

## Section 5 – Permitting of Water Sources and Supply Facilities

### 5.1. Groundwater Permitting

Chapter 373, Florida Statutes enables and directs the Southwest Florida Water Management District (SWFWMD) to regulate the use of water within its jurisdictional boundaries. The SWFWMD has adopted rules for the consumptive use of water, which are set forth in Chapter 40D-2, Florida Administrative Code (F.A.C.). The purpose of the Water Use Permit Program is to ensure that those water uses permitted by the SWFWMD are reasonable and beneficial, will not interfere with any presently existing legal use of water, and are consistent with the public interest.

Permits are required in accordance with the thresholds identified in Rule 40D-2.041 for the use of fresh and saline, ground and surface water sources. The SWFWMD “Basis of Review for Water Use Permit Applications” requires withdrawals from wells with a cumulative outside diameter of greater than 6-inches constructed after April 11, 1994, be issued a SWFWMD Water Use Permit.

As part of the 1998 Minimum Flows and Levels process, Minimum Levels to prevent regional seawater intrusion were proposed by staff and approved by the SWFWMD’s Governing Board. Levels were set in two transects consisting of four wells in the Eldridge-Wilde well field area and three wells in the Northwest Hillsborough Regional well field area.

The SWFWMD’s Water Quality Monitoring Program (WQMP) has been monitoring a network of coastal Floridan and surficial aquifer wells for many years. WQMP continually improves the network by incorporating wells that were constructed to best evaluate seawater intrusion, and measures parameters such as chlorides, sulfates, and TDS, which can be used to evaluate the status of saltwater intrusion.

### 5.2. Surface Water Permitting

#### 5.2.1. SWFWMD Permitting

Permitting surface water sources for drinking water purposes requires complying with Federal, State and local requirements. The following interpretation of SWFWMD’s position on permitting surface water sources was referenced from the SWFWMD Environmental Handbook (July 2002):

“Wetlands are important components of the water resource because they often serve as spawning, nursery and feeding habitats for many species of fish and wildlife, and because they often provide important flood storage, nutrient cycling, detrital production, recreational and water quality functions. Other surface waters such as lakes, ponds, reservoirs, other impoundments, streams, rivers and estuaries also often provide such functions, and in addition may provide flood conveyance, navigation and water supply functions to the public.

Maintenance of water quality standards in applicable wetlands and other surface waters is critical to their ability to provide many of these functions. It is the intent of the Governing Board that the criteria ... be implemented in a manner that achieves a programmatic goal and a project permitting goal of no net loss of

wetlands or other surface water functions. This goal shall not include projects that are exempt by statute or rule or which are authorized by a noticed general permit. Unless exempted by statute or rule, permits are required for the construction, alteration, operation, maintenance, abandonment and removal of systems so that the SWFWMD can conserve the beneficial functions of these communities. The term "systems" includes areas of dredging or filling, as those terms are defined in s. 373.403(13) and (14), F.S."

The SWFWMD addresses the conservation of these beneficial functions in the permitting process by requiring applicants to provide reasonable assurance that the following conditions for issuance of permits, set forth in Sections 40D-4.301 (Conditions for Issuance) and 40D-4.302 (Additional Conditions for Issuance), F.A.C., are met. Applicants must provide reasonable assurance that:

