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**Applicable Rules and Regulations
for Seawater Demineralization
Task B.6.**

**for the
Seawater Demineralization
Feasibility Investigation**

Applicable Rules and Regulations for Seawater Demineralization - Task B.6.

For the

**Seawater Demineralization Feasibility Investigation
Contract No. SE459AA**

by

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FINAL

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INTRODUCTION

PURPOSE AND SCOPE

The purpose of Task B.6. is to present rules and regulations applicable to the permitting of seawater demineralization plants in the St. Johns River Water Management District in Florida. These rules, regulations, and permit requirements are important to an understanding of some of the restraints and schedule considerations associated with a seawater demineralization facility.

The project team reviewed applicable rules, regulations and permit requirements, and summarized them into this technical memorandum. This memorandum also includes a discussion of permitting actions.

Rules and regulations addressed include:

- Federal,
- State,
- Regional,
- Local and
- Other Entities.

This information is based on a review of current regulation and experience in Florida of the actual implementation of seawater demineralization facilities.

The information presented herein does not represent a legal or binding interpretation of Florida laws and statutes. Legal counsel is the responsibility of the user.

REGULATORY AGENCIES, APPLICABLE RULES, REGULATIONS, AND PERMITS

This section presents information regarding federal, state, regional, and local regulatory agencies, and other entities that have rules, regulations and permitting requirements that would pertain to the construction and operation of a Seawater Demineralization Facility. Table 1 lists these regulatory agencies and other entities.

Table 1. Regulatory Agencies

Responsible Entity	
Federal	United States Environmental Protection Agency Region IV
	United States Army Corps of Engineers
	United States Coast Guard
	United States Fish and Wildlife Service
	National Marine Fisheries Service
	Occupational Safety and Health Administration
State	Florida Department of Environmental Protection (Primary Agency)
	Florida Department of Transportation
	Florida Fish and Wildlife Conservation Commission
Regional	St. Johns River Water Management District
Local	Environmental Resource Management or Natural Resource Management Departments
	City/County Building Departments
	City/County Engineering Departments
	City/County Planning or Zoning Departments
Other Entities	CSX Railroad Corporation
	Public Service Commission
	Florida Inland Water Navigation District
	Power companies

FEDERAL ENTITIES

Several Federal Entities have rules, regulations and permitting requirements that would pertain to the construction of a Seawater Demineralization Facility. Federal entities identified in this section are:

- United States Environmental Protection Agency (USEPA)
- United States Army Corps of Engineers (USACE)
- United States Fish and Wildlife Service (USFWS)
- National Marine Fisheries Service (NMFS)
- Occupational Safety and Health Administration (OSHA)
- United States Coast Guard (USCG)

United States Environmental Protection Agency (USEPA)

The responsibility of the United States Environmental Protection Agency mission is to protect human health and to safeguard the natural environment (air, water, and land).

The States of Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina and Tennessee fall under the jurisdiction of Region 4 of the USEPA. The address of the Region 4 Office of the EPA is:

United States Environmental Protection Agency
Region 4
Atlanta Federal Center
61 Forsyth Street, SW
Atlanta, GA 30303-3104
Telephone: (404) 562-9900 or (800) 241-1754
www.epa.gov

The EPA derives, with respect to regulating seawater demineralization, its authority from the:

- Clean Water Act (CWA),
- Safe Drinking Water Act (SDWA),
- Resource Conservation and Recovery Act (RCRA), and
- Superfund Amendments and Reauthorization Act (SARA).

Clean Water Act (CWA)

The Federal Water Pollution Control Act, enacted in 1972 and amended in 1977, incorporates the Clean Water Act and addresses the discharge of pollutants to surface water of the United States.

Under the CWA, the National Pollutant Discharge Elimination System (NPDES) was established. The NPDES program provides a permitting and tracking system for discharge of pollutants from a point source into waters of the United States. The NPDES program requires that facilities meet applicable CWA requirements for effluent limitations, waste load allocations, monitoring and entry provisions, toxic and pretreatment effluent standards, and guidelines for

ocean discharge criteria, among others. With respect to a seawater demineralization plant, the NPDES system applies to storm water, wastewater, and concentrate discharges. The USEPA has delegated portions of the NPDES program to states that have demonstrated sufficient resources and expertise to implement the program pursuant to federal standards. The Florida Department of Environmental Protection has authority to implement the NPDES program for wastewater discharges, including concentrate discharges in Florida.

Sections 316 (A) and (B) of the CWA specifically address power plants and other facilities that intake ambient water for cooling purposes, and discharge a thermal effluent (e.g. heated water). Section 316(A) addresses the potential impacts associated with the discharge of thermal effluent to ambient surface waters; while Section 316(B) addresses the potential impacts associated with the entrainment and impingement of marine and aquatic organisms in the intake cooling water. For demineralization plants co-located with electric power generating plants with once-through cooling water, the regulations contained in these sections of the CWA may be applicable. Substantially greater regulatory scrutiny can be expected if the operation of the demineralization plant results in: 1) an independent raw water intake structure upstream of the cooling water intake; 2) an increase in the volume of cooling water passing through the power plant; or 3) reduced dilution of the thermal effluent. In such cases, the applicant will likely need to quantify, and possibly mitigate for, impingement and entrainment impacts, as well as any impacts associated with altering the thermal patterns in the discharge-mixing zone.

