

Biological Assessment of

Gulf Power- Scholz Electric Generating Plant

Jackson County

NPDES #FL0002283

Sampled August 2003

March 2004

Biology Section

Bureau of Laboratories

Division of Resource Assessment and Management

Quality Manual No. 870346G

NELAC Certification No. E31780

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NPDES #FL0032298

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Quality Manual No. 8703456

NELAC Certification No. E87737

Florida Department of Environmental Protection

Fifth Year Inspection Summary

Discharger: **Gulf Power- Scholz Electric Generating Plant**

County: **Jackson**

NPDES Number: **FL0002283**

Permit Expiration: **April 12, 2004**

Toxics Sampling Inspection **(XSI)**

Date Sampled: August 26, 2003

Results: No organic constituents were detected in the effluent. The metals aluminum, copper, iron, lead, and zinc were detected in the effluent at levels that did not exceed Class III Water Quality Criteria or the facility's permit limits.

Compliance Biomonitoring Inspection **(CBI)**

Date Sampled:

Results: The effluent sample was not acutely toxic to the fish, *Cyprinella leedsi,* or to the water flea, *Ceriodaphnia dubia,* during the 48-hour acute screening bioassays.

Water Quality Inspection **(WQI)**

Date Sampled: August 26, 2003

Results: Fecal and total coliforms were detected in the effluent and the receiving water at levels that did not exceed Class III Water Quality Criteria or the facility's permit limits. Nutrient levels in the facility's effluent were similar to the levels in water samples taken upstream and downstream of the facility's outfall. Nitrate + nitrite levels were higher than 80% of typical Florida streams, while orthophosphate, total phosphorus, ammonia and total Kjeldahl nitrogen levels were lower than the lowest 20% of typical Florida streams.

Impact Bioassessment Inspection **(IBI)**

Date Sampled: August 26, 2003

Results: Phytoplankton and periphyton assemblages were similar at both the Test and Control sites. Chlorophyll *a* was not detected in water samples from either the Test or Control Site. On periphytometers, chlorophyll *a* levels were similar between Test and Control Sites, but the periphytometers were partially fouled with drift material and had invertebrate grazer cases attached. Quantitative results of Shannon-Weaver diversity from Hester-Dendy samplers were similar between

Test and Control Sites. However, there were differences in macroinvertebrate assemblages at the Test Site as compared with the Control Site that may have been related to the facility's heated effluent.

Biological assessments are prepared by FDEP staff to provide information for review of NPDES permit renewal applications. Biological assessments, in conjunction with other information concerning the subject facility and its receiving-water body, are used to determine appropriate permit conditions.

Introduction

The Scholz Electric Generating Plant (Gulf Power Company) is located in Jackson County, Florida (Appendix 1). This facility is a steam-powered electrical generating plant, built in 1953. All treated and untreated wastewater (except once-through cooling water) is discharged to an ash pond (see Facility Summary in Appendix 2). The ash pond discharges to the facility's 850-foot long discharge canal. Wastewater streams to the ash pond include ash sluice water, water softener regeneration wastewater, boiler blowdown, air pre-heater wash, auxiliary equipment cooling water, coal-pile runoff, yard sumps and treated domestic wastewater. The effluent from the ash pond and once-through cooling water is then discharged into a box-cut and dredged canal before joining the Class III fresh water of the Apalachicola River. The wastewater system has no design capacity limit and the mean flow between January 2002 and May 2003 was 129.6 MGD (million gallons per day, per W. Keller, FDEP Northwest District). The actual mean flow during this survey was not recorded.

Surface Water Quality Criteria and facility permit limits are listed in Table 1. According to the facility's monthly discharge monitoring reports, the plant has had no water quality violations between January 2002 and May 2003 (Appendix 2). Between March 1998 and November 2001, the facility exceeded permit limits for iron (2 exceedances), copper (3), lead (1), oil and grease (1), and total suspended solids (2) (Appendix 2).

Methods

The purpose of this investigation was to determine the potential effects of the facility's effluent on the biota of the receiving waters. Chemical and biological comparisons were made between a control site (located at the entrance of the box-cut, plant intake canal upstream of the plant) and a test site (located at the end of the box-cut discharge canal after the ash pond effluent enters the flow). Two sets of floating Hester-Dendy samplers were deployed at each study site. Because there was little available habitat for macroinvertebrates, dipnet sampling and habitat assessment was not performed during this biological assessment. Detailed methods and their relationship to Florida Administrative Code are given in Appendix 3.

All field and laboratory biological methods followed Biology Section Standard Operating Procedures (SOPs, see http://www.floridadep.org/labs/qa/2002sops.htm for details) and met DEP quality assurance/quality control standards (see http://www.floridadep.org/labs/qa/index.htm).

The following were involved in this investigation: Keith Butchikas (FDEP Northwest District), and Johnny Richardson, Michael Heyn and Sally Levings (FDEP Central Laboratory in Tallahassee). The report was reviewed by District representatives and the Point Source Studies Review Committee (Wayne Magley, Chuck Ziegmont and Michael Tanski).

Results and Discussion

- Specific chemical results are reported in Table 1 and a complete list of chemical analytes can be reviewed in Appendix 4. No organic pollutants were detected in the effluent. Effluent metals complied with Class III Water Quality Criteria (FAC 62-302) and facility permit limits. Aluminum, copper, iron and lead were found in the effluent at levels above the practical quantitation limit (PQL) but not exceeding Class III Water Quality Criteria. The metal zinc was found in the effluent at levels above the method detection limit and below the PQL. Levels of copper and iron in the effluent were close to, but did not exceed, the Class III Water Quality Criteria. None of the metals detected in the effluent exceeded facility permit limits.
- Effluent pH (Standard Units) and dissolved oxygen (mg/L) complied with Class III Water Quality Criteria (62-302 F.A.C.) and facility permit limits (permit limit for pH only). Dissolved oxygen, pH and conductivity (µmhos/cm) at the Test and Control Sites complied with Class III Water Quality Criteria (Table 1, 62-302.530 F.A.C.).
- Effluent temperature was elevated (37°C, 98.6 °F) as a result of passage through the facility (Table 1). Water temperature at the Test Site (36.6°C, 97.9°F) was elevated compared with the Control Site (29.2°C, 84.5°F) as a result of the facility's heated effluent. The temperature of the facility's effluent exceeded maximum thermal criteria as given in F.A.C. 62-302.520(4)(a), by being (1) more than 5°F above ambient (Control) water temperature, and (2) higher than 90°F. Monthly average maximum water temperature in 12 months of DMR data (December 2002-November 2003) indicated an average elevation of discharge temperature of 4.4-9.2°F with an overall mean temperature elevation of 7.1°F (Appendix 2). The difference was less than 5°F only in October 2003. Discharge temperature exceeded 90°F in August 2003 and was 89.6°F in July and September 2003.
- The effluent sample was not acutely toxic to the fish, *Cyprinella leedsi,* or to the water flea, *Ceriodaphnia*

Table 1. Effluent limits, Class III Criteria and chemical, microbiological, and toxicological data.

Gulf Power - Scholz	Class III Stds	Effluent Limits	Effluent Samples	Control Site	Test Site
Organic Constituents (µg/L)					
None Detected	-	-	-	-	-
Metals (µg/L unless otherwise noted)					
Aluminum	≤1500	-	243	-	-
Arsenic	≤50	-	5 U	-	-
Cadmium	≤0.7 b	≤0.7 b	0.025 U	-	-
Calcium (mg/L)	-	-	19.7	-	-
Chromium-III	≤53.8 b	-	2 U	-	-
Copper	≤5.7 b	≤5.7 b	5.1	-	-
Iron	≤1000	≤1000	709	-	-
Lead	≤1.5 b	≤1.5 b	0.3	-	-
Magnesium (mg/L)	-	-	1.7	-	-
Nickel	≤32 b	-	2.5 U	-	-
Selenium	≤5	-	1 U	-	-
Silver	≤0.07	-	0.02 U	-	-
Zinc	≤73.5 b	-	6.1 I	-	-
Nutrients (mg/L)					
Ortho-phosphate	-	-	0.006 I	0.004 I	0.004 U
Total Phosphorus	-	-	0.028 I	0.028 I	0.022 I
Ammonia	-	-	0.044	0.047	0.048
Unionized Ammonia	≤0.02	-	< 0.02 c	< 0.02 c	< 0.02 c
Nitrate+Nitrite	-	-	0.48	0.46	0.47
Total Kjeldahl Nitrogen	-	-	0.35	0.39	0.41
Organic Nitrogen	-	-	0.31 c	0.34 c	0.36 c
Total Nitrogen	-	-	0.83 c	0.85 c	0.88 c
General Physical and Chemical Parameters					
Dissolved Oxygen (mg/L)	≥5	-	-	6.4	8.9
pH (S.U.)	6.0 - 8.5	6.0 - 8.5 s	7.8	7.4	7.4
Conductivity (umhos/cm)	≤1275	-	-	132	137
Temperature (°C)	-	report	37.0	29.2	36.6
Temperature (°F)	90 s	report	98.6	84.5	97.9
Oil and Grease (mg/L)	≤5	< 5	0.6 IV	-	-
Total Suspended Solids (mg/L)	-	-	6 I	4 I	6 I
Flow (MGD)	-	report	-	-	-
Hardness (mg/L)	-	report	56.2 c	-	-
Chlorophyll a (µg/L)	-	-	0.85 U	0.85 U	0.85 U
Phaeophytin (µg/L)	-	-	0.85 U	0.85 U	0.85 U
Microbiology (# counts/100ml)					
Fecal Coliforms-Membrane Filter	≤800 s	< 800 s	6 B	4 B	4 AB
Total Coliforms-Membrane Filter	≤2400 s	-	540	270	460 A
Toxicology Bioassays (48-hour static, screening bioassay, percent mortality in 100% effluent)					
Fish		-	0%	-	-
Water flea		-	0%	-	-

Value is an exceedance of Chapter 62.302.520 (F.A.C.).

b - Value is calculated based on hardness

c - Value is calculated.

A - Value reported is the mean of two or more determinations

B - Results based on colony counts outside the acceptable range

I - Value reported is < the minimum quantitation limit, and ≥ the minimum detection limit

U - Material analyzed for but not detected; value reported is the minimum detection limit

V - Analyte was detected in both sample and method blank

s - Single sample

Table 2. Measured and predicted algal growth potential (AGP) for ortho phosphate (OP) and estimated total phosphate (TP) limitation

Location	AGP (measured)	Predicted AGP (OP) ± 20%	Predicted AGP (TP) ± 20%	Inorganic N:P ratio	Total N:P ratio
Effluent Samples	11.0	2.58 ± 0.52	12.04 ± 2.41	87.33	29.64
Control Site	3.74	1.72 ± 0.344	12.04 ± 2.41	126.75	30.36
Test Site	9.86	ND	9.46 ± 1.89	ND	40

ND-- No orthophosphate was detetected, so these values cannot be calculated.

dubia, during 48-hour acute screening bioassays (see Table 1 for percent mortality and Appendix 6 for bioassay bench sheets).

- Fecal and total coliforms were detected in the effluent and receiving waters at levels that did not exceed Class III Water Quality Criteria or facility permit limits (Table 1).
- Nutrient concentrations in the effluent were almost identical to those in water samples from the Test and Control Sites (Table 1). Total nitrogen concentration in the water samples ranged from 0.83-0.88 mg/L, with approximately equal concentrations of nitrate + nitrite and Total Kjeldahl Nitrogen (TKN) with <0.05 mg/L of ammonia (Table 1). Total phosphorus levels ranged from 0.022 to 0.028 mg/L, with orthophosphate <0.007 mg/L or not detected. Levels of TKN, ammonia, orthophosphate and total phosphorus were lower than those of the lowest 20% of typical Florida streams, while nitrate + nitrite levels were greater than those at the highest 80% of typical Florida streams (Appendix 5).
- Algal growth potential (AGP) is a measure of nutrients available for algal growth (Miller *et al.* 1978). Raschke and Shultz (1987) found that AGP above 5.0 mg dry wt/L represent a "problem" threshold for fresh receiving waters, implying nutrient enrichment. The AGP value at the upstream Control Site was 3.74 mg dry wt/L (Table 2). The AGP values of the downstream Test Site (9.86 mg dry wt/L) and the effluent (11 mg dry wt/L) were above this threshold. Algal growth in all three water samples was probably limited by phosphorus availability, because the nitrogen to phosphorus ratios exceeded 30:1 in all cases. Orthophosphate levels were close to or below detection limits in all samples, complicating estimation of growth inhibition based on phosphorus limitation. If total phosphorus is used as an indicator of estimated yield, growth did not appear to be inhibited in the water samples from the effluent and Test Site, but there might have been growth inhibition in the Control Site sample (Table 2). This difference may have been related to a change in the chemical form of phosphorus compounds or release of nutrients by plankton that broke apart after passage through the facility's cooling tower, leading to higher production in the effluent and Test Site water samples.
- Chlorophyll *a* was not detected in water samples of the effluent or from the Test and Control Sites (Tables 1, 3a). Phytoplankton community composition was similar in water samples from the Control and Test Sites (Table 3a, Appendix 8).
- Periphyton chlorophyll *a* concentration was 2.7 mg/m² at the Test Site and 2.6 mg/m² at the Control Site (Table 3b). However, periphytometers from both the Test and Control Sites were partially fouled with drift material, had a few

Table 3a. Phytoplankton composition

Gulf Power-Scholz	Control Site	Test Site
Number of Taxa	60	68
Shannon-Weaver Diversity	4.73	5.03
Chlorophyll a (µg/L)	0.85 U	0.85 U
Phaeophytin (µg/L)	0.85 U	0.85 U
Algal Density (number/cm²)	1,401	977
Percent Dominant Taxon	16.2	11.4
Dominant Taxon (name)	*Chlorella*	*Chlorella*
Number of Algal Units Identified	315	315
Percentage Composition		
Blue-green algae	30.5	31.8
Diatoms	30.8	31.4
Dinoflagellates	0.3	2.5
Euglenoids	0.3	1.0
Green algae	37.8	33.0
Other	0.3	0.3

U - Material analyzed for but not detected; value reported is the minimum detection limit

Table 3b. Periphyton composition

Gulf Power-Scholz	Control Site	Test Site
Number of Taxa	40	46
Shannon-Weaver Diversity	4.21	4.48
Chlorophyll a (mg/m²)	2.6	2.7 A
Phaeophytin (mg/m²)	0	0 A
Algal Density (number/cm²)	786,713	515,613
Percent Dominant Taxon	18.5	13.1
Dominant Taxon (name)	*Achnanthes minutissima*	*Navicula minima*
Number of Algal Units Identified	297	298
Percentage Composition		
Blue-green algae	8.1	9.7
Diatoms	89.6	85.6
Green algae	1.7	4.4
Other	0.7	0.3

A - Value reported is the mean of two or more determinations

attached cases from grazing invertebrates, and appeared to have lost some attached algae by sloughing (J. Richardson, M. Heyn, S. Levings, personal observations). Periphyton community composition was similar between Test and Control Sites (Table 3b, Appendix 9). The similarity between the periphytometers may have been related, in part, to similar exposure to confounding factors.