- (a) a regulated activity will not adversely impact the value of functions provided to fish, wildlife and listed species, including aquatic and wetland dependent species, by wetlands and other surface waters and other water related resources of the SWFWMD. (paragraph 40D-4.301(1)(d), F.A.C.)(subsection 3.2.2);
- (b) a regulated activity located in, on, or over wetlands or other surface waters, will not be contrary to the public interest, or if such an activity significantly degrades or is located within an Outstanding Florida Water, that the regulated activity will be clearly in the public interest (see subsection 3.2.3);
- (c) a regulated activity will not adversely affect the quality of receiving waters such that the water quality standards set forth in Chapters 62-3, 62-4, 62-302, 62-520, 62-522 and 62-550, F.A.C., including any antidegradation provisions of Sections 62-4.242(1)(a) and (b), 62-4.242(2) and (3), and 62-302.300 and any special standards for Outstanding Florida Waters and Outstanding National Resource Waters set forth in sections 62-4.242(2) and (3), F.A.C., will be violated (paragraph 40D-4.301(1)(e), F.A.C.);
- (d) a regulated activity located in, adjacent to or in close proximity to Class II waters or located in waters classified by the Department as approved, restricted, or conditionally restricted for shellfish harvesting pursuant to chapter 16R-7, F.A.C., will comply with the additional criteria in subsection 3.2.5 (paragraph 40D-4.302(1)(c), F.A.C.);
- (e) the construction of vertical seawalls in estuaries and lagoons will comply with the additional criteria in subsection 3.2.6; (paragraph 40D-4.302(1)(d), F.A.C.);
- (f) a regulated activity will not cause adverse secondary impacts to the water resources (paragraph 40D-4.301(1)(f), F.A.C.) (see subsection 3.2.7);
- (g) a regulated activity will not cause adverse cumulative impacts upon wetlands and other surface waters, as delineated pursuant to the methodology authorized by subsection 373.421(1), F.S. (paragraph 40D-4.302(1)(b), F.A.C.) (see subsection 3.2.8).

#### **5.2.2. Coastal Barrier Resource Act:**

This Act identifies the need to protect coastal barriers areas along the shores of the United States and the Great Lakes. The objective of this Act is to regulate and control the construction or



purchase of any structure, facility or infrastructure located in an identified coastal zone and to ensure the protection of the natural resources.

### **5.2.3. Coastal Zone Management Act of 1972:**

The Coastal Zone Management Act recognizes the need to protect the marine life and habitat in coastal areas. These areas are ecologically fragile and essential for marine life and have been damaged by ill planned development. The coastal development permitting procedures is outlined and states, "The management program contains a method of assuring that local use and water use regulations within the coastal zone do not unreasonably restrict or exclude land use and water uses of regional benefit".

### **5.2.4. Additional Requirements for Surface Water Systems**

National Primary Drinking Water Regulations related to the filtration and disinfection of surface water and ground water under the direct influence of surface water are listed under 40 CFR 141, Subpart H. They adopt filtration and disinfection as best available treatment techniques in the removal or inactivation of pathogens in lieu of establishing a maximum contaminant level for these contaminants. Systems using ground water under the direct influence of surface water as defined in Rule 62-550.200, F.A.C., are considered surface water systems for purposes of Chapters 62-550, 62-555 and 62-560, F.A.C.

Permitting of a desalinization facility to utilize seawater as a source to produce drinking water would have to be in accordance with criteria outlined in F.S. 373D. Seawater desalination systems can support higher capacity with consistent long-term supply for local and regional needs. Permitting process for a surface water facility would involve study of the local estuary impacts, water quality analysis and determining the best treatment type for salt waste concentration disposal. The use of seawater does not require a Water Use Permit from the SWFWMD.

### **5.3. Water Supply Facilities Permitting**

The Florida Department of Environmental Protection (FDEP) evaluates each application for a public water supply permit for compliance with each applicable water quality standard contained in Part III of Chapter 62-550, F.A.C. The applicant must have the raw water from each new source sampled and analyzed pursuant to Rule 62-550.550, F.A.C. Per this rule, engineering design is required to comply with acceptable engineering principles.

The FDEP either issues or denies a permit pursuant to Chapter 120, F.S. Construction, alteration, or extension of a public water system must be in accordance with prior written approval and consent of the Department.

Prior to placing a system into service, the Department requires certification by a professional engineer that the water system has been designed in accordance with the standards and criteria set forth.