Safe Drinking Water Act (SDWA)

The Safe Drinking Water Act (SDWA), enacted initially in 1974, contains provisions for the quality of drinking water. A seawater demineralization plant would be required to comply with the threshold characteristics for drinking or product water. The Act also governs protection of groundwater and is applicable for concentrate that may be disposed of using injection wells. A description of the application of the SDWA to concentrate disposal is included in the technical memorandum entitled “Applicable Rules and Regulations for Concentrate Management” by Reiss Environmental, Inc. This document is included in its entirety in the Appendix of this document.

Resource Conservation and Recovery Act (RCRA)

The application of the Resource Conservation and Recovery Act (RCRA) to seawater demineralization pertains mostly to the disposal of concentrate. A description this application is included in the technical memorandum entitled “Applicable Rules and Regulations for Concentrate Management” by Reiss Environmental, Inc (See APPENDIX).

Superfund Amendment and Reauthorization Act (SARA)

If any of the substances found on the Extremely Hazardous Substances list in Section 313 of this act were found within the concentrate, this act would apply to the management of the concentrate. The project team must then submit Form R with the EPA. They must also submit this form to the State Emergency Response Commission and Local Emergency Planning Committee.

Applicability of Regulatory Authority/ Required Submittals

The Federal Government has delegated most of the regulatory authority and permitting responsibilities as they relate to seawater demineralization to the State of Florida Department of Environmental Protection. The subsection entitled "STATE ENTITIES" presents these items.

Two items that have not been delegated to the State of Florida include:

- Notice of Intent For Storm Water Discharge and
- Risk Management Plan (RMP).

These items require submittal to the EPA, as summarized below.

Notice of Intent for Storm water Discharges Associated with Industrial Activity under the NPDES General Permit

The EPA requires this notice for all construction activities that encompass an area of five acres or larger. This notice tells the EPA of when and where construction will take place and the potential impacts it may have on the surrounding environment. Submittal of this notice is required at least 48 hours prior to the start of construction. In addition, major projects will require the submittal of a Storm Water Pollution Prevention Plan, which describes measures to take to prevent or minimize water pollution from storm water runoff. The Florida Department of Environmental Protection may receive delegated authority from the EPA for this activity in the near future.

Chemical Accident Prevention and Risk Management Programs

The EPA requires that all stationary facilities that have more than a threshold quantity of a regulated substance in a process to submit a risk management plan (RMP). For the RMP the facility must conduct a hazard assessment, compile the accident history of the plant for the past five years, develop an accident prevention program and emergency response program, and submit risk information to the EPA by the day at which the chemical exceeds the threshold amount.

United States Army Corps of Engineers (USACE)

The United States Army Corps of Engineers (USACE) oversees and protects all navigable waters. The USACE fulfills multiple roles for civilian and military works that are of strategic value to the people of the United States. The USACE is divided into Regional offices throughout the United States. The SJRWMD falls under the jurisdiction of the USACE District office in Jacksonville.

USACE Jacksonville District office location is:

400 W. Bay Street or P.O. Box 4970

Jacksonville, FL 32202

Telephone: (904) 232-2568 or (800) 291-9405

www.usace.army.mil

As authorized under Section 404 of the Clean Water Act, the USACE requires that the project team submit a dredge and fill permit for any construction that occurs in or around wetlands or navigable bodies of water. A description of this permit is as follows:

Dredge and Fill Permitting

The builder of any facility must obtain a dredge and fill permit from the Army Corps of Engineers when constructing, excavating, or filling wetlands or navigable waters of the U.S. Applications for permits are available from all regulatory offices. Wetlands and navigable waters include swamps, marshes, wet prairies, streams, rivers, lakes, and coastal waters. If project impacts are minimal, permit approval can occur within 60 to 120 days of submittal to the USACE. If impacts are considered significant, a public notice and coordinated federal agency review will be required. In a coordinated federal agency review, the USACE request comments from the U.S. Fish and Wildlife Service and the National Marine Fisheries Service. The permit processing timeframe under this scenario typically ranges between 3 to 9 months. If impacts are considered substantial, an Environmental Assessment (EA) or an Environmental Impact Statement (EIS) may be required, pursuant to the provisions of the National Environmental Policy Act (NEPA). In a coordinated federal agency review, the other commenting agencies may independently request that an EA or an EIS be prepared to fully assess project impacts and mitigation. The permit processing timeframe under this latter scenario typically ranges between 12 and 24 months.

United States Fish and Wildlife Service (USFWS)

The United States Fish and Wildlife Service (USFWS) provides comments to the USACE in the federal dredge and fill permitting process. This permitting process takes into consideration potential impacts to all endangered wildlife that

may be protected by the federal Endangered Species Act (ESA). For those projects that may impact endangered species, the USFWS will request that a formal Biological Opinion be prepared, as authorized under Section 7 of the ESA. Thus, the USFWS assists the USACE in:

- Pre-application consultations;
- Permit application review;
- Permit compliance assessment and mitigation success; and
- Enforcement.

