

SWFRPC Resolution #2007-05

Wastewater Package Plant Resolution

Plants with Less than 100,000GPD Capacity

Southwest Florida Regional Planning Council

A RESOLUTION SUPPORTING THE REDUCTION AND ELIMINATION OF SURFACE WATER DISCHARGES FROM SMALL WASTEWATER TREATMENT FACILITIES, PROVIDING RECOMMENDED EXEMPTIONS;

WHEREAS, Southwest Florida is a region where the water quality of the bays, estuaries, rivers, lakes wetlands, bayous and the Gulf of Mexico is critical to the region's environmental, economic, and recreational prosperity and to the health, safety and welfare of the citizens of this region, and

WHEREAS, recent increased frequency and duration of red tide blooms and increased accumulation of red drift algae on local beaches and other algae and water related problems have heightened community concerns about water quality and cultural eutrophication of surrounding waters; and

WHEREAS, this resolution is part of a multi-pronged effort by the Southwest Florida Regional Planning council to reduce nutrient leaching and runoff problems by actions including, but not limited to, stormwater management, water conservation, septic systems, central sewage treatment, public education, restoration of surface and groundwater levels, and regional drainage of native habitats; and

WHEREAS, nutrients are essential elements for plant growth and are constituents in treated wastewater effluent; and

WHEREAS, nutrients from treated wastewater effluent can contribute to nitrogen and phosphorus loading within Southwest Florida's water resources;

NOW, THEREFORE, BE IT RESOLVED by the Southwest Florida Regional Planning council that the following provisions are recommended to local government jurisdictions in Southwest Florida as a basis for reducing and eliminating discharges of treated wastewater effluent nutrient constituents to open waters and to areas with groundwater transport of constituents of nutrients to open waters or conveyance to same.

SECTION 1: PURPOSE AND INTENT

- A. The Southwest Florida Regional Planning council declares its support for the reasonable regulation and control of surface water and adjacent area discharges of treated wastewater effluent containing nitrogen and phosphorus and hereby provides specific guidance for treatment and disposal of its disposal in order to minimize the negative environmental effects said discharges have in and on Southwest Florida lakes, canals, estuaries, interior wetlands, rivers and near shore waters of the Gulf of Mexico. Collectively these water bodies are a natural asset, which are critical to the environmental, recreational, cultural and economic well being of this region and the surrounding areas and contribute to the general health and welfare of the public. Recent red tide blooms, accumulation of red drift algae on local beaches, and the freshwater releases from Lake Okeechobee via the Caloosahatchee River have heightened community concerns about water quality and eutrophication of estuary, bay, river and coastal waters. Reduction of nutrients within the treated wastewater stream and or reduction of the stream itself into water bodies and adjacent areas affected by groundwater transport are a crucial step towards improving and maintaining water and habitat quality.
- B. The purpose of this Resolution is to provide specific recommendations and guidelines to be considered by local government jurisdictions in Southwest Florida for the regulation and control of treated wastewater discharges containing nitrogen and/or phosphorus.

SECTION 2: RECOMMENDED DEFINITIONS

The following are the minimum recommended definitions and the words; terms and phrases when used in this Resolution shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning:

AA residuals - "Class AA residuals" means Class A residuals that meet all the requirements of Rule 62-640.850, F.A.C. § 62-640.200(9), F.A.C.

Advanced Wastewater Treatment (AWT) - Advanced Wastewater Treatment (AWT) means treatment of Domestic Wastewater to achieve an effluent after disinfection containing not more than are 5 mg/l Biochemical Oxygen Demand (BOD), 5 mg/l of Total Suspended Solids (TSS), 3 mg/l Total Nitrogen, and 1 mg/l Total Phosphorus. § 403.086(4), F.S.

Application Site - "Application site" means a property (such as a farm, a ranch or a mining property) where residuals are applied to land. Application sites are identified as either agricultural sites or reclamation sites. § 62-640.200(5)

Department – "Department" means the Florida Department of Environmental Protection.

Disposal System - "Disposal system" means injection wells, effluent outfalls, subsurface drain systems, and other facilities utilized for the release of effluents into the environment. § 62-600.200(22), F.A.C.

Domestic Wastewater - "Domestic wastewater" means wastewater derived principally from dwellings, business buildings, institutions, and the like; sanitary wastewater; sewage. Where wastewater from sources other than typical domestic sources (e.g., industrial sources) is combined and treated with wastes from

domestic sources, the determination of whether or not the wastewater treatment plant is designated as “domestic” shall be made by the Department considering any or all of the following: residuals classification; whether wastewaters have been pretreated or contain constituents within 50-150%, by concentration, of typical domestic wastewater; and whether the permittee, when not required to provide more stringent or otherwise specific levels of treatment, can provide assurance of facility compliance with domestic wastewater treatment standards contained in Chapter 62-600, F.A.C. § 62-600.200(25), F.A.C.