- Quantitative measures of benthic macroinvertebrate assemblages based on the Shannon-Weaver diversity index from Hester-Dendy samplers were similar at the Test Site compared to the Control Site (Table 4, Appendix 10). However, the macroinvertebrate assemblages from the samplers differed between the Test and Control Sites. In the two sets of Control Site samples, the assemblages were similar, with amphipods, dipterans and trichopterans forming >80% of the samples. At the Test Site, amphipods were rare or absent. On one sampling rack, gastropods were abundant, replacing the amphipods, while on the other sampling rack, trichopterans were rare and the sample was ~80% dipterans. The differences in macroinvertebrate assemblages between the Test and Control Sites may have been related to the heated discharge from the facility. However, Shannon-Weaver diversity complied with the Biological Integrity Criterion at the study sites (62-302.530 (11) F.A.C.).

Summary

Levels of copper and iron in the effluent were close to, but did not exceed, the Class III Water Quality Criteria. Aluminum, lead and zinc were also present in the effluent at levels that complied with Class III Water Quality Criteria. Reevaluation of monitoring frequency for effluent metal content may be warranted. Test Site water temperature was elevated by the facility's effluent and exceeded thermal criteria given in FAC 62-302.520(4a). DMR data for December 2002 to November 2003 similarly indicated that the facility routinely exceeds thermal criteria given in FAC 62-302.520(4).

Periphyton and phytoplankton results were similar when the Test and Control Site samples were compared. Although Hester-Dendy results complied with the Biological Integrity Criterion, macroinvertebrate assemblages differed between the Test and Control Sites. This difference may have been related to the heated effluent released by the facility.

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Table 4. Macroinvertebrate Hester-Dendy Samples - Quantitative

Gulf Power-Scholz	Control Site 1	Control Site 2	Test Site 1	Test Site 2
Summary Statisics				
Shannon-Weaver Diversity	3.43	3.42	3.72	2.9
Number of Taxa	31	38	35	20
Florida Index	11	19	20	9
Number of EPT Taxa	7	12	12	5
Percent Dominant Taxon	21.9	20.9	22.5	32.5
Dominant Taxon (name)	*Ablabesmyia rhamphe grp.*	*Ablabesmyia rhamphe grp.*	*Physella*	*Palpomyia/bezzia grp.*
Dominant Taxon (group)	Diptera	Diptera	Gastropoda	Diptera
Total Number of Individuals	447	488	503	252
Community Composition: Percent of total				
Amphipoda	19.7	16.8	0.0	1.6
Bivalvia	8.9	8.8	1.4	1.2
Coleoptera	1.6	0.4	0.0	0.4
Diptera	45.6	50.6	46.9	79.4
Ephemeroptera	4.9	4.1	7.2	6.7
Gastropoda	1.8	0.6	22.5	3.2
Odonata	0.7	0.8	0.2	1.2
Trichoptera	16.3	17.6	21.5	6.4
Other	0.5	0.2	0.3	0.0
Functional Feeding Groups: Percent of total				
Parasite	0.2	0.0	0.2	0.0
Piercer	2.2	0.6	0.0	1.7
Predators	22.1	21.0	19.6	31.6
Surface Deposit Feeders	37.5	41.8	30.6	52.5
Suspension Feeders	22.7	25.3	21.4	6.3
Scrapers	3.6	1.8	25.4	6.2
Scavenger	0.8	0.2	0.0	0.0
Shredders	10.9	9.2	2.6	1.8
Unknown	0.0	0.0	0.2	0.0

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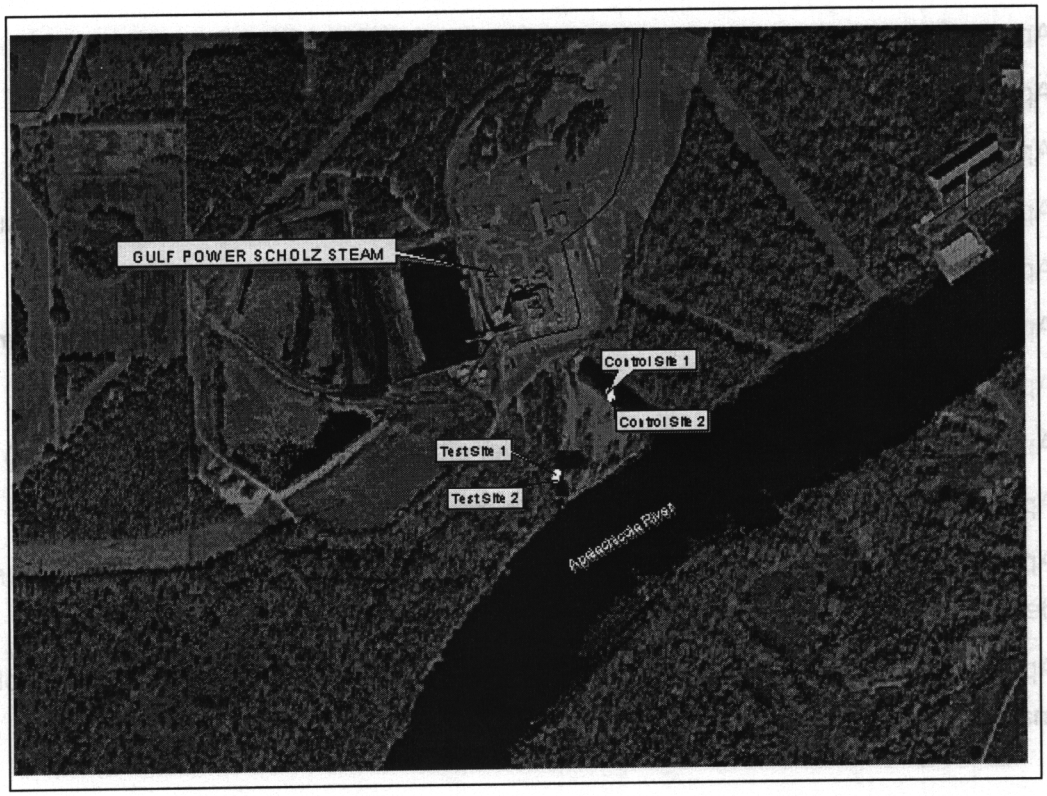
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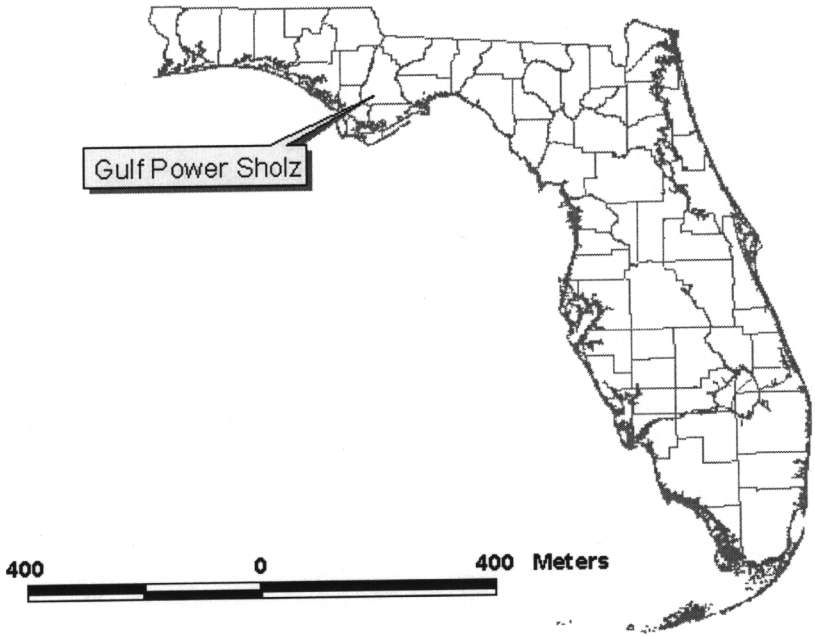
Appendices

- Appendix 1. Map of facility
- Appendix 2. Facility summary
- Appendix 3. Explanation of measurements
- Appendix 4. Chemical analyses of effluent and receiving water.
- Appendix 5. Typical values for selected parameters in Florida waters
- Appendix 6. Additional physical, chemical, toxicological and microbiological results
- Appendix 7. Field sheets
- Appendix 8a. Phytoplankton: Taxa list and density (number of individuals per mL)
- Appendix 8b. Phytoplankton: Taxa list and number of individuals counted
- Appendix 9a. Periphyton: Taxa list and density (number of individuals per cm^2)
- Appendix 9b. Periphyton: Taxa list and number of individuals counted
- Appendix 10a. Hester-Dendy multi-plate samplers: Taxa list and macroinvertebrate density (average number of individuals per m^2)
- Appendix 10b. Hester-Dendy multi-plate samplers: Taxa list and total number of macroinvertebrates counted

Appendix 1

Gulf Power - Sholz







Fifth Year Inspection Program
FDEP - Bureau of Laboratories
Created on: February 20, 2003
Created by: Julie Espy

Facility Summary

Facility Name (as it appears on permit): Scholz Electric Generation Plant		**Former Names:**
Physical Address: 1460 Gulf Power Rd Sneads	**NPDES Permit No:** FL0002283 **Expiration Date:** April 12, 2004	**Prepared By:** Wes Keller
County: Jackson **District:** Northwest	**State Permit No.:** **Expiration Date:**	**Facility Type:** Electric Generation Plant
Function of Facility: Electric Generation Plant		
Sampling Location (specify lat/longs of NPDES point): N 30° 39'58" W 84°53'12"		
Description of treatment process: All treated and untreated wastewater (except once-through cooling water) is discharged to the ash pond. The ash pond discharges via Outfall I-1C (formally Outfall 002) to the facility's 850-foot long discharge canal. Wastewater streams that discharge to the ash pond include:ash sluice water, water softner regeneration wastewater, boiler breakdown, air preheater wash, auxiliary equipment cooling water, coal pile runoff, yard sumps, and treated domestic wastewater.		
Receiving Waters: Apalachicola River		**Classification:** Class III Freshwater
Temperature (C):	**Design Flow:** No limit	
pH (SU):	**Mean Flow:** 129.6 MGD (1/02-5/03)	
Conductivity (umhos/cm):	**Flow During Survey:**	
Dissolved Oxygen (mg/L):	**Total Residual Chlorine (mg/L):** non-chlorinated	
Discharge is: Continuous Intermittent Seasonal Rainfall Dependent Other		
Facility Mixing Zone Details: The facility has no mixing zone.		

List Effluent Limits:

Parameter and Units	Limit	Describe special permit conditions and permit modifications:
Flow	No limit on flow, report only on Instantaneous Maxium	On August 23,1999 a request was granted to Scholz Plant to allow the use of hydrazine as an oxygen scavenger and ammonia for pH adjustment in the boiler water feed system.
Intake Temp, F	Report only	
Discharge Temp, F	Report only	
PH Range, stand. Units	6.0 minimum 8.5 maximum	
Fecal Coliform, #/100 ml	800	
Effluent Hardness, mg/l as CaCo3	Report only	
Total Residual Chlorine, mg/l	0.01	
Oil & Grease, mg/l	5.0	
Total Recoverable Cadmium, ug/l	Based on standards set in FAC62-302.530	

Total Recoverable Copper, ug/l	**Based on standards set in FAC62-302.530**	
Iron, mg/l	**1.0[2]**	
Total Recoverable Lead, ug/l	**Based on standards set in FAC62-302.530**	

Description of permitted outfall: All treated and untreated wastewater (except once through cooling water) is discharged to the ash pond. The ash pond discharges via Outfall I-1C (formally outfall 002) to the facility's 850- foot long discharge canal.

List permit violations (DMR data) and plant upsets that occurred at the plant within the last year:

Monitoring Date	Outfall Indicator Statistical Base	Parameter Description	Data	Limit	Units
3/31/1998	001-Q	IRON, TOTAL RECOVERABLE	1.6	1.0 INST MAX	MG/L
6/30/1998	001-Q	IRON, TOTAL RECOVERABLE	1.5	1.0 INST MAX	MG/L
9/30/1998	004-Q	SOLIDS, TOTAL SUSPENDED	39	30.0 DAILY AV	MG/L
9/30/1998	004-Q	SOLIDS, TOTAL SUSPENDED	39	60.0 DAILY MX	MG/L
7/31/2000	D01-A	COPPER, TOTAL RECOVERABLE		6.1 0.0	INST MAX UG/L
8/31/2000	D01-A	COPPER, TOTAL RECOVERABLE		9.37 0.0	INST MAX UG/L
10/31/2000	D01-1	OIL AND GREASE	8.7	5.0 INST MAX	MG/L
12/31/2000	D01-A	COPPER, TOTAL RECOVERABLE		0.67 0.0	INST MAX UG/L
8/31/2001	I1C-1	SOLIDS, TOTAL SUSPENDED	270	100 MX DA AV	MG/L
8/31/2001	I1C-1	SOLIDS, TOTAL SUSPENDED	72.25	30	MX MO AV MG/L
10/31/2001	D01-A	LEAD, TOTAL RECOVERABLE	1.63	0.0 INST MAX	UG/L

Describe previous impact bioassessments, WQBEL's, and previous or current enforcement actions:

There are no current enforcement actions against the facility.

Discuss MOR trends to prior data; is trend improving or declining: There were no water quality violations from 1/02 to 5/03.

