure.
nvestigated as a tumorigen and mutagen.
\Cancer Lists\
NTP Carcinogen

Ingredient Category	Known	Anticipated	IARC
Eosin Y (17372-87-1)	No	No	None

# 12. Ecological Information

**Environmental Fate:** 

No information found.

**Environmental Toxicity:** 

No information found.

# 13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

# 14. Transport Information

Not regulated.

# 15. Regulatory Information

\Chemical Inventory Status - Part 1	1\				
Ingredient Australia		TSCA	EC	Japan	
Eosin Y (17372-87-1)		Yes	Yes	Yes	Yes
\Chemical Inventory Status - Part 2	2\			 anada	
Ingredient		Korea	DSL 	NDSL	Phil.
Eosin Y (17372-87-1)		Yes	Yes	No	Yes
\Federal, State & International Reg	gulatio	ons - I	Part 1	1\	
	-SARA	302-		SARA	313
Ingredient Catg.	RQ	TPQ	Lis	st Chem	ical

-----____ Eosin Y (17372-87-1) No No ------\Federal, State & International Regulations - Part 2\-------RCRA-Ingredient CERCLA 261.33 8(d) _____ _____ ----Eosin Y (17372-87-1) No Nο Chemical Weapons Convention: No TSCA 12(b): No CDTA: No SARA 311/312: Acute: Yes Chronic: No Fire: No Pressure: No Reactivity: No (Pure / Solid)

Australian Hazchem Code: None allocated.

Poison Schedule: None allocated.

WHMIS:

This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

## 16. Other Information

**NFPA Ratings:** Health: **1** Flammability: **0** Reactivity: **0** 

**Label Hazard Warning:** 

CAUTION! MAY IRRITATE EYES, RESPIRATORY TRACT.

**Label Precautions:** 

Avoid breathing dust.

Avoid contact with eyes, skin and clothing.

Keep container closed.

Use with adequate ventilation.

Wash thoroughly after handling.

#### **Label First Aid:**

If inhaled, remove to fresh air. Get medical attention for any breathing difficulty. In case of eye contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation develops or persists.

## **Product Use:**

Laboratory Reagent.

## **Revision Information:**

No Changes.

**Disclaimer:** 

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**Prepared by:** Environmental Health & Safety Phone Number: (314) 654-1600 (U.S.A.)

# Appendix G Chemical Data Quality Evaluation Reports

# Central Florida Recharge - Festival Park Data Quality Evaluation (DQE)

## Introduction

The purpose of this document is to present the findings of the data quality evaluation (DQE) performed on laboratory reports of analyses from groundwater samples collected through seven sampling events (a baseline and 6 specific rainfall interval events) as part of the Baseline and Operational Characterization tasks for the Festival Park site of the Central Florida Artificial Recharge Enhancement Project. The baseline sampling is a one time event at 6 locations, and pretreatment sampling is 6 events at 6 locations.

The purpose of the data quality evaluation process is to assess the effect of the overall analytical process on the usability of the data. The two major categories of data evaluation are laboratory performance and matrix interferences. Evaluation of laboratory performance is a check for compliance with the method requirements; either the laboratory did, or did not, analyze the samples within the limits of the analytical method. Evaluation of matrix interferences which could affect the final numerical value is more subtle and involves the analysis of several areas of results including surrogate spike recoveries, matrix spike recoveries, specific interferent check standards, and duplicate sample results.

These samples were collected over the following periods in 2003 and 2004:

- Baseline: May 27th to May 29th, 2003
- Event 1: October 1st to October 3rd, 2003
- Event 2: October 8th to October 10th, 2003
- Event 3: October 22nd to October 24th, 2003
- Event 4: November 18th to November 20th, 2003
- Event 5: February 4th to February 6th, 2004
- Event 6: February 16th to February 18th, 2004

Field quality control (QC) samples collected included field duplicates, an equipment rinsate blank, and trip blanks (analyzed for VOCs only). Additional aliquots of a normal field sample were collected for matrix spike and matrix spike duplicates to be performed in the laboratory. The "normal" samples represent the results to be used for site evaluations. The number of samples collected by type and analytical method is listed in **Exhibit 1**.

Before the analytical results were released by the laboratory, both the sample and QC data were reviewed by the laboratory to ensure method compliance and to ascertain whether they were within the laboratory-defined limits for accuracy and precision. Any non-conforming data were discussed in the data package case narrative. **Appendix A** presents the frequency of detection of target analytes for field samples.

**EXHIBIT 1**Number of Samples Collected by Matrix, Method, and Type

Matrix	Analytical Method	Analytical Method Description	Preparation Method	Filtered ?	N	FD	ЕВ	ТВ
WG	E110.2	Color (Colorimetric-Platinum-Cobalt)	NONE	NONE	37	3	1	
WG	E150.1	pH, Electrometric	NONE	NONE	37	3	1	
WG	E160.1	Residue, Filterable (TDS)	NONE	NONE	37	3	1	
WG	E180.1	Turbidity (Nephelometric)	NONE	NONE	37	3	1	
WG	E310.1	Alkalinity (Titrimetric)	NONE	NONE	37	3	1	
WG	E325.2	Chloride, Colorimetric	NONE	NONE	37	3	1	
WG	E350.3	Nitrogen, Ammonia (Potentiometric)	NONE	NONE	37	3	1	
WG	E351.2	Nitrogen, Kjedahl, Total (Colorimetric)	METHOD	NONE	31	2	1	
WG	E351.4	Nitrogen, Kjeldahl, Total (Potentiometric)	METHOD	NONE	6	1		
WG	E353.2	Nitrogen, Nitrate-Nitrite (Colorimetric)	NONE	NONE	37	3	1	
WG	E353.2M	Total nitrogen, calculated	NONE	NONE	37	3	1	
WG	E354.1	Nitrogen, Nitrite (Colorometric)	NONE	NONE	37	3	1	
WG	E365.2	Phosphorus, All Forms (as P)	METHOD	FLDFLT	30	2		
WG	E365.2	Phosphorus, All Forms (as P)	NONE	NONE	37	3	1	
WG	E375.4	Sulfate (As SO4), Turbidimetric	NONE	NONE	37	3	1	
WG	E405.1	Biochemical Oxygen Demand	METHOD	NONE	37	3	1	
WG	E415.1	Total Organic Carbon	NONE	FLDFLT	30	2		
WG	E415.1	Total Organic Carbon	NONE	NONE	36	3	1	
WG	E900	Gross Alpha and Beta	NONE	NONE	39	3	1	
WG	FLPRO	PETROLEUM RANGE ORGANICS - FDEP	METHOD	NONE	37	3	1	
WG	SW6010B	Inductively Coupled Plasma Emission Spectroscopy	SW3010A	NONE	37	3	1	
WG	SW7470A	Mercury in Liquid Waste (Cold-Vapor)	METHOD	NONE	37	3	1	
WG	SW8081	ORGANOCHLORINE PESTICIDES BY GC	SW3510	NONE	36	3	1	
WG	SW8082	POLYCHLORINATED BIPHENYLS (PCB)	SW3510	NONE	36	3	1	
WG	SW8141	Organophosphorus Pesticides by GC	SW3510	NONE	36	3	1	
WG	SW8151	Chlorinated Herbicides by GC	SW3510	NONE	37	3	1	
WG	SW8260B	Volatile Organic Compounds by GCMS	SW5030	NONE	37	3	1	42
WG	SW8270C	GC/MS for SVOCs	SW3510	NONE	37	3	1	

WG = Groundwater, WS = Surface Water, N = Normal Field Sample, FD = Field Duplicate, TB = Trip Blank, EB = Equipment Rinsate Blank. FLDFLT = Field Filtered

The hardcopy data packages were reviewed by the CH2M HILL project chemists applying the review criteria which generally follows that outlined in the Environmental Protection Agency (EPA) guidance documents Contract Laboratory Program National Functional Guidelines for Organic (1999) and Inorganic Data Review (1994) [NFG]). Areas of review included (when applicable to the method) holding time compliance, initial and continuing calibration verification, all associated field and laboratory blank results, matrix spike/matrix spike duplicate (MS/MSD) precision and accuracy, laboratory control sample/laboratory control sample duplicate (LCS/LCSD) accuracy and precision, field duplicate results, surrogate recoveries, internal standard performance, and method interference checks. A data review worksheet was completed for each of these data packages and any nonconformances documented. This data review and validation process is independent of the laboratory's checks and focuses on the usability of the data to support the project data interpretation and decision-making processes.

A qualifying flag would be applied to data that were not within the method established acceptance limits. These flags consist of a single or double-letter abbreviation that indicates the usability of the identified non-conformance. Although the qualifying flags are entered into the database records from the validated Form I's, they are also included in the final data summary tables so that the data will not be used indiscriminately. The qualification of the data also includes secondary, or multi-digit "sub-qualifier" flags, which are entered into the data validation notes field of the database. The secondary qualifiers provide the reasoning behind the assignment of a qualifier to the data. The sub-qualifiers are presented and defined in **Appendix B**.

Numerical sample results that are greater than the method detection limit (MDL) but less than the laboratory reporting limit (RL) are qualified with a "J" for estimated as required by the NFG. The method detection limit (MDL) is defined as, "the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero." Therefore, by definition, the accuracy and precision of values at or near the MDL are questionable and should be viewed as such. The reporting limit (RL) is a level at which a laboratory reports analytical results. The RL is established by the laboratory based upon laboratory determinations or project requirements. Factors such as an analye specific MDL, a calculated PQL, the lowest calibration standard (method specific), applicable regulatory agency limits, or program specific requirements may contribute to the final RL established for the project. The practical quantitation limit (PQL) is often determined to be a multiple of the MDL or other limit of detection (LOD) findings. The most common multiples are 5, 10, and 12 (the most current multiple). The major difference between a limit of detection and a limit of quantitation is that accuracy and precision improve at quantitation levels.

The following primary flags were used to qualify the data:

- **U** Undetected. Analyte was analyzed for but not detected above the method detection limit (MDL) or other limit of detection.
- **UJ -** Detection limit estimated. Analyte was analyzed for, and qualified as not detected. The result is estimated due to its concentration or failed QC measurement.

- **J** Estimated. The analyte was present, but the reported value may not be accurate or precise due to its concentration or failed QC measurement.
- R Rejected. The data are unusable. (NOTE: Analyte/compound may or may not be present.)

The database was queried for frequency of detection in all blank types and samples', providing detailed listings of blank detects, matrix spike/matrix spike duplicate (MS/MSD) statistics, laboratory control sample / laboratory control sample duplicate (LCS/LCSD) accuracy and precision, field duplicate precision, surrogate recoveries, and preparation and analysis dates pertaining to holding times. The queries were then manipulated to calculate necessary statistics for evaluation of the data.

Once the data review and validation process was completed, the data set was reviewed for analyte frequencies of detection, dilution factors which might affect data usability, and patterns of target analyte distribution. The data set was also evaluated to identify potential data limitations, uncertainties, or both in the analytical results. Analytes that were assigned qualifiers during the validation processes are presented in **Appendix C**.

# **Holding Times**

The holding times for each parameter were evaluated according to SW-846 requirements. **Appendix C** indicates that there were 402 records qualified for preparation or analysis holding times outside criteria, but within two times the established holding time. Of the 402 qualified records, 400 semivolatile results (all non-detects), from 5 samples were qualified as estimated, "UJ" due to re-extractions or re-analysis outside of holding time (but within 2 times HT) because the original analysis experienced QC or calibration failures and were rejected. The initial analyses were excluded because there can be only one valid result, per analyte, per sample. These 5 valid re-extracted samples are: FP-04-06-001RE1, FP-04-06-002RE1, FP-04-06-004RE1, and FP-04-06-005RE1. No data were rejected due to holding time exceedances.

Two 5-day Biological Oxygen Demand (BOD) records (non-detects) were also estimated as "UJ". No data were rejected due to holding time exceedances.

## **Calibration**

The majority of calibration criteria pertaining to the analytical methods were met for these samples. **Appendix C** includes analytes that were qualified due to calibration issues, such as: poor relative response factors (RRFs), second source confirmation, initial or continuing calibration deficiencies (high percent D or percent RSD), and poor second source verification standard recoveries. A total of 522 records were qualified as estimated, non-detect (UJ) and 6 analyses estimated as "J". Data that were qualified due to any calibration variances are presented in **Appendix C** with validation reasons (or a combination of these calibration specific sub-qualifiers): "CCL", "CC", "IC", "2C" and "2SL". The definition of all the sub-qualifiers are found and defined in Appendix B. The number of non-detected records per fraction qualified as estimated (UJ) included 269 semivolatiles (8270C), 85 volatiles (8260B), 38 organophosphorus pesticides (8141A), 19 chlorinated herbicides (8151A), 43 PCB's (8082),

and 66 organochlorine pesticides (8081A). The 6 results estimated as "J" included 2 each TOCs (415.1) and acetone (8260B) records, and single results for heptachlor epoxide, and cis-1,2-Dichloroethene. No results were rejected due to calibration deficiencies.

# **Potential Field Sampling and Laboratory Contamination**

Three types of blank samples were used to monitor potential contamination introduced during field sampling, sample handling, shipping activities, as well as sample preparation and analysis in the laboratory. Types of blank samples included:

- Trip Blank (TB): A sample of analyte free water that is prepared in the laboratory prior to the sampling event. The water is stored in VOC sample containers and is not opened in the field, and travels back to the laboratory with the other samples for VOC analysis. This blank is used to monitor the potential for sample contamination during the sample container trip. One trip blank should be included in each sample cooler that contained samples for VOC analysis. Forty-two trip blanks were submitted to the laboratory with these samples.
- Equipment Rinsate Blank (ERB): A sample of the target-free water (ambient blank) used for the final rinse during the equipment decontamination process. This blank sample is collected by rinsing the sampling equipment after decontamination and is analyzed for the same analytical parameters as the corresponding samples. This blank is used to monitor potential contamination caused by incomplete equipment decontamination. One equipment rinsate blank should be collected per day of sampling, per type of sampling equipment. A single equipment rinsate blank was submitted to the laboratory for this field effort.
- Laboratory Method Blank or Method Blank (MB): A laboratory method blank is analyte free water that is treated as a sample in that it undergoes the same analytical process as the corresponding field samples. Method blanks are used to monitor laboratory performance and contamination introduced during the analytical procedure. One method blank was prepared and analyzed for every 20 samples or per analytical batch, whichever was more frequent.

According to the NFG, concentrations of common organic contaminants detected in samples at less than 10 times the concentration of the associated blanks can be attributed to field sampling and laboratory contamination rather than environmental contamination from site activities. Common organic contaminants include acetone, methylene chloride, 2-butanone, and the phthalates. For other inorganic and organic contaminants, 5 times the concentration detected in the associated blanks (rather than the 10 times rule) is used to qualify results as potential field and/or laboratory contamination rather than environmental contamination. The 5 or 10 times rule were applied on a sample delivery group (SDG) by SDG basis and not globally. A Sample Delivery Group is a batch of no more than 20 samples prepared together, per method. Global application, however, would account for anomalous data (1 or 2 low level detects out of 40), which should also be attributed to laboratory or field blank contamination. Additionally, many results reported in blanks (especially metals) are well below a defined practical quantitation limit (PQL) and may represent Type I errors when

associated with a matrix. A Type I (or alpha error) occurs when the value reported is dismissed as a biased high, or false positive result.

Detects in the samples at concentrations less than the action levels (5 or 10 times rule) were qualified as not detected. The changes in the flagging qualifier due to the data validation process associated with blank contamination are presented in **Appendix C**. Blank detections are compiled into a "frequency of detection" by target parameter and are presented in **Appendix D**. Blank contamination resulted in 144 results requiring qualification as "U" (non-detect) due to low level contamination or high instrument noise and background levels found in various blanks.

Sixteen elements found in one or more of the blank types resulted in qualification of metals data as non-detections. Five general chemistry parameters were also found to have experienced blank detections which required qualification of data. Low level detection in blanks is associated with all analytical methods and quite common. Several cations and anions are ubiquitous at low levels, while others may be exhibiting background noise due their lack of sensitivity associated with their analytical method.

Sample results less than 5 times the concentration found in the blanks associated with a specific SDG can be attributed to field sampling and laboratory contamination or considered to be indicative of environmental contamination. The majority of the reported elemental concentrations were at or near the method detection limit and could be Type I (or alpha errors), more commonly known as "false positives". This effect is often reflected in reported detections at or near the MDL in initial and continuing calibration blanks (ICB and CCB) as these are QC samples utilizing analyte free water as blank check samples. These ICB and CCB data are not part of the electronic data deliverable provided by the laboratory and thus will not be represented in **Appendix D**, however validation notes presented in **Appendix C** indicate if a CCB or ICB was the cause for qualification.

Many metals are ubiquitous at low levels because they are naturally occurring, and are materials and components used in manufacturing (aluminum, copper, chromium, zinc, iron, mercury, and manganese). Iron, chromium, and manganese are associated with alloys of steel. Zinc is a common metal and often used as a catalyst in many manufacturing processes. Copper and aluminum are used in electrical wiring and plumbing. Lead (Pb) is used in soldering applications. Mercury is also commonly encountered at low concentrations due to its vast commercial uses during the last two centuries. Other metals such as antimony, beryllium, cadmium, cobalt, silver, thallium, vanadium, and selenium are not commonly encountered and generally are quantitated just above the MDL and below the reporting limit (RL). The lack of accuracy and precision at this level, coupled with instrument noise and matrix effects, can elicit Type I errors as defined above. Detections at or near the MDL should be carefully evaluated during the projects final decision making process. Exhibit 2 presents the numbers of records, per element, qualified as not detected due to blank contamination.

**EXHIBIT 2**Number of Records per Element, Qualified as Not Detected Attributable to Blank Contamination

Element Qualified	Number of Records Resulting as Non-Detectionss by Element
Aluminum	15 of 40
Antimony	2 of 40
Beryllium	15 of 40
Cadmium	1 of 40
Chromium	4 of 40
Cobalt	1 of 40
Copper	3 of 40
Iron	19 of 40
Lead	3 of 40
Manganese	7 of 40
Selenium	6 of 40
Silver	5 of 40
Thallium	1 of 40
Vanadium	5 of 40
Zinc	12 of 40
Mercury	2 of 40

The general chemistry parameters which were found to require qualification due to various blank detections are presented in **Appencix C** and include TKN, ammonia, nitrite, TPH (FLPRO), TOC, and DOC. **Exhibit 3** presents the number of general chemistry records by parameter qualified as not detected due to blank contamination.

**EXHIBIT 3**Number of Records per Parameter, Qualified as Not Detected Attributable to Blank Contamination

Sample Parameter Qualified	Number of Records Resulting as Non-Detections by Parameter
Nitrogen, Ammonia (as N)	1 of 40
Total Kjeldahl Nitrogen	12 of 40
Nitrite Nitrogen	3 of 40
Dissolved Organic Carbon (DOC)	19 of 40
Total Organic Carbon (TOC)	6 of 40
TPH (FLPRO)	2 of 40

## **Matrix Effects**

## Surrogate Spike Recovery

Surrogate spike compounds were added to every sample analyzed for the organic parameters including field and laboratory blanks as well as field environmental samples. Surrogate spikes consist of organic compounds which are similar to the method targets in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples.

Surrogate spike recoveries were used to monitor both laboratory performance and matrix interferences. Surrogate spike recoveries from field and laboratory blanks were used to evaluate laboratory performance because the blanks should represent an "ideal" sample matrix. Surrogate spike recoveries for field samples were used to evaluate the potential for matrix interferences. According to *Functional Guidelines*, data are not qualified with respect to surrogate recoveries unless one or more volatile surrogates are out of specifications. Semivolatiles are not qualified unless two or more surrogates, within the same fraction (base/neutral or acid fraction), are out of specification.

Thirty-four compounds were qualified for low surrogate recoveries. These flagged data included 31 organochlorine herbicides, and 3 FL-PRO TPH records. Two TPH records were estimated and non-detects (UJ) while the 3rd TPH result was estimated (J). A single organochlorine herbicide sample (FP-03-01-009) reported as non-detects was rejected for all 8 method compounds due to the surrogate recoveries below 10 percent. The other 23 organochlorine herbicide resulsts were non-detects and qualified as estimated (UJ). These data are presented in **Appendix C**. With the single method 8151 sample exception, surrogate statistics indicate that the specific sample matrix did not influence the overall analytical process or the final numerical sample result.

## Matrix Spike/Matrix Spike Duplicate Precision and Accuracy

A matrix spike is an aliquot of sample spiked with a known concentration of target analyte(s). The spiking occurs prior to sample preparation and analysis. A matrix spike is used to document the bias of a method in a given sample matrix. The matrix spike duplicate is an intra-laboratory split sample spiked with identical concentrations of target analyte(s). The spiking occurs prior to sample preparation and analysis. The MS/MSD pair are used to document the precision and accuracy of a given sample matrix. For the MS/MSD measurement, 3 aliquots of a single sample are analyzed; 1 native sample and 2 aliquots of the same sample spiked with target analytes or compounds. Matrix accuracy is evaluated from the spike recoveries, while matrix precision is evaluated from comparison of the quantitated concentrations of the MS and MSD.

Organic results are typically not qualified based upon the results of MS/MSD statistics alone. Evaluation is in conjunction with surrogate, LCS, and internal standard (if applicable) results. However, professional judgment is often applied in the event of unusually low recoveries (less than 20 percent) and associated samples may be qualified as estimated.

Forty-four organic records were qualified utilizing professional judgment in association with the MS/MSD statistics. These data included 20 organophosphorus pesticides (method 8141), 9

organochlorine herbicides (method 8151), 2 volatile (method 8260B), and 13 semivolatile (method 8270C) results. All but 5 of these records were non-detects and qualified as estimated (UJ) for low MS or MSD accuracy or for high MS/MSD precision. Five semivolatile results (non-detects) were rejected (kepone and a,a-Dimethylphenethylamine associated with sample FP-04-07-003 and its field duplicate, -004; and n-nitrosodimethylamine with sample FP-03-03-007).

Two total Kjeldahl Nitrogen (TKN) results were flagged as estimated as (J) and a single non-detect petroleum hydrocarbon (FLPRO) record flagged as estimated (UJ).

The lack of data rejection (other than the 5 semivolatile results) from the measurements of matrix accuracy and precision indicate that the specific sample matrix did not influence the overall analytical process or the final numerical sample result.

# **Field Duplicate Sample Results**

Field duplicate analyses measure both field and laboratory precision and can also be affected by the homogeneity of the samples. According to the EPA *Functional Guidelines*, there are no qualification criteria for field duplicate precision.

According to the method, up to 3 field duplicate sets were collected during these field efforts. Both the native and duplicate samples were analyzed for the same parameters.

An aqueous control limit of  $\pm$  20 percent for the RPD was used for original and duplicate sample values greater than or equal to 5 times the RL. A control limit of  $\pm$  the RL was used if either the sample or the duplicate value was less than 5 times the RL for waters. In the cases where only one result is above the 5 times the RL level and the other is below, the  $\pm$  RL criteria were applied. There were 62 measurable analyte results in the field duplicate database that met the criteria outlined above. Nine sample sets were outside the acceptance criteria as defined in this text. The exceptions are presented in **Appendix E.** The small percentage of field duplicate sets outside criteria (14 percent) indicate that the matrix was homogenous and that sampling activities did not affect the overall analytical process or the final numerical sample result.

## **ICPES Serial Dilution Results**

The serial dilution is another measurement used to ascertain whether the matrix is affecting the final numerical result. A sample digestate with concentrations of elements greater than 50 times the MDL is diluted five-fold (1+4) and analyzed. The diluted result is then multiplied by 5 and this concentration compared to the original non-diluted result. If the percent difference (percent D) is greater than 10, then a matrix effect is suspected.

Twenty-four results were qualified due to SDG associated sample elements which failed the serial dilution QC measurement. These records consisted of 5 potassium, 15 sodium, and 4 zinc. All of these results were estimated (J), with the exception of 2 zinc records which were estimated as "UJ". These 3 elements often fail serial dilution tests, mainly due to possible low level contamination and in the cases of sodium and potassium, their lack of analytical sensitivity. The fact that only 3 ubiquitous metals failed the serial dilution

procedure indicates that the specific sample matrix did not influence the other elements, nor the overall analytical process or the final numerical sample result.

# **Laboratory Method Accuracy**

Laboratory control samples (LCSs) or blank spikes (BS) are quality control samples utilized to monitor laboratory method accuracy. This sample consists of target free laboratory water spiked with the target compounds of interest. For certain methods, LCS/LCSD's (or BS/BSD's) were prepared and analyzed in order to ascertain method precision. Two-hundred and sixty-six records out of 9,348 specific targets were qualified (2.8 percent). Forty-four non-detected results were rejected, "R" (44/9,348 or 0.5 percent). The 44 rejected results consisted of 4 organochlorine herbicides (method 8151) and 40 semi-volatiles (method 8270C). The remaining 222 non-detected records were qualifies as estimated (UJ). These results were comprised of 4 organochlorine pesticides (method 8081), 29 organophosphorus pesticides (method 8141), 29 organochlorine herbicides (method 8151), 12 volatiles (method 8260B), and 148 semivolatile (method 8270C) results. These data indicate that the analytical methods were under control and did not have an effect on the final numerical results.

## Sample Results for Measurements near the Method Detection Limit (MDL)

The MDL is defined as the minimum concentration of an analyte that can be identified, measured, and reported with 99 percent confidence that the analyte concentration is greater than zero. Sample results at, or near the MDL are not accurate or precise. At this level, Type I (alpha – false positives) errors can occur. This situation is often caused by instrument noise or low-level background shifts rather than a true analyte signal. As concentrations approach a defined "quantitation limit", the confidence in the values increase.

## **PARCCs**

**Precision**—is defined as the agreement between duplicate results, and was estimated by comparing duplicate matrix spike recoveries, and field duplicate sample results. MS/MSD and BS/BSD laboratory precision was documented as well within control limit criteria for most samples and targets. Field duplicate precision was excellent. Both matrix and method precision criteria were demonstrated as well within criteria.

Accuracy--is a measure of the agreement between an experimental determination and the true value of the parameter being measured. For the organic analyses, each of the samples was spiked with surrogate compounds; and for organic and inorganic analyses a MS/ MSD, and LCS were spiked with a known reference materials before preparation. Each of these approaches (except the LCS) provides a measure of the matrix effects on the analytical accuracy. The LCS/LCSD results demonstrate accuracy and precision of the method. Spike recoveries were within the method acceptance limits for the majority of the measurements; therefore, other than the documented exceptions, there was no evidence of matrix interferences that would affect the usability of the data.

**Representativeness**--this criterion is a qualitative measure of the degree to which sample data accurately and precisely represent a characteristic environmental condition.

Representativeness is a subjective parameter and is used to evaluate the efficacy of the sampling plan design. Representativeness was demonstrated by providing full descriptions in the project scoping documents of the sampling techniques and the rationale used for selecting sampling locations.

**Completeness**—is defined as the percentage of measurements that are judged to be valid compared to the total number of measurements made. The percent completeness for all analytical fractions was **99.4 percent (9295/9348)**.

Comparability--is another qualitative measure designed to express the confidence with which one data set may be compared to another. Factors that affect comparability are sample collection and handling techniques, sample matrix type, and analytical method. Comparability is defined by the other PARCC parameters because data sets can be compared with confidence when precision and accuracy are known. Data from this investigation are comparable with other data collected at the site because only EPA methods were used to analyze the sample and EPA Level III QC data are available to support the quality of the data.

## **Conclusions**

Conclusions of the data quality evaluation process are:

- The laboratory analyzed the samples according to the EPA methods stated in the work plan as demonstrated by the deliverable summaries and analytical run sequences.
- Of the 402 qualified records, 400 semivolatile results (all non-detects), from 5 samples were qualified as estimated, "UJ" due to re-extractions or re-analysis outside of holding time (but within 2 times HT) because the original analysis experienced QC or calibration failures and were rejected. The initial analyses were excluded because there can be only one valid result, per analyte, per sample. Two 5-day Biological Oxygen Demand (BOD) records (non-detects) were also estimated as "UJ". No data were rejected due to holding time exceedances.
- The majority of calibration criteria pertaining to the analytical methods were met for these samples. Analytes that were qualified due to calibration issues, such as: poor relative response factors (RRFs), second source confirmation, initial or continuing calibration deficiencies (high percent D or percent RSD), and poor second source verification standard recoveries. A total of 522 records were qualified as estimated, non-detect (UJ) and 6 analyses estimated as "J".
- Forty-four organic records were qualified utilizing professional judgment in association with the MS/MSD statistics. These data included 20 organophosphorus pesticides (method 8141), 9 organochlorine herbicides (method 8151), 2 volatile (method 8260B), and 13 semivolatile (method 8270C) results. All but 5 of these records were non-detects and qualified as estimated (UJ) for low MS or MSD accuracy or for high MS/MSD precision. Five semivolatile results (non-detects) were rejected
- Forty-four non-detected results were rejected, "R" (44/9,348 or 0.5 percent). The 44 rejected results consisted of 4 organochlorine herbicides (method 8151) and 40 semi-volatiles (method 8270C). The remaining 222 non-detected records were qualified as

estimated (UJ). These results were comprised of 4 organochlorine pesticides (method 8081), 29 organophosphorus pesticides (method 8141), 29 organochlorine herbicides (method 8151), 12 volatiles (method 8260B), and 148 semivolatile (method 8270C) results.

- Sample results for target organic compounds above the MDL but less than the RL should be considered as uncertain but indicative of the presence of that compound at an estimated concentration.
- Matrix and method spike and surrogate recoveries (other than the exceptions
  documented in the text and tables) indicate that the specific sample matrix did not
  significantly interfere with the analytical process or the final numerical result from the
  laboratory.

The project objectives or PARCCs were met, and the data can be used in the project decision-making process as qualified by the data quality evaluation process.

APPENDIX A
Frequency of Detection in Field Samples

Matrix	Analytical Method	Dissolved ?		Number Analyzed	Number Detected	Minimum Detected	Maximum Detected	Minimum Reporting Limit	Maximum Reporting Limit	Minimum Detection Limit	Maximum Detection Limit	Units
WG	E110.2	-	color	40	37	5.0	25.0	10.0	10.0	5.0	5.0	Color units
WG	E150.1	_	ph	40	40	6.0	11.1	0.10	0.10	0.10	0.10	pH units
WG	E160.1	-	total dissolved solids (residue, filterable)	40	40	89.0	386	20.0	20.0	10.0	10.0	mg/L
WG	E180.1	-	turbidity	40	29	0.20	7.0	0.25	0.25	0.12	0.12	NŤU
WG	E310.1	-	Alkalinity, bicarbonate (as caco3)	40	31	11.0	211	10.0	10.0	2.0	2.0	mg/L
WG	E325.2	-	Chloride (as CI)	40	40	3000	16200	600	600	200	266	μg/L
WG	E350.3	-	Nitrogen, ammonia (as N)	40	30	0.13	9.3	0.40	0.40	0.11	0.21	mg/L
WG	E351.2	-	nitrogen, kjeldahl, total	33	21	0.15	1.3	0.26	0.26	0.13	0.13	mg/L
WG	E351.4	-	nitrogen, kjeldahl, total	7	6	1.5	2.3	2.0	2.0	0.45	0.45	mg/L
WG	E353.2	-	Nitrogen, nitrate-nitrite	40	16	0.025	0.67	0.10	0.10	0.020	0.050	mg/L
WG	E353.2M	-	T. Nitrogen, Calculated	40	39	0.17	2.4	0.10	0.10	0.10	0.10	mg/L
WG	E354.1	-	nitrogen, nitrite	40	5	0.014	0.54	0.18	0.18	0.012	0.050	mg/L
WG	E365.2	-	phosphorus, total (as p)	40	40	0.037	0.23	0.040	0.040	0.017	0.020	mg/L
WG	E365.2	-	phosphorus, total organic (as p)	8	8	0.048	0.10	0.020	0.020	0.020	0.020	mg/L
WG	E365.2	FLDFLT	phosphorus, total organic (as p)	32	32	0.035	0.18	0.020	0.020	0.017	0.017	mg/L
WG	E365.2	-	phosphorus, total orthophosphate (as p)	40	39	0.017	0.15	0.020	0.020	0.014	0.020	mg/L
WG	E375.4	-	Sulfate (as SO4)	40	37	0.61	71.8	1.0	5.0	0.22	2.5	mg/L
WG	E405.1	-	biologic oxygen demand, five day	39	2	3.3	3.4	2.0	2.0	2.0	2.0	mg/L
WG	E415.1	FLDFLT	dissolved organic carbon	8	2	23.8	24.3	15.0	15.0	6.7	6.7	mg/L
WG	E415.1	FLDFLT	dissolved organic carbon	32	17	0.62	6.0	1.5	1.5	0.37	0.67	mg/L
WG	E415.1	-	Total organic carbon	39	24	0.54	27.8	1.0	13.4	0.37	6.7	mg/L
WG	E900	-	Alpha, gross	42	25	1.2	10.2	0.50	2.6	0.50	2.3	pCi/L
WG	E900	-	beta, gross	42	32	1.0	54.7	0.70	3.0	0.70	2.5	pCi/L
WG	FLPRO	-	petroleum hydrocarbons	40	8	0.10	0.82	0.34	0.37	0.097	0.32	mg/L
WG	SW6010B	-	Aluminum	40	6	41.0	2660	100	100	35.0	35.0	μg/L
WG	SW6010B	-	Antimony	40	7	2.7	5.0	5.0	5.0	2.5	2.5	μg/L
WG	SW6010B	-	Arsenic	40	23	2.9	19.4	5.0	5.0	2.0	2.0	μg/L
WG	SW6010B	-	Barium	40	40	4.3	55.0	2.0	2.0	0.49	0.49	μg/L
WG	SW6010B	-	Cadmium	40	8	0.36	0.55	1.0	1.0	0.36	0.36	μg/L
WG	SW6010B	-	Calcium	40	40	17100	77100	100	100	32.5	32.5	μg/L
WG	SW6010B	-	Chromium, total	40	15	0.58	10.6	2.0	2.0	0.57	0.57	μg/L
WG	SW6010B	-	Cobalt	40	2	0.78	1.2	5.0	5.0	0.57	0.57	μg/L
WG	SW6010B	-	Copper	40	9	1.2	8.4	5.0	5.0	1.2	1.2	μg/L
WG	SW6010B	-	Iron	40	12	176	4370	50.0	50.0	16.7	16.7	μg/L
WG	SW6010B	-	Lead	40	3	1.9	4.3	5.0	5.0	1.8	1.8	μg/L
WG	SW6010B	-	Magnesium	40	40	1030	8930	100	100	5.2	7.6	μg/L
WG	SW6010B	-	Manganese	40	32	0.33	24.2	2.0	2.0	0.17	0.17	μg/L
WG	SW6010B	-	Nickel	40	25	1.6	9.1	5.0	5.0	1.00	1.00	μg/L
WG	SW6010B	-	Potassium	40	40	1000	56000	500	500	11.5	11.5	μg/L
WG	SW6010B	-	Selenium	40	1	4.3	4.3	5.0	5.0	2.1	2.1	μg/L
WG	SW6010B	-	Silver	40	2	0.50	0.53	2.0	2.0	0.47	0.47	μg/L
WG	SW6010B	-	Sodium	40	40	5380	29300	300	300	22.7	22.7	μg/L

**APPENDIX A**Frequency of Detection in Field Samples

								Minimum	Maximum	Minimum	Maximum	
	Analytical			Number	Number	Minimum	Maximum	Reporting	Reporting	Detection	Detection	
Matrix	Method	Dissolved?	Parameter	Analyzed	Detected	Detected	Detected	Limit	Limit	Limit	Limit	Units
WG	SW6010B	-	Vanadium	40	26	0.47	12.5	3.0	3.0	0.45	0.45	μg/L
WG	SW6010B	-	Zinc	40	22	0.68	67.6	10.0	10.0	0.41	0.41	μg/L
WG	SW8081	-	heptachlor epoxide	39	1	0.028	0.028	0.053	0.053	0.026	0.026	μg/L
WG	SW8260B	-	1,1-Dichloroethane	40	8	1.1	2.5	1.0	1.0	0.14	0.18	μg/L
WG	SW8260B	-	1,1-Dichloroethene	40	10	0.38	1.4	1.0	1.0	0.22	0.36	μg/L
WG	SW8260B	-	1,2-Dichlorobenzene	40	3	0.34	0.60	1.0	1.0	0.14	0.18	μg/L
WG	SW8260B	-	Acetone	40	2	3.0	3.9	10.0	10.0	1.9	1.9	μg/L
WG	SW8260B	-	Benzene	40	4	0.16	0.64	1.0	1.0	0.14	0.14	μg/L
WG	SW8260B	-	cis-1,2-Dichloroethene	40	17	0.52	4.5	1.0	1.0	0.18	0.32	μg/L
WG	SW8260B	-	o-Xylene (1,2-Dimethylbenzene)	40	1	0.16	0.16	1.0	1.0	0.12	0.12	μg/L
WG	SW8260B	-	Tetrachloroethene (PCE)	40	6	0.37	1.1	1.0	1.0	0.22	0.38	μg/L
WG	SW8260B	-	Toluene	40	6	0.18	0.67	1.0	1.0	0.11	0.19	μg/L
WG	SW8260B	-	trans-1,2-Dichloroethene	40	3	0.16	0.24	1.0	1.0	0.14	0.21	μg/L
WG	SW8260B	-	Trichloroethene (TCE)	40	3	0.23	0.32	1.0	1.0	0.20	0.20	μg/L
WG	SW8270C	-	2,3,4,6-tetrachlorophenol	40	1	5.4	5.4	10.0	10.0	0.51	0.51	μg/L
WG	SW8270C	-	p-dimethylaminoazobenzene	40	1	1.6	1.6	10.1	10.1	0.39	0.39	μg/L
WG	SW8270C	<u>-                                      </u>	Pentachlorophenol	40	1	6.2	6.2	10.0	10.0	1.3	1.3	μg/L

NOTES: WG = Groundwater Sample, ug/L = micrograms per liter; mg/L = milligrams per liter, pCi/L = picocuries per liter, NTU = nephelometric turbidity units, FLDFLT = field filtered, pH = hydrogen ion

## APPENDIX B

Data Validation Subqualifiers and Their Definitions

Number	on Subqualifiers and Validation Code	Definition Definition
1	2C / <i>CF</i>	Confirmation result
2	2SH	Second source calibration verification standard greater than the upper control limit
3	2SL	Second source calibration verification standard less than the lower control limit
4	ABH	Ambient blank concentration greater than the RL
5	ABL	Ambient blank concentration less than the RL
6	BKD / PD	The result is qualified because the DDT and/or Endrin breakdown was greater than 20%.
7	BL	Blank
8	BS	Blank Spike recovery outside criteria
9	BD	Blank Spike/Blank Spike Duplicate or LCS/LCSD RPD criteria exceeded
10	CBKD	The result is qualified because the combined DDT/Endrin breakdown is greater than 30%.
11	CC	Continuing Calibration
12	CCBH	Continuing calibration blank concentration greater than the RL
13	CCBL	Continuing calibration blank concentration less than RL
14	CCC	CCC Failure
15	CCRRF	Continuing calibration relative response factor below the LCL
16	CCVF	Continuing Calibration not analyzed at the required frequency
17	CCVH / CCH	Continuing calibration recovery greater than upper control limit
18	CCVL / CCL	Continuing calibration recovery less than lower control limit
19	CFP	Confirmation precision exceeded
20	CO	Compounds were reported combined on one column
21	DL	Secondary dilution
22	EBH	Equipment blank concentration greater than the RL
23	EBL	Equipment blank concentration less than the RL
24	EMPC	Estimated Maximum Possible Concentration Reported
25	FBH	Field blank concentration greater than the RL
26	FBL	Field blank concentration less than the RL
27	FD	Field duplicate exceeds RPD criteria
28	GPC	The results are qualified due to GPC calibration deficiencies.
29	HT	Holding Time
30	HTA	Analytical Holding Time exceeded
31	HTP	Preparation Holding Time exceeded
32	IB	Result between the MDL and RL (Metals - B's → J's )
33 34	<i>IC</i> ICBH	Initial Calibration
35	ICBL	Initial calibration blank concentration greater than the RL Initial calibration blank concentration less than RL
36	ICH	Initial Calibration High
37	ICL	Initial Calibration Low
38	ICR2	Initial calibration exceeded the R2 for first order regression
39	ICRR	Exceeds RSD criteria and initial calibration exceeded the R2 for first order regression
40	ICRRF	Initial calibration relative response factor below the LCL
41	ICRSD	Initial calibration RSD exceeded
42 43	ICSH ICSL	Interference present and %recovery is greater than upper control limit Interference present and %recovery is less than lower control limit
44	ICSP	Single Point Initial Calibration used for Quantitation
45	ICVH	Initial calibration recovery exceeds the upper control limit
46	ICVL	Initial calibration recovery exceeds the lower control limit
47	ICVSH	Initial calibration verification recovery greater than upper control limit
48	ICVSL	Initial calibration verification recovery less than lower control limit
49	IS	Internal standard
50	ISH	Internal standard response exceeded the UCL criteria
51	ISL	Internal standard response exceeded the LCL criteria
52	LBH	Laboratory blank contamination greater than the RL
53	LBL	Laboratory blank contamination less than the RL
54	LCS	Laboratory Control Sample
55	LD	Laboratory Duplicate Precision out
56	LCSDH / BSH	LCSD recovery greater than criteria
57	LCSDL / BSL	LCSD recovery less than the criteria
58	LCSH / BSH	LCS recovery greater than criteria

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APPENDIX B
Data Validation Subqualifiers and Their Definitions

Number	Validation Code	Definition
59	LCSL / BSL	LCS recovery less than the criteria
60	LCSP / BD	LCS/LCSD RPD criteria exceeded
61	LDP / <i>LD</i>	Laboratory Duplicate Precision out
62	LR	Linear range exceeded. Concentration above linear range.
63	MSA	Quantitated by the method of standard additions
64	MSALL	Global matrix spike flagging
65	MSAR2	method of standard additions R2 out
66	MSDH / <i>MSH</i>	Matrix spike duplicate recovery criteria greater than the upper limit
67	MSDL / <i>MSL</i>	Matrix spike duplicate recovery criteria less than the lower limit
68	MSDP / MD	Matrix Spike Duplicate RPD criteria exceedance
69	MSH	Matrix spike recovery criteria greater than the upper limit
70	MSL	Matrix spike recovery criteria less than the lower limit
71	NMS	Not Site-specific Matrix Spike
72	OT	Other
73	PH	Sample pH out. Not properly preserved.
74	PRM	Result differs from Preliminary Result
75	PSH	Post spike recovery criteria greater than the upper limit
76	PSL	Post spike recovery criteria less than the lower limit
77	RA	Sample was reanalyzed
78	RE	Sample was re-extracted and reanalyzed
79	RT	Result is outside the laboratory determined retention time window
80	SCRN	Screening method and/or data
81	SDIL / SD	Serial Dilution %D exceeds the upper control limit
82	SPCC	SPCC Failure
83	SSH	Surrogate recovery greater than upper limit
84	SSL	Surrogate recovery less than lower limit
85	SSR	Surrogate spike recovery <10%
86	TBH	Trip blank concentration greater than the RL
87	TBL	Trip blank concentration less than the RL
88	TD	Total Concentration < Dissolved Concentration
89	TEMP	Cooler temperature out upon arrival
90	TIC	Tentatively identified compound
91	TN	GC/MS tune does not meet criteria
92	XCC	No Continuing Calibration analyzed in the analytical batch
93	XCF	No Confirmation information provided
94	X-DL	Data not used due to dilution; another value is more appropriate or data was not requested
95	XIC	No initial calibration analyzed in the analytical batch
96	XICVS	Initial calibration verification standard was not analyzed
97	XLCS	No LCS in the analytical batch
98	XLD	Laboratory Duplicate not reported
99	XMS	Matrix Spike not reported
100	XMSD	Matrix Spike Duplicate not reported
101	X-RE	Data not used due to reanalysis another value is more appropriate or data was not requested

Italics represent the "older" validation reason codes.

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Appendix C
Change in Qualifier Through the Data Validation Process

Change	in Qualifier Through th	ne Data Validati	on Process												
Matrix	Sample ID	Sample Type	LR Type	Analytical Method	Dissolved?	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Validation Notes
WG	FP-03-01-007	N		SW8260B	-	Acetone	3	J	J	3	J	J	1.9	10	CC
WG	FP-03-01-008	N		SW8260B	-	Acetone	3.9	J	J	3.9	J	J	1.9	10	CC
WG	FP-03-03-002	N		SW8260B	-	cis-1,2-Dichloroethene	0.88	J	J	0.88	J	J	0.32	1	IC
WG	FP-03-01-008	N		SW8081	-	heptachlor epoxide	0.028	J	J	0.028	J	J	0.026	0.053	2C
WG	FP-04-06-006	N		SW6010B	-	Potassium	1500	=	=	1500	J	J	11.5	500	SD
WG	FP-04-007-01	N		SW6010B	-	Potassium	1130	=	=	1130	J	J	11.5	500	SD
WG	FP-04-007-02	N		SW6010B	-	Potassium	1640	=	=	1640	J	J	11.5	500	SD
WG	FP-04-07-003	N		SW6010B	-	Potassium	2010	=	=	2010	J	J	11.5	500	SD
WG	FP-04-07-004	FD		SW6010B	-	Potassium	1960	=	=	1960	J	J	11.5	500	SD
WG	FP-03-02-001	N		SW6010B	-	Sodium	14300	=	=	14300	J	J	22.7	300	SD
WG	FP-03-02-002	N		SW6010B	-	Sodium	12900	=	=	12900	J	J	22.7	300	SD
WG	FP-03-02-005	N		SW6010B	-	Sodium	7860	=	=	7860	J	J	22.7	300	SD
WG	FP-03-02-006	N		SW6010B	-	Sodium	12600	=	=	12600	J	J	22.7	300	SD
WG	FP-03-02-007	N		SW6010B	-	Sodium	11300	=	=	11300	J	J	22.7	300	SD
WG	FP-03-03-001	N		SW6010B	-	Sodium	7150	=	=	7150	J	J	22.7	300	SD
WG	FP-03-03-002	N		SW6010B	-	Sodium	10500	=	=	10500	J	J	22.7	300	SD
WG	FP-03-03-003	N		SW6010B	-	Sodium	7000	=	=	7000	J	J	22.7	300	SD
WG	FP-03-03-006	N		SW6010B	-	Sodium	11700	=	=	11700	J	J	22.7	300	SD
WG	FP-03-03-007	N		SW6010B	-	Sodium	10300	=	=	10300	J	J	22.7	300	SD
WG	FP-04-007-01	N		SW6010B	-	Sodium	10400	=	=	10400	J	J	22.7	300	SD
WG	FP-04-007-02	N		SW6010B	-	Sodium	8500	=	=	8500	J	J	22.7	300	SD
WG	FP-04-07-003	N		SW6010B	-	Sodium	6550	=	=	6550	J	J	22.7	300	SD
WG	FP-04-07-007	N		SW6010B	-	Sodium	8630	=	=	8630	J	J	22.7	300	SD
WG	FP-04-07-004	FD		SW6010B	-	Sodium	6430	=	=	6430	J	J	22.7	300	SD
WG	FP-04-007-02	N		SW6010B	-	Zinc	11.8	=	=	11.8	J	J	0.409	10	SD
WG	FP-04-07-003	N		SW6010B	-	Zinc	31.8	=	=	31.8	J	J	0.409	10	SD
WG	FP-04-06-006	N		FLPRO	-	petroleum hydrocarbons	0.1	J	J	0.1	J	J	0.097	0.34	SSL
WG	FP-04-07-007	N		E415.1	FLDFLT	dissolved organic carbon	0.8	J	J	0.8	J	J	0.368	1.5	IC
WG	FP-04-07-004	FD		E415.1	FLDFLT	dissolved organic carbon	0.62	J	J	0.62	J	J	0.368	1.5	IC
WG	FP-03-02-002	N		E351.2	-	nitrogen, kjeldahl, total	0.359	=		0.359		J	0.128	0.26	MS
WG	FP-03-02-005	N		E351.2	-	nitrogen, kjeldahl, total	0.795	=		0.795	J	J	0.128	0.26	MS
WG	FP-04-007-01	N		SW8270C	-	3,3'-dimethylbenzidine	20.2	U		20.2	R	U	6	20.2	BSL
WG	FP-04-007-02	N		SW8270C	-	3,3'-dimethylbenzidine	20	U	U	20		U	5.9	20	BSL
WG	FP-03-02-001	N		SW8270C	-	a,a-Dimethylphenethylamine	20	U	U	20	R	U	3.8	20	BS
WG	FP-03-02-002	N		SW8270C	-	a,a-Dimethylphenethylamine	20.1	U		20.1		U	3.8	20.1	BS
WG	FP-03-02-005	N		SW8270C	-	a,a-Dimethylphenethylamine	20	U	U	20		U	3.8	20	BS
WG	FP-03-02-006	N		SW8270C	-	a,a-Dimethylphenethylamine	20	U		20		U	3.8	20	BS
WG	FP-03-02-007	N		SW8270C	-	a,a-Dimethylphenethylamine	20.4	U		20.4		U	3.9	20.4	BS
WG	FP-03-03-001	N		SW8270C	-	a,a-Dimethylphenethylamine	20	U		20		U	3.8	20	BS
WG	FP-03-03-002	N		SW8270C	-	a,a-Dimethylphenethylamine	20	U	U	20		U	3.8	20	BS
WG	FP-03-03-003	N		SW8270C	-	a,a-Dimethylphenethylamine	20.6	U		20.6		U	3.9	20.6	BS
WG	FP-03-03-006	N		SW8270C	-	a,a-Dimethylphenethylamine	20	U		20		U	3.8	20	BS
WG	FP-03-03-007	N		SW8270C	-	a,a-Dimethylphenethylamine	20	U		20		U	3.8	20	BS
WG	FP-03-04-001	N		SW8270C	-	a,a-Dimethylphenethylamine	20	U		20		U	3.8	20	BS
WG	FP-03-04-004	N		SW8270C	-	a,a-Dimethylphenethylamine	20.5			20.5		U	3.9	20.5	BS
WG	FP-03-04-005	N		SW8270C	-	a,a-Dimethylphenethylamine	20.5	U		20.5		U	3.9	20.5	BS
WG	FP-03-05-001	N		SW8270C	-	a,a-Dimethylphenethylamine	20.2			20.2		U	3.9	20.2	BS
WG	FP-03-05-002	N		SW8270C	-	a,a-Dimethylphenethylamine	20			20		U	3.8	20	BS
		1.4	-	31132700	-	a,a zimotry prioriotry aritiro							5.5		123

Appendix C
Change in Qualifier Through the Data Validation Process

Change	in Qualifier Through th		on Process												
Matrix	Sample ID	Sample Type	LR Type	Analytical Method	Dissolved ?	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Validation Notes
WG	FP-03-05-005	N		SW8270C	-	a,a-Dimethylphenethylamine	20	U	U	20	R	U	3.8	20	BS
WG	FP-03-05-006	N		SW8270C	-	a,a-Dimethylphenethylamine	20	U	U	20	R	U	3.8	20	BS
WG	FP-03-05-007	N		SW8270C	-	a,a-Dimethylphenethylamine	20		U	20	R	U	3.8	20	BS
WG	FP-04-06-006	N		SW8270C	-	a,a-Dimethylphenethylamine	20	U	U	20	R	U	3.8	20	BSL
WG	FP-04-06-007	N		SW8270C	-	a,a-Dimethylphenethylamine	20.1	U	U	20.1	R	U	3.8	20.1	BSL
WG	FP-04-007-01	N		SW8270C	-	a,a-Dimethylphenethylamine	20.2	U	U	20.2	R	U	3.7	20.2	BSL
WG	FP-04-007-02	N		SW8270C	-	a,a-Dimethylphenethylamine	20	U	U	20	R	U	3.7	20	BSL
WG	FP-04-07-007	N		SW8270C	-	a,a-Dimethylphenethylamine	20.2	U	U	20.2	R	U	3.7	20.2	BSL
WG	FP-04-07-003	N		SW8270C	-	a,a-Dimethylphenethylamine	20.3	U	U	20.3	R	U	3.8	20.3	BSL,MSL
WG	FP-04-07-004	FD		SW8270C	-	a,a-Dimethylphenethylamine	20.2	U	U	20.2	R	U	3.7	20.2	BSL,MSL
WG	FP-03-02-006	N		SW8270C	-	kepone	20	U	U	20	R	U	1.5	20	BS
WG	FP-03-02-007	N		SW8270C	-	kepone	20.4	U	U	20.4	R	U	1.5	20.4	BS
WG	FP-04-07-003	N		SW8270C	-	kepone	20.3	U	U	20.3	R	U	3.1	20.3	BSL,MSL
WG	FP-04-07-004	FD		SW8270C	-	kepone	20.2	U	U	20.2	R	U	3.1	20.2	BSL,MSL
WG	FP-03-03-001	N		SW8270C	-	methapyrilene	10	U	U	10	R	U	2.6	10	BS
WG	FP-03-03-002	N		SW8270C	-	methapyrilene	10	U	U	10	R	U	2.6	10	BS
WG	FP-03-03-003	N		SW8270C	-	methapyrilene	10.3	_	U	10.3	R	U	2.6	10.3	BS
WG	FP-03-03-001	N		SW8270C	-	n-nitrosodimethylamine	5	U	U	5	R	U	1.3	5	BS
WG	FP-03-03-002	N		SW8270C	-	n-nitrosodimethylamine	5	_	U	5	R	U	1.3	5	BS
WG	FP-03-03-003	N		SW8270C	-	n-nitrosodimethylamine	5.2		U	5.2	R	U	1.3	5.2	BS
WG	FP-03-03-006	N		SW8270C	-	n-nitrosodimethylamine	5		U	5	R	U	1.3	5	BS
WG	FP-03-03-007	N		SW8270C	-	n-nitrosodimethylamine	5		U	5	R	U	1.3	5	MS
WG	FP-04-007-01	N		SW8270C	-	pyridine	4		U	4	R	U	2.1	4	BSL
WG	FP-04-007-02	N		SW8270C	-	pyridine	4		U	4	R	U	2.1	4	BSL
WG	FP-03-01-009	N		SW8151	-	2,4,5-t (trichlorophenoxyacetic acid)	0.53		U	0.53	R	U	0.074	0.53	SS
WG	FP-03-01-009	N		SW8151	-	2,4-d (dichlorophenoxyacetic acid)	0.53		U	0.53	R	U	0.096	0.53	SS
WG	FP-03-01-009	N		SW8151	-	dalapon	0.53		U	0.53	R	U	0.053	0.53	SS
WG	FP-03-01-009	N		SW8151	-	dicamba	0.53	_	U	0.53	R	U	0.074	0.53	SS
WG	FP-03-01-009	N		SW8151	-	dichloroprop	0.53		U	0.53	R	U	0.12	0.53	SS
WG	FP-03-02-006	N		SW8151	_	dinoseb	0.56	_	U	0.56	R	U	0.067	0.56	BS
WG	FP-03-02-007	N		SW8151	_	dinoseb	0.56		U	0.56	R	U	0.067	0.56	BS
WG	FP-03-03-007	N		SW8151	_	dinoseb	0.5		U	0.50	R	U	0.06	0.5	BS
WG	FP-03-04-001	N		SW8151	_	dinoseb	0.51		U	0.51	R	U	0.061	0.51	BS
WG	FP-03-01-009	N		SW8151	_	dinoseb	0.53		U	0.53	R	U	0.064	0.53	SS
WG	FP-03-01-009	N		SW8151	_	Picloram	11		U	11	R	U	0.004	11	SS
WG	FP-03-01-009	N		SW8151	_	silvex (2,4,5-tp)	0.53		U	0.53	R	U	0.064	0.53	SS
WG	FP-03-05-006	N		SW7470A	_	Mercury	0.16		J	0.16	U	U	0.004	0.2	BL
WG	FP-03-05-007	N		SW7470A		Mercury	0.183		J	0.183	U	U	0.0162	0.2	BL
WG	FP-03-01-002	N		SW6010B	-	Aluminum	37.7		J	37.7	U	U	35	100	BL
WG	FP-03-01-002			SW6010B	-	Aluminum	50	В	J	50	U	U	35	100	
		N			-				J						BL
WG	FP-03-01-007	N		SW6010B	-	Aluminum	73.7	В	J	73.7	U	U	35	100	BL
WG	FP-03-01-008	N		SW6010B	-	Aluminum	76.3	В	J	76.3	U	U	35	100	BL
WG	FP-03-02-001	N		SW6010B	-	Aluminum	41	В	J	41	U	U	35	100	BL
WG	FP-03-02-002	N		SW6010B	-	Aluminum	42.8	В	J	42.8	U	U	35	100	BL
WG	FP-03-02-005	N		SW6010B	-	Aluminum	59.4		J	59.4	U	U	35	100	BL
WG	FP-03-02-007	N		SW6010B	-	Aluminum	46.6		J	46.6	U	U	35	100	BL
WG	FP-03-03-001	N		SW6010B	-	Aluminum	95.5		J	95.5	U	U	35	100	BL
WG	FP-03-03-002	N		SW6010B	-	Aluminum	71.7	В	J	71.7	U	U	35	100	BL

Appendix C
Change in Qualifier Through the Data Validation Process

Change	in Qualifier Through th	he Data Validati	ion Proces	S											
Matrix	Sample ID	Sample Type	LR Type	Analytical Method	Dissolved ?	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qua	Final Conc   Qual	Detection Limit	Reporting Limit	Validation Notes
WG	FP-03-03-003	N		SW6010B	-	Aluminum	44.1	В	J	44.1	U	U	35	100	BL
WG	FP-04-06-004	N		SW6010B	-	Aluminum	52.1	В	J	52.1	U	U	35	100	BL
WG	FP-03-01-009	N		SW6010B	-	Aluminum	150	=	=	150	U	U	35	100	BL
WG	FP-03-03-006	N		SW6010B	-	Aluminum	220	=	=	220	U	U	35	100	BL
WG	FP-04-06-002	FD		SW6010B	-	Aluminum	41.8	В	J	41.8	U	U	35	100	BL
WG	FP-04-07-003	N		SW6010B	-	Antimony	4.3	В	J	4.3	U	U	2.5	5	BL
WG	FP-04-07-004	FD		SW6010B	-	Antimony	3.5	В	J	3.5	U	U	2.5	5	BL
WG	FP-03-01-004	N		SW6010B	-	Beryllium	0.234	В	J	0.234	U	U	0.0945	1	BL
WG	FP-03-02-001	N		SW6010B	-	Beryllium	0.197	В	J	0.197	U	U	0.0945	1	BL
WG	FP-03-02-002	N		SW6010B	-	Beryllium	0.203	В	J	0.203	U	U	0.0945	1	BL
WG	FP-03-02-006	N		SW6010B	-	Beryllium	0.168	В	J	0.168	U	U	0.0945	1	BL
WG	FP-03-03-001	N		SW6010B	-	Beryllium	0.108	В	J	0.108	U	U	0.0945	1	BL
WG	FP-03-03-002	N		SW6010B	-	Beryllium	0.304	В	J	0.304	U	U	0.0945	1	BL
WG	FP-03-04-001	N		SW6010B	-	Beryllium	0.265	В	J	0.265	U	U	0.0945	1	BL
WG	FP-03-04-002	N		SW6010B	-	Beryllium	0.104	В	J	0.104	U	U	0.0945	1	BL
WG	FP-03-04-003	N		SW6010B	-	Beryllium	0.188	В	J	0.188	U	U	0.0945	1	BL
WG	FP-03-04-004	N		SW6010B	-	Beryllium	0.156	В	J	0.156	U	U	0.0945	1	BL
WG	FP-03-05-001	N		SW6010B	-	Beryllium	0.219	В	J	0.219	U	U	0.0945	1	BL
WG	FP-03-05-002	N		SW6010B	-	Beryllium	0.234	В	J	0.234	U	U	0.0945	1	BL
WG	FP-04-06-007	N		SW6010B	-	Beryllium	0.179	В	J	0.179	U	U	0.0945	1	BL
WG	FP-04-07-003	N		SW6010B	-	Beryllium	0.315	В	J	0.315	U	U	0.0945	1	BL
WG	FP-04-07-004	FD		SW6010B	-	Beryllium	0.368	В	J	0.368	U	U	0.0945	1	BL
WG	FP-03-01-004	N		SW6010B	-	Cadmium	0.493	В	J	0.493	U	U	0.356	1	BL
WG	FP-03-01-001	N		SW6010B	-	Chromium, total	1.13	В	J	1.13	U	U	0.57	2	BL
WG	FP-03-01-002	N		SW6010B	-	Chromium, total	1.79	В	J	1.79	U	U	0.57	2	BL
WG	FP-03-01-004	N		SW6010B	-	Chromium, total	1.73	В	J	1.73	U	U	0.57	2	BL
WG	FP-03-01-003	FD		SW6010B	-	Chromium, total	1.13	В	J	1.13	U	U	0.57	2	BL
WG	FP-03-01-004	N		SW6010B	-	Cobalt	0.629	В	J	0.629	U	U	0.569	5	BL
WG	FP-03-01-007	N		SW6010B	-	Copper	3.43	В	J	3.43	U	U	1.17	5	BL
WG	FP-03-01-008	N		SW6010B	-	Copper	4.34	В	J	4.34	U	U	1.17	5	BL
WG	FP-04-007-02	N		SW6010B	-	Copper	1.67	В	J	1.67	U	U	1.17	5	BL
WG	FP-03-01-002	N		SW6010B	-	Iron	30.5	В	J	30.5	U	U	16.7	50	BL
WG	FP-03-01-004	N		SW6010B	-	Iron	33.5	В	J	33.5	U	U	16.7	50	BL
WG	FP-03-01-006	N		SW6010B	-	Iron	18.4	В	J	18.4	U	U	16.7	50	BL
WG	FP-03-02-001	N		SW6010B	-	Iron	48.2	В	J	48.2	U	U	16.7	50	BL
WG	FP-03-02-007	N		SW6010B	-	Iron	22.1	В	J	22.1	U	U	16.7	50	BL
WG	FP-03-03-007	N		SW6010B	-	Iron	40.4	В	J	40.4	U	U	16.7	50	BL
WG	FP-03-04-001	N		SW6010B	-	Iron	40.7	В	J	40.7	U	U	16.7	50	BL
WG	FP-03-05-005	N		SW6010B	_	Iron	18.5	В	J	18.5	U	U	16.7	50	BL
WG	FP-03-02-002	N		SW6010B	_	Iron	57.3	=	=	57.3	U	U	16.7	50	BL
WG	FP-03-03-001	N		SW6010B	-	Iron	89.5	=	=	89.5	U	U	16.7	50	BL
WG	FP-03-03-003	N		SW6010B	-	Iron	68.4	=	=	68.4	U	U	16.7	50	BL
WG	FP-03-04-004	N		SW6010B	_	Iron	123	<del>-</del>	=	123	U	U	16.7	50	BL
WG	FP-03-04-005	N		SW6010B	-	Iron	114	<del> -</del>	=	114	U	U	16.7	50	BL
WG	FP-03-05-001	N		SW6010B	-	Iron	81.6	=	=	81.6	U	U	16.7	50	BL
WG	FP-03-05-001	N		SW6010B	-	Iron	84.3	=	=	84.3	U	U	16.7	50	BL
WG	FP-04-06-007	N		SW6010B	_	Iron	170			170	U	U	16.7	50	BL
WG	FP-04-07-003	N		SW6010B	-		217	=	=	217	U	U	16.7	50	BL
wG	FF-04-07-003	IN		SWOOTUB	-	Iron	417	=	=	<b> </b>	U	U	10.7	50	DL

Appendix C
Change in Qualifier Through the Data Validation Process

Change	in Qualifier Through th	ne Data Validati	on Process	S											
Matrix	Sample ID	Sample Type	LR Type	Analytical Method	Dissolved ?	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Validation Notes
WG	FP-04-06-002	FD		SW6010B	-	Iron	150	=	=	150	U	U	16.7	50	BL
WG	FP-04-07-004	FD		SW6010B	-	Iron	222	=	=	222	U	U	16.7	50	BL
WG	FP-03-01-002	N		SW6010B	-	Lead	2.05	В	J	2.05	U	U	1.76	5	BL
WG	FP-03-01-004	N		SW6010B	-	Lead	3.21	В	J	3.21	U	U	1.76	5	BL
WG	FP-03-01-003	FD		SW6010B	-	Lead	3.26	В	J	3.26	U	U	1.76	5	BL
WG	FP-03-01-002	N		SW6010B	-	Manganese	0.413	В	J	0.413	U	U	0.167	2	BL
WG	FP-03-01-006	N		SW6010B	-	Manganese	1.35	В	J	1.35	U	U	0.167	2	BL
WG	FP-03-02-007	N		SW6010B	-	Manganese	1.11	В	J	1.11	U	U	0.167	2	BL
WG	FP-03-04-002	N		SW6010B	-	Manganese	1.36	В	J	1.36	U	U	0.167	2	BL
WG	FP-03-05-006	N		SW6010B	-	Manganese	0.278	В	J	0.278	U	U	0.167	2	BL
WG	FP-04-06-006	N		SW6010B	-	Manganese	0.259	В	J	0.259	U	U	0.167	2	BL
WG	FP-03-01-003	FD		SW6010B	-	Manganese	0.515	В	J	0.515	U	U	0.167	2	BL
WG	FP-03-03-002	N		SW6010B	-	Selenium	3.09	В	J	3.09	U	U	2.1	5	BL
WG	FP-03-03-003	N		SW6010B	-	Selenium	3.8	В	J	3.8	U	U	2.1	5	BL
WG	FP-03-04-001	N		SW6010B	-	Selenium	2.24	В	J	2.24	U	U	2.1	5	BL
WG	FP-03-04-004	N		SW6010B	-	Selenium	2.18	В	J	2.18	U	U	2.1	5	BL
WG	FP-03-04-005	N		SW6010B	-	Selenium	2.33	В	J	2.33	U		2.1	5	BL
WG	FP-03-05-001	N		SW6010B	-	Selenium	3.24	В	J	3.24	U	U	2.1	5	BL
WG	FP-03-01-004	N		SW6010B	-	Silver	0.722	В		0.722	U		0.325	2	BL
WG	FP-03-01-006	N		SW6010B	-	Silver	0.75	В		0.75	U		0.325	2	BL
WG	FP-04-06-005	N		SW6010B	-	Silver	0.587	В		0.587	U	U	0.472	2	BL
WG	FP-04-07-003	N		SW6010B	-	Silver	0.695	В		0.695	U		0.472	2	BL
WG	FP-04-07-007	N		SW6010B	-	Silver	0.54	В		0.54	U		0.472	2	BL
WG	FP-03-04-001	N		SW6010B	-	Thallium	2.93	В		2.93	U		2.54	6	BL
WG	FP-03-01-006	N		SW6010B	-	Vanadium	0.573	В		0.573	U			3	BL
WG	FP-03-01-007	N		SW6010B	-	Vanadium	1.93	В	J	1.93	U			3	BL
WG	FP-03-01-008	N		SW6010B	-	Vanadium	1.82	В	J	1.82	U			3	BL
WG	FP-03-01-009	N		SW6010B	-	Vanadium	1.8	В	J	1.8	U			3	BL
WG	FP-04-06-007	N		SW6010B	-	Vanadium	0.771	В	J	0.771	U			3	BL
WG	FP-04-06-006	N		SW6010B	-	Zinc	1.66	В		1.66	U		0.409	10	BL
WG	FP-04-06-007	N		SW6010B	-	Zinc	0.755			0.755	U		0.409	10	BL
WG	FP-03-01-001	N		SW6010B	-	Zinc	1.66	В	J	1.66	U		0.409	10	BL
WG	FP-03-01-002	N		SW6010B	-	Zinc	1.33	В	J	1.33	U		0.409	10	BL
WG	FP-03-01-004	N		SW6010B	-	Zinc	3.86	В	J	3.86	U		0.409	10	BL
WG	FP-03-01-006	N		SW6010B	-	Zinc	1.31	В	J	1.31	U		0.409	10	BL
WG	FP-03-01-009	N		SW6010B	-	Zinc	1.54			1.54	U		0.409	10	BL
WG	FP-03-02-006	N		SW6010B	-	Zinc	2.69	В		2.69	U		0.409	10	BL
WG	FP-03-02-007	N		SW6010B	-	Zinc	2.77	В		2.77	U		0.409	10	BL
WG	FP-03-05-005	N		SW6010B	-	Zinc	1.23		J	1.23	U		0.409	10	BL
WG	FP-03-05-006	N		SW6010B	-	Zinc	0.694		-	0.694	U		0.409	10	BL
WG	FP-03-01-003	FD		SW6010B	-	Zinc	0.951		-	0.951	U		0.409	10	BL
WG	FP-04-07-007	N		FLPRO	-	petroleum hydrocarbons	0.11		-	0.34	U		0.097	0.34	BL
WG	FP-04-06-001	N		E415.1	FLDFLT	dissolved organic carbon	1.36	-	J	1.36	U		0.368	1.5	BL
WG	FP-04-06-003	N		E415.1	FLDFLT	dissolved organic carbon	1.48			1.48	U		0.368	1.5	BL
WG	FP-04-06-006	N		E415.1	FLDFLT	dissolved organic carbon	1.35		J	1.35	U		0.368	1.5	BL
WG	FP-03-01-001	N		E415.1	FLDFLT	dissolved organic carbon	1.52		=	1.52	U		0.67	1.5	BL
WG	FP-03-02-001	N		E415.1	FLDFLT	dissolved organic carbon	1.88			1.88	U		0.67	1.5	BL
WG	FP-03-02-001	N		E415.1	FLDFLT	dissolved organic carbon	2.74			2.74	U		0.67	1.5	BL
** G	11 00 02-002	i N		LT10.1	ILDILI	Laisson Ca Organio Garbon	<b>∠.</b> / ¬	_		<b>-</b> ./ ¬	J		0.07	1.0	DL

Appendix C
Change in Qualifier Through the Data Validation Process

Change i	n Qualifier Through the	Data Validati	on Process	3											
Matrix	Sample ID	Sample Type	LR Type	Analytical Method	Dissolved?	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Validation Notes
WG	FP-03-02-006	N		E415.1	FLDFLT	dissolved organic carbon	1.82	=	=	1.82	U	U	0.67	1.5	BL
WG	FP-03-05-001	N		E415.1	FLDFLT	dissolved organic carbon	2.55	=	=	2.55	U	U	0.368	1.5	BL
WG	FP-03-05-002	N		E415.1	FLDFLT	dissolved organic carbon	3.67	=	=	3.67	U	U	0.368	1.5	BL
WG	FP-03-05-005	N		E415.1	FLDFLT	dissolved organic carbon	3.07	=	=	3.07	U	U	0.368	1.5	BL
WG	FP-03-05-006	N		E415.1	FLDFLT	dissolved organic carbon	2.46	=	=	2.46	U	U	0.368	1.5	BL
WG	FP-04-06-004	N		E415.1	FLDFLT	dissolved organic carbon	1.57	=	=	1.57	U	U	0.368	1.5	BL
WG	FP-04-06-007	N		E415.1	FLDFLT	dissolved organic carbon	2.08	=	=	2.08	U	U	0.368	1.5	BL
WG	FP-03-01-002	N		E415.1	FLDFLT	dissolved organic carbon	2.67	=	=	2.67	U	U	0.67	1.5	BL
WG	FP-03-01-004	N		E415.1	FLDFLT	dissolved organic carbon	2.77	=	=	2.77	U	U	0.67	1.5	BL
WG	FP-03-01-006	N		E415.1	FLDFLT	dissolved organic carbon	2.79	=	=	2.79	U	U	0.67	1.5	BL
WG	FP-03-01-007	N		E415.1	FLDFLT	dissolved organic carbon	4.94	=	=	4.94	U	U	0.67	1.5	BL
WG	FP-04-06-002	FD		E415.1	FLDFLT	dissolved organic carbon	1.45	J	J	1.45	U	U	0.368	1.5	BL
WG	FP-03-01-003	FD		E415.1	FLDFLT	dissolved organic carbon	2.81	=	=	2.81	U	U	0.67	1.5	BL
WG	FP-03-01-001	N		E415.1	-	Total organic carbon	3.19	=	=	3.19	U	U	0.67	1.34	BL
WG	FP-03-01-002	N		E415.1	-	Total organic carbon	2.18	=	=	2.18	U	U	0.67	1.34	BL
WG	FP-03-01-004	N		E415.1	-	Total organic carbon	2.56	=	=	2.56	U	U	0.67	1.34	BL
WG	FP-03-02-006	N		E415.1	-	Total organic carbon	1.44	=	=	1.44	U	U	0.67	1.34	BL
WG	FP-04-06-007	N		E415.1	-	Total organic carbon	2.1	=	=	2.1	U	U	0.368	1	BL
WG	FP-03-01-003	FD		E415.1	-	Total organic carbon	2.83	=	=	2.83	U	U	0.67	1.34	BL
WG	FP-03-05-005	N		E354.1	-	nitrogen, nitrite	0.021	J	J	0.021	U	U	0.0118	0.18	BL
WG	FP-03-05-006	N		E354.1	-	nitrogen, nitrite	0.0119	J		0.0119	U	U	0.0118	0.18	BL
WG	FP-03-05-007	N		E354.1	-	nitrogen, nitrite	0.0243	J	J	0.0243	U	U		0.18	BL
WG	FP-04-06-007	N		E351.4	-	nitrogen, kjeldahl, total	1.6	J	J	1.6	U	U	0.45	2	BL
WG	FP-03-01-009	N		E351.2	-	nitrogen, kjeldahl, total	0.198	J	J	0.198	U	U	0.128	0.26	BL
WG	FP-03-01-002	N		E351.2	-	nitrogen, kjeldahl, total	0.901	=	=	0.901	U	U	0.128	0.26	BL
WG	FP-03-01-004	N		E351.2	-	nitrogen, kjeldahl, total	0.612	=	=	0.612	U	U	0.128	0.26	BL
WG	FP-03-01-006	N		E351.2	-	nitrogen, kjeldahl, total	0.453	=	=	0.453	U	U	0.128	0.26	BL
WG	FP-03-01-007	N		E351.2	-	nitrogen, kjeldahl, total	0.484	=	=	0.484	U	U	0.128	0.26	BL
WG	FP-03-01-008	N		E351.2	-	nitrogen, kjeldahl, total	0.358	=	=	0.358	U	U	0.128	0.26	BL
WG	FP-04-007-01	N		E351.2	-	nitrogen, kjeldahl, total	0.521	=	=	0.521	U	U	0.128	0.26	BL
WG	FP-04-07-003	N		E351.2	-	nitrogen, kjeldahl, total	0.443	=	=	0.443	U	U	0.128	0.26	BL
WG	FP-04-07-007	N		E351.2	-	nitrogen, kjeldahl, total	0.533	=	=	0.533	U	U	0.128	0.26	BL
WG	FP-03-01-003	FD		E351.2	-	nitrogen, kjeldahl, total	0.741	=	=	0.741	U	U	0.128	0.26	BL
WG	FP-04-07-004	FD		E351.2	-	nitrogen, kjeldahl, total	0.412	=	=	0.412	U	U	0.128	0.26	BL
WG	FP-04-06-007	N		E350.3	-	Nitrogen, ammonia (as N)	0.308	.1		0.308	U	U		0.4	BL
WG	FP-03-03-001	N		SW8270C	-	1,2,4,5-tetrachlorobenzene	5	U	U	5	UJ	U	1.2	5	BS
WG	FP-03-03-002	N		SW8270C		1,2,4,5-tetrachlorobenzene	5		U	5	UJ	U	1.2	5	BS
WG	FP-03-03-003	N		SW8270C		1,2,4,5-tetrachlorobenzene	5.2	U	U	5.2	UJ	U	1.2	5.2	BS
WG	FP-03-03-006	N		SW8270C		1,2,4,5-tetrachlorobenzene	5	U	U	5	UJ	U	1.2	5	BS
WG	FP-03-03-007	N		SW8270C		1,2,4,5-tetrachlorobenzene	5	U	U	5	UJ	U	1.2	5	BS
WG	FP-03-04-001	N		SW8270C	_	1,2,4,5-tetrachlorobenzene	5	IJ	U	5	UJ	U	1.2	5	BS
WG	FP-03-04-002	N		SW8270C	-	1,2,4,5-tetrachlorobenzene	5	U	U	5	UJ	U	1.2	5	BS
WG	FP-03-04-002	N		SW8270C	-	1,2,4,5-tetrachlorobenzene	5	U	U	5	UJ	U	1.2	5	BS
WG	FP-04-06-001RE1		RE	SW8270C	-	1,2,4,5-tetrachlorobenzene	1	U	U	4	UJ	U	2.2	4	HT
WG	FP-04-06-001RE1		RE	SW8270C	-	1,2,4,5-tetrachlorobenzene	1		U	4	UJ	U	2.2	4	HT
WG	FP-04-06-002RE1		RE	SW8270C		1,2,4,5-tetrachlorobenzene	<i>A</i>	U	U	4	UJ	U	2.2	4	HT
WG	FP-04-06-003RE1		RE	SW8270C		1,2,4,5-tetrachlorobenzene	4 1		U	4	UJ	U	2.2	1	HT
WG	FP-04-06-004RE1		RE	SW8270C		1,2,4,5-tetrachlorobenzene	4	U	U	4	UJ	U	2.2	4	HT
wu	1 1 -04-00-003ME1	LN	ΠL	3002/00	-	1,2,4,5-16114011010001126116	4	U	U	+	UU	U	۷.۷	4	1111

Appendix C
Change in Qualifier Through the Data Validation Process

M-4.1															
Matrix	Sample ID	Sample Type	LR Type	Analytical Method	Dissolved ?	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Validation Notes
WG	FP-04-06-001RE1	LR	RE	SW8270C	-	1,2,4-Trichlorobenzene	4	U	U	4	UJ	U	2.6	4	HT
WG	FP-04-06-002RE1	LR	RE	SW8270C	-	1,2,4-Trichlorobenzene	4	U	U	4	UJ	U	2.6	4	HT
WG	FP-04-06-003RE1	LR	RE	SW8270C	-	1,2,4-Trichlorobenzene	4	U	U	4	UJ	U	2.6	4	HT
WG	FP-04-06-004RE1	LR	RE	SW8270C	-	1,2,4-Trichlorobenzene	4	U	U	4	UJ	U	2.6	4	HT
WG	FP-04-06-005RE1	LR	RE	SW8270C	-	1,2,4-Trichlorobenzene	4	U	U	4	UJ	U	2.6	4	HT
WG	FP-04-06-001RE1	LR	RE	SW8270C	-	1,3,5-trinitrobenzene	20.2	U	U	20.2	UJ	U	2.8	20.2	HT,IC
WG	FP-04-06-002RE1	LR	RE	SW8270C	-	1,3,5-trinitrobenzene	20.2	U	U	20.2	UJ	U	2.8	20.2	HT,IC
WG	FP-04-06-003RE1	LR	RE	SW8270C	-	1,3,5-trinitrobenzene	20.2	U	U	20.2	UJ	U	2.8	20.2	HT,IC
WG	FP-04-06-004RE1	LR	RE	SW8270C	-	1,3,5-trinitrobenzene	20.2	U	U	20.2	UJ	U	2.8	20.2	HT,IC
WG	FP-04-06-005RE1	LR	RE	SW8270C	-	1,3,5-trinitrobenzene	20.2	U	U	20.2	UJ	U	2.8	20.2	HT,IC
WG	FP-03-02-001	N		SW8270C	-	1,3,5-trinitrobenzene	20	U	U	20	UJ	U	0.42	20	IC
WG	FP-03-02-002	N		SW8270C	-	1,3,5-trinitrobenzene	20.1	U	U	20.1	UJ	U	0.42	20.1	IC
WG	FP-03-02-005	N		SW8270C	-	1,3,5-trinitrobenzene	20	U	U	20	UJ	U	0.42	20	IC
WG	FP-03-02-006	N		SW8270C	-	1,3,5-trinitrobenzene	20	U	U	20	UJ	U	0.42	20	IC
WG	FP-03-02-007	N		SW8270C	-	1,3,5-trinitrobenzene	20.4	U	U	20.4	UJ	U	0.43	20.4	IC
WG	FP-03-03-001	N		SW8270C	-	1,3,5-trinitrobenzene	20	U	U	20	UJ	U	0.42	20	IC
WG	FP-03-03-002	N		SW8270C	-	1,3,5-trinitrobenzene	20	U	U	20	UJ	U	0.42	20	IC
WG	FP-03-03-003	N		SW8270C	-	1,3,5-trinitrobenzene	20.6	U	U	20.6	UJ	U	0.43	20.6	IC
WG	FP-03-03-006	N		SW8270C	-	1,3,5-trinitrobenzene	20	U	U	20	UJ	U	0.42	20	IC
WG	FP-03-03-007	N		SW8270C	-	1,3,5-trinitrobenzene	20	U	U	20	UJ	U	0.42	20	IC
WG	FP-03-04-001	N		SW8270C	-	1,3,5-trinitrobenzene	20	U	U	20	UJ	U	0.42	20	IC
WG	FP-03-05-001	N		SW8270C	-	1,3,5-trinitrobenzene	20.2	U	U	20.2	UJ	U	0.42	20.2	IC
WG	FP-03-05-002	N		SW8270C	-	1,3,5-trinitrobenzene	20	U	U	20	UJ	U	0.42	20	IC
WG	FP-03-05-005	N		SW8270C	-	1,3,5-trinitrobenzene	20	U	U	20	UJ	U	0.42	20	IC
WG	FP-03-05-006	N		SW8270C	-	1,3,5-trinitrobenzene	20	U	U	20	UJ	U	0.42	20	IC
WG	FP-03-05-007	N		SW8270C	-	1,3,5-trinitrobenzene	20	U	U	20	UJ	U	0.42	20	IC
WG	FP-04-06-006	N		SW8270C	-	1,3,5-trinitrobenzene	20	U	U	20	UJ	U	2.8	20	IC
WG	FP-04-06-007	N		SW8270C	-	1,3,5-trinitrobenzene	20.1	U	U	20.1	UJ	U	2.8	20.1	IC
WG	FP-04-007-01	N		SW8270C	-	1,3,5-trinitrobenzene	20.2	U	U	20.2	UJ	U	2.8	20.2	IC
WG	FP-04-007-02	N		SW8270C	-	1,3,5-trinitrobenzene	20	U	U	20	UJ	U	2.8	20	IC
WG	FP-04-06-001RE1	LR	RE	SW8270C	-	1,3-dinitrobenzene	20.2	U	U	20.2	UJ	U	2.5	20.2	HT,IC
WG	FP-04-06-002RE1	LR	RE	SW8270C	-	1,3-dinitrobenzene	20.2	U	U	20.2	UJ	U	2.5	20.2	HT,IC
WG	FP-04-06-003RE1		RE	SW8270C	-	1,3-dinitrobenzene	20.2	U	U	20.2	UJ	U	2.5	20.2	HT,IC
WG	FP-04-06-004RE1	LR	RE	SW8270C	-	1,3-dinitrobenzene	20.2	U	U	20.2	UJ	U	2.5	20.2	HT,IC
	FP-04-06-005RE1		RE	SW8270C	-	1,3-dinitrobenzene	20.2	U	U	20.2	UJ	U	2.5	20.2	HT,IC
	FP-03-02-001	N		SW8270C	-	1,3-dinitrobenzene	10		U	10	UJ	U	0.5	10	IC
	FP-03-02-002	N		SW8270C	-	1,3-dinitrobenzene	10		U	10	UJ	U	0.51	10	IC
	FP-03-02-005	N		SW8270C	-	1,3-dinitrobenzene	10	U	U	10	UJ	U	0.5	10	IC
	FP-03-02-006	N		SW8270C	-	1,3-dinitrobenzene	10	U	U	10	UJ	U	0.5	10	IC
	FP-03-02-007	N		SW8270C	-	1,3-dinitrobenzene	10.2	U	U	10.2	UJ	U	0.52	10.2	IC
	FP-03-03-001	N		SW8270C	-	1,3-dinitrobenzene	10	U	U	10	UJ	U	0.5	10	IC
	FP-03-03-002	N		SW8270C	-	1,3-dinitrobenzene	10	U	U	10	UJ	U	0.5	10	IC
	FP-03-03-003	N		SW8270C	-	1,3-dinitrobenzene	10.3	U	U	10.3	UJ	U	0.52	10.3	IC
	FP-03-03-006	N		SW8270C	-	1,3-dinitrobenzene	10	U	U	10	UJ	U	0.5	10	IC
	FP-03-03-007	N		SW8270C	-	1,3-dinitrobenzene	10		U	10	UJ	U	0.5	10	IC
	FP-04-06-006	N		SW8270C	-	1,4-naphthoquinone	10	U	U	10	UJ	U	3.1	10	BSL,IC
	FP-04-06-007	N		SW8270C	-	1,4-naphthoquinone	10		U	10	UJ	U	3.1	10	BSL,IC
	FP-04-007-01	N		SW8270C	-	1,4-naphthoquinone	10.1		U	10.1	UJ	U	3.1	10.1	BSL,IC

Appendix C
Change in Qualifier Through the Data Validation Process

Change i	in Qualifier Through the [	Data Validat	ion Proces	S											
Matrix	Sample ID	Sample Type	LR Type	Analytical Method	Dissolved ?	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Validation Notes
WG	FP-04-007-02	N		SW8270C	-	1,4-naphthoquinone	10	U	U	10	UJ	U	3.1	10	BSL,IC
WG	FP-04-07-003	N		SW8270C	-	1,4-naphthoquinone	10.2	U	U	10.2	UJ	U	3.1	10.2	CCL,IC
WG	FP-04-07-007	N		SW8270C	-	1,4-naphthoquinone	10.1	U	U	10.1	UJ	U	3.1	10.1	CCL,IC
WG	FP-04-07-004	FD		SW8270C	-	1,4-naphthoquinone	10.1	U	U	10.1	UJ	U	3.1	10.1	CCL,IC
WG	FP-04-06-001RE1	LR	RE	SW8270C	-	1,4-naphthoquinone	10.1	U	U	10.1	UJ	U	3.1	10.1	HT
WG	FP-04-06-002RE1	LR	RE	SW8270C	-	1,4-naphthoquinone	10.1	U	U	10.1	UJ	U	3.1	10.1	HT
WG	FP-04-06-003RE1	LR	RE	SW8270C	-	1,4-naphthoquinone	10.1	U	U	10.1	UJ	U	3.1	10.1	HT
WG	FP-04-06-004RE1	LR	RE	SW8270C	-	1,4-naphthoquinone	10.1	U	U	10.1	UJ	U	3.1	10.1	HT
WG	FP-04-06-005RE1	LR	RE	SW8270C	-	1,4-naphthoquinone	10.1	U	U	10.1	UJ	U	3.1	10.1	HT
WG	FP-03-05-005	N		SW8270C	-	1-naphthylamine	5	U	U	5	UJ	U	0.49	5	BD,BS
WG	FP-03-02-007	N		SW8270C	-	1-naphthylamine	5.1	U	U	5.1	UJ	U	0.5	5.1	BS
WG	FP-03-03-001	N		SW8270C	-	1-naphthylamine	5	U	U	5	UJ	U	0.49	5	BS
WG	FP-03-03-002	N		SW8270C	-	1-naphthylamine	5	U	U	5	UJ	U	0.49	5	BS
WG	FP-03-03-003	N		SW8270C	-	1-naphthylamine	5.2	U	U	5.2	UJ	U	0.51	5.2	BS
WG	FP-03-03-006	N		SW8270C	-	1-naphthylamine	5	U	U	5	UJ	U	0.49	5	BS
WG	FP-03-03-007	N		SW8270C	-	1-naphthylamine	5	U	U	5	UJ	U	0.49	5	BS
WG	FP-03-04-001	N		SW8270C	-	1-naphthylamine	5	U	U	5	UJ	U	0.49	5	BS
WG	FP-04-06-001RE1	LR	RE	SW8270C	-	1-naphthylamine	10.1	U	U	10.1	UJ	U	1.8	10.1	HT
WG	FP-04-06-002RE1	LR	RE	SW8270C	-	1-naphthylamine	10.1		U	10.1	UJ	U	1.8	10.1	HT
WG	FP-04-06-003RE1	LR	RE	SW8270C	-	1-naphthylamine	10.1		U	10.1	UJ	U	1.8	10.1	HT
WG	FP-04-06-004RE1		RE	SW8270C	-	1-naphthylamine	10.1		U	10.1	UJ	U	1.8	10.1	HT
WG	FP-04-06-005RE1		RE	SW8270C	-	1-naphthylamine	10.1		U	10.1	UJ	U	1.8	10.1	HT
WG	FP-04-06-001RE1		RE	SW8270C	-	2,3,4,6-tetrachlorophenol	10.1		U	10.1	UJ	U	3	10.1	HT
WG	FP-04-06-002RE1		RE	SW8270C		2,3,4,6-tetrachlorophenol	10.1		U	10.1	UJ	U	3	10.1	HT
WG	FP-04-06-003RE1		RE	SW8270C		2,3,4,6-tetrachlorophenol	10.1		U	10.1	UJ	U	3	10.1	HT
WG	FP-04-06-004RE1		RE	SW8270C		2,3,4,6-tetrachlorophenol	10.1		U	10.1	UJ	U	3	10.1	HT
WG	FP-04-06-005RE1		RE	SW8270C		2,3,4,6-tetrachlorophenol	10.1		U	10.1	UJ	U	3	10.1	HT
WG	FP-03-04-001	N		SW8270C		2,3,4,6-tetrachlorophenol	10		U	10	UJ	U	0.51	10	IC
WG	FP-04-06-001RE1		RE	SW8270C		2,4,5-Trichlorophenol	4		U	4	UJ	U	3.4	4	HT
WG	FP-04-06-002RE1		RE	SW8270C		2,4,5-Trichlorophenol	4		U	4	UJ	U	3.4	4	HT
WG	FP-04-06-003RE1		RE	SW8270C		2,4,5-Trichlorophenol	4		U	4	UJ	U	3.4	4	HT
WG	FP-04-06-004RE1		RE	SW8270C		2,4,5-Trichlorophenol	4		U	4	UJ	U	3.4	4	HT
WG	FP-04-06-005RE1		RE	SW8270C		2,4,5-Trichlorophenol	4		U	4	UJ	U	3.4	4	HT
WG	FP-03-04-001	N		SW8270C	-	2,4,5-Trichlorophenol	5		U	5	UJ	U	0.39	5	IC
WG	FP-03-04-005	N		SW8270C	-	2,4,5-Trichlorophenol	5.1		U	5.1	UJ	U	0.4	5.1	IC
WG	FP-04-06-001RE1		RE	SW8270C		2,4,6-Trichlorophenol	4		U	4	UJ	U	3.6	4	HT
WG	FP-04-06-002RE1		RE	SW8270C		2,4,6-Trichlorophenol	4		U	4	UJ	U	3.6	4	HT
WG	FP-04-06-003RE1		RE	SW8270C		2,4,6-Trichlorophenol	4		U	4	UJ	U	3.6	4	HT
WG	FP-04-06-004RE1		RE	SW8270C		2,4,6-Trichlorophenol	4		U	4	UJ	U	3.6	4	HT
WG	FP-04-06-005RE1		RE	SW8270C		2,4,6-Trichlorophenol	4		U	4	UJ	U	3.6	4	HT
WG	FP-04-06-001RE1		RE	SW8270C		2,4-Dichlorophenol	4		U	4	UJ	U	3.1	4	HT
WG	FP-04-06-002RE1		RE	SW8270C		2,4-Dichlorophenol	4		U	4	UJ	U	3.1	4	HT
WG	FP-04-06-003RE1		RE	SW8270C		2,4-Dichlorophenol	4		U	4	UJ	U	3.1	4	HT
WG	FP-04-06-004RE1		RE	SW8270C		2,4-Dichlorophenol	4		U	4	UJ	U	3.1	4	HT
WG	FP-04-06-005RE1		RE	SW8270C		2,4-Dichlorophenol	4		U	4	UJ	U	3.1	4	HT
WG	FP-03-03-002	N	<del>-</del>	SW8270C		2,4-Dichlorophenol	5		U	5	UJ	U	0.3	5	IC
WG	FP-03-03-003	N		SW8270C		2,4-Dichlorophenol	5.2			5.2	UJ	U	0.31	5.2	IC
WG	FP-04-06-001RE1		RE	SW8270C		2,4-Dimethylphenol	4		U	4	UJ	U	2.3	4	HT
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Appendix C
Change in Qualifier Through the Data Validation Process

Change	in Qualifier Through the I	Data Validat	ion Proces	S											
Matrix	Sample ID	Sample Type	LR Type	Analytical Method	Dissolved ?	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Validation Notes
WG	FP-04-06-002RE1	LR	RE	SW8270C	-	2,4-Dimethylphenol	4	U	U	4	UJ	U	2.3	4	HT
WG	FP-04-06-003RE1	LR	RE	SW8270C	-	2,4-Dimethylphenol	4	U	U	4	UJ	U	2.3	4	HT
WG	FP-04-06-004RE1	LR	RE	SW8270C	-	2,4-Dimethylphenol	4	U	U	4	UJ	U	2.3	4	HT
WG	FP-04-06-005RE1	LR	RE	SW8270C	-	2,4-Dimethylphenol	4	U	U	4	UJ	U	2.3	4	HT
WG	FP-03-03-001	N		SW8270C	-	2,4-Dimethylphenol	5	U	U	5	UJ	U	0.44	5	IC
WG	FP-03-04-002	N		SW8270C	-	2,4-Dinitrophenol	10.1	U	U	10.1	UJ	U	1.3	10.1	CC
WG	FP-03-05-006	N		SW8270C	-	2,4-Dinitrophenol	10	U	U	10	UJ	U	1.3	10	CC
WG	FP-04-06-001RE1	LR	RE	SW8270C	-	2,4-Dinitrophenol	10.1	U	U	10.1	UJ	U	5.6	10.1	HT,IC
WG	FP-04-06-002RE1	LR	RE	SW8270C	-	2,4-Dinitrophenol	10.1	U	U	10.1	UJ	U	5.6	10.1	HT,IC
WG	FP-04-06-003RE1	LR	RE	SW8270C	-	2,4-Dinitrophenol	10.1	U	U	10.1	UJ	U	5.6	10.1	HT,IC
WG	FP-04-06-004RE1	LR	RE	SW8270C	-	2,4-Dinitrophenol	10.1	U	U	10.1	UJ	U	5.6	10.1	HT,IC
WG	FP-04-06-005RE1	LR	RE	SW8270C	-	2,4-Dinitrophenol	10.1	U	U	10.1	UJ	U	5.6	10.1	HT,IC
WG	FP-03-01-001	N		SW8270C	-	2,4-Dinitrophenol	10.1	U	U	10.1	UJ	U	1.3	10.1	IC
WG	FP-03-01-002	N		SW8270C	-	2,4-Dinitrophenol	10	U	U	10	UJ	U	1.3	10	IC
WG	FP-03-01-004	N		SW8270C	-	2,4-Dinitrophenol	10.1	U	U	10.1	UJ	U	1.3	10.1	IC
WG	FP-03-01-006	N		SW8270C	-	2,4-Dinitrophenol	10.2	U	U	10.2	UJ	U	1.3	10.2	IC
WG	FP-03-01-007	N		SW8270C	-	2,4-Dinitrophenol	10.1	U	U	10.1	UJ	U	1.3	10.1	IC
WG	FP-03-01-008	N		SW8270C	-	2,4-Dinitrophenol	10.1	U	U	10.1	UJ	U	1.3	10.1	IC
WG	FP-03-01-009	N		SW8270C	-	2,4-Dinitrophenol	10.1		U	10.1	UJ	U	1.3	10.1	IC
WG	FP-03-02-001	N		SW8270C	-	2,4-Dinitrophenol	10		U	10	UJ	U	1.3	10	IC
WG	FP-03-02-002	N		SW8270C	-	2,4-Dinitrophenol	10		U	10	UJ	U	1.3	10	IC
WG	FP-03-02-005	N		SW8270C	-	2,4-Dinitrophenol	10		U	10	UJ	U	1.3	10	IC
WG	FP-03-02-007	N		SW8270C	-	2,4-Dinitrophenol	10.2		U	10.2	UJ	U	1.3	10.2	IC
WG	FP-03-03-006	N		SW8270C	-	2,4-Dinitrophenol	10		U	10	UJ	U	1.3	10	IC
WG	FP-03-03-007	N		SW8270C	-	2,4-Dinitrophenol	10		U	10	UJ	U	1.3	10	IC
WG	FP-03-04-003	N		SW8270C	-	2,4-Dinitrophenol	10		U	10	UJ	U	1.3	10	IC
WG	FP-03-05-001	N		SW8270C	-	2,4-Dinitrophenol	10.1		U	10.1	UJ	U	1.3	10.1	IC
WG	FP-03-05-002	N		SW8270C	-	2,4-Dinitrophenol	10		U	10.1	UJ	U	1.3	10.1	IC
WG	FP-03-05-005	N		SW8270C	-	2,4-Dinitrophenol	10		U	10	UJ	U	1.3	10	IC
WG	FP-03-05-007	N		SW8270C	_	2,4-Dinitrophenol	10		U	10	UJ	U	1.3	10	IC
WG	FP-04-06-006	N		SW8270C	_	2,4-Dinitrophenol	10		U	10	UJ	U	5.6	10	IC
WG	FP-04-06-007	N		SW8270C	_	2,4-Dinitrophenol	10		U	10	UJ	U	5.6	10	IC
WG	FP-04-007-01	N		SW8270C	_	2,4-Dinitrophenol	10.1		U	10.1	UJ	U	5.6	10.1	IC
WG	FP-04-007-01	N		SW8270C	_	2,4-Dinitrophenol	10.1		U	10.1	UJ	U	5.6	10.1	IC
WG	FP-04-07-003	N		SW8270C	_	2,4-Dinitrophenol	10.2		U	10.2	UJ	U	5.7	10.2	IC
WG	FP-03-01-003	FD		SW8270C	_	2,4-Dinitrophenol	10.1		U	10.2	UJ	U	1.3	10.2	IC
WG	FP-04-07-004	FD		SW8270C	  -	2,4-Dinitrophenol	10.1		U	10.1	UJ	U	5.6	10.1	IC
WG	FP-04-06-001RE1		RE	SW8270C	  -	2,4-Dinitrotoluene	4		U	4	UJ	U	2.8	4	HT
WG	FP-04-06-002RE1		RE	SW8270C		2,4-Dinitrotoluene	4		U	4	UJ	U	2.8	4	HT
WG	FP-04-06-002RE1		RE	SW8270C	_	2,4-Dinitrotoluene	1		U	1	UJ	U	2.8	4	HT
WG	FP-04-06-003RE1		RE	SW8270C	_	2,4-Dinitrotoluene	1		U	1	UJ	U	2.8	1	HT
WG	FP-04-06-004RE1		RE	SW8270C	_	2,4-Dinitrotoluene	1		U	1	UJ	U	2.8	1	HT
WG	FP-04-06-005RE1	N	nc	SW8270C		2,4-Dinitrotoluene	5		U	5	UJ	U	0.7	5	IC
WG	FP-03-04-001 FP-04-06-001RE1		DE	SW8270C	<u>-</u>	2,6-dichlorophenol	J		U	4	UJ	U	3.5	1	HT
			RE		-		4		U					4	
WG	FP-04-06-002RE1		RE	SW8270C	-	2,6-dichlorophenol	4			4	UJ	U	3.5	•	HT
WG	FP-04-06-003RE1		RE	SW8270C	-	2,6-dichlorophenol	4			4	UJ	U	3.5	4	HT
WG	FP-04-06-004RE1		RE	SW8270C	-	2,6-dichlorophenol	4		U	4	UJ	U	3.5	4	HT
WG	FP-04-06-005RE1	LK	RE	SW8270C	-	2,6-dichlorophenol	4	U	U	4	UJ	U	3.5	4	HT

Change	n Qualifier Through the [	Data Validat	ion Proces												
Matrix	Sample ID	Sample Type	LR Type	Analytical Method	Dissolved ?	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Validation Notes
WG	FP-04-07-007	N		SW8270C	-	2,6-dichlorophenol	4	U	U	4	UJ	U	3.5	4	IC
WG	FP-04-007-01	N		SW8270C	-	2-acetylaminofluorene	10.1	U	U	10.1	UJ	U	2.5	10.1	CCL
WG	FP-04-007-02	N		SW8270C	-	2-acetylaminofluorene	10	U	U	10	UJ	U	2.5	10	CCL
WG	FP-04-06-001RE1	LR	RE	SW8270C	-	2-acetylaminofluorene	10.1	U	U	10.1	UJ	U	2.5	10.1	HT
WG	FP-04-06-002RE1	LR	RE	SW8270C	-	2-acetylaminofluorene	10.1	U	U	10.1	UJ	U	2.5	10.1	HT
WG	FP-04-06-003RE1	LR	RE	SW8270C	-	2-acetylaminofluorene	10.1	U	U	10.1	UJ	U	2.5	10.1	HT
WG	FP-04-06-004RE1	LR	RE	SW8270C	-	2-acetylaminofluorene	10.1	U	U	10.1	UJ	U	2.5	10.1	HT
WG	FP-04-06-005RE1	LR	RE	SW8270C	-	2-acetylaminofluorene	10.1	U	U	10.1	UJ	U	2.5	10.1	HT
WG	FP-03-04-001	N		SW8270C	-	2-acetylaminofluorene	10	U	U	10	UJ	U	0.49	10	IC
WG	FP-03-04-001	N		SW8270C	-	2-aminonaphthalene (beta naphthylamine)	5	U	U	5	UJ	U	0.72	5	BD,BS
WG	FP-03-05-005	N		SW8270C	-	2-aminonaphthalene (beta naphthylamine)	5	U	U	5	UJ	U	0.72	5	BD,BS
WG	FP-03-02-007	N		SW8270C	-	2-aminonaphthalene (beta naphthylamine)	5.1	U	U	5.1	UJ	U	0.74	5.1	BS
WG	FP-03-03-001	N		SW8270C	-	2-aminonaphthalene (beta naphthylamine)	5	U	U	5	UJ	U	0.72	5	BS
WG	FP-03-03-002	N		SW8270C	-	2-aminonaphthalene (beta naphthylamine)	5	U	U	5	UJ	U	0.72	5	BS
WG	FP-03-03-003	N		SW8270C	-	2-aminonaphthalene (beta naphthylamine)	5.2	U	U	5.2	UJ	U	0.75	5.2	BS
WG	FP-03-05-001	N		SW8270C	-	2-aminonaphthalene (beta naphthylamine)	5	U	U	5	UJ	U	0.73	5	BS
WG	FP-03-05-002	N		SW8270C	-	2-aminonaphthalene (beta naphthylamine)	5	U	U	5	UJ	U	0.72	5	BS
WG	FP-03-05-006	N		SW8270C	-	2-aminonaphthalene (beta naphthylamine)	5		U	5	UJ	U	0.72	5	BS
WG	FP-03-05-007	N		SW8270C	-	2-aminonaphthalene (beta naphthylamine)	5		U	5	UJ	U	0.72	5	BS
WG		LR	RE	SW8270C	-	2-aminonaphthalene (beta naphthylamine)	4		U	4	UJ	U	2.5	4	HT
WG	FP-04-06-002RE1		RE	SW8270C	-	2-aminonaphthalene (beta naphthylamine)	4		U	4	UJ	U	2.5	4	HT
WG	FP-04-06-003RE1		RE	SW8270C	-	2-aminonaphthalene (beta naphthylamine)	4		U	4	UJ	U	2.5	4	HT
WG	FP-04-06-004RE1		RE	SW8270C	-	2-aminonaphthalene (beta naphthylamine)	4		U	4	UJ	U	2.5	4	HT
WG	FP-04-06-005RE1		RE	SW8270C	_	2-aminonaphthalene (beta naphthylamine)	4		U	4	UJ	U	2.5	4	HT
WG	FP-04-06-001RE1		RE	SW8270C	_	2-Chloronaphthalene	4		U	4	UJ	U	2.8	4	HT
WG	FP-04-06-002RE1		RE	SW8270C	-	2-Chloronaphthalene	4		U	4	UJ	U	2.8	4	HT
WG	FP-04-06-003RE1		RE	SW8270C	-	2-Chloronaphthalene	4		U	4	UJ	U	2.8	4	HT
WG	FP-04-06-004RE1		RE	SW8270C	_	2-Chloronaphthalene	4		U	4	UJ	U	2.8	4	HT
WG	FP-04-06-005RE1		RE	SW8270C	_	2-Chloronaphthalene	4		U	4	UJ	U	2.8	4	HT
WG	FP-03-04-004	N	111	SW8270C	_	2-Chloronaphthalene	5.1		U	5.1	UJ	U	0.43	5.1	IC
WG	FP-04-06-001RE1		RE	SW8270C	_	2-Chlorophenol	4		U	4	UJ	U	2.9	4	HT
WG	FP-04-06-002RE1		RE	SW8270C	_	2-Chlorophenol	4		U	4	UJ	U	2.9	4	HT
WG	FP-04-06-003RE1		RE	SW8270C	_	2-Chlorophenol	4	_	U	4	UJ	U	2.9	4	HT
WG	FP-04-06-004RE1		RE	SW8270C	_	2-Chlorophenol	4		U	4	UJ	U	2.9	4	HT
WG	FP-04-06-005RE1		RE	SW8270C	_	2-Chlorophenol	4		U	1	UJ	U	2.9	4	HT
WG	FP-04-06-001RE1		RE	SW8270C	_	2-Methylnaphthalene	4		U	4	UJ	U	2.8	4	HT
WG	FP-04-06-002RE1		RE	SW8270C	_	2-Methylnaphthalene	4		U	4	UJ	U	2.8	4	HT
WG	FP-04-06-003RE1		RE	SW8270C	_	2-Methylnaphthalene	4		U	4	UJ	U	2.8	4	HT
WG	FP-04-06-003RE1		RE	SW8270C	-	2-Methylnaphthalene	4		U	4	UJ	U	2.8	4	HT
WG	FP-04-06-005RE1		RE	SW8270C	-	2-Methylnaphthalene	4		U	4	UJ	U	2.8	4	HT
					-		4			4				4	
WG	FP-04-06-001RE1		RE	SW8270C SW8270C	<del>-</del>	2-Methylphenol (o-Cresol)	4		U	4	UJ	U	2.6	4	HT HT
WG	FP-04-06-002RE1		RE		<del>-</del>	2-Methylphenol (o-Cresol)	4			4	UJ	U	2.6	4	
WG	FP-04-06-003RE1		RE	SW8270C	<del>-</del>	2-Methylphenol (o-Cresol)	4		U	4	UJ	U	2.6	4	HT
WG	FP-04-06-004RE1		RE	SW8270C	-	2-Methylphenol (o-Cresol)	4		U	4	UJ	U	2.6	4	HT
WG	FP-04-06-005RE1		RE	SW8270C	-	2-Methylphenol (o-Cresol)	4		U	4	UJ	U	2.6	4	HT
WG	FP-04-06-001RE1		RE	SW8270C	-	2-Nitroaniline	4		U	4	UJ	U	3	4	HT
WG	FP-04-06-002RE1		RE	SW8270C	-	2-Nitroaniline	4		U	4	UJ	U	3	4	HT
WG	FP-04-06-003RE1	LK	RE	SW8270C	-	2-Nitroaniline	4	U	U	4	UJ	U	3	4	HT

Appendix C
Change in Qualifier Through the Data Validation Process

Change i	in Qualifier Through the [	Data Validat	ion Proces											
Matrix	Sample ID	Sample Type	LR Type	Analytical Method	Dissolved ? Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Validation Notes
WG	FP-04-06-004RE1		RE	SW8270C	- 2-Nitroaniline	4	U	U	4	UJ	U	3	4	HT
WG	FP-04-06-005RE1	LR	RE	SW8270C	- 2-Nitroaniline	4	U	U	4		U	3	4	HT
WG	FP-03-05-005	N		SW8270C	- 2-Nitroaniline	5	U	U	5		U	0.3	5	IC
WG	FP-03-01-006	N		SW8270C	- 2-picoline (alpha-picoline)	5.1	U	U	5.1	UJ	U	0.57	5.1	BD,BS
WG		N		SW8270C	- 2-picoline (alpha-picoline)	5	U	U	5	UJ	U	0.57	5	BD,BS
WG	FP-03-01-008	N		SW8270C	- 2-picoline (alpha-picoline)	5	U	U	5	UJ	U	0.57	5	BD,BS
WG	FP-03-01-009	N		SW8270C	- 2-picoline (alpha-picoline)	5	U	U	5	UJ	U	0.57	5	BD,BS
WG	FP-03-02-007	N		SW8270C	- 2-picoline (alpha-picoline)	5.1	U	U	5.1	UJ	U	0.57	5.1	BD,BS
WG	FP-03-04-001	N		SW8270C	- 2-picoline (alpha-picoline)	5	U	U	5	UJ	U	0.56	5	BD,BS
WG	FP-03-01-001	N		SW8270C	- 2-picoline (alpha-picoline)	5	U	U	5	UJ	U	0.57	5	BS
WG	FP-03-01-002	N		SW8270C	- 2-picoline (alpha-picoline)	5	U	U	5	UJ	U	0.56	5	BS
WG	FP-03-01-004	N		SW8270C	- 2-picoline (alpha-picoline)	5	U	U	5	UJ	U	0.57	5	BS
WG	FP-03-02-006	N		SW8270C	- 2-picoline (alpha-picoline)	5	U	U	5	UJ	U	0.56	5	BS
WG	FP-03-04-002	N		SW8270C	- 2-picoline (alpha-picoline)	5	U	U	5	UJ	U	0.57	5	BS
WG	FP-03-04-003	N		SW8270C	- 2-picoline (alpha-picoline)	5	U	U	5	UJ	U	0.56	5	BS
WG	FP-03-01-003	FD		SW8270C	- 2-picoline (alpha-picoline)	5	U	U	5	UJ	U	0.57	5	BS
WG	FP-04-06-001RE1	LR	RE	SW8270C	- 2-picoline (alpha-picoline)	20.2	U	U	20.2	UJ	U	1.5	20.2	HT
WG	FP-04-06-002RE1	LR	RE	SW8270C	- 2-picoline (alpha-picoline)	20.2	U	U	20.2	UJ	U	1.5	20.2	HT
WG	FP-04-06-003RE1	LR	RE	SW8270C	- 2-picoline (alpha-picoline)	20.2	U	U	20.2	UJ	U	1.5	20.2	HT
WG	FP-04-06-004RE1	LR	RE	SW8270C	- 2-picoline (alpha-picoline)	20.2	U	U	20.2	UJ	U	1.5	20.2	HT
WG	FP-04-06-005RE1	LR	RE	SW8270C	- 2-picoline (alpha-picoline)	20.2	U	U	20.2	UJ	U	1.5	20.2	HT
WG	FP-03-01-006	N		SW8270C	- 3,3'-Dichlorobenzidine	5.1	U	U	5.1		U	1.2	5.1	BD
WG	FP-03-01-007	N		SW8270C	- 3,3'-Dichlorobenzidine	5	U	U	5	UJ	U	1.2	5	BD
WG	FP-03-01-008	N		SW8270C	- 3,3'-Dichlorobenzidine	5	U	U	5	UJ	U	1.2	5	BD
WG	FP-04-06-001RE1	LR	RE	SW8270C	- 3,3'-Dichlorobenzidine	4	U	U	4	UJ	U	2.7	4	HT
WG	FP-04-06-002RE1	LR	RE	SW8270C	- 3,3'-Dichlorobenzidine	4	U	U	4	UJ	U	2.7	4	HT
WG	FP-04-06-003RE1	LR	RE	SW8270C	- 3,3'-Dichlorobenzidine	4	U	U	4	UJ	U	2.7	4	HT
WG	FP-04-06-004RE1	LR	RE	SW8270C	- 3,3'-Dichlorobenzidine	4	U	U	4	UJ	U	2.7	4	HT
WG	FP-04-06-005RE1	LR	RE	SW8270C	- 3,3'-Dichlorobenzidine	4	U	U	4	UJ	U	2.7	4	HT
WG		N		SW8270C	- 3,3'-dimethylbenzidine	10	U	U	10	UJ	U	1.9	10	BD
WG		N		SW8270C	- 3,3'-dimethylbenzidine	10.1	U	U	10.1	UJ	U	1.9	10.1	BD,BS
WG		N		SW8270C	- 3,3'-dimethylbenzidine	10.2	U	U	10.2		U	1.9	10.2	BD,BS
WG	FP-03-04-001	N		SW8270C	- 3,3'-dimethylbenzidine	10	U	U	10	UJ	U	1.9	10	BD,BS
WG		N		SW8270C	- 3,3'-dimethylbenzidine	10	U	U	10	UJ	U	1.9	10	BS
WG		N		SW8270C		10	U	U	10		U	1.9	10	BS
WG		N		SW8270C		10	U	U	10		U	1.9	10	BS
WG		N		SW8270C	- 3,3'-dimethylbenzidine	10.3	U	U	10.3		U	1.9	10.3	BS
WG		N		SW8270C	- 3,3'-dimethylbenzidine	10	U	U	10		U	1.9	10	BS
WG		N		SW8270C	- 3,3'-dimethylbenzidine	10	U	U	10		U	1.9	10	BS
WG		N		SW8270C	- 3,3'-dimethylbenzidine	20.2	U	U	20.2		U	6	20.2	BSL
WG	FP-04-06-001RE1		RE	SW8270C	- 3,3'-dimethylbenzidine	20.2	U	U	20.2		U	6	20.2	HT
WG	FP-04-06-002RE1		RE	SW8270C	- 3,3'-dimethylbenzidine	20.2	U	U	20.2		U	6	20.2	HT
WG	FP-04-06-003RE1		RE	SW8270C	- 3,3'-dimethylbenzidine	20.2	U	U	20.2	UJ	U	6	20.2	HT
WG	FP-04-06-004RE1		RE	SW8270C	- 3,3'-dimethylbenzidine	20.2	U	U	20.2	UJ	U	6	20.2	HT
WG	FP-04-06-005RE1		RE	SW8270C	- 3,3'-dimethylbenzidine	20.2	U	U	20.2	UJ	U	6	20.2	HT
WG		N	<u>-</u>	SW8270C	- 3,3'-dimethylbenzidine	10.1	U	U	10.1	UJ	U	1.9	10.1	IC
WG		N		SW8270C	- 3,3'-dimethylbenzidine	10.1	U	U	10.1		U	1.9	10	IC
WG	FP-04-06-001RE1		RE	SW8270C	- 3-methylcholanthrene	4	U	U	4		U	2.2	4	HT
	1.1 0+ 00 00 ITE		111	51102700	o monyionolanimono	7			r	-50			<u> </u>	1

Change i	n Qualifier Through the D	Data Validat	on Proces	S											
Matrix	Sample ID	Sample Type	LR Type	Analytical Method	Dissolved ?	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Validation Notes
WG	FP-04-06-002RE1	LR	RE	SW8270C	-	3-methylcholanthrene	4	U	U	4	UJ	U	2.2	4	HT
WG	FP-04-06-003RE1	LR	RE	SW8270C	-	3-methylcholanthrene	4	U	U	4	UJ	U	2.2	4	HT
WG	FP-04-06-004RE1	LR	RE	SW8270C	-	3-methylcholanthrene	4	U	U	4	UJ	U	2.2	4	HT
WG	FP-04-06-005RE1	LR	RE	SW8270C	-	3-methylcholanthrene	4	U	U	4	UJ	U	2.2	4	HT
WG	FP-04-06-001RE1	LR	RE	SW8270C	-	3-Nitroaniline	4	U	U	4	UJ	U	2.8	4	HT
WG	FP-04-06-002RE1	LR	RE	SW8270C	-	3-Nitroaniline	4	U	U	4	UJ	U	2.8	4	HT
WG	FP-04-06-003RE1	LR	RE	SW8270C	-	3-Nitroaniline	4	U	U	4	UJ	U	2.8	4	HT
WG	FP-04-06-004RE1	LR	RE	SW8270C	-	3-Nitroaniline	4	U	U	4	UJ	U	2.8	4	HT
WG	FP-04-06-005RE1	LR	RE	SW8270C	-	3-Nitroaniline	4	U	U	4	UJ	U	2.8	4	HT
WG	FP-03-04-001	N		SW8270C	-	4-aminobiphenyl (4-biphenylamine)	5	U	U	5	UJ	U	0.51	5	BD,BS
WG	FP-03-02-006	N		SW8270C	-	4-aminobiphenyl (4-biphenylamine)	5	U	U	5	UJ	U	0.51	5	BS
WG	FP-03-02-007	N		SW8270C	-	4-aminobiphenyl (4-biphenylamine)	5.1	U	U	5.1	UJ	U	0.52	5.1	BS
WG	FP-04-06-001RE1	LR	RE	SW8270C	-	4-aminobiphenyl (4-biphenylamine)	4	U	U	4	UJ	U	2.2	4	HT
WG	FP-04-06-002RE1	LR	RE	SW8270C	-	4-aminobiphenyl (4-biphenylamine)	4	U	U	4	UJ	U	2.2	4	HT
WG	FP-04-06-003RE1	LR	RE	SW8270C	-	4-aminobiphenyl (4-biphenylamine)	4	U	U	4	UJ	U	2.2	4	HT
WG	FP-04-06-004RE1	LR	RE	SW8270C	-	4-aminobiphenyl (4-biphenylamine)	4	U	U	4	UJ	U	2.2	4	HT
WG	FP-04-06-005RE1	LR	RE	SW8270C	-	4-aminobiphenyl (4-biphenylamine)	4	U	U	4	UJ	U	2.2	4	HT
WG	FP-03-04-001	N		SW8270C	-	4-Bromophenyl phenyl ether	5	U	U	5	UJ	U	0.26	5	CC
WG	FP-03-04-002	N		SW8270C	-	4-Bromophenyl phenyl ether	5	U	U	5	UJ	U	0.26	5	CC
WG	FP-03-04-003	N		SW8270C	-	4-Bromophenyl phenyl ether	5	U	U	5	UJ	U	0.26	5	CC
WG	FP-04-06-001RE1	LR	RE	SW8270C	-	4-Bromophenyl phenyl ether	4	U	U	4	UJ	U	2.3	4	HT
WG	FP-04-06-002RE1	LR	RE	SW8270C	-	4-Bromophenyl phenyl ether	4	U	U	4	UJ	U	2.3	4	HT
WG	FP-04-06-003RE1	LR	RE	SW8270C	-	4-Bromophenyl phenyl ether	4	U	U	4	UJ	U	2.3	4	HT
WG	FP-04-06-004RE1	LR	RE	SW8270C	-	4-Bromophenyl phenyl ether	4	U	U	4	UJ	U	2.3	4	HT
WG	FP-04-06-005RE1	LR	RE	SW8270C	-	4-Bromophenyl phenyl ether	4	U	U	4	UJ	U	2.3	4	HT
WG	FP-04-06-001RE1	LR	RE	SW8270C	-	4-Chloroaniline	4	U	U	4	UJ	U	3	4	HT
WG	FP-04-06-002RE1	LR	RE	SW8270C	-	4-Chloroaniline	4	U	U	4	UJ	U	3	4	HT
WG	FP-04-06-003RE1	LR	RE	SW8270C	-	4-Chloroaniline	4	U	U	4	UJ	U	3	4	HT
WG	FP-04-06-004RE1	LR	RE	SW8270C	-	4-Chloroaniline	4	U	U	4	UJ	U	3	4	HT
WG	FP-04-06-005RE1	LR	RE	SW8270C	-	4-Chloroaniline	4	U	U	4	UJ	U	3	4	HT
WG	FP-04-06-001RE1	LR	RE	SW8270C	-	4-Chlorophenyl phenyl ether	4	U	U	4	UJ	U	2.5	4	HT
WG	FP-04-06-002RE1	LR	RE	SW8270C	-	4-Chlorophenyl phenyl ether	4	U	U	4	UJ	U	2.5	4	HT
WG	FP-04-06-003RE1	LR	RE	SW8270C	-	4-Chlorophenyl phenyl ether	4		U	4			2.5	4	HT
WG	FP-04-06-004RE1	LR	RE	SW8270C	-	4-Chlorophenyl phenyl ether	4	U	U	4		U		4	HT
WG	FP-04-06-005RE1	LR	RE	SW8270C	-	4-Chlorophenyl phenyl ether	4	U	U	4			2.5	4	HT
	FP-04-06-001RE1		RE	SW8270C	-	4-Methylphenol (p-Cresol)	10.1		U	10.1				10.1	HT
	FP-04-06-002RE1	LR	RE	SW8270C	-	4-Methylphenol (p-Cresol)	10.1	U	U	10.1				10.1	HT
	FP-04-06-003RE1		RE	SW8270C	-	4-Methylphenol (p-Cresol)	10.1	U	U	10.1				10.1	HT
	FP-04-06-004RE1		RE	SW8270C	-	4-Methylphenol (p-Cresol)	10.1		U	10.1				10.1	HT
WG	FP-04-06-005RE1		RE	SW8270C	-	4-Methylphenol (p-Cresol)	10.1		U	10.1				10.1	HT
WG	FP-03-01-001	N		SW8270C	-	4-Methylphenol (p-Cresol)	5		Ū	5			0.28	5	IC
	FP-03-01-002	N		SW8270C	-	4-Methylphenol (p-Cresol)	5		U	5			0.28	5	IC
	FP-03-01-004	N		SW8270C	-	4-Methylphenol (p-Cresol)	5		U	5			0.28	5	IC
	FP-03-01-006	N		SW8270C	-	4-Methylphenol (p-Cresol)	5.1		U	5.1				5.1	IC
	FP-03-01-007	N		SW8270C	-	4-Methylphenol (p-Cresol)	5		U	5			0.28	5	IC
	FP-03-01-008	N		SW8270C	-	4-Methylphenol (p-Cresol)	5		U	5			0.28	5	IC
	FP-03-01-009	N		SW8270C	-	4-Methylphenol (p-Cresol)	5		U	5			0.28	5	IC
	FP-03-04-001	N		SW8270C	-	4-Methylphenol (p-Cresol)	5		U	5			0.28	5	IC
WG	FP-03-04-001	IN		SW8270C	-	4-Ivietnylphenol (p-Cresol)	5	U	U	5	UJ	U	0.28	5	IC

Change	in Qualifier Through the I	Data Validat	ion Proces	s											
Matrix	Sample ID	Sample Type	LR Type	Analytical Method	Dissolved ?	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Validation Notes
WG	FP-03-01-003	FD		SW8270C	-	4-Methylphenol (p-Cresol)	5	U	U	5	UJ	U	0.28	5	IC
WG	FP-04-06-001RE1	LR	RE	SW8270C	-	4-Nitroaniline	4	U	U	4	UJ	U	2.8	4	HT
WG	FP-04-06-002RE1	LR	RE	SW8270C	-	4-Nitroaniline	4	U	U	4	UJ	U	2.8	4	HT
WG	FP-04-06-003RE1	LR	RE	SW8270C	-	4-Nitroaniline	4	U	U	4	UJ	U	2.8	4	HT
WG	FP-04-06-004RE1	LR	RE	SW8270C	-	4-Nitroaniline	4	U	U	4	UJ	U	2.8	4	HT
WG	FP-04-06-005RE1	LR	RE	SW8270C	-	4-Nitroaniline	4	U	U	4	UJ	U	2.8	4	HT
WG	FP-03-01-001	N		SW8270C	-	4-Nitroaniline	5	U	U	5	UJ	U	0.46	5	IC
WG	FP-03-01-002	N		SW8270C	-	4-Nitroaniline	5	U	U	5	UJ	U	0.46	5	IC
WG	FP-03-01-004	N		SW8270C	-	4-Nitroaniline	5	U	U	5	UJ	U	0.46	5	IC
WG	FP-03-01-006	N		SW8270C	-	4-Nitroaniline	5.1	U	U	5.1	UJ	U	0.47	5.1	IC
WG	FP-03-01-007	N		SW8270C	-	4-Nitroaniline	5	U	U	5	UJ	U	0.46	5	IC
WG	FP-03-01-008	N		SW8270C	-	4-Nitroaniline	5	U	U	5	UJ	U	0.46	5	IC
WG	FP-03-01-009	N		SW8270C	-	4-Nitroaniline	5	U	U	5	UJ	U	0.46	5	IC
WG	FP-03-04-001	N		SW8270C	-	4-Nitroaniline	5	U	U	5	UJ	U	0.46	5	IC
WG	FP-04-06-006	N		SW8270C	-	4-nitroquinoline-n-oxide	10	U	U	10	UJ	U	3.7	10	2SL,CCL,IC
WG	FP-04-007-01	N		SW8270C	-	4-nitroquinoline-n-oxide	10.1	U	U	10.1	UJ	U	3.7	10.1	2SL,CCL,IC
WG	FP-04-007-02	N		SW8270C	-	4-nitroquinoline-n-oxide	10	U	U	10	UJ	U	3.7	10	2SL,CCL,IC
WG	FP-03-05-001	N		SW8270C	-	4-nitroquinoline-n-oxide	10.1	U	U	10.1	UJ	U	3.2	10.1	CC,IC
WG	FP-03-05-002	N		SW8270C	-	4-nitroquinoline-n-oxide	10	U	U	10	UJ	U	3.1	10	CC,IC
WG		LR	RE	SW8270C	-	4-nitroquinoline-n-oxide	10.1	U	U	10.1	UJ	U	3.7	10.1	CCL,HT,IC
WG	FP-04-06-002RE1		RE	SW8270C	-	4-nitroquinoline-n-oxide	10.1	U	U	10.1	UJ	U	3.7	10.1	CCL,HT,IC
WG	FP-04-06-003RE1		RE	SW8270C	-	4-nitroquinoline-n-oxide	10.1	U	U	10.1	UJ	U	3.7	10.1	CCL,HT,IC
WG	FP-04-06-004RE1		RE	SW8270C	-	4-nitroquinoline-n-oxide	10.1	U	U	10.1	UJ	U	3.7	10.1	CCL,HT,IC
WG		LR	RE	SW8270C	-	4-nitroquinoline-n-oxide	10.1	U	U	10.1	UJ	U	3.7	10.1	CCL,HT,IC
WG	FP-04-06-007	N	1 12	SW8270C	-	4-nitroquinoline-n-oxide	10	U	U	10	UJ	U	3.7	10	CCL,IC
WG	FP-04-07-003	N		SW8270C	-	4-nitroquinoline-n-oxide	10.2	U	U	10.2	UJ	U	3.8	10.2	CCL,IC
WG	FP-04-07-007	N		SW8270C	-	4-nitroquinoline-n-oxide	10.1	U	U	10.1	UJ	U	3.7	10.1	CCL,IC
WG	FP-04-07-004	FD		SW8270C	_	4-nitroquinoline-n-oxide	10.1	U	U	10.1	UJ	U	3.7	10.1	CCL,IC
WG	FP-03-01-001	N		SW8270C	_	4-nitroquinoline-n-oxide	10.1	U	U	10.1	UJ	U	3.2	10.1	IC
WG	FP-03-01-002	N		SW8270C	_	4-nitroquinoline-n-oxide	10	U	U	10.1	UJ	U	3.2	10	IC
WG	FP-03-01-004	N		SW8270C	_	4-nitroquinoline-n-oxide	10.1	U	U	10.1	UJ	U	3.2	10.1	IC
WG	FP-03-01-009	N		SW8270C	_	4-nitroquinoline-n-oxide	10.1	U	U	10.1	UJ	U	3.2	10.1	IC
WG	FP-03-02-001	N		SW8270C	_	4-nitroquinoline-n-oxide	10	U	U	10.1	UJ	U	3.1	10.1	IC
WG	FP-03-02-002	N		SW8270C	_	4-nitroquinoline-n-oxide	10	U	U	10	UJ	U	3.2	10	IC
WG	FP-03-02-005	N		SW8270C	_	4-nitroquinoline-n-oxide	10	U	U	10	UJ	U	3.1	10	IC
WG	FP-03-02-006	N		SW8270C	_	4-nitroquinoline-n-oxide	10	U	U	10	UJ	U	3.1	10	IC
WG	FP-03-02-007	N		SW8270C	_	4-nitroquinoline-n-oxide	10.2	U	U	10.2	UJ	U	3.2	10.2	IC
WG	FP-03-03-001	N		SW8270C	-  -	4-nitroquinoline-n-oxide	10.2	U	U	10.2	UJ	U	3.1	10.2	IC
WG	FP-03-03-002	N		SW8270C	-	4-nitroquinoline-n-oxide	10	U	U	10	UJ	U	3.1	10	IC
WG	FP-03-03-002	N	-	SW8270C	-	4-nitroquinoline-n-oxide	10.3	U	U	10.3	UJ	U	3.2	10.3	IC
WG	FP-03-03-006	N		SW8270C	-	4-nitroquinoline-n-oxide	10.3	U	U	10.3	UJ	U	3.1	10.3	IC
WG	FP-03-03-006 FP-03-03-007	N		SW8270C	-	·	10	U	U	10	UJ	U	3.1	10	IC
WG		N		SW8270C	-	4-nitroquinoline-n-oxide	10	U	U			U	3.1	10	
	FP-03-04-001				-	4-nitroquinoline-n-oxide				10	UJ				IC
WG	FP-03-04-002	N		SW8270C	-	4-nitroquinoline-n-oxide	10.1	U	U	10.1	UJ	U	3.2	10.1	IC
WG	FP-03-04-003	N	-	SW8270C	-	4-nitroquinoline-n-oxide	10	U	U	10	UJ	U	3.2	10	IC
WG	FP-03-04-004	N	-	SW8270C	-	4-nitroquinoline-n-oxide	10.2	U	U	10.2	UJ	U	3.2	10.2	IC
WG	FP-03-04-005	N		SW8270C	-	4-nitroquinoline-n-oxide	10.2	U	U	10.2	UJ	U	3.2	10.2	IC
WG	FP-03-05-005	N		SW8270C	-	4-nitroquinoline-n-oxide	10	U	U	10	UJ	U	3.1	10	IC

Change	in Qualifier Through the [	Data Validat	ion Proces	S											
Matrix	Sample ID	Sample Type	LR Type	Analytical Method	Dissolved ?	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Validation Notes
WG	FP-03-05-006	N		SW8270C	-	4-nitroquinoline-n-oxide	10	U	U	10	UJ	U	3.1	10	IC
WG	FP-03-05-007	N		SW8270C	-	4-nitroquinoline-n-oxide	10	U	U	10	UJ	U	3.1	10	IC
WG	FP-03-01-003	FD		SW8270C	-	4-nitroquinoline-n-oxide	10.1	U	U	10.1		U	3.2	10.1	IC
WG	FP-04-07-007	N		SW8270C	-	5-nitro-o-toluidine	10.1	U	U	10.1		U	2.6	10.1	BSL
WG	FP-04-06-001RE1	LR	RE	SW8270C	-	5-nitro-o-toluidine	10.1	U	U	10.1	UJ	U	2.6	10.1	HT
WG	FP-04-06-002RE1	LR	RE	SW8270C	-	5-nitro-o-toluidine	10.1	U	U	10.1	UJ	U	2.6	10.1	HT
WG	FP-04-06-003RE1	LR	RE	SW8270C	-	5-nitro-o-toluidine	10.1	U	U	10.1	UJ	U	2.6	10.1	HT
WG	FP-04-06-004RE1	LR	RE	SW8270C	-	5-nitro-o-toluidine	10.1	U	U	10.1	UJ	U	2.6	10.1	HT
WG	FP-04-06-005RE1	LR	RE	SW8270C	-	5-nitro-o-toluidine	10.1	U	U	10.1	UJ	U	2.6	10.1	HT
WG	FP-04-007-01	N		SW8270C	-	7,12-dimethylbenz(a)anthracene	4	U	U	4	UJ	U	2.5	4	CCL,IC
WG	FP-04-007-02	N		SW8270C	-	7,12-dimethylbenz(a)anthracene	4	U	U	4	UJ	U	2.5	4	CCL,IC
WG	FP-04-06-001RE1	LR	RE	SW8270C	-	7,12-dimethylbenz(a)anthracene	4	U	U	4	UJ	U	2.5	4	HT
WG	FP-04-06-002RE1	LR	RE	SW8270C	-	7,12-dimethylbenz(a)anthracene	4	U	U	4	UJ	U	2.5	4	HT
WG	FP-04-06-003RE1	LR	RE	SW8270C	-	7,12-dimethylbenz(a)anthracene	4	U	U	4	UJ	U	2.5	4	HT
WG	FP-04-06-004RE1	LR	RE	SW8270C	-	7,12-dimethylbenz(a)anthracene	4	U	U	4	UJ	U	2.5	4	HT
WG	FP-04-06-005RE1	LR	RE	SW8270C	-	7,12-dimethylbenz(a)anthracene	4	U	U	4	UJ	U	2.5	4	HT
WG	FP-04-06-006	N		SW8270C	-	7,12-dimethylbenz(a)anthracene	4	U	U	4	UJ	U	2.5	4	IC
WG	FP-04-06-007	N		SW8270C	-	7,12-dimethylbenz(a)anthracene	4	U	U	4	UJ	U	2.5	4	IC
WG	FP-03-01-006	N		SW8270C	-	a,a-Dimethylphenethylamine	20.4	U	U	20.4	UJ	U	3.9	20.4	BD,BS,CC,IC
WG	FP-03-01-007	N		SW8270C	-	a,a-Dimethylphenethylamine	20.2	U	U	20.2	UJ	U	3.9	20.2	BD,BS,CC,IC
WG	FP-03-01-008	N		SW8270C	-	a,a-Dimethylphenethylamine	20.2	U	U	20.2		U	3.9	20.2	BD,BS,CC,IC
WG	FP-03-01-009	N		SW8270C	-	a,a-Dimethylphenethylamine	20.2	U	U	20.2		U	3.9	20.2	BD,BS,CC,IC
WG	FP-03-04-002	N		SW8270C	-	a,a-Dimethylphenethylamine	20.2	U	U	20.2		U	3.9	20.2	BS,CC,IC
WG	FP-03-04-003	N		SW8270C	-	a,a-Dimethylphenethylamine	20.1	U	U	20.1		U	3.8	20.1	BS,CC,IC
WG	FP-03-01-001	N		SW8270C	-	a,a-Dimethylphenethylamine	20.2	U	U	20.2		U	3.9	20.2	BS,CC,IC,MD,MS
WG	FP-03-01-002	N		SW8270C	-	a,a-Dimethylphenethylamine	20.1	U	U	20.1		U	3.8	20.1	BS,CC,IC,MD,MS
WG	FP-03-01-004	N		SW8270C	-	a,a-Dimethylphenethylamine	20.2	U	U	20.2		U	3.9	20.2	BS,CC,IC,MD,MS
WG	FP-03-01-003	FD		SW8270C	-	a,a-Dimethylphenethylamine	20.2	U	U	20.2		U	3.9	20.2	BS,CC,IC,MD,MS
WG	FP-04-06-001RE1	LR	RE	SW8270C	-	a,a-Dimethylphenethylamine	20.2	U	U	20.2		U	3.9	20.2	CCL,HT,IC
WG	FP-04-06-002RE1	LR	RE	SW8270C	-	a,a-Dimethylphenethylamine	20.2	U	U	20.2		U	3.9	20.2	CCL,HT,IC
WG	FP-04-06-003RE1		RE	SW8270C	-	a,a-Dimethylphenethylamine	20.2	U	U	20.2		U	3.9	20.2	CCL,HT,IC
WG	FP-04-06-004RE1	LR	RE	SW8270C	-	a,a-Dimethylphenethylamine	20.2	U	U	20.2		U	3.9	20.2	CCL,HT,IC
WG	FP-04-06-005RE1		RE	SW8270C	-	a,a-Dimethylphenethylamine	20.2	U	U	20.2		Ū	3.9	20.2	CCL,HT,IC
WG	FP-03-05-001	N		SW8270C	-	Acetophenone	5	U	U	5		U	0.86	5	BS
WG	FP-03-05-002	N		SW8270C	-	Acetophenone	5	U	U	5		Ū	0.85	5	BS
WG	FP-04-06-001RE1		RE	SW8270C	-	Acetophenone	4	U	U	4		Ū	0.67	4	HT
WG	FP-04-06-002RE1		RE	SW8270C	-	Acetophenone	4	U	U	4		Ū	0.67	4	HT
WG	FP-04-06-003RE1		RE	SW8270C	-	Acetophenone	4	U	U	4		Ū	0.67	4	HT
WG	FP-04-06-004RE1		RE	SW8270C	-	Acetophenone	4	U	U	4		Ū	0.67	4	HT
WG	FP-04-06-005RE1		RE	SW8270C	-	Acetophenone	4	U	U	4		Ū	0.67	4	HT
WG	FP-03-02-007	N		SW8270C	-	Aniline (phenylamine, aminobenzene)	5.1	U	U	5.1		Ū	0.5	5.1	CC
WG	FP-03-03-006	N		SW8270C	-	Aniline (phenylamine, aminobenzene)	5	U	U	5		Ū	0.49	5	CC
WG	FP-03-03-007	N		SW8270C	-	Aniline (phenylamine, aminobenzene)	5	U	U	5		U	0.49	5	CC
WG	FP-03-05-001	N		SW8270C	-	Aniline (phenylamine, aminobenzene)	5	U	U	5		U	0.49	5	CC,IC
WG	FP-03-05-002	N		SW8270C	-	Aniline (phenylamine, aminobenzene)	5	U	U	5		U	0.49	5	CC,IC
WG	FP-04-06-001RE1		RE	SW8270C	-	Aniline (phenylamine, aminobenzene)	4	U	U	4		U	2.8	4	HT,IC
WG	FP-04-06-002RE1		RE	SW8270C	-	Aniline (phenylamine, aminobenzene)	4	U	U	4		U	2.8	4	HT,IC
WG	FP-04-06-003RE1		RE	SW8270C	-	Aniline (phenylamine, aminobenzene)	4	U	U	4		U	2.8	4	HT,IC
	11. 04.00 000HET	-11	111	31102100		prioriyiamino, aminobonzone)	7	10		r	30			'	1111,10

Change i	n Qualifier Through the D	Data Validati	ion Proces	S											
Matrix	Sample ID	Sample Type	LR Type	Analytical Method	Dissolved ?	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Validation Notes
WG	FP-04-06-004RE1	LR	RE	SW8270C	-	Aniline (phenylamine, aminobenzene)	4	U	U	4	UJ l	J	2.8	4	HT,IC
WG	FP-04-06-005RE1	LR	RE	SW8270C	-	Aniline (phenylamine, aminobenzene)	4		U	4	UJ l		2.8	4	HT,IC
WG	FP-04-06-006	N		SW8270C	-	Aniline (phenylamine, aminobenzene)	4	U	U	4	UJ l	J	2.8	4	IC
WG	FP-04-06-007	N		SW8270C	-	Aniline (phenylamine, aminobenzene)	4	U	U	4	UJ (	J	2.8	4	IC
WG	FP-04-007-02	N		SW8270C	-	Aniline (phenylamine, aminobenzene)	4	U	U	4	UJ (	J	2.8	4	IC
WG	FP-03-04-002	N		SW8270C	-	Aramite	10.1	U	U	10.1	UJ (	J	1	10.1	BS,CC
WG	FP-03-04-003	N		SW8270C	-	Aramite	10	U	U	10	UJ l	J	1	10	BS,CC
WG	FP-04-06-001RE1	LR	RE	SW8270C	-	Aramite	10.1	U	U	10.1	UJ l	J	2.5	10.1	HT,IC
WG	FP-04-06-002RE1	LR	RE	SW8270C	-	Aramite	10.1	U	U	10.1	UJ l	J	2.5	10.1	HT,IC
WG	FP-04-06-003RE1	LR	RE	SW8270C	-	Aramite	10.1	U	U	10.1	UJ (	J	2.5	10.1	HT,IC
WG	FP-04-06-004RE1	LR	RE	SW8270C	-	Aramite	10.1	U	U	10.1	UJ (	J	2.5	10.1	HT,IC
WG	FP-04-06-005RE1		RE	SW8270C	-	Aramite	10.1	U	U	10.1	UJ l	J	2.5	10.1	HT,IC
WG	FP-04-06-001RE1		RE	SW8270C	-	Benzyl alcohol	4	U	U	4	UJ l		3.1	4	HT
WG	FP-04-06-002RE1		RE	SW8270C	-	Benzyl alcohol	4		U	4	UJ (		3.1	4	HT
WG	FP-04-06-003RE1		RE	SW8270C	-	Benzyl alcohol	4		U	4	UJ l		3.1	4	HT
WG	FP-04-06-004RE1		RE	SW8270C	-	Benzyl alcohol	4		U	4	UJ l		3.1	4	HT
WG	FP-04-06-005RE1		RE	SW8270C	-	Benzyl alcohol	4		U	4	UJ		3.1	4	HT
WG	FP-04-06-001RE1		RE	SW8270C	-	Benzyl butyl phthalate	4		U	4	UJ		3	4	HT
WG	FP-04-06-002RE1		RE	SW8270C	_	Benzyl butyl phthalate	4		U	4	UJ (		3	4	HT
WG	FP-04-06-003RE1		RE	SW8270C	_	Benzyl butyl phthalate	4		U	1	UJ		3	4	HT
WG	FP-04-06-004RE1		RE	SW8270C	_	Benzyl butyl phthalate	4		U	4	UJ		3	4	HT
WG	FP-04-06-005RE1		RE	SW8270C	_	Benzyl butyl phthalate	1		U	4	UJ		3	1	HT
WG	FP-04-06-001RE1		RE	SW8270C	-	Bis(2-Chloroethoxy) methane	4		U	1	UJ		3.5	1	HT
WG	FP-04-06-002RE1		RE	SW8270C	-	Bis(2-Chloroethoxy) methane	4	-	U	4	UJ		3.5	4	HT
WG	FP-04-06-003RE1		RE	SW8270C	-	Bis(2-Chloroethoxy) methane	4		U	4	UJ		3.5	4	HT
WG	FP-04-06-004RE1		RE	SW8270C	-	Bis(2-Chloroethoxy) methane	4		U	4	UJ l		3.5	4	HT
WG	FP-04-06-005RE1		RE	SW8270C	-	Bis(2-Chloroethoxy) methane	4		U	4	UJ l		3.5	4	HT
WG	FP-04-06-003RE1		RE	SW8270C	-		4	-	U	4	UJ l		3	4	HT
WG			RE	SW8270C	-	bis(2-Chloroethyl) ether	4		U	4			3	4	HT
WG	FP-04-06-002RE1		RE	SW8270C	-	bis(2-Chloroethyl) ether	4		U	4			3	4	HT
	FP-04-06-003RE1				-	bis(2-Chloroethyl) ether	4			4				4	
WG	FP-04-06-004RE1		RE	SW8270C	-	bis(2-Chloroethyl) ether	4		U	4	UJ l		3	4	HT
WG	FP-04-06-005RE1		RE	SW8270C	-	bis(2-Chloroethyl) ether	4		U	4	UJ l		3	4	HT
WG		N	DE	SW8270C	-	bis(2-Chloroethyl) ether	4		U	4	UJ l		3	4	IC
WG	FP-04-06-001RE1		RE	SW8270C	-	bis(2-Chloroisopropyl) ether	4		U	4	UJ l		3.3	4	HT
WG	FP-04-06-002RE1		RE	SW8270C		bis(2-Chloroisopropyl) ether	4		U	4	UJ l		3.3	4	HT
WG	FP-04-06-003RE1		RE	SW8270C		bis(2-Chloroisopropyl) ether	4		U	4	UJ l		3.3	4	HT
WG	FP-04-06-004RE1		RE	SW8270C		bis(2-Chloroisopropyl) ether	4		U	4	UJ l		3.3	4	HT
WG	FP-04-06-005RE1		RE	SW8270C		bis(2-Chloroisopropyl) ether	4		U	4	UJ l		3.3	4	HT
WG	FP-04-06-001RE1		RE	SW8270C		chlorobenzilate	4		U	4	UJ l		2.5	4	HT
WG	FP-04-06-002RE1		RE	SW8270C		chlorobenzilate	4		U	4	UJ l		2.5	4	HT
WG	FP-04-06-003RE1		RE	SW8270C		chlorobenzilate	4		U	4	UJ l		2.5	4	HT
WG	FP-04-06-004RE1		RE	SW8270C		chlorobenzilate	4		U	4	UJ l		2.5	4	HT
WG	FP-04-06-005RE1		RE	SW8270C		chlorobenzilate	4		U	4	UJ l		2.5	4	HT
WG		N		SW8270C		diallate	5		U	5	UJ l		0.66	5	BD,BS
WG	FP-04-07-007	N		SW8270C		diallate	4		U	4	UJ l		2.6	4	BSL
WG	FP-03-05-001	N		SW8270C	-	diallate	5		U	5	UJ l		0.67	5	CC,IC
WG	FP-03-05-002	N		SW8270C	-	diallate	5		U	5	UJ l		0.66	5	CC,IC
WG	FP-04-06-001RE1	LR	RE	SW8270C	-	diallate	4	U	U	4	UJ	J	2.6	4	HT,IC