Effluent - “Effluent”, unless specifically stated otherwise, means water that is not reused after flowing out of any wastewater treatment facility or other works used for the purpose of treating, stabilizing, or holding wastes. § 62-600.200(27), F.A.C.

Effluent Limitation - “Effluent limitation” means any restriction established by the Department on quantities, rates, or concentrations of chemical, physical, biological, or other constituents which are discharged from sources into waters of the State. § 62-600.200(28), F.A.C.

Holding Pond - “Holding pond” means a storage tank or artificial impoundment or pond constructed above, on, below, or partly below the ground surface that is designed and maintained to store a specific volume of fluid and minimize fluid losses other than those primarily occurring by evaporation; generally, holding ponds are not intended to provide a mechanism for pollutant reduction. When used in conjunction with rapid-rate land application systems or other systems described in Chapter 62-610, F.A.C., holding ponds can also provide a mechanism to accomplish nitrogen reduction. § 62-600.200(36), F.A.C.

Loading Capacity - “Loading capacity” is the greatest amount of a pollutant loading (in terms of mass per time or mass per volume) that a water body can receive without violating water quality standards. Such loading shall be established at a level necessary to implement the applicable water quality standards with a margin of safety which takes into account any lack of knowledge concerning the relationship between effluent limitations and water quality. § 62-600.200(40), F.A.C.

Nitrate - “Nitrate (NO₃)” means the nitrogen content present in water or wastewater attributable to the nitrate (NO₃) ion and expressed as elemental nitrogen, N, as determined using approved methods. § 62-600.200(53), F.A.C.

Nitrite - “Nitrite (NO₂)” means the nitrogen content present in water or wastewater attributable to the nitrite (NO₂) ion and expressed as elemental nitrogen, N, as determined using approved methods. § 62-600.200(54), F.A.C.

Total Ammonia - “Total ammonia” means the sum of nitrogen content present as un-ionized ammonia (NH₃) and the nitrogen content present as ammonium (NH₄⁺) and expressed as elemental nitrogen, N, as determined using approved methods. § 62-600.200(77), F.A.C.

Land Application - “Land application” means the reuse of reclaimed water or the disposal of effluent on, above, or into the surface of the ground through spray irrigation, other irrigation techniques, rapid-rate systems, absorption fields, overland flow systems, or other methods. § 62-600.200(39), F.A.C.

Ocean Outfall - “Ocean outfall” means the outlet or structure through which effluent is finally discharged to the marine environment which includes the territorial sea, contiguous zone and the ocean. § 62-600.200(55), F.A.C.

Outfall - “Outfall” means the outlet or structure through which effluent is finally discharged to receiving water. § 62-600.200(58), F.A.C.

Percolation Pond - “Percolation pond” means an artificial impoundment similar to a holding pond for which the design and operation provides for fluid losses through percolation/seepage in addition to evaporative losses. § 62-610.200(38), F.A.C.

Pollution - "Pollution" means the presence in the outdoor atmosphere or waters of the state of any substances, contaminants, noise, or man-made or man-induced alteration of the chemical, physical, biological, or radiological integrity of air or water in quantities or levels which are or may be potentially harmful or injurious to human health or welfare, animal or plant life, or property, including outdoor recreation. § 62-600.200(65), F.A.C.

Reclaimed Water - "Reclaimed water" means water that has received at least secondary treatment and is reused after flowing out of a wastewater treatment facility. § 62-600.200(67), F.A.C.

Residuals - "Residuals" or "domestic wastewater residuals" means the solid, semisolid, or liquid residue generated during the treatment of domestic wastewater in a domestic wastewater treatment facility. Not included is the treated effluent or reclaimed water from a domestic wastewater treatment plant. Also not included are solids removed from pump stations and lift stations, screenings and grit removed from the preliminary treatment components of domestic wastewater treatment facilities, other solids as defined in Rule 62-640.200(24), F.A.C., and ash generated during the incineration of residuals. § 62-640.200(31), F.A.C.

Reuse - "Reuse" means the deliberate application of reclaimed water, in compliance with Department and District rules, for a beneficial purpose. § 62-600.200(68), F.A.C.