The USFWS also has the responsibility of developing and implementing Recovery Plans for species listed as endangered pursuant to the ESA. Through this process, the USFWS has broad legal authority to require certain provisions from permitted facilities that further the goals of the Recovery Plans. For example, in Florida the USFWS has required that electric power generating plants in areas frequented by the West Indian Manatee continue to produce thermal effluent during winter months to provide warm water refugia for this species. Under this policy, affected facilities are strongly encouraged to conduct necessary shutdowns and maintenance during warmer months so that thermal effluent is available during the winter. This provision is a component of the Recovery Plan for the West Indian Manatee.

National Marine Fisheries Service (NMFS)

The National Marine Fisheries Service (NMFS) also assists the USACE in determining the affect that the construction of a demineralization facility may have on the fisheries in the vicinity. They provide technical assistance in the permit review process where their primary focus is on assessing impacts to and protecting Essential Fish Habitat for commercial and economically important fisheries.

The location of the NMFS Southeast Regional office is:

National Marine Fisheries Service (NMFS) - Southeast Regional Office
9721 Executive Center Drive North
St. Petersburg, FL 33702
Telephone: (727) 570-5301
www.nmfs.noaa.gov

Occupational Safety and Health Administration (OSHA)

The Occupational Safety and Health Administration regulate the conditions of all workplaces in order to maintain the health and safety of the people who work there. They oversee many regulations, including those regarding the employees'

right-to-know about the chemicals they must work with and the equipment that must be in place to protect the employees.

United States Coast Guard (USCG)

The US Coast Guard ensures that any obstructions or developments on the coast that affect the coastline are clearly marked to alert any watercraft in that area. Notification of the Coast Guard is necessary if the project affects coastal areas.

STATE ENTITIES (STATE OF FLORIDA)

Florida Department of Environmental Protection (FDEP)

The Florida Department of Environmental Protection (FDEP) serves to protect human health and the environment. The EPA delegated the authority of many of the regulations to the FDEP. FDEP protects and regulates the areas of air, water, and waste. The FDEP is broken into six districts in Florida. St. Johns Water Management falls into the Northeast and Central Districts. The locations of the FDEP headquarters and applicable districts are:

<u>Headquarters</u>	<u>Northeast District</u>	<u>Central District</u>
2600 Blair Stone Road Tallahassee, FL 32399 Phone (850) 414-4100	7825 Baymeadows Way Suite 200B Jacksonville, FL 32256 Phone (904) 448-4300 Fax (904) 448-4366	3319 Maguire Boulevard Suite 232 Orlando, FL 32803-3767 Phone (407) 894-7555 Fax (407) 897-2966

www.dep.state.fl.us

Under federal regulations, demineralization concentrate is a category of industrial wastewater. The State of Florida has enacted legislation and is developing regulations specific to demineralization concentrate. State law classifies concentrate as a drinking water treatment by-product, which FDEP regulates an industrial wastewater through the Industrial Wastewater Permitting Section.

62-4: Permits

Chapter 62-4, F.A.C. outlines procedures for obtaining permits of all types from the FDEP. This regulation contains Part 1 - General; Part 2 - Specific Permits; Requirements; and Part 3 - Procedures for General Permits.

Part 1 - Generally identifies procedures and fees associated with permits and includes 62-4.001, F.A.C. through 62-4.160. F.A.C. The majority of this

information consists of administrative procedures and fees related to permit issuance, renewal, transfer, and revocation.

Part 2 – Specific Permits; Requirements includes Rule 62-4.200, F.A.C. through Rule 62-4.250, F.A.C. and specifies criteria that are important for determining the viability of a concentrate management project that involves a discharge to surface waters. Sections of particular interest are described below.

Rule 62-4.242, F.A.C. – Anti-degradation Permitting Requirements; Outstanding Florida Waters; Outstanding National Resource Waters; Equitable Abatement. This regulation includes criteria to balance the value of a project with the associated impacts to surface waters to determine if issuance of the permit is clearly in the public interest. In addition, the regulation requires confirmation that no other viable alternative exists in lieu of the proposed surface water discharge. Specific water quality criteria are not presented but are contained in other, referenced regulations. This regulation is a critical test of the viability of a surface-water-discharge option for concentrate disposal and can be a primary permitting focus point. Anti-degradation requirements are applicable to new and/or expanding surface water discharge projects.

Rule 62-4.244, F.A.C. – Mixing Zones: Surface Waters. Requirements for mixing zones, including dilution ratios, water quality requirements, and toxicity requirements are identified. This section is critical to many demineralization concentrate management projects discharging to surface waters including open ocean waters in those situations where the demineralization concentrate does not meet water quality criteria established for the classification of the water body.

Rule 62-4.246, F.A.C. – Sampling, Testing Methods, and Method Detection Limits for Water Pollution Sources. A portion of this section addresses method detection limits (MDLs) and practical quantification limits (PQLs). It is possible that FDEP would deem the PQL of a parameter(s) to be the necessary and acceptable effluent limit for issuance of a permit. It is important to ensure that laboratories conducting analyses for a permit, in addition to being certified, are able to meet the MDLs and PQLs established through this regulation.