Change i	in Qualifier Through the D	ata Validati	ion Process	S											
Matrix	Sample ID	Sample Type	LR Type	Analytical Method	Dissolved ?	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Validation Notes
WG	FP-04-06-002RE1	LR	RE	SW8270C	-	diallate	4	U	U	4	UJ l	J	2.6	4	HT,IC
WG	FP-04-06-003RE1	LR	RE	SW8270C	-	diallate	4	U	U	4	UJ		2.6	4	HT,IC
WG	FP-04-06-004RE1	LR	RE	SW8270C	-	diallate	4	U	U	4	UJ l	J	2.6	4	HT,IC
WG	FP-04-06-005RE1	LR	RE	SW8270C	-	diallate	4	U	U	4	UJ l	J	2.6	4	HT,IC
WG	FP-03-04-002	N		SW8270C	-	diallate	5	U	U	5	UJ l	J	0.67	5	IC
WG	FP-03-04-003	N		SW8270C	-	diallate	5	U	U	5	UJ l	J	0.67	5	IC
WG	FP-04-06-001RE1	LR	RE	SW8270C	-	Dibenzofuran	4	U	U	4	UJ l	J	2.7	4	HT
WG	FP-04-06-002RE1	LR	RE	SW8270C	-	Dibenzofuran	4	U	U	4	UJ l	J	2.7	4	HT
WG	FP-04-06-003RE1	LR	RE	SW8270C	-	Dibenzofuran	4	U	U	4	UJ l	J	2.7	4	HT
WG	FP-04-06-004RE1	LR	RE	SW8270C	-	Dibenzofuran	4	U	U	4	UJ l	J	2.7	4	HT
WG	FP-04-06-005RE1	LR	RE	SW8270C	-	Dibenzofuran	4	U	U	4	UJ l	J	2.7	4	HT
WG	FP-04-06-001RE1	LR	RE	SW8270C	-	Diethyl phthalate	4	U	U	4	UJ l	J	2.8	4	HT
WG	FP-04-06-002RE1	LR	RE	SW8270C	-	Diethyl phthalate	4	U	U	4	UJ l	J	2.8	4	HT
WG	FP-04-06-003RE1	LR	RE	SW8270C	-	Diethyl phthalate	4	U	U	4	UJ l	J	2.8	4	HT
WG	FP-04-06-004RE1		RE	SW8270C	-	Diethyl phthalate	4	U	U	4	UJ l	J	2.8	4	HT
WG	FP-04-06-005RE1		RE	SW8270C	-	Diethyl phthalate	4	U	U	4	UJ l	J	2.8	4	HT
WG	FP-04-06-001RE1		RE	SW8270C	-	Dimethyl phthalate	4		U		UJ l		3	4	HT
WG	FP-04-06-002RE1		RE	SW8270C	-	Dimethyl phthalate	4		U		UJ l		3	4	HT
WG	FP-04-06-003RE1		RE	SW8270C	-	Dimethyl phthalate	4		U		UJ l		3	4	HT
WG	FP-04-06-004RE1		RE	SW8270C	-	Dimethyl phthalate	4		U		UJ l		3	4	HT
WG	FP-04-06-005RE1		RE	SW8270C	-	Dimethyl phthalate	4	-	U		UJ l		3	4	HT
WG	FP-04-06-001RE1		RE	SW8270C	-	ethyl methanesulfonate	4		U	4			2.5	4	HT
WG	FP-04-06-002RE1		RE	SW8270C	-	ethyl methanesulfonate	4		U	4			2.5	4	HT
WG	FP-04-06-003RE1		RE	SW8270C	-	ethyl methanesulfonate	4		U				2.5	4	HT
WG	FP-04-06-004RE1		RE	SW8270C	-	ethyl methanesulfonate	4		U				2.5	4	HT
WG	FP-04-06-005RE1		RE	SW8270C	-	ethyl methanesulfonate	4		U				2.5	4	HT
WG	FP-03-05-005	N		SW8270C	-	hexachloropropene	5	_	U	5				5	BD
WG	FP-03-03-001	N		SW8270C	-	hexachloropropene	5	_	U	5				5	BS
WG	FP-03-03-002	N		SW8270C	-	hexachloropropene	5	-	U	5				5	BS
WG	FP-03-03-003	N		SW8270C	-	hexachloropropene	5.2		U	5.2				5.2	BS
WG	FP-03-03-006	N		SW8270C	-	hexachloropropene	5		U	5				5	BS
WG	FP-03-03-007	N		SW8270C	-	hexachloropropene	5		U	5	UJ l		0.62	5	BS
WG	FP-03-04-002	N		SW8270C	-	hexachloropropene	5		U	5			0.62	5	BS
WG	FP-03-04-003	N		SW8270C	-	hexachloropropene	5		U	_			0.00	5	BS
WG	FP-04-06-001RE1		RE	SW8270C	_	hexachloropropene	4		U		UJ l		2	4	HT
WG	FP-04-06-002RE1		RE	SW8270C	-	hexachloropropene	4		U		UJ		2	4	HT
WG	FP-04-06-003RE1		RE	SW8270C	-	hexachloropropene	4		U		UJ l		2	4	HT
WG	FP-04-06-004RE1		RE	SW8270C	-	hexachloropropene	4		U		UJ		2	4	HT
WG	FP-04-06-005RE1		RE	SW8270C	_	hexachloropropene	4		U				2	4	HT
WG	FP-04-06-001RE1		RE	SW8270C	_	isodrin	4		U					4	HT
WG	FP-04-06-002RE1		RE	SW8270C	_	isodrin	4		U					4	HT
WG	FP-04-06-003RE1		RE	SW8270C	_	isodrin	4		U				2.6	4	HT
WG	FP-04-06-004RE1		RE	SW8270C	_	isodrin	4		U					4	HT
WG	FP-04-06-005RE1		RE	SW8270C	_	isodrin	1		U					4	HT
WG	FP-04-06-003RE1		RE	SW8270C	_	Isophorone	4		U				3.8	<u> </u>	HT
WG	FP-04-06-001RE1		RE	SW8270C	_	Isophorone	1		U				3.8	1	HT
WG	FP-04-06-002RE1		RE	SW8270C	_	Isophorone	4		U		UJ			4	HT
WG	FP-04-06-003RE1		RE	SW8270C	-		4		U					4	HT
wa	FF-04-00-004KET	LN	UE	30002/00	-	Isophorone	4	U	U	4	UU I	J	3.0	4	TTT

Appendix C
Change in Qualifier Through the Data Validation Process

Change	in Qualifier Through the [	Data Validat	ion Proces	S											
Matrix	Sample ID	Sample Type	LR Type	Analytical Method	Dissolved ?	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Validation Notes
WG	FP-04-06-005RE1	LR	RE	SW8270C	-	Isophorone	4	U	U	4	UJ	U	3.8	4	HT
WG	FP-03-05-001	N		SW8270C	_	Isophorone	5		U	5	UJ	U	1.2	5	IC
WG	FP-03-04-001	N		SW8270C	-	isosafrole	5		U	5	UJ		0.51	5	BS
WG	FP-04-06-006	N		SW8270C	_	isosafrole	4		U	4	UJ		2.6	4	BSL
WG	FP-04-06-001RE1		RE	SW8270C	-	isosafrole	4		U	4	UJ		2.6	4	HT
WG	FP-04-06-002RE1		RE	SW8270C	-	isosafrole	4		U	4	UJ		2.6	4	HT
WG	FP-04-06-003RE1		RE	SW8270C	-	isosafrole	4		U	4	UJ		2.6	4	HT
WG	FP-04-06-004RE1		RE	SW8270C	-	isosafrole	4		U	4	UJ		2.6	4	HT
WG	FP-04-06-005RE1		RE	SW8270C	-	isosafrole	4		U	4	UJ		2.6	4	HT
WG	FP-03-04-001	N		SW8270C	-	kepone	20		U	20	UJ	U	1.5	20	BD,BS
WG	FP-03-02-001	N		SW8270C	-	kepone	20		U	20	UJ	U	1.5	20	BS,IC
WG	FP-03-02-002	N		SW8270C	-	kepone	20.1		U	20.1	UJ	U	1.5	20.1	BS,IC
WG	FP-03-02-005	N		SW8270C	-	kepone	20			20	UJ	U	1.5	20	BS,IC
WG	FP-04-07-007	N		SW8270C	-	kepone	20.2			20.2	UJ		3.1	20.2	BSL,IC
WG	FP-04-06-001RE1		RE	SW8270C	-	kepone	20.2		U	20.2	UJ		3.1	20.2	HT
WG	FP-04-06-002RE1		RE	SW8270C	-	kepone	20.2		U	20.2	UJ		3.1	20.2	HT
WG	FP-04-06-003RE1		RE	SW8270C	-	kepone	20.2		U	20.2	UJ		3.1	20.2	HT
WG	FP-04-06-004RE1		RE	SW8270C	-	kepone	20.2			20.2	UJ		3.1	20.2	HT
WG	FP-04-06-005RE1		RE	SW8270C	-	kepone	20.2		U	20.2	UJ		3.1	20.2	HT
WG	FP-03-03-001	N		SW8270C	-	kepone	20			20	UJ	U	1.5	20	IC
WG	FP-03-03-002	N		SW8270C	-	kepone	20			20	UJ	U		20	IC
WG	FP-03-03-003	N		SW8270C	-	kepone	20.6			20.6	UJ	U	1.6	20.6	IC
WG	FP-03-03-006	N		SW8270C	-	kepone	20			20	UJ	U		20	IC
WG	FP-03-03-007	N		SW8270C	-	kepone	20			20	UJ	U	1.5	20	IC
WG	FP-03-04-002	N		SW8270C	-	kepone	20.2		U	20.2	UJ	U	1.5	20.2	IC
WG	FP-03-04-003	N		SW8270C	-	kepone	20.1		U	20.1	UJ	U	1.5	20.1	IC
WG	FP-04-07-007	N		SW8270C	-	methapyrilene	10.1		U	10.1	UJ		3.7	10.1	BD
WG	FP-03-01-006	N		SW8270C	-	methapyrilene	10.2		U	10.2	UJ		2.6	10.2	BD,BS
WG	FP-03-01-007	N		SW8270C	-	methapyrilene	10.1		U	10.1	UJ		2.6	10.1	BD,BS
WG	FP-03-01-008	N		SW8270C	-	methapyrilene	10.1		U	10.1	UJ		2.6	10.1	BD,BS
WG	FP-03-02-007	N		SW8270C	-	methapyrilene	10.2		U	10.2	UJ		2.6	10.2	BD,BS,CC
WG	FP-03-03-006	N		SW8270C	-	methapyrilene	10		U	10	UJ		2.6	10	BD,BS,CC
WG	FP-03-03-007	N		SW8270C	-	methapyrilene	10		U	10	UJ		2.6	10	BD,BS,CC
WG	FP-03-01-009	N		SW8270C	-	methapyrilene	10.1		U	10.1	UJ	U	2.6	10.1	BS
WG	FP-03-02-006	N		SW8270C	-	methapyrilene	10		U	10	UJ		2.6	10	BS,CC
WG	FP-03-04-001	N		SW8270C	-	methapyrilene	10		U	10	UJ		2.6	10	BS,CC
WG	FP-03-04-002	N		SW8270C	-	methapyrilene	10.1		U	10.1	UJ		2.6	10.1	BS,CC
WG	FP-03-04-003	N		SW8270C	-	methapyrilene	10		U	10	UJ		2.6	10	BS,CC
WG	FP-03-01-001	N		SW8270C	-	methapyrilene	10.1		U	10.1	UJ		2.6	10.1	BS,MD,MS
WG	FP-03-01-002	N		SW8270C	-	methapyrilene	10		U	10	UJ		2.6	10	BS,MD,MS
WG	FP-03-01-004	N		SW8270C	-	methapyrilene	10.1		U	10.1	UJ		2.6	10.1	BS,MD,MS
WG	FP-03-01-003	FD		SW8270C	-	methapyrilene	10.1		U	10.1	UJ		2.6	10.1	BS,MD,MS
WG	FP-03-02-001	N		SW8270C	-	methapyrilene	10		U	10	UJ		2.6	10	CC
WG	FP-03-02-002	N		SW8270C	-	methapyrilene	10		U	10	UJ		2.6	10	CC
WG	FP-03-02-005	N		SW8270C	-	methapyrilene	10		U	10	UJ		2.6	10	CC
WG	FP-03-04-004	N		SW8270C	-	methapyrilene	10.2		U	10.2	UJ		2.6	10.2	CC
WG	FP-03-04-005	N		SW8270C	-	methapyrilene	10.2		U	10.2	UJ		2.6	10.2	CC
WG	FP-03-05-001	N		SW8270C	-	methapyrilene	10.1	U	U	10.1	UJ	U	2.6	10.1	CC

Appendix C
Change in Qualifier Through the Data Validation Process

Change i	n Qualifier Through the I	Data Validati	on Proces	S										
Matrix	Sample ID	Sample Type	LR Type	Analytical Method	Dissolved ? Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Validation Notes
WG	FP-03-05-002	N		SW8270C	- methapyrilene	10	U	U	10	UJ		2.6	10	CC
WG	FP-03-05-005	N		SW8270C	- methapyrilene	10		U	10	UJ		2.6	10	CC
WG	FP-03-05-006	N		SW8270C	- methapyrilene	10		U	10	UJ		2.6	10	CC
WG	FP-03-05-007	N		SW8270C	- methapyrilene	10		U	10	UJ		2.6	10	CC
WG	FP-04-06-001RE1		RE	SW8270C	- methapyrilene	10.1		U	10.1	UJ		3.7	10.1	HT
WG	FP-04-06-002RE1		RE	SW8270C	- methapyrilene	10.1	U	U	10.1	UJ		3.7	10.1	HT
WG	FP-04-06-003RE1		RE	SW8270C	- methapyrilene	10.1	U	U	10.1	UJ		3.7	10.1	HT
WG	FP-04-06-004RE1		RE	SW8270C	- methapyrilene	10.1	U	U	10.1	UJ		3.7	10.1	HT
WG	FP-04-06-005RE1		RE	SW8270C	- methapyrilene	10.1	U	U	10.1	UJ		3.7	10.1	HT
WG	FP-03-03-001	N		SW8270C	- methyl methanesulfonate	5	U	U	5	UJ	U	0.26	5	BS
WG	FP-03-03-002	N		SW8270C	- methyl methanesulfonate	5	U	U	5	UJ		0.26	5	BS
WG	FP-03-03-003	N		SW8270C	- methyl methanesulfonate	5.2		U	5.2	UJ		0.27	5.2	BS
WG	FP-03-03-006	N		SW8270C	- methyl methanesulfonate	5		U	5	UJ		0.26	5	BS
WG	FP-03-03-007	N		SW8270C	- methyl methanesulfonate	5		U	5	UJ		0.26	5	BS
WG	FP-03-04-001	N		SW8270C	- methyl methanesulfonate	5	U	U	5	UJ		0.26	5	BS
WG	FP-03-04-002	N		SW8270C	- methyl methanesulfonate	5		U	5	UJ	U	0.27	5	BS
WG	FP-03-04-003	N		SW8270C	- methyl methanesulfonate	5	U	U	5	UJ	U	0.26	5	BS
WG	FP-04-06-001RE1		RE	SW8270C	- methyl methanesulfonate	20.2	U	U	20.2	UJ	U	1.9	20.2	HT
WG	FP-04-06-002RE1		RE	SW8270C	- methyl methanesulfonate	20.2	U	U	20.2	UJ	U	1.9	20.2	HT
WG	FP-04-06-003RE1		RE	SW8270C	- methyl methanesulfonate	20.2	U	U	20.2	UJ	U	1.9	20.2	HT
WG	FP-04-06-004RE1		RE	SW8270C	- methyl methanesulfonate	20.2	U	U	20.2	UJ	U	1.9	20.2	HT
WG	FP-04-06-005RE1		RE	SW8270C	- methyl methanesulfonate	20.2	U	U	20.2	UJ	U	1.9	20.2	HT
WG	FP-04-06-001RE1	LR	RE	SW8270C	- Nitrobenzene	4	U	U	4	UJ		2.8	4	HT
WG	FP-04-06-002RE1	LR	RE	SW8270C	- Nitrobenzene	4	U	U	4	UJ		2.8	4	HT
WG	FP-04-06-003RE1	LR	RE	SW8270C	- Nitrobenzene	4	U	U	4	UJ		2.8	4	HT
WG	FP-04-06-004RE1		RE	SW8270C	- Nitrobenzene	4	U	U	4	UJ		2.8	4	HT
WG	FP-04-06-005RE1	LR	RE	SW8270C	- Nitrobenzene	4	U	U	4	UJ		2.8	4	HT
WG	FP-03-04-001	N		SW8270C	- nitrosomethylethylamine	5	U	U	5	UJ	U	0.65	5	BS
WG	FP-03-04-002	N		SW8270C	- nitrosomethylethylamine	5		U	5	UJ		0.66	5	BS
WG	FP-03-04-003	N		SW8270C	- nitrosomethylethylamine	5	U	U	5	UJ	U	0.66	5	BS
WG	FP-03-01-001	N		SW8270C	- nitrosomethylethylamine	5		U	5	UJ		0.66	5	CC
WG	FP-03-01-002	N		SW8270C	- nitrosomethylethylamine	5	U	U	5	UJ	U	0.66	5	CC
WG	FP-03-01-004	N		SW8270C	- nitrosomethylethylamine	5	U	U	5	UJ	U	0.66	5	CC
WG	FP-03-01-006	N		SW8270C	- nitrosomethylethylamine	5.1	U	U	5.1	UJ	U	0.67	5.1	CC
WG	FP-03-01-007	N		SW8270C	- nitrosomethylethylamine	5		U	5	UJ	U	0.66	5	CC
WG	FP-03-01-008	N		SW8270C	- nitrosomethylethylamine	5		U	5	UJ	U	0.66	5	CC
WG	FP-03-01-009	N		SW8270C	- nitrosomethylethylamine	5		U	5	UJ	U	0.66	5	CC
WG	FP-03-05-007	N		SW8270C	- nitrosomethylethylamine	5	U	U	5	UJ	U	0.65	5	CC
WG	FP-03-01-003	FD		SW8270C	- nitrosomethylethylamine	5	U	U	5	UJ	U	0.66	5	CC
WG	FP-04-06-001RE1	LR	RE	SW8270C	- nitrosomethylethylamine	4	U	U	4	UJ	U	2.7	4	HT
WG	FP-04-06-002RE1	LR	RE	SW8270C	- nitrosomethylethylamine	4	U	U	4	UJ	U	2.7	4	HT
WG	FP-04-06-003RE1	LR	RE	SW8270C	- nitrosomethylethylamine	4	U	U	4	UJ	U	2.7	4	HT
WG	FP-04-06-004RE1	LR	RE	SW8270C	- nitrosomethylethylamine	4	U	U	4	UJ	U	2.7	4	HT
WG	FP-04-06-005RE1	LR	RE	SW8270C	- nitrosomethylethylamine	4	U	U	4	UJ	U	2.7	4	HT
WG	FP-04-06-001RE1	LR	RE	SW8270C	- n-nitrosodiethylamine	4	U	U	4	UJ	U	3.1	4	HT
WG	FP-04-06-002RE1		RE	SW8270C	- n-nitrosodiethylamine	4		U	4	UJ		3.1	4	HT
WG	FP-04-06-003RE1		RE	SW8270C	- n-nitrosodiethylamine	4		U	4	UJ		3.1	4	HT
WG	FP-04-06-004RE1		RE	SW8270C	·	4		U	4	UJ		3.1	4	HT
WG	FP-04-06-004RE1	LK	RE	SW8270C	- n-nitrosodiethylamine	4	U	U	4	UJ	U	3.1	4	HI

Change	in Qualifier Through the D	Data Validat	ion Proces	S											
Matrix	Sample ID	Sample Type	LR Type	Analytical Method	Dissolved ?	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Validation Notes
WG	FP-04-06-005RE1	LR	RE	SW8270C	-	n-nitrosodiethylamine	4	U	U	4	UJ	U	3.1	4	HT
WG	FP-03-05-005	N		SW8270C	-	n-nitrosodimethylamine	5	U	U	5	UJ	U	1.3	5	CC
WG	FP-03-05-006	N		SW8270C	-	n-nitrosodimethylamine	5	U	U	5	UJ	U	1.3	5	CC
WG	FP-04-07-003	N		SW8270C	-	n-nitrosodimethylamine	4.1	U	U	4.1	UJ	U	2.2	4.1	CCL
WG	FP-04-07-007	N		SW8270C	-	n-nitrosodimethylamine	4	U	U	4	UJ	U	2.2	4	CCL
WG	FP-04-07-004	FD		SW8270C	-	n-nitrosodimethylamine	4	U	U	4	UJ	U	2.2	4	CCL
WG	FP-04-06-001RE1	LR	RE	SW8270C	-	n-nitrosodimethylamine	4	U	U	4	UJ	U	2.2	4	HT
WG	FP-04-06-002RE1	LR	RE	SW8270C	-	n-nitrosodimethylamine	4	U	U	4	UJ	U	2.2	4	HT
WG	FP-04-06-003RE1	LR	RE	SW8270C	-	n-nitrosodimethylamine	4	U	U	4	UJ	U	2.2	4	HT
WG	FP-04-06-004RE1	LR	RE	SW8270C	-	n-nitrosodimethylamine	4	U	U	4	UJ	U	2.2	4	HT
WG	FP-04-06-005RE1	LR	RE	SW8270C	-	n-nitrosodimethylamine	4	U	U	4	UJ	U	2.2	4	HT
WG	FP-04-06-001RE1	LR	RE	SW8270C	-	n-nitroso-di-n-butylamine	4	U	U	4	UJ	U	2.7	4	HT
WG	FP-04-06-002RE1	LR	RE	SW8270C	-	n-nitroso-di-n-butylamine	4	U	U	4	UJ	U	2.7	4	HT
WG	FP-04-06-003RE1	LR	RE	SW8270C	-	n-nitroso-di-n-butylamine	4	U	U	4	UJ	U	2.7	4	HT
WG	FP-04-06-004RE1	LR	RE	SW8270C	-	n-nitroso-di-n-butylamine	4	U	U	4	UJ	U	2.7	4	HT
WG	FP-04-06-005RE1	LR	RE	SW8270C	-	n-nitroso-di-n-butylamine	4	U	U	4	UJ	U	2.7	4	HT
WG	FP-03-05-001	N		SW8270C	-	n-nitroso-di-n-butylamine	5	U	U	5	UJ	U	0.63	5	IC
WG	FP-03-05-002	N		SW8270C	-	n-nitroso-di-n-butylamine	5		U	5	UJ	U	0.62	5	IC
WG	FP-04-06-001RE1	LR	RE	SW8270C	-	n-Nitrosodi-n-propylamine	4		U	4	UJ	U	3	4	HT
WG	FP-04-06-002RE1	LR	RE	SW8270C	-	n-Nitrosodi-n-propylamine	4		U	4	UJ	U	3	4	HT
WG	FP-04-06-003RE1		RE	SW8270C	-	n-Nitrosodi-n-propylamine	4		U	4	UJ	U	3	4	HT
WG	FP-04-06-004RE1		RE	SW8270C	-	n-Nitrosodi-n-propylamine	4		U	4	UJ	U	3	4	HT
WG	FP-04-06-005RE1		RE	SW8270C	-	n-Nitrosodi-n-propylamine	4		U	4	UJ	U	3	4	HT
WG	FP-04-06-001RE1		RE	SW8270C	-	n-Nitrosodiphenylamine	4		U	4	UJ	U	3.4	4	HT
WG	FP-04-06-002RE1		RE	SW8270C	-	n-Nitrosodiphenylamine	4		U	4	UJ	U	3.4	4	HT
WG	FP-04-06-003RE1		RE	SW8270C	-	n-Nitrosodiphenylamine	4		U	4	UJ	U	3.4	4	HT
WG	FP-04-06-004RE1		RE	SW8270C	-	n-Nitrosodiphenylamine	4		U	4	UJ	U	3.4	4	HT
WG	FP-04-06-005RE1		RE	SW8270C	-	n-Nitrosodiphenylamine	4		U	4	UJ	U	3.4	4	HT
WG	FP-03-01-003	FD		SW8270C	-	n-Nitrosodiphenylamine	5		U	5	UJ	U	0.34	5	IC
WG	FP-04-06-001RE1		RE	SW8270C	-	n-nitrosomorpholine	4		U	4	UJ	U	3	4	HT
WG	FP-04-06-002RE1		RE	SW8270C	-	n-nitrosomorpholine	4		U	4	UJ	U	3	4	HT
WG	FP-04-06-003RE1		RE	SW8270C	-	n-nitrosomorpholine	4		U	4	UJ	U	3	4	HT
WG	FP-04-06-004RE1		RE	SW8270C	-	n-nitrosomorpholine	4		U	4	UJ	U	3	4	HT
WG	FP-04-06-005RE1		RE	SW8270C	-	n-nitrosomorpholine	4		U	4	UJ	U	3	4	HT
WG	FP-04-06-001RE1		RE	SW8270C	-	n-nitrosopiperidine	4		U	4	UJ	U	2.8	4	HT
WG	FP-04-06-002RE1		RE	SW8270C	-	n-nitrosopiperidine	4		U	4	UJ	U	2.8	4	HT
WG	FP-04-06-003RE1		RE	SW8270C	-	n-nitrosopiperidine	4		U	4	UJ	U	2.8	4	HT
WG	FP-04-06-004RE1		RE	SW8270C	-	n-nitrosopiperidine	4		U	4	UJ	U	2.8	4	HT
WG	FP-04-06-005RE1		RE	SW8270C	-	n-nitrosopiperidine	4		U	4	UJ	U	2.8	4	HT
WG	FP-03-04-002	N		SW8270C	-	n-nitrosopyrrolidine	5		U	5	UJ	U	0.8	5	BS
WG	FP-03-04-003	N		SW8270C	-	n-nitrosopyrrolidine	5		U	5	UJ	U	0.79	5	BS
WG	FP-04-06-001RE1		RE	SW8270C	-	n-nitrosopyrrolidine	4		U	4	UJ	U	2.7	4	HT
WG	FP-04-06-002RE1		RE	SW8270C	-	n-nitrosopyrrolidine	4		U	4	UJ	U	2.7	4	HT
WG	FP-04-06-003RE1		RE	SW8270C	-	n-nitrosopyrrolidine	4		U	4	UJ	U	2.7	4	HT
WG	FP-04-06-004RE1		RE	SW8270C	-	n-nitrosopyrrolidine	4		U	4	UJ	U	2.7	4	HT
WG	FP-04-06-005RE1		RE	SW8270C	-	n-nitrosopyrrolidine	4		U	4	UJ	U	2.7	4	HT
WG		N		SW8270C	-	o,o,o-triethyl phosphorothioate	5		U	5	UJ	U	0.56	5	BS
WG	FP-04-06-001RE1		RE	SW8270C	-	o,o,o-triethyl phosphorothioate	4		U	4	UJ	U	2.9	4	HT
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Change	in Qualifier Through the D	oata Validat	ion Proces												
Matrix	Sample ID	Sample Type	LR Type	Analytical Method	Dissolved ?	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Validation Notes
WG	FP-04-06-002RE1	LR	RE	SW8270C	-	o,o,o-triethyl phosphorothioate	4		U	4	UJ l		2.9	4	HT
WG	FP-04-06-003RE1	LR	RE	SW8270C	-	o,o,o-triethyl phosphorothioate	4		U	4	UJ l		2.9	4	HT
WG	FP-04-06-004RE1	LR	RE	SW8270C	-	o,o,o-triethyl phosphorothioate	4		U	4	UJ l		2.9	4	HT
WG	FP-04-06-005RE1	LR	RE	SW8270C	-	o,o,o-triethyl phosphorothioate	4		U	4	UJ l		2.9	4	HT
WG	FP-03-04-001	N		SW8270C	-	o-toluidine	5	U	U	5	UJ	J	0.68	5	BS
WG	FP-04-06-001RE1	LR	RE	SW8270C	-	o-toluidine	4		U	4	UJ		2.7	4	HT
WG	FP-04-06-002RE1	LR	RE	SW8270C	-	o-toluidine	4		U	4	UJ		2.7	4	HT
WG	FP-04-06-003RE1	LR	RE	SW8270C	-	o-toluidine	4		U	4	UJ	J	2.7	4	HT
WG	FP-04-06-004RE1	LR	RE	SW8270C	-	o-toluidine	4		U	4	UJ l		2.7	4	HT
WG	FP-04-06-005RE1	LR	RE	SW8270C	-	o-toluidine	4		U	4	UJ		2.7	4	HT
WG	FP-04-06-001RE1	LR	RE	SW8270C	-	p-dimethylaminoazobenzene	10.1	U	U	10.1	UJ l	J	2.5	10.1	HT
WG	FP-04-06-002RE1	LR	RE	SW8270C	-	p-dimethylaminoazobenzene	10.1	U	U	10.1	UJ l	J	2.5	10.1	HT
WG	FP-04-06-003RE1	LR	RE	SW8270C	-	p-dimethylaminoazobenzene	10.1	U	U	10.1	UJ l	J	2.5	10.1	HT
WG	FP-04-06-004RE1	LR	RE	SW8270C	-	p-dimethylaminoazobenzene	10.1	U	U	10.1	UJ l	J	2.5	10.1	HT
WG	FP-04-06-005RE1		RE	SW8270C	-	p-dimethylaminoazobenzene	10.1	U	U	10.1	UJ l	J	2.5	10.1	HT
WG	FP-04-06-001RE1	LR	RE	SW8270C	-	pentachlorobenzene	4	U	U	4	UJ l	J	2.2	4	HT
WG	FP-04-06-002RE1	LR	RE	SW8270C	-	pentachlorobenzene	4	U	U	4	UJ l	J	2.2	4	HT
WG	FP-04-06-003RE1	LR	RE	SW8270C	-	pentachlorobenzene	4	U	U	4	UJ l	J	2.2	4	HT
WG	FP-04-06-004RE1	LR	RE	SW8270C	-	pentachlorobenzene	4	U	U	4	UJ l	J	2.2	4	HT
WG	FP-04-06-005RE1	LR	RE	SW8270C	-	pentachlorobenzene	4	U	U	4	UJ l	J	2.2	4	HT
WG	FP-03-02-007	N		SW8270C	-	pentachloroethane	5.1	U	U	5.1	UJ l	J	0.64	5.1	BS
WG	FP-03-03-001	N		SW8270C	-	pentachloroethane	5	U	U	5	UJ l	J	0.62	5	BS
WG	FP-03-03-003	N		SW8270C	-	pentachloroethane	5.2	U	U	5.2	UJ l	J	0.64	5.2	BS
WG	FP-03-03-006	N		SW8270C	-	pentachloroethane	5	U	U	5	UJ l	J	0.62	5	BS
WG	FP-03-03-007	N		SW8270C	-	pentachloroethane	5	U	U	5	UJ l	J	0.62	5	BS
WG	FP-03-04-001	N		SW8270C	-	pentachloroethane	5	U	U	5	UJ l	J	0.62	5	BS
WG	FP-03-04-002	N		SW8270C	-	pentachloroethane	5	U	U	5	UJ l	J	0.63	5	BS
WG	FP-03-04-003	N		SW8270C	-	pentachloroethane	5	U	U	5	UJ l	J	0.63	5	BS
WG	FP-04-06-001RE1	LR	RE	SW8270C	-	pentachloroethane	20.2	U	U	20.2	UJ l	J	2.5	20.2	HT
WG	FP-04-06-002RE1	LR	RE	SW8270C	-	pentachloroethane	20.2	U	U	20.2	UJ l	J	2.5	20.2	HT
WG	FP-04-06-003RE1	LR	RE	SW8270C	-	pentachloroethane	20.2	U	U	20.2	UJ l	J	2.5	20.2	HT
WG	FP-04-06-004RE1		RE	SW8270C	-	pentachloroethane	20.2	U	U	20.2	UJ l	J	2.5	20.2	HT
WG	FP-04-06-005RE1	LR	RE	SW8270C	-	pentachloroethane	20.2	U	U	20.2	UJ l	J	2.5	20.2	HT
WG	FP-03-04-001	N		SW8270C	-	pentachloronitrobenzene	5	U	U	5	UJ l	J	0.66	5	BS
WG	FP-04-06-001RE1		RE	SW8270C	-	pentachloronitrobenzene	4		U	4	UJ l		2.4	4	HT
WG	FP-04-06-002RE1		RE	SW8270C	-	pentachloronitrobenzene	4		U	4	UJ l		2.4	4	HT
WG	FP-04-06-003RE1		RE	SW8270C	-	pentachloronitrobenzene	4		U	4	UJ l		2.4	4	HT
WG	FP-04-06-004RE1		RE	SW8270C	-	pentachloronitrobenzene	4		U	4	UJ l		2.4	4	HT
WG	FP-04-06-005RE1		RE	SW8270C	-	pentachloronitrobenzene	4		U	4	UJ l		2.4	4	HT
WG	FP-03-04-004	N		SW8270C	-	pentachloronitrobenzene	5.1		U	5.1	UJ l			5.1	IC
WG	FP-03-04-005	N		SW8270C	-	pentachloronitrobenzene	5.1		U	5.1	UJ l			5.1	IC
WG	FP-03-05-005	N		SW8270C	-	pentachloronitrobenzene	5		U	5	UJ l		0.66	5	IC
WG	FP-03-02-006	N		SW8270C	-	Pentachlorophenol	10		U	10	UJ l			10	BS
WG	FP-03-03-002	N		SW8270C	-	Pentachlorophenol	10		U	10	UJ l		1.3	10	BS
WG	FP-04-06-001RE1		RE	SW8270C	-	Pentachlorophenol	20.2		U	20.2	UJ l			20.2	HT
WG	FP-04-06-002RE1		RE	SW8270C	-	Pentachlorophenol	20.2		U	20.2	UJ l			20.2	HT
WG	FP-04-06-003RE1		RE	SW8270C	-	Pentachlorophenol	20.2		U	20.2	UJ l			20.2	HT
WG	FP-04-06-004RE1		RE	SW8270C	-	Pentachlorophenol	20.2		U	20.2	UJ l			20.2	HT
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Appendix C
Change in Qualifier Through the Data Validation Process

Change	in Qualifier Through the [	Data Validat	ion Proces	S											
Matrix	Sample ID	Sample Type	LR Type	Analytical Method	Dissolved ?	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Validation Notes
WG	FP-04-06-005RE1	LR	RE	SW8270C	-	Pentachlorophenol	20.2	U	U	20.2	UJ	U	2.6	20.2	HT
WG	FP-04-06-001RE1		RE	SW8270C	-	phenacetin	10.1		U	10.1	UJ	U	2.7	10.1	HT
WG	FP-04-06-002RE1		RE	SW8270C	-	phenacetin	10.1		U	10.1	UJ	U	2.7	10.1	HT
WG	FP-04-06-003RE1	LR	RE	SW8270C	-	phenacetin	10.1		U	10.1	UJ	U	2.7	10.1	HT
WG	FP-04-06-004RE1		RE	SW8270C	-	phenacetin	10.1		U	10.1	UJ	U	2.7	10.1	HT
WG	FP-04-06-005RE1		RE	SW8270C	-	phenacetin	10.1		U	10.1	UJ	U	2.7	10.1	HT
WG	FP-03-02-001	N		SW8270C	-	phenacetin	10		U	10	UJ	U	1.7	10	IC
WG	FP-03-02-002	N		SW8270C	-	phenacetin	10		U	10	UJ	U	1.7	10	IC
WG	FP-03-02-005	N		SW8270C	-	phenacetin	10		U	10	UJ	U	1.7	10	IC
WG	FP-03-02-006	N		SW8270C	-	phenacetin	10		U	10	UJ	U	1.7	10	IC
WG	FP-03-02-007	N		SW8270C	-	phenacetin	10.2		U	10.2	UJ	U	1.8	10.2	IC
WG	FP-03-03-001	N		SW8270C	-	phenacetin	10		U	10	UJ	U	1.7	10	IC
WG	FP-03-03-002	N		SW8270C	-	phenacetin	10		U	10	UJ	U	1.7	10	IC
WG	FP-03-03-003	N		SW8270C	-	phenacetin	10.3		U	10.3	UJ	U	1.8	10.3	IC
WG	FP-03-03-006	N		SW8270C	-	phenacetin	10		U	10	UJ	U	1.7	10	IC
WG	FP-03-03-007	N		SW8270C	-	phenacetin	10	U	U	10	UJ	U	1.7	10	IC
WG	FP-04-06-001RE1	LR	RE	SW8270C	-	Phenol	20.2	U	U	20.2	UJ	U	1.7	20.2	HT,IC
WG	FP-04-06-002RE1	LR	RE	SW8270C	-	Phenol	20.2	U	U	20.2	UJ	U	1.7	20.2	HT,IC
WG	FP-04-06-003RE1	LR	RE	SW8270C	-	Phenol	20.2	U	U	20.2	UJ	U	1.7	20.2	HT,IC
WG	FP-04-06-004RE1	LR	RE	SW8270C	-	Phenol	20.2	U	U	20.2	UJ	U	1.7	20.2	HT,IC
WG	FP-04-06-005RE1	LR	RE	SW8270C	-	Phenol	20.2	U	U	20.2	UJ	U	1.7	20.2	HT,IC
WG	FP-03-05-001	N		SW8270C	-	Phenol	5	U	U	5	UJ	U	0.25	5	IC
WG	FP-03-05-002	N		SW8270C	-	Phenol	5	U	U	5	UJ	U	0.25	5	IC
WG	FP-04-06-007	N		SW8270C	-	Phenol	20.1	U	U	20.1	UJ	U	1.7	20.1	IC
WG	FP-04-007-01	N		SW8270C	-	Phenol	20.2	U	U	20.2	UJ	U	1.7	20.2	IC
WG	FP-04-007-02	N		SW8270C	-	Phenol	20	U	U	20	UJ	U	1.7	20	IC
WG	FP-04-06-001RE1	LR	RE	SW8270C	-	p-phenylenediamine	10.1	U	U	10.1	UJ	U	2.7	10.1	HT
WG	FP-04-06-002RE1	LR	RE	SW8270C	-	p-phenylenediamine	10.1	U	U	10.1	UJ	U	2.7	10.1	HT
WG	FP-04-06-003RE1	LR	RE	SW8270C	-	p-phenylenediamine	10.1	U	U	10.1	UJ	U	2.7	10.1	HT
WG	FP-04-06-004RE1	LR	RE	SW8270C	-	p-phenylenediamine	10.1	U	U	10.1	UJ	U	2.7	10.1	HT
WG	FP-04-06-005RE1	LR	RE	SW8270C	-	p-phenylenediamine	10.1	U	U	10.1	UJ	U	2.7	10.1	HT
WG	FP-03-03-001	N		SW8270C	-	pronamide	5	U	U	5	UJ	U	1.2	5	BS
WG	FP-03-03-002	N		SW8270C	-	pronamide	5	U	U	5	UJ	U	1.2	5	BS
WG	FP-03-03-003	N		SW8270C	-	pronamide	5.2	U	U	5.2	UJ	U	1.2	5.2	BS
WG	FP-04-06-001RE1	LR	RE	SW8270C	-	pronamide	4	U	U	4	UJ	U	1.8	4	HT
WG	FP-04-06-002RE1	LR	RE	SW8270C	-	pronamide	4	U	U	4	UJ	U	1.8	4	HT
WG	FP-04-06-003RE1		RE	SW8270C	-	pronamide	4	U	U	4	UJ	U	1.8	4	HT
WG	FP-04-06-004RE1		RE	SW8270C	-	pronamide	4	U	U	4	UJ	U	1.8	4	HT
WG	FP-04-06-005RE1		RE	SW8270C	-	pronamide	4	U	U	4	UJ	U	1.8	4	HT
WG	FP-03-04-001	N		SW8270C	-	pyridine	5	U	U	5	UJ	U	0.88	5	BD
WG	FP-03-01-006	N		SW8270C	-	pyridine	5.1		U	5.1	UJ	U	0.9	5.1	BD,BS
WG	FP-03-01-007	N		SW8270C	-	pyridine	5		U	5	UJ	U	0.89	5	BD,BS
WG	FP-03-01-008	N	Ī	SW8270C	-	pyridine	5		U	5	UJ	U	0.89	5	BD,BS
WG	FP-03-02-007	N		SW8270C	-	pyridine	5.1			5.1	UJ	U	0.9	5.1	BD,BS
WG	FP-03-01-009	N		SW8270C	-	pyridine	5		U	5	UJ	U	0.89	5	BS
WG	FP-03-03-001	N		SW8270C	-	pyridine	5		U	5	UJ	U	0.88	5	BS
WG	FP-03-03-002	N		SW8270C	-	pyridine	5		U	5	UJ	U	0.88	5	BS
WG	FP-03-03-003	N		SW8270C	-	pyridine	5.2			5.2	UJ	U	0.91	5.2	BS
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Appendix C
Change in Qualifier Through the Data Validation Process

Change	n Qualifier Through the [	Data Validat	on Proces	S											
Matrix	Sample ID	Sample Type	LR Type	Analytical Method	Dissolved ?	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Validation Notes
WG	FP-03-03-006	N		SW8270C	-	pyridine	5	U	U	5	UJ	U	0.88	5	BS
WG	FP-03-03-007	N		SW8270C	-	pyridine	5	U	U	5	UJ	U	0.88	5	BS
WG	FP-04-06-001RE1	LR	RE	SW8270C	-	pyridine	4	U	U	4	UJ	U	2.1	4	HT
WG	FP-04-06-002RE1	LR	RE	SW8270C	-	pyridine	4	U	U	4	UJ	U	2.1	4	HT
WG	FP-04-06-003RE1	LR	RE	SW8270C	-	pyridine	4	U	U	4	UJ	U	2.1	4	HT
WG	FP-04-06-004RE1	LR	RE	SW8270C	-	pyridine	4	U	U	4	UJ	U	2.1	4	HT
WG	FP-04-06-005RE1	LR	RE	SW8270C	-	pyridine	4	U	U	4	UJ	U	2.1	4	HT
WG	FP-04-06-001RE1	LR	RE	SW8270C	-	safrole	10.1	U	U	10.1	UJ	U	2.5	10.1	HT
WG	FP-04-06-002RE1	LR	RE	SW8270C	-	safrole	10.1	U	U	10.1		U	2.5	10.1	HT
WG	FP-04-06-003RE1	LR	RE	SW8270C	-	safrole	10.1	U	U	10.1		U	2.5	10.1	HT
WG	FP-04-06-004RE1	LR	RE	SW8270C	-	safrole	10.1	U	U	10.1		U	2.5	10.1	HT
WG	FP-04-06-005RE1	LR	RE	SW8270C	-	safrole	10.1	U	U	10.1	UJ	U	2.5	10.1	HT
WG	FP-03-02-002	N		SW8260B	-	1,1,2,2-Tetrachloroethane	1	U	U	1	UJ	U	0.24	1	BS
WG	FP-03-02-005	N		SW8260B	-	1,1,2,2-Tetrachloroethane	1	U	U	1	UJ	U	0.24	1	BS
WG	FP-03-02-007	N		SW8260B	-	1,1,2,2-Tetrachloroethane	1	U	U	1	UJ	U	0.24	1	BS
WG	FP-03-03-007	N		SW8260B	-	1,1,2,2-Tetrachloroethane	1	U	U	1	UJ	U	0.24	1	BS
WG	FP-03-02-001	N		SW8260B	-	1,1,2,2-Tetrachloroethane	1	U	U	1	UJ	U	0.24	1	BS,MS
WG	FP-03-03-001	N		SW8260B	-	2-chloro-1,3-butadiene	1	U	U	1	UJ	U	0.25	1	IC
WG	FP-03-03-002	N		SW8260B	-	2-chloro-1,3-butadiene	1	U	U	1	UJ	U	0.25	1	IC
WG	FP-03-03-003	N		SW8260B	-	2-chloro-1,3-butadiene	1	U	U	1	UJ	U	0.25	1	IC
WG	FP-03-03-006	N		SW8260B	-	2-chloro-1,3-butadiene	1	U	U	1	UJ	U	0.25	1	IC
WG	FP-03-03-007	N		SW8260B	-	2-chloro-1,3-butadiene	1	U	U	1	UJ	U		1	IC
WG	FP-04-06-006	N		SW8260B	-	2-Hexanone	5	U	U	5		U		5	IC
WG	FP-04-007-01	N		SW8260B	-	2-Hexanone	5		U	5		Ū		5	IC
WG	FP-04-007-02	N		SW8260B	-	2-Hexanone	5		U	5		Ū	0.64	5	IC
WG	FP-04-07-003	N		SW8260B	-	2-Hexanone	5		U	5		Ū	0.64	5	IC
WG	FP-04-07-004	FD		SW8260B	-	2-Hexanone	5	U	U	5		U	0.64	5	IC
WG	FP-03-01-006	N		SW8260B	-	Acetone	10	U	U	10		U	1.9	10	CC
WG	FP-03-01-001	N		SW8260B	-	Acetone	10	U	U	10		U	1.9	10	CC,IC
WG	FP-03-01-002	N		SW8260B	-	Acetone	10		U	10		U	1.9	10	CC,IC
WG	FP-03-01-004	N		SW8260B	-	Acetone	10		U	10		U		10	CC,IC
WG	FP-03-01-003	FD		SW8260B	-	Acetone	10	U	U	10		U	1.9	10	CC,IC
WG	FP-03-01-009	N		SW8260B	-	Acetone	10		U	10		Ū	1.9	10	IC
WG	FP-04-06-006	N		SW8260B	-	Acetone	10		U	10		Ū	1.9	10	IC
WG	FP-04-007-01	N		SW8260B	-	Acetone	10		U	10		Ū		10	IC
WG	FP-04-007-02	N		SW8260B	-	Acetone	10		U	10		Ū		10	IC
WG	FP-04-07-003	N		SW8260B	-	Acetone	10		U	10		U	1.9	10	IC
WG	FP-04-07-004	FD		SW8260B	-	Acetone	10		U	10		U	1.9	10	IC
WG	FP-03-01-001	N		SW8260B	-	Acrolein	10		U	10		U	1	10	CC,IC
WG	FP-03-01-002	N		SW8260B	-	Acrolein	10		U	10		U	1	10	CC,IC
WG	FP-03-01-004	N		SW8260B	-	Acrolein	10		U	10		U	1	10	CC,IC
WG	FP-03-01-006	N		SW8260B	-	Acrolein	10		U	10		U	1	10	CC,IC
WG	FP-03-01-007	N		SW8260B	-	Acrolein	10		U	10		U	1	10	CC,IC
WG	FP-03-01-008	N		SW8260B	-	Acrolein	10		U	10		U	1	10	CC,IC
WG	FP-04-06-007	N		SW8260B	-	Acrolein	10		U	10		U	1.8	10	CC,IC
WG	FP-03-01-003	FD		SW8260B	-	Acrolein	10		U	10		U		10	CC,IC
WG	FP-04-07-007	N		SW8260B	-	Acrolein	10		U	10		U	1.8	10	CCL,IC
WG	FP-03-03-001	N		SW8260B		Acrolein	10		U	10		U		10	IC
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Appendix C
Change in Qualifier Through the Data Validation Process

Change	in Qualifier Through tl	he Data Validati	on Process												
Matrix	Sample ID	Sample Type	LR Type	Analytical Method	Dissolved ?	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Validation Notes
WG	FP-03-03-002	N		SW8260B	-	Acrolein	10	U	U	10	UJ	U	1.8	10	IC
WG	FP-03-03-003	N		SW8260B	-	Acrolein	10		U	10	UJ	U	1.8	10	IC
WG	FP-03-03-006	N		SW8260B	-	Acrolein	10	U	U	10	UJ	U	1.8	10	IC
WG	FP-03-03-007	N		SW8260B	-	Acrolein	10		U	10	UJ	U	1.8	10	IC
WG	FP-03-04-004	N		SW8260B	-	Acrolein	10	U	U	10	UJ	U	1.8	10	IC
WG	FP-03-04-005	N		SW8260B	-	Acrolein	10	U	U	10	UJ	U	1.8	10	IC
WG	FP-04-06-006	N		SW8260B	-	Acrolein	10	U	U	10	UJ	U	1.8	10	IC
WG	FP-04-007-01	N		SW8260B	-	Acrolein	10	U	U	10	UJ	U	1.8	10	IC
WG	FP-04-007-02	N		SW8260B	-	Acrolein	10	U	U	10	UJ	U	1.8	10	IC
WG	FP-04-07-003	N		SW8260B	-	Acrolein	10	U	U	10	UJ	U	1.8	10	IC
WG	FP-04-07-004	FD		SW8260B	-	Acrolein	10	U	U	10	UJ	U	1.8	10	IC
WG	FP-03-03-001	N		SW8260B	-	allyl chloride (3-chloropropene)	1	U	U	1	UJ	U	0.39	1	IC
WG	FP-03-03-002	N		SW8260B	-	allyl chloride (3-chloropropene)	1	U	U	1	UJ	U	0.39	1	IC
WG	FP-03-03-003	N		SW8260B	-	allyl chloride (3-chloropropene)	1	U	U	1	UJ	U	0.39	1	IC
WG	FP-03-03-006	N		SW8260B	-	allyl chloride (3-chloropropene)	1	U	U	1	UJ	U	0.39	1	IC
WG	FP-03-03-007	N		SW8260B	-	allyl chloride (3-chloropropene)	1	U	U	1	UJ	U	0.39	1	IC
WG	FP-04-06-006	N		SW8260B	-	allyl chloride (3-chloropropene)	1	U	U	1	UJ	U	0.39	1	IC
WG	FP-04-007-01	N		SW8260B	-	allyl chloride (3-chloropropene)	1	U	U	1	UJ	U	0.39	1	IC
WG	FP-04-007-02	N		SW8260B	-	allyl chloride (3-chloropropene)	1	U	U	1	UJ	U	0.39	1	IC
WG	FP-04-07-003	N		SW8260B	-	allyl chloride (3-chloropropene)	1	U	U	1	UJ	U	0.39	1	IC
WG	FP-04-07-004	FD		SW8260B	-	allyl chloride (3-chloropropene)	1	U	U	1	UJ	U	0.39	1	IC
WG	FP-04-06-001	N		SW8260B	-	Bromomethane	1	U	U	1	UJ		0.41	1	CCL
WG	FP-04-06-003	N		SW8260B	-	Bromomethane	1	U	U	1	UJ	U	0.41	1	CCL
WG	FP-04-06-004	N		SW8260B	-	Bromomethane	1		U	1	UJ		0.41	1	CCL
WG	FP-04-06-005	N		SW8260B	-	Bromomethane	1	U	U	1	UJ	U	0.41	1	CCL
WG	FP-04-06-007	N		SW8260B	-	Bromomethane	1	U	U	1	UJ	U	0.41	1	CCL
WG	FP-04-06-002	FD		SW8260B	-	Bromomethane	1	U	U	1	UJ	U	0.41	1	CCL
WG	FP-03-01-006	N		SW8260B	-	Chloroethane	1		U	1	UJ		0.35	1	BS
WG	FP-03-01-007	N		SW8260B	-	Chloroethane	1		U	1	UJ		0.35	1	BS
WG	FP-03-01-008	N		SW8260B	-	Chloroethane	1		U	1	UJ		0.35	1	BS
WG	FP-03-03-007	N		SW8260B	-	Chloromethane	1		U	1	UJ		0.49	1	IC
WG	FP-04-07-007	N		SW8260B	-	Chloromethane	1		U	1	UJ		0.49	1	IC
WG	FP-03-03-001	N		SW8260B	-	cis-1,2-Dichloroethene	1		U	1	UJ	U	0.32	1	IC
WG	FP-03-03-003	N		SW8260B	-	cis-1,2-Dichloroethene	1		U	1	UJ	U	0.32	1	IC
WG	FP-03-03-006	N		SW8260B	-	cis-1,3-Dichloropropene	1		U	1	UJ		0.2	1	IC
WG	FP-03-03-007	N		SW8260B	-	cis-1,3-Dichloropropene	1		U	1	UJ		0.2	1	IC
WG	FP-03-03-006	N		SW8260B	-	Dibromochloromethane	1	U	U	1	UJ	U	0.16	1	IC
WG	FP-03-03-007	N		SW8260B	-	Dibromochloromethane	1		U	1	UJ		0.16	1	IC
WG	FP-03-05-001	N		SW8260B	-	Dichlorodifluoromethane	1		U	1	UJ		0.44	1	CC
WG	FP-03-05-002	N		SW8260B	-	Dichlorodifluoromethane	1		U	1	UJ		0.44	1	CC
WG	FP-03-05-006	N		SW8260B	-	Dichlorodifluoromethane	1		U	1	UJ		0.44	1	CC
WG	FP-03-05-007	N		SW8260B	-	Dichlorodifluoromethane	1		U	1	UJ		0.44	1	CC
WG	FP-03-01-001	N		SW8260B	-	trans-1,3-Dichloropropene	1		U	1	UJ		0.17	1	IC
WG	FP-03-01-002	N		SW8260B	-	trans-1,3-Dichloropropene	1		U	1	UJ		0.17	1	IC
WG	FP-03-01-004	N		SW8260B	-	trans-1,3-Dichloropropene	1		U	1	UJ		0.17	1	IC
WG	FP-03-01-009	N		SW8260B	-	trans-1,3-Dichloropropene	1		U	1	UJ		0.17	1	IC
WG	FP-04-06-001	N		SW8260B	-	trans-1,3-Dichloropropene	1		U	1	UJ		0.24	1	IC
WG	FP-04-06-003	N		SW8260B	-	trans-1,3-Dichloropropene	1		U	1	UJ		0.24	1	IC
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Change	in Qualifier Through t	the Data Validati	ion Proces	S											
Matrix	Sample ID	Sample Type	LR Type	Analytical Method	Dissolved ?	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Validation Notes
WG	FP-04-06-004	N		SW8260B	-	trans-1,3-Dichloropropene	1	U	U	1	UJ	U	0.24	1	IC
WG	FP-04-06-005	N		SW8260B	-	trans-1,3-Dichloropropene	1	U	U	1	UJ	U	0.24	1	IC
WG	FP-04-06-007	N		SW8260B	-	trans-1,3-Dichloropropene	1	U	U	1		U	0.24	1	IC
WG	FP-03-01-003	FD		SW8260B	-	trans-1,3-Dichloropropene	1	U	U	1	UJ	U	0.17	1	IC
WG	FP-04-06-002	FD		SW8260B	-	trans-1,3-Dichloropropene	1	U	U	1	UJ	U	0.24	1	IC
WG	FP-03-03-007	N		SW8260B	-	trans-1,4-dichloro-2-butene	3.6	U	U	3.6	UJ	U	1.8	3.6	BD,BS,CC
WG	FP-03-02-002	N		SW8260B	-	trans-1,4-dichloro-2-butene	3.6	U	U	3.6	UJ	U	1.8	3.6	BS,CC
WG	FP-03-02-005	N		SW8260B	-	trans-1,4-dichloro-2-butene	3.6	U	U	3.6	UJ	U	1.8	3.6	BS,CC
WG	FP-03-02-001	N		SW8260B	-	trans-1,4-dichloro-2-butene	3.6	U	U	3.6	UJ	U	1.8	3.6	BS,CC,MS
WG	FP-03-04-004	N		SW8151	-	2,4,5-t (trichlorophenoxyacetic acid)	0.52	U	U	0.52		U	0.072	0.52	SS
WG	FP-03-04-005	N		SW8151	-	2,4,5-t (trichlorophenoxyacetic acid)	0.52	U	U	0.52		U	0.072	0.52	SS
WG	FP-03-05-007	N		SW8151	-	2,4,5-t (trichlorophenoxyacetic acid)	0.5	U	U	0.5		U	0.071	0.5	SS
WG	FP-03-04-004	N		SW8151	-	2,4-d (dichlorophenoxyacetic acid)	0.52	U	U	0.52		U	0.093	0.52	SS
WG	FP-03-04-005	N		SW8151	-	2,4-d (dichlorophenoxyacetic acid)	0.52	U	U	0.52		U	0.093	0.52	SS
WG	FP-03-05-007	N		SW8151	-	2,4-d (dichlorophenoxyacetic acid)	0.5	U	U	0.5		U	0.091	0.5	SS
WG	FP-03-01-006	N		SW8151	-	dalapon	0.53	U	U	0.53	UJ	U	0.053	0.53	BD
WG	FP-03-01-007	N		SW8151	-	dalapon	0.53	U	U	0.53	UJ	U	0.053	0.53	BD
WG	FP-03-01-008	N		SW8151	-	dalapon	0.53	U	U	0.53	UJ	U	0.053	0.53	BD
WG	FP-03-03-007	N		SW8151	-	dalapon	0.5	U	U	0.5	UJ	U	0.05	0.5	BD,CC,IC
WG	FP-03-04-002	N		SW8151	-	dalapon	0.5	U	U	0.5	UJ	U	0.05	0.5	BS
WG	FP-03-04-003	N		SW8151	-	dalapon	0.5	U	U	0.5	UJ	U	0.05	0.5	BS
WG	FP-03-04-001	N		SW8151	-	dalapon	0.51	U	U	0.51	UJ	U	0.051	0.51	BS,CC
WG	FP-03-05-001	N		SW8151	-	dalapon	0.51	U	U	0.51	UJ	U	0.051	0.51	CC,IC
WG	FP-03-05-002	N		SW8151	-	dalapon	0.52	U	U	0.52	UJ	U	0.052	0.52	CC,IC
WG	FP-03-05-006	N		SW8151	-	dalapon	0.51	U	U	0.51	UJ	U	0.051	0.51	CC,IC
WG	FP-03-05-007	N		SW8151	-	dalapon	0.5	U	U	0.5	UJ	U	0.05	0.5	CC,IC,SS
WG	FP-03-04-004	N		SW8151	-	dalapon	0.52	U	U	0.52	UJ	U	0.052	0.52	CC,SS
WG	FP-03-04-005	N		SW8151	-	dalapon	0.52	U	U	0.52	UJ	U	0.052	0.52	CC,SS
WG	FP-03-03-006	N		SW8151	-	dalapon	0.5	U	U	0.5	UJ	U	0.05	0.5	IC
WG	FP-03-05-005	N		SW8151	-	dalapon	0.52	U	U	0.52	UJ	U	0.052	0.52	IC
WG	FP-04-07-004	FD		SW8151	-	dalapon	0.5	U	U	0.5	UJ	U	0.05	0.5	MD,MSL
WG	FP-03-02-001	N		SW8151	-	dalapon	0.56	U	U	0.56	UJ	U	0.056	0.56	MS
WG	FP-03-05-001	N		SW8151	-	dicamba	0.51	U	U	0.51	UJ	U	0.071	0.51	CC
WG	FP-03-05-002	N		SW8151	-	dicamba	0.52	U	U	0.52	UJ	U	0.072	0.52	CC
WG	FP-03-05-006	N		SW8151	-	dicamba	0.51	U	U	0.51	UJ	U	0.071	0.51	CC
WG	FP-04-07-004	FD		SW8151	-	dicamba	0.5	U	U	0.5	UJ	U	0.034	0.5	MD,MSL
WG	FP-03-04-004	N		SW8151	-	dicamba	0.52	U	U	0.52	UJ	U	0.072	0.52	SS
WG	FP-03-04-005	N		SW8151	-	dicamba	0.52	U	U	0.52	UJ	U	0.072	0.52	SS
WG	FP-03-05-007	N		SW8151	-	dicamba	0.5	U	U	0.5	UJ	U	0.071	0.5	SS
WG	FP-03-04-004	N		SW8151	-	dichloroprop	0.52	U	U	0.52	UJ	U	0.11	0.52	SS
WG	FP-03-04-005	N		SW8151	-	dichloroprop	0.52	U	U	0.52	UJ	U	0.11	0.52	SS
WG	FP-03-05-007	N		SW8151	-	dichloroprop	0.5	U	U	0.5	UJ	U	0.11	0.5	SS
WG	FP-03-04-002	N		SW8151	-	dinoseb	0.5	U	U	0.5		U	0.061	0.5	BD,BS,CC
WG	FP-03-04-003	N		SW8151	-	dinoseb	0.5	U	U	0.5		U	0.061	0.5	BD,BS,CC
WG	FP-03-01-006	N		SW8151	-	dinoseb	0.53	U	U	0.53		U	0.064	0.53	BS
WG	FP-03-01-007	N		SW8151	-	dinoseb	0.53	U	U	0.53		U	0.064	0.53	BS
WG	FP-03-01-008	N		SW8151	-	dinoseb	0.53	U	U	0.53		U	0.063	0.53	BS
WG	FP-03-02-001	N		SW8151	-	dinoseb	0.56	U	U	0.56		U	0.067	0.56	BS
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Appendix C
Change in Qualifier Through the Data Validation Process

Change	in Qualifier Through th												
Matrix	Sample ID	Sample Type	LR Type Analytical Method	Dissolved ? Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Validation Notes
WG	FP-03-02-002	N	SW8151	- dinoseb	0.56		U	0.56	UJ		0.067	0.56	BS
WG	FP-03-02-005	N	SW8151	- dinoseb	0.56		U	0.56	UJ		0.067	0.56	BS
WG	FP-03-03-001	N	SW8151	- dinoseb	0.56		U	0.56	UJ		0.067	0.56	BS
WG	FP-03-03-002	N	SW8151	- dinoseb	0.56		U	0.56	UJ		0.067	0.56	BS
WG	FP-03-03-003	N	SW8151	- dinoseb	0.56		U	0.56	UJ		0.067	0.56	BS
WG	FP-03-03-006	N	SW8151	- dinoseb	0.5		U	0.5	UJ		0.06	0.5	BS
WG	FP-03-04-004	N	SW8151	- dinoseb	0.52		U	0.52	UJ		0.062	0.52	SS
WG	FP-03-04-005	N	SW8151	- dinoseb	0.52		U	0.52	UJ	U	0.062	0.52	SS
WG	FP-03-05-007	N	SW8151	- dinoseb	0.5		U	0.5	UJ	U	0.061	0.5	SS
WG	FP-03-01-006	N	SW8151	- Picloram	11		U	11	UJ		0.096	11	BS
WG	FP-03-01-007	N	SW8151	- Picloram	11	U	U	11	UJ	U	0.096	11	BS
WG	FP-03-01-008	N	SW8151	- Picloram	10	U	U	10	UJ	U	0.095	10	BS
WG	FP-03-04-001	N	SW8151	- Picloram	10	U	U	10	UJ	U	0.092	10	BS
WG	FP-03-04-002	N	SW8151	- Picloram	10	U	U	10	UJ	U	0.091	10	BS
WG	FP-03-04-003	N	SW8151	- Picloram	10	U	U	10	UJ	U	0.091	10	BS
WG	FP-03-01-001	N	SW8151	- Picloram	10	U	U	10	UJ	U	0.093	10	BS,MS
WG	FP-03-01-002	N	SW8151	- Picloram	10	U	U	10	UJ	U	0.091	10	BS,MS
WG	FP-03-01-004	N	SW8151	- Picloram	28	U	U	28	UJ	U	0.25	28	BS,MS
WG	FP-03-01-003	FD	SW8151	- Picloram	10	U	U	10	UJ	U	0.091	10	BS,MS
WG	FP-03-05-001	N	SW8151	- Picloram	10	U	U	10	UJ	U	0.092	10	CC
WG	FP-03-05-002	N	SW8151	- Picloram	10	U	U	10	UJ	U	0.093	10	CC
WG	FP-03-05-006	N	SW8151	- Picloram	10	U	U	10	UJ		0.092	10	CC
WG	FP-03-05-007	N	SW8151	- Picloram	10	U	U	10	UJ		0.091	10	CC
WG	FP-04-07-004	FD	SW8151	- Picloram	10	U	U	10	UJ	U	0.074	10	MD,MSL
WG	FP-03-04-004	N	SW8151	- Picloram	10	U	U	10	UJ	U	0.093	10	SS
WG	FP-03-04-005	N	SW8151	- Picloram	10	U	U	10	UJ		0.093	10	SS
WG	FP-04-07-004	FD	SW8151	- silvex (2,4,5-tp)	0.5	U	U	0.5	UJ		0.038	0.5	MD,MSL
WG	FP-03-04-004	N	SW8151	- silvex (2,4,5-tp)	0.52		U	0.52	UJ		0.062	0.52	SS
WG	FP-03-04-005	N	SW8151	- silvex (2,4,5-tp)	0.52	U	U	0.52	UJ		0.062	0.52	SS
WG	FP-03-05-007	N	SW8151	- silvex (2,4,5-tp)	0.5		U	0.5	UJ		0.061	0.5	SS
WG	FP-03-02-007	N	SW8141	- bolstar	10		U	10	UJ		0.92	10	CC
WG	FP-04-06-006	N	SW8141	- chlorpyrifos	10		U	10	UJ		0.95	10	2SL
WG	FP-04-06-007	N	SW8141	- chlorpyrifos	10		U	10	UJ		0.95	10	CCL
WG	FP-03-03-003	N	SW8141	- dimethoate	10		U	10	UJ		0.58	10	MD,MS
WG	FP-03-02-007	N	SW8141	- disulfoton	10		U	10	UJ		0.6	10	CC
WG	FP-03-04-001	N	SW8141	- ethoprop	10		U	10	UJ	U	1.1	10	CC
WG	FP-03-04-002	N	SW8141	- ethoprop	10		U	10	UJ	U	1.1	10	CC
WG	FP-03-04-003	N	SW8141	- ethoprop	10		U	10	UJ	U	1.1	10	CC
WG	FP-03-04-004	N	SW8141	- ethoprop	10		U	10	UJ	U	1.1	10	CC
WG	FP-03-04-005	N	SW8141	- ethoprop	10		U	10	UJ	U	1.1	10	CC
WG	FP-03-03-003	N	SW8141	- ethoprop	10		U	10	UJ	U	1.1	10	MD,MS
WG	FP-03-03-003	N	SW8141	- fenthion	10		U	10	UJ		0.54	10	MD,MS
WG	FP-03-02-001	N	SW8141	- merphos	10		U	10	UJ	U	1.2	10	CC
WG	FP-03-02-001	N	SW8141	- merphos	10		U	10	UJ	U	1.2	10	CC
WG	FP-03-02-005	N	SW8141	- merphos	10		U	10	UJ	U	1.2	10	CC
WG	FP-03-02-007	N	SW8141	- merphos	10		U	10	UJ	U	1.2	10	CC
WG	FP-03-04-001	N	SW8141	- merphos	10		U	10	UJ	U	1.2	10	CC
WG	FP-03-04-002	N	SW8141	- merphos	10		U	10	UJ	U	1.2	10	CC
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Appendix C
Change in Qualifier Through the Data Validation Process

Change	in Qualifier Through t	he Data Validati	ion Proces												
Matrix	Sample ID	Sample Type	LR Type	Analytical Method	Dissolved ?	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Validation Notes
WG	FP-03-04-003	N		SW8141	-	merphos	10		U	10	UJ	U	1.2	10	CC
WG	FP-03-04-004	N		SW8141	-	merphos	10	U	U	10	UJ	U	1.2	10	CC
WG	FP-03-04-005	N		SW8141	-	merphos	10	U	U	10	UJ	U	1.2	10	CC
WG	FP-03-05-001	N		SW8141	-	merphos	10	U	U	10	UJ	U	1.2	10	CC
WG	FP-03-05-002	N		SW8141	-	merphos	10	U	U	10	UJ	U	1.2	10	CC
WG	FP-03-05-005	N		SW8141	-	merphos	10	U	U	10	UJ	U	1.2	10	CC
WG	FP-03-05-006	N		SW8141	-	merphos	10	U	U	10	UJ	U	1.2	10	CC
WG	FP-03-05-007	N		SW8141	-	merphos	10	U	U	10	UJ	U	1.2	10	CC
WG	FP-03-01-006	N		SW8141	-	mevinphos	10	U	U	10	UJ	U	1.4	10	BD
WG	FP-03-01-007	N		SW8141	-	mevinphos	10	U	U	10	UJ	U	1.4	10	BD
WG	FP-03-01-008	N		SW8141	-	mevinphos	10	U	U	10	UJ	U	1.4	10	BD
WG	FP-03-01-009	N		SW8141	-	mevinphos	10	U	U	10	UJ	U	1.4	10	BD
WG	FP-04-06-006	N		SW8141	-	naled	10	U	U	10	UJ	U	0.9	10	2SL
WG	FP-03-02-001	N		SW8141	-	naled	10	U	U	10	UJ	U	0.9	10	CC
WG	FP-03-02-002	N		SW8141	-	naled	10	U	U	10	UJ	U	0.91	10	CC
WG	FP-03-02-005	N		SW8141	-	naled	10	U	U	10	UJ	U	0.91	10	CC
WG	FP-03-02-007	N		SW8141	-	naled	10	U	U	10	UJ	U	0.9	10	CC
WG	FP-04-06-007	N		SW8141	-	naled	10		U	10	UJ		0.9	10	CCL
WG	FP-04-07-007	N		SW8141	-	naled	10		U	10	UJ		0.9	10	CCL
WG	FP-03-01-004	N		SW8141	-	naled	28	U	U	28	UJ	U	2.5	28	MD
WG	FP-03-01-006	N		SW8141	-	parathion, ethyl	10		U	10	UJ		0.98	10	BD,BS
WG	FP-03-01-007	N		SW8141	-	parathion, ethyl	10		U	10	UJ		0.95	10	BD,BS
WG	FP-03-01-008	N		SW8141	-	parathion, ethyl	10		U	10	UJ		0.97	10	BD,BS
WG	FP-03-01-009	N		SW8141	-	parathion, ethyl	10		U	10	UJ		0.96	10	BD,BS
WG	FP-03-01-001	N		SW8141	-	parathion, ethyl	10		U	10	UJ		0.97	10	BS,MS
WG	FP-03-01-002	N		SW8141	-	parathion, ethyl	10		U	10	UJ		0.96	10	BS,MS
WG	FP-03-01-004	N		SW8141	-	parathion, ethyl	28		U	28	UJ		2.6	28	BS,MS
WG	FP-03-01-003	FD		SW8141	-	parathion, ethyl	10		U	10	UJ		0.96	10	BS,MS
WG	FP-03-03-003	N		SW8141	-	parathion, methyl	10		U	10	UJ		0.62	10	MD,MS
WG	FP-03-01-006	N		SW8141	-	phorate	10		U	10	UJ		0.55	10	BS
WG	FP-03-01-007	N		SW8141	-	phorate	10		U	10	UJ		0.53	10	BS
WG	FP-03-01-008	N		SW8141	-	phorate	10		U	10	UJ		0.54	10	BS
WG	FP-03-01-009	N		SW8141	-	phorate	10		U	10	UJ	U	0.54	10	BS
WG	FP-03-02-007	N		SW8141	-	phorate	10		U	10	UJ	U	0.53	10	BS
WG	FP-03-01-001	N		SW8141	-	phorate	10		U	10	UJ		0.54	10	BS,MS
WG	FP-03-01-002	N		SW8141	-	phorate	10		U	10	UJ		0.54	10	BS,MS
WG	FP-03-01-004	N		SW8141	-	phorate	28			28	UJ	U		28	BS,MS
WG	FP-03-02-005	N		SW8141	-	phorate	10		U	10	UJ		0.54	10	BS,MS
WG	FP-03-01-003	FD		SW8141	-	phorate	10			10	UJ		0.54	10	BS,MS
WG	FP-04-007-01	N		SW8141	-	phorate	10		U	10	UJ		0.54	10	BSL
WG	FP-04-007-02	N		SW8141	-	phorate	10		U	10	UJ		0.53	10	BSL
WG	FP-04-07-007	N		SW8141	-	phorate	10		U	10	UJ		0.53	10	BSL
WG	FP-04-07-003	N		SW8141	-	phorate	10		U	10	UJ		0.53	10	BSL,MSL
WG	FP-04-07-004	FD		SW8141	-	phorate	10		U	10	UJ		0.53	10	BSL,MSL
WG	FP-03-03-003	N		SW8141	-	phorate	10			10	UJ		0.54	10	MD,MS
WG	FP-03-02-001	N		SW8141	-	ronnel	10			10	UJ	U	1.5	10	BS,MS
WG	FP-03-02-002	N		SW8141	-	ronnel	10			10	UJ	U	1.5	10	BS,MS
WG	FP-03-03-001	N		SW8141	-	simazine	10			10	UJ		0.57	10	CC
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Appendix C
Change in Qualifier Through the Data Validation Process

Change	in Qualifier Through tl	he Data Validati	on Proces												
Matrix	Sample ID	Sample Type	LR Type	Analytical Method	Dissolved ?	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Validation Notes
WG	FP-03-03-002	N		SW8141	-	simazine	10	U	U	10	UJ	U	0.58	10	CC
WG	FP-03-03-003	N		SW8141	-	simazine	10	U	U	10	UJ	U	0.58	10	CC
WG	FP-03-03-006	N		SW8141	-	simazine	10	U	U	10	UJ	U	0.57	10	CC
WG	FP-03-03-007	N		SW8141	-	simazine	10	U	U	10	UJ	U	0.57	10	CC
WG	FP-04-07-007	N		SW8141	-	simazine	10	U	U	10	UJ	U	0.57	10	CCL
WG	FP-03-02-007	N		SW8141	-	tokuthion (prothiofos)	10	U	U	10	UJ	U	0.58	10	CC
WG	FP-03-03-003	N		SW8141	-	tokuthion (prothiofos)	10	U	U	10	UJ	U	0.59	10	MD,MS
WG	FP-03-02-007	N		SW8141	-	trichloronate	10	U	U	10	UJ	U	0.52	10	CC
WG	FP-03-02-001	N		SW8082	-	Aroclor-1016	0.5	U	U	0.5	UJ	U	0.02	0.5	CC
WG	FP-03-02-002	N		SW8082	-	Aroclor-1016	0.52			0.52	UJ	U	0.021	0.52	CC
WG	FP-03-02-005	N		SW8082	-	Aroclor-1016	0.5			0.5	UJ	U	0.02	0.5	CC
WG	FP-03-02-006	N		SW8082	-	Aroclor-1016	0.5	U		0.5	UJ	U	0.02	0.5	CC
WG	FP-03-03-001	N		SW8082	-	Aroclor-1016	0.5			0.5	UJ	U	0.02	0.5	CC
WG	FP-03-03-002	N		SW8082	-	Aroclor-1016	0.52			0.52	UJ	U	0.021	0.52	CC
WG	FP-03-03-003	N		SW8082	-	Aroclor-1016	0.53			0.53	UJ	U	0.021	0.53	CC
WG	FP-03-03-006	N		SW8082	-	Aroclor-1016	0.5			0.5	UJ	U	0.02	0.5	CC
WG	FP-03-03-007	N		SW8082	-	Aroclor-1016	0.5			0.5	UJ	U	0.02	0.5	CC
WG	FP-04-06-001	N		SW8082	-	Aroclor-1016	0.5			0.5	UJ	U	0.36	0.5	CCL
WG	FP-04-06-003	N		SW8082	_	Aroclor-1016	0.52			0.52	UJ	U	0.38	0.52	CCL
WG	FP-04-06-005	N		SW8082	_	Aroclor-1016	0.5			0.5	UJ	U	0.36	0.5	CCL
WG	FP-04-06-007	N		SW8082	_	Aroclor-1016	0.5			0.5	UJ	U	0.36	0.5	CCL
WG	FP-04-07-003	N		SW8082	_	Aroclor-1016	0.5			0.5	UJ	U	0.36	0.5	CCL
WG	FP-04-06-002	FD		SW8082	_	Aroclor-1016	0.5			0.5	UJ	U	0.36	0.5	CCL
WG	FP-04-07-004	FD		SW8082	-	Aroclor-1016	0.5			0.5	UJ	U	0.36	0.5	CCL
WG	FP-03-05-001	N		SW8082	-	Aroclor-1260	0.5	-		0.5	UJ	U	0.02	0.5	CC
WG	FP-03-05-001	N		SW8082	-	Aroclor-1260 Aroclor-1260	0.52			0.52	UJ	U	0.02	0.52	CC
WG	FP-03-05-002	N		SW8082	-		0.52			0.52	UJ	U	0.021	0.52	CC
WG				SW8082	-	Arcelor 1260					UJ	U			CC
	FP-03-05-007	N			-	Arcelor 1260	0.51			0.51			0.02	0.51	
WG	FP-03-03-001	N		SW8082	-	Arcelor 1960	0.5			0.5	UJ	U	0.02	0.5	CC,IC
WG	FP-03-03-002	N		SW8082	-	Arcelor 1960	0.52			0.52	UJ	U	0.021	0.52	CC,IC
WG	FP-03-03-003	N		SW8082	-	Aroclor-1260	0.53			0.53	UJ	U	0.021	0.53	CC,IC
WG	FP-03-03-006	N		SW8082	-	Aroclor-1260	0.5		U	0.5	UJ	U	0.02	0.5	CC,IC
WG	FP-03-03-007	N		SW8082	-	Aroclor-1260	0.5		U	0.5	UJ	U	0.02	0.5	CC,IC
WG	FP-04-06-001	N		SW8082	-	Aroclor-1260	0.5			0.5	UJ	U	0.25	0.5	CCL
WG	FP-04-06-003	N		SW8082	-	Aroclor-1260	0.52			0.52	UJ	U	0.26	0.52	CCL
WG	FP-04-06-005	N		SW8082	-	Aroclor-1260	0.5			0.5	UJ	U	0.25	0.5	CCL
WG	FP-04-06-007	N		SW8082	-	Aroclor-1260	0.5			0.5	UJ	U	0.25	0.5	CCL
WG	FP-04-07-003	N		SW8082	-	Aroclor-1260	0.5			0.5	UJ	U	0.25	0.5	CCL
WG	FP-04-07-007	N		SW8082	-	Aroclor-1260	0.51			0.51	UJ	U	0.25	0.51	CCL
WG	FP-04-06-002	FD		SW8082	-	Aroclor-1260	0.5			0.5	UJ	U	0.25	0.5	CCL
WG	FP-04-07-004	FD		SW8082	-	Aroclor-1260	0.5			0.5	UJ	U	0.25	0.5	CCL
WG	FP-03-02-001	N		SW8082	-	Aroclor-1260	0.5			0.5	UJ	U	0.02	0.5	IC
WG	FP-03-02-002	N		SW8082	-	Aroclor-1260	0.52			0.52	UJ	U	0.021	0.52	IC
WG	FP-03-02-005	N		SW8082	-	Aroclor-1260	0.5			0.5	UJ		0.02	0.5	IC
WG	FP-03-02-006	N		SW8082	-	Aroclor-1260	0.5			0.5	UJ		0.02	0.5	IC
WG	FP-03-02-007	N		SW8082	-	Aroclor-1260	0.51			0.51	UJ		0.02	0.51	IC
WG	FP-03-04-001	N		SW8082	-	Aroclor-1260	0.5			0.5	UJ		0.02	0.5	IC
WG	FP-03-04-002	N		SW8082	-	Aroclor-1260	0.5	U	U	0.5	UJ	U	0.02	0.5	IC

Appendix C
Change in Qualifier Through the Data Validation Process

Change ii	n Qualifier Through th	ie Dala Validali	on Process												
Matrix	Sample ID	Sample Type	LR Type	Analytical Method	Dissolved ?	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Validation Notes
WG	FP-03-04-003	N		SW8082	-	Aroclor-1260	0.5	U	U	0.5	UJ	U	0.02	0.5	IC
WG	FP-03-04-004	N		SW8082	-	Aroclor-1260	0.52	U	U	0.52	UJ	U	0.021	0.52	IC
WG	FP-03-04-005	N		SW8082	-	Aroclor-1260	0.5	U	U	0.5	UJ	U	0.02	0.5	IC
WG	FP-03-05-005	N		SW8081	-	Aldrin	0.05	U	U	0.05	UJ	U	0.02	0.05	IC
WG	FP-03-03-001	N		SW8081	-	alpha bhc	0.05	U	U	0.05	UJ	U	0.012	0.05	IC
WG	FP-03-03-002	N		SW8081	-	alpha bhc	0.052	U	U	0.052	UJ	U	0.012	0.052	IC
WG	FP-03-03-003	N		SW8081	-	alpha bhc	0.053	U	U	0.053	UJ	U	0.013	0.053	IC
WG	FP-03-03-006	N		SW8081	-	alpha bhc	0.05	U		0.05	UJ	U	0.012	0.05	IC
WG	FP-03-03-007	N		SW8081	-	alpha bhc	0.05			0.05	UJ	U	0.012	0.05	IC
WG	FP-03-05-001	N		SW8081	-	alpha bhc	0.05			0.05	UJ	U	0.012	0.05	IC
WG	FP-03-05-002	N		SW8081	-	alpha bhc	0.052			0.052	UJ	U	0.012	0.052	IC
WG	FP-03-05-006	N		SW8081	-	alpha bhc	0.05			0.05	UJ	U	0.012	0.05	IC
WG	FP-03-05-007	N		SW8081	-	alpha bhc	0.051			0.051	UJ	U	0.012	0.051	IC
WG	FP-04-06-007	N		SW8081	-	alpha bhc	0.05			0.05	UJ	U	0.012	0.05	IC
WG	FP-03-01-001	N		SW8081	-	delta bhc	0.063			0.063	UJ	U	0.061	0.063	IC
WG	FP-03-01-002	N		SW8081	-	delta bhc	0.062			0.062	UJ	U	0.06	0.062	IC
WG	FP-03-01-004	N		SW8081	_	delta bhc	0.13			0.13	UJ	U	0.13	0.13	IC
WG	FP-03-01-006	N		SW8081	_	delta bhc	0.062			0.062	UJ	U	0.06	0.062	IC
WG	FP-03-01-007	N		SW8081	-	delta bhc	0.062			0.062	UJ	U	0.06	0.062	IC
	FP-03-01-007	N		SW8081	-	delta bhc	0.062			0.064	UJ	U	0.062	0.064	IC
	FP-03-03-001	N		SW8081	-	delta bhc	0.06			0.06	UJ	U	0.058	0.06	IC
	FP-03-03-001	N		SW8081	-		0.062			0.062	UJ	U			
WG					-	delta bho							0.06	0.062	IC
	FP-03-03-003	N		SW8081	-	delta bho	0.063			0.063	UJ	U	0.061	0.063	IC
WG	FP-03-03-006	N		SW8081	-	delta bho	0.061			0.061	UJ	U	0.058	0.061	IC
WG	FP-03-03-007	N		SW8081	-	delta bhc	0.061			0.061	UJ	U	0.058	0.061	IC
WG	FP-03-04-001	N		SW8081	-	delta bhc	0.06			0.06	UJ	U	0.058	0.06	IC
WG	FP-03-04-002	N		SW8081	-	delta bhc	0.06			0.06	UJ	U	0.058	0.06	IC
WG	FP-03-04-003	N		SW8081	-	delta bhc	0.06			0.06	UJ	U	0.058	0.06	IC
WG	FP-03-04-004	N		SW8081	-	delta bhc	0.062			0.062	UJ	U	0.06	0.062	IC
WG	FP-03-04-005	N		SW8081	-	delta bhc	0.061			0.061	UJ	U	0.058	0.061	IC
WG	FP-03-05-001	N		SW8081	-	delta bhc	0.061			0.061	UJ	U	0.058	0.061	IC
WG	FP-03-05-002	N		SW8081	-	delta bhc	0.062			0.062	UJ	U	0.06	0.062	IC
WG	FP-03-05-005	N		SW8081	-	delta bhc	0.06			0.06	UJ	U	0.058	0.06	IC
WG	FP-03-05-006	N		SW8081	-	delta bhc	0.06		U	0.06	UJ	U	0.058	0.06	IC
WG	FP-03-05-007	N		SW8081	-	delta bhc	0.061			0.061	UJ	U	0.059	0.061	IC
WG	FP-04-06-007	N		SW8081	-	delta bhc	0.061			0.061	UJ	U	0.058	0.061	IC
WG	FP-03-01-003	FD		SW8081	-	delta bhc	0.061			0.061	UJ	U	0.059	0.061	IC
WG	FP-04-07-003	N		SW8081	-	endosulfan sulfate	0.05			0.05	UJ	U	0.022	0.05	CCL
WG	FP-04-07-004	FD		SW8081	-	endosulfan sulfate	0.05			0.05	UJ	U	0.022	0.05	CCL
WG	FP-04-06-006	N		SW8081	-	endrin aldehyde	0.061	U	U	0.061	UJ	U	0.052	0.061	2SL
WG	FP-04-007-01	N		SW8081	-	endrin aldehyde	0.061			0.061	UJ	U	0.052	0.061	2SL
WG	FP-04-007-02	N		SW8081	-	endrin aldehyde	0.06	U	U	0.06	UJ	U	0.051	0.06	2SL
WG	FP-03-02-001	N		SW8081	-	endrin aldehyde	0.06	U	U	0.06	UJ	U	0.051	0.06	CC
WG	FP-03-02-002	N		SW8081	-	endrin aldehyde	0.062	U	U	0.062	UJ	U	0.052	0.062	CC
WG	FP-03-02-005	N		SW8081	-	endrin aldehyde	0.06	U	U	0.06	UJ	U	0.051	0.06	CC
WG	FP-03-05-001	N		SW8081	-	endrin aldehyde	0.061			0.061	UJ	U	0.052	0.061	CC
WG	FP-03-05-002	N		SW8081	-	endrin aldehyde	0.062			0.062	UJ	U	0.052	0.062	CC
									U		UJ	U	0.051		CC

Appendix C
Change in Qualifier Through the Data Validation Process

Matrix	Sample ID	Sample Type	LR Type	Analytical	Dissolved ?	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Validation Notes
WG	FP-03-05-007	N		SW8081	-	endrin aldehyde	0.061		U	0.061		U	0.052	0.061	CC
WG	FP-04-07-003	N		SW8081	-	endrin aldehyde	0.061		U	0.061		U	0.052	0.061	CCL
WG	FP-04-07-007	N		SW8081	-	endrin aldehyde	0.061	-	U	0.061		U	0.052	0.061	CCL
WG	FP-04-07-004	FD		SW8081	-	endrin aldehyde	0.061		U	0.061		U	0.052	0.061	CCL
WG	FP-03-05-001	N		SW8081	-	gamma bhc (lindane)	0.05	-	U	0.05		U	0.019	0.05	CC
WG	FP-03-05-002	N		SW8081	-	gamma bhc (lindane)	0.052		U	0.052		U	0.02	0.052	CC
WG	FP-03-05-006	N		SW8081	-	gamma bhc (lindane)	0.05		U	0.05		U	0.019	0.05	CC
WG	FP-03-05-007	N		SW8081	-	gamma bhc (lindane)	0.051			0.051		U	0.019	0.051	CC
WG	FP-03-02-001	N		SW8081	-	gamma-chlordane	0.05			0.05		U	0.025	0.05	CC
WG	FP-03-02-002	N		SW8081	-	gamma-chlordane	0.052			0.052		U	0.026	0.052	CC
WG	FP-03-02-005	N		SW8081	-	gamma-chlordane	0.05			0.05		U	0.025	0.05	CC
WG	FP-03-02-001	N		SW8081	-	p,p'-DDT	0.05		U	0.05		U	0.044	0.05	CC
WG	FP-03-02-002	N		SW8081	-	p,p'-DDT	0.052		U	0.052		U	0.045	0.052	CC
WG	FP-03-02-005	N		SW8081	-	p,p'-DDT	0.05	-	U	0.05		U	0.044	0.05	CC
WG	FP-03-01-001	N		SW8081	-	toxaphene	3.2	U	U	3.2		U	0.33	3.2	BS
WG	FP-03-01-002	N		SW8081	-	toxaphene	3.1	U	U	3.1		U	0.32	3.1	BS
WG	FP-03-01-004	N		SW8081	-	toxaphene	6.7		U	6.7		U	0.69	6.7	BS
WG	FP-03-01-003	FD		SW8081	-	toxaphene	3.1	-	U	3.1		U	0.32	3.1	BS
WG	FP-03-01-009	N		SW8081	-	toxaphene	3.1		U	3.1		U	0.32	3.1	CC
WG	FP-03-03-006	N		SW8081	-	toxaphene	3	U	U	3	UJ	U	0.31	3	CC
WG	FP-03-03-007	N		SW8081	-	toxaphene	3		U	3		U	0.31	3	IC
WG	FP-03-05-001	N		SW8081	-	toxaphene	3		U	3		U	0.31	3	IC
WG	FP-03-05-002	N		SW8081	-	toxaphene	3.1	U	U	3.1	UJ	U	0.32	3.1	IC
WG	FP-03-05-006	N		SW8081	-	toxaphene	3		U	3		U	0.31	3	IC
WG	FP-03-05-007	N		SW8081	-	toxaphene	3.1		U	3.1		U	0.32	3.1	IC
WG	FP-04-007-01	N		SW6010B	-	Zinc	1.71		J	1.71		U	0.409	10	SD
WG	FP-04-07-004	FD		SW6010B	-	Zinc	0.409		U	0.409		U	0.409	10	SD
WG	FP-04-07-003	N		FLPRO	-	petroleum hydrocarbons	0.11		J	0.34		U	0.097	0.34	BL,SSL
WG	FP-03-01-004	N		FLPRO	-	petroleum hydrocarbons	1.1	-	U	1.1		U	0.91	1.1	MD
WG	FP-04-06-007	N		FLPRO	-	petroleum hydrocarbons	0.34	-	U	0.34		U	0.097	0.34	SSL
WG	FP-04-07-003	N		E415.1	FLDFLT	dissolved organic carbon	0.368	U	U	0.368		U	0.368	1.5	IC
WG	FP-04-07-007	N		E415.1	-	Total organic carbon	0.368		U	0.368		U	0.368	1	IC
WG	FP-03-03-007	N		E405.1	-	biologic oxygen demand, five day	2	U	U	2		U	2	2	HT
WG	FP-03-02-007	N		E405.1	-	biologic oxygen demand, five day	2	U	U	2	UJ	U	2	2	HT

NOTES: WQ = Water Quality Control Sample, LB = Laboratory Method Blank, FLDFLT = Field Filtered. mg/L = milligrams per liter.

#### APPENDIX D

Frequency of Detection in Blank Samples

Matrix	Parameter Class	Sample Type	Analytical Method	Prep Method	Dissolved ?	Parameter	Number Analyzed	Number Detected	Minimum Detected	Maximum Detected	Minimum Detection Limit	Maximum Detection Limit	Minimum Reporting Limit	Maximum Reporting Limit	Units
WQ	Genchem	EB	E150.1	METHOD	-	рН	1	1	6.1	6.1	0.10	0.10	0.10	0.10	pH units
WQ	Genchem	LB	E160.1	METHOD	-	total dissolved solids	20	9	1.0	17.0	1.0	10.0	20.0	20.0	mg/L
WQ	Genchem	EB	E160.1	METHOD	-	total dissolved solids	1	1	15.0	15.0	10.0	10.0	20.0	20.0	mg/L
WQ	Genchem	EB	E310.1	METHOD	-	Alkalinity, bicarbonate (as CaCO3)	1	1	3.0	3.0	1.0	1.0	10.0	10.0	mg/L
WQ	Genchem	LB	E310.1	METHOD	-	Alkalinity, bicarbonate (as CaCO3)	32	17	0.50	3.0	0.50	2.0	10.0	10.0	mg/L
WQ	Genchem	EB	E351.2	METHOD	-	nitrogen, kjeldahl, total	1	1	0.17	0.17	0.13	0.13	0.26	0.26	mg/L
WQ	Genchem	LB	E351.2	METHOD	-	nitrogen, kjeldahl, total	9	3	0.19	0.23	0.13	0.13	0.26	0.26	mg/L
WQ	Genchem	LB	E351.4	METHOD	-	nitrogen, kjeldahl, total	1	1	1.5	1.5	0.45	0.45	2.0		mg/L
WQ	Genchem	LB	E353.2	METHOD	-	Nitrogen, nitrate-nitrite	18	1	0.024	0.024	0.020	0.050	0.10		mg/L
WQ	Genchem	EB	E353.2M	METHOD	-	Total Nitrogen, Calculated	1	1	0.17	0.17	0.10		0.10	0.10	mg/L
WQ	Genchem	LB	E354.1	METHOD	-	nitrogen, nitrite	18	3	0.012	0.020	0.012		0.18	0.18	mg/L
WQ	Genchem	LB	E405.1	METHOD	-	biologic oxygen demand, five day	12	5	2.0	2.0	2.0	2.0	2.0	2.0	mg/L
WQ	Diss Gen	LB	E415.1	METHOD	FLDFLT	dissolved organic carbon	10		0.66	0.68	0.37	0.67	1.5	1.5	mg/L
WQ	Genchem	EB	E415.1	METHOD	-	dissolved organic carbon	1	1	1.4	1.4	0.67	0.67	1.5		mg/L
WQ	Genchem	LB	E415.1	METHOD	-	Total organic carbon	15	1	0.68	0.68	0.37	0.67	1.0		mg/L
WQ	Genchem	EB	E415.1	METHOD	-	Total organic carbon	1		1.8	1.8	0.67	0.67	1.3		mg/L
WQ	Genchem	EB	E900	METHOD	-	beta, gross	1		1.7	1.7	1.7	1.7	1.7	1.7	pCi/l
WQ	TPH	LB	FLPRO	METHOD	-	petroleum hydrocarbons	12		0.16	0.16	0.097		0.34		mg/L
WQ	Metals	EB	SW6010B	SW3010A	-	Aluminum	1	1	39.9	39.9	35.0	35.0	100	100	μg/L
WQ	Metals	EB	SW6010B	SW3010A	-	Beryllium	1	1	0.29	0.29	0.095	0.095	1.0	1.0	μg/L
WQ	Metals	LB	SW6010B	SW3010A	-	Calcium	14	5	32.6	96.4	32.5	32.5	100	100	μg/L
WQ	Metals	EB	SW6010B	SW3010A	-	Calcium	1	1	96.4	96.4	32.5		100	100	μg/L
WQ	Metals	EB	SW6010B	SW3010A	-	Chromium, total	1	1	0.99	0.99	0.57		2.0	2.0	μg/L
WQ	Metals	EB	SW6010B	SW3010A	-	Cobalt	1	1	0.67	0.67	0.57		5.0	5.0	μg/L
WQ	Metals	LB	SW6010B	SW3010A	-	Copper	14		2.2	2.2	1.2		5.0	5.0	μg/L
WQ	Metals	EB	SW6010B	SW3010A	-	Iron	1	1	40.1	40.1	16.7		50.0	50.0	μg/L
WQ	Metals	LB	SW6010B	SW3010A	-	Iron	14	4	26.9	40.2	16.7		50.0	50.0	μg/L
WQ	Metals	EB	SW6010B	SW3010A	-	Lead	1	1	2.3	2.3	1.8		5.0	5.0	μg/L
WQ	Metals	LB	SW6010B	SW3010A	-	Magnesium	14	8	5.9	28.9	5.2	7.6	100	100	μg/L
WQ	Metals	EB	SW6010B	SW3010A	-	Magnesium	1	1	80.0	80.0	7.6		100	100	μg/L
WQ	Metals	EB	SW6010B	SW3010A	_	Manganese	1	1	0.45	0.45	0.17		2.0	2.0	μg/L
WQ	Metals	LB	SW6010B	SW3010A	_	Manganese	14		0.20	0.50	0.17		2.0	2.0	μg/L
WQ	Metals	LB	SW6010B	SW3010A	_	Potassium	14	8	12.7	56.0	11.5		500	500	μg/L
WQ	Metals	EB	SW6010B	SW3010A	-	Potassium	1	1	108	108	11.5		500	500	μg/L
WQ	Metals	EB	SW6010B	SW3010A	-	Selenium	1	1	2.4	2.4	2.1		5.0	5.0	μg/L
WQ	Metals	LB	SW6010B	SW3010A	_	Selenium	14		2.1	3.3	2.1		5.0	5.0	μg/L μg/L
WQ	Metals	EB	SW6010B	SW3010A	_	Silver	1		0.76	0.76	0.33		2.0	2.0	μg/L μg/L
WQ	Metals	LB		SW3010A	_	Silver	14		0.75	0.49	0.33		2.0	2.0	μg/L μg/L
WQ	Metals	LB		SW3010A	_	Sodium	14		24.3	54.6	22.7		300	300	μg/L μg/L
WQ	Metals	EB	SW6010B	SW3010A	_	Sodium	1	1	57.2	57.2	22.7		300	300	μg/L μg/L
WQ	Metals	LB		SW3010A SW3010A	_	Thallium	14	1	3.1	3.1	2.5		6.0	6.0	
WQ	Metals	LB	SW6010B	SW3010A	_	Zinc	14		0.47	1.4	0.41		10.0	10.0	μg/L μg/L
WQ	Metals	LB	SW7470A	METHOD	_	Mercury	10		0.47	0.050	0.016		0.20	0.20	
WQ	HERB	LB	SW7470A SW8151	SW3510	_	Picloram	13		0.64	0.64	0.074		10.0	11.0	μg/L
WQ WQ	VOC	TB		SW5030	-		42		6.6	6.6	1.9	1.9	10.0	10.0	μg/L
WQ WQ	VOC	EB	SW8260B	SW5030	-	Acetone Chloroform	1		1.2	1.2	0.13			1.0	μg/L
WQ WQ	VOC				-		10		0.96				1.0		μg/L
		TB	SW8260B	SW5030	-	Chloroform	42			0.96	0.13		1.0	1.0	μg/L
	SVOC	EB		SW3510		Acetophenone  ok FB = Fquipment Blank TB = Trip B	<u> </u>		1.5	1.5	0.87	0.87	5.2	5.2	μg/L

NOTES: WQ = Water Quality Control Sample, LB = Laboratory Method Blank, EB = Equipment Blank, TB = Trip Blank, FLDFLT = field filtered; VOC = volatiles, SVOC = semivolatiles ug/L = micrograms per liter; mg/L = milligrams per liter, pCi/L = picocuries per liter, NTU = nephelometric turbidity units, FLDFLT = field filtered, pH = hydrogen ion

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# APPENDIX E Field Duplicate Precision

Matrix	Analytical Method	Dissolved ?	Sample ID	Parameter	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Field Dup Final Result	Field Dup Final Qual	Field Dup Final Conc Qual	Field Dup Detection Limit	Field Dup Reporting Limit	Units	RPD
WG	SW6010B	-	FP-04-06-001	Zinc	0.68	J	J	0.409	10	2.99	J	J	0.409	10	ug/L	125.9
WG	E350.3	-	FP-03-01-002	Nitrogen, ammonia (as N)	1.04	=	=	0.21	0.4	0.431	=	=	0.21	0.4	mg/L	82.8
WG	SW6010B	-	FP-03-01-002	Magnesium	1030	=	=	7.62	100	2080	=	=	7.62	100	ug/L	67.5
WG	E365.2	-	FP-03-01-002	phosphorus, total (as P)	0.051	=	=	0.02	0.04	0.101	=	=	0.02	0.04	mg/L	65.8
WG	E110.2	-	FP-04-06-001	color	15	=	=	0	10	10	=	=	0	10	COLOR UNIT	40.0
WG	E110.2	-	FP-04-07-003	color	10	=	=	0	10	15	=	=	0	10	COLOR UNIT	40.0
WG	SW6010B	-	FP-03-01-002	Barium	51.1	=	=	0.491	2	35.3	=	=	0.491	2	ug/L	36.6
WG	SW6010B	-	FP-04-06-001	Manganese	9.99	=	=	0.167	2	7	=	=	0.167	2	ug/L	35.2
WG	E160.1	-	FP-03-01-002	TDS (residue, filterable)	386	=	=	10	20	274	=	=	10	20	mg/L	33.9
WG	E365.2	-	FP-03-01-002	phosphorus, total ortho (as P)	0.027	=	=	0.02	0.02	0.038	=	=	0.02	0.02	mg/L	33.8
WG	SW6010B	-	FP-03-01-002	Potassium	56000	_	=	11.5	500	41400	=	=	11.5	500	ug/L	30.0
WG	SW8260B	-	FP-03-01-002	Benzene	0.64	.1	J	0.14	1	0.48	.1		0.14	1	ug/L	28.6
WG	E900	-	FP-03-01-002	beta, gross	54.7	=	=	2.1	2.1	42.1	=	=	2.2	2.2	pCi/I	26.0
WG	SW6010B	_	FP-03-01-002	Sodium	29300		=	22.7	300	22900	=	=	22.7	300	ug/L	24.5
WG	E365.2	-	FP-04-07-003	phosphorus, total (as P)	0.094			0.017	0.04	0.12		=	0.017	0.04		24.3
WG	SW8260B	-	FP-03-01-002	cis-1,2-Dichloroethene	2.4	=	=	0.18	1	3	=		0.017	1	mg/L	22.2
WG						=	=		·		=	=			ug/L	
	SW6010B	-	FP-04-06-001	Arsenic	8.71	=	=	2.04	5	10.6	=	=	2.04	5	ug/L	19.6
WG	E353.2M	-	FP-03-01-002	Total Nitrogen, Calculated	0.901	=	=	0	0	0.741	=	=	0	0	mg/L	19.5
WG	SW6010B	- -	FP-03-01-002	Calcium	17100	=	=	32.5	100	20400	=	=	32.5	100	ug/L	17.6
WG	E365.2	FLDFLT	FP-04-07-003	phosphorus, total organic (as P)	0.152	=	=	0.017	0.02	0.181	=	=	0.017	0.02	mg/L	17.4
WG	E375.4	-	FP-04-07-003	Sulfate (as SO4)	33.7	=	=	0.44	2	39.9	=	=	0.22	1	mg/L	16.8
WG	E365.2	-	FP-04-07-003	phosphorus, total ortho (as P)	0.083	=	=	0.014	0.02	0.095	=	=	0.014	0.02	mg/L	13.5
WG	SW6010B	-	FP-04-07-003	Cadmium	0.406	J	J	0.356	1	0.453	J	J	0.356	1	ug/L	10.9
WG	E310.1	-	FP-04-07-003	Alkalinity, bicarb (as CaCO3)	135	=	=	0.5	10	150	=	=	0.5	10	mg/L	10.5
WG	E180.1	-	FP-04-06-001	turbidity	1.1	=	=	0.12	0.25	1.2	=	=	0.12	0.25	NTU	8.7
WG	E365.2	-	FP-04-06-001	phosphorus, total ortho (as P)	0.09	=	=	0.014	0.02	0.097	=	=	0.014	0.02	mg/L	7.5
WG	E353.2M	-	FP-04-07-003	Total Nitrogen, Calculated	0.463	=	=	0	0	0.432	=	=	0	0	mg/L	6.9
WG	SW6010B	-	FP-04-06-001	Nickel	3.92	J	J	0.997	5	4.2	J	J	0.997	5	ug/L	6.9
WG	SW6010B	-	FP-04-06-001	Barium	20.9	=	=	0.491	2	19.7	=	=	0.491	2	ug/L	5.9
WG	SW6010B	-	FP-04-06-001	Potassium	2540	=	=	11.5	500	2400	=	=	11.5	500	ug/L	5.7
WG	E365.2	-	FP-03-01-002	phosphorus, total organic (as P)	0.054	=	=	0.02	0.02	0.057	=	=	0.02	0.02	mg/L	5.4
WG	E160.1	-	FP-04-07-003	TDS (residue, filterable)	242	=	=	0	20	255	=	=	0	20	mg/L	5.2
WG	E350.3	-	FP-04-07-003	Nitrogen, ammonia (as N)	0.149	J	J	0.107	0.4	0.142	J	J	0.107	0.4	mg/L	4.8
WG	E375.4	-	FP-04-06-001	Sulfate (as SO4)	68.5	=	=	0.44	2	71.8	=	=	0.44	2	mg/L	4.7
WG	E150.1	-	FP-03-01-002	ph	11.1	=	=	0	0	10.6	=	=	0	0	PH UNITS	4.6
WG	E900	-	FP-04-07-003	beta, gross	3.19	J	J		2.89	3.05	J	J		2.95	PCI/L	4.5
WG	SW6010B	-	FP-04-07-003	Nickel	2.96	J	J	0.997	5	3.08	J	J	0.997	5	ug/L	4.0
WG	E365.2	-	FP-04-06-001	phosphorus, total (as P)	0.111	=	=	0.017	0.04	0.107	=	=	0.017	0.04	mg/L	3.7
WG	E353.2M	-	FP-04-06-001	Total Nitrogen, Calculated	1.52	=	=	0	0	1.47	=	=	0	0	mg/L	3.3
WG	SW6010B	-	FP-04-06-001	Sodium	7630	=	=	22.7	300	7400	=	=	22.7	300	ug/L	3.1
WG	E160.1	-	FP-04-06-001	TDS (residue, filterable)	263	=	=	0	20	271	=	=	0	20	mg/L	3.0
WG	E325.2	-	FP-04-07-003	Chloride (as CI)	7640	=	=	266	600	7420	=	=	266	600	ug/L	2.9
WG	SW6010B	-	FP-04-07-003	Barium	19.1	=	=	0.491	2	18.6	=	=	0.491	2	ug/L	2.7
WG	SW6010B	-	FP-04-07-003	Potassium	2010		J	11.5	500	1960	J		11.5	500	ug/L	2.5
WG	E325.2	-	FP-04-06-001	Chloride (as CI)	7020	J	=	266	600	7190		=	266	600		2.3
WG	SW6010B		FP-04-06-001		8790	=		5.23	100	8600	=		5.23	100	ug/L	2.4
WG		-		Magnesium		=	=		100		=	=		100	ug/L	
	E375.4	-	FP-03-01-002	Sulfate (as SO4)	3.26	=	=	0.5	·	3.19	=	=	0.5		mg/L	2.2
WG	SW6010B	- 	FP-04-07-003	Arsenic	9.39	=	=	2.04	5	9.59	=	=	2.04	5	ug/L	2.1
WG	E365.2	FLDFLT	FP-04-06-001	phosphorus, total organic (as P)	0.098	=	=	0.017	0.02	0.096	=	=	0.017	0.02	mg/L	2.1
WG	E351.4	-	FP-04-06-001	nitrogen, kjeldahl, total	1.48	J	J	0.45	2	1.45	J	J	0.45	2	mg/L	2.0

APPENDIX E Field Duplicate Precision

Matrix	Analytical Method	Dissolved ?	Sample ID	Parameter	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Field Dup Final Result	Field Dup Final Qual	Field Dup Final Conc Qual	Field Dup Detection Limit	Field Dup Reporting Limit	Units	RPD
WG	SW6010B	-	FP-04-07-003	Magnesium	8530	=	=	5.23	100	8360	=	=	5.23	100	ug/L	2.0
WG	E325.2	-	FP-03-01-002	Chloride (as CI)	3060	=	=	200	600	3000	=	=	200	600	ug/L	2.0
WG	SW6010B	-	FP-04-07-003	Sodium	6550	J	J	22.7	300	6430	J	J	22.7	300	ug/L	1.8
WG	E150.1	-	FP-04-06-001	ph	7.62	=	=	0	0	7.55	=	=	0	0	PH UNITS	0.9
WG	E350.3	-	FP-04-06-001	Nitrogen, ammonia (as N)	0.126	J	J	0.107	0.4	0.125	J	J	0.107	0.4	mg/L	8.0
WG	SW6010B	-	FP-04-07-003	Vanadium	1.3	J	J	0.447	3	1.29	J	J	0.447	3	ug/L	8.0
WG	SW6010B	-	FP-04-06-001	Calcium	69500	=	=	32.5	100	69200	=	=	32.5	100	ug/L	0.4
WG	SW6010B	-	FP-04-07-003	Calcium	69800	=	=	32.5	100	70100	=	=	32.5	100	ug/L	0.4
WG	E150.1	-	FP-04-07-003	ph	7.44	=	=	0	0	7.41	=	=	0	0	PH UNITS	0.4
WG	SW6010B	-	FP-04-07-003	Manganese	6.6	=	=	0.167	2	6.61	=	=	0.167	2	ug/L	0.2
WG	E110.2	-	FP-03-01-002	color	5	J	J	0	10	5	J	J	0	10	COLOR UNIT	0.0
WG	FLPRO	-	FP-04-06-001	petroleum hydrocarbons	0.12	J	J	0.1	0.35	0.12	J	J	0.097	0.34	mg/L	0.0

NOTES: WQ = Water Quality Control Sample, LB = Laboratory Method Blank,

FLDFLT = Field Filtered. mg/L = milligrams per liter.

# Central Florida Recharge - Lake Orienta Data Quality Evaluation (DQE)

## Introduction

The purpose of this document is to present the findings of the data quality evaluation (DQE) performed on laboratory reports of analyses from surface water samples from a lake and groundwater samples from two monitoring wells through 8 sampling events as part of the Baseline and Operational Characterization tasks for the Lake Orienta site of the Central Florida Artificial Recharge Enhancement Project.

The purpose of the data quality evaluation process is to assess the effect of the overall analytical process on the usability of the data. The two major categories of data evaluation are laboratory performance and matrix interferences. Evaluation of laboratory performance is a check for compliance with the method requirements; either the laboratory did, or did not, analyze the samples within the limits of the analytical method. Evaluation of matrix interferences which could affect the final numerical value is more subtle and involves the analysis of several areas of results including surrogate spike recoveries, matrix spike recoveries, and duplicate sample results.

These samples were collected over eight events in 2005:

- July 12 and 13
- July 20 and 21
- July 27 and 28
- August 8 and 9
- September 7 and 8
- October 5
- October 31
- December 5

Field quality control (QC) samples collected included field duplicates, trip blanks (analyzed for VOCs only), and additional aliquots of a normal field sample for matrix spike and matrix spike duplicates. The "normal" samples represent the results to be used for site evaluations. The number of each type of sample is listed by analytical method in **Exhibit 1**.

Before the analytical results were released by the laboratory, both the sample and QC data were reviewed by the laboratory to ensure method compliance and to ascertain whether they were within the laboratory-defined limits for accuracy and precision. Any non-conforming data were discussed in the data package case narrative. **Appendix A** presents the frequency of detection of target analytes for field samples.

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EXHIBIT 1
Number of Samples Collected by Matrix, Method, and Type

Matrix	Analytical Method	Analytical Method Description	Preparation Method	Filtered?	N	FD	ТВ
WG	E365.2	Phosphorus, all Forms (as P)	Method	FLDFLT	16	8	
WS	E365.2	Phosphorus, all Forms (as P)	Method	FLDFLT	8		
WG	E415.1	Total Organic Carbon (Combustion or Oxidation)	None	FLDFLT	16	8	
WS	E415.1	Total Organic Carbon (Combustion or Oxidation)	None	FLDFLT	8		
WG	SM4500-NH3-B,C	Ammonia, Distilled and Titrated	Method	-	10	5	
WS	SM4500-NH3-B,C	Ammonia, Distilled and Titrated	Method	-	5		
WG	E110.2	Color (Colorimetric-Platinum- Cobalt)	None	-	16	8	
WS	E110.2	Color (Colorimetric-Platinum- Cobalt)	None	-	8		
WG	E150.1	pH, Electrometric	None	-	16	8	
WS	E150.1	pH, Electrometric	None	-	8		
WG	E160.1	Residue, Filterable (TDS)	None	-	16	8	
WS	E160.1	Residue, Filterable (TDS)	None	-	8		
WG	E180.1	Turbidity (Nephelometric)	None	-	16	8	
WS	E180.1	Turbidity (Nephelometric)	None	-	8		
WG	E310.1	Alkalinity (Titrimetric)	None	-	16	8	
WS	E310.1	Alkalinity (Titrimetric)	None	-	8		
WG	E325.2	Chloride (as CL), Colorimetric	None	-	16	8	
WS	E325.2	Chloride (as CL), Colorimetric	None	-	8		
WG	E350.1	Nitrogen (Ammonia - Colorimetric)	None	-	4	2	
WS	E350.1	Nitrogen (Ammonia - Colorimetric)	None	-	2		
WG	E350.3	Nitrogen, Ammonia (Potentiometric)	None	-	2	1	
WS	E350.3	Nitrogen, Ammonia (Potentiometric)	None	-	1		
WG	E351.2	Nitrogen, Kjedahl, Total (Colorimetric)	Method	-	16	8	
WS	E351.2	Nitrogen, Kjedahl, Total (Colorimetric)	Method	-	8		
WG	E353.2	Nitrogen, Nitrate-Nitrite (Colorimetric)	None	-	16	8	

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EXHIBIT 1 Number of Samples Collected by Matrix, Method, and Type

Matrix	Analytical Method	Analytical Method Description	Preparation Method	Filtered?	N	FD	ТВ
WS	E353.2	Nitrogen, Nitrate-Nitrite (Colorimetric)	None	-	8		
WG	E353.2M	Total Nitrogen, Calculated	None	-	16	8	
WS	E353.2M	Total Nitrogen, Calculated	None	-	8		
WG	E354.1	Nitrogen, Nitrite (Spectrophotometric)	None	-	16	8	
WS	E354.1	Nitrogen, Nitrite (Spectrophotometric)	None	-	8		
WG	E365.2	Phosphorus, all Forms (as P)	None	-	16	8	
WS	E365.2	Phosphorus, all Forms (as P)	None	-	8		
WG	E375.4	Sulfate (as SO4), Turbidimetric	None	-	16	8	
WS	E375.4	Sulfate (as SO4), Turbidimetric	None	-	8		
WG	E405.1	Biochemical Oxygen Demand	None	-	16	8	
WS	E405.1	Biochemical Oxygen Demand	None	-	8		
WG	E415.1	Total Organic Carbon (Combustion or Oxidation)	None	-	16	8	
WS	E415.1	Total Organic Carbon (Combustion or Oxidation)	None	-	8		
WG	E900	Gross Alpha and Beta Radiation	None	-	16	8	
WS	E900	Gross Alpha and Beta Radiation	None	-	8		
WG	FLPRO	TPH - FLO-PRO	Method	-	16	8	
WS	FLPRO	TPH - FLO-PRO	Method	-	8		
WG	SW6010B	Inductively Coupled Plasma Emission Spectroscopy	SW3010A	-	16	8	
WS	SW6010B	Inductively Coupled Plasma Emission Spectroscopy	SW3010A	-	8		
WG	SW7470A	Mercury in Liquid Waste (Cold-Vapor)	Method	-	16	8	
WS	SW7470A	Mercury in Liquid Waste (Cold-Vapor)	Method	-	8		
WG	SW8081	Organochlorine Pesticides by GC	SW3510	-	16	8	
WS	SW8081	Organochlorine Pesticides by GC	SW3510	-	8		
WG	SW8082	Polychlorinated Biphenyls (PCB)	SW3510	-	16	8	
WS	SW8082	Polychlorinated Biphenyls (PCB)	SW3510	-	8		
WG	SW8141	Organophosphorus Compounds	SW3510	-	16	8	

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EXHIBIT 1 Number of Samples Collected by Matrix, Method, and Type

Matrix	Analytical Method	Analytical Method Description	Preparation Method	Filtered?	N	FD	ТВ
		by GC					
WS	SW8141	Organophosphorus Compounds by GC	SW3510	-	8		
WG	SW8151	Chlorinated Herbicides by GC	SW3510	-	16	8	
WS	SW8151	Chlorinated Herbicides by GC	SW3510	-	8		
WG	SW8260B	Volatile Organic Compounds by GCMS	SW5030	-	16	8	6
WS	SW8260B	Volatile Organic Compounds by GCMS	SW5030	-	8		
WG	SW8270C	GC/MS for Semivolatile Organics	SW3510	-	12	6	
WS	SW8270C	GC/MS for Semivolatile Organics	SW3510	-	6		

WG = Groundwater, WS = Surface Water. N = Normal Field Sample, FD = Field Duplicate, TB = Trip Blank. FLDFLT = Field Filtered

The hardcopy data packages were reviewed by the CH2M HILL project chemists applying the review criteria which generally follows that outlined in the Environmental Protection Agency (EPA) guidance document *Contract Laboratory Program National Functional Guidelines for Organic* (1999) and *Inorganic Data Review* (1994) [NFG]). Areas of review included (when applicable to the method) holding time compliance, initial and continuing calibration verification, all associated field and laboratory blank results, matrix spike/matrix spike duplicate (MS/MSD) precision and accuracy, laboratory control sample/laboratory control sample duplicate (LCS/LCSD) accuracy and precision, field duplicate results, surrogate recoveries, internal standard performance, and method interference checks. A data review worksheet was completed for each of these data packages and any non-conformances documented. This data review and validation process is independent of the laboratory's checks and focuses on the usability of the data to support the project data interpretation and decision-making processes.

A qualifying flag would be applied to data that were not within the method established acceptance limits. These flags consist of a single or double-letter abbreviation that indicates the usability of the identified non-conformance. Although the qualifying flags are entered into the database records from the validated Form I's, they are also included in the final data summary tables so that the data will not be used indiscriminately. The qualification of the data also includes secondary, or multi-digit "sub-qualifier" flags, which are entered into the data validation notes field of the database. The secondary qualifiers provide the reasoning behind the assignment of a qualifier to the data. The sub-qualifiers are presented and defined in **Appendix B**.

Numerical sample results that are greater than the method detection limit (MDL) but less than the laboratory reporting limit (RL) are qualified with a "J" for estimated as required by the NFG. The method detection limit (MDL) is defined as, "the minimum concentration of a

substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero." Therefore, by definition, the accuracy and precision of values at or near the MDL are questionable and should be viewed as such. The reporting limit (RL) is a level at which a laboratory reports analytical results. The RL is established by the laboratory based upon laboratory determinations or project requirements. Factors such as an analye specific MDL, a calculated PQL, the lowest calibration standard (method specific), applicable regulatory agency limits, or program specific requirements may contribute to the final RL established for the project. The practical quantitation limit (PQL) is often determined to be a multiple of the MDL or other limit of detection (LOD) findings. The most common multiples are 5, 10, and 12 (the most current multiple). The major difference between a limit of detection and a limit of quantitation is that accuracy and precision improve at quantitation levels.

The following primary flags were used to qualify the data:

- **U** Undetected. Analyte was analyzed for but not detected above the method detection limit (MDL) or other limit of detection.
- **UJ -** Detection limit estimated. Analyte was analyzed for, and qualified as not detected. The result is estimated due to its concentration or failed QC measurement.
- **J** Estimated. The analyte was present, but the reported value may not be accurate or precise due to its concentration or failed QC measurement.
- **R** Rejected. The data are unusable. (NOTE: Analyte/compound may or may not be present.)

The database was queried for frequency of detection in all blank types and samples', providing detailed listings of blank detects, matrix spike/matrix spike duplicate (MS/MSD) statistics, laboratory control sample / laboratory control sample duplicate (LCS/LCSD) accuracy and precision, field duplicate precision, surrogate recoveries, and preparation and analysis dates pertaining to holding times. The queries were then manipulated to calculate necessary statistics for evaluation of the data.

Once the data review and validation process was completed, the data set was reviewed for analyte frequencies of detection, dilution factors which might affect data usability, and patterns of target analyte distribution. The data set was also evaluated to identify potential data limitations, uncertainties, or both in the analytical results. Analytes that were assigned qualifiers during the validation processes are presented in **Appendix C**.

## **Holding Times**

The holding times for each parameter were evaluated according to SW-846 requirements. **Appendix C** indicates that there were 432 records qualified for preparation or analysis holding times outside criteria, but within two times the established holding time. Of the 432 qualified records, 427 (420 SVOCs and 7 Organochlorine herbicides) were due to reextractions or re-analysis because the original analysis experienced QC or calibration failures. These re-extractions were non-detect and were qualified as estimated (UJ) and the initial analyses were excluded because there can be only one valid result, per analyte, per

sample. Three ammonia results, and a single pH result were estimated (J) because the analytical holding times were exceeded. A single turbidity result was reported as a non-detect during analysis and subsequently also estimated (UJ) as the sample did not met holding time criteria. No data were rejected due to holding time exceedances. Rejection (R) usually occurs when a parameter of interest is greater than two times the technical holding time.

## Calibration

The majority of calibration criteria pertaining to the analytical methods were met for these samples. **Appendix C** presents analytes that were qualified due to poor relative response factors (RRFs), and initial or continuing calibration deficiencies (high percentD or percentRSD). A total of 523 records were qualified as estimated, non-detect (UJ); one estimated as "J". Data that were qualified due to initial or continuing calibration variances are presented in **Appendix C** with validation reasons (or a combination of these calibration specific sub-qualifiers): "CCL", "CCVL", "CCRRF", "IC", "ICH", "ICL", "ICRRF" and "ICRSD". The definition of all the sub-qualifiers are found and defined in Appendix B. The number of non-detected records per fraction qualified as estimated included three-hundred and 21 semivolatiles (8270C), 45 volatiles (8260B), 87 organophosphorus pesticides (8141), 9 chlorinated herbicides (8151), 14 PCB's (8082), and 47 organochlorine pesticides (8081). A single organochlorine pesticide was qualified as "J" estimated. No results were rejected due to calibration deficiencies.

## Potential Field Sampling and Laboratory Contamination

Two types of blank samples were used to monitor potential contamination introduced during field sampling, sample handling, shipping activities, as well as sample preparation and analysis in the laboratory. Types of blank samples included:

- Trip Blank (TB): A sample of analyte free water that is prepared in the laboratory prior to the sampling event. The water is stored in VOC sample containers and is not opened in the field, and travels back to the laboratory with the other samples for VOC analysis. This blank is used to monitor the potential for sample contamination during the sample container trip. One trip blank should be included in each sample cooler that contained samples for VOC analysis. Six trip blanks were submitted to the laboratory with these samples.
- Laboratory Method Blank or Method Blank (MB): A laboratory method blank is analyte free water that is treated as a sample in that it undergoes the same analytical process as the corresponding field samples. Method blanks are used to monitor laboratory performance and contamination introduced during the analytical procedure. One method blank was prepared and analyzed for every twenty samples or per analytical batch, whichever was more frequent.

According to the NFG, concentrations of common organic contaminants detected in samples at less than ten times the concentration of the associated blanks can be attributed to field sampling and laboratory contamination rather than environmental contamination from site activities. Common organic contaminants include acetone, methylene chloride, 2-butanone,

and the phthalates. For other inorganic and organic contaminants, five times the concentration detected in the associated blanks (rather than ten times rule) is used to qualify results as potential field and/or laboratory contamination rather than environmental contamination. The 5 or 10 times rule were applied on a sample delivery group (SDG) by SDG basis and not globally. A Sample Delivery Group is a batch of no more than 20 samples prepared together, per method. Global application, however, would account for anomalous data, which should also be attributed to laboratory or field blank contamination. Additionally, many results reported in blanks (especially metals) are well below a defined practical quantitation limit (PQL) and may represent Type I errors when associated with a matrix. A Type I (or alpha error) occurs when the value reported is dismissed as a biased high, or false positive result.

Detects in the samples at levels less than the action levels (5 or 10 times rule) were qualified as not detected. The changes in the flagging qualifier due to the data validation process are presented in **Appendix C**. Blank detections are compiled into a "frequency of detection" by target parameter and are presented in **Appendix D**. Blank contamination resulted in 89 total results qualified as "U" (non-detected) due to contamination or high background levels found in blanks.

Ten elements found in one or more of the blank types resulted in qualification of metals data as non-detections. Six general chemistry parameters were also found to have experienced blank detections. Low level detection in blanks is associated with all analytical methods and quite common. Several cations and anions are ubiquitous at low level, while others may be exhibiting background noise due their lack of sensitivity associated with their analytical method.

Sample results less than five times the concentration found in the blanks associated with that SDG were attributed to field sampling or laboratory contamination and are not considered to be indicative of environmental contamination. In addition, the majority of the reported concentrations were at or near the method detection limit and could be Type I (or alpha errors), more commonly known as "false positives". This effect is often reflected in reported detections at or near the MDL in initial and continuing calibration blanks (ICB and CCB) as these are QC samples utilizing analyte free water for blank samples. These ICB and CCB data are not part of the electronic data deliverable provided by the laboratory and thus will not be represented in **Appendix D**, however validation notes presented in **Appendix C** indicate if a CCB or ICB was the cause for qualification.

Many metals are ubiquitous at low levels because they are naturally occurring, and are materials and components used in manufacturing (aluminum, copper, zinc, iron, mercury, and manganese). Iron and manganese are associated with alloys of steel. Zinc is a common metal and often used as a catalyst in many manufacturing processes. Copper and aluminum are used in electrical wiring and plumbing. Mercury is also commonly encountered at low concentrations due to its vast commercial uses during the last two centuries. Other metals such as arsenic, cadmium, silver, and selenium are not commonly encountered and generally are quantitated just above the MDL and below the reporting limit (RL). The lack of accuracy and precision at this level, coupled with instrument noise and matrix effects, can elicit Type I errors as defined above. Detections at or near the MDL should be carefully evaluated during the projects final decision making process. **Exhibit 2** presents the numbers of records per element, qualified as not detected due to blank contamination.

EXHIBIT 2 Number of Records per Element, Qualified as Not Detected Attributable to Blank Contamination

Element Qualified	Number of Records Resulting as Non-Detections by Element
Aluminum	6 of 32
Arsenic	13 of 32
Cadmium	1 of 32
Copper	10 of 32
Iron	8 of 32
Manganese	2 of 32
Selenium	1 of 32
Silver	1 of 32
Zinc	8 of 32
Mercury	1 of 32

The general chemistry parameters which were found in various blanks are presented in Appencix C and include TKN, ammonia, total nitrogen (calculated), 5-day BOD, TOC, and DOC. **Exhibit 3** presents the number of records by parameter, qualified as not detected due to blank contamination.

EXHIBIT 3 Number of Records per Parameter, Qualified as Not Detected Attributable to Blank Contamination

Sample Parameter Qualified	Number of Records Resulting as Non-Detections by Parameter
Nitrogen, Ammonia (as N)	3 of 32
Total Kjeldahl Nitrogen	5 of 32
BOD – 5 day	1 of 32
Dissolved Organic Carbon (DOC)	14 of 32
Total Organic Carbon (TOC)	10 of 32
Total Nitrogen, Calculated	5 of 32

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### Matrix Effects

#### Surrogate Spike Recovery

Surrogate spike compounds were added to every sample analyzed for the organic parameters including field and laboratory blanks as well as field environmental samples. Surrogate spikes consist of organic compounds which are similar to the method targets in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples.

Surrogate spike recoveries were used to monitor both laboratory performance and matrix interferences. Surrogate spike recoveries from field and laboratory blanks were used to evaluate laboratory performance because the blanks should represent an "ideal" sample matrix. Surrogate spike recoveries for field samples were used to evaluate the potential for matrix interferences. According to *Functional Guidelines*, data are not qualified with respect to surrogate recoveries unless one or more volatile surrogates are out of specifications. Semivolatiles are not qualified unless two or more surrogates, within the same fraction (base/neutral or acid fraction), are out of specification.

Three FL-PRO TPH, 20 organochlorine pesticide, and 24 organochlorine herbicide records were qualified as estimated (J/UJ) for surrogate spike recoveries outside control limits as exhibited in **Appendix C**. A single organochlorine pesticide record (heptachlor in sample L0-01-MW1) was rejected. Surrogates, as a significant indicator of potential interferences induced by a matrix, the fact that only a single compound in a single sample was rejected indicates that the specific sample matrix did not influence the overall analytical process or the final numerical sample result.

## Matrix Spike/Matrix Spike Duplicate Precision and Accuracy

A matrix spike is an aliquot of sample spiked with a known concentration of target analyte(s). The spiking occurs prior to sample preparation and analysis. A matrix spike is used to document the bias of a method in a given sample matrix. The matrix spike duplicate is an intra-laboratory split sample spiked with identical concentrations of target analyte(s). The spiking occurs prior to sample preparation and analysis. The MS/MSD pair are used to document the precision and accuracy of a given sample matrix. For the MS/MSD measurement, three aliquots of a single sample are analyzed; one native sample and two aliquots of the same sample spiked with target analytes or compounds. Matrix accuracy is evaluated from the spike recoveries, while matrix precision is evaluated from comparison of the quantitated concentrations of the MS and MSD.

Organic results are typically not qualified based upon the results of MS/MSD statistics alone. Evaluation is in conjunction with surrogate, LCS, and internal standard (if applicable) results. However, professional judgment is often applied in the event of unusually low recoveries (less than 20 percent) and associated samples may be qualified as estimated. 29 organic records were qualified utilizing professional judgment in association with the MS/MSD statistics. These data included a single organochlorine, 11 organophosphorus pesticides, two organophosphorus herbicides, five volatile, and eight semivolatile results

which were all estimated as (J/UJ). Two organophosphorus pesticide compounds (fenthion) were rejected.

Twenty-eight general chemistry results were estimated as (J/UJ). These consisted of 4 results each for bicarbonate alkalinity, total alkalinity, ammonia nitrogen, and TOC. Additionally, 5 TKN, 2 each of nitrate/nitrite results and total nitrogen (by calculation) results were flagged as estimated (J/UJ). Two selenium and two gross alpha / gross beta results were also estimated (J/UJ) for high or low MS or MSD recoveries or precision measurements outside criteria. Additionally, three dissolved organic carbon results were qualified as estimated (J/UJ).

The lack of data rejection (other than the 2 fenthion results) from the most significant measurements of matrix accuracy and precision indicate that the specific sample matrix did not influence the overall analytical process or the final numerical sample result.

## Field Duplicate Sample Results

Field duplicate analyses measure both field and laboratory precision and can also be affected by the homogeneity of the samples. According to the EPA *Functional Guidelines*, there are no qualification criteria for field duplicate precision.

Two field duplicate sets per method were collected during this field effort. Both the native and duplicate samples were analyzed for the same parameters.

An aqueous control limit of  $\pm$  20 percent for the RPD was used for original and duplicate sample values greater than or equal to five times the RL. A control limit of  $\pm$  the RL was used if either the sample or the duplicate value was less than five times the RL for waters. In the cases where only one result is above the five times the RL level and the other is below, the  $\pm$  RL criteria were applied. There were 179 measurable analyte results in the field duplicate database that met the criteria outlined above. Sixteen sample sets were outside the acceptance criteria as defined in this text. The exceptions are presented in **Appendix E.** The small percentage of field duplicate sets outside criteria indicate that the matrix was homogenous and that sampling activities did not affect the overall analytical process or the final numerical sample result.

## **ICPES Serial Dilution Results**

The serial dilution is another measurement used to ascertain whether the matrix is affecting the final numerical result. A sample digestate with concentrations of elements greater than 50 times the MDL is diluted five-fold (1+4) and analyzed. The diluted result is then multiplied by 5 and this concentration compared to the original non-diluted result. If the percent difference (percentD) is greater than 10, then a matrix effect is suspected.

Results of four zinc analyses were flagged as estimated (J) for exceeding the 10 percentD criterion. Zinc is the most common contaminant seen in blanks and samples. The fact that only four metals results (and those being zinc) failed the serial dilution indicates that the specific sample matrix did not influence the other elements, nor the overall analytical process or the final numerical sample result.

## **Laboratory Method Accuracy**

Laboratory control samples (LCSs) or blank spikes (BS) are quality control samples utilized to monitor laboratory method accuracy. This sample consists of target free laboratory water spiked with the target compounds of interest. Thirty-three records out of 5,327 specific targets were qualified as rejected {R} (33/5,327 total records or 0.6 percent). Eighty-six records were qualified as estimated (J/UJ) as documented in **Appendix C.** The rejected data included two organochlorine pesticide (SW-846 8081A) results for heptachlor. The remaining rejections were all semivolatiles (SW846 8270C) including two each of pyridine, 1,2,4-trichlorobenzene and aramite. The remainder included 8 a,a-dimethylphenethylamine results , three records each of 1,4-naphthoquinone, chlorobenzilate, diethyl phthalate, dimethol phthalate, and petachloroethane; and single records of 2, 4-dinitrotoluene and benzyl alcohol. These data indicate that the analytical methods were under control.

#### Sample Results for Measurements near the Method Detection Limit (MDL)

The MDL is defined as the minimum concentration of an analyte that can be identified, measured, and reported with 99 percent confidence that the analyte concentration is greater than zero. Sample results at, or near the MDL are not accurate or precise. At this level, Type I (alpha – false positives) errors can occur. This situation is often caused by instrument noise or low-level background shifts rather than a true analyte signal. As concentrations approach a defined "quantitation limit", the confidence in the values increase.

## **PARCCs**

**Precision**—is defined as the agreement between duplicate results, and was estimated by comparing duplicate matrix spike recoveries, and field duplicate sample results. MS/MSD and BS/BSD laboratory precision was documented as well within control limit criteria for most samples and targets. Field duplicate precision was excellent. Both matrix and method precision criteria were demonstrated as well within criteria.

Accuracy--is a measure of the agreement between an experimental determination and the true value of the parameter being measured. For the organic analyses, each of the samples was spiked with a surrogate compound; and for organic and inorganic analyses a MS/MSD, and LCS were spiked with a known reference material before preparation. Each of these approaches (except the LCS) provides a measure of the matrix effects on the analytical accuracy. The LCS results demonstrate accuracy of the method. Spike recoveries were within the method acceptance limits for the majority of the measurements; therefore, other than the documented exceptions, there was no evidence of matrix interferences that would affect the usability of the data.

Representativeness—this criterion is a qualitative measure of the degree to which sample data accurately and precisely represent a characteristic environmental condition. Representativeness is a subjective parameter and is used to evaluate the efficacy of the sampling plan design. Representativeness was demonstrated by providing full descriptions in the project scoping documents of the sampling techniques and the rationale used for selecting sampling locations.

**Completeness**--is defined as the percentage of measurements that are judged to be valid compared to the total number of measurements made. The percent completeness for all analytical fractions was **99.5 percent (7037/7072)**.

Comparability--is another qualitative measure designed to express the confidence with which one data set may be compared to another. Factors that affect comparability are sample collection and handling techniques, sample matrix type, and analytical method. Comparability is defined by the other PARCC parameters because data sets can be compared with confidence when precision and accuracy are known. Data from this investigation are comparable with other data collected at the site because only EPA methods were used to analyze the sample and EPA Level III QC data are available to support the quality of the data.

### Conclusions

Conclusions of the data quality evaluation process are:

- The laboratory analyzed the samples according to the EPA methods stated in the work plan as demonstrated by the deliverable summaries and analytical run sequences.
- Estimated holding times: 420 SVOC's and seven organochlorine herbicides were reextracted (within 2X holding times) to replace original analyses which failed QC statistics. All of these data records were non-detect and qualified as non-detect and estimated (UJ).
- Three hundred twenty-one semivolatiles (8270C), 45 volatiles (8260B), 87 organophosphorus pesticides (8141), 9 chlorinated herbicides (8151), 14 PCB's (8082), and 47 organochlorine pesticides (8081) were qualified as not detected (UJ). A single Organochlorine pesticide was qualified as "J" estimated. No results were rejected due to calibration deficiencies.
- Three FL-PRO TPH, 20 organochlorine pesticide, and 24 organochlorine herbicide records were qualified for as estimated (J/UJ) for the surrogate outside control limits. A single organochlorine pesticide result (heptachlor in sample L0-01-MW1) was rejected.
- There were two rejections (fenthion) for the MS/MSD criterion not being met. However, the majority of the accuracy and precision results were well within established criteria, indicating that the specific sample matrix did not greatly influence the overall analytical process or the final numerical sample result.
- The field duplicate precision data (91.1 percent) indicate that the specific sample matrix did not greatly influence the overall analytical process or the final numerical sample result.
- Sample results for metals above the MDL but less than the RL may be attributed to instrument noise and/or low level contamination and not site-related activities and as such may be false positives.
- Thirty-three records (of 5,327) were rejected due to low LCS recoveries.

- Sample results for target organic compounds above the MDL but less than the RL should be considered as uncertain but indicative of the presence of that compound at an estimated concentration.
- Matrix and method spike and surrogate recoveries (other than the exceptions
  documented in the text and tables) indicate that the specific sample matrix did not
  significantly interfere with the analytical process or the final numerical result from the
  laboratory.

The project objectives or PARCCs were met, and the data can be used in the project decision-making process as qualified by the data quality evaluation process.