(a) Where appropriate, said uses may encompass:

1. Landscape irrigation (such as irrigation of golf courses, cemeteries, highway medians, parks, playgrounds, school yards, retail nurseries and residential properties);
2. Agricultural irrigation (such as irrigation of food, fiber, fodder and seed crops, wholesale nurseries, sod farms, and pastures);
3. Aesthetic uses (such as decorative ponds and fountains);
4. Ground water recharge (such as slow-rate, rapid-rate, and absorption field land application systems) but not including disposal methods described in paragraph (b), below;
5. Industrial uses (such as cooling water, process water, and wash waters);
6. Environmental enhancement of surface waters resulting from discharge of reclaimed water having received at least advanced wastewater treatment or from discharge of reclaimed water for wetlands restoration;
7. Fire protection; or
8. Other useful purpose.

(b) Overland flow land application systems, rapid-rate land application systems providing continuous loading to a single percolation cell, other land application systems involving less than secondary treatment prior to application, septic tanks, and ground water disposal systems using Class I wells injecting effluent or wastes into Class G-IV waters shall be excluded from the definition of reuse.

Secondary Treatment - "Secondary Treatment" means treatment of Domestic Wastewater to achieve an effluent after disinfection containing not more than 20 mg/L CBOD5 and 20 mg/L TSS, or 90% removal of each of these pollutants from the wastewater influent, whichever is more stringent. These facilities shall be subject to provisions of Rule 62-600.110, F.A.C., regarding the applicability of the above requirements, and Rules 62-600.440, 62-600.445 and 62-600.740, F.A.C., regarding compliance with these requirements. Appropriate disinfection and pH control of effluents is also required. § 62-600.200(69), F.A.C.

Treatment - "Treatment" means any method, technique, or process which changes the physical, chemical, or biological character or composition of wastewater and thereby reduces its potential for polluting waters of the state. § 62-600.200(85), F.A.C.

Total Kjeldahl Nitrogen - "Total Kjeldahl nitrogen (TKN)" means the sum of free ammonia and organic nitrogen compounds in water or wastewater and expressed as elemental nitrogen, N, as determined using approved methods. § 62-600.200(80), F.A.C.

Total Nitrogen - "Total nitrogen (TN)" means the total content of the nitrogen species of organic nitrogen, ammonia, nitrate and nitrite present in water or wastewater and expressed as elemental nitrogen, N, as determined using approved methods. § 62-600.200(81), F.A.C.

Total Phosphorus - “Total phosphorus (TP)” means the total phosphate content of water or wastewater including all of the orthophosphates and condensed phosphates, both soluble and insoluble, and organic and inorganic species and expressed as elemental phosphorus, P, as determined using approved methods. § 62-600.200(83), F.A.C.

Underground injection - “Underground injection” means effluent disposal or reuse by well injection into underground geologic formations. § 62-600.200(91), F.A.C.

Wastewater treatment facility - “Wastewater facility” or “facility” means any facility which discharges wastes into waters of the State or which can reasonably be expected to be a source of water pollution and includes any or all of the following: the collection and transmission system, the wastewater treatment works, the reuse or disposal system, and the residuals management facility. § 62-600.200(96), F.A.C.

Water Quality-Based Effluent Limitations (WQBELs). – “Water Quality-Based Effluent Limitations (WQBELs)” means an effluent limitation, which may be more stringent than a technology-based effluent limitation, that has been determined necessary by the Department to ensure that water quality standards in a receiving body of water will not be violated. § 62-600.200(99), F.A.C.

SECTION 3: RECOMMENDATIONS RELATING TO REDUCTION OF NUTRIENT LEVELS AND VOLUME OF THE DISCHARGE OF TREATED EFFLUENT TO OPEN WATERS.

Municipal wastewater treatment facilities represent many advantages over package plants: 24-hour supervision, secondary and tertiary treatment levels, consistency, and varied disposal methods. Enhanced effluent monitoring capacity allows for greater environmental compliance.

Existing Standards provides that type III domestic wastewater facilities are required, at a minimum, to provide Secondary Treatment of wastewater. Secondary Standard Requirements are dependent upon disposal type (see attachment #1), but absolute minimum standards are as follows:

Parameter	Annual Average	Monthly Average	Weekly Average	Single Sample Max.
TSS (mg/l)	20	30	45	60
BOD (mg/l)	20	30	45	60
Basic Disinfection (mg/l)				0.5

Standards can be significantly higher, as in the Florida Keys 2010 requirements:

Any new type III facilities located in the Monroe County are required to meet Best Available Technology (BAT) standards and all type III facilities must meet BAT standards by July 2010. The BAT requirements are as follows:

Parameter	Annual Average	Monthly Average	Weekly Average	Single Sample Max.
TSS (mg/l)	10	12.5	15	20
BOD (mg/l)	10	12.5	15	20
Basic Disinfection (mg/l)				0.5
Total Nitrogen (mg/l)	10	12.5	15	20
Total Phosphorus (mg/l)	1	1.25	1.50	2.0

Type III facilities discharge effluent to ground surface, percolation ponds, and shallow wells. Nutrient loading can exceed the assimilative capacity for soil types commonly found on barrier islands, bay islands, sand islands, pass islands or the like.

