GLOSSARY

Advanced wastewater treatment. -- Any treatment of sewage that goes beyond the secondary or biological water treatment stage and includes the removal of nutrients, such as phosphorus and nitrogen and a high percentage of suspended solids. This treatment is more stringent than secondary treatment, and requires an 85 percent reduction in conventional pollutant concentrations or a significant reduction in non-conventional pollutants (U.S. Environmental Protection Agency, 1997, written commun.).

Agriculture water use.--Includes water used for agricultural irrigation and nonirrigation purposes. Irrigation water use includes the artificial application of water on lands to assist in the growing of crops, plants, and pasture, or to maintain vegetative growth in recreational lands, parks, and golf courses. Nonirrigation water use includes water used for livestock, fish farming, and other farm needs. Livestock water use includes water used for stock watering, feedlots, and dairy operations.

Commercial water use.--Water for motels, hotels, restaurants, office buildings, commercial facilities and civilian and military institutions. The water may be obtained from a public supply or may be self-supplied.

Community water system.--A public water system which serves at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents (Florida Department of Environmental Regulation, 1990a).

Consumptive use.--That part of water withdrawn that is evaporated, transpired, incorporated into products or crops, consumed by humans or livestock, or otherwise removed from the immediate water environment. Sometimes called water consumed or water depleted.

Cooling pond.--Usually a manmade water body used by power plants or large industrial plants that enables the facility to recirculate once-through cooling water. The water levels in the pond are usually maintained by rainfall or augmented by pumping (withdrawal of) water from another source (fresh, saline, or reclaimed).

Cooling tower.--A large tower or stack that is used for heat exchange of once-through cooling water generated by steam condensers. Hot water from the plant is sprayed into the top of the tower and exchanges heat with the passing air as it falls. The water is then collected at the bottom of the tower and used again. A small amount of water is lost (consumed) through evaporation in this process. See cooling water or once-through cooling.

Cooling water.--Water used for cooling purposes by electric generators, steam condensers, large machinery or products at power or industrial plants. Water used for cooling purposes can be either fresh, saline, or reclaimed and may be used only once or recirculated multiple times. See cooling pond or once-through cooling water.

Desalination.--The removal of salts from water. Desalination is primarily used for public-supply water to ensure that it meets Florida Department of Environmental Protection secondary drinking standards. The three primary types of desalination used in Florida are: (1) distillation, (2) electrodialysis processes, and (3) reverse osmosis processes (Buros, 1989, South Florida Water Management District, 1990). The reverse osmosis processes are the most commonly used in Florida followed by electrodialysis (Dykes and Conlon, 1989). In addition to these three desalination processes, many public suppliers also dilute or blend brackish or saline water with fresher water to produce potable water. Also see reverse osmosis.

Dewatering.--The deliberate attempt to lower the ground-water level in or below land surface for selected purposes such as agricultural, construction, mining or other activities. For mining operation, dewatering usually is accomplished by pumping the water out of the ground and discharging to a surface-water body. However, some dewatering involves gravity feeding water from the surficial aquifer into a deeper aquifer (usually the Floridan aquifer system) through recharge wells (Campbell,

1986). In Florida, this discharge usually requires a permit from the Florida Department of Environmental Protection.

Domestic wastewater facility.--Facilities that receive or dispose of wastewater derived principally from residential dwellings, business or commercial buildings, institutions, and the like (Florida Department of Environmental Regulation, 1991). Can also include some wastewater derived from industrial facilities. May also be referred to as a municipal wastewater facility.

Domestic water use.--Water for normal household purposes, such as drinking, food preparation, bathing, washing clothes and dishes, flushing toilets, and watering lawns and gardens. Also called residential water use. The water can be obtained from a public supply or be self-supplied.

Effluent.--Water that flows out of a wastewater treatment facility or other works used for the purpose of treating, stabilizing, or holding waste.

Flood irrigation.-- Irrigation systems that control the water table with lateral supply ditches. These include open field ditch systems (furrows), semi-closed conveyance systems, subsurface conduit systems, crown flood systems, and continuous flood systems. Also includes seepage or subsurface irrigation systems. The efficiencies of these flood irrigation systems range from 20 to 80 percent (Smajstrla and others, 1988), however, an average of 60 percent is commonly used for estimating water requirements. May also be referred to as subsurface irrigation.

Freshwater.--Water that contains less than 1,000 milligrams per liter (mg/L) of dissolved solids; generally, more than 500 mg/L is considered undesirable for drinking and many industrial uses. Generally, freshwater is considered potable.

Gigawatthour (GWh).--A measure of electricity, one billion watthours.

Ground water.--Specifically, that part of the subsurface water that is in the saturated zone (a zone in which all voids are filled with water).

Ground-water disposal.--Wastewater that is disposed of through the ground either by injection or seepage. This includes the following discharge methods; absorption beds, injection wells, drainfields, percolation ponds, rapid infiltration basins, spray fields, and land application systems (Marella, 1994). Land application systems or reuse systems are considered a ground-water disposal as treated wastewater used to irrigate is generally intended to filter down through the soil.