Additional Information: N/A

Discharge Monitoring Data: Gulf Power- Scholz Generating Plant

Outfall Indicator: D01-1
Monitoring Location Code: 1

Parameter Code	Description	Limit	Limit Effective Dates	Statistical Base	Units	AVG	MAX	MIN
P 00011	TEMPERATURE, WATER DEG FAHRENHEI	ADDMON	5/1/99 to 4/30/2004	INST MAX	DEG.F	88.475	103.2	69
P 00011	TEMPERATURE, WATER DEG FAHRENHEI	ADDMON	5/1/99 to 4/30/2004	MX MO AV	DEG.F	76.8167	91.1	59.6
P 00400	PH	8.5	5/1/99 to 4/30/2004	MAXIMUM	SU	7.6267	8.03	7.21
P 00400	PH	6	5/1/99 to 4/30/2004	MINIMUM	SU	7.2025	7.43	6.88
P 00556	OIL AND GREASE	5	5/1/99 to 4/30/2004	INST MAX	MG/L	0.55	0.55	0.55
P 50050	FLOW	ADDMON	5/1/99 to 4/30/2004	INST MAX	MGD	119.6308	129.6	0.0004
P 50050	FLOW	DELMON	5/1/99 to 4/30/2004		MGD	0.0007	0.0007	0.0007
P 74055	COLIFORM, FECAL GENERAL	800	5/1/99 to 4/30/2004	INST MAX	#/ 100ML	41.25	140	4

Outfall Indicator: D01-1
Monitoring Location Code: 7

Parameter Code	Description	Limit	Limit Effective Dates	Statistical Base	Units	AVG	MAX	MIN
P 00011	TEMPERATURE, WATER DEG FAHRENHEI	ADDMON	5/1/99 to 4/30/2004	INST MAX	DEG.F	76.1583	93.3	53.6
P 00011	TEMPERATURE, WATER DEG FAHRENHEI	ADDMON	5/1/99 to 4/30/2004	MX MO AV	DEG.F	69.7333	82.6	50.4

Outfall Indicator: D01-A
Monitoring Location Code: 1

Parameter Code	Description	Limit	Limit Effective Dates	Statistical Base	Units	AVG	MAX	MIN
P 00980	IRON, TOTAL RECOVERABLE	ADDMON	5/1/99 to 4/30/2004	INST MAX	MG/L	770	770	770
P 01113	CADMIUM, TOTAL RECOVERABLE	ADDMON	5/1/99 to 4/30/2004	INST MAX	UG/L	0.16	0.16	0.16
P 01114	LEAD, TOTAL RECOVERABLE	ADDMON	5/1/99 to 4/30/2004	INST MAX	UG/L	0.6	0.6	0.6
P 01119	COPPER, TOTAL RECOVERABLE	ADDMON	5/1/99 to 4/30/2004	INST MAX	UG/L	0.51	0.51	0.51

Outfall Indicator: D01-A
Monitoring Location Code: P

Parameter Code	Description	Limit	Limit Effective Dates	Statistical Base	Units	AVG	MAX	MIN
P 00980	IRON, TOTAL RECOVERABLE	ADDMON	5/1/99 to 4/30/2004	INST MAX	MG/L	1000	1000	1000
P 01113	CADMIUM, TOTAL RECOVERABLE	ADDMON	5/1/99 to 4/30/2004	INST MAX	UG/L	0.57	0.57	0.57
P 01114	LEAD, TOTAL RECOVERABLE	ADDMON	5/1/99 to 4/30/2004	INST MAX	UG/L	1.05	1.05	1.05
P 01119	COPPER, TOTAL RECOVERABLE	ADDMON	5/1/99 to 4/30/2004	INST MAX	UG/L	4.45	4.45	4.45

Outfall Indicator: I1A-1
Monitoring Location Code: 1

Parameter Code	Description	Limit	Limit Effective Dates	Statistical Base	Units	AVG	MAX	MIN
P 00310	BOD, 5-DAY (20 DEG C)	60	5/1/99 to 4/30/2004	MX DA AV	MG/L	7.15	7.3	7
P 00310	BOD, 5-DAY (20 DEG C)	30	5/1/99 to 4/30/2004	MX MO AV	MG/L	7.15	7.3	7
P 50050	FLOW	ADDMON	5/1/99 to 4/30/2004	MX DA AV	MGD	0.0022	0.00423	0.00055
P 50050	FLOW	ADDMON	5/1/99 to 4/30/2004	MX MO AV	MGD	0.0007	0.00188	0.00042

Outfall Indicator: I1C-1
Monitoring Location Code: 1

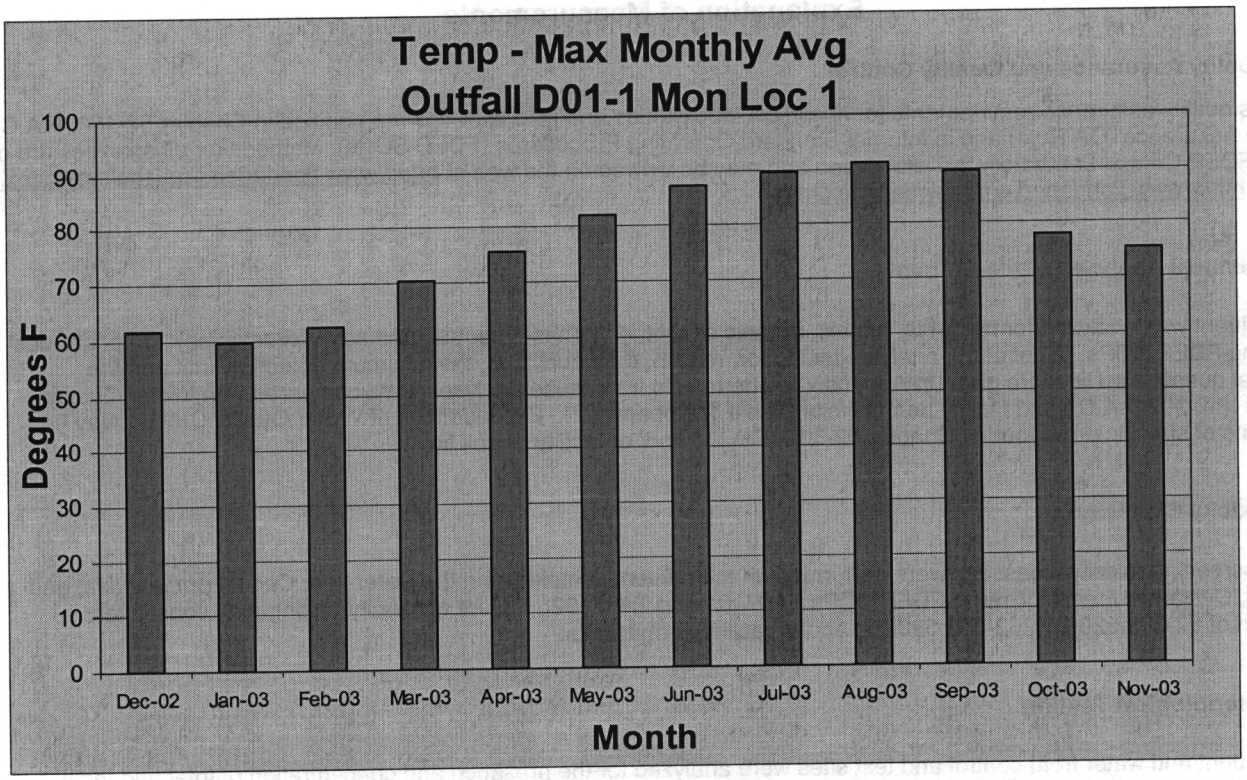
Parameter Code	Description	Limit	Limit Effective Dates	Statistical Base	Units	AVG	MAX	MIN
P 00400	PH	6	5/1/99 to 4/30/2004	DAILY MN	SU	7.5682	7.85	7.32
P 00400	PH	9	5/1/99 to 4/30/2004	DAILY MX	SU	7.8155	8.1	7.63
P 00530	SOLIDS, TOTAL SUSPENDED	100	5/1/99 to 4/30/2004	MX DA AV	MG/L	5.7636	8	2.8
P 00530	SOLIDS, TOTAL SUSPENDED	30	5/1/99 to 4/30/2004	MX MO AV	MG/L	5.2455	11	3
P 00556	OIL AND GREASE	20	5/1/99 to 4/30/2004	MX DA AV	MG/L	0.4945	0.59	0.41
P 00556	OIL AND GREASE	15	5/1/99 to 4/30/2004	MX MO AV	MG/L	0.5173	0.59	0.41
P 01074	NICKEL, TOTAL RECOVERABLE	ADDMON	5/1/99 to 4/30/2004	INST MAX	UG/L	1.2	1.2	1.2
P 50050	FLOW	ADDMON	5/1/99 to 4/30/2004	MX DA AV	MGD	6.498	21.83	1.45
P 50050	FLOW		5/1/99 to 4/30/2004			-1.#IND	-1000	1000000

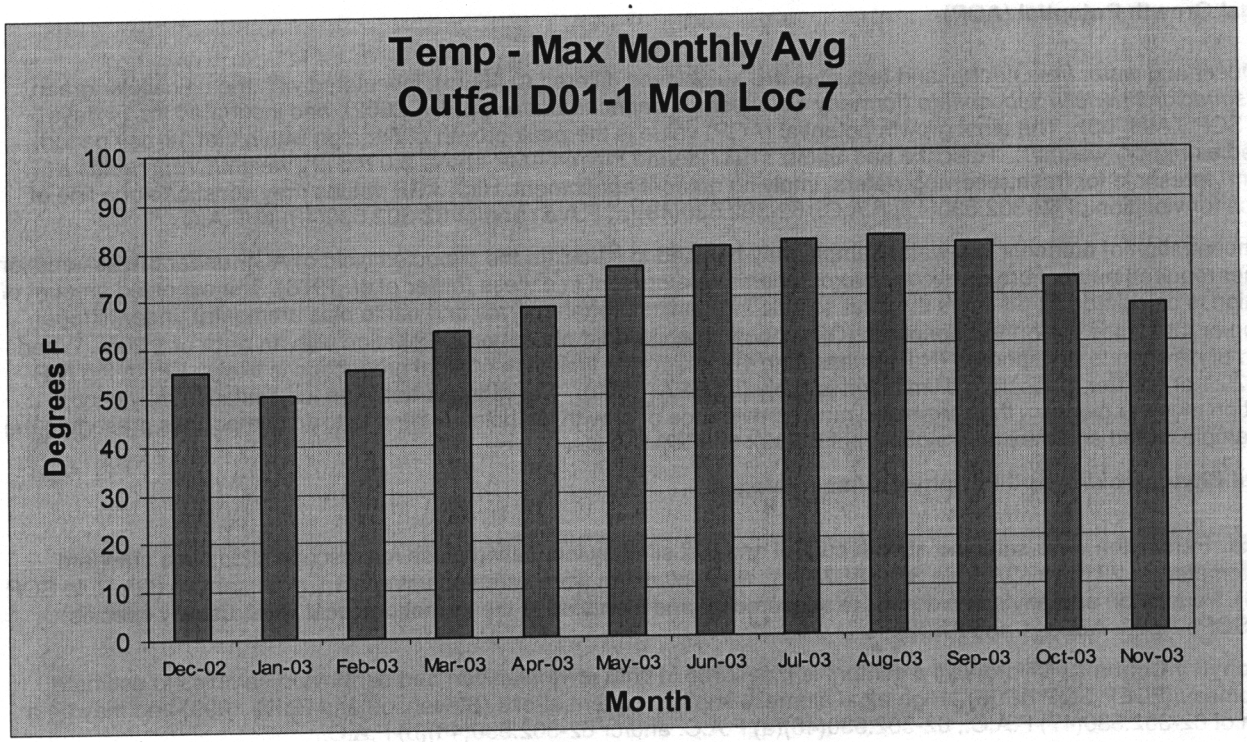
Monthly Intake and Outfall Temperature Difference (Degrees F)

Monitoring Date	Outfall Data	Intake Data	Difference
Dec-02	61.5	55.1	6.4
Jan-03	59.6	50.4	9.2
Feb-03	62.2	55.5	6.7
Mar-03	70.2	63.4	6.8
Apr-03	75.7	68.1	7.6
May-03	82	76.6	5.4
Jun-03	87.2	80.7	6.5
Jul-03	89.6	81.8	7.8
Aug-03	91.1	82.6	8.5
Sep-03	89.6	81.1	8.5
Oct-03	77.9	73.5	4.4
Nov-03	75.2	68	7.2

No Data Indicator Codes

CODE	DESCRIPTION
B	BELOW DETECTION LIMIT
Q	NOT QUANTIFIABLE
C	NO DISCHARGE
D	LOST SAMPLE
E	ANALYSIS NOT CONDUCTED
F	INSUFFICIENT FLOW FOR SAMPLING
G	SAMPLING EQUIPMENT FAILURE
K	FLOOD DISASTER
1	WRONG FLOW
2	OPERATIONS SHUTDOWN
3	LOW LEVEL PRODUCTION
6	PRODUCTION BASED LIMITS DONT APPLY TO MP
8	OTHER
9	MONITORING NOT REQUIRED THIS PERIOD
L	DMR RECEIVED BUT NOT ENTERED


Temp - Max Monthly Avg
Outfall D01-1 Mon Loc 1
Degrees F
100
90
80
70
60
50
40
30
20
10
0
Dec-02
Jan-03
Feb-03
Mar-03
Apr-03
May-03
Jun-03
Jul-03
Aug-03
Sep-03
Oct-03
Nov-03
Month


Temp - Max Monthly Avg
Outfall D01-1 Mon Loc 7
Degrees F
100
90
80
70
60
50
40
30
20
10
0
Dec-02
Jan-03
Feb-03
Mar-03
Apr-03
May-03
Jun-03
Jul-03
Aug-03
Sep-03
Oct-03
Nov-03
Month

Appendix 3

Explanation of Measurements

(1) Quality Assurance and Quality Control

FDEP's quality assurance requirements for analytical laboratories and field activities are codified in Chapter 62-160, F.A.C., Quality Assurance (QA Rule) and in internal Standard Operating Procedures (FDEP SOPs). Methods for all analyses are on file at the FDEP Central Laboratory in Tallahassee and may be viewed on the web at http://www.floridadep.org/labs/sop/index.htm and/or http://www.floridadep.org/labs/qa/index.htm .

(2) Chemical Analyses of the Effluent

The effluent was analyzed for nutrients, metals, organic constituents (base, neutral, and acid extractables) and pesticides following FDEP SOPs. A list of the analytes tested for, results, data qualifiers, the minimum detection limit and the practical quantitation limit are given in Appendix 4. The results from these analyses were compared with Water Quality Criteria (62-302 F.A.C.) and facility permit limits (Table 1, Appendix 2). Exceedances of Water Quality Criteria may be violations of specific provisions of Chapter 62-302 (F.A.C.) and/ or facility permit limits.

(3) Toxicity Bioassays

Acute screening toxicity bioassays were performed on the effluent sample using the water flea, *Ceriodaphnia dubia,* and the fish, *Cyprinella leedsi* following FDEP SOPs TA07_01 and TA07_02. Failure of toxicity testing may constitute a violation of 62-302.520(21), 62-302.530(62) and/or facility permit limits.

(4) Bacteriological Testing

The effluent and water from control and test sites were analyzed for the presence and concentration of total and fecal coliform bacteria following FDEP SOPs MB1_0 and MB1_1. High levels of fecal or total coliform bacteria may constitute violation of 62-302.530(6), 62-302.530(7) and/or facility permit limits.

(5) Algal Growth Potential (AGP)

The effluent and water from control and test sites are autoclaved, filtered (0.45μm), inoculated with the unicellular green alga, *Pseudokirchneriella subcapitata* (formerly *Selenastrum capricornutum,* USEPA 2002*),* and incubated for 14 days (FDEP SOP TA08_05). The algal growth potential (AGP) value is the peak growth of the alga within that 14-day period, recorded as mg dry weight/L. Raschke and Shultz (1987) found that an AGP above 5.0 mg dry weight/L represents a "problem" threshold for fresh receiving waters, implying nutrient enrichment. High AGP values may constitute one line of evidence for violation of 62-302.530(47) F.A.C., 62-302.530(48)(a) F.A.C. and/or 62-302.530(48)(b) F.A.C..

The concentration of nutrients in a water sample may be used to calculate the expected yield of AGP under the assumption that other required nutrients (e.g. silicon, micronutrients) are present in excess (Miller *et al.* 1978). The expected amount of production is calculated as 38 times the total soluble inorganic nitrogen (nitrate and nitrite plus ammonia) under nitrogen limitation or 430 times the ortho-phosphate (OP) concentration under phosphorus limitation with an error of ± 20%. When the ratio of nitrogen to phosphorus (N:P) is less than 10:1, nitrogen limitation of algal production is likely. When the N:P ratio is 20:1 or greater, phosphorus limitation is likely (USEPA 2000). For ratios in-between, co-limitation may occur. Production of lower biomass than expected may be evidence of growth inhibition related to toxic compounds present in the water sample tested and may be a violation of 62-302.530(62) F.A.C..

(6) Algal Phytoplankton and Periphyton Assemblages

Methods: Periphyton were sampled at both control and test sites by incubating glass microscope slides in a standard periphytometer for 28 days (QA Rule SOP FS7210). Phytoplankton were sampled using a 1 L grab sample (QA Rule SOP FS7100). Periphyton and phytoplankton were subsampled and identified to the lowest practical level, usually species (FDEP SOPs AB03, AB03_1 and AB05).

