

Biological Assessment of
Brittany Estates Mobile Home Park WWTP
Alachua County
NPDES #FL0040215
Sampled January 18, 2005

October 2005

Biology Section

Bureau of Laboratories

Division of Resource Assessment and Management

Quality Manual No. 870346G

NELAC Certification No. E31780

Florida Department of Environmental Protection

Fifth Year Inspection Summary

Discharger:	Brittany Estates Mobile Home Park WWTP
County:	Alachua
NPDES Permit Number:	FL0040215
Permit Expiration:	November 20, 2005

Toxics Sampling Inspection **(XSI)**

Date Sampled: January 18, 2005

Results: The metals cadmium, nickel, and silver were at levels below the method detection limits (MDLs). Lead was detected at a level above the MDL and below the practical quantitation limits (PQL). Aluminum, iron, magnesium, and zinc were detected in the effluent at levels above the PQLs. All metals complied with Class III Freshwater Criteria (62-302.530 F.A.C.). The organic pollutant di-n-butyl phthalate was detected in the effluent (5.8 µg/L) at a level above the MDL and below the PQL.

Compliance Biomonitoring Inspection **(CBI)**

Date Sampled: January 18, 2005

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 bioassays.

Water Quality Inspection **(WQI)**

Date Sampled: January 18, 2005

Results: Effluent dissolved oxygen (6.6 mg/L) complied with the Class III Freshwater Quality Criterion (5.0 mg/L, 62-302.530(31) F.A.C.). Fecal and total coliforms were detected in the effluent at levels that complied with Class III Freshwater Quality Criteria and the facility permit limits. Effluent total phosphorus (0.99 mg/L), ammonia (0.071 mg/L), unionized ammonia (≤ 0.02 mg/L), total nitrogen (1.32 mg/L), carbonaceous biological oxygen demand (3.8 mg/L) and total suspended solids (< MDL) complied with permit limits (Table 1). Nutrient levels for total phosphorus, ortho-phosphate, and ammonia were all elevated at the Test Site compared to the Control Site, while nitrate-nitrite, total Kjeldahl nitrogen, and organic nitrogen were slightly lower at the Test Site compared to the Control Site.

Impact Bioassessment Inspection **(IBI)**

Date Sampled: January 18, 2005

Results: Algal growth potential at the Control Site (0.58 mg dry wt/L) and at the Test Site (0.45 mg dry wt/L) were low, despite the high effluent algal growth potential (18.5 mg dry wt/L). Qualitative measures of benthic macroinvertebrate assemblages from dipnet samples and quantitative periphyton samples indicated little or no differences between the Control and Test sites. No quantitative macroinvertebrate data were collected during this assessment period due to the loss of the Hester-Dendy samplers. The Control Site SCI_2004 score of 58 and the Test Site SCI_2004 score of 50 placed them both in the “Fair” category.

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 Brittany Estates Mobile Home Park, located in Alachua County Florida, operates a 0.06 million gallons per day (MGD) activated sludge domestic wastewater treatment facility (see map in Appendix 1) capable of operating in the extended aeration mode for average daily wastewater flows of less than 0.03 MGD or the contact stabilization mode for average daily wastewater flows up to 0.06 MGD. This facility treats domestic wastewater with activated sludge utilizing a lift station, six aeration basins, two secondary clarifiers, a chlorine contact chamber with a hypochloration disinfection system, a post aeration basin and a dechlorination system. Residuals are stored and thickened in a sludge holding tank prior to hauling. The facility is also approved to discharge final effluent to a 0.6 acre polishing pond (see Facility Summary in Appendix 2). The effluent is intermittently discharged into the Class III fresh waters of Little Hatchet Creek. The annual mean flow for the previous year was 0.027 MGD (January 2004 - December 2004).

Surface Water Quality Criteria and facility permit limits are listed in Table 1. The Florida Department of Environmental Protection (FDEP) review of the discharge monitoring reports (DMRs) from the Brittany Estates WWTP indicate that there were maximum chlorine violations in August and November 2004, a fecal coliform violation in June 2004, and ammonia violations during June and July 2004 (see Facility Summary and DMR Data in Appendix 2).

Methods

The purpose of this investigation was to determine the potential effects of the Brittany Estates wastewater discharge on biota of Little Hatchet Creek. A comparative assessment of biological community health was made between a Control Site and a Test Site utilizing departmental procedures for Fifth Year Inspection Sampling of small streams. Two study sites were located within Little Hatchet Creek, with the Control Site located approximately 60 meters upstream of the Point of Discharge (POD), and the Test Site located approximately 60 meters downstream of the POD. All field and laboratory methods followed Chemistry Section and Biology Section Standard Operating Procedures (SOPs, see http://www.floridadep.org/labs/sop/index.htm#internalsop for details) and met FDEP quality assurance/quality control standards (see http://www.floridadep.org/labs/qa/index.htm). Detailed methods and their relationship to Florida Administrative Code are given in Appendix 3.

The primary investigators of this study were Patrick O'Connor and Tom Kallemeyn (FDEP Northeast District) who performed the field work and sample collection. Laboratory and data analyses and report preparation were provided by FDEP Central Laboratory in Tallahassee. The report was reviewed by District representatives and the Point Source Studies Review Committee (Wayne Magley, Shannan Gunnoe, 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. The metals cadmium, nickel, and silver were undetected in the effluent. Lead was detected at levels above MDLs and below the PQLs. Aluminum, iron, magnesium, and zinc were detected in the effluent at levels above the PQLs. All metals complied with Class III Freshwater Criteria (62-302.530 F.A.C.).
- The organic pollutant di-n-butyl phthalate (5.8 µg/L) was detected in the effluent and equipment blank (6.2 µg/L) at a level above the MDL but below the PQL. Di-n-butyl phthalate is characterized by being an odorless and colorless or faintly yellow oily liquid that is added to polyvinyl chloride plastics and nitrocellulose lacquers and is used to make products such as carpets, paints, glue, insect repellents, hair spray, and nail polish.
- Effluent conductivity, pH, and dissolved oxygen complied with Class III Freshwater Quality Criteria (62-302, F.A.C.) and facility permit limits.
- Dissolved oxygen, pH and conductivity at the Control and Test Sites complied with Class III Water Quality Criteria (Table 1 62-302.530, F.A.C.).
- The effluent sample was not acutely toxic to the fish, *Cyprinella leedsi*, or to the water flea, *Ceriodaphnia dubia*, during 48-hour acute screening bioassays (See Table 1 for percent mortality and Appendix 6 for bioassay bench sheets). While the 48-hour acute screening toxicity tests do not reflect the permit required conditions, the Department uses them to provide reasonable assurance that the facility does not adversely affect waters of the state.
- Fecal and total coliforms were detected in the effluent (10 and 340 CFU/100mL, respectively) and water samples from the Control Site (440 and 1080 CFU/100mL) and Test Site (450 and 1160 CFU/100mL) at levels that complied with Class III Water Quality Criteria and facility permit limits (See Table 1 for results and Appendix 6 for laboratory worksheets).