62-160: Quality Assurance

Chapter 62-160 applies to all programs, projects, studies or other activities that involve the measurement, use or submission of environmental data or reports to FDEP. The section address Quality Assurance plans, laboratory and field procedures, record keeping requirements, sampling and analytical requirements for FDEP programs, which would govern monitoring procedures for demineralization concentrate projects.

62-213: Operation Permits for Major Sources of Air Pollution

The FDEP requires different permits for various sizes of air pollution generators. An application for a permit can be submitted after sizing the pollution control equipment in the design stages of plant construction.

62-301: Surface Waters of the State

This chapter defines the landward demarcation of surface Waters of the State. This connection point to Surface Waters of the State is where the state's jurisdiction and thus application of rules and water quality standards begin. This demarcation is also used for permitting of pipelines and other physical improvements that may be associated with construction of a demineralization concentrate outfall.

62-302: Surface Water Quality Standards

Chapter 62-302 defines many water quality-related factors and requirements important to demineralization concentrate permitting efforts. This regulation is further defined along with pertinent subsection in the technical memorandum entitled "Applicable Rules and Regulations for Concentrate Management" by Reiss Environmental, Inc. (See APPENDIX).

62-330: Environmental Resource Permitting

This chapter authorizes the FDEP to adopt by reference certain Environmental Resource Permit Rules of the Water Management Districts to be used in conjunction with certain regulations, thus giving the FDEP independent authority to regulate surface water management systems including activities in, on or over wetlands or other surface waters.

62-340: Delineation of the Landward Extent of Wetlands and Surface Waters

This chapter defines the landward demarcation of wetlands and surface waters of the State, and focuses on the methodology for delineating wetlands. This connection point to surface Waters of the State is where the state's jurisdiction and thus application of rules and water quality standards begin. In addition, this information is used for permitting of pipelines and other physical improvements that may be associated with construction of a demineralization concentrate outfall.

62-341: Noticed General Environmental Resource Permits

General Environmental Resource Permits are defined in this chapter for a broad range of activities, primarily related to construction, installation or maintenance of various types of infrastructure.

62-343: Environmental Resource Permit Procedures

This chapter provides the procedural requirements for processing environmental resource permits and for obtaining formal determinations of the landward extent of wetlands and surface waters. This connection point to Surface Waters of the State is where the state's jurisdiction and thus application of rules and water quality standards begin. In addition, this information is used for permitting of pipelines and other physical improvements that may be associated with construction of a demineralization facility.

62-520: Groundwater classes, Standards, and Exemptions

This rule pertains to the classification of groundwater and applies to the concentrate disposal portion of a seawater demineralization study. The technical memorandum entitled "Applicable Rules and Regulations for Concentrate Management" by Reiss Environmental, Inc. discusses this rule (See APPENDIX).

62-522: Groundwater Permitting and Monitoring Requirements

This rule pertains to the permitting and monitoring requirements for discharge to groundwater. This would apply to apply to the concentrate disposal portion of a seawater demineralization facility. The technical memorandum entitled "Applicable Rules and Regulations for Concentrate Management" by Reiss Environmental, Inc. discusses this rule (See APPENDIX).

62-528: Underground Injection Control (UIC)

This rule governs the underground injection of demineralization concentrate. This would apply to apply to the concentrate disposal portion of a seawater demineralization study. This rule is discussed in the technical memorandum entitled "Applicable Rules and Regulations for Concentrate Management" by Reiss Environmental, Inc (See APPENDIX).

62-550: Drinking Water Standards, Monitoring, and Reporting

This chapter defines the drinking water standards and associated requirements. This rule defines the quality of product water from a facility and thus indirectly also defines the characteristics of the concentrate. The design of the seawater demineralization plant must include features to achieve these characteristics.

62-555.520: Public Water System Construction Permit Application

An application to build a public water system must be submitted prior to the commencement of construction of any portion of a public water system (e.g., pipelines). In the application, the builder must submit:

- A certificate from the local governing body approving the construction,

- A comprehensive report describing the project,
- Prints of drawings of the work project,
- Specifications of the work project,
- A certificate authorizing the applicant if required by F.S. 367, and
- The fee as defined in 62-4.050 (varies by size of the proposed plant).

62-600: Domestic Wastewater Facilities

This chapter defines the requirements for domestic wastewater facilities, including the characteristics of the influent water necessary to meet the domestic wastewater classification (62-600.200(25), F.A.C.). This rule is applicable to the concentrate disposal plus any domestic sewage generated by the facility. The technical memorandum entitled “Applicable Rules and Regulations for Concentrate Management” by Reiss Environmental, Inc. discusses this rule (See APPENDIX).

62-610: Reuse and Reclaimed Water and Land Application

This chapter addresses all forms of domestic wastewater reuse, reclaimed water and land application. This rule only applies to demineralization concentrate when blended with domestic reclaimed water. The technical memorandum entitled “Applicable Rules and Regulations for Concentrate Management” by Reiss Environmental, Inc. discusses this rule (See APPENDIX).