Chlorophyll *a* Content: Chlorophyll *a* content is measured in both phytoplankton and periphyton samples to estimate algal biomass (FDEP SOP BB05). High algal biomass implies nutrient stress (Stevenson and Bahls 1999) and may be a violation of 62-302.530(47) F.A.C., 62-302.530(48)(a) F.A.C. and/or 62-302.530(48)(b) F.A.C..

Algal Density: Algal density is estimated as number of natural units/ml for phytoplankton samples and number of natural units/cm^2 for periphyton samples. Although algal density of a single site is highly variable and depends on a number of factors, comparison of algal density at a control site to algal density at a related test site gives a partial comparison of algal biomass at the two sites (Stevenson and Smol 2003).

Taxa richness: Taxa richness is the number of distinct algal taxa present in a sample. Extreme nutrient enrichment tends to reduce the number of different types of algae present in a sample because a few tolerant taxa tend to reproduce rapidly and constitute the majority of the cells present. However, moderate nutrient enrichment of nutrient poor waters may sometimes be correlated with increased algal taxa richness (Stevenson and Bahls 1999) as the algal community begins to respond to the increased input of nutrients.

Community Composition: Shifts in relative proportions of major groups of algae downstream of a point source, compared to upstream, control conditions, may indicate negative effects of a discharge (Stevenson and Bahls 1999) and may constitute violations of 62-302.530(47) F.A.C., 62-302.530(48)(a) F.A.C., 62-302.530(48)(b) F.A.C. and/or 62-302.530(62) F.A.C..

Shannon-Weaver Diversity Index: This index is specified in the Florida Administrative Code 62-302 as a measure of biological integrity. Low diversity scores are undesirable. Where diversity is low, only a few taxa are abundant as compared to an area where many taxa are present with more equitable abundance among taxa (Magurran 1988). Low diversity scores related to a facility's effluent may constitute violations of 62-302.530(47) F.A.C., 62-302.530(48)(a) F.A.C., 62-302.530(48)(b) F.A.C. and/or 62-302.530(62) F.A.C..

(7) Benthic Macroinvertebrate Assemblages

Methods: Benthic macroinvertebrates were collected from Hester-Dendy multi-plate samplers incubated for 28 days (QA Rule SOP FS7430). Benthic macroinvertebrates were sorted and identified to the lowest practical taxonomic level, usually species (FDEP SOP IZ06).

Taxa richness: Taxa richness is the number of distinct macroinvertebrate taxa present in a sample. Stress, habitat destruction and pollution tend to reduce the number of different types of organisms present (Karr and Chu 1998). Decreases in taxa richness related to a facility's effluent may constitute violations of 62-302.530(47) F.A.C., 62-302.530(48)(a) F.A.C., 62-302.530(48)(b) F.A.C. and/or 62-302.530(62) F.A.C..

Percent Contribution of Dominant Taxon: Percent contribution of the dominant taxon is calculated by dividing the number of individuals in the most abundant taxa by the total number of individuals counted. Percent contribution of the dominant taxon tends to increase with increasing perturbation (Plafkin *et al.*, 1989). Increases in the percent contribution of the dominant taxon related to a facility's effluent may constitute violations of 62-302.530(47) F.A.C., 62-302.530(48)(a) F.A.C. and/or 62-302.530(48)(b) F.A.C..

Shannon-Weaver Diversity Index: This index is specified in the Florida Administrative Code 62-302 as a measure of biological integrity. Low diversity scores are undesirable. Where diversity is low, only a few taxa are abundant as compared to an area where many taxa are present in equitable abundance among taxa (Magurran 1988). A difference of 25% in Shannon-Weaver diversity between results from Hester-Dendy multiplate samplers incubated for 28 days at test and control sites constitutes a violation of 62-302.530(11) F.A.C..

The Florida Index: Some organisms become rare or absent as the intensity or duration of disturbance increases. The Florida Index assigns points to stream-dwelling macroinvertebrates based on their ranked sensitivity to pollution (Beck 1954). A site with a high Florida Index score is considered healthy (Ross 1990). Decreases in Florida Index points related to a facility's effluent may constitute violations of 62-302.530(47) F.A.C., 62-302.530(48)(a) F.A.C., 62-302.530(48)(b) F.A.C. and/or 62-302.530(62) F.A.C..

Ephemeroptera/Plecoptera/Trichoptera (EPT) Taxa: This value is the number of EPT taxa present. More EPT taxa are usually present in unpolluted waters (Plafkin *et al.*, 1989, Wallace *et al.*, 1996). Decreases in the number of EPT taxa related to a facility's effluent may constitute violations of 62-302.530(47) F.A.C., 62-302.530(48)(a) F.A.C., 62-302.530(48)(b) F.A.C. and/or 62-302.530(62) F.A.C..

Community Composition: Shifts in proportions of major groups of organisms downstream of a point source, compared to upstream, control conditions, may indicate negative effects of a discharge (Karr and Chu 1998). Shifts in community composition related to a facility's effluent may constitute violations of 62-302.530(47) F.A.C., 62-302.530(48)(a) F.A.C., 62-302.530(48)(b) F.A.C. and/or 62-302.530(62) F.A.C..

Functional Feeding Groups: Environmental degradation may differentially affect groups of invertebrates based on how the group feeds (e.g. predators, deposit feeders, etc.). In Florida, pollution may be responsible for reducing the numbers of filter feeders (FDEP 1994) and shredders (EA Engineering 1994). Changes in the proportions of functional feeding groups related to a facility's effluent may constitute violations of 62-302.530(47) F.A.C., 62-302.530(48)(a) F.A.C., 62-302.530(48)(b) F.A.C. and/or 62-302.530(62) F.A.C..

Appendix 4

Chemical analysis of effluent and receiving water

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
08/26/03	GULF POWER SCHOLTZ	BNA-Water	1,2,4,5-Tetrachlorobenzene	0.97	ug/L	U	0.97	3.9
08/26/03	GULF POWER SCHOLTZ	BNA-Water	1,2,4-Trichlorobenzene	0.97	ug/L	U	0.97	3.9
08/26/03	GULF POWER SCHOLTZ	BNA-Water	1,2-Dichlorobenzene	0.97	ug/L	U	0.97	3.9
08/26/03	GULF POWER SCHOLTZ	BNA-Water	1,3,5-Trinitrobenzene	3.9	ug/L	UJ	3.9	16
08/26/03	GULF POWER SCHOLTZ	BNA-Water	1,3-Dichlorobenzene	0.97	ug/L	U	0.97	3.9
08/26/03	GULF POWER SCHOLTZ	BNA-Water	1,3-Dinitrobenzene	1.9	ug/L	U	1.9	7.8
08/26/03	GULF POWER SCHOLTZ	BNA-Water	1,4-Dichlorobenzene	0.97	ug/L	U	0.97	3.9
08/26/03	GULF POWER SCHOLTZ	BNA-Water	1,4-Naphthoquinone	19	ug/L	UJ	19	78
08/26/03	GULF POWER SCHOLTZ	BNA-Water	1-Naphthylamine	9.7	ug/L	UJ	9.7	39
08/26/03	GULF POWER SCHOLTZ	BNA-Water	2,3,4,6-Tetrachlorophenol	1.9	ug/L	U	1.9	7.8
08/26/03	GULF POWER SCHOLTZ	BNA-Water	2,4,5-Trichlorophenol	0.97	ug/L	U	0.97	3.9
08/26/03	GULF POWER SCHOLTZ	BNA-Water	2,4,6-Trichlorophenol	0.97	ug/L	U	0.97	3.9
08/26/03	GULF POWER SCHOLTZ	BNA-Water	2,4-Dichlorophenol	0.97	ug/L	U	0.97	3.9
08/26/03	GULF POWER SCHOLTZ	BNA-Water	2,4-Dimethylphenol	49	ug/L	U	49	190
08/26/03	GULF POWER SCHOLTZ	BNA-Water	2,4-Dinitrophenol	15	ug/L	U	15	58
08/26/03	GULF POWER SCHOLTZ	BNA-Water	2,4-Dinitrotoluene	0.97	ug/L	U	0.97	3.9
08/26/03	GULF POWER SCHOLTZ	BNA-Water	2,6-Dichlorophenol	0.97	ug/L	U	0.97	3.9
08/26/03	GULF POWER SCHOLTZ	BNA-Water	2,6-Dinitrotoluene	0.97	ug/L	U	0.97	3.9
08/26/03	GULF POWER SCHOLTZ	BNA-Water	2-Acetylaminofluorene	0.97	ug/L	U	0.97	3.9
08/26/03	GULF POWER SCHOLTZ	BNA-Water	2-Chloronaphthalene	0.97	ug/L	U	0.97	3.9
08/26/03	GULF POWER SCHOLTZ	BNA-Water	2-Chlorophenol	0.97	ug/L	U	0.97	3.9
08/26/03	GULF POWER SCHOLTZ	BNA-Water	2-Methyl-4,6-dinitrophenol	2.9	ug/L	U	2.9	12
08/26/03	GULF POWER SCHOLTZ	BNA-Water	2-Methylnaphthalene	0.97	ug/L	U	0.97	3.9
08/26/03	GULF POWER SCHOLTZ	BNA-Water	2-Naphthylamine	9.7	ug/L	UJ	9.7	39
08/26/03	GULF POWER SCHOLTZ	BNA-Water	2-Nitroaniline	0.97	ug/L	UJ	0.97	3.9
08/26/03	GULF POWER SCHOLTZ	BNA-Water	2-Nitrophenol	0.97	ug/L	U	0.97	3.9
08/26/03	GULF POWER SCHOLTZ	BNA-Water	2-Picoline	0.97	ug/L	U	0.97	3.9
08/26/03	GULF POWER SCHOLTZ	BNA-Water	3,3'-Dichlorobenzidine	39	ug/L	U	39	160
08/26/03	GULF POWER SCHOLTZ	BNA-Water	3,3'-Dimethylbenzidine	19	ug/L	UJ	19	78
08/26/03	GULF POWER SCHOLTZ	BNA-Water	3-Methylcholanthrene	0.97	ug/L	U	0.97	3.9
08/26/03	GULF POWER SCHOLTZ	BNA-Water	3-Nitroaniline	0.97	ug/L	UJ	0.97	3.9
08/26/03	GULF POWER SCHOLTZ	BNA-Water	4,4'-DDD	1.5	ug/L	U	1.5	5.8
08/26/03	GULF POWER SCHOLTZ	BNA-Water	4,4'-DDE	1.5	ug/L	U	1.5	5.8
08/26/03	GULF POWER SCHOLTZ	BNA-Water	4,4'-DDT	1.5	ug/L	U	1.5	5.8
08/26/03	GULF POWER SCHOLTZ	BNA-Water	4-Aminobiphenyl	3.9	ug/L	UJ	3.9	16
08/26/03	GULF POWER SCHOLTZ	BNA-Water	4-Bromophenyl phenyl ether	0.97	ug/L	U	0.97	3.9
08/26/03	GULF POWER SCHOLTZ	BNA-Water	4-Chloro-3-methylphenol	0.97	ug/L	U	0.97	3.9
08/26/03	GULF POWER SCHOLTZ	BNA-Water	4-Chloroaniline	0.97	ug/L	UJ	0.97	3.9
08/26/03	GULF POWER SCHOLTZ	BNA-Water	4-Chlorophenyl phenyl ether	1.9	ug/L	U	1.9	7.8
08/26/03	GULF POWER SCHOLTZ	BNA-Water	4-Nitroaniline	0.97	ug/L	U	0.97	3.9

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
08/26/03	GULF POWER SCHOLTZ	BNA-Water	4-Nitrophenol	15	ug/L	U	15	58
08/26/03	GULF POWER SCHOLTZ	BNA-Water	5-Nitro-o-toluidine	0.97	ug/L	U	0.97	3.9
08/26/03	GULF POWER SCHOLTZ	BNA-Water	7,12-Dimethylbenz(a)anthracene	0.97	ug/L	U	0.97	3.9
08/26/03	GULF POWER SCHOLTZ	BNA-Water	Acenaphthene	0.97	ug/L	U	0.97	3.9
08/26/03	GULF POWER SCHOLTZ	BNA-Water	Acenaphthylene	0.97	ug/L	U	0.97	3.9
08/26/03	GULF POWER SCHOLTZ	BNA-Water	Acetophenone	0.97	ug/L	U	0.97	3.9
08/26/03	GULF POWER SCHOLTZ	BNA-Water	Aldrin	1.5	ug/L	U	1.5	5.8
08/26/03	GULF POWER SCHOLTZ	BNA-Water	Aniline	0.97	ug/L	U	0.97	3.9
08/26/03	GULF POWER SCHOLTZ	BNA-Water	Anthracene	0.97	ug/L	U	0.97	3.9
08/26/03	GULF POWER SCHOLTZ	BNA-Water	Azobenzene/1,2-Diphenylhydrazine	0.97	ug/L	U	0.97	3.9
08/26/03	GULF POWER SCHOLTZ	BNA-Water	Benzidine	97	ug/L	UJ	97	390
08/26/03	GULF POWER SCHOLTZ	BNA-Water	Benzo(a)anthracene	0.97	ug/L	U	0.97	3.9
08/26/03	GULF POWER SCHOLTZ	BNA-Water	Benzo(a)pyrene	0.97	ug/L	U	0.97	3.9
08/26/03	GULF POWER SCHOLTZ	BNA-Water	Benzo(b)fluoranthene	0.97	ug/L	U	0.97	3.9
08/26/03	GULF POWER SCHOLTZ	BNA-Water	Benzo(g,h,i)perylene	0.97	ug/L	U	0.97	3.9
08/26/03	GULF POWER SCHOLTZ	BNA-Water	Benzo(k)fluoranthene	0.97	ug/L	U	0.97	3.9
08/26/03	GULF POWER SCHOLTZ	BNA-Water	Benzyl alcohol	0.97	ug/L	U	0.97	3.9
08/26/03	GULF POWER SCHOLTZ	BNA-Water	Bis(2-chloroethoxy)methane	0.97	ug/L	U	0.97	3.9
08/26/03	GULF POWER SCHOLTZ	BNA-Water	Bis(2-chloroethyl)ether	0.97	ug/L	U	0.97	3.9
08/26/03	GULF POWER SCHOLTZ	BNA-Water	Bis(2-chloroisopropyl)ether	2.9	ug/L	U	2.9	12
08/26/03	GULF POWER SCHOLTZ	BNA-Water	Bis(2-ethylhexyl)phthalate	15	ug/L	UJ	15	58
08/26/03	GULF POWER SCHOLTZ	BNA-Water	Butyl benzyl phthalate	4.9	ug/L	U	4.9	19
08/26/03	GULF POWER SCHOLTZ	BNA-Water	Chrysene	0.97	ug/L	U	0.97	3.9
08/26/03	GULF POWER SCHOLTZ	BNA-Water	Di-n-butyl phthalate	4.9	ug/L	U	4.9	19
08/26/03	GULF POWER SCHOLTZ	BNA-Water	Di-n-octyl phthalate	0.97	ug/L	U	0.97	3.9
08/26/03	GULF POWER SCHOLTZ	BNA-Water	Dibenzo(a,h)anthracene	0.97	ug/L	U	0.97	3.9
08/26/03	GULF POWER SCHOLTZ	BNA-Water	Dibenzofuran	0.97	ug/L	U	0.97	3.9
08/26/03	GULF POWER SCHOLTZ	BNA-Water	Dieldrin	1.5	ug/L	U	1.5	5.8
08/26/03	GULF POWER SCHOLTZ	BNA-Water	Diethyl phthalate	0.97	ug/L	U	0.97	3.9
08/26/03	GULF POWER SCHOLTZ	BNA-Water	Dimethyl phthalate	49	ug/L	U	49	190
08/26/03	GULF POWER SCHOLTZ	BNA-Water	Dimethylaminoazobenzene	0.97	ug/L	U	0.97	3.9
08/26/03	GULF POWER SCHOLTZ	BNA-Water	Dinoseb	3.9	ug/L	U	3.9	16
08/26/03	GULF POWER SCHOLTZ	BNA-Water	Diphenylamine	2.9	ug/L	U	2.9	12
08/26/03	GULF POWER SCHOLTZ	BNA-Water	Endosulfan I	3.9	ug/L	U	3.9	16
08/26/03	GULF POWER SCHOLTZ	BNA-Water	Endosulfan II	3.9	ug/L	U	3.9	16
08/26/03	GULF POWER SCHOLTZ	BNA-Water	Endosulfan sulfate	1.5	ug/L	U	1.5	5.8
08/26/03	GULF POWER SCHOLTZ	BNA-Water	Endrin	1.5	ug/L	U	1.5	5.8
08/26/03	GULF POWER SCHOLTZ	BNA-Water	Endrin aldehyde	3.9	ug/L	U	3.9	16
08/26/03	GULF POWER SCHOLTZ	BNA-Water	Ethyl methanesulfonate	0.97	ug/L	U	0.97	3.9
08/26/03	GULF POWER SCHOLTZ	BNA-Water	Fluoranthene	0.97	ug/L	U	0.97	3.9
08/26/03	GULF POWER SCHOLTZ	BNA-Water	Fluorene	0.97	ug/L	U	0.97	3.9
08/26/03	GULF POWER SCHOLTZ	BNA-Water	Heptachlor	1.5	ug/L	U	1.5	5.8
08/26/03	GULF POWER SCHOLTZ	BNA-Water	Heptachlor epoxide	1.5	ug/L	U	1.5	5.8