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

Brittany Estates WWTP	Class III Stds	Effluent Limits	Effluent Samples	Control Site	Test Site
Organic Constituents (µg/L)					
Di-n-butyl phthalate	-	-	5.8 I	-	-
Metals (µg/L unless otherwise noted)					
Aluminum	-	-	30	-	-
Arsenic	≤ 50	-	6 U	-	-
Cadmium	≤ 1.1 b	-	0.075 U	-	-
Calcium (mg/L)	-	-	20.7	-	-
Chromium-III	≤ 83.2 b	-	2 U	-	-
Copper	≤ 9 b	-	1.4 U	-	-
Iron	≤ 1000	-	46	-	-
Lead	≤ 3 b	-	0.088 I	-	-
Magnesium (mg/L)	-	-	10.7	-	-
Nickel	≤ 50.3 b	-	2 U	-	-
Selenium	≤ 5	-	0.5 U	-	-
Silver	≤ 0.07	-	0.025 U	-	-
Zinc	≤ 115.5 b	-	22	-	-
Nutrients (mg/L)					
Nitrate-N	-	≤ 12 s	0.31 A	0.036 I	0.039 I
Ortho-phosphate	-	-	0.95	0.008 I	0.013
Total Phosphorus	-	-	0.99	0.008 U	0.033
Ammonia	-	≤ 4.8 s	0.071	0.015 I	0.022
Unionized Ammonia	≤ 0.02	-	≤ 0.02	≤ 0.02	≤ 0.02
Nitrate+Nitrite	-	-	0.38 A	0.037	0.03
Total Kjeldahl Nitrogen	-	-	0.94	0.76	0.71 A
Organic Nitrogen	-	≤ 6.4 s	0.87 c	0.74 c	0.69 c
Total Nitrogen	-	-	1.32 c	0.8 c	0.74 c
General Physical and Chemical Parameters					
Habitat Assessment	-	-	-	80	86
Dissolved Oxygen (mg/L)	≥ 5	≥ 6.0	6.6	10.9	10.1
pH (S.U.)	6.0-8.5	6.0-8.5	7	7.08	7.1
Conductivity (umhos/cm)	≤ 1275	-	403	196	262
Temperature (C)	-	-	17.7	9.7	11.3
CBOD (mg/L)	-	≤ 16.0 s	3.8	-	-
Chlorophyll-*a (mg/L)*	-	-	0.85 U	1.4 U	1.4 U
Flow (MGD)	-	≤ 0.06	0.027 *	-	-
TSS	-	≤ 60 s	4 U	-	-
Hardness (mg/L)	-	-	95.8 c	-	-
Total Residual Chlorine (mg/L)	≤ 0.01	0.01 s	-	-	-
Microbiology (# counts/100ml)					
Fecal Coliforms-Membrane Filter	≤ 800	≤ 800 s	10 B	440	450
Total Coliforms	≤ 2400	-	340	1080	1160
Toxicology Bioassays (48 hour Acute Screen Bioassays % mortality)					
Fish (*Cyprinella leedsi*)	-	NOEC ≥100	0%	-	-
Water flea (*Ceriodaphnia dubia*)	-	NOEC ≥100	0%	-	-

- Analyte not measured
* Average monthly flow January - December, 2004
** Measured in the field
b - Value is calculated based on hardness
c - Calculated value
s - Single sample
A - Value reported is the mean of two or more of determinations
B - Results based on colony counts outside the acceptable range.
I - Value reported is < the practical quantitation limit (PQL), and ≥ the minimum detection limit (MDL)
K - Actual value is known to be less than value given
Q - Sample held beyond normal holding time
U - Material analyzed for but not detected; value reported is the minimum detection limit
NOEC - A no observed effect concentration less than 100% effluent will constitute a violation of this permit

Table 2. Measured and predicted algal growth potential (AGP; mg dry wt/L) for total soluble nitrogen (TSIN), total nitrogen (TN), ortho phosphate (OP) and total phosphorus (TP) of limitation of Pseudorchneriella subcapitata

Location	AGP (measured)	Predicted AGP (TSIN) ± 20%	Predicted AGP (OP) ± 20%	Predicted AGP (TN) ± 20%	Predicted AGP (TP) ± 20%	Inorganic N:P ratio	Total N:P ratio
Effluent Samples	18.5	17.1 ± 3.4	408.5 ± 81.7	50.2 ± 10.0	425.7 ± 85.1	0.5	1.3
Control Site	0.577 I	2.0 ± 0.4	3.4 ± 0.7	30.3 ± 6.1	3.47 ± 0.7	6.5	99.6
Test Site	0.451 I	2.0 ± 0.4	5.6 ± 1.1	28.1 ± 5.6	14.2 ± 2.8	4.0	22.4

I - Value reported is < the practical quantitation limit (PQL), and = the minimum detection limit (MDL)

- Effluent total ammonia (0.071 mg/L), unionized ammonia (= 0.02 mg/L), organic nitrogen (0.87 mg/L), nitrate-N (0.31 mg/L), carbonaceous biochemical oxygen demand ($CBOD_5$, 3.8 mg/L) and total suspended solids (TSS, 4 mg/L) complied with permit limits (Table 1). Additionally, effluent total phosphorus (0.99 mg/L), ortho-phosphate (0.95 mg/L), total Kjeldahl nitrogen (TKN, 0.94 mg/L), and nitrate-nitrite (0.38 mg/L) were determined.
- Nutrient levels at the Control and Test Sites were essentially the same, with total phosphorus as the only exception (Table 1). The total phosphorus concentration at the Test Site (0.033 mg/L) was at least 4 times greater than that at the Control Site (0.008 mg/L). The Control Site ortho-phosphate concentration approached the 5th percentile of typical values for Florida streams and the Test Site ortho-phosphate concentration was above the 10th percentile (Appendix 5). Ammonia levels increased at the Test Site relative to the Control Site, from measured levels slightly below the PQL to a level slightly above the PQL. In-stream nitrate+nitrite, TKN and organic nitrogen concentrations were essentially the same at the Control and Test Sites, indicating that effluent concentrations of these nutrients are having little or no effect on downstream concentrations (Table 1).
- 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 values for the upstream Control Site sample (0.58 mg dry wt/L) and the downstream Test Site sample (0.45 mg dry wt/L) were above the MDL and below the PQL and much lower than this 5.0 mg dry wt/L threshold (Table 2). The effluent AGP (18.5 mg/L) was nearly three times the threshold. The lack of increased AGP at the Test Site indicates the levels of effluent AGP has not resulted in an increase in the downstream potential for algal growth of this portion of the Little Hatchet Creek. There was no evidence of growth inhibition in AGP data (Table 2).
- Chlorophyll-*a* was not detected in the effluent or in the Control and Test Site water samples (Table 1). We note that algal production may or may not be fueled by the presence of nutrients in the water column, but instead, is the sum of a wide array of environmental conditions at a site (e.g. pH, shading, turbidity). Thus it is not necessarily contradictory for ambient nutrient levels to be high and for no chlorophyll-*a* to be detected in water samples.
- There were only minor differences in periphyton community composition between the Control and Test

Table 3. Periphyton composition

Brittany Estates WWTP	Control Site	Test Site
Number of Taxa	38	38
Shannon-Weaver Diversity	3.69	4.29
Chlorophyll a (mg/m²)	0.19 U	0.19 U
Phaeophytin (mg/m²)	0.19 U	0.19 U
Algal Density (number/cm²)	42691	39306
Percent Dominant Taxon	35.2	15.2
Dominant Taxon (name)	*Eunotia* sp.	*Eunotia* sp.
Number of Algal Units Identified	301	303
Percentage Composition		
Blue-green algae	11.3	26.7
Diatoms	85	64.4
Green algae	3	5.9
Other	0.7	3