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## APPENDIX A

Frequency of Detection in Field Samples

		Dissolved	I	Number	Number	Minimum	Maximum	Minimum Reporting	Maximum Reporting	Minimum Detection	Maximum Detection	
Matrix	Analytical Method	?	Parameter	Analyzed	Detected	Detected	Detected	Limit	Limit	Limit	Limit	Units
VG	SW6010B	<u> </u>	Beryllium	24	2	0.00022	0.00022	0.0050	0.0050	0.00020	0.00020	mg/L
/G	SW6010B	_	Cadmium	24	6	0.00066	0.0037	0.0050	0.0050	0.00035	0.00035	mg/L
۷G	SW6010B	_	Barium	24	24	0.0050	0.0065	0.0050	0.0050	0.00044	0.00044	mg/L
۷G	SW6010B	-	Manganese	24	22	0.0043	0.0062	0.0050	0.0050	0.00046	0.00046	mg/L
٧G	SW8081	-	p,p'-DDD	24	1	0.0026	0.0026	0.010	0.010	0.00053	0.00053	μg/L
NG	SW6010B	-	Copper	24	3	0.00098	0.0096	0.0050	0.0050	0.00062	0.00062	mg/L
۷G	SW6010B	-	Silver	24	1	0.00068	0.00068	0.0050	0.0050	0.00065	0.00065	mg/L
NG	SW6010B	-	Zinc	24	6	0.0054	0.014	0.010	0.010	0.00094	0.00094	mg/L
VG	SM4500-NH3-B,C	-	Nitrogen, ammonia (as N)	15	15	0.070	0.35	0.0010	0.20	0.0010	0.0010	mg/L
VG	SW8081	-	p,p'-DDT	24	2	0.0057	0.013	0.010	0.050	0.00022	0.0011	µg/L
۷G	SW6010B	-	Vanadium	24	4	0.0012	0.0014	0.0050	0.0050	0.0011	0.0011	mg/L
٧G	SW6010B	-	Chromium, total	24	9	0.0019	0.0037	0.0050	0.0050	0.0013	0.0013	mg/L
NG	SW6010B	-	Nickel	24	4	0.0018	0.0026	0.0050	0.0050	0.0017	0.0017	mg/L
VG	SW6010B	-	Arsenic	24	18	0.0082	0.019	0.0050	0.0050	0.0018	0.0018	mg/L
NG	SW6010B	-	Lead	24	2	0.0025	0.0052	0.0050	0.0050	0.0022	0.0022	mg/L
VG	SW6010B	-	Antimony	24	2	0.0027	0.0049	0.0050	0.0050	0.0023	0.0023	mg/L
۷G	SW6010B	-	Selenium	24	3	0.024	0.027	0.0050	0.0050	0.0026	0.0026	mg/L
۷G	SW6010B	-	Iron	24	18	0.014	0.19	0.050	0.050	0.0092	0.0092	mg/L
۷G	E354.1	-	nitrogen, nitrite	24	3	0.045	0.045	0.10	0.10	0.012	0.012	mg/L
۷G	E365.2	-	P, total orthophosphate (as P)	24	24	0.13	0.21	0.040	0.040	0.010	0.014	mg/L
۷G	SW6010B	-	Aluminum	24	9	0.018	0.22	0.10	0.10	0.010	0.015	mg/L
۷G	E365.2	-	phosphorus, total (as P)	24	23	0.080	0.32	0.040	0.040	0.010	0.017	mg/L
۷G	E350.1	-	Nitrogen, ammonia (as N)	6	6	0.032	0.47	0.020	0.020	0.017	0.017	mg/L
۷G	E353.2	-	Nitrogen, nitrate-nitrite	24	3	0.021	0.032	0.10	0.10	0.020	0.020	mg/L
۷G	E350.3	-	Nitrogen, ammonia (as N)	3	1	0.39	0.39	0.10	0.10	0.037	0.037	mg/L
۷G	SW6010B	-	Magnesium	24	24	5.1	6.5	0.10	0.10	0.040	0.040	mg/L
۷G	SW6010B	-	Calcium	24	24	49.8	53.8	0.10	0.10	0.050	0.051	mg/L
۷G	SW6010B	-	Potassium	24	24	0.83	2.4	0.50	0.50	0.070	0.075	mg/L
۷G	E150.1	-	ph	24	24	7.2	7.8	0.10	0.10	0.10	0.10	PH UNITS
۷G	E353.2M	-	T. Nitrogen, calculated	24	20	0.22	1.9	0.10	0.10	0.10	0.10	mg/L
۷G	E351.2	-	nitrogen, kjeldahl, total	24	20	0.22	1.9	0.26	0.26	0.13	0.13	mg/L
۷G	SW6010B	-	Sodium	24	24	6.9	14.4	0.30	0.30	0.14	0.14	mg/L
٧G	E325.2	-	Chloride (as CI)	24	24	12.2	30.7	0.50	0.50	0.26	0.27	mg/L
۷G	E180.1	-	turbidity	24	16	0.40	8.0	0.30	0.30	0.30	0.30	NTU
VG	E375.4	-	Sulfate (as SO4)	24	24	0.61	33.6	1.0	2.0	0.22	0.44	mg/L
VG	E310.1	-	Alkalinity, bicarb (as CaCO3)	24	24	115	150	1.0	1.0	0.50	0.50	mg/L
VG	E310.1	-	Alkalinity, total (as CaCO3)	24	24	115	150	1.0	1.0	0.50	0.50	mg/L
۷G	E110.2	-	color	24	24	10.0	25.0	1.0	1.0	1.0	1.0	COLOR UNI
VG	E160.1	-	TDS, (residue, filterable)	24	24	115	331	20.0	20.0	1.0	1.0	mg/L
۷G	SW8260B	-	Acetone	24	1	9.4	9.4	10.0	10.0	1.8	1.8	μg/L
۷G	E415.1	-	Total organic carbon	24	14	1.8	9.0	1.0	5.0	0.37	1.8	mg/L
۷G	E900	-	Alpha, gross	24	1	2.0	2.0	5.0	5.0	2.0	2.0	pCi/L
۷G	E405.1	-	BOD, five day	24	3	3.0	3.0	10.0	10.0	2.0	2.0	mg/L
٧G	E900	-	Beta, gross	24	3	4.0	5.0	3.7	5.0	2.8	4.0	pCi/L
۷G	E365.2	FLDFLT	phosphorus, dissolved (as P)	24	23	0.056	0.37	0.040	0.040	0.010	0.017	mg/L
٧G	E415.1	FLDFLT	Dissolved organic carbon	24	10	1.4	4.9	1.0	5.0	0.37	1.8	mg/L

APPENDIX A
Frequency of Detection in Field Samples

	,							Minimum	Maximum	Minimum	Maximum	
		Dissolved		Number	Number	Minimum	Maximum	Reporting	Reporting	Detection	Detection	
Matrix	Analytical Method	?	Parameter	Analyzed	Detected	Detected	Detected	Limit	Limit	Limit	Limit	Units
WG	SW6010B	-	Beryllium	24	2	0.00022	0.00022	0.0050	0.0050	0.00020	0.00020	mg/L
WS	SW7470A	-	Mercury	8	1	0.000026	0.000026	0.00020	0.00020	0.000025	0.000025	mg/L
WS	SW6010B	-	Barium	8	8	0.0018	0.012	0.0050	0.0050	0.00044	0.00044	mg/L
WS	SW6010B	-	Manganese	8	8	0.011	0.017	0.0050	0.0050	0.00046	0.00046	mg/L
WS	SW6010B	-	Copper	8	3	0.00076	0.0016	0.0050	0.0050	0.00062	0.00062	mg/L
WS	SW6010B	-	Zinc	8	4	0.0018	0.017	0.010	0.010	0.00094	0.00094	mg/L
WS	SM4500-NH3-B,C	-	Nitrogen, ammonia (as N)	5	3	0.070	0.14	0.0010	0.20	0.0010	0.0010	mg/L
WS	SW6010B	-	Vanadium	8	8	0.0019	0.0026	0.0050	0.0050	0.0011	0.0011	mg/L
WS	SW6010B	-	Chromium, total	8	2	0.0018	0.0022	0.0050	0.0050	0.0013	0.0013	mg/L
WS	SW6010B	-	Nickel	8	1	0.0028	0.0028	0.0050	0.0050	0.0017	0.0017	mg/L
WS	SW6010B	-	Arsenic	8	1	0.0070	0.0070	0.0050	0.0050	0.0018	0.0018	mg/L
WS	SW6010B	-	Iron	8	6	0.021	0.060	0.050	0.050	0.0092	0.0092	mg/L
WS	E354.1	-	nitrogen, nitrite	8	4	0.014	0.045	0.10	0.10	0.012	0.012	mg/L
WS	E365.2	-	P, total orthophosphate (as P)	8	4	0.017	0.027	0.040	0.040	0.010	0.014	mg/L
WS	SW6010B	-	Aluminum	8	7	0.070	0.28	0.10	0.10	0.010	0.015	mg/L
WS	E365.2	-	phosphorus, total (as P)	8	7	0.034	0.22	0.040	0.040	0.010	0.017	mg/L
WS	E350.1	-	Nitrogen, ammonia (as N)	2	1	0.032	0.032	0.020	0.020	0.017	0.017	mg/L
WS	E353.2	-	Nitrogen, nitrate-nitrite	8	1	0.021	0.021	0.10	0.10	0.020	0.020	mg/L
WS	SW6010B	-	Magnesium	8	8	2.5	2.7	0.10	0.10	0.040	0.040	mg/L
WS	SW6010B	-	Calcium	8	8	12.9	14.4	0.10	0.10	0.050	0.051	mg/L
WS	SW6010B	-	Potassium	8	8	3.0	3.3	0.50	0.50	0.070	0.075	mg/L
WS	E150.1	-	ph	8	8	6.6	7.5	0.10	0.10	0.10	0.10	PH UNITS
WS	E353.2M	-	T. Nitrogen, calculated	8	7	0.17	1.8	0.10	0.10	0.10	0.10	mg/L
WS	E351.2	-	Nitrogen, Kjeldahl, total	8	7	0.66	1.8	0.26	0.26	0.13	0.13	mg/L
WS	SW6010B	-	Sodium	8	8	19.2	20.9	0.30	0.30	0.14	0.14	mg/L
WS	E375.4	-	Sulfate (as SO4)	8	8	21.6	27.1	1.0	1.0	0.22	0.22	mg/L
WS	E325.2	-	Chloride (as Cl)	8	8	28.9	34.3	0.50	0.50	0.26	0.27	mg/L
WS	E180.1	-	Turbidity	8	8	2.5	33.0	0.30	0.30	0.30	0.30	NTU
WS	E310.1	-	Alkalinity, bicarb (as CaCO3)	8	8	27.0	42.0	1.0	1.0	0.50	0.50	mg/L
WS	E310.1	-	Alkalinity, total (as CaCO3)	8	8	27.0	42.0	1.0	1.0	0.50	0.50	mg/L
WS	E110.2	-	Color	8	8	40.0	60.0	1.0	1.0	1.0	1.0	COLOR UNIT
WS	E160.1	-	TDS, (residue, filterable)	8	8	97.0	301	20.0	20.0	1.0	1.0	mg/L
WS	E405.1	-	BOD, five day	8	6	2.6	3.0	2.0	10.0	2.0	2.0	mg/L
WS	E900	-	Alpha, gross	8	5	2.7	5.1	5.0	5.0	1.9	2.8	pCi/L
WS	E900	-	Beta, gross	8	4	5.0	5.6	3.1	5.0	3.1	5.3	pCi/L
WS	E415.1	-	Total organic carbon	8	8	9.9	62.9	1.0	100	0.36	36.8	mg/L
WS	FLPRO	-	TPH	8	2	120	120	340	354	97.0	101	μg/L
WS	E365.2	FLDFLT	Phosphorus, dissolved (as P)	8	6	0.029	0.13	0.040	0.040	0.017	0.017	mg/L
WS	E415.1	FLDFLT	Dissolved organic carbon	8	7	7.5	42.1	1.0	50.0	0.36	18.4	mg/L

NOTES: WG = Groundwater; WS = Surface Water; NTU = Nephelometric Turbity Units;

FLDFLT = Field Filtered. μg/L = micrograms per liter, mg/L = milligrams per liter, pCi/L = picocuries per liter

APPENDIX A Frequency of Detection in Field Samples

i ichneili	requericy of Defection In Field Samples	Samples						Minimim	Maximim	Minimim	Maximim	
:		Dissolved		Number			Maximum	Reporting	Reporting		Detection	
Matrix		<u>.</u>	Parameter	Analyzed	d Detected		Detected	LIMIT	LIMIT	LIMIT	LIMIT	Units
MG	SW6010B		Beryllium	24	7	0.00022	0.00022	0.0050	0.0050	0.00020	0.00020	mg/L
MG	SW6010B		Cadmium	24	9	0.00066	0.0037	0.0050	0.0050	0.00035	0.00035	mg/L
MG	SW6010B		Barium	24	24	0.0050	0.0065	0.0050	0.0050	0.00044	0.00044	mg/L
WG	SW6010B		Manganese	24	22	0.0043	0.0062	0.0050	0.0050	0.00046	0.00046	mg/L
WG	SW8081		DDD-'q,q	24	<b>-</b>	0.0026	0.0026	0.010	0.010	0.00053	0.00053	µg/L
MG	SW6010B		Copper	24	က	0.00098	9600.0	0.0050	0.0050	0.00062	0.00062	mg/L
MG	SW6010B		Silver	24	_	0.00068	0.00068	0.0050	0.0050	0.00065	0.00065	mg/L
MG	SW6010B		Zinc	24	9	0.0054	0.014	0.010	0.010	0.00094	0.00094	mg/L
MG	SM4500-NH3-B,C		Nitrogen, ammonia (as N)	15	15	0.070	0.35	0.0010	0.20	0.0010	0.0010	mg/L
MG	SW8081		p,p'-DDT	24	2	0.0057	0.013	0.010	0.050	0.00022	0.0011	µg/L
MG	SW6010B		Vanadium	24	4	0.0012	0.0014	0.0050	0.0050	0.0011	0.0011	mg/L
MG	SW6010B		Chromium, total	24	6	0.0019	0.0037	0.0050	0.0050	0.0013	0.0013	mg/L
MG	SW6010B		Nickel	24	4	0.0018	0.0026	0.0050	0.0050	0.0017	0.0017	mg/L
MG	SW6010B		Arsenic	24	18	0.0082	0.019	0.0050	0.0050	0.0018	0.0018	mg/L
MG	SW6010B		Lead	24	7	0.0025	0.0052	0.0050	0.0050	0.0022	0.0022	mg/L
MG	SW6010B		Antimony	24	7	0.0027	0.0049	0.0050	0.0050	0.0023	0.0023	mg/L
MG	SW6010B		Selenium	24	ဗ	0.024	0.027	0.0050	0.0050	0.0026	0.0026	mg/L
MG	SW6010B		Iron	24	18	0.014	0.19	0.050	0.050	0.0092	0.0092	mg/L
MG	E354.1		nitrogen, nitrite	24	ဇ	0.045	0.045	0.10	0.10	0.012	0.012	mg/L
MG	E365.2		P, total orthophosphate (as P)	24	24	0.13	0.21	0.040	0.040	0.010	0.014	mg/L
MG	SW6010B		Aluminum	24	6	0.018	0.22	0.10	0.10	0.010	0.015	mg/L
MG	E365.2		phosphorus, total (as P)	24	23	0.080	0.32	0.040	0.040	0.010	0.017	mg/L
MG	E350.1		Nitrogen, ammonia (as N)	9	9	0.032	0.47	0.020	0.020	0.017	0.017	mg/L
MG	E353.2		Nitrogen, nitrate-nitrite	24	က	0.021	0.032	0.10	0.10	0.020	0.020	mg/L
MG	E350.3		Nitrogen, ammonia (as N)	က	_	0.39	0.39	0.10	0.10	0.037	0.037	mg/L
MG	SW6010B		Magnesium	24	24	5.1	6.5	0.10	0.10	0.040	0.040	mg/L
MG	SW6010B		Calcium	24	24	49.8	53.8	0.10	0.10	0.050	0.051	mg/L
MG	SW6010B		Potassium	24	24	0.83	2.4	0.50	0.50	0.070	0.075	mg/L
MG	E150.1		hd	24	24	7.2	7.8	0.10	0.10	0.10	0.10	PH UNITS
MG	E353.2M		T. Nitrogen, calculated	24	20	0.22	1.9	0.10	0.10	0.10	0.10	mg/L
MG	E351.2		nitrogen, kjeldahl, total	24	20	0.22	1.9	0.26	0.26	0.13	0.13	mg/L
MG	SW6010B		Sodium	24	24	6.9	14.4	0.30	0.30	0.14	0.14	mg/L
MG	E325.2		Chloride (as CI)	24	24	12.2	30.7	0.50	0.50	0.26	0.27	mg/L
MG	E180.1		turbidity	24	16	0.40	8.0	0.30	0.30	0.30	0.30	NTO
MG	E375.4			24	24	0.61	33.6	1.0	2.0	0.22	0.44	mg/L
MG	E310.1		Alkalinity, bicarb (as CaCO3)	24	24	115	150	1.0	1.0	0.50	0.50	mg/L
MG	E310.1		Alkalinity, total (as CaCO3)	24	24	115	150	1.0	1.0	0.50	0.50	mg/L
MG	E110.2		color	24	24	10.0	25.0	1.0	1.0	1.0	1.0	COLOR UNIT
MG	E160.1		TDS, (residue, filterable)	24	24	115	331	20.0	20.0	1.0	1.0	mg/L
MG	SW8260B		Acetone	24	<del>-</del>	9.4	9.4	10.0	10.0	1.8	1.8	µg/L
MG	E415.1		Total organic carbon	24	41	1.8	9.0	1.0	5.0	0.37	1.8	mg/L
MG	E900		Alpha, gross	24	<b>-</b>	2.0	2.0	2.0	2.0	2.0	2.0	pCi/L
MG	E405.1		BOD, five day	24	က	3.0	3.0	10.0	10.0	2.0	2.0	mg/L
MG	E900		Beta, gross	24	က	4.0	2.0	3.7	2.0	2.8	4.0	pCi/L
MG	E365.2	FLDFLT	phosphorus, dissolved (as P)	24	23	0.056	0.37	0.040	0.040	0.010	0.017	mg/L
MG	E415.1	FLDFLT	Dissolved organic carbon	24	10	4.1	4.9	1.0	2.0	0.37	1.8	mg/L

Number	Validation Code	Definition
50	LDP	Laboratory Duplicate Precision out
51	LR	Linear range exceeded. Concentration above linear range.
52	MSA	Quantitated by the method of standard additions
53	MSALL	Global matrix spike flagging
54	MSAR2	method of standard additions R2 out
55	MSDH	Matrix spike duplicate recovery criteria greater than the upper limit
56	MSDL	Matrix spike duplicate recovery criteria less than the lower limit
57	MSDP	Matrix Spike Duplicate RPD criteria exceedance
58	MSH	Matrix spike recovery criteria greater than the upper limit
59	MSL	Matrix spike recovery criteria less than the lower limit
60	NMS	Not Site-specific Matrix Spike
61	NVP	No Valid peak (mostly used for radiological analyses)
62	PH	Sample pH out. Not properly preserved.
63	PRM	Result differs from Preliminary Result
64	PSH	Post spike recovery criteria greater than the upper limit
65	PSL	Post spike recovery criteria less than the lower limit
66	RA	Sample was reanalyzed
67	RE	Sample was re-extracted and reanalyzed
68	RT	Result is outside the laboratory determined retention time window
69	SCRN	Screening method and/or data
70	SDIL	Serial Dilution percentD exceeds the upper control limit
71	SPCC	SPCC Failure
72	SSH	Surrogate recovery greater than upper limit
73	SSL	Surrogate recovery less than lower limit
74	SSR	Surrogate spike recovery <10 percent
75	TBH	Trip blank concentration greater than the RL
76	TBL	Trip blank concentration less than the RL
77	TD	Total Concentration < Dissolved Concentration
78	TEMP	Cooler temperature out upon arrival
79	TIC	Tentatively identified compound
80	TN	GC/MS tune does not meet criteria
81	X2C	Second Column/Detector confirmation not reported
82	XCC	No Continuing Calibration analyzed in the analytical batch
83	X-DL	Data not used due to dilution; another value is more appropriate or data was not requested
84	XIC	No initial calibration analyzed in the analytical batch
85	XICSAB	Interference Check Standard Solutions A&B not reported/provided
86	XICVS	Initial calibration verification standard was not analyzed
87	XLCS	No LCS in the analytical batch
88	XLD	Laboratory Duplicate not reported
89	XMS	Matrix Spike not reported
90	XMSD	Matrix Spike Duplicate not reported
91	X-RE	Data not used due to reanalysis another value is more appropriate or data was not requested
92	XSDIL	Serial Dilution not reported (if MS/MSD requested)

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APPENDIX C
Change in Qualifier Through the Data Validation Process

Change	in Qualifier Through the	Dala Vallual	1011 F100	2622								Final				
		Sample	LR		Dissolved		Lab	Lab	Lab Conc	Final	Final	Conc	Detection	Reporting		
Matrix	Sample ID	Type	Type	Analytical Method	?	Parameter	Result	Qual	Qual	Result	Qual	Qual	Limit	Limit	Units	Validation Notes
WG	LO-05-DUPE	FD FD	71	SW8270C	-	a,a-Dimethylphenethylamine	20.5	U	U	20.5	UJ	U	3.8	20.5	μg/L	2SL,CCVL,ICRSD
WG	LO-05-DUPE	FD		SW8270C	-	kepone	4.1	U	U	4.1	UJ	U	3.2	4.1	μg/L	2SL,ICRSD
WG	LO-05-DUPE	FD		E351.2	-	nitrogen, kjeldahl, total	0.156	В	J	0.156	U	U	0.12	0.26	mg/L	CCBL
WG	LO-05-DUPE	FD		E353.2M	-	Total Nitrogen, calculated	0.156	=	=	0.156	U	U	0	0	mg/L	CCBL
WG	L0-01-DUPE	FD		E415.1	FLDFLT	Diss.organic carbon	1.66	=	=	1.66	U	U	0.368	1	mg/L	CCBL
WG	LO-03-Dup	FD		E415.1	FLDFLT	Diss.organic carbon	2.4	=	=	2.4	Ū	Ū	0.368	1	mg/L	CCBL
WG	LO-05-DUPE	FD		E415.1	FLDFLT	Diss.organic carbon	1.97	=	=	1.97	U	U	0.36	1	mg/L	CCBL
WG	L0-01-DUPE	FD		E415.1	-	Total organic carbon	1.97	=	=	1.97	Ū	U	0.368	1	mg/L	CCBL
WG	LO-05-DUPE	FD		E415.1	-	Total organic carbon	2.21	=	=	2.21	U	U	0.36	1	mg/L	CCBL
WG	LO-03-Dup	FD		SW6010B	-	Aluminum	0.029	В	J	0.029	U	U	0.015	0.1	mg/L	CCBL
WG	L0-00-Dupe	FD		SW6010B	-	Arsenic	0.0105	=	=	0.0105	U	U	0.0018	0.005	mg/L	CCBL
WG	LO-03-Dup	FD		SW6010B	_	Arsenic	0.0109	=	=	0.0109	U	U	0.0018	0.005	mg/L	CCBL
WG	L0-00-Dupe	FD		SW6010B	-	Iron	0.0336	В	J	0.0336	U	U	0.0092	0.05	mg/L	CCBL
WG	LO-04-Dupe	FD		SW6010B	-	Iron	0.0265	В	J	0.0265	U	U	0.0092	0.05	mg/L	CCBL
WG	LO-04-Dupe	FD		SW6010B	-	Manganese	0.00514	=	=	0.00514	U	U	0.00046	0.005	mg/L	CCBL
WG	L0-01-Dup	FD		E415.1	FLDFLT	Diss.organic carbon	2.69	=	=	2.69	U	U	0.368	1	mg/L	CCBL,LBL
WG	L0-01-Dup	FD		SW8260B	-	Acrolein	10	U	U	10	UJ	U	1.4	10	μg/L	CCRRF
WG	L0-00-Dupe	FD		SW8260B	-	Acrolein	10	U	U	10	UJ	U	1.4	10	μg/L	CCRRF,ICRRF
WG	L0-01-DUPE	FD		SW8260B	-	Acrolein	10	U	U	10	UJ	U	1.4	10	μg/L	CCRRF,ICRRF
WG	LO-03-Dup	FD		SW8260B	-	Acrolein	10	Ū	U	10	UJ	U	1.4	10	μg/L	CCRRF,ICRRF
WG	LO-04-Dupe	FD		SW8081	-	endrin aldehyde	0.01	U	U	0.01	UJ	U	0.00031	0.01	μg/L	CCVL
WG	LO-04-Dupe	FD		SW8081	-	endrin ketone	0.01	U	U	0.01	UJ	U	0.00022	0.01	μg/L	CCVL
WG	LO-04-Dupe	FD		SW8081	_	methoxychlor	0.01	U	U	0.01	UJ	U	0.00037	0.01	μg/L	CCVL
WG	LO-04-Dupe	FD		SW8081	-	p,p'-DDT	0.0057	J	J	0.0057	J	J	0.00022	0.01	μg/L	CCVL
WG	LO-04-Dupe	FD		SW8081	-	toxaphene	0.1	U	U	0.1	UJ	U	0.037	0.1	μg/L	CCVL
WG	LO-05-DUPE	FD		SW8082	_	Aroclor-1016	0.5	U	U	0.5	UJ	U	0.36	0.5	μg/L	CCVL
WG	LO-07-Dupe	FD		SW8141	_	bolstar	5.3	U	U	5.3	UJ	U	0.69	5.3	μg/L	CCVL
WG	LO-07-Dupe	FD		SW8141	-	coumaphos	5.3	U	U	5.3	UJ	U	0.5	5.3	μg/L	CCVL
WG	LO-07-Dupe	FD		SW8141	-	demeton-s	5.3	U	U	5.3	UJ	U	0.35	5.3	μg/L	CCVL
WG	LO-03-Dup	FD		SW8141	-	diazinon	5.1	U	U	5.1	UJ	U	0.28	5.1	μg/L	CCVL
WG	LO-03-Dup	FD		SW8141	-	dichlorvos	5.1	U	U	5.1	UJ	U	0.92	5.1	μg/L	CCVL
WG	LO-06-DUP	FD		SW8141	-	dichlorvos	5	U	U	5	UJ	U	0.9	5	μg/L	CCVL
WG	LO-07-Dupe	FD		SW8141	-	disulfoton	5.3	U	U	5.3	UJ	U	0.93	5.3	μg/L	CCVL
WG	LO-07-Dupe	FD		SW8141	-	ethoprop	5.3	U	U	5.3	UJ	U	0.78	5.3	μg/L	CCVL
WG	LO-07-Dupe	FD		SW8141	-	merphos	5.3	U	U	5.3	UJ	U	0.5	5.3	μg/L	CCVL
WG	LO-07-Dupe	FD		SW8141	-	parathion, ethyl	5.3	U	U	5.3	UJ	U	0.5	5.3	μg/L	CCVL
WG	LO-07-Dupe	FD		SW8141	-	phorate	5.3	U	U	5.3	UJ	U	1	5.3	μg/L	CCVL
WG	LO-03-Dup	FD		SW8141	-	stirofos	5.1	U	U	5.1	UJ	U	0.65	5.1	μg/L	CCVL
WG	LO-07-Dupe	FD		SW8141	_	thiodiphosphoric acid tetraethyl ester	5.2	U	U	5.3	UJ	U	0.44	5.3	μg/L	CCVL
	•				-				-							
WG	LO-07-Dupe	FD		SW8141	-	tokuthion (prothiofos)	5.3	U	U	5.3	UJ	U	0.63	5.3	μg/L	CCVL
WG	LO-07-Dupe	FD		SW8141	-	trichloronate	5.3	U	U	5.3	UJ	U	0.59	5.3	μg/L	CCVL
WG	L0-00-Dupe	FD		SW8151	-	dalapon	0.65	U	U	0.65	UJ	U	0.38	0.65	μg/L	CCVL
WG	LO-07-Dupe	FD		SW8260B	-	Acrolein	10	U	U	10	UJ	U	1.4	10	μg/L	CCVL
WG	LO-04-Dupe	FD		SW8260B	-	iodomethane	2	U	U	2	UJ	U	1	2	μg/L	CCVL
WG	LO-04-Dupe	FD		SW8270C	-	Aniline	4.1	U	U	4.1	UJ	U	2.9	4.1	μg/L	CCVL
WG	LO-07-Dupe	FD		SW8270C	-	bis(2-Chloroisopropyl) ether	4.4	U	U	4.4	UJ	U	3.7	4.4	μg/L	CCVL
WG	LO-06-DUP	FD		SW8270C	-	hexachloropropene	4.2	U	U	4.2	UJ	U	2.1	4.2	μg/L	CCVL
WG	LO-04-Dupe	FD		SW8270C	-	kepone	4.1	U	U	4.1	UJ	U	3.2	4.1	μg/L	CCVL
WG	L0-00-Dupe	FD		SW8082	-	Aroclor-1016	0.51	U	U	0.51	UJ	U	0.37	0.51	μg/L	CCVL,ICRSD
WG	LO-04-Dupe	FD		SW8260B	-	Bromomethane	1	U	U	1	UJ	U	1	1	μg/L	CCVL,ICRSD
WG	LO-07-Dupe	FD		SW8270C	-	4-nitroquinoline-n-oxide	22.2	U	U	22.2	UJ	U	4.1	22.2	μg/L	CCVL,ICRSD
WG	LO-06-DUP	FD		SW8270C	-	Aniline	4.2	U	U	4.2	UJ	U	2.9	4.2	μg/L	CCVL,ICRSD
WG	LO-07-Dupe	FD		SW8270C	-	a,a-Dimethylphenethylamine	22.2	U	U	22.2	UJ	U	4.1	22.2	μg/L	CCVL,ICRSSELCSDL
WG	LO-06-DUP	FD		SW8151	-	dalapon	0.62	U	U	0.62	UJ	U	0.37	0.62	μg/L	CCVL,LCSDL,LCSL

APPENDIX C
Change in Qualifier Through the Data Validation Process

Change	in Qualifier Through the	Dala Vallual	1011 F100	2622								Final				
		Sample	LR		Dissolved		Lab	Lab	Lab Conc	Final	Final	Conc	Detection	Reporting		
Matrix	Sample ID	Type	Type	Analytical Method	?	Parameter	Result	Qual	Qual	Result	Qual	Qual	Limit	Limit	Units	Validation Notes
WG	LO-05-DUPE	FD FD	71	SW8270C	-	a,a-Dimethylphenethylamine	20.5	U	U	20.5	UJ	U	3.8	20.5	μg/L	2SL,CCVL,ICRSD
WG	LO-05-DUPE	FD		SW8270C	-	kepone	4.1	U	U	4.1	UJ	U	3.2	4.1	μg/L	2SL,ICRSD
WG	LO-05-DUPE	FD		E351.2	_	nitrogen, kjeldahl, total	0.156	В	J	0.156	U	U	0.12	0.26	mg/L	CCBL
WG	LO-05-DUPE	FD		E353.2M	-	Total Nitrogen, calculated	0.156	=	=	0.156	U	U	0	0	mg/L	CCBL
WG	L0-01-DUPE	FD		E415.1	FLDFLT	Diss.organic carbon	1.66	=	=	1.66	Ū	U	0.368	1	mg/L	CCBL
WG	LO-03-Dup	FD		E415.1	FLDFLT	Diss.organic carbon	2.4	=	=	2.4	U	U	0.368	1	mg/L	CCBL
WG	LO-05-DUPE	FD		E415.1	FLDFLT	Diss.organic carbon	1.97	=	=	1.97	U	U	0.36	1	mg/L	CCBL
WG	L0-01-DUPE	FD		E415.1	_	Total organic carbon	1.97	=	=	1.97	Ū	U	0.368	1	mg/L	CCBL
WG	LO-05-DUPE	FD		E415.1	_	Total organic carbon	2.21	=	=	2.21	U	U	0.36	1	mg/L	CCBL
WG	LO-03-Dup	FD		SW6010B	_	Aluminum	0.029	В	J	0.029	U	U	0.015	0.1	mg/L	CCBL
WG	L0-00-Dupe	FD		SW6010B	-	Arsenic	0.0105	=	=	0.0105	U	U	0.0018	0.005	mg/L	CCBL
WG	LO-03-Dup	FD		SW6010B	-	Arsenic	0.0109	=	=	0.0109	U	U	0.0018	0.005	mg/L	CCBL
WG	L0-00-Dupe	FD		SW6010B	_	Iron	0.0336	В	J	0.0336	U	U	0.0092	0.05	mg/L	CCBL
WG	LO-04-Dupe	FD		SW6010B	-	Iron	0.0265	В	J	0.0265	U	U	0.0092	0.05	mg/L	CCBL
WG	LO-04-Dupe	FD		SW6010B	-	Manganese	0.00514	=	=	0.00514	U	U	0.00046	0.005	mg/L	CCBL
WG	L0-01-Dup	FD		E415.1	FLDFLT	Diss.organic carbon	2.69	=	=	2.69	U	U	0.368	1	mg/L	CCBL,LBL
WG	L0-01-Dup	FD		SW8260B	-	Acrolein	10	U	U	10	UJ	U	1.4	10	μg/L	CCRRF
WG	L0-00-Dupe	FD		SW8260B	_	Acrolein	10	U	U	10	UJ	U	1.4	10	μg/L	CCRRF,ICRRF
WG	L0-01-DUPE	FD		SW8260B	_	Acrolein	10	U	U	10	UJ	U	1.4	10	μg/L	CCRRF,ICRRF
WG	LO-03-Dup	FD		SW8260B	_	Acrolein	10	Ū	Ū	10	UJ	U	1.4	10	μg/L	CCRRF,ICRRF
WG	LO-04-Dupe	FD		SW8081	_	endrin aldehyde	0.01	U	U	0.01	UJ	U	0.00031	0.01	μg/L	CCVL
WG	LO-04-Dupe	FD		SW8081	_	endrin ketone	0.01	U	U	0.01	UJ	U	0.00022	0.01	μg/L	CCVL
WG	LO-04-Dupe	FD		SW8081	-	methoxychlor	0.01	U	U	0.01	UJ	U	0.00037	0.01	μg/L	CCVL
WG	LO-04-Dupe	FD		SW8081	_	p,p'-DDT	0.0057	J	J	0.0057	J	J	0.00022	0.01	μg/L	CCVL
WG	LO-04-Dupe	FD		SW8081	_	toxaphene	0.1	U	U	0.1	UJ	U	0.037	0.1	μg/L	CCVL
WG	LO-05-DUPE	FD		SW8082	-	Aroclor-1016	0.5	U	U	0.5	UJ	U	0.36	0.5	μg/L	CCVL
WG	LO-07-Dupe	FD		SW8141	-	bolstar	5.3	U	U	5.3	UJ	U	0.69	5.3	μg/L	CCVL
WG	LO-07-Dupe	FD		SW8141	_	coumaphos	5.3	U	U	5.3	UJ	U	0.5	5.3	μg/L	CCVL
WG	LO-07-Dupe	FD		SW8141	-	demeton-s	5.3	U	U	5.3	UJ	U	0.35	5.3	μg/L	CCVL
WG	LO-03-Dup	FD		SW8141	-	diazinon	5.1	U	U	5.1	UJ	U	0.28	5.1	μg/L	CCVL
WG	LO-03-Dup	FD		SW8141	-	dichlorvos	5.1	U	U	5.1	UJ	U	0.92	5.1	μg/L	CCVL
WG	LO-06-DUP	FD		SW8141	-	dichlorvos	5	U	U	5	UJ	U	0.9	5	μg/L	CCVL
WG	LO-07-Dupe	FD		SW8141	-	disulfoton	5.3	U	U	5.3	UJ	U	0.93	5.3	μg/L	CCVL
WG	LO-07-Dupe	FD		SW8141	-	ethoprop	5.3	U	U	5.3	UJ	U	0.78	5.3	μg/L	CCVL
WG	LO-07-Dupe	FD		SW8141	-	merphos	5.3	U	U	5.3	UJ	U	0.5	5.3	μg/L	CCVL
WG	LO-07-Dupe	FD		SW8141	-	parathion, ethyl	5.3	U	U	5.3	UJ	U	0.5	5.3	μg/L	CCVL
WG	LO-07-Dupe	FD		SW8141	-	phorate	5.3	U	U	5.3	UJ	U	1	5.3	μg/L	CCVL
WG	LO-03-Dup	FD		SW8141	-	stirofos	5.1	U	U	5.1	UJ	U	0.65	5.1	μg/L	CCVL
WG	LO-07-Dupe	FD		SW8141	_	thiodiphosphoric acid tetraethyl ester	5.2	U	U	5.3	UJ	U	0.44	5.3	μg/L	CCVL
	•				-				-							
WG	LO-07-Dupe	FD		SW8141	-	tokuthion (prothiofos)	5.3	U	U	5.3	UJ	U	0.63	5.3	μg/L	CCVL
WG	LO-07-Dupe	FD		SW8141	-	trichloronate	5.3	U	U	5.3	UJ	U	0.59	5.3	μg/L	CCVL
WG	L0-00-Dupe	FD		SW8151	-	dalapon	0.65	U	U	0.65	UJ	U	0.38	0.65	μg/L	CCVL
WG	LO-07-Dupe	FD		SW8260B	-	Acrolein	10	U	U	10	UJ	U	1.4	10	μg/L	CCVL
WG	LO-04-Dupe	FD		SW8260B	-	iodomethane	2	U	U	2	UJ	U	1	2	μg/L	CCVL
WG	LO-04-Dupe	FD		SW8270C	-	Aniline	4.1	U	U	4.1	UJ	U	2.9	4.1	μg/L	CCVL
WG	LO-07-Dupe	FD		SW8270C	-	bis(2-Chloroisopropyl) ether	4.4	U	U	4.4	UJ	U	3.7	4.4	μg/L	CCVL
WG	LO-06-DUP	FD		SW8270C	-	hexachloropropene	4.2	U	U	4.2	UJ	U	2.1	4.2	μg/L	CCVL
WG	LO-04-Dupe	FD		SW8270C	-	kepone	4.1	U	U	4.1	UJ	U	3.2	4.1	μg/L	CCVL
WG	L0-00-Dupe	FD		SW8082	-	Aroclor-1016	0.51	U	U	0.51	UJ	U	0.37	0.51	μg/L	CCVL,ICRSD
WG	LO-04-Dupe	FD		SW8260B	-	Bromomethane	1	U	U	1	UJ	U	1	1	μg/L	CCVL,ICRSD
WG	LO-07-Dupe	FD		SW8270C	-	4-nitroquinoline-n-oxide	22.2	U	U	22.2	UJ	U	4.1	22.2	μg/L	CCVL,ICRSD
WG	LO-06-DUP	FD		SW8270C	-	Aniline	4.2	U	U	4.2	UJ	U	2.9	4.2	μg/L	CCVL,ICRSD
WG	LO-07-Dupe	FD		SW8270C	-	a,a-Dimethylphenethylamine	22.2	U	U	22.2	UJ	U	4.1	22.2	μg/L	CCVL,ICRSD,LCSDL
WG	LO-06-DUP	FD		SW8151	-	dalapon	0.62	U	U	0.62	UJ	U	0.37	0.62	μg/L	CCVL,LCSDL,LCSL

APPENDIX C
Change in Qualifier Through the Data Validation Process

Orlange	iii Qualilici Triiougiriii	C Data Valida		0033								Final				
		Sample	LR		Dissolved		Lab	Lab	Lab Conc	Final	Final	Conc	Detection	Reporting		
Matrix	Sample ID	Type	Type	Analytical Method	?	Parameter	Result	Qual	Qual	Result	Qual	Qual	Limit	Limit	Units	Validation Notes
WG	LO-05-DUPE	FD		SW8270C	-	a,a-Dimethylphenethylamine	20.5	U	U	20.5	UJ	U	3.8	20.5	μg/L	2SL,CCVL,ICRSD
WG	LO-05-DUPE	FD		SW8270C	-	kepone	4.1	U	U	4.1	UJ	U	3.2	4.1	μg/L	2SL,ICRSD
WG	LO-05-DUPE	FD		E351.2	-	nitrogen, kjeldahl, total	0.156	В	J	0.156	U	U	0.12	0.26	mg/L	CCBL
WG	LO-05-DUPE	FD		E353.2M	-	Total Nitrogen, calculated	0.156	=	=	0.156	U	U	0	0	mg/L	CCBL
WG	L0-01-DUPE	FD		E415.1	FLDFLT	Diss.organic carbon	1.66	=	=	1.66	U	U	0.368	1	mg/L	CCBL
WG	LO-03-Dup	FD		E415.1	FLDFLT	Diss.organic carbon	2.4	=	=	2.4	U	U	0.368	1	mg/L	CCBL
WG	LO-05-DUPE	FD		E415.1	FLDFLT	Diss.organic carbon	1.97	=	=	1.97	U	U	0.36	1	mg/L	CCBL
WG	L0-01-DUPE	FD		E415.1	-	Total organic carbon	1.97	=	=	1.97	U	U	0.368	1	mg/L	CCBL
WG	LO-05-DUPE	FD		E415.1	-	Total organic carbon	2.21	=	=	2.21	U	U	0.36	1	mg/L	CCBL
WG	LO-03-Dup	FD		SW6010B	-	Aluminum	0.029	В	J	0.029	U	U	0.015	0.1	mg/L	CCBL
WG	L0-00-Dupe	FD		SW6010B	-	Arsenic	0.0105	=	=	0.0105	U	U	0.0018	0.005	mg/L	CCBL
WG	LO-03-Dup	FD		SW6010B	-	Arsenic	0.0109	=	=	0.0109	U	U	0.0018	0.005	mg/L	CCBL
WG	L0-00-Dupe	FD		SW6010B	-	Iron	0.0336	В	J	0.0336	U	U	0.0092	0.05	mg/L	CCBL
WG	LO-04-Dupe	FD		SW6010B	-	Iron	0.0265	В	J	0.0265	U	U	0.0092	0.05	mg/L	CCBL
WG	LO-04-Dupe	FD		SW6010B	-	Manganese	0.00514	=	=	0.00514	U	U	0.00046	0.005	mg/L	CCBL
WG	L0-01-Dup	FD		E415.1	FLDFLT	Diss.organic carbon	2.69	=	=	2.69	U	U	0.368	1	mg/L	CCBL,LBL
WG	L0-01-Dup	FD		SW8260B	-	Acrolein	10	U	U	10	UJ	U	1.4	10	μg/L	CCRRF
WG	L0-00-Dupe	FD		SW8260B	-	Acrolein	10	U	U	10	UJ	U	1.4	10	μg/L	CCRRF,ICRRF
WG	L0-01-DUPE	FD		SW8260B	-	Acrolein	10	U	U	10	UJ	U	1.4	10	μg/L	CCRRF,ICRRF
WG	LO-03-Dup	FD		SW8260B	-	Acrolein	10	U	U	10	UJ	U	1.4	10	μg/L	CCRRF,ICRRF
WG	LO-04-Dupe	FD		SW8081	-	endrin aldehyde	0.01	U	U	0.01	UJ	U	0.00031	0.01	μg/L	CCVL
WG	LO-04-Dupe	FD		SW8081	-	endrin ketone	0.01	U	U	0.01	UJ	U	0.00022	0.01	μg/L	CCVL
WG	LO-04-Dupe	FD		SW8081	-	methoxychlor	0.01	U	U	0.01	UJ	U	0.00037	0.01	μg/L	CCVL
WG	LO-04-Dupe	FD		SW8081	-	p,p'-DDT	0.0057	J	J	0.0057	J	J	0.00022	0.01	μg/L	CCVL
WG	LO-04-Dupe	FD		SW8081	-	toxaphene	0.1	U	U	0.1	UJ	U	0.037	0.1	μg/L	CCVL
WG	LO-05-DUPE	FD		SW8082	-	Aroclor-1016	0.5	U	U	0.5	UJ	U	0.36	0.5	μg/L	CCVL
WG	LO-07-Dupe	FD		SW8141	-	bolstar	5.3	U	U	5.3	UJ	U	0.69	5.3	μg/L	CCVL
WG	LO-07-Dupe	FD		SW8141	-	coumaphos	5.3	U	U	5.3	UJ	U	0.5	5.3	μg/L	CCVL
WG	LO-07-Dupe	FD		SW8141	-	demeton-s	5.3	U	U	5.3	UJ	U	0.35	5.3	μg/L	CCVL
WG	LO-03-Dup	FD		SW8141	-	diazinon	5.1	U	U	5.1	UJ	U	0.28	5.1	μg/L	CCVL
WG	LO-03-Dup	FD		SW8141	-	dichlorvos	5.1	U	U	5.1	UJ	U	0.92	5.1	μg/L	CCVL
WG	LO-06-DUP	FD		SW8141	-	dichlorvos	5	U	U	5	UJ	U	0.9	5	μg/L	CCVL
WG	LO-07-Dupe	FD		SW8141	-	disulfoton	5.3	U	U	5.3	UJ	U	0.93	5.3	μg/L	CCVL
WG	LO-07-Dupe	FD		SW8141	-	ethoprop	5.3	U	U	5.3	UJ	U	0.78	5.3	μg/L	CCVL
WG	LO-07-Dupe	FD		SW8141	-	merphos	5.3	U	U	5.3	UJ	U	0.5	5.3	μg/L	CCVL
WG	LO-07-Dupe	FD		SW8141	-	parathion, ethyl	5.3	U	U	5.3	UJ	U	0.5	5.3	μg/L	CCVL
WG	LO-07-Dupe	FD		SW8141	-	phorate	5.3	U	U	5.3	UJ	U	1	5.3	μg/L	CCVL
WG	LO-03-Dup	FD		SW8141	-	stirofos	5.1	U	U	5.1	UJ	U	0.65	5.1	μg/L	CCVL
WG	LO-07-Dupe	FD		SW8141	-	thiodiphosphoric acid tetraethyl ester	5.3	U	U	5.3	UJ	U	0.44	5.3	μg/L	CCVL
WG	LO-07-Dupe	FD		SW8141	-	tokuthion (prothiofos)	5.3	U	U	5.3	UJ	U	0.63	5.3	μg/L	CCVL
WG	LO-07-Dupe	FD		SW8141	-	trichloronate	5.3	U	U	5.3	UJ	U	0.59	5.3	μg/L	CCVL
WG	L0-00-Dupe	FD		SW8151	-	dalapon	0.65	U	U	0.65	UJ	U	0.38	0.65	μg/L	CCVL
WG	LO-07-Dupe	FD		SW8260B	-	Acrolein	10	U	U	10	UJ	U	1.4	10	μg/L	CCVL
WG	LO-04-Dupe	FD		SW8260B	-	iodomethane	2	U	U	2	UJ	U	1	2	μg/L	CCVL
WG	LO-04-Dupe	FD		SW8270C	-	Aniline	4.1	U	U	4.1	UJ	U	2.9	4.1	μg/L	CCVL
WG	LO-07-Dupe	FD		SW8270C	-	bis(2-Chloroisopropyl) ether	4.4	U	U	4.4	UJ	U	3.7	4.4	μg/L	CCVL
WG	LO-06-DUP	FD		SW8270C	-	hexachloropropene	4.2	U	U	4.2	UJ	U	2.1	4.2	μg/L	CCVL
WG	LO-04-Dupe	FD		SW8270C	-	kepone	4.1	U	U	4.1	UJ	U	3.2	4.1	μg/L	CCVL
WG	L0-00-Dupe	FD		SW8082	-	Aroclor-1016	0.51	U	U	0.51	UJ	U	0.37	0.51	μg/L	CCVL,ICRSD
WG	LO-04-Dupe	FD		SW8260B	-	Bromomethane	1	U	U	1	UJ	U	1	1	μg/L	CCVL,ICRSD
WG	LO-07-Dupe	FD		SW8270C	-	4-nitroquinoline-n-oxide	22.2	U	U	22.2	UJ	U	4.1	22.2	μg/L	CCVL,ICRSD
WG	LO-06-DUP	FD		SW8270C	-	Aniline	4.2	U	U	4.2	UJ	U	2.9	4.2	μg/L	CCVL,ICRSD
WG	LO-07-Dupe	FD		SW8270C	-	a,a-Dimethylphenethylamine	22.2	U	U	22.2	UJ	U	4.1	22.2	μg/L	CCVL,ICRSBLCSDL
WG	LO-06-DUP	FD		SW8151	-	dalapon	0.62	U	U	0.62	UJ	U	0.37	0.62	μg/L	CCVL,LCSDL,LCSL

APPENDIX C
Change in Qualifier Through the Data Validation Process

Onlinge	iii Qualifici Trifougii tii	o Data Vallaa	1011110	0033								Final				
		Sample	LR		Dissolved		Lab	Lab	Lab Conc	Final	Final	Conc	Detection	Reporting		
Matrix	Sample ID	Type	Type	Analytical Method	?	Parameter	Result	Qual	Qual	Result	Qual	Qual	Limit	Limit	Units	Validation Notes
WG	LO-05-DUPE	FD FD	Турс	SW8270C		a,a-Dimethylphenethylamine	20.5	U	U	20.5	UJ	U	3.8	20.5	μg/L	2SL,CCVL,ICRSD
WG	LO-05-DUPE	FD		SW8270C	_	kepone	4.1	Ü	Ü	4.1	UJ	Ü	3.2	4.1	μg/L	2SL,ICRSD
WG	L0-01-DupB	LR	RE	SW8270C	_	2-acetylaminofluorene	4	Ü	U	4	UJ	Ü	2.5	4	μg/L	CCVL
WG	L0-01-MW1B	LR	RE	SW8270C	_	2-acetylaminofluorene	4	U	U	4	UJ	Ü	2.5	4	μg/L	CCVL
WG	L0-00-MW2B	LR	RE	SW8270C	_	kepone	4	Ü	U	4	UJ	Ü	3.1	4	μg/L	CCVL
WG	L0-01-DupB	LR	RE	SW8270C	_	methapyrilene	4	U	U	4	UJ	Ü	3.7	4	μg/L	CCVL
WG	L0-01-MW1B	LR	RE	SW8270C	_	methapyrilene	4	U	U	4	UJ	U	3.7	4	μg/L	CCVL
WG	L0-01-MW-2RE1	LR	RE	SW8270C	_	Aniline	4.2	U	U	4.2	UJ	U	2.9	4.2	μg/L μg/L	CCVL,HTP
WG	L0-01-MW-2RE1	LR	RE	SW8270C	_	4-nitroquinoline-n-oxide	21	U	U	21	UJ	U	3.9	21	μg/L μg/L	CCVL,ICRSD,MSL
WG	LU-U I-IVIVV-ZINE I			3002700	-	4-Ilitioquillollile-II-oxide	21			21			3.9	21	µg/L	CCVL,ICK3D,IVI3L
WG	LO-04-02RE1	LR	RE	SW8151	-	2,4,5-t (trichlorophenoxyacetic acid)	0.53	U	U	0.53	UJ	U	0.12	0.53	μg/L	HTP
WG	LO-04-02RE1	LR	RE	SW8151	-	2,4-d (dichlorophenoxyacetic acid)	0.53	U	U	0.53	UJ	U	0.16	0.53	μg/L	HTP
WG	LO-04-02RE1	LR	RE	SW8151	-	dichloroprop	0.53	U	U	0.53	UJ	U	0.19	0.53	μg/L	HTP
WG	LO-04-02RE1	LR	RE	SW8151	-	dinoseb	0.53	U	U	0.53	UJ	U	0.059	0.53	μg/L	HTP
WG	LO-04-02RE1	LR	RE	SW8151	-	Picloram	0.53	U	U	0.53	UJ	U	0.078	0.53	μg/L	HTP
WG	LO-04-02RE1	LR	RE	SW8151	-	silvex (2,4,5-tp)	0.53	Ū	Ū	0.53	UJ	Ū	0.04	0.53	μg/L	HTP
WG	L0-00-DupeRE1	LR	RE	SW8270C	_	1,2,4,5-tetrachlorobenzene	4.2	Ū	Ū	4.2	UJ	Ū	2.3	4.2	μg/L	HTP
WG	L0-00-MW1RE1	LR	RE	SW8270C	_	1,2,4,5-tetrachlorobenzene	4.2	Ü	Ü	4.2	UJ	Ü	2.3	4.2	μg/L	HTP
WG	L0-01-MW-2RE1	LR	RE	SW8270C	_	1,2,4,5-tetrachlorobenzene	4.2	Ü	Ü	4.2	UJ	Ü	2.3	4.2	μg/L	HTP
WG	L0-00-DupeRE1	LR	RE	SW8270C	_	1,2,4-Trichlorobenzene	4.2	Ü	Ü	4.2	UJ	Ū	2.7	4.2	μg/L	HTP
WG	L0-00-MW1RE1	LR	RE	SW8270C	_	1,2,4-Trichlorobenzene	4.2	Ü	U	4.2	UJ	Ü	2.7	4.2	μg/L	HTP
WG	L0-01-MW-2RE1	LR	RE	SW8270C	_	1,2,4-Trichlorobenzene	4.2	Ü	U	4.2	UJ	Ü	2.7	4.2	μg/L	HTP
WG	L0-00-DupeRE1	LR	RE	SW8270C	_	1-naphthylamine	10.5	U	U	10.5	UJ	Ü	1.9	10.5	μg/L	HTP
WG	L0-00-MW1RE1	LR	RE	SW8270C	_	1-naphthylamine	10.5	U	U	10.5	UJ	U	1.9	10.5	μg/L	HTP
WG	L0-00-MW-2RE1	LR	RE	SW8270C	_	1-naphthylamine	10.5	U	U	10.5	UJ	U	1.9	10.5	μg/L μg/L	HTP
WG	L0-00-DupeRE1	LR	RE	SW8270C	_	2,4,5-Trichlorophenol	4.2	U	U	4.2	UJ	U	3.6	4.2		HTP
WG	L0-00-MW1RE1	LR	RE	SW8270C	-	2,4,5-Trichlorophenol	4.2	U	U	4.2	UJ	U	3.6	4.2	μg/L	HTP
WG					-		4.2	U	U	4.2	UJ	U			μg/L	
	L0-01-DupRE1	LR	RE	SW8270C	-	2,4,5-Trichlorophenol	•			4			3.4	4	μg/L	HTP
WG	L0-01-MW1RE1	LR	RE	SW8270C	-	2,4,5-Trichlorophenol	4	U	U	•	UJ	U	3.4	4	μg/L	HTP
WG	L0-01-MW-2RE1	LR	RE	SW8270C	-	2,4,5-Trichlorophenol	4.2	U	U	4.2	UJ	U	3.6	4.2	μg/L	HTP
WG	L0-00-DupeRE1	LR	RE	SW8270C	-	2,4,6-Trichlorophenol	4.2	U	U	4.2	UJ	U	3.8	4.2	μg/L	HTP
WG	L0-00-MW1RE1	LR	RE	SW8270C	-	2,4,6-Trichlorophenol	4.2	U	U	4.2	UJ	U	3.8	4.2	μg/L	HTP
WG	L0-01-DupRE1	LR	RE	SW8270C	-	2,4,6-Trichlorophenol	4	U	U	4	UJ	U	3.6	4	μg/L	HTP
WG	L0-01-MW1RE1	LR	RE	SW8270C	-	2,4,6-Trichlorophenol	4	U	U	4	UJ	U	3.6	4	μg/L	HTP
WG	L0-01-MW-2RE1	LR	RE	SW8270C	-	2,4,6-Trichlorophenol	4.2	U	U	4.2	UJ	U	3.8	4.2	μg/L	HTP
WG	L0-00-DupeRE1	LR	RE	SW8270C	-	2,4-Dichlorophenol	4.2	U	U	4.2	UJ	U	3.3	4.2	μg/L	HTP
WG	L0-00-MW1RE1	LR	RE	SW8270C	-	2,4-Dichlorophenol	4.2	U	U	4.2	UJ	U	3.3	4.2	μg/L	HTP
WG	L0-01-DupRE1	LR	RE	SW8270C	-	2,4-Dichlorophenol	4	U	U	4	UJ	U	3.1	4	μg/L	HTP
WG	L0-01-MW1RE1	LR	RE	SW8270C	-	2,4-Dichlorophenol	4	U	U	4	UJ	U	3.1	4	μg/L	HTP
WG	L0-01-MW-2RE1	LR	RE	SW8270C	-	2,4-Dichlorophenol	4.2	U	U	4.2	UJ	U	3.3	4.2	μg/L	HTP
WG	L0-00-DupeRE1	LR	RE	SW8270C	-	2,4-Dimethylphenol	4.2	U	U	4.2	UJ	U	2.4	4.2	μg/L	HTP
WG	L0-00-MW1RE1	LR	RE	SW8270C	-	2,4-Dimethylphenol	4.2	U	U	4.2	UJ	U	2.4	4.2	μg/L	HTP
WG	L0-01-DupRE1	LR	RE	SW8270C	-	2,4-Dimethylphenol	4	U	U	4	UJ	U	2.3	4	μg/L	HTP
WG	L0-01-MW1RE1	LR	RE	SW8270C	-	2,4-Dimethylphenol	4	U	U	4	UJ	U	2.3	4	μg/L	HTP
WG	L0-01-MW-2RE1	LR	RE	SW8270C	-	2,4-Dimethylphenol	4.2	U	U	4.2	UJ	U	2.4	4.2	μg/L	HTP
WG	L0-00-DupeRE1	LR	RE	SW8270C	-	2,4-Dinitrophenol	21	U	U	21	UJ	U	5.9	21	μg/L	HTP
WG	L0-00-MW1RE1	LR	RE	SW8270C	-	2,4-Dinitrophenol	21	Ü	Ü	21	UJ	Ū	5.9	21	μg/L	HTP
WG	L0-01-DupRE1	LR	RE	SW8270C	-	2,4-Dinitrophenol	20	Ü	Ū	20	UJ	Ū	5.6	20	μg/L	HTP
WG	L0-01-MW1RE1	LR	RE	SW8270C	_	2,4-Dinitrophenol	20	Ü	U	20	UJ	Ü	5.6	20	μg/L	HTP
WG	L0-01-MW-2RE1	LR	RE	SW8270C	_	2,4-Dinitrophenol	21	Ü	U	21	UJ	Ü	5.9	21	μg/L	HTP
WG	L0-00-DupeRE1	LR	RE	SW8270C	_	2.4-Dinitrotoluene	4.2	U	U	4.2	UJ	U	2.9	4.2	μg/L	HTP
WG	L0-00-MW1RE1	LR	RE	SW8270C	_	2,4-Dinitrotoluene	4.2	U	U	4.2	UJ	U	2.9	4.2	μg/L μg/L	HTP
WG	L0-01-MW-2RE1	LR	RE	SW8270C	_	2,4-Dinitrotoluene	4.2	U	U	4.2	UJ	U	2.9	4.2	μg/L μg/L	
WG	L0-01-MW-2RE1	LR	RE	SW8270C	_	2-acetylaminofluorene	4.2	U	U	4.2	UJ	IJ	2.6	4.2	μg/L μg/L	HTP 1039
WG	LU-U I-IVIVV-ZRE I	LIN	NE.	34402100	-	2-acetylaitiii lolluolelle	4.4	U	J	4.4	UJ	U	2.0	4.4	µg/L	11111

APPENDIX C
Change in Qualifier Through the Data Validation Process

Change	in Qualifier Through th	e Data Valida	ation Pro	cess								Final				
		Sample	LR		Dissolved		Lab	Lab	Lab Conc	Final	Final	Conc	Detection	Reporting		
Matrix	Sample ID	Type	Type	Analytical Method	?	Parameter	Result	Qual	Qual	Result	Qual	Qual	Limit	Limit	Units	Validation Notes
WG	LO-05-DUPE	FD FD	. )   0	SW8270C		a,a-Dimethylphenethylamine	20.5	U	U	20.5	UJ	U	3.8	20.5	μg/L	2SL,CCVL,ICRSD
WG	LO-05-DUPE	FD		SW8270C	_	kepone	4.1	Ü	Ü	4.1	UJ	Ü	3.2	4.1	μg/L	2SL,ICRSD
WG	L0-00-DupeRE1	LR	RE	SW8270C	_	2-aminonaphthalene	4.2	Ū	Ū	4.2	UJ	Ū	2.6	4.2	μg/L	HTP
WG	L0-00-MW1RE1	LR	RE	SW8270C	_	2-aminonaphthalene	4.2	Ū	Ū	4.2	UJ	Ū	2.6	4.2	μg/L	HTP
WG	L0-01-MW-2RE1	LR	RE	SW8270C	_	2-aminonaphthalene	4.2	Ü	Ü	4.2	UJ	Ü	2.6	4.2	μg/L	HTP
WG	L0-00-DupeRE1	LR	RE	SW8270C	_	2-Chloronaphthalene	4.2	Ü	Ü	4.2	UJ	Ü	2.9	4.2	μg/L	HTP
WG	L0-00-MW1RE1	LR	RE	SW8270C	_	2-Chloronaphthalene	4.2	Ü	Ü	4.2	UJ	Ü	2.9	4.2	μg/L	HTP
WG	L0-01-MW-2RE1	LR	RE	SW8270C	_	2-Chloronaphthalene	4.2	Ü	Ü	4.2	UJ	Ü	2.9	4.2	μg/L	HTP
WG	L0-00-DupeRE1	LR	RE	SW8270C	_	2-Chlorophenol	4.2	Ū	Ü	4.2	UJ	Ū	3	4.2	μg/L	HTP
WG	L0-00-MW1RE1	LR	RE	SW8270C	_	2-Chlorophenol	4.2	Ü	Ü	4.2	UJ	Ü	3	4.2	μg/L	HTP
WG	L0-01-DupRE1	LR	RE	SW8270C	_	2-Chlorophenol	4	Ü	Ü	4	UJ	Ü	2.9	4	μg/L	HTP
WG	L0-01-MW1RE1	LR	RE	SW8270C	_	2-Chlorophenol	4	Ū	Ū	4	UJ	Ū	2.9	4	μg/L	HTP
WG	L0-01-MW-2RE1	LR	RE	SW8270C	_	2-Chlorophenol	4.2	Ü	Ü	4.2	UJ	Ü	3	4.2	μg/L	HTP
WG	L0-00-DupeRE1	LR	RE	SW8270C	_	2-Methylnaphthalene	4.2	Ü	Ü	4.2	UJ	Ü	2.9	4.2	μg/L	HTP
WG	L0-00-MW1RE1	LR	RE	SW8270C	_	2-Methylnaphthalene	4.2	Ü	Ü	4.2	UJ	Ü	2.9	4.2	μg/L	HTP
WG	L0-01-MW-2RE1	LR	RE	SW8270C	_	2-Methylnaphthalene	4.2	Ü	Ü	4.2	UJ	Ü	2.9	4.2	μg/L	HTP
WG	L0-00-DupeRE1	LR	RE	SW8270C	_	2-Methylphenol (o-Cresol)	4.2	Ü	Ü	4.2	UJ	Ü	2.7	4.2	μg/L	HTP
WG	L0-00-MW1RE1	LR	RE	SW8270C	_	2-Methylphenol (o-Cresol)	4.2	Ü	Ü	4.2	UJ	Ü	2.7	4.2	μg/L	HTP
WG	L0-01-DupRE1	LR	RE	SW8270C	_	2-Methylphenol (o-Cresol)	4	Ü	Ü	4	UJ	Ü	2.6	4	μg/L	HTP
WG	L0-01-MW1RE1	LR	RE	SW8270C	_	2-Methylphenol (o-Cresol)	4	Ü	Ü	4	UJ	Ü	2.6	4	μg/L	HTP
WG	L0-01-MW-2RE1	LR	RE	SW8270C	_	2-Methylphenol (o-Cresol)	4.2	Ü	Ü	4.2	UJ	Ü	2.7	4.2	μg/L	HTP
WG	L0-00-DupeRE1	LR	RE	SW8270C	_	2-Nitroaniline	4.2	U	Ü	4.2	UJ	U	3.2	4.2	μg/L	HTP
WG	L0-00-MW1RE1	LR	RE	SW8270C	_	2-Nitroaniline	4.2	Ü	U	4.2	UJ	U	3.2	4.2	μg/L	HTP
WG	L0-01-MW-2RE1	LR	RE	SW8270C	_	2-Nitroaniline	4.2	U	U	4.2	UJ	U	3.2	4.2	μg/L	HTP
WG	L0-00-DupeRE1	LR	RE	SW8270C	_	2-picoline (alpha-picoline)	21	U	U	21	UJ	U	1.6	21	μg/L	HTP
WG	L0-00-MW1RE1	LR	RE	SW8270C	-	2-picoline (alpha-picoline)	21	U	U	21	UJ	U	1.6	21	μg/L μg/L	HTP
WG	L0-01-MW-2RE1	LR	RE	SW8270C	_	2-picoline (alpha-picoline)	21	U	U	21	UJ	U	1.6	21	μg/L	HTP
WG	L0-00-DupeRE1	LR	RE	SW8270C	_	3,3'-Dichlorobenzidine	4.2	U	U	4.2	UJ	U	2.8	4.2	μg/L μg/L	HTP
WG	L0-00-DuperE1	LR	RE	SW8270C	_	3,3'-Dichlorobenzidine	4.2	U	U	4.2	UJ	U	2.8	4.2	μg/L μg/L	HTP
WG	L0-01-MW-2RE1	LR	RE	SW8270C	-	3,3'-Dichlorobenzidine	4.2	U	U	4.2	UJ	U	2.8	4.2	μg/L μg/L	HTP
WG	L0-01-MW-2RE1	LR	RE	SW8270C	_	3,3'-dimethylbenzidine	21	U	U	21	UJ	U	6.3	21	μg/L μg/L	HTP
WG	L0-00-DupeRE1	LR	RE	SW8270C	_	3-methylcholanthrene	4.2	U	U	4.2	UJ	U	2.3	4.2	μg/L μg/L	HTP
WG	L0-00-DuperE1	LR	RE	SW8270C	-	3-methylcholanthrene	4.2	U	U	4.2	UJ	U	2.3	4.2		HTP
WG	L0-01-MW-2RE1	LR	RE	SW8270C	-	•	4.2	U	U	4.2	UJ	U	2.3	4.2	μg/L	HTP
WG	L0-00-DupeRE1	LR	RE	SW8270C SW8270C	-	3-methylcholanthrene 3-Nitroaniline	4.2	U	U	4.2	UJ	U	2.3	4.2	μg/L	HTP
WG	L0-00-DupeRE1	LR	RE			3-Nitroaniline		U	U		UJ	U	2.9		μg/L	HTP
				SW8270C SW8270C	-		4.2 4.2	U	U	4.2 4.2		U	2.9	4.2	μg/L	
WG	L0-01-MW-2RE1	LR	RE	SVV8270C	-	3-Nitroaniline	4.2	U	U	4.2	UJ	U	2.9	4.2	μg/L	HTP
WG	L0-00-DupeRE1	LR	RE	SW8270C	-	4-aminobiphenyl (4-biphenylamine)	4.2	U	U	4.2	UJ	U	2.3	4.2	μg/L	HTP
WG	L0-00-MW1RE1	LR	RE	SW8270C	-	4-aminobiphenyl (4-biphenylamine)	4.2	U	U	4.2	UJ	U	2.3	4.2	μg/L	НТР
WG	L0-01-MW-2RE1	LR	RE	SW8270C	-	4-aminobiphenyl (4-biphenylamine)	4.2	U	U	4.2	UJ	U	2.3	4.2	μg/L	НТР
WG	L0-00-DupeRE1	LR	RE	SW8270C	-	4-Bromophenyl phenyl ether	4.2	U	U	4.2	UJ	U	2.4	4.2	μg/L	HTP
WG	L0-00-MW1RE1	LR	RE	SW8270C	-	4-Bromophenyl phenyl ether	4.2	U	U	4.2	UJ	U	2.4	4.2	μg/L	HTP
WG	L0-01-MW-2RE1	LR	RE	SW8270C	-	4-Bromophenyl phenyl ether	4.2	U	U	4.2	UJ	U	2.4	4.2	μg/L	HTP
WG	L0-00-DupeRE1	LR	RE	SW8270C	-	4-Chloroaniline	4.2	U	U	4.2	UJ	U	3.2	4.2	μg/L	HTP
WG	L0-00-MW1RE1	LR	RE	SW8270C	-	4-Chloroaniline	4.2	U	U	4.2	UJ	U	3.2	4.2	μg/L	HTP
WG	L0-01-MW-2RE1	LR	RE	SW8270C	-	4-Chloroaniline	4.2	U	U	4.2	UJ	U	3.2	4.2	μg/L	HTP
WG	L0-00-DupeRE1	LR	RE	SW8270C	-	4-Chlorophenyl phenyl ether	4.2	U	U	4.2	UJ	U	2.6	4.2	μg/L	HTP
WG	L0-00-MW1RE1	LR	RE	SW8270C	-	4-Chlorophenyl phenyl ether	4.2	U	U	4.2	UJ	U	2.6	4.2	μg/L	HTP
WG	L0-01-MW-2RE1	LR	RE	SW8270C	-	4-Chlorophenyl phenyl ether	4.2	U	U	4.2	UJ	U	2.6	4.2	μg/L	HTP
WG	L0-00-DupeRE1	LR	RE	SW8270C	-	4-Methylphenol (p-Cresol)	10.5	U	U	10.5	UJ	U	6.4	10.5	μg/L	HTP
WG	L0-00-MW1RE1	LR	RE	SW8270C	-	4-Methylphenol (p-Cresol)	10.5	U	U	10.5	UJ	U	6.4	10.5	μg/L	HTP 1040
WG	L0-01-DupRE1	LR	RE	SW8270C	-	4-Methylphenol (p-Cresol)	10	U	U	10	UJ	U	6.1	10	μg/L	HTP
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APPENDIX C
Change in Qualifier Through the Data Validation Process

onango .	in Qualifier Through the	Data Validat		,033								Final				
		Sample	LR		Dissolved		Lab	Lab	Lab Conc	Final	Final	Conc	Detection	Reporting		
Matrix	Sample ID	Type	Type	Analytical Method	?	Parameter	Result	Qual	Qual	Result	Qual	Qual	Limit	Limit	Units	Validation Notes
WG	LO-05-DUPE	FD FD	71	SW8270C	-	a,a-Dimethylphenethylamine	20.5	U	U	20.5	UJ	U	3.8	20.5	μg/L	2SL,CCVL,ICRSD
WG	LO-05-DUPE	FD		SW8270C	-	kepone	4.1	U	U	4.1	UJ	U	3.2	4.1	μg/L	2SL,ICRSD
WG	LO-05-DUPE	FD		E351.2	-	nitrogen, kjeldahl, total	0.156	В	J	0.156	U	U	0.12	0.26	mg/L	CCBL
WG	LO-05-DUPE	FD		E353.2M	-	Total Nitrogen, calculated	0.156	=	=	0.156	U	U	0	0	mg/L	CCBL
WG	L0-01-DUPE	FD		E415.1	FLDFLT	Diss.organic carbon	1.66	=	=	1.66	Ū	U	0.368	1	mg/L	CCBL
WG	LO-03-Dup	FD		E415.1	FLDFLT	Diss.organic carbon	2.4	=	=	2.4	U	U	0.368	1	mg/L	CCBL
WG	LO-05-DUPE	FD		E415.1	FLDFLT	Diss.organic carbon	1.97	=	=	1.97	Ū	U	0.36	1	mg/L	CCBL
WG	L0-01-DUPE	FD		E415.1	-	Total organic carbon	1.97	=	=	1.97	Ū	U	0.368	1	mg/L	CCBL
WG	LO-05-DUPE	FD		E415.1	-	Total organic carbon	2.21	=	=	2.21	U	U	0.36	1	mg/L	CCBL
WG	LO-03-Dup	FD		SW6010B	-	Aluminum	0.029	В	J	0.029	U	U	0.015	0.1	mg/L	CCBL
WG	L0-00-Dupe	FD		SW6010B	_	Arsenic	0.0105	=	=	0.0105	U	U	0.0018	0.005	mg/L	CCBL
WG	LO-03-Dup	FD		SW6010B	_	Arsenic	0.0109	=	=	0.0109	U	U	0.0018	0.005	mg/L	CCBL
WG	L0-00-Dupe	FD		SW6010B	-	Iron	0.0336	В	J	0.0336	U	U	0.0092	0.05	mg/L	CCBL
WG	LO-04-Dupe	FD		SW6010B	-	Iron	0.0265	В	J	0.0265	U	U	0.0092	0.05	mg/L	CCBL
WG	LO-04-Dupe	FD		SW6010B	-	Manganese	0.00514	=	=	0.00514	U	U	0.00046	0.005	mg/L	CCBL
WG	L0-01-Dup	FD		E415.1	FLDFLT	Diss.organic carbon	2.69	=	=	2.69	U	U	0.368	1	mg/L	CCBL,LBL
WG	L0-01-Dup	FD		SW8260B	-	Acrolein	10	U	U	10	UJ	U	1.4	10	μg/L	CCRRF
WG	L0-00-Dupe	FD		SW8260B	-	Acrolein	10	U	U	10	UJ	U	1.4	10	μg/L	CCRRF,ICRRF
WG	L0-01-DUPE	FD		SW8260B	-	Acrolein	10	U	U	10	UJ	U	1.4	10	μg/L	CCRRF,ICRRF
WG	LO-03-Dup	FD		SW8260B	-	Acrolein	10	Ū	Ū	10	UJ	U	1.4	10	μg/L	CCRRF,ICRRF
WG	LO-04-Dupe	FD		SW8081	-	endrin aldehyde	0.01	U	U	0.01	UJ	U	0.00031	0.01	μg/L	CCVL
WG	LO-04-Dupe	FD		SW8081	-	endrin ketone	0.01	U	U	0.01	UJ	U	0.00022	0.01	μg/L	CCVL
WG	LO-04-Dupe	FD		SW8081	_	methoxychlor	0.01	U	U	0.01	UJ	U	0.00037	0.01	μg/L	CCVL
WG	LO-04-Dupe	FD		SW8081	-	p,p'-DDT	0.0057	J	J	0.0057	J	J	0.00022	0.01	μg/L	CCVL
WG	LO-04-Dupe	FD		SW8081	-	toxaphene	0.1	U	U	0.1	UJ	U	0.037	0.1	μg/L	CCVL
WG	LO-05-DUPE	FD		SW8082	_	Aroclor-1016	0.5	U	U	0.5	UJ	U	0.36	0.5	μg/L	CCVL
WG	LO-07-Dupe	FD		SW8141	-	bolstar	5.3	U	U	5.3	UJ	U	0.69	5.3	μg/L	CCVL
WG	LO-07-Dupe	FD		SW8141	-	coumaphos	5.3	U	U	5.3	UJ	U	0.5	5.3	μg/L	CCVL
WG	LO-07-Dupe	FD		SW8141	-	demeton-s	5.3	U	U	5.3	UJ	U	0.35	5.3	μg/L	CCVL
WG	LO-03-Dup	FD		SW8141	-	diazinon	5.1	U	U	5.1	UJ	U	0.28	5.1	μg/L	CCVL
WG	LO-03-Dup	FD		SW8141	-	dichlorvos	5.1	U	U	5.1	UJ	U	0.92	5.1	μg/L	CCVL
WG	LO-06-DUP	FD		SW8141	-	dichlorvos	5	U	U	5	UJ	U	0.9	5	μg/L	CCVL
WG	LO-07-Dupe	FD		SW8141	-	disulfoton	5.3	U	U	5.3	UJ	U	0.93	5.3	μg/L	CCVL
WG	LO-07-Dupe	FD		SW8141	-	ethoprop	5.3	U	U	5.3	UJ	U	0.78	5.3	μg/L	CCVL
WG	LO-07-Dupe	FD		SW8141	-	merphos	5.3	U	U	5.3	UJ	U	0.5	5.3	μg/L	CCVL
WG	LO-07-Dupe	FD		SW8141	-	parathion, ethyl	5.3	U	U	5.3	UJ	U	0.5	5.3	μg/L	CCVL
WG	LO-07-Dupe	FD		SW8141	-	phorate	5.3	U	U	5.3	UJ	U	1	5.3	μg/L	CCVL
WG	LO-03-Dup	FD		SW8141	-	stirofos	5.1	U	U	5.1	UJ	U	0.65	5.1	μg/L	CCVL
WG	LO-07-Dupe	FD		SW8141	-	thiodiphosphoric acid tetraethyl ester	5.3	U	U	5.3	UJ	U	0.44	5.3	μg/L	CCVL
WG	LO-07-Dupe	FD		SW8141	-	tokuthion (prothiofos)	5.3	U	U	5.3	UJ	U	0.63	5.3	μg/L	CCVL
WG	LO-07-Dupe	FD		SW8141	-	trichloronate	5.3	U	U	5.3	UJ	U	0.59	5.3	μg/L	CCVL
WG	L0-00-Dupe	FD		SW8151	-	dalapon	0.65	U	U	0.65	UJ	U	0.38	0.65	μg/L	CCVL
WG	LO-07-Dupe	FD		SW8260B	-	Acrolein	10	U	U	10	UJ	U	1.4	10	μg/L	CCVL
WG	LO-04-Dupe	FD		SW8260B	-	iodomethane	2	U	U	2	UJ	U	1	2	μg/L	CCVL
WG	LO-04-Dupe	FD		SW8270C	-	Aniline	4.1	U	U	4.1	UJ	U	2.9	4.1	μg/L	CCVL
WG	LO-07-Dupe	FD		SW8270C	-	bis(2-Chloroisopropyl) ether	4.4	U	U	4.4	UJ	U	3.7	4.4	μg/L	CCVL
WG	LO-06-DUP	FD		SW8270C	-	hexachloropropene	4.2	Ū	U	4.2	UJ	U	2.1	4.2	μg/L	CCVL
WG	LO-04-Dupe	FD		SW8270C	-	kepone	4.1	U	U	4.1	UJ	U	3.2	4.1	μg/L	CCVL
WG	L0-00-Dupe	FD		SW8082	-	Aroclor-1016	0.51	Ū	Ü	0.51	UJ	Ü	0.37	0.51	μg/L	CCVL,ICRSD
WG	LO-04-Dupe	FD		SW8260B	-	Bromomethane	1	Ū	Ü	1	UJ	Ū	1	1	μg/L	CCVL,ICRSD
WG	LO-07-Dupe	FD		SW8270C	-	4-nitroquinoline-n-oxide	22.2	Ū	Ü	22.2	UJ	Ü	4.1	22.2	μg/L	CCVL,ICRSD
WG	LO-06-DUP	FD		SW8270C	-	Aniline	4.2	Ū	Ü	4.2	UJ	Ü	2.9	4.2	μg/L	CCVL,ICRSD
WG	LO-07-Dupe	FD		SW8270C	-	a,a-Dimethylphenethylamine	22.2	Ū	Ü	22.2	UJ	Ü	4.1	22.2	μg/L	CCVL,ICRSP,LCSDL
WG	LO-06-DUP	FD		SW8151	-	dalapon	0.62	U	U	0.62	UJ	U	0.37	0.62	μg/L	CCVL,LCSDL,LCSL

APPENDIX C
Change in Qualifier Through the Data Validation Process

Orlange	iii Qualifici Trifougii tii	o Data Vallaa	1110111110	5033								Final				-
		Sample	LR		Dissolved	I	Lab	Lab	Lab Conc	Final	Final	Conc	Detection	Reporting		
Matrix	Sample ID	Туре	Type	Analytical Method	?	Parameter	Result	Qual	Qual	Result	Qual	Qual	Limit	Limit	Units	Validation Notes
WG	LO-05-DUPE	FD FD	71	SW8270C	-	a,a-Dimethylphenethylamine	20.5	U	U	20.5	UJ	U	3.8	20.5	μg/L	2SL,CCVL,ICRSD
WG	LO-05-DUPE	FD		SW8270C	-	kepone	4.1	U	Ū	4.1	UJ	U	3.2	4.1	μg/L	2SL,ICRSD
WG	L0-00-MW1RE1	LR	RE	SW8270C	_	Isophorone	4.2	U	U	4.2	UJ	U	4	4.2	μg/L	HTP
WG	L0-01-MW-2RE1	LR	RE	SW8270C	_	Isophorone	4.2	Ū	Ū	4.2	UJ	Ü	4	4.2	μg/L	HTP
WG	L0-00-DupeRE1	LR	RE	SW8270C	_	isosafrole	4.2	Ū	Ū	4.2	UJ	Ü	2.7	4.2	μg/L	HTP
WG	L0-00-MW1RE1	LR	RE	SW8270C	_	isosafrole	4.2	Ū	Ü	4.2	UJ	Ü	2.7	4.2	μg/L	HTP
WG	L0-01-MW-2RE1	LR	RE	SW8270C	_	isosafrole	4.2	Ü	U	4.2	UJ	Ü	2.7	4.2	μg/L	HTP
WG	L0-00-DupeRE1	LR	RE	SW8270C	_	methapyrilene	4.2	Ü	Ü	4.2	UJ	Ü	3.9	4.2	μg/L	HTP
WG	L0-01-MW-2RE1	LR	RE	SW8270C	_	methapyrilene	4.2	Ü	U	4.2	UJ	Ü	3.9	4.2	μg/L	HTP
WG	L0-00-DupeRE1	LR	RE	SW8270C	_	methyl methanesulfonate	21	U	U	21	UJ	U	2	21	μg/L	HTP
WG	L0-00-MW1RE1	LR	RE	SW8270C	_	methyl methanesulfonate	21	U	U	21	UJ	U	2	21	μg/L	HTP
WG	L0-01-MW-2RE1	LR	RE	SW8270C	_	methyl methanesulfonate	21	U	U	21	UJ	U	2	21	μg/L	HTP
WG	L0-00-DupeRE1	LR	RE	SW8270C	-	Nitrobenzene	4.2	U	U	4.2	UJ	U	2.9	4.2	μg/L μg/L	HTP
WG	L0-00-MW1RE1	LR	RE	SW8270C	-	Nitrobenzene	4.2	U	U	4.2	UJ	U	2.9	4.2		HTP
WG			RE		-		4.2	U	U	4.2	UJ	U	2.9		μg/L	HTP
	L0-01-MW-2RE1	LR		SW8270C	-	Nitrobenzene		-	U			-		4.2	μg/L	
WG	L0-00-DupeRE1	LR	RE	SW8270C	-	nitrosomethylethylamine	4.2	U	•	4.2	UJ	U	2.8	4.2	μg/L	HTP
WG	L0-00-MW1RE1	LR	RE	SW8270C	-	nitrosomethylethylamine	4.2	U	U	4.2	UJ	U	2.8	4.2	μg/L	HTP
WG	L0-01-MW-2RE1	LR	RE	SW8270C	-	nitrosomethylethylamine	4.2	U	U	4.2	UJ	U	2.8	4.2	μg/L	HTP
WG	L0-00-DupeRE1	LR	RE	SW8270C	-	n-nitrosodiethylamine	4.2	U	U	4.2	UJ	U	3.3	4.2	μg/L	HTP
WG	L0-00-MW1RE1	LR	RE	SW8270C	-	n-nitrosodiethylamine	4.2	U	U	4.2	UJ	U	3.3	4.2	μg/L	HTP
WG	L0-01-MW-2RE1	LR	RE	SW8270C	-	n-nitrosodiethylamine	4.2	U	U	4.2	UJ	U	3.3	4.2	μg/L	HTP
WG	L0-00-DupeRE1	LR	RE	SW8270C	-	n-nitrosodimethylamine	4.2	U	U	4.2	UJ	U	2.3	4.2	μg/L	HTP
WG	L0-00-MW1RE1	LR	RE	SW8270C	-	n-nitrosodimethylamine	4.2	U	U	4.2	UJ	U	2.3	4.2	μg/L	HTP
WG	L0-01-MW-2RE1	LR	RE	SW8270C	-	n-nitrosodimethylamine	4.2	U	U	4.2	UJ	U	2.3	4.2	μg/L	HTP
WG	L0-00-DupeRE1	LR	RE	SW8270C	-	n-nitroso-di-n-butylamine	4.2	U	U	4.2	UJ	U	2.8	4.2	μg/L	HTP
WG	L0-00-MW1RE1	LR	RE	SW8270C	-	n-nitroso-di-n-butylamine	4.2	U	U	4.2	UJ	U	2.8	4.2	μg/L	HTP
WG	L0-01-MW-2RE1	LR	RE	SW8270C	-	n-nitroso-di-n-butylamine	4.2	U	U	4.2	UJ	U	2.8	4.2	μg/L	HTP
WG	L0-00-DupeRE1	LR	RE	SW8270C	-	n-Nitrosodi-n-propylamine	4.2	U	U	4.2	UJ	U	3.2	4.2	μg/L	HTP
WG	L0-00-MW1RE1	LR	RE	SW8270C	-	n-Nitrosodi-n-propylamine	4.2	U	U	4.2	UJ	U	3.2	4.2	μg/L	HTP
WG	L0-01-MW-2RE1	LR	RE	SW8270C	-	n-Nitrosodi-n-propylamine	4.2	U	U	4.2	UJ	U	3.2	4.2	μg/L	HTP
WG	L0-00-DupeRE1	LR	RE	SW8270C	_	n-Nitrosodiphenylamine	4.2	U	U	4.2	UJ	U	3.6	4.2	μg/L	HTP
WG	L0-00-MW1RE1	LR	RE	SW8270C	_	n-Nitrosodiphenylamine	4.2	Ü	Ū	4.2	UJ	Ü	3.6	4.2	μg/L	HTP
WG	L0-01-MW-2RE1	LR	RE	SW8270C	_	n-Nitrosodiphenylamine	4.2	Ū	Ū	4.2	UJ	Ü	3.6	4.2	μg/L	HTP
WG	L0-00-DupeRE1	LR	RE	SW8270C	_	n-nitrosomorpholine	4.2	Ü	U	4.2	UJ	Ü	3.2	4.2	μg/L	HTP
WG	L0-00-MW1RE1	LR	RE	SW8270C	_	n-nitrosomorpholine	4.2	Ü	Ü	4.2	UJ	Ü	3.2	4.2	μg/L	HTP
WG	L0-01-MW-2RE1	LR	RE	SW8270C	_	n-nitrosomorpholine	4.2	Ü	IJ	4.2	UJ	Ü	3.2	4.2	μg/L	HTP
WG	L0-00-DupeRE1	LR	RE	SW8270C	_	n-nitrosopiperidine	4.2	Ü	U	4.2	UJ	U	2.9	4.2	μg/L	HTP
WG	L0-00-MW1RE1	LR	RE	SW8270C	_	n-nitrosopiperidine	4.2	U	U	4.2	UJ	U	2.9	4.2	μg/L	HTP
WG	L0-01-MW-2RE1	LR	RE	SW8270C	_	n-nitrosopiperidine	4.2	U	U	4.2	UJ	U	2.9	4.2	μg/L	HTP
WG	L0-00-DupeRE1	LR	RE	SW8270C	_	n-nitrosopyrrolidine	4.2	U	U	4.2	UJ	U	2.8	4.2	μg/L μg/L	HTP
WG	L0-00-MW1RE1	LR	RE	SW8270C	-	n-nitrosopyrrolidine	4.2	U	U	4.2	UJ	U	2.8	4.2	μg/L μg/L	HTP
WG	L0-01-MW-2RE1	LR	RE	SW8270C	-		4.2	U	U	4.2	UJ	U	2.8	4.2		HTP
WG		LR	RE		-	n-nitrosopyrrolidine	4.2	U	U	4.2	UJ	U	3		μg/L	HTP
WG	L0-00-DupeRE1	LR LR	RE	SW8270C	-	o,o,o-triethyl phosphorothioate	4.2 4.2	U	U	4.2 4.2	UJ	U	3	4.2 4.2	μg/L	HTP
	L0-00-MW1RE1			SW8270C	-	o,o,o-triethyl phosphorothioate		-	IJ			-	-		μg/L	
WG	L0-01-MW-2RE1	LR	RE	SW8270C	-	o,o,o-triethyl phosphorothioate	4.2	U	J	4.2	UJ	U	3	4.2	μg/L	HTP
WG	L0-00-DupeRE1	LR	RE	SW8270C	-	o-toluidine	4.2	U	U	4.2	UJ	U	2.8	4.2	μg/L	HTP
WG	L0-00-MW1RE1	LR	RE	SW8270C	-	o-toluidine	4.2	U	U	4.2	UJ	U	2.8	4.2	μg/L	HTP
WG	L0-01-MW-2RE1	LR	RE	SW8270C	-	o-toluidine	4.2	U	U	4.2	UJ	U	2.8	4.2	μg/L	HTP
WG	L0-01-MW-2RE1	LR	RE	SW8270C	-	p-dimethylaminoazobenzene	4.2	U	U	4.2	UJ	U	2.6	4.2	μg/L	HTP
WG	L0-00-DupeRE1	LR	RE	SW8270C	-	pentachlorobenzene	4.2	U	U	4.2	UJ	U	2.3	4.2	μg/L	HTP
WG	L0-00-MW1RE1	LR	RE	SW8270C	-	pentachlorobenzene	4.2	U	U	4.2	UJ	U	2.3	4.2	μg/L	HTP
WG	L0-01-MW-2RE1	LR	RE	SW8270C	-	pentachlorobenzene	4.2	U	U	4.2	UJ	U	2.3	4.2	μg/L	HTP
WG	L0-00-DupeRE1	LR	RE	SW8270C	-	pentachloroethane	21	U	U	21	UJ	U	2.6	21	μg/L	HTP
WG	L0-00-MW1RE1	LR	RE	SW8270C	-	pentachloroethane	21	U	U	21	UJ	U	2.6	21	μg/L	HTP 1042
WG	L0-01-MW-2RE1	LR	RE	SW8270C	-	pentachloroethane	21	U	U	21	UJ	U	2.6	21	μg/L	HTP 10.2

APPENDIX C
Change in Qualifier Through the Data Validation Process

Change	in Qualifier Through the	Dala Vallual	1011 F100	2622								Final				
		Sample	LR		Dissolved		Lab	Lab	Lab Conc	Final	Final	Conc	Detection	Reporting		
Matrix	Sample ID	Type	Type	Analytical Method	?	Parameter	Result	Qual	Qual	Result	Qual	Qual	Limit	Limit	Units	Validation Notes
WG	LO-05-DUPE	FD FD	71	SW8270C	-	a,a-Dimethylphenethylamine	20.5	U	U	20.5	UJ	U	3.8	20.5	μg/L	2SL,CCVL,ICRSD
WG	LO-05-DUPE	FD		SW8270C	-	kepone	4.1	U	U	4.1	UJ	U	3.2	4.1	μg/L	2SL,ICRSD
WG	LO-05-DUPE	FD		E351.2	-	nitrogen, kjeldahl, total	0.156	В	J	0.156	U	U	0.12	0.26	mg/L	CCBL
WG	LO-05-DUPE	FD		E353.2M	-	Total Nitrogen, calculated	0.156	=	=	0.156	U	U	0	0	mg/L	CCBL
WG	L0-01-DUPE	FD		E415.1	FLDFLT	Diss.organic carbon	1.66	=	=	1.66	U	U	0.368	1	mg/L	CCBL
WG	LO-03-Dup	FD		E415.1	FLDFLT	Diss.organic carbon	2.4	=	=	2.4	Ū	Ū	0.368	1	mg/L	CCBL
WG	LO-05-DUPE	FD		E415.1	FLDFLT	Diss.organic carbon	1.97	=	=	1.97	U	U	0.36	1	mg/L	CCBL
WG	L0-01-DUPE	FD		E415.1	-	Total organic carbon	1.97	=	=	1.97	Ū	U	0.368	1	mg/L	CCBL
WG	LO-05-DUPE	FD		E415.1	-	Total organic carbon	2.21	=	=	2.21	U	U	0.36	1	mg/L	CCBL
WG	LO-03-Dup	FD		SW6010B	-	Aluminum	0.029	В	J	0.029	U	U	0.015	0.1	mg/L	CCBL
WG	L0-00-Dupe	FD		SW6010B	-	Arsenic	0.0105	=	=	0.0105	U	U	0.0018	0.005	mg/L	CCBL
WG	LO-03-Dup	FD		SW6010B	_	Arsenic	0.0109	=	=	0.0109	U	U	0.0018	0.005	mg/L	CCBL
WG	L0-00-Dupe	FD		SW6010B	-	Iron	0.0336	В	J	0.0336	U	U	0.0092	0.05	mg/L	CCBL
WG	LO-04-Dupe	FD		SW6010B	-	Iron	0.0265	В	J	0.0265	U	U	0.0092	0.05	mg/L	CCBL
WG	LO-04-Dupe	FD		SW6010B	-	Manganese	0.00514	=	=	0.00514	U	U	0.00046	0.005	mg/L	CCBL
WG	L0-01-Dup	FD		E415.1	FLDFLT	Diss.organic carbon	2.69	=	=	2.69	U	U	0.368	1	mg/L	CCBL,LBL
WG	L0-01-Dup	FD		SW8260B	-	Acrolein	10	U	U	10	UJ	U	1.4	10	μg/L	CCRRF
WG	L0-00-Dupe	FD		SW8260B	-	Acrolein	10	U	U	10	UJ	U	1.4	10	μg/L	CCRRF,ICRRF
WG	L0-01-DUPE	FD		SW8260B	-	Acrolein	10	U	U	10	UJ	U	1.4	10	μg/L	CCRRF,ICRRF
WG	LO-03-Dup	FD		SW8260B	-	Acrolein	10	Ū	Ū	10	UJ	U	1.4	10	μg/L	CCRRF,ICRRF
WG	LO-04-Dupe	FD		SW8081	-	endrin aldehyde	0.01	U	U	0.01	UJ	U	0.00031	0.01	μg/L	CCVL
WG	LO-04-Dupe	FD		SW8081	-	endrin ketone	0.01	U	U	0.01	UJ	U	0.00022	0.01	μg/L	CCVL
WG	LO-04-Dupe	FD		SW8081	_	methoxychlor	0.01	U	U	0.01	UJ	U	0.00037	0.01	μg/L	CCVL
WG	LO-04-Dupe	FD		SW8081	-	p,p'-DDT	0.0057	J	J	0.0057	J	J	0.00022	0.01	μg/L	CCVL
WG	LO-04-Dupe	FD		SW8081	-	toxaphene	0.1	U	U	0.1	UJ	U	0.037	0.1	μg/L	CCVL
WG	LO-05-DUPE	FD		SW8082	_	Aroclor-1016	0.5	U	U	0.5	UJ	U	0.36	0.5	μg/L	CCVL
WG	LO-07-Dupe	FD		SW8141	-	bolstar	5.3	U	U	5.3	UJ	U	0.69	5.3	μg/L	CCVL
WG	LO-07-Dupe	FD		SW8141	-	coumaphos	5.3	U	U	5.3	UJ	U	0.5	5.3	μg/L	CCVL
WG	LO-07-Dupe	FD		SW8141	-	demeton-s	5.3	U	U	5.3	UJ	U	0.35	5.3	μg/L	CCVL
WG	LO-03-Dup	FD		SW8141	-	diazinon	5.1	U	U	5.1	UJ	U	0.28	5.1	μg/L	CCVL
WG	LO-03-Dup	FD		SW8141	-	dichlorvos	5.1	U	U	5.1	UJ	U	0.92	5.1	μg/L	CCVL
WG	LO-06-DUP	FD		SW8141	-	dichlorvos	5	U	U	5	UJ	U	0.9	5	μg/L	CCVL
WG	LO-07-Dupe	FD		SW8141	-	disulfoton	5.3	U	U	5.3	UJ	U	0.93	5.3	μg/L	CCVL
WG	LO-07-Dupe	FD		SW8141	-	ethoprop	5.3	U	U	5.3	UJ	U	0.78	5.3	μg/L	CCVL
WG	LO-07-Dupe	FD		SW8141	-	merphos	5.3	U	U	5.3	UJ	U	0.5	5.3	μg/L	CCVL
WG	LO-07-Dupe	FD		SW8141	-	parathion, ethyl	5.3	U	U	5.3	UJ	U	0.5	5.3	μg/L	CCVL
WG	LO-07-Dupe	FD		SW8141	-	phorate	5.3	U	U	5.3	UJ	U	1	5.3	μg/L	CCVL
WG	LO-03-Dup	FD		SW8141	-	stirofos	5.1	U	U	5.1	UJ	U	0.65	5.1	μg/L	CCVL
WG	LO-07-Dupe	FD		SW8141	_	thiodiphosphoric acid tetraethyl ester	5.2	U	U	5.3	UJ	U	0.44	5.3	μg/L	CCVL
	•				-				-							
WG	LO-07-Dupe	FD		SW8141	-	tokuthion (prothiofos)	5.3	U	U	5.3	UJ	U	0.63	5.3	μg/L	CCVL
WG	LO-07-Dupe	FD		SW8141	-	trichloronate	5.3	U	U	5.3	UJ	U	0.59	5.3	μg/L	CCVL
WG	L0-00-Dupe	FD		SW8151	-	dalapon	0.65	U	U	0.65	UJ	U	0.38	0.65	μg/L	CCVL
WG	LO-07-Dupe	FD		SW8260B	-	Acrolein	10	U	U	10	UJ	U	1.4	10	μg/L	CCVL
WG	LO-04-Dupe	FD		SW8260B	-	iodomethane	2	U	U	2	UJ	U	1	2	μg/L	CCVL
WG	LO-04-Dupe	FD		SW8270C	-	Aniline	4.1	U	U	4.1	UJ	U	2.9	4.1	μg/L	CCVL
WG	LO-07-Dupe	FD		SW8270C	-	bis(2-Chloroisopropyl) ether	4.4	U	U	4.4	UJ	U	3.7	4.4	μg/L	CCVL
WG	LO-06-DUP	FD		SW8270C	-	hexachloropropene	4.2	U	U	4.2	UJ	U	2.1	4.2	μg/L	CCVL
WG	LO-04-Dupe	FD		SW8270C	-	kepone	4.1	U	U	4.1	UJ	U	3.2	4.1	μg/L	CCVL
WG	L0-00-Dupe	FD		SW8082	-	Aroclor-1016	0.51	U	U	0.51	UJ	U	0.37	0.51	μg/L	CCVL,ICRSD
WG	LO-04-Dupe	FD		SW8260B	-	Bromomethane	1	U	U	1	UJ	U	1	1	μg/L	CCVL,ICRSD
WG	LO-07-Dupe	FD		SW8270C	-	4-nitroquinoline-n-oxide	22.2	U	U	22.2	UJ	U	4.1	22.2	μg/L	CCVL,ICRSD
WG	LO-06-DUP	FD		SW8270C	-	Aniline	4.2	U	U	4.2	UJ	U	2.9	4.2	μg/L	CCVL,ICRSD
WG	LO-07-Dupe	FD		SW8270C	-	a,a-Dimethylphenethylamine	22.2	U	U	22.2	UJ	U	4.1	22.2	μg/L	CCVL,ICRSP3LCSDL
WG	LO-06-DUP	FD		SW8151	-	dalapon	0.62	U	U	0.62	UJ	U	0.37	0.62	μg/L	CCVL,LCSDL,LCSL

APPENDIX C
Change in Qualifier Through the Data Validation Process

Onlange	iii Qualilici Triiougii iii	o Data Vallaa	1110111110	5033								Final				
		Sample	LR		Dissolved	I	Lab	Lab	Lab Conc	Final	Final	Conc	Detection	Reporting		
Matrix	Sample ID	Type	Type	Analytical Method	?	Parameter	Result	Qual	Qual	Result	Qual	Qual	Limit	Limit	Units	Validation Notes
WG	LO-05-DUPE	FD	<u> </u>	SW8270C	-	a,a-Dimethylphenethylamine	20.5	U	U	20.5	UJ	U	3.8	20.5	μg/L	2SL,CCVL,ICRSD
WG	LO-05-DUPE	FD		SW8270C	-	kepone	4.1	U	U	4.1	UJ	U	3.2	4.1	μg/L	2SL,ICRSD
WG	L0-01-MW-2RE1	LR	RE	SW8270C	-	phenacetin	4.2	U	U	4.2	UJ	U	2.8	4.2	μg/L	HTP,ICRSD
WG	L0-00-DupeRE1	LR	RE	SW8270C	-	p-phenylenediamine	21	U	U	21	UJ	U	2.8	21	μg/L	HTP,ICRSD
WG	L0-00-MW1RE1	LR	RE	SW8270C	-	p-phenylenediamine	21	U	U	21	UJ	U	2.8	21	μg/L	HTP,ICRSD
WG	L0-01-MW-2RE1	LR	RE	SW8270C	-	p-phenylenediamine	21	U	U	21	UJ	U	2.8	21	μg/L	HTP,ICRSD
WG	L0-00-DupeRE1	LR	RE	SW8270C	-	pyridine	4.2	U	U	4.2	UJ	U	2.2	4.2	μg/L	HTP,ICRSD
WG	L0-00-MW1RE1	LR	RE	SW8270C	-	pyridine	4.2	U	U	4.2	UJ	U	2.2	4.2	μg/L	HTP,ICRSD
WG	L0-01-MW-2RE1	LR	RE	SW8270C	-	pyridine	4.2	U	U	4.2	UJ	U	2.2	4.2	μg/L	HTP,ICRSD
WG	L0-00-DupeRE1	LR	RE	SW8270C	-	a,a-Dimethylphenethylamine	21	U	U	21	UJ	U	3.9	21	μg/L	HTP,ICRSD,LCSL,LCSP
WG	L0-00-MW1RE1	LR	RE	SW8270C	-	a,a-Dimethylphenethylamine	21	U	U	21	UJ	U	3.9	21	μg/L	HTP,ICRSD,LCSL,LCSP
WG	L0-00-MW1RE1	LR	RE	SW8270C	-	3,3'-dimethylbenzidine	21	U	U	21	UJ	U	6.3	21	μg/L	HTP,ICRSD,LCSP
WG	L0-00-MW1RE1	LR	RE	SW8270C	-	kepone	4.2	U	U	4.2	UJ	U	3.3	4.2	μg/L	HTP,ICRSD,LCSP
WG	LO-04-02RE1	LR	RE	SW8151	-	dicamba	0.53	U	U	0.53	UJ	U	0.036	0.53	μg/L	HTP,LCSDL,LCSL
WG	L0-00-MW1RE1	LR	RE	SW8270C	-	methapyrilene	4.2	U	U	4.2	UJ	U	3.9	4.2	μg/L	HTP,LCSP
WG	L0-01-DupB	LR	RE	SW8270C	-	3-methylcholanthrene	4	U	U	4	UJ	U	2.2	4	μg/L	ICRSD
WG	L0-01-MW1B	LR	RE	SW8270C	-	3-methylcholanthrene	4	U	U	4	UJ	U	2.2	4	μg/L	ICRSD
WG	L0-00-MW2B	LR	RE	SW8270C	-	a,a-Dimethylphenethylamine	20	U	U	20	UJ	U	3.7	20	μg/L	ICRSD
WG	L0-01-MW-2RE1	LR	RE	SW8270C	_	a,a-Dimethylphenethylamine	21	U	U	21	UJ	U	3.9	21	μg/L	ICRSD,MSDL,MSL
WG	L0-01-DupRE1	LR	RE	SW8151	-	dicamba	0.53	U	U	0.53	UJ	U	0.036	0.53	μg/L	LCSDL
WG	L0-00-MW2B	LR	RE	SW8270C	_	1,4-naphthoquinone	4	U	U	4	R	U	3.1	4	μg/L	LCSL
WG	L0-01-DupB	LR	RE	SW8270C	_	1,4-naphthoquinone	4	U	U	4	R	U	3.1	4	μg/L	LCSL
WG	L0-01-MW1B	LR	RE	SW8270C	-	1,4-naphthoquinone	4	U	U	4	R	U	3.1	4	μg/L	LCSL
WG	L0-01-DupB	LR	RE	SW8270C	-	Aramite	4	U	U	4	R	U	2.5	4	μg/L	LCSL
WG	L0-01-MW1B	LR	RE	SW8270C	_	Aramite	4	U	U	4	R	U	2.5	4	μg/L	LCSL
WG	L0-00-MW2C	LR	RE	SW8270C	-	Benzyl alcohol	5	U	U	5	R	U	1.6	5	μg/L	LCSL
WG	L0-00-MW2B	LR	RE	SW8270C	_	chlorobenzilate	4	U	U	4	R	U	2.5	4	μg/L	LCSL
WG	L0-01-DupB	LR	RE	SW8270C	_	chlorobenzilate	4	U	U	4	R	U	2.5	4	μg/L	LCSL
WG	L0-01-MW1B	LR	RE	SW8270C	-	chlorobenzilate	4	U	U	4	R	U	2.5	4	μg/L	LCSL
WG	L0-00-MW2B	LR	RE	SW8270C	-	Diethyl phthalate	4	U	U	4	R	U	2.8	4	μg/L	LCSL
WG	L0-01-DupB	LR	RE	SW8270C	-	Diethyl phthalate	4	U	U	4	R	U	2.8	4	μg/L	LCSL
WG	L0-01-MW1B	LR	RE	SW8270C	-	Diethyl phthalate	4	U	U	4	R	U	2.8	4	μg/L	LCSL
WG	L0-00-MW2B	LR	RE	SW8270C	-	Dimethyl phthalate	4	U	U	4	R	U	3	4	μg/L	LCSL
WG	L0-01-DupB	LR	RE	SW8270C	-	Dimethyl phthalate	4	U	U	4	R	U	3	4	μg/L	LCSL
WG	L0-01-MW1B	LR	RE	SW8270C	-	Dimethyl phthalate	4	U	U	4	R	U	3	4	μg/L	LCSL
WG	L0-00-MW2B	LR	RE	SW8270C	-	pentachloroethane	20	U	U	20	R	U	2.5	20	μg/L	LCSL
WG	L0-01-DupB	LR	RE	SW8270C	-	pentachloroethane	20	U	U	20	R	U	2.5	20	μg/L	LCSL
WG	L0-01-MW1B	LR	RE	SW8270C	-	pentachloroethane	20	U	U	20	R	U	2.5	20	μg/L	LCSL
WG	L0-01-DupB	LR	RE	SW8270C	-	1,3,5-trinitrobenzene	20	U	U	20	UJ	U	2.8	20	μg/L	LCSP
WG	L0-01-MW1B	LR	RE	SW8270C	-	1,3,5-trinitrobenzene	20	U	U	20	UJ	U	2.8	20	μg/L	LCSP
WG	L0-01-DupB	LR	RE	SW8270C	-	4-nitroquinoline-n-oxide	20	U	U	20	UJ	U	3.7	20	μg/L	LCSP
WG	L0-01-MW1B	LR	RE	SW8270C	-	4-nitroquinoline-n-oxide	20	U	U	20	UJ	U	3.7	20	μg/L	LCSP
WG	L0-01-DupB	LR	RE	SW8270C	-	kepone	4	U	U	4	UJ	U	3.1	4	μg/L	LCSP
WG	L0-01-MW1B	LR	RE	SW8270C	-	kepone	4	U	U	4	UJ	U	3.1	4	μg/L	LCSP
WG	L0-01-DupRE1	LR	RE	SW8270C	-	1,4-naphthoquinone	4	U	U	4	R	U	3.1	4	μg/L	RE
WG	L0-01-MW1RE1	LR	RE	SW8270C	-	1,4-naphthoquinone	4	U	U	4	R	U	3.1	4	μg/L	RE
WG	L0-01-DupRE1	LR	RE	SW8270C	-	Aramite	4	U	U	4	R	U	2.5	4	μg/L	RE
WG	L0-01-MW1RE1	LR	RE	SW8270C	-	Aramite	4	U	U	4	R	U	2.5	4	μg/L	RE
WG	L0-00-MW2RE1	LR	RE	SW8270C	-	Benzyl alcohol	10.2	U	U	10.2	R	U	3.2	10.2	μg/L	RE
WG	L0-00-MW2RE1	LR	RE	SW8270C	-	chlorobenzilate	4.1	U	U	4.1	R	U	2.6	4.1	μg/L	RE
WG	L0-01-DupRE1	LR	RE	SW8270C	-	chlorobenzilate	4	U	U	4	R	U	2.5	4	μg/L	RE
WG	L0-01-MW1RE1	LR	RE	SW8270C	-	chlorobenzilate	4	U	U	4	R	U	2.5	4	μg/L	RE
WG	L0-00-MW2RE1	LR	RE	SW8270C	-	Diethyl phthalate	4.1	U	U	4.1	R	U	2.9	4.1	μg/L	RE
WG	L0-01-DupRE1	LR	RE	SW8270C	-	Diethyl phthalate	4	U	U	4	R	U	2.8	4	μg/L	RE 1044
WG	L0-01-MW1RE1	LR	RE	SW8270C	-	Diethyl phthalate	4	U	U	4	R	U	2.8	4	μg/L	RE

APPENDIX C
Change in Qualifier Through the Data Validation Process

Change	in Qualifier Through th	e Data Vallue	ation Fro	ress								Final				
		Sample	LR		Dissolved	I	Lab	Lab	Lab Conc	Final	Final	Conc	Detection	Reporting		
Matrix	Sample ID	Type	Type	Analytical Method	?	Parameter	Result	Qual	Qual	Result	Qual	Qual	Limit	Limit	Units	Validation Notes
WG	LO-05-DUPE	FD FD	71	SW8270C	-	a,a-Dimethylphenethylamine	20.5	U	U	20.5	UJ	U	3.8	20.5	μg/L	2SL,CCVL,ICRSD
WG	LO-05-DUPE	FD		SW8270C	-	kepone	4.1	U	U	4.1	UJ	U	3.2	4.1	μg/L	2SL,ICRSD
WG	L0-00-MW2RE1	LR	RE	SW8270C	-	Dimethyl phthalate	4.1	U	U	4.1	R	U	3.1	4.1	μg/L	RE
WG	L0-01-DupRE1	LR	RE	SW8270C	-	Dimethyl phthalate	4	U	U	4	R	U	3	4	μg/L	RE
WG	L0-01-MW1RE1	LR	RE	SW8270C	-	Dimethyl phthalate	4	U	U	4	R	U	3	4	μg/L	RE
WG	L0-00-MW2RE1	LR	RE	SW8270C	-	pentachloroethane	20.5	U	U	20.5	R	U	2.6	20.5	μg/L	RE
WG	L0-01-DupRE1	LR	RE	SW8270C	-	pentachloroethane	20	U	U	20	R	U	2.5	20	μg/L	RE
WG	L0-01-MW1RE1	LR	RE	SW8270C	-	pentachloroethane	20	U	U	20	R	U	2.5	20	μg/L	RE
WG	L0-01-MW-2C	LR	RE	SW8270C	-	2,3,4,6-tetrachlorophenol	4.2	U	U	4.2	R	U	3.2	4.2	μg/L	SSR
WG	L0-01-MW-2C	LR	RE	SW8270C	-	2,4,5-Trichlorophenol	4.2	U	U	4.2	R	U	3.6	4.2	μg/L	SSR
WG	L0-01-MW-2C	LR	RE	SW8270C	-	2,4,6-Trichlorophenol	4.2	U	U	4.2	R	U	3.8	4.2	μg/L	SSR
WG	L0-01-MW-2C	LR	RE	SW8270C	-	2,4-Dichlorophenol	4.2	U	U	4.2	R	U	3.3	4.2	μg/L	SSR
WG	L0-01-MW-2C	LR	RE	SW8270C	-	2,4-Dimethylphenol	4.2	U	U	4.2	R	U	2.4	4.2	μg/L	SSR
WG	L0-01-MW-2C	LR	RE	SW8270C	-	2,4-Dinitrophenol	21	U	U U	21	R	U	5.9	21	μg/L	SSR
WG	L0-01-MW-2C	LR	RE	SW8270C	-	2,6-dichlorophenol	4.2	U	-	4.2	R	U	3.7	4.2	μg/L	SSR
WG WG	L0-01-MW-2C	LR	RE	SW8270C	-	2-Chlorophenol	4.2	U U	U U	4.2	R	U U	3	4.2	μg/L	SSR
WG	L0-01-MW-2C	LR	RE	SW8270C	-	2-Methylphenol (o-Cresol)	4.2 10.5	-	U	4.2 10.5	R	U	2.7 6.4	4.2 10.5	μg/L	SSR
	L0-01-MW-2C	LR	RE RE	SW8270C	-	4-Methylphenol (p-Cresol)		U U	U		R R	U			μg/L	SSR
WG WG	L0-01-MW-2C L0-01-MW-2C	LR LR	RE RE	SW8270C SW8270C	-	Benzyl alcohol	10.5 21	U	U	10.5 21	R R	U	3.3 2.7	10.5 21	μg/L μg/L	SSR SSR
WG	L0-01-MW-2C	LR	RE	SW8270C	-	Pentachlorophenol Phenol	21	U	U	21	R	U	1.8	21		SSR
WG	LO-04-02	LR N	KE	SW8260B	-	iodomethane	21	U	U	21	K UJ	U	1.8	2	μg/L	2SL
WG	LO-04-02 LO-05-01	N		SW8270C	-	a,a-Dimethylphenethylamine	20.5	U	U	20.5	UJ	U	3.8	20.5	μg/L	2SL,CCVL,ICRSD
WG	LO-05-01 LO-05-02	N		SW8270C	-	a,a-Dimethylphenethylamine	20.5	U	U	20.5	UJ	U	3.8	20.5	μg/L μg/L	2SL,CCVL,ICRSD
WG	LO-05-02 LO-05-01	N		SW8270C SW8270C	-	kepone	4.1	U	U	4.1	UJ	U	3.0	4.1		2SL,CCVL,ICRSD
WG	LO-05-01 LO-05-02	N		SW8270C SW8270C	-	kepone	4.1	U	U	4.1	UJ	U	3.2	4.1	μg/L μg/L	2SL,CCVL,ICRSD 2SL,CCVL,ICRSD
WG	LO-03-02 LO-04-02	N		SW8260B	_	Bromomethane	1	U	U	1	UJ	U	1	1	μg/L μg/L	2SL,ICRSD
WG	LO-04-02 LO-05-01	N		E351.2	_	nitrogen, kjeldahl, total	0.323	=	=	0.323	U	U	0.12	0.26	μg/L mg/L	CCBL
WG	LO-05-02	N		E351.2	-	nitrogen, kjeldahl, total	0.323	=	_	0.323	U	U	0.12	0.26	mg/L	CCBL
WG	LO-07-01	N		E351.2	_	nitrogen, kjeldahl, total	0.478	=	=	0.478	U	U	0.128	0.26	mg/L	CCBL
WG	LO-05-01	N		E353.2M	_	Total Nitrogen, calculated	0.323	=	=	0.323	U	U	0.120	0.20	mg/L	CCBL
WG	LO-05-02	N		E353.2M	_	Total Nitrogen, calculated	0.435	=	=	0.435	U	U	0	0	mg/L	CCBL
WG	LO-07-01	N		E353.2M	_	Total Nitrogen, calculated	0.478	=	=	0.478	Ü	U	0	0	mg/L	CCBL
WG	L0-01-MW-1	N		E415.1	FLDFLT	Diss.organic carbon	1.86	=	=	1.86	Ü	U	0.368	1	mg/L	CCBL
WG	L0-01-MW-2	N		E415.1	FLDFLT	Diss.organic carbon	1.3	=	=	1.3	Ü	Ü	0.368	1	mg/L	CCBL
WG	LO-03-MW1	N		E415.1	FLDFLT	Diss.organic carbon	2.33	=	=	2.33	Ü	Ū	0.368	1	mg/L	CCBL
WG	LO-05-01	N		E415.1	FLDFLT	Diss.organic carbon	2.28	=	=	2.28	Ü	Ü	0.36	1	mg/L	CCBL
WG	LO-05-02	N		E415.1	FLDFLT	Diss.organic carbon	2.46	=	=	2.46	Ü	Ü	0.36	1	mg/L	CCBL
WG	LO-05-01	N		E415.1	_	Total organic carbon	2.18	=	=	2.18	Ü	Ū	0.36	1	mg/L	CCBL
WG	LO-05-02	N		E415.1	-	Total organic carbon	2.37	=	=	2.37	U	U	0.36	1	mg/L	CCBL
WG	LO-03-MW1	N		SW6010B	-	Aluminum	0.0248	В	J	0.0248	Ū	U	0.015	0.1	mg/L	CCBL
WG	LO-04-01	N		SW6010B	-	Aluminum	0.0178	В	J	0.0178	U	U	0.015	0.1	mg/L	CCBL
WG	L0-02-MW2	N		SW6010B	-	Arsenic	0.0124	=	=	0.0124	U	U	0.0018	0.005	mg/L	CCBL
WG	LO-03-MW1	N		SW6010B	-	Arsenic	0.011	=	=	0.011	U	U	0.0018	0.005	mg/L	CCBL
WG	LO-03-MW-2	N		SW6010B	-	Arsenic	0.01	=	=	0.01	U	U	0.0018	0.005	mg/L	CCBL
WG	LO-06-02	N		SW6010B	-	Arsenic	0.00985	=	=	0.00985	U	U	0.0018	0.005	mg/L	CCBL
WG	L0-02-MW2	N		SW6010B	-	Copper	0.0019	В	J	0.0019	U	U	0.00062	0.005	mg/L	CCBL
WG	LO-04-01	N		SW6010B	-	Copper	0.00096	В	J	0.00096	U	U	0.00062	0.005	mg/L	CCBL
WG	LO-06-01	N		SW6010B	-	Copper	0.00088	В	J	0.00088	U	U	0.00062	0.005	mg/L	CCBL
WG	LO-06-02	N		SW6010B	-	Copper	0.00307	В	J	0.00307	U	U	0.00062	0.005	mg/L	CCBL
WG	LO-07-01	N		SW6010B	-	Copper	0.00235	В	J	0.00235	U	U	0.00062	0.005	mg/L	CCBL
WG	LO-07-02	N		SW6010B	-	Copper	0.0014	В	J	0.0014	U	U	0.00062	0.005	mg/L	CCBL
WG	L0-00-MW2	N		SW6010B	-	Iron	0.0228	В	J	0.0228	U	U	0.0092	0.05	mg/L	CCBL
WG	LO-03-MW-2	N		SW6010B	-	Iron	0.0123	В	J	0.0123	U	U	0.0092	0.05	mg/L	CCBL 1045
WG	LO-04-01	N		SW6010B	-	Iron	0.0283	В	J	0.0283	U	U	0.0092	0.05	mg/L	CCBL

APPENDIX C
Change in Qualifier Through the Data Validation Process

		Sample	LR		Dissolved		Lab	Lab	Lab Conc	Final	Final	Final Conc	Detection	Reporting		
Matrix	Sample ID	Type	Type	Analytical Method	?	Parameter	Result	Qual	Qual	Result	Qual	Qual	Limit	Limit	Units	Validation Notes
G	LO-05-DUPE	FD		SW8270C	-	a,a-Dimethylphenethylamine	20.5	U	U	20.5	UJ	U	3.8	20.5	μg/L	2SL,CCVL,ICRSD
G	LO-05-DUPE	FD		SW8270C	_	kepone	4.1	Ū	Ū	4.1	UJ	Ū	3.2	4.1	μg/L	2SL,ICRSD
3	LO-04-01	N		SW6010B	_	Manganese	0.00524	=	=	0.00524		Ū	0.00046	0.005	mg/L	CCBL
3	LO-07-01	N		SW6010B	_	Silver	0.00072		J	0.00072		Ū	0.00065	0.005	mg/L	CCBL
G	L0-02-MW2	N		SW6010B	_	Zinc	0.00448		J	0.00448		Ü	0.00094	0.01	mg/L	CCBL
G	LO-05-02	N		SW7470A	_	Mercury	8.1E-05	В	J	8.1E-05		Ū	0.000025	0.0002	mg/L	CCBL
G	L0-01-MW1	N		E415.1	FLDFLT	Diss.organic carbon	0.685	В	J	0.685	Ü	Ü	0.368	1	mg/L	CCBL,LBL
G	L0-01-MW-1	N		SW6010B	-	Zinc	0.00332		J	0.00332		Ü	0.00094	0.01	mg/L	CCBL,LBL
G	L0-00-MW2	N		E415.1	FLDFLT	Diss.organic carbon	0.68	В	J	0.68	UJ	U	0.368	1	mg/L	CCBL,MSDH
G	L0-01-MW1	N		SW8260B	-	Acrolein	10	U	U	10	UJ	U	1.4	10	μg/L	CCRRF
G	L0-01-MW-1	N		SW8260B	_	Acrolein	10	Ü	Ü	10	UJ	Ü	1.4	10	μg/L	CCRRF
G	LO-04-02	N		SW8270C	_	4-nitroquinoline-n-oxide	21	U	Ü	21	UJ	U	3.9	21	μg/L	CCRRF
G	L0-00-MW1	N		SW8260B	_	Acrolein	10	U	U	10	UJ	U	1.4	10	μg/L	CCRRF,ICRRF
G	L0-01-MW-2	N		SW8260B	_	Acrolein	10	U	U	10	UJ	U	1.4	10	μg/L	CCRRF,ICRRF
G	L0-02-MW2	N		SW8260B SW8260B	_	Acrolein	10	U	U	10	UJ	U	1.4	10	μg/L μg/L	CCRRF,ICRRF
G G	LO-02-WW2 LO-03-MW1	N		SW8260B		Acrolein	10	U	U	10	UJ	U	1.4	10	μg/L μg/L	CCRRF,ICRRF
G	L0-03-MW2	N		SW8270C	-	kepone	4	U	U	4	UJ	U	3.1	4	μg/L μg/L	CCRRF,ICRRF,ICRSI
G G	L0-02-WW2 L0-00-MW1	N		SW8151	-	dalapon	0.64	U	U	0.64	UJ	U	0.38	0.64		CCVF
G G	L0-00-MW1 L0-01-MW-2	N N		SW8081	-	alapon alpha-chlordane	0.64	U	U	0.64	UJ	U	0.38	0.05	μg/L	CCVL
G G		N N			-	•	0.05	U	U	0.05	UJ	U	0.003	0.05	μg/L	CCVL
G G	LO-04-01	N N		SW8081	-	endrin aldehyde		U	U		UJ	U			μg/L	CCVL
	LO-04-02			SW8081	-	endrin aldehyde	0.01		-	0.01			0.00031	0.01	μg/L	
G	LO-04-01	N		SW8081	-	endrin ketone	0.01	U	U	0.01	UJ	U	0.00022	0.01	μg/L	CCVL
G	LO-04-01	N		SW8081	-	methoxychlor	0.01	U	U	0.01	UJ	U	0.00037	0.01	μg/L	CCVL
G	LO-04-02	N		SW8081	-	methoxychlor	0.01	U	U	0.01	UJ	U	0.00037	0.01	μg/L	CCVL
G	LO-04-01	N		SW8081	-	p,p'-DDT	0.01	U	U	0.01	UJ	U	0.00022	0.01	μg/L	CCVL
G	LO-04-02	N		SW8081	-	p,p'-DDT	0.01	U	U	0.01	UJ	U	0.00022	0.01	μg/L	CCVL
G	LO-04-01	N		SW8081	-	toxaphene	0.1	U	U	0.1	UJ	U	0.037	0.1	μg/L	CCVL
G	LO-05-01	N		SW8082	-	Aroclor-1016	0.51	U	U	0.51	UJ	U	0.37	0.51	μg/L	CCVL
G	LO-05-02	N		SW8082	-	Aroclor-1016	0.5	U	U	0.5	UJ	U	0.36	0.5	μg/L	CCVL
G	LO-07-01	N		SW8141	-	bolstar	5.3	U	U	5.3	UJ	U	0.69	5.3	μg/L	CCVL
G	LO-07-02	N		SW8141	-	bolstar	5.1	U	U	5.1	UJ	U	0.68	5.1	μg/L	CCVL
G	LO-07-01	N		SW8141	-	coumaphos	5.3	U	U	5.3	UJ	U	0.5	5.3	μg/L	CCVL
G	LO-07-02	N		SW8141	-	coumaphos	5.1	U	U	5.1	UJ	U	0.49	5.1	μg/L	CCVL
G	LO-07-01	N		SW8141	-	demeton-s	5.3	U	U	5.3	UJ	U	0.35	5.3	μg/L	CCVL
G	LO-07-02	N		SW8141	-	demeton-s	5.1	U	U	5.1	UJ	U	0.34	5.1	μg/L	CCVL
G	L0-02-MW2	N		SW8141	-	diazinon	5	U	U	5	UJ	U	0.27	5	μg/L	CCVL
G	LO-03-MW1	N		SW8141	-	diazinon	5.1	U	U	5.1	UJ	U	0.28	5.1	μg/L	CCVL
G	L0-02-MW2	N		SW8141	-	dichlorvos	5	U	U	5	UJ	U	0.91	5	μg/L	CCVL
G	LO-03-MW1	N		SW8141	-	dichlorvos	5.1	U	U	5.1	UJ	U	0.92	5.1	μg/L	CCVL
G	LO-06-01	N		SW8141	-	dichlorvos	5	U	U	5	UJ	U	0.9	5	μg/L	CCVL
G	LO-06-02	N		SW8141	-	dichlorvos	5	U	U	5	UJ	U	0.9	5	μg/L	CCVL
G	LO-07-01	N		SW8141	-	disulfoton	5.3	U	U	5.3	UJ	U	0.93	5.3	μg/L	CCVL
G	LO-07-02	N		SW8141	-	disulfoton	5.1	U	U	5.1	UJ	U	0.9	5.1	μg/L	CCVL
G	LO-07-01	N		SW8141	-	ethoprop	5.3	U	U	5.3	UJ	U	0.78	5.3	μg/L	CCVL
G	LO-07-02	N		SW8141	-	ethoprop	5.1	U	U	5.1	UJ	U	0.76	5.1	μg/L	CCVL
Э	LO-07-01	N		SW8141	-	merphos	5.3	U	U	5.3	UJ	U	0.5	5.3	μg/L	CCVL
3	LO-07-02	N		SW8141	-	merphos	5.1	Ū	Ü	5.1	UJ	Ū	0.49	5.1	μg/L	CCVL
3	LO-07-01	N		SW8141	-	parathion, ethyl	5.3	Ū	Ü	5.3	UJ	Ū	0.5	5.3	μg/L	CCVL
3	LO-07-02	N		SW8141	-	parathion, ethyl	5.1	Ū	Ü	5.1	UJ	Ū	0.49	5.1	μg/L	CCVL
G	LO-07-01	N		SW8141	_	phorate	5.3	U	Ü	5.3	UJ	U	1	5.3	μg/L	CCVL
G	LO-07-02	N		SW8141	_	phorate	5.1	Ü	Ü	5.1	UJ	U	0.97	5.1	μg/L	CCVL
G	L0-02-MW2	N		SW8141	_	stirofos	5	U	U	5	UJ	U	0.64	5	μg/L	CCVL
G	LO-03-MW1	N		SW8141	_	stirofos	5.1	U	U	5.1	UJ	U	0.65	5.1	μg/L μg/L	CCVL
J	LO-US-IVIVV I	14		JVV0141	-	3010103	J. I	J		J. I	00		0.00	J. I	µg/∟	
G	LO-07-01	N		SW8141	-	thiodiphosphoric acid tetraethyl ester	5.3	U	U	5.3	UJ	U	0.44	5.3	μg/L	_{CCVL} 1046

APPENDIX C
Change in Qualifier Through the Data Validation Process

Change	in Qualifier Through th	e Dala Vallual	1011 1100	re22								Final				
		Sample	LR		Dissolved		Lab	Lab	Lab Conc	Final	Final	Conc	Detection	Reporting		
Matrix	Sample ID	Type	Type	Analytical Method	?	Parameter	Result	Qual	Qual	Result	Qual	Qual	Limit	Limit	Units	Validation Notes
WG	LO-05-DUPE	FD		SW8270C	-	a,a-Dimethylphenethylamine	20.5	U	U	20.5	UJ	U	3.8	20.5	μg/L	2SL,CCVL,ICRSD
WG	LO-05-DUPE	FD		SW8270C	-	kepone	4.1	U	U	4.1	UJ	U	3.2	4.1	μg/L	2SL,ICRSD
WG	LO-07-02	N		CW04.44	_	this dish sock outs sold totas athed sotor	- A	U	U	F 4	UJ	U	0.43	<b>5</b> 4	/1	CCVL
WG	LO-07-02	IN		SW8141	-	thiodiphosphoric acid tetraethyl ester	5.1	U	U	5.1	UJ	U	0.43	5.1	μg/L	CCVL
WG	LO-07-01	N		SW8141	-	tokuthion (prothiofos)	5.3	U	U	5.3	UJ	U	0.63	5.3	μg/L	CCVL
WG	LO-07-02	N		SW8141	-	tokuthion (prothiofos)	5.1	U	U	5.1	UJ	U	0.62	5.1	μg/L	CCVL
WG	LO-07-01	N		SW8141	-	trichloronate	5.3	U	U	5.3	UJ	U	0.59	5.3	μg/L	CCVL
WG	LO-07-02	N		SW8141	-	trichloronate	5.1	U	U	5.1	UJ	U	0.57	5.1	μg/L	CCVL
WG	L0-00-MW2	N		SW8151	-	dalapon	0.64	U	U	0.64	UJ	U	0.38	0.64	μg/L	CCVL
WG	LO-07-01	N		SW8260B	-	Acrolein	10	U	U	10	UJ	U	1.4	10	μg/L	CCVL
WG	LO-07-02	N		SW8260B	-	Acrolein	10	U	U	10	UJ	U	1.4	10	μg/L	CCVL
WG	LO-04-01	N		SW8260B	-	iodomethane	2	U	U	2	UJ	U	1	2	μg/L	CCVL
WG	LO-04-01	N		SW8270C	-	Aniline	4.1	U	U	4.1	UJ	U	2.9	4.1	μg/L	CCVL
WG	LO-07-01	N		SW8270C	-	bis(2-Chloroisopropyl) ether	4.2	U	U	4.2	UJ	U	3.5	4.2	μg/L	CCVL
WG	LO-07-02	N		SW8270C	-	bis(2-Chloroisopropyl) ether	4	U	U	4	UJ	U	3.3	4	μg/L	CCVL
WG	LO-06-01	N		SW8270C	-	hexachloropropene	4.2	U	U	4.2	UJ	U	2.1	4.2	μg/L	CCVL
WG	LO-04-01	N		SW8270C	-	kepone	4.1	U	U	4.1	UJ	U	3.2	4.1	μg/L	CCVL
WG	L0-00-MW1	N		SW8082	-	Aroclor-1016	0.51	U	U	0.51	UJ	U	0.37	0.51	μg/L	CCVL,ICRSD
WG	L0-00-MW2	N		SW8082	-	Aroclor-1016	0.51	U	U	0.51	UJ	U	0.37	0.51	μg/L	CCVL,ICRSD
WG	L0-01-MW-2	N		SW8141	-	dichlorvos	5.3	U	U	5.3	UJ	U	0.96	5.3	μg/L	CCVL,ICRSD
WG	LO-04-01	N		SW8260B	-	Bromomethane	1	U	U	1	UJ	U	1	1	μg/L	CCVL,ICRSD
WG	LO-06-01	N		SW8270C	-	4-nitroquinoline-n-oxide	20.8	U	U	20.8	UJ	U	3.8	20.8	μg/L	CCVL,ICRSD
WG	LO-06-02	N		SW8270C	-	4-nitroquinoline-n-oxide	20.4	U	U	20.4	UJ	U	3.8	20.4	μg/L	CCVL,ICRSD
WG	LO-07-01	N		SW8270C	-	4-nitroquinoline-n-oxide	21	U	U	21	UJ	U	3.9	21	μg/L	CCVL,ICRSD
WG	LO-07-02	N		SW8270C	-	4-nitroquinoline-n-oxide	20	U	U	20	UJ	U	3.7	20	μg/L	CCVL,ICRSD
WG	LO-06-01	N		SW8270C	-	Aniline	4.2	U	U	4.2	UJ	U	2.9	4.2	μg/L	CCVL,ICRSD
WG	LO-06-02	N		SW8270C	-	Aniline	4.1	U	U	4.1	UJ	U	2.8	4.1	μg/L	CCVL,ICRSD
WG	LO-07-01	N		SW8270C	-	a,a-Dimethylphenethylamine	21	U	U	21	UJ	U	3.9	21	μg/L	CCVL,ICRSD,LCSDL
WG	LO-07-02	N		SW8270C	-	a,a-Dimethylphenethylamine	20	U	U	20	UJ	U	3.7	20	μg/L	CCVL,ICRSD,LCSDL
WG	LO-06-01	N		SW8151	-	dalapon	0.62	U	U	0.62	UJ	U	0.37	0.62	μg/L	CCVL,LCSDL,LCSL
WG	LO-06-02	N		SW8151	-	dalapon	0.62	U	U	0.62	UJ	U	0.37	0.62	μg/L	CCVL,LCSDL,LCSL
WG	L0-02-MW2	N		SW8260B	-	trans-1,4-dichloro-2-butene	4	U	U	4	UJ	U	0.72	4	μg/L	CCVL,LCSL,MSL
WG	L0-00-MW2	N		E150.1	_	рН	7.33	=	=	7.33	J	J	0	0	PH	HTA
						•					-			-	UNITS	
WG	L0-00-MW2	N		E180.1	-	turbidity	0.3	U	U	0.3	UJ	U	0.3	0.3	NTU	HTA
WG	LO-07-01	N		E350.1	-	Nitrogen, ammonia (as N)	0.108	=	=	0.108	J	J	0.017	0.02	mg/L	HTA
WG	LO-07-02	N		E350.1	-	Nitrogen, ammonia (as N)	0.474	=	=	0.474	J	J	0.017	0.02	mg/L	HTA
WG	LO-03-MW-2	N		SW8260B	-	Acrolein	10	U	U	10	UJ	U	1.4	10	μg/L	ICRRF
WG	L0-02-MW2	N		SW8270C	-	4-nitroquinoline-n-oxide	20	U	U	20	UJ	U	3.7	20	μg/L	ICRRF,ICRSD
WG	L0-00-MW1	N		SW8081	-	alpha bhc	0.051	U	U	0.051	UJ	U	0.00059	0.051	μg/L	ICRSD
WG	L0-00-MW2	N		SW8081	-	alpha bhc	0.051	U	U	0.051	UJ	U	0.00059	0.051	μg/L	ICRSD
WG	LO-03-MW-2	N		SW8081	-	beta bhc	0.051	U	U	0.051	UJ	U	0.0012	0.051	μg/L	ICRSD
WG	L0-00-MW1	N		SW8081	-	delta bhc	0.051	U	U	0.051	UJ	U	0.0031	0.051	μg/L	ICRSD
WG	L0-00-MW2	N		SW8081	-	delta bhc	0.051	U	U	0.051	UJ	U	0.0031	0.051	μg/L	ICRSD
WG	L0-01-MW-1	N		SW8081	-	endrin aldehyde	0.05	U	U	0.05	UJ	U	0.0015	0.05	μg/L	ICRSD
WG	L0-01-MW-2	N		SW8081	-	endrin aldehyde	0.05	U	U	0.05	UJ	U	0.0015	0.05	μg/L	ICRSD
WG	LO-03-MW-2	N		SW8081	-	endrin aldehyde	0.051	U	U	0.051	UJ	U	0.0015	0.051	μg/L	ICRSD
WG	L0-01-MW-1	N		SW8081	-	methoxychlor	0.05	U	U	0.05	UJ	U	0.0018	0.05	μg/L	ICRSD
WG	L0-01-MW-2	N		SW8081	-	methoxychlor	0.05	U	U	0.05	UJ	U	0.0018	0.05	μg/L	ICRSD
WG	LO-03-MW-2	N		SW8081	-	methoxychlor	0.051	U	U	0.051	UJ	U	0.0018	0.051	μg/L	ICRSD
WG	L0-00-MW1	N		SW8081	-	p,p'-DDT	0.051	U	U	0.051	UJ	U	0.0011	0.051	μg/L	ICRSD
WG	L0-00-MW2	N		SW8081	-	p,p'-DDT	0.051	U	U	0.051	UJ	U	0.0011	0.051	μg/L	ICRSD
WG	L0-01-MW-2	N		SW8082	-	Aroclor-1016	0.5	U	U	0.5	UJ	U	0.36	0.5	μg/L	ICRSD
WG	LO-03-MW1	N		SW8082	-	Aroclor-1254	0.52	U	U	0.52	UJ	U	0.12	0.52	μg/L	ICRSD 1047
WG	LO-03-MW-2	N		SW8082	-	Aroclor-1254	0.51	U	U	0.51	UJ	U	0.12	0.51	μg/L	ICRSD

APPENDIX C
Change in Qualifier Through the Data Validation Process

Change	in Qualifier Through the	e Dala Vallual	1011 1100	2622								Final				
		Sample	LR		Dissolved	Í	Lab	Lab	Lab Conc	Final	Final	Conc	Detection	Reporting		
Matrix	Sample ID	Type	Type	Analytical Method	?	Parameter	Result	Qual	Qual	Result	Qual	Qual	Limit	Limit	Units	Validation Notes
WG	LO-05-DUPE	FD FD	71	SW8270C	-	a,a-Dimethylphenethylamine	20.5	U	U	20.5	UJ	U	3.8	20.5	μg/L	2SL,CCVL,ICRSD
WG	LO-05-DUPE	FD		SW8270C	-	kepone	4.1	U	U	4.1	UJ	U	3.2	4.1	μg/L	2SL,ICRSD
WG	L0-01-MW1	N		SW8141	-	dichlorvos	5.1	U	U	5.1	UJ	U	0.92	5.1	μg/L	ICRSD
WG	L0-01-MW-1	N		SW8141	-	dichlorvos	5	U	U	5	UJ	U	0.9	5	μg/L	ICRSD
WG	L0-01-MW1	N		SW8141	-	mevinphos	5.1	U	U	5.1	UJ	U	0.47	5.1	μg/L	ICRSD
WG	L0-01-MW-1	N		SW8141	-	mevinphos	5	U	U	5	UJ	U	0.46	5	μg/L	ICRSD
WG	L0-00-MW1	N		SW8141	-	naled	5.1	U	U	5.1	UJ	U	0.73	5.1	μg/L	ICRSD
WG	L0-00-MW2	N		SW8141	-	naled	5	U	U	5	UJ	U	0.72	5	μg/L	ICRSD
WG	L0-01-MW1	N		SW8141	-	naled	5.1	U	U	5.1	UJ	U	0.74	5.1	μg/L	ICRSD
WG	L0-01-MW-1	N		SW8141	-	naled	5	U	U	5	UJ	U	0.72	5	μg/L	ICRSD
WG	L0-01-MW-2	N		SW8141	-	naled	5.3	U	U	5.3	UJ	U	0.76	5.3	μg/L	ICRSD
WG	LO-05-01	N		SW8141	-	parathion, methyl	5.1	U	U	5.1	UJ	U	0.55	5.1	μg/L	ICRSD
WG	LO-05-02	N		SW8141	-	parathion, methyl	5.1	U	U	5.1	UJ	U	0.55	5.1	μg/L	ICRSD
WG	LO-03-MW1	N		SW8260B	-	trans-1,2-Dichloroethene	1	U	U	1	UJ	U	0.18	1	μg/L	ICRSD
WG	L0-01-MW-1	N		SW8260B	-	trans-1,4-dichloro-2-butene	4	U	U	4	UJ	U	0.72	4	μg/L	ICRSD
WG	LO-03-MW-2	N		SW8260B	-	trans-1,4-dichloro-2-butene	4	U	U	4	UJ	U	0.72	4	μg/L	ICRSD
WG	LO-04-01	N		SW8260B	-	trans-1,4-dichloro-2-butene	4	U	U	4	UJ	U	0.72	4	μg/L	ICRSD
WG	L0-00-MW2	N		SW8260B	-	Vinyl chloride	1	U	U	1	UJ	U	0.4	1	μg/L	ICRSD
WG	L0-01-MW-2	N		SW8260B	-	Vinyl chloride	1	U	U	1	UJ	U	0.4	1	μg/L	ICRSD
WG	LO-05-01	N		SW8260B	-	Vinyl chloride	1	U	U	1	UJ	U	0.4	1	μg/L	ICRSD
WG	LO-05-02	N		SW8260B	-	Vinyl chloride	1	U	U	1	UJ	U	0.4	1	μg/L	ICRSD
WG	L0-01-MW-1	N		SW8270C	-	1,3,5-trinitrobenzene	20	U	U	20	UJ	U	2.8	20	μg/L	ICRSD
WG	L0-02-MW2	N		SW8270C	-	1,3,5-trinitrobenzene	20	U	U	20	UJ	U	2.8	20	μg/L	ICRSD
WG	LO-07-01	N		SW8270C	-	1,3,5-trinitrobenzene	21	U	U	21	UJ	U	2.9	21	μg/L	ICRSD
WG	LO-07-02	N		SW8270C	-	1,3,5-trinitrobenzene	20	U	U	20	UJ	U	2.8	20	μg/L	ICRSD
WG	L0-02-MW2	N		SW8270C	-	1,3-dinitrobenzene	20	U	U	20	UJ	U	2.5	20	μg/L	ICRSD
WG	LO-05-01	N		SW8270C	-	1,3-dinitrobenzene	20.5	U	U	20.5	UJ	U	2.6	20.5	μg/L	ICRSD
WG	LO-05-02	N		SW8270C	-	1,3-dinitrobenzene	20.5	U	U	20.5	UJ	U	2.6	20.5	μg/L	ICRSD
WG	L0-01-MW-1	N		SW8270C	-	1,4-naphthoquinone	4	U	U	4	UJ	U	3.1	4	μg/L	ICRSD
WG	L0-02-MW2	N		SW8270C	-	1,4-naphthoquinone	4	U	U	4	UJ	U	3.1	4	μg/L	ICRSD
WG	LO-03-MW1	N		SW8270C	-	1,4-naphthoquinone	4.1	U	U	4.1	UJ	U	3.2	4.1	μg/L	ICRSD
WG	L0-01-MW-1	N		SW8270C	-	2,3,4,6-tetrachlorophenol	4	U	U	4	UJ	U	3	4	μg/L	ICRSD
WG	L0-02-MW2	N		SW8270C	-	2,3,4,6-tetrachlorophenol	4	U	U	4	UJ	U	3	4	μg/L	ICRSD
WG	LO-03-MW1	N		SW8270C	-	2,3,4,6-tetrachlorophenol	4.1	U	U	4.1	UJ	U	3.1	4.1	μg/L	ICRSD
WG	LO-04-01	N		SW8270C	-	2,3,4,6-tetrachlorophenol	4.1	U	U	4.1	UJ	U	3.1	4.1	μg/L	ICRSD
WG	LO-04-02	N		SW8270C	-	2,3,4,6-tetrachlorophenol	4.2	U	U	4.2	UJ	U	3.2	4.2	μg/L	ICRSD
WG	LO-07-01	N		SW8270C	-	2,3,4,6-tetrachlorophenol	4.2	U	U	4.2	UJ	U	3.2	4.2	μg/L	ICRSD
WG	LO-07-02	N		SW8270C	-	2,3,4,6-tetrachlorophenol	4	U	U	4	UJ	U	3	4	μg/L	ICRSD
WG	LO-03-MW-2	N		SW8270C	-	2,4-Dichlorophenol	4.2	U	U	4.2	UJ	U	3.3	4.2	μg/L	ICRSD
WG	LO-05-01	N		SW8270C	-	2,4-Dichlorophenol	4.1	U	U	4.1	UJ	U	3.2	4.1	μg/L	ICRSD
WG	LO-05-02	N		SW8270C	-	2,4-Dichlorophenol	4.1	U	U	4.1	UJ	U	3.2	4.1	μg/L	ICRSD
WG	LO-04-02	N		SW8270C	-	2,4-Dinitrophenol	21	U	U	21	UJ	U	5.9	21	μg/L	ICRSD
WG	LO-03-MW1	N		SW8270C	-	2,4-Dinitrotoluene	4.1	U	U	4.1	UJ	U	2.9	4.1	μg/L	ICRSD
WG	L0-01-MW-1	N		SW8270C	-	2,6-dichlorophenol	4	U	U	4	UJ	U	3.5	4	μg/L	ICRSD
WG	L0-02-MW2	N		SW8270C	-	2,6-dichlorophenol	4	U	U	4	UJ	U	3.5	4	μg/L	ICRSD
WG	L0-01-MW-1	N		SW8270C	-	2-acetylaminofluorene	4	U	U	4	UJ	U	2.5	4	μg/L	ICRSD
WG	L0-02-MW2	N		SW8270C	-	2-acetylaminofluorene	4	U	U	4	UJ	U	2.5	4	μg/L	ICRSD
WG	LO-03-MW1	N		SW8270C	-	2-acetylaminofluorene	4.1	U	U	4.1	UJ	U	2.6	4.1	μg/L	ICRSD
WG	LO-05-01	N		SW8270C	-	2-acetylaminofluorene	4.1	U	U	4.1	UJ	U	2.6	4.1	μg/L	ICRSD
WG	LO-05-02	N		SW8270C	-	2-acetylaminofluorene	4.1	U	U	4.1	UJ	U	2.6	4.1	μg/L	ICRSD
WG	LO-06-01	N		SW8270C	-	2-Methylphenol (o-Cresol)	4.2	U	U	4.2	UJ	U	2.7	4.2	μg/L	ICRSD
WG	LO-06-02	N		SW8270C	-	2-Methylphenol (o-Cresol)	4.1	U	U	4.1	UJ	U	2.6	4.1	μg/L	ICRSD
WG	LO-03-MW1	N		SW8270C	-	2-Nitroaniline	4.1	U	U	4.1	UJ	U	3.1	4.1	μg/L	ICRSD
WG	L0-01-MW-1	N		SW8270C	-	3,3'-dimethylbenzidine	20	U	U	20	UJ	U	6	20	μg/L	ICRSD 1048
WG	L0-02-MW2	N		SW8270C	-	3,3'-dimethylbenzidine	20	U	U	20	UJ	U	6	20	μg/L	ICRSD

APPENDIX C
Change in Qualifier Through the Data Validation Process

onunge	in Qualifici Trifough th	c Data Vallaa	110111110	0033								Final				-
		Sample	LR		Dissolved	I	Lab	Lab	Lab Conc	Final	Final	Conc	Detection	Reporting		
Matrix	Sample ID	Type	Type	Analytical Method	?	Parameter	Result	Qual	Qual	Result	Qual	Qual	Limit	Limit	Units	Validation Notes
WG	LO-05-DUPE	FD	,	SW8270C	-	a,a-Dimethylphenethylamine	20.5	U	U	20.5	UJ	U	3.8	20.5	μg/L	2SL,CCVL,ICRSD
WG	LO-05-DUPE	FD		SW8270C	-	kepone	4.1	U	U	4.1	UJ	U	3.2	4.1	μg/L	2SL,ICRSD
WG	LO-05-01	N		SW8270C	-	3,3'-dimethylbenzidine	20.5	U	U	20.5	UJ	U	6.2	20.5	μg/L	ICRSD
WG	LO-05-02	N		SW8270C	-	3,3'-dimethylbenzidine	20.5	U	U	20.5	UJ	U	6.2	20.5	μg/L	ICRSD
WG	LO-03-MW1	N		SW8270C	-	3-Nitroaniline	4.1	Ū	Ū	4.1	UJ	U	2.9	4.1	μg/L	ICRSD
WG	LO-03-MW-2	N		SW8270C	-	4-Chloroaniline	4.2	U	U	4.2	UJ	U	3.2	4.2	μg/L	ICRSD
WG	LO-06-01	N		SW8270C	_	4-Chloroaniline	4.2	Ü	Ü	4.2	UJ	Ū	3.1	4.2	μg/L	ICRSD
WG	LO-06-02	N		SW8270C	-	4-Chloroaniline	4.1	Ū	Ü	4.1	UJ	Ū	3.1	4.1	μg/L	ICRSD
WG	LO-06-01	N		SW8270C	-	4-Methylphenol (p-Cresol)	10.4	U	U	10.4	UJ	U	6.4	10.4	μg/L	ICRSD
WG	LO-06-02	N		SW8270C	_	4-Methylphenol (p-Cresol)	10.2	U	Ū	10.2	UJ	Ū	6.2	10.2	μg/L	ICRSD
WG	L0-01-MW-1	N		SW8270C	-	4-nitroquinoline-n-oxide	20	Ū	Ü	20	UJ	U	3.7	20	μg/L	ICRSD
WG	LO-05-01	N		SW8270C	_	4-nitroquinoline-n-oxide	20.5	Ü	Ū	20.5	UJ	Ū	3.8	20.5	μg/L	ICRSD
WG	LO-05-02	N		SW8270C	_	4-nitroquinoline-n-oxide	20.5	Ü	U	20.5	UJ	Ū	3.8	20.5	μg/L	ICRSD
WG	L0-01-MW-1	N		SW8270C	_	5-nitro-o-toluidine	4	Ü	Ü	4	UJ	Ū	2.6	4	μg/L	ICRSD
WG	L0-02-MW2	N		SW8270C	_	5-nitro-o-toluidine	4	Ü	U	4	UJ	Ū	2.6	4	μg/L	ICRSD
WG	LO-03-MW1	N		SW8270C	_	5-nitro-o-toluidine	4.1	Ü	Ü	4.1	UJ	Ū	2.7	4.1	μg/L	ICRSD
WG	L0-01-MW-1	N		SW8270C	_	a,a-Dimethylphenethylamine	20	Ü	Ü	20	UJ	Ü	3.7	20	μg/L	ICRSD
WG	L0-02-MW2	N		SW8270C	_	a,a-Dimethylphenethylamine	20	Ü	U	20	UJ	Ü	3.7	20	μg/L	ICRSD
WG	LO-07-01	N		SW8270C	_	Aniline	4.2	Ü	U	4.2	UJ	Ü	2.9	4.2	μg/L	ICRSD
WG	LO-07-02	N		SW8270C	_	Aniline	4	U	U	4	UJ	U	2.8	4	μg/L	ICRSD
WG	L0-01-MW-1	N		SW8270C	_	Aramite	4	U	U	4	UJ	U	2.5	4	μg/L	ICRSD
WG	L0-02-MW2	N		SW8270C		Aramite	4	U	U	4	UJ	U	2.5	4	μg/L μg/L	ICRSD
WG	LO-02-WW2 LO-05-01	N		SW8270C		Aramite	4.1	U	U	4.1	UJ	U	2.6	4.1	μg/L μg/L	ICRSD
WG	LO-05-01 LO-05-02	N		SW8270C	-	Aramite	4.1	U	U	4.1	UJ	U	2.6	4.1	μg/L μg/L	ICRSD
WG	LO-03-02 LO-07-01	N		SW8270C	-	Aramite	4.1	U	U	4.1	UJ	U	2.6	4.1		ICRSD
WG	LO-07-01 LO-07-02	N		SW8270C SW8270C	-	Aramite	4.Z 4	U	U	4.2	UJ	U	2.5	4.2	μg/L	ICRSD
WG	LO-07-02 LO-03-MW-2	N		SW8270C	-		10.5	U	U	10.5	UJ	U	3.3	10.5	μg/L	ICRSD
WG		N			-	Benzyl alcohol		U	U	4.2	UJ	U			μg/L	
WG	LO-06-01	N N		SW8270C	-	Dibenzofuran	4.2 4.1	U	U	4.2 4.1	UJ	U	2.8 2.8	4.2 4.1	μg/L	ICRSD
	LO-06-02			SW8270C	-	Dibenzofuran			U		UJ	U			μg/L	ICRSD
WG	LO-06-02	N		SW8270C	-	hexachloropropene	4.1	U	-	4.1		-	2	4.1	μg/L	ICRSD
WG WG	L0-01-MW-1	N		SW8270C	-	kepone	4	U U	U U	4	UJ UJ	U U	3.1	4	μg/L	ICRSD
	LO-05-01	N		SW8270C	-	methapyrilene	4.1	-	U	4.1		-	3.8	4.1	μg/L	ICRSD
WG	LO-05-02	N		SW8270C	-	methapyrilene	4.1	U	-	4.1	UJ	U	3.8	4.1	μg/L	ICRSD
WG	LO-04-02	N		SW8270C	-	nitrosomethylethylamine	4.2	U	U	4.2	UJ	U	2.8	4.2	μg/L	ICRSD
WG	LO-04-01	N		SW8270C	-	n-Nitrosodiphenylamine	4.1	U	U U	4.1	UJ	U	3.5	4.1	μg/L	ICRSD
WG	L0-01-MW-1	N		SW8270C	-	p-dimethylaminoazobenzene	4	U	· ·	4	UJ	U	2.5	4	μg/L	ICRSD
WG	L0-02-MW2	N		SW8270C	-	p-dimethylaminoazobenzene	4	U	U	4	UJ	U	2.5	4	μg/L	ICRSD
WG	L0-01-MW-1	N		SW8270C	-	pentachloronitrobenzene	4	U	U	4	UJ	U	2.4	4	μg/L	ICRSD
WG	L0-02-MW2	N		SW8270C	-	pentachloronitrobenzene	4	U	U	4	UJ	U	2.4	4	μg/L	ICRSD
WG	LO-03-MW1	N		SW8270C	-	pentachloronitrobenzene	4.1	U	U	4.1	UJ	U	2.5	4.1	μg/L	ICRSD
WG	LO-03-MW-2	N		SW8270C	-	Pentachlorophenol	21	U	U	21	UJ	U	2.7	21	μg/L	ICRSD
WG	LO-04-02	N		SW8270C	-	Pentachlorophenol	21	U	U	21	UJ	U	2.7	21	μg/L	ICRSD
WG	LO-05-01	N		SW8270C	-	Pentachlorophenol	20.5	U	U	20.5	UJ	U	2.7	20.5	μg/L	ICRSD
WG	LO-05-02	N		SW8270C	-	Pentachlorophenol	20.5	U	U	20.5	UJ	U	2.7	20.5	μg/L	ICRSD
WG	L0-01-MW-1	N		SW8270C	-	phenacetin	4	U	U	4	UJ	U	2.7	4	μg/L	ICRSD
WG	L0-02-MW2	N		SW8270C	-	phenacetin	4	U	U	4	UJ	U	2.7	4	μg/L	ICRSD
WG	L0-01-MW-1	N		SW8270C	-	p-phenylenediamine	20	U	U	20	UJ	U	2.7	20	μg/L	ICRSD
WG	L0-02-MW2	N		SW8270C	-	p-phenylenediamine	20	U	U	20	UJ	U	2.7	20	μg/L	ICRSD
WG	L0-01-MW-1	N		SW8270C	-	pyridine	4	U	U	4	UJ	U	2.1	4	μg/L	ICRSD
WG	L0-02-MW2	N		SW8270C	-	pyridine	4	U	U	4	UJ	U	2.1	4	μg/L	ICRSD
WG	LO-05-01	N		SW8270C	-	pyridine	4.1	U	U	4.1	UJ	U	2.2	4.1	μg/L	ICRSD
WG	LO-05-02	N		SW8270C	-	pyridine	4.1	U	U	4.1	UJ	U	2.2	4.1	μg/L	ICRSD
WG	LO-06-01	N		SW8270C	-	pyridine	4.2	U	U	4.2	UJ	U	2.2	4.2	μg/L	ICRSD
WG	LO-06-02	N		SW8270C	-	pyridine	4.1	U	U	4.1	UJ	U	2.1	4.1	μg/L	ICRSD 1049
WG	LO-06-01	N		SW8270C	-	a,a-Dimethylphenethylamine	20.8	U	U	20.8	UJ	U	3.8	20.8	μg/L	ICRSD,LCSDL,LCSL

APPENDIX C
Change in Qualifier Through the Data Validation Process

Change	iii Quaiiilei Tiirougii iili	e Data Valluat	UOITETO	UC33								Final				
		Sample	LR		Dissolved		Lab	Lab	Lab Conc	Final	Final	Conc	Dotoction	Reporting		
NA - 4-1-	0	•		Amalutical Mathead	Pissoiveu ?		Result	Qual	Qual	Result	Qual	Qual	Limit	Limit	Units	Validation Notes
Matrix		Туре	Type			Parameter										
WG	LO-05-DUPE	FD		SW8270C	-	a,a-Dimethylphenethylamine	20.5	U	U	20.5	UJ	U	3.8	20.5	μg/L	2SL,CCVL,ICRSD
WG	LO-05-DUPE	FD		SW8270C	-	kepone	4.1	U	U	4.1	UJ	U	3.2	4.1	μg/L	2SL,ICRSD
WG	LO-06-02	N		SW8270C	-	a,a-Dimethylphenethylamine	20.4	U	U	20.4	UJ	U	3.8	20.4	μg/L	ICRSD,LCSDL,LCSL
WG	LO-04-02	N		SW8260B	-	trans-1,4-dichloro-2-butene	4	U	U	4	UJ	U	0.72	4	μg/L	ICRSD,MSDL,MSL
WG	L0-01-MW-2	N		SW8141	-	mevinphos	5.3	U	U	5.3	UJ	U	0.49	5.3	μg/L	ICRSD,MSL
WG	L0-01-MW1	N		SW8081	-	endrin aldehyde	0.051	U	U	0.051	UJ	U	0.0015	0.051	μg/L	ICRSD,SSL
WG	L0-01-MW1	N		SW8081	-	methoxychlor	0.051	U	U	0.051	UJ	U	0.0018	0.051	μg/L	ICRSD,SSL
WG	L0-00-MW1	N		E350.3	-	Nitrogen, ammonia (as N)	0.206	В	J	0.206	U	U	0.0366	0.3	mg/L	LBH
WG	L0-00-MW1	N		E415.1	-	Total organic carbon	1	=	=	1	U	U	0.368	1	mg/L	LBH
WG	L0-01-MW-2	N		E405.1	-	BOD, five day	4	J	J	4	U	U	2	10	mg/L	LBL
WG	LO-04-01	N		E415.1	FLDFLT	Diss.organic carbon	2.34	=	=	2.34	Ū	Ū	0.368	1	mg/L	LBL
WG	LO-04-02	N		E415.1	FLDFLT	Diss.organic carbon	2.59	=	=	2.59	Ü	Ū	0.368	1	mg/L	LBL
WG	L0-00-MW2	N		E415.1	-	Total organic carbon	0.53	В	J	0.53	II	Ü	0.368	1	mg/L	LBL
WG	LO-04-01	N		E415.1	_	Total organic carbon	1.93	=	=	1.93	Ü	Ü	0.368	1	mg/L	LBL
WG	L0-00-MW2	N		SW6010B		Aluminum	0.024	В	_ .J	0.024	U	U	0.015	0.1	mg/L	LBL
WG	L0-00-MW-2	N		SW6010B	_	Aluminum	0.024	В	J J	0.024	U	U	0.015	0.1		LBL
WG		N N		SW6010B SW6010B	-		0.0243	В	J .J	0.0243	U	U	0.015	0.1	mg/L	LBL
	L0-00-MW1				-	Iron			•		-	_			mg/L	
WG	L0-00-MW2	N		SW6010B	-	Zinc	0.00486		J	0.00486	U	U	0.00094	0.01	mg/L	LBL
WG	LO-03-MW-2	N		SW6010B	-	Zinc	0.00303	В	J	0.00303	U	U	0.00094	0.01	mg/L	LBL
WG	L0-01-MW-1	N		SW8141	-	phorate	5	U	U	5	UJ	U	0.95	5	μg/L	LCSDL
WG	L0-01-MW1	N		SW8151	-	2,4,5-t (trichlorophenoxyacetic acid)	0.5	U	U	0.5	UJ	U	0.11	0.5	μg/L	LCSDL
WG	L0-01-MW1	N		SW8151	_	silvex (2,4,5-tp)	0.5	U	U	0.5	UJ	U	0.038	0.5	μg/L	LCSDL
WG	LO-07-01	N		SW8260B	_	1,2-Dichlorobenzene	1	Ü	U	1	UJ	U	0.26	1	μg/L	LCSDL
WG	LO-07-02	N		SW8260B		1,2-Dichlorobenzene	1	U	U	1	UJ	U	0.26	1	μg/L	LCSDL
WG	LO-07-02 LO-07-01	N		SW8260B		1,4-Dichlorobenzene	1	U	U	1	UJ	U	0.20	1	μg/L μg/L	LCSDL
WG	LO-07-02	N		SW8260B		1,4-Dichlorobenzene	1	U	U	1	UJ	U	0.18	1	μg/L μg/L	LCSDL
WG	LO-04-02	N		SW8270C	-	*	21	U	U	21	R	U	3.9	21		LCSDL
					-	a,a-Dimethylphenethylamine		U	U			-			μg/L	
WG	L0-01-MW1	N		SW8081	-	gamma bhc (lindane)	0.051		-	0.051	UJ	U	0.0025	0.051	μg/L	LCSDL,LCSL,SSL
WG	L0-01-MW1	N		SW8081	-	gamma-chlordane	0.051	U	U	0.051	UJ	U	0.0025	0.051	μg/L	LCSDL,LCSL,SSL
WG	L0-01-MW1	N		SW8081	-	alpha-chlordane	0.051	U	U	0.051	UJ	U	0.0031	0.051	μg/L	LCSDL,SSL
WG	L0-01-MW1	N		SW8081	-	heptachlor	0.051	U	U	0.051	R	U	0.0014	0.051	μg/L	LCSDL,SSL
WG	L0-01-MW1	N		SW8081	-	p,p'-DDE	0.051	U	U	0.051	UJ	U	0.0039	0.051	μg/L	LCSDL,SSL
WG	L0-01-MW-1	N		SW8081	-	gamma-chlordane	0.05	U	U	0.05	UJ	U	0.0024	0.05	μg/L	LCSL
WG	L0-01-MW1	N		SW8141	-	phorate	5.1	U	U	5.1	UJ	U	0.97	5.1	μg/L	LCSL
WG	L0-01-MW-2	N		SW8141	-	phorate	5.3	U	U	5.3	UJ	U	1	5.3	μg/L	LCSL
WG	L0-01-MW1	N		SW8141	-	ronnel	5.1	U	U	5.1	UJ	U	0.24	5.1	μg/L	LCSL
WG	L0-01-MW1	N		SW8141	-	thiodiphosphoric acid tetraethyl ester	5.1	U	U	5.1	UJ	U	0.43	5.1	μg/L	LCSL
WG	L0-01-MW-2	N		SW8151	_	2,4,5-t (trichlorophenoxyacetic acid)	0.52	U	U	0.52	UJ	U	0.11	0.52	μg/L	LCSL
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WG	LO-05-02	N		SW8151	-	dalapon	0.62	U	U	0.62	UJ	U	0.37	0.62	μg/L	LCSL
WG	L0-01-MW-2	N		SW8151	-	dicamba	0.52	U	U	0.52	UJ	U	0.035	0.52	μg/L	LCSL
WG	LO-05-02	N		SW8151	-	dicamba	0.5	U	U	0.5	UJ	U	0.03	0.5	μg/L	LCSL
WG	L0-01-MW-2	N		SW8151	-	silvex (2,4,5-tp)	0.52	U	U	0.52	UJ	U	0.039	0.52	μg/L	LCSL
WG	LO-04-01	N		SW8260B	-	1,1,2,2-Tetrachloroethane	1	U	U	1	UJ	U	0.24	1	μg/L	LCSL
WG	LO-04-02	N		SW8260B	-	1,2,3-Trichloropropane	1	U	U	1	UJ	U	0.44	1	μg/L	LCSL
WG	LO-04-02	N		SW8270C	-	1,2,4-Trichlorobenzene	4.2	U	U	4.2	R	U	2.7	4.2	μg/L	LCSL
WG	LO-03-MW1	N		SW8270C	-	a,a-Dimethylphenethylamine	20.5	U	U	20.5	R	U	3.8	20.5	μg/L	LCSL
WG	LO-03-MW-2	N		SW8270C	-	a,a-Dimethylphenethylamine	21	U	U	21	R	U	3.9	21	μg/L	LCSL
WG	LO-04-01	N		SW8270C	-	a,a-Dimethylphenethylamine	20.5	U	U	20.5	R	U	3.8	20.5	μg/L	LCSL
WG	LO-03-MW-2	N		SW8270C	-	pyridine	4.2	U	U	4.2	R	U	2.2	4.2	μg/L	LCSL
WG	LO-04-02	N		SW8260B	-	1,1,2,2-Tetrachloroethane	1	U	Ū	1	UJ	U	0.24	1	μg/L	LCSL,MSDL,MSL
WG	L0-01-MW-2	N		SW8141	-	ronnel	5.3	Ū	Ū	5.3	UJ	Ü	0.24	5.3	μg/L	LCSL,MS1050
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APPENDIX C
Change in Qualifier Through the Data Validation Process