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
08/26/03	GULF POWER SCHOLTZ	BNA-Water	Hexachlorobenzene	0.97	ug/L	U	0.97	3.9
08/26/03	GULF POWER SCHOLTZ	BNA-Water	Hexachlorobutadiene	2.9	ug/L	U	2.9	12
08/26/03	GULF POWER SCHOLTZ	BNA-Water	Hexachlorocyclopentadiene	2.9	ug/L	UJ	2.9	12
08/26/03	GULF POWER SCHOLTZ	BNA-Water	Hexachloroethane	2.9	ug/L	U	2.9	12
08/26/03	GULF POWER SCHOLTZ	BNA-Water	Hexachloropropene	1.9	ug/L	U	1.9	7.8
08/26/03	GULF POWER SCHOLTZ	BNA-Water	Indeno(1,2,3-cd)pyrene	0.97	ug/L	U	0.97	3.9
08/26/03	GULF POWER SCHOLTZ	BNA-Water	Isophorone	0.97	ug/L	UJ	0.97	3.9
08/26/03	GULF POWER SCHOLTZ	BNA-Water	Isosafrole	0.97	ug/L	U	0.97	3.9
08/26/03	GULF POWER SCHOLTZ	BNA-Water	Methapyrilene	3.9	ug/L	UJ	3.9	16
08/26/03	GULF POWER SCHOLTZ	BNA-Water	Methyl methanesulfonate	0.97	ug/L	UJ	0.97	3.9
08/26/03	GULF POWER SCHOLTZ	BNA-Water	N-Nitrosodi-n-butylamine	0.97	ug/L	U	0.97	3.9
08/26/03	GULF POWER SCHOLTZ	BNA-Water	N-Nitrosodi-n-propylamine	1.9	ug/L	UJ	1.9	7.8
08/26/03	GULF POWER SCHOLTZ	BNA-Water	N-Nitrosodiethylamine	0.97	ug/L	U	0.97	3.9
08/26/03	GULF POWER SCHOLTZ	BNA-Water	N-Nitrosodimethylamine	1.9	ug/L	U	1.9	7.8
08/26/03	GULF POWER SCHOLTZ	BNA-Water	N-Nitrosodiphenylamine	2.9	ug/L	UJ	2.9	12
08/26/03	GULF POWER SCHOLTZ	BNA-Water	N-Nitrosomethylethylamine	1.9	ug/L	U	1.9	7.8
08/26/03	GULF POWER SCHOLTZ	BNA-Water	N-Nitrosomorpholine	0.97	ug/L	UJ	0.97	3.9
08/26/03	GULF POWER SCHOLTZ	BNA-Water	N-Nitrosopiperidine	0.97	ug/L	U	0.97	3.9
08/26/03	GULF POWER SCHOLTZ	BNA-Water	N-Nitrosopyrrolidine	1.9	ug/L	U	1.9	7.8
08/26/03	GULF POWER SCHOLTZ	BNA-Water	Naphthalene	0.97	ug/L	U	0.97	3.9
08/26/03	GULF POWER SCHOLTZ	BNA-Water	Nitrobenzene	1.9	ug/L	U	1.9	7.8
08/26/03	GULF POWER SCHOLTZ	BNA-Water	Nitroquinoline-1-oxide	19	ug/L	UJ	19	78
08/26/03	GULF POWER SCHOLTZ	BNA-Water	Pentachlorobenzene	0.97	ug/L	U	0.97	3.9
08/26/03	GULF POWER SCHOLTZ	BNA-Water	Pentachloroethane	49	ug/L	U	49	190
08/26/03	GULF POWER SCHOLTZ	BNA-Water	Pentachloronitrobenzene	0.97	ug/L	U	0.97	3.9
08/26/03	GULF POWER SCHOLTZ	BNA-Water	Pentachlorophenol	2.9	ug/L	U	2.9	12
08/26/03	GULF POWER SCHOLTZ	BNA-Water	Phenacetin	3.9	ug/L	U	3.9	12
08/26/03	GULF POWER SCHOLTZ	BNA-Water	Phenanthrene	0.97	ug/L	U	0.97	3.9
08/26/03	GULF POWER SCHOLTZ	BNA-Water	Phenol	0.97	ug/L	U	0.97	3.9
08/26/03	GULF POWER SCHOLTZ	BNA-Water	Pyrene	0.97	ug/L	U	0.97	3.9
08/26/03	GULF POWER SCHOLTZ	BNA-Water	Pyridine	3.9	ug/L	UJ	3.9	16
08/26/03	GULF POWER SCHOLTZ	BNA-Water	Safrole	0.97	ug/L	U	0.97	3.9
08/26/03	GULF POWER SCHOLTZ	BNA-Water	alpha-BHC	1.5	ug/L	U	1.5	5.8
08/26/03	GULF POWER SCHOLTZ	BNA-Water	beta-BHC	1.5	ug/L	U	1.5	5.8
08/26/03	GULF POWER SCHOLTZ	BNA-Water	delta-BHC	1.5	ug/L	U	1.5	5.8
08/26/03	GULF POWER SCHOLTZ	BNA-Water	gamma-BHC	1.5	ug/L	U	1.5	5.8
08/26/03	GULF POWER SCHOLTZ	BNA-Water	m,p-Cresols	1.9	ug/L	U	1.9	7.8
08/26/03	GULF POWER SCHOLTZ	BNA-Water	o-Cresol	1.9	ug/L	U	1.9	7.8
08/26/03	GULF POWER SCHOLTZ	BNA-Water	o-Toluidine	0.97	ug/L	U	0.97	3.9
08/26/03	GULF POWER SCHOLTZ	Bio-AGP/LimNut	Algal Growth Potential	11	mg DryWt/L	A	0.1	0.3
08/26/03	GULF POWER SCHOLTZ	Bio-Chl-a	Chlorophyll-A, Monochromatic, Water	0.85	ug/L	U	0.85	2.6
08/26/03	GULF POWER SCHOLTZ	Bio-Chl-a	Phaeophytin-A, Monochromatic, Water	0.85	ug/L	U	0.85	2.6
08/26/03	GULF POWER SCHOLTZ	Bio-Microbiology	Fecal Coliforms-Membrane Filter	6	#/100 mL	B		

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
08/26/03	GULF POWER SCHOLTZ	Bio-Microbiology	Total Coliforms-Membrane Filter	540	#/100 mL			
08/26/03	GULF POWER SCHOLTZ	Bio-Toxicology	Bioassay-Acute-Screen-FW-C.dubia, LC50	100	LC50	L		
08/26/03	GULF POWER SCHOLTZ	Bio-Toxicology	Bioassay-Acute-Screen-FW-Fish, LC50	100	LC50	L		
08/26/03	GULF POWER SCHOLTZ	GC-Water	Alachlor	0.62	ug/L	U	0.62	2.48
08/26/03	GULF POWER SCHOLTZ	GC-Water	Ametryn	0.052	ug/L	U	0.052	0.208
08/26/03	GULF POWER SCHOLTZ	GC-Water	Atrazine	0.052	ug/L	U	0.052	0.208
08/26/03	GULF POWER SCHOLTZ	GC-Water	Azinphos Methyl	0.052	ug/L	U	0.052	0.208
08/26/03	GULF POWER SCHOLTZ	GC-Water	Bromacil	0.21	ug/L	U	0.21	0.84
08/26/03	GULF POWER SCHOLTZ	GC-Water	Butylate	0.21	ug/L	U	0.21	0.84
08/26/03	GULF POWER SCHOLTZ	GC-Water	Chlorpyrifos Ethyl	0.052	ug/L	U	0.052	0.208
08/26/03	GULF POWER SCHOLTZ	GC-Water	Chlorpyrifos Methyl	0.1	ug/L	U	0.1	0.4
08/26/03	GULF POWER SCHOLTZ	GC-Water	Diazinon	0.052	ug/L	U	0.052	0.208
08/26/03	GULF POWER SCHOLTZ	GC-Water	Ethion	0.052	ug/L	U	0.052	0.208
08/26/03	GULF POWER SCHOLTZ	GC-Water	Ethoprop	0.1	ug/L	U	0.1	0.4
08/26/03	GULF POWER SCHOLTZ	GC-Water	Fenamiphos	0.21	ug/L	U	0.21	0.84
08/26/03	GULF POWER SCHOLTZ	GC-Water	Fonofos	0.1	ug/L	U	0.1	0.4
08/26/03	GULF POWER SCHOLTZ	GC-Water	Hexazinone	0.1	ug/L	U	0.1	0.4
08/26/03	GULF POWER SCHOLTZ	GC-Water	Malathion	0.15	ug/L	U	0.15	0.6
08/26/03	GULF POWER SCHOLTZ	GC-Water	Metalaxyl	0.26	ug/L	U	0.26	1.04
08/26/03	GULF POWER SCHOLTZ	GC-Water	Metolachlor	0.52	ug/L	U	0.52	2.08
08/26/03	GULF POWER SCHOLTZ	GC-Water	Metribuzin	0.1	ug/L	U	0.1	0.4
08/26/03	GULF POWER SCHOLTZ	GC-Water	Mevinphos	0.21	ug/L	U	0.21	0.84
08/26/03	GULF POWER SCHOLTZ	GC-Water	Naled	0.82	ug/L	U	0.82	3.28
08/26/03	GULF POWER SCHOLTZ	GC-Water	Norflurazon	0.1	ug/L	U	0.1	0.4
08/26/03	GULF POWER SCHOLTZ	GC-Water	Parathion Ethyl	0.15	ug/L	U	0.15	0.6
08/26/03	GULF POWER SCHOLTZ	GC-Water	Parathion Methyl	0.1	ug/L	U	0.1	0.4
08/26/03	GULF POWER SCHOLTZ	GC-Water	Phorate	0.052	ug/L	U	0.052	0.208
08/26/03	GULF POWER SCHOLTZ	GC-Water	Prometryn	0.15	ug/L	U	0.15	0.6
08/26/03	GULF POWER SCHOLTZ	GC-Water	Simazine	0.052	ug/L	U	0.052	0.208
08/26/03	GULF POWER SCHOLTZ	Metals-Water	Aluminum	243	ug/L		10	40
08/26/03	GULF POWER SCHOLTZ	Metals-Water	Arsenic	5	ug/L	U	5	20
08/26/03	GULF POWER SCHOLTZ	Metals-Water	Cadmium	0.025	ug/L	U	0.025	0.1
08/26/03	GULF POWER SCHOLTZ	Metals-Water	Calcium	19.7	mg/L		0.05	0.2
08/26/03	GULF POWER SCHOLTZ	Metals-Water	Chromium	2	ug/L	U	2	8
08/26/03	GULF POWER SCHOLTZ	Metals-Water	Copper	5.1	ug/L		1.2	4.8
08/26/03	GULF POWER SCHOLTZ	Metals-Water	Iron	709	ug/L		15	60
08/26/03	GULF POWER SCHOLTZ	Metals-Water	Lead	0.3	ug/L		0.05	0.2
08/26/03	GULF POWER SCHOLTZ	Metals-Water	Magnesium	1.7	mg/L		0.02	0.08
08/26/03	GULF POWER SCHOLTZ	Metals-Water	Nickel	2.5	ug/L	U	2.5	10
08/26/03	GULF POWER SCHOLTZ	Metals-Water	Selenium	1	ug/L	U	1	4
08/26/03	GULF POWER SCHOLTZ	Metals-Water	Silver	0.02	ug/L	U	0.02	0.08
08/26/03	GULF POWER SCHOLTZ	Metals-Water	Zinc	6.1	ug/L	I	4	16
08/26/03	GULF POWER SCHOLTZ	Nutrients-Liquid	Ammonia-N	0.044	mg N/L		0.01	0.02