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

Table 4. Macroinvertebrate Dipnet Samples - Qualitative

Brittany Estates WWTP	Control Site	Test Site
Stream Condition Index (value)	58	50
Stream Condition Index (word)	Fair	Fair
Stream Condition Index Metrics		
Number of Total Taxa	28	23
Number of Ephemeroptera Taxa	2	3
Number of Trichoptera Taxa	2	1
Number of Clinger Taxa	5	5
Number of Long-lived Taxa	1	0
Number of Sensitive Taxa	4	3
Percent of Dominant Taxon	30.9	38.4
Percent Suspension Feeders and Filterers	46.4	57.2
Percent of Tanytarsini individuals	11.8	11.5
Percent of Very Tolerant individuals	10.9	11.5
Total Number of Individuals	110	104
Community Composition: Percent of total		
Dominant Taxon (name)	*Simulium* sp.	*Simulium* sp.
Dominant Taxon (group)	Diptera	Diptera
Ephemeroptera	14.6	9.6
Trichoptera	2.7	'7.7
Diptera	67.3	74.1
Other	15.4	8.6
Functional Feeding Groups: Percent of total		
Burrowing Deposit Feeders	4.6	1.9
Predators	10.4	6.7
Surface Deposit Feeders	22.3	18.8
Suspension Feeders and Filterers	46.4	57.2
Scrapers	10.0	8.2
Shredders	6.4	4.3
Unknown	0.0	2.9

Sites (Table 3, Appendix 8). Algal taxonomic composition and abundance were very similar, with both sites having a taxa richness of 38 and nearly 40,000 units/ cm^2. The primary differences between the two sites were an increase in the percent of blue-green algae and a decrease in diatoms at the Test Site.

- Habitat assessment score was 80 at the both Control Site and Test Site (Table 1, data sheets in Appendix 7) indicating that both sites are moderately disturbed, but remain similar to each other in their basic physical characteristics and habitat diversity and availability.
- Quantitative benthic macroinvertebrate assemblages from Hester-Dendy samplers were not analyzed during this assessment due to the loss of samplers during the study.
- Qualitative measures of benthic macroinvertebrate assemblages from dipnet samples are summarized in Tables 4 and 5 and in Appendix 9. The dominant taxon was *Simulium* sp. at both the Control and Test Sites and both sites had similar numbers of Ephemeroptera taxa, suspension and filterer taxa, sensitive taxa, and very tolerant taxa. The Control Site SCI score of 58 and the Test Site SCI score of 50 placed them both in the "Fair" category. The SCI scores were calculated using the 2004 version of the SCI per the Departments QA Rule 62.160, F.A.C.

Summary

Both DMR and FDEP data from this inspection indicate that the Brittany Estates WWTP has had little or no significant impact on Little Hatchet Creek during this assessment period. Review of the discharge monitoring reports (DMRs) from the Brittany Estates WWTP indicate that there were maximum chlorine violations in August and November 2004, a fecal coliform violation in June 2004, and ammonia violations during June and July 2004 (see Facility Summary in Appendix 2). Even though the quantitative macroinvertebrate samples were lost, the qualitative macroinvertebrate data and the periphyton data suggest only minor differences exist in the biological condition of the two sampling sites. The review of the DMRs indicates that effluent violations at the plant most often occur during the Summer and Fall months, so it may be appropriate to collect some samples during the Fall in order to determine any possible impact these plant upsets may cause.

Literature Cited

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Table 5a. Stream Condition Index Metrics – Peninsula

Brittany Estates WWTP - Control Site			
Metric:	Value	Raw metric Score	Fix Score 0-10
Total Taxa	28	4.80	4.80
Ephemeroptera taxa	2	4.00	4.00
Trichoptera Taxa	2	2.86	2.86
Clinger Taxa	5	6.25	6.25
Long-Lived taxa	1	2.50	2.50
Sensitive Taxa	4	4.44	4.44
Percent Contribution of Dominance Taxon	31	5.23	5.23
Percent Suspension Feeders and Filterers	46.36	11.63	10.00
Percent of Tanytarsini individuals	11.82	7.73	7.73
Percent of Very Tolerant individuals	10.91	3.96	3.96
Total Score			58
Interpretation of Scores		Good	73-100
		Fair	46-72
		Poor	19-45
		Very Poor	0-18

Table 5b. Stream Condition Index Metrics – Peninsula

Brittany Estates WWTP - Test Site			
Metric:	Value	Raw metric Score	Fix Score 0-10
Total Taxa	23	2.80	2.80
Ephemeroptera taxa	3	6.00	6.00
Trichoptera Taxa	1	1.43	1.43
Clinger Taxa	5	6.25	6.25
Long-Lived taxa	0	0.00	0.00
Sensitive Taxa	3	3.33	3.33
Percent Contribution of Dominance Taxon	38.46	3.53	3.53
Percent Suspension Feeders and Filterers	57.21	14.41	10.00
Percent of Tanytarsini individuals	11.54	7.66	7.66
Percent of Very Tolerant individuals	11.54	3.83	3.83
Total Score			50
Interpretation of Scores		Good	73-100
		Fair	46-72
		Poor	19-45
		Very Poor	0-18

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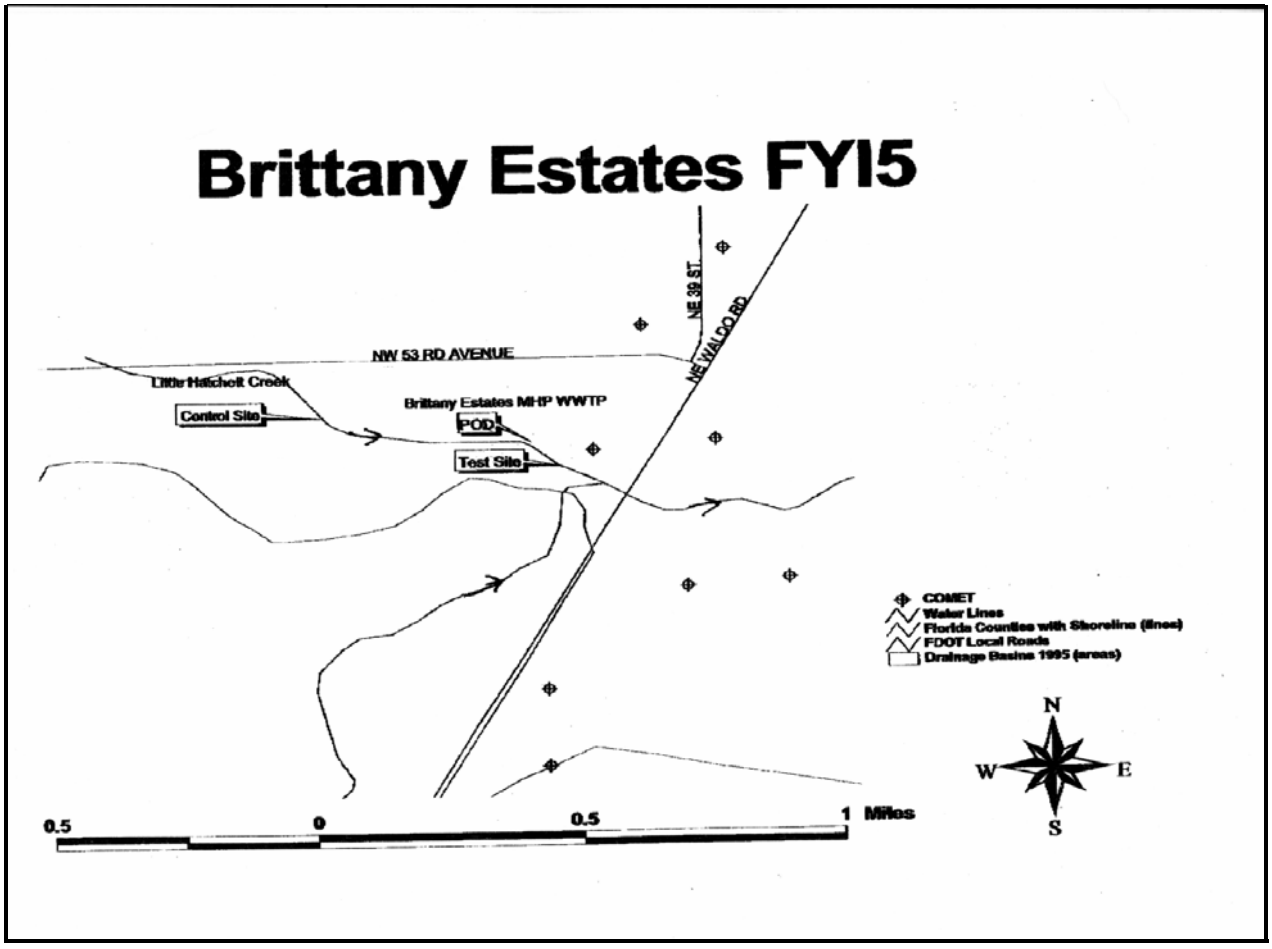
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Appendices