Change	in Qualifier Through th	e Data Valida	tion Pro	cess								Final				
		Sample	LR		Dissolved		Lab	Lab	Lab Conc	Final	Final	Conc	Detection	Reporting		
Matrix	Sample ID	Type	Type	Analytical Method	?	Parameter	Result	Qual	Qual	Result	Qual	Qual	Limit	Limit	Units	Validation Notes
WG	LO-05-DUPE	FD	турс	SW8270C	-	a,a-Dimethylphenethylamine	20.5	U	U	20.5	UJ	U	3.8	20.5	μg/L	2SL.CCVL.ICRSD
WG	LO-05-DUPE	FD		SW8270C	-	kepone	4.1	U	U	4.1	UJ	U	3.2	4.1	μg/L μg/L	2SL,ICRSD
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WG	L0-01-MW-2	N		SW8141	-	thiodiphosphoric acid tetraethyl ester	5.3	U	U	5.3	UJ	U	0.45	5.3	μg/L	LCSL,MSL
WG	LO-05-01	N		SW8151	_	dalapon	0.62	U	U	0.62	UJ	U	0.37	0.62	μg/L	LCSL,SSL
WG	LO-05-01	N		SW8151	_	dicamba	0.5	U	U	0.5	UJ	U	0.03	0.5	μg/L	LCSL,SSL
WG	L0-00-MW2	N		E351.2	_	nitrogen, kjeldahl, total	0.781	=	=	0.781	J	J	0.128	0.26	mg/L	MSDL
WG	LO-03-MW-2	N		E353.2	_	Nitrogen, nitrate-nitrite	0.0201	U	U	0.0201	UJ	Ū	0.0201	0.1	mg/L	MSDL
WG	LO-03-MW-2	N		E900	-	Alpha, gross	2.89	U	U	2.89	UJ	U	2.89	5	pCi/L	MSDL
WG	LO-05-02	N		SW8141	_	ronnel	5.1	U	U	5.1	UJ	U	0.24	5.1	μg/L	MSDL
WG	LO-04-02	N		SW8260B	_	2-Hexanone	5	U	U	5	UJ	U	4	5	μg/L	MSDL
WG	LO-06-01	N		E310.1	_	Alkalinity, bicarb (as CaCO3)	141	=	=	141	J	J	0.5	1	mg/L	MSDL,MSL
WG	LO-06-02	N		E310.1	-	Alkalinity, bicarb (as CaCO3)	127	=	=	127	J	J	0.5	1	mg/L	MSDL,MSL
WG	LO-06-01	N		E310.1	_	Alkalinity, total (as CaCO3)	141	=	=	141	J	J	0.5	1	mg/L	MSDL,MSL
WG	LO-06-02	N		E310.1	-	Alkalinity, total (as CaCO3)	127	=	=	127	J	J	0.5	1	mg/L	MSDL,MSL
WG	LO-06-01	N		E350.1	_	Nitrogen, ammonia (as N)	0.0316	=	=	0.0316	J	J	0.017	0.02	mg/L	MSDL,MSL
WG	LO-06-02	N		E350.1	_	Nitrogen, ammonia (as N)	0.179	=	=	0.179	J	J	0.017	0.02	mg/L	MSDL,MSL
WG	L0-01-MW-2	N		E351.2	_	nitrogen, kjeldahl, total	1.26	=	=	1.26	J	J	0.128	0.26	mg/L	MSDL,MSL
WG	LO-03-MW-2	N		E351.2	_	nitrogen, kjeldahl, total	0.377	=	=	0.377	J	J	0.128	0.26	mg/L	MSDL,MSL
WG	LO-03-MW-2	N		E353.2M	_	Total Nitrogen, calculated	0.377	=	=	0.377	J	J	0	0	mg/L	MSDL,MSL
WG	LO-03-MW-2	N		E415.1	_	Total organic carbon	5.94	=	=	5.94	J	J	0.368	1	mg/L	MSDL,MSL
WG	LO-04-02	N		E415.1	_	Total organic carbon	8.98	=	=	8.98	J	J	0.368	1	mg/L	MSDP,MSH,MSH
WG	LO-03-MW-2	N		E415.1	FLDFLT	Diss.organic carbon	4.94	=	=	4.94	J	Ĵ	0.368	1	mg/L	MSL
WG	L0-01-MW-2	N		SW6010B	-	Selenium	0.0026	U	U	0.0026	UJ	Ü	0.0026	0.005	mg/L	MSL
WG	L0-01-MW-2	N		SW8141	_	ethoprop	5.3	Ü	U	5.3	UJ	Ü	0.79	5.3	μg/L	MSL
WG	LO-03-MW-2	N		SW8141	_	fenthion	5.4	U	U	5.4	R	Ü	0.78	5.4	μg/L	MSL
WG	L0-01-MW-2	N		SW8141	_	parathion, ethyl	5.3	Ü	U	5.3	UJ	Ü	0.51	5.3	μg/L	MSL
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WG	LO-05-02	N		SW8151	-	2,4,5-t (trichlorophenoxyacetic acid)	0.5	U	U	0.5	UJ	U	0.11	0.5	μg/L	MSL
WG	LO-05-02	N		SW8151	-	Picloram	0.5	U	U	0.5	UJ	U	0.07	0.5	μg/L	MSL
WG	LO-05-01	N		SW6010B	-	Zinc	0.00094	U	U	0.00094	UJ	U	0.00094	0.01	mg/L	SDIL
WG	LO-05-02	N		SW6010B	_	Zinc	0.00094	U	U	0.00094	UJ	U	0.00094	0.01	mg/L	SDIL
WG	LO-07-01	N		FLPRO	_	petroleum hydrocarbons	358	U	U	358	UJ	U	102	358	μg/L	SSL
WG	LO-07-02	N		FLPRO	-	petroleum hydrocarbons	349	U	U	349	UJ	U	99.5	349	μg/L	SSL
WG	L0-01-MW1	N		SW8081	-	Aldrin	0.051	Ū	Ū	0.051	UJ	Ū	0.00086	0.051	μg/L	SSL
WG	L0-01-MW1	N		SW8081	_	alpha bhc	0.051	U	Ū	0.051	UJ	U	0.00059	0.051	μg/L	SSL
WG	L0-01-MW1	N		SW8081	_	alpha endosulfan	0.051	U	Ü	0.051	UJ	U	0.0044	0.051	μg/L	SSL
WG	L0-01-MW1	N		SW8081	_	beta bhc	0.051	Ū	Ū	0.051	UJ	Ū	0.0012	0.051	μg/L	SSL
WG	L0-01-MW1	N		SW8081	_	beta endosulfan	0.051	U	Ū	0.051	UJ	U	0.0016	0.051	μg/L	SSL
WG	L0-01-MW1	N		SW8081	_	delta bhc	0.051	Ü	U	0.051	UJ	Ü	0.0031	0.051	μg/L	SSL
WG	L0-01-MW1	N		SW8081	_	Dieldrin	0.051	Ü	Ü	0.051	UJ	Ü	0.0028	0.051	μg/L	SSL
WG	L0-01-MW1	N		SW8081	_	endosulfan sulfate	0.051	Ü	U	0.051	UJ	U	0.001	0.051	μg/L	SSL
WG	L0-01-MW1	N		SW8081	_	endrin	0.051	Ü	U	0.051	UJ	Ü	0.0018	0.051	μg/L	SSL
WG	L0-01-MW1	N		SW8081	_	endrin ketone	0.051	Ü	U	0.051	UJ	U	0.0011	0.051	μg/L	SSL
WG	L0-01-MW1	N		SW8081	_	heptachlor epoxide	0.051	Ü	U	0.051	UJ	Ü	0.0014	0.051	μg/L	SSL
WG	L0-01-MW1	N		SW8081	_	p,p'-DDD	0.051	U	U	0.051	UJ	U	0.0017	0.051	μg/L	SSL
WG	L0-01-MW1	N		SW8081	_	p,p'-DDT	0.051	U	U	0.051	UJ	U	0.0027	0.051	μg/L	SSL
WG	L0-01-MW1	N		SW8081	-	toxaphene	0.51	U	U	0.51	UJ	U	0.0011	0.031	μg/L μg/L	SSL
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WG	LO-05-01	N		SW8151	-	2,4,5-t (trichlorophenoxyacetic acid)	0.5	U	U	0.5	UJ	U	0.11	0.5	μg/L	SSL
WG	1.0 05 01	N		Q\M0151	_	2.4 d (dichlorophonovygootic soid)	0.5	U	U	0.5	111	U	0.15	0.5	ug/l	SSL
WG	LO-05-01	N		SW8151	-	2,4-d (dichlorophenoxyacetic acid)	0.5			0.5	UJ		0.15	0.5	μg/L	
WG	LO-05-01	N		SW8151	-	dichloroprop	0.5	U	U	0.5	UJ	U	0.18	0.5	μg/L	SSL
WG	LO-05-01	N		SW8151	-	dinoseb	0.5	U	U	0.5	UJ	U	0.05	0.5	μg/L	^{SSL} 1051
WG	LO-05-01	N		SW8151	-	Picloram	0.5	U	U	0.5	UJ	U	0.07	0.5	μg/L	SSL

APPENDIX C
Change in Qualifier Through the Data Validation Process

Change	iii Qualillei Tiliougii tii	c Dala VallUd	uon FIO									Final				
		Sample	LR		Dissolved	I	Lab	Lab	Lab Conc	Final	Final	Conc	Detection	Reporting		
Matrix	Sample ID	Type	Type	Analytical Method	?	Parameter	Result	Qual	Qual	Result	Qual	Qual	Limit	Limit	Units	Validation Notes
WG	LO-05-DUPE	FD		SW8270C	-	a,a-Dimethylphenethylamine	20.5	U	U	20.5	UJ	U	3.8	20.5	μg/L	2SL,CCVL,ICRSD
WG	LO-05-DUPE	FD		SW8270C	-	kepone	4.1	U	U	4.1	UJ	U	3.2	4.1	μg/L	2SL,ICRSD
WG	LO-05-01	N		SW8151	-	silvex (2,4,5-tp)	0.5	U	U	0.5	UJ	U	0.03	0.5	μg/L	SSL
WG	L0-02-MW2	N		E365.2	-	P, total (as P)	0.241	=	=	0.241	J	J	0.017	0.04	mg/L	TD
WG	LO-03-MW-2	N		E365.2	-	P, total (as P)	0.236	=	=	0.236	J	J	0.017	0.04	mg/L	TD
WS	L0-01-LakeRE1	LR	RE	SW8270C	-	kepone	4.2	U	U	4.2	UJ	U	3.3	4.2	μg/L	CCRRF,ICRRF,ICRSD
WS	L0-00-LakeRE1	LR	RE	SW8270C	-	Aniline	4.3	U	U	4.3	UJ	U	3	4.3	μg/L	CCVH,HTP
WS	L0-01-LakeRE1	LR	RE	SW8270C	-	Aniline	4.2	U	U	4.2	UJ	U	2.9	4.2	μg/L	CCVL,HTP
WS	L0-01-LakeRE1	LR	RE	SW8270C	-	4-nitroquinoline-n-oxide	21	U	U	21	UJ	U	3.9	21	μg/L	CCVL,HTP,ICRSD,MSL
WS	L0-00-LakeRE1	LR	RE	SW8270C	-	1,2,4,5-tetrachlorobenzene	4.3	U	U	4.3	UJ	U	2.4	4.3	μg/L	HTP
WS	L0-01-LakeRE1	LR	RE	SW8270C	-	1,2,4,5-tetrachlorobenzene	4.2	U	U	4.2	UJ	U	2.3	4.2	μg/L	HTP
WS	L0-00-LakeRE1	LR	RE	SW8270C	-	1,2,4-Trichlorobenzene	4.3	U	U	4.3	UJ	U	2.8	4.3	μg/L	HTP
WS	L0-01-LakeRE1	LR	RE	SW8270C	-	1,2,4-Trichlorobenzene	4.2	U	U	4.2	UJ	U	2.7	4.2	μg/L	HTP
WS	L0-00-LakeRE1	LR	RE	SW8270C	-	1-naphthylamine	10.8	U	U U	10.8	UJ	U	1.9	10.8	μg/L	HTP
WS	L0-01-LakeRE1	LR	RE	SW8270C	-	1-naphthylamine	10.5	U	-	10.5	UJ	U	1.9	10.5	μg/L	HTP
WS	L0-00-LakeRE1	LR	RE	SW8270C	-	2,4,5-Trichlorophenol	4.3	U U	U U	4.3	UJ UJ	U U	3.7	4.3	μg/L	HTP
WS	L0-01-LakeRE1	LR	RE	SW8270C	-	2,4,5-Trichlorophenol	4.2	-	U	4.2		U	3.6 3.9	4.2	μg/L	HTP
WS	L0-00-LakeRE1	LR	RE RE	SW8270C	-	2,4,6-Trichlorophenol	4.3	U U	U	4.3	UJ UJ	U		4.3	μg/L	HTP
WS WS	L0-01-LakeRE1	LR LR	RE	SW8270C SW8270C	-	2,4,6-Trichlorophenol	4.2 4.3	U	U	4.2 4.3	UJ	U	3.8 3.4	4.2 4.3	μg/L	HTP HTP
WS	L0-00-LakeRE1	LR LR	RE		-	2,4-Dichlorophenol	4.3 4.2	U	U	4.3 4.2	UJ	U	3.4	4.3	μg/L	HTP
	L0-01-LakeRE1			SW8270C	-	2,4-Dichlorophenol		U	U		UJ	U			μg/L	
WS WS	L0-00-LakeRE1 L0-01-LakeRE1	LR LR	RE RE	SW8270C SW8270C	-	2,4-Dimethylphenol 2,4-Dimethylphenol	4.3 4.2	U	U	4.3 4.2	UJ	U	2.5 2.4	4.3 4.2	μg/L	HTP HTP
WS		LR	RE	SW8270C SW8270C	-	, , ,	21.6	U	U	21.6	UJ	U	2. <del>4</del> 6	21.6	μg/L	HTP
WS	L0-00-LakeRE1 L0-01-LakeRE1	LR	RE	SW8270C SW8270C	-	2,4-Dinitrophenol	21.0	U	U	21.6	UJ	U	5.9	21.6	μg/L	HTP
WS	L0-01-LakeRE1	LR	RE	SW8270C SW8270C	-	2,4-Dinitrophenol 2,4-Dinitrotoluene	4.3	U	U	4.3	UJ	U	3	4.3	μg/L	HTP
WS		LR	RE	SW8270C SW8270C	-	2,4-Dinitrotoluene	4.3 4.2	U	U	4.3	UJ	U	3 2.9	4.3	μg/L μg/L	HTP
WS	L0-01-LakeRE1 L0-00-LakeRE1	LR	RE	SW8270C SW8270C	-	2-aminonaphthalene	4.2	U	U	4.2	UJ	U	2.9	4.2	μg/L μg/L	HTP
WS	L0-00-LakeRE1	LR	RE	SW8270C SW8270C	-	2-aminonaphthalene	4.3	U	U	4.3 4.2	UJ	U	2.7	4.3		HTP
WS	L0-00-LakeRE1	LR	RE	SW8270C	-	2-Chloronaphthalene	4.2	U	U	4.2	UJ	U	3	4.2	μg/L μg/L	HTP
WS	L0-01-LakeRE1	LR	RE	SW8270C	-	2-Chloronaphthalene	4.2	U	U	4.3	UJ	U	2.9	4.3	μg/L μg/L	HTP
WS	L0-00-LakeRE1	LR	RE	SW8270C	-	2-Chlorophenol	4.3	U	IJ	4.2	UJ	U	3.1	4.2	μg/L μg/L	HTP
WS	L0-00-LakeRE1	LR	RE	SW8270C	_	2-Chlorophenol	4.2	U	U	4.2	UJ	U	3.1	4.2	μg/L μg/L	HTP
WS	L0-00-LakeRE1	LR	RE	SW8270C	-	2-Methylnaphthalene	4.3	U	U	4.3	UJ	U	3	4.3	μg/L μg/L	HTP
WS	L0-01-LakeRE1	LR	RE	SW8270C	-	2-Methylnaphthalene	4.2	U	U	4.2	UJ	U	2.9	4.2	μg/L μg/L	HTP
WS	L0-00-LakeRE1	LR	RE	SW8270C	_	2-Methylphenol (o-Cresol)	4.3	U	U	4.3	UJ	U	2.8	4.3	μg/L	HTP
WS	L0-01-LakeRE1	LR	RE	SW8270C	_	2-Methylphenol (o-Cresol)	4.2	U	U	4.2	UJ	U	2.7	4.2	μg/L	HTP
WS	L0-00-LakeRE1	LR	RE	SW8270C	_	2-Nitroaniline	4.3	U	U	4.3	UJ	U	3.2	4.3	μg/L	HTP
WS	L0-01-LakeRE1	LR	RE	SW8270C	_	2-Nitroaniline	4.2	U	Ü	4.2	UJ	U	3.2	4.2	μg/L	HTP
WS	L0-00-LakeRE1	LR	RE	SW8270C	_	2-picoline (alpha-picoline)	21.6	U	U	21.6	UJ	U	1.6	21.6	μg/L	HTP
WS	L0-01-LakeRE1	LR	RE	SW8270C	_	2-picoline (alpha-picoline)	21	Ü	U	21	UJ	Ü	1.6	21	μg/L	HTP
WS	L0-00-LakeRE1	LR	RE	SW8270C	_	3,3'-Dichlorobenzidine	4.3	Ü	Ü	4.3	UJ	Ū	2.9	4.3	μg/L	HTP
WS	L0-01-LakeRE1	LR	RE	SW8270C	_	3,3'-Dichlorobenzidine	4.2	Ü	Ü	4.2	UJ	Ü	2.8	4.2	μg/L	HTP
WS	L0-00-LakeRE1	LR	RE	SW8270C	_	3-methylcholanthrene	4.3	Ü	Ü	4.3	UJ	Ü	2.4	4.3	μg/L	HTP
WS	L0-01-LakeRE1	LR	RE	SW8270C	_	3-methylcholanthrene	4.2	Ū	Ü	4.2	UJ	Ū	2.3	4.2	μg/L	HTP
WS	L0-00-LakeRE1	LR	RE	SW8270C	_	3-Nitroaniline	4.3	Ū	Ü	4.3	UJ	Ü	3	4.3	μg/L	HTP
WS	L0-01-LakeRE1	LR	RE	SW8270C	_	3-Nitroaniline	4.2	Ü	Ü	4.2	UJ	Ū	2.9	4.2	μg/L	HTP
WS	L0-00-LakeRE1	LR	RE	SW8270C	-	4-aminobiphenyl (4-biphenylamine)	4.3	U	U	4.3	UJ	U	2.4	4.3	μg/L	НТР
WS	L0-01-LakeRE1	LR	RE	SW8270C	_	4-aminobiphenyl (4-biphenylamine)	4.2	U	U	4.2	UJ	U	2.3	4.2	μg/L	НТР
WS	L0-00-LakeRE1	LR	RE	SW8270C	_	4-Bromophenyl phenyl ether	4.3	U	U	4.3	UJ	U	2.5	4.3	μg/L	НТР
WS	L0-00-LakeRE1	LR	RE	SW8270C SW8270C	_	4-Bromophenyl phenyl ether	4.3 4.2	U	U	4.3	UJ	U	2.5	4.3	μg/L μg/L	HTP
WS	L0-01-LakeRE1	LR	RE	SW8270C SW8270C	_	4-Chloroaniline	4.2	U	U	4.2	UJ	U	3.2	4.2	μg/L μg/L	LITE
WS	L0-01-LakeRE1	LR	RE	SW8270C	_	4-Chloroaniline	4.3 4.2	U	U	4.3	UJ	U	3.2	4.3	μg/L μg/L	HTP 1052 HTP
VVO	LU-UI-LAKEREI	LK	ΝE	3002/00	-	4-Chioroaniline	4.2	U	U	4.2	UJ	U	3.2	4.4	µg/L	IIIF

APPENDIX C
Change in Qualifier Through the Data Validation Process

Change	in Qualifier Through th	e Dala Vallua	IIIII F TO	.033								Final				
		Sample	LR		Dissolved	I	Lab	Lab	Lab Conc	Final	Final	Conc	Detection	Reporting		
Matrix	Sample ID	Type	Type	Analytical Method	?	Parameter	Result	Qual	Qual	Result	Qual	Qual	Limit	Limit	Units	Validation Notes
WG	LO-05-DUPE	FD FD	71	SW8270C	-	a,a-Dimethylphenethylamine	20.5	U	U	20.5	UJ	U	3.8	20.5	μg/L	2SL,CCVL,ICRSD
WG	LO-05-DUPE	FD		SW8270C	-	kepone	4.1	U	U	4.1	UJ	U	3.2	4.1	μg/L	2SL,ICRSD
WS	L0-00-LakeRE1	LR	RE	SW8270C	-	4-Chlorophenyl phenyl ether	4.3	U	U	4.3	UJ	U	2.7	4.3	μg/L	HTP
WS	L0-01-LakeRE1	LR	RE	SW8270C	-	4-Chlorophenyl phenyl ether	4.2	U	U	4.2	UJ	U	2.6	4.2	μg/L	HTP
WS	L0-00-LakeRE1	LR	RE	SW8270C	-	4-Methylphenol (p-Cresol)	10.8	U	U	10.8	UJ	U	6.6	10.8	μg/L	HTP
WS	L0-01-LakeRE1	LR	RE	SW8270C	-	4-Methylphenol (p-Cresol)	10.5	U	U	10.5	UJ	U	6.4	10.5	μg/L	HTP
WS	L0-00-LakeRE1	LR	RE	SW8270C	-	4-Nitroaniline	4.3	U	U	4.3	UJ	U	3	4.3	μg/L	HTP
WS	L0-01-LakeRE1	LR	RE	SW8270C	-	4-Nitroaniline	4.2	U	U	4.2	UJ	U	2.9	4.2	μg/L	HTP
WS	L0-00-LakeRE1	LR	RE	SW8270C	-	7,12-dimethylbenz(a)anthracene	4.3	U	U	4.3	UJ	U	2.7	4.3	μg/L	HTP
WS	L0-01-LakeRE1	LR	RE	SW8270C	-	7,12-dimethylbenz(a)anthracene	4.2	U	U	4.2	UJ	U	2.6	4.2	μg/L	HTP
WS	L0-00-LakeRE1	LR	RE	SW8270C	-	Acetophenone	4.3	U	U	4.3	UJ	U	0.71	4.3	μg/L	HTP
WS	L0-01-LakeRE1	LR	RE	SW8270C	-	Acetophenone	4.2	U	U	4.2	UJ	U	0.69	4.2	μg/L	HTP
WS	L0-00-LakeRE1	LR	RE	SW8270C	-	Benzyl alcohol	10.8	U	U	10.8	UJ	U	3.4	10.8	μg/L	HTP
WS	L0-01-LakeRE1	LR	RE	SW8270C	-	Benzyl alcohol	10.5	U	U	10.5	UJ	U	3.3	10.5	μg/L	HTP
WS	L0-00-LakeRE1	LR	RE	SW8270C	-	Benzyl butyl phthalate	4.3	U	U	4.3	UJ	U	3.2	4.3	μg/L	HTP
WS	L0-01-LakeRE1	LR	RE	SW8270C	-	Benzyl butyl phthalate	4.2	U	U	4.2	UJ	U	3.2	4.2	μg/L	HTP
WS	L0-00-LakeRE1	LR	RE	SW8270C	-	Bis(2-Chloroethoxy) methane	4.3	U	U	4.3	UJ	U	3.8	4.3	μg/L	HTP
WS	L0-01-LakeRE1	LR	RE	SW8270C	-	Bis(2-Chloroethoxy) methane	4.2	U	U	4.2	UJ	U	3.7	4.2	μg/L	HTP
WS	L0-00-LakeRE1	LR	RE	SW8270C	-	bis(2-Chloroethyl) ether	4.3	U	U	4.3	UJ	U	3.2	4.3	μg/L	HTP
WS	L0-01-LakeRE1	LR	RE	SW8270C	-	bis(2-Chloroethyl) ether	4.2	U	U	4.2	UJ	U	3.2	4.2	μg/L	HTP
WS	L0-00-LakeRE1	LR	RE	SW8270C	-	bis(2-Chloroisopropyl) ether	4.3	U	U	4.3	UJ	U	3.6	4.3	μg/L	HTP
WS	L0-01-LakeRE1	LR	RE	SW8270C	-	bis(2-Chloroisopropyl) ether	4.2	U	U	4.2	UJ	U	3.5	4.2	μg/L	HTP
WS	L0-00-LakeRE1	LR	RE	SW8270C	-	chlorobenzilate	4.3	U	U	4.3	UJ	U	2.7	4.3	μg/L	HTP
WS	L0-01-LakeRE1	LR	RE	SW8270C	-	chlorobenzilate	4.2	U	U	4.2	UJ	U	2.6	4.2	μg/L	HTP
WS	L0-00-LakeRE1	LR	RE	SW8270C	-	diallate	4.3	U	U	4.3	UJ	U	2.8	4.3	μg/L	HTP
WS	L0-01-LakeRE1	LR	RE	SW8270C	-	diallate	4.2	U	U	4.2	UJ	U	2.7	4.2	μg/L	HTP
WS	L0-00-LakeRE1	LR	RE	SW8270C	-	Dibenzofuran	4.3	U	U	4.3	UJ	U	2.9	4.3	μg/L	HTP
WS	L0-01-LakeRE1	LR	RE	SW8270C	-	Dibenzofuran	4.2	U	U	4.2	UJ	U	2.8	4.2	μg/L	HTP
WS	L0-00-LakeRE1	LR	RE	SW8270C	-	Diethyl phthalate	4.3	U	U	4.3	UJ	U	3	4.3	μg/L	HTP
WS	L0-01-LakeRE1	LR	RE	SW8270C	-	Diethyl phthalate	4.2	U	U	4.2	UJ	U	2.9	4.2	μg/L	HTP
WS	L0-00-LakeRE1	LR	RE	SW8270C	-	Dimethyl phthalate	4.3	U	U	4.3	UJ	U	3.2	4.3	μg/L	HTP
WS	L0-01-LakeRE1	LR	RE	SW8270C	-	Dimethyl phthalate	4.2	U	U	4.2	UJ	U	3.2	4.2	μg/L	HTP
WS	L0-00-LakeRE1	LR	RE	SW8270C	-	ethyl methanesulfonate	4.3	U	U	4.3	UJ	U	2.7	4.3	μg/L	HTP
WS	L0-01-LakeRE1	LR	RE	SW8270C	-	ethyl methanesulfonate	4.2	U	U	4.2	UJ	U	2.6	4.2	μg/L	HTP
WS	L0-00-LakeRE1	LR	RE	SW8270C	-	hexachloropropene	4.3	U	U	4.3	UJ	U	2.2	4.3	μg/L	HTP
WS	L0-01-LakeRE1	LR	RE	SW8270C	-	hexachloropropene	4.2	U	U	4.2	UJ	U	2.1	4.2	μg/L	HTP
WS	L0-00-LakeRE1	LR	RE	SW8270C	-	isodrin	4.3	U	U	4.3	UJ	U	2.8	4.3	μg/L	HTP
WS	L0-01-LakeRE1	LR	RE	SW8270C	-	isodrin	4.2	U	U	4.2	UJ	U	2.7	4.2	μg/L	HTP
WS	L0-00-LakeRE1	LR	RE	SW8270C	-	Isophorone	4.3	U	U	4.3	UJ	U	4.1	4.3	μg/L	HTP
WS	L0-01-LakeRE1	LR	RE	SW8270C	-	Isophorone	4.2	U	U	4.2	UJ	U	4	4.2	μg/L	HTP
WS	L0-00-LakeRE1	LR	RE	SW8270C	-	isosafrole	4.3	U	U	4.3	UJ	U	2.8	4.3	μg/L	HTP
WS	L0-01-LakeRE1	LR	RE	SW8270C	-	isosafrole	4.2	U	U	4.2	UJ	U	2.7	4.2	μg/L	HTP
WS	L0-00-LakeRE1	LR	RE	SW8270C	-	methapyrilene	4.3	U	U	4.3	UJ	U	4	4.3	μg/L	HTP
WS	L0-01-LakeRE1	LR	RE	SW8270C	-	methapyrilene	4.2	U	U	4.2	UJ	U	3.9	4.2	μg/L	HTP
WS	L0-00-LakeRE1	LR	RE	SW8270C	-	methyl methanesulfonate	21.6	U	U	21.6	UJ	U	2	21.6	μg/L	HTP
WS	L0-01-LakeRE1	LR	RE	SW8270C	-	methyl methanesulfonate	21	U	U	21	UJ	U	2	21	μg/L	HTP
WS	L0-00-LakeRE1	LR	RE	SW8270C	-	Nitrobenzene	4.3	U	U	4.3	UJ	U	3	4.3	μg/L	HTP
WS	L0-01-LakeRE1	LR	RE	SW8270C	-	Nitrobenzene	4.2	U	U	4.2	UJ	U	2.9	4.2	μg/L	HTP
WS	L0-00-LakeRE1	LR	RE	SW8270C	-	nitrosomethylethylamine	4.3	U	U	4.3	UJ	U	2.9	4.3	μg/L	HTP
WS	L0-01-LakeRE1	LR	RE	SW8270C	-	nitrosomethylethylamine	4.2	U	U	4.2	UJ	U	2.8	4.2	μg/L	HTP
WS	L0-00-LakeRE1	LR	RE	SW8270C	-	n-nitrosodiethylamine	4.3	U	U	4.3	UJ	U	3.4	4.3	μg/L	HTP
WS	L0-01-LakeRE1	LR	RE	SW8270C	-	n-nitrosodiethylamine	4.2	U	U	4.2	UJ	U	3.3	4.2	μg/L	HTP
WS	L0-00-LakeRE1	LR	RE	SW8270C	-	n-nitrosodimethylamine	4.3	U	U	4.3	UJ	U	2.4	4.3	μg/L	HTP
WS	L0-01-LakeRE1	LR	RE	SW8270C	-	n-nitrosodimethylamine	4.2	U	U	4.2	UJ	U	2.3	4.2	μg/L	HTP 1053
WS	L0-00-LakeRE1	LR	RE	SW8270C	-	n-nitroso-di-n-butylamine	4.3	U	U	4.3	UJ	U	2.9	4.3	μg/L	HTP

APPENDIX C
Change in Qualifier Through the Data Validation Process

Change	ii Qualiller Tillough th	Data Vallua	ILIOITETO	.033								Final				
		Sample	LR		Dissolved	I	Lab	Lab	Lab Conc	Final	Final	Conc	Detection	Reporting		
Matrix	Sample ID	Type	Type	Analytical Method	?	Parameter	Result	Qual	Qual	Result	Qual	Qual	Limit	Limit	Units	Validation Notes
WG	LO-05-DUPE	FD	71	SW8270C	-	a,a-Dimethylphenethylamine	20.5	U	U	20.5	UJ	U	3.8	20.5	μg/L	2SL,CCVL,ICRSD
WG	LO-05-DUPE	FD		SW8270C	-	kepone	4.1	U	U	4.1	UJ	U	3.2	4.1	μg/L	2SL,ICRSD
WS	L0-01-LakeRE1	LR	RE	SW8270C	-	n-nitroso-di-n-butylamine	4.2	U	U	4.2	UJ	U	2.8	4.2	μg/L	HTP
WS	L0-00-LakeRE1	LR	RE	SW8270C	-	n-Nitrosodi-n-propylamine	4.3	U	U	4.3	UJ	U	3.2	4.3	μg/L	HTP
WS	L0-01-LakeRE1	LR	RE	SW8270C	-	n-Nitrosodi-n-propylamine	4.2	U	U	4.2	UJ	U	3.2	4.2	μg/L	HTP
WS	L0-00-LakeRE1	LR	RE	SW8270C	-	n-Nitrosodiphenylamine	4.3	U	U	4.3	UJ	U	3.7	4.3	μg/L	HTP
WS	L0-01-LakeRE1	LR	RE	SW8270C	-	n-Nitrosodiphenylamine	4.2	U	U	4.2	UJ	U	3.6	4.2	μg/L	HTP
WS	L0-00-LakeRE1	LR	RE	SW8270C	-	n-nitrosomorpholine	4.3	U	U	4.3	UJ	U	3.2	4.3	μg/L	HTP
WS	L0-01-LakeRE1	LR	RE	SW8270C	-	n-nitrosomorpholine	4.2	U	U	4.2	UJ	U	3.2	4.2	μg/L	HTP
WS	L0-00-LakeRE1	LR	RE	SW8270C	-	n-nitrosopiperidine	4.3	U	U	4.3	UJ	U	3	4.3	μg/L	HTP
WS	L0-01-LakeRE1	LR	RE	SW8270C	-	n-nitrosopiperidine	4.2	U	U	4.2	UJ	U	2.9	4.2	μg/L	HTP
WS	L0-00-LakeRE1	LR	RE	SW8270C	-	n-nitrosopyrrolidine	4.3	U	U	4.3	UJ	U	2.9	4.3	μg/L	HTP
WS	L0-01-LakeRE1	LR	RE	SW8270C	-	n-nitrosopyrrolidine	4.2	U	U	4.2	UJ	U	2.8	4.2	μg/L	HTP
WS	L0-00-LakeRE1	LR	RE	SW8270C	-	o,o,o-triethyl phosphorothioate	4.3	U	U	4.3	UJ	U	3.1	4.3	μg/L	HTP
WS	L0-01-LakeRE1	LR	RE	SW8270C	-	o,o,o-triethyl phosphorothioate	4.2	U	U	4.2	UJ	U	3	4.2	μg/L	HTP
WS	L0-00-LakeRE1	LR	RE	SW8270C	-	o-toluidine	4.3	U	U	4.3	UJ	U	2.9	4.3	μg/L	HTP
WS	L0-01-LakeRE1	LR	RE	SW8270C	-	o-toluidine	4.2	U	U	4.2	UJ	U	2.8	4.2	μg/L	HTP
WS	L0-00-LakeRE1	LR	RE	SW8270C	-	pentachlorobenzene	4.3	U	U	4.3	UJ	U	2.4	4.3	μg/L	HTP
WS	L0-01-LakeRE1	LR	RE	SW8270C	-	pentachlorobenzene	4.2	U	U	4.2	UJ	U	2.3	4.2	μg/L	HTP
WS	L0-00-LakeRE1	LR	RE	SW8270C	-	pentachloroethane	21.6	U	U	21.6	UJ	U	2.7	21.6	μg/L	HTP
WS	L0-01-LakeRE1	LR	RE	SW8270C	-	pentachloroethane	21	U	U	21	UJ	U	2.6	21	μg/L	HTP
WS	L0-00-LakeRE1	LR	RE	SW8270C	-	Pentachlorophenol	21.6	U	U	21.6	UJ	U	2.8	21.6	μg/L	HTP
WS	L0-01-LakeRE1	LR	RE	SW8270C	-	Pentachlorophenol	21	U	U	21	UJ	U	2.7	21	μg/L	HTP
WS	L0-00-LakeRE1	LR	RE	SW8270C	-	Phenol	21.6	U	U	21.6	UJ	U	1.8	21.6	μg/L	HTP
WS	L0-01-LakeRE1	LR	RE	SW8270C	-	Phenol	21	U	U	21	UJ	U	1.8	21	μg/L	HTP
WS	L0-00-LakeRE1	LR	RE	SW8270C	-	pronamide	4.3	U	U	4.3	UJ	U	1.9	4.3	μg/L	HTP
WS	L0-01-LakeRE1	LR	RE	SW8270C	-	pronamide	4.2	U	U	4.2	UJ	U	1.9	4.2	μg/L	HTP
WS	L0-00-LakeRE1	LR	RE	SW8270C	-	safrole	10.8	U	U	10.8	UJ	U	2.7	10.8	μg/L	HTP
WS	L0-01-LakeRE1	LR	RE	SW8270C	-	safrole	10.5	U	U	10.5	UJ	U	2.6	10.5	μg/L	HTP
WS	L0-00-LakeRE1	LR	RE	SW8270C	-	1,3,5-trinitrobenzene	21.6	U	U	21.6	UJ	U	3	21.6	μg/L	HTP,ICRSD
WS	L0-01-LakeRE1	LR	RE	SW8270C	-	1,3,5-trinitrobenzene	21	U	U	21	UJ	U	2.9	21	μg/L	HTP,ICRSD
WS	L0-00-LakeRE1	LR	RE	SW8270C	-	1,3-dinitrobenzene	21.6	U	U	21.6	UJ	U	2.7	21.6	μg/L	HTP,ICRSD
WS	L0-01-LakeRE1	LR	RE	SW8270C	-	1,3-dinitrobenzene	21	U	U	21	UJ	U	2.6	21	μg/L	HTP,ICRSD
WS	L0-00-LakeRE1	LR	RE	SW8270C	-	1,4-naphthoquinone	4.3	U	U	4.3	UJ	U	3.4	4.3	μg/L	HTP,ICRSD
WS	L0-01-LakeRE1	LR	RE	SW8270C	-	1,4-naphthoquinone	4.2	U	U	4.2	UJ	U	3.3	4.2	μg/L	HTP,ICRSD
WS	L0-00-LakeRE1	LR	RE	SW8270C	-	2,3,4,6-tetrachlorophenol	4.3	U	U	4.3	UJ	U	3.2	4.3	μg/L	HTP,ICRSD
WS	L0-01-LakeRE1	LR	RE	SW8270C	-	2,3,4,6-tetrachlorophenol	4.2	U	U	4.2	UJ	U	3.2	4.2	μg/L	HTP,ICRSD
WS	L0-00-LakeRE1	LR	RE	SW8270C	-	2,6-dichlorophenol	4.3	U	U	4.3	UJ	U	3.8	4.3	μg/L	HTP,ICRSD
WS	L0-01-LakeRE1	LR	RE	SW8270C	-	2,6-dichlorophenol	4.2	U	U	4.2	UJ	U	3.7	4.2	μg/L	HTP,ICRSD
WS	L0-00-LakeRE1	LR	RE	SW8270C	-	2-acetylaminofluorene	4.3	U	U	4.3	UJ	U	2.7	4.3	μg/L	HTP,ICRSD
WS	L0-01-LakeRE1	LR	RE	SW8270C	-	2-acetylaminofluorene	4.2	U	U	4.2	UJ	U	2.6	4.2	μg/L	HTP,ICRSD
WS	L0-00-LakeRE1	LR	RE	SW8270C	-	3,3'-dimethylbenzidine	21.6	U	U	21.6	UJ	U	6.5	21.6	μg/L	HTP,ICRSD
WS	L0-01-LakeRE1	LR	RE	SW8270C	-	3,3'-dimethylbenzidine	21	U	U	21	UJ	U	6.3	21	μg/L	HTP,ICRSD
WS	L0-00-LakeRE1	LR	RE	SW8270C	-	4-nitroquinoline-n-oxide	21.6	U	U	21.6	UJ	U	4	21.6	μg/L	HTP,ICRSD
WS	L0-00-LakeRE1	LR	RE	SW8270C	-	5-nitro-o-toluidine	4.3	U	U	4.3	UJ	U	2.8	4.3	μg/L	HTP,ICRSD
WS	L0-01-LakeRE1	LR	RE	SW8270C	-	5-nitro-o-toluidine	4.2	U	U	4.2	UJ	U	2.7	4.2	μg/L	HTP,ICRSD
WS	L0-00-LakeRE1	LR	RE	SW8270C	-	Aramite	4.3	U	U	4.3	UJ	U	2.7	4.3	μg/L	HTP,ICRSD
WS	L0-01-LakeRE1	LR	RE	SW8270C	-	Aramite	4.2	U	U	4.2	UJ	U	2.6	4.2	μg/L	HTP,ICRSD
WS	L0-00-LakeRE1	LR	RE	SW8270C	-	kepone	4.3	U	U	4.3	UJ	U	3.4	4.3	μg/L	HTP,ICRSD
WS	L0-00-LakeRE1	LR	RE	SW8270C	-	p-dimethylaminoazobenzene	4.3	U	U	4.3	UJ	U	2.7	4.3	μg/L	HTP,ICRSD
WS	L0-01-LakeRE1	LR	RE	SW8270C	-	p-dimethylaminoazobenzene	4.2	U	U	4.2	UJ	U	2.6	4.2	μg/L	HTP,ICRSD
WS	L0-00-LakeRE1	LR	RE	SW8270C	-	pentachloronitrobenzene	4.3	U	U	4.3	UJ	U	2.6	4.3	μg/L	HTP,ICRSD
WS	L0-01-LakeRE1	LR	RE	SW8270C	-	pentachloronitrobenzene	4.2	U	U	4.2	UJ	U	2.5	4.2	μg/L	HTP,ICRSD
WS	L0-00-LakeRE1	LR	RE	SW8270C	-	phenacetin	4.3	U	U	4.3	UJ	U	2.9	4.3	μg/L	HTP,ICRS054
WS	L0-01-LakeRE1	LR	RE	SW8270C	-	phenacetin	4.2	U	U	4.2	UJ	U	2.8	4.2	μg/L	HTP,ICRSD

APPENDIX C
Change in Qualifier Through the Data Validation Process

Change	in Qualifier Through th	e Data Vallua	alion Fro	ress								Final				
		Sample	LR		Dissolved		Lab	Lab	Lab Conc	Final	Final	Conc	Detection	Reporting		
Matrix	Sample ID	Type	Type	Analytical Method	?	Parameter	Result	Qual	Qual	Result	Qual	Qual	Limit	Limit	Units	Validation Notes
WG	LO-05-DUPE	FD	- 71	SW8270C	_	a,a-Dimethylphenethylamine	20.5	U	U	20.5	UJ	U	3.8	20.5	μg/L	2SL,CCVL,ICRSD
WG	LO-05-DUPE	FD		SW8270C	-	kepone	4.1	U	Ū	4.1	UJ	U	3.2	4.1	μg/L	2SL,ICRSD
WS	L0-00-LakeRE1	LR	RE	SW8270C	-	p-phenylenediamine	21.6	U	U	21.6	UJ	U	2.9	21.6	μg/L	HTP,ICRSD
WS	L0-01-LakeRE1	LR	RE	SW8270C	-	p-phenylenediamine	21	U	U	21	UJ	U	2.8	21	μg/L	HTP,ICRSD
WS	L0-00-LakeRE1	LR	RE	SW8270C	-	pyridine	4.3	U	U	4.3	UJ	U	2.3	4.3	μg/L	HTP,ICRSD
WS	L0-01-LakeRE1	LR	RE	SW8270C	-	pyridine	4.2	U	U	4.2	UJ	U	2.2	4.2	μg/L	HTP,ICRSD
WS	L0-00-LakeRE1	LR	RE	SW8270C	-	a,a-Dimethylphenethylamine	21.6	U	U	21.6	UJ	U	4	21.6	μg/L	HTP,ICRSD,LCSL,LCSP
WS	L0-01-LakeRE1	LR	RE	SW8270C	-	a,a-Dimethylphenethylamine	21	U	U	21	UJ	U	3.9	21	μg/L	HTP,ICRSD,MSDL,MSL
WS	L0-01-LakeC	LR	RE	SW8270C	-	2,3,4,6-tetrachlorophenol	4.2	U	U	4.2	R	U	3.2	4.2	μg/L	SSR
WS	L0-01-LakeC	LR	RE	SW8270C	-	2,4,5-Trichlorophenol	4.2	U	U	4.2	R	U	3.6	4.2	μg/L	SSR
WS	L0-01-LakeC	LR	RE	SW8270C	-	2,4,6-Trichlorophenol	4.2	U	U	4.2	R	U	3.8	4.2	μg/L	SSR
WS	L0-01-LakeC	LR	RE	SW8270C	-	2,4-Dichlorophenol	4.2	U	U	4.2	R	U	3.3	4.2	μg/L	SSR
WS	L0-01-LakeC	LR	RE	SW8270C	-	2,4-Dimethylphenol	4.2	U	U	4.2	R	U	2.4	4.2	μg/L	SSR
WS	L0-01-LakeC	LR	RE	SW8270C	-	2,4-Dinitrophenol	21	U	U	21	R	U	5.9	21	μg/L	SSR
WS	L0-01-LakeC	LR	RE	SW8270C	-	2,6-dichlorophenol	4.2	U	U	4.2	R	U	3.7	4.2	μg/L	SSR
WS	L0-01-LakeC	LR	RE	SW8270C	-	2-Chlorophenol	4.2	U	U	4.2	R	U	3	4.2	μg/L	SSR
WS	L0-01-LakeC	LR	RE	SW8270C	-	2-Methylphenol (o-Cresol)	4.2	U	U	4.2	R	U	2.7	4.2	μg/L	SSR
WS	L0-01-LakeC	LR	RE	SW8270C	-	4-Methylphenol (p-Cresol)	10.5	U	U	10.5	R	U	6.4	10.5	μg/L	SSR
WS	L0-01-LakeC	LR	RE	SW8270C	-	Benzyl alcohol	10.5	U	U	10.5	R	U	3.3	10.5	μg/L	SSR
WS	L0-01-LakeC	LR	RE	SW8270C	-	Pentachlorophenol	21	U	U	21	R	U	2.7	21	μg/L	SSR
WS	L0-01-LakeC	LR	RE	SW8270C	-	Phenol	21	U	U	21	R	U	1.8	21	μg/L	SSR
WS	LO-04-03	N		SW8260B	-	iodomethane	2	U	U	2	UJ	U	1	2	μg/L	2SL
WS	LO-05-03	N		SW8270C	-	a,a-Dimethylphenethylamine	20.5	U	U	20.5	UJ	U	3.8	20.5	μg/L	2SL,CCVL,ICRSD
WS	LO-05-03	N		SW8270C	-	kepone	4.1	U	U	4.1	UJ	U	3.2	4.1	μg/L	2SL,CCVL,ICRSD
WS	LO-04-03	N		SW8260B	-	Bromomethane	1	U	U	1	UJ	U	1	1	μg/L	2SL,ICRSD
WS	LO-03-Lake	N		SW6010B	-	Aluminum	0.144	=	=	0.144	U	U	0.015	0.1	mg/L	CCBH
WS	LO-05-03	N		E351.2	-	nitrogen, kjeldahl, total	0.415	=	=	0.415	U	U	0.12	0.26	mg/L	CCBL
WS	LO-05-03	N		E353.2M	-	Total Nitrogen, calculated	0.415	=	=	0.415	U	U	0	0	mg/L	CCBL
WS	L0-00-Lake	N		SW6010B	-	Arsenic		=	=	0.00841		U	0.0018	0.005	mg/L	CCBL
WS	L0-01-Lake	N		SW6010B	-	Arsenic	0.00858		=	0.00858		U	0.0018	0.005	mg/L	CCBL
WS	L0-02-Lake	N		SW6010B	-	Arsenic		=	=	0.00888		U	0.0018	0.005	mg/L	CCBL
WS	LO-03-Lake	N		SW6010B	-	Arsenic	0.00927		=	0.00927		U	0.0018	0.005	mg/L	CCBL
WS	LO-05-03	N		SW6010B	-	Arsenic	0.0118	=	=	0.0118	U	U	0.0018	0.005	mg/L	CCBL
WS	LO-06-03	N		SW6010B	-	Arsenic	0.00805		=	0.00805		U	0.0018	0.005	mg/L	CCBL
WS	LO-05-03	N		SW6010B	-	Cadmium	0.00132		J	0.00132		U	0.00035	0.005	mg/L	CCBL
WS	L0-01-Lake	N		SW6010B	-	Copper	0.00442		J	0.00442		U	0.00062	0.005	mg/L	CCBL
WS	L0-02-Lake	N		SW6010B	-	Copper		В	J	0.00207		U	0.00062	0.005	mg/L	CCBL
WS	LO-06-03	N		SW6010B	-	Copper		В	J	0.00159		U	0.00062	0.005	mg/L	CCBL
WS	LO-07-03	N		SW6010B	-	Copper	0.00282		J	0.00282		U	0.00062	0.005	mg/L	CCBL
WS	LO-03-Lake	N N		SW6010B	-	Iron	0.0312	В	J	0.0312 0.00601	U	U U	0.0092	0.05	mg/L	CCBL CCBL
WS	LO-07-03			SW6010B	-	Selenium	0.00601	=	=		_	_	0.0026	0.005	mg/L	
WS	L0-00-Lake	N		SW6010B	-	Zinc	0.0131	= B	= J	0.0131 0.00498	U	U U	0.00094	0.01	mg/L	CCBL
WS	L0-02-Lake	N		SW6010B	-	Zinc			U			U	0.00094	0.01	mg/L	CCBL
WS	LO-04-03	N N		SW8270C	-	4-nitroquinoline-n-oxide	20	U U	U	20 10	UJ	U	3.7	20	μg/L	CCRRF
WS WS	L0-00-Lake	N N		SW8260B	-	Acrolein	10	U	U	10	UJ	U	1.4	10	μg/L	CCRRF,ICRRF
	L0-01-Lake			SW8260B	-	Acrolein	10	-	U			U	1.4	10	μg/L	CCRRF,ICRRF
WS WS	L0-02-Lake L0-01-Lake	N N		SW8260B SW8081	-	Acrolein alpha-chlordane	10 0.058	U U	U	10 0.058	UJ UJ	U	1.4 0.0035	10 0.058	μg/L	CCRRF,ICRRF CCVL
					-	•			U			-			μg/L	
WS WS	LO-04-03	N N		SW8081	-	endrin aldehyde	0.01	U U	U	0.01	UJ	U U	0.00031	0.01	μg/L	CCVL
WS WS	LO-04-03	N N		SW8081	-	methoxychlor	0.01 0.01	U	U	0.01 0.01	UJ UJ	U	0.00037 0.00022	0.01 0.01	μg/L	CCVL CCVL
ws ws	LO-04-03	N N		SW8081 SW8082	-	p,p'-DDT Aroclor-1016	0.01	U	U	0.01	UJ	U			μg/L	CCVL
ws ws	LO-05-03 LO-07-03	N N			-		0.5 5.1	U	U		UJ	U	0.36 0.52	0.5	μg/L	CCVL
WS WS	LO-07-03 LO-07-03	N N		SW8141 SW8141	-	azinphos, methyl (guthion) bolstar	5.1 5.1	U	U	5.1 5.1	UJ	U	0.52	5.1 5.1	μg/L μg/L	001/1
WS		N N		SW8141	-		5.1 5.1	IJ	U	5.1 5.1	UJ	U	0.68	5.1 5.1		CCVL 1055 CCVL
VVO	LO-07-03	IN		3000141	-	coumaphos	5.1	U	U	5.1	UJ	U	0.49	J. I	μg/L	CCVL

APPENDIX C
Change in Qualifier Through the Data Validation Process

Onlange	iii Qualilici Tiliougii iii	C Data Valida		5033								Final				
		Sample	LR		Dissolved	I	Lab	Lab	Lab Conc	Final	Final	Conc	Detection	Reporting		
Matrix	Sample ID	Type	Type	Analytical Method	?	Parameter	Result	Qual	Qual	Result	Qual	Qual	Limit	Limit	Units	Validation Notes
WG	LO-05-DUPE	FD		SW8270C	-	a,a-Dimethylphenethylamine	20.5	U	U	20.5	UJ	U	3.8	20.5	μg/L	2SL,CCVL,ICRSD
WG	LO-05-DUPE	FD		SW8270C	-	kepone	4.1	U	U	4.1	UJ	U	3.2	4.1	μg/L	2SL,ICRSD
WS	LO-07-03	N		SW8141	-	demeton-s	5.1	U	U	5.1	UJ	U	0.34	5.1	μg/L	CCVL
WS	L0-02-Lake	N		SW8141	-	diazinon	5.2	U	U	5.2	UJ	U	0.28	5.2	μg/L	CCVL
WS	L0-02-Lake	N		SW8141	-	dichlorvos	5.2	U	U	5.2	UJ	U	0.94	5.2	μg/L	CCVL
WS	LO-06-03	N		SW8141	-	dichlorvos	5	U	U	5	UJ	U	0.9	5	μg/L	CCVL
WS	LO-07-03	N		SW8141	-	disulfoton	5.1	U	U	5.1	UJ	U	0.9	5.1	μg/L	CCVL
WS	LO-07-03	N		SW8141	-	ethoprop	5.1	U	U	5.1	UJ	U	0.76	5.1	μg/L	CCVL
WS	LO-07-03	N		SW8141	-	merphos	5.1	U	U	5.1	UJ	U	0.49	5.1	μg/L	CCVL
WS	LO-07-03	N		SW8141	-	parathion, ethyl	5.1	U	U	5.1	UJ	U	0.49	5.1	μg/L	CCVL
WS	LO-07-03	N		SW8141	-	phorate	5.1	U	U	5.1	UJ	U	0.97	5.1	μg/L	CCVL
WS	L0-02-Lake	N		SW8141	-	stirofos	5.2	U	U	5.2	UJ	U	0.66	5.2	μg/L	CCVL
WS	LO-07-03	N		SW8141	-	thiodiphosphoric acid tetraethyl ester	5.1	U	U	5.1	UJ	U	0.43	5.1	μg/L	CCVL
WS	LO-07-03	N		SW8141	-	tokuthion (prothiofos)	5.1	U	U	5.1	UJ	U	0.62	5.1	μg/L	CCVL
WS	LO-07-03	N		SW8141	-	trichloronate	5.1	U	U	5.1	UJ	U	0.57	5.1	μg/L	CCVL
WS	L0-00-Lake	N		SW8151	-	dalapon	0.66	U	U	0.66	UJ	U	0.39	0.66	μg/L	CCVL
WS	LO-07-03	N		SW8260B	-	Acrolein	10	U	U	10	UJ	U	1.4	10	μg/L	CCVL
WS	LO-07-03	N		SW8270C	-	bis(2-Chloroisopropyl) ether	4.1	U	U	4.1	UJ	U	3.4	4.1	μg/L	CCVL
WS	LO-06-03	N		SW8270C	-	hexachloropropene	4	U	U	4	UJ	U	2	4	μg/L	CCVL
WS	L0-00-Lake	N		SW8082	-	Aroclor-1016	0.52	U	U	0.52	UJ	U	0.38	0.52	μg/L	CCVL,ICRSD
WS	L0-01-Lake	N		SW8141	-	dichlorvos	5.4	U	U	5.4	UJ	U	0.97	5.4	μg/L	CCVL,ICRSD
WS	LO-06-03	N		SW8270C	-	Aniline	4	U	U	4	UJ	U	2.8	4	μg/L	CCVL,ICRSD
WS	LO-07-03	N		SW8270C	-	a,a-Dimethylphenethylamine	20.5	U	U	20.5	UJ	U	3.8	20.5	μg/L	CCVL,ICRSD,LCSDL,MSDL, MSL
WS	LO-07-03	N		SW8270C	-	4-nitroquinoline-n-oxide	20.5	U	U	20.5	UJ	U	3.8	20.5	μg/L	CCVL,ICRSD,MSDL,MSL
WS	LO-06-03	N		SW8151	-	dalapon	0.64	U	U	0.64	UJ	U	0.38	0.64	μg/L	CCVL,LCSDL,LCSL
WS	L0-02-Lake	N		SW8260B	-	trans-1,4-dichloro-2-butene	4	U	U	4	UJ	U	0.72	4	μg/L	CCVL,LCSL,MSL
WS	LO-05-03	N		SW6010B	-	Zinc	0.00175	В	J	0.00175	J	J	0.00094	0.01	mg/L	IB,SDIL
WS	LO-03-Lake	N		SW8260B	-	Acrolein	10	U	U	10	UJ	U	1.4	10	μg/L	ICRRF
WS	L0-02-Lake	N		SW8270C	-	4-nitroquinoline-n-oxide	20	U	U	20	UJ	U	3.7	20	μg/L	ICRRF,ICRSD
WS	L0-02-Lake	N		SW8270C	-	kepone	4	U	U	4	UJ	U	3.1	4	μg/L	ICRRF,ICRSD
WS	L0-00-Lake	N		SW8081	-	alpha bhc	0.052	U	U	0.052	UJ	U	0.0006	0.052	μg/L	ICRSD
WS	LO-03-Lake	N		SW8081	-	beta bhc	0.051	U	U	0.051	UJ	U	0.0012	0.051	μg/L	ICRSD
WS	L0-00-Lake	N		SW8081	-	delta bhc	0.052	U	U	0.052	UJ	U	0.0031	0.052	μg/L	ICRSD
WS	L0-01-Lake	N		SW8081	-	endrin aldehyde	0.058	U	U	0.058	UJ	U	0.0017	0.058	μg/L	ICRSD
WS	LO-03-Lake	N		SW8081	-	endrin aldehyde	0.051	U	U	0.051	UJ	U	0.0015	0.051	μg/L	ICRSD
WS	L0-01-Lake	N		SW8081	-	methoxychlor	0.058	U	U	0.058	UJ	U	0.0021	0.058	μg/L	ICRSD
WS	LO-03-Lake	N		SW8081	-	methoxychlor	0.051	U	U	0.051	UJ	U	0.0018	0.051	μg/L	ICRSD
WS	L0-00-Lake	N		SW8081	-	p,p'-DDT	0.052	U	U	0.052	UJ	U	0.0011	0.052	μg/L	ICRSD
WS	L0-01-Lake	N		SW8082	-	Aroclor-1016	0.58	U	U	0.58	UJ	U	0.42	0.58	μg/L	ICRSD
WS	LO-03-Lake	N		SW8082	-	Aroclor-1254	0.51	U	U	0.51	UJ	U	0.12	0.51	μg/L	ICRSD
WS	L0-01-Lake	N		SW8141	-	mevinphos	5.4	U	U	5.4	UJ	U	0.5	5.4	μg/L	ICRSD
WS	L0-00-Lake	N		SW8141	-	naled	5.2	U	U	5.2	UJ	U	0.74	5.2	μg/L	ICRSD
WS	L0-01-Lake	N		SW8141	-	naled	5.4	U	U	5.4	UJ	U	0.78	5.4	μg/L	ICRSD
WS	LO-05-03	N		SW8141	-	parathion, methyl	5.1	U	U	5.1	UJ	U	0.55	5.1	μg/L	ICRSD
WS	LO-03-Lake	N		SW8260B	-	trans-1,4-dichloro-2-butene	4	U	U	4	UJ	U	0.72	4	μg/L	ICRSD
WS	LO-04-03	N		SW8260B	-	trans-1,4-dichloro-2-butene	4	U	U	4	UJ	U	0.72	4	μg/L	ICRSD
WS	L0-01-Lake	N		SW8260B	-	Vinyl chloride	1	U	U	1	UJ	U	0.4	1	μg/L	ICRSD
WS	LO-05-03	N		SW8260B	-	Vinyl chloride	1	U	U	1	UJ	U	0.4	1	μg/L	ICRSD
WS	L0-02-Lake	N		SW8270C	-	1,3,5-trinitrobenzene	20	U	U	20	UJ	U	2.8	20	μg/L	ICRSD
WS	LO-07-03	N		SW8270C	-	1,3,5-trinitrobenzene	20.5	U	U	20.5	UJ	U	2.9	20.5	μg/L	ICRSD
WS	L0-02-Lake	N		SW8270C	-	1,3-dinitrobenzene	20	U	U	20	UJ	U	2.5	20	μg/L	ICRSD
WS	LO-05-03	N		SW8270C	-	1,3-dinitrobenzene	20.5	U	U	20.5	UJ	U	2.6	20.5	μg/L	ICRSD 1056
WS	L0-02-Lake	N		SW8270C	-	1,4-naphthoquinone	4	U	U	4	UJ	U	3.1	4	μg/L	ICRSD

APPENDIX C
Change in Qualifier Through the Data Validation Process

onunge	in Qualifici Trirough in	c Data Vallaci		3033								Final				
		Sample	LR		Dissolved	1	Lab	Lab	Lab Conc	Final	Final	Conc	Detection	Reporting		
Matrix	Sample ID	Type	Type	Analytical Method	?	Parameter	Result	Qual	Qual	Result	Qual	Qual	Limit	Limit	Units	Validation Notes
WG	LO-05-DUPE	FD FD	- 7   -	SW8270C	-	a,a-Dimethylphenethylamine	20.5	U	U	20.5	UJ	U	3.8	20.5	μg/L	2SL.CCVL.ICRSD
WG	LO-05-DUPE	FD		SW8270C	_	kepone	4.1	Ü	Ü	4.1	UJ	Ū	3.2	4.1	μg/L	2SL,ICRSD
WS	L0-02-Lake	N		SW8270C	_	2,3,4,6-tetrachlorophenol	4	Ü	Ü	4	UJ	Ū	3	4	μg/L	ICRSD
WS	LO-04-03	N		SW8270C	_	2,3,4,6-tetrachlorophenol	4	Ü	Ü	4	UJ	Ū	3	4	μg/L	ICRSD
WS	LO-07-03	N		SW8270C	_	2,3,4,6-tetrachlorophenol	4.1	Ü	U	4.1	UJ	Ü	3.1	4.1	μg/L	ICRSD
WS	LO-03-Lake	N		SW8270C	_	2,4-Dichlorophenol	4.2	U	U	4.2	UJ	Ü	3.3	4.2	μg/L	ICRSD
WS	LO-05-03	N		SW8270C	_	2,4-Dichlorophenol	4.1	U	U	4.1	UJ	U	3.2	4.1	μg/L	ICRSD
WS	LO-03-03 LO-04-03	N		SW8270C	_	2,4-Dichlorophenol	20	U	U	20	UJ	U	5.6	20	μg/L μg/L	ICRSD
WS	L0-04-03 L0-02-Lake	N		SW8270C	_	2,6-dichlorophenol	4	U	U	4	UJ	U	3.5	4	μg/L μg/L	ICRSD
WS	L0-02-Lake	N		SW8270C	_	2-acetylaminofluorene	4	U	U	4	UJ	U	2.5	4	μg/L μg/L	ICRSD
WS	LO-05-03	N		SW8270C	-	2-acetylaminofluorene	4.1	U	U	4.1	UJ	U	2.6	4.1	μg/L μg/L	ICRSD
WS	LO-05-03 LO-06-03	N		SW8270C	-	2-Methylphenol (o-Cresol)	4.1	U	U	4.1	UJ	U	2.6	4.1		ICRSD
WS	L0-06-03 L0-02-Lake	N		SW8270C SW8270C	-	3,3'-dimethylbenzidine	20	IJ	IJ	20	UJ	U	6	20	μg/L μg/L	ICRSD
WS	LO-02-Lake LO-05-03	N		SW8270C SW8270C	-	3,3'-dimethylbenzidine	20.5	U	U	20.5	UJ	U	6.2	20.5		ICRSD
WS		N		SW8270C SW8270C	-			U	U		UJ	U	3.2		μg/L	ICRSD
	LO-03-Lake				-	4-Chloroaniline	4.2	-	-	4.2 4		_		4.2	μg/L	
WS	LO-06-03	N		SW8270C	-	4-Chloroaniline	4	U U	U U		UJ	U U	3	4	μg/L	ICRSD
WS	LO-06-03	N		SW8270C	-	4-Methylphenol (p-Cresol)	10.1		-	10.1	UJ		6.2	10.1	μg/L	ICRSD
WS	LO-05-03	N		SW8270C	-	4-nitroquinoline-n-oxide	20.5	U	U	20.5	UJ	U	3.8	20.5	μg/L	ICRSD
WS	LO-06-03	N		SW8270C	-	4-nitroquinoline-n-oxide	20.2	U	U	20.2	UJ	U	3.7	20.2	μg/L	ICRSD
WS	L0-02-Lake	N		SW8270C	-	5-nitro-o-toluidine	4	U	U	4	UJ	U	2.6	4	μg/L	ICRSD
WS	L0-02-Lake	N		SW8270C	-	a,a-Dimethylphenethylamine	20	U	U	20	UJ	U	3.7	20	μg/L	ICRSD
WS	LO-07-03	N		SW8270C	-	Aniline	4.1	U	U	4.1	UJ	U	2.9	4.1	μg/L	ICRSD
WS	L0-02-Lake	N		SW8270C	-	Aramite	4	U	U	4	UJ	U	2.5	4	μg/L	ICRSD
WS	LO-05-03	N		SW8270C	-	Aramite	4.1	U	U	4.1	UJ	U	2.6	4.1	μg/L	ICRSD
WS	LO-07-03	N		SW8270C	-	Aramite	4.1	U	U	4.1	UJ	U	2.6	4.1	μg/L	ICRSD
WS	LO-03-Lake	N		SW8270C	-	Benzyl alcohol	10.5	U	U	10.5	UJ	U	3.3	10.5	μg/L	ICRSD
WS	LO-06-03	N		SW8270C	-	Dibenzofuran	4	U	U	4	UJ	U	2.7	4	μg/L	ICRSD
WS	LO-05-03	N		SW8270C	-	methapyrilene	4.1	U	U	4.1	UJ	U	3.8	4.1	μg/L	ICRSD
WS	LO-04-03	N		SW8270C	-	nitrosomethylethylamine	4	U	U	4	UJ	U	2.7	4	μg/L	ICRSD
WS	L0-02-Lake	N		SW8270C	-	p-dimethylaminoazobenzene	4	U	U	4	UJ	U	2.5	4	μg/L	ICRSD
WS	L0-02-Lake	N		SW8270C	-	pentachloronitrobenzene	4	U	U	4	UJ	U	2.4	4	μg/L	ICRSD
WS	LO-03-Lake	N		SW8270C	-	Pentachlorophenol	21	U	U	21	UJ	U	2.7	21	μg/L	ICRSD
WS	LO-04-03	N		SW8270C	-	Pentachlorophenol	20	U	U	20	UJ	U	2.6	20	μg/L	ICRSD
WS	LO-05-03	N		SW8270C	-	Pentachlorophenol	20.5	U	U	20.5	UJ	U	2.7	20.5	μg/L	ICRSD
WS	L0-02-Lake	N		SW8270C	-	phenacetin	4	U	U	4	UJ	U	2.7	4	μg/L	ICRSD
WS	L0-02-Lake	N		SW8270C	-	p-phenylenediamine	20	U	U	20	UJ	U	2.7	20	μg/L	ICRSD
WS	L0-02-Lake	N		SW8270C	-	pyridine	4	U	U	4	UJ	U	2.1	4	μg/L	ICRSD
WS	LO-05-03	N		SW8270C	-	pyridine	4.1	U	U	4.1	UJ	U	2.2	4.1	μg/L	ICRSD
WS	LO-06-03	N		SW8270C	-	pyridine	4	U	U	4	UJ	U	2.1	4	μg/L	ICRSD
				011/00=00												
WS	LO-06-03	N		SW8270C	-	a,a-Dimethylphenethylamine	20.2	U	U	20.2	UJ	U	3.7	20.2	μg/L	ICRSD,LCSDL,LCSL,MSL
WS	L0-00-Lake	N		E350.3	-	Nitrogen, ammonia (as N)	0.0568	В	J	0.0568	U	U	0.0366	0.3	mg/L	LBH
WS	LO-04-03	N		SW6010B	-	Arsenic	0.00696	=	=	0.00696	U	U	0.0018	0.005	mg/L	LBL
WS	L0-00-Lake	N		SW6010B	_	Iron	0.0276	В	J	0.0276	Ü	Ū	0.0092	0.05	mg/L	LBL
WS	L0-01-Lake	N		SW6010B	_	Zinc	0.00321	В	J	0.00321		Ū	0.00094	0.01	mg/L	LBL
WS	LO-03-Lake	N		SW6010B	_	Zinc	0.00426	В	J	0.00426	Ü	Ū	0.00094	0.01	mg/L	LBL
WS	LO-07-03	N		SW8260B	_	1,2-Dichlorobenzene	1	Ū	U	1	UJ	Ü	0.26	1	μg/L	LCSDL
WS	LO-07-03	N		SW8260B	_	1,4-Dichlorobenzene	1	U	U	1	UJ	U	0.20	1	μg/L μg/L	LCSDL
WS	LO-03-Lake	N		SW8270C	-	2,4-Dinitrotoluene	4.2	U	U	4.2	R	U	2.9	4.2	μg/L μg/L	LCSDL
WS	LO-03-Lake	N		SW8270C	_	a,a-Dimethylphenethylamine	20	U	U	20	R	U	3.7	20	μg/L μg/L	LCSDL
WS	LO-04-03 LO-04-03	N		SW8151	_	dalapon	0.62	U	U	0.62	UJ	U	0.37	0.62	μg/L μg/L	LCSDL,LCSL
WS	L0-04-03 L0-01-Lake	N		SW8141	_	phorate	5.4	U	U	5.4	UJ	U	1	5.4	μg/L μg/L	LCSL LCSL
WS WS		N N		SW8141	-	· ·	5.4	U	U	5.4 5.4	UJ	U	0.25			LCSL
WS	L0-01-Lake	IN		300141	-	ronnel	5.4						0.20	5.4	μg/L	
WS	L0-01-Lake	N		SW8141	-	thiodiphosphoric acid tetraethyl ester	5.4	U	U	5.4	UJ	U	0.45	5.4	μg/L	LCSL 1057

APPENDIX C
Change in Qualifier Through the Data Validation Process

												Final				
		Sample	LR		Dissolved		Lab	Lab	Lab Conc	Final	Final	Conc	Detection	Reporting		
Matrix	Sample ID	Type	Type	Analytical Method	?	Parameter	Result	Qual	Qual	Result	Qual	Qual	Limit	Limit	Units	Validation Notes
WG	LO-05-DUPE	FD FD	. )   0	SW8270C		a,a-Dimethylphenethylamine	20.5	U	U	20.5	UJ	U	3.8	20.5	μg/L	2SL.CCVL.ICRSD
WG	LO-05-DUPE	FD		SW8270C	-	kepone	4.1	Ü	U	4.1	UJ	Ü	3.2	4.1	μg/L	2SL,ICRSD
						., .		_	-			-				•
WS	L0-01-Lake	N		SW8151	-	2,4,5-t (trichlorophenoxyacetic acid)	0.5	U	U	0.5	UJ	U	0.11	0.5	μg/L	LCSL
14/0	100400	N.		014/04/54		0.45.4 (wishlaws have some satisfies)	0.5	U	U	0.5		U	0.44	0.5	/1	1.001
WS	LO-04-03	N		SW8151	-	2,4,5-t (trichlorophenoxyacetic acid)	0.5	U	U	0.5	UJ	U	0.11	0.5	μg/L	LCSL
WS	LO-05-03	N		SW8151	-	dalapon	0.62	U	U	0.62	UJ	U	0.37	0.62	μg/L	LCSL
WS	L0-01-Lake	N		SW8151	-	dicamba	0.5	U	U	0.5	UJ	U	0.034	0.5	μg/L	LCSL
WS	LO-04-03	N		SW8151	-	dicamba	0.5	U	U	0.5	UJ	U	0.034	0.5	μg/L	LCSL
WS	LO-05-03	N		SW8151	-	dicamba	0.5	U	U	0.5	UJ	U	0.03	0.5	μg/L	LCSL
WS	L0-01-Lake	N		SW8151	-	silvex (2,4,5-tp)	0.5	U	U	0.5	UJ	U	0.038	0.5	μg/L	LCSL
WS	LO-04-03	N		SW8260B	-	1,1,2,2-Tetrachloroethane	1	U	U	1	UJ	U	0.24	1	μg/L	LCSL
WS	LO-04-03	N		SW8260B	-	1,2,3-Trichloropropane	1	U	U	1	UJ	U	0.44	1	μg/L	LCSL
WS	LO-04-03	N		SW8270C	-	1,2,4-Trichlorobenzene	4	U	U	4	R	U	2.6	4	μg/L	LCSL
WS	LO-03-Lake	N		SW8270C	-	a,a-Dimethylphenethylamine	21	U	U	21	R	U	3.9	21	μg/L	LCSL
WS	LO-03-Lake	N		SW8270C	-	pyridine	4.2	U	U	4.2	R	U	2.2	4.2	μg/L	LCSL
WS	LO-03-Lake	N		E353.2	-	Nitrogen, nitrate-nitrite	0.0201	U	U	0.0201	UJ	U	0.0201	0.1	mg/L	MSDL
WS	LO-03-Lake	N		E900	-	Alpha, gross	4.55	=	=	4.55	J	J	2.32	5	pCi/L	MSDL
WS	LO-07-03	N		SW8141	_	Atrazine	5.1	U	U	5.1	UJ	U	0.24	5.1	μg/L	MSDL
WS	LO-07-03	N		SW8141	_	diazinon	5.1	Ū	Ū	5.1	UJ	Ū	0.28	5.1	μg/L	MSDL
WS	LO-07-03	N		SW8141	_	dichlorvos	5.1	U	U	5.1	UJ	U	0.92	5.1	μg/L	MSDL
WS	LO-07-03	N		SW8141	_	fensulfothion	5.1	Ū	Ü	5.1	UJ	U	0.92	5.1	μg/L	MSDL
WS	LO-07-03	N		SW8141	_	simazine	5.1	Ū	Ü	5.1	UJ	Ū	0.26	5.1	μg/L	MSDL
WS	LO-04-03	N		E415.1	_	Total organic carbon	13.1	=	=	13.1	J	J	0.368	1	mg/L	MSDL,MSDP,MSH
WS	LO-06-03	N		E310.1	_	Alkalinity, bicarb (as CaCO3)	28.8	=	=	28.8	J	J	0.5	1	mg/L	MSDL,MSL
WS	LO-06-03	N		E310.1	_	Alkalinity, total (as CaCO3)	28.8	=	=	28.8	J	J	0.5	1	mg/L	MSDL,MSL
WS	LO-06-03	N		E350.1	_	Nitrogen, ammonia (as N)	0.017	U	U	0.017	UJ	U	0.017	0.02	mg/L	MSDL,MSL
WS	L0-01-Lake	N		E351.2	_	nitrogen, kjeldahl, total	1.6	=	=	1.6	J	J	0.128	0.26	mg/L	MSDL,MSL
WS	LO-03-Lake	N		E351.2	_	nitrogen, kjeldahl, total	0.661	=	=	0.661	J	J	0.128	0.26	mg/L	MSDL,MSL
WS	LO-03-Lake	N		E353.2M	_	Total Nitrogen, calculated	0.661	=	=	0.661	J	J	0	0	mg/L	MSDL,MSL
WS	LO-03-Lake	N		E415.1	_	Total organic carbon	10.5	=	=	10.5	J	J	0.368	1	mg/L	MSDL,MSL
WS	LO-06-03	N		SW8270C	_	1,4-naphthoquinone	4	U	U	4	UJ	Ü	3.1	4	μg/L	MSDL,MSL
WS	L0-03-Lake	N		E415.1	FLDFLT	Diss.organic carbon	8.48	=	=	8.48	J	J	0.368	1	mg/L	MSL
WS	L0-01-Lake	N		SW6010B	-	Selenium	0.0026	U	U	0.0026	UJ	U	0.0026	0.005	mg/L	MSL
WS	L0-01-Lake	N		SW8081	_	beta endosulfan	0.058	Ü	Ü	0.058	UJ	Ü	0.0019	0.058	μg/L	MSL
WS	L0-03-Lake	N		SW8141	_	fenthion	5.3	Ū	Ü	5.3	R	Ū	0.57	5.3	μg/L	MSL
								-	_			-				
WS	L0-02-Lake	N		SW8151	-	2,4,5-t (trichlorophenoxyacetic acid)	0.54	U	U	0.54	UJ	U	0.12	0.54	μg/L	SSL
WS	L0-02-Lake	N		SW8151	-	2,4-d (dichlorophenoxyacetic acid)	0.54	U	U	0.54	UJ	U	0.16	0.54	μg/L	SSL
WS	L0-02-Lake	N		SW8151	-	dalapon	0.68	U	U	0.68	UJ	U	0.4	0.68	μg/L	SSL
WS	L0-02-Lake	N		SW8151	-	dicamba	0.54	Ü	Ü	0.54	UJ	Ü	0.037	0.54	μg/L	SSL
WS	L0-02-Lake	N		SW8151	-	dichloroprop	0.54	Ü	Ü	0.54	UJ	U	0.19	0.54	μg/L	SSL
WS	L0-02-Lake	N		SW8151	-	dinoseb	0.54	U	U	0.54	UJ	Ü	0.06	0.54	μg/L	SSL
WS	L0-02-Lake	N		SW8151	-	Picloram	0.54	Ü	Ü	0.54	UJ	Ü	0.08	0.54	μg/L	SSL
WS	L0-02-Lake	N		SW8151	-	silvex (2,4,5-tp)	0.54	U	U	0.54	UJ	U	0.041	0.54	μg/L	SSL
WS	L0-02-Lake	N		E365.2	-	P, total (as P)	0.126	=	=	0.126	J	J	0.017	0.04	mg/L	TD
WS	L0-03-Lake	N		E365.2	_	P, total (as P)	0.034	В	.l	0.034	.J	J	0.017	0.04	mg/L	TD

NOTES: WG = Groundwater, WS = Surface Water, N = Normal Field Sample, FD = Field Duplicate, LR = Lab Replicate, RE = re-extraction or re-analysis, DL = Dilution, CF = confirmation, D = Lab Duplicate. FLDFLT = Field Filtered, μg/L = micrograms per liter, mg/L = milligrams per liter.

## APPENDIX D Frequency of Detection in Blank Samples

Matrix	Sample Type	LR Type	Analytical Method	Preparation Method	Dissolved ?	Parameter	Number Analyzed	Number Detected	Minimum Detected	Maximum Detected	Minimum Detection Limit	Maximum Detection Limit	Minimum Reporting Limit	Maximum Reporting Limit	Units
WG	FD		E110.2	NONE	-	color	8	8	10.0	15.0	1.0	1.0	1.0	1.0	COLOR UNIT
WG	FD		E150.1	NONE	-	pH	8	8	7.4	7.7	0.10	0.10	0.10	0.10	pH UNITS
WG	FD		E160.1	NONE	-	TDS (residue, filterable)	8	8	125	298	1.0	1.0	20.0	20.0	mg/L
WG	FD		E180.1	NONE	-	turbidity	8	5	0.40	8.0	0.30	0.30	0.30	0.30	NTU
WG	FD		E310.1	NONE	-	Alkalinity, bicarb (as CaCO3)	8	8	129	141	0.50	0.50	1.0	1.0	mg/L
WG	FD		E310.1	NONE	-	Alkalinity, total (as CaCO3)	8	8	129	141	0.50	0.50	1.0	1.0	mg/L
WG	FD		E325.2	NONE	-	Chloride (as Cl)	8	8	12.2	29.6	0.26	0.27	0.50	0.50	mg/L
WG	FD		E350.1	NONE	-	Nitrogen, ammonia (as N)	2	2	0.034	0.11	0.017	0.017	0.020	0.020	mg/L
WG	FD		E351.2	METHOD	-	nitrogen, kjeldahl, total	8	7	0.22	1.9	0.12	0.13	0.26	0.26	mg/L
WG	FD		E353.2	NONE	-	Nitrogen, nitrate-nitrite	8	1	0.021	0.021	0.020	0.020	0.10	0.10	mg/L
WG	FD		E353.2M	NONE	-	Total Nitrogen, calculated	8	7	0.22	1.9	0.10	0.10	0.10	0.10	mg/L
WG	FD		E354.1	NONE	-	nitrogen, nitrite	8	1	0.045	0.045	0.010	0.012	0.10	0.10	mg/L
WG	FD		E365.2	METHOD	FLDFLT	phosphorus, dissolved (as P)	8	7	0.10	0.27	0.010	0.017	0.040	0.040	mg/L
WG	FD		E365.2	NONE	-	phosphorus, total (as P)	8	7	0.15	0.32	0.010	0.017	0.040	0.040	mg/L
WG	FD		E365.2	NONE	-	phosphorus, total ortho (as P)	8	8	0.13	0.21	0.010	0.014	0.040	0.040	mg/L
WG	FD		E375.4	NONE	-	Sulfate (as SO4)	8	8	0.61	5.4	0.22	0.22	1.0	1.0	mg/L
WG	FD		E405.1	NONE	-	BOD, five day	8	1	3.0	3.0	2.0	2.0	2.0	10.0	mg/L
WG	FD		E415.1	NONE	FLDFLT	dissolved organic carbon	8	3	1.8	3.3	0.36	0.37	1.0	1.0	mg/L
WG	FD		E415.1	NONE	-	Total organic carbon	8	3	2.2	3.0	0.36	0.37	1.0	1.0	mg/L
WG	FD		E900	NONE	-	beta, gross	8	1	5.0	5.0	2.8	4.5	3.7	5.0	pCi/L
WG	FD		SM4500-NH3 B,C	METHOD	-	Nitrogen, ammonia (as N)	5	5	0.070	0.21	0.0010	0.0010	0.0010	0.20	mg/L
WG	FD		SW6010B	SW3010A	-	Aluminum	8	2	0.018	0.22	0.010	0.015	0.10	0.10	mg/L
WG	FD		SW6010B	SW3010A	-	Arsenic	8	6	0.0097	0.019	0.0018	0.0018	0.0050	0.0050	mg/L
WG	FD		SW6010B	SW3010A	-	Barium	8	8	0.0050	0.006	0.00044	0.00044	0.0050	0.0050	mg/L
WG	FD		SW6010B	SW3010A	-	Cadmium	7	1	0.0036	0.004	0.00035	0.00035	0.0050	0.0050	mg/L
WG	FD		SW6010B	SW3010A	-	Calcium	8	8	49.8	52.7	0.050	0.051	0.10	0.10	mg/L
WG	FD		SW6010B	SW3010A	-	Chromium, total	8	3	0.0022	0.004	0.0013	0.0013	0.0050	0.0050	mg/L
WG	FD		SW6010B	SW3010A	-	Iron	8	6	0.018	0.080	0.0092	0.0092	0.050	0.050	mg/L
WG	FD		SW6010B	SW3010A		Lead	8	1	0.0025	0.003	0.0022	0.0022	0.0050	0.0050	mg/L
WG	FD		SW6010B	SW3010A	-	Magnesium	8	8	5.1	5.3	0.040	0.040	0.10	0.10	mg/L
WG	FD		SW6010B	SW3010A	-	Manganese	8	7	0.0043	0.006	0.00046	0.00046	0.0050	0.0050	mg/L
WG	FD		SW6010B	SW3010A	-	Nickel	8	1	0.0021	0.002	0.0017	0.0017	0.0050	0.0050	mg/L
WG	FD		SW6010B	SW3010A	-	Potassium	8	8	0.88	1.3	0.070	0.075	0.50	0.50	mg/L
WG	FD		SW6010B	SW3010A	-	Selenium	7	1	0.025	0.025	0.0026	0.0026	0.0050	0.0050	mg/L
WG	FD		SW6010B	SW3010A	-	Sodium	8	8	7.1	8.2	0.14	0.14	0.30	0.30	mg/L
WG	FD		SW6010B	SW3010A	-	Zinc	8	2	0.0073	0.007	0.00094	0.00094	0.010	0.010	mg/L
WG	FD		SW8081	SW3510	-	p,p'-DDD	8	1	0.0026	0.003	0.00053	0.0027	0.010	0.051	μg/L
WG	FD		SW8081	SW3510	-	p,p'-DDT	8	1	0.0057	0.006	0.00022	0.0011	0.010	0.051	μg/L
WG	FD		SW8260B	SW5030	-	Acetone	8	1	9.4	9.4	1.8	1.8	10.0	10.0	μg/L
WG	LR	RE	SW6010B	SW3010A	-	Cadmium	2	2	0.00090	0.002	0.00035	0.00035	0.0050	0.0050	mg/L
WG	N		E110.2	NONE	-	color	16	16	10.0	25.0	1.0	1.0	1.0	1.0	COLOR UNIT
WG	N		E150.1	NONE	-	pH	16	16	7.2	7.8	0.10	0.10	0.10	0.10	pH UNITS
WG	N		E160.1	NONE	-	TDS (residue, filterable)	16	16	115	331	1.0	1.0	20.0	20.0	mg/L
WG	N		E180.1	NONE	-	turbidity	16	11	0.40	5.0	0.30	0.30	0.30	0.30	NTU
WG	N		E310.1	NONE	-	Alkalinity, bicarb (as CaCO3)	16	16	115	150	0.50	0.50	1.0	1.0	mg/L
WG	N		E310.1	NONE	-	Alkalinity, total (as CaCO3)	16	16	115	150	0.50	0.50	1.0	1.0	mg/L
WG	N		E325.2	NONE	-	Chloride (as CI)	16	16	12.5	30.7	0.26	0.27	0.50	0.50	mg/L
WG	N		E350.1	NONE	-	Nitrogen, ammonia (as N)	4	4	0.032	0.47	0.017	0.017	0.020	0.020	m <b>g()</b> 59

## APPENDIX D Frequency of Detection in Blank Samples

Matrix	Sample Type	LR Type	Analytical Method	Preparation Method	Dissolved ?	Parameter	Number Analyzed	Number Detected	Minimum Detected	Maximum Detected	Minimum Detection Limit	Maximum Detection Limit	Minimum Reporting Limit	Maximum Reporting Limit	Units
WG	FD		E110.2	NONE	-	color	8	8	10.0	15.0	1.0	1.0	1.0	1.0	COLOR UNIT
WG	N		E350.3	NONE	-	Nitrogen, ammonia (as N)	2	1	0.39	0.39	0.037	0.037	0.10	0.30	mg/L
WG	N		E351.2	METHOD	-	nitrogen, kjeldahl, total	16	13	0.27	1.3	0.12	0.13	0.26	0.26	mg/L
NG	N		E353.2	NONE	-	Nitrogen, nitrate-nitrite	16	2	0.027	0.032	0.020	0.020	0.10	0.10	mg/L
WG	N		E353.2M	NONE	-	Total Nitrogen, calculated	16	13	0.22	1.3	0.10	0.10	0.10	0.10	mg/L
WG	N		E354.1	NONE	-	nitrogen, nitrite	16	2	0.045	0.045	0.010	0.012	0.10	0.10	mg/L
WG	N		E365.2	METHOD	FLDFLT	phosphorus, dissolved (as P)	16	16	0.056	0.37	0.010	0.017	0.040	0.040	mg/L
WG	N		E365.2	NONE	-	phosphorus, total (as P)	16	16	0.080	0.31	0.010	0.017	0.040	0.040	mg/L
WG	N		E365.2	NONE	-	phosphorus, total ortho (as P)	16	16	0.13	0.21	0.010	0.014	0.040	0.040	mg/L
WG	N		E375.4	NONE	-	Sulfate (as SO4)	16	16	0.64	33.6	0.22	0.44	1.0	2.0	mg/L
WG	N		E405.1	NONE	_	BOD, five day	16	2	3.0	3.0	1.0	2.0	2.0	10.0	mg/L
WG	N		E415.1	NONE	FLDFLT	dissolved organic carbon	16	7	1.4	4.9	0.36	1.8	1.0	5.0	mg/L
WG	N		E415.1	NONE	-	Total organic carbon	16	11	1.8	9.0	0.36	1.8	1.0	5.0	mg/L
WG	N		E900	NONE	_	alpha, gross	16	1	2.0	2.0	1.6	4.0	1.9	5.0	pCi/L
WG	N		E900	NONE	_	beta, gross	16	2	4.0	4.8	3.7	4.8	3.7	5.0	pCi/L
WG	N		SM4500-NH3 B,C		-	Nitrogen, ammonia (as N)	10	10	0.070	0.35	0.0010	0.0010	0.0010	0.20	mg/L
WG	N		SW6010B	SW3010A	_	Aluminum	16	7	0.018	0.087	0.010	0.015	0.10	0.10	mg/L
WG	N		SW6010B	SW3010A	_	Antimony	16	2	0.0027	0.005	0.0023	0.0023	0.0050	0.0050	mg/L
WG	N		SW6010B	SW3010A	_	Arsenic	16	12	0.0082	0.017	0.0018	0.0018	0.0050	0.0050	mg/L
WG	N		SW6010B	SW3010A	_	Barium	16	16	0.0050	0.006	0.0010	0.0014	0.0050	0.0050	mg/L
WG	N		SW6010B	SW3010A	-	Beryllium	16	2	0.00022	0.00022	0.00044	0.00044	0.0050	0.0050	mg/L
WG	N		SW6010B	SW3010A SW3010A	-	Cadmium	15	3	0.00022	0.00022	0.00020	0.00020	0.0050	0.0050	mg/L
WG	N		SW6010B	SW3010A SW3010A	-	Calcium	16	16	50.0	53.8	0.00033	0.051	0.0030	0.0030	mg/L
WG	N		SW6010B SW6010B	SW3010A SW3010A	-		16	6	0.0019	0.004	0.000	0.0013	0.10	0.0050	_
WG	N				-	Chromium, total		3	0.0019		0.0013	0.0013			mg/L
WG			SW6010B	SW3010A	-	Copper	16			0.010			0.0050	0.0050	mg/L
WG	N N		SW6010B SW6010B	SW3010A SW3010A	-	Iron	16 16	12 1	0.014 0.0052	0.19 0.005	0.0092 0.0022	0.0092 0.0022	0.050 0.0050	0.050 0.0050	mg/L
	N					Lead									mg/L
WG			SW6010B	SW3010A	-	Magnesium	16	16	5.1	6.5	0.040	0.040	0.10	0.10	mg/L
WG	N		SW6010B	SW3010A		Manganese	16	15	0.0044	0.005	0.00046	0.00046	0.0050	0.0050	mg/L
WG WG	N N		SW6010B	SW3010A	-	Nickel	16	3	0.0018	0.003	0.0017	0.0017	0.0050	0.0050	mg/L
			SW6010B	SW3010A	-	Potassium	16	16	0.83	2.4	0.070	0.075	0.50	0.50	mg/L
WG	N		SW6010B	SW3010A	-	Selenium	14	2	0.024	0.027	0.0026	0.0026	0.0050	0.0050	mg/L
WG	N		SW6010B	SW3010A	-	Silver	16	1	0.00068	0.00068	0.00065	0.00065	0.0050	0.0050	mg/L
WG	N		SW6010B	SW3010A	-	Sodium	16	16	6.9	14.4	0.14	0.14	0.30	0.30	mg/L
WG	N		SW6010B	SW3010A	-	Vanadium	16	4	0.0012	0.001	0.0011	0.0011	0.0050	0.0050	mg/L
WG	N		SW6010B	SW3010A	-	Zinc	16	4	0.0054	0.014	0.00094	0.00094	0.010	0.010	mg/L
WG WS	N N		SW8081 E110.2	SW3510 NONE	-	p,p'-DDT color	16 8	1 8	0.013 40.0	0.013 60.0	0.00022 1.0	0.0011	0.010 1.0	0.052 1.0	μg/L COLOR UNIT
ws	N		E150.1	NONE	-	рН	8	8	6.6	7.5	0.10	0.10	0.10	0.10	pH UNITS
WS	N		E160.1	NONE		TDS (residue, filterable)	8	8	97.0	301	1.0	1.0	20.0	20.0	mg/L
WS	N		E180.1	NONE		turbidity	8	8	2.5	33.0	0.30	0.30	0.30	0.30	NTU
WS	N		E310.1	NONE	_	Alkalinity, bicarb (as CaCO3)	8	8	27.0	42.0	0.50	0.50	1.0	1.0	mg/L
WS	N		E310.1	NONE	_	Alkalinity, total (as CaCO3)	8	8	27.0	42.0	0.50	0.50	1.0	1.0	mg/L
WS	N		E325.2	NONE	_	Chloride (as CI)	8	8	28.9	34.3	0.26	0.27	0.50	0.50	mg/L
WS	N		E350.1	NONE	-	Nitrogen, ammonia (as N)	2	1	0.032	0.032	0.20	0.017	0.020	0.020	mg/L
WS	N		E351.2	METHOD	_	nitrogen, kjeldahl, total	8	7	0.66	1.8	0.12	0.13	0.26	0.26	mg/L
WS	N		E353.2	NONE	_	Nitrogen, nitrate-nitrite	8	1	0.00	0.021	0.020	0.020	0.20	0.10	mg/L
	. 4		E353.2M	NONE		ranogon, muato minto	8	7	0.021	1.8	0.020	0.020	0.10	0.10	g/ L

APPENDIX D
Frequency of Detection in Blank Samples

Matrix	Sample Type	LR Type	Analytical Method	Preparation Method	Dissolved ?	Parameter	Number Analyzed	Number Detected	Minimum Detected	Maximum Detected	Minimum Detection Limit	Maximum Detection Limit	Minimum Reporting Limit	Maximum Reporting Limit	Units
NG	FD		E110.2	NONE	-	color	8	8	10.0	15.0	1.0	1.0	1.0	1.0	COLOR UNIT
NS	N		E354.1	NONE	-	nitrogen, nitrite	8	4	0.014	0.045	0.010	0.012	0.10	0.10	mg/L
NS	N		E365.2	METHOD	FLDFLT	phosphorus, dissolved (as p)	8	6	0.029	0.13	0.010	0.017	0.040	0.040	mg/L
NS	N		E365.2	NONE	-	phosphorus, total (as p)	8	7	0.034	0.22	0.010	0.017	0.040	0.040	mg/L
NS	N		E365.2	NONE	-	phosphorus, total ortho (as P)	8	4	0.017	0.027	0.010	0.014	0.040	0.040	mg/L
NS	N		E375.4	NONE	-	Sulfate (as SO4)	8	8	21.6	27.1	0.22	0.22	1.0	1.0	mg/L
NS	N		E405.1	NONE	-	BOD, five day	8	6	2.6	3.0	2.0	2.0	2.0	10.0	mg/L
NS	N		E415.1	NONE	FLDFLT	dissolved organic carbon	8	7	7.5	42.1	0.36	18.4	1.0	50.0	mg/L
NS	N		E415.1	NONE	-	Total organic carbon	8	8	9.9	62.9	0.36	36.8	1.0	100	mg/L
NS	N		E900	NONE	-	Alpha, gross	8	5	2.7	5.1	1.9	2.9	2.1	5.0	pCi/L
NS	N		E900	NONE	-	beta, gross	8	4	5.0	5.6	3.1	5.3	3.1	5.0	pCi/L
NS	N		FLPRO	METHOD	-	TPH	8	2	120	120	97.0	102	340	358	μg/L
NS	N		SM4500-NH3 B,C	METHOD	-	Nitrogen, ammonia (as N)	5	3	0.070	0.14	0.0010	0.0010	0.0010	0.20	mg/L
NS	N		SW6010B	SW3010A	-	Aluminum	8	7	0.070	0.28	0.010	0.015	0.10	0.10	mg/L
NS	N		SW6010B	SW3010A	-	Arsenic	8	1	0.0070	0.007	0.0018	0.0018	0.0050	0.0050	mg/L
NS	N		SW6010B	SW3010A	-	Barium	8	8	0.0018	0.012	0.00044	0.00044	0.0050	0.0050	mg/L
NS	N		SW6010B	SW3010A	-	Calcium	8	8	12.9	14.4	0.050	0.051	0.10	0.10	mg/L
NS	N		SW6010B	SW3010A	-	Chromium, total	8	2	0.0018	0.002	0.0013	0.0013	0.0050	0.0050	mg/L
NS	N		SW6010B	SW3010A	-	Copper	8	3	0.00076	0.002	0.00062	0.00062	0.0050	0.0050	mg/L
NS	N		SW6010B	SW3010A	-	Iron	8	6	0.021	0.060	0.0092	0.0092	0.050	0.050	mg/L
NS	N		SW6010B	SW3010A	-	Magnesium	8	8	2.5	2.7	0.040	0.040	0.10	0.10	mg/L
NS	N		SW6010B	SW3010A	-	Manganese	8	8	0.011	0.017	0.00046	0.00046	0.0050	0.0050	mg/L
NS	N		SW6010B	SW3010A	-	Nickel	8	1	0.0028	0.003	0.0017	0.0017	0.0050	0.0050	mg/L
NS	N		SW6010B	SW3010A	-	Potassium	8	8	3.0	3.3	0.070	0.075	0.50	0.50	mg/L
NS	N		SW6010B	SW3010A	-	Sodium	8	8	19.2	20.9	0.14	0.14	0.30	0.30	mg/L
NS	N		SW6010B	SW3010A	-	Vanadium	8	8	0.0019	0.003	0.0011	0.0011	0.0050	0.0050	mg/L
NS	N		SW6010B	SW3010A	-	Zinc	8	4	0.0018	0.017	0.00094	0.00094	0.010	0.010	mg/L
NS	N		SW7470A	METHOD	-	Mercury	8	1	0.000026	0.000026	0.000025	0.000025	0.00020	0.00020	mg/L

NOTES: WG = Groundwater. WS = Surface Water. N = Normal Field Sample, FD = Field Duplicate, LR = Lab Replicate, RE = re-extraction or re-analysis, NTU = Nephelometric Turbity Units. FLDFLT = Field Filtered. μg/L = micrograms per liter, mg/L = milligrams per liter, pCi/L = picocuries per liter

Matrix	Analytical Method	Dissolved Method	Sample ID	Parameter	Final Result	Final Qual	('Onc	Detection Limit	Reporting Limit	Field Dup Final Result	Field Dup Final Qual	Detection Limit	Field Dup Reporting Limit	Units	RPD
WG	E150.1	-	LO-07-01	рН	7.4	=	=	0.10	0.10	7.66	=	0.1	0.1	pH units	3.3
WG	E150.1	-	L0-00-MW1	рН	7.5	=	=	0.10	0.10	7.68	=	0.1	0.1	pH units	2.4
WG	E150.1	-	L0-01-MW-1	рН	7.3	=	=	0.10	0.10	7.36	=	0.1	0.1	pH units	0.5
WG	E150.1	-	LO-04-01	рН	7.5	=	=	0.10	0.10	7.42	=	0.1	0.1	pH units	0.5
WG	E150.1	-	LO-06-01	pH	7.8	=	=	0.10	0.10	7.74	=	0.1	0.1	pH units	0.5
WG	E150.1	-	LO-03-MW1	рН	7.4	=	=	0.10	0.10	7.45	=	0.1	0.1	pH units	0.4
WG	E150.1	-	LO-05-01	pH	7.6	=	=	0.10	0.10	7.58	=	0.1	0.1	pH units	0.3
WG	E150.1	-	L0-01-MW1	pH	7.5	=	=	0.10	0.10	7.52	=	0.1	0.1	pH units	0.0
WG	E180.1	-	LO-05-01	turbidity	1.2	=	=	0.30	0.30	0.4	=	0.3	0.3	NTU	100.0
WG	E180.1	-	L0-01-MW-1	turbidity	5.0	=	=	0.30	0.30	8	=	0.3	0.3	NTU	46.2
WG	E180.1	-	LO-04-01	turbidity	0.40	=	=	0.30	0.30	0.4	=	0.3	0.3	NTU	0.0
WG	E180.1	-	LO-03-MW1	turbidity	2.0	=	=	0.30	0.30	2	=	0.3	0.3	NTU	0.0
WG	E180.1	-	L0-01-MW1	turbidity	3.0	=	=	0.30	0.30	3	=	0.3	0.3	NTU	0.0
WG	SW6010B	-	LO-06-01	Aluminum	0.049	J	J	0.015	0.10	0.223	=	0.015	0.1	mg/L	127.5
WG	E375.4	-	LO-06-01	Sulfate (as SO4)	2.9	=	=	0.22	1.0	0.92	J	0.22	1	mg/L	103.4
WG	SW6010B	-	LO-06-01	Iron	0.023	J	J	0.0092	0.050	0.0623	=	0.0092	0.05	mg/L	93.2
WG	SW6010B	-	LO-03-MW1	Iron	0.19	=	=	0.0092	0.050	0.0802	=	0.0092	0.05	mg/L	79.5
WG	E325.2	-	LO-06-01	Chloride (as Cl)	14.3	=	=	0.27	0.50	29.6	=	0.266	0.5	mg/L	69.7
WG	SW6010B	-	LO-07-01	Lead	0.0052	=	=	0.0022	0.0050	0.00251	J	0.0022	0.005	mg/L	68.9
WG	SM4500-NH3-B,C	-	LO-03-MW1	Nitrogen, ammonia (as N)	0.14	J	J	0.0010	0.20	0.07	J	0.001	0.2	mg/L	66.7
WG	E353.2M	-	L0-01-MW-1	TOTAL NITROGEN, CALCULATED	0.93	=	=	0.020	0.020	0.662	=	0.020	0.020	mg/L	33.7
WG	E351.2	-	L0-01-MW-1	nitrogen, kjeldahl, total	0.93	=	=	0.13	0.26	0.662	=	0.128	0.26	mg/L	33.7
WG	E375.4	-	LO-05-01	Sulfate (as SO4)	3.8	=	=	0.22	1.0	5.36	=	0.22	1	mg/L	33.0
WG	E365.2	FLDFLT	LO-04-01	phosphorus, diss (as P)	0.10	=	=	0.017	0.040	0.143	=	0.017	0.04	mg/L	32.5
WG	E415.1	FLDFLT	L0-00-MW1	dissolved organic carbon	1.4	=	=	0.37	1.0	1.88	=	0.368	1	mg/L	32.1
WG	SM4500-NH3-B,C	-	LO-05-01	Nitrogen, ammonia (as N)	0.28	=	=	0.0010	0.20	0.21	=	0.001	0.2	mg/L	28.6
WG	SW6010B	-	L0-00-MW1	Aluminum	0.023	J	J	0.015	0.10	0.018	J	0.015	0.1	mg/L	26.1
WG	SW6010B	- ELDELT	L0-01-MW1	Manganese	0.0048	J	J	0.00046	0.0050	0.00617	=	0.00046	0.005	mg/L	24.8
WG	E365.2	FLDFLT	L0-00-MW1	phosphorus, diss (as P)	0.24	=	=	0.017	0.040	0.188	=	0.017	0.04	mg/L	24.3
WG	E365.2	-	LO-05-01	phosphorus, total (as P)	0.25	=	=	0.010	0.040	0.322	=	0.01	0.04	mg/L	23.6
WG	E160.1	-	L0-01-MW-1	total dissolved solids	185	=	=	1.0	20.0	146	=	1	20	mg/L	23.6
WG WG	SW6010B E365.2	- FLDFLT	LO-05-01	Arsenic	0.015	=	=	0.0018	0.0050	0.0191	=	0.0018	0.005	mg/L	22.1 22.0
		FLDFLI	LO-07-01	phosphorus, diss (as P)	0.093	=	=	0.017	0.040	0.116	=	0.017	0.04	mg/L	-
WG WG	E353.2M	-	LO-06-01 LO-03-MW1	TOTAL NITROGEN, CALCULATED	0.23 0.27	=	=	0.020	0.020	0.289	=	0.020	0.020 0.020	mg/L	21.9
WG	E353.2M E351.2	-	LO-03-MW1	TOTAL NITROGEN, CALCULATED	0.27	=	=	0.020 0.13	0.020 0.26	0.218 0.218	= J	0.020 0.128	0.020	mg/L	<b>21.3</b> 21.3
WG	SW6010B	-	LO-03-101001	nitrogen, kjeldahl, total Iron	0.27	= J	= J	0.13	0.26	0.216	J	0.128	0.26	mg/L	20.2
WG	E415.1	-	LO-07-01	Total organic carbon	1.8	-	J =	0.0092	1.0	2.15	J =	0.0092	1	mg/L	18.8
WG	SW6010B	-	LO-07-01 LO-06-01	Zinc	0.0062	= J	= J	0.00094	0.010	0.00748	= .J	0.00094	0.01	mg/L	18.7
WG		-				=	J =				J =		1	mg/L	
WG	E375.4 SW6010B	-	L0-01-MW-1 L0-01-MW1	Sulfate (as SO4) Arsenic	4.5 0.0082	=	=	0.22 0.0018	1.0 0.0050	3.71 0.0097	=	0.22 0.0018	0.005	mg/L mg/L	18.1 17.2
WG	E160.1	_	L0-01-MW1	total dissolved solids	257	=	=	1.0	20.0	298	=	1	20	mg/L	14.8
WG	E415.1	_	LO-03-MW1	Total organic carbon	2.9	=	=	0.37	1.0	2.47	=	0.368	1	mg/L	14.6
WG	SW6010B	_	LO-06-01	Chromium, total	0.0019	= J	= J	0.0013	0.0050	0.00221	= J	0.0013	0.005	mg/L	14.6
WG	SW6010B		LO-04-01	Arsenic	0.0019	=	J =	0.0013	0.0050	0.00221	J =	0.0013	0.005	mg/L	13.8
WG	SW6010B	_	LO-06-01	Nickel	0.013	_ .J	– J	0.0017	0.0050	0.00208	_ J	0.0017	0.005	mg/L	12.2
WG	E365.2	- FLDFLT	LO-05-01	phosphorus, diss (as P)	0.0018	=	=	0.0017	0.0030	0.105	=	0.0017	0.003	-	106 <b>2</b> 2.1
VVG	∟303.∠	LEDITE	LO-03-01	priospriorus, uiss (as F)	0.033	_	_	0.010	0.040	0.103	-	0.01	0.04	mg/L	10024.1

Analytical Method	Dissolved Method	Sample ID	Parameter	Final Result	Final Qual	('Onc	Detection Limit	Reporting Limit	Field Dup Final Result	Final	Detection Limit	Field Dup Reporting Limit	Units	s RPD
365.2	-	LO-07-01	P, total ortho (as P)	0.14	=	=	0.014	0.040	0.126	=	0.014	0.04	mg/L	11.9
375.4	-	L0-00-MW1	Sulfate (as SO4)	2.6	=	=	0.22	1.0	2.91	=	0.22	1	mg/L	10.9
W6010B	-	LO-07-01	Selenium	0.027	=	=	0.0026	0.0050	0.0247	=	0.0026	0.005	mg/L	10.0
351.2	-	L0-00-MW1	nitrogen, kjeldahl, total	0.75	=	=	0.13	0.26	0.823	=	0.128	0.26	mg/L	9.8
353.2M	-	L0-00-MW1	TOTAL NITROGEN, CALCULATED	0.77	=	=	0.020	0.020	0.844	=	0.020	0.020	mg/L	9.7
365.2	-	L0-01-MW-1	phosphorus, total (as P)	0.19	=	=	0.017	0.040	0.169	=	0.017	0.04	mg/L	9.0
160.1	-	L0-00-MW1	total dissolved solids	160	=	=	1.0	20.0	175	=	1	20	mg/L	9.0
310.1	-	L0-01-MW1	Alkalinity, total (as CaCO3)	141	=	=	0.50	1.0	129	=	0.5	1.0	mg/L	8.9
310.1	-	L0-01-MW1	Alkalinity, bicarb (as CaCO3)	141	=	=	0.50	1.0	129	=	0.5	1.0	mg/L	8.9
365.2	-	L0-01-MW-1	P, total ortho (as P)	0.17	=	=	0.014	0.040	0.157	=	0.014	0.04	mg/L	8.5
160.1	-	LO-07-01	total dissolved solids	160	=	=	1.0	20.0	174	=	1	20	mg/L	8.4
310.1	-	LO-04-01	Alkalinity, total (as CaCO3)	150	=	=	0.50	1.0	138	=	0.5	1.0	mg/L	8.3
310.1	-	LO-04-01	Alkalinity, bicarb (as CaCO3)	150	=	=	0.50	1.0	138	=	0.5	1.0	mg/L	8.3
160.1	-	LO-04-01	total dissolved solids	115	=	=	1.0	20.0	125	=	1	20	mg/L	8.3
415.1	FLDFLT	LO-06-01	dissolved organic carbon	3.0	=	=	0.37	1.0	3.27	=	0.368	1	mg/L	8.3
353.2M	-	L0-01-MW1	TOTAL NITROGEN, CALCULATED	0.74	=	=	0.020	0.020	0.684	=	0.020	0.020	mg/L	8.3
351.2	-	L0-01-MW1	nitrogen, kjeldahl, total	0.74	=	=	0.13	0.26	0.684	=	0.128	0.26	mg/L	8.3
365.2	-	L0-01-MW1	phosphorus, total (as P)	0.22	=	=	0.017	0.040	0.202	=	0.017	0.04	mg/L	8.1
W6010B	-	L0-01-MW1	Iron	0.021	J	J	0.0092	0.050	0.0191	J	0.0092	0.05	mg/L	8.0
365.2	-	LO-04-01	phosphorus, total (as P)	0.24	=	=	0.017	0.040	0.217	=	0.017	0.04	mg/L	8.0
351.2	-	LO-04-01	nitrogen, kjeldahl, total	0.65	=	=	0.13	0.26	0.599	=	0.128	0.26	mg/L	7.9
W6010B	-	LO-05-01	Potassium	0.86	=	=	0.070	0.50	0.925	=	0.07	0.5	mg/L	7.6
365.2	-	LO-03-MW1	phosphorus, total (as P)	0.24	=	=	0.017	0.040	0.259	=	0.017	0.04	mg/L	7.6
353.2M	-	LO-04-01	TOTAL NITROGEN, CALCULATED	0.67	=	=	0.020	0.020	0.619	=	0.020	0.020	mg/L	7.6
375.4	-	LO-04-01	Sulfate (as SO4)	3.2	=	=	0.22	1.0	2.95	=	0.22	1	mg/L	7.2
350.1	-	LO-06-01	Nitrogen, ammonia (as N)	0.032	J	J	0.017	0.020	0.0339	J	0.017	0.02	mg/L	7.0
W6010B	-	LO-04-01	Sodium	8.1	=	=	0.14	0.30	7.59	=	0.14	0.3	mg/L	6.9
W6010B	-	LO-05-01	Chromium, total	0.0029	J	J	0.0013	0.0050	0.0027	J	0.0013	0.005	mg/L	6.8
365.2	FLDFLT	L0-01-MW-1	phosphorus, diss (as P)	0.21	=	=	0.017	0.040	0.199	=	0.017	0.04	mg/L	6.8
W6010B	_	LO-03-MW1	Potassium	0.83	=	=	0.075	0.50	0.885	=	0.075	0.5	mg/L	6.5
W6010B	_	LO-05-01	Cadmium	0.0034	J	J	0.00035	0.0050	0.0036	J	0.00035	0.005	mg/L	6.3
365.2	_	L0-00-MW1	phosphorus, total (as P)	0.14	=	=	0.017	0.040	0.152	=	0.017	0.04	mg/L	6.1
415.1	FLDFLT	LO-07-01	dissolved organic carbon	1.9	=	=	0.37	1.0	1.75	=	0.368	1	mg/L	6.1
415.1	-	LO-06-01	Total organic carbon	2.8	=	=	0.37	1.0	2.96	=	0.368	1	mg/L	5.9
W6010B	_	L0-01-MW-1	Arsenic	0.011	=	=	0.0018	0.0050	0.0103	=	0.0018	0.005	mg/L	5.7
375.4	_	LO-03-MW1	Sulfate (as SO4)	3.7	=	=	0.22	1.0	3.48	=	0.22	1	mg/L	5.6
W6010B	_	LO-06-01	Manganese	0.0048	J	J	0.00046	0.0050	0.00507	=	0.00046	0.005	mg/L	5.5
350.1	_	LO-07-01	Nitrogen, ammonia (as N)	0.11	J	J	0.017	0.020	0.114	J	0.017	0.02	mg/L	5.4
365.2	_	LO-07-01	phosphorus, total (as P)	0.17	=	=	0.017	0.040	0.165	=	0.017	0.02	mg/L	5.3
W6010B	_	LO-07-01	Chromium, total	0.0037	– J	J	0.0013	0.0050	0.00354	J	0.0013	0.005	mg/L	5.2
375.4	_	LO-07-01	Sulfate (as SO4)	0.64	J	J	0.0013	1.0	0.608	J	0.0013	1	mg/L	5.1
365.2	_	LO-04-01	P, total ortho (as P)	0.04	J =	J =	0.22	0.040	0.008	J =	0.22	0.04	mg/L	5.1
365.2	- FLDFLT	LO-03-MW1	phosphorus, diss (as P)	0.14	=	=	0.014	0.040	0.133	=	0.014	0.04	mg/L	5.0
													ū	5.0 4.8
													-	
	-												-	4.5
	-												_	4.4 106 <b>3</b> .3
W6010B 160.1 W6010B W6010B		- - - - -	<ul><li>LO-06-01</li><li>LO-06-01</li><li>LO-07-01</li></ul>	<ul> <li>LO-06-01 Arsenic</li> <li>LO-06-01 total dissolved solids</li> <li>LO-07-01 Potassium</li> </ul>	- LO-06-01 Arsenic 0.015 - LO-06-01 total dissolved solids 206 - LO-07-01 Potassium 1.0	- LO-06-01 Arsenic 0.015 = - LO-06-01 total dissolved solids 206 = - LO-07-01 Potassium 1.0 =	- LO-06-01 Arsenic 0.015 = = - LO-06-01 total dissolved solids 206 = = - LO-07-01 Potassium 1.0 = =	- LO-06-01 Arsenic 0.015 = = 0.0018 - LO-06-01 total dissolved solids 206 = = 1.0 - LO-07-01 Potassium 1.0 = = 0.075	- LO-06-01 Arsenic 0.015 = = 0.0018 0.0050 - LO-06-01 total dissolved solids 206 = = 1.0 20.0 - LO-07-01 Potassium 1.0 = = 0.075 0.50	- LO-06-01 Arsenic 0.015 = = 0.0018 0.0050 0.0142 - LO-06-01 total dissolved solids 206 = = 1.0 20.0 197 - LO-07-01 Potassium 1.0 = = 0.075 0.50 0.995	- LO-06-01 Arsenic 0.015 = = 0.0018 0.0050 0.0142 = - LO-06-01 total dissolved solids 206 = = 1.0 20.0 197 = - LO-07-01 Potassium 1.0 = = 0.075 0.50 0.995 =	- LO-06-01 Arsenic 0.015 = = 0.0018 0.0050 0.0142 = 0.0018 - LO-06-01 total dissolved solids 206 = = 1.0 20.0 197 = 1 - LO-07-01 Potassium 1.0 = = 0.075 0.50 0.995 = 0.075	- LO-06-01 Arsenic 0.015 = = 0.0018 0.0050 0.0142 = 0.0018 0.005 - LO-06-01 total dissolved solids 206 = = 1.0 20.0 197 = 1 20 - LO-07-01 Potassium 1.0 = = 0.075 0.50 0.995 = 0.075 0.5	- LO-06-01 Arsenic 0.015 = = 0.0018 0.0050 0.0142 = 0.0018 0.005 mg/L - LO-06-01 total dissolved solids 206 = = 1.0 20.0 197 = 1 20 mg/L - LO-07-01 Potassium 1.0 = = 0.075 0.50 0.995 = 0.075 0.5 mg/L

Matrix	Analytical Method	Dissolved Method	Sample ID	Parameter	Final Result	Final Qual	('onc	Detection Limit	Reporting Limit	Field Dup Final Result	Field Dup Final Qual	Field Dup Detection Limit	Field Dup Reporting Limit	Unit	s RPD
WG	E310.1	-	LO-07-01	Alkalinity, total (as CaCO3)	146	=	=	0.50	1.0	140	=	0.5	1.0	mg/L	4.2
WG	E310.1	-	LO-07-01	Alkalinity, bicarb (as CaCO3)	146	=	=	0.50	1.0	140	=	0.5	1.0	mg/L	4.2
WG	SW6010B	-	LO-04-01	Potassium	1.0	=	=	0.075	0.50	0.969	=	0.075	0.5	mg/L	4.1
WG	SW6010B	-	LO-03-MW1	Sodium	7.0	=	=	0.14	0.30	7.27	=	0.14	0.3	mg/L	4.1
WG	SW6010B	-	L0-01-MW-1	Potassium	0.91	=	=	0.075	0.50	0.878	=	0.075	0.5	mg/L	4.0
WG	SW6010B	-	LO-07-01	Manganese	0.0046	J	J	0.00046	0.0050	0.00441	J	0.00046	0.005	mg/L	3.3
WG	SW6010B	-	LO-07-01	Arsenic	0.012	=	=	0.0018	0.0050	0.0128	=	0.0018	0.005	mg/L	3.2
WG	SW6010B	-	L0-00-MW1	Potassium	1.3	=	=	0.075	0.50	1.25	=	0.075	0.5	mg/L	3.1
WG	SW6010B	-	LO-07-01	Sodium	7.5	=	=	0.14	0.30	7.23	=	0.14	0.3	mg/L	3.1
WG	SW6010B	-	L0-01-MW1	Magnesium	5.1	=	=	0.040	0.10	5.24	=	0.04	0.1	mg/L	3.1
WG	SW6010B	-	LO-03-MW1	Calcium	51.1	=	=	0.051	0.10	52.7	=	0.051	0.1	mg/L	3.1
WG	E160.1	-	LO-05-01	total dissolved solids	224	=	=	1.0	20.0	231	=	1	20	mg/L	3.1
WG	E375.4	-	L0-01-MW1	Sulfate (as SO4)	4.6	=	=	0.22	1.0	4.69	=	0.22	1	mg/L	3.0
WG	SW6010B	-	LO-06-01	Potassium	1.0	=	=	0.075	0.50	0.98	=	0.075	0.5	mg/L	3.0
WG	E365.2	FLDFLT	L0-01-MW1	phosphorus, diss (as P)	0.21	=	=	0.017	0.040	0.201	=	0.017	0.04	mg/L	2.9
WG	E365.2	-	LO-05-01	P, total ortho (as P)	0.14	=	=	0.010	0.040	0.141	=	0.01	0.04	mg/L	2.9
WG	SW6010B	-	LO-03-MW1	Magnesium	5.2	=	=	0.040	0.10	5.35	=	0.04	0.1	mg/L	2.8
WG	E325.2	-	LO-04-01	Chloride (as Cl)	14.5	=	=	0.27	0.50	14.1	=	0.266	0.5	mg/L	2.8
WG	SW6010B	-	LO-07-01	Calcium	51.5	=	=	0.051	0.10	50.1	=	0.051	0.1	mg/L	2.8
WG	SW6010B	-	L0-00-MW1	Barium	0.0064	=	=	0.00044	0.0050	0.00621	=	0.00044	0.005	mg/L	2.5
WG	SW6010B	-	L0-01-MW-1	Barium	0.0052	=	=	0.00044	0.0050	0.00505	=	0.00044	0.005	mg/L	2.5
WG	SW6010B	-	LO-05-01	Sodium	6.9	=	=	0.14	0.30	7.08	=	0.14	0.3	mg/L	2.4
WG	E325.2	-	LO-03-MW1	Chloride (as Cl)	12.5	=	=	0.27	0.50	12.2	=	0.266	0.5	mg/L	2.4
WG	SW6010B	-	L0-01-MW1	Calcium	50.5	=	=	0.051	0.10	51.7	=	0.051	0.1	mg/L	2.3
WG	E310.1	-	L0-01-MW-1	Alkalinity, total (as CaCO3)	137	=	=	0.50	1.0	140	=	0.5	1.0	mg/L	2.2
WG	E310.1	-	L0-01-MW-1	Alkalinity, bicarb (as CaCO3)	137	=	=	0.50	1.0	140	=	0.5	1.0	mg/L	2.2
WG	SW6010B	-	LO-07-01	Magnesium	5.3	=	=	0.040	0.10	5.15	=	0.04	0.1	mg/L	2.1
WG	E365.2	-	LO-06-01	P, total ortho (as P)	0.15	=	=	0.014	0.040	0.147	=	0.014	0.04	mg/L	2.0
WG	SW6010B	-	LO-07-01	Barium	0.0051	=	=	0.00044	0.0050	0.00502	=	0.00044	0.005	mg/L	2.0
WG	SW6010B	-	L0-01-MW1	Barium	0.0052	=	=	0.00044	0.0050	0.00531	=	0.00044	0.005	mg/L	1.9
WG	SW6010B	-	L0-01-MW1	Potassium	0.92	=	=	0.075	0.50	0.933	=	0.075	0.5	mg/L	1.8
WG	SW6010B	-	L0-01-MW-1	Iron	0.018	J	J	0.0092	0.050	0.0178	J	0.0092	0.05	mg/L	1.7
WG	SW6010B	-	LO-05-01	Manganese	0.0049	J	J	0.00046	0.0050	0.00477	J	0.00046	0.005	mg/L	1.7
WG	SW6010B	-	LO-05-01	Barium	0.0052	=	=	0.00044	0.0050	0.00516	=	0.00044	0.005	mg/L	1.5
WG WG	SW6010B	-	L0-01-MW1	Sodium Sodium	7.3	=	=	0.14 0.14	0.30 0.30	7.39 8.21	=	0.14 0.14	0.3	mg/L	1.5 1.5
	SW6010B	-	L0-00-MW1		8.3	=	=				=		0.3	mg/L	
WG	E310.1	-	LO-03-MW1	Alkalinity, total (as CaCO3)	141	=	=	0.50	1.0	139	=	0.5	1.0	mg/L	1.4
WG	E310.1	-	LO-03-MW1	Alkalinity, bicarb (as CaCO3)	141	=	=	0.50	1.0	139	=	0.5	1.0	mg/L	1.4
WG	SW6010B	-	LO-06-01	Sodium	7.5	=	=	0.14	0.30	7.41	=	0.14	0.3	mg/L	1.3
WG WG	E325.2 SW6010B	-	LO-05-01 L0-01-MW-1	Chloride (as CI)	15.2 0.0048	= J	= .J	0.26 0.00046	0.50 0.0050	15.4 0.00477	= .J	0.26 0.00046	0.5 0.005	mg/L	1.3 1.0
		-		Manganese			Ū				•			mg/L	
WG WG	E351.2 SW6010B	-	LO-06-01 LO-05-01	nitrogen, kjeldahl, total	0.60	=	=	0.13 0.040	0.26 0.10	0.609	=	0.128 0.04	0.26	mg/L	1.0 0.8
		-		Magnesium	5.2	=	=			5.14	=		0.1	mg/L	
WG WG	E325.2 E365.2	-	L0-00-MW1 L0-01-MW1	Chloride (as Cl)	13.0 0.13	=	=	0.27 0.014	0.50 0.040	12.9 0.13	=	0.266 0.014	0.5 0.04	mg/L	0.8 0.8
WG	E305.2 E325.2	-	L0-01-MW1	P, total ortho (as P) Chloride (as Cl)	13.2	=	=	0.014	0.040	13.3	=	0.014	0.04	mg/L	0.8
WG		-		, ,	13.2 5.4			0.27	0.50	5.35		0.266		mg/L	
WG	SW6010B	-	LO-06-01	Magnesium	5.4	=	=	U.U <del>4</del> U	0.10	5.35	=	0.04	0.1	mg/L	10640.7

APPENDIX E Field Duplicate Precision

Matrix	Analytical Method	Dissolved Method	Sample ID	Parameter	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Field Dup Final Result	Field Dup Final Qual	Field Dup Detection Limit	Field Dup Reporting Limit	Units	RPD
WG	E365.2	-	L0-00-MW1	P, total ortho (as P)	0.14	=	=	0.014	0.040	0.137	=	0.014	0.04	mg/L	0.7
WG	E325.2	-	LO-07-01	Chloride (as CI)	15.2	=	=	0.27	0.50	15.1	=	0.266	0.5	mg/L	0.7
WG	SW6010B	-	L0-00-MW1	Calcium	50.3	=	=	0.051	0.10	50	=	0.051	0.1	mg/L	0.6
WG	SW6010B	-	LO-06-01	Calcium	52.1	=	=	0.051	0.10	51.8	=	0.051	0.1	mg/L	0.6
WG	SW6010B	-	L0-00-MW1	Magnesium	5.4	=	=	0.040	0.10	5.32	=	0.04	0.1	mg/L	0.6
WG	SW6010B	-	LO-06-01	Barium	0.0054	=	=	0.00044	0.0050	0.00542	=	0.00044	0.005	mg/L	0.6
WG	E365.2	-	LO-03-MW1	P, total ortho (as P)	0.21	=	=	0.014	0.040	0.207	=	0.014	0.04	mg/L	0.5
WG	SW6010B	-	L0-00-MW1	Manganese	0.0044	J	J	0.00046	0.0050	0.00434	J	0.00046	0.005	mg/L	0.5
WG	SW6010B	-	LO-05-01	Calcium	50.0	=	=	0.050	0.10	49.8	=	0.05	0.1	mg/L	0.4
WG	SW6010B	-	LO-04-01	Barium	0.0050	=	=	0.00044	0.0050	0.00498	J	0.00044	0.005	mg/L	0.4
WG	SW6010B	-	L0-01-MW-1	Calcium	51.2	=	=	0.051	0.10	51.4	=	0.051	0.1	mg/L	0.4
WG	SW6010B	-	LO-05-01	Iron	0.029	J	J	0.0092	0.050	0.029	J	0.0092	0.05	mg/L	0.3
WG	SW6010B	-	L0-01-MW-1	Magnesium	5.3	=	=	0.040	0.10	5.32	=	0.04	0.1	mg/L	0.2
WG	SW6010B	-	LO-03-MW1	Manganese	0.0054	=	=	0.00046	0.0050	0.00535	=	0.00046	0.005	mg/L	0.2
WG	SW6010B	-	L0-01-MW-1	Sodium	7.1	=	=	0.14	0.30	7.12	=	0.14	0.3	mg/L	0.1
WG	SW6010B	-	LO-04-01	Magnesium	5.3	=	=	0.040	0.10	5.31	=	0.04	0.1	mg/L	0.0
WG	SW6010B	-	LO-04-01	Calcium	52.3	=	=	0.051	0.10	52.3	=	0.051	0.1	mg/L	0.0
WG	SM4500-NH3-B,C	-	L0-01-MW1	Nitrogen, ammonia (as N)	0.14	J	J	0.0010	0.0010	0.14	J	0.001	0.001	mg/L	0.0
WG	SM4500-NH3-B,C	-	L0-01-MW-1	Nitrogen, ammonia (as N)	0.070	J	J	0.0010	0.20	0.07	J	0.001	0.2	mg/L	0.0
WG	SM4500-NH3-B,C	-	LO-04-01	Nitrogen, ammonia (as N)	0.21	=	=	0.0010	0.20	0.21	=	0.001	0.2	mg/L	0.0
WG	E405.1	-	LO-03-MW1	BOD, 5 day	3.0	J	J	2.0	10.0	3	J	2	10	mg/L	0.0
WG	E354.1	-	LO-07-01	nitrogen, nitrite	0.045	J	J	0.012	0.10	0.0449	J	0.0118	0.1	mg/L	0.0
WG	E325.2	-	L0-01-MW-1	Chloride (as CI)	12.5	=	=	0.27	0.50	12.5	=	0.266	0.5	mg/L	0.0
WG	E310.1	-	LO-06-01	Alkalinity, total (as CaCO3)	141	J	J	0.50	1.0	141	J	0.5	1.0	mg/L	0.0
WG	E310.1	-	LO-05-01	Alkalinity, total (as CaCO3)	138	=	=	0.50	1.0	138	=	0.5	1.0	mg/L	0.0
WG	E310.1	-	L0-00-MW1	Alkalinity, total (as CaCO3)	141	=	=	0.50	1.0	141	=	0.5	1.0	mg/L	0.0
WG	E310.1	-	LO-06-01	Alkalinity, bicarb (as CaCO3)	141	J	J	0.50	1.0	141	J	0.5	1.0	mg/L	0.0
WG	E310.1	-	LO-05-01	Alkalinity, bicarb (as CaCO3)	138	=	=	0.50	1.0	138	=	0.5	1.0	mg/L	0.0
WG	E310.1	-	L0-00-MW1	Alkalinity, bicarb (as CaCO3)	141	=	=	0.50	1.0	141	=	0.5	1.0	mg/L	0.0
WG	E160.1	-	LO-03-MW1	total dissolved solids	174	=	=	1.0	20.0	174	=	1	20	mg/L	0.0
WG	E110.2	-	L0-01-MW-1	color	25.0	=	=	1.0	1.0	15	=	1.0	1.0	color unit	50.0
WG	E110.2	-	L0-00-MW1	color	10.0	=	=	1.0	1.0	10	=	1.0	1.0	color unit	0.0
WG	E110.2	-	L0-01-MW1	color	15.0	=	=	1.0	1.0	15	=	1.0	1.0	color unit	0.0
WG	E110.2	-	LO-03-MW1	color	15.0	=	=	1.0	1.0	15	=	1.0	1.0	color unit	0.0
WG	E110.2	-	LO-04-01	color	15.0	=	=	1.0	1.0	15	=	1.0	1.0	color unit	0.0
WG	E110.2	-	LO-05-01	color	15.0	=	=	1.0	1.0	15	=	1.0	1.0	color unit	0.0
WG	E110.2	-	LO-06-01	color	15.0	=	=	1.0	1.0	15	=	1.0	1.0	color unit	0.0
WG	E110.2	-	LO-07-01	color	15.0	=	=	1.0	1.0	15	=	1.0	1.0	color unit	0.0

NOTES: WG = Groundwater. FLDFLT = Field Filtered. µg/L = micrograms per liter, mg/L = milligrams per liter, NTU = Nephelometric Turbity Units

## Appendix H Field Sampling Documentation

**Festival Park** 

3.3

### Florida Department of Environmental Protection GROUNDWATER SAMPLING LOG

TE	Festiv	el Parl				SITE	1: 0,1	ando Fo				
WELL N				SAMPL			01-00	•	DATE: 5	/25/03		
		<u> </u>				GING D				<u> </u>	-	
WELL OIAMET	ER (in): /	/ M	DEPT	H (ft): Cs	40/8 25 5/h5 /20 TO WATER	) To	WATER (F	<del>ነ</del> ):	WELL CAPAC	:ITY (gal/ft):		
1 44555	VOCOIVE (gai)	=(	LL DE	_		)X		=				
PÜRGE		, D. A		PURGE	DATO 8		PURGE ENDED A		TOTA	L VOL	2.08+29	300
TIME	VOLUMÉ PURGED (gal)	CUMUL VOLUME PURGED	PURGE RATE (gpm)	DEPTH TO WATER	pH	TEMP.	COND.	DISSOLVED OXYGEN (mg/L)	TURBIDITY (NTUs)	COLOR	ODOR	020
	1 1	(gal) 2,33	.66	(ft) <b>55</b> , 93	11.60	24.9	558	6.76	1.91	Clear	Kon	049
0353	2.3	5.68	106	55,93	11.56	24,9	543	5,69	2,05	1675	1	059
0858	3.77	8.98		37,14	11,49	2510	4 73	5,20	2.01	1		061
0903	515,	12.28			11.43	251	422	5,07	2,08		1.	066
0908	6.5	15.58			11.34	25.0	397	3.28	1.11		1	0.64
0913	7.93	18.88			11.31	25.2	384	3.07	0.77			062
0918	9.31	2218			11.75	<b>Z5.3</b>	357	2.77	0.70			061
0923	10.7	25.48			10.48	25.3	250	2.02	0.67	1	4	037
8580	17.09	28.78			9.90	25.3	125	1.4.7	<b>\$</b> [.70			<b>₫</b> 3
mq33	13.47	32.08		/	9.22	25.4	226	0.82	1.20	'		-801
ELL CA	PACITY (Gallo	ons per Foot):	0.75' = 0.	02; 1 = 0.0				0.37; 4" = 0.65	5; 5° = 1.02; 6	S" = 1.47; 12	2" = 5.88	J .
						LING DA						$\neg$
AFFILIAT	D BY (PRINT) . JON					AMPLER(S) GNATURE		h pu				
SAMPLIN	<i>/</i>	odarse				MPLING		1, 10 am	SAMPLING			-
METHOD						ITIATED A		<u> </u>	ENDED AT:			_
	CONTAMINA		N N	FIEL	D-FILTERE	ED: \	N.	,	DUPLICATE:			
	SAMPLE CON SPECIFICA			SA		SERVATIO			INTENDED	ANALYSIS		
NO.	MATERIAL CODE	VOLUME		SERVATIVI USED	ADDE	TAL VOLUM D IN FIELD		H H	AND/OR	METHOD		
			50	e At	techen	/						
			<u> </u>									ļ• ·
	.•											
												1
					<u> </u>							1
			1		<u> </u>		<u> </u>					J
					+						_	
					<u> </u>		!	i				
REMARK	S: Equip	Vol=	125 ' 4	,012	5 = 1.2	8 G41 t	164h	Claw cell	+.1 Pam	p = 2,3	& Gal.	
MATERIA	L CODES: A	G = AMBER G	LASS: C	G = CLEAR	GLASS:	PE = POLY	ETHYLENE	: 0 = OTHER	(SPECIFY)			
								nanter 62-16				

NOTE: The above do not constitute all of the information required by Chapter 62-160, F.A.C.

# Florida Department of Environmental Protection GROUNDWATER SAMPLING LOG

TE NAME:	Festival	Park				LOCATION	N: Ocla	nde, Pl				
	10: MW-Z/			SAMPL	EID: F	P-03-0	1-001	,,,,,	DATE: 5	-2.2-03		7
	-,, ,			,		RGING D					<u>,                                      </u>	
WELL DIAMET	ER (in): 4	TOTAL WE	DEPTH		_	Te	TATIC DEP O WATER (f	1): 56.56	WELL CAPAC	CITY (gal/ft):	0.65	-
1	e after 120			- 54.		) X		=				
PURGE			_	PURGE			PURGE	- т: 1046	TOTA	L VOL.	8.38	7
TIME	D: Grund ( VOLUME PURGED (gal)	CUMUL. VOLUME PURGED	PURGE RATE (gpm)	DEPTH TO WATER	рН	TEMP.	COND.	DISSOLVED	TURBIDITY (NTUs)	GED (gal):  COLOR	ODOR	REON
		(gal)		(ft)	7 -0		2/1/1	(mg/L)	, ,	1./		Mr
1025		2,33	.86	56.7	7.59	25.5	344	3,38	1.84	Chear	ion	239
1030	2.85	6,63		56.7	7.60		<del></del>	2.84	1,63		-	243
1040	4.69	10.93			7.51 7.46	25.5	350 363	2,56	1,67	<del>                                     </del>	<del>                                     </del>	246
1045	8,38	15,23			7.38	25,5	360	1,81	1,45		<del>                                     </del>	250
1017	3)-4	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	•		,,,	1 3 7 3			1/2	<del>                                     </del>	,	F.J.
												1 .
								-				1
												]
												]
<u>=</u> t⊥ c⁄	APACITY (Gall	ons per Foot):	0.75* = 0.0	02; 1" = 0.0				= 0.37; 4" = 0.68	5: 5" = 1.02; 6	6" = 1.47; 12	2" = 5.88	1
SAMDLE	D BY (PRINT)					PLING D		- 1,				4
AFFILIAT	TION .		1.			SAMPLER(S SIGNATURE		1/ Alta	<u>ښ</u>			
SAMPLIN	NOAN NG NS): Grad	se & Ass fishmp	OCIA te.	<u>s</u>		SAMPLING INITIATED A	T: /0	47	SAMPLING ENDED AT:	1/02	2	
FIELD D	ECONTAMINA	ПОМ: У	) N	FIEL	D-FILTER	RED:	Y	>	DUPLICATE:	Y	(N)	
	SAMPLE CON SPECIFICA			SA	MPLE PE	RESERVATION	ON		INTENDED	ANALYSIS		
NO.	MATERIAL CODE	VOLUME	PRE	SERVATIV USED		OTAL VOLUI		NAL OH		METHOD		
												1
1												
- 1												
REMARK	s: Using T	rbing Valu	me for	purzi np.10	120 f	2.33 6.	X 140, i	.5 x ,5 = , 0	10 x 120+	4 = 1.23	3 Gal	
MATERIA	L CODES: A	G = AMBER G	LASS: CO	3 = CLEAR	GLASS:	PE = POL	YETHYLEN	E; O=OTHER	(SPECIFY)			
	The shows								0 5 4 0			

The above do not constitute all of the information required by Chapter 62-160, F.A.C.

### Florida Department of Environmental Protection GROUNDWATER SAMPLING LOG

WO1-E-120-1 Estime! LOCATION: Orlanda, ME: SAMPLE ID: FP-03-01-002 DATE: WELL NO: 002 **PURGING DATA** WELL TOTAL WELL STATIC DEPTH WELL DIAMETER (in): DEPTH (ft): YO WATER (ft): CAPACITY (gal/ft): 0.65 1 WELL VOLUME (gai) = (TOTAL WELL DEPTH - DEPTH TO WATER) X WELL CAPACITY = 120' Casing PURGE PURGE PURGE TOTAL VOL fos Fun 1238 1317 Grund INITIATED AT: ENDED AT: METHOD: PURGED (gal): 32.48 CUMUL PURGE DEPTH VOLUME DISSOLVED COND TEMP. TURBIDITY PURGED VOLUME RATE TO TIME ۵H OXYGEN COLOR ODOR WATER (C) (umhos) (NTUs) PURGED (gpm) (mg/L) (ft) (gai) 2,38 -86 11.56 25,8 1373 1241 0.51 Clear None 11,60 1201 57.66 0.3S 1246 7.81 6.68 4.6.1 10-98 11.59 25,7 1044 0.30 **4**4.88 1251 25.6 279 0.26 1256 6.412 15,28 8,06 8.22 11.42 25,6 550 0,24 19.58 8.76 170 23.88 1.32 25.6 488 0,23 5,86 10.03 1306 11,20 78.18 25,5 480 0,22 6,23 1311 11.44 32.48 11.10 25,4 501 22 6.72 1316 B. LL CAPACITY (Gallons per Foot): 0.75" = 0.02: 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88 SAMPLING DATA SAMPLED BY (PRINT) / SAMPLER(S) SIGNATURE(S) AFFILIATION SAMPLING SAMPLING SAMPUNG 1328 318 ENDED AT: INITIATED AT: METHOD(S): Œ FIELD-FILTERED: **®** FIELD DECONTAMINATION: Ν DUPLICATE: SAMPLE CONTAINER MSIMTO RP0301-004 SAMPLE PRESERVATION SPECIFICATION INTENDED ANALYSIS PRESERVATIVE MATERIAL TOTAL VOLUME FINAL AND/OR METHOD NO VOLUME ADDED IN FIELD (ML) USED CODE pΗ 522 taches .• REMARKS: Well casing is 120' to open Hole - Tubing volume 125' x, 0105 1.28 + 1991-flow Cell 4,1 Bar pum = 238 Gal. MATERIAL CODES: AG = AMBER GLASS: CG = CLEAR GLASS; PE = POLYETHYLENE: O = OTHER (SPECIFY)

NOTE: The above do not constitute all of the information required by Chapter 62-160, F.A.C.

ORP

-106

-121

-126

-133

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### Florida Department of Environmental Protection GROUNDWATER SAMPLING LOG

TE NAME:	Festina	0. 4					SITE	v. acla	do Pl				
	0: MW-	U pa a		.1_	SAMP	E ID:	20041101	· Or ray	W, PL	DATE:	5-28-	~ ~	7
	772	7 - 17-03	-01-00	6		PUR	RGING D	ATA					'
WELL						£5021 @1	10 5	TATIC DEP	тн	WELL			
DIAMET	CK (III).	) = (TOTAL WE	DEP	TH (	ft): DEPTH	TO WATE	R) X WELL	O WATER (I	ft): 5 %-	16 CAPA	CITY (gal/ft)	1: 0-65	
' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' '	7 O201112 (ga)	= (					) X		<b>±</b>				
PURGE	- /- /				PURGE			PURGE		TOT	AL VOL	105/	+250
METHO	VOLUME	CUMUL.	PURG		NITIATE DEPTH	DAT: C	945B	ENDED A	T: 095		GED (gal):	10.54	100-
TIME	PURGED (gai)	VOLUME PURGED (gal)	RATE (gpm)		TO WATER (ft)	ρH	TEMP.	COND. (µmhos)	OXYGEN (mg/L)		COLOR	ODOR	ORI
0931	l	2.41	.92	<u> </u>	8.4	9.83	25,0	175	0.75	1,35	clear	None	078
0934	2.91	7.01		_   5	18,39	10.14		173	0.43	1.17			03
0948		11.61	<u></u> }_	$\perp$	<del> </del>	10.23	24.9	168	0.34	1,28			018
0946	6.72	14.21			<del> </del>	1023	24.9	136	0,23	1,32		11	1000
095/	8.63	20, 3	<del></del>	$\bot$	-	10,21		129	0,26	1,30	1		1004
0956	10.54	25. 4		+	-	10.17	24.9	131	0,24	1,45			010
	<u> </u>	1		+							1	1	1
	_			+			+					1.	-
				+			_			<del> </del>	<u> </u>		+
ELL CA	I APACITY (Gall	ons per Foot):	0.75" =	0.02;	1" = 0.0	04; 1.25"	= 0.06: 2*:	= 0.16; 3" =	= 0.37; 4" = 0	0.65; 5" = 1.02;	6" = 1.47;	12" = 5.88	1
						SAME	PLING DA	ATA					-
	D BY (PRINT)	1		_			SAMPLER(S		`	d.A			1
AFFILIAT	Asida	Se & AS 500	<u>_</u>			ļ	SIGNATURE		37	Mh Du			1
SAMPLIN METHOD	(S): Gunds	aslume			_	1 -	SAMPLING NITIATED A	r <u>: /</u> 8	20	SAMPUNG ENDED AT:	1440	0	
	CONTAMINA		) N		FIEL	D-FILTER	ÆD: Y		)	DUPLICATE	Υ Υ	(3)	
(	SAMPLE CON SPECIFICA				SA	MPLE PR	ESERVATIO	N		INTENDE	D ANALYSIS		
NO.	MATERIAL	VOLUME	PF		RVATIVE		TAL VOLUM		IAL		METHOD		
-	CODE		+-	<u>U:</u>	SED	AJ	O IN FIELD	(mL) p	H				1
					See	110 72	chiel						•
	_												
			$\dashv$			i			1		·		}
1					_	1		i					
1						Ī		į					
1													
1			-			1							
						<u> </u>	1.1						
REMARKS		515 et 120' f										ļ	
	V = [.5	(0,041) x.	5 x 128	r] +	1+.1	= 2.4	1/54					;	
MATERIAL		G ≃ AMBER G					<del>'</del> '	ETHYLENE	. O = OTHE	R (SPECIFY)			

NOTE: The above do not constitute all of the information required by Chapter 62-160, F.A.C.