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
08/26/03	GULF POWER SCHOLTZ	Nutrients-Liquid	NO2NO3-N	0.48	mg N/L		0.004	0.01
08/26/03	GULF POWER SCHOLTZ	Nutrients-Liquid	N_KJEL_TOT	0.35	mg N/L		0.06	0.2
08/26/03	GULF POWER SCHOLTZ	Nutrients-Liquid	O-Phosphate-P	0.006	mg P/L	I	0.004	0.01
08/26/03	GULF POWER SCHOLTZ	Nutrients-Liquid	TSS	6	mg/L	I	4	16
08/26/03	GULF POWER SCHOLTZ	Nutrients-Liquid	Total-P	0.028	mg P/L	I	0.02	0.06
08/26/03	GULF POWER SCHOLTZ	Overflow	Oil and Grease	0.6	mg/l	IV		
08/26/03	TEST 1A	Bio-Invertebrates	Macroinvert-FW-Quan-ArtSubstr-# Taxa	23	# Taxa			
08/26/03	TEST 1B	Bio-Invertebrates	Macroinvert-FW-Quan-ArtSubstr-# Taxa	21	# Taxa			
08/26/03	TEST 1C	Bio-Invertebrates	Macroinvert-FW-Quan-ArtSubstr-# Taxa	15	# Taxa			
08/26/03	TEST 1D	Bio-Invertebrates	Macroinvert-FW-Quan-ArtSubstr-# Taxa	25	# Taxa			
08/26/03	TEST 2A	Bio-Invertebrates	Macroinvert-FW-Quan-ArtSubstr-# Taxa	7	# Taxa			
08/26/03	TEST 2B	Bio-Invertebrates	Macroinvert-FW-Quan-ArtSubstr-# Taxa	12	# Taxa			
08/26/03	TEST 2C	Bio-Invertebrates	Macroinvert-FW-Quan-ArtSubstr-# Taxa	15	# Taxa			
08/26/03	TEST 2D	Bio-Invertebrates	Macroinvert-FW-Quan-ArtSubstr-# Taxa	13	# Taxa			
08/26/03	CONTROL 1B	Bio-Invertebrates	Macroinvert-FW-Quan-ArtSubstr-# Taxa	18	# Taxa			
08/26/03	CONTROL 1C	Bio-Invertebrates	Macroinvert-FW-Quan-ArtSubstr-# Taxa	18	# Taxa			
08/26/03	CONTROL 1D	Bio-Invertebrates	Macroinvert-FW-Quan-ArtSubstr-# Taxa	18	# Taxa			
08/26/03	CONTROL 2A	Bio-Invertebrates	Macroinvert-FW-Quan-ArtSubstr-# Taxa	15	# Taxa			
08/26/03	CONTROL 2B	Bio-Invertebrates	Macroinvert-FW-Quan-ArtSubstr-# Taxa	19	# Taxa			
08/26/03	CONTROL 2C	Bio-Invertebrates	Macroinvert-FW-Quan-ArtSubstr-# Taxa	19	# Taxa			
08/26/03	CONTROL 2D	Bio-Invertebrates	Macroinvert-FW-Quan-ArtSubstr-# Taxa	23	# Taxa			
08/26/03	CONTROL 1A	Bio-Invertebrates	Macroinvert-FW-Quan-ArtSubstr-# Taxa	15	# Taxa			
08/26/03	CONTROL	Bio-AGP/LimNut	Algal Growth Potential	3.74	mg DryWt/L		0.1	0.3
08/26/03	CONTROL	Bio-Chl-a	Chlorophyll-A, Monochromatic, Periphyton	2.6	mg/m2		0.11	0.34
08/26/03	CONTROL	Bio-Chl-a	Chlorophyll-A, Monochromatic, Water	0.85	ug/L	U	0.85	2.6
08/26/03	CONTROL	Bio-Chl-a	Phaeophytin-A, Monochromatic, Periphyton	0	mg/m2		0.11	0.34
08/26/03	CONTROL	Bio-Chl-a	Phaeophytin-A, Monochromatic, Water	0.85	ug/L	U	0.85	2.6
08/26/03	CONTROL	Bio-Microbiology	Fecal Coliforms-Membrane Filter	4	#/100 mL	B		
08/26/03	CONTROL	Bio-Microbiology	Total Coliforms-Membrane Filter	270	#/100 mL			
08/26/03	CONTROL	Bio-Peri/Phyto	Periphyton-Quantitative-# Diatom Taxa	29	#Taxa			
08/26/03	CONTROL	Bio-Peri/Phyto	Periphyton-Quantitative-# Wet Taxa	11	#Taxa			
08/26/03	CONTROL	Bio-Peri/Phyto	Phytoplankton-Quantitative-# Wet Taxa	25	#Taxa			
08/26/03	CONTROL	Bio-Peri/Phyto	Phytoplankton-Quantitative-#Diatom Taxa	36	#Taxa			
08/26/03	CONTROL	Nutrients-Liquid	Ammonia-N	0.047	mg N/L		0.01	0.02
08/26/03	CONTROL	Nutrients-Liquid	NO2NO3-N	0.46	mg N/L		0.004	0.01
08/26/03	CONTROL	Nutrients-Liquid	N_KJEL_TOT	0.39	mg N/L		0.06	0.2
08/26/03	CONTROL	Nutrients-Liquid	O-Phosphate-P	0.004	mg P/L	I	0.004	0.01
08/26/03	CONTROL	Nutrients-Liquid	TSS	4	mg/L	I	4	16
08/26/03	CONTROL	Nutrients-Liquid	Total-P	0.028	mg P/L	I	0.02	0.06
08/26/03	TEST	Bio-AGP/LimNut	Algal Growth Potential	9.86	mg DryWt/L		0.1	0.3
08/26/03	TEST	Bio-Chl-a	Chlorophyll-A, Monochromatic, Periphyton	2.7	mg/m2	A	0.11	0.34
08/26/03	TEST	Bio-Chl-a	Chlorophyll-A, Monochromatic, Water	0.85	ug/L	U	0.85	2.6
08/26/03	TEST	Bio-Chl-a	Phaeophytin-A, Monochromatic, Periphyton	0	mg/m2	A	0.11	0.34

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
08/26/03	TEST	Bio-Chl-a	Phaeophytin-A, Monochromatic, Water	0.85	ug/L	U	0.85	2.6
08/26/03	TEST	Bio-Microbiology	Fecal Coliforms-Membrane Filter	4	#/100 mL	AB		
08/26/03	TEST	Bio-Microbiology	Total Coliforms-Membrane Filter	460	#/100 mL	A		
08/26/03	TEST	Bio-Peri/Phyto	Periphyton-Quantitative-# Diatom Taxa	31	#Taxa			
08/26/03	TEST	Bio-Peri/Phyto	Periphyton-Quantitative-# Wet Taxa	15	#Taxa			
08/26/03	TEST	Bio-Peri/Phyto	Phytoplankton-Quantitative-# Wet Taxa	31	#Taxa			
08/26/03	TEST	Bio-Peri/Phyto	Phytoplankton-Quantitative-#Diatom Taxa	37	#Taxa			
08/26/03	TEST	Nutrients-Liquid	Ammonia-N	0.048	mg N/L		0.01	0.02
08/26/03	TEST	Nutrients-Liquid	NO2NO3-N	0.47	mg N/L		0.004	0.01
08/26/03	TEST	Nutrients-Liquid	N_KJEL_TOT	0.41	mg N/L		0.06	0.2
08/26/03	TEST	Nutrients-Liquid	O-Phosphate-P	0.004	mg P/L	U	0.004	0.01
08/26/03	TEST	Nutrients-Liquid	TSS	6	mg/L	I	4	16
08/26/03	TEST	Nutrients-Liquid	Total-P	0.022	mg P/L	I	0.02	0.06

Appendix 5

Typical Values for Selected Parameters in Florida Waters

Percentile Distribution (1617 stations)

CONTROL SITE

Parameter	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	95%	Measured
Periphyton Chlorophyll *a* (mg/m^2)	0.31	0.43	0.77	1.04	**2.16**	2.94	6.45	10.51	17.00	39.51	60.85	**2.6**
Hester-Dendy Diversity	0.84	2.12	2.48	2.74	2.88	3.09	3.25	**3.40**	3.52	3.76	3.90	**3.43, 3.42**
Hester-Dendy Taxa Richness	6	6.5	9	11.5	13	15	17	21.5	26	29	32	**31, 38**
Dipnet Taxa Richness	9	12	17	20	22	24.5	26	28	31	37	53	**ND**
Total Kjeldahl Nitrogen	0.30	**0.39**	0.56	0.73	0.87	1.00	1.11	1.26	1.49	1.93	2.80	**0.39**
Total Ammonia	0.02	0.02	**0.04**	0.05	0.06	0.08	0.11	0.14	0.20	0.34	0.60	**0.047**
Nitrate plus Nitrite	0.01	0.01	0.03	0.05	0.07	0.10	0.14	0.20	**0.32**	0.64	1.05	**0.46**
Total Phosphorus	**0.02**	0.03	0.05	0.06	0.10	0.13	0.18	0.25	0.39	0.74	1.51	**0.028 I**
Orthophosphate	**0.01**	0.01	0.03	0.04	0.05	0.08	0.11	0.17	0.27	0.59	1.37	**0.004 I**
Turbidity (NTU)	0.60	0.90	1.20	1.45	2.10	2.80	3.60	4.50	6.65	10.45	16.30	**ND**

TEST SITE

Parameter	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	95%	Measured
Periphyton Chlorophyll *a* (mg/m^2)	0.31	0.43	0.77	1.04	**2.16**	2.94	6.45	10.51	17.00	39.51	60.85	**2.7**
Hester-Dendy Diversity	0.84	2.12	2.48	2.74	**2.88**	3.09	3.25	3.40	**3.52**	3.76	3.90	**2.9, 3.72**
Hester-Dendy Taxa Richness	6	6.5	9	11.5	13	15	**17**	21.5	26	29	**32**	**20, 35**
Dipnet Taxa Richness	9	12	17	20	22	24.5	26	28	31	37	53	**ND**
Total Kjeldahl Nitrogen	0.30	**0.39**	0.56	0.73	0.87	1.00	1.11	1.26	1.49	1.93	2.80	**0.41**
Total Ammonia	0.02	0.02	**0.04**	0.05	0.06	0.08	0.11	0.14	0.20	0.34	0.60	**0.048**
Nitrate plus Nitrite	0.01	0.01	0.03	0.05	0.07	0.10	0.14	0.20	**0.32**	0.64	1.05	**0.47**
Total Phosphorus	**0.02**	0.03	0.05	0.06	0.10	0.13	0.18	0.25	0.39	0.74	1.51	**0.022 I**
Orthophosphate	**0.01**	0.01	0.03	0.04	0.05	0.08	0.11	0.17	0.27	0.59	1.37	**0.004 U**
Turbidity (NTU)	0.60	0.90	1.20	1.45	2.10	2.80	3.60	4.50	6.65	10.45	16.30	**ND**

Taxa richness and diversity values are for benthic macroinvertebrates. Hester-Dendy sample= benthic macroinvertebrates collected from a standardized multi-plate sampler. Dipnet taxa richness = number of taxa collected in standardized dipnet sweep samples. Diversity = Shannon-Weaver H'. NTU = Nephelometric turbidity units. Adapted from Joe Hand, FDER, personal communication, 1991 (data collected 1980-1989). ND = No data. I = Value reported is < the minimum quantitation limit, and ≥the minimum detection limit. U = Material analyzed for but not detected; value reported is the minimum detection limit.

Appendix 6

Additional physical, chemical, toxicological and microbiological results

Table 1. Data recorded during the 48-hour acute screening bioassays of a sample of effluent from the Gulf Power Scholz Steam, Jackson County, Sneads Florida, NPDES# FL0002283, performed from 26 to 28 August, 2003.

Facility:	**Gulf Power Scholz Steam**		**NPDES #:**	**FL0002283**	Facility Type:	**Power production**	**Analysts:** Christa Pierini
Location:	1460 Gulf Power Road		Contact/District:	Keith Butchikas/Northwest			James Daniels
County:	Jackson		Test type:	static acute screen			Marshall Faircloth
Sample Collection Date:	8/26/2003	Time: 1124	# tests:	2	Receiving Water:	Apalachicola River	Josh Ayres
Test Beginning Date:	8/26/2003	Time: 1600	Chlorination Type:	nonchlorinated		Class III fresh	
Test Ending Date:	8/28/2003	Time: 1330	FDEP SOP#:	TA07_01 / 02		**Page 1 of 1**	**Reviewer:** Rob Buda

Organism: ***Ceriodaphnia dubia*** (water flea) Life stage: <24 hours Chamber size: 30 mL [A] Feeding: YCT/Algae Food Batch #: YCT 1/P. sub. 17

	Sample/Diluent	SURVIVAL # Alive			pH			Temperature (°C)			Diss. Oxygen (mg/L)			[B] Conductivity	
Concentrations	Volume(mL)	0 hr	24 hr	48 hr	0 hour	24 hour	48 hour	0 hour	24 hour	48 hour	0 hour	24 hour	48 hour	0 hour	48 hour
Control A	0/20	5	5	5	8.1		8.2	25.6		24.6	7.6		7.9	180	220
Control B	0/20	5	5	5			8.3			24.6			7.9		210
Control C	0/20	5	5	5			8.3			24.7			7.9		210
Control D	0/20	5	5	5			8.3			24.9			7.8		225
100% A	20/0	5	5	5	7.9		8.2	25.1		24.9	6.9		7.8	140	150
100% B	20/0	5	5	5			8.2			24.8			8.0		150
100% C	20/0	5	5	5			8.2			24.8			7.8		150
100% D	20/0	5	5	5			8.2			25.0			7.8		165

[A] Organisms fed prior to testing.
Temperatures of room and test incubator were continuously recorded on a strip chart recorder.
Room Temperature range for the test period was 24.0 - 25.0°C.
Incubator #3 temperature range for the test period was 25.0 - 26.5 °C.
Light Intensity during the test was 50-100 foot candles.
Photoperiod during the test was 16 hours of light : 8 hours of dark.
[B] Conductivity value is uncorrected µmhos/cm.

LIMS	
Job number:	TLH-2003-08-28-03
sample number:	699485

Data Transcription Verification	
date:	2/4/04
by:	Josh Ayres/James Daniels

Total Residual CL2	mg/L	Method
Field 100% sample:	-	-
Lab 100% sample:	0.05	Hach
Control water (water flea):	0.00	Hach
Control water: (fish):	0.00	Hach

Ammonia	Total (mg/L)	Unionized (mg/L)
Control water: (water flea):	<0.017	<0.017
Control water (fish):	<0.017	<0.017
100% Sample:	<0.017	<0.017

Organism: ***Cyprinelli leedsi*** (fish) Life stage: 13 days Chamber size: 1000 mL [C] Feeding: *Artemia* Food Batch #: 0194025G

	Sample/Diluent	SURVIVAL # Alive			pH			Temperature (°C)			Diss. Oxygen (mg/L)			[D] Conductivity	
Concentrations	Volume(mL)	0 hr	24 hr	48 hr	0 hour	24 hour	48 hour	0 hour	24 hour	48 hour	0 hour	24 hour	48 hour	0 hour	48 hour
Control A	0/500	5	5	5	7.7	8.2	8.4	25.9	25.7	24.2	7.9	7.1	7.6	275	290
Control B	0/500	5	5	5	7.7	8.2	8.4	25.9	26.2	24.2	7.9	7.2	7.8	275	275
Control C	0/500	5	5	5	7.7	8.2	8.4	25.9	26.0	24.3	7.8	6.9	7.9	275	275
Control D	0/500	5	5	5	7.7	8.2	8.4	25.9	25.9	24.5	7.8	7.0	7.8	275	280
100% A	500/0	5	5	5	7.8	8.0	8.1	25.0	25.6	24.1	6.9	6.9	8.0	140	150
100% B	500/0	5	5	5	7.8	8.0	8.1	24.9	26.4	24.0	6.9	7.0	8.0	135	140
100 % C	500/0	5	5	5	7.8	8.0	8.1	24.9	26.4	24.1	7.0	6.7	8.2	135	140
100% D	500/0	5	5	5	7.8	8.0	8.1	24.8	25.4	24.5	6.9	6.8	7.9	135	145

[C] Organisms fed prior to testing.
Temperatures of room and test incubator were continuously recorded on a strip chart recorder.
Room Temperature range for the test period was 24.0 - 25.0°C.
Incubator #3 temperature range for the test period was 25.0 - 26.5 °C.
Light Intensity during the test was 50-100 foot candles.
Photoperiod during the test was 16 hours of light : 8 hours of dark.
[D] Conductivity value is uncorrected µmhos/cm.