- Appendix 1. Map of facility
- Appendix 2. Facility summary and DMR data
- 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. Habitat Assessment field sheets
- Appendix 8a. Periphyton: Taxa list and density (number of individuals per cm^2)
- Appendix 8b. Periphyton: Taxa list and number of individuals counted
- Appendix 9a. Dipnet samples: Taxa list and number of macroinvertebrates counted (collapsed)
- Appendix 9b. Dipnet samples: Taxa list and number of macroinvertebrates counted

Appendix 1

Map of facility



Appendix 2

Facility Summary and DMR Data

Facility Introduction

Brittany Estates Mobile Home Park Wastewater Treatment Facility is permitted to operate a 0.06 mgd activated sludge wastewater treatment facility capable of operating in the extended aeration mode for average daily flows less than 0.03 mgd or the contact stabilization mode for average daily wastewater flows up to 0.06 mgd. The treatment system includes an: influent pump station, six aeration units of 5,000 gallons each, two secondary clarifiers of 5,200 gallons each, a chlorine contact chamber with a hypochlorination disinfection system, a post-aeration basin and a dechlorination system. Residuals are stored and thickened in a sludge holding tank prior to hauling. The facility is also approved to discharge final effluent to a 0.6 acre polishing pond.

The average facility flow for the months of January 2004 through December 2004 was 0.027 mgd. The facility is permitted to discharge 0.06 mgd annual average of treated effluent to Little Hatchet Creek. The wastewater treatment plant is located approximately at latitude 29 degrees 42 minutes, 00 seconds North, longitude 82 degrees, 16 minutes, 54 seconds West.

A mixing zone is not present at this time.

Permit FL0040215 was issued on February 23, 2001 and expires on February 22, 2006. This permit
states that samples, with the exception of minimum chlorine residual taken after disinfection, are to be taken following post aeration (when the facility does not discharge to Little Hatchet Creek) or immediately after the polishing pond (after dechlorination) prior the final outfall when the facility discharges to Little Hatchet Creek.

Facility Summary

Facility Name (as it appears on permit): Brittany Estates MHP WWTP		
Physical Address: 5010 Northeast Waldo Road Gainesville, Florida 32601	**NPDES Permit No:** FL0040215 **Expiration Date:** February 22, 2006	**Prepared By:** Kathleen H. Gerard
County: Alachua **District:** Northeast	**State Permit No.:** N/A **Expiration Date:** N/A	**Facility Type:** Domestic – extended aeration or contact stabilization
Function of Facility: Wastewater treatment facility.		

Sampling Location (specify lat/longs of NPDES point): With the exception of a sample that was taken for chlorine residual after disinfection, all samples were taken after the polishing pond and dechlorination and prior to the final outfall. This location is at the wastewater treatment plant that is located at latitude 29 degrees, 42 minutes, 00 seconds N, and longitude 82 degrees, 16 minutes, 54 seconds W.	
Description of treatment process: The treatment system is capable of operating in the extended aeration mode for an average daily flow less than 0.03 mgd or the contact stabilization mode for average daily wastewater flows up to 0.06 mgd. The wastewater treatment facility includes an: influent pump station, six 5,000 gallon aeration units, two 5,200 gallon secondary clarifiers, a 1,500 gallon chlorine contact chamber with a hypochlorination disinfection system, a post-aeration basin and a dechlorination system. Residuals are stored and thickened in a sludge holding tank prior to hauling.	
Receiving Waters: The facility is permitted to discharge 0.06 mgd of treated effluent to ditch to Little Hatchet Creek. (Class III fresh waters).	**Classification:** Class III freshwaters
Temperature (C):	**Design Flow:** 0.06 mgd
pH (SU):	**Mean Flow:** The average facility flow for the months of January 2004 through December 2004 was 0.027 mgd.
Conductivity (umhos/cm):	**Flow During Survey:**
Dissolved Oxygen (mg/L):	**Total Residual Chlorine (mg/L):**
Discharge is:	
Facility Mixing Zone Details: N/A	
List Effluent Limits:	

Parameter and Units	Limits	Monitoring Required
Flow	Maximum Annual Average: 0.06 mgd	5 days/week
CBOD5	Annual Average: 8.0 mg/L Monthly Average: 10.0 mg/L Weekly Average: 12.0 mg/L Single Sample: 16.0 mg/L	Sample every two weeks
TSS	Annual Average: 20.0 mg/L Monthly Average: 30.0 mg/L Weekly Average: 45.0 mg/L Single Sample: 60.0 mg/L	Sample every two weeks
pH	Maximum: 8.5 s.u. Minimum: 6.0 s.u.	Sample 5 days/week
Total Residual Chlorine (for disinfection)	Minimum: 0.5 mg/L	Sample 5 days/week
Total Residual Chlorine (for dechlorination)	Maximum: 0.01 mg/L	Sample every two weeks
Coliform, Fecal	Annual Average: 200 #/100 mL Monthly Geo. Mean: 200 #/100 mL Maximum: 800 #/100mL	Sample every two weeks
Total Organic Nitrogen	Annual Average: 3.2 mg/L Monthly Average: 4.0 mg/L Weekly Average: 4.8 mg/L Single Sample: 6.4 mg/L	Every two weeks
Total Nitrate Nitrogen	Single Sample: 12.0 mg/L	Every two weeks
Total Ammonia Nitrogen	Annual Average: 2.4 mg/L Monthly Average: 3.0 mg/L Weekly Average: 3.6 mg/L Single Sample: 4.8 mg/L	Every two weeks
Dissolved Oxygen	Single Sample: Minimum: 6.0 mg/L	5 days/week

Description of permitted outfall: The facility is permitted to discharge 0.06 mgd annual average of treated effluent to Little Hatchet Creek (Class III fresh waters) at a discharge location D-001.

