

**BRUNSWICK-GLYNN
JOINT WATER & SEWER
COMMISSION**

**GLYNN COUNTY
EXIT 29 I-95/US 17 WATER POLLUTION
CONTROL PLANT
LOCAL LIMITS**



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GLYNN COUNTY

EXIT 29 I-95/US 17 WATER POLLUTION CONTROL PLANT

LOCAL LIMIT DEVELOPMENT

SECTION 1. Introduction

As part of the Glynn County pretreatment program, discharge limitations for the industrial users contributing to the Exit 29 I-95/US 17 Water Pollution Control Plant (WPCP) must be set. The discharge limits are designed to protect the sanitary sewer, WPCP, public health, and the environment from damage. This document presents the technical basis upon which the WPCP's local limits were developed.

This document is developed in accordance with the guidelines and information in EPA's Local Limits Development Guidance, July 2004, EPA's Guidance to Protect POTW Workers from Toxic and Reactive Gases and Vapors, June 1992, and Georgia EPD's Rules for Safe Drinking Water, Chapter 391-3-5.

SECTION 2. Legal Basis for Limits Development

EPA developed the General Pretreatment Regulations (40 CFR 403) to establish prohibitions which are implemented through local limits. Sections 403.5(c) and (d) specifically apply to the development and implementation of local limits. Section 403.5(c) requires the implementation of the general and specific prohibitions through the local limits. In addition to the local limits, some users, depending on their type of manufacturing process, are also subject to categorical limits as stated in Section 403.8(f)(1)(ii).

Proper legal authority for the County to implement, operate, and enforce its

industrial pretreatment program is concurrently being established in the Glynn County Water and Sewer Ordinance. This Local Limits Development Document and the Glynn County Water and Sewer Ordinance are reviewed and approved by EPD prior to their implementation.

SECTION 3. WPCP Description

Glynn County owns the Hwy 17 WPCP, its associated sanitary sewers, and permit. The wastewater system is operated by the Brunswick-Glynn County Joint Water & Sewer Commission (JWSC). The WPCP serves mainland Glynn County between the Turtle and Little Satilla rivers, and portions of the Georgia Ports Authority Colonel's Island facility.

Current treatment is by activated sludge. Effluent is land applied. Sludge is aerobically digested and landfilled. There is no nitrification or primary settling. The Hwy 19 WPCP has a permitted capacity of 0.300 MGD monthly average and 0.370 daily maximum, and discharges under permit GA02-059. The current annual average actual total flow is 0.232 MGD.

The WPCP will soon be upgraded to 0.5 MGD, and subsequently to 2.0 MGD, capacity. EPD issued NPDES permit GA0038938 on February 25, 2008 with limits for both expansions.

- The 0.5 MGD phase will simply use the existing treatment units and install an outfall line to the Little Satilla River.
- The 2.0 MGD phase will be a new activated sludge plant with nitrification and denitrification (no primary clarification) and phosphorus removal. The sludge will be aerobically digested and landfilled. The permit allows 1.5 MGD

discharge to the Little Satilla River and 0.5 MGD reuse.

Local limits have been developed for each phase of the plant based on conditions specific to each phase. Table 3.1 summarizes the criteria considered for limit development for each phase of the plant.

Table 3.1 – Summary of Pretreatment Limit Criteria			
	0.3 MGD	0.5 MGD	2.0 MGD
Groundwater Protection	Yes	No	No
Surface Water Quality	No	Yes	Yes
Activated Sludge Inhibition	Yes	Yes	Yes
Nitrification Inhibition	No	No	Yes
Gas/Vapor Toxicity	Yes	Yes	Yes
Categorical Industrial Limits	No	No	Yes

Given the differing requirements of the three phases of the plant, calculations in this report are divided into three sections. Section 7 will detail the calculation of local limits for the 0.3 MGD LAS system. Sections 8 & 9 will detail the calculation of local limits for the 0.5 MGD phase and 2.0 MGD phase, respectively.

SECTION 4. Significant Industrial Users

Significant industrial users were identified by:

- Reviewing water and sewer billing records for the Exit 29 WPCP service area,
- Interviewing Exit 29 WPCP operations staff,
- Interviewing Glynn County Health Department sanitarians,
- Interviewing JWSC management,

- Searching Georgia Ports Authority web site, and
- Searching Georgia Manufacturing Guide.