Hydroelectric power water use.--The use of water in the generation of electricity at plants where the turbine generators are driven by falling water. This is considered an instream use of water.

Industrial wastewater facility.--Facilities that produce, treat or dispose of wastewater not otherwise defined as a domestic wastewater; includes the runoff and leachate from areas that receive pollutants associated with industrial or commercial storage, handling, or processing (Florida Department of Environmental Regulation, 1991).

Industrial water use.--Water used for industrial purposes such as fabricating, processing, washing, and cooling, and includes such industries as steel, chemical and allied products, paper and allied products, mining, and petroleum refining. The water can be obtained from a public supply or be self-supplied.

Instream use.--Water use taking place within a stream channel for such purposes as hydroelectric power generation, navigation, water-quality improvement, fish and wildlife propagation, and recreation. Sometimes called nonwithdrawal use or in-channel use.

Micro-irrigation.--Irrigation systems that apply water directly to, or very near, the soil surface, either above the ground or into the air, in discrete drops, continuous drops, small streams, mist, or sprays. These include drip systems, spray systems, jet systems, and bubbler systems. Also referred to as drip, low pressure or low volume irrigation. The efficiencies of these micro-irrigation systems range from 75 to 95 percent (Smajstrla and others, 1988), however, an average of 80 percent is commonly used for estimating water requirements.

Mining water use.--Water used for the extraction of minerals and liquids. Mining also includes water used for milling (such as crushing, screening, washing, and flotation), environmental purposes (such as dust control and wetland restoration or maintenance), material conveyance, dewatering, and domestic uses on the premises. Generally, most of the water used at a mining operation is self-supplied.

Navigational water use.--Water utilized as a means of commercial (and sometimes recreational) transportation. Includes water used to lift a vessel in a lock, or maintain a navigable channel level. Navigational water use is considered a nonconsumptive instream use of water and is generally not measured.

Net water use.--Water withdrawals plus or minus water transfers. In most counties, the net water use and water withdrawals are equal. However, in counties involved in water transfers (imports and exports), the net water use represents the actual amount of water used regardless of the amount of water withdrawn. In Florida, water transfers are mostly found in the public supply category. Also see water transfers.

Non-Community water system.--A public water system which provides piped water for human consumption to at least 15 service connections or which serves at least 25 individuals at least 60 days out of the year but which is not a community water system. The difference between a community water system and a non-community water system is that the former serves inhabitants whereas the latter serves transients or non-residents who other wise do not inhabit the building served by the system. (Florida Department of Environmental Regulation, 1990a).

Non-Transient Non-Community water system.--A public water system that is not a community water system and that regularly serves at least 25 of the same persons over a 6 month period. (Florida Department of Environmental Regulation, 1990a).

Once-through cooling water.--Water (fresh or saline) that is withdrawn from a river, stream or other water body (manmade or natural), or a well, that is passed through a steam condenser one time, and then returned to the river or stream or other water body some distance from the intake (Hughes, 1975). Once-through cooling water is used to exchange the heat from the steam condensers to the cooler water. This method of cooling is commonly used in power production throughout Florida, and usually results in no consumption.

Offstream use.--Water withdrawn or diverted from a ground- or surface-water source for public-water supply, industry, irrigation, livestock, thermoelectric power generation, and other uses. Sometimes called off-channel use or withdrawal use.

Other water use.--Water used in Florida for such purposes as heating, cooling, irrigation (public-supplied only), lake augmentation, and other nonspecific uses. The water can be obtained from a public supply or be self-supplied.

Per capita use.--The average amount of water used per person during a standard time period, generally per day.

Potable water.-- Water that meets the quality standards set by the Florida Department of Environmental Protection. Potable water is considered safe for human consumption and is often referred to as drinking water. In Florida, chloride and dissolved-solids concentrations in potable water must be less than or equal to 250 and 500 mg/L, respectively. Freshwater that exceeds these chloride and dissolved solids limits is often referred to as slightly saline, brackish, or nonpotable water and is either diluted with fresher water or treated through a desalination process to meet potable-water standards for public supply.

Primary wastewater treatment.--First step in wastewater treatment where screens and sedimentation tanks are used to remove most materials that float or settle. Primary treatment removes about 30 percent of carbonaceous biochemical oxygen demand from domestic sewage (U.S. Environmental Protection Agency, 1997, written commun.).

Public supply.--Water withdrawn by public or private water suppliers and delivered to users who do not supply their own water. Water suppliers provide water for a variety of uses, such as domestic, commercial, industrial, thermoelectric power (domestic

and cooling purposes), and public-water use. According to the Florida Department of Environmental Protection, any water system that serves more than 25 people or has 15 year-round service connections is considered a community public supplier (Florida Department of Environmental Regulation, 1990a). For this report, public supply includes those systems that serve more than 400 people or use more than 10,000 gallons per day.