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

A review of the Discharge Monitoring reports for January 2004 through December 2004 show that:

- There were maximum chlorine violations in August and November 2004.
- There was a fecal coliform violation during June 2004.
- There were ammonia nitrogen violations during June and July 2004.

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

- Currently there is no enforcement action with this facility.
- Toxicity monitoring is not required for the current permit at this time.

Describe special permit conditions and permit modifications:

Permit FL0040215 was issued on February 23, 2001 and expires on February 22, 2006.

Additional Information:

A permit modification is expected in the near future since there was a change of residual haulers.

Facility ID	Facility Name	District	Facility Type	Outfall Type	Monitoring Date	Outfall Indicator	Parameter Code	Parameter Description	Monitoring Location Code	Concentration (1)	Concentration Limit (1)	Concentration Statistical Base (1)
FL0040215	BRITTANY ESTATES MHP WWTP	JA	I	EFFLUENT	6/30/2004	001-1	P 00610	NITROGEN, AMMONIA TOTAL (AS N)	Q	8.45	3.6	WKLY AVG
FL0040215	BRITTANY ESTATES MHP WWTP	JA	I	EFFLUENT	6/30/2004	001-1	P 74055	COLIFORM, FECAL GENERAL	1	0	400	90TH %
FL0040215	BRITTANY ESTATES MHP WWTP	JA	I	EFFLUENT	7/31/2004	001-1	P 00610	NITROGEN, AMMONIA TOTAL (AS N)	Q	3.4	3.6	WKLY AVG
FL0040215	BRITTANY ESTATES MHP WWTP	JA	I	EFFLUENT	11/30/2004	001-1	P 50060	CHLORINE, TOTAL RESIDUAL	P		DELMON	

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) Habitat Assessment

Habitat assessment is used to evaluate the physical structure and extent of disturbance in a waterbody. Eight aspects are ranked, with 20 possible points for each aspect (QA Rule SOP FT 3100). The Habitat Assessment score includes types and amounts of benthic substrates, water velocity, amount of sand or silt accumulation, extent of artificial channelization, bank stability, and riparian zone width and vegetation type. All scores are summed to yield an overall Habitat Assessment score. Habitat Assessment score ranges from 11-160 and overall habitat quality is assigned to one of four categories: Optimal (120-160 points), Suboptimal (80-119 points), Marginal (40-79 points), and Poor (11-39 points).

(6) 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..

(7) 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 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/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..

(8) Benthic Macroinvertebrate Assemblages

Methods: Benthic macroinvertebrates were collected using one method. Qualitative collections are made using 20 dipnet sweeps (QA Rule SOP FS7420). 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..

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..

The Stream Condition Index (SCI): The SCI is a composite macroinvertebrate metric developed for Florida. This Index was revised in 2004 using data from qualitative dipnet samples. The SCI now assigns points to ten parameters; depending on how closely each parameter approaches an expected value (QA Rule SOP LT 7200). Points are assigned depending on which bioregion (Panhandle, Northeast, or Peninsula) the sampling location exists in and summed to yield a final SCI score (range 0-100). Included in the calculation of SCI are taxa richness, number of Ephemeroptera taxa, number of Trichoptera taxa, percent contribution of the dominant taxon, number of sensitive taxa, number of clinger taxa, number of long-lived taxa, percent contribution of Tanytarsini, percent contribution of very tolerant, and the percent contribution of suspension and filter feeders. Scores are broken into four ordinal groups: Good, Fair, Poor, and Very Poor. A decrease in ordinal SCI score from the Control to the Test site may be evidence of degradation related to a facility's effluent. An SCI score of "Poor"

or “Very Poor” 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..

(9) Statistical Comparisons

Statistical comparisons of the proportions of taxa, major groups or feeding groups were made using 95% confidence intervals on proportions. A 95% confidence interval is the range of values above and below a given proportion that has a 95% chance of containing the true proportion (Sokal and Rohlf 1995). If the 95% confidence intervals for two proportions do not overlap, then the proportion of X in sample 1 is significantly different from the proportion of X in sample 2 at $p<0.05$. A “$p<0.05$” level of significance means that there is less than a 5% chance that the true proportions in the two samples are the same. All comparisons that are labeled as significant in the text have a probability <0.05 that the proportions are the same.