Alk & Hardness	Alkalinity (mg/L)	Hardness (mg/L)
Control water: (water flea):	79	81
Control water: (fish)	141	134
100% Sample:	64	56

Mortality	Percent
Control water (water flea):	0%
100% (water flea):	0%
Control water (fish):	0%
100 % (fish):	0%

Appendix 7

Field Sheets.

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

PHYSICAL/CHEMICAL CHARACTERIZATION FIELD DATA SHEET (5-10-96)

SUBMITTING AGENCY CODE: / SUBMITTING AGENCY NAME:	STORET STATION NUMBER:	DATE (M/D/Y):	TIME	RECEIVING BODY OF WATER:
		26/VIII/03	~~1145~~ 1130	Apalachicola River

REMARKS:	COUNTY:	LOCATION:	FIELD ID/NAME:
	Jackson	~~1145~~ Gulf Power Schl03	Control

RIPARIAN ZONE/INSTREAM FEATURES

Predominant Land-Use in Watershed (specify relative percent in each category):

Forest/Natural	Silviculture	Field/Pasture	Agricultural	Residential	Commercial	Industrial	Other (Specify)

Local Watershed Erosion (check box): None ☐ Slight ☐ Moderate ☐ Heavy ☒

Local Watershed NPS Pollution (check box): No evidence ☒ Slight ☐ Moderate potential ☐ Obvious sources ☐

Width of riparian vegetation (m) on least buffered side: *List & map dominant vegetation on back*

Artificially Channelized ☐ no ☒ recent, severe ☐ some recovery ☐ mostly recovered, more sinuous

Artificially Impounded ☐ yes

High Water Mark: _____ (m above present water level) + _____ (present depth in m) = _____ (m above bed)

Typical Width (m)/Depth (m) /Velocity (m/sec) Transect

m wide

m/s m/s m/s

m deep m deep m deep

Canopy Cover %: Open: ☒ Lightly Shaded (11-45%): ☐ Moderately Shaded (46-80%): ☐ Heavily Shaded: ☐

SEDIMENT/SUBSTRATE

Sediment Odors: Normal: ☐ Sewage: ☐ Petroleum: ☐ Chemical: ☐ Anaerobic: ☒ Other: ☐

Sediment Oils: Absent: ☒ Slight: ☐ Moderate: ☐ Profuse: ☐

Sediment Deposition: Sludge: ☐ Sand smothering: none ☐ slight ☐ moderate ☐ severe Silt smothering: none ☐ slight moderate severe Other:

Substrate Types	% coverage	# times sampled	method	Substrate Types	% coverage	# times sampled	method
Woody Debris (Snags)				Sand			
Leaf Packs or Mats				Mud/Muck/Silt			
Aquatic Vegetation				Other:			
Rock or Shell Rubble				Other:			
Undercut banks/Roots				*Draw aerial view sketch of habitats found in 100 m section*			

WATER QUALITY	Depth (m):	Temp. (°C):	pH (SU):	D.O. (mg/l):	Cond. (µmho/cm) or Salinity (ppt):			Secchi (m):
Top		29.22	7.47	6.37	132			
Mid-depth	N/A	29.22	7.41	6.36	132			
Bottom	3	29.23	7.35	6.36	132			

System Type: Stream: ☐ (1st - 2nd order, 3rd - 4th order, 5th - 6th order, 7th order or greater) Lake: ☐ Wetland: ☐ Estuary: ☐ Other: ☐

Water Odors (check box): Normal: ☒ Sewage: ☐ Petroleum: ☐ Chemical: ☐ Other: ☐

Water Surface Oils (check box): None: ☒ Sheen: ☐ Globs: ☐ Slick: ☐

Clarity (check box): Clear: ☐ Slightly turbid: ☐ Turbid: ☒ Opaque: ☐

Color (check box): Tannic: ☐ Green (algae): ☒ Clear: ☐ Other: ☐

Weather Conditions/Notes:

Hot Sunny
H0 – 4 from each OK, Periphytome for fouled w/ algae + midge cases, Enc[illegible]

Abundance:	Absent	Rare	Common	Abundant
Periphyton	☐	☐	☐	☐
Fish	☐	☐	☐	☐
Aquatic Macrophytes	☐	☐	☐	☐
Iron/sulfur Bacteria	☒	☐	☐	☐

SAMPLING TEAM: J. Richardson, M Hyn, S. Lewis SIGNATURE: DATE: 9/26/03

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

PHYSICAL/CHEMICAL CHARACTERIZATION FIELD DATA SHEET (5-10-96)

SUBMITTING AGENCY CODE: / SUBMITTING AGENCY NAME:	STORET STATION NUMBER:	DATE (M/D/Y): 26 VIII 03	TIME 1130	RECEIVING BODY OF WATER: Apalachicola River

REMARKS:	COUNTY: Jackson	LOCATION: Gulf Power Scholz	FIELD ID/NAME: Test

RIPARIAN ZONE/INSTREAM FEATURES

Predominant Land-Use in Watershed (specify relative percent in each category):

Forest/Natural	Silviculture	Field/Pasture	Agricultural	Residential	Commercial	Industrial	Other (Specify)

Local Watershed Erosion (check box): None ☐ Slight ☐ Moderate ☐ Heavy ☒

Local Watershed NPS Pollution (check box): No evidence ☒ Slight ☐ Moderate potential ☐ Obvious sources ☐

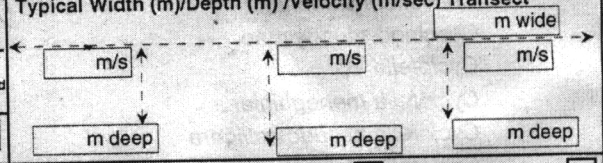
Width of riparian vegetation (m) on least buffered side: **List & map dominant vegetation on back**

Artificially Channelized ☐ no ☒ recent, severe ☐ some recovery ☐ mostly recovered more sinuous

Artificially Impounded ☐ yes

High Water Mark: ____ (m above present water level) + ____ (present depth in m) = ____ (m above bed)

Typical Width (m)/Depth (m) /Velocity (m/sec) Transect



Canopy Cover % : Open : ☒ Lightly Shaded (11-45%): ☐ Moderately Shaded (46-80%): ☐ Heavily Shaded: ☐

SEDIMENT/SUBSTRATE

Sediment Odors: Normal: ☒ Sewage: ☐ Petroleum: ☐ Chemical: ☐ Anaerobic: ☒ Other: ☐

Sediment Oils: Absent: ☒ Slight: ☐ Moderate: ☐ Profuse: ☐

Sediment Deposition: Sludge: ☐ Sand smothering: none slight moderate severe Silt smothering: none slight moderate severe Other:

Substrate Types	% coverage	# times sampled	method	Substrate Types	% coverage	# times sampled	method
Woody Debris (Snags)				Sand			
Leaf Packs or Mats				Mud/Muck/Silt			
Aquatic Vegetation				Other:			
Rock or Shell Rubble				Other:			
Undercut banks/Roots				*Draw aerial view sketch of habitats found in 100 m section*			

WATER QUALITY	Depth (m):	Temp. (°C):	pH (SU):	D.O. (mg/l):	Cond. (µmho/cm) or Salinity (ppt):			Secchi (m):
Top		30.63	7.40	8.91	137			
Mid-depth		30.64	7.34	8.88	137			
Bottom		30.68	7.41	8.88	137			

System Type : Stream: ☐ (1st - 2nd order, 3rd - 4th order, 5th - 6th order, 7th order or greater) Lake: ☐ Wetland: ☐ Estuary: ☐ Other: ☐

Water Odors (check box): Normal: ☒ Sewage: ☐ Petroleum: ☐ Chemical: ☐ Other: ☐

Water Surface Oils (check box): None: ☒ Sheen: ☐ Globs: ☐ Slick: ☐

Clarity (check box): Clear: ☐ Slightly turbid: ☐ Turbid: ☒ Opaque: ☐

Color (check box): Tannic: ☐ Green (algae): ☒ Clear: ☐ Other: ☐

Weather Conditions/Notes:
test 2 OK - all 4 HDs
Apalachicola Periphyton, Bryozoa, algae
side channel off 1/8 clay/gravel
hot Sunny

Abundance:	Absent	Rare	Common	Abundant
Periphyton	☐	☐	☐	☐
Fish	☐	☐	☐	☐
Aquatic Macrophytes	☐	☐	☐	☐
Iron/sulfur Bacteria	☐	☐	☐	☐

SAMPLING TEAM: J. Richardson, M. Hoyer, S. Levings

SIGNATURE:

DATE: 8/26/03

Appendix 8a

Taxa list and density (number/mL) for phytoplankton collected upstream and downstream of Gulf Power-Scholz facility discharge, 8/26/03.

	Control Site	Test Site
Bacillariophyta		
Achnanthes sp.	4	3
Achnanthes minutissima	4	3
Achnanthes rupestoides	-	3
Amphora sp.	4	-
Asterionella sp.	4	-
Aulacoseira sp.	151	105
Aulacoseira granulata	22	37
Bacillariophyceae	9	3
Brachysira vitrea	4	3
Cocconeis placentula	4	3
Coscinodiscophyceae	27	16
Cyclotella sp.	36	19
Cyclotella meneghiniana	-	6
Cyclotella pseudostelligera	22	19
Cyclotella stelligera	9	6
Cymbella sp.	4	3
Cymbellaceae	4	3
Diploneis sp.	4	-
Encyonema neomesianum	-	3
Encyonema silesiacum	-	3
Eunotia sp.	9	3
Eunotia siolii	-	3
Fragilaria sp.	4	3
Fragilaria capucina	4	-
Fragilaria delicatissima	-	3
Fragilariaceae	18	6
Frustulia rhomboides	-	3
Gomphonema sp.	4	3
Gomphonema parvulum	4	3
Gyrosigma sp.	4	3
Luticola sp.	-	3
Navicula sp.	4	3
Navicula cryptocephala	4	3
Navicula minima	4	3
Navicula radiosa	4	-
Nitzschia sp.	13	6
Nitzschia amphibia	4	-
Nitzschia gracilis	4	-
Nitzschia palea	4	3
Nitzschia subacicularis	4	3
Opephora sp.	4	-
Pinnulariaceae	-	3
Synedra acus angustissima	4	3
Synedra parasitica	-	3
Synedra ulna	4	3
Tryblionella levidensis	4	-

continued on next page

Appendix 8a continued

	Control Site	Test Site
Chlorophycota		
Ankistrodesmus falcatus	9	22
Chlamydomonas sp.	71	19
Chlorella sp.	227	112
Chlorococcum sp.	44	31
Chlorogonium sp.	22	9
Coelastrum cambricum	-	3
Crucigenia irregularis	-	12
Golenkinia paucispina	-	9
Oocystis sp.	36	16
Scenedesmus arcuatus	0	3
Scenedesmus bijuga	27	34
Scenedesmus quadricauda	53	31
Scenedesmus quadricauda westii	-	3
Selenastrum sp.	40	-
Staurastrum sp.	-	9
Tetraedron minimum	-	9
Chrysophyta		
Dinobryon sertularia	4	-
Cyanophycota		
Cyanobium parvum	18	-
Cyanobium plancticum	31	40
Cylindrospermopsis raciborskii	129	96
Jaaginema sp.	44	40
Merismopedia minima	18	34
Merismopedia tenuissima	4	3
Microcystis sp.	44	28
Planktolyngbya sp.	9	16
Planktothrix sp.	9	3
Pseudanabaena sp.	9	3
Rhabdogloea sp.	107	34
Romeria sp.	4	12
Euglenophycota		
Lepocinclis sp.	-	3
Phacus sp.	-	3
Trachelomonas sp.	4	3
Pyrrophycophyta		
Glenodinium sp.	-	25
Peridinium sp.	4	-
Xanthophyta		
Ophiocytium bicuspidatum	-	3

Appendix 8b

Taxa list and number of individuals counted for phytoplankton collected upstream and downstream of Gulf Power-Scholz facility discharge, 8/26/03.

	Control Site	Test Site
Bacillariophyta		
Achnanthes sp.	1	1
Achnanthes minutissima	1	1
Achnanthes rupestoides	-	1
Amphora sp.	1	-
Asterionella sp.	1	-
Aulacoseira sp.	34	34
Aulacoseira granulata	5	12
Bacillariophyceae	2	1
Brachysira vitrea	1	1
Cocconeis placentula	1	1
Coscinodiscophyceae	6	5
Cyclotella sp.	8	6
Cyclotella meneghiniana	-	2
Cyclotella pseudostelligera	5	6
Cyclotella stelligera	2	2
Cymbella sp.	1	1
Cymbellaceae	1	1
Diploneis sp.	1	-
Encyonema neomesianum	-	1
Encyonema silesiacum	-	1
Eunotia sp.	2	1
Eunotia siolii	-	1
Fragilaria sp.	1	1
Fragilaria capucina	1	-
Fragilaria delicatissima	-	1
Fragilariaceae	4	2
Frustulia rhomboides	-	1
Gomphonema sp.	1	1
Gomphonema parvulum	1	1
Gyrosigma sp.	1	1
Luticola sp.	-	1
Navicula sp.	1	1
Navicula cryptocephala	1	1
Navicula minima	1	1
Navicula radiosa	1	-
Nitzschia sp.	3	2
Nitzschia amphibia	1	-
Nitzschia gracilis	1	-
Nitzschia palea	1	1
Nitzschia subacicularis	1	1
Opephora sp.	1	-
Pinnulariaceae	-	1
Synedra acus angustissima	1	1
Synedra parasitica	-	1
Synedra ulna	1	1
Tryblionella levidensis	1	-

continued on next page

Appendix 8b continued

	Control Site	Test Site
Chlorophycota		
Ankistrodesmus falcatus	2	7
Chlamydomonas sp.	16	6
Chlorella sp.	51	36
Chlorococcum sp.	10	10
Chlorogonium sp.	5	3
Coelastrum cambricum	-	1
Crucigenia irregularis	-	4
Golenkinia paucispina	-	3
Oocystis sp.	8	5
Scenedesmus arcuatus	0	1
Scenedesmus bijuga	6	11
Scenedesmus quadricauda	12	10
Scenedesmus quadricauda westii	-	1
Selenastrum sp.	9	-
Staurastrum sp.	-	3
Tetraedron minimum	-	3
Chrysophyta		
Dinobryon sertularia	1	-
Cyanophycota		
Cyanobium parvum	4	-
Cyanobium plancticum	7	13
Cylindrospermopsis raciborskii	29	31
Jaaginema sp.	10	13
Merismopedia minima	4	11
Merismopedia tenuissima	1	1
Microcystis sp.	10	9
Planktolyngbya sp.	2	5
Planktothrix sp.	2	1
Pseudanabaena sp.	2	1
Rhabdogloea sp.	24	11
Romeria sp.	1	4
Euglenophycota		
Lepocinclis sp.	-	1
Phacus sp.	-	1
Trachelomonas sp.	1	1
Pyrrophycophyta		
Glenodinium sp.	-	8
Peridinium sp.	1	-
Xanthophyta		
Ophiocytium bicuspidatum	-	1

Appendix 9a

Taxa list and density (number/cm^2) for periphyton collected from glass microscope slides incubated for 28 days upstream and downstream of Gulf Power-Scholz facility discharge, 8/26/03.