62-620: Wastewater Facility and Activities Permitting

This chapter addresses permitting requirements for any wastewater facility or activity that will reasonably be expected to be a source of pollution. This rule applies to the disposal of domestic sewage from municipal wastewater treatment facilities. In addition, this rule specifically applies to the disposal of concentrate from a demineralization facility. The technical memorandum entitled “Applicable Rules and Regulations for Concentrate Management” by Reiss Environmental, Inc. further describes this rule (See APPENDIX). This chapter will likely undergo amendment in pending rule-making efforts, described in the Proposed and Pending Regulations section of this document.

62-650: Water Quality Based Effluent Limitations

This chapter contains the procedures for establishing Water Quality Based Effluent Limitations (WQBEL) and applies to all surface water discharges. In the case of seawater demineralization, these rules would be applicable to concentrate disposal. The technical memorandum entitled “Applicable Rules and Regulations for Concentrate Management” by Reiss Environmental, Inc. further discusses this rule (See APPENDIX).

62-660: Industrial Wastewater Facilities

This chapter contains the procedures for permitting an industrial wastewater facility. This includes definitions for industrial wastewater and effluent limitations, both applicable to demineralization concentrate. In addition, there are specific definitions for exemptions that may apply to certain demineralization concentrate projects or situations.

62C-20. Aquatic Plant Control Permits

All persons attempting to remove aquatic species must first obtain an aquatic plant control permit. This rule does not pertain to power plant intake canals unless they are the sites where manatees congregate.

Proposed and Pending Regulations

Pursuant to Senate Bill 536, signed in June 2001, Section 403.0882 Florida Statutes (F.S.) was amended. This rule pertains to concentrate disposal and is discussed in the technical memorandum entitled “Applicable Rules and Regulations for Concentrate Management” by Reiss Environmental, Inc (See APPENDIX).

Summary of Rules, Regulations, Permits, and Notifications Required by the FDEP

Tables 2 and 3 below summarize the rules and regulations, and specific permit requirements, of the FDEP, respectively.

Table 2. FDEP Applicable Rules and Regulations.

Reference	Description	Keyword
State Regulation from Florida Administrative Code (FAC):		
62-301	Surface Waters of the State	Surface water, ocean outfall
62-302	Surface Water Quality Standards	Toxicity, OFW
62-520	Ground Water Classes, Standards, and Exemptions	Ground water disposal
62-528	Underground Injection Control	Underground injection control wells
62-550	Drinking Water Standards, Monitoring, and Reporting	Land application
62-610	Reuse of Reclaimed Water and Land Application	Reuse, land application
62-650	Water Quality Based Effluent Limitations	Surface water discharge
62-660	Industrial Wastewater	Industrial wastewater, effluent

Applicable Rules and Regulations

	Facilities	limitations
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Table 3. FDEP Applicable Permits.

Reference	Description	Keyword
State Regulation from Florida Administrative Code (FAC):		
62-4	Permits	Surface water discharge, ocean outfall, underground injection control, non-surface water discharge, mixing zones
62C-20	Aquatic Plant Control Permit	Aquatic plant control
62-160	Quality Assurance	Sampling, analyses, laboratories, surface water, ground water, wastewater
62-213	Operation Permits for Major Sources of Air Pollution	Air pollution
62-330	Environmental Resource Permitting	Dredge and fill, pipelines
62-343	Environmental Resource Permit Procedures	Dredge and fill, pipelines
62-522	Ground Water Permitting and Monitoring Requirements	Ground water disposal
62-555	Permitting and construction of public water systems	Water system construction
62-620	Wastewater Facility and Activities Permitting	Industrial wastewater, permit applications

Florida Department of Transportation (FDOT)

Utility Permit

The Florida Department of Transportation regulates any facet of transportation, including roads, bridges, air travel, and rail travel. The FDOT is broken into eight districts in Florida. St. Johns Water Management falls into the Northeast and Central Districts. Parts of Districts 2, 4, and 5, the Turnpike District, and the Toll Operations District fall within the St. Johns River Water Management District. A utility permit is required if the transmission main crosses any right-of-way. The district offices administer utility permits. The project team must obtain the permit prior to construction. The FDOT’s locations are as follows:

Central Office

605 Suwannee Street
Tallahassee, FL 32399
Phone (850) 414-4100
www.dot.state.fl.us

District 2

1109 South Marion Ave
Lake City, Florida 32025
Phone (386) 758-3700

District 4

3400 W. Commercial
Blvd
Fort Lauderdale, FL
3309
Phone (954) 486-1400

District 5

719 S. Woodland Blvd
DeLand, FL 32720
Phone (386) 943-5000

Turnpike District

P.O. Box 9828
Fort Lauderdale, FL 33310
Phone (954) 975-4855
Fax (954) 321-5539

Toll Operations

Orlando Region
Phone (407) 521-2487
Fax (407) 578-3255

Florida Fish and Wildlife Conservation Commission

The Florida Fish and Wildlife Conservation Commission (FFWCC) endeavors to protect and manage fish and wildlife resources in the State of Florida, including game fish and animals. The Bureau of Protected Species Management (BPSM), a sub-unit of the FFWCC focuses on endangered species. The marine species that the FFWCC focuses include the West Indian Manatee, the right whale, and marine turtles. The BPSM comments on ERP permit applications processed by the FDEP or Water Management Districts if projects have the potential to affect any listed species. For demineralization facilities that are co-located with electric power plants, protection of the West Indian Manatee may be an issue of concern. Although concentrate discharges are not known to be deleterious to manatees, they are attracted to the warm water produced by electric power plant thermal effluent. Special signage may be required in areas where manatees congregate to inform boaters that such areas are environmentally sensitive. In addition, the BPSM may require the establishment and posting of slow speed zones to prevent boat collisions with congregating manatee.

As mentioned above, the U.S. Fish & Wildlife Service also plays a key role in manatee protection. For prospective demineralization facilities that are to be co-located on electric power plants sited on coastal waters, the BPSM and the USFWS can be expected to have a significant commentary role in the review of the state ERP and federal 404 dredge and fill permits, respectively.

The FFWCC's location is:

Florida Fish and Wildlife Conservation Commission
Northeast Region
1239 S.W. 10th Street
Ocala, Florida 34474-2797
Telephone: (352) 732-1225
www.floridaconservation.org

REGIONAL ENTITY

St. Johns River Water Management District (SJRWMD)

The St. Johns River Management District's function is to manage water resources to ensure their continued availability while maximizing both environmental and economic benefits. The objectives of the District are:

- Increase available water supplies and maximize overall water use efficiency to meet identified existing and future needs;
- Minimize damage from flooding, using non-structural approaches where feasible;
- Protect and restore floodplain functions;
- Protect and improve surface water quality;
- Protect and improve groundwater quality;
- Maintain the integrity and functions of water resources and related natural systems;
- Restore degraded water resources and related natural systems to a naturally functioning condition; and
- Ensure proper use of tax and other public revenue by focusing on priorities that further the District's mission and by maintaining a high level of organizational efficiency.

The SJRWMD's location is:

St. Johns River Water Management District
P.O. Box 1429
Palatka, Florida 32178-1429
Telephone: (386) 329-4500
www.sjrwmd.com or sjr.state.fl.us

Generally, a demineralization facility would not require a consumptive water use permit since the source water would be seawater. The district does not regulate the use of seawater. However, if the facility was to be located in brackish water tributary, a Consumptive Use Permit may be required to assess the impacts of reducing freshwater inflows to the downstream estuary.

As mentioned above, the discharge of concentrate to surface waters falls primarily under the State permitting authority of the FDEP. However, since the construction of a demineralization facility could affect wetlands and/or increase storm water runoff to surface waters in the District, the District could require the submittal of a Standard General Environmental Resources Permit.

Standard General Environmental Resource Permit

The SJRWMD requires a Standard General Environmental Resource Permit (ERP) to construct a storm water management system, and if the project will have dredge and fill impacts on wetlands and/or surface waters.

An Individual ERP is required if the project site:

- Is larger than 100 acres,
- Impacts more than one acre of wetlands, and
- Creates ten or more boat slips.

The SJRWMD has 30 days to review the application after receiving the application for the permit. The SJRWMD also has 30 days to review each revision to the application.

LOCAL ENTITIES

Applicable local regulations and permits required for the construction of a seawater demineralization plant vary among counties and municipalities. Generally, however, county and city regulations fit into several categories inclusive of site plan/development review and building permits. This section summarizes applicable regulations for two of the main counties (Brevard and Volusia), and two major cities (Jacksonville and Melbourne) in the coastal region of the District. Specific application of county and city regulations for specific project sites will be included in Phase III of this project. The “project team” in this section refers to those who would be constructing the project.

Counties

Brevard County

Site Plan Review

The Brevard County Land Development office requires that a site plan review be conducted for a project of this kind. First, the project team submits five sets of a conceptual plan. Next, the County’s Land Development team will arrange a conference with the project team where they will discuss the project. The project team will then revise the plan as discussed in the conference. The team will then submit five full site plans, which Brevard County will review for 15 days. If the project is not approved and more revisions are to be made, the project team must re-submit the plans and the process repeats itself.

Right-of-Way Use Permit

Concurrent with the drawing submission to the Planning and Zoning Office, the drawings must be submitted to the Engineering Department. They need to issue

a permit for any pipeline that is to be placed across or near a city right-of-way. The review process for the plans takes about one or two days.

Building Permit

Brevard County requires submittal of building permits for any construction in unincorporated areas in the county. To obtain a building permit, the project team must submit an application, a site plan, and an application fee to the building department. Once the department has approved the plans and all revisions have been made, a permit will be given to the project team.

On-Site Wastewater Treatment Facility Approval

The Brevard County Environmental Health Department must approve the construction of any or on-site wastewater treatment facilities. The project team must submit an application and a site plan drawn to scale. The Health Department staff will evaluate the site in seven to ten working days. The Health department will then administer a permit that is good for 18 months. Once the construction is completed, the department staff will again inspect the site and administer a certificate of occupancy.