Appendix 4

Chemical analysis of effluent and receiving water

DATE SAMPLED	FIELD ID	ANALYSIS GROU	COMPONENT	RESULT	UNITS	REMARK	MDL	PQL
1/18/2005	FINAL EFFLUENT	BNA-Water	1,2,4-Trichlorobenzene	0.95	ug/L	U	0.95	3.8
1/18/2005	FINAL EFFLUENT	BNA-Water	1,2-Dichlorobenzene	0.95	ug/L	U	0.95	3.8
1/18/2005	FINAL EFFLUENT	BNA-Water	1,3-Dichlorobenzene	0.95	ug/L	U	0.95	3.8
1/18/2005	FINAL EFFLUENT	BNA-Water	1,4-Dichlorobenzene	0.95	ug/L	U	0.95	3.8
1/18/2005	FINAL EFFLUENT	BNA-Water	2,4,6-Trichlorophenol	0.95	ug/L	U	0.95	3.8
1/18/2005	FINAL EFFLUENT	BNA-Water	2,4-Dichlorophenol	0.95	ug/L	U	0.95	3.8
1/18/2005	FINAL EFFLUENT	BNA-Water	2,4-Dimethylphenol	48	ug/L	U	48	190
1/18/2005	FINAL EFFLUENT	BNA-Water	2,4-Dinitrophenol	14	ug/L	U	14	57
1/18/2005	FINAL EFFLUENT	BNA-Water	2,4-Dinitrotoluene	0.95	ug/L	U	0.95	3.8
1/18/2005	FINAL EFFLUENT	BNA-Water	2,6-Dinitrotoluene	0.95	ug/L	U	0.95	3.8
1/18/2005	FINAL EFFLUENT	BNA-Water	2-Chloronaphthalene	0.95	ug/L	U	0.95	3.8
1/18/2005	FINAL EFFLUENT	BNA-Water	2-Chlorophenol	0.95	ug/L	U	0.95	3.8
1/18/2005	FINAL EFFLUENT	BNA-Water	2-Methyl-4,6-dinitrophenol	2.9	ug/L	U	2.9	11
1/18/2005	FINAL EFFLUENT	BNA-Water	2-Nitrophenol	0.95	ug/L	U	0.95	3.8
1/18/2005	FINAL EFFLUENT	BNA-Water	3,3'-Dichlorobenzidine	38	ug/L	U	38	150
1/18/2005	FINAL EFFLUENT	BNA-Water	4,4'-DDD	1.4	ug/L	U	1.4	5.7
1/18/2005	FINAL EFFLUENT	BNA-Water	4,4'-DDE	1.4	ug/L	U	1.4	5.7
1/18/2005	FINAL EFFLUENT	BNA-Water	4,4'-DDT	1.4	ug/L	UJ	1.4	5.7
1/18/2005	FINAL EFFLUENT	BNA-Water	4-Bromophenyl phenyl ether	0.95	ug/L	U	0.95	3.8
1/18/2005	FINAL EFFLUENT	BNA-Water	4-Chloro-3-methylphenol	0.95	ug/L	U	0.95	3.8
1/18/2005	FINAL EFFLUENT	BNA-Water	4-Chlorophenyl phenyl ether	1.9	ug/L	U	1.9	7.6
1/18/2005	FINAL EFFLUENT	BNA-Water	4-Nitrophenol	14	ug/L	U	14	57
1/18/2005	FINAL EFFLUENT	BNA-Water	Acenaphthene	0.95	ug/L	U	0.95	3.8
1/18/2005	FINAL EFFLUENT	BNA-Water	Acenaphthylene	0.95	ug/L	U	0.95	3.8
1/18/2005	FINAL EFFLUENT	BNA-Water	Aldrin	1.4	ug/L	U	1.4	5.7
1/18/2005	FINAL EFFLUENT	BNA-Water	Anthracene	0.95	ug/L	U	0.95	3.8
1/18/2005	FINAL EFFLUENT	BNA-Water	Benzidine	95	ug/L	U	95	380
1/18/2005	FINAL EFFLUENT	BNA-Water	Benzo(a)anthracene	0.95	ug/L	U	0.95	3.8
1/18/2005	FINAL EFFLUENT	BNA-Water	Benzo(a)pyrene	0.95	ug/L	U	0.95	3.8
1/18/2005	FINAL EFFLUENT	BNA-Water	Benzo(b)fluoranthene	0.95	ug/L	U	0.95	3.8
1/18/2005	FINAL EFFLUENT	BNA-Water	Benzo(g,h,i)perylene	0.95	ug/L	U	0.95	3.8
1/18/2005	FINAL EFFLUENT	BNA-Water	Benzo(k)fluoranthene	0.95	ug/L	U	0.95	3.8
1/18/2005	FINAL EFFLUENT	BNA-Water	Bis(2-chloroethoxy)methane	0.95	ug/L	U	0.95	3.8
1/18/2005	FINAL EFFLUENT	BNA-Water	Bis(2-chloroethyl)ether	0.95	ug/L	U	0.95	3.8
1/18/2005	FINAL EFFLUENT	BNA-Water	Bis(2-chloroisopropyl)ether	2.9	ug/L	U	2.9	11
1/18/2005	FINAL EFFLUENT	BNA-Water	Bis(2-ethylhexyl)phthalate	14	ug/L	U	14	57
1/18/2005	FINAL EFFLUENT	BNA-Water	Butyl benzyl phthalate	4.8	ug/L	U	4.8	19
1/18/2005	FINAL EFFLUENT	BNA-Water	Chrysene	0.95	ug/L	U	0.95	3.8
1/18/2005	FINAL EFFLUENT	BNA-Water	Di-n-butyl phthalate	5.8	ug/L	I	4.8	19
1/18/2005	FINAL EFFLUENT	BNA-Water	Di-n-octyl phthalate	0.95	ug/L	U	0.95	3.8
1/18/2005	FINAL EFFLUENT	BNA-Water	Dibenzo(a,h)anthracene	0.95	ug/L	U	0.95	3.8
1/18/2005	FINAL EFFLUENT	BNA-Water	Dieldrin	1.4	ug/L	U	1.4	5.7
1/18/2005	FINAL EFFLUENT	BNA-Water	Diethyl phthalate	0.95	ug/L	U	0.95	3.8
1/18/2005	FINAL EFFLUENT	BNA-Water	Dimethyl phthalate	48	ug/L	U	48	190
1/18/2005	FINAL EFFLUENT	BNA-Water	Endosulfan I	3.8	ug/L	UJ	3.8	15
1/18/2005	FINAL EFFLUENT	BNA-Water	Endosulfan II	3.8	ug/L	U	3.8	15
1/18/2005	FINAL EFFLUENT	BNA-Water	Endosulfan sulfate	1.4	ug/L	U	1.4	5.7
1/18/2005	FINAL EFFLUENT	BNA-Water	Endrin	1.4	ug/L	UJ	1.4	5.7
1/18/2005	FINAL EFFLUENT	BNA-Water	Endrin aldehyde	3.8	ug/L	U	3.8	15
1/18/2005	FINAL EFFLUENT	BNA-Water	Fluoranthene	0.95	ug/L	U	0.95	3.8
1/18/2005	FINAL EFFLUENT	BNA-Water	Fluorene	0.95	ug/L	U	0.95	3.8
1/18/2005	FINAL EFFLUENT	BNA-Water	Heptachlor	1.4	ug/L	UJ	1.4	5.7
1/18/2005	FINAL EFFLUENT	BNA-Water	Heptachlor epoxide	1.4	ug/L	UJ	1.4	5.7
1/18/2005	FINAL EFFLUENT	BNA-Water	Hexachlorobenzene	0.95	ug/L	U	0.95	3.8
1/18/2005	FINAL EFFLUENT	BNA-Water	Hexachlorobutadiene	2.9	ug/L	U	2.9	11
1/18/2005	FINAL EFFLUENT	BNA-Water	Hexachlorocyclopentadiene	2.9	ug/L	UJ	2.9	11
1/18/2005	FINAL EFFLUENT	BNA-Water	Hexachloroethane	2.9	ug/L	UJ	2.9	11
1/18/2005	FINAL EFFLUENT	BNA-Water	Indeno(1,2,3-cd)pyrene	0.95	ug/L	U	0.95	3.8
1/18/2005	FINAL EFFLUENT	BNA-Water	Isophorone	0.95	ug/L	U	0.95	3.8