ORP

### Florida Department of Environmental Protection GROUNDWATER SAMPLING LOG

Æ, "AMI	E. Feels	al Park				SITE	N: (2)	lando, FC	,		
		th Rech		// SAMPI	ے EID:	P-03-0	1-008	A row !	DATE: 5	123/03	
	7001	10, 70,000	i few	<u>u  </u>		GING D				22 0/0 /	
WELL		1 1		- WELL	1.0		TATIC DEPT	TH O	WELL		
1 WE	ETER (in): LL VOLUME (ga	/LA ni) = (TOTAL WI	TOEPTH	H (ft): I ~ DEPTH	<i>NA</i> TO WATE	R) X WELL	O WATER (f	1): NA	CAPAC	CITY (gal/ft);	NA
		<b>=</b> (		_		) X	3	= NA			,
PURC				PURGE	 D AT:		PURGE ENDED A			L VOL SED (gal):	UA GOLD
ТІМЕ	VOLUME	5 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	PURGE RATE (gpm)	TO WATER	рН	TEMP.	COND. (µmhos)	OISSOLVED OXYGEN (mg/L)	TURBIDITY (NTUs)	COLOR	ODOR
	NA	NA	NA	NA	6,45	29,2	218	3,/9	4.79	chear	pone
											<del></del>
	_		0	7.0.1	- (	1-11				<u> </u>	
				chan	ge U	Je 21				1	
-											
							3 /				
<u>.u</u>	CAPACITY (Ga	llons per Foot):	0.75" = 0.0	2; 1" = 0.0				0.37; 4" = 0.65	5; 5" = 1.02; 6	5° = 1.47; 12	2" = 5.88
						LING D					
	LED BY (PRINT ATION		_			AMPLER(S IGNATURE		15/ 5	7		
SAMPI		Nodar	<u></u>		I	AMPLING	770	mora	SAMPLING	19	
METH	OD(S): ( DECONTAMINA	9/15 ATION: (9	N	CIEL	<u>   </u>  -FILTER	VITIATED A	T: Y <≅	5	ENDED AT:	1700	(N)
LIEUD	SAMPLE COL								DUPLICATE:		- CALLE
	SPECIFIC		000	SA SERVATIVE		ESERVATION TAL VOLUM				ANALYSIS METHOD	
NO.	CODE	VOLUME	- FRE	USED		D IN FIELD	(mL) pl		AND/OR		
					Sen	c /4/1	hickey				
									<u> </u>		
	.*				+						
	<u> </u>										
							<del>-                                    </del>				
05111											
REMAR	oxs;										
MATER	IAL CODES: A	AG = AMBER G	LASS; CO	= CLEAR	GLASS;	PE = POLY	ETHYLENE:	O = OTHER	(SPECIFY)		

NOTE: The above do not constitute all of the information required by Chapter 62-160, F.A.C.

### Florida Department of Environmental Protection GROUNDWATER SAMPLING LOG

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-ak
- 26
ab
ODOR
Vore
5.88
71.56
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<u>, , , , , , , , , , , , , , , , , , , </u>

NOTE: The above do not constitute all of the information required by Chapter 62-160, F.A.C.

# Chain of Custody Record Record/Work Request

Tampa, Florida 33619 (813) 247-2805 • Fax: (813) 248-1537 E-Mail: login@Pelab.com 4420 Fendola Point Road

		Rec	Record/Work Request	ny necora Reguest		Tampa, Florida 33619 (813) 247-2805 • Fax: (813) 248-1537	Tampa, Florida 33619 • Fax: (813) 248-1537
DEL Laboratories, Inc.						E-Mail: lo	E-Mail: login@Pelab.com
Company:	1. Pons	Project Name/N		, i		Page	Jo eg
(12 M FIII) (III FILMO) JESTING! Park	(2) 24 1 1	testinal		1++02		DEP:Form #: 62-770.900(2)	2)
Address: 225 E. Robinson St. 12 S22		Project Manager:	, V. V.		-	Form Title: Chain of Custody Record	ody Record
Orbital Janda 3280	-		1112415			Effective Date: September 23, 1997	- 23, 1997
Phone: 407 4230030 Fax: 407 839-590 Purchase Order:	839-5901	Purchase Order:	/	E 50		FDEP Facility No.	59]
Print Names(s) / Affiliation	-			Preservative	Preservatives (see codes)	Project Name:	
Mire Buils, Tiffingfair lamb	ar law	HX) Q	550C/ 550C/	US OFFICE	ICAS CIST	Sampling CompQAP No:	:0;
Sampler(s) Signature(s)		Į		Analyses	Analyses Requested	Approval Date:	
Mixtu Mrs						REQUESTED DUE DATE	DATE
Item Sampled	Grab or	Matrix	Number of	Çı-		`	
No. Field ID No. Date Time	Composite	(see codes)	Containers	}		Remarks	Lab. No.
1 78-03-01-001 4 1102	6	30	િત				
4,	8	74	" \$79 K			74.41	
4 17 0x 0 38 0 17 17 X	1) (	)	_			-	
10 10 10 10 10 10 10 10 10 10 10 10 10 1	b,	3	2000				
-05-01-00-50	5	3	$\rightarrow$				
5 FY-03-0-005 4 15LL	Ø	9	V 52 0				
	-						-
					-		
	-						
Shipment Method Felt			145	◆ Total Number of Containers	Ontainers		
Out: / / Via:	Item Nos.	Relinguished	Relinquished by / Affiliations	Date	Time Accept	Accepted by / Affiliation	Date Time
Relumed: 572103 Via FOOLEX	1 than 5 1	wite Burns	Mike Eurns (Accounted Assort	SOR) 5/2-18 1730	750 FED EX		S/21/03/178
Additional Comments:					L		
FP-05-01-004 15						` .	
Mashix Site Investix duplicate	are						
1077		1					
74	ŭ	Cooler No. (s) / To	/ Temperature(s) (C)		Sampling Kit No.	Equipment ID No	No.
			ļ	$\exists$			
李	water $SE = Se$	SE = Sediment SO =	SO = Soil $SW = Su$	SW = Surface Water W =	= Water (Bianks) 0 = (	O = Other (specify)	
PRESERVATION CODES: H-Hydrochloric acid + ice		f = Ice only $N =$	N = Nitric acid + ice	S = Sulfuric acid + ice.	+ ice O == Other (specify)	(fy)	

PEL Laboratories, Inc.

# Chain of Custody Record Record/Work Request

4420 Pendola Point Road Tampa, Florida 33619 (813) 247-2805 • Fax: (813) 248-1537 E-Mail: login@Pelab.com

FEL Laboratories, Inc.	
Company: /	Page \ of \
	DEP Form #: 62-770.900(2)
COS JUS VISUR	Form Title: Chain of Custody Record
225	Effective Date: September 23, 1997
839- 30 Purchase Order:	FDEP Facility No.
liation / NONCE &	Project Name:
Curdia Wirld	Sampling CompQAP No:
Sampler(s) Signature(s)	Approval Date:
	REQUESTED DUE DATE
Item Sampled Grab or Matrix Number of Security	1 1
No. Field ID No. Date Time Composite (see codes) Containers	Remarks Lab. No.
1 FP-03-00-10-50-10-50-10-50-10-50-17-1	
7	
Shipment Method  Shipment Method	
Out: / / Via: Item Nos. Relinquished by / Affiliations Date, Time Accepte	Accepted by / Affiliation Date Time
Returned: 5 199103 Via. 1971EX 1004 Locka Wing/ 1991G 5129FS	
Additional Comments:	
1	
Cooler No. (c) / Temperalure(c) (C)	Fouring No.
MATRIX CODES: A = Air GW = Groundwater SE = Sediment SO = Soil SW = Surface Water W = Water (Blanks) O = C	O = Other (specify)
PRESERVATION CODES: H-Hydrochloric acid + ice 1 = Ice only N = Nitric acid + ice S = Sulfuric acid + ice D = Other (specify)	ify)

Page	of
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INSTRUM	MENT (M	AKE/MO	DEL#)	HACH a	2100P	INSTRUM	1ENT # <u>0</u> ]	040002	18774
PARAME	TER: (c	heck only	one]						
☐ TEN	APERATU	RE [	CONDUC	אויודץ [	SALINITY	□рН	ORP		
•	RBIDITY		RESIDUA	_	_ DO		ER		
STANDA values, and	RDS: [S	pecify the ty he standard	pe(s) of sta s were prep	ndards used fo pared or purcha	or calibration. esed)	the origin of the	standards, the	standard	
Stand	ard A	6.65							
	ard 8								
Stand	ard C _	486			_		<u></u>		
DATE (yy/mm/dd)	TIME (hcmin)	STD (A. B. C)	STD VALUE	INSTRUMEN RESPONSE		(YES. NO)	TYPE (INIT. CONT)	SAMPLER INITIALS	
5-27-03	0908	A	6.65	6.75		yes	Init	7 PMS	
		В	58.3	586		/	-		
		C	1486	487_		/			
			<u> </u>						
	1320	A	6-65	6-60		ye s	Cont	PMB 7F BED	
		B	58.3	57.4					
			486	479					
5/28/02	0820	A	6.65	6.64		Tes	Init	1/19	
		ß	58.3	58.4					
		C	486	475		/		`	
	1740	А	6,65	6,64	_		Cahl	re /s	
		<i>B</i>	58,3	58,2					
		<	486	486					
	1750	A	6.65	6,65					
		ß	58,3	58,3					
		c	476	486			1 ·	}	•
4/25/03	0800	ρ	6.65	6,65		441	Init.	MB	
		Þ	58,3	5812					
		C	486	484			(	l l	-
<del>-</del>									
	<del>                                     </del>								

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INSTRUK	AENT (N	IAKE/MO	)EI #)	YSI .	5 5	INSTRUM	AENT# 90	6M0178
		check only						
	•	_	_	מ ביוועת	SALINITY	ДрН	☐ ORP	
☐ TUR	RBIDITY		RESIDUA	LCL 🗆	00	□оп	1ER	
				ndards used for c		the origin of the	standards, the	standard
Stand	ard A	25,3						
Stand	ard 8 _							
Stand	ard C _							
DATE (yy/mm/dd)	TIME (hr.min)	STD (A, 8, C)	STD VALUE	INSTRUMENT RESPONSE	% DEV	CALIBRATED (YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS
5-27-03	0913	A	25.3	25.3		1/25	Init.	TEMS
	1023	A	25.3	25-3		yes.	Cont	ZFMB
5/27/63	0834	A	26.3	26,5		905	Jait	MD
	1343	A	26.9	26.9		ĺ	Cont	MA
	1753	A	26.8	24.1				
5/29/07	0302	14	25.1	25,1		125	Enit	MB
			_	_				
	Ì							
1	İ							

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INSTRUM	MENT (M	AKE/MO	DEL#)	<u>Y5I</u>	55	INSTRUM	MENT # <u>96</u>	M0178AF
PARAME	TER: [c	heck only	onel					
☐ TEN	MPERATU	RE 🗆	CONDUC	TIVITY	☐ SALINITY	□рН	☐ ORP	
TUP	RBIDITY		RESIDUA	L CL	<b>X</b> DO		HER	
values, and	the date to	he standard:	s were prep	ared or purcha	ased]	the origin of the	standards, the	standard
Stand	ard A	100%	<u> 4</u>	to Ca	J			
Stand	ard B						•	
Stand								
DATE (yy/mm/dd)	(hcmin)	STD (A. 8. C)	STD	INSTRUMEN RESPONSE		(YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS
5-27-03	0914	A	100%	110%		yes	Init	MBTE
	1324	_A	100%	140 %		yes	c-nt_	MBTA
5/13/07	0845	A	100%	110%		yes.	Fait	ma
	1346	A	100%	98,4			cont_	
1	1455	_A	100%	_ ૧૧ં.૪ _				1
5/2/07	0803	A	108/4.	97,2		4 = 5	Init	mB
<del>_</del>								
			-	_				
								<del></del>
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	<del></del>					<u> </u>		
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						]		
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	 				1		·	

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INSTRUM	MENT (N	1AKE/MOI	DEL#)	DAKTON	1 10	INSTRUM	MENT#_	40453
PARAME	TER: [	check only	one]					
☐ TEN	MPERATU	RE 🕽	CONDUC	TIVITY	SALINITY	∏рН	□ 08	RP.
☐ TUF	RBIDITY		] RESIDUA	L CL	□ DO	ITO 🗌	HER	
				andards used pared or purch		the ongin of the	standards, i	he standard
Stand	ard A	447						
Stand	ard B $_$							
Standa								
DATE (yy/mm/dd)	(hr.min)	STD (A. B. C)	STD VALUE	INSTRUME RESPONS		(YES, NO)	TYPE (INIT, CONT	SAMPLER ) INITIALS
05-27-03		A	447	361		yes	Init	MBTE
				1		<u> </u>	·	
	1327	A	1447	486		VES	Cont.	moth
5/22/67	0331	Α	447	497		1400	Init	MAYE
1	1338	A	447	437			Cont	ms
	1757	Α	447	441		_/		
5 [29]03	0805	A	447	439		Ye s	y nit	mB
_								
					1			
1								
			j					

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INSTRUM	MENT (M	AKE/MOD	DEL#)	DAKTON	10	INSTRUM	MENT # 4	0453
PARAME	TER: /d	check only	one]					
	IPERATU	_		TIVITY   S	SALINITY	<b>⋈</b> рН	ORP	
☐ TUP	RBIDITY		RESIDUA	r Cr 🔲 🗅	00	Πο Π	HER	
STANDA. values, and	RDS: [S	specify the ty he standards	pe(s) of sta s were prep	indards used for ca pared or purchased	alibration, t]	the origin of the	standards, the	standard
Stand	ard A _	4.0						
Stand	ard B $_$	7.0						
Stand	ard C	10,0						
DATE (yy/mm/dd)	TIME (hc.min)	STD (A. B. C)	STD VALUE	INSTRUMENT RESPONSE	% DEV	CALIBRATED (YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS
5-27-03	0917	A	4.0	4.01		Ves	Im 7	MB702
		6	7.0	7.0		1		
		C .	10.0	9.75				
	1328	A	4.0	4.02		Ves	Cont.	TEMB
		В	7.0	7.0				
		C	10.0	9.98		/	V	<i>k</i>
5/20103	0922		4	7.02		405	Jaix	MA
		B	7	7.20				
		C	10	9.68		J	- 1	
	1340	A	4	4.03			Cont	ma
		B	7	7,05				
7		c	10	9.94				
	1.759	λ	4	પ, ઇા				
	1	B	7	7,02				
		C	10	9.99				
5/29/03	0807	Δ	4	4.02		785	Init	MB
		A	7	7.06				
		С	10	10.2				

# Florida Department of Environmental Protection GROUNDWATER SAMPLING LOG 177652

TE NAME:	Fest	tiral Par	15			LOCATIO		riando, 1	=(,		
WELL				SAMP	LE ID:		3-02-0			0/1/6	<del></del> 3 .
					Pl	JRGING I					
WELL	TER (în):	4"	TOTAL	L WELL	190	,	TATIC DEP	TH 1): 50,7	3   WELL	ACITY (gal/ft):	66
1 WELL	VOLUME (gas)	) = (TOTAL WE	LL DEPTH	HT430 - 1	TO WA	TER) X WELL	CAPACITY	=		1/4 well UE =	
		= (190		- AL - AL	<u>.73</u>			= 91.90	<u>allons</u>		
PURGE METHO	o: Dedicate		2 mg	PURGE	D AT:	845°r	PURGE ENDED A	T: 1355	PUF	AL VOL RGED (gal):	_
TIME	VOLUME PURGED	CUMUL VOLUME PURGED (gal)	PÜRGE RATE (gpm)	OEPTH TO WATER (ft)	ρH	TEMP	COND. (µmhos)	DISSOLVED OXYGEN (mg/L)	TURBIDITY (NTUs)	COLOR	ODOR
1150	1	919	,5	50.75	7,3	6 24.8	14/85	8.25	0.73	.  c/es-	Rune
1250	1/4	115	.4	50.75	7,3		1484	5.71	1.17	]	
1350	11/2	138	4	5,71	7.3°	7 24.8	14/78	3.80	0.85	1 1	<u> </u>
		<u> </u>					<u>:</u>	1	<u> </u>	1 -	:
	1	1		<u> </u>	1		1		<u> </u>	<del>-</del>	í
							!		<u> </u>		1
		-			<u> </u> 		;		<u> </u>	<del>- </del>	<del> </del>
							!	··	-	<del>                                     </del>	
							:		-	1	<u> </u>
ELL C	APACITY (Gaild	ons per Foot):	0.75 = 0.0	02; 1° = 0.0	04; 1.2	25" = 0.06; 2"	= 0.16; 3 =	0.37; 4" = 0.65	5: 5" = 1.02;	6" = 1.47; 1	2" = 5.88
					SAI	MPLING D	ATA				
SAMPLE AFFILIAT	D BY (PRINT)	odarse				SAMPLER(S SIGNATURE	S) file	Do			
SAMPLIN	NG A	1			-	SAMPLING INITIATED A			SAMPLING ENDED AT:	1413	
	ECONTAMINA	TION:	N	FIEL	D-FILT		Y Ø		DUPLICATE		N
	SAMPLE CON			SA	MPLE	PRESERVATI	ON		INCOMENTE	D ANIAL VOIC	
NO.	SPECIFICA MATERIAL CODE	VOLUME	PRE	SERVATIVI USED		TOTAL VOLU				DANALYSIS RMETHOD	
					7.5	<u> </u>	, ( <u>2</u> )				
-							į				
1					_!_						
					1		l .	1			
<u>l</u>		3			. !		<u>;</u>				
<u>:</u>			_ <u>l</u>				:				
					<del></del>		1 .				
! REMARK	S: ^ .						<u>.</u>	: : 1315			
	Discha	ige water	has ;	/he/b nir	666	125	nn s	1313		•	
								Dec			
JATERIA	L CODES. A	G = AMBER G	LASS, CO	S = CLEAR	GLASS	. PE = PCL	ETHYLENE:	O = OTHER	(SPEC:FY)		
NOTE:	The above	do not con	stitute al	I of the in	nform	ation requ	red by Ch	apter 62-160	), F.A.C.		

### Florida Department of Environmental Protection GROUNDWATER SAMPLING LOG

ITE NAME	Fest	ival Par	14			LOCATIO	N: . Or (	and FC.				
WELL NO	o: mu	U-2		SAMP	LE ID:		-02-00		DATE: /6	0/2/07		
					PUR	GING D				77		_
DIAMETE	FR (in):	41'	DEPT	L WELL H (R):	190	<b>Т</b>	TATIC DEP O WATER (I	f(x): -5 2.1	7 WELL	CITY (gai/ft);	,66	
1 WELL	VOLUME (gai	) = (TOTAL WE	LL DEPTH	- DEPTH	TO WATE	R) X WELL	CAPACITY	=		£ 41 69/=	2361	<u>;</u>
		=( 19	0	_ 52	.17	)X,6		= 91621				İ
PURGE	) () est : c = 4	ed Bladde	Pund	PURGE	DAT: O	710	PURGE ENDED A	T: 13/0	TOTA	AL VOL. GED (gal):		_
TIME	VOLUME	CUMUL	PURGE	DEPTH TO	pH	TEMP.	COND.	DISSOLVED	TURBIDITY	1	ODOR	_
Talvic	(gai)	PURGED (gal)	(gpm) د نی د	WATER (ft)	, p	(°C)	(muyos)	(mg/L)	(NTUs)	JOEGIA	ODOX	ORI
1010	1	91	- Jakes	52.18	7,37	24.8	527	1.91	0.33	char	ron	1119
1102	1'/4	114	,44		7.30	25,3	486	1,64	1.18			107
1216	1 1/2	137	,31	52,2	7,26	25.2	:463	1.04	0.88		(	109
1308	13/4	65	.44	1	7,20	25,1	:464	10.71	0.08		4	0.8
	<u> </u>	<u> </u>					<u> </u>	<u>i</u>				_i ,
							:		<u> </u>			_
						<u> </u>	ļ			1	i	[
		]				<u> </u>						<u>;</u>
							<u> </u>				<u> </u>	<u>_i</u>
											i	1
'EIT CA	PACITY (Galle	ons per Foot):	0.75" = 0.0	02; 1 = 0.0				0.37; 4" = 0.65	5; 5" = 1.02; 6	5 = 1,47; 12	2" = 5.88	_!
						LING DA						_ `
SAMPLED AFFILIATI	OBY (PRINT) ON	Nodar	>- <b>c</b>			AMPLER(S)	(S) M	L But	>			:
SAMPLING METHOD(	. //					AMPLING IITIATED AT			SAMPLING ENDED AT:	134	5	
FIELD DE	CONTAMINA	TON:	N	FIEL	D-FILTER	ÉD: Y	<i>y</i> ≪⊅	'	OUPLICATE:	Y	<u>®</u>	] .
Š	AMPLE CON			SA	MPLE PR	ESERVATIO	)N					į
NO.	SPECIFICA MATERIAL CODE	VOLUME	PRE	SERVATIVE USED		TAL VOLUM D IN FIELD		-		ANALYSIS METHOD		
<u>i-</u>			<del>-   -</del>									
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1												!
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:			i		<u> </u>							
REMARKS												

MATERIAL CODES. AG = AMBER GLASS: CG = CLEAR GLASS: PE = POLYETHYLENE, O = OTHER (SPECIFY) NOTE: The above do not constitute all of the information required by Chapter 62-160, F.A.C.

## Florida Department of Environmental Protection GROUNDWATER SAMPLING LOG

		W62-6	720-1	
AME Festival Park		SITE LOCATION: Orl	ando, FG	
WELL NO: MW-Y	SAMPLE ID: F	P-03-02-00	7 DATE:	10/3/03
		GING DATA	,	<u> </u>
	TOTAL WELL / 90'	STATIC DEPTH	1 5-211- W	/ELL
DIAMETER (in): 7   I WELL VOLUME (gai) = (TOTAL WELL (	DEPTH (R): / 90	TO WATER (ft):	7 2,40   0	APACITY (galiff): , 6 G
	- 53.40			, ,,,,
	24.505	201000		TÖTÁL VOL
METHOD: Dedicated Bladder  VOLUME   CUMUL   PU	Some INITIATED AT: O	70.5 ENDED AT:		PURGED (gai);
TIME PURGED VOLUME R	ph (ft)	TEMP. COND. (umhos)	OXYGEN (NTU	
	17 53.51 10.71	24.5   262	0.30 1.85	Teleco Non
	38 53.52 8.01	24.8 294	0,42 0,83	
	36 53.50 7.90	24,9 316	0.49 0.60	,
334 13/4 1575 13		1.	0.42 0.46	
26 2.0 150 14		25:1 321	0.55 10.30	
		: 1		i
		i i		
		1		
N. H.				i
ELL CAPACITY (Gallons per Foot): 0.75	SAMP	LING DATA		12. 0 4 1 47, 12 - 3.00
AMPLED BY (PRINT) I  FFILIATION Nodarse		AMPLER(S) GNATURE(S)	& Bun	
AMPLING Pung		AMPLING ITTATED AT: 1430		AT: 14/55
ELD DECONTAMINATION:	N FIELD-FILTER	ED: Y	DUPLICA	
SAMPLE CONTAINER	SAMPLE PRE	SERVATION	10.000	IDED ANIAL VEID
SPECIFICATION  NO. MATERIAL VOLUME		TAL VOLUME   FINA		IDED ANALYSIS NOR METHOD
CODE VOLUME	USED ADDE	DIN FIELD (mL) DH		
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MARKS.		·	i	
TERIAL CODES. AG = AMBER GLASS	S. CG = CLEAR GLASS:	PE = POLYSTHYLENE.	O = OTHER (SPEC:FY)	

### Florida Department of Environmental Protection GROUNDWATER SAMPLING LOG

TE	- Ep. 1.	11 0 11				SITE	00	rado FC			
NAME	10: 14 /	L Reche		SAMPLI	= ID:	1-0 - 0		cr		///	
_ ₩ELL	NO. Nort	L Recha	rce Cell		- 10,	FP-03-0	12 - 00	7	DATE: 10	11/03	
					PU	JRGING D					
DIAM	ETED (in)	. A	) TOTAL ) DEPTH	/ft)-	1	/ TO	TATIC DEP D WATER (f	71· 1/	7 CAPAC	CITY (gal/ft):	NA
1 WE!	L VOLUME (ga	n) = (TOTAL WE	LL DEPTH -	T HTG30	O WA	TER) X WELL	CAPACITY	=			7- 71
		= (		_		) X		<u> </u>		•	
PURG	_	- "		PURGE	AT:		PURGE ENDED A	T:		L VOL ED (gai):	
	VOLUME		PURGE	DEPTH TO		TEMP.	COND.	DISSOLVED	,		
TIME	PURGED (gai)	VOLUME PURGED (gal)	(gpm)	WATER (ft)	рН	(°C)	(µmhos)	OXYGEN (mg/L)	(NTUs)	COLOR	ODOR
	1 A	1			30	1 27.0	1210	3.25	3.70	10/19	į
							Ì				
		1									1
		1						1		<u> </u>	
		}					!				
							;				
										!	
	j										
.√EŁL	CAPACITY (Ga	llons per Foot):	0.75" = 0.02	1 = 0.04				0.37; 4" = 0.6	5; 5" = 1,02; 6	= 1.47: 12	- 5.88
					SAN	IPLING DA					
	ĒĎ 8Υ (PRINT AΠΟΝ					SAMPLER(S) SIGNATURE(		L Bu			
SAMP	ING DICENT DICEAN	Modarse				SAMPLING INITIATED AT	<del>-</del>		SAMPLING ENDED AT:	1630	
	DECONTAMINA			FIELD	-FILTE				DUPLICATE:	_ <del>/                                    </del>	@
	SAMPLE CO	NTAINER		LSAN	SPLE A	PRESERVATIO					
	SPECIFIC MATERIAL		PRESI	ERVATIVE		TOTAL VOLUM		AL	INTENDED AND/OR M		. [
NO.	CODE	VOLUME		JSED_	ADI	DED IN FIELD	(mŁ) pł	1			
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REMAR	KŚ										
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NOTE: The above do not constitute all of the information required by Chapter 62-160, F.A.C.

0110011 1010001 0000101

# Chain of Custody Record Record/Work Request

4420 , ondola Point Road Tampa, Florida 33619 (813) 247-2805 • Fax: (813) 248-1537 E-Mail: login@ Pelab.com

	PEL Laboratories, Inc.	ť					0.00				
ķ		-		Project Name/Number:	Number:					Page	1 10 1 3
	CH2M HILL			Festival	1 Park	_	177652	7	DEP	DEP Form #: 62-770,900(2)	
	Address: Orlando, FC	,FC. 3280	10	Project Manager:	er;	'			Form	Form Title: Chain of Custody Record	dy Record
	225 E. Robinson	54.		Alo	an Akens	15	100000000000000000000000000000000000000		Effec	Effective Date: September 23, 1997	23, 1997
		Fax:		Purchase Order:	נ				FDE	FDEP Facility' No.	
	Print Names(s) / Affiliation					ď	Preservatives (see codes)	(see codes)	Proje	Project Name:	
	Mile Burns / Nodnese								Sam	Sampling CompQAP No:	
	Sampler(s) Signature(s)						Analyses Requested	tequested	Appr	Approval Date:	
	Mil. Be					,			 	REQUESTED DUE DATE	OATE
	Item	Sampled	Grab or	Matrix	Number of	Sée	See Attached	hed hist		, ,	
	No. Field ID No. Date	e Time	Composite	e (see codes)	Containers					Remarks	Lab. No.
	A Section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the sect		2 = 2								
	FP-03-02-096 10/2/03	1345	Grab	30	8						
	-5		+ 46	0	2						
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		#								*	
-		_									
-··											
	Shipment Method	FEDX			20	← Total Nu	← Total Number of Containers	ntainers		ì	
	Out: 1 1 Via:		Item Nos.	Relinquish	Relinquished by / Affiliations	ions	Date Ti	Time Acc	Accepted by / Affiliation	•	Date Time
	Returned. / / Via.			mile Bu	m / Nodarse		10/2/03				
	Additional Comments:						`				
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1	108						٠				
,	35/			Cooler No. (s) / Temperature(s) (C)	Temperature(s)	(C)		Sampling Kit No.		Equipment ID No.	No.
											,
	DES: A=Air GW	GW = Groundwater		SE = Sediment SO	SO = Soil SW	SW = Surface Water	1	W = Water (Blanks) O	O = Other (specify)	ecify)	
	TION CODES: H-Hyd	H-Hydrochloric acid + ice		l = Ice only N:	= Nitric acid + ice		S = Sulfuric acid + ice	ice O = Other (specify)	pecify)	1	- 5. -

4420 Pe. Ja Point Road Tampa, Florida 33619 (813) 247-2805 • Fax: (813) 248-1537 E-Mail: login@Pelab.com

# Chain of Custody Record Record/Work Request

Time Lab. No. Form Title: Chain of Custody Record ું Effective Date: September 23, 1997 REQUESTED DUE DATE Date Equipment ID No. Page Sampling CompQAP No: DEP Form #: 62-770,900(2) FDEP Facility No. Remarks Approval Date: Project Name: Accepted by / Affiliation O = Other (specify) 0 = Other (specify) Sampling Kit No. W := Water (Blanks) Preservatives (see codes) Analyses Requested ← Total Number of Containers See Attached S = Sulfuric acid + ice Date Time 177652 SW = Surface Water Cooler No. (s) / Temperature(s) (C) Relinquished by / Affiliations N = Nitric acid + ice Parte Containers Number of 9 Project Name/Number: SO = Soil 13 ~ Alan Festival Project Manager: Purchase Order: Composite (see codes) Matrix SE = Sediment I = Ice only GE Grab or Grab Item Nos. 32801 H-Hydrochloric acid + ice 225 E. Robinson St. S. it 505 Orbando Fl. GW = Groundwater Nodarse & Asrac. Time 19115 630 1315 1205 1115 FedX Sampled 10/1/03 PEL Laboratories, Inc. Dare Shipment Method Via A = Air Phone: 407-423-0030 Print Names(s) / Affiliation FP.03.02.003 PRESERVATION CODES: FR03-07-005 FP.03-02-001 FR03.02.002 FP.03.02.004 Field ID No. Sampler(s) Signature(s) Additional Comments: Mike Burns MATRIX CODES: CHZM Company: Returned: Address 1086 Item

PEL Laboratories, Inc.

# Chain of Custody Record Record/Work Request

4420 Pe. Jan Point Road Tampa, Florida 33619 (813) 247-2805 • Fax: (813) 248-1537 E-Mail: login@Pelab.com

FEL Laboratories, Inc.	ن:						
Company:		Project Name/Number:	umber:			Page	of 1
CH2M HII		Frstius	Exstiual Park /177652	7652		DEP Form #: 62-770,900(2)	
Address:	32801	Project Manager;	· ·			Form Title: Chain of Custody Record	ord
225 E. Robinson St. Orlando FL.	Orlando FL.	Alo	lan AKens			Effective Date: September 23, 1997	7
Phone: 407-423-0030 Fa	Fax:	Purchase Order:		38		FDEP Facility No.	
Print Names(s) / Affiliation				Preservativ	Preservatives (see codes)	Project Name:	
Mike Burns / Nada	Nadarse & Assoc,					Sampling CompQAP No:	
1				Analyse	Analyses Requested	Approval Date:	
		-				REQUESTED DUE DATE	
Item	Sampled Grab or	Matrix ,	Number of	See	Attached List	, ,	
No. Field ID No. Date	e Time Composite	ile (see codes)	Containers			Remarks	Lab. No.
FP.03-02-007 10/3/03	63 1455 (Smb	SW 0	8				
Trip & Temp Bhok			7				
					200		
Shipment Method	FED X		20 + To	← Total Number of Containers	Containers		
Out: / / Via:	Jiem Nos.	Relinquishe	Relinquished by / Affiliations	Date	Time Accepted	Accepted by / Affiliation Date	Time
Returned: / / Via.		mile B	3 une Modars e				
Additional Comments:	40 00					is an	
<u>-</u> -							
087		Cooler No. (s) / To	Temperature(s) (C)		Sampling Kit No.	Equipment ID No.	
MATRIX CODES: A = Air GW	GW = Groundwater SE	SE = Sediment SO =	SO = Soil SW = Surface Water		W = Water (Blanks) O = O	O = Other (specify)	
1				1			
PRESERVATION CODES: H-Hyd	H-Hydrochloric açid + ice	I = Ice only N =	= Nitric acid + ice S	S = Sulfuric acid + ice	I + ice O = Other (specify)	(%)	

INSTRUMENT	(MAKE/MC	DEL#)	HACH 2	100P	INSTRUM	ENT # 0 1	0400028
PARAMETER:	[check onl	y one]					
☐ TEMPERA	TURE [	CONDUC	TIVITY 📋	SALINITY	□ рН	ORP	
🔀 TURBIDIT	γ (	☐ RESIDUA	LCL [	00	□ OTHE	ER	
STANDARDS: values, and the da	(Specify the lite the standard	rype(s) of sta ds were prep	andards used for o pared or purchase	calibration, t ed]	he origin of the s	standards, the	standard
Standard A	6.95						
Standard B	59.3						
Standard C	- 486			<u> </u>			
DATE TIM (yy/mm/dd) (hr.m	_	STD	INSTRUMENT RESPONSE	% DEV	(YES, NO)	TYPE (INIT. CONT)	SAMPLER INITIALS

Stand	ard C _	486							
DATE (yy/mm/dd)	TIME (br.min)	STD (A. B. C)	STD VALUE	INSTRUMENT RESPONSE	% 0EV	CALIBRATED (YES, NO)	TYPE (INIT. CONT)	SAMPLER INITIALS	
10/1/03	1106	Å	8.95	6.95		Yes	Tait.	MD	
		B	23.5	60,1					
		<u>e</u>	486	490				/	
1	1530	A	6.95	6,94			cent	MA	
		D	59.3	59,5					
		C	486	486					
10/2/03	0945	A	6.95	6,94			I~(1	mp	
		B	59,3	60.6					
		c	486	485					
	1400	A	6,95	6.96			cont		
		_B	59.3	60.0					
₩		<u></u>	486	486			1		
10/3/03	0955	<u>A</u>	6.95	6.97		708	Init	MB	
1		$\mathcal{B}$	59.3	60,2					
		<u> </u>	486	489					
	1350	A	6,95	695			conf	MB	
		B	59.3	59.6					
		٥	486	487				1	
``	18 30	<u>A</u>	6.95	6.94				prop	
		B	59.3	51.3					
		C	4186	4186					
							<u>' ·  </u>		
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NOTELIA	AENT ()	441/5/1406	7C1 4V	YSI :	~~	INCORPAGE	G	/ 44 7.2
		nake/MOL check only		131	<del>)</del> )	INSTRUM	MENT#	6M0118
	-	-		אויודי בי	SALINITY	ДρН	☐ ORP	
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_		_		andards used for c				e standard
alues, and	the date t	he standard		pared or purchased		J	,	
		24.7	<u>-</u>					
Stand	ard B _	27.1					•	
	ard C _							
DATE yy/mm/dd)	(hrumin)	STD (A. B. C)	STD	INSTRUMENT RESPONSE	% DEV	CALIBRATED (YES. NO)	TYPE (INIT, CONT)	SAMPLER INITIALS
0/1/03	1109	A	24.7	24,7		725	I.:+	Ju N
	1533	A	21.1	27.			cont	MB
1/2/03	0947	A	22,3	22,3			Znit	MB
	1402	A	25,6	25.6		<i>[</i>	Cont	ms
0/3/03	0958	A	22.5	22,5			<del>Init</del>	mp
	1353	A	25,1	25.1		1	cont	RB
1	1812	A	25.3	25-3				1
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PARAMETER: [check only one]    TEMPERATURE   CONDUCTIVITY   SALINITY   PH   ORP     TURBIDITY   RESIDUAL CL   QO   OTHER    STANDARDS: (Specify the type(s) of standards used for calibration, the origin of the standards, the standard values, and the date the standards were prepared or purchased)    Standard A   100°/o   A to Ca   Standard C     Standard C   DATE   TIME   STD   STD   INSTRUMENT   RESPONSE   20 DEV   (YES, NO)   (INNT, CONT)   INNTALS     Info   1/10   A   100°/o   Q 9, 9°/o   (YES, NO)   (INNT, CONT)   INNTALS     Info   1/20   Oqual   A   100°/o   Q 8, 3   Count   Multiple     Info   1/20   Oqual   A   100°/o   Q 8, 3   Count   Multiple     Info   1/20   Oqual   A   100°/o   Q 8, 5   To it     Info   1/20   Oqual   A   100°/o   Q 9, 9°/o   Count   Multiple     Info   1/20   Oqual   A   100°/o   Q 9, 9°/o   To it   Multiple     Info   1/20   Oqual   A   100°/o   Q 9, 9°/o   Count   Multiple     Info   1/20   Oqual   A   100°/o   Q 9, 9°/o   Count   Multiple     Info   1/20   Oqual   A   100°/o   Q 9, 9°/o   Count   Multiple     Info   1/20   Oqual   A   100°/o   Q 9, 9°/o   Count   Multiple     Info   1/20   Oqual   A   100°/o   Q 9, 9°/o   Count   Multiple     Info   1/20   Oqual   A   100°/o   Q 9, 9°/o   Count   Multiple     Info   1/20   Oqual   A   100°/o   Q 9, 9°/o   Count   Multiple     Info   1/20   Oqual   A   100°/o   Q 9, 9°/o   Count   Multiple     Info   1/20   Oqual   A   100°/o   Q 9, 9°/o   Count   Multiple     Info   1/20   Oqual   A   100°/o   Q 9, 9°/o   Count   Multiple     Info   1/20   Oqual   A   100°/o   Q 9, 9°/o   Count   Multiple     Info   1/20   Oqual   A   100°/o   Q 9, 9°/o   Count   Multiple     Info   1/20   Oqual   A   100°/o   Oqual   A   100°/o   Oqual   A   100°/o   Oqual   A   100°/o   Oqual   A   100°/o   Oqual   A   100°/o   Oqual   A   100°/o   Oqual   A   100°/o   Oqual   A   100°/o   Oqual   A   100°/o   Oqual   A   100°/o   Oqual   A   100°/o   Oqual   A   100°/o   Oqual   A   100°/o   Oqual   A   100°/o   Oqual   A   100°/o   Oqual   A   100°/o   Oqua	INSTRUM	MENT (N	IAKE/MOD	DEL#)	YSI S	55_	INSTRUM	MENT # 96	m0178A
TURBIDITY RESIDUAL CL NO OTHER  STANDARDS: (Specify the type(s) of standards used for calibration, the origin of the standards, the standard values, and the date the standards were prepared or purchased)  Standard A 100% A to Ca 1.  Standard B  Standard C  DATE TIME STD STD INSTRUMENT RESPONSE SOEV (YES, NO) (INIT, CONT) INITIALS (INITIALS)  (a) 103 1110 A 100% 99.9%   YES INSTRUMENT RESPONSE SOEV (YES, NO) (INIT, CONT) INITIALS (INITIALS)  (b) 103 0948 A 100% 98.3   Cont MIB  1012 03 0948 A 100% 98.5   To The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part of The Part o	PARAME	ETER: [c	check only	one]					
STANDARDS: (Specify the type(s) of standards used for calibration, the origin of the standards, the standard values, and the date the standards were prepared or purchased!  Standard A 100% A to Cal.  Standard C  DATE TIME STD STD INSTRUMENT (YES. NO) (INIT. CONT) INITIALS (LA. B. C.) VALUE RESPONSE (YES. NO) (INIT. CONT) INITIALS (LA. B. C.) VALUE RESPONSE (YES. NO) (INIT. CONT) INITIALS (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE (LA. B. C.) VALUE	☐ TEN	MPERATU	RE 🗆	CONDUC	TIVITY [ S	SALINITY	□рН	☐ ORP	
Standard A   100%   A v to   Ca   .	☐ Tüf	RBIDITY		RESIDUA	rcr 🔀	00	TO 🗌	HER	
Standard B  Standard C  DATE TIME STD STD INSTRUMENT RESPONSE 36 DEV (YES. NO) (INIT, CONT) INITIALS  10/1/03 1/10 A 100% 99.9% 1/25 Init MB  1534 A 100% 98.3 Cont MB  10/2/03 0948 A 100% 98.6 Cont MB  10/3/03 0959 A 100% 98.5 Init MB  1355 A 100% 97.4	values, and	the date t	he standard:	s were prep	ared or purchase	alibration. d]	the origin of the	standards, the	e standard
Standard C    DATE   TIME   STD   STD   INSTRUMENT   (A. 8. C)   VALUE   RESPONSE   (YES. NO)   (INIT, CONT)   INITIALS     10   10   3   11   0   A	Stand	lard A	1000/0	<u> 4</u> 0	to Cal.				
DATE TIME STD STD INSTRUMENT RESPONSE 36 DEV (YES. NO) (INIT. CONT) INITIALS  10/1/03 1/10 A 100% 99.9% 1/25 Init MB  1534 A 100% 98.3 Cont MB  10/2/03 A 100% 98.5 Init MB  10/3/03 0999 A 100% 98.5 Init MB	Stand	lard B						•	
(yy/mm/dd) (hr.min) (A. 8. C) VALUE RESPONSE % DEV (YES. NO) (iNIT, CONT) INITIALS  10/1/03 1/10 A 100% 99.9%   YES In:+ MB  1534 A 100% 98.3   Cont MB  10/2/03 0948 A 100% 98.6   Cont MB  10/3/03 0959 A 100% 98.5   In:+ MB  1355 A 100% 97.4   Cont MB								<b>,</b>	
1534 A 100% 98.3 Cont MB  1012103 0948 A 100% 94.2% Toil MB  1403 A 100% 98.6 Cont MB  1013103 0959 A 100% 98.5 Init MB						% DEV			
10/2/03 0948 A 100% 94.2% Told MB  1403 A 100% 98.6 Cont MB  10/3/03 0959 A 100% 98.5 Init 148  1355 A 100% 97.4 Cont MB	10/1/03	1110	A	100%	99.90/0		155	Init	MB
10 3 63 0959 A 100% 98.6 Cont mB  10 3 63 0959 A 100% 98.5 Init 145  1355 A 100% 97.4 Cont mB		1534	A	100%	98,3		. }	cont	ness
10 3 63 0959 A 100% 98.5 Init 145	10/2/03	0948	A	1000/0	94.2%			Tuil	MB
1355 A 100% 97.4 Cont MB		1403	A	100%	98.6			cont	m B
1355 A 100% 97.4 COLF MB	10/3/03	0959	A	100 %	98.5			Init	145
		1355	A.	100/0	97,4		7	cont	•
	1	1814	Á	120%	99,4		{	↓	$\checkmark$
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INSTRUM	MENT (M	IAKE/MOD	DEL#)	OAKTON	10	INSTRUM	RUMENT# <u>40453</u>					
PARAMETER: [check only one]												
☐ TEMPERATURE X CONDUCTIVITY ☐ SALINITY ☐ pH ☐ ORP												
TUF	RBIDITY		RESIDUA	r Cr 🔲 (	00	<b>□</b> Οπ	HER					
STANDA values, and	STANDARDS: [Specify the type(s) of standards used for calibration, the origin of the standards, the standard values, and the date the standards were prepared or purchased]											
Stand	lard A	447										
Standard B												
Stand	Standard C											
DATE (yy/mm/dd)	TIME (homin)	STD (A. B. C)	STD	INSTRUMENT RESPONSE	% 0EV	CALIBRATED (YES. NO)	TYPE (INIT, CONT)	SAMPLER INITIALS				
10/1/03	1112	A	447	440		125	Init	MB				
-		B	1413	1431				1				
	1535	A	447	439			cont	MB				
		Δ	1417	1420		Į		_{				
10/2/03	0951	A	447	4 89			1-11	Ju B				
	9952	ß	1413	1300								
	1406	A	447	446			cont	MB				
	1	В	14/13	1389								
10/3/03	1003	A	447	470		Ye,s	Init	MB				
		B	1413	1280								
	1357	A	447	440			cent_	MB				
		B	1413	1399								
	1816	Д	447	447				1				
		C	1417	1401				J				
	:											
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INSTRUMENT (MAKE/M	MODEL#) OAKT	TON 10 IN	STRUMENT	r# 40453
PARAMETER: [check c	nly one]			
☐ TEMPERATURE	CONDUCTIVITY	☐ SALINITY	₩ pH	ORP
TURBIDITY	RESIDUAL CL	□ 00	$\square$ OTHER $_$	
STANDARDS: (Specify the values, and the date the stand	ne type(s) of standards used dards were prepared or pun	d for calibration, the on chased]	gin of the stand	dards, the standard
Standard A 4, 0	<u> </u>		_	
Standard 8	·		_	
Standard C 10 C	ר			

Stand	ard C	10.0						
DATE (yy/mm/dd)	TIME (hemin)	STD (A. B. C)	STD VALUE	INSTRUMENT RESPONSE	% DEV	CALIBRATED (YES, NO)	TYPE (INIT. CONT)	SAMPLER INITIALS
10/1/03	(114	Д	< c/	4.29	_	105	Fait_	MB
		B	7	6.94				
		۷ .	10	9,99				J
	1537	Α	4	3,99			cont	pr B
		B	_	6,98				
		د .	10	10.04	<u> </u>			1
10/2/03	0955	A	4	4.14			Init.	MB
		p	7	7,10				
		<u> </u>	/0	9.90				. 4
	1410		4	4.04		<u> </u>	cont	m/3
		B	7	6,99				
		<u> </u>	10	10.02				
10/3/03	1005	A	c/	4.13			Init	MB
		ß	7_	6.94				
		<u> </u>	10	9.99	<u> </u>			
	1359	<u>A</u>	4				cont	mB
		ß	7	7.04	_			_
	<u> </u>	<u></u>	/0	10-03	<u> </u>			
	1820	A	4_	4.01	<u> </u>			
		<u>ρ</u>	7 !	7.04				-
			10	10.1		<u>    </u>	-   	
					1			
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### Florida Department of Environmental Protection GROUNDWATER SAMPLING LOG

							W01-4	-120 1			
NAME:	Festiv	al Pari	<			SITE LOCATION	: Orla	-6			
WELL i				SAMPL	EID: [= f	0.03-0	3-001		DATE: 10	18/03	
	PURGING DATA										
WELL	WELL  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER (in):  OLAMETER										
1 WELL	TER (in): VOLUME (da	7 1) = (TOTAL WE	17930 117930 13	+ (ft): - OEPTዝ T			WATER (ft	5/12	CAPAC	ITY (gavft): ! 91,6 04,7	,66
		=( 190				)× 16		= 91.6	(1)47	11,000	- 22.9
PÜRGE			Der Ent	DUDGE			PURGE		TOTA	LVOL	
METHO	OD: Dedica		PURGE	DEPTH	DAT:07		ENDED A	DISSOLVED	PURG	ED (gal):	
TIME	PURGED (gal)	VOLUME PURGED (gal)	(gpm)	WATER (ft)	ρН	TEMP. (°C)	COND. (µmhos)	OXYGEN (mg/L)	TURBIDITY (NTUs)	COLOR	ODOR
0930	1	91.6	167	51.3	7.87	24.4	310	1.03	2.69	Clear	None
1022	1 1/4	114.6	:44		7.75	24.6	322	0.85	2.46		
1114	11/2	137.6	,44		7.67	24.8	334	0.60	4.45		
1207	13/4	60.6	143	V	7,53	24,8	328	0.29	4.56		
		1					<u>,                                      </u>		<u> </u>	,	
	1				_	!					<u> </u>
						<u> </u>	ĺ		_		
	-			-							
	<u> </u>									_	
<u>-LL</u> C	 APACITY (Gal	lons per Foot):	0.75" = 0.0	)2; 1" = 0.0	)4; 1.25° =	0.06; 2" =	0.16; 3" =	0.37; 4" = 0.65	5; 5 = 1.02; 6	* = 1.47; 12	2" = 5.88
						LING DA			<u></u>		
	D BY (PRINT)	)/ , ,			SA	MPLER(S)					
AFFILIA		Dodan	se =	Assoc	SI	GNATURE(	S) Mil	1. Bu	>		
SAMPLI		Purg				MPUNG ITIATED AT	•		SAMPLING ENDED AT:	134.	5
	ECONTAMINA	ATION: Y	N	FIEL	D-FILTERE	:D: Y	( Q		DUPLICATE:	$\overline{\mathcal{Y}}$	AL P
	SAMPLE COL			SA	MPLE PRE	SERVATIO	N			4114114616	
NO.	SPECIFICA MATERIAL	VOLUME		SERVATIVE		AL VOLUM		AL	AND/OR	ANALYSIS METHOD	
110.	CODE		+-	USED	ADDEI	O IN FIELD	(mL) pl	H			· · ·
					****						
i											
-	<u> </u>										
1							i				
-					İ						
1					j						
i						-					
	1				]		i				
REMARK	(5:		٧	Pipe M5 N5D		51 dis	mall but scharge f	Som well	pained in	water c	oloum
AAATEON	V 60056:	AMPER C			CLASS: 1	35 - 00LV		0 - OTUED	(COECIEV)		

NOTE: The above do not constitute all of the information required by Chapter 62-160, F.A.C.

ORP

Revision Date: January 1, 2002

### Florida Department of Environmental Protection GROUNDWATER SAMPLING LOG

SITE NAME: /	Fostiu	al Par	1			LOCATIO	N: 0/	Kindy,	EC		
WELL NO				SAMPL	E ID:	FP-03.	03-0	,		0/10/	12
					PUF	RGING D	ATA		<del>-</del>	<i>, ,</i>	
WELL	(9 (in):	11.	TOTA	LWELL	190		TATIC DEP		PS WELL	CITY (gal/ft):	66
1 WELL V	OLUME (gai)	= (TOTAL WE	LL DEPTH			R) X WELL	CAPACITY	≂	1/4 %	P, 49 = 2	726641
		= ( 190	3	- 52	89	)x , Ü		= 90,49			- 1,7
PURGE METHOD:	Dedica	ter Black		PURGE	DAT: C	0650	PURGE ENDED A	T: 1158		AL VOL GED (gai):	
TIME	VOLUME PURGED	CUMUL VOLUME PURGED (gal)	PURGE RATE (gpm)	DEPTH TO WATER (ft)	ρН	TEMP.	COND.	OISSOLVED OXYGEN (mg/L)			ODOR
0925 1		90.5	164		7.80	124.6	1473	11.12	1/,53	Clear	Ware
1014	11/4	113.5	.47		7,56	124,7	1475	1.08	10.86	1 1	1 }
1107	11/2	136.5	.43	53.1	7.44	124.9	1963	0.76	1.09		i
1156	13/4	159,5	,47	53,051	7,38	24,9	:455	0.59	1,02	! [	ι
						1			<u> </u>	<u> </u>	į
						<u>}</u>	:		<u>i</u>		;
		<u> </u>				!	·		<del> </del>	1	
		i <u> </u>				<del></del>	: !		<u> </u>		
- ;	_					i	. !			<u>                                     </u>	
NELL CAP	ACITY (Gallo	ons per Fcot);	0.75 = 0.0	1" = 0.04	1.25	= 0.06; 2	= 0.16; 3° =	0.37: 4" = 0.6	5: 5" = 1.02; 6	6" = 1.47: 12	= 5.88
					SAME	LING DA	<b>A</b> TA				
SAMPLED	BY (PRINT)					AMPLER(S)		1.Bo			
SAMPLING	$\mathcal{O}$	odarse			!	AMPLING			SAMPLING		
METHOD(S	- <del>//</del>			INITIATED AT: 12/0 ENDED AT: 123				1230			
	ONTAMINAT		) N	FIELD	-FILTER	EO: Y		<u>'</u>	OUPLICATE;	Ý	
	SPECIFICAT				SAMPLE PRESERVATION INTENDED ANALYSIS						
MIC 1	CODE	VOLUME		SERVATIVE USED		TAL VOLUM D IN FIELD			AND/OR	METHOD	
	•										
									·		
							1	1			
					1		:	1			
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			<del> </del>		!		·	<u> </u>			
	i	<u> </u>			<u>'</u>						
<del>- '-</del>	1		1		;		·				
<del></del>			<u> </u>					1			
REMARKS.	Small hall	les entrain	ed :	who cale	الم حريا	:scharas	d P	1110/1	_,		
	<i>ק פיטורו</i> ון אייקיגע	tes gatters	/ > 0	~~~ (01	- J - 1 - V	J.	. , , , , ,	WEI			
MATERINI	CODES 10	- MASS CI	188 CC	= (! = 10 0	1 455	DE = 00125	ביוב	0 = OTHER (	CBEC.EV		
THAT CHINE	JUCS AC	- VINIOE'S OF	-,00. CG	525,10	_ ,00.	5		ט - טוחכא (	OF COIL ()		

Revision Date January , 2002

NOTE: The above do not constitute all of the information required by Chapter 52-160, F.A.C.

### Florida Department of Environmental Protection GROUNDWATER SAMPLING LOG

ĪΈ	Festiv	al Parl					LOCATIO	N' . O	lando 1	Ę(.			
WELL NO						.E ID: 🚁		3-006			0/9/03		<del>;</del>
WEELING	mw-	9					RGING D				0/9/03	<u> </u>	!
WELL		41.	TOT	ÃL WE	<u>.                                    </u>			STATIC DEP	TH ~				<del></del> ,
DIAMETE	-₩ /i/n).	= (TOTAL WE	DEP	TH (ft):		190	DI Y 14/611	CARACITY	n): 54,1		CITY (gal/ft):		
1 WELL	OLUME (gai)			H - DI		4.1	,	_	091	9 ( )	4 - 22,6	EARI	1
PURGE		= ( 190		_   PU	RGE	(	)x , (	PURGE		TOTA	AL VOL		-
METHOD	Dedicates	Bladder	PURGE		TIATEI PTH	DAT: O	702	ENDED A	_	PUR	GED (gal):		
TIME	PURGED (gal)	VOLUME PURGED (gal)	RATE (gpm)	W	TO ATER (ft)	ρΗ	TEMP (°C)	COND. (µmhas)	DISSOLVED OXYGEN (mg/L)	TURBIDITY (NTUs)	COLOR	ODOR	ORI
1042	1	80	.44	54.	3	7.95	25.0	1360	1,89	0.59	clear	None	- /3
1129	11/2	112	,47			7.93	25.0	1364	1,50	0.26	] ]		-148
1206	114	134	[b] 7			7.84	24.8	368	0.83	10.20	1	1	-17/
130 3!	13/4	154	147		,	7.81	124.8	368	10.54	0.19	!	1	- 185
								i				į	1,
							!	:					į
					!			1	1		1	į	<u>:</u>
				<u> </u>				1	<u></u>		<u> </u>		
				ļ <u>.</u>	!		<u> </u>	<u> </u>	<u> </u>				
<u> </u>			- 251	100	!	4. 4.05*	T 0 00 00				}		<u>!</u>
ELL CAF	PACITY (Gaile	ons per Foot):	0.75 = 0	0.02;	= 0.0		= 0.06; <u>2</u> PLING D		= 0.37; 4" = 0.69	5; 5" = 1.02;	5° = 1.47; 12	5.88	<del>-</del>
SAMOLED	8Y (PRINT)						SAMPLER(S						_
AFFILIATIO		odarse					SIGNATURE		ike Bur				
SAMPLING METHOD(S	3 0						SAMPLING NITLATED A	T: <u>/3/</u>	<u> </u>	SAMPLING ENDED AT:	/330	l'	İ
FIELD DEC	CONTAMINAT	ion: 6	) N		FIELL	O-FILTER	ED:	Y Ø	,	DUPLICATE:	Y	80	
\$,	AMPLE CON				SA	MPLE PR	ESERVATI	ON		INTENDED	ANALYSIS		
NO.	TATERIAL	VOLUME	PR	ESER\ USE	ZATIVE D		TAL VOLU		IAL H	AND/OR METHOD			
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- 1													1
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<u>:</u>			1			!		!	_ i				
;								!					
			<u> </u>			-			!				
- :			1			!		:	i				
:						:		. !	<u>i</u>				
: REMARKS.			i			<u> </u>							
RENIARAS.													
MATERIAL	CODES. AC	G = AMBER GL	ASS. (	G = C	LEAR (	GLASS.	5E = 3CF.	'ETHYLENE	. 0 = OTHER	(SPEC:FY)			
NOTE: T	he above	do not cons	stitute	all of	the in	format	ion requi	red by Ch	napter 62-160	), F.A.C.			

Form FD 9000-14

Revision Date: Januar)10952602

### Florida Department of Environmental Protection GROUNDWATER SAMPLING LOG

ME:	Festiva	d Pari	Ł	_		OCATION:		ando,	FL			
ELL NO	: North	Re Chav	ge well	SAMPL	EID: FI	D-03-	-03-0	200	DATE: / (	108/0	<u>3</u>	
					PURC	SING DA						
AMETE WELLV	R (in): OLUME (gel)	NA.	TOTAL DEPTH	(ft): /	A OWATER	TO	ATIC DEPT WATER (II APACITY =	x /V/H	CAPAC	TY (gal/ft):	NA	
A	14	= (		_		) X	2					
RGE	Diaphro	in Puny	P	PURGE	DAT: /	233	PURGE ENDED A	r:		LVÖL SED (gal):		
TME	VOLUME PURGED (gal)	CUMUL. VOLUME PURGED	PURGE RATE (gpm)	DEPTH TO WATER (ft)	рН	тем₽. (°С)	COND. (µmhas)	DISSOLVE OXYGEN (mg/L)		COLOR	ODOR	
233	Initi	(gal)	0.7	NA			-		<u></u>	dear	NOW	
304	NA	10.5	MA	NA	6111	27.4	197	1,29	3,58	Clear	Rone	
								· -				
										ļ		
ELL CA	 PACITY (Gali	ons per Foot):	0.75" = 0.	02; 1" = 0.0	14; 1. <b>2</b> 5*:	* 0.06; 2°:	 = 0.16; 3° •	0.37; 4"=1	0.65; 5" = 1.02;	6" = 1.47; 1:	2" = 5.88	
				-		LING D						
MPLE	DBY (PRINT)					AMPLER(S		-Bu		-		
MPLIN	<u> </u>	Codurse			8	AMPLING	17	05	SAMPLING	132	5	
ETHOD ELD DE	(5): Diapi		Ž N	FIEL	D-PILTÉR	IMATED A	<u>1: ( ) (</u> Y ( )	<u>)</u>	DUPLICATE		NP	
_	SAMPLE CON	ITAINER				ESERVATION	DIN .		(APPENDE			
0, 1	SPECIFICA MATERIAL	VOLUME	PRI	SERVATIV	E TÓ	TAL VOLU	WE F	NAL	INTENDED ANALYSIS AND/OR METHOD			
	CODE			USED	ADDE	D IN FIELD	(WF)	pH		_		
							-				_	
-									<u></u>			
MARK	S:											
MARK	S:											

Earn ED 0000 24

Daga 20 of 20

Davidson Date Langan 1 2002 |



### Chain of Custody Record Record/Work Request

4420 r Undola Point Road Tampa, Florida 33619 (813) 247-2805 • Fax: (813) 248-1537 E-Mail: login@Pelab.com

Company:		Project Name/	Number:			Page t of 1								
CH2M H	: 1/			Festival Park 167752						DEP Form #: 62-770.9	DEP Form #: 62-770.900(2)			
Address:		3	2801	Project Manag		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,				Form Title: Chain of C		ord		
225 E. Robinson	54. Suite	505 01	and FC.	Alan	AKens				IQ.	Effective Date: Septem				
Phone: 407-423-003	Fax:		1000	Purchase Orde				_		FDEP Facility No.				
Print Names(s) / Affiliation							Preserva	tives (see	codes)	Project Name:				
Mike Burns / Noda	C 5 8									Sampling CompQAP No:				
Sampler(s) Signature(s)			<del>                                     </del>	Алају	ses Reque	sted	Approval Date:							
Milpo										REQUESTED DI	JE DATE			
Item			Grab or	Matrix Number of		1	See	Attached List		/ /				
No. Field ID No.	Date	Time	Composite	1 1 11 11 11 11 11	Containers					Remarks	Li	ab. No.		
FP-03-03-001	10/8/03	1345	Grah	GW	26									
FP-03-03-002	11	1325	1											
FP-03-03-003		1400								Dupe	-			
FP-03-03-004		1415								ms				
FP.03.03.005		1445		1						msDupe				
				_ N = 550	<u> </u>					1772500				
				1										
			100	1										
		1				-								
Shipment M	lethod F.	ed X	1		130	← Tol	al Number o	of Contain	ers			-		
	√ia:	LU M	Item Nos.	Relinquish	ed by / Affiliat		Date	Time	-	ed by / Affiliation	Date	Time		
	√ia.			Mil Bur			10/8/03				T			
Additional Comments:				MAG POUR	70000	, , ,	770103	10			1			
			-		***		i.				1			
											-			
									,		1	-		
			C	ooler No. (s) /	Temperature(s)	(C)		Sa	mpling Kit No.	Equipment	ID No	_		
				00101 110. (3) 1	remperature(s)	(0)		- Ja	inpling Rit No.	Equipment	10 10.			
MATRIX CODES: A = A	ir GW -	Groundwat	er SE-S	ediment SO	- Soil SW	- Surface	e Water V	V - Water	(Blanks) O =	Other (specify)	097			
PRESERVATION CODES:														
TRESERVATION CODES.	Herryaro	cinoric acid	T ICC 1 -	ice only	- Mulic acid +	5	- Sustaine a	TICE	o - Other (spec	.11 y )				

# PEL Làboratories, Inc.

### Chain of Custody Record Record/Work Request

4420 Fendola Point Road Tampa, Florida 33619 (813) 247-2805 • Fax: (813) 248-1537 E-Mail: login@Pelab.com

Com	Company: Project Name/Number:							-						Page / 1 c	
1 '	· -	}										$\vdash$		,	<u>л</u>
	CH2M Hil	<u> </u>			Project Marca	1 Park 1	677	<u>5' Z</u>					DEP Form #: 62-770.90		
1	ess: Scite 505				Project Manag								Form Title: Chain of C		
22	5E. Robinson 5 E: 407. 423.0030	ti Orhan	6 FC. 3.	2801	AI	an Aike	ens		_				Effective Date: Septem	ber 23, 199	<u> </u>
Phon	e: 407. 423.0030	Fax:	40		Purchase Orde	er:	,			FDEP Facility No.					
	Names(s) / Affiliation	,					$\vdash$	Prese:	rvatives (s	see codes	<del>}</del>	_	Project Name:		
11	ike Burns /	Vodars							2.5				Sampling CompQAF	'No:	
Samp	Mike Burns / Nodarse Sampler(s) Signature(s)						<u> </u>	An	alyses Re	quested			Approval Date:		
	Mit Bo						]						REQUESTED DI	JE DATE	
Item		Sai	mpled	Grab or	Matrix	Number of		5e €	Alta	ched			1	/	
No.	Field ID No.	Date	Time	Composite	e (see codes)	Containers							Remarks	L.	ab. No,
	FP-03-03-006	10/9/03	1336	6196	GW	26									
	Tript Temp Muni	k)													
			1												
	12		17				П								
													7.		
										1					- Carlos
													2		
														66	
	Shipment N	 1ethod		-		28	<b>←</b> T	otal Numbe	er of Con	ainers	-!!-	_		_	
Out:		Via: FED,		Item Nos. 1	Relinguish	ned by / Affiliati	<u> </u>	Dat			Acce	nted b	y / Affiliation	Date	Time
		Via				Nodars		10/4/		T	71000	pico	<i>y</i> , , , , , , , , , , , , , , , , , , ,	1	Time
	tional Comments:	***	196		Mul Bun	[Vodar]	€	70/9/		_					_
No.	Tronal Collins				<del></del>				_					-	
		9									******		***	+	
	****					T	(0)		_		. Viv No			ID Va	
					JOOIET INO. (S) /	Temperature(s)	(C)			Sainplin	g Kit No.		Equipment	ID No.	
26.40	nu coner						0. 1	11/	117	· (D)			10	98	
-	RIX CODES: $A = A$		Groundwat			Soil SW					0		r (specify) **		
PRES	SERVATION CODES:	H-Hydro	chloric acid	+ ice I =	Ice only N	= Nitric acid + i	ice S	S = Sulfuri	c acid + io	e 0 =	Other (sp	ecify)			



# Chain of Custody Record Record/Work Request

4420 r endola Point Road Tampa, Florida 33619 (813) 247-2805 • Fax: (813) 248-1537 E-Mail: login@Pelab.com

Project Name/Number: Page 1 of / Company: CH2M HIII Festival Park _ 16775Z DEP Form #: 62-770.900(2) Project Manager: Address: Form Title: Chain of Custody Record Alan Aiken 225 E. Robinson St. Suite 505 Ortalo, FC 32801 Effective Date: September 23, 1997 FDEP Facility No. Purchase Order: Phone: 407-423-0030 Fax: Preservatives (see codes) Print Names(s) / Affiliation Project Name: Mike Burns / Nodgrse Sampling CompQAP No: Sampler(s) Signature(s) Analyses Requested Approval Date: REQUESTED DUE DATE Mik But Ser Attached / Sampled Grab or Matrix Number of Item Unpreserved VOC's Date Time Composite (see codes) Containers No. Field ID No. Valido 3 1230 26 FP-03-03-007 Grab GW is 7 Days, analyze Tript Temp blank only 1/5/3 with 110 hendspace 31 Total Number of Containers 28 Shipment Method Item Nos. Relinquished by / Affiliations Date Time Accepted by / Affiliation Via: Fed X Date Time Out: Lodgese Returned: Via. Milbu 10/10/03 1700 Additional Comments: Cooler No. (s) / Temperature(s) (C) Sampling Kit No. Equipment ID No. SE = Sediment SO = Soil SW = Surface. Water W = Water (Blanks) O = Other (specify) 1099 MATRIX CODES: A = AirGW = Groundwater PRESERVATION CODES: H-Hydrochloric acid + ice 1 = 1ce only N = Nitric acid + ice S = Sulfuric acid + ice O = Other (specify)

### FIELD EQUIPMENT CALIBRATION LOG

						SHEET: /	OF /							
DATE: 10/00/03	PROJECT NAME:	Festiva	1 Paul	K		PROJECT NO:								
		•												
EQUIPMENT: WTW Multi	lina P3			SERIAL NO:		81552054								
ACTUAL TUAS		PERFORME	DBY: Text	sid M.	Cattery	-								
(2	30		pН	7 7 7		CONDUCTIVITY								
CALIDDATION CTANIGACI	DC HCCO.	4.00		10.00										
CALIBRATION STANDAR		4.00	7.00	10.00	100.5 us/cm	1413 us/cm	US/cm							
iv = -58,6	Lot #	2242	2170	3010	RKT187C/1	RVH177AJ1								
-16ml	Expiration	8/31/2004	6/30/2004	1/31/2004	11/25/2003	2/15/2004								
Cal Accepted														
CALIBRATION READINGS	LOG:	pH 4.00	pH 7.00	pH 10.08	100,5 цз/ст	1413 us/cm	us/cm ⁴							
	Before Cal.	4,02	7.00		ĺ	1428								
Ì	After Cal.	4,00	7,00		<del></del>	1411								
		4.01	646		109	1413								
OALIBOATION TECHNIO	IE/EDEOLIENCY:		PRIOR TO US		AFTER USE		EACH SAMPLE							
CALIBRATION TECHNIQU	JE/FREQUENCT.	ا لمحل	טו אטואי	5 9	L AFTER USE									
_							LOCATION							
OTHER (S	PECIFY)													
			_	_										
_				<u> </u>										
EQUIPMENT: WTW Oxl:	330			SERIAL NO:		260001								
ACTUAL TIME: 1250		PERFORME	DBY: D	MC										
CALIBRATIONSTANDAR	) A	ir Sa	twater	CALIBRATION STANDARDS USED: Air Saturation										
	/ 1	-	,											
	/ 1		,	•										
		·												
CALIBRATION TECHNIQU		≅ F	PRIOR TO US		AFTER USE		EACH SAMPLE							
	JE/FREQUENCY;	<u> </u>			AFTER USE		EACH SAMPLE							
	JE/FREQUENCY;	₩ F			AFTER USE									
	JE/FREQUENCY;	∑ F			AFTER USE									
DE OTHER (S	DEFREQUENCY: PECIFY) Maxi	<u> </u>			AFTER USE									
	DEFREQUENCY: PECIFY) Maxi	,	PRIOR TO US		AFTER USE									
DE OTHER (S	DEFREQUENCY: PECIFY) Maxi	Time	PRIOR TO US		AFTER USE									
DE OTHER (S	DEFREQUENCY: PECIFY) Maxi	Time Temp°C	1250 3211		AFTER USE									
DE OTHER (S	DEFREQUENCY: PECIFY) Maxi	Time	PRIOR TO US		AFTER USE									
DE OTHER (S	DEFREQUENCY: PECIFY) Maxi	Time Temp°C	1250 3211		AFTER USE									
DE OTHER (S	DEFREQUENCY: PECIFY) Maxi	Time Temp°C	1250 3211		AFTER USE									
POTHER (S  4 100  REMARKS/CORRECTIVE	DE/FREQUENCY:  PECIFY)  MOX  ACTION:	Time Temp°C Sat	1250 3211 0.70	SERIAL NO:	AFTER USE	907173								
TE OTHER (S  4 liven	DE/FREQUENCY:  PECIFY)  MOX  ACTION:	Time Temp°C Sat	1250 3211 0.70	SE C	AFTER USE									
TE OTHER (S  4 liv  REMARKS/CORRECTIVE	DE/FREQUENCY:  PECIFY)  Max,  ACTION:	Time Temp°C Sat.	1250 3211 0.70	SERIAL NO:	AFTER USE									
EQUIPMENT: HF Scientification 123	DE/FREQUENCY:  PECIFY)  Max,  ACTION:	Time Temp°C Sat.	1250 3211 0.70	SERIAL NO:	AFTER USE									
EQUIPMENT: HF Scientification 123	DE/FREQUENCY:  PECIFY)  Max,  ACTION:	Time Temp®C Sat.  Sat.  imeter PERFORME Standard	(250) 3211 0.70	SERIAL NO:	AFTER USE									
EQUIPMENT: HF Scientification 123	DE/FREQUENCY:  PECIFY)  MOLK:  ACTION:  RC DRT-15CE Turbid  DS USED:	Time Temp°C Sat.  Sat.  Imeter PERFORME Standard Lot # Expiration	7250 321 0.70 DBY: D 1.0 ntu A2340	SERIAL NO:  20.0 ritu  A3113  Apr. '05	AFTER USE									
EQUIPMENT: HF Scientificactual time: 123	DE/FREQUENCY:  PECIFY)  MOLK:  ACTION:  RC DRT-15CE Turbid  DS USED:	Time Temp°C Sat.  Sat.  FERFORME Standard Lot # Expiration	7250 321 0.70 DBY: D 1.0 ntu A2340 Dec. '04	SERIAL NO:  20.0 ritu  A3113  Apr. '05		907173	LOCATION							
EQUIPMENT: HF Scientificactual time: 123	DE/FREQUENCY:  PECIFY)  MOLK,  ACTION:  THE DRT-15CE Turbid  DO USED:  JE/FREQUENCY:	Time Temp°C Sat.  Sat.  FERFORME Standard Lot # Expiration	7250 321 0.70 DBY: D 1.0 ntu A2340 Dec. '04	SERIAL NO:  20.0 ritu  A3113  Apr. '05		907173	EACH SAMPLE							
EQUIPMENT: HF ScientificaCTUAL TIME: /23 CALIBRATION TECHNIQUE	DE/FREQUENCY:  PECIFY)  MOLK,  ACTION:  THE DRT-15CE Turbid  DO USED:  JE/FREQUENCY:	Time Temp°C Sat.  Sat.  FERFORME Standard Lot # Expiration	7250 321 0.70 DBY: D 1.0 ntu A2340 Dec. '04	SERIAL NO:  20.0 ritu  A3113  Apr. '05	AFTER USE	907173	EACH SAMPLE							
EQUIPMENT: HF ScientificaCTUAL TIME: /23 CALIBRATION TECHNIQUE	JE/FREQUENCY:  PECIFY)  ACTION:  IC DRT-15CE Turbid  DS USED:  JE/FREQUENCY:  PECIFY)	Time Temp°C Sat.  Sat.  FERFORME Standard Lot # Expiration	7250 3211 0.70 DBY: 1 1.0 ntu A2340 Dec. '04 PRIOR TO US	SERIAL NO:  20.0 ritu  A3113  Apr. '05	AFTER USE	907173	EACH SAMPLE							
EQUIPMENT: HF ScientificaCTUAL TIME: /23 CALIBRATION STANDAR CALIBRATION TECHNIQUE  OTHER (S	JE/FREQUENCY:  PECIFY)  ACTION:  IC DRT-15CE Turbid  DS USED:  JE/FREQUENCY:  PECIFY)	Time Temp®C Sat.  Sat.  FERFORME Standard Lot # Expiration	7250 3211 0.70 DBY: D 1.0 ntu A2340 Dec. '04	SERIAL NO:  20.0 ritu  A3113  Apr. '05	AFTER USE	907173	EACH SAMPLE							
EQUIPMENT: HF ScientificaCTUAL TIME: /23 CALIBRATION STANDAR CALIBRATION TECHNIQUE  OTHER (S	JE/FREQUENCY:  PECIFY)  ACTION:  IC DRT-15CE Turbid  DS USED:  JE/FREQUENCY:  PECIFY)	Time Temp°C Sat.  Sat.  FERFORME Standard Lot # Expiration	7250 3211 0.70 DBY: 1 1.0 ntu A2340 Dec. '04 PRIOR TO US	SERIAL NO:  20.0 ritu  A3113  Apr. '05	AFTER USE	907173	EACH SAMPLE							

INSTRUMENT (MAKE/N	ODEL#) OAKTO	IN ID IN	ISTRUMENT #	40453
PARAMETER: [check o				
☐ TEMPERATURE ☐ TURBIDITY	CONDUCTIVITY	☐ SALINITY	D PH	ORP
STANDARDS: (Specify the values, and the date the stand	ne type(s) of standards used lards were prepared or purc	l for calibration, the or hased]	igin of the standard	s, the standard
Standard A 4.0			_	
Standard B7, o			_	

ard C	10.0			_			
TIME (hrimin)	STD (A. B. C)	STD VALUE	INSTRUMENT RESPONSE	% DEV	(YES, NO)	(INIT, CONT)	SAMPLER INITIALS
8900	A	< 4	4.16		405	Inil	MB
	B	7	6.99				
	c	10	10,01				
1300	A	4	4.02			cont	pp
	B	5	7.0			`	
	<u> </u>	10	10,83				_
1705	A	4	4,01			-	
	B	-	7.0	1			
	C	10	10.0				
1025	Α					Ini 6	MB _
	β	7					
	<u>_</u>	10	9,77				
1330	_A	c/	4.01		<u> </u>	,	
	ß	ר	7.0			Conl	mr ·
	С	10	10.00				
0900	A	4	4.03			Init	MIS
	B	> _	7.04				
	_c	10	9,88		\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		
1300	A	4	4.02	_		cont	ms
	B	7	7.0				
	<u></u>	10	10.01			<u> </u>	<u>_</u>
				<u> </u>		·	
	1300 1300	TIME (hr.min) (A.B.C)  B 9 00 A  B  C  1300 A  C  1705 A  B  C  1025 A  B  C  1330 A  B  C  0900 A  B  C  1330 A  B  C  1330 A  B  C  1330 A  B  C  1330 A	TIME (hr.min) (A. B. C) STD VALUE  8900 A 4 4  C 10  1300 A 4  C 10  1705 A 4  D 7  C 10  1025 A 4  D 7  C 10  1330 A 6  C 10  1330 A 6  C 10  0900 A 6  C 10  0900 A 7  C 10  0900 A 7  C 10  0900 A 7  C 10  0900 A 7  C 10  0900 A 7  C 10  0900 A 7  C 10  0900 A 7	TIME (hr:min) (A.B.C) STD INSTRUMENT RESPONSE  8900 A 4 4 4.16  B 7 6.99  C 10 10,01  1300 A 4 4 4.02  B 7 7.0  C 10 10,83  1705 A 4 4 4.01  B 7 7.0  C 10 10.8  1025 A 4 4 4.04  1025 A 4 9.04  1030 A 7.09  C 10 9,77  1330 A 7 7.09  C 10 10.00  0902 A 4 9.03  B 7 7.09  C 10 9,88  1300 A 9 7 7.09  C 10 9,88  1300 A 9 7 7.09	TIME (A.B.C) STD (INSTRUMENT RESPONSE % DEV  8900 A 4 4 4 4.16  B 7 6.99  C 10 10.01  1300 A 4 4 4.01  B 7 7.0  C 10 10.83  1705 A 4 4 4.01  B 7 7.0  C 10 10.0  C 10 10.0  C 10 9,77  C 10 9,77  1330 A 4 4 4.04  B 7 7.0  C 10 10.00  OPUDE A 4 4 4.03  B 7 7.04  C 10 9,88  I 7 7.04  C 10 9,88  I 7 7.04  C 10 9,88  I 7 7.0	TIME (hr.min) (A.B.C) STD (NSTRUMENT RESPONSE) % DEV (YES.NO)  8900 A 4 4 4 4.16	TIME (A.B.C) STD VALUE (A.B.C) VALUE RESPONSE % DEV (YES, NO) (INT, CONT)  8900 A 4 4 4.16

of

NETDIB	IENT /N	∧ KÆMOC	)EI #/	OAK TON	10	INSTRUM	ient# 40	2453
				<u> </u>	70_	Morrion		
	IER: [C.	heck only >=		IVITY S	AL INITY	∏рН	ORP	
	BIDITY	-	RESIDUAL				IER	
_		_		ndards used for c	alibration,	the origin of the	standards, the	standard
values, and	the date th	ne standards	were prep	ared or purchased	<i>d]</i>	-		
Stand	ard A	447						
Standa	ard B	14/3					·	
Standa							7.05	CAUGICO
DATE (yy/mm/od)	TIME (hr:min)	STD (A. B. C)	STD VALUE	INSTRUMENT RESPONSE	% DEV	(YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS
1	0905	A	447	487	_	Yes	Jait	MB
	İ	B	14/3	1080	<u> </u>		<u> </u>	
	1304	A	4417	447	1		cont	
		B	1413	1356				
	1706	A	447	4/4/6				
		B	14/12	1358				
10/4/03	1628	A	4117	454			Init	MB _
1	1-40	B	1413	1354				
-	1332	A	(147	446			Con!	~0
1	7330	ß	1413	1396				
10/10/03	0904	A	447	446			Init	mß
1	0_13 /	B	14/2	1362				)
_	1303	A	447	447	Ì		cont	mB
_		B	1413	1368				
-	İ					<del></del>		1
		<u>.                                    </u>	,		J.			
	-							
		-						
	<del>                                     </del>			-				
	1	l	1			l		

, <del>"</del> " — ", — —
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INSTRUM	ENT (M	AKE/MOD	EL#)	YSI 5.	5	INSTRUM	IENT # <u>9</u> (	MO178	4
PARAME	TER: [c	heck only	опе]						
□тем	PERATU	RE 🗆	CONDUCT		ALINITY				
☐ TUR		_	RESIDUAL	`			ER	<del></del>	
values, and	the date ti	ne standards	were prepa	ndards used for ca ared or purchased	1]	the origin of the	standards, the	standard	
Standa	ard A	100%	Auto	Calibrati	01				
Standa	ard B _								
Standa	ard C								
DATE (yy/mm/dd)	TIME (bcmin)	STD (A, B, C)	STD VALUE	INSTRUMENT RESPONSE	% DEV	CALIBRATED (YES, NO)	TYPE (INIT. CONT)	SAMPLER INITIALS	
10/8/03	0908	A	100%	105		160	Init	MI	
	1306	A	100%	98%		\ \ _	cont	1715	
	1708	A	100%	99%			. )		
1 /	1030	А	100%	94.6%			Init	MB	
	1335	A	100%	98.4			Cont	ms	
10/10/03	0906	A	10%	106.4%		\	Init	MIS	
<del>, , , , , , , , , , , , , , , , , , , </del>	1305	A _	100%	100.7%			cont	MB	
	7.5.5.7								
									-
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			i -						•
				<del></del>					
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	!								
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INCTOLIN	ENT (NA	AKE/MOD	티 #/	YST =	55	INSTRUM	IENT # 960	MOITRA
		heck only		, <u> </u>		.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		, 5 , 10
	IPERATUI		CONDUCT	IVITY 🗀 S	SALINITY	∏рН	ORP	
, ,	BIDITY		RESIDUAL		00	□ OTH	IER	
STANDA	RDS: [S	pecify the typ	e(s) of star	ndards used for o	alibration, d1	the origin of the	standards, the	standard
		21.7						
	_							
Stand	_							
DATE (yy/mm/dd)	TIME (hcmin)	STD (A, B, C)	STD	INSTRUMENT RESPONSE	% DEV	CALIBRATED (YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS
10/8/07	0908	A	21.7	21.7		Tes	Juit	MB
, , , , ,	1306	A	25,7	25,1		1	cont	mn
1	1708	A	262	26.2				)
10/9/03	1030	A	23.9	23.9			In:+	mD
1	1335	A	25.8	25,8			cent	jn p
10/10/03	0906	A	23.7	23.7			Init	mA
7	1305	A	246	24.6			Cont	22
~					_			
_								
						_		
					<u> </u>			
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							<b>-</b>	
				~				
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INSTRUMENT (MAI	KE/MODEL#) HACI	4 2100P	INSTRUMENT # _	<u> </u>
PARAMETER: [che	eck only cne]			
☐ TEMPERATURE	CONDUCTIVITY	☐ SALINITY	□ pH □ 0	RP
YTIQIBRUT X	RESIDUAL CL		OTHER	
STANDARDS: [Spe values, and the date the	cify the type(s) of standards u standards were prepared or p	sed for calibration, th urchased]	e origin of the standards,	the standard
Standard A	6.85			
Standard 8	0.1		<u> </u>	
Standard C 9				

Standa	ard C $_$	799						
DATE (yy/mm/dd)	T(ME (hr.min)	STD (A. B. C)	STD VALUE	INSTRUMENT RESPONSE	% DEV	CALIBRATED (YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS
10/8/03	09/0	A_	6.85	6.95	_	Yes	Isit	MI
		B	60,1	60.1				
		C	494	494		<b>J</b> 1	J	
	1308	$\mathcal{A}_{-}$	6.85	6-95			cost	no
		<i>B</i>	60,1	60.1				
		٠.	494	494		4	0	
	0171	A	6.85	6,94				
		B	60.1	60.1				
		C	494	4.93		1		
10/9/03	1035	A	6.85	4.85			Init	mB
		ß	60,1	60.6				
1		و	494	494		}	)	
	1337	Δ	6.85	6.85			Cont	M/S
		B	(co.1	60.7				
\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		e	494	494				
10/10/03	0910	A	6.85	6,94			Ini!	pnp
		B	60.1	60,4				
		د	1194	494				
	1307	A	6.85	6.87			Cont.	ms
		B	60,1	60,2				
1		c	494	494		1		4
4								

### Florida Department of Environmental Protection GROUNDWATER SAMPLING LOG

SITE NAME: /	Festiv.	al Par	10			LOCATIO	N: Or	kndy,	EC		
WELL NO	- 11		<u>'</u>	SAMPL	E ID:	FR-03-	-03-0			0/10/	03
					Pt	JRGING D	ATA		-		
DIAMETE	T (in)	11.	DEBIL	WELL	190	T	TATIC DEPT O WATER (f	11: 52-8	9 CAPAC	CITY (gal/ft)	: ,66
1 WELL V	OLUME (gai)	= (TOTAL WE	HI 430 15	- DEPTH	rā wa	TER) X WELL	CAPACITY:	1	1/4/ 9		22664/
		= 196	>	- 52	_			= 90,49	1 7050	LVOL	
PURGE METHOD	Dedica	tel Black	Purt	PURGE	DAT:	0650	PURGE ENDED A	T: 1158		SED (gai):	
TIME	PURGED	CUMUL. VOLUME PURGED (gal)	PÜRGE RATE (gpm)	TO WATER (ft)	ρŀ	TEMP	COND. (µmhos)	DISSOLVED OXYGEN (mg/L)	TURBIDITY (NTUs)	COLOR	ODOR
0925		90.5	164	53,01	7.8	0 24.6	1473	1,12	1,53	Clear	Flore
1014	11/4	113.5	.47		7.3	6 24,7	1475	1.08	0.86		i,
107	11/2	136.5	43_	53.(	7,4		1963	0,76	1.09	!	1
1156	13/4	159.5	.47	53,05	7,3	8 249	1455	0.59	1.02	<u> </u>	<u>i</u> [
				_				1	<u> </u>	<u> </u>	1
						<u>!</u>	!	<u> </u>		<u> </u>	
							<u>:</u>				<del>!</del>
							:			<u> </u> 	1 -
							;			<u> </u>	<u> </u>
WELL CAP	PACITY (Galic	ons per Foot):	0.75" = 0.0	2; 1 = 0.0	4; 1,2	25" = 0.06: 2	= 0.16; 3" =	0.37; 4" = 0.65	5; 5° ≈ 1.02: 6	= 1.47;	12" = 5.88
					SAI	MPLING D					
AFFILIATIO	$\mathcal{N}$	odarse				SAMPLER(S SIGNATURE		LBo			
SAMPLING METHOD(		P				SAMPLING INITIATED A	T: 121	10	SAMPLING ENDED AT:	1230	
PIELD DEC	CONTAMINAT	TON:	) N	FIELD	)_F1LT1	ERED:	CSC		DUPLICATE:	Y	(N)
5/	AMPLE CON SPECIFICAT			SAI	WPLE	PRESERVATION	NO.		(AUTTAINED	ANIALVOIG	
NO. M	ATERIAL	VOLUME		ERVATIVE	- 1	TOTAL VOLUM			INTENDED AND/OR		
<del>-</del>	CODE		<del></del>	USED	AU	DED IN FIELD	(mL) pt				<del></del>
					<del>                                     </del>				<del></del>	<del>_</del>	
			1								
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-											
<u> </u>	i						;				
<u>-i</u>		:	1		<u> </u>	_		ĺ			
					<del>!</del>		!				!
					<u>:</u>		i	<u> </u>			
: REMARKS.:	Curry boll	des entrain	-1	10.0	lance	ol charge	1 0	1			
	PMAIL BOBS	uts Entrair	12 8	area (0	IOOM	Street in the	" from	Well			
40.153141	20055	- MBC2 2:	166. 60	- CI ENG 5	11.400	25 - 22111					
						_		O = OTHER (		1106	
OIE: T	ne above d	to not cons	intute all	or the in	torma	ation requir	ed by Cha	apter 62-160	, F.A.C.	1100	

### Florida Department of Environmental Protection GROUNDWATER SAMPLING LOG

AME:	Festiva	1 Park	6			SITE	Orl	ando	, FL		
ELL NO	1 11	Rechair		SAMPL	EID: F	P-03-	-03-0	200	DATE: / C	108/0	5
	100				PUR	GING DA	TA				
AMETE	ER (In):	NA.	DEUTI	WELL I-(ff):	NA	TO	ATIC DEPT	o: /U#	CAPAC	aTY (gal/fi):	NA
VELLY	VOLUME (gel)	= (TOTAL WE	LL DEPTH	- DEPTH T	O WATE	S) X WEIL C	APAGIIY:	2			
^	UH	=(		PURGE		)X	PURGE		TOTA	T. VOL	
FRGE ETHOD	Diaphro			INITIATE	DAT: /	233	ENDED A			3ED (gal);	1
TIME	VÖLÜME PURGED (gal)	CUMUL VOLUME PURGED	PURGE RATE (Optil)	DEPTH TO WATER (fb)	pH	TEMP.	COND. (µmhos)	OXYGI OXYGI	IUKBIDITY	COLOR	ODOR
233	Juiti	(gal)	0.7	NA	-		-			dear	noue
304	NA	10.5	NA	NÀ	6.11	27.4	197	1,2	9 3.58	clear	None
20									-		
			1								
								,			
-											
ELC/	APACITY (Gal	ons per Poot):	0.75* = 0	.02; 1"=0	04; 1.25	= 0.06; 2	= 0.18; 3"	= 0.37; 4°	= 0.65; 5" = 1.02;	8° = 1.47; 1	2 ≈ 5.88
					SAM	PLING D	ATA				
THUAT	D BY (PRINT) NON	Vodarse				SAMPLER(S SIGNATURE		L. Bu			
ETHO!	NG D					SAMPLING INITIATED A	r 13	05	SAMPLING ENDED AT:	132	5
	ECONTAMINA		Ø N	FIE	LD-PILTE			0	DUPLICATE	- Y	P
	SAMPLE CON SPECIFICA	ITAINER		S	AMPLE P	REBERVATE	ON	$\overline{}$		ED ANALYSIS	
О.	MATERIAL CODE	VOLUME	PR	USED		OTAL VOLUMED IN FIELD		INAL pH		RMETHOD	, 
$\rightarrow$											
ı											
+											
					•		i i				
						<del></del>					
								·			
EMARI	<b>(\$</b> :										
MARI	<b>4</b> 5:					· · ·			·		

NOTE: The above do not constitute all of the information required by Chapter 62-160, F.A.C.

Revision Date: January 1, 2002

#### DEP-SOP-001/01

### Florida Department of Environmental Protection GROUNDWATER SAMPLING LOG

	<u></u>					4	wo(-6	- 20-1						
SITE	Festiva	1 Parl	<			SITE	: Orla	nde_						
WELL				SAMPL	EID: FP	-03-0	3-001		DATE	10	18/	03		
						GING D	-1.1							
DIAME	TER (in):	4"	TOTAL DEPTH	(ft):	5	t' '   TO	WATER (fl	1: 57.2	C	VELL APACI	TY (g	aVft):	.60	۵_
1 WEL	L VOLUME (gal)							_	<i>~</i> ,	1/4 9	91,6	G=1	- 22	2.9
PURG	E	=( 19:		PURGE		)X 6	PURGE	91.6	i	TOTAL				
METH	OD: Dedicad	CUMUL	PURGE	DEPTH	D AT:07	<u>02</u>	ENDED A			PU <u>RG</u>	ED (ga	aí):	<del>-</del>	
TIME	PURGED	VOLUME PURGED (gal)	RATE (gpm)	TO WATER (ft)	ρH	TEMP.	COND. (µmhos)	OISSOLVED OXYGEN (mg/L)	TURBI (NT	Js)	co	LOR	O	DOR
0930		91.6	167	51.3	7.87	244	310	1.03	2.6		Clea	1	Non	u
1022	1 1/4	114.6	,44		7.75	24.6	322	0.85	2.4				$\sqcup$	
1114	1//2	137.6	,44	-	7.67	24.8	334	0,60	4.4	_		_		_
1207	3/4	100.6	143	_↓	7,53	24,8	328	७.2९	4.5	6	[		/	
							1							
			<del></del>				1							
	<u> </u>			~										
WELL	CAPACITY (Gaile	ons per Foot):	0.75° = 0.02	2; 1" = 0.0				0.37; 4" = 0.65	5; 5° = 1.	02: 6	= 1.4	7; 12	_= 5.8	8
						LING DA								
AFFILM	ED BY (PRINT). ATION	1/2/2	se 3/	155-5	SI	WIPLER(S) GNATURE		1	>					
SAMPL		7	24 4 1	17300	SA	MPLING	1100	-15ca	SAMPLI			2//		
METHO	DECONTAMINAT	TON: (Y	N	l eret	D-FILTERE	ITIATED AT			ENDED			345		
FIELD	SAMPLE CON		N					<u></u> <u> </u>	DUPLIC	AIE:		<u>(</u> )	MAD)	
	SPECIFICA		DDCC	SA ERVATIVE		SERVATIO				NDED				
NO.	MATÉRIAL CODE	VOLUME		JSED		AL VOLUM D IN FIELD			ANI	D/OR N	ME I KI	שכ		
										<u> </u>				
					+									
			<del></del>		<del></del>						_			
					-			_						<del>-</del>
<del></del> ;		<u> </u>						77						$\dashv$
									-					
										2)				
REMAR	KS:		V	ns ns		di	mail bui scharge t	liber enter from well	rained	in i	lains f	erc	olour	n
MATERI	AL CODES: A	G = AMBER G			GLASS; 1	PE = POLY	ETHYLENE,	0 = OTHER	SPECIFY	<b>'</b> )		_		
	The above											1108		

Form FD 9000-24

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#### DEP-SOP-001/01

## Florida Department of Environmental Protection GROUNDWATER SAMPLING LOG

SITE NAME:	Festiv	al Parla				SITE	10N: 0	rlan	Lo F	۲.		
WELL NO				SAMP	LE ID:	FP-03-	03-000	b		DATE: 10	19/03	
	1.00	/			Pt	IRGING	DATA					
WELL		4"		WELL	19	0	STATIC DE	P(H)	54,1	WELL CAPAC	ITY (gal/ft):	166
1 WELL	ER (In): VOLUME (gai)	= (TOTAL WE	HIGGO TO	- 0€₽TH	TO WA	TER) X WE	LL CAPACIT	Y =		4/5	= 22,6.	
		= ( 190		- <u>.</u>	4.1		حا حا	- 2	39.69			
PURGE	. Dedicated	Bladder	PLANE	PURGE	≦D A <u>T:</u>	0702	PURGE	AT:	305		L VOL (gai):	
NIC STICE	VOLUME	CUMUL. VOLUME	PURGE	DEPTH		TEN	IP. CON		SOLVED	TURBIDITY	COLOR	0000
TIME	(Gal)	PURGED (gal)	(gpm)	WATER (ft)		ر ا	C) (µmho	S) (	CYGEN mg/L)	(NTUs)		OEOR
1042	1	80	.44	54.3	7,9			1 / 8		0.59	le ear	None
1129	1/2	112	:47	<u> </u>	7.9				<u> </u>	0.26	<del>                                     </del>	
1206	114	134	47	}	7.8		~	<u> </u>		0.20	<del>  1</del>	-
130 3	13/4	156	47	<u> </u>	7.81	24.8	368	10,	5 <u>4</u>	0.19	<u> </u>	
	<del> </del>			<u> </u>	1	_ <del>`</del> _		-		<u> </u>		
					<del> </del>	<del></del>		j			<u>'</u>	
	1	<u> </u>			<del></del>	<u> </u>	:	]			İ	
	<del>                                     </del>						i					
							-				]	
WELL CA	PACITY (Gallo	ns per Foot):	0.75 = 0.0	12: 17=0				= 0.37;	4" = 0.65	: 5 = 1.02; 8	5" = 1.47; 12	* = 5,AB
					SAI	MPLING						
SAMPLE! AFFILIAT	OBY (PRINT)	odarse				SAMPLE	JRE(S)	Nike	Bur			
SAMPLIN	- 0	ngo				SAMPUN		10		SAMPLING ENDED AT:	1330	
FIELD DE	CONTAMINAT	non:	D N	FIE	LD-FILT	ERED:	Y	<b>6</b> 0		DUPLICATE:	Y	80
	SAMPLE CON SPECIFICA			s	AMPLE	PRESERVA	ATION			INTENDED	ANALYSIS	
NO.	MATERIAL CODE	VOLUME	PRE	SERVATI USED		TOTAL VO		FINAL pH			METHOD	
<u></u>						_						
								!				
			_				1	1				
												<del></del>
							<u>:</u>					
<u> </u>		<u> </u>	<del></del> -		<del>-</del>				_			
<del>-                                    </del>			<del></del>		i			<del></del>				
1					:		i					~
REMARK	ŝ.											
MATERIA	L CODES: A	G = AMBER G	SLASS: CO	3 = CLEAF	R GLASS	: PE = P(	CLYETHYLE!	NE: 0 =	OTHER (	SPEC:FY)	4400	
NATE: WA	The above	do not cor	stitute a	II of the	inform	nation re	quired by	Chapte	r 62-160	), F.A.C.	<del>- 1109</del>	

FIELD EQUIPM	MENT CALI	BRATIO	N LOG		_		
/ /							OF /
ATE: 10/08/03	PROJECT NAME:	Festiva	Paul			PROJECT NO:	
QUIPMENT: WTW Mut	filne P3			SERIAL NO:		81562054	
ACTUAL TIME:	230	PERFORME	BY: 🖎	id Mi	Cottery	CONDUCTIVITY	
			pH _				
CALIBRATION STANDAR	RDS USED:	4.00	7.00	10.00	100.5 us/cm	1413 us/cm	πε/σω
N=-5816	Lot#	2242	2170	3010	RKT187C/1	RVH177A/1	
-16mV	Expiration	8/31/2004	6/30/2004	1/31/2004	11/25/2003	2/15/2004	
al. Accepted		11.405	-117.00	4U 40 00	100.5 us/cm	1413 us/cm	us/cm
CALIBRATION READING	,	pH 4.00	pH 7.00	pH 10.00	100.5 08/011	1428	daran
	Before Cal.	4,02	7.00			7//	<del></del>
	After Cal,	4.00	7.00		104	1413	
,, in the second second		4101	676	- K	AFTER USE		EACH SAMPLE
CALIBRATION TECHNIC	UE/FREQUENCY:	<u>}</u> ≱4LF	PRIOR TO US	E 9	AFIER USE		LOCATION
OTHER (	SPECIFY)						
EQUIPMENT: WTW Ox	1330			SERIAL NO:		280001	i
ACTUALTIME: 125	D	PERFORME	DBY: D	MC			
CALIBRATION TECHNIC	QUEFREQUENCY:	· · · · · · · · · · · · · · · · · · ·	PRIOR TO US	E [	AFTER USE		EACH SAMPLE
S OTHER	SPECIFY)						LOCATION
REMARKS/CORRECTIV	E ACTION:					7	
		Time	1250			-	
	,		3211			1	
,		Set	0.70				
EQUIPMENT: HF 8den	tific DRT-15CE Turbi	dimeter		SERIAL NO		907173	
ACTUAL TIME: 12	50	PERFORME	DBY:	MC			
CALIBRATION STANDA	RDS USED:	Stendard	1.0 mtu	20,0 mku			
		[G#	A2340	A3113	↓		
CALIBRATION TECHNIC	QUEFREQUENCY:	Expiration	PRIOR TO US	Apr. '05 E	AFTER USE		EACH SAMPLI LOCATION
☐ OTHER	(SPECIFY)				d d		
REMARKS/CORRECTIV	E ACTION:	Standard	1.0nLu	20.0mlu			
		Residing	10				
			110	568			1110
I		1	1	1	1	1	1

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#### FT 1000 General Field Testing and Measurement

INSTRUM	IENT (M	AKE/MOD	)EL#)	HACH 21	00P	INSTRUM	IENT# O	04000.	28774
PARAME	TER: [c	heck anly	one]						
	PERATUR		CONDUCT	<u> </u>	ALINITY	□ pH	☐ ORP		
X TUR	BIDNY		RESIDUAL			_	ER		
values, and	the date th	ne standards	pe(s) of star were prepa	ndards used for ca ared or purchased	alibration, ()	the origin of the	standards, the	standard	
Stand	ard A	6.95							
Stand	ard B					<del>-</del>			
Stand	ard C				<del>- `</del>	1.0411001	TYPE	SAMPLER	
DATE (yy/mm/dd)	TIMÉ (hr.min)	STD (A. B. C)	STO VALUE_	INSTRUMENT RESPONSE	% DEV	CALIBRATED (YES, NO)	(INIT, CONT)	INITIALS	
10/1/03	1106	<u> </u>	8.95	6.95		Yes	Jait,	MO	
		B	59.2	69,1					
		C	486	490				/	
	1530	A	6.95	6.94			cont	MA	
		D	59.3	59,5					
		C	486	486	_				
10/2/03	0945	Α	6,95	6.94			Init	mp_	
	-	B	59,5	60.6					-
		c	486	485					
	1400	A	695	6.96			cont		
		B	59,3	60.0					
- V		e	486	4.86			<b>1</b>		
10/3/03	0955	A	6.95	6.97		725	Init	M/3	
		B	59.3	60,2					٠
$\neg$		د	4/86	489		<u> </u>			
	1350	A _	6.95	6A5			cent	MB	
		B_	59.3	59.6				{	
		e	486	437	,				
	18 80	A	6.95	694				prop	•
	1	<i>b</i>	59.3	51.3					
		2	(180	486					
					_		· · ·		

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#### DEP-SOP-001/01

FT 1000 General Field Testing and Measurement

INSTRUM	MENT (M	IAKE/MOI	DEL#)	YSI	55	INSTRUI	MENT# G	6M0178
		check anly		, —				
_	_			TIVITY	☐ SALINITY	Д рН	☐ ORP	
☐ TU	RBIDITY		] RESIDUA	L CL		□ от:	HER	
STANDA	RDS: (S	Specify the ty	pe(s) of sta	ndards used ared or purch	for calibration,	, the origin of the	e standards, the	standard
		2 4. 7	s were prep	aled Or purch	aseuj			
		27.1		,		_		
	ard C	<u> </u>						
DATE	TIME	STD	STD	INSTRUME		CALIBRATED	TYPE	SAMPLER
(yy/mm/dd)	(hratin)	(A. B. C)	VALUE	RESPONS	E % DEV	(YES, NO)	(INIT. CONT)	INITIALS
10/1/03	1109	A	24.7	24,7	-	125	I.S. +	Ju D
1.1.	1533	A	27.1	27.1			cont	MB
10 2 03	0947	<u> </u>	22.3	22.3		<del>                                     </del>	Trit	MINS
11	1402		25,6	25.6		<del> </del>	Cont	per B
10/5/03	0458	<u> </u>	22.5	22.5		1	<del>Init</del>	pro 13
-	1353	_A	25,1	25.1	-	[ [t ₁	cont	R. B.
	1812	_A	25.3	25.3		<u>                                     </u>		
						, ,		
_								
					,			· ·
			ì					
							· ·	
		,						

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Page	OT .

INSTRUM	MENT (M	IAKE/MOI	DEL#)	YSI S	<u> </u>	INSTRUM	MENT# 94	m0178 A
PARAME	TER: [	check опly	оле]					
	MPERATU RBIDITY			ΠVITY []:			ORP	
values, and	the date t	he standard:	s were prep	ndards used for d ared or purchase	alibration, d]	the origin of the	standards, the	e standard
				to Cal.				
	ard 8 lard C						·	
OATE (yy/mm/dd)	TIME (hṛmin)	STD (A. B. C)_	STD	INSTRUMENT RESPONSE	% DEV	CALIBRATED (YES. NO)	TYPE (INIT, CONT)	SAMPLER
10/1/03	1110	A	100%	99.90/0		155	Init	pr. B
	1534	A	(00%	98,3			cont	MB
10/2/03	0948	A	1000/0	94.2%		ļ	Tuit	MB
	1403	A	,00%	97.6			Cont	por B
10/3/03	0959	A	100 0/0	98.5			Init	14 15
	1355	A	100%	97.4		]	cort	KIE
	1814	Á	125/0	99.4			V	$\downarrow$
					,,			
						,		
							,	
						-		
	:	,						
						j		
		<del></del>	-			-		

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#### NODARSE AND ASSOC DEP-SOP-001/01

#### FT 1000 General Field Testing and Measurement

INSTRUMENT (MAKE/	MODEL#) OAKTO	0N_10_	INSTRUMEN	T# <u>40453</u>					
PARAMETER: [check	only onej								
TEMPERATURE	CONDUCTIVITY	☐ SALINITY	ПоН	ORP					
☐ TURBIDITY	RESIDUAL CL	□ DO	□ ОТНЕЯ ,						
STANDARDS: (Specify the type(s) of standards used for calibration, the origin of the standards, the standard relues, and the date the standards were prepared or purchased)									
Standard A4	17								

04-		11117	, ,	·	•			
		447			-	<del></del>	-	
		1413		-	<u> </u>			
	dard C _	STD	STD	INSTRUMENT		(	1 205	2445
DATE (yy/mm/dd)	TIME (hranin)	(A, B, C)	VALUE	RESPONSE	% DEV	CAUBRATED (YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS
50/1/03	1117	A	447	440		125	Init _	Pro 13
		ß,	1413	1431		\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		(
	1535	A	447	439			cont	MB
		<u>_</u> _	1413	1420				
10/2/03	0951	A	447	489			In: +	pa B
	0982	<i>b</i>	1413	1300				
	1406	A	447	446		]	cont	MB
	1	В	14/13	1389				
10/3/07	1003	A	447	470		40,5	Init	MB
		B	1413	1280				
	1357	A	4/47	4410			cont	mp
		B	11113	1399				
	1816	A	447	447				1
		0	1413	1401			-	
		_						
			j					
				-		-		
	;					`		
	-	-						
		<del></del>						

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#### FT 1000 General Field Testing and Measurement

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INSTRUMENT (MAKE/N	MODEL#) OAK	TON 10 INST	RUMENT # 40	453					
PARAMETER: [check of	only one]								
TEMPERATURE	CONDUCTIVITY	SALINITY	(pH □ ORP						
TURBIDITY	RESIDUAL CL		OTHER						
STANDARDS: (Specify the type(s) of standards used for calibration, the origin of the standards, the standard values, and the date the standards were prepared or purchased)									
Standard A	<u> </u>								
Standard B 7,0	)								
Standard C 10,0	)								
DATE TIME ST	STD INSTRUM	ENT CALIBRA	TED TYPE	SAMPLER					

Stand	ard C _	10,0			_			
DATE (yy/mm/dd)	TIME (hcmin)	STD (A, B, C)	STD VALUE	INSTRUMENT RESPONSE	% DEV	CALIBRATED (YES, NO)	TYPE (INST, CONT)	SAMPLER INITIALS
10/1/03	(1/4	A	= 4	4.29		( P )	Fait	MB
		B	7_	6.94				)
		۷.	10	9.99			)	<u></u>
	1537	A	4	3,99			cont	pu B
		<i>B</i>	Ż	4,98				
		و _	10	10.04				1
10/2/03	0955	A	4	4,14		_	Triff	MB
		p	7	7.10				
		Ç	10	9.90				<u> </u>
	14/0	A	4	4.04			cant	ps /3
		ß	7	6,99				
		e	10	10.02				
10/3/03	1005	A	4	4.13			Init	MB
		B	7	6.94				
		೭	10	9.99				
	1359	A	4	4.07			Cont	ms
		ß	7	7.04				
		د	10	10-03				
	1820	A	4	4.01				
		P	_ ל	7.09				
		C	10	10.1			ป	1
							<u>.</u>	

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#### FT 1000 General Field Testing and Measurement

INSTRUMENT (M	AKE/M	ODEL#)	OAK 7	TON 10	INSTRUMEN	IT# 40453
PARAMETER: [c.	heck o	nly one]				
TEMPERATUR	₹E	CONDUC	TIVITY	☐ SALINITY	Hq 🔯	ORP
TURBIDITY		T RESIDUA	AL CL	□00	OTHER	
STANDARDS: [S]	pecify the	e type(s) of si ards were pre	andards us pared or po	sed for calibration, th urchased]	ne origin of the sta	nderds, the standard
Standard A	4.0					
Standard B	7,0					•
Standard C	10.0					

TIME	<u> </u>	STD	INSTRUMENT		CALIBRATED	TYPE	ŞAMPLER
(µנינגויוט) דוואו⊏	(A, B, C)	VALUE	RESPONSE	% DEV	(YES, NO)	(INIT, CONT)	INITIALS
8900	A	• 4	4.16		45	Luil	MB
	B	7	6,99				
	C	10	10,01		1		
1300	A	4	4.02			cont	pa /S
	B	7	7.0				
	e	10	10,83				1
1705	A	4	41,01				
	B	7	7.0	_			
	<u> </u>	10	10.0				
1025	A	4	4,04			Jaik	mB
	β	7	7,09				
	C	10	9,77				
1330	A	c/	4.01		<u> </u>	CONT	
	<i>[</i> 5	<u> </u>	7.0			2021	mr.
		10	10,06				
0900	A	4	4.03			Irit	MA
	ß	7	7,04				
	C	10	9,88		<u> }</u>		
1300	A	4	4,02			cont	mB
		7	7.0				
	Ċ	10	10.01				1
							<u> </u>
	1705 1705 1025	(Incmin) (A. B. C)  8900 A  B  C  1300 A  B  C  1705 A  D  C  1025 A  B  C  1330 A  E  C  0900 A  B  C  1330 A	(Incmin) (A. 8. C) VALUE  8900 A 94  1300 A 4  1705 A 4  1025 A 4  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9  1025 A 9	Mirmin) (A 8.C) VALUE RESPONSE  8900 A 4 4 4.16  1300 A 4 4 4.02  1300 A 4 4 4.02  1705 A 4 4.01  1705 A 4 4.01  1705 A 4 4.01  1706 A 4 4.01  1707 A 4 4.04  1709  C 10 9,77  1330 A 4 4 4.01  1330 A 4 4 4.01  1300 A 4 4 4.01  1300 A 4 4 4.03  1300 A 4 4 4.03  1300 A 4 4 4.03  1300 A 4 4 4.03  1300 A 4 4 4.03  1300 A 4 4 4.03  1300 A 4 4 4.03  1300 A 4 4 4.03  1300 A 4 4 4.03  1300 A 4 4 4.03  1300 A 4 4 4.03  1300 A 4 4 4.03  1300 A 4 4 4.03  1300 A 4 4 4.03  1300 A 4 4 4.03  1300 A 4 4 4.03	No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.	(hrmin) (A.B.C) VALUE RESPONSE % DEV (YES. NO)  8900 A 4 4 4/6	(htmin) (A.B.C) VALUE RESPONSE % DEV (YES.NO) (INIT. CONT)  B900 A 94 4.16 7.0  C 10 10.01  1200 A 4 4 4.02  C 10 10.83  1705 A 4 4 4.01  B 7 7.09  C 10 9,77  1330 A 94 4.01  B 7 7.09  C 10 9,77  1330 A 94 4.01  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00  C 10 10.00

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#### FT 1000 General Field Testing and Measurement

### Field Instrument Calibration Records

			riei <b>u</b> ms	trument cant	mation r	tecords			
INSTRUM	IENT (M	AKE/MOD	EL#)	OAK TOW	10	INSTRUM	IENT# 4	0453	
PARAME	TER: [c	heck only	one]						
	PERATUR	_		TVITY   S	YTINUA	□pH	ORP		
— ∐ TüR	BIDITY		RESIDUAL	.ct 🗆 🗆	00	<b>□</b> 0π-	ER		
STANDARDS: [Specify the type(s) of standards used for calibration, the origin of the standards, the standard values, and the date the standards were prepared or purchased)									
		447							
Standa	erd B	14/3							
Standa	ard C								
DATE (yy/mm/dd)	TIME (hcmln)	STD (A, 8, C)	STD	INSTRUMENT RESPONSE	% DEV	CALIBRATED (YES, NO)	TYPE ((NIT, CONT)	SAMPLER INITIALS	
	0905	A	447	487		Yes	Just.	ps &	
		ß	14/3	1080					
	1304	A	447	447			cont		
		B	1413	1356					
	1706	A	447	4/4/6					
		B	16/12	1358					
ده اه اه ز	1628	A	447	454			Init	pu p	
		B	1413	1354					
	1332	A	4,47	446			cont	p. 0	
		Ď	1417	1396					
10/10/03	0904	A	447	446			<u> </u>	Jo B	
		R	1413	1362				1	


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#### FT 1000 General Field Testing and Measurement

INSTRUM	I <b>EN</b> T (M	AKE/MOD	)EL#)	YST 5.	5	INSTRUM	ient# <u>94</u>	M01781
		heck only						
	PERATU		CONDUCT		ALINITY	Па 🔲	☐ ORP	
_	BIDITY	_	RESIDUAL	- \		_	ER	
STANDAI	RDS: (S	pecify the typhe standards	pe(s) of star were prepa	ndards used for ca ared or purchased	dîbration, . ]	the arigin of the	standards, the	standard
Stand	ard A	100%	Auto	Calibrati	c A			
							*	
Stand	ard C							
DATE (yy/mm/dd)	TIME (hr:min)	STD (A, B, C)	STD	INSTRUMENT RESPONSE	% 0EV	CALIBRATED (YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS
10/8/03	0908	A	100%	105		747	Init	MA
7 7 9 9	1306	A	100%	98%		<b> </b>	conf.	MB
	1708	A	100%	99%			. )	
10/9/03	1030		100%	94,60%			Init	ms
	1335	A	100%	98.4		1	Co'2/	pr /5
10/10/03	0906	A	10%	106.4%			Init	MB
J	1305	A	100%	100.7%		1	cont	MB
						·		
`-								
	1							

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### FT 1000 General Field Testing and Measurement

INSTRUM	MENT (M	IAKE/MO[	DEL#)	Y 5 T #	55	INSTRUM	MENT# 90	MOITRA
		check only						NOTIE!
		RE 🗆		מעודע 🗆 פֿ	SALINITY	∏рH	ORP	
TUF	RBIDITY		RESIDUA	_CL	00	☐ OTH	HER	
STANDA values, and	RDS: [S	Specify the ty the standards	pe(s) of sta s were prep	ndards used for c ared or purchased	alibration, 1)	the origin of the	standards, the	standard
Stand	lard A	21.7						
Stand	ard B _			_				
Stand	ard C _							
DATE (yy/mm/dd)	TIME (hrmin)	STD (A. B. C)	STD VALUE	INSTRUMENT RESPONSE	% DEV	CALIBRATED (YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS
10/3/07	8070	A	21.7	21.7		Tes	Init	MB
	1306	A	25,7	25,1		1	cont	MM
	1708	4	26.2	26,2			}	)
10/9/03	1010	A	23.9	23.9			I-1.4	mD
	1335	A	25.8	2518			C 2× +	pro pr
10/10/03	0906	A	23.7	23.7			Init	per />
<i></i>	1305	A	246	246		<b>V</b>	Cont	A.A
•								
	_							
				_				
					_			
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#### FT 1000 General Field Testing and Measurement

INSTRUMENT (N	MAKE/MODEL#)	HACH	2100P	INSTRUMEN	T# <u>01040002</u> 87
PARAMETER: [	check only cne]				
☐ TEMPERATU	JRE CONDL	JCTIVITY	☐ SALINITY	□рН	□ ORP
TURBIDITY	☐ RESIDI	JAL CL	□00	OTHER_	
STANDARDS: [3	Specify the type(s) of the standards were p	standards use repared or pur	ed for calibration, the chased]	e origin of the stan	dards, the standard
Standard A_	6.85				
Standard 8 _	60.1				•
Standard C	494				

\$	tanda	ard C	799						
	.TE m/dd)	TIME (tremin)	STD (A, B, C)	STD	INSTRUMENT RESPONSE	% DEV	(YES, NO)	TYPE (INIT, CONT)	SAMPLER
10/8		09/0	Α	6785	6.95		400	Isit	mB
	,		B	6011	60.1				ļ
			C	494	494		1	J	
		1308	A _	6.85	6-95			Cost	MD.
			B	60,1	60.1			<u> </u>	<u> </u>
			د	4/54	494		4		/
		1710	A	6.85	6.94				
			B	60.1	60.1				<b></b>
			C	60.1	4.93				<i>J</i>
10/9	103	1035	A	6,85	4.85			Init	M B
[			ß	601	60.6				
			و	494	494			)	
		1337	Δ	6,85	6.85			cort	K.S
			B	60,1	60.2				
V			e	494	4194				1
10/10	1/03	0910	A	6.85	6,94			Inij.	pris
			B	60,1	60.4				
			c	494	494				
~		1307	A	6.85	6.87			COAK	des 18
			B	60,1	60,2				
1			c	494	C194		1	J	1
<b>—</b>								·	

#### Florida Department of Environmental Protection GROUNDWATER SAMPLING LOG

E ME:	Festive	id Par	k			OCATION:		orland	o, FC		
WELL NO		- [		SAMPLE	E 10:	0-03-0	04-0	04 AMA	DATE: 10	24/0	3
					PURC	ING DA	TA	17			
WELL	TZ (le)	4	TOTAL		201		ATIC DEPT WATER (II		WELL CAPAC	TY (gal/ft):	0,66
1 WELL V	OLUME (gal)	= (TOTAL WE	HTEED II	- DEPTH Т	OWATER	XMETC	APACITY =			TI (gas)().	
· · · · · · · · · · · · · · · · · · ·	vol :	=1 190	<u>ر</u> ر	-52,8	2	x Och	66 =	, 90,6			
PURGE METHOD	Dedicar	Leal Blue	delectif	PURGE INITIATEL	AT: OF	112	PURGE ENDED A	r: 1445	TOTAL PURG	_ VOL ED (grai):	
	VOLUME PURGED	CUMUL. VOLUME	PURGE	TO TO		TEMP.	COND.	DISSOLVED	1 1 CHOHO1 I	COLOR	ODOR
TIME	(gal)	PURGED (gal)	(gpm)	WATER (ft)	ρH	(°C)	(mutics)	(mg/L)	(NTUs)	ÇOLOK	ORPI
0712	Init_	0	0,48	5282	_					clear	wave)
1048	90,6	90.6	0.42	52952	6,97	581	363	0,18	1.38	11	-115
1\$47	22,4	11.3	0,42	62 <b>8</b> Z	7.46	25.4	360	0.21	1.26	!(	-176
1237	23.0	136	0,42	52.9Z	7,60 7,53	25, 3	360	0,18	1,39	1(	-180 -167
1429	23.0	182	0.41	52,92	7.51	25,2	361	0,16	1,64	11	-158
174-1	23.0	104	0,70	JULIC	(40)	2,72	1001	-110	1,0		- 1- J
	:										
EVELL CA	PACITY (Gall	ons per Foot):	0.75" = 0.	02; 1 = 0.0				= 0.37; 4" = 0.6	35; 5" = 1.02; (	5" = 1.47; 1.	2 = 5.88
. ⊀ <u>AM⊅I ∓I</u>	D BY (PRINT)	<del>,                                     </del>				LING DA		2 / /	711		
AFFILIAT	Davock	M. Cath	evy/ M	lodars		GNATURE		AM. C.			
P 4 4 4 5 1 4 5 1			~ρ	100	8,	AMPLING ITIATED A	r 15	00	SAMPLING ENDED AT:	1640	<u> </u>
	CONTAMINA		Y Ñ	FIEL	D-FILTERS		Y N		DUPLICATE:	Y	N
	SAMPLE CON SPECIFICA			SA	MPLE PRI	ESERVATION	ON C		WATENIDET	ANALYSIS	4M5
NO.	MATERIAL	VOLUME	PRE	SERVATIV		TAL VOLU		NAL		METHOD	+ Byp
	CODE			USED	ADDE	D IN FIELD	(mL)	pH			
											-
							,				
										<del></del> -	
		<u> </u>									
<del></del>			-		-						
REMARK	e,										
THE TRACKS	<b>J</b> .										
			_						_		
MATERIA	L CODES: A	G = AMBER	GLASS; C	G = CLEAR	GLASS;	PE = POL	YETHYLEN	E; O = OTHE	R (SPECIFY)		

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Dage 30 of 30

#### Florida Department of Environmental Protection GROUNDWATER SAMPLING LOG

SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV2/PA  SAV	AL WELL DEI  / 9 O  MUL. PURI UME RAY IGEO Agpn al) 0.2  0.2	OTAL WE EPTH (ft) PTH - D RIGE D TE m) S S S S S S S S S S S S S S S S S S S	URGE HITTATEO (M)  Y. O 6	P   90   7. 7. 7. 7. 3	FP- URG (TER) 5 ) 08- H 32 33 32	03-0 SING DA  ST TC  X WELL (  X . 6 20  TEMP. (°C)  25.35  25.4  25.4	ATIC DEPT WATER (ft CAPACITY =	H ): 53.43 = 89.8	TUR (N	WELL CAPACI TOTAL PURGI BIDITY TUS) 6 7 5 4		/ft): ): .OR	3 .66 ODOR ND
(gal) = (TOTA)  E (gal) = (TOTA)  E (JB) = (TOTA)  CAL JB) = (CUMI)  (GED VOLU)  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PURG  (gal) PUR	AL WELL DEI  AUL. PURI  MUL. PURI  UME RAY  GEO Topo  al) 0.2  0.5  5.5  7.5  7.5	OTAL WE EPTH (ft) PTH - D RIGE D TE m) S S S S S S S S S S S S S S S S S S S	URGE HITTATEO (M)  Y. O 6	P   90   7. 7. 7. 7. 3	URG  (ATER)  (S)  (OST  (S)  (S)  (S)  (S)  (S)  (S)  (S)  (	X WELL (X . 6 . 20	ATA  ATIC DEPT  WATER (RE CAPACITY =  L PURGE ENDED AT  COND. (µmhos)  L/ Z7  L/ Z9  L/ Z8	DISSOLVED OXYGEN (mg/L)  0.38  0.29  0.73	TUR (N	WELL CAPACI TOTAL PURGI BIDITY TUS) 6 7 5 4	TY (gal VOL. ED (gal	/ft): ): .OR	, b b
E (gal) = (TOTA)  = (  CLL J RJ J J J J J J J J J J J J J J J J	DEFAL WELL DEI	PTH - D	URGE HITTATER (ft)	7. 7. 7. 3	7 ATER) 5 08 H 32 30 33	X WELL (X . 6 20 TEMP. (°C) 25.3 25.4 25.4	ATIC DEPT WATER (RECAPACITY = PURGE ENDED AT COND. (µmhos)  429 429	DISSOLVED OXYGEN (mg/L)  0.38  0.29  0.73	TUR (N	TOTAL PURGI	VOL. ED (gai	): .OR	ODOR
E (gal) = (TOTA)  = (  CLL J RJ J J J J J J J J J J J J J J J J	DEFAL WELL DEI	PTH - D	URGE HITTATER (ft)	7. 7. 7.	7 ) 08 H 32 30 33	X WELL (X . 6 . 20	WATER (RECAPACITY = CAPACITY = PURGE ENDED AT COND. (µmhos)  477 429 429	DISSOLVED OXYGEN (mg/L)  0.38  0.29  0.73	TUR (N	TOTAL PURGI	VOL. ED (gai	): .OR	ODOR
Callons per 6	MUL. PURI MUE. RAY IGEO T(gpn al) 0.2 0 C	RGE DTE W	URGE HITATEO HEPTH TO HATER (ft)	7. 7. 7. 7.	08 H 32 30 33	Z5.35 25.4 25.4	PURGE ENDED AT COND. (µmhos) 4/27 4/29	DISSOLVED OXYGEN (mg/L) 0.38 0.29	7UR (N	PURGI BIDITY TUs) 6 7 5 4	ED (gai	.or	
UME CUMI VOLUPURG (ga O 90.5 92.5 97.	MUL. PURI UME RAY IGEO Agpn al) 0.2 0 C.2	RGE DTE W	EPTH TO (ATER (M) 4.06	7. 7. 7. 7. 3	37 30 33 32	TEMP (°C)  25.4  25.4	COND. (μπhos) 4/27 4/29 4/28	DISSOLVED OXYGEN (mg/L) O. 38 O.29	7UR (N	PURGI BIDITY TUs) 6 7 5 4	ED (gai	.or	
UME CUMI VOLUPURG (ga O 90.5 92.5 97.	MUL. PURI UME RAY IGEO Agpn al) 0.2 0 C.2	RGE DIE W	PEPTH TO (ATER (ft) Y. O 6	7. 7. 7. 7. 3	37 30 33 32	TEMP (°C)  25.4  25.4	COND. (µmhos) 4/27 4/29 4/28	DISSOLVED OXYGEN (mg/L) O. 38 O.29	7UR (N	BIDITY TUS) 67 5-4	COL	.or	
0 90 .5 92. .5 95 .5 97.	0 6.5	5 5	4.06 4.0	7. 7. 7. 3	30 33 32	25,4 25.4 25.4	429	0.29 <b>0</b>	0.	54	Cles	, , ,	ND T
7 (Gallons per f	5 0.2	5 5	4,0	7. 7. 7. 3	30 33 32	25,4 25.4 25.4	429	0.29 <b>0</b>	0.	54			<i>t</i>
5 9 7 5 9 7 Y (Gallons per f	5 1			7. 3	33	25.4	428	0.23	O.	50			
Y (Gallons per f	.5 V	= 0.02;	1" = 0.0		3 2	25.4	425	0.20	11				
	Foot): 0.75°	= 0.02;	1" = 0.0	04; 1	25" ~	0.05 /24							
	Foot): 0.75*	= 0.02;	1" = 0.0	04: 1	25" ~	0.05 /21							
	Foot): 0.75°	= 0.02;	1" = 0.0	04; 1	25" ~	0.05 /21							
	Foot): 0.75*	= 0.02;	1" = 0.0	04; 1	25" ~	0.00 / 21							
	Foot): 0.75*	= 0.02;	1" = 0.0	04; 1	25" ~	0.05 /27						$\rightarrow$	
	Foot): 0.75*	= 0.02;	1" = 0.0	04: 1	25" ~	0.00 /25					L	$\dashv$	
PRINT) /					.25 -	0.06: 62	= 0.16; 3" =	0.37; 4" = 0.6	55; 5 <b>"</b> =	1.02; 6	5" = 1.47	7; 12"	' = 5.88
PRINT) /				SA	MPI	ING D	ATA						
Nodarse	: 4	ese la				MPLER(S GNATURE		Miva	-				
3/4 dder v						MPLING TIATED A	T: 13/	7		PLING ED AT:	13	40	
<i>S/4 d'OCEX Y</i> AMINATION:	De la la la la la la la la la la la la la	N	FIEL	D-FIL	TERE		Y (N		1	ICATE:		Y ()	(N)
E CONTAINER						SERVATION							
CIFICATION RIAL VOL	, ,	PRESE				AL VOLU		NAL		TENDED AND/OR			
E VOL	)LUME		SED		DDEC	IN FIELD		Н					
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			Dyes Rate began 2+0.	Prograte began 2+0.5 th	Priskik begin 2+0.5 then	Progrete begin 2+0.5 then att	Progrete begin 2+0.5 then at time of	Prograte began 2+0.5 then at time of first of	Prospek begin 2+0.5 then at time of first reading, the	Priske begin 2+0.5 then at time of first reading, the purs	Prostete begin 2+0.5 then at time of first reading, the purse Rute	Proslike begin 2+0.5 then at time of first reading, the purse Rute was	Proslike begin 2+0.5 then at time of first reading, the purse Rute was on

NOTE: The above do not constitute all of the information required by Chapter 62-160, F.A.C.

Revision Date: January 1, 2002

### Florida Department of Environmental Protection GROUNDWATER SAMPLING LOG

AME:	festive	ei Park				SITE LOCATION	- FC	stival fa	21k			
WELL NO				SAMPL	.E (O: _	FP-03	3-04	- ODZ	DATE:	0-23	 -03	1
					PUR	GING DA	TA					—
DIAMETE	ER (in):	i) = (TOTAL WE	DEPT	L WELL H (ft):	190	TO	WATER (	ft): 57	CAPA	CITY (gal/ft):	0.66	
1					5.3	_			3W	ع اعداك ما = عع	266.7 ga	ŋᠳ᠈ァ
PURGE	dedica	190	<u> </u>			)x 0.6	O PURGE	= 88.9g	1 1018	01 = 22.3 ALVOL	-Dallo	<u>721</u>
METHOD	DIOCHOL	er RUMP	PURGE	DEPTH	DAT: +	.35°m	ENDED A			GED (gal):		_;
TIME	PURGED (gal)	VOLUME PURGED (gal)	RATE (gpm)	TO WATER (ft)	рН	TEMP (°C)	COND. (µmhos)	DISSOLVE OXYGEN (mg/L)		COLOR	OEOR	ORF
10:38	Ĭ k	89	0.48	54,1	9.19	25.8	305	12.12	16.9	Chean	! pone	+120
112 4		IIII _			8.07	124.7	1401	0,67	0.39		ì	+167
1210	1/2	1133			7.97		413	0.5			<u> </u>	1179
1250	13/4	155		<u> </u>	7.91	251	411	10,98	0,60	<u>:</u>	1	-123
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	<u>!</u>	<del> </del>				<u>'</u>	-	<u> </u>	<u> </u>	!	<u> </u>	-
ELL CA	i PACITY (Gal	lans per Foot):	0.75" = 0.0	02: 1" = 0.0	4: 1.25	= 0.06: 2^=	0.16; 3"	= 0.37; 4" = 0	).65: 5" = 1.02; 8	5" = 1.47; 12	= 5.38	<del>'</del>
<u> </u>					SAMP	LING DA	TA					
	BY (PRINT)		],	\		AMPLER(S)	1 1		· ·			:
AFFILIATI	on W	ike Bur		<u>uplial</u>	10/xcal	•	100		)		<del> </del>	-!
METHOD	(S): 0 40	Der pu	me			AMPLING IMATED AT	. 160	クチ	SAMPLING ENDED AT:	1621	, 0	
FIELD DE	CONTAMINA			FIEFT	D-FILTER	ED: Ÿ	R	)	DUPLICATE:	Y	(4)	Í
S	SAMPLE CON SPECIFICA			SAI	MPLE PR	SERVATION	N		INTENDED	ANALYSIS		Ī
NO. 1	MATERIAL CODE	VOLUME	PRE	SERVATIVE USED		TAL VOLUM D IN FIELD (		VAL H		METHOD	. <u>-</u>	
								500	chain-o	-cust	ody	
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REMARKS	<del>.</del>		<del>.</del>				· .					
MATERIAL	COCES A	G = AMBER G	ASS. CO	G = CLEAR C	SLASS.	عج ع ع المح	THYLENE	: 0 = OTHE	R (SPEC:FY)			

NOTE: The above do not constitute all of the information required by Chapter \$2-160, F.A.C.

### Florida Department of Environmental Protection GROUNDWATER SAMPLING LOG

TE		541.50 1 6	ick			SITE	fric.	tival Po	ck		
WELL	NO: 0	stivel fo		SAMPL	EID' F	LOCATION			i		
AAELI	LOF	threche	<u> sige</u>	1 3 4 4 1 1	<u>-1</u>		3-04.	<u>~ 003</u>	DAIE (	0/58/03	-
					PUR	GING D		~ <del>.</del>			
DIAM	FTER (in):	Ala.	DEPTH	- WELL 1 (ft):		To	TATIC DEPT D WATER (f	8):	) CAPAC	ITY (gal/ft);	
1 WE	L VOLUME (g	al Tatal WE	LL DEPTH	- DEPTH	O WATER	X WELL	CAPACITY =	- 10			
		= (		_		) X		<u> </u>			
PURC			•	PURGE	DAT: /	116	PURGE ENDED A	Т;		L VOL ED (gal):	
TIME	VOLUME		PURGE RATE (gpm)	DEPTH TO WATER (ft)	ρН	TEMP.	COND.	DISSOLVED OXYGEN (mg/L)	TURBIDITY (NTUs)	COLOR	OCOR
	NA.	- Igan		<b>35</b>	7.73	128,5	1246	3.0	1328	5/ ()	
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,ELL	CAPACITY (G	allons per Foot):	0.75 = 0.0	2: 1 = 0.0				0.37; 4 = 0.65	5" = 1.02; 6	" = 1,47: 12"	= 5.88
						LING DA					
SAMP	ÆÐ BY (PRIN] ΑΠΟΝ	Nodan	<u> </u>	Acron		MPLER(S)					
SAMPL	JNG	70000	20 /	73000	SA	MPLING			SAMPLING		
METHO					INI	TIATED AT	<u> </u>		ENDED AT.	1500	
FIELD	DECONTAMIN		N	FIELD	)-FILTERE	Ď: Y	N		DUPLICATE:	Υ	N
	SAMPLE CO SPECIFIC			SA	MPLE PRE	SERVATIO	N		INTENDED	ANALYSIS	1
NO.	MATERIAL	VOLUME		SERVATIVE		AL VOLUM			AND/OR		
	CODE		<del></del>	USED	ADOEL	IN FIELD	(mL)   pF	1			
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REMAR	KS.										_ ··
MATERI	AL CODES	AG = AMBER GL	ASS CO	= CLEAR C	SLASS 3	E = 201 Y		0 = 0THF= .4	SPECIE()		
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Page 30 of 30

NOTE: The above do not constitute all of the information required by Chapter 62-160, F.A.C.