### **5.4. RO Concentrate Disposal**

The two most common methods for concentrate disposal are direct discharge to surface water and deep well injection. A permit from the Florida Department of Environmental Protection would be required for the discharge of reverse osmosis (RO) concentrate for any selected method

of disposal. All permit applications undergo comprehensive review and scrutiny. The two most common disposal methods are further described below:

#### **5.4.1. Surface Water Disposal**

This process involves dilution of the RO concentrate through mixing with a receiving surface water body. The concentrate would be conveyed to an appropriate surface water body through a pipe and discharged at an outfall structure. It is generally less capital intensive than deep well injection, but its suitability depends on how close the RO plant is to the surface water, as well as the existing use or classification of the surface water.

The key to safely discharging the concentrate to a surface water body is ensuring the receiving body has ample water to quickly dilute the concentrate. Other considerations include the salinity level of the receiving waters. In studying this option, care must be taken to select a receiving body that will not be adversely impacted by the discharge.

As with any project that includes wells and pipelines, the quality of design and construction are the key to the success of the project. This must be considered in the design phase.

Many surface water bodies, including the Anclote River, are designated as “Outstanding Florida Water.” This designation restricts or prohibits some discharge activities in these water bodies. Additional agencies such as the U.S. Fish and Wildlife Service may be consulted as part of wildlife habitat issues.

One viable option for concentrate disposal for the City of Tarpon Springs is surface water discharge. This could allow for the concentrate from a water treatment plant to be significantly diluted with existing cooling water discharges, resulting in dilution ratios of over 100:1. This would result in a negligible difference in water quality between discharge and surrounding waters of the gulf and would greatly assist in permitting of this project.

#### **5.4.2. Deep Well Injection**

Deep well injection involves the underground disposal of concentrated RO brine through deep wells drilled into highly saline zones in the limestone aquifer that underlies this part of Florida. The water in the injection zone is typically of poor quality and is not suitable for drinking or irrigation purposes. This type of disposal is common in other areas of Florida. However, this method depends on suitable hydrogeology including adequate injection zone capacity, confinement from above and below, and water quality characteristics that support such a method. The water quality surrounding the injection zone should not be considered an Underground Source of Drinking Water (USDW) to facilitate permitting.

Upon completion of additional demonstration projects, regulatory agencies are expected to more readily permit Class I injection wells for RO brine disposal. The Tampa Bay Water Mid-Pinellas Brackish Water Desalination Project (MPBWDP) detailed in Section 8 of this report involves such test well construction and operational testing

Encouraging discussions with the Tampa office of FDEP on the use of an injection well for RO concentrate disposal in the Tarpon Springs area indicate this is a possible alternative. Testing and demonstration will be required before an operating permit will be issued. This demonstration period may well result in additional time and investment to obtain a disposal option through this means.



## **5.5. Recommended Permitting Approach**

A pre-application meeting between the City of Tarpon Springs, FDEP and SWFWMD staff was useful in the determination of the information needed in the application. As the project is further defined, additional pre-application meetings with other involved agencies listed above could possibly serve to shorten the project schedule. A pre-application discussion may aid in expediting the application evaluation process by identifying items that need to be addressed initially. This process allows the applicant to submit a more complete application initially and may prevent delays in processing the application.

SWFWMD publications document that SWFWMD staff members will request the City to provide information that will help them evaluate the permit request and its potential impacts on underground or surface water systems. The information requested varies according to the type and complexity of the permit, but the following are general guidelines, along with a short explanation of the criteria used by the SWFWMD to assess the application.

For water use and environmental resource permits, the standard procedure is as follows:

1. Schedule a pre-application conference with SWFWMD staff members. During the meeting, SWFWMD staff can identify any potential complications. In doing so, it saves time and money. (Completed)
2. After the pre-application conference, a permit application is submitted. The SWFWMD then has 30 days to review it and request any additional information deemed necessary. The applicant, in turn, has 30 days to supply the information.
3. Sometimes a second round of information-gathering is necessary to clarify specific points, with the same 30-day time period for both parties.
4. Once the process is complete, the SWFWMD has 60 days to approve general permits.