Volusia County

Site Plan Review

The county Land Development office requires that the project team submit a conceptual site plan. The Land Development staff will review for several days and then set up a conference with the project team. After corrections discussed at the conference are made, a final site plan must be submitted. The development committee will review this plan for one month prior to approving it.

Right-of-Way Use Permit

Concurrent with the drawing submission to the Planning and Zoning Office, the drawings must be submitted to the Engineering Department. They need to issue a permit for any pipeline that is to be placed across or near a city right-of-way. The review process for the plans takes about one or two days.

Tree Permit

The project team must obtain a Tree Permit prior to the removal of any protected trees. The team must submit a tree survey noting the trees that are to be removed, relocated, or replaced.

Use Permit

The project team must obtain a use permit when constructing a pipeline alongside or across any county right-of-way. The team must submit a vicinity map of the work location and a drawing of the proposed construction.

Building Permit

Volusia County requires commercial building permits for any commercial construction in unincorporated areas within the county. The project team must submit:

- A completed application;
- Energy forms;
- Any state permits and documents;
- Three sets of construction drawings with site plans;
- One extra floor plan for the Volusia County Development and Information Management Department showing scope of work;
- Copy of tree permit;
- One site plan of existing and proposed impervious area; and
- One copy of the Final Development Order letter.

Potable Water Treatment Permit

The Volusia County Environmental Health Department must approve the construction of any potable water distribution and treatment facilities instead of the FDEP. Thus, the project team must contact the Health Department and submit:

- Three copies of the application;
- \$500 fee; and
- Three sets of sealed plans.

The approval process takes approximately 14 to 21 days.

On-Site Wastewater Treatment Facility Approval

The project team must submit an application and a site plan drawn to scale. The Health Department staff will evaluate the site in seven to ten working days. The Health department will then administer a permit that is good for 18 months. Once the construction is completed, the department staff will again inspect the site and administer a certificate of occupancy.

Cities

City of Jacksonville

Site Plan Review

The Development Management office in the Engineering Division requires that the plans be reviewed and approved before construction. The project team must submit ten sets of plans. The total review process will take 28 days. The review committee will make comments and edits. Once revisions have been submitted to the review committee, they will conduct a final review. The final review takes 14 days. Prior to the initial submission of the plans, the project team must obtain

a City Development Number from the Concurrency Department. This generally takes one or two days.

Building Permit

The Jacksonville Building Department requires a commercial building permit prior to the start of construction. The permit office requires two sets of field drawings and a permit application. The permit review takes ten working days. If comments need to be addressed, the project team must make revisions and re-submit the application and site plans. The process repeats itself until the plans are approved.

Right-of-Way Use Permit

Concurrent with the drawing submission to the Planning and Zoning Office, the drawings must be submitted to the Engineering Department. They need to issue a permit for any pipeline that is to be placed across or near a city right-of-way. The review process for the plans takes about one or two days.

City of Melbourne

Site Plan Review

The Melbourne Department of Planning and Economic Development require that all site plans must be approved prior to construction. The project team must submit site plans. The Planning and Zoning office and City Hall will review these plans. This review process takes about two months. If there are zoning or land use problems, the process could take 90 to 120 days.

Right-of-Way Use Permit

Concurrent with the drawing submission to the Planning and Zoning Office, the drawings must be submitted to the Engineering Department. They need to issue a permit for any pipeline that is to be placed across or near a city right-of-way. The review process for the plans takes about one or two days.

Tree Removal Permit

The project team must obtain of Tree Removal Permit if the construction requires the removal, relocation, or replacement of any protected tree. The team must submit two copies of a certified tree survey showing existing protected tree sizes and types, two copies of the entire site plan, and a description of the tree protection measures.

Erosion Permit

The project team must obtain an Erosion Permit prior to the commencement of work. The team must submit a narrative of the overall project, maps and drawings of the site location, and a brief description of the on-site plant species indicating the existence of any endangered or protected plants or animals.

Building Permit

The project team must obtain a Melbourne Building Permit prior to the construction of any commercial project. The team is required to submit the recorded deed, two sets of Florida Energy Efficiency forms, one set of site plans, and a City of Melbourne Tree Permit/Erosion Sedimentation Permit.

OTHER ENTITIES

Public Service Commission

The Public Service Commission regulates the rates charged by power and water utilities that are owned and operated by private entities. If the demineralization plant is owned and operated by a private entity, the project team must submit an Application for Original Certificate for a Proposed or Existing System Requesting Initial Rates and Charges. Once a completed application is submitted, the commissioners require 90 days to approve it.

Florida Inland Navigation District

The Florida Inland Navigation District maintains the intracoastal waterways on the east coast of Florida. The District requires notification of placement of any structure in or next to these waterways.

CSX Rail

CSX Railroad Application for Pipeline Crossing Under/Over Properties and Track

A railroad application is required if any pipeline must cross any railroad properties or track. CSX requires that the permit be obtained prior to the commencement of construction.