# PEL Laboratories, Inc.

## Chain of Custody Record Record/Work Request

4420 i endola Point Road Tampa, Florida 33619 (813) 247-2805 • Fax: (813) 248-1537 E-Mail: login@Pelab.com

Company:	Project Name/Number:  CheMHIII  Project Manager:	- Feeting	al Park	167167	P	age o	of
CH_M H, 11	Project Manager:	100114	<u>arank</u>	10117	DEP Form #: 62-770.90		
Addiess.	ALA	itens:			Form Title: Chain of Cu Effective Date: <u>Septemb</u>		
Phone: 407 4230030 Fax:	Purchase Order:				FDEP Facility No.		,
Print Names(s) / Affiliation		Preserva	nives (see codes)		Project Name:		2
mike Burns / Lydic	a Wing				Sampling CompQAP	No:	
Sampler(s) Signature(s)		Analy	ses Requested	· ·	Approval Date:	o	
Me in Par	as.		11-		REQUESTED DU	E DATE	
Item Sampled Grab o	r Matrix Number of				/	/	
No. Field ID No. Date Time Composi	ite (see codes). Containers	See at	tached fo	rameder	Remarks	La	ab. No.
Aprim Recharge			74				
F1-03-04-002 10/23/03 1626 grate	water 26	V					
FP-03-04-003 10/23/03 1500 grab		~				ī.a.	
Tempt is there I Hotto -	5						
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Shipment Method	55	← Total Number of	of Containers				
Dutin / / Via: FED X Item Nos.	<u> </u>		Time	Accepted	by / Affiliation	Date	Time
Returned: 1 / Via.	umellagu	19:15:03	1015				
Additional Comments:	Cidalling NXI)	6/25/03	1800				
,	),						
							, , , , ,
	Cooler No. (s) / Temperature(s)	(C)	Sampling	Kit No.	Equipment	ID No.	
		Д					
MATRIX CODES: A = Air GW = Groundwater SE =	Sediment SO = Soil SW =	Surface Water V	W = Water (Blank	O = Ot	her (specify) 1125	,	
PRESERVATION CODES: H-Hydrochloric acid + ice I	= Ice only N = Nitric acid + i	ce S = Sulfuric ac	cid + ice O = C	ther (specify	y)		167

# PEL Laboratories, Inc.

# Chain of Custody Record Record/Work Request

4420 i "idola Point Road Tampa, Florida 33619 (813) 247-2805 • Fax: (813) 248-1537 E-Mail: login@Pelab.com

Com	pany: CHZ	MHILL	<u>'</u>	1	Project Name/									1	Page	of
Addr	Nodare E			I	Project Manag	<i>Llark  </i> er: hitens	ما [	77	<u> </u>					DEP Form #: <u>62-770.9</u> Form Tille: <u>Chain of C</u> Effective Date: <u>Septem</u>	uslody R	
Phon	e: 1/07-740-6	110 Fax	: 407-74	0-6112	Purchase Orde	r:	_				N.			FDEP Facility No.		
Print	Names(s) / Affiliation	n					-	Prese	rvatives	(see coo	ies)			Project Name:		
D,	AVE CAFFE	N/TIGG	ny Fall	14mb									_¥_	Sampling CompQAF	No:	
Samp	oler(s) Signature(s)		) our		Mr	26		Ал	alyses R	equeste	d	Z Orda PS	HZ 24	Approval Date:  REQUESTED DI	JE DAT	ΓE
Item No.		Date	Sampled	Grab or Composite	Matrix (see codes)	Number of Containers			ابنا			7.097	without	/ Remarks	1	Lab. No.
100.			1535	<del></del>			177	ecq	ency				<del>/</del>	Remarks		Lau. No.
	FP03-04 004	<u>+</u>	1400	(7	GW	27 27	K	-		+-			<u> </u>			
- 12-1	00			<u>G</u>	GW	27	W			-			<del>/</del>	MS(FP03-04-1	~(	
	Ø.		1300	6	6W	. 27	M	+					,	MSD(FP-03-a-	- 4	
	Table		1300	()		4						- 10	_	INSTITUTE OSTA	COH)	
	TEMP BLANK				W	4*	+		-	1				+ Please analyze	27/	^
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														->Iset 4 u	ial	without
	Shipmen	t Method			1 2		← Tot	al Numb	er of Co	ntainers			4			110
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Retu	med: / /	Via.			melol	Davy	000	1.15.0	31	715	V//	)//	W		18/24	63 0800
Addi	itional Comments:		11.00		() IM.				1.03 17	30	1	<u>~</u>	- (	THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE S	1/4=/	00-0
先	re Live & Temp	Rlanks	Dec (nale)	9		WO		100	. 20							
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	3150011			Co	oler No. (s)/	Temperature(s)	(C)			Samp	ling Ki	t No.		Equipment	ID No	
-72-1070										C			of.			-10 - 535
MAT	RIX CODES: A	= Air GW	= Groundwate	er SE = Se	diment SO	= Soil SW	= Surface	e Water	W = V	Vater (B	lanks)	0 =	= Ot	ther (specify) 112	26	= 1000
PRES	SERVATION CODE	S: H-Hydr	ochloric acid	+ ice $I = I$	ce only N =	= Nitric acid +	ice S	= Sulfuri	c acid +	ice C	) = Oth	er (sp	ecif	y)		

INSTRUM	IENT (M	AKE/MOD	EL#)	OAKTON 1	Serrs	INSTRUM	NENT#_8	8023
PARAME	TER: (c	heck only	one]					_
☐ TEM	1PERATU	RE 🕱	CONDUCT	רוטודץ 🗀 :	SALINITY	□рН	ORP	
				- Cr 🔘 (			HER	
				ndards used for o ared or purchase		the origin of the	standards, the	standard
Stand	ard A	1413						
Standa	ard C _							
DATE (yy/mm/dd)	TIME (hcmin)	STD (A, B, C)	STD VALUE	INSTRUMENT RESPONSE	% DEV	CALIBRATED (YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS
10-22-03	1112	A	1413	1210		<u>y</u>	Inst.	7×
	1505	B	447	426		ý	Inst.	7× 1×
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INSTRUM	IENT (N	IAKE/MOD	EL#)	OAKTON 1	aserres	NSTRUM	TENT # _ 8	7023
		check only						
☐ TEM	IPERATU	RE 🗆	CONDUC	TIVITY 🔲 S	SALINITY	Д∕рH	ORP	
☐ TUR	BIDITY		RESIDUA	ror 🗆 c	00	OTH	ER	
				ndards used for co ared or purchased		the origin of the	standards, the	standard
Standa	ard A _	4						
Standa	ard B _	7						
Standa	ard C _	10						
DATE (yy/mm/dd)	TIME (homin)	STD (A, 8, C)	STD VALUE	INSTRUMENT RESPONSE	% DEV	CALIBRATED (YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS
10-2203	1106	B	7	6.97		7		
		A	4	4.12		<i>y</i>		
			10	992		4		
		1						
		1						

#### Page ___of___

INSTRUM	IENT (M	AKE/MOD	DEL#)	YSI S	5	INSTRUM	1ENT# 96	mø178	ΑF
PARAME	TER: [c	heck only	one]						
☐ TEM	IPERATU:	RE 🗆	CONDUC.	TIVITY   S	SALINITY	□рН	☐ ORP		
☐ TUR	BIDITY		RESIDUA	r Cr 💢 (	00	□ от⊦	IER		-
				ndards used for c ared or purchase		the origin of the	standards, the	standard	
Standa	ard A	coop Av	to calle.	zhun					
Standa	ard B _			ahun					
	ard C								
DATE (yy/mm/dd)	TIME (homin)	STD (A, B, C)	STD VALUE	INSTRUMENT RESPONSE	% DEV	CALIBRATED (YES. NO)	TYPE (INIT, CONT)	SAMPLER INITIALS	]
10/22/03	0839	A	100	123		<u> </u>	Int	24	2
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NSTRUM	ENT (M	AKE/MOD	EL#) _	HACH ZI	00 P	INSTRUM	IENT # <u>0 / (</u>	9 4 000287
ARAMET	TER: [c	heck only	one]					•
☐ TEM	PERATUR	RE 🗆	CONDUCT		ALINITY	□рН	☐ ORP	
<b>∑</b> TUR	BIDITY		RESIDUAL	.cL 🗆 D	0	□ OTH	IER	
TÁNDAF	RDS: IS	pecify the typ	ne(s) of star	ndards used for ca ared or purchased	ilibration. I !	the origin of the	standards, the	siandard
Standa	ard A	6.75				<del></del>		
Standa	ard B	59.6						
Standa	ard C	491						
DATE yy/mm/dd)	TIME (bcmin)	STD (A. B. C)	STD VALUE	INSTRUMENT RESPONSE	% DEV	CALIBRATED (YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS
10/21/63	0847	A	6.75	6.72		x	Init	7 K
		B	59.6	6.00		у	Init_	75
		C	491	492		<u>y</u>	Ini +	TF
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#### Field Instrument Calibration Records

INSTRUM	IENT (M	AKE/MOD	EL#)	YSI 5	5	INSTRUM	ient# <u>96</u>	M0173	BAF					
PARAME	TER: [c	heck only	one]											
☐ TEM	IPERATUR	RE 🗆	CONDUCT	TVITY [] S		□рН	☐ ORP							
TURBIDITY RESIDUAL CL X DO OTHER														
values, and	STANDARDS: [Specify the type(s) of standards used for calibration, the origin of the standards, the standard values, and the date the standards were prepared or purchased]  Standard A													
Standa	ard A	100%	Auto	Calibrat.	100									
Standa	ard B													
	ard C								_					
DATE (yy/mm/dd)	TIME (hr.min)	STD (A. B. C)	STD VALUE	INSTRUMENT RESPONSE	% DEV	CALIBRATED (YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS						
10-23-0	3 10:05	A	iao	100.6	0.005i.	yes	Latia	LW						
	1400	A	200	97.8			COA	MB	}					
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Revision Date: January 112002

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INSTRUM	IENT (M	AKE/MOD	EL#)	YST	F55	INSTRUM	ment# <u>96</u>	MO178A1
PARAME	TER: [c	heck only	one]					
X TEN	IPERATUR	RE 🗍	CONDUCT	YTIVE	SALINITY	□рН	☐ ORP	
TUR	BIDITY		RESIDUAL	.CL [	] 00	110 🖺		
STANDAI values, and	RDS: [S] the date th	pecify the typ ne standards	pe(s) of star were prepa	ndards used fo ared or purcha	or calibration, ased]	the origin of the	standards, the	standard
Stand	ard A <u>T</u>	hermon	refor					
Standa	ard B				_			
Stand	ard C _							
DATE (yy/mm/dd)	(hr.min)	STD (A. B. C)	STD VALUE	INSTRUMEN RESPONSE		(YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS
10-23-07	T T		21.8	21.80	07.	4	initial	LW
J.	14:01	A	25,4	25,40	4	4	cont	MB
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INSTRUM	ENT (M	AKE/MOD	EL#)	HACH	2100P	INSTRUM	MENT#	<u>040002</u> 877
PARAME	TER: [c	heck only	one]					
☐ TEM	IPERATU!	RE [	CONDUCT	ľIVITY	SALINITY	□рН	ORP	
<i>,</i> ,	BIDITY		RESIDUAL		□ 00		IER	-
STANDAI values, and	RDS: [S] the date th	pecify the typhe he standards	pe(s) of sta were prep	ndards used ared or purci	for calibration, hased]	the origin of the	standards, the	standard
		6.						
		60					•	
Standa	ard C	40						
DATE (yy/mm/dd)	TIME (hrmin)	STD (A. B. C)	STD VALUE	INSTRUME RESPONS	SE % DEV	CALIBRATED (YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS
10-23-03	10:05	A	6.95	6.93	» B. 7.	Υ	init.	LW
10-23.03		B	60.1	60.2	0.001	Ý	init.	Lu
10-23-03		C	494	494	D	ч	init	LW
	14:05	А	6,95	6,94		1	50,4,	ms
	s,	В	60,1	60.1		4		
		C	454	494		4		1
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#### Field Instrument Calibration Records

NSTRUMENT (MAKE/MODEL#)				OAK TOIL	1 10	INSTRUM	IENT#_4	0453	
		heck only							
☐ TE	MPERATUR	RE 💢	CONDUCT	IVITY	SALINITY	□рН	☐ ORP		
TURBIDITY RESIDUAL CL 00 OTHER									
STANDA values, and	RDS: [S	pecify the typ ne standards	pe(s) of star were prepa	ndards used for a ared or purchase	calibration, ed]	the origin of the	standards, the	standard	
Stand	dard A	44	7413						
Stand	ard B	14	13 jus_			<del></del>			
Stand	dard C								
DATE (yy/mm/dd)	(hr.min)	STD (A. B. C)	STD VALUE	INSTRUMENT RESPONSE	% OEV	(YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS	
	310:05		447	371	0.1%	4	init	Lw	
		3	1413	1700	0.15%	4	:N2	LW	
	1408	A	4/47	440		4	cont	MB	
		13	1417	1320		4		mp	
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### DEL-201-001/01

#### FT 1000 General Field Testing and Measurement

INSTRUMEN	NT (MA	AKE/MOD	EL#) (	DAKTON	10	INSTRUM	IENT # <u>40</u>	453				
PARAMETE												
□ ТЕМРЕ	•	•		TIVITY 🔲 S	ALINITY	На 💢	☐ ORP					
TURBIC	YTIC		RESIDUAL	.cl 🗆 o	0	□ OTH	IER					
STANDARDS: [Specify the type(s) of standards used for calibration, the origin of the standards, the standard values, and the date the standards were prepared or purchased]												
Standard A 4.0												
Standard B												
Standard	1 °C	10,0		=								
	(IME	STD (A. B. C)	STD VALUE	RESPONSE	% DEV	(YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS				
10-23-0310		B	·7-	7.18	0.181.	4	init	Lw				
10-23-0310		A	4	4.20	0.05!	4_	init	Ln				
10730310	- 1	C	10	9.40	o.dol	4	init	Lw				
1 !	110	B	7	7,04		<u></u>	COLL	MB				
		A	4	4.10		٤						
	1	C	10	10.02		Y	1					
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INSTRUM	ENT (M	AKE/MOD	EL#) _	WTW/19	10	INSTRUM	IENT# <u>≥≥</u>	7000
PARAME	TER: [c	heck only	one]					
□ ТЕМ	PERATUR	RE 🗆	CONDUCT	TVITY [] S	BALINITY	HqXX	ORP	
☐ TUR	BIDITY		RESIDUAL	.CL 🔲 [	00	OTH	ER	
values and	the date th	ne standards	were prepa	ndards used for c ared or purchase	dl.	/	standards, the	standard
Standa	erd A 🕰	H4,00-	Lot#2	ZYZ/Expir.	-28/31	04		
Standa	ard B P	47.00-	Lo# 2	170/EXPU	-06/30	0/04		
Standa	ard C P	410,00	-6+#=	3010 /Expir.	-01/31	104		
DATE	TIME	STD	STD	INSTRUMENT RESPONSE	% DEV	CALIBRATED (YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS
(yy/mm/dd)	(hr.min)	(A, B, C)	4,00	3,95	78 DE V	Yes	Init	Duc
11	1019	R	7,00	7.04		405	11	11
	1024	1	4,00	4.00	<del> </del>	after 1	a	"(
-	1026	R	7,00	7.01		affer 1	11	11
<del>-  </del>	1720	<u> </u>	4,00	4.01	<u> </u>	No	Conti	"
1/	1722	R	7.00	7701		No	Out	1
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INSTRUM	ENT (M.	AKE/MOD	EL#)	UTW/1970	<u>:</u>	INSTRUM	ENT # 22	70000
PARAME	TER: [c	heck only	one]	l				
☐ TEM	PERATUR	RE 🕱	CONDUCT	TVITY ::	SALINITY	П рН	ORP	
□ TUR		_	RESIDUAL			-	ER	
				ndards used for d ared or purchase	-21			standard
Stand:	ard A	413 45/cm	Lot# k	ared or purchase VH 177 A/V FRKT 187C1	Explo	-02/15/0	4	
Standa	ard B	00,5 us/c	Lot of	FRKT187CI	1, EXA	15 11/25/07	3	
Standa		/						
DATE	TIME	STD	STD	INSTRUMENT	% DEV	CALIBRATED (YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS
(yy/mm/dd)	(hr:min)	(A, B, C)	1413	RESPONSE	% DEV	705	Inite	Duc
-71.701	1018	B	1418	1420		affer,	10	11
	1720	R	1913	1422		NO	Conti	4
	1721	Ā	100.5	109		11	11	4
` -			,		1			
						_		
				-				
						1		
				-				

#### Page 3_of_5

### DEP-SOP-001/01 FT 1000 General Field Testing and Measurement

INSTRUM	ENT (M	AKE/MOD	EL#) (	NTW/197	(	INSTRUM	ENT# <u>27</u>	0005					
INSTRUMENT (MAKE/MODEL#) WTW /197/ INSTRUMENT # 270005  PARAMETER: [check only one]													
☐ TEMPERATURE ☐ CONDUCTIVITY ☐ SALINITY ☐ PH ☐ ORP ☐ TURBIDITY ☐ RESIDUAL CL 🕱 DO ☐ OTHER													
STANDARDS: (Specify the type(s) of standards used for calibration, the origin of the standards, the standard values, and the date the standards were prepared or purchased)													
Standard A Air Saturation													
Standard B													
Standard C													
DATE (yy/mm/dd)	TIME (hr:min)	STD (A, B, C)	STD VALUE	INSTRUMENT RESPONSE	% DEV_	CALIBRATED (YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS					
03/10/24	10/6	A		16.62/50.95		- Yes	Inst.	Duc					
ù	1330	A		31.4°C/50,93		11	"(	4					
,													
				,		-							
								-					
		_	L										
				-									
-													
	_												

INSTRUM	MENT (M.	AKE/MOD	)EL#)	Barnant:	20	INSTRUM	1ENT#_ <i>F_C</i>	13003315
	-	heck only						
	/PERATUR	•	-	TIVITY 🔲 S	ALINITY	□ pH □ 0TH	X ORP	
TUF	RBIDITY		RESIDUAL	.CL D	0	□отн	IER	
STANDA	RDS: [S	pecify the typ	oe(s) of star	ndards used for ca ared or purchased	alibration,	the origin of the	standards, the	standard
Stand	lard A 10	RP 220	ml/±5n	uv, Lot# 1 K3	'' ZGA E	x01-11/0	3	
		<u> </u>		1,001 1103	90/1	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	_	
Stand								
DATE	TIME	STÖ	STD	INSTRUMENT		CALIBRATED	TYPE	SAMPLER
(yy/mm/dd)	(hr:min)	(A. B. C)	VALUE	RESPONSE	% DEV	(YES, NO)	(INIT, CONT)	INITIALS
03/10/24	1025	1	220mV			No	Cate	Suc
11	1440	H	20mV	Z15mV		No	16	- 4
				_				
						_		
						_		
-							_	
		_		-				
						_		

-		•		./			/	0100
INSTRUM	ENT (M.	AKE/MOD	EL#)	HF/DRT-15	CE	INSTRUM	ENT # <u>70</u>	7101
PARAME	TER: [c	heck only	one] -	Tubbidine	TCL			
□ ТЕМ	PERATUR	RE 🗆	CONDUCT	TIVITY S	ALINITY	∏рН	ORP	
X TUR	BIDITY		RESIDUAL	.CL 🗆 D	0	□ отн	ER	
STANDAF	RDS: (S	pecify the typ	e(s) of sta	ndards used for ca	alibration, i	the origin of the	standards, the	standard
values, and	ine date ti	ne standards / ☆‡,    /	were prep	ared or purchased	2,104			
Standa	ara A <u>/</u>	m a 6.	1. f. tt	2340, Do	105			
		VIUNTER	(2017)	131121 131	, 05			
Standa		270	L OTO	INCTOL WENT		CALIBRATED	TYPE	SAMPLER
OATE (yy/mm/dd)	TIME (hr:min)	STD (A, B, C)	STD	INSTRUMENT RESPONSE	% DEV	(YES, NO)	(INIT, CONT)	INITIALS
03/10/24	1020	A	1.0	1.0		NO	Conti	Duc
	1720	A	100	10		10	16	4
	1720	B	20,0	20,4		"	61	4
		_						
-								
-								
					<u> </u>			
							<del></del>	
				<u> </u>	1			
L-								

# DEP-SOP-001/01 FS 2200 Groundwater Sampling

# **GROUNDWATER SAMPLING LOG**

NAME. P	estival	Park				LOCATION.	Orla	indo, FL				
WELL NO.	ma.1			SAMPLE	EID: F/	0.03-05	-001	,	DATE //	/18/03		٦,
	7.(0				PUF	RGING DA	ATA		, ,	7 97		1
WELL	4"	TUBING				ERVAL	STATIC D	EPTH 52.93	PURGE PUMP	TYPE	2:)	٦ĺ
WELL VOL	UME PURGE:	1 WELL VOLU	nches): IME = (TO)	AL WELL DE	PTH - ST	CATIC DEPTH		X WELL CAP	OR BAILER: ()	45 72.6611		- ¦
	if applicable)		= (	190	feet -	52.93		x ,66		= 90.4		
EQUIPMEN	T VOLUME PL	JRGE: 1 EQUIP	$\overline{}$						TH) + FLOW CEL		6 gallons	Ηì
(only fill out	if applicable)		• 3	= q	allons +_(	gal	lons/foot X		leet) +	gallons =	gallons	
	MP OR TUBING	G /200		MP OR TUBING			NG 065	7 PURGING		TOTAL VOLUM PURGED (galle	ME	1
<u>00 ()</u>	VOLUME	CUMUL.	PURGE	OEPTH	pH		COND	DISSOLVED				√i
TIME	PURGED	VOLUME PURGED (gallons)	RATE (gp/II)	<u>YATER</u> (feet)	(standard units)	TEMP (CC)	(μπλας/οπ or μS/cm)	OXYGEN (circle mo/L or % saturation)	TURBIDITY (NTUs)	(describe)	ODOR (desonbe)	CXP
0926		90.46	,65	52.95	7.32	24.4	318	2.51	1.13	char	Lon	]
1013	11/4	113.06	,48	52.94	7.32	24.8	732	1,22	1.17			106
1101	11/2	135.66	,47	52,54	7.33	24.9	325	C.45	2.57		1	1067
1156	13/4	158.26	,41	52.94	7.35	24.9	321	0.42	4.52		4	10/8
1314	2,0	180 .84	, 39	52.93	7,37	25,0	319	0-40	5,61:			1012
												T
, , , ,												1
												1
		Per Foot): 0.7				06. 2" = 0.1 1/4" = 0.002		37; 4" = 0.65; = 0.004; 3/8" =			= 5.88 = 0.016	
TOBING INC	SIOC BIAL CAP	AGIT (GB)JFC	, 113 - 0,0	000 <u>0, 3710</u>		PLING DA		- 0.004, 3/8	0.008. 1/2	-0010, 34	- 0,010	
SAMPLED E	BY (PRINT) / ÁF	FILIATION:	<u>s</u>	AMPLER(S) S	IGNATURE	<u>S:</u>		SAMPLING		SAMPLING		
Mikel		odarje			LBU	2	_	INITIATED AT:	1315	ENDED AT	1345-	
PUMP OR T		120		AMPLE PUMP LOW RATE (m		te):		TUBING MATERIAL COL	DE: 7 /	PE		
FIELD DEC	ONTAMINATIO	N: (Ÿ) N		IELD-FILTERE		N FILT	ER SIZE:	<u>um</u>	DUPLICATE.	Ø M		
		ONTAINER		TO BOOK EQUICATION		MPLE PRESE	RVATION		INTENDED	SA	MPLING	i
SAMPLE 10	#	MATERIAL	VOLUME	PRESERV		TOTAL VO		FINAL	ANALYSIS AND	OR EQL	JIPMENT CODE	
ÇODE	CONTAINE	RS CODE		036		DOED IN FIEL	O (mL)	рН	METHOD			}
		5'00	Aff	ached					•			,
												1
												1 1
		·										1
												1
												1
00.1.0.0												1
REMARKS;	-	hole well	,	_								
ATERIAL (		AG = Amber G				olyernylene;	PP = Polyp	mondana: e = e	ilicone; T = Teff	οπ: Ο = Othe	r (Specify)	
		PP = After Pens				= 8ladder Pu		P = Electric Subm		PP = Peristalli		
DIPMENT	CODES: R	FPP = Reverse	Flow Pensia	altic Pumo;	SM = SI	aw Method (Tu	bino Gravity	Drain); VT =	Vacuum Trap:	O = Other (S		
NOTES: 1		e do not con		of the inform $= + 0.2$ ;		guired by Ch	$\overline{}$	60, F.A.C. Specific Cond	uctance = read	ings are within	1 + 5%:	1
4-								readings ≤ 2 mg				
	Turbidíty	= A) < 20 NT	Uş <u>or B)</u> re	eadings are w	18 + 5 N	TUs (for rea	dings > 20	and ≤ 50 NTUs)	or 10% (for rea	<u>dings &gt; 50 NT</u>	<u>Ús).</u>	

#### DEP-SOP-001/01 FS 2200 Groundwater Sampling

# **GROUNDWATER SAMPLING LOG**

NAME.	Festiv	al Pa	rK_			LOCATION:	0-12	ndo F-C				
WELL NO	Mu-			SAMPL	EID FP	-03-0	5-00	5	DATE: //	119/03		∏i .
	77,0	~				GING D				<u> </u>		۱ ا
WELL	111	TUBING			CREEN INTE		STATIC D	EPTH 54.48	PURGE PUMP			٦i
DIAMETER	R (înches):	DIAMETER (		DEPTH:	Alcel to	ATIC DEPTH	TOWATER	R (feet); X WELL CAP	OR BAILER:	BP De	dicated	<b>↓</b> !
	t if applicable)	I WELL VOL		190	feet -	-				226-1100		
FOURDMEN	UT VALUE E	100E: 1 EOLIII	= (	DL = PUMP VO				TURING LENG	qallons/foo TH) + FLOW CE	1 2880	qallons	<b>↓</b> ¦
	t if applicable)	rou. Teagu	IRCINI VC									
			· <u>i</u>	_=9	allons + (		llons/foot X		feet) +	gallons =	qallons	_
	MELL (feer):	120		JMP OR TUBINA N WELL (feet):	<u>G</u> /26`	PURGI	NG 064	O PURGIN ENDED	_ , , , , , , ,	PURGEO (gall		
TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGI RATE (com)		eH (standard) writs)	TEMP.	COND. (µmbos/cm) or µS/cm)	OXYGEN (circle may L or % saturation)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)	ORP
0902	ł	88	,46	54.5	7.11	24.5	462	0.89	0.76	clear	None	108
0936	1'/4	110	,65	54.5	7.0	24.5	451	0.74	0.64			1091
1012	11/2	132	,54	54,5	7.01	24.21	431	0.67	0.87			094
1033	13/4	154	,54	54,5	6.91	24.7	420	0.60	0.74			679
1133	2.0	176	7	1	6.91	24.6	404	0.46	0,66			667
1213	21/4	193	1		6.91	24.5	408	n 35	0.85	+	<del>                                     </del>	1058
12.5		1 10	<del> </del>		2.11	~~~	100	1).55	0.83			1
_ <del></del>									<del>-</del>			1
ī									<del>                                       </del>			i
			-			<del> </del>			<del></del>	<del>  </del>		1
WELL CAP	ACITY (Gallons	Per Foot); 0.7	5" = 0.02;	1" = 0,04:	1.25" = 0.0	06; 2" = 0.1	16: 3" = 0.3	37; 4" = 0,65;	5" = 1,02; _ 6	5" = 1,47; 12°	° ≈ 5.88	i
	SIDE DIA. CAP					1/4" = 0.00:		0.004; 3/8	= 0.006: 1/2"	= 0 0 10; 5/8*	= 0.016	
SAMPLED	BY (PRINT) / AR	FILIATION:		SAMPLER(S) S		PLING DA	AIA					
Mike		Nodarse		17.7	Bi	_		SAMPLING INITIATED AT:	1412	SAMPLING ENDED AT	1450	,
PUMP OR	TUBING	10040136		SAMPLE PUMP	2			TUBING			772-	i
	WELL (feet).			FLOW RATE (#			TER SIZE:	MATERIAL COI		DE		
FIELD DEC	OITAMINATIO			Fittration Equipo					DUPLICATE:	Y _ (R)	)	
		CATION			SAM	PLE PRESE	RVATION		INTENDED		MPLING	
SAMPLE ID CODE	CONTAINE	RS CODE	VOLUL	AE PRESERV		<u>TOTAL VO</u> DOED IN FIEL		FINAL pH	ANALYSIS AND, METHOD		CODE	4
	CORTAINE	3000					, me,	p/ .				1
			10	e A++.	- 6.	1 (is	1 ,		· <u> </u>			į.
			72	<u> </u>	. 2 / 4		<i>'</i>					1
			-	<del></del>								į
			+									ì
							-				<del></del>	}
			-									1
DENIAGUS:			٫	<u></u>								' 
TEINWITTS.				dischars	e wet	• /						
TERIAL		AG = Amber G		G = Clear Glass,	PE = Pc	olyethylene:	PP = Polypi	opviene: S = S	ilicone T = Ter	ion: O = Othe	er (Specity)	
	PURGING A					= Bladder Pu		P = Electric Subm		PP = Peristalt		
UIPMEN	T CODES: R	FPP = Reverse	Flow Peris	stattic Pump;	SM = SIra		ibing Gravity (	Orain). VT =	Vacuum Trap.	O = Other (S	pecify)	
NOTES: 1		TON CRITERIA		of the inform   = + 0.2;		uired by Ct erature = +			luctance = read	lings are within	7 + 5%;	
-									2/L) or 10% (for			
									or 10% (for rea		1174	

### DEP-SOP-001/01 FS 2200 Groundwater Sampling

# **GROUNDWATER SAMPLING LOG**

NAME	Festiva	1 Park				SITE OCATION:	Orio	ando 1.	٥٤,					
WELL NO		Recha.		SAMPLE		0-03-0			DATE	120/03				
			<del></del>			SING DA								
WELL DIAMETER	(inches);	TUBING DIAMETER!	(inches)	DEPTH:	REEN INTER	<u>feet</u>	STATIC DI	ALL CONTRACTOR	PURGE PUMP OR BAILER	dig phra	m Pump			
	.UME PURGE; if applicable)		UME <u>÷ (TO</u>	TAL WELL DEF	<u>TH - STA</u>	TIC DEPTH	O WATER)	X WELL ÇA	PACITY	•				
		1/2	= (	L. = PUMP VOL	feet -	HNIC CARAC	TY X		gallons/foo GTH) + FLOW CE		gallons			
	il applicable)		PMENI VO					TOBMO CÇIM						
		NA	-1	= 9	allons + (	qallo	ons/foot X		feet) -	qallons =	gallons			
	MP OR TUBINO WELL (feet):			IMP OR TUBING WELL (feet):	<u>.</u>	PURGIN	_	PURGIC ENDED	AT:	PURGED (galk				
TIME	VOLUME PURGED (gallons)	VOLUME PURGED (gallons)	PURGE RATE (ggm)		<u>Hg</u> (ztimu	TEMP.	COND (winhos/cm or uS/cm)	OXYGEN OXYGEN (circle mg/L c % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)			
	NS -			خــــــــــــــــــــــــــــــــــــــ	6.38	24.4	197	4.63	6-73	Clear	56, 3			
	7 - 7										1			
			<del>                                     </del>											
											<u> </u>			
			-								<u> </u>			
											i			
											i			
. '											!			
WELL CAP	ACITY (Gallons	Per Foot): 0.7	75" = <u>0.02;</u>	1" = 0.04; 0.0006; 3/16"	1_25" = 0 06 = 0.0014;	$\frac{3}{1/4} = 0.002$	5: 3" = 0.0 6: 5/16"	37: 4" = 0.65; = 0.004; 3/8"			= 5.88 = 0.016			
						LING DA	TA .							
SAMPLED 8	BY (PRINT) / AF	FILIATION;		SAMPLER(S) S	IGNATURES			SAMPLING		SAMPLING				
Mike,	Burns / N	130/a/s		MiLE	Si-			INITIATED AT	: 1320	SAMPLING ENDED AT:	340			
PUMP OR 1	TUBING MELL (feel):			SAMPLE PUMP FLOW RATE (IT		<b>Y</b>		TUBING MATERIAL CO	DE:					
	ONTAMENATION	N: (2) N		FIELD-FILTERE	D Y 0		R SIZE:	<u>hu</u>	DUPLICATE.	Y (32)				
		ONTAINER		Filtration Equipm							100100			
	SPECIFI	ICATION		555555		TOTAL VO		F751.61	<u>INTENDED</u> ANALYSIS AND	OR EQ	MPLING JIPMENT			
SAMPLE 10 CODE	CONTAINER	RS CODE	VOLUM	ME PRESERY	D AD	OED IN FIELD		PH PH	METHOD	9	CODE			
										_	!			
											_  1			
					_   -									
											1			
	_		+-	_							ı			
			+		-		_							
			<del> </del>											
REMARKS:											li			
TEMPINS.	Sampleo	from	influe.	et water	2 Nterio	ns sech	erge in	2 /1						
	CODES:	AG = Amber (	Glass; Co	3 = Clear Glass;	PE = Pal	yethylene.	PP = Polyp	ropylene, S =	Silicone: T = Te	flon; O = Other	r (Specify)			
		PP = After Per				= Bladder Pu			mersible Pump; = Vacuum Trap;	O = Other (S				
NOTES: 1				ll of the inform					- vacuum mad	0 0000				
2.	STABILIZA	TION CRITERI	A: pl	H = + 0.2;	Тетре	<u>rature = + (</u>	).2 °C:	Specific Con	ductarice = read					
	Dissolved C	xygen = A)	< 20% sat	uration or B) r	eadings are	within + 0.2	mg/L (for	readings ≤ 2 n	10/L) or 10% (for	readings > 2 r	1143			
	Turbidity	= A) < 20 N	TUs or B)	<u>readings are v</u>	<u>vilhin + 5 N1</u>	TUs (for read	dings > 20 :	and < 50 NTU	s) or 10% (for re-	<u>adings &gt; 50 N1</u>	US).			

50m CD 0000-24

# DEP-SOP-001/01 FS 2200 Groundwater Sampling

# **GROUNDWATER SAMPLING LOG**

NAME A	-estiva	1 Park					SI.	TE CATION:	Cirle	and	EFC					
WELL NO.	mw	. 4			SAMPLE	<u> </u>	P-	C3-C	5-00		/		1/20	103		I
							_	NG D								
WELL DIAMETER	Ч" R (inches):	TUBING DIAMETER (	inches):		WELL SC	CREEN IN	TERV	AL Leget	STATIC D	<u>EPTH</u> R (feet	55.43	PURGE PUMP OR BAILER:	TYPE /	در ۲		
WELL YOU	UME PURGE:				WELL DER								ري کر ري کر	1,2 6	74/-	−li
	t if applicable)		= (		90_	feel -		5.4			·65	gallons/loc		_	7 gaile	ons
	NT VOLUME PL	IRGE: 1 EQUIP	MENT V	0L. <u>≐</u>	PUMP VQI	TUWE + (	TŲ8IN	<u>IG CAPAC</u>	CITY X	TUB	ING LENG	TH) + FLOW CE	<u>LL VOLI</u>	JME.		
			-1	_=		allons + (	_		lons/foat X			eel) +	qa	llons =	qalk	<u>snc</u>
	MP OR TUBING WELL (feer):	120			OR TUBING	120		PURGI INITIAT	NG OGY ED AT:	_	PURGINO ENDED A	_	PURG	VOLŲ ED (gal		1
TIL 46	VOLUME	CUMUL.	PURG		OEPTH TO	pH (standa	ed.	TEMP.	COND.		SOLVED XYGEN	TURBIDITY	CC	OLOR	ODOF	
TIME	PURGED (gallons)	PURGED (gallons)	RATE (qpm		WATER (feet)	(standa (units)			Or LCS/Om)		de mg/L, or saturation)	(NTUs)	(de	scupe)	(describ	e) OK P
0951		87.47	,47		55.70	7.49		23. <u>Y</u>	291	0	.72	1.25	de	-	34,50	
10.39	1/4	10927	1	_		7.43	$\overline{}$	3.4	335	_	ا ق تى.	0,34	_	}	<b>-</b>	17/46
1127	11/2	131.07	145	$\dashv$		7.5	<del>-</del>	3.4_	332		63_	0.38	-			1 128
215	13/4	152.87	1	$\rightarrow$		7,5	2 2	23.6	328	0.	52	0,19	+-		1	+109
	<u> </u>			_								-	-			¦
<u> </u>							_			_		<del> </del>	+			<b></b>  ¦
				-+			+		<del>                                     </del>				-			<b>⊣</b> ¦
' <u> </u>		-					+					<del> </del>	-		-	<b>⊣</b> ¦
				+			+						+			<b></b> ¦¦
WELL CAP	ACITY (Gallons	Per Foot): 0.7	5" = 0.02		= 0.04;	1,25" = (	0.06;	<b>2" =</b> 0.	16:3" = 0,3	37;	4" = 0.65;	5" = 1.02; 6	j = 1,47	· 12	<u>~ 5.88</u>	<b></b>  ¦
	SIDE DIA CAP					= 0.0014	1	NG D	28: 5/16"	0.004		0.006; 1/2	= 0.010;		= 0 016	_
SAMPLED	BY (PRINT) / AF	FILIATION:		SAM	PLER(S) S			ING D	AIA .	5414			CALE	) INIC	<del>-</del>	$\neg 1$
Mike	Burns /	N s eda 15	,	1	ILD.						PLING ATED AT	1615	SAMP ENDE	DAT	1640	
PUMP OR	TUBING WELL (feet):				PLE PUMP		ule):			MATE	NG ERIAL COD	)F. T/	PE			
	ONTAMINATIO	N: Ø N		FIELD	D-FILTERS	D. Y	(N)	FIL	TER SIZE:	_ur	$\overline{}$	DUPLICATE:	Υ	_0	7	
		ONTAINER		Filya	non equipi			E PRESE	RVATION			INTENDED			AMPLING	i
SAMPLEID		MATERIAL	VOLUE	ME	PRESER	VATIVE		TOTAL VO	<u> </u>	FINA	<u> </u>	ANALYSIS AND	OR		CODE	
<u> </u>	CONTAINE	RS CODE	-		USE	:D	ADDE	IN FIEL	.0 <u>(mL)</u>	pΗ						
	-			-	71.		<u> </u>					·	+			
			50	ايغ	1444	1	_						-			<b>-</b> - i
-													-			$\dashv_1$
				-							-		-			<b>-</b>  1
				+					_		_		-+			<b>-</b>  1
			-	_			—						_			<b>⊣</b> ı
REMARKS;																
TERIAL		AG = Amber G			lear Glass;		_	thylene.	PP = Polyp			licone; T = Te			er (Specify)	4
		IPP = Alter Pent IPPP = Reverse			B = 8ai Pump;		_	Bladder Pu Helthod (To	imo; ES			ersible Pump, Vacuum Trap;			tic <u>Pump</u> Specify)	_
NOTES: 1		e do not con		II of t		nation re	eguir	ed by Cl	napter 62-16			uctance = read	lings ar	'A sathi	in + 5%	_
2.															_	
Dissolved Oxygen = A) < 20% saturation or B) readings are within + 0.2 mg/L (for readings ≤ 2 mg/L) or 10% (for readings > 2 mg/L):  Turbidity = A) < 20 NTUs or B) readings are within + 5 NTUs (for readings > 20 and ≤ 50 NTUs) or 10% (for readings > 50 NTUs).																



# Chain of Custody Record Record/Work Request

4420 Pendola Point Road Tampa, Florida 33619 (813) 247-2805 • Fax: (813) 248-1537

E-Mail: login@Pelab.com

Consp	2	,			Project Name/	Number:	,									Page 1	) of	1
	CH2M H	4:11A-3	, -	. /	Fastival	Park /		171	653	2					DEP Form #: 62-7	70.900(2)		
Addre	ss: Scht	505		1	Project Manag	er:									Form Title: Chain		Recor	d
122	5 En Rubinio	n 54. 01	KAJO, FC	'> 3280/	Alon	Alken A.		, ,							Effective Date: Set	nember 23	. <u>1997</u>	
Phone	1/07.923,00				Purchase Orde	r:									FDEP Facility N	o.		
	Names(s) / Affiliation						e c	,	Pres	ervati	ves (s	ee co	odes)	.,	Project Name:			
M	Ke Burns !	Nodarse	3 A55	ok les				-							Sampling Comp	QAP No:		
	ler(s) Signature(s)								A	nalys	es Rec	quest	ed		Approval Date:			
/	MiliBu =														REQUESTE	DUE DA	ATE	
Item		Sar	npled	Grab or	Matrix	Number of	1	5.	] ,			1			· /	1		
No.	Field ID No.	Date	Time	Composite	(see codes)	Containers		-', '	50	•	911	a c A	est		Remark	S	Lat	o. No.
	FF-03-05-005	11/19/03	1430	(6)	Gu	23												
	Trip + Tomp Blan				}	12												
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Retui	med: / /	Via.		1	MileBo	=/Nadar	مد		11/10	103	1630							2/1/2-
Addi	tional Comments:													y S		1		
													28					
			SETTA										113	T. Commission				
										/				-				
				C	ooler No. (s)/	Temperature(s)	(C)					San	npling F	it No.	Equip	ment ID N	10.	
																1145		
MAT	RIX CC: ES: A =	Air GW =	Groundwa	ter SE = S	ediment SC	) = Soil °W	= St	urface	Water	٧	V = W	ater	(Blanks	) O = C	Other (specify)	1145		
PRES	SERVATION CODES	S: H-Hydro	chloric acid	l + ice l ≃	Ice only N	= Nitric ac +	ice	S =	Sulfu	ric ac	id + i	ce	O = 0	her (speci	fy)			

# PEL Laboratories, Inc.

# Chain of Custody Record Record/Work Request

4420 Pendola Point Road Tampa, Florida 33619 (813) 247-2805 • Fax: (813) 248-1537 E-Mail: login@Pelab.com

Contr	pany:			F	Project Name/I	Number:						Page	e   of	
	Cham Hi	1/		f	estionl,	Park 1770	65Z				DEP Form #	): <u>62-770.900(</u> 2	2)	
Addre	ess: 3	wite 50	5	F	Project Manag	er:					Form Title: 9	Chain of Custo	dy Recor	<u>rd</u>
125	E. Robinson e: 407. 423- 00	St. O.	landu F	(32801	Alan A	1:1×ens			_		Effective Da	nc: <u>September</u>	<u>23, 1997</u>	
Phone	e: 407. 423- 00	030 Fax:		F	Purchase Orde	r:					FDEP Faci	lity No.		
	Names(s) / Affiliation							Preserva	tives (see co	odes)	Project Nat	me:		
Mil	Le Buins /X	Judarso									Sampling (	CompQAP No	o:	
Samp	Le Buins / X pler(s) Signature(s) Milhum	. ,						Aπaly	ses Request	led .	Approval L	Date: ESTED DUE	DATE	
Iteni	<del>/                                    </del>	Sa	mpled	Grab or	Matrix	Number of					NEQUE	/ /	DAIL	
No.	Field ID No.	Date	Time	Composite	(see codes)	Containers					Re	emark <u>s</u>	Lal	b. No.
	FP.03.05-006	11/20/03	1640	Grab	GW	18 +3					3 Addition	1 Non		
	F1203.05-007		1340	Grab	Gu	18	$\perp \perp$				Presers A	10c1		
	Trip Y Temp Stenks					4	$\perp \perp$			$\perp \perp \perp$				
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range l														_
			234									100000		-
													1	
	Shipment					43		tal Number					1	
	1 1	Via: Fel	× _	Item Nos.	Relinquish	ned by / Affiliati		Date	Time		oted by / Affiliati		Date	Time
	imed: / /	Via.			1.4	/ Per.		1/10/03	16:00	Mil B	v- / Nodars	<u> </u>	1/14/0:	
Add	itional Comments:			2	ME But	2/Nadars	1 <u> </u>	N/20103			2	-		
								ngo u	<u> </u>				1	
		1		C	ooler No. (s) /	Temperature(s)	(C)		Sar	npling Kit No.		Equipment II	) No.	
							200					114	16	
	TRIX CODES: A =	1000	Groundwa			D = Soil SW			W = Water		Other (specify)			
PRE	SERVAT + CODES	S: H-Hydro	ochloric acid	] + ice ] =	Ice only N	= Nitric ac	ice S	= Sulfuric a	icid + ice	O = Other (sp.	ecify)			

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INSTRUM	JENT (M	IAKE/MOI	)E1 #/	Y5T	#55	INSTRUM	<b>MENT #</b> 90	0M0178A
		heck only		<u>.                                     </u>		MOTIC	<u> </u>	<u> </u>
X TEN	/PERATU	-	CONDUCT		☐ SALINITY	П он П о П	ORP	
STANDA values, and	RDS: [S the date to	pecify the ty he standards	pe(s) of sta s were prep	ndards used fo ared or purcha	or calibration, ased]	the origin of the	standards, the	e standard
Stand	ard A _	20.9						
	ard B ard C							
DATE	TIME	STD	STD	INSTRUMEN	IT	CALIBRATED	TYPE	SAMPLER
(yy/mm/dd)	(hr.min)	(A. 8. C)	VALUE	RESPONSE		(YES, NO)	(INIT, CONT)	INITIALS
11/18/03	0800	Δ	20,9	20.9		Ye,	Fn:+	MB
	1159	A	25,2	25.2			Cont	Phys
11/19/03	0806	A	20,8	20.8			Fait	jn js
	1525	λ	21.7	21.2			Cont	40
11/20/02	0907	A	20,7	20,7		f I	Init	10
	1350	A	25.3	25.3			C=4 }	MI
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INSTRU	MENT (N	IAKE/MO	DEL#)	HACH 2	100 P	INSTRUI	MENT# 🐟	0400028
	`	check only						
	-	•	_	TIVITY [	SALINITY	□ рН	ORP	
ÌX Tü	RBIDITY		RESIDUA	AL CL	00	□оπ	HER	_
STANDA	RDS: (S	pecify the h	ype(s) of st	andards used for d	calibration,	the ongin of the	standards, the	standard
				pared or purchase	d]			
	_	6.95						
	ard B _							
Stand	ard C _	I STD	STD	I INSTRUMENT	1	CALIBRATED	TYPE	SAMPLER
(yy/mm/dd)	(pcmin)		VALUE	RESPONSE	% DEV	(YES, NO)	(INIT. CONT)	INITIALS
11/18/07	0803	A	6.95	6.99		182	Init	MB
		<u></u> \$	601	61.4				
	•	٤	494	(197				]
	1157	A	6.95	6.94			cont	MB
		B	60.1	60,2				
		e	494	495				
11/19/03	0810	A	6,95	6,90		105	Inil	ms_
		ß	60,1	60,8				
		د	494	495				
	1528	Δ	6.95	6.90			Cen 1	mys .
		ß	601	60.7				
		ذ	494	498				
11/20/03	0910	A	655	7.0			Init	MA
		13	60.1	61.8				
		C	494	502				
1120/60	1355	A	6-55	6.93			C02.7	Ri B
/	~	ß	601	60,8				
		c	494	492		<del></del>		
					1			
		<del></del>			-	<del></del>	<del></del>	

INSTRUM	IENT (M.	AKE/MOD	EL#)	YSI 5	<u>5</u>	INSTRUM	IENT # 90	MO178
		heck only						
	1PERATUR		CONDUCT		SALINITY		ORP	
	RBIDITY		RESIDUAL				ER	
values, and	the date th	he standards	were prepa	ndards used for c ared or purchase	וני	the origin of the	standards, the	standard
Stand	ard A	100%	Auto	Calibrat	100			
							•	
Stand	ard C						7.05	SAMPLER
DATE (yy/mm/dd)	TIME (hcmin)	STD (A. B. C)	STD VALUE	INSTRUMENT RESPONSE	% DEV	(YES. NO)	TYPE (INIT, CONT)	INITIALS
11/18/03	0759	2	100%	116.2		175	Init .	10/5
	1200	A _	100%	107.1			cont.	mB
11/19/03	0806	A	100%	101.)			Init_	MB
1	1529		100%	103.7			Cant	MB
11/20/03	0907	A	100%	107.6			In. t	ms
1	1349	A	(00%)	101.2			cont	MA
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INSTRUI	MENT (N	MAKE/MO(	DEL#)	OAK TON	10	INSTRUI	MENT#_4	c453			
		check only									
☐ TEMPERATURE \(\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline{\overline											
TURBIDITY RESIDUAL CL DO OTHER											
STANDARDS: (Specify the type(s) of standards used for calibration, the origin of the standards, the standard values, and the date the standards were prepared or purchased)											
Stand	dard A	447									
Stanc	ard B _	1413					•				
Stanc	dard C _										
DATE (yy/mm/dd)	TIME (bramin)	STD (A, 3, C)	STD	INSTRUMENT RESPONSE	% DEV	CAUBRATED (YES. NO)	TYPE (INIT, CONT)	SAMPLER INITIALS			
11/18/03		A	447	496		Yes	Jait	MB			
		B	1413	1349							
	1205	А	447	437			Canl	pn B			
		B	1413	13/0		4	(	7			
11/19/03	0804	A	447	432			In!L	mB			
		B	1413	1330							
	1522	A	447	446			COKY	HB			
		B	1413	1387							
1/20/03	0905	A	447	456			Jajal	MA			
		B	1413	1346		1					
	1345	A	447	449			(0-	MB			
		13	14/3	1368							
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INSTRUI	NENT (N	MAKE/MO	DEL#)	CAKTON	10	INSTRUI	MENT# 40	0453
		check only						
TE	MPERATU	RE [	CONDUC	TIVITY []:	SALINITY	<b>⊠</b> рН	ORP	1
☐ TU	RBIDITY		RESIDUA	L CL	00	□оп	HER	
STANDA	RDS: (S	Specify the ty	pe(s) of sta	andards used for o pared or purchase	alibration,	the origin of the	standards, the	e standard
	ine date i lard A		s were prep	lared or purchase	uj			
	ard B _							
	ard C							
DATE	TIME	STD	STD	INSTRUMENT	<del></del>	CALIBRATED	TYPE	SAMPLER
(yy/mm/dd)	(pc:tain)	(A. B. C)	VALUE	RESPONSE	% DEV	(YES. NO)	(INIT, CONT)	INITIALS
11/18/03	0755	<i>A</i>	7	1 <u>4, 2</u> 0		, e s	In: 1	MB
	<u> </u>	B	<del>-</del> -	7,10				
	<u> </u>	<u> </u>	10	10-22				\\
	1203	<u>A</u>	5	4,06	<u> </u>	_	Cont	ME
-		Δ		7.69			·	
	<u> </u>	_ و	10	10.01			- 1	_!
1119/03	0320	A	4	3.98		+	44,0	UA &
_		B	7 1	7,09				
			10	9,96				
	1520	A	4	3,97			CILF	13/5
		<u>B</u>	7	6.99				
		د	10	9.97				
1/20/03	0900	A	4	4.08			Init	MB
		<i>b</i>	7	7.0				
		و	10	9.87				
	1343	A	4	4.03			C84+	1415
		B	7	20.5				
		c	10	10.08				
						)		

# PEL Laboratories, Inc.

# Chain of Custody Record Record/Work Request

2311184 ms

4420 Pendola Point Road Tampa, Florida 33619 (813) 247-2805 • Fax: (813) 248-1537 E-Mail: login@Pelab.com

Com	pany:				•	Project Name/	Number:							ĭ	Page \	of \
	Ch2M ess:	H:l	// _			Festival Park 177682						DEP Form #: 62-770,900(2)				
Addr	ess:	<i>5</i> c	14 50	5	Project Manager:								Form Title: Chain of Custody Record			
225	E. Rol	inson	Alan A	7:Kens							Effective Date: Septem	ber 23, 199	<u>)7</u>			
Phon	225 E. Robinson St. O'lando FC.32801 A. Phone: 407.423-0030 Fax: Puro						r.	_	•			250 1000		FDEP Facility No.		
Print	Names(s) / A	ffiliation							Pres	servat	ives (see	codes)		Project Name:		
Mil	Ke Burns	IN	odarsu											Sampling CompQAP	No:	
Samp	oler(s) Signatu	re(s)							A	nalys	es Reque	sted		Approval Date: REQUESTED DI	IE DATE	
ltern	<del>′                                    </del>		Sa	mpled	Grab or	Matrix	Number of	1						/	I	
No.	Field I	ONo.	Date	Time	Composite		Containers							Remarks	L	ab. No.
	FP-03-05	-006	11/20/03	1640	Grab	GW.	18 +3							3 dellitions Non	c	١
	FR03-0		11	1340	Grab	Gu	18							Preserved Vocs	٥	2
	Trip + Temp	Blanks					4								0.7	, 64
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	_															
													100		-	
	8									_	100 C S 100					-
			1	,	ļ					L						
	Si	nipment Me	ethod				43	<b>←</b> 10	tał Num	ber o	f Contain	ers				
Out:		V	ia: Fed s	4	Item Nos,	Relinquish	ed by / Affiliati	ons	D	ate	Time	Acci	epted l	by / Affiliation	Date	Time
	med; /		ia.		2	1 1	/Per		14/10/0	33	16:00	Mil	B. 1	/ Nedarse	11/14/03	
Addi	itional Comm	ents:			2	MI But	/ Noder	7	M2	103		Just - M	44	IPEL_	1/21/03	10130
pH<2	2 (8260, 9069	), 365 Z, FL	אם, בטוט, 900	0, 353.2,		<i></i> =	,			¥	_		50.00	· · · · · · · · · · · · · · · · · · ·		
	1501, 1	(1.2, 365.4)			_											]
<b>ው</b> ሙኤ	Alpha sont -	TEL RAD	<u> </u>													<u> </u>
300	sent to st	- Troupp			Co	poler No. (s)/	Temperature(s)	(C)			Sa	mpling Kit No.		Equipment	ID No	2 1000
					40											
	RIX CODES	- 5/	r GW =	Groundwat	er $SE = Se$	ediment SO	= Soil SW	= Surfac	e Water	٧.	√ = Water	(Bianks) O	= Ôth	er (specify)	1152	
PRES	SERVATION	CODES:	H-Hydro	chloric acid	+ ice     = 1	ice only N =	= Nitric acid + i	ice S	= Sulfu	ric ac	id + ice	O = Other (sp	ecify,	)		

#### **Parameter List**

Container

Preservative

8151 (Herbicides) 1 L Amber Glass 4°C 4°C 8270 (SVOCs) 1 L Amber Glass 4°C 8081 (Organochlorine pesticides) 1 L Amber Glass 4ºC 8141 (organophosphorous Pesticides) 1 L Amber Glass FL-PRo (TPH) 2 x 1 L Amber Glass H₂SO₄ 8082 (PCBs) 1 L Amber Glass 4°C pΗ 250 ml PE 4°C Total metals 500 ml PE HNO₃ 8260 (VOC) 3 x 40 ml CG viais HCL Trip Blank 2 x 40 ml CG viais HCL Temperature Blank 1 x 40 ml CG vial 4°C 1,000 ml PE Gross Alpha HCL BOD 4°C 1,000 ml PE Nitrate / Nitrite 500 ml PE H₂SO₄ Ammonia, TKN 500 ml PE H₂SO₄ Dissolved Phosphorous 500 ml PE H₂SO₄ **Phosphorous** 500 ml PE H₂SO₄ Alkalinity SO 4°C CŁ TDS Color 500 ml PE 4°C Turbidity 4°C 500 ml PE

500 ml PE

500 ml PE

250 ml PE

250 ml PE

4°C

4°C

HCL

HCL

7311184

**EPA Method** 

Nitrite NO

TOC

Ortho-phosphorous

Dissolved TOC

# PEL Laboratories, Inc.

# Chain of Custody Record Record/Work Request

2311161 cms

4420 Pendola Point Road Tampa, Florida 33619 (813) 247-2805 • Fax: (813) 248-1537 E-Mail; login@Pelab.com

Сопірапу:	Project Name/Number:							
CH2M Hill Nodarse 3Assoc,	Festival Park	Festival Park 177652						
Address: Suite 505"	Project Manager:		Form Title: Chain of Custody Record					
225 E. Robinson St. Orland Fl. 32801	Alan Ai	Kens	Effective Date: September 25, 1997					
Phone: 407.423-0030 Fax:	Purchase Order:		FDEP Facility No.					
Print Names(s) / Affiliation Ceston wing u		Preservatives (see codes)	Project Name:					
Mike Burns. Nadgese 3 Asso	٥٢.		Sampling CompQAP No:					
Sampler(s) Signature(s)		Analyses Requested	Approval Date:					
Mit But Dato.			REQUESTED DUE DATE					
Item Sampled Grat	b or Matrix Number of		/ /					
No. Field ID No. Date Time Comp	posite (see codes) Containers	See Attached List	Remarks Pont, Lab. No.					
1 FP-03-05-001 11/12/03 1345 Gra	6 GW 18+3		Additional 40 mc 01					
2 FP.03-05-002 1400	18 +3		Vials collected with 02					
3 FP-03-05-003 1430	18 +3		no HCL due to					
4 FP-03-05-0014 1445	18 +3		small bubbles entreined in of					
5 Tript Temp Alanks -	' 8		sample Call CHAMITILHO , a					
TB-601 "11/10/03 -			Find out which sets to					
TB-002 11/18/03 -			larelie.					
T13-003 " 11/18/07 -			30					
TB-004 " 1118/03 -	t _m							
Shipment Method	8692	Total Number of Containers						
Out: / / Via: FED X Item No	os. U Relinquished by / Affiliation	ons Date Time Accep	ted by / Affiliation Date Time					
Returned: / / Via.	Mile Burno / Noda	rsx 11/1803 Feder	Řv					
Additional Comments: TEMP: 40	Fedex	Just - W.	ALL / PA 11/19/07 10:45					
Item # 3 is ms oH12 (8240, 9060,	6010, 365.2, 353.2, 350,1							
	5.4, 4051, 72.880, 900)							
POVERT FOR MS MSD IS Gross Alpha sen								
100 Sunt to STET	Cooler No. (s) / Temperature(s)	(C) Sampling Kit No.	Equipment ID No.					
MATRIX CODES. A = Air GW = Groundwater SI	E = Sediment SO = Soil SW =	Surface Water W = Water (Blanks) O =	Other (specify) 1154					
PRESERVATION CODES: H-Hydrochloric acid + ice	I = Ice only N = Nitric acid + i	ce S = Sulfuric acid + ice O = Other (spec						

# Parameter List

EPA Method	Container	Preservative
8151 (Herbicides)		
8270 (SVOCs)		
8081 (Organochlorine pesticides)		
8141 (organophosphorous Pesticides)		
FL-PRo (TPH)		
8082 (PCBs)		
рН		
Total metals		
8260 (VOC)		
Trip Blank		
Temperature Blank		
Gross Alpha		
BOD		
Nitrate / Nitrite		
Ammonia, TKN		
Dissolved Phosphorous		
Phosphorous		
Alkalinity		
SO₄		
CL		
TDS		
Color ·		
Turbidity		
Nitrite NO		
Ortho-phosphorous		
тос		
Dissolved TOC		

# PEL Laboratories, Inc.

# Chain of Custody Record Record/Work Request

2311171 cms

4420 Pendola Point Road Tampa, Florida 33619 (813) 247-2805 • Fax: (813) 248-1537 E-Mail: login@Pelab.com

Company:	Company: Project Name/Number:							
CH2M H:11 Address: Scile 505	Festival Park	Festival Park / 177652						
Address: Scile 505	Project Manager:			Form Title: Chain of Custody Record				
225 E. Robinson St. Orlando, Fl. 32801	Alan Aikens			Effective Date: September 23, 1997				
Phone: 407-423-0030 Fax:	Purchase Order:			FDEP Facility No.				
Print Names(s) / Affiliation		Preserva	tives (see codes)	Project Name:				
Mike Burns / Nodarse & Assoc.				Sampling CompQAP No:				
Sampler(s) Signature(s)	-	Analy	ses Requested	Approval Date:				
Mil Bu				REQUESTED DUE DATE				
Item Sampled Grab or	Mairix Number of			/ /				
No. Field ID No. Date Time Composi	te (see codes) Containers	See	Attached	Remarks Lab. No.				
FP-03-05-005 11/19/03 1430 G	GW 23			01				
Trip + Temp Blank	2			02				
			1 1 1 1					
Shipment Method	26	Total Number of	of Containers					
Out: / / Via: Fed X Item Nos.	Relinguished by / Affiliati	ons Date	Time Accept	ed by / Affiliation Date Time				
Returned: / / Via.	Mile Bu Nodar	4/19/07	1630 FED FX					
Additional Comments:	FEDEX	1, 1, 1,	Is m del	LL /122 11/20103 10:30				
TEMP: 42	CDD =A		1 100	7770				
2462 (4260, 9660, 3652, FLithe, 4010, 900 3532)			12.71					
350.1, 351.2, 365.4)								
Gross Alpha sent to FL 2AD.	Cooler No. (s) / Temperature(s)	(C)	Sampling Kit No.	Equipment ID No.				
BOD >4 to STL. 74MPA								
	Sediment SO = Soil SW :	= Surface Water \	W = Water (Blanks) $O = 0$	Other (specify) 1156				
PRESERVATION CODES: H-Hydrochloric acid + ice 1:	= Ice only N = Nitric acid + i	ce S = Sulfuric ac	cid + ice O = Other (spec					

# **Parameter List**

EPA Method	Container	Preservative
8151 (Herbicides)	1 L Amber Glass	4°C
8270 (SVOCs)	1 L Amber Glass	4°C
8081 (Organochlorine pesticides)	1 L Amber Glass	4°C
8141 (organophosphorous Pesticides)	1 L Amber Glass	4°C
FL-PRo (TPH)	2 x 1 L Amber Glass	H₂SO₄
8082 (PCBs)	1 L Amber Glass	4°C
рН	250 ml PE	4°C
Total metals	500 ml PE	HNO ₃
8260 (VOC)	3 x 40 ml CG vials	HCL
Trip Blank	2 x 40 ml CG vials	HCL
Temperature Blank	1 x 40 ml CG vial	4°C
Gross Alpha	1,000 ml PE	HCL
BOD	1,000 ml PE	4°C
Nitrate / Nitrite	500 ml PE	H ₂ SO ₄
Ammonia, TKN	500 ml PE	H₂SO₄
Dissolved Phosphorous	500 ml PE	H ₂ SO ₄
Phosphorous	500 ml PE	H ₂ SO ₄
Alkalinity		
SO ₄	000 ml PE	4°C
CL	000,	40
TDS		
Color	500 ml PE	4°C
Turbidity	500 ml PE	4°C
Nitrite NO	500 ml PE	4°C
Ortho-phosphorous	500 ml PE	4°C
тос	250 ml PE	HCL
Dissolved TOC	250 ml PE	HCL

Event 6 2/4/04

FP-04-06-001 mw-1

FP-04-06-007 (Dup/niw-1) FP-04-06-003 (ms/mw-1) FP-04-06-004 (msD/mw-1)

2 5 04

FP-04-06-006 mw-4

2/6/04 FP-04-06-007 MW-2

Page 1 of 1

Out

To: Aikens_Al/ORL
Subject: Festival Labeling
Cc: Kevin.Sanders@ch2m.com

Wednesday 2/4/04

FP-04-06-001 MW-1

FP-04-06-002 Duplicate (MW-1)

FP-04-06-003 MS (MW-1)

FP-04-06-004 MSD (MW-1)

FP-04-06-005 North Recharge Well

Thursday 2/5/04

FP-04-06-006 MW-4

Friday 2/6/04

FP-04-06-007 MW-2

#### CONTROL SAMPLES

Our office samples were collected in (yellow top glass vials without preservatives) indicated the following:

FP-04-06-001;

MW-1 in the field was very effervescent on the sampling day (even though purge rates was only about 0.3 gpm). Our control samples in the office indicated one vial with headspace about 4mm, while the other one didnt indicate any headspace.

FP-04-06-002:

The Duplicate sample from MW-1 - one vial no head space, the other vial 5 mm head space FP-04-06-003:

the MS sample from MW-1 indicated head space of 2mm and 4 mm respectively

FP-04-06-004:

The MSD sample from MW-1 indicated 0 mm head space in both vials

FP-04-06-005: North recharge well no additional control samples taken

FP-04-06-006:

MW-4 no head space either vial

FP-04-06-007: being collected today

I discussed with Mike (sampler) for his opinion on why 50% of the vials from the same well had head space and the rest had no head space. He indicated that the samples were so bubbly that the samples looked opaque. He said on some of the vials he may have waited a tad longer before he got the cap on. (Please note: we DO NOT wait for bubbles to disperse before we cap vials)

Please let me know if you have any questions

#### DEP-SOP-001/01 FS 2200 Groundwater Sampling

			G	KOUNI	JVVAI	EK SA		NG L	<u>.UG</u>				
WIE F	stive	Parl	ic			SITE LOCATION:	Orl	ande	F				7
WELL NO	mu-1	) 4, ,		SAMPLI		P-04-				DATE: 2	14/04		†i
	·					GING D					~		۱ ـ
WELL DIAMETER (I	ngh <u>es):</u> 4	TUBING DIAMETER I	3/8	WELL SO	REEN INTE	HOLE FREI	TO WATE	EPTH (R (feet):	5289	PURGE PUMP '	Bt	٥	]
COLV (M OUT )	AC / STOCK	1 WELL VOLL	<u> ME = ((01</u> = (	190		<u>апс оертн</u> - <u>2.39</u>	<u>TO WATER)</u> (1 <del>50</del> 1_		ell cap 65		1 = 90.	99 gallons	][
		RGE: 1 EQUIF								THI + FLOW CE		7 Quinquis	<b>¦</b> ¦
(only fill out if	annikabis)		.s		alions → (	q <u>al</u>	K Joetkeng			ee() -	Shalkap	<u> </u>	]
NITIAL PUMP OR TUBING FINAL PUMP OR TUBING PURGING PURGING PURGED (Gallons):  DEPTH IN WELL (facts: 12.5 INITIATED AT: CC30 ENDED AT: PURGED (Gallons):										]			
51 TIME	VOLUME PURGED PURGED	CUMUL VOLUME PURGED (ganona)	PURGE RATE (DDM)	DEPTH TO WATER (lest)	<u>त्राप्ति</u> (इस्त्रपव्यत् हार्	TEMP.	COND. (jumbos/cpi or uS/cpi	QX (chrose	SOLVED YGEN movil or turation)	TURBIDITY (NTUS)	COLOR (describe		o A
1910	1	90	,44	53:13	8.0	23.0	343	0.	60	2.95	Clear	None	: ٥٠١
1101	149	112.5	144	53,1	7,40	25.4	428	0.	53	2.32			1-09
1152	11/2	135		<u> </u>	7.32	24.6	406	0,2		1.08			+12
1243	13/4	157.5			7.29	24.4	4/03	0.	<u> 34</u>	0.98		1	F09
							-						1
<u>:</u>													!
													1
<u> </u>													l
_,													1
	·												ı
WELL CAPAC TUBING INST	DE DIA, CAP	PerFoot); 0.7 ACITY_(Gst/FL)	<u>5"                                    </u>	<u>1" = 0,04;</u> 0006; <u>3/16"</u>	$1.25^{\circ} = 0.014$	5; 2° = 0.1 1/4° ≈ 0.002	6; 3"=0.: 8; Sh6":	37: 4" = 0,004;				2 <u>=5.88</u> 8 = 0.016	
Olivier on Ou		· · · · · ·				L <u>ing</u> D	ATA .						
SAMPLED BY			–	AMPLER(S) S		<u>i</u>		SAMPL			SAMPLING		l
PUMP OR TUE	BING	LE BURA		MZ/				TUBING	<u>RED AT:</u>		ENDED AT:	14/40	!
DELLH IN ME			<u> </u>	OW RATE (m	r ber wyunte		en erze.	MATER	MAL COD	E PF			1
FIELD DECON				ELD-FILTERE Ivation Equipu		<u> </u>	ER SIZE:	ты		UPLICATE:	Y	5	
	SAMPLE CO SPECIFIC				SAM	PLE PRESER	VATION			NTENDED	<u>s</u>	AMPLING	İ
SAMPLE ID	∄ CONTAINER	MATERIAL CODE	<b>NOT INE</b>	PRESERV	ATIVE AD	TOTAL VO		FINAL		METHOD	DR EC	COOE	
												7 12	
		ee A	ttac/	hed Ci	5-4						^		l
	•												l
	FP-	104-0	26-	200	( Due	licad	2/1/1	1-1					j
	FQ-	DL -0	06 -0		( u.s	Imu-			-				
	中()-	04-0	06 -	DOLL	Men	Imw.	-17					}	
						7	-						
REMARKS:	fflorent 1	water his	SML!	6-24113	Δ.	upe, m	5 + m	5/1	Also	Collecta	1		
TERIAL CO	DES.	AG = Amber GI	<u> 25೮.</u> CG =	Clear Glass;	PE = Pol	yethylens:	PP = Polypa			loons: Y = Teff		ner (Specify)	
PLING/PU LIPMENT C		P = After Peris PP = Raverse f		B = Baile		Bladder Pyr Method (Tu)	no: ESF	) = Electr		rsible Pump:	PP = Peristal		
NOTES: 1,		do upt cour			ation requ	ired by Ch	apter 62-16			\acrino ILSD;	O = Other (	<u>&gt;b€Cl1AJ</u>	
2.	STABILIZAT	<u> LON CRITERIA:</u>	pH:	+ 0.2;	Tempe	rature = + 0	.2°C;	Speçific	C Condu	ctance = readi	ngs are with	in + 5%;	
<u></u>										L) or 10% (for r			

#### DEP-SOP-001/01

# Florida Department of Environmental Protection GROUNDWATER SAMPLING LOG

SITE	Festi	us / Park				SITE	ON: . (	3×1a.	Lo F				
MELL		US 1 /2/6	· · · · ·	MSAMPL	트 (다:	- 0			005	DATE 2	14/04		<u> </u>
	100	TH / LEC /	- Carrier		PU	RGING	DATA		·				~
WELL DIAME 1 WEL	TER (in): L VOLUME (g:	NA al) = (TOTAL WA		WELL I (ft): — DEPTH I	NA OWAT	ER) X WEL	STATIC D TO WATE L CAPACI	R (f):	NA	CAPAC	СПҮ <u>(gal/ft):</u>	NA	
		=(		T PURGE		_ } X	PURG	=		TOTA	L VOL		_
PURG METH	OD:			INITIATE	AT:	1332	ENDE		1350	PURG	3ED (gai):		$\downarrow$
TIME	VOLUME PURGED (gal)		PURGE RATE (gpm)	OEPTH TO WATER _(ft)	ρH	TEMI (° C)	P. CON (штh	υ.	OXYGEN (mg/L)	TURBIDITY (NTUs)	COLOR	ODOR	OPP
	7	3,7	.42	NA	603	20.1	157.	<u>3   5</u>	,0 Z	4.68	C/201		- 006
											, , ,		┨.
										<del>-</del>			<u> </u>
	<del>_</del>									<u>                                     </u>	<u> </u>		
			,								├──		-
_		<u> </u>				+					<del>                                     </del>		-
				<u> </u>									1
	<del>-</del>						<del> </del>						1.
· -												_	1
WELL (	APACITY (Ge	ilans per Fact):	0.75" = 0.0	2: 1 = 0.0				3" = 0.3	7: 4" = 0.65	5 = 1.02; 6	7 = 1.47; 12*	= 5.88	]
					SAM	PLING							
AFFILLA		Vodasze	Assoc			SAMPLER SIGNATUR	ie(s)	MI	Bar	•			
SAMPL METHO		chiampens			_	SAMPLING				SAMPLING ENDED AT:	1410		
	ECONTAMIN	, , , , , , , , , , , , , , , , , , ,	2 N	FIELD	ンドルア			K		DUPLICATE	Y	£.	
	SAMPLE CO	NTAINER		SAI	APLE P	RESERVAT	ION						
NO.	MATERIAL CODE	VOLUME		SERVATIVE USED		OTAL VOL		FINAL pH		INTENDED AND/OR M		, ,, ,	
					<del> </del> -				<u> </u>		~	·	
<del></del>					-				<del> </del>				
					-				-				
			-		-		<u> </u>	_	<del> </del>				
<u></u> 1									<u> </u>	<del></del>			
— i					<del> </del>			_	<del>-</del>			<del></del>	
							i		<u> </u>				
					Ĩ				Î				
REMARK	(5:												
			100: 47	-050	1 000	00.00			AT	ARENIC "			
MILK	NL CODES: /	AG = AMBER GI	_A33; CG	- CEEAR (	10409;	-= = PC£	TEIHYLE	ויבוא ס	I = OTHER (	コンニレニアイ)		1	

NOTE: The above do not constitute all of the information required by Chapter 62-150, F.A.C.

1161

# DEP-SOP-001/01

	0 Groundwater	-
<u>GROUNDY</u>	VATER SAM	APLING LO
11	SITE	Oclando

NAME.	Fest i	4-1 1	7/K			LOCATION:		MARO		1-1		-  <u> </u>
MELLINO	mu	1-4		SAMPLE		P-04-		06_	DATE: 2	15/04		]
-						GING DA			-			٦1
WELL	7,1	TUBING	3/8	DEPTH:	REELOVIT	190 leet	5TATIC DI TO WATE	<u>EPTH 5 5 , 83</u> R (feel):	<u>PURGE PUMP :</u>	B	P	
WELL VOL	UME PURGE:	OVAMETER (N	ME = (TOT	AL WELL DE	ग्रं - इा	ATIC DEPTH			ACITY			11
DUTA III art	if applicable)		= (	190	f <del>8#1 -</del>	<u>55.8</u> 3		x 165		<u>. = 87</u>	gillons	]}
EQUIPMEN	IT VOLUME PU	RGE 1 EQUIP	MENT VOL	= PUMP VOI	LUME + (TI	JBING CAPAC	TY X	TUBING LENG	THI + FLOW CE	TAOTRIME		}
(only fix out	lf applicable)		<u></u>	=	aljons + /		опѕ/гоот Х		( <del>c.f.l</del> ) +	d⊴ilova ⇒	दशीठाई	1
	MET ((est);	125"		MELL (IGEL);	125	, PURGI	UG O Q	PURGIN ENQED	G AT: 1249	TOTAL VOLUM PURGED (gall	_	
TIME	NOLUME PURGED	CUMUL, VOLUME PURGED (gallors)	PURGE RATE (Qpm)	DEPTH TO WATER	Eliungand (Stanganda)	TEMP.	CONO. (umbostom or (LStom)	OXYGEN OXYGEN (drde my/L or % saturation)	TURBIQITY (NTUs)	COLOR (describe)	ODOR (designation)	ORio
0936	l	851	,49	55.91	7.86	23.3	224	0.78	0.47	CAL	None	148
1024	11/4	108.75	145		7.54	24.0	295	0.92	0,37		1	1-142
1112	1'/2	130,5		<del>    -   -   -   -   -   -   -   -   -  </del>	7.56	24.1	305	0.48	0,29			1136
												1180
												164
1744 710 114.0 1 1 1/30 21.2 311 9.31 0.11												Π
												ì
, ,												1
												l
WELL CAP TUBING IN	ACTY (Gallons SIDE DIA. CAP	Per Foot); 0.7.	5" = (),02; t 1/8" = 0.0	1" = 0.04;	1.25° = 0.	06 2 = 0.1 1/4 = 0.002					= 5.8 <u>8</u> = 0.016	
					SAM	PLING DA						
	BY (PRINT) AF			AMPLER(S) S		s:		SAMPLING	170	SAMPLING		
PUMP OR I		Nodars		AMPLE PUME	B			INITIATED AT:		ENDED AT:	1330	1
OED JH IN A	WELL (leer):		F	OW PATE (m	nt per minu			MATERIAL CO	DE: PE			l
FIELD DEC	ONTAMINATIO			ELD-FILTERE hrakon Edvior		AU FILT	ER SIZE		DUPLICATE:	Y (N)	اد	·
		CATION			SA	MPLE PRESER	NOUVA		INTENDED		MPLING	
SAMPLE ID		MATERIAL	VOLUME	PRESER		TOTAL VO		FINAL pH	ANALYSIS AND. METHOD		CODE CODE	1
0000	CONTRACT	14 2005				-525,111.0	-			Ø,	77	1
		50	d Ci	5+			`-					1
				1			_					1
												ſ
												l
				1								1
											1	Į.
REMARKS:												
MATERIAL		AG = Amber G		Car Glass	_	olvethylene:	PP = Polyp		Siliçone; _T = Tel		er (Specify)	
MPLING/PURGING APP = After Peristalic Pump: B = Baller, BP = Bladder Pump; ESP = Electric Submersible Pump: PP = Peristalic Pump  UIPMENT CODES: REPP = Reverse Flow Peristalic Pump; SM = Straw Method (Tubino Gravity Dialn); VT = Vacuum Trap; Q = Other (Specify)												
NOTES: 1. The above do not constitute all of the information required by Chapter 52-160, F.A.C.  Z. STABILIZATION CRITERIA: pH = -0.2; Temperature = +0.2 °C; Specific Conductance = readings are within +5%;												
Dissolved Oxygen = A1 < 20% saturation or B) readings are within + 5.2 mg/L (for readings > 2 mg/L) or 10% (for readings > 2 mg/L).  Turblidity = A1 < 20 NTUs or B) readings are within + 5 NTUs (for readings > 20 and < 50 NTUs) or 10% (for readings > 50 NTUs).												
	Turbidity	= A) < 20 NT	Us or 8) re	adings are v	vithin + 5 M	NTUs (for rea	<u>dings &gt; 20 :</u>	and 4 50 NTUs	) <u>or 10% (for rea</u>	dings > 50 NT	<u>(Us).</u> 1162	

# DEP-SOP-001/01 FS 2200 Groundwater Sampling

48min.

		, ,	GR	OUND	WATE	ER SA	<u>MPLIN</u>	IG LC	) <u>G</u>				
<u>.</u>	Festiva	Pari				OCATION:	016	ndo,	FL.				
AME. IELL NO:	mw-s			SAMPLE	ID: FF	204-0	06-0	07		DATE: 2	16/04	,	][
					PURC	SING DA	TA			-			_
DELL	(inches): 4.7	TUBING DIAMETER (	3/8	DEBIH)	REEN INTE	190 leel	STATIC D	R (#:et):		<u>PURGE PUMP T</u> OR BAILER:	B.	<i>&gt;</i>	
VELL VOL	(ITCRES); VIME PURGE:	1 WELL VOLU	ME = (TOTA		TH - STA	TIC DEPTH	TO WATER)	X WEL	L CAPA	CITY	. 88		]
	T VOLUME PU	DES. 450111	a (_	190		4,48	<u>leet)</u>		UENGI	gallons/foot		<u>qallons</u>	-{  -{
	il apolicable)	RGE: 1 EQUI			ellora + (		X tooliego			eél) +	= enoli⊊p	_qallons	.
	MP OR TUBING		FINAL PUMP DEPTH IN W	OR TUBINO		PURGIN	SED AT O6	- PL	JRGING		TOTAL VOLU		1
JED HW	WELL Meets:	CUMUL	PURGE	HTREO	면	1	COND.	DISSO	LVED	TURBIOITY	COLOR	ODOR	رط ا
TIME	YOLUME PURGED (dallogs)	VOLUME PURGED (mallons)	RATE (00m)	YATER (lest)	nuits)	TEMP.	or (LS/cm)	(circle n	ng/L or	(NTUs)	(describe)	(describe)	M
2948	1	88	.4%	54.65	3.22	24.6		2.1	5	2.78	deer	Lime	10
1036	1./4	110	1		7.73	24.7	379	1.1	6_	11.40	H	- <del></del>	10.
216	11/2_	/32	1.26	<u></u>	7,53	25.0	400	0.2			<del>                                     </del>	<del>    -</del>	4
1416	13/4	154	<u>[, \                                   </u>	54.54	7.49	24.9	410_	0.	29	1.04	<u>                                   </u>	<u> </u>	11-
							ļ <del>-</del> -			<del></del>	<del> </del> -	-	٠¦i
						<del> </del>					<del> </del>		-fi
·				_									1
. )—											<del></del>		1
													۱ ا
WELL CAP	ACITY (Gallons	Per Footh: 0,7 ACITY (GB)./FL	5" = 0.02; c 1/8" = 0.00	1" = 0.04; 08; 3/16"	1.25" = 0.00 = 0,0014;	1/47 = 0.003	6 5/16	37: 4" = = 0.004;	0.65; 3/8" =			- 5 <u>36</u> - 5 <u>016</u>	]{
						LING DA	ATA .						
	BY (PRINT) / AF		17		IGNATURES			SAMPLI		14115	SAMPLING ENDED AT:	1435	.
PUMPOR T	LUBING	Nodars	· SA	NELE PUMP	•			TUBING		17/2	<u> </u>	<u> </u>	ti -
	WELL (Feel): ONTAMINATION	N: (2) N	FLE	LD-FILTERE			ER SIZE	MATERI/		E:	Y _ (i)		11
- PELLY OF C	SAMPLE C			ration Equipa		PLEPRESER	TATION.		<del> `</del>			-1 (7)	
SAMPLEID	SPECIFI	MATERIAL.	T. (15) 11(45)	PRESERV		TOTAL VO		FINAL	<u> </u>	INTENDED ANALYSIS AND Y METHOD		MPUNG WIPMENT CODE	
COOE	CONTAINER		VOLUME	USE	D AD	DED IN FIEL	D (mL)	ρΗ		WELLIOO	<del></del>	COUE	
·		<del> </del>	500	6,57			+		-	,			li
	-	<del></del>	756	<u> </u>	<del>-  -</del>				+		-		i
	+								+	-			1
								_	_				l.
										· ·			1
													]
<u>RĘMARKŚ:</u>	* 8-13 e 1	THE Starte	اع طرمت اه	<u> </u>	ا در الموت	1459 24.							
MATERIAL	CODES:	AG = Amber C	Slash, CG =	Clear Glass:	PE = Po	vethylene;	PP = Polyo	mpylene;	5 = Si	licone; T = Teffo	on: 0 = Oth	er (Specify)	
	PURGING A	PP = After Peri FPP = Reverse	Statilic Pump:	B = Bail		≓ Bladder Pγ w Klethod (Tu				vacuum Trap	PP = Perista		
NOTES:	. The abov	e do not con	<u>ıstitute all o</u>	i the inform	nation requ	gired by Ch	apter 62-1	60, F.A.C.					'i
<u>2.</u>		TION CRITERU		100 OF B) r		: 0 + qittin + 0.				uctance.≂readii /L) or 10% (for n			
										or 10% (for read			

# PEL Laboratories, Inc.

# Chain of Cus. dy Record Record/Work Request

4420 Pendola Point Road Tampa, I Ja 33619 (813) 247-2805 • Fax: (813) 248-1537 E-Mail: login@Pelab.com

Gomp	any:			P	Project Name/I	Number:										Pag	el of	
<u>.i C</u>	H2M H:11 / 1 SS: 225 E. ROB	100/1/20	- 3 Acsi	06	Festival.	Park 1	776	52								DEP Form #: 62-770.9000	<u>2</u> )	1
Addre	SS: 225 E. ROB	insun 5	4 5614	k 505 P	roject Manage	er:										Form Title: Chain of Cust	sdy Recoi	d
	Orlando, Fo	<u> </u>	01.		Alan	Aikens		,	:				٠,			Effective Date: September	<u>23_1997</u>	}
Phone	: 407. 423-0030	Fax:		F	urchase Orde	u:										FDEP Facility No.	•	
Print ?	Námes(s) / Affiliation				.,•			!	Preser	vativ	es (s	e cod	es)			Project Name:		
M.	Ke Burns / A	ladarse							ı			- 1				Sampling CompQAP N	o:	·
Sempl	er(s) Signature(s)								Ana	ilyse	s Rec	ueste	i			Approval Date:		
	MIBO				,	,			1					1		REQUESTED DUE	DATE	-
Item		San	npled	Grab or	Matrix:	Number of		\$	20	Д.	++4	hea	6	5-1		1	1	)
No.	Field ID No.	Date	Time	Composite	(see codes)	Containers .			7	1						Remarks	L	b. No.
	FA-04-006	2/5/04	1330	Grab .	GW.	22										3 Allition I Empe	er es	
												٦.				YUMC biles		
			<b>.</b>														<u> </u>	
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			}			. 🚉												
•						1												
	Shipment Me	thod					+	Total N		er of	Cont	ainers		· · · ·				
Out:	/ / V	ia: Fed X	I	tem Nos.	Relinguish	ed by / Affiliati	005		Dat	e	Time	2		Acc	epie	by / Affiliation	Date	Time
Retur		ia.			Mile Bu	D/Nod.	rse		2/57	100		$\top$						
Addit	ional Comments:								,			$\top$						
						ž f												
						£.,				$\top$		$\top$						
1	_				, i	ii.				寸					_			
•				Со		Temperature(s)	(C)			$\neg$		Samp	ling	Kil No	 :	Equipment	D No.	
				,		<u></u>	-			$\top$								
MAT	RIX CODES: A ≈ Ai	г <b>GW</b> = 6	Groundwat	er SE = Se	diment SO	= Soil SW:	= Sur	face W	ales	W	= W	aler (E	lank	s) C	) = O	ther (specify)		
PRES	ERVATION CODES:	H-Hydroc	hloric acid	+ ice . I = Id		= Nitric acid + i												
														_ <u>`</u>	•		1164	

# PEL Laboratories, Inc.

# Chain of Cus ly Record Record/Work Request

4420 Penagia Fount 1920 Tampa, F la 33619 (813) 247-2805 • Fax: (815, 248-1537 E-Mail: login@ Pelab.com

PEL Laboratories, Inc.		<del>.</del>			
Company:	Project Name/Number:			Page	1 0/1
Address: 225 E. Rubinson St. Suite 505	Festival Park	177652		DEP Form #: 62-770,900(2)	
Address: 225 E. Rubinson St. Suite 505	Project Manager:			Form Title: Chain of Custody	v Record
Orlando, Fl. 32801	Alan Aikens	:	,,, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Effective Date: September 23	3. 1997
Phone: 407-423-0030 Fax:	Purchase Order:			FDEP Facility No.	
Print Names(s) / Affiliation		Preservatives (see coo	les)	Project Name:	
Mike Burns to Many Friethat Nodas	e 3 Assoc.	1   1   1		Sampling CompQAP No:	•
Sampler(s) Signature(s)		Analyses Requeste	d	Approval Date:	
MilBa				REQUESTED DUB D	DATE
Item Sampled Grab	or Matrix Number of			1 1	į.
No. Field ID No. Date Time Compo	site (see codes) Containers	See Attacher	2,5+	Remarks	Cab. No.
Fr. 44-06-001 2/4/4 1440 Grat	6W 22			3 Additional UM-1	" comed
FP.04-00-002 1500	22	1.		Yane Miles	
FP-04-06-003 1520	22			<b>3</b> 6. 3	
FF-04-06-004 1540	22		·	•	
FA-04.06-005 \ 1410 \	- 22				
	The same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the sa				
	·				
Shigment Method	110	Total Number of Containers	<u> </u>		-
Out: / / Via: fed X Item Nos		s Date Time	Accepted	by / Affiliation	Date Time
Returned; / / Via.	Mil but / Nadarse	2/4/04		,	
Additional Comments:	;	7,471			
	3	<del></del>	, ,		
	- Ki	7.			
	, i				
	Cooler No. (s) / Temperature(s) (C	Sam	pling Kit No.	Equipment ID	No.
		Juni,		79-17-10-10-10-10-10-10-10-10-10-10-10-10-10-	
MATRIX CODES: A = Air GW = Groundwater SE	= Sediment SO = Soil SW = S	Surface Water W = Water (I	Blanks) $\Omega = \Omega$	ther (specify)	

#### DEP-SOP-001/01

FT 1000 General Field Testing and Measurement

Festival Park

Field Instrument Calibration Records

				,								
INSTRUMENT (M	IAKE/MODEL#)	only one]  [ CONDUCTIVITY										
PARAMETER: [c	AMETER: [check only one]  TEMPERATURE CONDUCTIVITY SALINITY DP ORP  TURBIDITY RESIDUAL CL DO DTHER.  NDARDS: [Specify the type(s) of standards used for calibration, the origin of the standards, the standard, and the date the standards were prepared or purchased]											
☐ TEMPERATU	RE CONDU	CTIVITY	☐ SALINITY	Но 🔯	☐ ORP							
☐ TURBIDITY	🛚 RESIDL	JAL CL	□ 00									
STANDARDS: [5 values, and the date to	RAMETER: [check only one]  TEMPERATURE CONDUCTIVITY SALINITY X ph CRP											
Standard A	4.0											
Standard 8	7.0				•							
Charles O	in n											

Stand	ard C _	10,0						
OATE (yy/mm/dd)	TIME (hrmin)	STD (A. B. C)	STD	INSTRUMENT RESPONSE	% OEV	CALIBRATED (YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS
2/4/04	0930	A	- 4	4.45		96.5	Into	MB
		8	7	6.95				
		C	10	10.05				
24/04	1505	A	4	4.05		Jes	cont	mB
		_B	7	6.98				
		e	/0	10.01	_			J
2 5/04	0855	A	4	4.04			Init	mB
		<u></u>	7 ]	7,05				
L .		С	10	10.01				
25/04	1330	A	4	4.02			Cont	M B
		ß	7	7.0				
		و	10	10.01				1
2/6/04	0600	A	4	4.74		427	INIT	MA
		ß	7	7.01				
		С	10	10.00				
2/6/04	1513	A	iy	4.15		1.25	Con F	75
		B	7	7.10				1
		<b>C</b>	10	9.87				L
							·	
	}							

Litt 211800 Exp. 6/1/05

 	4011/033
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# Field Instrument Calibration Records

INSTRUM	ENT (MA	KEMOD	EL#)	OAK TON	10	INSTRUM	ENT#_4	453
PARAMET		neck only	one] CONDUCT		SALINITY	На [] НТО []	☐ ORP	
TURN STANDAR values, and to	156. m.	- if the re	RESIDUAL ne(s) of star were prend	. CL	calibration, i			standard
Standa Standa	ard A ard B	447						
Standa	TIME	STO	STO	INSTRUMENT	1	CALIBRATED	TYPE (INIT, CONT)	SAMPLER
(yy/mm/da)		(A, B, C)	VALUE	RESPONSE_	% DEV	(YES. NO)	لا أو رياء كالم	MB
2/4/04	0975	_ <i>A</i>	447	476	1	72.3	1	1
			1413	1397	<del></del>	<del></del>	cont	mps
214/04	1510	<u> </u>	947	449	+			
<del></del>		β	1413	1391		<del>                                     </del>	74/4	mr
2 5/04	0900	<u>A</u>	447	450	+			
		_b	1413	1357	<del> </del>	-	cont	mB
2/5/04	1334	<u>A</u>	447	446	<u> </u>			Ī
		<u></u>	1413	1347	<del> </del>		1	
2604	0605	_A	447	448	<del>  -</del>	1/25	Init	MB
		<u>/</u> 5	1413	14718	-			7 F
2/6/84	1519	<u> </u>	447	445_	-	yes	Cont	77
		<u>B</u>	1413	1401	-	<u> </u>	<u> </u>	<u></u>
			<u> </u>					
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	<u> </u>				1			

Lot# 2306059 EXP 5/04

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# DEP-SOP-001/01

FT 1000 General Field Testing and Measurement

NSTRUM	ENT (M/	AKE/MOD	EL#)	YST 5.	5_	INSTRUM	ENT# 94	MO178
		heck only		•				
	PERATUR		CONDUCT	ıvmy □s	ALINITY			
C7 -5:10	ainity	П	RESIDUAL	.c. M⊠r¤	0		IER*	
_	550. ··	المراجع المراجع المراجع	nate) of <del>sta</del> te	ndards used for Ga	dibration,	the origin of the	standards, the	standard
intima and	the data th	ia grannaius	MARIC NIAH	arco o, perane-	,			
Stand	ard A	100%	<u>40+0</u>	Calibrati	47	,		
Stand	ard B							
Stand	ard C						TYPE	SAMPLER
DATE (yy/mm/dd)	TIME (hranin)	51D (A, B, C)	STD	INSTRUMENT RESPONSE	% 0EV	CALIBRATED (YES. NO)	(INIT, CONT)	INITIALS
2/4/04	(III HI WE	<u> </u>	9					
2/4/04	0939	A	1000%	909%		Yes .	Init	mA
2/4/04		A	100%	99.7			Cont	MB
2 5/04	0905	A	1000/0	108.1			Init	
2 13104 21 5104	1338	A	1020/0	101.2			20:47	mr
	-	A	100%	102.5			Init	jes /5
2/6/04	0608	A	100%			yes	Con+	アル
2/6/04	1510		70070	7 87	<u> </u>	1 7		
	<del></del>				 			
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	<u> </u>							
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Page ___ot_

# DEP-SOP-001/01

FT 1000 General Field Testing and Measurement

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				1 2 1		2.2	11	ISTRUM	NEN! ∓ <u>    U</u>	0111017	<u> </u>
	_	theck only			_			_	<b></b>		
TEMPERATURE CONDUCTIVITY SALINITY OF ORP  TURBIDITY RESIDUAL CL OO COTHER  STANDARDS: (Specify the type(s) of standards used for calibration, the origin of the standards, the standard											
			-								_
STANDAI values, and	RDS; (S the date t	pecify the ty he standard:	pe(s) of sta s were prep	ndards used ared or purc	for ca hased)	libration, T	the o	igin of the	standards, the	a standard	
Stand	ard A _	22.3						_			
Standa	ard B _								•		
Standa	ard C _	· .									_
DATE (yy/mm/dd)	TIME (hranin)	STD (A, 8, C)	STD VALUE	NSTRUME RESPONS		% OEV		IBRATED ES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS	
2/4/04	0940	A	22.3	22.3			9,		In: +	MYS	_
2 4/04	1513	<b>A</b>	24.1	24,1			14	٠ ځ	cont	MB	
2/5/04		A	22.4	22.4					I.: 1	<u> </u>	
2/5/04	1339	A	22.2	2女.4					cort	mB	7
	0609	4	20.2	20.2					Init	MB	7
2/6/04	151	A	77.1	221			ν	2 5	Cont	772	7
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NUDARSE	AND	ASSOC	

DEP-SOP-001/01

IGE 01 4/033

FT 1000 General Field Testing and Measurement

INSTRUMENT (MAKE/M	ODEL#) HACH	2 100 P	INSTRUMENT	T# <u>MJ040002</u> 8774
PARAMETER: [check or	nly one]			
☐ TEMPERATURE	CONDUCTIVITY	☐ SALINITY	∏ pH	☐ ORP
X TURBIDITY	RESIDUAL CL		OTHER_	
STANDARDS: (Specify the values, and the date the standard			origin of the stand	dards, the standard
Standard A	5			
Standard B 60.1				•
Standard C 494				

	ara c_							
DATE (yy/mm/dd)	TIME (hamin)	STD (A. B. C)	STD	INSTRUMENT RESPONSE	% DEV	CALIBRATED (YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS
2/4/04	0943	<u> </u>	6.95	6.96		yes.	Init	JA PK
		<u></u>	40.1	60.4				
		ر	494	495				
24/04	1516	A	6,95	6.95			cont	the state
		<u>B</u>	60.1	60,2				
		و	494	494				
2/5/04	0915	A	4.95	7.0			Init	15
		B	60.1	60.1				
		2	494	495				,
2/5/04	1342	.A	6.95	6,94			cont	MB_
		B	60,1	60.2				
		С	494	494				
2/6/04	061	A	6.95	6.96			Init	MB
		13	60.1	60.4				,
,,,		د	494	493				
2/6/64	1515	A	6.95	6.96		1/e5	cont!	TP
}		B	60.	601		7		
		(	494	490				

Chain of Cus y Record Record/Work Request

44201 0110012 33619 Tampa, F' 33619 (813) 247-2805 • Fax: (810, ∠48-1537 E-Mail: togin@Pelab.com

PEL Laboratories Inc.	٠.	بر الراب				E-Mail: log	E-Mail: login@Pelab.com
Company:	Proj	Project Name/Number:		} -		Page	e l of
M Hill / Modkry	SSOC	子	rik 177	177656		DEP Form #: 62-770,900(2)	
3	Proj	eci Manager:	Suite 905 Project Manager:	,		Form Title: Chain of Custody Record	ody Record
Orlando FL3290		1	HAN HILEN	^		Effective Date: September 23, 1997	23, 1997
	. Pure	Purchase Order:				FDEP Facility No.	<u>, -</u>
Print Names(s) / Affiliation	,	.4		Preservatives (see codes)	codes)	Project Name:	
Tisting Epichemy ( High 15e & \$55060		,				Sampling CompQAP No:	io.
Sample (8) Bignature (5)		Į,		Analyses Requested	ested 💃 🐪	Approved Date:	
MANA			ŝ.		in in its	REQUESTED DUE DATE	DATE
	Grab or	Matrix Nu	Number of The T	ee Attack	ed ( 18 )	,	_
Time	Composite   (s	(see codes) Co	Containers			Remarks	Lab. No.
FP-04-06-0074464 1435	Grab	GW. 7	77			3 additions / Abi Presqued	esqued
		-				1001 Vites	
				<i>7</i> .			
		· -		, -	:		
<i>J</i>							
					-		
71.13							
		, ~	- 0.4 &	-		7	
Shipment Method			1	Total Number of Containers	iners		
Dui 1 1 Via: Fent Ex Ite	Item Nos. /	Relinguished by / Affiliations		Dute Time		Accepted by / Affiliation	Date Time
Returned: / / Via.	7.4	Grothickub,	Web Noberse	009/10/11/2			
Additional Comments:		,					
						/1	
		-					
	Coole	Cooler No. (s) / Tempekature(s) (C)	opkature(s) (C)		Sampling Kit No.	Equipmen 1D No	D No.
			. 1 .				
;∄	SE ≈ Sediment	lent SO = Soil	oil SW = Surface Water	ا . ا	W = Water (Blanks) O = C	O = Other (specify)	
PRESERVATION CODES: H-Hydrochloric acid + ice	ice l=Ice only		N = Nitric acid + ice S = 5	S = Sulfuric acid + ice	O = Other (specify)	(A)	

Evant 7 2/18/04 that 2/18/04

the control samphe head space.

2/16/04

* dumand FR-04-07-001 mw-4

* and gmm FP-04-07 -002 North Recharge

2/17/04 1-wm Duplicate (mm-1) #12mm and pmm FP-04-07-005 FP-04-07004 ms (nw-1) & full of FP-04-07-005 msD (au -1) FP-04-07-006 nla

2/18/04 FP-04-07-007 s-wy

## DEP-SOP-001/01 FS 2200 Groundwater Sampling

		72.15	G	ROUNI	AWC	TER SA	MPLI	IG LOC	<u> </u>			
₹.IĒ	Festiva	7	·			SITE LOCATION:	01	ando,	FL.			]  •
MELL NO.				SAMPL		-P-04		003	DATE: 2	117/04		<u> </u>
			-212			RGING D		DEFILE (7.5°	PURGE PUMP	TVGC		$\neg 1$
DIAMETER	(mones):	TUBING DIAMETER (	3/9	BEPTH!	REEN IN	to I a in the total or	TO WATE	R (leet):	OR BAILER:	B	~	<u> </u>
MELL VOL	UME PURGE:	WELL VOLU		190		1411C DEPTH 5 3, 5	- =	X WELL	APACITY	. <u>- 88 · </u>	6	11
EQUIPME	T VOLUME PUR	GE: 1 EQUIP	= (_ MENT VOL		reet -				VGTT+) + FLOW CE		Bubleb	
	lf applicable)		4		allons + (		X soctvangl		( <u>eer)</u> +	gallona =	gallons	.
	MP OR TUBING	1251	FINAL PUM	PORTUBIN VELL (feet):	Ġ	PURGI	NG ED AL 06	6 PURG	DAT 1224	TOTAL VOLUM PURGED (gall		]
TIME	VOLUME PURGED	CUMUL. VOLUME PURGEO	PURGE RATE (gom)	DEPTH TO WATER ((bet)	<u>하는</u> (종교사업관()	TEMP.	CONO. Lumboskom	OLSSOLVE OXYGEN (circlefina) % salurgio	Dr INTUSI	(Octobe)	ODOR (describe)	ORP
1957		88.6	,46	53,61	7,81	23,9	389	0.2	0.34	dear	MONE	-183
045	11/4	110,75	4	53,59	7.73		388	0.2	0.21	tt	11	F239
1133	11/2	132.9	ч	53.5°	7.67	23,9	389	0,2	0.34	11	- ()	<b>FZY0</b>
1221	12/4	155.05	. 1.1	11	7.63	24.1	393	0,2	0.25	- "	11	1-Z3'7
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							` _					1 ,
WELL CAP TUBING IN:	ACITY (GANORS P SIDE DIA, CAPA	CITY (GaL/FL)	5 = 0.02 1/8 = 0.00	1° = 0,04; 106; 3/46		1/4" = 0,002					≈ <u>5.88</u> `= 0.016	.
SAMPLED E	Y (PRINT) / AFF	LIATION:	, SA	MPLERIS) S		PLING DA	AIA .	041.57.7/5			<del></del>	. ,
ועם שווף	ns/ Dane Car	ffery Non		Mil Bu		MULL	4	SAMPLING INITIATED AT	<u>-</u>	SAMPLING ENDED AT:	1300	
JEPTH IN V			SA FL	MPLE PUMP OW RATE (m	L germi∩u	le):		TUBING MATERIAL CO	00E:		_	
TELD DECA	NOTAMINATION:	S N	FIE	DENTITURE	D: Y	FILT	ER SIZE:	<u>πυ</u> ,	DUPLICATE:			
	SAMPLE CO SPECIFIC				SA	MPLE PRESER	VATION		INTENDED		MELING	ĺ
SAMPLE 10 COOE	CONTAINERS	MATERIAL CODE	VOLUME	PRESERV USE	D A	TOTAL VO	(mL)	<u>FINAL</u> pH	ANALYSIS AND		DOE	
	<u> </u>								,			<b>[</b>
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<u>EMARKS:</u>	Du	pe, m	5, MS	D		riceldan in	witer Ex	Florat				
FRIAL		G = Amber Gl	nes, CG =	Clear Glass.	96 <u>≃</u> P/	วไทยกุมีภักมษ์:	PP = Polypr	pylene: S =				
<u>UING/F</u>	CODES: RFP	P = Raversa F	low Peristali		\$M = \$10	= Blander Pun w Nemoa (Tub	ing Gavily D	rain): VT	rversib <u>le Pumpr</u> = Vacuum Trap	PP = Peristallic O a Other (Sp		
OTES: 1. 2.		do not cons		the inform + 0,2;	ration r <u>ed</u> Temp	uired by Cha			ductance = readi	ngs are within	+ 5%;	
_	Dissolved Oxy	(qen = A) < 1	20 <u>% satur</u> a	jon or 8) m	adinas ar	e wilhin + 0.2	mg/L (for a	eadings <u>s</u> 2 m	10/L) or 10% (for n	eadings > 2 mg	<u>2/L):</u> 1173	
	Turbidity =	A) < 20 NTU	is or Bi rea	dings are wi	Ithin_+ 5 N	TUS (Incread	bn <u>as &gt; 20 a</u>	nd < 50 NTUS	s) or 10% (for rear	lings > 50 NTL	J <u>s).</u>	

#### DEP-SOP-001/01 FS 2200 Groundwater Sampling

		<del>۔</del> ر ۹		GF	ROUNE	TAW	ER SA	MPLIN	NG LOC	<u> </u>			
'WE:	Festi		grle	_			SITE LOCATION	.01	lances	,FG			]
11 NO.	Mw.				SAMPLE	10. F	12-04-	07-0	67	DATE: 1	118/04		71 -
						PUR	GING D	AT <u>A</u>					_!
타	41	TUBING DIAMETER (	3	12	WELL SO	REEN INTE	RVAL MC_IBET	TO WATE	PEPTH 5-5.2	OR BAILER:	A 12		
ELL VOL	UME PURGE:	1 WELL VOLL	IME = (	TOTA	L WELL DEF	7 <u>14 - ST</u>	TIC DEPTH	TO WATER	X WELL C	APACITY			∃i
The his Alt	if applicable)		9 (		190	igel –	<u>55,20</u>	C <u>feet</u>	x . 6		<u>or = 87,0</u>	Recoller Su	1
	IT VOLUME PU	IRGE: 1 EQU	·s_	VOL.		9  Ohz + (TU)		Ions/loot X	TUBING LE	NGTH) - FLOW () (ean +	ELL VOLUME gallons =	carlons	
	MP OR TUBINI WELL ((ext):	G 125'			PORTUBINO	3	PURGI	NG CO	35 PURC	D AT:	TOTAL VOLUM PURGED (call		1
ПМЕ	VOLUME PURGED (44(079)	CUMUL. VOLUME PURGEO (gallors)	PUR RAT	Œ	OEPTH TO WATER (Keet)	ग्णिक) (अत्यपिश्प् वर्स	TEMP.	COND. (without critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critical critic	OLSSOLVE OXYGEN (circle mort % saturation	or (MTLs)	(describe)	ODOR (describe)	OFT
315	1	*7.67	14:	3	55.39	7.30	23,9	286	0,17	2.51	clear	Lun	1128
106	11/4	109,5			55.4	634	24.0	298	0.20	1,97			-03
757	1'/2	131.4				6,68	24.1	309	0.19	1.21			F05
,50	13/4	153.3	,4	1		6.61	24.3	305	0.21	7.87			H05.
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<u>'</u>	,												! .
51 540	ACTY (Calland	Per Foot); 0,7	<b>2</b> 0 0		47.004	1.25 = 0.06	201	6; I ⁻¹ = 0.3	37; 4" = 0. <u>6</u> 5	5; <b>5</b> ° = 1.02;	5° = 1.47° 12°		! .
BING IN	TOE DIA. CAP	ACITY (Gal./FL)	1/6	0,00	009: 3/16**	= 0,0014;	1/4" = 0.002	B; 5/18 :				<u>≠ 5,88</u> = 0.016	
MPLED 6	Y (PRINT) / AF	FILIATIONS		SA	MPLER(S) SH	SAMP	LING DA	ATA .					:
	Burns /				-	BUT	•	i	SAMPLING INCLATED AT	E 1210	SAMPLING ENDED AT:	1250	
MPORT	UBING	· Charle			MPLE PUMP				TUBING			7230	i
	VELL (feet); ONTAMINATION	N. C. N		PIE	OW RATE (ml LD-FILTEREI	2; Y (N		ER SIZE;	MATERIAL C	DUPLICATE:	γ 🔊		}
	SAMPLE C			EM.	ation Equipm		V 5 Dodas	14704					
AMPLEID	SPECIFI	MATERIAL			PRESERV		LE PRESER		FINAL	INTENDED ANALYSIS AND	<u>ror</u> <u>Eou</u>	APLING IPMENT	
COUE	CONTĂÎNER	6 CODE	VOLL	IME_	USEC		DED IN FIELD		ρH	METHOD		ODE	
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MARKS:	212411 p	ocilles in	L = 4-61	ان	٠,٠							——j	
TERIAL C	ODES	46 a heles 6:	^	· · ·	Jear Glass	PE = Poly	albulaco:	99 - C-L		Silleong T = Teri	0 - 04	/féansibil	
		AG a Amber GI			9 = 8avle	r: 69 =	Elagoer Pur	10: ESP	= Electric Sub	mersible Pump:	PP = Perischlic		
MENT	CODES: RE	PP = Reverse	low Par	stalti	c Բսու <b>ր</b> :	SM = Slravy	Method (Tub	ing Gravity D	raint: _VT	= Vacuum Trap;	O = Other (Sp		
TES: 1.		e do not cons			- 0.2:	Temper	ature $= +0$ .	2 °C; S		ductance = read	ings are within	+ 5%;	
					_					10/L) or 10% (for			
	Turbidity	= <u>A) ሩ 20 NT</u> L	<u> </u>	read	jings are wil	<u> 10in - 5 NT</u>	Us (for read	in <u>os &gt; 20 a</u> i	nd < 50 NTUs	s) or 10% (for rea	<u>dinas &gt; 50 NTL</u>	<u> \$1.</u>	

#### DEP-SOP-001/01 FS 2200 Groundwater Sampling

		21.9	1/4 5	GROUN	DWAT	ER SA	<u>MPLII</u>	NG LOG	<u> </u>			
NAME.	Festiv	2	10			SITE LOCATION:	6/14	nde F.	۷,			]
WEL NO	mlu-	. •		SAMPL			-07-	001	OATE:	2/16/	104	<u>]</u> 1
WELL	110	TURING	3/	o Twels	PUR!	GING D		DEPTH	PURGE PUMP	TYPE		-l
DIAMETE	R (inches):	DIAMETER	inches):	OTAL WELL DE	/ leer to	190 (eet	TO WATE	FR (feet) > >	OR BAILER:	B	P	_
OUTA IN OR	n if applicable)	1 WELL VOL	= /	190		55,25	-	x . US		sat = 87.	58 nations	
	NT VOLUME PI	RGE: ( EQUI	PMENT V	OL. = PUMP VO		BING CAPA			NGTH) + FLOW C		Jess, 115	−li
TEMBY IN CO.	(1 2012 2017		<u></u>	=	pallans + (		ilans/foot X	~	/een+	_ qaltons	<u> </u>	یا
	MELL ((lect):	S		UMP OR TUBIN IN WELL Ifeelt:	<u></u>	PURGI	NG OG	PURG ENDS		PURGED (92	ljous); IME	
TIME	(dalloua)	CUMUL VOLUME PURGED (49Hons)	PURG RATE (opm)	WATER	HQ tysbness)	TEMP.	COND. ((unnostan (o uskan)	OISSOLVE OXYCEN (cital mail % salitation	TURBIOITY (NTUS)	(describe)	ODOR (describe)	PRI
940_	1	87.58	143	55.33	7.44	22.6	365	0.4	0.91	dear	none	1-14
031	11/4	109.48			7,23	23.0	371	0.4	0.36	3		1-12
122_	11/2	113,38	<del> - -</del>		7.82	23.6	372	0,2	0,25		1	1-12
<u> 213</u>	13/4	153.28	<del>                                     </del>		7.81	23.8	371	0,2	0.04	!-	<del>                                     </del>	1 /C
							<del>                                     </del>			-	<del>                                     </del>	-¦¦
							<del>                                     </del>			<del></del> -		∤i ⋅
												1
												1 .
VELL CAP	AÇIYY (Çallorıs	Per Footh 8.7	7 3 0 02	17 = 0.04;	1_25" = 0.05	<u> </u>	∯; 3° = 0.;	37° 4°≈0.65	5'=1.02;	B°= 1,47; _12		]!
UBING IN	SIDE DIA CAP.	CTY (GBUF)	1/8" = 0	0.0008; 3/16	= 0.0014;	1/4" = 0.002 LING DA	(0; 5/16 ·				<u> </u>	'
AMPLED	Y (PRINT) / AF	FILIATION:		SAMPLER(S) S			ATA .	SAMPLING		\$4404 m/m	-	
ite B		re taffa	<u></u>		رنن			NITIATED AT	1455	SAMPLING ENDED AT	1530	l
	VELL (Feet):			SAMPLE PUMP FLOW RATE (M	L <u>per minute)</u>			TUBING MATERIAL CO	)DE:			1
ELD DEC	ONTAMINATION			Filipidon Edulor		) HIL	ER SIZE:	1101	DUPLICATE:	<u> </u>		1
SAMPLE ID	SAMPLE CI SPECIFI	CATION		PRESERV		LE PRESER		- Cinner	INTENDEO ANALYSIS AND/		MPLING ULPMENT	
CODE	CONTAINER	S COOE	VOLUM	E USE		ED IN FIELD		<u>PH</u>	METHOD		CODE	
	_		<del>                                     </del>	+-1					<u></u>			l I
	-	<u>Se</u>	L	<u>:</u> ;; 5+						_ <del> _</del>	;	, }
		-		+		_					—— j	
MARKS:												-
		M 5,	MSI	D								
ATERIAL C		AG = Amber Gla		= Clear Glass.	PE = Poly		PP = Polypro		illicons; T = Tett		r (Saeçilv)	
MENT	CODES: RF	P = Alter Penst PP = Roverse F	low Perist	מולב פעיום:	SM = \$Iraw		ing Gravity D		tersible Piump: Vacuum Trap:	PP = Peristallin Q = Other (St		
TES: 1.		do not cons		<u>of the inform</u>   = + 0.2;		red by Cha stura = + 0.			(uctance = rea <u>dí</u>	nos are within	+ 5%:	
	Dissolved Ox	ygen = A) < 2	10% satu	ration or B) re	adings are v	viitin + 0.2	mg/L (for re	adi <u>nas s 2 m</u> e	o/L) or 10% (for r	eadings > 2 m	19/L): 1175	
	Turbidity :	A) < 20 NTU	s or B) r	eadings are w	thin + 5 NTT	<u>Js (lor≀ead</u>	<u>inas &gt; 20 ar</u>	<u>nd :50 ŅTUs</u>	or 10% (for read	<u> </u>	<u>/s}.</u>	

#### DEP-SOP-001/01 FS 2200 Groundwater Sampling

## GROUNDWATER SAMPLING LOG

₹₩E,	Festiva	. I Parl	<i>.</i>				ا ا	OCATION:		1 la	ndo	f c		
EL NO.	N/ Re	charge	الرب	7	SAMPLE	<u> 1D-</u>	F	P-04-	07-00	2		PC DATE 1	116/04	
		- 3					IRG	NG DA	ATA					•
<u>B.</u>		TURING DIAMETER	1	2"	WELL SO	REENI	NTE	TVAL U/Y feet	STATIC D	R (fee	NA	PURGE PUM OR BAILER:	S P	
EL VOL	(inches): LIME PURGE:	1 WELL VOL	IME = (T	OTA	WELLDER	7H	STA	गट वेह्हास	TOWATER				<u> </u>	
Up till ont	if applicable)		u (			feet -			feet			gallons/fg	g1 =	gallons
	(T VOLUME PU i/ applicable)	RGE: 1 EQUI	WENT V	OL.	PUMP VOL	TYRE -	TUB	ING CAPAC	ITY X	ŢŲΕ	ING LEN	GTH3 + FLOW C	STT AOT DIVIE	
TRY IN OCH	<u>" abbite</u> 42-51		.4	_		allans →	<u>ر _</u>	qall	X (neil/ten)			feet) +	gallons	<u> </u>
	WELL TEEK:				OR TUBINO	3	_	PURGIN		·	PURGIN	<u>AT:</u>	TOTAL VOLU	
TIME	VOLUME PURGED	CUMUL VOLUME PURGED	PURX RAT		DEPTH TO WATER	<u>pH</u> (standi umita	धार्य	IEMP.	COND. (umhosipm or us/on)	3	SSOLVED DXYGEN de mail o	TURBIDIT	Y COLOR	ODOR (describe)
	(gáilóns)	(gailors)	(104	<u>n</u>	(lest)	6,16		204	192		3.	3,04	Disty	Salden
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- C C C C C C C C C C C C C C C C C C C	VÇTY (Gallors /	3 F	- 100		M = 0.04	4.049	220	<u> </u>	·	<u>.</u>	10 0 00			
BING INS	ROE DIA, CAPA	CTTY (GAL/FL)	1/8" =	0,000	6; 3/18	× 0.0014		144 = 0.002	3' 5/18"	= D.004	4" = 0,65; l; 3/8"			<u>= 5.88</u> = 0.016
MPI EN B	Y (PRINT) / AP	TI JATIOAL		SAR	PLER(S) SI			ING DA	Τ <u>Α</u> ,					
Voder		<u>ÇANON,</u>		-12/12	Mil p		72.				PLING ATED AT:		SAMPLING ENDED AT:	1330
IMP OR T	UBING				PLEPUMP				-	TUBI	NG			1000
	ELL ( <u>fect):</u> INTAMINATION	. Ä ,	-+		W RATE (m) D-FILTERE			FILTE	R SIZE:	MATE	<u> </u>		62 · N	
	SAMPLECO				ulou Ednioui							DUPLICATE:		.— <del>-</del>
AUPLE 10	ŞPECIFIC	ATION		_	PRESERV		AMPL	E PRESER!		CIALA		INTENDED ANALYSIS AND		UIPMENT
CODE	CONTAINERS	CODE	VOLU	ME	ÜSEI		ADD:	ED IN FIELD		FINA(	-	<u>METHOO</u>		CODE
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MARKS.		ba -		<u>_</u> L			_							¦
		M 5	M5	N										- 11
TERIAL C	ODES: A	G = Amber GI	ess: Co	ē = C	Far Glass:	PE =	<u> প্রমান্ত</u>	ihylene:	PP = Pplyon	-, op <b>ylen</b> e	a: <u>S = 5</u>	licone: T = Te	lon: O = Oth	r (Specify)
NG/P		P = Alter Persi			0 = Baile			Jander Pum Jemad (Tubi				orsible Pump; Vacuum Trap;	PP = Peristall	
TES: 1.	The above	do not cons	ti <u>tute</u> al	ll of t	he inform	ation re	guir	ed by Cha	oter 62-16	0, F.A	Ċ.			
<u>2.</u>		ON CRITERIA:			0.2;	-		ture = $+ 0$ .	_			<u>uctэлсе = read</u> (L) or 10% (for		
	_			_	_				_			or 10% (for rea		10/C)r

PEL Laboratories, Inc.

## Chain of Custody Record Record/Work Request

4420 Pendola Point Road Tampa, Florida 33619 (813) 247-2805 • Fax: (813) 248-1537 E-Mail: login@Pelab.com

PEL Laboratorie	es, mc										_							
Company:				Project Name/Number:									· .	Page	oſ			
CH2M H:11 /1 Address: 225 E. Robi	vodarse			Festiv	nager:		<i></i>	77	16:	52	<u>-                                      </u>				DEP Form #: 62.770.	)00(2)		
Address: 225 E. Robi	m 500 5	t. Suid	0 505	Project Ma	nager:		:			•					Form Title: Chain of t		Recon	<u> </u>
Orlando, FL. 3	2801			Alan	Aikens		:								Effective Date: Septer	<u>nber 23.</u>	<u> 1997</u>	
Orlando, FL. 3 Plione: 407. 423-0034	Fax:			Purchase C	)rder:			` 							FDEP Facility No.			
Print Names(s) / Affiliation	Noda	5-6			•			Prese	et vali	ves (s	ee co	des)	_		Project Name:			
Mike Burns / David C	affery									)			<u> </u>		Sampling CompQA	P No:		
Sampler(s) Signature(s)						<u></u>		Ar	nalyse	zs Rec	ueste	ed	_		Approval Date:			
The Ba														1	REQUESTED (	UE DA	TE	
Item	Sam	pled	Grab or	Matrix				Sa	ا م	Li	; <del>/</del> .	14	J I	./	/	1		
No. Field ID No.	Date	Time.	Composi	te (see code	es) Containers							"	116.70		Remarks		Lab	. No.
1 FF-11-07-003	איט/רו/ב	1300	Grab	Gω	25	Ш				'	_				Mr4-1			
2 1.1.04.07-004		1330		$\bot$	25_	Ш							<u> </u>	<u> </u>	Dupe			
3 FP-04-07-005		1400	<del>    -</del>		25	$\perp$							_	<u> </u>	m 5			
4 FROK07-006		1430	<u> </u>		25	$\sqcup$	-	<u> </u>				<u> </u>	lacksquare	_	MSD			
Trip + Trap					8	igspace						<u> </u>		<b>↓</b> _				
			<u> </u>					·				<u> </u>	_					
			<u> </u>			$\perp$								_				
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			<u> </u>									<u> </u>						
Shipment Me	thod				/08	—نا	Total	Numt	ber of			5						
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Returned: / / V	ia.			11/2					_	12:00	_	1/2	<u>L/</u>	er.		2/17/	111	
Additional Comments:			1	Mill	B ~			2/17	/017	170	Ů							
											$\perp$							
				Cooler No. 1	(s) / Temperature(s	) (C)					Sam	pling	Kit i		Eguipme	nt ID No	0	
					·											1177		
MATR 'ODES: A = Ai		Groundwal		= Sediment	SO = Soil ^W								-			_		
PRESENTATION CODES.	H-Hydroc	blone scid	1 + ice I	= Ice only	N - Nitric want +	ice	۹ –	duller	rin ani	计上记	4	n-1	70har	tennoi.	£\			

PEL Laboratories, Inc.

# Chain of Custody Record Record/Work Request

4420 Pendola Point Road Tampa, Florida 33619 (813) 247-2805 • Fax: (813) 248-1537 E-Mail: login@Pelab.com

PEL Laboratories, Inc.				
Company:	Project Name/Number:			Page / of /
CHZM Hill / Nodarse  Address: 32801  225 E. Rubinson St., Suite 505, Orlando, FZ  Phone: 407-423-0030 Fax:	177652 Project Manager:		·	DBP Form #: 62-770,900(2)
Address: 3280	Project Manager:			Farm Title: Chain of Custody Record
225 E. Rubinson St. Suite 505, Onlando, FE	Project Manager: Allen Aikens		}	Effective Date: September 23, 1997
Phone: 407-423-0030 Fax:	Purchase Order:	. ,		FDEP Facility No.
Print Names(s) / Affiliation		Preservatives	(see codes)	Project Name:
Mike Burns / David Cattery				Sampling CompQAP No:
Sampler(s) Signature(s)		Analyses R	equested	Approval Date:
Mit bo Relleft				REQUESTED DUE DATE
liem Sampled Grab of	Matrix Number of	1		, ,
No. Field ID No. Date Time Composi	ite (see codes) Containers			Remarks Lab. No.
1 FP-04-007-0102/16/04 1530 Grai	6 GW 25	See Li	5+1	
2 FP-04-007-02 1330	25			1 ,
3 Trip 3 Field blank	4			
	, ,			Şt
Shipment Method	54 + To	1al Number of Co	ntainers	
Out: 1 1 Vio: Fed X Item Nos.	7 Relinquished by / Affiliations	Date Tir	ne Accepted	by / Affiliation Date Time
Returned: / / Vio.	1 HAN / PEU	09/12/04 12	100 Milipor	2/13/04/170
Additional Comments:	mil Bw	2/14/04 170		
1		,		
	Cooler No. (s) / Temperature(s) (C)		Sampling Kit No.	. Equipment ID No.
	·			4470
MATR' 'ODES: A = Air GW = Groundwater SE =	Sediment SO = Soil SW = Surfa	ce Water W = V	Vater (Blanks) O = Ot	her (specify)
PRESERVATION CODES: H-Hydrochloric acid + ice I	= Ice only N = Nitric + ice S	= Sulfuric acid +	ice O = Other (specify	<i>n</i>

# PEL Laboratories, Inc.

## Chain of Custody Record Record/Work Request

4420 Pendola Point Road Tampa, Florida 33619 (813) 247-2805 • Fax: (813) 248-1537 E-Mail: logIn@Pelab.com

PEL Laboratories, Inc.	Durlan Nama (Mana)			
Company:	Project Name/Number:		4 =	Page of
CH2M HILL Nodges	Festival Park	17769	<u>5 ²</u>	DEP Form #: <u>62-770.900(2)</u>
Address: 125 E. Robinson St. Suit 505	Project Manager:	*		Form Title: Chain of Custody Record
Urlando, FC.	Alan Aikens			Effective Date: September 23, 1997
Phone: 407-423-10030Fax:	Purchase Order:			FDEP Facility No.
Print Names(s) / Affiliation Mille Burns		Preser	rvatives (see codes)	Project Name:
Nodarse 3 Assoc				Sampling CompQAP No:
Sampler(s) Signature(s)		Anı	alyses Requested	Approval Date:
Mil ba	77.1			REQUESTED DUE DATE
Item Sampled Grab		See At	tacked 6 5+	P 1 /
No. Field ID No. Date Time Comp	<del></del>			Remarks Lab. No.
FP-04-07-007 2/18/04 1250 G/A			<del>                                     </del>	
Trip 3 Temp Blank	2	<del>├</del> ┼─┼		
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Shipment Method  Out: 1 1 Viz: 7.4 4 Item No	s. Relinquished by / Affiliati			Accepted by / Affiliation Date Time
July Land Land Land Land Land Land Land Land				<del></del>
Returned: / / Via.	1 Pts		<del></del>	L Bu= 2/18/04/17/17
Additional Comments:	Man pros		· · · · · · · · · · · · · · · · · · ·	
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	+			
	Cooler No. (s) / Temperature(s)	(C)	Sampling Kit	No. Equipment ID No.
W 1	Conier 140' (2) 1 Temberamite(2)		Oatuhung 1711	Equipment 10 110.
MATR' ODES: A = Air GW = Groundwater Si	E = Sediment SO = Soil W	= Surface Water	W = Water (Blanks)	$\Omega = \Omega \text{ (specify)}$
MATR' ODES: A = Air GW = Groundwater Si				

Page 1 of 5

INSTRUMENT (MAKE/	wrw MODEL#) <u>wultil</u>	ine P3	INSTRUMEN	T# 81552054
PARAMETER: [check		1		
TEMPÉRATURE	CONDUCTIVITY	☐ SALINITY	Hq函	□ ORP
TURBIDITY	RESIDUAL CL		☐ OTHER	
STANDARDS: [Specify values, and the date the star Standard A PH 4.6	the type(s) of standards us neares were prepared or put $00^{\circ}$ , (of # $2242$	INCHACRAI	4	ndards, the standard
Standard B PH 7,4	00 Lof# 2170,	EAPIR-06/30/	04	,

Standa		ו טטנטן די						
DATE (yy/mm/dd)	TIME (homin)	STD (A, B, C)	SID	Instrument Response	% DEV	(YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS
04/02/16	A20	A	4,00	4,03		Yes	Inut	DMC
		\ <u>\\</u>	7,00	7,00		Yes	11	11
	V	A	300	3,99		After,	11	11
	0430	B	7,00	7103		Cali	74	' 1/
	1600	B	7,00	7205		No	CONT,	4
V	1604	<u>C</u>	10,00	10,10		1(	11	11
04/2/17	0930	A	4.00	3.98		1 Del	Init	DMC
	-1	B	7,00	7.04				
	V	$\mathcal{A}$	4,00	3.98		Aller		
	0940	$\mathcal{B}$	7,00	7.03		V Carle		
	1400	B	7,00	2.04		No	Conti	11
V	tc	C	10,00	10,09		No	14	11
			,					
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Page 2 of 5

			-1 III	NTW Ywitilike P	3	INSTRUM	ent#815	52054
				y port in the	<del></del>	(49) Hom		
PARAMET		. /	onej Savena	, , , , , , , , , , , , , , , , , , , ,	AL DUTY		. CORP	
	PERATUR		CONDUÇT RESIDUAL	TVTTY ☐S.			ER	
חדטא.		-	-					
				nderds used for ca ared or purchased				GM/IGG/G
Standa	ard A _/	1413 ws/c	и , Lot#	ENHITTA/ILE	4017-0	2/30/04		
	ard C _							•
DATE	TIME (http://links)	STD (A, B, C)	STD	INSTRUMENT RESPONSE	% DEV	CALIBRATED (YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS
(yy/mm/dd) 04/02/16	0920	<i>A</i>	1413	1433	70 22 -	105	Init	Dric
1	101	A	1413	1415		AFTERCAL	16	11
V	1600	A	1413	1434		No	CONTL	4/
04/02/17	0930	A	1413	1464		1/25	Init:	/1
1	11	A	1413	1445		Affer	( (	11
	1400	A	1413	1418		NO	CONTI	1)
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·	ENT /M	イベモングリン	£1 #\	wTW OXi 330		INSTRUM	ENT# 24	0001
DADAMET		heck only (	nnel		!		,	
	PERATUR		CONDUCT	YIIVY []	SALINITY	ДрН	ORP	
	BIDITY		RESIDUAL		, DO	☐ OTH	IER	
CTANSAE	ons: Isi	pacify the two	ne(s) of star	ndards used for (	alibration,	the origin of the	standards, the	standard
whom and i	tha data th	m dandame	WELL STEW	ama or nunchase	rd)			
Standa	ard A	Aur Satu	west vo	^				
Standa	ard B							
Standa	ard C							,
DATE (yy/mm/dd)	TIME (hrmin)	STD (A, B, C)	STD VALUE	INSTRUMENT RESPONSE	% DEV	(YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS
04/02/16	0925	A		50.90/14.5%	2	Yes_	Inite	DMC
01/02/17	0935	A	_	50.91/1250	-	Yes	10	11
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					t			
PARAMET			CONDUCT	nutv □s	ALINITY	Hq□	ORP	
M TUR	PERATUR		RESIDUAL	_			ER	
STAMBAE	שלי ישתם מיייטום			ndards used for ca		he origin of the	standards, the	standard
*	<u> </u>	~~~~~~~~~~		2008 AF NEUT'DREAD	ľ			
Standa	ard A 1	Outu, L	+#AZ.	340, Exp, - 1	2/04			
Standa	ard B Zi	DiOnte, L	ut#A3	340, Exp 1 113, Exp	04/05			
Standa						<u> </u>		
DATE (yy/mm/dd)	TIME (humnin)	STD (A, B, C)	VALUE	INSTRUMENT RESPONSE	% DEV	CALIBRATED (YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS
04/02/16		A	1.0	1.0	_	No	Inite	DMC
1	1610	В	20,0	20.9		No	10	16
	1610	A	110	1,0		No	Conti	11
V	11	B	20.0	20.9		No	16	34
04/52/17	0950	A	1,0	1,0		No	Int.	11
<del></del>		B	20,0	20,9		No	11	11
		A	10	110		No.	CONTI	11
		B	20,0	20.9		No	16	11
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NSTRUMI	ENT (MA	KE/MODE	EL#) _	Multillue	P3_	INSTRUM	ENT # 215	32037
PARAMET	ER: [cl	neck only d	ne]	•	1		<b>&gt;</b>	
TEM!	PERATUR			ויוויץ ב			<b>⊠</b> ORP	
TUR	YTIOIE		RESIDUAL		00		ER	
column and t	ha date th	einabata e	<i>were ого</i> оч	area or purches	HEUJ,	the origin of the	standards, the	standard
Standa	ard A 2	40mV, 2	+# 102	1, EXA - 0	706			
Standa							7	OAMEI SE
DATE (yy/miti/dd)	TIME (hu:min)	STD (A, B, C)	VALUE	INSTRUMENT RESPONSE		(YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS
04/02/16	0930	A	240	249		NO	COUT	DMC
04/02/16	1610	A ·	240	248				
	0940	A	240	250				
04/02/17	1405	A	240	248		1		W
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FT 1000 General Field Testing and Measurement

NSTRUMENT (MAKE/MODEL#)	NSTRUM	ENT (M/	AKE/MOD	EL#) (DAKTON	10_	INSTRUM	ENT # 40	453	-
TEMPERATURE CONDUCTIVITY SALINITY DPH ORP TURBIDITY RESIDUAL CL DO GOTHER STANDARDS: [Specify the type(s) of standards used for calibration, the origin of the standards, the standard ralues, and the date the standards were prepared or purchased] Standard A H.O Cah Cah OS977-19 E1,000 1/2560 Standard B 7.O Cah OS977-19 E1,000 1/2560 Standard C IO, D Cah OS977-12 DATE TIME STD STD INSTRUMENT RESPONSE DEV (YES.NO) (INIT.CONT) INITIALS (INITIALS) [Initial OS977-10										
TURBIDITY RESIDUAL CL DO OTHER STANDARDS: [Specify the type(s) of standards used for calibration, the origin of the standards, the standard values, and the date the standards were prepared or purchased] Standard A H.O CAP OS977-19 E1; 2/25% V Standard B 7.0 CAP OS977-12 Standard C IO, D CAP OS977-12 DATE TIME STD STD INSTRUMENT (YES.NO) (INIT. CONT) INITIALS (Lymmydd) (Inmin) (A.B.C) VALUE RESPONSE % DEV (YES.NO) (INIT. CONT) INITIALS (Lymmydd) (INIT. CONT) STOR (INITIALS) 1/2/04/035/1 A E/O 3.83 /25 JOIN NAP 1/2/12 A 4/ 3.98 CONF NAP 1/2/12 A 4/ 3.98 CONF NAP				CONDUCT	TVITY S	ALINITY	Hq⊠	ORP		
STANDARDS: [Specify the type(s) of standards used for calibration, the origin of the standards, the standard ralues, and the date the standards were prepared or purchased] Standard A	(T #()p	RIDITY	[7	RESIDUAL	CL 🗆 🗆					_
Standard A		10¢. 6	. E. H + .	andel of stat	ndards used for ca	alibration, t	the origin of the	standards, the	standard	
Standard B	ralues, and I	the date th	e standaros	were breb	aten or hereingere	,				
Standard C 10, D								,/2326-7		
Standard C 10, D 2014 05177-12	Standa	ard B	7.0							
DATE (yy/mm/dd) (hrmin) (A. 8. C) VALUE RESPONSE % DEV (YES. ND) (INIT. CONT) INITIALS (YY/mm/dd) (hrmin) (A. 8. C) VALUE RESPONSE % DEV (YES. ND) (INIT. CONT) INITIALS (INITIALS (Y//mm/dd)) (INIT. CONT) INITIALS (Y//mm/dd) (INIT. CONT) (Y//mm/dd) (Y//mm/dd) (Y//mm/dd) (Y//mm/dd) (Y//mm/dd) (Y//m						477-12		TVOE	SAMPI SR	٦
10 10 10 10 10 10 10 10	DATE	TIME	STD	STD		% D€V				-
					3.83		1/25	Init	pIp	_
E 10,0 9.0 1212 A 4 3.98 Cont MA Cont MA 10,0 10 10,1	7 113764	0857			7.0					,
1212 A 4 3.98 Cont mp 6 7 7.0 10 10,1									1	
1217 A 7 7.0		15.0						cont	MA	
C 10 Ja,1		1212			1	_		.)]
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FT 1000 General Field Testing and Measurement

INSTRUM	MENT (N	MAKE/MOI	DEL#)	OAK TOIL	1_10	INSTRUM	MENT#_4	0453
PARAME	TER: (check only	one]					
TEN	MPERATU	IRE X	CONDUC	ענועוד 🛚	SALINITY	□рн	☐ ORP	
TUF	RBIOITY		RESIDUA	LCL 🗆	DO	□ OT:	ER	
STANDA values, and	RDS: [S	Specify the ty the standard	rpe(s) of sta s were prep	andards used for pared or purchase	calibration, ed]	the origin of the	standards, the	standard
Stand	ard A	447		ELP P	97 2004	Est# 230	6057	
							•	
Stand	ard C _							
DATE (yy/mm/dd)	TIME (hrmin)	STD (A, B, C)	STD	INSTRUMENT RESPONSE	% OEV	CALIBRATED (YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS
2/12/04	0855	_	4447	428		127	INIL	ڈام ببو
	1210	A	447	441			CONF	an K
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FT 1000 General Field Testing and Measurement

INICTO!	AESIT (N.	40 KE/MO!	⊃⊏! ' 4/	YST 5	-5	INSTRUM	MENT# 9	(MOI)	i >> 1
	•	check only				ino i non	TL-141 #	21101	<u> </u>
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_									
STANDA	RDS: /S	Specify the ty	roe(s) of sta	andards used for c pared or purchase	alibration.				_
				Calibrat					
	ard C								
DATE (yy/mm/¢d)	TIME (hr.min)	012 (A. B. A)	STD	INSTRUMENT RESPONSE	% DEV	(YES. NO)	TYPE (INIT, CONT)	SAMPLER]
2/18/04	0359	A	100 1/2	183.7	-	L'es	Fait	MB	1
1	1205	P	100%	98.5			Cont	NA.	1.
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FT 1000 General Field Testing and Measurement

Field Instrument Calibration Records

INSTRUMENT (MAKE	MODEL#) YST	±55	INSTRUMENT	# <u>96MOI78A</u> 1
PARAMETER: [check	only one]			
TEMPERATURE	CONDUCTIVITY	SALINITY	□ pH	ORP
☐ TURBIDITY	RESIDUAL CL		C OTHER _	
STANDARDS: [Specify values, and the date the star	the type(s) of standards us idards were prepared or p	sed for calibration, th urchased	e origin of the standa	nrds, the standard
Standard A				
Standard B				
Standard C				
DATE TIME ST	D I STD INSTELL	IRAENIT)	241.4004	OF BALLOUED

Starios								
DATE (yyimm/dd)	TIME (himin)	(A, B, C)	STD VALUE	INSTRUMENT RESPONSE	% DEV	(YES, NO)	TYPE (INIT. CONT)	SAMPLER INITIALS
2/13/04	0900		23.8	23.8		Yes	Dui'L	MB
1	1206		24.0	24.0			cont	P+ F
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Revision Date: January 1, 2002

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DEP-SÓP-001/01

FT 1000 General Field Testing and Measurement

Field Instrument Calibration Records

INSTRUM	IENT (MAKE/MO	DEL#)	HACH	12	100 P	INS	STRUI	MENT	[# <u>_^)</u> _	04000	<u> 2</u> 8774
PARAME	TER:	[check only	one]									
☐ TEM	APERAT	URE [COMBUC	TIVITY		SALINITY		☐ pH				
FUT X	RIDITY		1 RESIDUA	L CL		00			HER			_
STANDA! values, and	RDS: the date	(Specify the ty	/pe(s) of sta 's were prep	indards usi pared or pu	ed for c rchase	alibration. dj	the orig	in of the	stanc	dards, the	standard	
Stand	ard A	4.71			lex			_				
Standa	ard B	60.3						-		•		
Standa	ard C	990						-	_			
DATE (yy/mm/dd)	TIME (hr:mir		STD VALUE	INSTRU		% DEV		RATED i, NO)		YPE CONT	SAMPLER INITIALS	
2/18/4	0904	A	6-91	6.7		<u> </u>	ير	<u>ر</u>	1	,' <u>L</u>	MB	
]		6	60.6	60,	3]
		<u></u>	498	490								
	20	o A	6.71	6.7	1				CON	14	73	
		<i>b</i>	60.8	60.	3							_
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Primary Stadenis 20.1, 20, 200 and 200 pt6

Exp. May 05 Let. A3 134, Asone, Asion

Opinary Unl. on 2 /18/04

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Lake Orienta

DEP-SOP-001/01

GROUNDWATER SAMPLING LOG

	Lake		enta	1						+ 5,093			
VELL NO:	mu.	- [SAMP			- Mu	<i>*/</i>	DATE: 7	1/13/01	5	
			1		1			DATA		01/205			
VELL DIAMETER	(inches):	4"	TUBII DIAM (inche	ETER	DEPT	SCREEN IN i: fee /0' 002	t to		DEPTH TER (feet):	OR BAILE	UMP TYPE	>	
only fill out allons	t if applicab	le)	VELL V	OLUME =	(TOTALW	ELL DEPTH fee	1 – STA 1–		TO WATER) feet)	X WELL CA X /// TUBING LEN	gallons	/foot = /C	
only fill out	t if applicab		E. 1EG	TOILMEK	=		ons + (ons/foot X	TODING ELIN	feet) +		allons =
	MP OR TU	_	-,		UMP OR TU N WELL (fee		PU	RGING FIATED AT Q	705 EN	RGING DED AT: 14/21	TOTAL	VOLUME (gallons):	159
a TIME	OLUME PURGED (gallons)	CUMI VOLU PURG (gallor	ME ED	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (std units)	TEMP (°C)	COND (µmhos/cm)	DO (mg/L or % sat.)	TURBIDITY (NTUs)	COLOR	ODOR	ORP
-	106	106	$\overline{}$,38	48,45	7,64	2950	287	0.23	1,03	Clear	None	
	74,5	132.	5		1_1	9,82	24.2	274	0.18	1.86	4	1	
420 2	16.5	/ <u>5~</u> j	_	1		7.65	24.2	277	0./7	2,35	(,	
	_				-								
2" = 5.88	ISIDE DIA.					3/16" =		6; 2" = 0.00 1/4" = 0.000	26; 5/16"		5; 5" = 1.0; 3" = 0.006;	2; 6" = 1. 1/2" = 0.01	•
	BY (PRINT	. /			SAMPLE	R(S) SIGNA	TURES:		SAMPLI	NG ED AT: 1423	SAMP	LING DAT:/50	75
PUMP OR			7098 75	,	SAMPLE	PUMP ATE (mL pe			TUBING		2 F / T	-	
	WELL (fee	_	Ø	N		LTERED:		FILTE	R SIZE:	DUPLICA	TE: Y	<u>&</u>	0-0
		CONTA				SA	MPLE PR	ESERVATION	V			SAM	PLING
SAMPLE 1D)	# AINERS	MATER COD		DLUME P	RESERVAT USED	IVE	OTAL VOL ADDED IN FIELD (mL)	FINAL pH		ED ANALYSIS R METHOD	, EGNI	PMENT ODE
CODE					58	e C	156					B	P
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CODE													
	5:												

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.

E. STABILIZATION CRITERIA: pH = ± 0.2; Temperature = ± 0.2 °C; SpecIfic Conductance = readings are within ± 5%; Dissolved Oxygen = A) ≤ 20% saturation or B) readings are within ± 0.2 mg/L (for readings ≤ 2 mg/L) or 10% (for readings > 2 mg/L); Turbidity = A) ≤ 20 NTUs or B) readings are within ± 5 NTUs (for readings > 20 and ≤ 50 NTUs) or 10% (for readings > 50 NTUs).

GROUNDWATER SAMPLING LOG

WELL NO: MU-2 SAMPLE ID: LO-CO-MU2 DATE: 7/12/05 PURGING DATA WELL DIAMETER (inches): 4" DIAMETER (inches): 4" WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X Geet - 18-69 EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME (only fill out if applicable) gallons INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 87 CUMUL. DEPTH ON DEPTH ON DEPTH OF TUBING DEPTH OF TUBING DEPTH IN WELL (feet): PURGED (gallons): CUMUL. DEPTH ON DEPTH ON DEPTH OF TUBING PURGED (Gallons):	PURGING DATA TUBING DIAMETER (inches): 4" TUBING DATER (inches): 4" DEPTH; feet to DEPTH; feet to Great hold. 18.69 LL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY (inches): 6eet - 130 of 18.69 Total PUMP OR TUBING PUMP OR TUBING DEPTH IN WELL (feet): 9 TO DEPTH IN WELL (feet): 9 TO DEPTH IN WELL (feet): 9 TO DEPTH IN WELL (feet): 9 TO DEPTH IN WELL (feet): 9 TO DEPTH IN WELL (feet): 18.69 TOLUME PURGED (gallons) (gpm) (gpm) (feet) (SITE
WELL DIAMETER (inches): 4" DIAMETER (inches): 4" DIAMETER (inches): 4" WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable) = (PURGING DATA TUBING DIAMETER (inches): 4" TUBING DATER (inches): 4" DEPTH; feet to DEPTH; feet to Great hold. 18.69 LL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY (inches): 6eet - 130 of 18.69 Total PUMP OR TUBING PUMP OR TUBING DEPTH IN WELL (feet): 9 TO DEPTH IN WELL (feet): 9 TO DEPTH IN WELL (feet): 9 TO DEPTH IN WELL (feet): 9 TO DEPTH IN WELL (feet): 9 TO DEPTH IN WELL (feet): 18.69 TOLUME PURGED (gallons) (gpm) (gpm) (feet) (IAME (g/ke Orienta. LOCATION Altamost Eprings
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable) = (30' feet - 18.69' 18.69' 18.69' 19.69	PURGING DATA TUBING DIAMETER (inches): 4" TUBING DATER (inches): 4" DEPTH; feet to DEPTH; feet to Great hold. 18.69 LL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY (inches): 6eet - 130 of 18.69 Total PUMP OR TUBING PUMP OR TUBING DEPTH IN WELL (feet): 9 TO DEPTH IN WELL (feet): 9 TO DEPTH IN WELL (feet): 9 TO DEPTH IN WELL (feet): 9 TO DEPTH IN WELL (feet): 9 TO DEPTH IN WELL (feet): 18.69 TOLUME PURGED (gallons) (gpm) (gpm) (feet) (
DIAMETER (inches): 4" DIAMETER (inches): 4" DIAMETER (inches): 6eet 130 open h-L. 18.69 WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable) = (130 of feet - 18.69 teet) X G gallons/foot = 73.46 Gallons	METER (inches): 4" DIAMETER (inches): 4" DEPTH: feet to feet 130 open 12. L. VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY gallons/foot = 73. 4% JIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME y fill out if applicable) = gallons + (gallons/foot X feet) + gallons = 0ns TIAL PUMP OR TUBING 7' FINAL PUMP OR TUBING DEPTH IN WELL (feet): PURGED (gallons) = VOLUME PURGED (gallons) (gallons) (gallons) (gallons) (feet) PURGED (gallons) (feet) PURGED (gallons)	VELL NO: MU-2 SAMPLE ID: LO-00-MW2 DATE: 7/12/05
(only fill out if applicable) gallons = (130 ' feet - 18.69 feet) X	y fill out if applicable) ons = (130	VELL NO: MW-2 SAMPLE ID: LO-OO-MW2 DATE: 7/12/05 PURGING DATA *
Gollons Final Pump or Tubing Final Pump or Tubing Purging	gallons + (gallons/foot X feet) + gallons = gallons (gallons/foot X feet) + gallons = gallons (gallons/foot X feet) + gallons = gallons (gallons/foot X feet) + gallons = gallons (gallons/foot X feet) + gallons = gallons (gallons/foot X feet) + gallons feet) + gallons/foot X feet) + gal	PURGING DATA VELL TUBING DIAMETER (inches): VELL SCREEN INTERVAL DIAMETER (feet to feet feet
INITIAL PUMP OR TUBING DEPTH IN WELL (feet): TIME VOLUME PURGED (gallons) VOLUME PURGED (gallons) VOLUME (feet) TOTAL VOLUME PURGED (gallons) PURGE (feet) DEPTH TO WATER (feet) WATER (feet) TOWN (std units) (c) TEMP (C) (mg/L or (mg/L or (mg/L or % sat.)) TURBIDITY (NTUs) COUND (mg/L or % sat.) TURBIDITY (NTUs) COLOR ODOR ON TOTAL VOLUME PURGED (gallons): ON TOTAL VOLUME PURGED (gallons): ON TOTAL VOLUME PURGED (gallons): ON TOTAL VOLUME PURGED (gallons): ON TOTAL VOLUME PURGED (gallons): ON TOTAL VOLUME PURGED (gallons): ON TOTAL VOLUME PURGED (gallons): ON TOTAL VOLUME PURGED (gallons): ON TOTAL VOLUME PURGED (gallons): ON TOTAL VOLUME PURGED (gallons): ON TOTAL VOLUME PURGED (gallons): ON (mg/L or % sat.) ON (mg/L or % sat.)	TAL PUMP OR TUBING 7 FINAL PUMP OR TUBING DEPTH IN WELL (feet): PURGING INITIATED AT 747 PURGING ENDED AT: /324 TOTAL VOLUME PURGEO (gallons): PURGEO (gallons): PURGEO (gallons): PURGEO (gallons): PURGEO (gallons) PURGEO (gallons)	PURGING DATA VELL VELL DIAMETER (inches): (inches): VELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH — STATIC DEPTH TO WATER) X well capacity (inches): (inches)
TIME VOLUME PURGED (gallons) VOLUME PURGE (gpm) VOLUME (std (gpm) (feet) VOLUME (std (units) (C) VOLUME (std (units) (T) VOLUME (std (units) (T) VOLUME (std (units) (T) VOLUME (std (units) (T) VOLUME (std (units) (T) VOLUME (Std (units) (T) VOLUM	VOLUME PURGED (gallons) VOLUME PURGED (PURGING DATA VELL TUBING DIAMETER (inches): (inches): VELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X (inches): (inc
287 18.36 91.82 ,40 1 7.59 24.3 425 0.37 0,49	7 18.36 91.82 ,40 1 7.59 24.3 425 0.37 0.49	PURGING DATA VELL TUBING DIAMETER (inches): (inches): VELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X (inches): (inc
237 18.36 91.82 ,40 1 7.59 24.3 425 0.37 0,49	7 18.36 91.82 ,40 1 7.59 24.3 425 0.37 0.49	PURGING DATA VELL TUBING DIAMETER (inches): VIII DIAMETER (inches): VIII DIAMETER (inche
		PURGING DATA WELL DIAMETER (inches): 411 DIBING DIAMETER (inches): 412 DEPTH; feet to (inches): 414 DEPTH; feet to (inches): 414 DEPTH; feet to (inches): 414 DEPTH; feet to (inches): 414 DEPTH; feet to (inches): 414 DEPTH; feet to (inches): 415 DEPTH TO WATER (feet): 415 DEPTH TO WATER) WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY TOWATER (feet): 415 DEPTH TO WATER) X WELL CAPACITY Gallons COUNTY TUBING LENGTH) + FLOW CELL VOLUME TOWATER (feet): 93 MELL (feet): 415 DEPTH TO WATER) X TUBING LENGTH) + FLOW CELL VOLUME TOWATER (feet): 93 MELL (feet): 94 MELL (feet
	5 18,36 110,18 1 7.59 24,3 409 0,36 0,55	PURGING DATA WELL DIAMETER (inches): IT UBING DIAMETER (inches): IT UBING DIAMETER (inches): IT UBING DIAMETER (inches): IT UBING DIAMETER (inches): IT UBING DEPTH: feet to DEPTH: feet to SWATER (feet): IT OWATER
WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88 TUBING INSIDE DIA, CAPACITY (Gall/Ft.); 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010;		VELL DIAMETER (inches): 411 TUBING DEPTH: feet to DEPTH: feet to DEPTH TO WATER (feet): 18 C TO WATER (feet):
	= 5.88 BING INSIDE DIA, CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010;	TUBING DIAMETER (inches):
	= 5.88 BING INSIDE DIA, CAPACITY (Gal./Ft,); 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 2 = 0.018	Vell Diameter (inches):
SAMPLING DATA SAMPLED BY (PRINT) / AFFILIATION: SAMPLER(S) SIGNATURES: SAMPLING SAMPLING SAMPLING	= 5.88 BING INSIDE DIA, CAPACITY (Gal./Ft.); 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; SAMPLING DATA WPLED BY (PRINT) / AFFILIATION: SAMPLER(S) SIGNATURES: SAMPLING SAMPLING	VELL VOLUME PURGE: 1 WELL VOLUME TUBING VALUE COND VALUE COND VALUE COND VALUE COND VALUE COND VALUE COND VALUE COND VALUE COND VALUE COND VALUE
SAMPLING DATA SAMPLED BY (PRINT) / AFFILIATION: SAMPLER(S) SIGNATURES: Mike Burns / Nodarie PUMP OR TUBING SAMPLE PUMP SAMPLE PUMP TUBING TUBING TUBING	= 5.88 BING INSIDE DIA, CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; SAMPLING DATA MPLED BY (PRINT) / AFFILIATION: SAMPLER(S) SIGNATURES: SAMPLING INITIATED AT: /330 SAMPLING ENDED AT: / 330 MP OR TUBING SAMPLE PUMP TUBING	VELL VOLUME PURGE: 1 WELL VOLUME Get 730 GP- N-L 78 69 78 78 78 78 78 78 78 7
SAMPLING DATA SAMPLED BY (PRINT) / AFFILIATION: SAMPLER(S) SIGNATURES: SAMPLING INITIATED AT: /330 SAMPLING INITIATED AT: /330 ENDED AT: / Y SAMPLED SAMPLE PUMP TUBING DEPTH IN WELL (feet): SAMPLE PUMP FLOW RATE (mL per minute): MATERIAL CODE: PE/T	SAMPLING DATA WPLED BY (PRINT) / AFFILIATION: SAMPLER(S) SIGNATURES: WP OR TUBING PTH IN WELL (feet): SAMPLE PUMP FLOW RATE (mL per minute): FIELD-FILTERED: Y FIELD-FILTERED: Y FIELD-FILTERED: Y FIELD-FILTERED: Y FILTER SIZE: DUPLICATE: MY = 0.004; 3/8" = 0.006; 1/2" = 0.010; 3/8" = 0.006; 1/2" = 0.010; 3/8" = 0.006; 1/2" = 0.010; 3/8" = 0.006; 1/2" = 0.010; 3/8" = 0.006; 1/2" = 0.010; 3/8" = 0.006; 1/2" = 0.010; 3/8" = 0.006; 1/2" = 0.010; 3/8" = 0.006; 1/2" = 0.010; SAMPLING INITIATED AT: /330 FILTER SIZE: DUPLICATE: MY 5 / MY	VELL VOLUME VELL V
SAMPLED BY (PRINT) / AFFILIATION: SAMPLER(S) SIGNATURES: Mike Bushs / Nodarie PUMP OR TUBING DEPTH IN WELL (feet): FIELD DECONTAMINATION: SAMPLE PUMP FLOW RATE (mL per minute): FIELD-FILTERED: Y SAMPLE SIZE: DUPLICATE: M 5 / M	## SAMPLE CONTAINER SAMPLE ODDATA SAMPLE ODDATA SAMPLE ODDATA SAMPLE PRESERVATION SAMPLE ODDATA SAMPLE OD	VELL TUBING DIAMETER (inches):
SAMPLED BY (PRINT) / AFFILIATION: SAMPLER(S) SIGNATURES: Mike Brins Nodarie Mike Brins Sampler (S) SIGNATURES: PUMP OR TUBING DEPTH IN WELL (feet): FIELD DECONTAMINATION: SAMPLE PUMP FLOW RATE (mL per minute): FIELD-FILTERED: Y N FILTER SIZE: DUPLICATE: MATERIAL CODE: MA	### SAMPLE PUMP FLOW RATE (ml. per minute): LD DECONTAMINATION: SAMPLE CONTAINER SAMPLE PUMP FLOW RATE (ml. per minute): SAMPLE PRESERVATION SAMPLE PRESERVATION SAMPLE PRESERVATION SAMPLE PRESERVATION SAMPLE PO.004; 3/8" = 0.006; 1/2" = 0.010; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; SAMPLING DATA SAMPLING INITIATED AT: /330 SAMPLING ENDED AT: /330 SAMPLING INITIATED AT: /330 SAMPLE PUMP FLOW RATE (ml. per minute): LD DECONTAMINATION: SAMPLE CONTAINER SAMPLE PRESERVATION SAMPLE PRESERVATION MATERIAL CODE: SAMPLING EQUIPMENT CODE SAMPLING SAMPLE PRESERVATIVE ADDED IN FINAL AND/OR METHOD CODE CONTAINERS SAMPLING EQUIPMENT CODE	VELL CAPACITY (Gallons PURGE TO PURGE PUR
SAMPLED BY (PRINT) / AFFILIATION: SAMPLER(S) SIGNATURES: Mike Bushs / Vodario PUMP OR TUBING DEPTH IN WELL (feet): FIELD DECONTAMINATION: SAMPLE CONTAINER SPECIFICATION SAMPLE ID MATERIAL SAMPLE PRESERVATIVE ADDED IN FINAL AND/OR METHOD SAMPLE ID PRESERVATIVE ADDED IN SAMPLE PINAL AND/OR METHOD SAMPLE CODE CODE CODE CODE SAMPLE PRESERVATIVE ADDED IN FINAL AND/OR METHOD CODE CODE CODE SAMPLE PRESERVATIVE ADDED IN SAMPLE PINAL AND/OR METHOD CODE CODE CODE CODE CODE CODE CODE CO	### SAMPLE PUMP FLOW RATE (ml. per minute): LD DECONTAMINATION: SAMPLE CONTAINER SAMPLE PUMP FLOW RATE (ml. per minute): SAMPLE PRESERVATION SAMPLE PRESERVATION SAMPLE PRESERVATION SAMPLE PRESERVATION SAMPLE PO.004; 3/8" = 0.006; 1/2" = 0.010; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; SAMPLING DATA SAMPLING INITIATED AT: /330 SAMPLING ENDED AT: /330 SAMPLING INITIATED AT: /330 SAMPLE PUMP FLOW RATE (ml. per minute): LD DECONTAMINATION: SAMPLE CONTAINER SAMPLE PRESERVATION SAMPLE PRESERVATION MATERIAL CODE: SAMPLING EQUIPMENT CODE SAMPLING SAMPLE PRESERVATIVE ADDED IN FINAL AND/OR METHOD CODE CONTAINERS SAMPLING EQUIPMENT CODE	VELL CAPACITY (Gallons PURGE TO PURGE PUR
SAMPLED BY (PRINT) / AFFILIATION: SAMPLER(S) SIGNATURES: Mike Burns Nodaria Sampler(S) SIGNATURES: PUMP OR TUBING DEPTH IN WELL (feet): FIELD DECONTAMINATION: SAMPLE PUMP FLOW RATE (mL per minute): FIELD-FILTERED: Y N FILTER SIZE: DUPLICATE: MATERIAL CODE:	### SAMPLE PUMP FLOW RATE (ml. per minute): LD DECONTAMINATION: SAMPLE CONTAINER SAMPLE PUMP FLOW RATE (ml. per minute): SAMPLE PRESERVATION SAMPLE PRESERVATION SAMPLE PRESERVATION SAMPLE PRESERVATION SAMPLE PO.004; 3/8" = 0.006; 1/2" = 0.010; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; SAMPLING DATA SAMPLING INITIATED AT: /330 SAMPLING ENDED AT: /330 SAMPLING INITIATED AT: /330 SAMPLE PUMP FLOW RATE (ml. per minute): LD DECONTAMINATION: SAMPLE CONTAINER SAMPLE PRESERVATION SAMPLE PRESERVATION MATERIAL CODE: SAMPLING EQUIPMENT CODE SAMPLING SAMPLE PRESERVATIVE ADDED IN FINAL AND/OR METHOD CODE CONTAINERS SAMPLING EQUIPMENT CODE	VELL CAPACITY (Gallons PURGE TO PURGE PUR
SAMPLED BY (PRINT) / AFFILIATION: SAMPLER(S) SIGNATURES: Mike Burns Nodaria Sampler(S) SIGNATURES: PUMP OR TUBING DEPTH IN WELL (feet): FIELD DECONTAMINATION: SAMPLE PUMP FLOW RATE (mL per minute): FIELD-FILTERED: Y N FILTER SIZE: DUPLICATE: MATERIAL CODE:	### SAMPLE PUMP FLOW RATE (ml. per minute): LD DECONTAMINATION: SAMPLE CONTAINER SAMPLE PUMP FLOW RATE (ml. per minute): SAMPLE PRESERVATION SAMPLE PRESERVATION SAMPLE PRESERVATION SAMPLE PRESERVATION SAMPLE PO.004; 3/8" = 0.006; 1/2" = 0.010; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; SAMPLING DATA SAMPLING INITIATED AT: /330 SAMPLING ENDED AT: /330 SAMPLING INITIATED AT: /330 SAMPLE PUMP FLOW RATE (ml. per minute): LD DECONTAMINATION: SAMPLE CONTAINER SAMPLE PRESERVATION SAMPLE PRESERVATION MATERIAL CODE: SAMPLING EQUIPMENT CODE SAMPLING SAMPLE PRESERVATIVE ADDED IN FINAL AND/OR METHOD CODE CONTAINERS SAMPLING EQUIPMENT CODE	VELL CAPACITY (Gallons PURGE TO PURGE PUR
SAMPLED BY (PRINT) / AFFILIATION: SAMPLER(S) SIGNATURES: SAMPLING INITIATED AT: /330 SAMPLING INITIATED AT: /330 SAMPLING INITIATED AT: /330 SAMPLING INITIATED AT: /330 SAMPLE PUMP PUMP OR TUBING DEPTH IN WELL (feet): FIELD DECONTAMINATION: N SAMPLE PUMP FLOW RATE (mL per minute): FIELD-FILTERED: Y SAMPLE PRESERVATION SAMPLE CONTAINER SPECIFICATION SAMPLE PRESERVATIVE CODE SAMPLE ID CODE TOTAL VOL ADDED IN FIRLD (mL) FINAL AND/OR METHOD CODE	## SAMPLING DATA SAMPLING DATA	WELL SAMPLER (inches): 4 // (inches)
1 18/36 1/0/18 1 1/2/ 2/3/ 5/20 5/20 1	5 1 21 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	FURGING DATA ELL AMETER (inches): 4" DIAMETER DIAMETER DEPTH: feet to feet 1/30 open 1/2. L. STATIC DEPTH TO WATER (feet): 1/8 c/3 gallons/foot = 73,5 c/3 gallons/foot = 73,5 c/3 gallons/foot X feet) + gallons = 1/30 open 1/3
13 18,36 //0,18 1 1 1.31 24.3 409 0,36 0,33		PURGING DATA WELL DIAMETER (inches): WELL SCREEN INTERVAL DEPTH: feet to feet to feet /30 of a h.h. WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY Only fill out if applicable) allons GUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME only fill out if applicable) = gallons + (gallons/foot X feet) + gallons = gallons NITIAL PUMP OR TUBING DEPTH IN WELL (feet): VOLUME PURGED PURGED RATE (gallons) (gallons) (gpm) (feet) TIME VOLUME PURGED PURGED RATE (gallons) (gallons) (gpm) (feet) TO WATER (feet): PURGING PURGING PURGING PURGED (gallons): PURGING (mg/L or mg/L or mg/L or mg/L or mg/s sat.) TUBING LENGTH) + FLOW CELL VOLUME PURGED (gallons): TIME VOLUME PURGED RATE (gallons) (gallons) (gpm) (feet) TO WATER (feet): TEMP (with solum) (gallons) (gpm) (feet) TO WATER (feet) (gallons) (gpm) (feet) TO WATER (feet) (feet) (gallons) (gpm) (feet) TO WATER (feet) (gallons) (gpm) (feet) TO WATER (feet) (gallons) (gpm) (feet) (feet) (gallons) (gpm) (feet) (feet) (gallons) (gpm) (feet) (feet) (gallons) (gpm) (feet) (feet) (gallons) (gpm) (feet) (feet) (gallons) (gpm) (gpm) (feet) (feet) (gallons) (gpm) (gpm) (feet) (feet) (gallons) (gpm) (feet) (feet) (gallons) (gpm) (feet) (feet) (gallons) (gpm) (feet) (feet) (gallons) (gpm) (feet) (feet) (gallons) (gpm) (feet) (feet) (gallons) (gpm) (feet) (feet) (gallons) (gpm) (feet) (feet) (gallons) (gpm) (feet) (feet) (gallons) (gpm) (feet) (feet) (gallons) (gpm) (feet) (feet) (gallons) (gpm) (feet) (gallons) (gpm) (feet) (gallons) (gpm) (feet) (gallons) (gpm) (feet) (gallons) (gpm) (gpm) (feet) (gallons) (gpm) (gp
		PURGING DATA VELL TUBING DIAMETER (inches): DIAMETER (inches): (inches):
18.36 91.82 ,40 1 7.59 24.3 425 0.37 0.49	7 18.36 91.82 ,40 1 7.59 24.3 425 0.37 0.49	PURGING DATA VELL VELL DIAMETER (inches): DIAMETER (inches): (inches):
TIME VOLUME PURGED (gallons) VOLUME PURGE (feet) VOLUME (std units) (C) (mg/L or water) (mg/L	VOLUME	PURGING DATA VELL VELL DIAMETER (inches): VELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) Geet / 30' open h-h 18.69' VELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY only fill out if applicable) EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME only fill out if applicable) = gallons + (gallons/foot X feet) + gallons =
TIME VOLUME PURGED (gallons) (gpm) (std units) PURGE RATE (gpm) (std units) (PC) (μmhos/cm) (mg/L or // % sat.) TURBIDITY (NTUS) COLOR ODOR OF MATER (feet) (18.70 7.57 24.5 4/20 0.50 0.37 0.49	VOLUME PURGED (gallons) VOLUME PURGED (PURGING DATA VELL DIAMETER (inches): VELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH — STATIC DEPTH TO WATER) X WELL CAPACITY ONLY fill out if applicable) Feet — 18-69 Feet — 18-69 TUBING DIAMETER (feet): Feet /30 open h - /
gallons = gallons + (gallons/foot X feet) + gallons gallons Final Pump or Tubing Depth in Well (feet): Purging Initiated at 7.77 Purging Ended at: /324 Purgeo (gallons):	= gallons + (gallons/foot X feet) + gallons + gallons + gall	PURGING DATA VELL TUBING DIAMETER (inches): DIAMETER (inches): UNITED UPON A MELL SCREEN INTERVAL DIAMETER (inches): DIAMETER (inches): DEPTH: Feet to TO WATER (feet): DEPTH: STATIC DEPTH: TO WATER (APACITY) WELL CAPACITY WELL CAPACITY WELL CAPACITY TO WATER (Inches): TO WATER (Inches): DEPTH: STATIC DEPTH: TO WATER (Inches): TO WATER (INCHES): TO WATER (INCHES): TO WATER (INCHES): TO WATER (INCHES): TO W
TUBING LENGTH) + FLOW CELL VOLUME only fill out if applicable) = gallons + (gallons/foot X feet) + gallons gallons gallons gallons/foot X feet) + gallons gallons gallons gallons/foot X feet) + gallons gallons gallons gallons/foot X feet) + gallons gallons PURGING PURGING PURGING INITIATED AT O TY TOTAL VOLUME PURGED (gallons) PURGED Gallons Gall	JIPMENT VOLUME PURGE: 1 EQUIPMENT VOL = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME y fill out if applicable) = gallons + (gallons/foot X feet) + gallons = gallons + (purging purging purging purging purging purging purging purging (std units) VOLUME PURGED (gallons) (gpm) (feet) PURGE (feet) PURGED (gallons) PURGED (ga	PURGING DATA VELL TUBING WELL SCREEN INTERVAL STATIC DEPTH PURGE PUMP TYPE DIAMETER (Inches): 41 DIAMETER DEPTH: feet to TO WATER (feet): OR BAILER:
(inches): feet /30 open h-/L 18.69 NELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY (allows feet) = (130') feet - (130') fee	LL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY yfill out if applicable)	VELL NO: MW-2 SAMPLE ID: LO-GO-MW2 DATE: 7/12/05 PURGING DATA
TUBING DIAMETER (inches): 4" TUBING DIAMETER (inches): 4" DEPTH: feet to (inches): 4" DEPTH: feet to (inches): 4" DEPTH: feet to (inches): 6et 1/30" OPEN NOTAL 18" OR BAILER: 6et 1/30" OPEN NOTAL 18" OR BAILER: 6et 1/30" OPEN NOTAL 18" OR BAILER: 6et 1/30" OPEN NOTAL 18" OR BAILER: 6et 1/30" OPEN NOTAL 18" OR BAILER: 6et 1/30" OPEN NOTAL 18" OR BAILER: 6et 1/30" OPEN NOTAL 18" OR BAILER: 6et 1/30" OPEN NOTAL 18" OR BAILER: 6et 1/30" OPEN NOTAL 18" OR BAILER: 6et 1/30" OPEN NOTAL 18	TUBING DIAMETER (inches): 4" DEPTH: feet to feet to feet 1/30 of a hard. 18.69 LL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY yill out if applicable) = (1/30) feet - 1/8.69 UIPMENT VOLUME PURGE: 1 EQUIPMENT VOL = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME yill out if applicable) = gallons + (gallons/foot X feet) + gallons = 0ns TIAL PUMP OR TUBING 87 FINAL PUMP OR TUBING DEPTH IN WELL (feet): PURGED (gallons): Get) PURGED (gallons): (feet) PURGE	VELL NO: m (2 SAMPLE ID: / n on M/1/2 DATE: 7/12/05
PURGING DATA VELL ITUBING DEPTH: feet to DEPTH: feet to DEPTH TO WATER (feet): IS PURGE PUMP TYPE OR BAILER: VELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER): X WELL CAPACITY INTY fill out if applicable) allons OUPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME punly fill out if applicable) = gallons + (gallons/foot X feet) + gallons ITIAL PUMP OR TUBING DEPTH IN WELL (feet): PURGE PUMP TYPE OR BAILER: OR BA	PURGING DATA TUBING DIAMETER (inches): 4" TUBING DATER (inches): 4" DEPTH; feet to DEPTH; feet to Great hold. 18.69 LL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY (inches): 6eet - 130 of 18.69 Total PUMP OR TUBING PUMP OR TUBING DEPTH IN WELL (feet): 9 TO DEPTH IN WELL (feet): 9 TO DEPTH IN WELL (feet): 9 TO DEPTH IN WELL (feet): 9 TO DEPTH IN WELL (feet): 9 TO DEPTH IN WELL (feet): 18.69 TOLUME PURGED (gallons) (gpm) (gpm) (feet) (ANNE (1/1/4/1/3)

NOTES: 1.