The following commercial entities in the service area were determined to not be significant industrial users for the Exit 29 WPCP at this time because they were determined either to produce less than 2,000 gpd of minimally contaminated process wastewater, or not be sewered to the Exit 29 WPCP:

- Allied Universal
- Amports
- Atlantic Vehicle processors
- Goasis
- GPA Grain Distribution Facility
- Pilot Truck Care Center #379
- Speedco

The following businesses were determined to be significant industrial users of the Exit 29 WPCP, and require permitting:

- Blue Beacon Truck Wash
 - No dump station
 - Wash trucks and recreational vehicles around the clock
 - 0.015-0.035 MGD, average 0.015 MGD
 - oil/water separator
 - oils and detergents
 - source of periodic WPCP foaming and diesel smell

- International Auto Processing
 - Current septic tank
 - Discharge to WPCP when lift station constructed early 2009
 - 0.03 MGD
 - Remove wax, wash imported automobiles

- Lyondell/ Millennium
 - Bulk fragrance and flavoring terpene based chemicals
 - SIC 2819 and 2869
 - 0.040-0.055 MGD current flow
 - Currently biologically treat and land apply on 20 acres under EPD LAS permit GA01-519 with effluent monitoring required for total kjeldahl nitrogen, ammonia nitrogen, nitrate/nitrite nitrogen, total phosphorus, BOD, COD, total suspended solids, chloride, pH, specific conductance, sodium, potassium, calcium, magnesium, boron, nickel, zinc, and vanadium.
 - Pretreated wastewater approximately 1,000 mg/L COD and high nickel
 - Spray fields at maximum nickel loading in 5 to 10 years
 - Interested in discharging to WPCP when spray fields depleted

- Mercedes
 - Assumed similar to IAP, specific information not available
 - Facility in design phase

- Other small commercial process discharges

- Current 0.005 MGD
- Future 0.020 MGD
- Largely vehicle washing

The phasing for industries that require permitting follows:

- Current 0.300 MGD LAS
 - Blue Beacon Truck Wash
 - International Auto Processing
 - Total industrial flow 0.06 MGD
- Impending 0.5 MGD NPDES
 - Blue Beacon Truck Wash
 - International Auto Processing
 - Total industrial flow 0.06 MGD
- Future 1.5 MGD NPDES+0.5 MGD reuse
 - Blue Beacon Truck Wash
 - International Auto Processing
 - Lyondell/Millennium
 - Mercedes
 - Total industrial flow 0.2 MGD

SECTION 5. Pollutants of Concern

Limits were calculated for an extensive list for the following reasons:

- Consistency with the St. Simons WPCP limits,
- Protection of POTW workers

- Protection of biological treatment processes
- Planning for current and future industrial users
- Protection of sensitive receiving stream and marsh, and
- Standards readily available.

SECTION 6. Permit Limits

The Exit 29 WPCP permits have the following limits:

Table 6.1 – Permit Limitations							
Parameter	Current Land Application 0.3 MGD		New Outfall 0.5 MGD		Upgraded WPCP 2.0 MGD		
	Monthly avg	Daily Max	Monthly avg	Weekly avg	Effluent 1.5 MGD		Reuse 0.5 MGD
					Monthly avg	Weekly avg	Monthly avg
Flow (MGD)	0.300	0.370	0.5	0.625	1.5	1.875	0.5
BOD ₅ (mg/L)	30	n/a	30	45	30	45	5.0*
TSS (mg/L)	30	n/a	30	45	30	45	50
Fecal Coliform (#/100mL)	200	n/a	200	200	200	400	23
Ammonia-N (mg/L)	n/a	n/a	17.4	26.1	17.4**	26.1	-
Dissolved Oxygen (mg/L)	n/a	n/a	5.0 min	-	5.0 min	-	-
pH (s.u.)	6.0 min	9.0 max	6.0 min	9.0 max	6.0 min	9.0 max	6.0 min 9.0 max
Total Phosphorus	n/a	n/a	Monitor	Monitor	1.0	1.5	-
Turbidity (NTU)	n/a	n/a	n/a	n/a	n/a	n/a	3

*carbonaceous

**design includes nitrification

SECTION 7. Limits for 0.3 MGD Capacity Phase

7.1 Water Quality Limits

Drinking water quality limits listed in Georgia 391-3-5 are the current standard for determining effluent limits for LAS WRFs. This is necessary to ensure that the WRF's effluent into the environment will not present adverse effects on groundwater. Table 7.1 lists primary and secondary contaminants listed in EPD's Rules for Safe Drinking Water. The maximum headworks loading is calculated from the following equations:

$$Max\ Conc. = \frac{MCL}{(1 - R_{wwtf}) * (1 - R_{ground})}$$

Where,

MCL = MCL, mg/L

R_{wwtf} = Removal across the WRF process, decimal

R_{ground} = Removal through the ground, set at 75% per EPD Guidance, decimal

$$L_{in} = Max.\ Conc * Q_{wwtf} * 8.34$$

Where,

L_{in} = Maximum Headworkds Loading, lb/d

Q_{wwtf} = Permitted flow of WRF, MGD

The following values are used: 0.30 MGD for Q_{WWTF} and Georgia EPD's Rules for Safe Drinking Water for MCL concentrations. Activated Sludge Removal Efficiencies are the median value on page R-2 of EPA's 2004 Guidance and a ground removal efficiency of 75% is used per EPD guidance.