1/18/2005	FINAL EFFLUENT	BNA-Water	N-Nitrosodi-n-propylamine	1.9	ug/L	U	1.9	7.6
1/18/2005	FINAL EFFLUENT	BNA-Water	N-Nitrosodimethylamine	1.9	ug/L	U	1.9	7.6
1/18/2005	FINAL EFFLUENT	BNA-Water	N-Nitrosodiphenylamine	2.9	ug/L	U	2.9	11
1/18/2005	FINAL EFFLUENT	BNA-Water	Naphthalene	0.95	ug/L	U	0.95	3.8
1/18/2005	FINAL EFFLUENT	BNA-Water	Nitrobenzene	1.9	ug/L	U	1.9	7.6
1/18/2005	FINAL EFFLUENT	BNA-Water	Pentachlorophenol	2.9	ug/L	U	2.9	11
1/18/2005	FINAL EFFLUENT	BNA-Water	Phenanthrene	0.95	ug/L	U	0.95	3.8
1/18/2005	FINAL EFFLUENT	BNA-Water	Phenol	0.95	ug/L	U	0.95	3.8
1/18/2005	FINAL EFFLUENT	BNA-Water	Pyrene	0.95	ug/L	U	0.95	3.8
1/18/2005	FINAL EFFLUENT	BNA-Water	alpha-BHC	1.4	ug/L	U	1.4	5.7
1/18/2005	FINAL EFFLUENT	BNA-Water	beta-BHC	1.4	ug/L	UJ	1.4	5.7
1/18/2005	FINAL EFFLUENT	BNA-Water	delta-BHC	1.4	ug/L	U	1.4	5.7
1/18/2005	FINAL EFFLUENT	BNA-Water	gamma-BHC	1.4	ug/L	UJ	1.4	5.7
1/18/2005	FINAL EFFLUENT	Bio-AGP/LimNut	Algal Growth Potential	18.5	mg DryWt/L		0.3	0.9
1/18/2005	FINAL EFFLUENT	Bio-BOD	Biochemical Oxygen Demand-5 Day,N-Inhib	3.8	mg/L			
1/18/2005	FINAL EFFLUENT	Bio-Chl-a	Chlorophyll-A, Monochromatic, Water	0.85	ug/L	U	0.85	2.6
1/18/2005	FINAL EFFLUENT	Bio-Chl-a	Phaeophytin-A, Monochromatic, Water	0.85	ug/L	U	0.85	2.6
1/18/2005	FINAL EFFLUENT	Bio-Toxicology	Bioassay-Acute-Screen-FW-C.dubia, LC50	100	LC50	L		
1/18/2005	FINAL EFFLUENT	Bio-Toxicology	Bioassay-Acute-Screen-FW-Fish, LC50	100	LC50	L		
1/18/2005	FINAL EFFLUENT	GC-Water	Alachlor	0.58	ug/L	U	0.58	2.3
1/18/2005	FINAL EFFLUENT	GC-Water	Ametryn	0.048	ug/L	U	0.048	0.19
1/18/2005	FINAL EFFLUENT	GC-Water	Atrazine	0.048	ug/L	U	0.048	0.19
1/18/2005	FINAL EFFLUENT	GC-Water	Azinphos Methyl	0.048	ug/L	U	0.048	0.19
1/18/2005	FINAL EFFLUENT	GC-Water	Bromacil	0.19	ug/L	U	0.19	0.76
1/18/2005	FINAL EFFLUENT	GC-Water	Butylate	0.19	ug/L	U	0.19	0.76
1/18/2005	FINAL EFFLUENT	GC-Water	Chlorpyrifos Ethyl	0.048	ug/L	U	0.048	0.19
1/18/2005	FINAL EFFLUENT	GC-Water	Chlorpyrifos Methyl	0.096	ug/L	U	0.096	0.38
1/18/2005	FINAL EFFLUENT	GC-Water	Diazinon	0.048	ug/L	UJ	0.048	0.19
1/18/2005	FINAL EFFLUENT	GC-Water	Ethion	0.048	ug/L	U	0.048	0.19
1/18/2005	FINAL EFFLUENT	GC-Water	Ethoprop	0.096	ug/L	U	0.096	0.38
1/18/2005	FINAL EFFLUENT	GC-Water	Fenamiphos	0.19	ug/L	U	0.19	0.76
1/18/2005	FINAL EFFLUENT	GC-Water	Fonofos	0.096	ug/L	U	0.096	0.38
1/18/2005	FINAL EFFLUENT	GC-Water	Hexazinone	0.096	ug/L	U	0.096	0.38
1/18/2005	FINAL EFFLUENT	GC-Water	Malathion	0.14	ug/L	U	0.14	0.56
1/18/2005	FINAL EFFLUENT	GC-Water	Metalaxyl	0.24	ug/L	U	0.24	0.96
1/18/2005	FINAL EFFLUENT	GC-Water	Metolachlor	0.48	ug/L	U	0.48	1.9
1/18/2005	FINAL EFFLUENT	GC-Water	Metribuzin	0.096	ug/L	U	0.096	0.38
1/18/2005	FINAL EFFLUENT	GC-Water	Mevinphos	0.19	ug/L	U	0.19	0.76
1/18/2005	FINAL EFFLUENT	GC-Water	Naled	0.77	ug/L	UJ	0.77	3.1
1/18/2005	FINAL EFFLUENT	GC-Water	Norflurazon	0.096	ug/L	U	0.096	0.38
1/18/2005	FINAL EFFLUENT	GC-Water	Parathion Ethyl	0.14	ug/L	UJ	0.14	0.56
1/18/2005	FINAL EFFLUENT	GC-Water	Parathion Methyl	0.096	ug/L	U	0.096	0.38
1/18/2005	FINAL EFFLUENT	GC-Water	Phorate	0.048	ug/L	U	0.048	0.19
1/18/2005	FINAL EFFLUENT	GC-Water	Prometryn	0.14	ug/L	U	0.14	0.56
1/18/2005	FINAL EFFLUENT	GC-Water	Simazine	0.048	ug/L	U	0.048	0.19
1/18/2005	FINAL EFFLUENT	Metals-Water	Aluminum	30	ug/L		5	20
1/18/2005	FINAL EFFLUENT	Metals-Water	Arsenic	6	ug/L	U	6	24
1/18/2005	FINAL EFFLUENT	Metals-Water	Cadmium	0.075	ug/L	U	0.075	0.3
1/18/2005	FINAL EFFLUENT	Metals-Water	Calcium	20.7	mg/L		0.075	0.3
1/18/2005	FINAL EFFLUENT	Metals-Water	Chromium	2	ug/L	U	2	8
1/18/2005	FINAL EFFLUENT	Metals-Water	Copper	1.4	ug/L	U	1.4	5.6
1/18/2005	FINAL EFFLUENT	Metals-Water	Iron	46	ug/L		10	40
1/18/2005	FINAL EFFLUENT	Metals-Water	Lead	0.088	ug/L	I	0.075	0.3
1/18/2005	FINAL EFFLUENT	Metals-Water	Magnesium	10.7	mg/L		0.02	0.08
1/18/2005	FINAL EFFLUENT	Metals-Water	Nickel	2	ug/L	U	2	8
1/18/2005	FINAL EFFLUENT	Metals-Water	Selenium	0.5	ug/L	U	0.5	2
1/18/2005	FINAL EFFLUENT	Metals-Water	Silver	0.025	ug/L	U	0.025	0.1
1/18/2005	FINAL EFFLUENT	Metals-Water	Zinc	22	ug/L		3	12
1/18/2005	FINAL EFFLUENT	Nutrients-Liquid	Ammonia-N	0.071	mg N/L		0.01	0.02
1/18/2005	FINAL EFFLUENT	Nutrients-Liquid	Kjeldahl Nitrogen	0.94	mg N/L		0.06	0.2