The above do not constitute all of the information required by Chapter 62-160, F.A.C. STABILIZATION CRITERIA: pH = \pm 0.2; Temperature = \pm 0.2 °C; Specific 0 Specific Conductance = readings are within ± 5%; Dissolved Oxygen = A) \leq 20% saturation or B) readings are within \pm 0.2 mg/L (for readings \leq 2 mg/L) or 10% (for readings \geq 2 mg/L); Turbidity = A) \leq 20 NTUs or B) readings are within \pm 5 NTUs (for readings > 20 and \leq 50 NTUs) or 10% (for readings > 50 NTUs).

DEP-SOP-001/01

GROUNDWATER SAMPLING LOG

SITE NAME		<u>ا</u> م اخو	Only	inta				SITE	ion A	1451	#1 ° M	+ 5pss.			
WELL N		ر ص				SAMPL	E ID:		- Cake				7/1 3/ 0)	_	
							PU	RGING	DATA						
DIAMET				TUBING DIAMET (inches)	ER.VA	DEPTH:		t to	TO WA	TER A	(feet):	OR BAILI	6 M		
(only fill gallons	out if a	applicab	le)		= (fee	t –			feet)		galions	s/foot =	
(anly fill				E: 1 EQU	IPMENT	VOL. = PUI		ME + (TU ons + (BING CAPAC		X foot X	TUBING LEN			
gallons										0115/11			feet) +		allons =
INITIAL DEPTH		-				MP OR TUB WELL (feet			JRGING ITIATED AT:			JRGING NDED AT:		VOLUMÉ ED (gallons):	
TIME	PUR	UME RGED Ions)	CUML VOLUI PURG (gallor	ME PL	JRGE ATE	DEPTH TO WATER (feet)	pH (std units)	TEMP (°C)	COND (µmhos/cm or µS/cm)		DO ng/L∕or % sat.)	TURBIDITY (NTUs)	COLOR	ODOR	ORP
NA		_				~~>	7,96	32,2	248.6	7.	39	4,66	clear	ione	
12" = 5	.88 3 !NS ![02; 1" = ' = 0.0006;	3/16" =		06; 2" = 0.00 1/4" = 0.00	•	3" = 0		5; 5" = 1.0 3" = 0.006;	2; 6° = 1. 1/2" = 0.01	
SAMPL	ED BY	(PRINT)/AFFIL	IATION:		SAMPLER			GDATA	1	SAMPL	ING	SAMF		
Mik			No do	rje		p	,	رحري		!	INITIAT	ED AT: \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	5 ENDE	DAT:/Z	45
PUMP (DEPTH		BING ELL (feel	t):			SAMPLE P	rE (mL pe					BIAL CODE:	NA		
FIELD			ATION:			FIELD-FIL'	FERED: 	Y (b)	FILTE	₹ \$1Z	ZE:	DUPLICA	TE: Y	D	
			ECONTA SELECTION		_		SA		ESERVATION	١		INTENDE	D ANALYSIS		PLING
SAMPL COD			# AINERS	MATERIAI CODE	VOL	UME PR	USED	IIVE .	TOTAL VOL ADDED IN FIELD (mL)		FINAL pH	AND/O	R METHOD		PMENT DDE
							5 2 6	· (<u>ist</u>	-					
_															
REMAR	KS:					_									
MATER Olher (S			A	G = Ambe	r Glass;	CG = Clea	ar Glass;	PE = F	Polyethylene;	P	P = Pol	ypropylene; S	= Silicone;	T = Teflon;	0 =

NOTES: 1. The above do not constitute all of the Information required by Chapter 62-160, F.A.C.

STABILIZATION CRITERIA: pH = ± 0.2; Temperature = ± 0.2 °C; Specific Conductance = readings are within ± 5%; Dissolved Oxygen = A) ≤ 20% saturation or B) readings are within ± 0.2 mg/L (for readings ≤ 2 mg/L) or 10% (for readings > 2 mg/L); Turbidity = A) ≤ 20 NTUs or B) readings are within ± 5 NTUs (for readings > 20 and ≤ 50 NTUs) or 10% (for readings > 50 NTUs).

DEP-SOP-001/01

FT 1000 General Field Testing and Measurement

Field Instrument Calibration Records

INSTRUMENT (MAKE/	MODEL#) YSI	63	(NSTRUMEN	T# <u>04B09</u> 68
PARAMETER: [check	only one]			
☐ TEMPERATURE	CONDUCTIVITY	☐ SALINITY	₩ рН	☐ ORP
☐ TURBIDITY	☐ RESIDUAL CL		OTHER_	
STANDARDS: [Specify to values, and the date the stand	he type(s) of standards use dards were prepared or pu	ed for calibration, t rchased]	he origin of the stan	dards, the standard
Standard A <u>4</u>				
Standard B 7				•

Standard C	10	

Stand	ard C	10						
DATE (yy/mm/dd)	TIME (hr:min)	STD	STD	INSTRUMENT RESPONSE	% DEV	CALIBRATED (YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS
7/12/05	0730	A	-4	3.96		Yes	Lait	MB
		15	7_	6,93				
		ر	10	10.01		1	4	
7/13/05	0700	A	4	4,1			cont	
		B	7	7.0				
		<u> </u>	/٥	10.01				
						/		
							_	
								·
							·	

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INSTRUM	MENT (M	IAKE/MOD	DEL#)	YSI	G 3	INSTRUM	MENT # 04	10962
PARAME	TER: [c	check only	опе]					
₩ TEN	MPERATU	RE 🗆	CONDUC	TIVITY	☐ SALINITY	□рн	ORP	
TUF	YTICIES		RESIDUA	L CL	□ DO	то 🗌	HER	
				andards used pared or purch		the origin of the	standards, the	standard
Stand	ard A							
Stand	ard B _						•	
Stand	ard C _							
DATE (yy/mm/dd)	TIME (bamin)	STD (A, B, C)	STD VALUE	INSTRUME: RESPONS		(YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS
7/12/05	0734	1	261	2611		125	Juit	MA
	0705		24.5	24.5			Cont	1
								_
								Ĭ
			-					
						-		
		-						
	$\overline{}$		-					
_								
				_				
		<u>_</u> <u> </u>			_			
-				-	-			

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FT 1000 General Field Testing and Measurement

Field Instrument Calibration Records

INSTRUM	MENT (N	IAKE/MOD	DEL#)	YSI 6	3	INSTRUM	MENT# 04	B0968
PARAME	TER: [c	check only	one]					
☐ TEN	//PERATU	RE 🛛	CONDUC	TIVITY 🔲 S	SALINITY	П рН	☐ ORP	
☐ TUP	RBIDITY		RESIDUA	LCL 🗆 🗆	00	☐ OTH	HER	
STANDA values, and	RDS: [S	Specify the ty he standards	pe(s) of sta s were prep	andards used for co pared or purchased	alibratíon, d]	the origin of the	standards, the	standard
Stand	ard A _	449	70					
Stand	ard 8 _	143	1000				•	
Stand	ard C _							
DATE (yy/mm/dd)	TIME (hamin)	STD (A. 8. C)	STD VALUE	INSTRUMENT RESPONSE	% DEV	CALIBRATED (YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS
7/12/05	0738	A	20	60,7		525	Inih	mp
·		6	1000	991	;			
7/13/05	0707	Ą	70	G 8.9			Cont	<u> </u>
		B	1000	998			1	
						_		
			-					
		-	-					
					1		_	
		-	-				-	
						-		

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INSTRUM	MENT (M	IAKE/MOC	EL#)	<u>HACH</u> 2,	100 P	INSTRUM	INSTRUMENT # <u>01040002</u>						
PARAME	TER: [c	check only	one]										
☐ TEM	MPERATU	RE 🗌	CONDUCT	TIVITY :	SALINITY	□рн	☐ ORP						
⊠ TUF	RBIDITY		RESIDUAL	CL 🗆	00	OTHER							
			were prep	ndards used for d ared or purchase		the origin of the	standards, the	standard					
	ard A					<u> </u>							
	ard B <u> </u>						•						
Stand	ard C _	495											
DATE (yy/mm/dd)	TIME (br.min)	STD (A. B, C)	STD VALUE	INSTRUMENT RESPONSE	% DEV	CALIBRATED (YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS					
7/12/05	0743	1	5,17	5,26		2005	Inil	MB					
		_/5	51.9	52.0									
		C	495	495		()							
7/13/05	0712	A	5,17	5.2			cent						
		B	51.9	52.0			.)						
		C	495	495				}					
						1							
				,									
						_							
						_							
						-							
		-											
-													
		-											
		-											
		-											
						-							

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INSTRUM	IENT (M	AKE/MOD	EL#)	YSI S	50A	INSTRUM	IENT # 90	MOITE
PARAME	TER: [c	heck only	one]					
☐ TEM	IPERATU	RE 🗆	CONDUCT	TIVITY		□рН	☐ ORP	
☐ TUR	BIDITY		RESIDUAL	-cr 💢	DO	□ отн	IER	
values, and	the date to	he standards	s were prep	ndards used for a ared or purchase	ed]		standards, the	standard
Standa	ard A _	100%	Auto	Calibrat	ion			
Standa	ard B						•	
Standa	ard C _			<u></u>				
DATE (yy/mm/dd)	TIME (hc:min)	STD (A. B. C)	STD VALUE	INSTRUMENT RESPONSE	% DEV	CALIBRATED (YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS
7/17/05	0745	A	100%	100,1%		105	Inid	B. D
7/13/05	0715	· A	100%	100.2%		/	Cont	/
			-					
			-					
								<u> </u>
							 	

GROUNDWATER SAMPLING LOG

SITE NAME:	Lak	401	- رنج أ -	149				SITE		on: A	16.	- n B21 4	Spring	<u> </u>		
WELL	10: Min				SA	MPL	EID: Z			- price -			DATE:	7/21/	01	
		_ • -	-							DATA		,		7 7 6 17		
WELL DIAMET	TER (inches):	4"	TUB DIAM (inch	METER/	, ,	PTH:	CREEN IN		VÄL	STATIO TO WA	TER (fo		PURGE P	UMP TYPE	>	
(only fill gallons	out if applicat	ole)		=	1 2	10	fee	t –	4	8.78	f	eet) X	166	gallons	s/foot =	06
	MENT VOLUM out if applicat		E: 1 E	QUIPMEI		= PUN =		ME +			ns/foo		TUBING LENG	GTH) + FLO\ feet) +		LUME gallons =
INITIAL	PUMP OR TU				NWP OR				PUI INIT	RGING TIATED AT	716	PURC	SING ED AT: 1445		VOLUME ED (gallons)	:119
TIME	VOLUME PURGED (gallons)	CUML VOLUI PURG (gallor	ME ED	PURGE RATE (gpm)	DEP TC WAT	ER	pH (std units)	TEI (°		COND (µmhos/cm or µS/cm)	DO (mg/L or % sat.)		TURBIDITY (NTUs)	COLOR	ODOR	ORP
1216	106	100		135	48.3	}	7.47	24	0	2896			1.09	Clear	11/44	-101
1331	26.5	117	5	_ {	1			28		2956			0.90	1	1	-599
1445 26.5 119.0 1 740 299 299.3 3.13 1.08													<i>−/∞</i>			
12" = 5.	INSIDE DIA						3/16" =	0.001	4;	1/4" = 0.002			•	5" = 1.0 ' = 0.006;	1/2" = 0.0	,
CANADI	ED BY (PRIN	T. ACEN	IATIO		CAME	T ED	SAN S) SIGNA			<u> 3 DATA</u>				_,		
	Burna/C		الدراما	بدروا	SAIVIE	M		TOKE			SA	MPLING	3 AT:/タタフ	SAMF	LING DAT:	15-35
PUMP (OR TUBING IN WELL (fee		ENA			/ RAT	E (mL per				TL MA	JBING ATERIAI	CODE: F	E/T		
FIELD	DECONTAMIN	IATION:	Ø	N	FIELD µm)-F!LT	ERED:	Y	<u>~</u>	S FILTER	R SIZE:	:	DUPLICAT	re: Y	C&	
		E CONTA					SAI	NPLE	PRE	ESERVATION	ı		WITCHDE	O ANALYSIS	SAN	APLING
SAMPLI		# AINERS	MATE		OLUME	PRI	ESERVAT USED	IVE	/	OTAL VOL ADDED IN FIELD (mL)	۶	iNAL pH		METHOD	EQU	IPMENT ODE
													See Full Chain-of-			
REMAR	KS:										J					
MATER Other (S	IAL CODES: Specify)	A	G = An	nber Glas:	s; CG =	: Clea	r Glass;	PE	= Pc	olyethylene;	PP:	= Polypr	opylene; S =	Silicone;	T = Teflon;	O =
Peristal		: RFP	P = Re	er Peristali	w Perista	Itic Pu		SM =	Stra	P = Bladder P aw Method (T by Chapte	ubing (Gravity (bmersible Pu	• •	P = O = Other

 $pH = \pm 0.2;$ Temperature = ± 0.2 °C; Specific Conductance = readings are within \pm 5%; 2. STABILIZATION CRITERIA: Dissolved Oxygen = A) \leq 20% saturation or B) readings are within \pm 0.2 mg/L (for readings \leq 2 mg/L) or 10% (for readings \geq 2 mg/L); TurbIdity = A) \leq 20 NTUs or B) readings are within \pm 5 NTUs (for readings > 20 and \leq 50 NTUs) or 10% (for readings > 50 NTUs).

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GROUNDWATER SAMPLING LOG

SITE NAME:	Cake	01:	2 %	<i>t</i> 7				SIT	E CATI	ON: /-	1/4	m	nt Spg	5.		
WELL	-	-2				SAMPI	LE ID:	0-	01	- ma				1/20/0	28	
										DATA						
DIAME"	ΓER (Inches):	4"		BING METER hes):	0	EPTH	SCREEN II	t to		TO,WA	C DEPT		PURGE P OR BAILE	UMP TYPE R:	3P	
	OLUME PUR		VELL \	/OLUME = = (AL WE	LL DEPTI fee		STA	TIC DEPTH	44	TER) eet) >			is/foot =	73,64
(only fill	MENT VOLUM out if applica		E: 1 É	QUIPMEN	TVOL	. = PÚI =		ИE + ons ≁	•		ons/fooi	X	TUBING LENG	feet) +		LUME pallons =
	PUMP OR TO			FINAL P					PUI	RGING FIATED AT	1800		GING DED AT:		L VOLUME SED (gallons)	:
TIME	VOLUME PURGED (gallons)	CUML VOLUI PURG (gallor	ME ED	PURGE RATE (gpm)	WA	PTH TO TER eet)	pH (std units)		MP C)	COND (hnyposycu)	(mg/ % s.	L or	TURBIDITY (NTUs)	COLOR	ODOR	ORP
1045	73.64	73.4	4	,5	18.	<u>5</u> _	7.3	27	4_	2423	0.3	7	0.36	Clear	love	
1122	18.4	920	54		Щ		7.43	24		254	0.6	۵	0.35			
ga8	8.4	(10.	44	<u>40</u>			7.47	24	1.2	251	0.4	2	0,37	1	1	_
12" = 5	S INSIDE DIA						•		= 0.0 14;	,	·	" = 0.3 5/16" =	•	; 5" = 1. " = 0.006;	02; 6" = 1	•
										3 DATA						
l	ED BY (PRIN		_		SAN	APLER <i>M</i>	(S) SIGNA	TUR	ES:			MPLIN	-		PLING	
PUMP	OR TUBING IN WELL (fee		loa	14121		APLE F	PUMP TE (mL per	e mia	145/-		TU	BING	L CODE:	D/-/7	EO AT:	
	DECONTAMI	ATION:		N			TERED:			FILTE	R SIZE:		DUPLICAT	re; Y	<u> </u>	
		E CONTA CIFICATION					SAI	MPLE	PRE	SERVATION	٧		INTENDE	D ANALYSI	SAN	IPLING
SAMPL		# AINERS	MATE		LUME	PR	USED	IVE	/	OTAL VOL ADDED IN FIELD (mL)		NAL pH		METHOD	EQUI	PMENT ODE
				56	20	۲,	54					_	See Full to			
,											_					
REMAR	KS:														•	_
MATER Other (S	Specify)	A	G = An	nber Glass;	CG	= Clea	ar Glass;	PE	= P(olyethylene;	PP =	Polyp	ropylene; S =	Silicone;	T = Teflon;	0 =
SAMPL	ING/PURGIN tic Pump MENT CODES ()	S: RFP	P = Re	er Peristaltic	Peris	taltic Po	• •	SM:	= Stra	= 8ladder P aw Method (T by Chapte	ubing G	Sravity		omersible P	•	P = O = Other

Temperature = ± 0.2 °C; 2. STABILIZATION CRITERIA: $pH = \pm 0.2;$ Specific Conductance = readings are within ± 5%; Dissolved Oxygen = A) ≤ 20% saturation or B) readings are within ± 0.2 mg/L (for readings ≤ 2 mg/L) or 10% (for readings > 2 mg/L); Turbidity = A) ≤ 20 NTUs or B) readings are within \pm 5 NTUs (for readings > 20 and ≤ 50 NTUs) or 10% (for readings > 50 NTUs).

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GROUNDWATER SAMPLING LOG

SITE	La	Ke (145				SITE	TION	A	110,11	n en '	1 Spgs				
WELL	1	ساطو			s	AMPL	E ID:						DATE:	7/2	20/0	 ک	
		<u> </u>					PUI	RGIN	G D	ATA							
	TER (inche		DIA (inc	BING METER hes):	A fe	EPTH:		110		STATIC TO WA	TER (fe	et):	PURGE P OR BAILE	R:	1-16	hrim	_
(only fil gallons	l out if app	icable)			(fee 	et			fe	eet))			gallons	/foot =	
(only fil	MENT VOI out if app		RGE: 11	EQUIPME	NT VOL.	= PUI =		ME + (N ons + (JBING		iTY ons/foot	×	TUBING LEN	GTH) feet			galions =
	PUMP OF				PUMP OF			- 1	URGIN NITIATI	IG ED AT:		_	RGING DED AT:			VOLUME (gallons)):
TIME	VOLUM PURGE (gallon:	E VO	MUL. LUME RGED Illons)	PURGE RATE (gpm)	DEF TO WAT	Ď ΓER	pH (std units)	TEMP (°C)	(µr	OND nhos/cm µS/cm)	D((mg/l % sa	Lor	TURBIDITY (NTUs)	С	OLOR	ODOR	ORP
11 7.30 30.4 196.9 5.38 6.50 Klbres Non -													_				
12" = 5	G INSIDE	•		•		1" = 1006;		1.25" = 0 0.0014;		2" = 0.1 " = 0.002	•	" = 0.3 5/16" =			5" = 1.0	2; 6" = 1 1/2" = 0.0	
0,0							SAN	/IPLIN	IG D	ATA							
Milke	LED BY (P.	4: Figa	, ,	Pada x	ر لم	Mi	(S) SIGNA	TURES			INI'	MPLIN TIATE			SAMP ENDE	CING ,	1015
	OR TUBIN				FLO		E (mL pe):			BING TERM	AL CODE:				
FIELD	DECONTA	OITANIM	v: 🗭	N	FIEL µm	D-FIL1	rered:	Ŷ Œ	3	FILTER	R SIZE:		DUPLICA	TE:	Υ	(3)	
		APLE CON SPECIFICA					SA	MPLE P					INTENDE	D AN	IALYSIS		MPLING IIPMENT
SAMPI		# ONTAINERS		ERIAL DDE	OLUME	PR	USED	TIVE	ADDI	C (mL)		pH ——	AND/Of	R ME		0	300E
	_					Sê i	e [1]	5 ≠								614	. <i>b</i>
REMAI	RKS:																
1	RIAL COD (Specify)	ES:	AG = A	mber Glas	s; CG	= Clea	ar Glass;	PE =	Polyeti	nylene;	PP =	Polyp	propylene; S	= Sìli	cone;	T = Teflon;	0 =
L	- , -,			a tituda a	11 - (4)	1				21	- 66 46						

The above do not constitute all of the information required by Chapter 62-160, F.A.C.

STABILIZATION CRITERIA: pH = ± 0.2; Temperature = ± 0.2 °C; Specific Conductance = readings are within ± 5%; STABILIZATION CRITERIA: Dissolved Oxygen = A) \leq 20% saturation or B) readings are within \pm 0.2 mg/L (for readings \leq 2 mg/L) or 10% (for readings \geq 2 mg/L); Turb(dity = A) \leq 20 NTUs or B) readings are within \pm 5 NTUs (for readings > 20 and \leq 50 NTUs) or 10% (for readings > 50 NTUs).

FT 1000 General Field Testing and Measurement

Page ___or__
FT 1000 General Field Testing and Measurement

INSTRUI	MENT (N	IAKE/MOC	DEL#)	YSI (03	INSTRUM	MENT# 0	4B096
		check only						
	MPERATU			TIVITY []	SALINITY	ДрН	☐ ORP	
☐ TUF	RBIDITY		RESIDUA	r Cr 🔲 [00	TO 🗌	ÉR	
				andards used for c pared or purchase		the origin of the	standards, the	standard
Stand	lard A	4					•	
Stand	ard B _	<u> </u>						
Stand	ard C _	10						
DATE (yy/mm/dd)	TIME (hamin)	STD (A. B. C)	STD VALUE	INSTRUMENT RESPONSE	% DEV	CALIBRATED (YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS
7/20/05		A	•4	7.01		9	I wit	MP
		ß	7	7.1		1	1	1
		e	10	9.97				
7/21/05	0725	<i>D</i>	4	4.01			CEAY	
		Þ	7	7.0				
		Č	/0	10,01				
	1500	A	4	4,02				ĺ.
		Ь	ا-	7.0				
		2	/C	10.01				
				_				
							,	

|--|

INSTRUM	NENT (N	MAKE/MO	DEL#)	YSI	63	INSTRUM	MENT # _OC	10962	
PARAME	TER: [check only	one]						
₩ TEN	MPERATL	IRE 🗀	CONDUC	TIVITY	☐ SALINITY	□рН	ORP		
TUF	TURBIDITY RESIDU		RESIDUA	AL CL		*			
				andards used pared or purd		the origin of the	standards, the	standard	
Stand	ard A _								
Stand	ard B _	_							
Stand	ard C _								
DATE (yy/mm/dd)	TIME (bemin)	STD (A. B. C)	STD VALUE	INSTRUM! RESPON		(YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS	
7/20/05	0820		27.9	27.5		les	Init	ms	
7/21/05	C733		27,8	27.8			Cont	14/2	
	1504	<u> </u>	24.0	24.0					
								,	
				-					
-									
	1								
							-		
	Ť								
	_								
			j					-	
-									
	-								
					+				

INSTRUM	MENT (N	MAKE/MOD	DEL#)	751 6.	3	INSTRUM	MENT# <u>0</u> 9	B0968
PARAME	TER: [check only	onej					
☐ TEN	MPERATU	RE 🛚	CONDUC	TIVITY []	SALINITY	□рН	☐ ORP	
TUP	RBIDITY		RESIDUA	L CL.	DO	TO 🗌	HER	
				andards used for c pared or purchase		the origin of the	standards, the	standard
Stand	lard A _	447	70					
Stand	ard B _	443	1000					
Stand	lard C _			·				
DATE (yy/mm/dd)	TIME (hr:min)	STD (A. B. C)	STD VALUE	INSTRUMENT RESPONSE	% DEV	(YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS
7/20/05	0830	A	20	87		123	Zait	MB
		b	1500	991		/)	h
7/21/05	0740	A	70	7.5.9			Cont	
		<u>/</u> s	1000	989				
	1506	A	70	76				1
		B	1000	1000				
						}	(
				-				
_								
			, ior	,(¢' ,E'				
j						Î		
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INSTRUM	IENT (M	AKE/MOD	EL#)	HACH	2100P	INSTRUM	MENT #	0400028		
PARAME	TER: [c	heck only	one]							
☐ TEM	PERATU	RE 🗌	CONDUCT	TIVITY	☐ SALINITY	□ pH □ ORP				
∭ TUF	BIDITY		RESIDUAL	_ CL	□ DO	☐ OTHER				
values, and	the date to	he standards	were prep	ared or purch	for calibration, i nased]	the origin of the	standards, the	standard		
Stand	ard A	5/17	Ĺ	- 1 State 5		<u>C</u> ≯q2 .				
Stand	ard B	51,9					•			
Stand	ard C	495								
DATE (yy/mm/dd)	TIME (hr:min)	STD (A, B, C)	STD VALUE	INSTRUME RESPONS		CALIBRATED (YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS		
7/20/05		D	5,17	5,29		Yes	Zaj k	Pros		
		15	51.9	52.0						
		C	495	495						
4/21/05	8745	A	\$.17	5,19			COAL			
		15	51.9	52						
		ے	497	495						
	1511	.4	5,17	5.18	3					
		Þ	51.9	52						
		و	455	495						
							,			
				-						
						-				
					_		,			

Page .	of
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INSTRUM	MENT (M	AKE/MOD	EL#)	YST 5	5	INSTRUM	IENT# 96	M0178
PARAME	TER: [c	heck only						
☐ TEN	/PERATU	RE 🗆	CONDUCT	TIVITY S	ALINITY	∏рН	ORP	
TUF	YTICIBS		RESIDUAL	-cr ⊠(b	0	TO 🗌	IER	
STANDA values, and	RDS: [S the date th	pecify the ty he standards	pe(s) of sta s were prep	ndards used for ca ared or purchased	alibration, []	the origin of the	standards, the	standard
Stand	ard A	100%	Auto	Calibrati	01			
Stand	ard B						•	
Stand	ard C							
DATE (yy/mm/dd)	TIME (hr:min)	STD (A, B, C)	STD VALUE	INSTRUMENT RESPONSE	% DEV	CALIBRATED (YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS
7/20/05	0833	A	100%	96.2%		yes_	Int	ms
1/21/05		A	100/2	99.6%)	ce 2+_	
	1515	À	100%	100,1%				
								,
								-
 .		-						
			With the second					
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				_				·
				-				
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GROUNDWATER SAMPLING LOG

	<u> </u>	1450					SITE		KE UN	T.Fu		1 41		
WELL NO:	· Mi	U - (SAMPL	E 10: L V					DATE:	7/28/1)	
WELL			THOMAS	1.	WELL 6			DATA	OFOTH		DUDGE DI	N IB TYPE		
	R (inches):	4	TUBING OIAMETER (inches):	, ,7	WELL SI DEPTH: eel	CREEN IN leet			DEPTH TER (leet)	:	OR BAILE	DWD TABE		
	LUME PUR ut if applicable		ELL VOLUM	E = (TOT	AL WE			TIC DEPTH T - 0.70	O WATEF (eet)	$\widetilde{\partial}_{x}$	WELL CAP	PACITY gallons/f	oot = j	V3.5
	NT VOLUM ut if applicable		: 1 EQUIPM		= PUN }_		IÉ + (TÚ8 Is + (ING CAPACIT			BING LENG	TH) + FLOV	V CELL VOL	UME Ilons =
INITIAL PL	UMP OR TU	BING U	4 FINA	L PUMP C	OR TUBI	ING. 1/14	PUI	RGING FIATED AT:	טטט פ	PUAGI	NG 144	2 TOTAL	. VOLUME ED (gallons)	155
7415	VOLUME PURGED	CUMUI VOLUM PUAGE	L. IE PURC	SE DE	EPTH TO ATER	ρΗ (std	TEMP (°C)	COND (µmhos/cm	(fng/L o	, 7	URBIDITY (NTUs)	COLOR	ODOR	OR (m)
	(gallons)	(gallon	s) (gpm	۱) (۱	eet)	units)	27.6	or μS/cm)	% sat.}		0.79	NUE	NOWF.	Ļ.
1355	25.8	129.7			1.71	8.33	23.6	302	0.27		2.79	NOWE	NUE	- 2 [
149	15-8	155,	1 033	50	1,70	8.29	23.5	300	0.26	-	7.69	NUME	HLHF	-21
			-							-				
12" = 5,88	INSIDE DIA.		,					2" = 0.16 1/4" = 0.0026		0.37; " = 0.0	4" = 0.65, 04; 3/8"	5" = 1,02 = 0,006:	5" = 1.4 1/2" = 0.010	
12" = 5,88 TUBING II 5/8" = 0.0	B INSIDE DIA. D BY (PRINT	CAPACIT	TY (GalJFt.):	1/8" = 0.	0006:	3/16" = 0	0.0014; IPLING		5; 5/16	" = 0.0	04; 3/8*	= 0.006:	1/2" = 0.010);
12" = 5,88 TUBING II \$/8" = 0.0 SAMPLED PUMP OF	B INSIDE DIA. DIBY (PRINT LAHEA	CAPACIT	Y (Gal./Ft.):	1/8" = 0.	OOO6:	3/16" = 0 SAM S) SIGNA	IPLING	1/4" = 0.0026 G DATA	SAMF INITIA	" = 0.0 PLING TED A	04; 3/6" T: 1444	= 0.006:	•);
12" = 5,88 TUBING II 5/8" = 0.0 SAMPLED PUMP OR DEPTH IN	B INSIDE DIA. DIBY (PRINT	CAPACIT (1) / AFFILI (1) - A	Y (Gal./FL):	1/8" = 0.	MPLEADW AAT	SAM S) SIGNA UMP E (mt per	D.0014; IPLING TURES: minute):	1/4" = 0.0026 G DATA	SAMF INITIA	" = 0.0 PLING TED A	04; 3/6" T: 1444	= 0.006; SAM! END!	1/2" = 0.010 PLING 5);
12" = 5,88 TUBING II 5/8" = 0.0 SAMPLED PUMP OR DEPTH IN	B INSIDE DIA. D BY (PRINT) A TUBING N WELL (lee CONTAMIN SAMPLI	CAPACIT (1) / AFFILI (1) - N / IATION: E CONTAI	ATION:	1/8" = 0.	MPLEADW AAT	SAM S) SIGNA OMP E (mt per ERED: Y	D.0014; IPLING TURES: minute): ype:	1/4" = 0.0026 G DATA	SAME INITIA TUBIN MATE SIZE:	" = 0.0 PLING TED A	04; 3/8" T: 1444 CODE: T	SAMI ENDE	1/2" = 0.010 PLING	28
12" = 5,88 TUBING II S/8" = 0.0 SAMPLED PUMP OR DEPTH IN	B INSIDE DIA. D BY (PRINT H H EA TUBING N WELL (lee ECONTAMIN SAMPLI SPEC	CAPACIT (1) / AFFILI (1) / A / I (1): N / I IATION:	ATION:	1/8" = 0.	MPLEA(MPLEA) MPLEA MPLEA MPLEA TOWN AAT LD-FILT Tatton Ec	SAM S) SIGNA OMP E (mt per ERED: Y	minute): ype: VIVE	I/4" = 0.0026 G DATA IJU FILTER ESERVATION OTAL VOL ADDED IN	SAME INITIA TUBIN MATE SIZE:	" = 0.0 PLING TED A IG RIAL (O4; 3/8" T: 1444 CODE: T DUPLICAT	= 0.006; SAM! END!	1/2" = 0.010 PLING 5 N SAM EQU	28
12" = 5.88 TUBING II S/8" = 0.0 SAMPLED PUMP OF DEPTH IN FIELD DE	B INSIDE DIA. D BY (PRINT H H EA TUBING N WELL (lee ECONTAMIN SAMPLI SPEC	CAPACIT (1) / AFFILI (1) / M/ (1): M/ IATION: E CONTAI DIFICATIO #	ATION: ATION: NEFT IN MATERIAL	SAI SAI FLC	MPLEA(MPLEA) MPLEA MPLEA MPLEA TOWN AAT LD-FILT Tatton Ec	SAM S) SIGNA UMP E (mL per ERED: Quipment T	minute): ype: VIVE	I/4" = 0.0026 G DATA JU FILTER ESERVATION OTAL VOL	SAMPINITIA TUBIN MATE SIZE:	" = 0.0 PLING TED A IG RIAL (O4; 3/8" T: 1444 CODE: T DUPLICAT	SAME	1/2" = 0.010 PLING 5 N SAM EQU	DE 28
12" = 5.88 TUBING II S/8" = 0.0 SAMPLED PUMP OF DEPTH IN FIELD DE	B INSIDE DIA. D BY (PRINT H H EA TUBING N WELL (lee ECONTAMIN SAMPLI SPEC	CAPACIT (1) / AFFILI (1) / M/ (1): M/ IATION: E CONTAI DIFICATIO #	ATION: ATION: NEFT IN MATERIAL	SAI SAI FLC	MPLEA(MPLEA) MPLEA MPLEA MPLEA TOWN AAT LD-FILT Tatton Ec	SAM S) SIGNA UMP E (mL per ERED: Quipment T	minute): ype: VIVE	I/4" = 0.0026 G DATA IJU FILTER ESERVATION OTAL VOL ADDED IN	SAMPINITIA TUBIN MATE SIZE:	" = 0.0 PLING TED A IG RIAL (O4; 3/8" T: 1444 CODE: T DUPLICAT	SAME	1/2" = 0.010 PLING 5 N SAM EQU	DE 28
12" = 5.88 TUBING II S/8" = 0.0 SAMPLED PUMP OF DEPTH IN FIELD DE	B INSIDE DIA. D BY (PRINT H H EA TUBING N WELL (lee ECONTAMIN SAMPLI SPEC	CAPACIT (1) / AFFILI (1) / M/ (1): M/ IATION: E CONTAI DIFICATIO #	ATION: ATION: NEFT IN MATERIAL	SAI SAI FLC	MPLEA(MPLEA) MPLEA MPLEA MPLEA TOWN AAT LD-FILT Tatton Ec	SAM S) SIGNA UMP E (mL per ERED: Quipment T	minute): ype: VIVE	I/4" = 0.0026 G DATA IJU FILTER ESERVATION OTAL VOL ADDED IN	SAMPINITIA TUBIN MATE SIZE:	" = 0.0 PLING TED A IG RIAL (O4; 3/8" T: 1444 CODE: T DUPLICAT	SAME	1/2" = 0.010 PLING 5 N SAM EQU	APLING
12" = 5.88 TUBING II S/8" = 0.0 SAMPLED PUMP OR DEPTH IN FIELD DE SAMPLE II CODE	BINSIDE DIA. DBY (PRINT HF TUBING N WELL (lee ECONTAMIN SAMPLI SPECIAL CONT.	CAPACIT (1) / AFFILI (1) / M/ (1): M/ IATION: E CONTAI DIFICATIO #	ATION: ATION: NEFT IN MATERIAL	SAI SAI FLC	MPLEA(MPLEA) MPLEA MPLEA MPLEA TOWN AAT LD-FILT Tatton Ec	SAM S) SIGNA UMP E (mL per ERED: Quipment T	minute): ype: VIVE	I/4" = 0.0026 G DATA IJU FILTER ESERVATION OTAL VOL ADDED IN	SAMPINITIA TUBIN MATE SIZE:	" = 0.0 PLING TED A IG RIAL (O4; 3/8" T: 1444 CODE: T DUPLICAT	SAME	1/2" = 0.010 PLING 5 N SAM EQU	APLING
12" = 5.88 TUBING II S/8" = 0.0 SAMPLED PUMP OR DEPTH IN FIELD DE SAMPLE II CODE	BINSIDE DIA. DBY (PRINT HF TUBING N WELL (lee ECONTAMIN SAMPLI SPECIAL CONT.	CAPACIT (i) / AFFILI (ii) : N / INTON: E CONTAI CIFICATIO # AIMERS	ATION: ATION: NEFT IN MATERIAL	SAI SAI FLC	MPLEA(MPLEA) MPLEA MPLEA MPLEA TOWN AAT LD-FILT Tatton Ec	SAM S) SIGNA UMP E (mL per ERED: Quipment T	minute): ype: VIVE	I/4" = 0.0026 G DATA IJU FILTER ESERVATION OTAL VOL ADDED IN	SAMPINITIA TUBIN MATE SIZE:	" = 0.0 PLING TED A IG RIAL (O4; 3/8" T: 1444 CODE: T DUPLICAT	SAME	1/2" = 0.010 PLING 5 N SAM EQU	APLING
SAMPLED PUMP OR DEPTH IN CODE REMARKS	BINSIDE DIA. DBY (PRINT) HUBING TUBING NWELL (Iee CONTAMIN SAMPLI SPEC CONT. ALCODES.	CAPACIT (i) / AFFILI (ii): N/ INTION: E CONTAI CIFICATIO # ANNERS	ATION: ATION: NEFT IN MATERIAL	SAI SAI FILE FILE	MPLEA MPLEA MPLEA TLD-FILT ration Ec	SAM S) SIGNA UMP ERED: quipment 1 SAM ESERVAT USED	minute): ype: MPLE PRE	I/4" = 0.0026 G DATA IJU FILTER ESERVATION OTAL VOL ADDED IN	SAMPINITIA TUBIN MATE SIZE:	"= 0.0	O4; 3/8" T: 1444 CODE: T DUPLICAT INTENDEL AND/OF	SAMENDE	1/2" = 0.010 PLING 5 N SAM EQU	APLING

^{2.} Stabilization Criteria: $pH = \pm 0.2$; Temperature = ± 0.2 °C; Specific Conductance = readings are within $\pm 5\%$; Dissolved Oxygen = A) $\leq 20\%$ saturation or B) readings are within ± 0.2 mg/L (for readings ≤ 2 mg/L) or 10% (for readings > 2 mg/L); Turbidity = A) ≤ 20 NTUs or B) readings are within ± 5 NTUs (for readings > 20 and ≤ 50 NTUs) or 10% (for readings > 50 207Us).

DEP-SOP-001/01

GROUNDWATER SAMPLING LOG

VELL NO		11151(-2		SAMPL	EID: LÜ	LOCATI				DATE:	7/27/	165	
							DATA				17 - 77		
VELL			BING	WELLS	SCREEN IN			DEPTH	i	PURGE PL	JMP TYPE		_
IAMET	ER (inches):		AMETER	DEPTH	: leet	lo		TER (lee	et):	OR BAILES	7: 13 F		
VELL V	OLUME PUR	1		(TOTAL WE	LL DEPTH	- STA			ER) X		ACITY		
only fill o sallons	out if applicable	le)	= (130.0	leet-	20	08	leet') X	1).65	gallons/lo	pot = 7	1.45
OUIPM	MENT VOLUM		EQUIPMENT					TY X	TU	BING LENG	TH) + FLOW	CELL VOL	UME
allons	out if applicab			N/A	gallor			ns/lool X			eet) +	gal 	lons =
NITIAL (PUMP OR TU	BING NA	FINAL PL DEPTH II	IMP OR TUB NWELL (feel	BING N/A	וטף דואו	RGING TIATED AT:	UZU	PURGI	ING 1232	TOTAL	VOLUME 0 (gallons):	176
TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (std units)	TEMP (°C)	COND (µmhos/cm or µS/cm)	DO mort % sai		YIIGIBRUTY (aUTN)	COLOR	ODOR	ORP (mV)
134	12.	72	0.90	20,10	4,01	23,6	340	0.2	3 1	.13	NINE	SULFLOS	-198-0
150	18	90	0.90	20.09	126	23.7	339	1). 1	4	1-01	HUME	SULFIE.	755.7
206	18	108	6-90	20-1V	729	23,7	335	0.2		1,00	NUME	JULY. TO	2-156
232	18	126	0.90	20.06	7.32	23.6	334	6.27	_	1.01	WINE	8 HLYJDE	-150 7
- 72	_1	1 2 6	0110	7 100	11/2	27.0	73	0.72 7		130			17911
]	1	I	l	1	- 1			1	
	CAPACITY (G	allons Per Foot	t): 0.75" = 0	.02; 1"=	0.04; 1.2	25" = 0.06	; 2" = 0.16	S; 3" =	= 0.37;	4" = 0.65;	5" = 1.02;	6" = 1.4	7:
12" = 5.6	.88 3 INSIDE DIA.		•		3/16" = 0	0.0014;	1/4" = 0.002		= 0.37; 6" = 0.0			5" = 1.4 1/2" = 0.010	
12" = 5.6 TUBING 5/8" = 0.	S INSIDE DIA.	CAPACITY (C	Sal./Ft.): 1/8	" = 0.0006;	3/16" = 0	1.0014: IPLINO		6; 5/1	10.140	004; 3/8"	= 0.006;	1/2" = 0.010);
12" = 5.6 TUBING 5/8" = 0.	.68 3 INSIDE DIA. 1.016	CAPACITY (C	Sal./Ft.): 1/8	" = 0.0006;	3/16" = 0	1.0014: IPLINO	1/4" = 0.002 B DATA	6; 5/1	10.140	004; 3/8"	= 0.006;);
12" = 5.6 TUBING 5/8" = 0.	B8 SINSIDE DIA. LOIE ED BY (PRINT FAMER DR TUBING	CAPACITY (C	5ai./Ft.): 1/8	SAMPLER	3/16" = 0 SAM ((S) SIGNA PUMP	IPLING	1/4" = 0.002	SAN INIT	PLING	AT: 1235	= 0.006;	1/2" = 0.010);
SAMPLE SAMPLE PUMP COEPTH	ED BY (PRINT FMETA) DR TUBING IN WELL (Jee	CAPACITY (C	5ai./Ft.): 1/8	SAMPLER SAMPLER FLOW RA FIELD-FIL	SAM (S) SIGNA PUMP TE (mL per TERED:	IPLING	1/4" = 0.002 G DATA	SAN INIT	APLING IATED	004; 3/8" AT: 1235	= 0.006; - SAMP ENDE	1/2" = 0.010 PLING D AT:	10
SAMPLE SAMPLE PUMP COEPTH	ED BY (PRINT FLYMEN) OR TUBING IN WELL (ICE	CAPACITY (C WHA WHA N): MA	N	SAMPLER SAMPLER FLOW RA FIELD-FIL	SAM (S) SIGNA (S) SIGNA (C) SIGNA (C) PUMP TE (mL per TERED: Squipment 1	IPLING TURES: minute):	1/4" = 0.002 G DATA 1) U FILTER	SAM INIT TUB MAT SIZE:	APLING IATED	AT: 1235	= 0.006; - SAMP ENDE	1/2" = 0.010 PLING D AT:	10
SAMPLE SAMPLE PUMP COEPTH	ED BY (PRINT FUMER) OR TUBING IN WELL (Ice DECONTAMIN SAMPLE	CAPACITY (C	N	SAMPLER SAMPLER FLOW RA FIELD-FIL	SAM (S) SIGNA (S) SIGNA (C) SIGNA (C) PUMP TE (mL per TERED: Squipment 1	MPLE PRE	1/4" = 0.002 G DATA 15 U FILTER ESERVATION	SAM INIT TUB MAT SIZE:	APLING IATED	004; 3/8": AT: 23 CODE: BUPLICAT	= 0.006; - SAMP ENDE	1/2" = 0.010 PLING PD AT: 14	10 intax;
SAMPLE SAMPLE PUMP COEPTH	ED BY (PRINT FUMER) OR TUBING IN WELL (lee DECONTAMIN SAMPLE SPEC	CAPACITY (CAPACI	N R	SAMPLER SAMPLER FLOW RA FIELD-FIL Filtration E	3/16" = 0 SAM (S) SIGNA TEMP TE (mL per TERED: SAM RESERVAT	minute): APLE PRE	1/4" = 0.002 G DATA FILTER ESERVATION OTAL VOL ADDED IN	SAN INIT TUB MAT SIZE:	APLING IATEO	AT: 1235 CODE: BUPLICAT	= 0.006; - SAMP ENDE	1/2" = 0.010 PLING	10 LATAX
12" = 5.6 TUBING 5/8" = 0. SAMPLE PUMP COEPTH FIELD O	ED BY (PRINT FUMER) OR TUBING IN WELL (lee DECONTAMIN SAMPLE SPEC	CAPACITY (CAPACI	N R	SAMPLER FLOW RA FIELD-FIL Filtration E	SAM (S) SIGNA (S) SIGNA (S) SIGNA (N) (S) EIGNA (N) (E) EIGNA (S) SIG	minute): APLE PRE	1/4" = 0.002 G DATA FILTER SERVATION OTAL VOL	SAN INIT TUB MAT SIZE:	APLING IATEO	AT: 1235 CODE: BUPLICAT INTENDE: AND/OR	SAMP ENDE	1/2" = 0.010 PLING DAT:	I D LATALY SI IPLING PMENT ODE
12" = 5.6 TUBING 5/8" = 0. SAMPLE PUMP COEPTH FIELD O	ED BY (PRINT FUMER) OR TUBING IN WELL (lee DECONTAMIN SAMPLE SPEC	CAPACITY (CAPACI	N R	SAMPLER FLOW RA FIELD-FIL Filtration E	3/16" = 0 SAM (S) SIGNA TEMP TE (mL per TERED: SAM RESERVAT	minute): APLE PRE	1/4" = 0.002 G DATA FILTER ESERVATION OTAL VOL ADDED IN	SAN INIT TUB MAT SIZE:	APLING IATEO	AT: 1235 CODE: BUPLICAT	SAMP ENDE	1/2" = 0.010 PLING	I D LATALY SI IPLING PMENT ODE
12" = 5.6 FUBING SAMPLE PUMP COEPTH SAMPLE SAMPLE SAMPLE	ED BY (PRINT FUMER) OR TUBING IN WELL (lee DECONTAMIN SAMPLE SPEC	CAPACITY (CAPACI	N R	SAMPLER FLOW RA FIELD-FIL Filtration E	3/16" = 0 SAM (S) SIGNA TEMP TE (mL per TERED: SAM RESERVAT	minute): APLE PRE	1/4" = 0.002 G DATA FILTER ESERVATION OTAL VOL ADDED IN	SAN INIT TUB MAT SIZE:	APLING IATEO	AT: 1235 CODE: BUPLICAT INTENDE: AND/OR	SAMP ENDE	1/2" = 0.010 PLING DAT:	IN THE STATE OF TH
12" = 5.6 FUBING SAMPLE PUMP COEPTH FIELD O	ED BY (PRINT FUMER) OR TUBING IN WELL (lee DECONTAMIN SAMPLE SPEC	CAPACITY (CAPACI	N R	SAMPLER FLOW RA FIELD-FIL Filtration E	3/16" = 0 SAM (S) SIGNA TEMP TE (mL per TERED: SAM RESERVAT	minute): APLE PRE	1/4" = 0.002 G DATA FILTER ESERVATION OTAL VOL ADDED IN	SAN INIT TUB MAT SIZE:	APLING IATEO	AT: 1235 CODE: BUPLICAT INTENDE: AND/OR	SAMP ENDE	1/2" = 0.010 PLING DAT:	I D LATALY SI IPLING PMENT ODE
12" = 5.6 TUBING 5/8" = 0. SAMPLE PUMP COEPTH FIELD O	ED BY (PRINT FUMER) OR TUBING IN WELL (lee DECONTAMIN SAMPLE SPEC	CAPACITY (CAPACI	N R	SAMPLER FLOW RA FIELD-FIL Filtration E	3/16" = 0 SAM (S) SIGNA TEMP TE (mL per TERED: SAM RESERVAT	minute): APLE PRE	1/4" = 0.002 G DATA FILTER ESERVATION OTAL VOL ADDED IN	SAN INIT TUB MAT SIZE:	APLING IATEO	AT: 1235 CODE: BUPLICAT INTENDE: AND/OR	SAMP ENDE	1/2" = 0.010 PLING DAT:	I D LATALY SI IPLING PMENT ODE
12" = 5.6 TUBING 5/8" = 0. SAMPLE PUMP COEPTH FIELD O	ED BY (PRINT FUMER) OR TUBING IN WELL (lee DECONTAMIN SAMPLE SPEC	CAPACITY (CAPACI	N R	SAMPLER FLOW RA FIELD-FIL Filtration E	3/16" = 0 SAM (S) SIGNA TEMP TE (mL per TERED: SAM RESERVAT	minute): APLE PRE	1/4" = 0.002 G DATA FILTER ESERVATION OTAL VOL ADDED IN	SAN INIT TUB MAT SIZE:	APLING IATEO	AT: 1235 CODE: BUPLICAT INTENDE: AND/OR	SAMP ENDE	1/2" = 0.010 PLING DAT:	I D LATALY SI IPLING PMENT ODE
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SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE COOS	ED BY (PRINT FUMER) OR TUBING IN WELL (lee DECONTAMIN SAMPLE SPEC	CAPACITY (CAPACI	N R	SAMPLER FLOW RA FIELD-FIL Filtration E	3/16" = 0 SAM (S) SIGNA TEMP TE (mL per TERED: SAM RESERVAT	minute): APLE PRE	1/4" = 0.002 G DATA FILTER ESERVATION OTAL VOL ADDED IN	SAN INIT TUB MAT SIZE:	APLING IATEO	AT: 1235 CODE: BUPLICAT INTENDE: AND/OR	SAMP ENDE	1/2" = 0.010 PLING DAT:	IN THE STATE OF TH
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IZ" = 5.6 TUBING S/B" = 0. SAMPLE PUMP CO DEPTH FIELD O SAMPLE CODE REMARI	ED BY (PRINT FUMER) OR TUBING IN WELL (Iee DECONTAMIN SAMPLE ED CONTA RKS: A S T	CAPACITY (CAPACI	N R PERIAL VO	SAMPLER SAMPLER FLOW RA FIELD-FIL Filtration E	SAM (S) SIGNA TERED: TERED: Equipment 1 SAM RESERVAT USED	minute): Y NY APLE PAS PE = Po	FILTER ESERVATION OTAL VOL ADDED IN FIELD (mL)	SAMINIT TUB MAT SIZE:	APLING IATED A STATE OF THE PROPERTY OF THE PR	CODE: BUPLICAT INTENDE: AND/OR	SAMP ENDE	1/2" = 0.010 PLING DAT: 14 SAN EQUI C F= Tellon;	I D I D I D I D I D I D I D I D I D I D

Temperature = $\pm 0.2^{\circ}$ C; Specific Conductance = readings are within ± 5%; $pH = \pm 0.2$; Dissolved Oxygen = A) \leq 20% saturation or B) readings are within \pm 0.2 mg/L (for readings \leq 2 mg/L); Turbidity = A) \leq 20 NTUs or B) readings are within \pm 5 NTUs (for readings > 20 and \leq 50 NTUs) or 10% (for readings > 50 NTUs).

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INSTRUM	MENT (M	MAKE/MC	OEL≓)	- ALK	156	INSTRI	JMENT#	
PARAME	TER: (check onl						
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☐ TUF	RBIDITY	[] RESIDUA	L CL	1260	□ 0	THER	
STANDA values, and	RDS: [S	Specify the l	rype(s) of sta ds were prep	ndards use lared or pui	d for calibration	on, the origin of t	he standards, th	e standard
Stand	ard A	10070					-	
Stand	ard B _							
Stand	ard C							
DATE (yy/mm/dd)	TIME (hr.min)	STD (A. B. C)	STD VALUE	INSTRUM RESPON		CALIBRATED	TYPE (INIT, CONT)	SAMPLER INITIALS
05/07/27	1115	A-	-9240	7.630	28.8 1	ly	[MET	CP
05/07/24	1200	A	99.8%	6.646	374	l y	INST	CF
05/07/24	1600	A-	99.5%	6.720	36.7	1 4	FIMAL	٥F
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INSTRUMENT (MAKE	MODEL≓)		INSTRUM			
PARAMETER: (check	only one]					
☐ TEMPERATURE	CONDUCT	TIVITY - S	ALINITY	Ø or	ORP	
☐ TURBIDITY	☐ TURBIDITY ☐ RESIDUAL CL		0	OTH		
STANDARDS: [Specify values, and the date the star Standard A 4.00 Standard B 7.00	dards were prepa	ndards used for ca ared or purcnased	alibration, the] 	ongin of the	standards, the	standard
Standard C 10.00 /						
DATE TIME ST (yy/mm/dd) (htmin) (A. 8		INSTRUMENT RESPONSE		ALIBRATED	TYPE (INIT, CONT)	SAMPLER INITIALS
U5/07/27 1115 AD	(it 00/7.0-/15-6	-58.4 slure		Ý	INST	(F
5/04/28 17.00 AB	(4,60/Zides	12 -56.6 SL4E	.	4	PHET	CF

DATE (yy/mm/dd)	TIME (bemin)	STD (A. B. C)	STD VALUE	INSTRUMENT RESPONSE	% 0EV	(YES. NO)	TYPE (INIT, CONT)	SAMPLER INITIALS
U5/07/27	1115	ANC	4.00/7.0-/15-	1 -58.4 store		Ý	INST	(F
05/04/28		ABC	4,647,641	12-566 SL4E		\(\frac{1}{2} \)	IMDT	CF CF
05/17/18	1600	MBL	4.60/7.00/n	1.00-57.25cc#f		<u> </u>	FJHAL	CP
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INSTRUM	NENT (N	MAKE/MO	DEL≓)	!-ACH	1 5021	INSTRUI	MENT# <u>.</u>		_
PARAME	TER: (check only							
	MPERATL		CONDUC		☐ SALINITY	D bH	☐ ORP		
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values, and	the date	ihe standard	ype(s) of sta Is were prep	andards usad pared or purci	for calibration, nased]	, the ongin of the	e standards, the	standard	
	ard A _								
Stand	ard B _	56.4							
Stand	ard C _	549							
DATE (yy/mm/dd)	TIME (hcmin)	STD	STD VALUE	INSTRUME RESPONS		(YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS	
15/07/27	1115	579/56-4/	\$49	579/864/5	49	<u> </u>	IMIT:	CF	1
U5/07/28	1200	5.79/5441		5.73/5601	544	Ĭ Ÿ	TIMIT	CF	1
05/07/18		5.74/564/	इप१	5.76 56.11	547	y Y	FINAL	CF	İ
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☐ TUF	RBIDITY	C] RESIDUA	L CL 🗆	DO		HER	
STANDA values, and	RDS: (S	Specify the t the standard	ype(s) of sta is were prep	andards used for pared or purchas	calibration. ed]	the origin of the	e standards, the	standard
Stand	lard A _	1413						
Stand	ard B _	23						
Stand	ard C _							
DATE (yy/mm/dd)	TIME (homin)	STD (A, 9, C)	STD	INSTRUMENT RESPONSE	" DEV	CALIBRATED 1YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS
05/67/27	1115	AB	1413/23	1379/24.9		Y	i MLT	CF
05/07/28	1200	AB	1413/23	1365/251	1	1 4	<i>init</i>	CF
05/07/28	1600	AB	1413/23	1377/23.9		Y	FIMAL	CF.
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GROUNDWATER SAMPLING LOG

MAIL NO. MAL.	SITE NAME	Lak	Le Ori	en to	 }				SM	E CATIO	 Эи <i>Д</i> /	tam.	107	Spring	<u> </u>		
WELL CAPACITY (Callons Per Foot): 0.75* = 0.02; 1" = 0.04; 1.25* = 0.06; 2" = 0.16; 3" = 0.005; 3" 6" = 0.004; 3" 6" = 0.005; 3" 6" = 0.004; 3" 6" 6" 6" 6" 6" 6" 6" 6" 6" 6" 6" 6" 6"	WELL					;	SAMPI	EID: C						1	,		
DAMETER (Inches):		7770-	-					PU	RGI	NG	DATA				<i>y</i> ()	_	
Conf. Geol. Conf. Con		TER (inches)	:4"	DIAM	ETERO/	// C	EPTH			VAL	TOWA	TER (fe)	
Conty Rill out if applicable	(only fil gallons	out if applica	able)		= (2	10	fee	t -	4	9,44	fe	et) >	.65	gallon		04
MITTAL PLUMP OR TUBING DEPTH IN WELL (leds): September NVELL (leds): Septemb	(only fil	out if applica		E: 1 EQ	UIPMEN	r vol								I DRING FENC			
TIME VOLUME PURGED PURGE RATE (feel) VOLUME PURGED			TUBING et): 7.5	5-1								710			TOTAL PURG		
318 2 6 /30 ,3 8 7,57 33.2 202.5 0.1	TIME	PURGED	VOLU PURG	ME I	RATE	WA	O TER	(std			(µmhos/cm	(mg/l	or		GOLOR	ODOR	ORP
WELL CAPACITY (Gallons Per Fool): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.08; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.68 TUBING INSIDE DIA CAPACITY (Gall/Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1.14" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016 SAMPLED BY (PRINT) / AFFILIATION: SAMPLED BY (PRINT) / AFFILIATION: SAMPLED BY (PRINT) / AFFILIATION: SAMPLE PUMP OR TUBING PUMP OR TUBING SAMPLE PUMP FILLD FILTER SIZE: FILTER SIZE: DUPLICATE: DUPLICATE: N DUPLICATE: N N DUPLICATE: N N DUPLICATE: N N DUPLICATE: N N DUPLICATE: N N DUPLICATE: N N DUPLICATE: N N DUPLICATE: N N DUPLICATE: N N DUPLICATE: N N DUPLICATE: N N DUPLICATE: N N DUPLICATE: N N DUPLICATE: N DUPLICAT	1210	104	10	7	/	40	.50	7.62	23	.8	213,2	01	2	0,64	1.1841	Mre	-085
WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88 TUBING INSIDE DIA, CAPACITY (Gall/FL): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.010; 5/8" = 0.010 SAMPLING DATA SAMPLED BY (PRINT) / AFFILIATION: SAMPLER(S) SIGNATURES: MILL Duny / Cres, is fenner PUMP OR TUBING DEPTH IN WELL (reel): FIELD PLOECONTAINIER SAMPLE PUMP SAMPLE (ml. per minute): FIELD FILTER SIZE: DUPLICATE: TO N USE SAMPLING SAMPLE DUPLICATE: TO N USE SAMPLED BY (PRINT) / AFFILIATION: N FIELD / ADDED IN FINAL ADDED IN FIELD / ADDED IN FINAL ADDED IN FIELD / ADDED IN FIELD / ADDED IN FIELD / ADDED IN FIELD / ADDED IN FIELD / ADDED IN FIELD / ADDED IN FIELD / ADDED IN FIELD / ADDED IN PHALE / ADDED IN PH	1318	26	1		38			_				0.1					086
TUBING INSIDE DIA. CAPACITY (Gel./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.008; 1/2" = 0.010; SAMPLED BY (PRINT) / AFFILIATION: Milk Burns / Crg. is Fenner Milk Burns / Crg. is Fenner SAMPLE PUMP OR TUBING DEPTH IN WELL (feet): FIELD DECONTAININATION: SAMPLE PUMP RESERVATION SAMPLE PUMP RESERVATION SAMPLE PRESERVATION SAMPLE PRESERVATION SAMPLE PRESERVATION SAMPLE ID # MATERIAL CODE: SAMPLE ID # MATERIAL CODE CONTAINERS CODE MATERIAL CODE AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)	1470	26	150	<u>د</u>				7.56	23,	ت	198.2	0.1	<u>D_</u>	0,58			180~
SAMPLED BY (PRINT) / AFFILIATION: Milk Bring / Crs. is fearer PUMP OR TUBING DEPTH IN WELL (feet): FIELD DECONTAMINATION: SAMPLE PUMP FLOW RATE (mL per minute): FIELD FILTERED: Y SAMPLE TOTAL VOLUME SAMPLED IN FIELD (mL) SAMPLE DEPTH IN WATERIAL CODE: SAMPLE ON TAINER SPECIFICATION SAMPLE PRESERVATIVE ON TOTAL VOLUME SAMPLED IN FIELD (mL) SAMPLE D # AND/OR METHOD SAMPLING SAMPLING SAMPLING SAMPLING SAMPLING SAMPLED (mL) SAMPLE D # AND/OR METHOD SAMPLING SAM	12" = 5 TUBIN	.88 G INSIDE DIA									•	•		•			
MITHER Dates Crisis Fenner Martin Sampling Samp	5/8 = (SAN	1PL	INC	DATA						_
DEPTH IN WELL (feet): FIELD DECONTAMINATION: N FIELD-FILTERED: Y SAMPLE CONTAINER SPECIFICATION SAMPLE ID CODE CONTAINERS CODE VOLUME PRESERVATIVE USED TOTAL VOL ADDED IN FIELD (mL) FINAL ADDED IN FINAL ADDED IN FINAL ADDED IN FIELD (mL) FINAL ADDED IN FINAL A	Mile	Burns /C				M	16		TUR	ES:		INE	ΓΙΑΤΕ		7 SAME	PLING / C	150
SAMPLE CONTAINER SPECIFICATION SAMPLE ID CODE SAMPLE ID CONTAINERS CODE VOLUME PRESERVATIVE USED TOTAL VOL ADDED IN FIELD (mL) FINAL PH SAMPLE PRESERVATION INTENDED ANALYSIS AND/OR METHOD CODE SAMPLING EQUIPMENT CODE REMARKS: MATERIAL CODES: Other (Specify) AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Tefion; O =				(P)	N	FIEL					FILTER		TERM		<u>《</u> (E: 〈 🔻	= N	1): 4
SAMPLE ID CODE CONTAINERS CODE VOLUME PRESERVATIVE USED TOTAL VOL ADDED IN FIELD (mL) FINAL PH SAMPLING EQUIPMENT CODE SEC () > + REMARKS: MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)		SAMP	LE CONTA	AINER		<u>шт</u>		SAI	MPLE	PRE	SERVATION	~				_	00/
REMARKS: MATERIAL CODES: Other (Specify) AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)		EID	#	MATERI		LUME	PR	ESERVAT		T	OTAL VOL	FI				EQUI	PMENT
MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)					See	2	Ĺí	5 4									
MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)																	
MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)											-						
Other (Specify)	REMAR	RKS:			l												
ES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.	Other (Specify)													= Silicone;	T = Teflon;	0=

Dissolved Oxygen = A) \leq 20% saturation or B) readings are within \pm 0.2 mg/L (for readings \leq 2 mg/L) or 10% (for readings \geq 2 mg/L); Turbidity = A) \leq 20 NTUs or B) readings are within \pm 5 NTUs (for readings > 20 and \leq 50 NTUs) or 10% (for readings > 50 NTUs).

GROUNDWATER SAMPLING LOG

NAME	Lake	Ori	ent	49			SITE LOCAT	ION Al-	famous	Sp55,	FC.		
WELL N	NO: MU	-2			SAMP	LE ID: Z	0-0	5- ML	- 2	DATE: 2	?/2/5-		
						PUF	RGINO	DATA					
	TER (inches):	1	(inch	METER //2 les):	// DEPTH		t to	TO WA	DEPTH TER (feet):	OR BAILE	B F	?	
(only fill gallons	out if applicat	ole)		= (130	fee	t- /	9,61	feet)	, 6 >	gallons/f	oot = -	
	MENT VOLUM out if applicat		: 1E	QUIPMENT			,	BING CAPAC		TUBING LENG	,	CELL VO	LUME
gallons					=		ons + (gallo 	ons/foot X		feet) +		gallons =
INITIAL DEPTH	PUMP OR TU	JBING (): \$7.5	'		JMP OR TUE N WELL (fee		PL INI	IRGING ITIATED AT	720 EN	RGING DED AT//05	TOTAL \	OLUME (gallons)	2
TIME	VOLUME PURGED (gallons)	CUMUN VOLUM PURGE (gallons	IE D	PURGE RATE (gpm)	TO WATER (feet)	pH (std units)	TEMP (°C)	COND (µmhos/cm or µS/cm)	DO (mg/L or % sat.)	TURBIDITY (NTUs)	COLOR	ODOR	ORP
ONO	71.7	7/7	_	,65	19,65	7,68	23.8	2665	0,21	1.0	clear	loss	-191
3937	18.0	89.	7			7,69	23,7	306,2	0,29	0.34			-126
00 6	18,0	107,	7	<u> </u>		7,65	23.8	251./	0,18	0.24		_ _	150
34	12,0	125,	_			7.66	23.8	252.4	017	0,24		\perp	-156
02	12.0	143.	7		<u> </u>	765	73.8	254.	0,17	0,23	1		-156
			\dashv										
	_		\neg										
12" = 5	3 INSIDE DIA		•			3/16" =	0.0014;	06; 2* = 0.1 1/4" = 0.002 G DATA	•	•		; 6" = 1 1/2" = 0.0	
A	ED BY (PRIN	/				(S) SIGNA		_	SAMPLE	NG ED AT: //3と	SAMPL	ING AT:	220
	OR TUBING IN WELL (fee	et):			SAMPLE F	TE (mL per	minute):		TUBING	AL CODE:	ET		,
FIELD	DECONTAMIN	ATION:	D	N	FIELD-FIL	TERED:	Υ Φ	FILTER	R SIZE:	DUPLICAT	ΓΕ: Y	42	u 5/1
		E CONTAIR				SAM	MPLE PR	ESERVATION	ł	INTENDE		SAN	/PLING
SAMPL COD		# AINERS	MATER COD		LUME	RESERVAT USED	IVE	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH		D ANALYSIS METHOD		IPMENT ODE
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REMAR	RKS:												

Temperature = ± 0.2 °C;

Dissolved Oxygen = A) \leq 20% saturation or B) readings are within \pm 0.2 mg/L (for readings \leq 2 mg/L) or 10% (for readings > 2 mg/L); TurbIdity = A) \leq 20 NTUs or B) readings are within \pm 5 NTUs (for readings > 20 and \leq 50 NTUs) or 10% (for readings > 50 NTUs).

pH = + 0.2;

STABILIZATION CRITERIA:

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Specific Conductance = readings are within ± 5%;

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		AKE/MOD						
		neck only	CONDUCT	IVITY [] S	ALINITY	∏ рН	ORP	
_	PERATUR		RESIDUAL	_			ER	
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STANDAF values and l	RDS: {S, the date ti	pecify the ty) he standards	s were brebs	ared or purchased	1]	.		
Standa	ard A	5-95						
Standa	ard 8	56-2			_			
Standa	ard C	170						
DATE	TIME	STD	STD	INSTRUMENT	% OEV	CALIBRATED IYES, NO)	TYPE (INIT. CONT)	SAMPLER INITIALS
(yy/mm/dd)	(hcmin)	(A, B, C)	595/56.2/	RESPONSE	,,, 0,, 1	Y	INET	CF
05/08/08	0840	A3C	<i>}?\!\\\</i> 	<i>y / -</i>	<u> </u>			
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INSTRUM	NENT (N	IAKE/MOI	DEL≓)	HXCH 120	<u> </u>	INSTRUMENT#_				
PARAME	TER: (d	check only	one]							
☐ 75%	MPERATU	RE [CONDUCT	IVITY [] SALINITY	MoH	☐ ORP			
☐ TUF	RBIDITY		RESIDUAL	.CL] 00		4ER			
values, and	the date to	he standard:	s were prepa	ndards used fo ared or purcha	r calibration. sedj	the origin of the	standards, the	sianaard		
Standa	ard A 4	COS JOAN								
Standa	ard B <u>/</u>	of JOAN	(FdY ————							
Standa	ard C [V.30 /								
DATE (yy/mm/dd)	TIME (hamin)	STD (A. B. C)	STD VALUE	INSTRUMENT RESPONSE	% DEV	CALIBRATED (YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS		
05/08/08	0840		420/720/1620	-62.594	E	Y	IMLT	Cŧ		
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INSTRUM	ENT (M	AKE/MO(DEL#) _	HACH 156		INSTRUM	IENT # <u>. </u>	<u>-</u>
PARAME	TER: [c	heck oпly	one]					
	PERATU		CONDUCT	TIVITY S	ALINITY		ORP	
TUR	BIOITY		RESIDUAL			-	KER	
values, and	the date tl	ne standard.	s were prepa	ndards used for ca ared or purchased	alibration, d)	the ongin of the	standards, the	siandard
		413			_	.		
Standa	ard B	23						
Standa	erd C					L CAL (DDATE)	TYPE	SAMPLER
DATE (yy/mm/dd)	TIME (begin)	STD (A. B. C)	STD VALUE	INSTRUMENT RESPONSE	% DEV	CALIBRATED (YES, NO)	(INIT. CONT)	INITIALS
0,708/18	0.840	AB	1371/23.5	·		У	INST	CF
-7/1	_			_		<u> </u>		
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FT 1000 General Field Testing and Measurement

INSTRUM	IENT (M	AKE/MOD	EL#)	YSI G	, 3	INSTRUM	IENT# 05	130968
		heck only						
	IPERATUR	_	CONDUCT	S 🗋 YTIVE	ALINITY	₩рн	ORP	
	BIDITY		RESIDUAL			_	ER	
STANDAI values, and	RDS: [Si	pecify the type ne standards	ne(s) of star were prepa	ndards used for ca ared or purchased	alibration, d]	the origin of the	standards, the	standard
	ard A							
Standa	ard B	7			_			
Stand	ard C	10					7/05	SAMPLER
DATE (yy/mm/dd)	(hr:min)	STD (A, B, C)	STD VALUE	INSTRUMENT RESPONSE	% DEV	CALIBRATED (YES, NO)	TYPE (INIT, CONT)	INITIALS
8/8/05	0738	A	-4	4,3		1 2 5	Init	MB
)		B	7	6.92	1			
		C	10	18,1				
	1500	A	4	4,07			Cont	
		B	7	7.0				
_		C	(0	10,03				
8/9/05	1510	Д	4	4.01				
<u> </u>		B	7	7.0				
		د و	10	9.98				
			,					
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Field Instrument Calibration Records

DEP-SOP-001/01 Page ___or___

INSTRUMENT (MAKE/M	IODEL#) YSI_	43 IN	STRUMEN	T# <u>0415096</u> 2
PARAMETER: [check o	nly one]			
₩ TEMPERATURE	CONDUCTIVITY	☐ SALINITY	□рН	ORP
TURBIDITY	RESIDUAL CL	□ DO	OTHER_	
STANDARDS: [Specify the values, and the date the stand			gin of the stand	dards, the standard

Standard B

Stand	ard 8							
Stand	ard C _							
DATE (yy/mm/dd)	TIME (hr:min)	STD (A. B. C)	STD VALUE	INSTRUMENT RESPONSE	_% DEV	(YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS
8/3/05	0741		25.5	25,5		L23	Init	MB
1	1503		26.7	26,7			Cont	1
8/9/05	1512		27.6	27,6			1	/
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	, and the second							
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Field Instrument Calibration Records

INSTRU	MENT (N	NAKE/MO	DEL#)	YSI G	3	INSTRU	18096	
PARAME	TER: [c	check only	one]					
☐ TEN	MPERATU	IRE 🖸	CONDUC	אַדועוד [☐ SALINITY	∏рH	☐ ORP	
☐ TUF	RBIDITY		RESIDUA	LCL [] DO		HER	
STANDA values, and	RDS: (S	Specify the ty the standard	rpe(s) of sta s were prep	andards used fo pared or purcha	or calibration, ased]	the origin of the	e standards, the	standard
Stand	lard A _		70					
Stand	ard B _	143	1003				·	
Stand	ard C _							
DATE (yy/mm/dd)	(hemin)	STD (A. 8. C)	STD VALUE	INSTRUMEN RESPONSE		(YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS
8/8/05	0730	A	70	69.2		185	エマッチ	ms
		B	1000	997				
	1505	A	70	67.3			cont	
		B	100	994			,	1
89/05	1515	A	70	71,1		l f		
		В	1000	1004				ĺ
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INSTRUMENT (MAKE/MODEL	#) <u>HACH</u>	2100P	INSTRUMEN	T#_ <u>0104000</u>	<u>2</u> 877
PARAMETER: [check only on	e]				
☐ TEMPERATURE ☐ CC	NDUCTIVITY	☐ SALINITY	□рН	☐ ORP	
X TURBIDITY ☐ RE	SIDUAL CL	□ DO	☐ OTHER		_
STANDARDS: [Specify the type(syalues, and the date the standards we	s) of standards used ere prepared or pure	d for calibration, th chased]	ne origin of the stan	ndards, the standard	
Standard A 5,37	3				
Standard B 52.1				•	
Standard C <u>496</u>					
DATE TIME CTD	STD INSTRUM	FNT	CALIBRATED	TYPE SAMPLE	₹

	ard C $_$	2116						
DATE (yy/mm/dd)	TIME (hr:min)	STD (A, B, C)	STD VALUE	INSTRUMENT RESPONSE	% DEV	CALIBRATED (YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS
2/3/05		A	5,37	5,23		223	Init	mp
		B	52.1	57.0				
		C	496	495			<u> </u>	
	1510	A	5,37	5,30			cont	
		Δ	52.1	52,0				
		C	496	496				
319105	1518	A	5,37	5.36				
		ß	52.1	57,1				
		c	496	496				
								<u> </u>
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INSTRUM	IENT (M	AKE/MOD	EL#)	YSI 5	5	INSTRUM	1ENT # 96	,M0178
PARAME	TER: [c	heck only						
☐ TEM	- IPERATUI	RE 🗆	CONDUCT	ÎIVITY 🔲 :	SALINITY	☐ pH	ORP	
☐ TUR	BIDITY		RESIDUAL	-CL 💢	00	OTH	IER	
values, and	the date ti	he standards	were prep	ndards used for d ared or purchase	d]	the origin of the	standards, the	standard
Standa	ard A	100%	Auto	Calibrat	ion			
Standa	ard B						•	
Standa	ard C							
DATE (yy/mm/dd)	TIME (hcmin)	STD (A, B, C)	STD VALUE	INSTRUMENT RESPONSE	%_DEV	CALIBRATED (YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS
8/2/05	0)45	A	100%	99.9		123	Iait	pr B
	1513	A	100%	100,4%			cent	
8/4/05	1520	A	100%	102.1%				
								, <u> </u>
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GROUNDWATER SAMPLING LOG

SITE

Lake Orienta

	0: Mu												
								DATA					
WELL DIAMET	ER (inches):	4"	TUBIN DIAME (inches	ETER//	WELL S DEPTH:	CREEN II	NTERVAL et to		DEPTH TER (feet):	PURGE PUMP TYPE OR BAILER:			
	OLUME PUR out if applica		ELL VO	DLUME = ((TOTAL WE	LL DEPTI fee	t - STA	TIC DEPTH 1	O WATER)	X WELL CAI	PACITY gallons	/foot =	04
	MENT VOLUM out if applica		E: 1 EQ	UIPMENT	VOL. = PUN		ME + (TUI	BING CAPAC	ITY X	TUBING LENG	3TH) + FLOV		
gallons							ons + (gallo	ons/foot X		feet) +		allons :
	PUMP OR THE				MP OR TUB WELL (feet		INI	RGING TIATED AT	725 PUI	RGING DED AT:/3 24	PURGE	VOLUME D (gallons)	:
TIME	VOLUME PURGED (gallons)	CUML VOLUI PURG (gallor	ME F ED F	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (std units)	TEMP (°C)	COND (µmhos/cm or µS/cm)	(mg/L or % sat.)	TURBIDITY (NTUs)	COLOR	ODOR	OR
25	104	104	ص ا	,44	49,99	7.46	23.5	225-1	0-16	0.58	Lear	non	-6
25	26	130		4			23.5	2109	0.17	0.56	 		- C
25	26_	156	-	1	_/	7. 38	23.5	216.8	D.24	0.75		1	-0
					-								
12" = 5.8	88					•		1/4" = 0.002		37; 4" = 0.65 = 0.004; 3/8		2; 6" = 1 1/2" = 0.0	•
12" = 5.8	88 INSIDE DIA					3/16" =	0.0014;			37; 4" = 0.65 = 0.004; 3/8			•
12" = 5.8 TUBING 5/8" = 0.	BB INSIDE DIA .016 ED BY (PRIN	T) / AFFIL	TY (Gal.,	/Ft.): 1/8	" = 0.0006; SAMPLER	3/16" = SAN	0.0014; 1PLING TURES:	1/4" = 0.002	26; 5/16"	= 0.004; 3/8	" = 0.005;	1/2" = 0.0	10;
12" = 5.8 TUBING 5/8" = 0. SAMPLE MIGUE PUMP O	88 INSIDE DIA .016	T) / AFFIL	TY (Gal.,	/Ft.): 1/8	SAMPLER	3/16" = SAN (S) SIGNA Z B UMP	O.0014; TPLING TURES:	1/4" = 0.002	SAMPLIII	= 0.004; 3/8 NG ED AT: /3 3 6	" = 0.006; SAMP ENDE	1/2" = 0.0	10;
12" = 5.8 TUBING 5/8" = 0. SAMPLE MI/U/ PUMP O DEPTH	BB INSIDE DIA O16 ED BY (PRIN BOOKS , C	T) / AFFIL	TY (Gal.	/Ft.): 1/8	" = 0.0008; SAMPLER	SAN (S) SIGNA (D) MP (E) (mL pe	0.0014; TPLING TURES:	1/4" = 0.002 G DATA	SAMPLIII	= 0.004; 3/8 NG ED AT: /334	" = 0.066; SAMF ENDE	1/2" = 0.0 PLING .D AT: /<	10;
12" = 5.8 TUBING 5/8" = 0. SAMPLE MI/U/ PUMP O DEPTH	BB INSIDE DIA .016 ED BY (PRIN	T) / AFFIL	TY (Gal IATION: //od Zance	/Ft.): 1/8	SAMPLER SAMPLE P FLOW RAT	SAN (S) SIGNA (L) BUMP (E (mL per (ERED)	O.0014; IPLING TURES: r minute):	1/4" = 0.002 G DATA	SAMPLII INITIATE TUBING MATERI	= 0.004; 3/8 NG ED AT: /3 3 4 AL CODE: /*	" = 0.006; SAMF ENDE	1/2" = 0.0 PLING D AT: /	10;
12" = 5.8 TUBING 5/8" = 0. SAMPLE MI/U/ PUMP O DEPTH	BB INSIDE DIA .016 ED BY (PRIN BOURT) CORTUBING IN WELL (FEE DECONTAMIL SPE	T) / AFFIL	TY (Gal IATION: //od Zance	/Ft.): 1/8	SAMPLER	SAN (S) SIGNA (L) BUMP (E (mL per (ERED)	O.0014; TURES: minute): Y MPLE PR	1/4" = 0.002 G DATA FILTER	SAMPLII INITIATE TUBING MATERI	= 0.004; 3/8 NG ED AT: / 3 3 4 AL CODE: /* DUPLICA INTENDE	" = 0.006; SAMF ENDE	1/2" = 0.0	10;
12" = 5.8 TUBING 5/8" = 0. SAMPLE MULL PUMP O DEPTH I FIELD D	BB INSIDE DIA .016 ED BY (PRIN BOURT) CORTUBING IN WELL (FEE DECONTAMIL SPE	T) / AFFIL T) / AFFIL T) / AFFIL T) / AFFIL T): PATION: E CONTA CIFICATION:	TY (Gal IATION: //od/ Kance INER DN MATERIA	/Ft.): 1/8	SAMPLER	SAN (S) SIGNA (L) BU- UMP (E (mL pei FERED: SAI	O.0014; IPLINI TURES: T minute): Y AP	FILTER ESERVATION TOTAL VOL ADDED IN FIELD (mL)	SAMPLII INITIATE TUBING R SIZE:	= 0.004; 3/8 NG ED AT: / 3 3 4 AL CODE: /* DUPLICA INTENDE	" = 0.006; SAMF ENDE	1/2" = 0.0	APLING
12" = 5.8 TUBING 5/8" = 0. SAMPLE MULL PUMP O DEPTH I FIELD D	BB INSIDE DIA .016 ED BY (PRIN BOURT) CORTUBING IN WELL (FEE DECONTAMIL SPE	T) / AFFIL T) / AFFIL T) / AFFIL T) / AFFIL T): PATION: E CONTA CIFICATION:	TY (Gal IATION: //od/ Kance INER DN MATERIA	/Ft.): 1/8	SAMPLER	SAN (S) SIGNA (L) BU UMP (E (mL pel FERED: SAI USED	O.0014; IPLINI TURES: T minute): Y AP	FILTER ESERVATION TOTAL VOL ADDED IN FIELD (mL)	SAMPLII INITIATE TUBING R SIZE:	= 0.004; 3/8 NG ED AT: / 3 3 4 AL CODE: /* DUPLICA INTENDE	" = 0.006; SAMF ENDE	1/2" = 0.0	10;
12" = 5.8 TUBING 5/8" = 0. SAMPLE MULL PUMP O DEPTH I FIELD D	BB INSIDE DIA .016 ED BY (PRIN BOURT (COR) R TUBING IN WELL (fee DECONTAMII SAMPL SPE	T) / AFFIL T) / AFFIL T) / AFFIL T) / AFFIL T): PATION: E CONTA CIFICATION:	TY (Gal IATION: //od/ Kance INER DN MATERIA	/Ft.): 1/8	SAMPLER	SAN (S) SIGNA (L) BU UMP (E (mL pel FERED: SAI USED	O.0014; IPLINI TURES: T minute): Y AP	FILTER ESERVATION TOTAL VOL ADDED IN FIELD (mL)	SAMPLII INITIATE TUBING R SIZE:	= 0.004; 3/8 NG ED AT: / 3 3 4 AL CODE: /* DUPLICA INTENDE	" = 0.006; SAMF ENDE	1/2" = 0.0	10;
12" = 5.8 TUBING 5/8" = 0. SAMPLE MULL PUMP O DEPTH I FIELD D	BB INSIDE DIA O16 ED BY (PRIN SUR 7 / C OR TUBING IN WELL (fer SECONTAMIN SAMPL SPE D CONT	T) / AFFIL T) / AFFIL T) / AFFIL T) / AFFIL T): PATION: E CONTA CIFICATION:	TY (Gal IATION: //od/ Kance INER DN MATERIA	/Ft.): 1/8	SAMPLER	SAN (S) SIGNA (L) BU UMP (E (mL pel FERED: SAI USED	O.0014; IPLINI TURES: T minute): Y AP	FILTER ESERVATION TOTAL VOL ADDED IN FIELD (mL)	SAMPLII INITIATE TUBING R SIZE:	= 0.004; 3/8 NG ED AT: / 3 3 4 AL CODE: /* DUPLICA INTENDE	" = 0.006; SAMF ENDE	1/2" = 0.0	10;
12" = 5.8 TUBING 5/8" = 0. SAMPLE MUMP O DEPTH I FIELD D SAMPLE CODE	BB INSIDE DIA O16 ED BY (PRIN BULL) OR TUBING IN WELL (fee DECONTAMIN SAMPL SPE ED CONT	T) / AFFIL T) / AFFIL PATION: E CONTA CIFICATION: # TAINERS	IATION: No d Lance	/Ft.): 1/8	SAMPLER	SAN (S) SIGNA (C) SOUMP (E) (mL pel (ERED: SAI USED	O.0014; IPLINITURES: I minute): Y AP MPLE PR	FILTER ESERVATION TOTAL VOL ADDED IN FIELD (mL)	SAMPLII INITIATE TUBING MATERI R SIZE: FINAL pH	NG :D AT: /3 3 4 AL CODE: /* DUPLICA* INTENDE AND/OF	" = 0.006; SAMF ENDE	1/2" = 0.0	IPLING IPMENT

STABILIZATION CRITERIA: pH = \pm 0.2; Temperature = \pm 0.2 °C; Specific Conductance = readings are within \pm 5%; Dissolved Oxygen = A) \leq 20% saturation or B) readings are within \pm 0.2 mg/L (for readings \leq 2 mg/L) or 10% (for readings > 2 mg/L); Turbidity = A) \leq 20 NTUs or B) readings are within \pm 5 NTUs (for readings > 20 and \leq 50 NTUs) or 10% (for readings > 50 NTUs).

GROUNDWATER SAMPLING LOG SITE LOCATION Altamint

SITE NAME

	1.10	U-7			3/WIF L	.E ID: <u>Z</u>	0-0	4-02		DATE: C	7///	<u>0</u> 5	
					_	PUF	RGING	DATA					
WELL DIAMETER ((inches): (t^u	TUBING DIAMETER (inches):	3/4"	WELL S DEPTH: feet	CREEN IN		TO WA	DEPTH TER (feet):	PURGE P OR BAILE	UMP TYPE	/ ⁵	
(only fill out if gallons	if applicable	e)		= (130	fee	-20	14	feet)	,G 5	gallons	lfoot = .	71.4
(only fill out if			1 EQUIPM	IENI V	OL. = PUI =			BING CAPACI gallo		TUBING LEN	G1R) + FLOV feet) +		LUME gallons =
gallons INITIAL PUM	MP OR TUI	BING	FINA	L PUM	P OR TUB		PL	IRGING	PU	RGING	TOTAL	VOLUME	
DEPTH IN W		ĸ	DEPT	TH IN V	WELL (feet		INI	TIATED AT	845 EN	DED AT: [[8	PURGE	D (gallons)	:
TIME PU	DLUME JRGED Jalions)	CUMUL. VOLUME PURGED (gallons)	PURO RATI	SE E	DEPTH TO WATER (feet)	pH (std unrts)	TEMP (°C)	COND (µmhos/cm) or µS/cm)	DO (mg/L or % sat.)	TURBIDITY (NTUs)	COLOR	ODOR	OR
956 7	71.4_	71.4	1.0	_ 2	20,16	7.43		311.6		0,62	Clear	Rose	-16
	7,85	89,25	\neg	+	\rightarrow	7,27	23.8 23.8	345.1	0,54	1		 	-15
32 17	7,85	107,1	$\neg \neg \neg$		 	7.49	23.8		0.28	0,49	 	+(-	-13
- 17.7	.85	1428	* 		1	7.35	23.8	3110	0.20	0.78		<u> </u>	-14
	-												
							•						
12" = 5.88 TUB)NG INS	SIDE DIA.							06; 2" = 0.1 1/4" = 0.002		37; 4" = 0.65 = 0.004; 3/8	5; 5" = 1.0 3" = 0.006;	1/2" = 0.0	•
12" = 5.88 TUBING INS 5/8" = 0.016	SIDE DIA.	CAPACITY	(Gal./Ft):	1/8" :	;6000.0	3/16" =	0.0014; 1 PLIÑ			•	•		•
12" = 5.88 TUBING INS 5/8" = 0.016 SAMPLED B	SIDE DIA.	CAPACITY) / AFFILIA	(Gal./Ft): Tion;	1/8" :	= 0.0006; SAMPLER	3/16" = SAN (S) SIGNA	0.0014; 1PLIN TURES:	1/4" = 0.002	26; \$/16** SAMPU	= 0.004; 3/8	s" = 0.006;	1/2" = 0.0	10;
12" = 5.88 TUBING INS 5/8" = 0.016	SIDE DIA. BY (PRINT BY (DING	CAPACITY AFFILIA A S / N	(Gal./Ft):	1/8" :	SAMPLER	3/16" = SAN (S) SIGNA (D) J	0.0014; 1PLIN TURES:	1/4" = 0.002 G DATA	SAMPLI INITIATI	= 0.004; 3/8 NG ED AT: ///0	s" = 0.006;	1/2" = 0.0	10;
12" = 5.88 TUBING INS 5/8" = 0.016 SAMPLED B M1/14 PUMP OR TO	SIDE DIA. BY (PRINT BUSING NELL (feel	CAPACITY) / AFFILIA 1 S / N):	((Gal./Ft): TION:	1/8" :	= 0.0006; SAMPLER	3/16" = SAN (S) SIGNA DUMP TE (mL per	0.0014; TURES: r minute):	1/4" = 0.002 G DATA	SAMPLI INITIATI TUBING MATERI	= 0.004; 3/8 NG ED AT: ///O	SAMF ENDE	1/2" = 0.0 PLING ED AT: //	35
12" = 5.88 TUBING INS 5/8" = 0.016 SAMPLED B Mill PUMP OR TO DEPTHIN M	SIDE DIA. BY (PRINT BY) UBING WELL (feel ONTAMINA	CAPACITY) / AFFILIA 1 S / N):	(Gal./FL): TION: Vider S D N ER	1/8" :	SAMPLER SAMPLE FILOW RATELOUSE	3/16" = SAN (S) SIGNA DUMP TE (mL per TERED:	0.0014; PLIN TURES: r minute): Y MPLE PR	1/4" = 0.002 G DATA FILTER ESERVATION	SAMPLI INITIATI TUBING MATER:	= 0.004; 3/8 NG ED AT: /// AL CODE: /	SAMF ENDE	1/2" = 0.0	35 MPLING
12" = 5.88 TUBING INS 5/8" = 0.016 SAMPLED B M1:14 PUMP OR TO DEPTH IN W	SIDE DIA. BY (PRINT BY) UBING WELL (feel ONTAMINA	CAPACITY AFFILIA CONTAINI CONTAINI M	TION: TOON: TOOLORS N ER	1/8" :	SAMPLER SAMPLE FLOW RAFIELD-FILT	3/16" = SAN (S) SIGNA DUMP TE (mL per TERED:	O.0014; TURES: r minute): Y (N) MPLE PR	1/4" = 0.002 G DATA FILTER	SAMPLI INITIATI TUBING MATER:	NG ED AT: ///O AL CODE: / DUPLICA	SAMF ENDE	1/2" = 0.0 PLING ED AT: // SAI EQUI	35 MPLING
12" = 5.88 TUBING INS 5/8" = 0.016 SAMPLED B M1/4 PUMP OR TO DEPTH IN VI FIELD DECC	BY (PRINT BY (PRINT UBING NELL (feel ONTAMIN SAMPLE SPEC	CAPACITY AFFILIA CONTAINI CONTAINI M	(Gal./FL): TION: Vider S N ER	1/8" :	SAMPLER SAMPLE FLOW RAFIELD-FILT	SAN (S) SIGNA (S	O.0014; TURES: r minute): Y (N) MPLE PR	FILTER ESERVATION TOTAL VOL ADDED IN FIELD (mL)	SAMPLI INITIATI TUBING MATERI R SIZE:	NG ED AT: ///O AL CODE: / DUPLICA	SAMFENDE	1/2" = 0.0 PLING ED AT: // SAI EQUI	MPLING
12" = 5.88 TUBING INS 5/8" = 0.016 SAMPLED B M1/1/4 PUMP OR TO DEPTH IN VI FIELD DECC	BY (PRINT BY (PRINT UBING NELL (feel ONTAMIN SAMPLE SPEC	CAPACITY AFFILIA CONTAINI CONTAINI M	(Gal./FL): TION: Vider S N ER	1/8" :	SAMPLER SAMPLE F FLOW RA FIELD-FILL DME PF	SAN (S) SIGNA (S	O.0014; PLIN TURES: r minute): Y N MPLE PR	FILTER ESERVATION TOTAL VOL ADDED IN FIELD (ML)	SAMPLI INITIATI TUBING MATERI R SIZE:	NG ED AT: ///O AL CODE: / DUPLICA	SAMFENDE	1/2" = 0.0 PLING ED AT: // SAI EQU	MPLING
12" = 5.88 TUBING INS 5/8" = 0.016 SAMPLED B M1/1/4 PUMP OR TO DEPTH IN VI FIELD DECC	BY (PRINT BY (PRINT UBING NELL (feel ONTAMIN SAMPLE SPEC	CAPACITY AFFILIA CONTAINI CONTAINI M	(Gal./FL): TION: Vider S N ER	1/8" :	SAMPLER SAMPLE F FLOW RA FIELD-FILL DME PF	SAN (S) SIGNA (S	O.0014; PLIN TURES: r minute): Y N MPLE PR	FILTER ESERVATION TOTAL VOL ADDED IN FIELD (ML)	SAMPLI INITIATI TUBING MATERI R SIZE:	NG ED AT: ///O AL CODE: / DUPLICA	SAMFENDE	1/2" = 0.0 PLING ED AT: // SAI EQU	MPLING
12" = 5.88 TUBING INS 5/8" = 0.016 SAMPLED B M1/1/4 PUMP OR TO DEPTH IN VI FIELD DECC	SIDE DIA. BY (PRINT BY (PRINT UBING VELL (feel ONTAMIN SAMPLE SPEC	CAPACITY AFFILIA CONTAINI CONTAINI M	TION: TON: Vider S N ER MATERIAL CODE	1/8" :	SAMPLER SAMPLE FLOW RAFIELD-FILL DIME PF	SAN (S) SIGNA (S	O.0014; PLIN TURES: r minute): Y N MPLE PR	FILTER ESERVATION TOTAL VOL ADDED IN FIELD (ML)	SAMPLI INITIATI TUBING MATERI R SIZE:	NG ED AT: ///O AL CODE: / DUPLICA	SAMFENDE	1/2" = 0.0 PLING ED AT: // SAI EQU	MPLING

Dissolved Oxygen = A) \leq 20% saturation or B) readings are within \pm 0.2 mg/L (for readings \leq 2 mg/L) or 10% (for readings > 2 mg/L); Turbidity = A) \leq 20 NTUs or B) readings are within \pm 5 NTUs (for readings > 20 and \leq 50 NTUs) or 10% (for readings > 50 NTUs).

Page	of

INSTRUM	ENT (M.	AKE/MOD	EL#)	13I 63		INSTRUM	ENT# <u>64</u>	30968
PARAME	TER: [c	heck only	one]					
□ тем	PERATU	RE 🗆	CONDUCT	TVITY S	ALINITY	-		
	BIDITY		RESIDUAL				ER	
STANDAR values, and	RDS: [S the date ti	pecify the typ he standards	ne(s) of star were prep	ndards used for ca ared or purchased	alibration, i i)	the origin of the	standards, the	st an dard
Standa	ard A	<u> </u>						
Standa	ard B _						•	
Standa	ard C _	16						
DATE (yy/mm/dd)	TIME (hr:min)	STD (A, B, C)	STD	INSTRUMENT RESPONSE	% DEV	(YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS
9/7/05	0915	A	= =	3.71		8/27	Znit	ms
1.113		15	7	7,03			1	
		(10	9,97				
9/8/05	07/0	A	4	3.98		E	Cont	
17.01 5	<u> </u>	13	7	7.0			.]	
		C .	10	10.03				1
	1490	1	4	4,0				
	1950	<i>b</i>	7	7.02				
		<i>C</i>	10	10.0 i				
							- ,	
		<u> </u>						
				_				
								
		<u> </u>						
		<u> </u>				<u></u>		
							<u> </u>	
		<u> </u>	_					
								<u> </u>

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INSTRUM	TEMPERATURE CONDUCTIVITY SALINITY PH ORP TURBIDITY RESIDUAL CL DO OTHER DARDS: (Specify the type(s) of standards used for calibration, the origin of the standards, the standard and the date the standards were prepared or purchased) andard A 70 andard B 1000 andard C E TIME STD STD INSTRUMENT (YES, NO) (INIT. CONT) INITIALS (Initials) A 70 88 Yes Initials A 1000 PH ORP ORP ORP ORP ORP ORP ORP ORP												
PARAMETER: [check only one]													
	_			TIVITY S	ALINITY	Па∏	ORP						
TUR	BIDITY		RESIDUAL	0	LTO 🗍	ER							
STANDARDS: (Specify the type(s) of standards used for calibration, the origin of the standards, the standard values, and the date the standards were prepared or purchased)													
Standa	ard A	70_											
Standard B													
Standa	ard C												
DATE (yy/mm/dd)					% DEV								
) (1		570	88		105	INIX	into					
			1000	914)						
9/8/05	0713		70	7.4		12,5	COUX	}					
		ß .	1000	997									
	1429	\mathcal{A}	20	72									
	1.7			998									
V			10.				,						
				,									
						_							
		,											
	-												
			_										

INSTRUM	ENT (M	AKE/MOD	EL#)	15I 550 A	4	INSTRUM	IENT # 630	0266 1
		heck only						
	IPERATUI			TIVITY 📋 S	SALINITY	∏рН	ORP	
	RBIDITY		RESIDUAL	-cr 🗆 t	00	□ OT-	IER	
STANDAI values, and	RDS: [S] the date ti	pecify the typhe he standards	pe(s) of sta were prep	ndards used for c ared or purchase	alibration, d]	the origin of the	standards, the	standard
Stand	ard A							
Stand	ard B						`	
Stand	ard C							
DATE (yy/mm/dd)	TIME (hr:min)	STD (A. B. C)	STD VALUE	INSTRUMENT RESPONSE	% DEV	(YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS
9/7/05	0925		24.8	24.8		<i>L</i> & <i>y</i>	In! x	pets
9/8/05	0717		25,1	25.,			co-+	- }
	1426		23.5	23.5				1
l								
			_					
					1			
				<u> </u>				
				_				
	<u> </u>							

age	of
age	 °;

INSTRUM	IENT (M	AKE/MOD	EL#)	45I 5.50	Ą	INSTRUM	IENT # 05	GO 266A				
PARAME	TER: [c	heck only	one]									
☐ TEM	PERATU	ŘE 🗇	CONDUCT	TIVITY S	SALINITY	∏ pH	ORP					
TUR	RBIDITY		RESIDUAL	_CL ⊠í	00	□ от-	IER					
STANDAI values, and	RDS: [S	pecify the typhe standards	pe(s) of sta were prep	ndards used for c ared or purchase	alibration, d)	the origin of the	standards, the	standard				
Stand	ard A	1.00%										
Stand	ard B						•					
Stand	ard C				_							
DATE (yy/mm/dd)	TIME (hr:min)	STD (A. B, C)	STD VALUE	INSTRUMENT RESPONSE	% DEV	CALIBRATED (YES, NO)	TYPE (INIT, CONT)	NT) INITIALS				
9/7/05	0927	A	100%	97.5		123	Icit	my				
9/8/05	0920	A	100%	101.2			Cont					
1	1427	A	100%	28.6								
ļ.												
		<u> </u>										
			•									
			_									
	<u> </u>											
	<u> </u>						· · · · · · · · · · · · · · · · · · ·					
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INSTRUM	IENT (M	AKE/MOD)EL#)	HACH 20	א עם	INSTRUM	INSTRUMENT # 0 84 000 287					
		heck only		b								
	1PERATU	-	-	TIVITY S	SALINITY	Д рН	ORP					
ΙΣLTUR	RBIDITY		RESIDUAL	CL C	00	☐ OTHER						
STANDAI values, and	RDS: [S the date to	pecify the ty he standards	pe(s) of sta were prep	ndards used for ca ared or purchased	alibration, d]	the origin of the	standards, the	standard				
Stand	ard A	5,17										
Standa	ard B	5211					•					
Standa	ard C	496										
DATE (yy/mm/dd)	TIME (hr:min)	STD (A, B, C)	STD VALUE	INSTRUMENT RESPONSE	% DEV	CALIBRATED (YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS				
1 /	0930	A	5117	5,0		الم الله الله	Inix	pos				
· ·	1	13	52.1	52,1								
		(476	495								
9/8/05	9724	A .	5.17	5,16		yes.	cont					
		ß	52.1	52,1			. 1					
		c	496	<u>-196</u>								
)	1430	A	5117	5.it			1					
		· /S	52.1	5211								
		- 75	446	496								
ı	,							,				
						_						
	_											
		 -		-			-					
					-							
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				_								
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			<i>11</i> 5	2		MOTOLINECHT # EAD ANDE							
		AKE/MOD		Barnant 2	<u></u>	INSTRUMENT # F030033							
PARAME	TER: [c	heck only		_		_							
□ ТЕМ	PERATU	_				<u>П</u> рН —	•						
☐ TURBIDITY ☐ RESIDUAL CL ☐ DO ☐ OTHER													
STANDAR values, and	RDS: $[S]$	pecify the typ he standards	pe(s) of sta were prep	ndards used for ca ared or purchased	alibration, t]	the origin of the	standards, the	standard					
		<u>23/</u>											
Standa	ard B						•						
Standa	ard C												
DATE (yy/mm/dd)	TIME (hr:min)	STD (A, B, C)	STD VALUE	INSTRUMENT RESPONSE	% DEV	CALIBRATED (YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS					
9/7/05	5732	A	271	210		<u>vo</u>	Init	mb					
9/8/00	0978	A	231	215			Init CONT	(
1	14/33	1	731	218		1	l						
		,											
								-					
		_											
													
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		<u>. </u>											
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GROUNDWATER SAMPLING LOG

NAME: Lake Crite. 1ti, LOCATION:															
WELL N	10: 11/20				SAMPL	EID: 人	0-	3	5-0	\		DATE:	10/05	105	,
PURGING DATA															
	ER (inches):	- {	TUBING DIAMETE (inches):	EA /E	DEPTH:		t to		TOWA	173	et):	OR BAILE		B	P
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable) Volume = (2) Gest - 46,73 Gest X Gest X Gest Gest Gest X Gest Gest X Gest															
EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME (only fill out if applicable) = gallons + (gallons/foot X feet) + gallons =															
gallons	gallons														
INITIAL PUMP OR TUBING 751 FINAL PUMP OR TUBING PURGING PURGING PURGED (gailons): 5 TOTAL VOLUME PURGED (gailons): 5															
TIME	VOLUME PURGED (gailons)	CUMUI VOLUM PURGE (gallons	E PUP	TE	DEPTH TO WATER (feet)	pH (std units)	TEM (°C	IP ()	COND (µmhos/cm or µS/cm)	OC (mg/l % sa	∑or ∖	TURBIDITY (NTUs)	COLOR	PODO	ORP (mV)
0615	Init.	\mathcal{C}	0.	46	19.73	,		-			_		clic.	NINE	
1335	107	104		4 3	14.79,	7,44	23,	6	307	2.1	3	0119	· l	11	-52
1405	27	1-1	30,	4/4	G. TE	7.40	23/	7	3CE	6,1		C1 (Z)	11	11	-74
1558	24	150	- July 1	4	19.78	7,39	23,5	5	310	O. I	3	0,07	11	11	- 4
								+			+				
							-	+			-+				
				_				+			_				
12" = 5.8 TUBING	WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.27; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88 TUBING INSIDE DIA. CAPACITY (Gal/FL): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016														
SAMPLE	D BY (PRINT) / AFFII IA	TION:		SAMPLER(DATA						
	1 1:11 6				1)1					SAN	APLING TATED	AT: 150	SAMPL	ING DAT:/5.	35
PUMP O	OR TUBING IN WELL (feet	17	51		SAMPLE PI	UMP E (mL per	minute	ص- د): ر	.4904	-\ 			5/1		
FIELD D	ECONTAMIN	ATION:	YN	, F	IELO-FILT iltration Ec	ERED: Y	/ / N		FILTER	SIZE: _	im	DUPLICAT	E: (Ý)	N	
		CONTAIN				SAN	IPLE P	PRES	ERVATION			INTENDE		SAM	PLING
SAMPLE CODE	ID A	INERS	MATERIAL CODE	VOLUI	ME PRI	USED	IVE	ΑD	TAL VOL DED IN LD (mL)	ED IN FINAL			AND/OR METHOD		
		* =	see_	1-1	5/							-			
	- 2	*						_						 	-
			· 				-+	_						-	
REMARK	KS:													<u> </u>	
MATERIA Other (Sp	AL CODES:	AG	= Amber G	lass; (CG = Clear	Glass;	PE =	Polye	ethylene;	PP = P	olyprop	ylene; S = S	Silicone; T	= Tellon;	0=
SAMPLI Peristaltic	NG/PURGING c Pump IENT CODES:	RFPP		Flow Pe	ństallic Pur		5M = S	ilraw	Bladder Pur Method (Tut	oing Gra	vity Dr		nersible Pum = Vacuum Tra	, .	= Olher

NO.

Temperature = ± 0.2 °C; Specific Conductance = readings are within ± 5%; 2. STABILIZATION CRITERIA: $pH = \pm 0.2;$ Dissolved Oxygen = A) \leq 20% saturation or B) readings are within \pm 0.2 mg/L (for readings \leq 2 mg/L) or 10% (for readings > 2 mg/L); Turbidity = A) \leq 20 NTUs or B) readings are within \pm 5 NTUs (for readings > 20 and \leq 50 NTUs) or 10% (for readings > 50 NTUs).

GROUNDWATER SAMPLING LOG

SITE NAME (K Orients LOCATION											tome	324	Spys. F	۷,				
								1D: Z		7-05	·			DATE: 10/9-105				
L		7 100								DATA								
	WELL DIAMET	TER (inches):	4"	TUBIN DIAMI (inche	ETER		PTH:		NTERVAL	I	DEPTH TER (fee		PURGE PU OR BAILER		0			
	(only fill gallons	out if applicat	ole)		= (130	>	fee	1- /	7.74	fe	et) X	WELL CAP	gallons	s/foot = 7			
(only fill out if applicable) = gallons + (gallons/foot X feet) + gallon												jallons =						
		PUMP OR TI					PURGING PURGING PURGING ENDED AT: 10					GING ED AT: /037	TOTAL VOLUME 7 PURGED (gallons):					
	TIME	VOLUME PURGED (gallons)	CUMU VOLUM PURGI (gallor	ME ED	PURGE RATE (gpm)	DEP TO WAT (fee	ER	pH (std units)	TEMP (°C)	COND (µmhos/cm or µS/cm)	DC (mg/l % sa	or	TURBIDITY((NTUs)	COLOR	ODOR	ORP		
q	942	71.6	71.0		161M	19:	15	2.25	23.8	338.4	-(1,06	clest	rose	-192		
14	000	18	89.0			+	T T	1,36	23,8	313.4	0,2	_	104			191		
- 1	018	13	107		-	1		7.40	238	305.8	0,2		0,92		 	192		
9	36	18	125			_!_		7.42	23.2	30 3.8	0.2		1.65			-194		
				-														
				\dashv			_	.										
	12" = 5	S INSIDE DIA						3/16" =		06; 2" = 0.00 1/4" = 0.00	26; 5	" = 0.37 5/16" =		5" = 1.0 * = 0.006;	1/2" = 0,0	,		
		ED BY (PRIN	/			SAM	PLER(S		TURES:	<u> </u>	SAI	MPLING	G DAT:/040		PLING ED AT: 1	110		
	PUMP	OR TUBING				FLOV	PLE PUI V RATE											
	FIELD	DECONTAMI			N	FIELO µm	O-FILTÉ	RED:	Y (1)	FILTER 	R SIZE:		DUPLICAT	ΓΕ: <i>/</i> /	15/14	5/		
	SAMPL COD	EID SPE	E CONTA CIFICATIO # AINERS			LUME	SAMPLE PRESERVATION INTENDED AND INTENDED											
		00///	-					0000		FIELD (mL)	<u> </u>	oH				-		
							(5e	e L	151								
-						_′.												
	REMAR	RKS:		-														
		SAL CODES: Specify)	A	G = Ami	ber Glass;	CG	= Clear	Glass;	PE = F	Polyethylene;	PP =	Polypi	opylene; S	= Silicone;	T = Teflon;	0 =		

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.

STABILIZATION CRITERIA: pH = \pm 0.2; Temperature = \pm 0.2 °C; Specific Conductance = readings are within \pm 5%; Dissolved Oxygen = A) \leq 20% saturation or B) readings are within \pm 0.2 mg/L (for readings \leq 2 mg/L) or 10% (for readings > 2 mg/L); Turbidity = A) \leq 20 NTUs or B) readings are within \pm 5 NTUs (for readings > 20 and \leq 50 NTUs) or 10% (for readings > 50 NTUs).

GROUNDWATER SAMPLING LOG

NAME CO	Ke Or,	tnta		i	LOCATIO	N A1.	fam.	ont	SP3 5.	FC.		
WELL NO:	Lake _		SAMPL	E ID:					DATE:	10/5-	105	
				PUR	GING	DATA						
WELL DIAMETER (inch	' // //	TUBING DIAMETER	DEPTH:	CREEN INT		STATIC TO WAT			PURGE PL OR BAILER			
WELL VOLUME	PURGE: 1 WE	(Inches): ELL VOLUME = = (LL DEPTH feet -		IC DEPTH T		ER) X	WELL CAP	ACITY	foot =	
gallons EQUIPMENT VO	LUME PURGE	1 FOUIPMENT	VOL. = PU	MP VOLUM	E + /TUŘÍ	NG CAPACI	ΤΥ	x T	JBING LENG	TH) + FLOV	/ CELL VOI	UME
(only fill out if app		;	=	gallon			ns/foot			feet) +		allons =
gallons		5044			`_				NO	TOTAL		
DEPTH IN WELL			MP OR TUB NWELL (feet			GING IATED AT:		PURG			VOLUME D (gallons):	
TIME VOLUM	ρΗ (std units)	TEMP (°C)	COND (µmhos/cm or µS/cm)	DC (mg/l % sa	Lor	URBIDITY (NTUs)	COLOR	ODOR	ORP			
NA				7.85	28.3	231	9.3	8	5.57	clear	Like	
											_	
								_				
		_			-		_					
WELL CAPACIT 12" = 5.88 TUBING INSIDE 5/8" = 0.016					25" = 0.06 0.0014;	2" = 0.1 1/4" = 0.002		" = 0.37; 5/16" = 0		5" = 1.0 " = 0.008;	2; 6° = 1 1/2" = 0.0	•
318 - 0.018				SAM	PLING	DATA						
SAMPLED BY (F			SAMPLER	(S) SIGNAT			SA	MPLING		SAMP	LING	
	orns/1	Vidaria	SAMPLE	1-100				TIATED.	AT:	ENDE	D AT: //	50
PUMP OR TUBI DEPTH IN WELI			FLOW RA	TE (mL per	minute):	54 T 55	MA	TERIAL	CODE: F	~		
FIELD DECONT			μπ μπ	TERED: Y	43)		R SIZE:	_	DUPLICA	TE: Y	₽	
	MPLE CONTAI SPECIFICATIO			SAM		SERVATION	1		INTENDE	D ANALYSIS		MPLING
SAMPLE ID CODE	# CONTAINERS	MATERIAL VO	LUME PF	RESERVATI USED	A P	OTAL VOL ADDED IN IELD (mL)		INAL pH		METHOD	=00	IPMENT ODE
			see	6150								
			_						_			
							_					
	-			<u> </u>								
REMARKS:												
MATERIAL COS Other (Specify)	DES: AG	s = Amber Glass	CG = Cle	ar Glass;	PE = Pc	lyethylene;	PP =	Polypro	pylene; \$	= Silicone;	T = Tellon,	0 =
			-(N- 1-1									

Temperature = ± 0.2 °C, Specific Conductance = readings are within ± 5%; STABILIZATION CRITERIA: $pH = \pm 0.2;$ Dissolved Oxygen = A) \leq 20% saturation or B) readings are within \pm 0.2 mg/L (for readings \leq 2 mg/L) or 10% (for readings > 2 mg/L); Turbidity = A) \leq 20 NTUs or B) readings are within \pm 5 NTUs (for readings > 20 and \leq 50 NTUs) or 10% (for readings > 50 NTUs).

FIELD EQUIPMENT CALIBRATION LOG

2 / ·		,				SHEET: /	OF (
DATE: [6/05/65	PROJECT NAME:	lake	Coler	the		PROJECT NO:			
EQUIPMENT: WTW Multi	line P3			SERIAL NO:		81552054			
ACTIVAL TIME:		PERFORME	D BY:ショッ	11/1/	(37)	مريه.			
091	0	, chi okiil	pH	701	· <u> </u>	CONDUCTIVITY	,		
OAL IDDATION STANDAGE	OC LICED:	4.04		40.00	200 uolem				
CALIBRATION STANDARD		4.01	7.00	10.00	200 us/cm	1413 us/cm	us/cm		
	Lot#	5022	50519	50519	2504247	RAEO 003C/1			
	Expiration	1/31/2007	11/30/2006	11/30/2006	4/30/2006	1/26/2006			
CALIBRATION READINGS		pH 4,01	pH 7.00	pH 10.00	200 us/cm	1413 us/cm	пв/сш		
mz-5911	Before Cal.	11,05	189			1416			
-7ml	After Cal.	7.01	7,01	~~~		1413			
Califficiented	1546	4,61	7102	9,9/2	Z00	1 47 5			
CALIBRATION TECHNIQU	E/FREQUENCY:	T AS F	PRIOR TO US	E	AFTER USE		EACH SAMPLE		
		-		′.			LOCATION		
OTHER (SF	PECIFY)								
`	,								
EQUIPMENT: WTW Oxi 3	20			SERIAL NO:		260001			
7	_	DEDECOME	D BY: D.			200001			
CALIBRATION STANDARD	DS USED: A-Ch	~ 5at	Luca To	06,					
CALIBRATION STANDARL	DS USED; /+('	Sat	Leverti.	CA.					
CALIBRATION STANDARL	DS USED: /+(').~	- Sat	Lever Th	C.A.					
CALIBRATION STANDARL	DS USED: /-('I			· 					
CALIBRATION STANDARD	/+·(.).*		PRIOR TO US	· 	AFTER USE		EACH SAMPLE		
CALIBRATION TECHNIQU	PE/FREQUENCY:			· 	AFTER USE		EACH SAMPLE		
CALIBRATION TECHNIQU	PE/FREQUENCY:			· 	AFTER USE				
CALIBRATION TECHNIQU	PE/FREQUENCY:			· 	AFTER USE				
CALIBRATION TECHNIQUE OTHER (SE	PECIFY)			· 	AFTER USE				
CALIBRATION TECHNIQU	PECIFY)	Z F	PRIOR TO US	· 	AFTER USE				
CALIBRATION TECHNIQUE OTHER (SE	PECIFY) ACTION:	Time	PRIOR TO US	· 	AFTER USE				
CALIBRATION TECHNIQUE OTHER (SE	PECIFY) ACTION:	Time Temp	PRIOR TO US	· 	AFTER USE	· .			
CALIBRATION TECHNIQUE OTHER (SE	PECIFY) ACTION:	Time	PRIOR TO US	· 	AFTER USE				
CALIBRATION TECHNIQUE OTHER (SE	PECIFY) ACTION:	Time Temp	PRIOR TO US	· 	AFTER USE				
CALIBRATION TECHNIQUE A OTHER USE TEMARKS/CORRECTIVE CALIFIC CA PA	PECIFY) ACTION:	Time Temp Sat.	PRIOR TO US	E C	AFTER USE	·			
CALIBRATION TECHNIQUE OTHER (SE REMARKS/CORRECTIVE CALIFAL CARACTER EQUIPMENT: HF Scientific	PECIFY) ACTION:	Time Temp Sat.	CGZC ZS.C°C SO.GC	SERIAL NO:	AFTER USE	907173			
CALIBRATION TECHNIQUE OTHER (SE FEMARKS/CORRECTIVE CALIFICATION EQUIPMENT: HF Scientificactual time: C 3	PECIFY) ACTION:	Time Temp Sat.	CGZC ZSLC°C SOLGC	SERIAL NO:	AFTER USE	·			
CALIBRATION TECHNIQUE OTHER (SE REMARKS/CORRECTIVE CALIFAL CARACTER EQUIPMENT: HF Scientific	PECIFY) ACTION:	Time Temp Sat.	CGZC ZSLOCC SOLGC D BY: ID //	SERIAL NO:	AFTER USE	·			
CALIBRATION TECHNIQUE OTHER (SE FEMARKS/CORRECTIVE CALIFICATION EQUIPMENT: HF Scientificactual time: C 3	PECIFY) ACTION:	Time Temp Sat. simeter PERFORME Standard Lot #	CGZC ZS.C°C SO.GC DBY: 17/10 1.0 ntu A4182	SERIAL NO: 1 (20.0 ntu A4182	AFTER USE	·			
CALIBRATION TECHNIQUE A OTHER USE REMARKS/CORRECTIVE CALIFIC CALIBRATION STANDARD	DS USED:	Time Temp Sat. Sat. Standard Lot # Expiration	CGZC ZS.C°C SC.GC DBY: 17/10 1.0 ntu A4182 Jun.'06	SERIAL NO: 20.0 ntu A4182 Jun. '06		907173	LOCATION		
CALIBRATION TECHNIQUE OTHER (SE FEMARKS/CORRECTIVE CALIFICATION EQUIPMENT: HF Scientificactual time: C 3	DS USED:	Time Temp Sat. Sat. Standard Lot # Expiration	CGZC ZS.C°C SO.GC DBY: 17/10 1.0 ntu A4182	SERIAL NO: 20.0 ntu A4182 Jun. '06	AFTER USE	907173	LOCATION EACH SAMPLE		
CALIBRATION TECHNIQUE CALIBRATION TECHNIQUE EQUIPMENT: HF Scientification STANDARD CALIBRATION TECHNIQUE CALIBRATION TECHNIQUE	DEFREQUENCY: DEFREQUENCY: DEFREQUENCY: DEFREQUENCY:	Time Temp Sat. Sat. Standard Lot # Expiration	CGZC ZS.C°C SC.GC DBY: 17/10 1.0 ntu A4182 Jun.'06	SERIAL NO: 20.0 ntu A4182 Jun. '06		907173	LOCATION		
CALIBRATION TECHNIQUE A OTHER USE REMARKS/CORRECTIVE CALIFIC CALIBRATION STANDARD	DEFREQUENCY: DEFREQUENCY: DEFREQUENCY: DEFREQUENCY:	Time Temp Sat. Sat. Standard Lot # Expiration	CGZC ZS.C°C SC.GC DBY: 17/10 1.0 ntu A4182 Jun.'06	SERIAL NO: 20.0 ntu A4182 Jun. '06		907173	LOCATION EACH SAMPLE		
CALIBRATION TECHNIQUE CALIBRATION TECHNIQUE EQUIPMENT: HF Scientiff ACTUAL TIME: C 3 CALIBRATION STANDARD CALIBRATION TECHNIQUE OTHER (SE	DS USED:	Time Temp Sat. Standard Lot # Expiration	PRIOR TO US CGEC ZS.CGC SOCGE D BY: T) // 1.0 ntu A4182 Jun.'06 PRIOR TO US	SERIAL NO: 20.0 ntu A4182 Jun. '06		907173	LOCATION EACH SAMPLE		
CALIBRATION TECHNIQUE CALIBRATION TECHNIQUE EQUIPMENT: HF Scientification STANDARD CALIBRATION TECHNIQUE CALIBRATION TECHNIQUE	DS USED:	Time Temp Sat. Standard Lot # Expiration Standard	CGZC ZS.CCC SO.GC D BY: 10 ntu A4182 Jun.'06 PRIOR TO US	SERIAL NO: 20.0 ntu A4182 Jun. '06 E 20.0ntu		907173	LOCATION EACH SAMPLE		
CALIBRATION TECHNIQUE CALIBRATION TECHNIQUE EQUIPMENT: HF Scientiff ACTUAL TIME: C 3 CALIBRATION STANDARD CALIBRATION TECHNIQUE OTHER (SE	DS USED: DE/FREQUENCY: DE/FREQUENCY: DE/FREQUENCY: DE/FREQUENCY: DE/FREQUENCY:	Time Temp Sat. Standard Lot # Expiration	PRIOR TO US CGEC ZS.CGC SOCGE D BY: T) // 1.0 ntu A4182 Jun.'06 PRIOR TO US	SERIAL NO: 20.0 ntu A4182 Jun. '06		907173	LOCATION EACH SAMPLE		

1010000 1000001 1100110 PEL Laboratories, Inc.

Chain of Custody Record Record/Work Request

4420 Pendola Point Road Tampa, Florida 33619 (813) 247-2805 • Fax: (813) 248-1537 E-Mail: login@Pelab.com

Company:				Project Name/Number:							Page l of l				
CH2:M H; 1/				Lak	Le Orien	ナカ			•]	DEP Form #: <u>62-770.90(</u>)(2)	
CH2:M H; 1/ Address: 225 E. Rox	binson sy	5'L	505	Project Manage	er:							I	Form Title: <u>Chain of Cus</u>		ord
Orhalo, A	52. 328	01			OL Aik	יחי.	5					1	Effective Date: September 23, 1997		
Phone: 4/07. 1/23-003	ے Fax:			Purchase Order	г:							1	FDEP Facility No.		
Print Names(s) / Affiliation		,				_		Preserva	tives (se	ee code	es)		Project Name:		
Mike Beens Daw Sampler(s) Signature(s)	Calley 1	Nod.	1.5_1			<u> </u>	4-1						Sampling CompQAP	No:	
								Analy	ses Req	uested			Approval Date:		
Mille			-										REQUESTED DU	E DATE	
Item	San	pled	Grab or	Matrix	Number of		3						/	1	,
No. Field ID No.	Date	Time	Composite	(see codes)	Containers	_	40					\perp	Remarks	L	ab. No.
L0.05-01.	10/5/07	1510	6	GW	- 1	_							mw-1		
10.05.02		1050	G	156v		_						1	mu-2	\rightarrow	
60-05.03		1150	6	5 12-	1	_	-		1			\perp	Make		
60-05 Depa		1535	6	6W		_	_					\perp	Mw-1	\perp	
LO-US-MS		1100	6	Gu	-	_							mu-2		
LO.05. MISD		1110	6	GW	1	_	-					\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \	nu.2		
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Shipment					6		Total I	Number o							
Out: / /	Via: Fed X	· 1	Item Nos.		ed by / Affiliati	ions		Date	Time		A	Accepted by	y / Affiliation	Date	Time
Returned: / /	Via.		1	Mil B.				10/5/04	1						
Additional Comments:										_					
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·										+					
						(5)						.,	.		<u> </u>
Coc				Cooler No. (s) / Temperature(s) (C) Sampling Kit No.				NO.	Equipment 1	D No.					
MATRIX CODES					_ Coll _ CVV	C	efogo 18	latar 1	<u> </u>	ton (D)	lan Ira\	0 = 045	- (openifu)		
MATRIX CODES: $A = Air$ $GW = Groundwater$ $SE = Sec$ PRESERVATI CODES: H -Hydrochloric acid $+$ ice $I = Ic$								Vater '					r (specify)12	35	
PRESERVATI CODES	: n-Hydroc	птопс аста	+ ice 1 =	ice only	= NIINC aci	je	2 = 2	unuric a	cia + ice	- 0	= Other	(specify)			



Chain of Custody Record Record/Work Request

4420 Pendola Point Road Tampa, Florida 33619 (813) 247-2805 • Fax: (813) 248-1537 E-Mail: login@Pelab.com

	PEL Laborate	uries	, 1116.														_		
Comp	Company:					Project Name/Number:								Pag	e / c	of /			
	CH2M	411	1			Lake	Oriendo			_		_				DEP Form #: 62	-770,900(2	2)	
Addre	SS: 225 E. R.	bins	on 5%.	Sc. 41	505	Project Manag	Oriondo er:									Form Title: Chai		_	ord
						Purchase Orde	Aikens									Effective Date: S	eptember	23, 199	7
Phone	01/4 nds F(30	Fax:			Purchase Orde	r:									FDEP Facility	No.		
Print N	Names(s) / Affiliation	n					·			Prese	ervati	ves (s	ee co	des)		Project Name:			
Mik	er(s) Signature(s)	CAL	0, , ,	, Nod=15.	4											Sampling Com	pQAP No	o:	
Sampl	er(s) Signature(s)									Ar	ıalyse	es Rec	ueste	d		Approval Date	•		
1	Millon															REQUEST	ED DUE	DATE	
Item	•		Sam	npled	Grab or	Matrix	Number of	1	ا د ع	é L	1 .	. (, ,						. [
No.	Field ID No.		Date	Time	Composite	(see codes)	Containers		26	, ,	רנו	LLe	ζ,	34		Remai			ab. No.
	10-05.09	10	15/05	1520	G	Cu	24									ma.I		\Box	
	LO.05-02'		ĺ	1050	6	Ga	24									mh. z			
	10-05-03			1150	6	Siw	24			_ [Laise			
	LO-05- DURP			1535	6	Ga	24												
	10-05- ms	_		1/00	6	66	24									ME. T	THE THE	‡*′ € -	
	60.05- MSD			11/0	G	Gu	24									ME. 3	-		
	Part Trip Hanks	5	1			_													
	, 		<u> </u>									ş. î.							
												*							
	Shipment	Metho	od De	1.0014		_	144	+	Total	Numt	er of	Cont	ainers						
Out:	1 1	Via:			Item Nos.	Relinquish	ed by / Affiliati	ons		Da	ite	Time	;		Accepted	by / Affiliation		Date	Time
Retun	ned: / /	Via.			12	MABE	·							_	,				
Additi	ional Comments:			}		<u> </u>					:								
											\top								
	<i>,</i>				С	ooler No. (s) /	Temperature(s)	(C)					Samp	oling K	it No.	Equi	pment I D	No.	`
MATR	RIX CODES: A =	Аіг	GW = 0	Groundwat	er SE = S	ediment SO	= Soil SW	= Su	rface \	Water	W	= Wa	ter (E	Blanks)	O = O	ther (specify)	1236	 ;	
PRES	ERVATI(CODES	S: H	-Hydroc	hloric acid	+ ice I =	Ice only N =	= Nitric acid	:e	S = 5	Sulfur	ic aci	d + ic	e (O = Ot	her (specit	- [y)			

INSTRUI	MENŤ (N	/AKE/MO	DEL#)	457 C3		INSTRU	MENT # <u>49 9</u>	60963-AC
PARAME	TER: [check only	/ one]					
☐ TE	MPERATL	IRE [CONDUC	TIVITY [SALINITY	₫ pH	☐ ORP	
☐ TUP	RBIDITY] RESIDU/	AL CL	DO	□от	HER	
STANDA values, and	RDS: [S	Specify the ty the standard	ype(s) of st Is were pre	andards used for o pared or pur c hase	calibration, d]	the origin of the	e standards, the	standard
Stand	lard A _	4.						
Stand	ard 8	7					•	
	ard C _							
DATE (yy/mm/dd)	(hr:min)	STD (A. B. C)	STD VALUE	INSTRUMENT RESPONSE	% DEV	CALIBRATED (YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS
10/5/05	09.55		8.0	4.06		نه نیم	. <u></u>	pe /s
		15	7,0	7.1				
	l 	C	10.0	9.91		1,		
	1210	A	4	4,02			cont	
		6	7	7.01		}		
		C	10	10.0		}		
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FT 1000 General Field Testing and Measurement

Field Instrument Calibration Records

INSTRU	MENT (N	MAKE/MOI	DEL#)	15763		INSTRUI	MENT# (6)	(Bog. 6-8AC
		check only						
☐ TE	MPERATL	RE 🙎	CONDUC	TIVITY	SALINITY	ДрН	☐ ORP	
∐ TU	RBIDITY		RESIDUA	AF CF	DO	☐ OT	HER	
STANDA values, and	RDS: [S	Specify the ty the standard	rpe(s) of sta s were pre	andards used for o pared or purchase	calibration, d]	the origin of the	e standards, the	standard
Stand	dard A _	70						
Stand	lard B _	1000						
Stanc	lard C _							
DATE (yy/mm/dd)	TIME (hrmin)	STD (A.B.C)	STD VALUE	INSTRUMENT RESPONSE	% DEV	(YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS
10/5/05	0900	A	50	93		C rer	INIX	MB
		b	1000	950		} /	(1
	1218	A	70 _	79			CONX	
		B	1000	999				
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Page ___of___

Field Instrument Calibration Records

INSTRU	MENT (N	ΊΑΚΕ/ΜΟΙ	DEL#)	457 55	OA	INSTRUM	MENT#	
		check only						
₩.TE	MPERATU	RE [CONDUC] SALINITY ☑ DO		☐ ORP fer	
values, and	d the date t	he standard:	s were prep	andards used fo pared or purcha	r calibration, sed]	the origin of the	standards, the	standard
Stand	dard A	100	6/0					
Stand	lard B							
	dard C				_			
DATE (yy/mm/dd)	TIME (hramin)	STD (A, B, C)	STD VALUE	INSTRUMENT RESPONSE		CALIBRATED (YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS
10/5/05	0905	Ą	100%	97.0		105	Init	mp
1	1221	A	100%	100,41/		/	cont	
10/5109	0907	A	25,1	251		165	Init	19 ()
1	1222		24.7	24.7		1	i d n t	
i								
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rage ___or___

Revision Date: January 1, 2002

INSTRU	MENT (N	MAKE/MO	DEL#)	HACHE	100/	INSTRUI	MENT #010	<u>4000-287</u> 7
PARAME	TER: [check only	y one]				-	
☐ TEM	MPERATU	JRE [CONDUC	TIVITY	SALINITY	□рН	ORP	
☆ TUF	YTIGIBS] RESIDUA	L CL	00		HER	
STANDA values, and	RDS: [S	Specify the h the standard	ype(s) of sta Is were prep	ndards used for ared or purch	or calibration, ased]	the origin of the	e standards, the	standard
Stand	ard A _	5-17						
Stand	ard B _	52,1					•	
Stand	ard C _	496						
DATE (yy/mm/dd)	TIME (hr.min)	STD (A. B. C)	STD	INSTRUMEN RESPONSE		(YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS
10/5/05	0910	A	5117	3,21		Tes	IRIX	NB
		6	52,1	52,1				
		C	496	495		$\left(\right)$	(
	1275	A	5,17	5,18		_/	Conx	
		<i>b</i>	52.1	52.1)	
		C	496	496				
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10/3	1/05	LK	Orien	49 (0	
10-0	6-07	mc mc	v-2 /	ns, Ms	
	26 Ga		sh F		220 56Pm
	1	1	, -) -	1130
Ph. B,19 Flow met	175.8	21,8	7,52	6,54	0rr. 002
meta for	ading	27.0 igh	Stop 89	, 05	,16-1
L0:00	0.01	mu-	and	1 Lo-00	o. Dip

INSTRUMENT (MAKE/MODEL#)	-1ACH 21	100P	INSTRUM	IENT # 016	4 <u>0002&7</u> 79
PARAMETER: [check only one]					
TEMPERATURE CONDUCTIV	VITY S	YTINIJA			
AT TIPPIDITY TIRESIDUAL	CL 🗆 D			ER	
STANDARDS: [Specify the type(s) of stand values, and the date the standards were prepared	dards used for ca red or purchased	libration, t I	the origin of the	standards, the	standard
Standard A					
		_		•	
Standard B 52./ Standard C 494					
	INSTRUMENT		CALIBRATED	TYPE (INIT, CONT)	SAMPLER INITIALS
(yy/mm/dd) (hr.min) (A. B. C) VALUE	RESPONSE	% DEV_	(YES, NO)		14/>
10/31/05 0754 A 5.17	5 23		(2 5	Jait	107
B 52,1	57.7		 		
C 496	498				
1230 A 5.17	5-18	_		Cont	m/s
1 B 52.1	52,3				
C 456	496				
			,		
					<u> </u>

INSTRUMENT (MA	AKE/MOD	F(_#)	457 63		INSTRUM	IENT # <u>04</u>	B0968
PARAMETER: [C		CONDUCT	ıvıty □s	ALINITY	J ∑] pH	☐ ORP	
☐ TEMPERATUR	П	RESIDUAL	.cl 🗆 🗅			ER	
	'I sha bu	nich of stal	ndards used for ca	alibration, t	the origin of the	standards, the	standard
values, and the date th	ne standarus	Wete bich	2,00 0. 20.0.	ij			
Standard A	9			_			
Standard B							
Standard C	/0		THE PERSON OF TH	<u> </u>	CALIBRATED	TYPE	SAMPLER
DATE TIME (yy/mm/dd) (hr.min)	STD (A. B. C)	STD VALUE	INSTRUMENT RESPONSE	% DEV	(YES, NO)	(INIT, CONT)	INITIALS
10B1105 0700	A	4	4,02		1es	Sat	ns
TOP ()	P	7	7.10				
	<u> </u>	10	997				
10/31/65 1233	A	4	4.01			(ont	mp -
7070703	<i>B</i>	7	7.0				
	c	10	10.03		\	\	
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		i					

INSTRUI	MENT (N	//AKE/MC	DEL#)	63	INSTRU	MENT # <u>0</u>	1309C	
PARAME	TER: [check onl	y one]					
☐ TEI	MPERATL	IRE E	CONDUC	TIVITY	☐ SALINITY	□рН	☐ ORP	
TUF	RBIDITY	C] RESIDUA	L CL	□ 00	□от	HER	_
STANDA values, and	RDS: [S	Specify the l the standar	type(s) of sta ds were prep	ndards used pared or purc	l for calibration, hased j	, the origin of th	e standards, the	e standard
Stand	lard A _	70.						
Stand	ard B _	1000					•	
Stand	ard C _							
DATÉ (yy/mm/dd)	TIME (hr.min)	STD (A. B. C)	STD	INSTRUME RESPONS		(YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS
pol31les	0808	A	70	54		Nes	Inik	ms
		B	1000	966				
10/3//05	1236	A	70	71_			Cort	
	1	13	1000	998				
						;		
								_
							.	

INSTRUMENT (MAKE/MODEL#)			EL#)	4SI 550A		INSTRUMENT # 0360266/			
PARAME	TER: [ci	heck only	one]		SALINITY		ORP		
☑ TEMPERATURE ☐ CONDUCTION ☐ RESIDUA			RESIDUAL	LCL DO		OTHER			
	220. 70	مراجع المراجع المراجع	andel of stat	ndards used for c ared or purchase	alibration, i d]	the origin of the	standards, the	standard	
Standa	ard A						•		
Standa	ard B								
		CTD	STD	INSTRUMENT	_ 	CALIBRATED	TYPE	SAMPLER	
DATE (yy/mm/dd)	TME (bcmin)	STD (A, B, C)	VALUE	RESPONSE	% DEV	(YES, NO)	(INIT, CONT)	INITIALS	
10/31/05	09 [3]		17.8	17.8		1051	cont_	7	
10/3//05-			23.7	23.7	 _		<u> con F</u>		
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INSTRUMENT (MA	AKE/MOD	E <u>L</u> ♯) _	YSI 5	50 A_	INSTRUM	ENT# <u>03</u>	602 <u>6</u> 64
PARAMETER: [cl							
☐ TEMPERATUR	CONDUCT	_•		☐ pH ☐ ORP			
TURBIDITY		RESIDUAL			the origin of the standards, the standard		
values, and the date th	ie standarus	Wele bich	ndards used for a ared or purchase	calibration, edj	ine ongin oi ure	stanoaros, arc	314170074
Standard A	100/0			_		•	
Standard B							
Standard C					I CALIBRATED	TYPE	SAMPLER
DATE TIME (yy/mm/dd) (hr.min)	STD (A. B. C)	STD VALUE	INSTRUMENT RESPONSE	% DEV	(YES. NO)	(INIT, CONT)	INITIALS
16/31/05 0215	A	900%	98.6%		125	Init	73
1242	A	100%	100.1%	<u></u>		cont	
			-		[
			<u> </u>				
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		<u> </u>			<u> </u>	<u> </u>	
						<u> </u>	

PEL Laboratories, Inc.

Chain of Custody Record Record/Work Request

PEL Laboratories, Inc.								
Company: CH2M HIII	Project Name/Number:			Page of				
Address: 225 E. Robinson St. Suite 505	Lake Orienta	,		DEP Form #: 62-770.900(2)				
Address: 225 E. Rubinson St. Suite 505	Project Manager:			Form Title: Chain of Custody Recor	<u>rd</u>			
Orlando, FC. 32801	AL Aixens			Effective Date: September 23, 1997				
Phone: 407. 423-6030 Fax: 407-839. 5901	Purchase Order:			FDEP Facility No.				
Print Names(s) / Affiliation No Janes		Preserva	atives (see codes)	Project Name:				
Mile Boins/Dane College Sampler(s) Signature(s)				Sampling CompQAP No:				
		Analy	ses Requested	Approval Date:				
Milbo			REQUESTED DUE DATE					
Item Sampled Grab or	Matrix Number of			/ /				
No. Field ID No. Date Time Composit	e (see codes) Containers	50	P 4134	Remarks Lab	b. No.			
10.06-01 10/3/00 1500 6	GW 24			na-1				
LO-06-02 1202 G	16W 24			mir. Z				
10.06-03 1130 6	SW 24			Latel				
20-06-MS 1219 G	GW 24			mu·i				
LO-CG-MSD 1234 6	GW 24			Mrh-2				
LO-06-DUP 6	GW 24							
Trup Temp Hank!								
,								
Shipment Method	144	Total Number	of Containers					
Out: / / Via: Deliver! Item Nos.	/2 Relinquished by / Affiliation	ons Date	Time Accep	pted by / Affiliation Date	Tìme			
	MilBu	10/31/2	>					
Additional Comments:								
·								
(3)	Cooler No. (s) / Temperature(s)	(C)	Equipment 1D No.	_				
			W = Water (Blanks) O =					
PRESERVATI CODES: H-Hydrochloric acid + ice I =	Ice only N = Nitric aci	ce S = Sulfuric a	cid + ice O = Other (special or in the context of	ecify)				

PEL Laboratories, Inc.

Chain of Custody Record Record/Work Request

PEL Laboratories, Inc.				· · ·	
Company:	Project Name/Number:			Pag	ge of
CH2M Hill Address: 225 E, Robinson St. Sc. Le 505	Lake Orien	7'57		DEP Form #: 62-770.900(2	2)
Address: 275 E. Robinson St. Scile 505	Project Manager:			Form Title: Chain of Custo	
Orlando FL. 32841	AL AIKE	in S		Effective Date: September	
Orlando FL. 32841 Phone: 407-423 0030 Fax: 407-839. 5901	Purchase Order:			FDEP Facility No.	
Dring Manager / A William		Preservat	tives (see codes)	Project Name:	
Mika Buins, Dyur Catiliny / MuSarie Sampler(s) Signature(s)	Assic.			Sampling CompQAP No	o:
Sampler(s) Signature(s)		Analys	ses Requested	Approval Date:	
				REQUESTED DUE	DATE
Item Sampled Grab or	Matrix Number of	0.0		/ /	
No. Field ID No. Date Time Composite	e (see codes) Containers	500		Remarks	Lab. No.
60-06-01 10/5/UT 1500 G	GL~ 1			12 m. 1	
LU-06-02 1 1202 G	6w 1			mu Z	
10-06-03 1130 6	SW 1			Ly Ke	
60.06-Mg 1219 6	6W 1			Mu.z	
LO-U6-1951) 1234 6	6W 1			pin Z	
6-06-Dep	64 1				
Shipment Method	6	← Total Number o	of Containers		
Out: / / Via: Fred X Item Nos.	Relinquished by / Affiliation	ons Date	Time Accept	ted by / Affiliation	Date Time
Returned: / / Via.	MITTE	143/01			
Additional Comments:	, -				
	Cooler No. (s) / Temperature(s)	(C)	Sampling Kit No.	Equipment ID) No.
MATRIX CODES: A = Air GW = Groundwater SE = 3	Sediment SO = Soil SW =	= Surface Water V	W = Water (Blanks) $O = 0$	Other (specify) 1248	
PRESERVATI CODES: H-Hydrochloric acid + ice I =	: Ice only N = Nitric aci	ce S = Sulfuric ac	cid + ice O = Other (spec	cify)	

FIELD EQUIPMENT CALIBRATION LOG

DATE: 10/31/05 1	PROJECT NAME:	in the m		<u> </u>		PROJECT NO:	OF /
DAIL 707 SEE S	· ·		6-1 Call -			TROUZOT NO.	
EQUIPMENT: WTW Multilin	ne P3			SERIAL NO:		81552054	
ACTUAL TIME:	_	PERFORME	D BY: De. (V1 111.	Caltry		
0915			pН	, ,		CONDUCTIVITY	,
CALIBRATION STANDARDS	S UŞED:	4.01	7.00	10.00	200 us/cm	1413 us/cm	us/cm
Γι	_ot #	5022	50519	50519	2504247	RAEO 003C/1	
[Expiration	1/31/2007	11/30/2006	11/30/2006	4/30/2006	1/26/2006	
Γ	•						-
CALIBRATION READINGS I	_OG:	pH 4.01	pH 7,00	pH 10.00	200 us/cm	1413 us/cm	us/cm
M=-56,9	Before Cal.	4,01	7,03		280	1412	
-4m////	After Cal.	4,00	7,01	عكتج		1419	
Cal Accepted	1505	4,00	7,02	9,97	26 O	1420	
CALIBRATION TECHNIQUE	VFREQUENCY:	D.F	PRIOR TO US	E D	K AFTER USE		EACH SAMPLE
		(7			LOCATION
OTHER (SPE	ECIFY)						
			•				
EQUIPMENT: WTW Oxi 33	0			SERIAL NO:		260001	
ACTUAL TIME: グラ		PERFORME	DBY: DM				
CALIBRATION STANDARDS							
	AN	- 521	teringt,	27			
				,			
CALIBRATION TECHNIQUE	FREQUENCY:	⊠ 6	PRIOR TO US	F. 5	AFTER USE	П	EACH SAMPLE
0,20,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		,— ,					LOCATION
S OTHER (SP)	ECIFY)						200/111011
4 hi	ECIFY) 5, Max						
REMARKS/CORRECTIVE A			-				
	.011011.	Time	2922	1100		1	
	1 //	Temp		24,600			
Cal. Acce	pred			30.86			
	710		1			l.	
EQUIPMENT: HF Scientific	DRT-15CE Turbid	limetes		SERIAL NO:	-	907173	
ACTUAL TIME: 0930			D BY; D M				
CALIBRATION STANDARDS	S USED:	Standard	1.0 ntu	20.0 ntu			
		Lot#	A4182	A4182			
		Expiration	Jun.'06	Jun. '06			
CALIBRATION TECHNIQUE	/FREQUENCY:	∑ F	PRIOR TO US	E D	after us□		EACH SAMPLE
		•		,			LOCATION
OTHER (SPE	ECIFY)						
		la					Г
REMARKS/CORRECTIVE A	//	Standard	1.0ntu	20,0ntu			
Cole Good	>/	Reading /	1:0	20,7	-		
	(15 V.5	1.0	2112/2			

2==				<u> </u>		J • • • • • • • • • • • • • • • • • • •		SAIVIF				-		
SITE A	.kc	On	ente	(SITE LOCATION	ом <i>Н</i>	Ma	1110	ute:	Spy 11.00	75, F	- ()
WELL NO:	MI	N	1		SAMP	LE ID: L	0-0	6-0	(DATE.	c/31/6	5.5	
						PUI	RGING	DATA						
WELL DIAMETER (ii		,	TUBING DIAMETE (inches):	10	DEPTH		t ta	TO WA	<u>छ / दे</u>	e():	OR BAILE		BP	
(only fill out if gallons	applicabl	e) 1	Ual.	= (210) fee	1- 4	2,39	fe	et) X	646	gations/		05
EQUIPMENT (only fill out if			: 1 EQUIP	MENT	VOL. = PU =		ME + (TUE	BING CAPAC galle			TUBING LENG	STH) + FLOW feet) + よ	1 1	
gailons						gant	, cm					1001)	// (⁹	allons =
Gallons Final Pump OR TUBING Final Pump OR TUBING PURGING PURGING FURGING														
TIME PU	LUME RGED (llons)		L. AE PUR ED RA	18	DEPTH TO WATER (feet)	pH (std units)	TEMP	COND (µmhos/cm or µS/cm)	(mg/) % sa	U or	TURBIDITY (NTUs)	COLOR	ODOR	ORP
0751 I	nif	0	De	4 3	18.39							ClCc,i-	Nixle	
1713 10	5 5	108	0,		48.41	7.51	23,4	297	0,1	6	0.19	16	11	-42
13/8 2	6	<u>/3</u> [0,	48	18,41	7.44	13.5	297	C,i	5	0,17	U	2 19	-57
1423 2	6	1.57	10,	4 4	18,41	7:40	23,5	298	2,1	5	015	11	11	-85
				\rightarrow		-								
				\rightarrow			-		_					
WELL CAPA 12" = 5.88 TUBING INSI 5/8" = 0.016						3/16" =		1/4" = 0.000		" = 0.3 5/16" =		; 5" = 1.02 " = 0.006,	2; 6" = 1 1/2" = 0 0	,
SAMPLED B	Y (PRINT) / AFFILI	IAŤĮON:		SAMPLES	ANQLE (S)		G DATA						
Dovid M.	(C)	ev4.	Noclar	:se	(j)	14/1	CAIL		INI	MPLIN TIATE	G DAT: 142	SAMP' ENDE	LING DAT: //S	00
PUMP OR TU DEPTH IN W		<u> </u>			SÁMPLE ELOW RA	PUMP	r minute)-C	3,49Fm	UT AM I	BING	L CODE:			_
FIELD DECO			Y (R)		FIELD-FIL	TERED:	Y (N°	FILTE	R SIZE:		DUPLICA	re: (Ŷ	1000	36-241
		CONTA				SA	MPLE PR	ESERVATION	<u> </u>				1	
SAMPLE ID CODE	;	IFICATIO	MATERIAL CODE	VOL	UME P	RESERVA USED	1105	FOTAL VOL ADDED IN		INAL pH		D ANALYSIS R METHOD	EQU	IPLING IPMENT ODE
0002	CONT		501		1 1 5	_ ,	-	FIELO (mL)		P1.	_	_		
		\neg		-	مر المسلم									
		1											_	
						١								
REMARKS:			_					,						
MATERIAL C	CODES	A.f	G = Amber (lass'	CG = 014	ear Glass;	PF = 9	olyethylene;	P9 =	= Polyo	ropylane; S	= Silicone;	T = Teflon.	0 =
Other (Specif			- Allber			O.235,		oryeurylene,		- 3179				

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.