	Control Site	Test Site
Bacillariophyta		
Achnanthes sp.	111,252	6,921
Achnanthes lanceolata	2,649	3,460
Achnanthes minutissima	145,688	12,112
Amphipleura sp.	-	1,730
Aulacoseira sp.	5,298	13,842
Aulacoseira granulata	2,649	-
Bacillaria paxillifer	2,649	-
Bacillariophyceae	42,382	64,019
Brachysira vitrea	-	3,460
Cocconeis sp.	2,649	-
Cocconeis placentula	13,244	3,460
Coscinodiscophyceae	7,947	6,921
Cyclotella sp.	10,595	17,302
Cyclotella stelligera	2,649	12,112
Cymbella sp.	5,298	-
Cymbella cistula	2,649	-
Cymbella minuta	13,244	-
Encyonema neomesianum	5,298	-
Encyonema silesiacum	-	1,730
Eunotia sp.	2,649	15,572
Fragilaria sp.	13,244	5,191
Fragilaria capucina	-	8,651
Fragilaria construens	-	1,730
Fragilaria crotonensis	7,947	-
Fragilariaceae	13,244	8,651
Gomphonema sp.	42,382	6,921
Gomphonema gracile	-	1,730
Gomphonema parvulum	58,275	10,381
Gyrosigma sp.	7,947	5,191
Hippodonta sp.	-	1,730
Melosira sp.	26,489	-
Navicula sp.	37,084	17,302
Navicula cryptocephala	10,595	5,191
Navicula cryptotenella	-	1,730
Navicula minima	13,244	67,480
Nitzschia sp.	87,413	65,749
Nitzschia palea	-	62,289
Pinnularia sp.	-	1,730
Synedra ulna	7,947	1,730
Thalassiosira sp.	-	5,191

continued on next page

Appendix 9a continued

	Control Site	Test Site
Chlorophycota		
Chlamydomonas sp.	-	1,730
Chlorococcum sp.	2,649	1,730
Coelastrum cambricum	2,649	-
Cosmarium sp.	2,649	8,651
Cosmarium pseudopyramidatum	2,649	-
Scenedesmus acutiformis	2,649	-
Scenedesmus quadricauda	-	5,191
Spirogyra sp.	-	1,730
Stigeoclonium sp.	-	3,460
Cyanophycota		
Jaaginema sp.	2,649	15,572
Lyngbya martensiana	-	5,191
Merismopedia tenuissima	2,649	-
Oscillatoria sp.	10,595	-
Oscillatoria chalybea	-	1,730
Oscillatoria limosa	-	6,921
Oscillatoria nigra	23,840	1,730
Oscillatoria tenuis	23,840	10,381
Planktolyngbya sp.	-	1,730
Pseudanabaena sp.	-	6,921
Euglenophycota		
Trachelomonas sp.	5,298	1,730

Appendix 9b

Taxa list and number of individuals counted for periphyton collected from glass microscope slides incubated for 28 days upstream and downstream of Gulf Power-Scholz facility discharge, 8/26/03.

	Control Site	Test Site
Bacillariophyta		
Achnanthes sp.	42	4
Achnanthes lanceolata	1	2
Achnanthes minutissima	55	7
Amphipleura sp.	-	1
Aulacoseira sp.	2	8
Aulacoseira granulata	1	-
Bacillaria paxillifer	1	-
Bacillariophyceae	16	37
Brachysira vitrea	-	2
Cocconeis sp.	1	-
Cocconeis placentula	5	2
Coscinodiscophyceae	3	4
Cyclotella sp.	4	10
Cyclotella stelligera	1	7
Cymbella sp.	2	-
Cymbella cistula	1	-
Cymbella minuta	5	-
Encyonema neomesianum	2	-
Encyonema silesiacum	-	1
Eunotia sp.	1	9
Fragilaria sp.	5	3
Fragilaria capucina	-	5
Fragilaria construens	-	1
Fragilaria crotonensis	3	-
Fragilariaceae	5	5
Gomphonema sp.	16	4
Gomphonema gracile	-	1
Gomphonema parvulum	22	6
Gyrosigma sp.	3	3
Hippodonta sp.	-	1
Melosira sp.	10	-
Navicula sp.	14	10
Navicula cryptocephala	4	3
Navicula cryptotenella	-	1
Navicula minima	5	39
Nitzschia sp.	33	38
Nitzschia palea	-	36
Pinnularia sp.	-	1
Synedra ulna	3	1
Thalassiosira sp.	-	3

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Appendix 9b continued

	Control Site	Test Site
Chlorophycota		
Chlamydomonas sp.	-	1
Chlorococcum sp.	1	1
Coelastrum cambricum	1	-
Cosmarium sp.	1	5
Cosmarium pseudopyramidatum	1	-
Scenedesmus acutiformis	1	-
Scenedesmus quadricauda	-	3
Spirogyra sp.	-	1
Stigeoclonium sp.	-	2
Cyanophycota		
Jaaginema sp.	1	9
Lyngbya martensiana	-	3
Merismopedia tenuissima	1	-
Oscillatoria sp.	4	-
Oscillatoria chalybea	-	1
Oscillatoria limosa	-	4
Oscillatoria nigra	9	1
Oscillatoria tenuis	9	6
Planktolyngbya sp.	-	1
Pseudanabaena sp.	-	4
Euglenophycota		
Trachelomonas sp.	2	1

Appendix 10a

Benthic macroinvertebrates collected from Hester-Dendy artificial substrates incubated upstream and downstream of the Gulf Power-Scholz facility for 28 days (8/26/03). Taxa collected and density (average number of individuals/m^2) rounded to the nearest individual. See SOP LT 7100 sect. 4.2.1 for method on collapsing taxa.

	Control Site 1	Control Site 2	Test Site 1	Test Site 2
Annelida				
Hirudinea				
Placobdella sp.	-	-	2	-
Placobdella parasitica	2	-	-	-
Arthropoda				
Arachnida				
Acariformes				
Arrenurus sp.	-	2	-	-
Hygrobates sp.	-	-	2	-
Crustacea				
Amphipoda				
Crangonyx sp.	2	6	-	-
Hyalella azteca	173	157	-	8
Insecta				
Coleoptera				
Bidessonotus sp.	-	-	-	2
Dineutus sp.	14	4	-	-
Diptera				
Ablabesmyia rhamphe grp.	194	203	176	111
Cricotopus sp.	-	-	10	10
Cricotopus politus	8	7	-	-
Cricotopus sylvestris grp.	-	7	-	-
Cryptochironomus sp.	2	-	-	12
Dicrotendipes simpsoni	2	4	10	-
Dicrotendipes thanatogratus	-	-	2	-
Endochironomus subtendens	-	2	-	-
Labrundinia pilosella	8	2	-	-
Nanocladius sp.	8	2	-	-
Orthocladiinae	2	2	-	-
Orthocladius sp.	-	2	-	-
Palpomyia/bezzia grp.	121	133	103	163
Parachironomus sp.	-	2	-	-
Parachironomus carinatus	4	-	2	-
Parachironomus directus	-	-	-	2
Paralauterborniella nigrohalterale	-	2	-	-
Pentaneura inconspicua	4	8	-	-
Polypedilum beckae	2	2	-	-
Polypedilum flavum	-	-	15	-
Polypedilum halterale grp.	2	4	8	-
Polypedilum illinoense grp.	4	4	6	-
Polypedilum scalaenum grp.	6	-	4	-
Rheotanytarsus exiguus grp.	-	2	27	-
Stenochironomus sp.	-	-	8	-

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Appendix 10a continued

	Control Site 1	Control Site 2	Test Site 1	Test Site 2
Tanytarsus sp. A Epler	-	-	2	-
Tanytarsus sp. C Epler	-	-	2	-
Tanytarsus sp. F Epler	-	-	-	4
Tanytarsus sp. S Epler	-	-	2	-
Tanytarsus sp. T Epler	-	-	2	-
Thienemanniella lobapodema	-	-	2	-
Tribelos fuscicornis	37	100	85	94
Ephemeroptera				
Acerpenna pygmaea	-	-	2	-
Caenis sp.	2	8	10	30
Callibaetis sp.	10	2	-	-
Hexagenia sp.	-	2	-	-
Pseudocloeon sp.	-	2	26	-
Stenacron sp.	30	14	13	-
Stenonema exiguum	-	-	4	-
Stenonema smithae	-	-	2	-
Tricorythodes albilineatus	2	12	14	4
Odonata				
Argia sp.	-	-	2	-
Argia apicalis	-	-	-	2
Argia moesta	-	4	-	-
Argia sedula	-	-	-	2
Enallagma sp.	-	4	-	2
Enallagma signatum	4	-	-	-
Ischnura sp.	2	-	-	-
Trichoptera				
Cernotina sp.	-	2	17	-
Cheumatopsyche sp.	-	-	5	-
Cyrnellus fraternus	116	150	70	23
Hydropsyche sp.	-	2	55	-
Hydroptila sp.	20	6	-	4
Neureclipsis sp.	-	6	68	-
Neureclipsis melco	9	-	-	-
Oecetis persimilis	-	4	-	-
Orthotrichia sp.	-	-	-	4
Mollusca				
Bivalvia				
Corbicula fluminea	79	85	-	6
Undetermined Bivalvia	-	-	14	-
Gastropoda				
Ancylidae	16	-	-	-
Micromenetus sp.	-	6	-	-
Micromenetus dilatatus	-	-	-	9
Physella sp.	-	-	224	7
Nemertea				
Prostoma sp.	2	-	-	-

Appendix 10b

Benthic macroinvertebrates collected from Hester-Dendy artificial substrates incubated upstream and downstream of the Gulf Power-Scholz facility for 28 days (8/26/03). Taxa collected and total number of individuals counted (n = 3 samples).

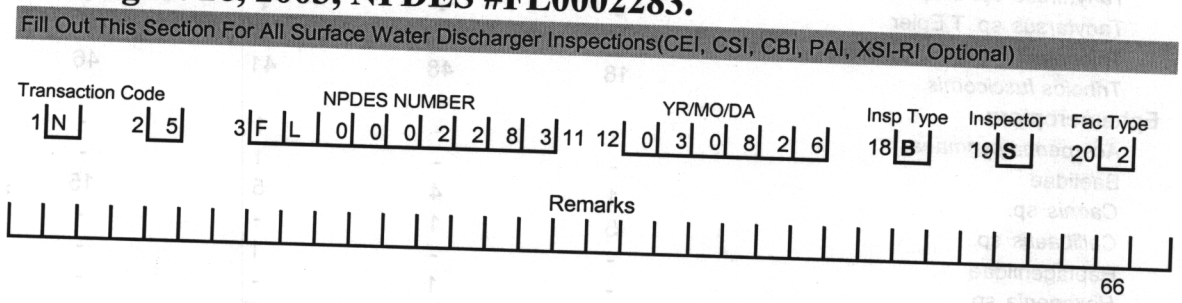
	Control Site 1	Control Site 2	Test Site 1	Test Site 2
Annelida				
Hirudinea				
Placobdella sp.	-	-	1	-
Placobdella parasitica	1	-	-	-
Arthropoda				
Arachnida				
Acariformes				
Arrenurus sp.	-	1	-	-
Hygrobates sp.	-	-	1	-
Crustacea				
Amphipoda				
Crangonyx sp.	1	3	-	-
Hyalella azteca	87	79	-	4
Insecta				
Coleoptera				
Bidessonotus sp.	-	-	-	1
Dineutus sp.	7	2	-	-
Diptera				
Ablabesmyia rhamphe grp.	95	97	85	54
Ceratopogonidae	45	51	41	70
Chironomidae	4	9	8	4
Cricotopus sp.	1	3	5	5
Cricotopus politus	3	2	-	-
Cricotopus sylvestris grp.	-	2	-	-
Cryptochironomus sp.	1	-	-	6
Dicrotendipes sp.	-	1	-	-
Dicrotendipes simpsoni	1	1	5	-
Dicrotendipes thanatogratus	-	-	1	-
Endochironomus subtendens	-	1	-	-
Labrundinia pilosella	4	1	-	-
Nanocladius sp.	4	1	-	-
Orthocladiinae	1	1	-	-
Orthocladius sp.	-	1	-	-
Palpomyia/bezzia grp.	16	16	11	12
Parachironomus sp.	1	1	-	-
Parachironomus carinatus	1	-	1	-
Parachironomus directus	-	-	-	1
Paralauterborniella nigrohalterale	-	1	-	-
Pentaneura inconspicua	2	4	-	-
Polypedilum beckae	1	1	-	-
Polypedilum flavum	-	-	7	-
Polypedilum halterale grp.	1	2	4	-
Polypedilum illinoense grp.	2	2	3	-
Polypedilum scalaenum grp.	3	-	2	-
Rheotanytarsus exiguus grp.	-	1	13	-
Stenochironomus sp.	-	-	4	-
Tanytarsus sp.	-	-	-	1
Tanytarsus sp. A Epler	-	-	1	-
Tanytarsus sp. C Epler	-	-	1	-

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Appendix 10b continued

	Control Site 1	Control Site 2	Test Site 1	Test Site 2
Tanytarsus sp. F Epler	-	-	-	1
Tanytarsus sp. S Epler	-	-	1	-
Tanytarsus sp. T Epler	-	-	1	-
Thienemanniella lobapodema	-	-	1	-
Tribelos fuscicornis	18	48	41	46
Ephemeroptera				
Acerpenna pygmaea	-	-	1	-
Baetidae	-	-	1	-
Caenis sp.	1	4	5	15
Callibaetis sp.	5	1	-	-
Heptageniidae	-	-	1	-
Hexagenia sp.	-	1	-	-
Pseudocloeon sp.	-	1	12	-
Stenacron sp.	15	7	6	-
Stenonema exiguum	-	-	2	-
Stenonema smithae	-	-	1	-
Tricorythodes albilineatus	1	6	7	2
Odonata				
Argia sp.	-	1	1	-
Argia apicalis	-	-	-	1
Argia moesta	-	1	-	-
Argia sedula	-	-	-	1
Enallagma sp.	1	2	-	1
Enallagma signatum	1	-	-	-
Ischnura sp.	1	-	-	-
Trichoptera				
Cernotina sp.	-	1	8	-
Cheumatopsyche sp.	-	-	2	-
Cyrnellus fraternus	54	73	34	7
Hydropsyche sp.	-	1	23	-
Hydropsychidae	-	-	5	-
Hydroptila sp.	10	3	-	2
Neureclipsis sp.	3	3	33	-
Neureclipsis melco	1	-	-	-
Oecetis sp.	-	1	-	-
Oecetis persimilis	-	1	-	-
Orthotrichia sp.	-	-	-	2
Polycentropodidae	5	2	3	4
Undetermined Trichoptera	-	1	-	1
Mollusca				
Bivalvia				
Corbicula sp.	7	-	-	-
Corbicula fluminea	11	17	-	2
Undetermined Bivalvia	22	26	7	1
Gastropoda				
Ancylidae	8	-	-	-
Micromenetus sp.	-	1	-	-
Micromenetus dilatatus	-	-	-	3
Physella sp.	-	-	113	3
Planorbidae	-	2	-	1
Undetermined Gastropoda	-	-	-	1
Nemertea				
Prostoma sp.	1	-	-	-

The Bioassay of Gulf Power-Scholz Generating Plant effluent sampled on August 26, 2003, NPDES #FL0002283.



The Priority Pollutants Analysis for Bioassay of Gulf Power-Scholz Generating Plant effluent sampled on August 26, 2003, NPDES #FL0002283.