Treatment shall be provided such that effluent limitations are met prior to disinfection (paragraph 62-600.440(5) (e), F.A.C., shall be achieved before disinfection regardless of the actual reclaimed water or effluent compliance monitoring location).

Package plants are generally located near the back of the development they serve, often bordering wetlands. The collection system lines are typically gravity flow oriented towards the plant. This development profile increases costs for the residents of the development when central wastewater collection lines become available at the entry to the development.

In addition, there have been instances where the collection system and plant ownership has in itself caused issues in later conversion to a municipal facility.

RECOMMENDATIONS

- A. No new package plants should be permitted on Barrier Islands, Bay Islands, Sound Islands, Pass Islands or the like
- B. No new package plants should be permitted on the mainland unless there is no available connection to a centralized sewer system. In the event that a new package plant is constructed it shall meet Best Available Technology (BAT) Standards.

- C. When centralized wastewater collection systems are in or come into contact with package plants, the package plant service area will hook up to the Central Wastewater Treatment System.
- D. Existing package plants within the service area of an existing Central Wastewater Treatment System will hook up to that Central Wastewater Treatment System.
- E. Where existing package plants are not within or adjacent to a central wastewater treatment system, substandard plants will be replaced or improved to Best Available Technology (BAT) Standards with no discharge to surface waters.
- F. Post development ownership of collection systems shall be passed to the homeowners in a given service area. Developers shall be held liable for engineering and construction shortfalls of these systems, up until the point of this transfer.
- G. Ownership of collection systems shall be passed to the Utility upon the hook up of the system to the Utilities centralized sewer. The homeowners shall be held liable for maintenance of these systems up until the point of this transfer.
- H. New facilities will be constructed in such a way as to minimize the cost and logistical problems for later hook-ups to centralized systems at such time as this option becomes available. New developments will run dry pipe for force main from the main lift station to the service front, or locate the treatment plant at the service front of the development.
- I. New facilities and modifications of existing facilities shall be designed to achieve an effluent prior to disinfection containing not more than 20 mg/L CBOD5 and 20 mg/L TSS (single sample parameter), or 90% removal of each of these pollutants from the wastewater influent, whichever is more stringent. All facilities shall be operated to achieve, at a minimum, the specified effluent limitations (20 mg/L). All facilities shall be subject to provisions of Rule 62-600.110, F.A.C., regarding the applicability of the above requirements, and Rules 62-600.440, 62-600.445 and 62-600.740, F.A.C., regarding compliance with these requirements. Appropriate disinfection and pH control of effluents shall also be required.

Attachment #1

Existing Standards provides that type III domestic wastewater facilities are required, at a minimum, to provide secondary treatment and basic disinfection. Secondary standards are as follows:

Parameter	Annual Average	Monthly Average	Weekly Average	Single Sample Max.
TSS (mg/l)	20	30	45	60
BOD (mg/l)	20	30	45	60
Basic Disinfection (mg/l)				0.5

The following adjustments are made to the above regulations based on disposal type.

Absorption fields/Drain fields

Parameter	Annual Average	Monthly Average	Weekly Average	Single Sample Max.
TSS (mg/l)*				5
BOD (mg/l)	20	30	45	60
Basic Disinfection (mg/l)				0.5
Total Nitrogen (mg/l)*				12

Percolation Ponds

Parameter	Annual Average	Monthly Average	Weekly Average	Single Sample Max.
TSS (mg/l)	20	30	45	60
BOD (mg/l)	20	30	45	60
Basic Disinfection (mg/l)				0.5
Total Nitrogen (mg/l)*				12

*adjustments made from Secondary Standards

Existing Type III facilities located in the Monroe County discharging via Class V injection wells are required to meet secondary standards and basic disinfection requirements. Any new type III facilities are required to meet Best Available Technology

(BAT) standards and all type III facilities must meet BAT standards by July 2010. The BAT requirements are as follows:

Parameter	Annual Average	Monthly Average	Weekly Average	Single Sample Max.
TSS (mg/l)	10	12.5	15	20
BOD (mg/l)	10	12.5	15	20
Basic Disinfection (mg/l)				0.5
Total Nitrogen (mg/l)	10	12.5	15	20
Total Phosphorus (mg/l)	1	1.25	1.50	2.0

PASSED AND DULY ADOPTED BY THE SOUTHWEST FLORIDA REGIONAL PLANNING COUNCIL this 18th day of October, 2007.

SOUTHWEST FLORIDA REGIONAL PLANNING COUNCIL

ATTEST:




James Coletta, Chairman


Kenneth Heatherington, Planning Director