^{2.} STABILIZATION CRITERIA: $pH = \pm 0.2$; Temperature = ± 0.2 °C; Specific Conductance = readings are within $\pm 5\%$; Dissolved Oxygen = A) $\leq 20\%$ saturation or B) readings are within ± 0.2 mg/L (for readings ≤ 2 mg/L) or 10% (for readings > 2 mg/L); Turbidity = A) ≤ 20 NTUs or B) readings are within ± 5 NTUs (for readings > 20 and ≤ 50 NTUs) or 10% (for readings > 50 NTUs).

DEP-SOP-001/01

GROUNDWATER SAMPLING LOG

JEI 1 40		, 0 ~				SAM	PLE ID: Z	LOCATI	· ·	1) tam	o v')	DATE:)		
VELL NO	0: MK	<u> Z</u>				SAIVII			<u> </u>	1/2		DATE:	6/3//6	را	
			1 -			1			DATA	O S D T L		מונים בי	WO TYPE		
WELL DIAMET	ER (inches): 4 1c	DIA	BING , METER+ hes):	3/44	l	SCREEN II	NIERVAL et to		DEPTH TERyfeet):		PURGE PU OR BAILER	_	3/3	
	OLUME PI		WELL		= (1	TOTAL V	fn c		ATIC DEPTH T 8.33	TO WATER) feet)		WELL CAP	ACITY gallons	foot = 7	775
EQUIPM	MENT VOLI		3E: 1 E	QUIPME	ÉNT V			ΜE + (TU	BING CAPACI	TY X	TU	BING LENG	TH) + FLOV	V CELL VO	LUME
allons	ов в аррис	.au.c)		:		=	galle	ons + (gallo	ons/foot X			feet) +	ç	gallons =
NITIAL	PUMP OR		٠ (1		IP OR TI WELL (fe			IRGING ITIATED AT	745 EN	RGIN DED	G AT://42		VOLUME D (gallons)	:
TIME	VOLUME PURGED (gallons)	PUR	JME GED	PURGS RATE (gpm)	:	DEPTH TO WATER (feet)	ρH (etd	TEMP (°C)	COND (µmhos/cm or µS/cm)	DO (mg/L or % sat.)		IRBIOTY (NTUs)	COLOR	ODOR	4BO
576	72.	7 72		15		18,35	7.64	73.8	305.2	0,30		50	clear	Syfu	-193
102	181	90.	6			_,	7.57		306.1	0,35	0	140		1	-202
138	18-1	108	3.7	\rightarrow			7,62	238	319.2	0,30	0	,45			-152
$\overline{}$										 					
12" = 5.							•	. 1.25" = 0,0	·	•	•	4" = 0.65;			
12" = 5. TUBING	.88 S INSIDE D						5; 3/16 ^w =	0.0014;	1/4" = 0.002		•		5" = 1.0 "= 0,008;	2; 6" = 1 1/2" = 0.0	
12" = 5. TUBING 5/8" = 0	88 3 (NSIDE D 0.016	IIA. CAPA	CITY (0	SalJFL):	1/8"	= 0.0006	5, 3/16" = SAI	0.0014; VPLIN	·	•	•				
12" = 5. TUBING 5/8" = 0	.88 S INSIDE D	UNT) / AFF	CITY (0	Sal/Fl.): ON:	1/8"	= 0.0006	5; 3/16 ^w =	0.0014; VPLIN	1/4" = 0.002	26; 5/16" SAMPLI	= 0.0		' = 0,008;	1/2" = 0.0	10;
12" = 5. TUBING 5/8" = 0 SAMPLE PUMP C	ED BY (PR	UNT) / AFF	CITY (C	Sal/Fl.): ON:	1/8"	SAMPLE	5: 3/16" = SAN ER(\$) SIGN WL 6 E PUMP	* 0.0014; MPLIN ATURES:	1/4" = 0.002 G DATA	SAMPLI INITIAT	ING ED A	T: //4 7	' = 0,008;	1/2" = 0.0	10;
12" = 5. TUBING 5/8" = 0 SAMPLE PUMP C DEPTH	ED BY (PR	CINT) / AFF	CITY (C	Sal/Fl.): ON:	1/8"	SAMPLE	5; 3/16" = SAI ER(\$) SIGNA WLB	MPLIN ATURES: er minute):	1/4" = 0.002 G DATA	SAMPLI	ING ED A	T: //4 7	SAMP ENDE	1/2" = 0.0	10;
12" = 5. TUBING 5/8" = 0 SAMPLE PUMP COEPTH	BB SINSIDE D .016 ED BY (PR L BUT DR TUBING IN WELL (DECONTAI	SINT) / AFF	CITY (C	Sal/FL): ON: N	1/8"	SAMPLE SAMPLE FLOW F	SAMER(S) SIGN. E PUMP LATE (ML DE ILTERED:	PLIN ATURES: er minute):	1/4" = 0.002 G DATA	SAMPLINITIATI TUBING MATER R SIZE:	ING ED A	004; 3/8°	SAMP ENDE E: Y	1/2" = 0.0	110; 0 こ , /
SAMPLE SAMPLE PUMP C DEPTH	BB SINSIDE D .016 ED BY (PR L BUT DR TUBING IN WELL (DECONTAI SI	SINT) / AFF	CITY (C	N R	1/8"	SAMPLE SAMPLE FLOW F FIELD-F µm	SAMER(S) SIGN. E PUMP LATE (ML DE ILTERED:	MPLIN ATURES: er minute): Y &	1/4" = 0.007 G DATA FILTER	SAMPLINITIATI TUBING MATER R SIZE:	ING ED A	ODE: F DUPLICAT	SAMP ENDE	1/2" = 0.0	02,/
12" = 5. TUBING 5/8" = 0 SAMPLI PUMP C DEPTH FIELD C	BB SINSIDE D .016 ED BY (PR L BUT DR TUBING IN WELL (DECONTAI SI	CAPACE INTO AFF	CITY (C	DN: N ERIAL	1/8"	SAMPLE SAMPLE FLOW F FIELD-F µm	SAMER(S) SIGNA E PUMP LATE (ML DE ILTERED: SA PRESERVA USED	MPLIN ATURES: er minute): Y &	FILTER RESERVATION TOTAL VOL ADDED IN	SAMPLI INITIAT TUBING MATER R SIZE:	ING ED A	ODE: F DUPLICAT	SAMP ENDE DE / T	1/2" = 0.0	MPLING
12" = 5. TUBING 5/8" = 0 SAMPLI PUMP C DEPTH FIELD C	BB SINSIDE D .016 ED BY (PR L BUT DR TUBING IN WELL (DECONTAI SI	CAPACE INTO AFF	CITY (C	DN: N ERIAL	1/8"	SAMPLE SAMPLE SAMPLE FLOW FFLOW FFLOW FIELD-F	SAMER(S) SIGNA E PUMP LATE (ML DE ILTERED: SA PRESERVA USED	MPLIN ATURES: er minute): Y &	FILTER RESERVATION TOTAL VOL ADDED IN	SAMPLI INITIAT TUBING MATER R SIZE:	ING ED A	ODE: F DUPLICAT	SAMP ENDE DE / T	1/2" = 0.0	MPLING
12" = 5. TUBING 5/8" = 0 SAMPLI PUMP C DEPTH FIELD C	BB SINSIDE D .016 ED BY (PR L BUT DR TUBING IN WELL (DECONTAI SI	CAPACE INTO AFF	CITY (C	DN: N ERIAL	1/8"	SAMPLE SAMPLE SAMPLE FLOW FFLOW FFLOW FIELD-F	SAMER(S) SIGNA E PUMP LATE (ML DE ILTERED: SA PRESERVA USED	MPLIN ATURES: er minute): Y &	FILTER RESERVATION TOTAL VOL ADDED IN	SAMPLI INITIAT TUBING MATER R SIZE:	ING ED A	ODE: F DUPLICAT	SAMP ENDE DE TE: Y	1/2" = 0.0	MPLING
12" = 5. TUBING 5/8" = 0 SAMPLI PUMP C DEPTH FIELD C	BB SINSIDE D .016 ED BY (PR L BUT DR TUBING IN WELL (DECONTAI SI	CAPACE INTO AFF	CITY (C	DN: N ERIAL	1/8"	SAMPLE SAMPLE SAMPLE FLOW FFLOW FFLOW FIELD-F	SAMER(S) SIGNA E PUMP LATE (ML DE ILTERED: SA PRESERVA USED	MPLIN ATURES: er minute): Y &	FILTER RESERVATION TOTAL VOL ADDED IN	SAMPLI INITIAT TUBING MATER R SIZE:	ING ED A	ODE: F DUPLICAT	SAMP ENDE DE TE: Y	1/2" = 0.0	MPLING
12" = 5. TUBING 5/8" = 0 SAMPLI PUMP C DEPTH FIELD C	ED BY (PR L SUPERINGE C SUPER	CAPACE INTO AFF	CITY (C	DN: N ERIAL	1/8"	SAMPLE SAMPLE SAMPLE FLOW FFLOW FFLOW FIELD-F	SAMER(S) SIGNA E PUMP RATE (ML pe ILTERED: SA PRESERVA USED	MPLIN ATURES: er minute): Y &	FILTER RESERVATION TOTAL VOL ADDED IN	SAMPLI INITIAT TUBING MATER R SIZE:	ING ED A	ODE: F DUPLICAT	SAMP ENDE DE TE: Y	1/2" = 0.0	MPLING

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.

STABILIZATION CRITERIA: $pH = \pm 0.2$; Temperature = ± 0.2 °C; Specific Conductance = readings are within $\pm 5\%$, Dissolved Oxygen = A) $\leq 20\%$ saturation or B) readings are within ± 0.2 mg/L (for readings ≤ 2 mg/L) or 10% (for readings > 2 mg/L); Turbidity = A) ≤ 20 NTUs or B) readings are within ± 5 NTUs (for readings > 20 and ≤ 50 NTUs) or 10% (for readings > 50 NTUs).

SITE				-					sm		,				_		
NAME	La	ke	Orie Le	nte	ــــــــــــــــــــــــــــــــــــ				LOC	CATIC			nt	SP.95. , F			
WELL N	10:	Lak	e	Sar	ph		SAM	PLE ID:	60-	0	6-03			DATE:	10/3/10	<i>_</i>	
					ν						DATA						
WELL		. . .	4		BING METE	_	WELI	SCREEN		VAL	STATIC			\	UMP TYPE		-
DIAMET	EK (INC	nes):		dinc		1	leet	H: 1	eet to		TO WA	IER (ie	et):	OR BAILE	W. D.		
WELL V (only fill gallons				VELL V	VOLUI	иE = (TOTAL V		TH - eet-	STAT	TIC DEPTH T		ren) eet) >	X WELL CA		/foot =	,
EQUIPM (only fill				E: 1 E	QUIP	MENT	VOL = F	UMP VOL	UME +	(TUB:	ING CAPACI	TY	X	TUBING LENG	3TH) + FLOV	V CELL VOL	UME
	out it a	phcaoi	C)		•		=	ga	ıllons +	(galk	ons/foot	X		feet) +	g	allons =
gallons INITIAL	DUMAD	OR TH	RING		FINA	A) PIII	MP OR T	IBING		9116	RGING		PUE	GING	TOTAL	VOLUME	
DEPTH							WELL (fe				TATED AT:			ED AT:		D (gallons):	
TIME	VOLU PUR((gallo	SED	CUMI VOLU PURG (gallo	ME SED	PURI RAT (gpr	E	DEPTH TO WATER (feet)	PHQ	10	MP C)	COND (µmhos/cm or µS/cm)	D((mg/ % s:	L or	TURBIDITY (NTUs)	COLOR	ODOR	ORP
	N	A-				-		8,10	1 21	,8	175.8	7.5	-8	6.54	Clear	Lak	002
				_													
						_		+	_	-							
WELL (12" = 5 TUBING 5/8" = 0	.88 3 INSID						02; 1"			14;	$2^{n} = 0.1$ $1/4^{n} = 5.002$ $3 DATA$	- 1	" = 0.3 5/16" =	•	5; 5" = 1.0; " = 0.006;	2; 6" = 1. 1/2" = 0.01	
SAMPL	ED BY	(PRINT) / AFFII	LIATIO	Ñ:		SAMPLE	R(S) SIG			DAIA	Τ					
m:	14 /	Scen	5/N.	der	5-0		1	121	Ser	>			MPLIN TIATE		SAMP ENOE		30
PUMP (OR TUE	ING		707			SAMPLE						BING		NI	/ / /	<u>, , , , , , , , , , , , , , , , , , , </u>
DEPTH				100		\dashv	FIELD-F	ATE (mL)		ute):	FILTER	_		L CODE:	ι <u>Γ</u>		
FIELD			ATION:		N		μn			_				DUPLICA	TE. Y		
			IFICATI					S	AMPLE		SERVATION	<u> </u>		INTENDE	O ANALYSIS		PLING
SAMPL COD		CONTA		MATE CO	ERIAL IDE	VOL	UME	PRESERV USE		A	OTAL VOL ADDED IN IELD (mL)		NAL ρΗ		RMETHOD	EQUI	PMENT DOE
						<	se.	e (<u>(</u>	5/							
	-									+							
										+							
								``									
REMAR	RKS:									•							
MATER Other (S	NAL CO Specify)		A	.G = Ar	mber G	ilass;	CG = 0	lear Glass	; PE	= Pc	olyethylene;	₽9 =	Polyp	ropylene, S	= Silicone;	T = Teflon;	0 =
	ررده د د												_				

NOTES: 1,

The above do not constitute all of the information required by Chapter 62-160, F.A.C. STABILIZATION CRITERIA: $pH = \pm 0.2$; Temperature = ± 0.2 °C; Specific 6 Specific Conductance = readings are within ± 5%: Dissolved Oxygen = A) \leq 20% saturation or B) readings are within \pm 0.2 mg/L (for readings \leq 2 mg/L) or 10% (for readings > 2 mg/L); Turbidity = A) \leq 20 NTUs or B) readings are within \pm 5 NTUs (for readings > 20 and \leq 50 NTUs) or 10% (for readings > 50 NTUs).

SITE NAME:	Lake	Orie	uta				LOCAT	10N:	Alta	monte	Spring	5, E	<u></u>
WELL NO: MW-1 SAMPLE 10: 7007-0 DATE: 12/05/05													
						PU	RGING	DATA				/	
	EA (inches):		TU8ING DIAMETI (inches):	ER	DEPTH:	(a)	210	TO W.A	C DEPTH ATER (leet):	OR BAILE	UMP TYPE R:	BP	
(only fill o	OLUME PUR out if applicab	te)	vol,	= (240	leet	- 50	1.40	feei) >	0.65	gallons/fo	/ () 4
(only fill out if applicable) = gallons + (gallons/foot X feet) + NA gallons = gallons													
	PUMP OR TU IN WELL (fee		S FIN	IAL PUA PTH IN	MP OR TUB WELL (feet	ing 75	PU	AGING TIATED AT:	BIZ PU	RGING DED AT: 144	Z TOTAL PURGE	VOLUME D (gallons):	156
TIME	VOLUME PURGED (gallons)	CUMU VOLUN PURGE (gallon	ME PU	AGE (TE (om)	OEPTH TO WATER (feet)	pH (std units)	TEMP (°C)	COND (jumhos/cm of [µS/cm)	DO (mg/L or > % sat.)	TURBIDITY (NTUs)	COLOR	ODOR	ORP (mV)
0812 Init 0 0,4 50,40													
1237	104	10	101		50,50	7.57	23 <i>.5</i>	293	0.20	0.18,	1 (11	176
1337	26	130	, ,		50,55		23.5	293	0.09	0.26	<i>1</i> t	11	-204
1442	26	156) ()	9 8	50,55	<u>7,43 </u>	23.4	291	0,11	0,78	/(ι(-	-214
-			_										
			_	_									
12" = 5.8	INSIDE DIA.		,		-		25" = 0.06 0.0014;	; 2" = 0.16 1/4" = 0.0026			5" = 1.02; = 0.006; 1	6" = 1.47 /2" = 0.010;	.
						_		DATA					
— ,	DBY (PAINT	//	oders	l.	SAMPLER(S) SIGNAT	TURES:		SAMPLINITIATE		SAMPL	ING /50	6
PUMP O	A TUBING	7 /	1	_	SAMPLE PI	UMP		0.4gp	_				
	N WELL (feet		YN		FIECD-FIE	FHED: A	כמין	FILTER	SIZE:um	AL CODE:	E: (Ÿ) N	
		CONTAI			Filtration Ed			SERVATION				<u> </u>	
SAMPLE	1D #		MATERIAL CODE	VOLU	DME PRI	USEO	IVE #	OTAL VOL ADDED IN IELD (mL)	FINAL pH		ANALYSIS METHOD	EQUIP	PLING PMENT DDE
			· · · ·							See	1154		
			-										
REMARK	(S:			•				~ /	,				
	AL CODES:	AG	= Amber G	lass;	CG = Clear	Glass;	PE = Pol	کل عرب yethylene;		opylene; S = S	Silicone; T	= Tellon;	0 =
Peristaltic	NG/PURGING Pump ENT CODES:	8FPP		Flow Pe	eristaltic Pur		SM = Strav		mp; ESf		nersible Pum = Vacuum Tra	•	: Other

^{*}OTES: 1. The above do not constitute all of the information required by Chapter 52-160, F.A.C.

2. STABILIZATION CRITERIA: pH = ± 0.2; Temperature = ± 0.2 °C; Specific Conductance = readings are within ± 5%; Dissolved Oxygen = A) ≤ 20% saturation or B) readings are within ± 0.2 mg/L (for readings ≤ 2 mg/L) or 10% (for readings > 2 mg/L); Turbidity = A) \leq 20 NTUs or B) readings are within \pm 5 NTUs (for readings > 20 and \leq 50 NTUs) or 10% (for readings > 50 NTUs).

SITE	LK	0.	ient				SITE	ON /-	1/50	wort Sp	Pri 1155.	FC	
WELL N					SAMPL	E 10:		7-02		DATE:	12/5/	05	
	1100							DATA			<i>,,</i>	<i>O)</i>	
	ER (inches):	<i>t</i>	(inch	METERS/8	// DEPTH:	CREEN II	NTERVAL et to	STATIO TO WA	DEPTH TER (feet)			٢	
(only fill gallons EQUIPA	out if applicat	le) IE PURG		= (130	· lee	el -	20,48	eet)	× .65	- gallons/		1,27 UME
	out if applicat			:	=	gaile	ons + (galle	ons/foot X		feet) +	ga	allons =
gailons INITIAL DEPTH	PUMP OR TU	JBING	°0'	FINAL PL	IMP OR TUS	ing (): より	PU	RGING TIATED AT	2730 E	PURGING ENDED AT: 10/	TOTAL V	VOLUME D (gallons):	114.0
тіме	VOLUME PURGED (gallons)	CUMI VOLU PURG (gallor	JL. ME ED	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (std units)	TEMP (°C)	COND (µmhos/cm or µS/cm)	DO (mg/L o % sat)		COLOR	ODOR	ORP
1903	71,22	71.2	2	,75	2045	7.40	23,7	267.5	0.39	0.42	Clear	None	
1929	17.80	891	02		20,44	7.31	23,7	293.6	0.45				
953	17,80	106.	82			7.31	23,7	289.9	0.43		4		
017	17.80	114.0	62		1	7,39	23.7	277,8	0,41	0.47		1	
12" = 5.	INSIDE DIA					3/16" =			•	0 37; 4" = 0.65	5" = 1.02 " = 0.006;	6" = 1. 1/2" = 0.01	· .
SAMPL	ED BY (PRIN	T) / AFFIL	IATION	\ :	SAMPLER			PAIN	CANG	PLING	SAMO	1) (5)	
M	KeBira	No	daro	i.e	11	ULK	مستن	7		TED AT: 115 2	SAMPI ENDE	DAT: 1/2	10,12
	OR TUBING		1110		SAMPLE P		or musual:		TUBIN	RIAL CODE:	2/1		
	DECONTAMIN	ATION:		N	FIELD-FIL				R SIZE:	DUPLICAT	TE: Y		ms/m
		E CONTA				SA	MPLE PR	ESERVATION	1	11/75/475		1	PLING
SAMPL	E ID	# AINERS	MATER		LUME PR	RESERVA	IIVE	OTAL VOL ADDED IN FIELD (mL)	FINA pH	L AND/OF	D ANALYSIS METHOD	EQUI	PMENT DDE
				5	ee	ζ,	·5/	(110)				BF	,
					_		-					-	
						`						_	
REMAR	iks.								<u> </u>				
MATER Other (S	IAL CODES. Specify)	A	G = Am	iber Glass;	CG = Cle	ar Glass;	PE = P	olyethylene;	PP = Pi	olypropylene; S	= Silicone;	Y = Tellon,	0 =

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.

. <u>STABILIZATION CRITERIA:</u> pH = ± 0.2; Temperature = ± 0.2 °C; Specific Conductance = readings are within ± 5%; Dissolved Oxygen = A) ≤ 20% saturation or B) readings are within ± 0.2 mg/L (for readings ≤ 2 mg/L) or 10% (for readings > 2 mg/L); Turbidity = A) ≤ 20 NTUs or B) readings are within ± 5 NTUs (for readings > 20 and ≤ 50 NTUs) or 10% (for readings > 50 NTUs).

DEP-SOP-001/01

GROUNDWATER SAMPLING LOG

SITE NAME	Lak	4	 Drie	en t	5					SITE	ATIO	N 411	SME	y	50	5/,	FC.			
WELL N		<u> </u>					SAI	MPLE	ID: Z			7-03			,	DATE:	12	15/0	<u> </u>	
					•							DATA								
WELL DIAMET	FER (inch	es):	<i>A</i> _	TUBI DIAM (inch:	METER	l .		PTH:	REEN IN		/AL	TO W				PURGE OR BAI		P TYPE		
(only fill gallons	out if app	olicable))			= (fee	t -		TIC DEPTH		feet)	Х			gallons/		
	VIENT VO			: 1 E	QUIPN	IENT \						ING CAPAC			TU	BING LE		-	CELL VOL	
gallons					: 				gallo	ons + (ga	llons/fo	oot X			fee ——	it) + 	9	ailons =
	PUMP O		ING				MP OR 1		G			RGING NATED AT:			RGIN DED				VOLUME D (gallons):	
TIME	VOLUM PURG (gallor	EO	CUMU VOLUM PURGI	ME ED	PURC RAT (gpm	E	TO WATE (feet)	R	pH (std units)	TEN (° (COND (µmhos/cm or µS/cm)	(m	DO ig/L or isal.)	1 -	IRBID(T (NTUs)	Y (COLOR	ODOR	ORP
				+				8	203	20	,3	8.18		7,69	10	0,6	ال	1.6 Feen	peri	~
			•	1																
		_		-		+					\dashv				-		+			
													_				_			
12" = 5	G INSIDE								3/16" =		4;	5; 2" = 0 1/4" = 0.00	026;				•	5" = 1.02 0,006;	,	•
	ED BY (F		,					-	SAN SIGNA	TURE	S:	DAIF	Ţ,	SAMPLI NITIATE		Τ:		SAMP	LING DAT: /3	25
PUMP	OR TUBI	NG					SAMP	LEPU	MP (mL pe					TUBING		00E.	PE			
	DECONT			Ø	N				RED:				R SIZ			DUPLIC	CATE:	Y	(B)	
		MPLE					1		SA	MPLE	PRE	SERVATIO			_				SAM	IPLING
SAMPL	E 10	CONTAIN		MATER COD		VOL	NWE	PRE	SERVAT USED	TIVE	1	OTAL VOL ADDED IN TIELD (ML)		FINAL pH				NALYSIS ETHOD	EQU	PMENT ODE
							50	e	Cis	1										
											-								-	
			_								-		+		-				-	
								٠,												_
REMAI	RKS:																	_		_
								_												
	RIAL COU Specify)	DES	Α	G = Arr	nber G	lass;	CG =	Clear	Glass;	PE	= Pc	olyethylene;	; PI	P = Poly	/prop	ylene,	S = S	ilicone;	T = Teflon;	0 =

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.

STABILIZATION CRITERIA: $pH = \pm 0.2$; Temperature = ± 0.2 °C; Specific Conductance = readings are within $\pm 5\%$; Dissolved Oxygen = A) $\leq 20\%$ saturation or B) readings are within ± 0.2 mg/L (for readings ≤ 2 mg/L) or 10% (for readings > 2 mg/L); Turbidity = A) ≤ 20 NTUs or B) readings are within ± 5 NTUs (for readings > 20 and ≤ 50 NTUs) or 10% (for readings > 50 NTUs).

PEL Laboratories, Inc.

Chain of Custody Record Record/Work Request

PEL Laboratories, Inc.								
Colmpany:	Project Name/Number:			Page of				
CH2 M 11, 11 Address: 225 E. R. Suite 505	Project Manager:	149		DEP Form #: 62-770.900(2)				
Address: 225 E. Robinson St. Suite 505	Project Manager:			Form Title: Chain of Custody Record				
Orlando, FE 32501	AL AIKe	n5		Effective Date: September 23, 1997				
Phone: 407. 423-0030 Fax: 407-337-5701	Purchase Order:			FDEP Facility No.				
Print Names(s) / Affiliation		Preservat	ives (see codes)	Project Name:				
Mike Burns, Dana Caille-y Noclar, Sampler(s) Signature(s)	5-6			Sampling CompQAP No:				
Sampler(s) Signature(s)		Analys	ses Requested	Approval Date:				
pampier(s) Signature(s)			REQUESTED DUE DATE					
Item Sampled Grab or	Matrix Number of		, , , , , , , , , , , , , , , , , , , ,	/ /				
No. Field ID No. Date Time Composi	te (see codes) Containers) F t	1 2 3 4	Remarks Lab. No.				
LO-07-01 12/8/05/1443 G	6W 18							
1210 6	GW 15		-					
40-07-03 1325 6	Sw 11							
6-07-Depe	5W 15 '			Mw. 1				
LJ-07- MS 1220 6	GW 13	`.		mu 2				
60-07- MSN 1230 6	G10 15		piw ?					
Trip 3 Temp Block								
Shipment Method Delivery	103	Total Number o	f Containers					
Out: / / Via: Item Nos.	(Relinquished by / Affiliation	ons Date	Time Accept	ed by / Affiliation Date Time				
Returned: / / Via.	Mich hus							
Additional Comments:								
, 1								
	Cooler No. (s) / Temperature(s)	(C)	Equipment ID No.					
	Sediment $SO = Soil SW =$	= Surface Water W	V = Water (Blanks) $O = 0$	Other (specify) 1256				
PRESERVAT. CODES: H-Hydrochloric acid + ice I	= Ice only $N = Nitric ac$	ce S = Sulfuric ac	cid + ice O = Other (spec					



Chain of Custody Record Record/Work Request

PEL Laboratories, Inc.								
Company:	Project Name/Number:			Page {	of)			
CH2 M HILL	Project Manager: AL Aike	19		DEP Form #: 62-770.900(2)	,			
Address: 225. E Rubinson St. Scile 505	Project Manager:			Form Title: Chain of Custody Red	cord			
Orlando, FC. 32801	AL Aike	rı S		Effective Date: September 23, 19				
Phone: 4/07-4/23-0030 Fax:	Purchase Order:			FDEP Facility No.				
Print Names(s) / Affiliation		Preservatives	(see codes)	Project Name:				
Sampler(s) Signature(s)		II		Sampling CompQAP No:				
Sampler(s) Signature(s)		Analyses I	Requested	Approval Date:				
Milbo				REQUESTED DUE DATE	======================================			
Item Sampled Grab or	Matrix Number of	405,1 500		1 1				
No. Field ID No. Date Time Composit	te (see codes) Containers	30		Remarks L	Lab. No.			
6 LO-07.01 12/05/07 G	GW	_						
LO-07-02 1 1210 G	GW 1	/						
40-07-03 1325 6	5ω Ι	/						
10.07- Dupe 6	6W 1.	/		MW-1				
10-07- ms 1224 6	6w 1			Mr. Z				
LU-U7- MISD 1230 G	(0W 1			mu.Z				
	1							
Shipment Method	_ 6	← Total Number of Co	ontainers /					
Out: / / Via: Item Nos.	Relinquished by / Affiliation	ons Date T	ime Accepted	by / Affiliation Date	Time			
Returned: / /. Via.	Mik BD	12/25/05						
Additional Comments:								
	Cooler No. (s) / Temperature(s)	perature(s) (C) Sampling Kit No. Equipment JD N						
			Water (Blanks) O = Oth	1207				
PRESERVATIC CODES: H-Hydrochloric acid + ice I =	= Ice only N = Nitric aci	se $S = Sulfuric acid +$	$+ ice \qquad O = Other (specify)$	y)				

PEL Laboratories, Inc.

Chain of Custody Record Record/Work Request

PEL Laboratories, inc.							
Company:	Project Name/Number:			Page \ of \			
- CH2N F 11	Lake Orien	ما دن		DEP Form #: 62-770,900(2)			
Address: 223 6. 10h . 1000 77 12 10 505	Project Manager:			Form Title: Chain of Custody Record			
02/2/2 32801	AL Allen			Effective Date: September 23, 1997			
Phone: 407-423.003v Fax:	AL ALKENS Purchase Order:			FDEP Facility No.			
Print Names(s) / Affiliation			ves (see codes)	Project Name:			
, , ,	3 A1605	1		Sampling CompQAP No:			
Mile Proces Noders Sampler(s) Signature(s)			es Requested	Approval Date:			
The Later and the later and th	:			REQUESTED DUE DATE			
Item Sampled Grab or	Matrix Number of	1.3		1 1			
No. Field ID No. Date Time Composit		1,205.1 1,205.1		Remarks Lab. No.			
10. 07.01 Right 1422 6	GW 1	~		1910c-1			
	Gw .	V		13110 -			
	Sw 1			Luhi			
				Mw-2			
(0.07-M) 1035 G	GW	<i>y</i>		mw-s			
Lo-67-1751) 1070 G	6W 1						
20.07 Dept 6	Giu	V		m h - 1			
		_		+			
		4 To 121 1		-			
Shipment Method	(0)	← Total Number of					
1867	Relinquished by / Affiliation		Time Accepte	d by / Affiliation Date Time			
Returned: / / Via.	Mik por _	12/1/107					
Additional Comments:							
	Cooler No. (s) / Temperature(s) (C) Sampling Kit No.						
	Cooler No. (s) / Temperature(s)	Equipment ID No.					
MATRIX CODES: $A = Air$ $GW = Groundwater$ $SE =$							
PRESERVATIO CODES: H-Hydrochloric acid + ice I:	= Ice only N = Nitric acit	S = Sulfuric ac	sid + ice O = Other (speci	fy)			

SITE	Ĺ	م لاو	Ori	ent	_					SITE	ATIC	ON Alt	i jr či	, /	Springs,	/	=6.		
		hi					SA	MPLE	1D: (7-02			_			105	
		(00										DATA					7 7 -		
	ETER (ir	iches):	ł	DIAN (inch		10	DE? feet	PTH:	REEN IN lee	lo		TO WA	TER Jie	⊋t):	PURGE P OR BAILE	R:	þ!		
(only figallon	ill out if a s	applicabl	le)			= (210)	feet			TIC DEPTH T	O WAT	ER) et)	,65		gallons		044
		VOLÚM applicabi		E: 1 E	QUIPM :	ENT		: PUMI				ING CAPACI			TUBING LEN	GTH) feet			OCUME gallons =
gallon		OD TU	71116		CINAL	OLIN		TUE				RGING				_			
		OR TU ELL (feel					NELL		NG		INIT	TATED AT:	1745	EN	DED AT: / 4//6			VOLUME D (gallons	156.4
TIME	PUF	UME RGED Ilons)	CUML VOLUI PURG (gallor	ED ED	PURG RATE (gpm)	:	DEPT TO WATE (feet	ER	pH (std units)	TEN (° C		COND (µmhos/cm or µS/cm)	DC (mg/L % sa	or.	TURBIDITY (NTUs)	С	OLOR	ODOR	ORP
06	104	1.4	104,	4	,40) [49,4	15	7,59	2.3.	4	284.1	0,2	7	0.51	C	lead	lone	- 114
il	26	,	130.	4					7.58	^		282.1	0,3	8	0,50			1	-113
116	24	ν	156.	4					7. <i>53</i>	23.	3	272.2	0.0	<u>ב</u> י	038			1	-115
)					_	_			
				_		_										╄-			
	_					\dashv		_								-			
						_		_			_					_			
12" = TUBI	5.B8	-							3/16" =	0.001	4;	3; 2" = 0.1 1/4" = 0.002 3 DATA					5" = 1.0; .006;	2; 6" = 1/2" = 0.0	1.47; 010;
SAME	PLEO BY	(PRINT) / AFFIL	IATIO.	N:		SAMP	LER(S	SIGNA			JUAIA	501	MPLII			SAME	1 1110	
M:	14 15	U145 /	Wood	41/21				Mil	bo	2					DAT: 141	8	SAMP	DAT: /	422
PUMI	OR TU	BING F	,				SAMP		MP E (mL ρei	minu	te):	-		SING TERL	AL CODE:	1E	/ _T	L	7-07-
			ATION:	Ò	N		FIELD யா	-FILTE	RED:	Υ (Ŋ	FILTER			DUPLICA	TE:	(8)		ورون
			CONTA						SAI	MPLE	PRÉ	SERVATION	1		-	_		SA	MPLING
	PLE 10		DIFICATION # AINERS	MATE COI		VOLI	JME	PRE	SERVAT USED	IVE	1	OTAL VOL ADDED IN FIELD (mL)		NAL 5H	INTENDE AND/O			EQI	JIPMENT CODE
				PE		11			_				_		405	1		15,	1-2
		,																	
						_		_											
		<u> </u>			_			١.											
						_		`			_					_		-	
REMA	ARKS:	<u> </u>																	
	ERIAL C		A	G = Ал	nber Gle	98 S ;	CG =	Clear	Glass;	PE	= P(olyethylene;	PP =	Poly	propylene, S	= Sili	cone;	Y = Teflor	, o =

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.

STABILIZATION CRITERIA: $pH = \pm 0.2$; Temperature = ± 0.2 °C; Specific Conductance = readings are within $\pm 5\%$; Dissolved Oxygen = A) $\leq 20\%$ saturation or B) readings are within ± 0.2 mg/L (for readings ≤ 2 mg/L) or 10% (for readings ≥ 2 mg/L); Turbidity = A) ≤ 20 NTUs or B) readings are within ± 5 NTUs (for readings ≥ 20 and ≤ 50 NTUs) or 10% (for readings ≥ 50 NTUs).

DEP-SOP-001/01

GROUNDWATER SAMPLING LOG

WELL NO:		Ori	2117				LOC	ATION/	7/761	116 01 5	Spr.	<u>"" - " - " - " - " - " - " - " - " - " </u>		
	Mu	. 2_			SA	MPLE ID:		07-02			DATE:	12/12	105	
					1	_		NG DATA						
WELL DIAMETER (1	(inches): (4"	TUBIN DIAME (inches	TER			INTERV	TO WA	C DEPTH TER (lee		OR BAILE	UMP TYPE	j	
only fill out if allons	f applicable	2)		= (134	fe.	et -	STATIC DEPTH	lee	et) X	WELL CA		/foot = ~	71.85
QUIPMENT only fill out if			: 1 EQU	JIPMEN :	1 VOL. =		JME + (TUBING CAPAC	ons/foot		UBING LEN	STH) + FLOV (eet) +		LUME gallons =
allons NITIAL PUM DEPTH IN W		-		INAL PU		TUBING		PURGING INITIATED ATO	775	PURG	ING D AT. /0()		VOLUME	1252
TIME PU	DLUME IRGED allons)	CUMUL VOLUM PURGE (gallons)E P	URGE RATE (gpm)	DEPT TO WAT! (fee	TH pH (std	TEM (° C	COND	DO (mg/L % sa	or 1	TURBIDITY (NTUs)	COLOR	ODOR	ORP
103 7	1.25	71.75	-	70	195	0 7.56	23.0	4 306,3	0,30	2),54	clear	Sulfer	-239
		89.83		!	19.5	0 7.42	23,	4 2800	0.32	2 _ 6	159			-215
00 13	3. C /	167.25	5	1_		7.16	23.	5.508 0	0,2		7.57			-708
126 18	10 10	<u> 25. 75</u>	<u> </u>	<u> </u>		7.14	1 23,5	5 293.7	0,2	7 0	1.59			-206
		_								\perp				
2" = 5.88 'UBING INS	IDE DIA. C		•			-	1.25" =	0.06; 2" = 0. 4; 1/4" = 0.00		= 0.37; 16" = 0		5" = 1.0 " = 0.008;	2; 6" = 1 1/2" = 0.0	,
2" = 5.88 'UBING INS	IDE DIA. C		•			06, 3/16"	= 0.0014	4; 1/4" = 0.00					,	,
2" = 5.88 TUBING INS 18" = 0.016 SAMPLED B	Y (PRINT)	CAPACIT	Y (Gai./		3" = 0.00 SAMP	06, 3/16" SA LER(S) SIGN	= 0.0014 MPLI	1/4" = 0.00 NG DATA	26; 5/ SAM INIT	16" = 0	.004; 3/8	" = 0.008;	1/2" = 0.0	10;
2" = 5.88 UBING INS /8" = 0.016 AMPLED B	Y (PRINT)	AFFILIA	Y (Gai./		SAMP	SA LER(S) SIGN LEPUMP RATE (mL p	MPLI MPLI ATURE	1/4" = 0.00 NG DATA S: >	26; 5/ SAM INIT	16" = 0	.004; 3/8 AT:/0 5 7	" = 0.008;	1/2" = 0.0	10;
2" = 5.88 UBING INS 18" = 0.016 AMPLED B UMP OR TI EPTH IN W	Y (PRINT) Y (PRINT) UBING VELL ([eet])	AFFILIA L': AGA	ATION:		SAMP	SA LER(S) SIGN LE PUMP	MPLI MPLI ATURE	1/4" = 0.00 NG DATA S: >	26; 5/ SAM INIT	116" = 0 APLING IATED	.004; 3/8 AT:/0 5 7	SAMP ENDE	1/2" = 0.0	10;
2" = 5.88 TUBING INS 1/8" = 0.016 SAMPLED B FULL FL PUMP OR TO DEPTH IN W	Y (PRINT) Y (PRINT) Y (PRINT) Y (PRINT) Y (PRINT) Y (PRINT)	AFFILIA AFFILIA A': Aa E	ATION:	(FL): 1/8	SAMP SAMP FLOW FIELD	SA LER(S) SIGN LE PUMP RATE (mL p	MPLI ATURE	A; 1/4" = 0.00 NG DATA S: > e): PRESERVATION	SAMINIT TUB MAT R SIZE:	116" = 0 APLING IATED	.004; 3/8 AT:/O C 7 CODE: O DUPLICA	SAMP ENDE	1/2" = 0.0	10;
12" = 5.88 FUBING INS SAMPLED B SAMPLED B PUMP OR TI DEPTH IN W	Y (PRINT) Y (PRINT) Y (PRINT) Y (PRINT) Y (PRINT) Y (PRINT)	AFFILIA (CONTAIL FICATION)	ATION:	(FL): 1/8	SAMP SAMP FLOW FIELD	SA LER(S) SIGN LE PUMP RATE (mL p	MPLIATURE er minut Y AMPLE	a; 1/4" = 0.00 NG DATA S: > e): filte	SAM INIT TUB MAT R SIZE:	116" = 0 APLING IATED	AT:/O C 7	SAMP ENDE	1/2" = 0.0 LING DAT: / C	10;
2" = 5.88 UBING INS 1/8" = 0.016 SAMPLED B PUMP OR TO DEPTH IN W SIELD DECC	Y (PRINT) Y (PRINT) Y (PRINT) UBING YELL ((eet): DATAMINA SAMPLE SPECII	AFFILIA A SECONTALIA DE LA CONTALIA FICATION	ATION: ATION: NER N MATERIA	(FL): 1/8	SAMP SAMP FLOW FIELD µm	SA LER(S) SIGN LER(S) FIGN LER(S) SIGN LER(S) SIGN LER(S) SIGN LER(S) SIGN LER(S) SIGN PRESERVA	MPLIATURE er minut Y AMPLE	A; 1/4" = 0.00 NG DATA S: >> e): FILTE PRESERVATION TOTAL VOL. ADDED IN	SAM INIT TUB MAT R SIZE:	APLING FERIAL	AT:/O C 7	SAMP ENDE	1/2" = 0.0 LING DAT: / C	10; 7 3a MPLING IPMENT CODE
2" = 5.88 UBING INS 1/8" = 0.016 SAMPLED B PUMP OR TO DEPTH IN W SIELD DECC	Y (PRINT) UBING VELL (feet): ONTAMINA SAMPLE SPECII	AFFILIA A SECONTALIA DE LA CONTALIA FICATION	Y (Gal./ ATION: See NER N MATERIA CODE	N VO	SAMP SAMP FLOW FIELD µm	SA LER(S) SIGN LE PUMP RATE (mL p FILTERED: PRESERVA USED	MPLIATURE er minut Y AMPLE	A; 1/4" = 0.00 NG DATA S: PRESERVATION TOTAL VOL ADDED IN FIELD (mL)	SAM INIT TUB MATER SIZE:	APLING FERIAL	AT:/O C 7 CODE: O DUPLICA INTENDE AND/OF	SAMP ENDE FE: Y D ANALYSIS R METHOD	1/2" = 0.0 LING DAT: //	10; 7 3a MPLING IPMENT CODE
12" = 5.88 FUBING INS SAMPLED B FUBING INS F	Y (PRINT) UBING VELL (feet): ONTAMINA SAMPLE SPECII	AFFILIA A SECONTALIA DE LA CONTALIA FICATION	Y (Gal./ ATION: See NER N MATERIA CODE	N VO	SAMP SAMP FLOW FIELD µm	SA LER(S) SIGN LE PUMP RATE (mL p FILTERED: PRESERVA USED	MPLIATURE er minut Y AMPLE	A; 1/4" = 0.00 NG DATA S: PRESERVATION TOTAL VOL ADDED IN FIELD (mL)	SAM INIT TUB MATER SIZE:	APLING FERIAL	AT:/O C 7 CODE: O DUPLICA INTENDE AND/OF	SAMP ENDE FE: Y D ANALYSIS R METHOD	1/2" = 0.0 LING DAT: //	10; 7 3a MPLING IPMENT CODE
12" = 5.88 FUBING INS SAMPLED B FUBING INS F	Y (PRINT) UBING VELL (feet): ONTAMINA SAMPLE SPECII	AFFILIA A SECONTALIA DE LA CONTALIA FICATION	Y (Gal./ ATION: See NER N MATERIA CODE	N VO	SAMP SAMP FLOW FIELD µm	SA LER(S) SIGN LE PUMP RATE (mL p FILTERED: PRESERVA USED	MPLIATURE er minut Y AMPLE	A; 1/4" = 0.00 NG DATA S: PRESERVATION TOTAL VOL ADDED IN FIELD (mL)	SAM INIT TUB MATER SIZE:	APLING FERIAL	AT:/O C 7 CODE: O DUPLICA INTENDE AND/OF	SAMP ENDE FE: Y D ANALYSIS R METHOD	1/2" = 0.0 LING DAT: //	10; 7 3a MPLING IPMENT:
SAMPLED B	Y (PRINT) UBING VELL (feet): ONTAMINA SAMPLE SPECII	AFFILIA A SECONTALIA DE LA CONTALIA FICATION	Y (Gal./ ATION: See NER N MATERIA CODE	N VO	SAMP SAMP FLOW FIELD µm	SA LER(S) SIGN LE PUMP RATE (mL p FILTERED: PRESERVA USED	MPLIATURE er minut Y AMPLE	A; 1/4" = 0.00 NG DATA S: PRESERVATION TOTAL VOL ADDED IN FIELD (mL)	SAM INIT TUB MATER SIZE:	APLING FERIAL	AT:/O C 7 CODE: O DUPLICA INTENDE AND/OF	SAMP ENDE FE: Y D ANALYSIS R METHOD	1/2" = 0.0 LING DAT: //	10; 7 3a MPLING IPMENT CODE

NO

Temperature = ± 0.2 °C; Specific Conductance = readings are within ± 5%; STABILIZATION CRITERIA: $pH = \pm 0.2$; Dissolved Oxygen = A) \leq 20% saturation or B) readings are within \pm 0.2 mg/L (for readings \leq 2 mg/L) or 10% (for readings > 2 mg/L); Turbidity = A) \leq 20 NTUs or B) readings are within \pm 5 NTUs (for readings > 20 and \leq 50 NTUs) or 10% (for readings > 50 NTUs).

DEP-SOP-001/01

GROUNDWATER SAMPLING LOG

NAME L							CITE							
	ake O.	iento	<u> </u>		_		SITE	ION Alt	4 pm 62	+	Spring	خ :		
WELL NO.	La/4			}	SAMPL	EID:	0-0	7-03			DATE:	12/12/	las-	
						PUF	RGIN	G DATA				-7767	<u></u>	
WELL DIAMETER (Su	TUBING DIAMETE Unches	R L	DEPTH LEEN Y	CREEN IN	ITERVA	L STATIO TO WA	DEPTH TER (fee	t):	OR BAILE	650	Ь	
WELL VOLU (only fill out if gallons			ÆLL VOLU	IME = (TO = (TAL WE	LL DEPTH fee		ATIC DEPTH 1		ER) X	WELL CAI		s/foot =	
EQUIPMENT (only fill out if			E: 1 EQUIP	MENT VO	L, = PU1	AP VOLUM	4E + (Υ	IBING CAPAC	TY	T	UBING LEN	GTH) + FLO	W CELL VO	VLUME
gallons	, орр	-,	- :		=	gallo	ns + (gallo	ons/foot >	<		feet) +		gallons =
INITIAL PUM	MP OR TU	BING	FIN	AL PUMP	OR TUB	ING	Р	URGING		PURGI	ING	TOTAL	VOLUME	
DEPTH IN W	VELL (feet)			PTH IN WE		:	11	IT ATED AT:	,	ENDE	D AT:	PURG	ED (gallons):
TIME PU	DLUME IRGED allons)	CUMU VOLUM PURG! (gallon	ME PUF ED RA	RGE W	EPTH TO AYER (feet)	pH (std units)	TEMF (°C)	COND (µmhos/cm or µS/cm)	DO (mg/L % sat	or '	TURBIDITY (NTUs)	COLOR	ODOR	ORP
13-					<u>~</u>	7.79	17.1	170.6	6,35	5 4	5,66	Clear	Rose	-022
								_		_				
		_		-										
										1				
						:								
WELL CAPA 12" = 5.88 TUBING INS 5/8" = 0.016			-			3/16" =		1/4" = 0.002	•	= 0.37; 16" = 0.		5" = 1.0 " = 0.005;	02; 6" =	•
12" = 5.88 TUBING INS 5/8" = 0.016	SIDE DIA.	CAPACI	TY (Ga),/Ft): 1/8* = (3.0006;	3/16" =	0.0014; 1PLIN	1/4" = 0.002	26; 5/	16" = 0.	.004; 3/8		•	•
12" = 5.88 TUBING INS 5/8" = 0.016 SAMPLED B	SIDE DIA.	CAPACI	TY (Gal./Ft.): 1/8" = (0.0006; MPLER(3/16" = SAN S) SIGNA	0.0014; 1PLIN	1/4" = 0.002	26; 5/ SAM	16" = 0.	.004; 3/8	" = 0.005; SAM	1/2" = 0.0	010;
12" = 5.88 TUBING INS 5/8" = 0.016 SAMPLED B M (L PUMP OR T	PRINT	AFFIL	TY (Ga),/Ft): 1/8" = (SA	O.0006; MPLER(3/16" = SAN (S) SIGNA (L) LL UMP	1PLIN TURES	1/4" = 0.002 IG DATA	SAM INIT	16" = 0. IPLING IATED	.004; 3/8 AT: <u>0</u> 954	" = 0.005; SAM	1/2" = 0.0	010;
12" = 5.88 TUBING INS 5/8" = 0.018 SAMPLED B M', L PUMP OR TO DEPTH IN W	PRINT DL. 7 UBING	CAPACI AFFIL A 5	TY (Gal./FL IATION:): 1/8" = [SA SA FL FIE	MPLER(MPLE P OW RAT	3/16" = SAN (S) SIGNA	1PLINTURES	1/4" = 0.002	SAM INIT	16" = 0.	.004; 3/8 AT: <u>0</u> 954	" = 0.005; SAM: ENDI	1/2" = 0.0	010;
12" = 5.88 TUBING INS 5/8" = 0.016 SAMPLED B M (L PUMP OR T	PRINT DIT (PRINT UBING VELL (feet DNTAMIN)	CAPACI	TY (Gal./FL IATION: Úcdavs W N INER): 1/8" = [SA SA FL	MPLER(MPLE P OW RAT	SAN S) SIGNA J. L. L UMP E (mL per ERED)	O.0014; IPLINTURES	1/4" = 0.002	SAM INITI TUB MAT R SIZE:	16" = 0. IPLING IATED	.004; 3/8 AT: 0954 CODE: 1	" = 0.005; SAM: ENDI	1/2" = 0.0	935
12" = 5.88 TUBING INS 5/8" ≈ 0.016 SAMPLED B M', L PUMP OR TO DEPTH IN W FIELD DECC	UBING VELL (feet SPEC	ATION:	TY (Gal./FL IATION: () cd w s () N INER DN MATERIAL): 1/8" = [SA SA FL FIE	D.0006; MPLER(MPLE POW RATELD-FILT)	SAN S) SIGNA LUMP E (mL per ERED) SAN	O.0014; IPLINTURES / minute Y MPLE P	1/4" = 0.002 IG DATA FILTER RESERVATION TOTAL VOL ADDED IN	SAM INITITE TUB MAT R SIZE:	16" = 0. IPLING ATED / ING ERIAL	.004; 3/8 AT: 0 954 CODE: / DUPLICAT	" = 0.005; SAM: ENDI	PLING ED AT: O	010;
12" = 5.88 TUBING INS 5/8" = 0.016 SAMPLED B M / L PUMP OR TO DEPTH IN W FIELD DECC	PRINT UBING VELL (feet DNTAMIN) SAMPLE SPEC	ATION:	TY (Gal./FL IATION: (Jedan's) (V) N INER DN MATERIAL CODE): 1/8" = (SA FL FIE JUIT VOLUM	D.0006; MPLER(MPLE POW RATELD-FILT)	SAN S) SIGNA)	O.0014; IPLINTURES / minute Y MPLE P	1/4" = 0.002 IG DATA PILTER RESERVATION TOTAL VOL	SAM INITI TUB MAT R SIZE:	16" = 0. IPLING ATED / ING ERIAL	AT: 0959 CODE: J DUPLICA INTENDE AND/OF	SAM: ENDI CC TE: D ANALYSI R METHOD.	PLING ED AT: O	MPLING JIPMENT CODE
12" = 5.88 TUBING INS 5/8" ≈ 0.016 SAMPLED B M', L PUMP OR TO DEPTH IN W FIELD DECC	UBING VELL (feet SPEC	ATION:	TY (Gal./FL IATION: () cd w s () N INER DN MATERIAL): 1/8" = (SA SA FL FIE JUT	D.0006; MPLER(MPLE POW RATELD-FILT)	SAN S) SIGNA LUMP E (mL per ERED) SAN	O.0014; IPLINTURES / minute Y MPLE P	1/4" = 0.002 IG DATA FILTER RESERVATION TOTAL VOL ADDED IN	SAM INITITE TUB MAT R SIZE:	16" = 0. IPLING ATED / ING ERIAL	.004; 3/8 AT: 0 954 CODE: / DUPLICAT	SAM: ENDI CC TE: D ANALYSI R METHOD.	PLING ED AT: O	MPLING JIPMENT CODE
12" = 5.88 TUBING INS 5/8" ≈ 0.016 SAMPLED B M', L PUMP OR TO DEPTH IN W FIELD DECC	UBING VELL (feet SPEC	ATION:	TY (Gal./FL IATION: (Jedan's) (V) N INER DN MATERIAL CODE): 1/8" = (SA FL FIE JUIT VOLUM	D.0006; MPLER(MPLE POW RATELD-FILT)	SAN S) SIGNA LUMP E (mL per ERED) SAN	O.0014; IPLINTURES / minute Y MPLE P	1/4" = 0.002 IG DATA FILTER RESERVATION TOTAL VOL ADDED IN	SAM INITITE TUB MAT R SIZE:	16" = 0. IPLING ATED / ING ERIAL	AT: 0959 CODE: J DUPLICA INTENDE AND/OF	SAM: ENDI CC TE: D ANALYSI R METHOD.	PLING ED AT: O	MPLING JIPMENT CODE
12" = 5.88 TUBING INS 5/8" ≈ 0.016 SAMPLED B M', L PUMP OR TO DEPTH IN W FIELD DECC	UBING VELL (feet SPEC	ATION:	TY (Gal./FL IATION: (Jedan's) (V) N INER DN MATERIAL CODE): 1/8" = (SA FL FIE JUIT VOLUM	MPLER(MPLE POW RATELO-FILT)	SAN S) SIGNA LUMP E (ML per ERED) SAI ESERVAT USED	O.0014; IPLINTURES / minute Y MPLE P	1/4" = 0.002 IG DATA FILTER RESERVATION TOTAL VOL ADDED IN	SAM INITITE TUB MAT R SIZE:	16" = 0. IPLING ATED / ING ERIAL	AT: 0959 CODE: J DUPLICA INTENDE AND/OF	SAM: ENDI CC TE: D ANALYSI R METHOD.	PLING ED AT: O	MPLING JIPMENT CODE
12" = 5.88 TUBING INS 5/8" ≈ 0.016 SAMPLED B M', L PUMP OR TO DEPTH IN W FIELD DECC	UBING VELL (feet SPEC	ATION:	TY (Gal./FL IATION: (Jedan's) (V) N INER DN MATERIAL CODE): 1/8" = (SA FL FIE JUIT VOLUM	MPLER(MPLE POW RATELO-FILT)	SAN S) SIGNA LUMP E (mL per ERED) SAN	O.0014; IPLINTURES / minute Y MPLE P	1/4" = 0.002 IG DATA FILTER RESERVATION TOTAL VOL ADDED IN	SAM INITITE TUB MAT R SIZE:	16" = 0. IPLING ATED / ING ERIAL	AT: 0959 CODE: J DUPLICA INTENDE AND/OF	SAM: ENDI CC TE: D ANALYSI R METHOD.	PLING ED AT: O	MPLING JIPMENT CODE
12" = 5.88 TUBING INS 5/8" ≈ 0.016 SAMPLED B M', L PUMP OR TO DEPTH IN W FIELD DECC	UBING VELL (feet SPEC	ATION:	TY (Gal./FL IATION: (Jedan's) (V) N INER DN MATERIAL CODE): 1/8" = (SA FL FIE JUIT VOLUM	MPLER(MPLE POW RATELO-FILT)	SAN S) SIGNA LUMP E (ML per ERED) SAI ESERVAT USED	O.0014; IPLINTURES / minute Y MPLE P	1/4" = 0.002 IG DATA FILTER RESERVATION TOTAL VOL ADDED IN	SAM INITITE TUB MAT R SIZE:	16" = 0. IPLING ATED / ING ERIAL	AT: 0959 CODE: J DUPLICA INTENDE AND/OF	SAM: ENDI CC TE: D ANALYSI R METHOD.	PLING ED AT: O	MPLING JIPMENT CODE
12" = 5.88 TUBING INS 5/8" = 0.016 SAMPLED B M/ LA PUMP OR TO DEPTH IN W FIELD DECC	UBING VELL (feet SPEC	ATION:	TY (Gal./FL IATION: (Jedan's) (V) N INER DN MATERIAL CODE): 1/8" = (SA SA FL FIE JUT VOLUM	MPLER(MPLE POW RATELO-FILT)	SAN S) SIGNA LUMP E (mL per ERED) SAI ESERVAT USED	O.0014; TURES A minute Y MPLE P	1/4" = 0.002 IG DATA FILTER RESERVATION TOTAL VOL ADDED IN	SAMINITI TUB MAT R SIZE:	IPLING ING ERIAL	004; 3/8 AT: 0954 CODE: 1 DUPLICA INTENDE AND/OF	SAM: ENDI CC TE: D ANALYSI R METHOD.	PLING ED AT: O	MPLING JIPMENT CODE

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.

2. Stabilization Criteria: $pH = \pm 0.2$; Temperature $= \pm 0.2$ °C; Specific Conductance = readings are within $\pm 5\%$; Dissolved Oxygen = A) $\le 20\%$ saturation or B) readings are within ± 0.2 mg/L (for readings ≤ 2 mg/L) or 10% (for readings > 2 mg/L); Turbidity = A) ≤ 20 NTUs or B) readings are within ± 5 NTUs (for readings > 20 and ≤ 50 NTUs) or 10% (for readings > 50 NTUs).

FIELD EQUIPMENT CALIBRATION LOG

		T /-				SPICE I.	OF (
DATE: 1405/05	PROJECT NAME:	Lake	govent	۹		PROJECT NO:	
<u> </u>		<u></u>			·		
EQUIPMENT: WTW Multi	ine P3			SERIAL NO:		81552054	
ACTUAL TIME:	a <	PERFORME	DBY: Da	sid M	(a)tev	<u> </u>	
090))		рΗ			CONDUCTIVITY	<u></u>
CALIBRATION STANDARD	S USED:	4.01	7.00	10,00	20D us/cm	1413 us/cm	us/cm
	Lot#	5022	50519	50519	2504247	RAEO 003C/1	
	Expiration	1/31/2007	11/30/2006	11/30/2008	4/30/2008	1/26/2008	
CALIBRATION READINGS	LOG:	pH 4.01	pH 7.00	pH 10.00	200 us/cm	1413 us/cm	us/cm
m=-5713	Before Cal.	4.02	7,03			1418,	
-ymV	After Cal.	4.00	7,01			1219	-
Cal. Accepted	Alter Cal.	700	7,01	9,98	200	10/2	
Contract of the last of the la		137			AFTER USE		EACH CANCE
CALIBRATION TECHNIQU	E/FREQUENCY:	ps. r	PRIOR TO US	- 1	AFTER USE		EACH SAMPLE
l _							LOCATION
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EQUIPMENT: WTW Oxi 3				SERIAL NO:		260001	
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							LOCATION
☐ OTHER,(SF							
9/103	maxi						
REMARKS/CORRECTIVE	ACTION:						
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011	1	Temp	19,5°C	21.30		1	
Cali Accep	teel	Sat	30.96			1	
			<u> </u>	700			
EQUIPMENT: HF Scientifi	A DOT 1505 Turble			SERIAL NO:		907173	
ACTUAL TIME: 09 (5			D BY: DM			907173	
					· · · · · · · · · · · · · · · · · · ·		1
CALIBRATION STANDARD	S USED:	Standard	1.0 mtu	20.0 ntu			
		Lot#	A4182	A4182			
CALIBRATICAL TECHNICAL	E/EACAUENOV	Expiration	Jun.'06 PRIOR TO US		AFTER USE		EACH CANDIC
CALIBRATION TECHNIQU	EFREQUENCY:	اللكع	-RIUK 10 US	-)×	AFTER US		EACH SAMPLE
	a compa	_		,		,	LOCATION
OTHER (SE	-EUIFY)						
DELLA DVOIG CONTACT	A 677/011.	04	4.6-6-	00.004	<u> </u>		1
REMARKS/CORRECTIVE	ACTION:	Standard	1.Ontu	20.0ntu			
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Cal Good							ļ <u> </u>
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INSTRU	MENT (N	/AKE/MO	DEL#)	4516	3	INSTRUMENT # <u>04809</u>		80968
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values, and	the date t	the standard	rpe(s) of sta s were prep	andards used for pared or purchase	calibration. ed]	the origin of the	standards, the	standard
Stand	dard A _							
Stand	lard B _	7						
	lard C	10		-				
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(3 ±; 10	עדוחום		RESIDUAL	.cl 🗆 🗆			ER	
STANDAI values, and	RDS: [Si the date th	ne standaros	wele biebe	ndards used for ca ared or purchased	alibration, t]	the origin of the	standards, the	standard
Standa	ard A	47.						
	ard 8							
Standa	ard C						TYPE	SAMPLER
DATE (yy/mm/dd)	TIME (hemia)	STD (A, B, C)	STD VALUE	INSTRUMENT RESPONSE	% DEV_	CALIBRATED (YES, NO)	(INIT, CONT)	INITIALS
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(2)	.94.0	A	147	4 }		「 _{し。} , _	cont	
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ŞQ TEMI ☐ TURI			RESIDUAL	.CL 🔼 D	0	□ OTH	ER	
-	3DC: (C.	iértha tro	ale) of stat	ndards used for ca	dibration, a	the origin of the	standards, the	standard
values, and	the date th	ie standaros	were brebe	ared or purchased]			
Standa	ard A	100%						
Standa	ard C						TYPE	SAMPLER
DATE	TIME	STD (A, B, C)	STD VALUE	INSTRUMENT RESPONSE	% DEV_	CALIBRATED (YES, NO)	(INIT, CONT)	INITIALS
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Appendix I Microbial Evaluation

The Central Florida Aquifer Recharge Enhancement Phase 1 (CFARE1) Project

Analyses of Microbial and Related Data from the Festival Park and Lake Orienta Study Sites

John Lisle, PhD Microbiologist U.S. Geological Survey

Introduction

The Central Florida Aquifer Recharge Enhancement – Phase 1 (CFARE1) project was initiated to investigate the feasibility of increasing the direct flow of untreated surface waters into the Floridan aquifer via existing, open drain wells as a possible alternative for enhancing an alternative water supply in Orange and Seminole Counties. One task of this project focused on the microbiology of the surface and groundwater systems in selected watersheds. In general, the microbiology studies included the establishment of baseline data on the occurrence and abundance of microbial indicators of fecal contamination (i.e., total and fecal coliforms, *E. coli*, enterococci, coliphage, *Giardia* spp. and *Cryptosporidium* spp.) and an assessment of the fate and transport of introduced bacteria in the Floridan aquifer.

This section of the report is a critical review and analysis of microbiology abundance data from this project that were collected during several sampling events that occurred from 2003-2005 (Table 1). Chemical, nutrient and physical data will also be evaluated within the context of the microbiology analyses. These data were provided by CH₂M Hill in the form of data summary tables and two published reports [Kamarainen, A., W. Quintero-Betancourt, M. Woodall and J. Rose (2004). Central Florida Artificial Recharge Demonstration Program: Festival Park-Orlando, FL; Ives, R. and J. Rose (2006). Central Florida Artificial Recharge Demonstration Program: Lake Orienta-Orlando, FL]. The methods used for collection and enumeration of the microbial indicators are provided in the referenced reports and will not be restated here.

Sample site descriptions

Two areas were sampled for microbiological analyses: Festival Park and Lake Orienta. A detailed description of these sample sites can be found elsewhere in this report. Flow rates between recharge and monitoring wells were determined by injecting fluorescein and eosine tracer dyes into the recharge wells and sampling at timed intervals at the monitoring wells.

The Festival Park area had four sampling sites that were analyzed in this report; Recharge well R143 and monitoring wells MW1, MW2 and MW4. Based upon the dye tracer studies, water entering the aquifer system via R143 moved towards MW1 and MW2 with a travel of time of approximately two weeks. However, the flow to both monitoring wells was not equal, as dye concentrations reaching MW1 were approximately 600-fold greater than those arriving at MW2. Neither dye was detected at MW4.

The Lake Orienta area had three sampling sites; a recharge well within Lake Orienta and monitoring wells MW1 and MW2. Based upon the dye tracer studies, water entering the Lake Orienta recharge well moved towards MW2 with a travel time of approximately two weeks. Neither dye was detected at MW1.

Data processing for the microbiology data sets

- 1. Any "<" value in the total and fecal coliforms, *E. coli* and entrococci data sets that was below 0.5 or between 1-5 CFU 100 ml⁻¹ was set to 0 or 1.0, respectively.
- 2. All of the data for *Giardia* spp. and *Cryptosporidium* spp., except for the two positive samples in the Lake Orienta data set, were assigned a value of 0. The recovery efficiency rates for the respective methods were so low that assigning a value based upon the equation, (Detection Limit Value × 0.5), was not appropriate. There were also "+" designations within these data sets. However, there was no appropriate method for

assigning a non-zero value to these data points and they were not included in the analyses.

Table 1. Sampling sites and dates.

	Festival	Festival	Festival	Festival	Lake	Lake	Lake
Sample	Park	Park	Park	Park	Orienta	Orienta	Orienta
Date	R-143	MW-1	MW-2	MW-4	Lake	MW-1	MW-2
28-May-2003	R143a			MW4a			
29-May-2003		MW1a	MW2a				
1-Oct-2003	R143b	MW1b					
2-Oct-2003			MW2b				
3-Oct-2003				MW4b			
8-Oct-2003	R143c	MW1c					
9-Oct-2003				MW4c			
10-Oct-2003			MW2c				
22-Oct-2003			MW2d				
23-Oct-2003	R143d			MW4d			
24-Oct-2003		MW1d					
19-Nov-2003		MW1e					
20-Nov-2003			MW2e				
21-Nov-2003	R143e			MW4e			
4-Feb-2004	R143f	MW1f					
5-Feb-2004			MW2f	MW4f			
16-Feb-2004	R143g			MW4g			
17-Feb-2004		MW1g					
18-Feb-2004			MW2g				
11-Jul-2005					Lake a	MW1 a	MW2 a
20-Jul-2005					Lake b	MW1 b	MW2 b
27-Jul-2005					Lake c	MW1 c	MW2 c
8-Aug-2005					Lake d	MW1 d	MW2 d
7-Sep-2005					Lake e	MW1 e	MW2 e
5-Oct-2005					Lake f	MW1 f	MW2 f
31-Oct-2005					Lake g	MW1 g	MW2 g
6-Dec-2005					Lake h	MW1 h	MW2 h

3. All "<" values within the coliphage data sets were set to 1.0. All "-" data points were assigned a value of 0. Any coliphage data point that had been assigned a "+" designation was assigned a value of 1.0.

Data processing for the chemical, nutrient and physical data sets

1. The following designations were used in these data sets to denote data quality: = : a true detection value; U : a non-detection event greater than the reporting limit value listed; J : an estimated value between the detection limit and the practical quantification limit; UJ :

a non-detection event greater than the value shown; and R: rejected data. All data in the "=" and "J" categories were included in the analyses as listed. All data in the "U" and "UJ" categories were assigned a value using the following equations: $(U \times 0.5)$ or $(UJ \times 0.5)$. The resulting products were used in the analyses. All data in the "R" category were removed from the data sets prior to analyses.

Caveats for the microbial indicator and chemical, nutrient and physical data sets

The inclusion of data sets that contained a relatively large percentage of values that were below the detection limit may overestimate the statistical importance of these data within the context of data interpretation. Also, those data sets that were consistently below the detection limit and were assigned a value have no variance associated with their distribution. Therefore, these data sets could not be used in some of the analyses as will be noted in the following sections.

Statistical analyses

Prior to initiating the statistical analyses of the microbiology and chemical, nutrient and physical data, all data sets were processed to test of normality and homogeneity of variance. All raw data failed to meet the minimum requirements for normality. Though \log_{10} data transformations were applied, only a very small subset of data approached a normal distribution. Accordingly, the more common statistical analyses used for comparisons of means (e.g., ANOVA, t-tests) were not possible. Also, attempts were made to analyze the microbiology and chemical, nutrient and physical data using time and trend analyses. It was determined that the data generated from these analyses were not reliable as the number of sample points between the start and finish of the data collection period were too few.

The raw data from the chemical, nutrient and physical data sets were used to assess correlations between the sample sites. Multivariate analyses (i.e., principle component and factor analyses) were performed on the microbiological and chemical, nutrient and physical data sets to compare the sample sites and to determine which parameters within those data sets contribute to the variance. These types of analyses, though not directly comparing data sets for significant differences, do promote the testing and development of hypotheses on which informed decision can be made.

Due to the structure of the data sets and the low number of sample events, direct statistical comparisons were not attempted. Instead, statistical analyses were conducted that will allow engineers and planners to develop hypotheses for further evaluation of these data sets and possible design of future research efforts. Based upon the flow path data established from the dye injection tests, the hypotheses under which the following data analyses were performed are as follows:

Festival Park:

H_o: R143 is hydraulically connected to MW1 and MW2, but not MW4.

H_o: MW1 and MW 2 are not hydraulically connected to MW4.

Lake Orienta:

H_o: Lake Orienta is hydraulically connected to MW2, but not MW1.

H_o: MW2 is not hydraulically connected to MW1.

All statistical analyses were performed using Minitab (rel. 14.0).

Correlations. Pearson product correlation coefficients and associated *P*-values were calculated using the chemical, nutrient and physical data sets from the respective sample sites. The objective of these analyses was to investigate if changes in one or more parameters at the inlet sites (i.e., R143 at Festival Park and Lake Orienta) correlated with monitoring well sites that had been previously shown to be hydraulically connected and to also assess if the putative non-hydraulically connected wells experienced the same fluctuations.

Due to the large number of comparisons, the original α value of 0.05 was adjusted using the Bonferroni adjustment, which minimizes the probability of making a Type I error (i.e., incorrectly designating a correlation as being statistically significant). Based upon the Festival Park and Lake Orienta data sets having 23 parameters that were compared, the adjusted α values for these data sets were set at 0.0002. Without using this adjustment to the α values, there was a > 99% chance of finding significant correlations that would lead to Type I errors. However, though the Bonferroni adjustment is an accepted procedure, it is not universally accepted, as this adjustment may make the test too restrictive thereby missing truly significant correlations. The statistically significant correlations listed in Tables 2 and 3 include those comparisons whose α is \leq 0.05 and those that meet the criterion set by the Bonferroni adjustment. The *P*-values are listed below the respective correlation coefficients in italics.

Multivariate analysis. Multivariate analyses were conducted on selected raw data for the microbial indicators and chemical, nutrient and physical analyses using principle component analysis (PCA) and factor analysis (FA). Each PCA analysis was conducted using a correlation matrix, as all variables within the respective data sets were not measured using the same method. The PCA scores and loading values for the first two components and their respective contributions to the overall variance (expressed as a percentage) were graphed. As previously discussed, the assignment of values to data sets that were consistently below detection limit produced a new data set with no variation. These types of data cannot be used in PCA. The following data sets were not used in the PCA analyses for Festival Park: *Giardia* spp. and *Cryptosporidium* spp. and for Lake Orienta: *Giardia* spp. *Cryptosporidium* spp. (when comparing MW1 and MW2 data only) and coliphage.

FA was conducted on microbiological and chemical, nutrient and physical data sets using the raw data. FA was performed using the principle components method for data extraction from a correlation matrix. The factor loading axes positions were optimized using a varimax rotation. The FA scores and loading values for the first two components and their respective contributions to the overall variance (expressed as a percentage) were graphed. The chemical, nutrient and physical data used in the PCA and FA analyses graphs are listed in Table 4.

Results and Discussion

Data correlations for the chemical, nutrient and physical data sets. Statistically significant correlation coefficients are not onto themselves proof of causation. However, their restrictive use as defined previously may provide some insight into if the untreated waters are impacting the aquifer as determined by data from the monitoring wells. Evaluating the statistically significant correlation coefficients for the Festival Park chemical, nutrient and physical data (Table 2), from the perspective of the hypotheses stated previously, increases in concentrations of organic phosphate, ortho-phosphate, sulfates, total nitrogen species and total organic carbon at the inlet also occur at MW4. Also, the fluctuations in water color data, which could be used as a conservative tracer, from all of the monitoring wells at the Festival Park site are positively correlated. Additionally, the calcium, water color, total phosphate, total nitrogen, total organic carbon and turbidity data from MW1 and MW4 are positively correlated. Collectively, these data

indicate that MW4 may not be as isolated from R143, MW1 and MW2 as previously assumed. These associations may be positively influenced by the relatively greater flow rate between R143 and MW1 as MW1 and MW4 have several parameters that are positively correlated. However, an additional hydraulic connection to the aquifer zone from which MW4 extracts water cannot be ruled out. If MW4 is to be used as a "native control" for this zone within the aquifer, further investigation into the hydrogeology of this site may be warranted.

Table 2. Festival Park Correlation Data

rk Correlat	ion Data				
R143	R143	R143	MW1	MW1	MW2
MW1	MW2	MW4	MW2	MW4	MW4
				0.828	
				0.022	
1.000	1.000	1.000	1.000	1.000	1.000
<	<				
0.0001	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
			0.824	0.943	0.906
			0.023	0.001	0.005
0.990					0.830
<					
0.0001					0.021
				0.772	
				0.042	
		0.850			
		0.015			
		0.825			
		0.022			
		0.757			
		0.049			
0.965		0.912		0.946	
<					
0.0001		0.004		< 0.0001	
0.990		0.949		0.974	
<					
0.0001		0.001		< 0.0001	
				0.772	
				0.042	
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The Lake Orienta correlation data follows a similar trend (Table 3). The lake data are significantly correlated with chloride, water color, dissolved phosphate and turbidity data from MW1 and MW2. These positive correlations suggest that perhaps the flow path between the Lake Orienta inlet and MW2 is not as isolated, in regard to MW1, as previously assumed. The relatively high number of correlated data sets (9 of 13 or 69.2%) between MW1 and MW2 supports this hypothesis. Additionally, those parameters that would be considered possible conservative tracers (i.e., chloride, color, turbidity) were all positively and significantly

correlated between MW1 and MW2. As with MW4 at the Festival Park site, if MW1 at the Lake Orienta site is to be used the "native control" further investigation into the hydrogeology of this site may be necessary.

Table 3. Lake Orienta Correlation Data

Correlated	Lake	Lake	MW1
Parameters	MW1	MW2	MW2
Alkalinity	1,1,1,1	111 11 2	0.964
Aikaiiiity			< 0.001
Ammonium	0.857		₹ 0.001
Allillolliulli	0.006		
Chloride	0.897	0.824	0.971
Cinoriac	0.003	0.012	< 0.001
Color	0.868	0.857	0.908
Coloi	0.005	0.007	0.002
Total Phosphate	0.003	0.007	0.751
Total Thospilate			0.731
Dissolved Phosphate	0.739	0.793	0.879
Dissolved i nospitate	0.739	0.793	0.004
pН	0.801	0.017	0.798
pii	0.017		0.018
Potassium	0.017	0.732	0.010
1 Otassium		0.732	
Sodium		0.722	
Sourani		0.043	
Sulfates		0.015	0.719
Sunuces			0.044
TDS			0.875
100			0.004
Total Nitrogen		0.928	0.001
1044111105011		0.001	
Turbidity	0.716	0.917	0.861
1 61 61411	0.046	0.001	0.006
	0.070	0.001	0.000

Microbial indicators and chemical, nutrient, and physical data. Microbial indicators of fecal pollution are routinely used to assess the microbiological quality of drinking, source and recreational waters. These groups of and individual microbes have public health and regulatory significance but have no influence on the geochemical and geomicrobial processes that dominate aquifer systems. Though dissolved oxygen concentrations in aquifer systems may be perceived as being important for bacteria to survive, this is not the case as facultative anaerobes and

anaerobes dominate these systems. In fact, most of the bacterial indicators are facultative anaerobes and can survive for prolonged periods of time under very low oxygen tension or in the absence of oxygen. The dissolved oxygen concentrations recorded at the inlet sites at the Festival Park and Lake Orienta study sites indicate that relatively high concentrations of dissolved oxygen are being introduced into the subsurface, but these concentrations are reduced to common detection limits ($\sim 2.0 \text{ mg L}^{-1}$) before reaching any of the monitoring wells at either site. This oxygen demand can be attributed to geochemical reactions and microbial respiration.

For the non-parasitic microbial indicators (i.e., encysted parasites and coliphage) to survive and persist, they need to have a minimum amount carbon, nitrogen and phosphorus to maintain basal cellular processes. Carbon:nitrogen:phosphate (C:N:P) ratios were calculated as a rough estimate of the tropic status of the sample sites at each location. Using the total organic carbon, total nitrogen species and total phosphorus (as phosphates) data the C:N:P ratios indicate that phosphate is the limiting nutrient and all sites could be classified as oligotrophic.

The inlet at the Festival Park study site (R143) had a C:N:P range between 2:11:1 to 267:3:1, while the highest ratios for monitoring wells MW1 (2:5:1 to 123:1:1), MW2 (1:1:1 to 38:5:1) and MW4 (24:2:1 to 145:3:1) were less than that for R143, they still show a wide range of variability.

The Lake Orienta inlet site also had a wide range of C:N:P ratios, from 49:2:1 to 1534:39:1. The two monitoring wells, MW1 (7:5:1 to 29:2:1) and MW2 (9:2:1 to 38:3:1), had significantly lower ratios but also had a wide range of variability though not as great as the Festival Park monitoring wells.

In regard to carbon, what is the demand for this nutrient by bacterial indicators in aquifer systems? The data collected during this study cannot address this question. However, recent studies in the U.S. Geological Survey microbiology laboratory have shown that native groundwater bacterial populations, at an average abundance of 10^7 cells L^{-1} , incorporate approximately $0.81~\mu g$ C $L^{-1}d^{-1}$ into biomass. Assuming that 50% of the total organic carbon is assimilable by the native bacterial population, each 1.0~m g of total organic carbon is approximately 600-fold greater than that needed to support the survival and replication of 10^7 cells L^{-1} d^{-1} . The minimum carbon requirement or that needed to simply survive in a physiological state of maintenance within an aquifer system is even less. Though microbial indicators are not major contributors to subsurface processes, these microorganisms require the same energy sources as native microbes. The example of native bacterial productivity in aquifer waters is generally applicable to microbial indicators as well.

Correlations on the chemical, nutrient and physical data sets provide a very general approach to analyzing the data on a one-to-one comparison basis. This approach does not allow the assessment of relatedness within and between samples sites. Factor analysis was used to assess large and diverse data sets from the sample sites to determine if the different sites were related, based on flow path, and the data or factors that make the site similar or dissimilar.

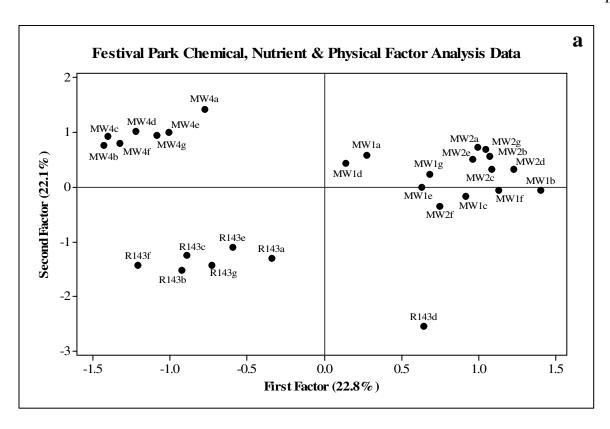
The Festival Park factor analysis data scores graph does indicate that the inlet R143 is different from all of the monitoring wells and monitoring wells MW1 and MW2 are relatively similar but different than MW4 (Figure 1a). The data point R143d (sample date: 10/23/03. Refer to Table 1 for an explanation of the data point notation) is removed from the general cluster formed by the rest of the data points from this site. A review of the raw data and the factor analysis loadings graph for this data set (Figure 1b) (See Table 4 for explanation of factor loading graph notation.) reveals that on this date there was a significant increase in iron, turbidity and, to a lesser extent, barium, nickel and manganese (see the lower right quadrant of the Figure 1b). Factor analysis loading graphs can be compared to the scores graphs (Figure 1a) by referring to the same quadrants. The factor loadings for the analytes or parameters that occur in the same quadrant as the score data points can be generally taken as contributing to the variability that either groups or separates data points. Also, these figures may at first suggest that the comments

previously stated about the correlation data and how those data indicate that specific sites may not be truly isolated hydraulically are incorrect. However, closer examination of the distribution of the data points for each site in Figure 1a shows that there is a general trend that starts with the "b" dates in the lower left of each cluster and moves to the "a" date in the upper right area of each cluster. These general trends also suggest that the chemical, nutrient and physical parameters used in these analyses increase or decrease in a similar fashion.

Table 4. Analyte or parameter abbreviations

Analyte or Parameter	
Alkalinity	ALK
Ammonia nitrogen	NH4
Arsenic	As
Barium	Ba
Calcium	Ca
Chloride	CL
Color	Color
Dissolved organic carbon	DOC
Dissolved phosphate	Dis P
Iron	Fe
Magnesium	Mg
Manganese	Mn
Nickel	Ni
Organic phosphate	Org P
Ortho phosphate	Ort P
pН	pН
Potassium	K
Sodium	Na
Sulfate	SO4
Total dissolved solids	TDS
Total nitrogen species	TTL N
Total organic carbon	TOC
Total phosphate	TTL P
Turbidity	NTU

The Lake Orienta chemical, nutrient and physical factor analysis data show a similar trend, though along a different axis. Figure 2a shows that the data from the inlet and two monitoring wells do cluster but not in discrete zones like the Festival Park data. The factor loading data (Figure 2b) along the first factor axis (X-axis) indicates that at the earlier dates that those factors in the upper and lower right quardrants dominate the variance in the data sets. However, as the sample dates progress the factors located in the lower left quadrant now separate the lake inlet and MW2, with MW1 being influenced by factors common to both of the other sites. Also, and like the Festival Park data, there is a general trend in the distribution of the data points within each data set, suggesting there are common factors between the sites that are influencing their respective variances and distributions.



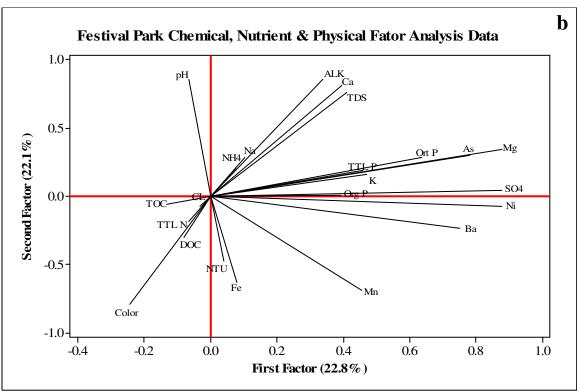


Figure 1. Festival Park factor analysis data. a) Factor analysis score graph. Refer to Table 1 for explanation of data point notation. b) Factor analysis factor loadings graphs. Refer to Table 4 for explanation of abbreviations.

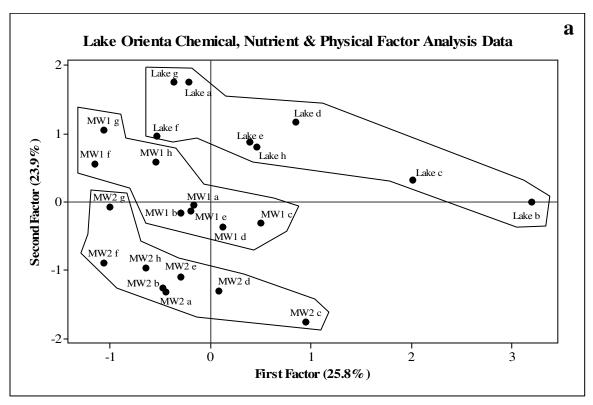
Microbial indicator abundance data. Principle component analysis was used to assess the relatedness between the sample sites at Festival Park and Lake Orienta. These same data were then analyzed by factor analysis to determine which sites were being significantly impacted by one or more of the indicators.

The Festival Park principle component analysis show that, based on selected microbial indicator data, that the MW1 and MW2 sites are similar but dramatically different than the inlet (R143) and MW4 (Figure 3a). The inlet and MW4 are not similar, as well. The first two components of the data set account for 100% of the variance. The total and fecal coliforms, *E. coli*, enterococci and one of the coliphage contribute equally while the second coliphage data set appears to be responsible for separating the MW4 site (Figure 3b). Caution should be used in the interpretation of the data sets that contain coliphage data as this data set was predominantly at or below the detection limit of the method.

The factor analysis of the Festival Park data (Figure 4a) show that the indicator data are not unique enough to force clusters based on sample site. Instead there are two tight groupings of MW1, MW2 and MW4 data points and a relatively wide spread distribution of the inlet data points. The factor analysis loadings (Figure 4b) again show that the bacterial indicators are equal factors in discriminating the sites with the two coliphage being a minor contributor. These data reflect the variability in the runoff waters that are drained into the inlet well, R143, and there doesn't appear to be a significant correlation between the sites in regard to microbial indicators.

The principle component analysis for Lake Orienta shows that the microbial indicator data for the inlet (Lake Orienta) and the two monitoring wells, MW1 and MW2 are not similar between the sites (Figure 5a). The distribution of the sites in Figure 5a is forced by the total coliform data for MW2 on 12/6/05, when the abundance was 60 CFU 100 ml⁻¹, compared to values that were just above or below the detection limit of the method.

Factor analysis was also performed on the Lake Orienta microbial indicator data. Figure 6a shows the inlet site distributed over a relatively wide range along both axes. All of the factor analysis score data points for MW1 and MW2 are contained within a very tight area. The factor loading graph (Figure 6b) shows that the enterococci and *Cryptosporidium* spp. have a significant impact. This effect is due to the lake inlet sample having several sampling events with relatively high enterococci counts and Cryptosporidium being detected in these samples on two occasions. Also, MW1 had several positive samples for enterococci that were above the detection limit of the method. As with the Festival Park data, the wide spread in the lake inlet factor data points reflects the variable microbial indicator counts in the source water that is entering the aquifer.



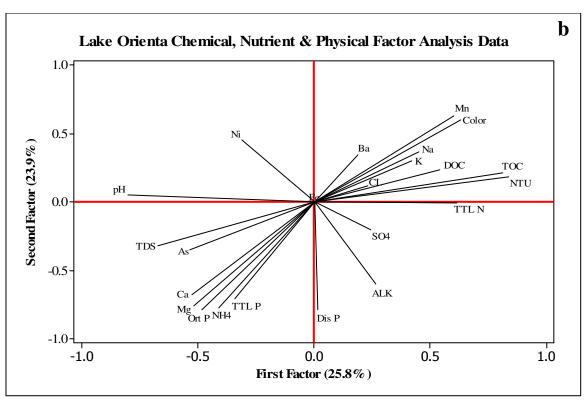
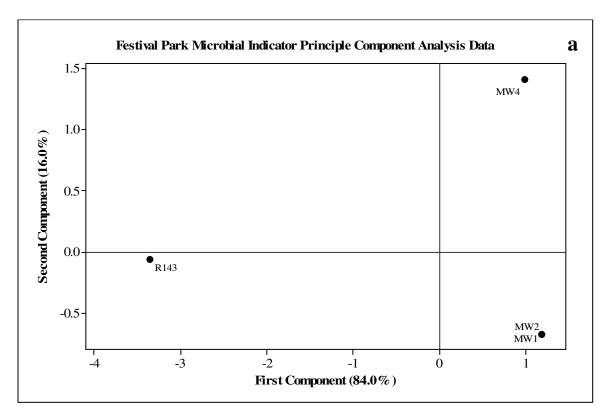


Figure 2. Lake Orienta factor analysis data. a) Factor analysis score graph. Refer to Table 1 for explanation of data point notation. b) Factor analysis factor loadings graphs. Refer to Table 4 for explanation of abbreviations.



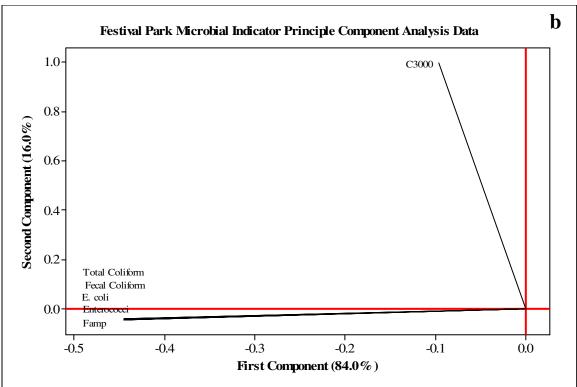
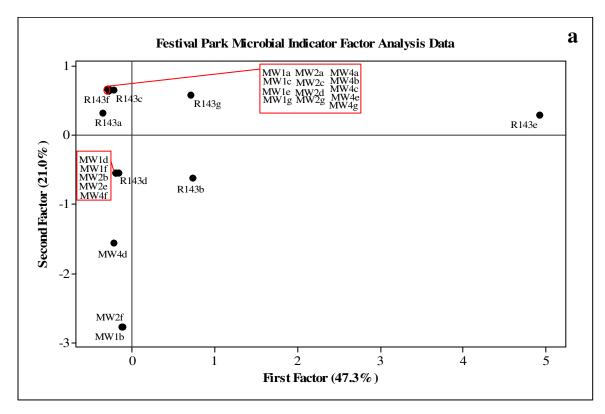


Figure 3. Festival Park principle component analysis. a) Principle component score graph. b) Principle component loadings graph.



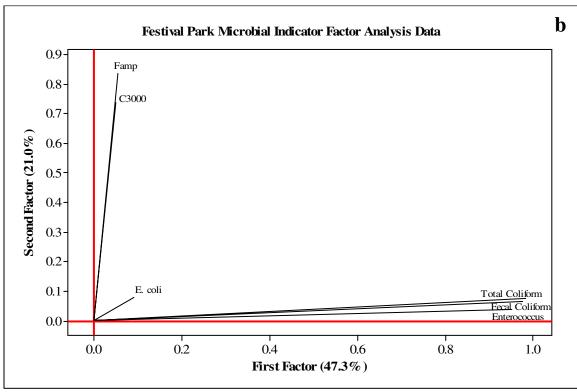
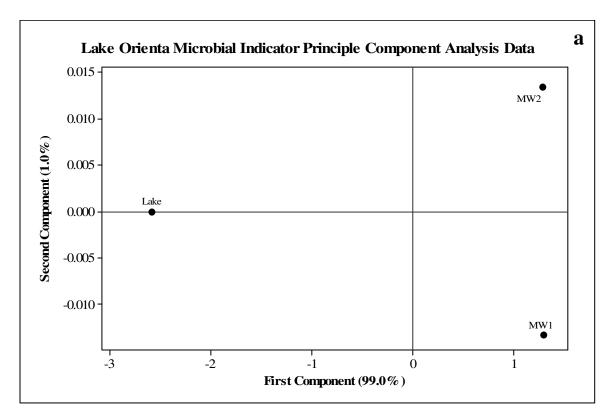


Figure 4. Festival Park factor analysis data. a) Factor analysis score graph. Refer to Table 1 for explanation of data point notation. b) Factor analysis factor loadings graphs. Refer to Table 4 for explanation of abbreviations.



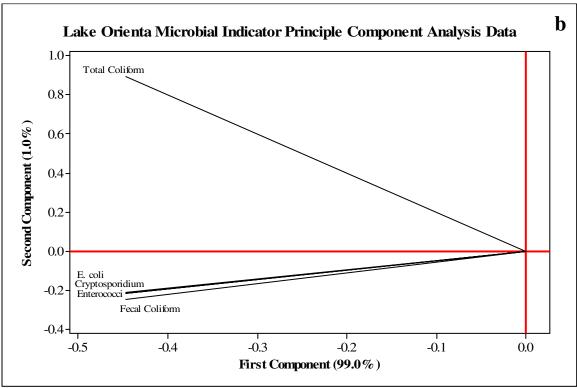
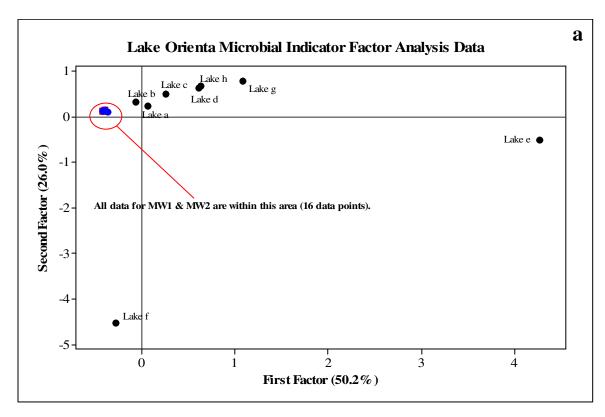


Figure 5. Lake Orienta principle component analysis. a) Principle component score graph. b) Principle component loadings graph.



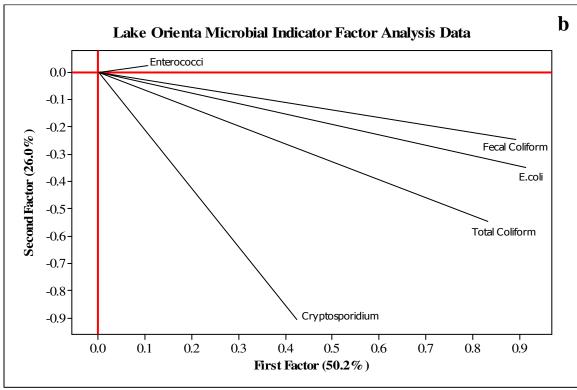


Figure 6. Lake Orienta factor analysis data. a) Factor analysis score graph. Refer to Table 1 for explanation of data point notation. b) Factor analysis factor loadings graphs. Refer to Table 4 for explanation of abbreviations.

Microbial indicator inactivation rates. One of the tasks of the original project was to assess the inactivation of microbial indicators under in situ conditions. This is of interest due to the apparent absence or extremely low occurrence of microbial indicator of fecal contamination at the monitoring well sites even though there are extremely high counts of these same indicators entering the aquifer and have been doing so for decades. The question remains as to the fate and transport of these microorganisms. Several studies have addressed the issue of inactivation of bacteria, viruses and protozoans in groundwaters. Interestingly, for the indicator bacteria, the average inactivation rate in untreated groundwater and within the temperature range of the aquifer at the two study areas is 0.3 log d⁻¹. Applying that inactivation or decay rate to the abundance data for the two inlet sites (i.e., R143 at Festival Park and Lake Orienta), an estimate of how long an introduced indicator bacterium would survive in the aquifer can be calculated. At the Festival Park study site, it would take approximately ten days for the enterococci to be reduced to below 1 CFU 100ml⁻¹, 11 days for E. coli and 16 days for total and fecal coliforms. At the Lake Orienta study site it would take approximately seven days for E. coli to be reduce in abundance to below 1.0 CFU 100 ml⁻¹ and nine days for the total and fecal coliforms and enterococci to reach this level.

When considering the flow rate between the inlets and the monitoring wells takes approximately two weeks at both sites, positive samples for bacterial indicators would be expected at Festival Park and possibly Lake Orienta, which is the case for both sites. In fact, the abundance data for the indicators may be interpreted as being greater than would be expected when decay rates are considered. This is not surprising considering the conditions within the aquifer at both sites, as there is sufficient carbon, nitrogen, phosphate and dissolved oxygen present to not only support survival of the bacterial populations but most likely an increase in biomass over time.

It is tempting to hypothesize that the aquifer surfaces have been colonized by microorganisms during the operation of these wells over the decades and that these elevated indicator abundances reflect the detachment of biofilm-associated bacteria or coliphage. This may be the case, but there are several factors within these same aquifer systems that would contribute to the lower indicator abundances at the monitoring wells. These include, but are not limited to: a) predation by zooplankton and bacteriophage that are being introduced into the aquifer along with the bacteria, coliphage and protozoan parasites, b) physiological stresses are reducing the vitality and possibly the viability of the indicators making them much more difficult to recover. Also, the use of standard media for the recovery of indicator bacteria from these types of environments almost assures the technician of obtaining a zero or below detection limit value from most samples, and 3) the majority of the indicator populations are being transported out of area via a flow path that has yet to be characterized.

Due to the atypical aquifer recharge at these sites, data on microbial survival, attachment, detachment and inactivation that have been developed from studies of more typical, hydraulically isolated and regional aquifer systems may not be applicable. If an understanding of microbial indicator and pathogen fate and transport in aquifers impacted by this recharge system is of interest, additional studies need to be conducted that quantify rates of transport and inactivation using waters from these systems, but preferably using an in situ approach.

Recommendations

1. If fate and transport of bacteria, viruses and protozoan parasites is a priority, some type of in situ experiments need to be designed and performed. These types of experiments could

- use down well diffusion chambers, above ground flow-thru system and possibly bench top microcosm if native water conditions can be maintained.
- 2. Microbial indicators, though of public health and regulatory interest, are most likely not able to compete with the native microbial populations for resources. Studies that investigate the fate and transport of microbial indicators need to include studies that investigate how those same indicators interact and influence the microbial ecology of the native populations.
- 3. Non-culture based methods for the recovery, enumeration and assessment of physiological activity and status should be included in any study on the fate and transport of microbial indicators.
- 4. Any study that is designed to investigate the fate and transport of microbes in the subsurface should also include a geochemical component.

Field sampling logs and field notes, as applicable, are presented in Appendix H.

Appendix J Geochemical Evaluation

FESTIVAL PARK WATER-QUALITY DATA SET: DATA ANALYSIS

June Mirecki, Ph.D., Florida Professional Geologist 2430

Methods

Water-quality data for surface-water and ground-water samples were provided by CH2M HILL. The surface-water quality dataset consisted of 7 samples collected from inflow points R143 and R40 between May 2003 and February 2004. The ground-water quality dataset consisted of samples collected from MW-1, MW-2, and MW-4 (each n=7) collected at the same time. All samples were analyzed for field parameters (pH, ORP, temperature, specific conductance, and turbidity), major and trace inorganic constituents, and volatile and semi-volatile organic constituents. Only field parameters and inorganic constituent data are considered here.

Water-quality data were grouped by location for statistical analysis. Due to small population size for each location, data did not show normal distribution and so were described using non-parametric statistical methods (median value, 25 and 75 percentiles) at each location. Concentrations that were "U-flagged" representing nondetections were entered as 0.5 times the practical quantification limit for each analyte. Trace metal concentrations (particularly for antimony, beryllium, cadmium, chromium, cobalt, copper, lead, and thallium) frequently were U-flagged. Therefore, these elements do not show statistically significant differences among locations. Bar graphs comparing water-quality data by location are shown in Figure 1. Median values of each parameter and constituent for inflow, MW-1 and MW-2 served as the basis for inverse geochemical model development.

Inverse geochemical models permit the calculation of mass transfer resulting from all geochemical reactions along a ground-water flowpath. Median values calculated during statistical interpretation are used as input values in the PHREEQC geochemical modeling code (Parkhurst and Appelo, 1999). Inverse geochemical models use water-quality data at the beginning and end of a flowpath as input. Charge balance errors for input data sets are less than 3 percent. Mass transfer values that result from specified reactions *at equilibrium* are the output from each run. At the Festival Park site, recharge or inflow samples (n=7) characterize the beginning of the flowpath; MW-1 and MW-2 data (n=7) characterize the end of the flowpath. Separate model runs were performed for MW-1 (n=2 simulations that satisfied the model input) and MW-2 (n=2), and the variation that resulted from multiple model runs was noted.

Water-Quality Trends

Festival Park Flowpath. Water-quality changes occur as surface water recharge (or inflow) flows down-gradient toward MW-1, MW-2. The ground-water flowpath begins at the point of inflow, and extends to MW-1 and MW-2. Based on tracer test data, MW-4 does not sample this flowpath, and may represent site reference conditions in the Upper Floridan aquifer. As such, water-quality data from MW-4 appears not influenced by surface water, and is consistent with the results of the groundwater tracer test. Bar graphs comparing all dissolved constituents along the flowpath are shown in Figure 1. Water-quality evolution along the flowpath is interpreted from bar graphs in Figure 1 and is summarized below.

- Statistically significant increases in calcium carbonate saturation, marked by increased bicarbonate alkalinity, calcium, and magnesium concentrations in all downgradient wells.
- Increased (but only weakly significant) concentrations of sodium, potassium, and sulfate in all downgradient wells.
- Increased (but only weakly significant) concentrations of arsenic and barium in downgradient wells MW-1 and MW-2. MW-4 does not show significant increases of these two constituents.
- Decreased (but only weakly significant) concentrations of iron, manganese, zinc, and dissolved organic carbon (DOC) in all downgradient wells.
- More reducing redox environment in the groundwater, characterized by more negative ORP values and diminished dissolved oxygen concentration in the wells. Water quality at MW-4 indicates the most extensive reducing environment.
- No statistically significant changes in nutrients (nitrogen and phosphorus species), aluminum, cadmium, cobalt, copper, lead, mercury, nickel, and vanadium concentrations along the flowpath.
- No statistically significant changes in total organic carbon (TOC) concentrations along the flowpath.

Water-quality changes along the Festival Park flowpath are affected by mixing of runoff constituents, microbial activity, and water-rock interactions. Inverse geochemical modeling methods can define and quantify the mass transfer values that result from dominant reactions along the flowpath.

- CaCO₃ saturation after limited CaCO₃ dissolution and microbial oxidation of TOC/DOC
- Gypsum/anhydrite dissolution resulting in increased sulfate and decreased DOC in MW-1 and MW-2
- Microbial sulfate reduction resulting in low sulfate and negative ORP in MW-4
- Pyrite oxidation resulting in release of arsenic and possibly other trace elements
- Iron oxyhydroxide precipitation
- Mixing of barium-rich inflow with native aquifer waters along the flowpath

Nearly identical models of water-quality changes and major reactions result at Festival Park when MW-1 or MW-2 are used as end-points (Figure 2). The greatest mass transfer results from organic matter oxidation with subsequent generation of carbonic acid/dissolved CO₂ gas. This explains increased alkalinity along the flowpath. Surprisingly, the flowpath is saturated with respect to calcite (saturation index [SI] equals 0.48 for MW-1, 0.08 for MW-2) indicating that calcite dissolution is not an important control on water quality. Gypsum, halite, and dolomite are inferred to precipitate, or exist as stable solids. These minerals serve as sinks for dissolved sulfate, sodium, and magnesium which enter the system at inflow. Elevated barium

concentrations characterize inflow, and this element may serve locally as a semi-conservative tracer of surface run-off (inflow). Barite (barium sulfate) remains undersaturated along the flowpath in this system (SI = -0.68 for MW-1, -0.75 for MW-2).

Trace metal transport and fate are difficult to simulate in this setting for several reasons. Most trace metals are at or near the limits of detection in all samples (generally less than $5 \mu g/L$), and use of U-flagged values (represented at half the PQL) limits the statistical rigor of interpretations. Trace metals such as arsenic, vanadium, and nickel probably exist as trace inclusions in finely disseminated pyrite. Oxidation of pyrite will release these metals, but they can then sorb onto iron oxyhydroxide surfaces that also are inferred from these geochemical models. Lithological evidence is not available to confirm pyrite oxidation and subsequent sorption onto iron oxyhydroxide surfaces. However, this process is indicated by geochemical models at Festival Park. In these models, pyrite is forced to oxidize, and iron oxyhydroxide (Fe(OH)₃(amorphous)) is forced to precipitate along the flowpaths. Concurrently, arsenic shows a weakly significant increase, while other trace metals show no statistically significant change. Finally, interpretation of trace metal mass transfer using unfiltered sample data is difficult. Colloidal or microparticulate iron and manganese oxides probably are captured in these samples. Quantification of mass transfer between water and rock is confounded when additional solid phases such as metal oxides are present in the sample.

Well MW-4 shows similar water-quality characteristics when compared to MW-1 and MW-2, with the exception of redox condition and sulfate concentration. ORP values are significantly lower (to -200 mV) and sulfate concentrations also are much lower (generally less than 1 mg/L). These characteristics are consistent with sulfate-reducing conditions and a redox environment that is generally removed from contact with surface water. Barium concentrations are much lower in MW-4 (less than 6 μ g/L) compared to that of MW-1 and MW-2 (approximately 20 to 30 μ g/L). This is consistent with the interpretation that MW-4 is not affected by surface water inflow.

LAKE ORIENTA WATER-QUALITY DATA SET: DATA ANALYSIS

Methods

Water-quality data for lake and ground-water samples were provided by CH2M HILL. The lake water dataset consisted of 8 samples collected between July and December 2005. The ground-water quality dataset consisted of samples collected from MW-1 and MW-2 (each n=8) collected at the same time. All samples were analyzed for field parameters (pH, ORP, temperature, specific conductance, and turbidity), major and trace inorganic constituents, and volatile and semi-volatile organic constituents. Only field parameters and inorganic constituent data are considered here.

Water-quality data were grouped by location for statistical analysis. Due to small population size for each location, data did not always show normal distribution and so were described using non-parametric statistical methods (median value, 25 and 75 percentiles) at each location. Concentrations that were "U-flagged" representing nondetections were entered as 0.5 times the practical quantification limit for each analyte. Nitrite-Nitrogen, total phosphorus, ortho-

phosphorus and many trace metal concentrations (particularly for antimony, beryllium, cadmium, chromium, cobalt, copper, lead, and thallium) frequently were U-flagged. Therefore, these elements do not show statistically significant differences among locations. Bar graphs comparing water-quality data by location are shown in Figure 3. Median values of each parameter and constituent for inflow, MW-1 and MW-2 served as the basis for inverse geochemical model development.

Inverse geochemical models permit the calculation of mass transfer resulting from all geochemical reactions along a ground-water flowpath. Median values calculated during statistical interpretation are used as input values in the PHREEQC geochemical modeling code (Parkhurst and Appelo, 1999). Inverse geochemical models use water-quality data at the beginning and end of a flowpath as input. Charge balance errors for input data sets are less than 3 percent. Mass transfer values that result from specified reactions *at equilibrium* are the output from each run. At the Lake Orienta site, lake data (n=8) characterize the recharge, while MW-1 and MW-2 data characterize the end of the flowpath. Results of the groundwater tracer test indicated that MW-2 was in the flowpath from two recharge wells, while MW-1 was not in a flowpath from a recharge well relative to the 12-week duration of the tracer test. Separate model runs were performed for MW-1 and MW-2, and the variation that resulted from multiple model runs was noted to evaluate consistency with the results of the tracer test.

Water-Quality Trends

Lake Orienta Flowpath. Water-quality changes occur as lake water recharges the upper Floridan aquifer and flows down-gradient toward MW-2. Tracer tests showed a strong dye signature in MW-2, indicating connection with the lake. Differences in water quality in MW-1 suggest that this well is not the same as the MW-2 flowpath, which is consistent with the results of the groundwater tracer test. Bar graphs comparing all dissolved constituents along the flowpaths to MW-1 and MW-2 are shown in Figure 3. Water-quality evolution along the flowpath is interpreted from bar graphs in Figure 3 and is summarized below.

- Statistically significant increases in bicarbonate alkalinity and calcium concentrations in all down-gradient wells.
- Statistically significant increases in arsenic, total and *ortho*-phosphorus, and ammonia nitrogen concentrations.
- Increased (but only weakly significant) concentrations of magnesium in all downgradient wells.
- Lower sodium, chloride, and sulfate in MW-1 samples compared to MW-2
- Statistically significant decreased concentrations of aluminum, barium, manganese, sodium, total nitrogen and total Kjeldahl nitrogen in MW-1 and MW-2

- Statistically significant decreased concentrations of total and dissolved organic carbon (TOC, DOC) in MW-1 and MW-2
- More reducing redox environment, characterized by more negative ORP values and diminished dissolved oxygen concentration in MW-1 and MW-2.
- No statistically significant changes in cadmium, chromium, cobalt, copper, iron, lead, mercury, nickel, potassium, selenium, vanadium, and zinc concentrations along the flowpath.

Water-quality changes along the short Lake Orienta flowpath to MW-2 are affected primarily by limestone dissolution and microbial-redox reactions. These controls on water-quality are not clearly evident when lake samples are compared to MW-1 samples. Concentrations of sodium, chloride, and sulfate are lower in MW-1 compared to Lake Orienta and MW-2 samples. Because these constituents behave conservatively, it is not possible to simulate water-quality changes without invoking halite and gypsum precipitation along the flowpath between Lake Orienta and MW-1. For reasons discussed below, this is unlikely. Therefore, it appears that MW-1 samples do not reflect water-quality changes along a flowpath that extends from Lake Orienta. The dominant geochemical reactions that control water-quality changes along the Lake Orienta flowpath ending MW-2 are:

- Dissolution of calcium carbonate and possibly gypsum/anhydrite
- Microbe-mediated oxidation of organic carbon with increasing alkalinity
- Increased ammonia (NH₄⁺) from rain or microbe-mediated nitrogen fixation
- Minor pyrite oxidation, sometimes coupled with precipitation of iron oxyhydroxide

Seven similar inverse geochemical models were generated to explain water quality changes between Lake Orienta and MW-2. The model script was similar to that defined for Festival Park (Appendix 1). Mineral solubility does affect water quality over the short length of the Lake Orienta flowpath. Saturation indices for calcite in lake water and MW-2 samples are negative (-1.10 and -0.07, respectively) indicating dissolution. Saturation indices for gypsum are negative along this flowpath as well, although there is no lithological evidence for gypsum in samples from MW-2. "Halite" precipitation is inferred, but only to serve as an apparent sink for sodium and chloride in the absence of an exchange surface for these constituents.

Trends in nutrient concentrations along the Lake Orienta flowpath are complex, particularly related to nitrogen species. Increased ammonia concentrations could be contributed from rain or nitrogen fixation in soils adjacent to the lake. Total nitrogen concentrations decline along the flowpath, yet ammonia increases. Total and ortho-phosphorus concentrations are greater in ground water samples compared to lake water.

Pyrite oxidation is inferred in most models, often coupled with iron oxyhydroxide precipitation. Arsenic that occurs in MW-1 and MW-2 can be released during this reaction. The arsenic concentrations measured in MW-1 are statistically indistinguishable from MW-2.

Water-quality characteristics in MW-1 differ from those in MW-2 with respect to major dissolved constituents sodium, chloride, and sulfate. Concentrations of these constituents are significantly lower than that of lake water. If MW-1 was the distal end of a flowpath extending from Lake Orienta, gypsum, calcite, and halite precipitation would have to occur to explain MW-1 sample composition. Mineral precipitation is not inferred from negative saturation indices for Lake Orienta and MW-2 samples. Therefore, it is most likely that MW-1 does not reflect influence of lake water recharge.

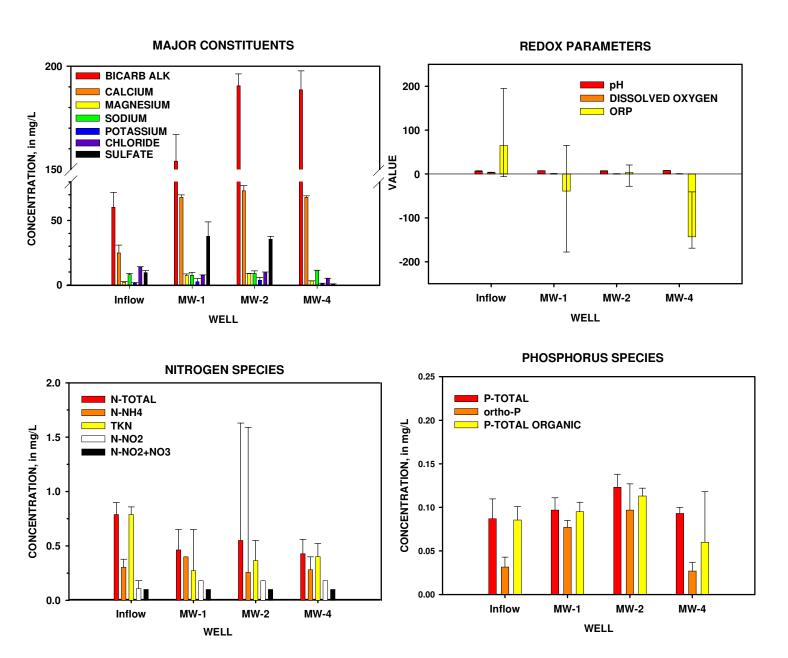
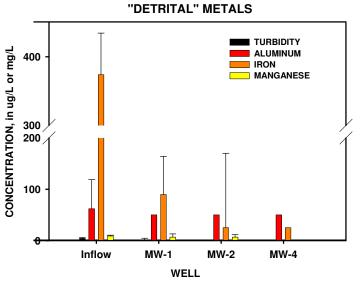
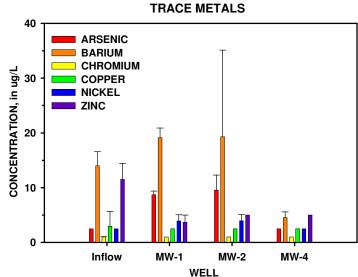


Figure 1. Median concentrations of field parameters and inorganic constituents from surfacewater inflow samples, and ground-water samples from MW-1, MW2, and MW-4 near Festival Park, FL.





TOTAL AND DISSOLVED CARBON TOC, in mg/L DOC, in mg/L DOC, in mg/L WELL WELL

Figure 1 – *continued.* Median concentrations of field parameters and inorganic constituents from surface-water inflow samples, and ground-water samples from MW-1, MW2, and MW-4 near Festival Park, FL.

Festival Park Flowpath Model: Inflow to MW-1 or MW-2

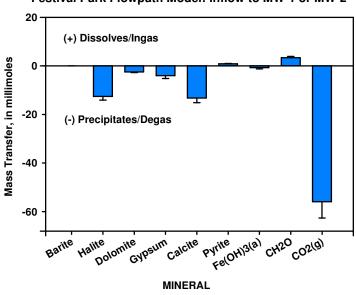


Figure 2. Bar graph summarizing mass transfer values calculated from inverse geochemical models of the Festival Park flowpath.

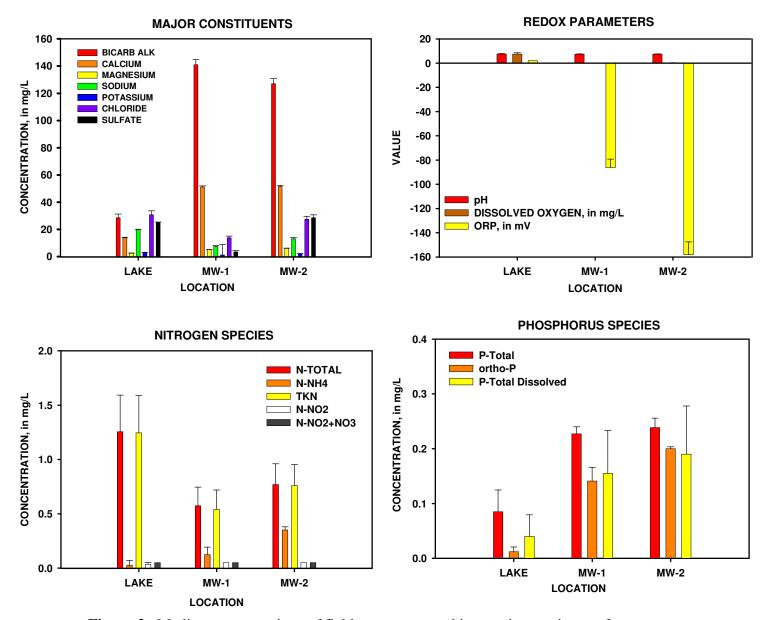
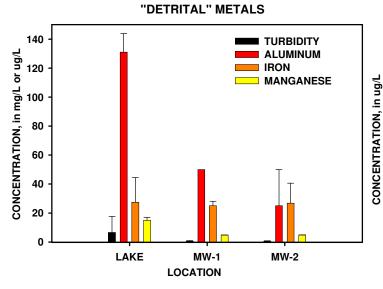
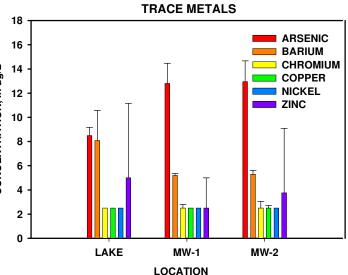


Figure 3. Median concentrations of field parameters and inorganic constituents from Lake Orienta surface water, and ground-water samples at MW-1 and MW-2.





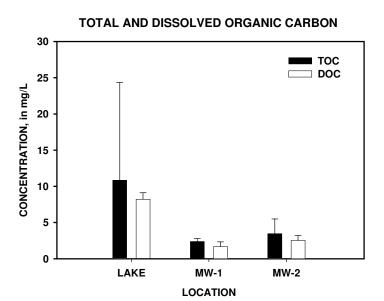


Figure 3 - continued. Median concentrations of field parameters and inorganic constituents from Lake Orienta surface water, and groundwater samples at MW-1 and MW-2.

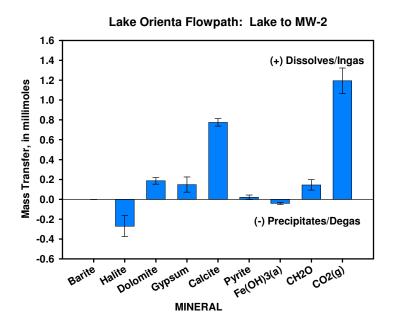


Figure 4. Bar graph summarizing mass transfer values calculated from inverse geochemical models of the Lake Orienta flowpath.

Cited References

Parkhurst, D.L. and Appelo, C.A.J., 1999. *User's guide to PHREEQC (version 2) - a computer program for speciation, reaction-path, 1D-transport, and inverse geochemical calculations.* US Geol. Surv. Water Resour. Inv. Rep. 99-4259, 312p.

APPENDIX 1: Representative PHREEQC input for Festival Park flowpath extending from inflow to MW-2

DATABASE C:\Program Files\Phreeqc\phreeqc.dat TITLE Festival Park Flowpath Inverse Model

```
SOLUTION 1 Recharge/Inflow Water #Median values of 8 samples
units mg/L
pH 6.4
temp 27.2
redox O(0)/O(-2)
Ca
     24.8
Mg
     1.96
Na
     8.12
     1.51
K
Cl
     13.75
Fe
     0.394
S(6) 9.53
Alkalinity
            60.25 as CaCO3
O(0) 3.15
     0.014
Ba
SAVE SOLUTION 1
END
SOLUTION 2 DOWNGRADIENT MW-2 #Median of 7 samples
units mg/L
temp 24.9
redox O(0)/O(-2)
pH 7.32
Ca
     70.4
      8.58
Mg
     9.04
Na
     9.48
Cl
Fe
     0.025
S(6) 34.7
Alkalinity 192 as CaCO3
O(0) \quad 0.35
Ba
     0.019
SAVE SOLUTION 2
END
PHASES
CH<sub>2</sub>O
  CH2O + H2O = CO2 + 4H + + 4e
  log_k 0.0
```

END

```
Fe(OH)3(a)
      Fe(OH)3 + 3 H + = Fe + 3 + 3 H2O
  log_k 0.0
INVERSE_MODELING 1
-solutions 1 2
-phases
  barite
  halite
  dolomite
  CO2(g)
  H2O(g)
  gypsum
  calcite
  pyrite diss
  Fe(OH)3(a) precip
  CH2O
            diss
-balances Cl 0.05
-uncertainty 0.05
-multiple_precision
```

Appendix K

Price and Pichler 2004 - Source and Mobilization of Arsenic

Arsenic and ASR in Southwest Florida: Source, Abundance, and Mobilization Mechanism



Suwannee Limestone, Upper Floridan Aquifer



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Abstract:

Recent analyses of recovered water from two ASR facilities in westcentral Florida showed arsenic concentration in excess of 100 µg/L, more than 10-times the current EPA drinking water standard. Detailed mineralogical and chemical analyses of the Suwannee Limestone, the primary storage zone for ASR in Central Florida, indicates that, while arsenic is ubiquitous throughout the Suwannee Limestone, it is highly concentrated in framboidal pyrite. Elevated levels of arsenic in pyrite were documented by SEM and Electron Probe Microanalysis with EDX and WDX capabilities, respectively, showing greater than 1000 ppm arsenic. The pyrite containing the arsenic is normally stable in the reducing environment of the aquifer, but the artificial recharge of oxidized surface water during ASR changes the redox conditions and is believed to cause the framboidal pyrite to become unstable, thus releasing the arsenic.

Statement of Problem

During recharge and recovery cycle testing of two ASR facilities in the Southwest Florida Water Management District (SWFWMD, Figure 1), it was determined that high levels of naturally occurring arsenic were present in recovered water (Arthur et al. 2001).

Concentrations were highest in the first recharge-recovery cycle and reached levels of nearly 100 ug/l (ppb) in one of the four wells undergoing testing (Figure 2). Although arsenic concentrations decreased in subsequent cycle tests, in the first well to complete three full cycle tests, concentrations still ranged from 5 to 35 ug/l. The analyses not only show elevated arsenic levels, but also show an increase in concentrations of uranium, strontium, and other potentially harmful elements (Arthur et al., 2000).

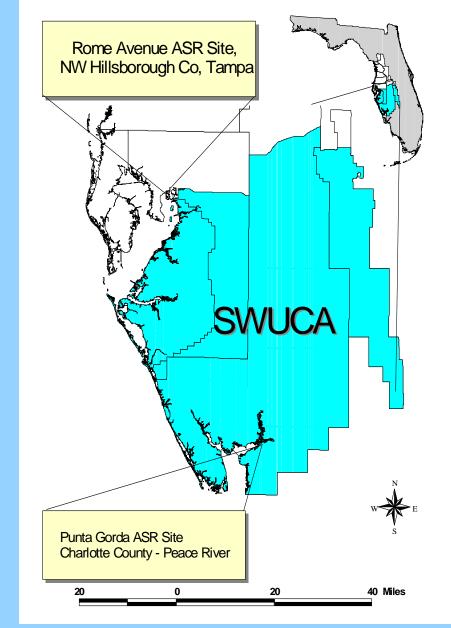


Figure 1: Location of two ASR facilities containing elevated arsenic concentrations (modified from Arthur et al, 2001). The Southern Wateruse Caution Area is the most likely area for future ASR projects.

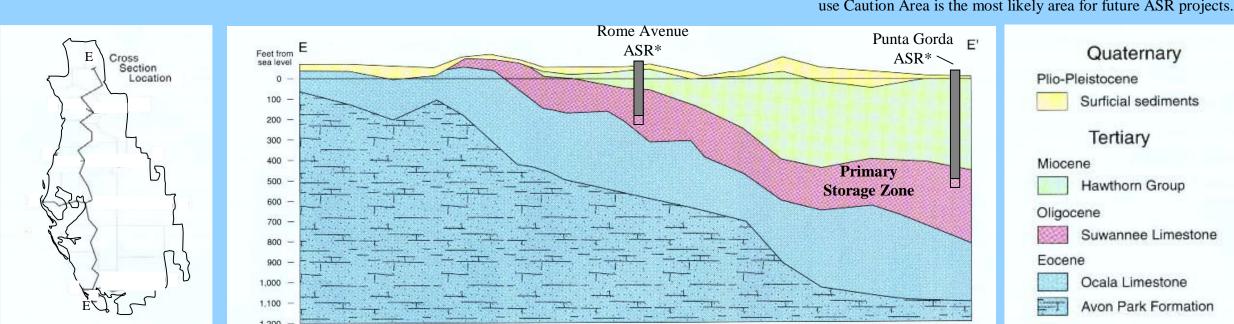


Figure 2: Stratigraphic cross section of the Southwest Florida Water Management District. The Suwannee Limestone is confined by the overlying Hawthorn Group. *Locations are approximate.

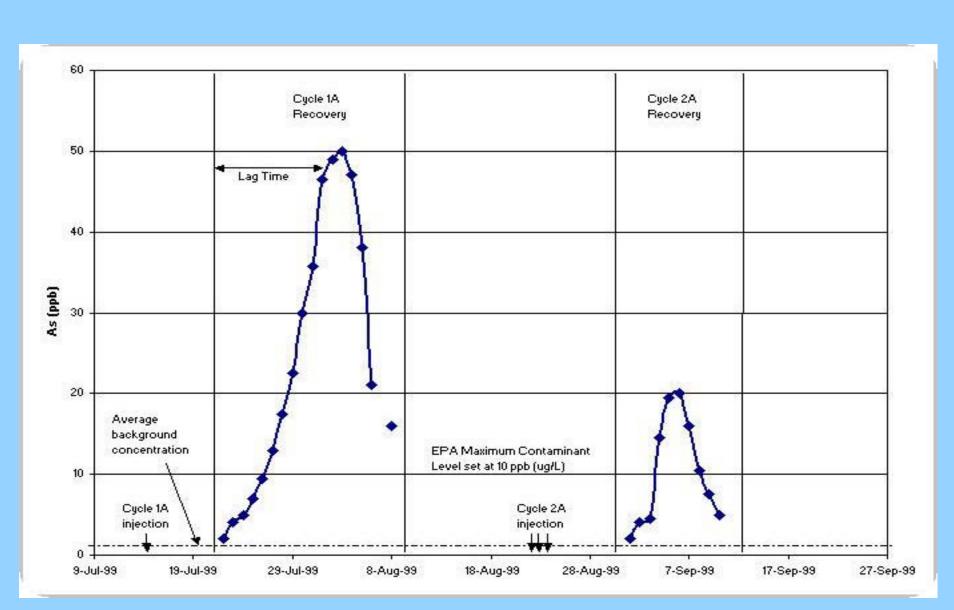


Figure 3: Arsenic concentration through time for two recharge/recovery cycles, Punta Gorda ASR, Charlotte County, Florida (modified from Arthur et al, 2001). The Rome Avenue ASR site also showed increased As concentrations.

Arthur and others (2001), have proposed three potential sources for naturally occurring arsenic being mobilized from the Suwannee Limestone:

- 1) In sulfide minerals such as pyrite (FeS₂) within the limestone matrix,
- 2) Adsorbed to iron and manganese oxyhydroxide coatings on the limestone grains,
- 3) Or in organic material in the limestone matrix.

Natural arsenic in groundwater of the United States has also been shown to source from these minerals, with the sulfides and iron oxides being the most common association (Welch et al., 2000). Arsenic can be mobilized either by oxidation of pyrite or reduction of iron hydroxides.

Hydrology and Stratigraphy

The Suwannee Limestone is confined by the Hawthorn Group (Figures 2 and 4) and contains abundant mollusk molds and casts in some areas, creating moldic porosity. These conditions are ideal for ASR.

The lithology of the Suwannee Limestone throughout the study area consists primarily of limestone, which has been described as a wackestone mud to pelletal, foraminiferal grainstone. It contains minor amounts of phosphatic quartz sand and clay, some dolomite, chert nodules, and organic material (Green et al, 1995). Framboidal pyrite has also been documented in trace amounts.

Figure 5: Map showing the location of SWFWMD wells where core samples were collected

Future ASR facilities will likely be near the west coast where saltwater upconing limits the

Program (ROMP) of the SWFWMD and the Florida Geological Survey.

Analytical Methods

removing all drill bit surfaces.

concentrations (PE Optima 2000 DV)

supply of groundwater. Core samples were supplied by the Regional Observation Monitor Well

To determine the exact location of the arsenic, the following steps were used:

occurrence (ie. observable FeOH, FeS₂, CaPO₄, or organic material).

2) Core collection – samples were taken with depth and suspected areas of arsenic

3) Acid digestion of powdered sample using Aqua Regia (3:1 HCl to HNO₃) after

4) Analyze aliquot using Hydride Generation-Atomic Fluorescence Spectrometry

(HG-AFS) to determine total As concentration in Rock (PSA Millennium)

6) Analyze thin sections of the highest 25 As samples using Scanning Electron

7) Analyze thin sections using Electron Probe Microanalyzer (EPMA) with Wave

backscatter detector for elemental analysis.(JSM-5900-LV)

Dispersive X-Ray (EM-WDX) capabilities (JXA-8900-R)

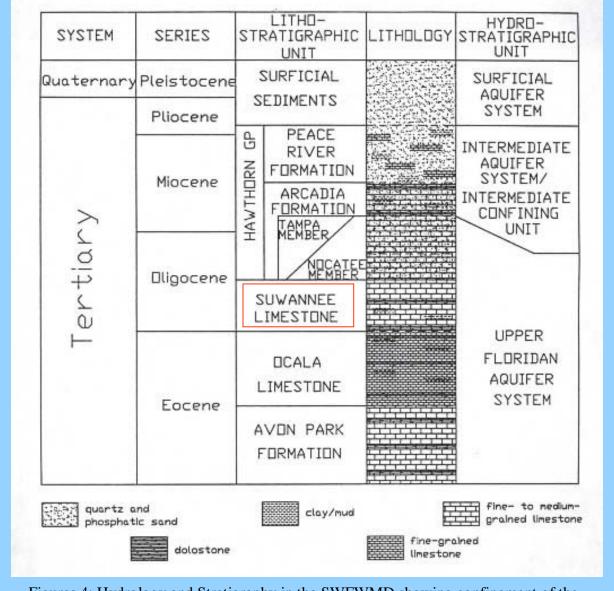
5) Analyze aliquot using Inductively Coupled Plasma-Optical Emission Spectrometry

(ICP-OES) to determine other elements such as Fe, S, P, etc. and compare with As

Microscopy with Energy Dispersive X-Ray (SEM-EDX) capabilities and a Robinson

1) Well Selection based on core availability and open-casing interval

Sampled Wells



section below also shows this confinement, as well as the distribution of the Suwannee

Sample Collection

were sampled to gain a better understanding of the arsenic distribution and mineralogy within the Suwannee limited to wells with discrete monitor intervals in the Suwannee Limestone to allow for future correlation of core data and water quality data with the certainty has occurred

spacing to ensure representation of the entire Suwannee Limestone interval. "Special Interest" samples were also taken. These areas contained visible pyrite, organic material or iron oxyhydroxides.

During this study, cores from 22 wells Limestone (Figure 3). Core selection was that no mixing with other formation water

Each core was sampled at an even

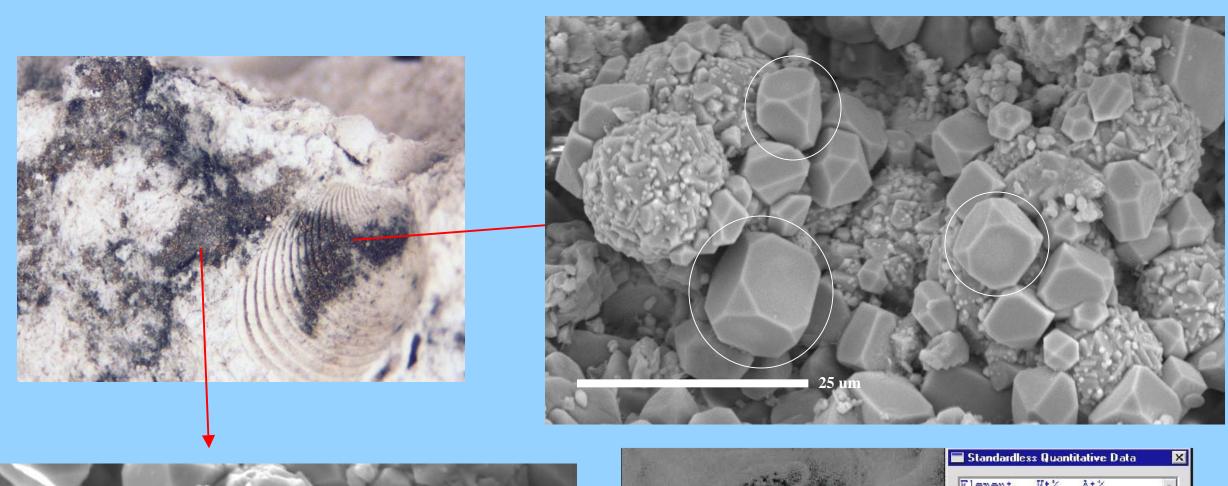
Lithologic Descriptions

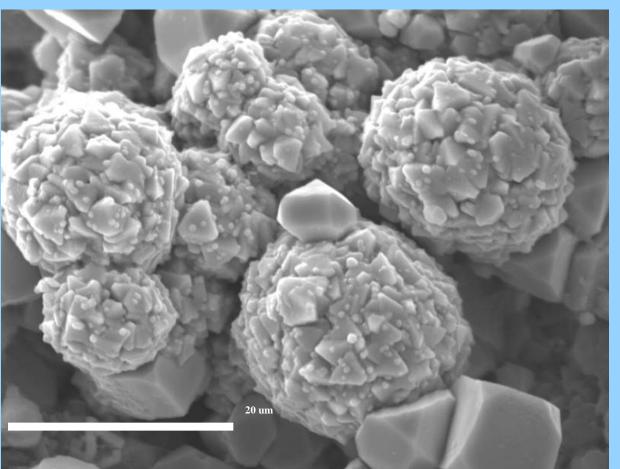
Visual and microscopic inspection of the Suwannee Limestone mineralogy showed all previously suggested sources of arsenic were present in trace amounts throughout. Samples were largely composed of pure limestone. Primary and secondary trace minerals, including framboidal pyrite or marcasite, apatite, and quartz sand occurred throughout. Pyrite was the most abundant and often occurred along with secondary calcite in fossil molds.

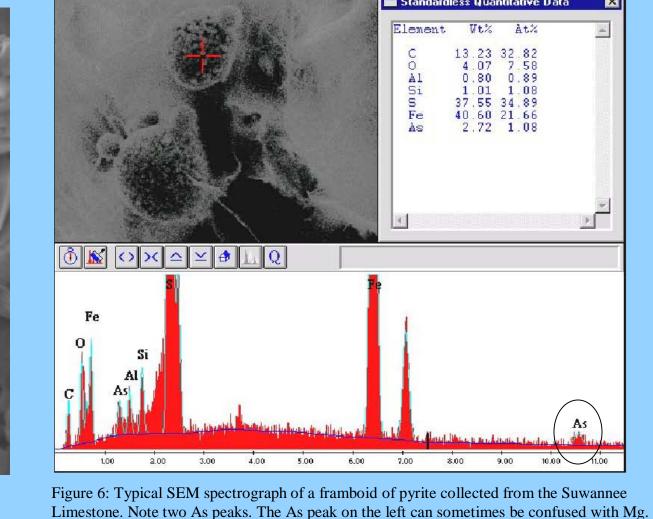
Results

Scanning Electron Microscope

The following SEM images show well developed framboidal pyrite distributed throughout the entire thickness of the Suwannee Limestone. Each framboid is about 10 to 20 µm in diameter and is composed of many equant, equidimensional pyrite microcrystals. Single euhedral pyrite crystals were also observed (circled). Energy Dispersive Spectroscopy (Figure 6) shows a well defined arsenic peak (Figure 6), proving for the first time that the framboids contain As greater than 1000 ppm.



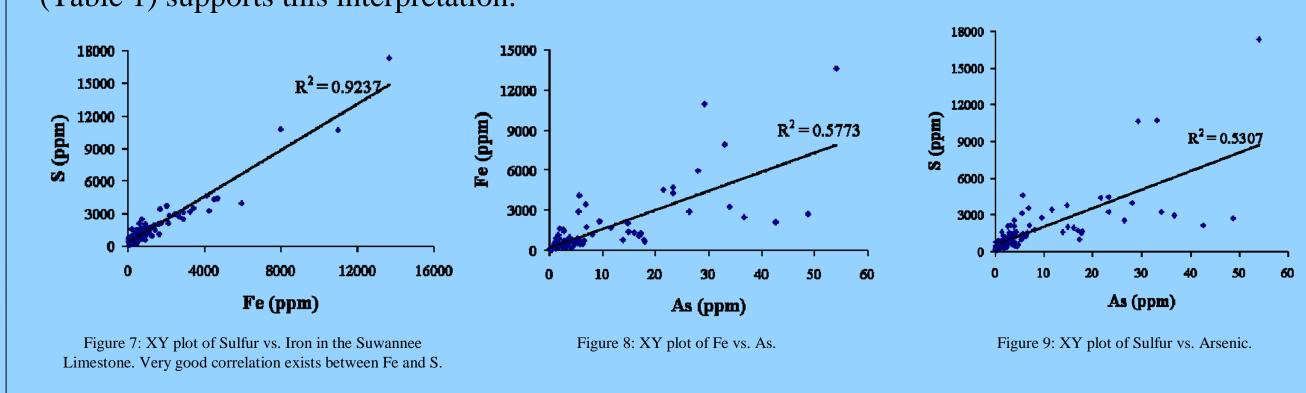




The As peak on the right proves the pyrite contains arsenic.

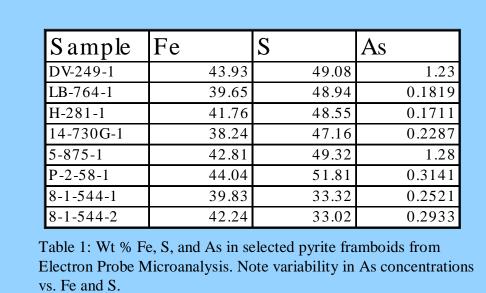
Whole Rock Chemistry

Chemical analyses of digested samples were carried out using HG-AFS to detect total arsenic concentrations, and ICP-OES for other important elements including Fe, S, P, Ca, Si, Sr, Mn, and Mg. Iron and sulfur have very good correlation, suggestion that all of the iron and sulfur in the rock is bound together as pyrite (Figure 7). Lack of correlation with arsenic may suggest another source, but probably indicates the varying percentage of arsenic in pyrite (Figures 8 and 9). Microprobe data (Table 1) supports this interpretation.



Electron Probe Microanalysis

Electron Microprobe with Wave Dispersive X-ray analyzer was used to analyze pyrites, iron hydroxides, organics, and phosphate for arsenic. Both arsenic peaks are present only in framboidal pyrite and supports SEM data. Table 1 shows the variability of arsenic within each framboid.



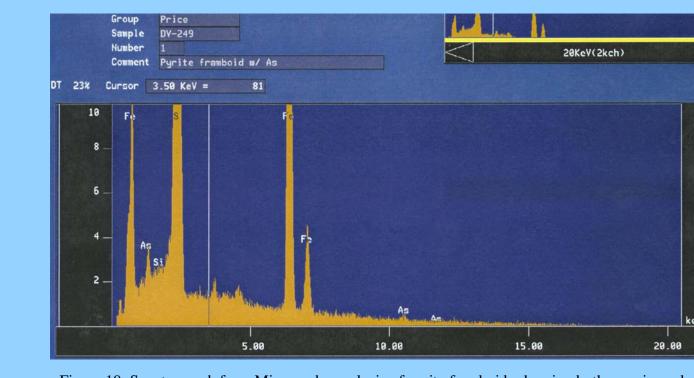


Figure 10: Spectrograph from Microprobe analysis of pyrite framboids showing both arsenic peaks.

Discussion

The Fe-S-As-O-H system in groundwater is primarily controlled by redox conditions. Groundwater of the Suwannee LS is, in most cases, reducing, and pyrite is believed to be the dominant mineral phase following the Eh pH diagram below (Figure 11).

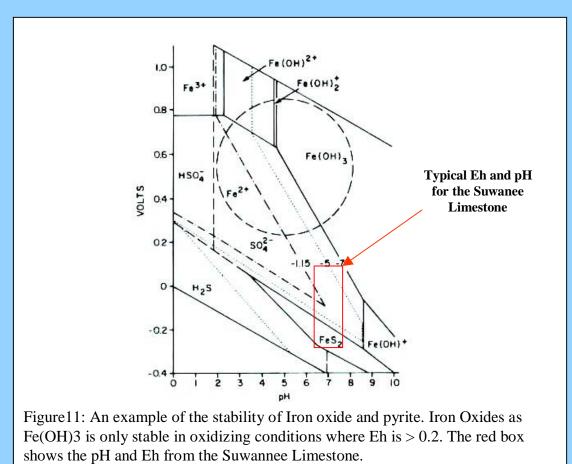
The following images show oxidized framboids of pyrite with a ring of iron hydroxide. This ring is typical of oxidized framboids (Evangelou, 1995). Based on the Eh-pH stability diagram given as an example, the iron hydroxides are not believed to be stable in subsurface reducing environment and are only a result of oxidation of pyrite after exposure to the atmosphere. This is, however, the same oxidation process that would take place during aquifer storage and recovery. ASR recharge water is treated to potable drinking water standards prior to injection and thus has much higher DO content than typical groundwater. Oxidation of pyrite takes place by the following reactions:

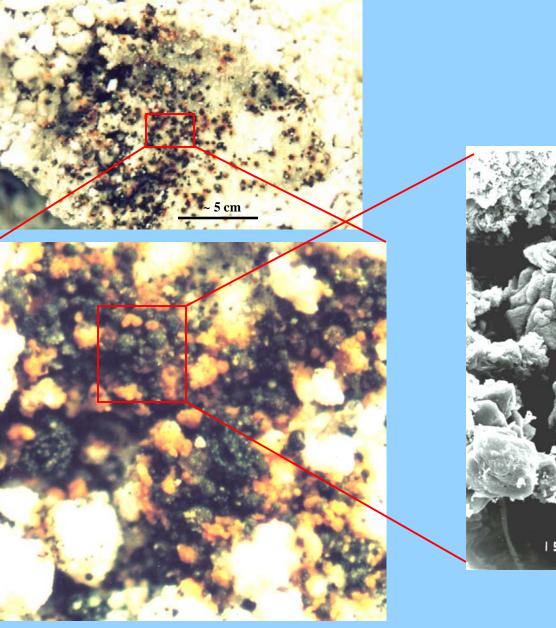
Initial oxidation by O_2 :

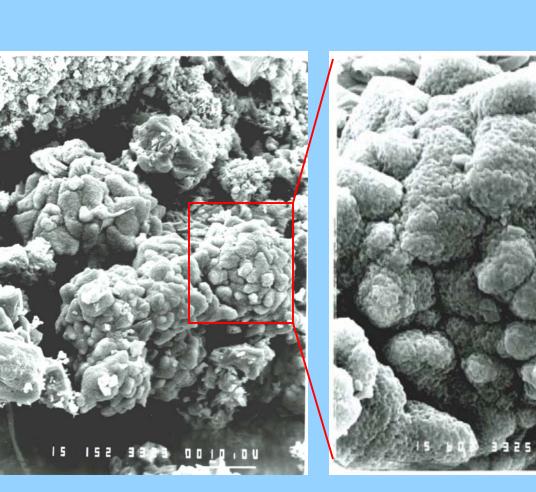
 $FeS_2 + 7/2 O_2 + H_2O => Fe^{2+} + 2 SO_4^{2-} + 2 H^+$

The Fe²⁺ produced can be further oxidized to Fe³⁺, which in turn hydrolyzes into iron hydroxide.

 $Fe^{2+} + 0.5 O_2 + H^+ => Fe^{3+} + H_2O$ and $Fe^{3+} + 3 H_2O => Fe(OH)_3 + 3 H^+$







Conclusions

Our detailed lithological, mineralogical, and geochemical study of arsenic in the Upper Floridan aquifer, Suwannee Limestone shows:

- 1) All previously suggested sources for the arsenic can be found in trace amounts throughout the Suwannee Limestone.
- 2) Framboidal pyrite was the most abundant and was unevenly distributed throughout, occurring most often with secondary calcite in moldic porosity zones used during ASR.
- 3) Nodular phosphate, quartz, clay, and organics were also present in trace amounts, while iron hydroxides were very rarely observed.
- 4) Framboidal pyrite contains arsenic at concentrations in excess of 1000 ppm, although arsenic concentrations vary from pyrite crystal to pyrite crystal. Other trace minerals contain arsenic in much lower amounts when compared to framboidal pyrite.

ASR recharge water in Florida is treated with O₃ prior to injection, which causes the water to be highly oxidized relative to the low-oxygen conditions of the Suwannee Limestone water. This change in redox conditions will cause the dissolution of framboidal pyrite, thus releasing high concentrations of arsenic. This study indicates that, if the pyrite hypothesis is accepted, the current injection practices in Florida should be revised to prevent the release of arsenic during ASR.

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