Florida East Coast Railways

Florida East Coast Railways Application for Pipeline Crossing Under/Over Properties and Track

A railroad application is required if any pipeline must cross any railroad properties or track. The project team must submit a one-page application and 12 copies of the site drawings. Florida East Coast Railways will review it for 30 days. After the initial cost of the permit, there is a yearly license fee, which is usually three or four dollars per linear foot.

Power Companies

Requirements for demineralization facilities are made on a case-by-case basis rather than fixed rules or regulations. Agreements are made regarding clearances from overhead power transmission lines and use of easements.

SUMMARY

SEAWATER DEMINERALIZATION PROJECT ELEMENTS

Components of a seawater demineralization facility can be generally broken down into the following five physical project elements:

1. Raw water intake;
2. Water pretreatment;
3. Plant facility;
4. Concentrate disposal; and
5. Product water conveyance.

Various rules, regulations and permits are applicable to each element of the facility but may differ depending upon the final chosen configuration for a particular facility. Tables 4 and 5 in this summary section include matrices of permit and notification submittals that may be required for each of the respective project elements.

This document also provides a summary of rules, regulations and permits concerning concentrate disposal. A detailed discussion of the applicability of Rules and Regulations for concentrate management can be found in the Technical Memorandum entitled “Applicable Rules and Regulations for Concentrate Management” by Reiss Environmental, Inc. (See APPENDIX).

SUMMARY OF PERMITS, REVIEWS, AND NOTIFICATIONS

In terms of complexity and review/processing time, clearly the most significant permit requirements for the construction and operation of a demineralization facility include:

- NPDES permit for the concentrate discharge;
- Federal 404 dredge and fill permit for construction of the facility and associated infrastructure (e.g., pipelines); and
- Environmental Resource Permit for construction of the facility and associated infrastructure (e.g., pipelines).

Comparatively, the other state and local permit requirements discussed above are likely to be minor in terms of complexity and time.

The primary issues of concern in the NPDES permitting process are likely to include:

- Alteration of natural salinity patterns and water quality in the surface waters receiving the concentrate discharge;
- Impacts of increased salinity on benthos and other marine organisms;
- Entrainment and impingement of marine organisms in the raw water intake structure; and
- Secondary impacts to the West Indian Manatee if co-located on an electric generating power plant with once-through cooling using coastal waters.

The primary issues of concern in the Federal 404 permitting process are likely to include:

- Wetland impacts from the construction of the facility and related infrastructure; and
- Secondary impacts to the West Indian Manatee if co-located on an electric generating power plant with once-through cooling using coastal waters.

The primary issues of concern in the state ERP permitting process are likely to include:

- Storm water treatment and management from the facility;
- Wetland impacts from the construction of the facility and related infrastructure; and
- Secondary impacts to the West Indian Manatee if co-located on an electric generating power plant with once-through cooling using coastal waters.

In summary, tables 4 and 5 below describe the permits, notifications and plan reviews required by governing entities in the federal, state, local or other capacities.

Table 4. Summary of Permits Required

Region	Agency	Permit	Affected project element
Federal	Environmental Protection Agency	Notice of Intent for storm water discharge	3
		National Pollution Discharge Elimination System Permit (oversight)	4
	Army Corps of Engineers	Dredge and Fill	1, 3,5
	Fish and Wildlife Service National Marine Fisheries Service		
State	Florida Department of Environmental Protection	National Pollution Discharge Elimination System Permit	4
		Public water system construction	3
		Major sources of air pollution	3
		Aquatic plant control permit	1
		Wastewater Facility and Activities Permit	3
		Ground water permit	4
	Florida Department of Transportation	Utility Permit	5
Florida Department of Health	On-Site Sewage Disposal System Construction Permit	3	
Regional	St. Johns River Water Management District	Environmental Resources Permit	1,3,5
Local	County	Tree Permit	3
		Use Permit	5
		Building Permit	3
		Potable Drinking Water Facility Permit	1,2,3,4,5
	City	Building Permit	3
		Tree Removal Permit	3
		Erosion Permit	3
		Right-of-Way Use	5
Other	CSX and/or Florida East Coast Railways	Pipeline Crossing Over/Under Property and Tracks	5

Table 5. Summary of Notifications/Plan Reviews/Monitoring/Reporting Required

Region	Agency	Notification/Review	Affected Project Element
Federal	Environmental Protection Agency	Risk Management Plan	3
	Fish and Wildlife Service	Notification	1, 3
	National Marine Fisheries Service	Notification	1
State	Florida Department of Environmental Protection	Quality Assurance	1, 2, 3, 4, 5
		Groundwater monitoring	4
		Drinking water monitoring and reporting	2, 5
		Surface Water Monitoring	4
	Florida Fish and Wildlife Commission	Notification	1
Local	County	Site Plan Review	3
		On-site wastewater treatment facility plan review	
	City	Site Plan Review	3
Other	Public Service Commission	Application for Original Certificate for a Proposed or Existing System Requesting Initial Rates and Charges	2
	Florida Inland Navigation District	Notification	1, 3
	Power companies	Notification	3, 5

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APPENDIX

APPLICABLE RULES AND REGULATIONS FOR CONCENTRATE MANAGEMENT