Public-water use.--Water supplied from a public-water supply and used for such purposes as firefighting, street washing, and municipal parks and swimming pools. Public-water use also includes system water losses (water lost to leakage) and unusable water discharged from desalination or lime-softening facilities. Also referred to as utility-water use.

Reclaimed water.--Water that has received at least secondary treatment and is reused after leaving a wastewater treatment facility.

Recycled water.--Water that is used more than one time before it passes back into the natural hydrological system or is discharged into a wastewater system. Also referred to as recirculated water.

Resident population.--The number of persons who live in a State who consider the State their permanent place of residence. College students, military personnel, and inmates of penal institutions are counted as permanent residents. According to this definition, tourist and seasonal or part-time residents are considered nonresident population.

Residential water use.--See domestic water use.

Reuse system.--The deliberate application of reclaimed water for a beneficial or other useful purpose. Reuse may encompass landscape irrigation (such as golf courses, cemeteries, highway medians, parks, playgrounds, school yards, nurseries, and residential properties), agricultural irrigation (such as food and fruit crops, wholesale nurseries, sod farms and pasture grass), aesthetic uses, ground-water recharge, environmental enhancement of surface water and wetland restoration, fire protection, and other useful purposes.

Reverse osmosis.--The process of removing salts from water using a membrane. With reverse osmosis, the product water passes through a fine membrane that the salts are unable to pass through, and the salt waste (brine) is removed and disposed. This differs from electrodialysis where the salts are extracted from the feedwater by using a membrane with an electrical current to separate the ions. During electrodialysis the positive ions flow through one membrane, while the negative ions flow through a different membrane, leaving freshwater as the end product. In this report, reverse osmosis includes any water treated through both reverse osmosis and electrodialysis and any water diluted or blended with fresher water that was used to obtain potable water. Also see desalination.

Saline water.--Water that contains more than 1,000 mg/L of dissolved solids.

Secondary wastewater treatment.--The second step in most domestic wastewater treatment systems in which bacteria consume the organic parts of the waste. This treatment removes floating and settleable solids and about 90 percent of the oxygen-demanding substances and suspended solids. Disinfection is the final stage of secondary treatment (U.S. Environmental Protection Agency, 1997, written commun.).

Self-supplied water.--Water withdrawn from a ground- or surface-water source by a user and not obtained from a public supply.

Settling pond.--A holding pond for wastewater where heavier particles sink to the bottom for removal and disposal.

Sprinkler irrigation.--A pressurized irrigation system where water is distributed through pipes to the field and applied through a variety of sprinkler heads or nozzles. Pressure is used to spread water droplets above the crop canopy to simulate a rainfall (Izuno and Haman, 1987). These systems include portable and traveling guns, solid or permanent fixtures (overhead or pop ups), center pivots, and periodic moving systems. Also referred to as overhead irrigation. The efficiencies of these sprinkler

irrigation systems range from 15 to 85 percent (Smajstrla and others, 1988), however, an average of 70 percent is commonly used for estimating water requirements.

Surface-water disposal.-- Refers to the release of reclaimed water or treated effluent directly into a surface water body (including marshes or wetlands). This does not include water discharged into ponds for holding or percolation purposes (Marella, 1994).

Tail-water runoff.--Unused irrigation water or rain water that is collected at the base or end of an irrigated system or field in a ditch or impoundment. This water may be reused again for irrigation purposes, be left to evaporate, percolate into the ground, receive treatment, and (or) be discharged to surface-water bodies.

Thermoelectric power.--Electrical power generated by using fossil fuel (coal, oil, natural gas or biomass), geothermal, or nuclear energy.

Thermoelectric power water use.--Water used in the process of the generation of electric power. The majority of water used for this category is for cooling purposes (much of which is used for once-through cooling). Water is also used for boiler makeup or domestic purposes throughout the plant. Boiler makeup water and water used for domestic purposes are generally obtained from public supply, however, for plants located in remote areas, this water can be self-supplied. Cooling water is generally self-supplied, although some smaller plants use public-supply water for cooling purposes.

Treated (wastewater) effluent.--Water that has received primary, secondary, or advanced treatment and is released from a wastewater facility after treatment.

Wastewater.--A combination of liquid and water-carried pollutants from residential or commercial buildings, industrial plants, and institutions. Wastewater may include any ground water, surface runoff, or leachate that may be present in the system.

Water transfer.--Artificial conveyance of water from one area to another across a political or hydrological boundary. This is referred to as an import or export of water from one basin or county to another.

Water use.--1) In a restrictive sence, the term refers to water that is actually used for a specific purpose such as domestic use, irrigation, or industial processing. 2) More broadly, water use pertains to human’s interaction with and influence on the hydrologic cycle, and includes elements such as water withdrawals, deliveries, consumptive use, wastewater releases, reclaimed wastewater, return flow and instream use.

Withdrawal.--Water removed from the ground or diverted from a surface-water source.The amount of water withdrawn may not equal the amount of water used due to water transfers or the recirculation or recycling of the same water. For example, a power plant may use the same water multiple times but withdraw a significantly different amount.