1/18/2005	FINAL EFFLUENT	Nutrients-Liquid	NO2NO3-N	0.38	mg N/L	A	0.02	0.05
1/18/2005	FINAL EFFLUENT	Nutrients-Liquid	Nitrate-N	0.31	mg N/L	A	0.02	0.04
1/18/2005	FINAL EFFLUENT	Nutrients-Liquid	O-Phosphate-P	0.95	mg P/L		0.08	0.2
1/18/2005	FINAL EFFLUENT	Nutrients-Liquid	TSS	4	mg/L	U	4	16
1/18/2005	FINAL EFFLUENT	Nutrients-Liquid	Total-P	0.99	mg P/L		0.04	0.1
1/18/2005	CONTROL SITE	Bio-AGP/LimNut	Algal Growth Potential	0.577	mg DryWt/L	I	0.3	0.9
1/18/2005	CONTROL SITE	Bio-Chl-a	Chlorophyll-A, Monochromatic, Periphyton	0.19	mg/m2	U	0.19	0.57
1/18/2005	CONTROL SITE	Bio-Chl-a	Chlorophyll-A, Monochromatic, Water	1.4	ug/L	U	1.4	4.3
1/18/2005	CONTROL SITE	Bio-Chl-a	Phaeophytin-A, Monochromatic, Periphyton	0.19	mg/m2	U	0.19	0.57
1/18/2005	CONTROL SITE	Bio-Chl-a	Phaeophytin-A, Monochromatic, Water	1.4	ug/L	U	1.4	4.3
1/18/2005	CONTROL SITE	Bio-Invertebrates	Macroinvert-FW-Qual-Dipnetx20-# Taxa	27	# Taxa			
1/18/2005	CONTROL SITE	Bio-Peri/Phyto	Periphyton-Quantitative-# Diatom Taxa	24	#Taxa			
1/18/2005	CONTROL SITE	Bio-Peri/Phyto	Periphyton-Quantitative-# Wet Taxa	14	#Taxa			
1/18/2005	CONTROL SITE	Nutrients-Liquid	Ammonia-N	0.015	mg N/L	I	0.01	0.02
1/18/2005	CONTROL SITE	Nutrients-Liquid	Kjeldahl Nitrogen	0.76	mg N/L		0.06	0.2
1/18/2005	CONTROL SITE	Nutrients-Liquid	NO2NO3-N	0.037	mg N/L		0.004	0.01
1/18/2005	CONTROL SITE	Nutrients-Liquid	Nitrate-N	0.036	mg N/L	I	0.02	0.04
1/18/2005	CONTROL SITE	Nutrients-Liquid	O-Phosphate-P	0.008	mg P/L	I	0.004	0.01
1/18/2005	CONTROL SITE	Nutrients-Liquid	Total-P	0.008	mg P/L	U	0.008	0.02
1/18/2005	EQUIPMENT BLANK	BNA-Water	1,2,4-Trichlorobenzene	1.1	ug/L	U	1.1	4.4
1/18/2005	EQUIPMENT BLANK	BNA-Water	1,2-Dichlorobenzene	1.1	ug/L	U	1.1	4.4
1/18/2005	EQUIPMENT BLANK	BNA-Water	1,3-Dichlorobenzene	1.1	ug/L	U	1.1	4.4
1/18/2005	EQUIPMENT BLANK	BNA-Water	1,4-Dichlorobenzene	1.1	ug/L	U	1.1	4.4
1/18/2005	EQUIPMENT BLANK	BNA-Water	2,4,6-Trichlorophenol	1.1	ug/L	U	1.1	4.4
1/18/2005	EQUIPMENT BLANK	BNA-Water	2,4-Dichlorophenol	1.1	ug/L	U	1.1	4.4
1/18/2005	EQUIPMENT BLANK	BNA-Water	2,4-Dimethylphenol	56	ug/L	U	56	220
1/18/2005	EQUIPMENT BLANK	BNA-Water	2,4-Dinitrophenol	17	ug/L	U	17	67
1/18/2005	EQUIPMENT BLANK	BNA-Water	2,4-Dinitrotoluene	1.1	ug/L	U	1.1	4.4
1/18/2005	EQUIPMENT BLANK	BNA-Water	2,6-Dinitrotoluene	1.1	ug/L	U	1.1	4.4
1/18/2005	EQUIPMENT BLANK	BNA-Water	2-Chloronaphthalene	1.1	ug/L	U	1.1	4.4
1/18/2005	EQUIPMENT BLANK	BNA-Water	2-Chlorophenol	1.1	ug/L	U	1.1	4.4
1/18/2005	EQUIPMENT BLANK	BNA-Water	2-Methyl-4,6-dinitrophenol	3.3	ug/L	U	3.3	13
1/18/2005	EQUIPMENT BLANK	BNA-Water	2-Nitrophenol	1.1	ug/L	U	1.1	4.4
1/18/2005	EQUIPMENT BLANK	BNA-Water	3,3'-Dichlorobenzidine	44	ug/L	U	44	180
1/18/2005	EQUIPMENT BLANK	BNA-Water	4,4'-DDD	1.7	ug/L	U	1.7	6.7
1/18/2005	EQUIPMENT BLANK	BNA-Water	4,4'-DDE	1.7	ug/L	U	1.7	6.7
1/18/2005	EQUIPMENT BLANK	BNA-Water	4,4'-DDT	1.7	ug/L	UJ	1.7	6.7
1/18/2005	EQUIPMENT BLANK	BNA-Water	4-Bromophenyl phenyl ether	1.1	ug/L	U	1.1	4.4
1/18/2005	EQUIPMENT BLANK	BNA-Water	4-Chloro-3-methylphenol	1.1	ug/L	U	1.1	4.4
1/18/2005	EQUIPMENT BLANK	BNA-Water	4-Chlorophenyl phenyl ether	2.2	ug/L	U	2.2	8.9
1/18/2005	EQUIPMENT BLANK	BNA-Water	4-Nitrophenol	17	ug/L	U	17	67
1/18/2005	EQUIPMENT BLANK	BNA-Water	Acenaphthene	1.1	ug/L	U	1.1	4.4
1/18/2005	EQUIPMENT BLANK	BNA-Water	Acenaphthylene	1.1	ug/L	U	1.1	4.4
1/18/2005	EQUIPMENT BLANK	BNA-Water	Aldrin	1.7	ug/L	U	1.7	6.7
1/18/2005	EQUIPMENT BLANK	BNA-Water	Anthracene	1.1	ug/L	U	1.1	4.4
1/18/2005	EQUIPMENT BLANK	BNA-Water	Benzidine	110	ug/L	U	110	440
1/18/2005	EQUIPMENT BLANK	BNA-Water	Benzo(a)anthracene	1.1	ug/L	U	1.1	4.4
1/18/2005	EQUIPMENT BLANK	BNA-Water	Benzo(a)pyrene	1.1	ug/L	U	1.1	4.4
1/18/2005	EQUIPMENT BLANK	BNA-Water	Benzo(b)fluoranthene	1.1	ug/L	U	1.1	4.4
1/18/2005	EQUIPMENT BLANK	BNA-Water	Benzo(g,h,i)perylene	1.1	ug/L	U	1.1	4.4
1/18/2005	EQUIPMENT BLANK	BNA-Water	Benzo(k)fluoranthene	1.1	ug/L	U	1.1	4.4
1/18/2005	EQUIPMENT BLANK	BNA-Water	Bis(2-chloroethoxy)methane	1.1	ug/L	U	1.1	4.4
1/18/2005	EQUIPMENT BLANK	BNA-Water	Bis(2-chloroethyl)ether	1.1	ug/L	U	1.1	4.4
1/18/2005	EQUIPMENT BLANK	BNA-Water	Bis(2-chloroisopropyl)ether	3.3	ug/L	U	3.3	13
1/18/2005	EQUIPMENT BLANK	BNA-Water	Bis(2-ethylhexyl)phthalate	17	ug/L	U	17	67
1/18/2005	EQUIPMENT BLANK	BNA-Water	Butyl benzyl phthalate	5.6	ug/L	U	5.6	22
1/18/2005	EQUIPMENT BLANK	BNA-Water	Chrysene	1.1	ug/L	U	1.1	4.4
1/18/2005	EQUIPMENT BLANK	BNA-Water	Di-n-butyl phthalate	6.2	ug/L	I	5.6	22
1/18/2005	EQUIPMENT BLANK	BNA-Water	Di-n-octyl phthalate	1.1	ug/L	U	1.1	4.4
1/18/2005	EQUIPMENT BLANK	BNA-Water	Dibenzo(a,h)anthracene	1.1	ug/L	U	1.1	4.4

1/18/2005	EQUIPMENT BLANK	BNA-Water	Dieldrin	1.7	ug/L	U	1.7	6.7
1/18/2005	EQUIPMENT BLANK	BNA-Water	Diethyl phthalate	1.1	ug/L	U	1.1	4.4
1/18/2005	EQUIPMENT BLANK	BNA-Water	Dimethyl phthalate	56	ug/L	U	56	220
1/18/2005	EQUIPMENT BLANK	BNA-Water	Endosulfan I	4.4	ug/L	UJ	4.4	18
1/18/2005	EQUIPMENT BLANK	BNA-Water	Endosulfan II	4.4	ug/L	U	4.4	18
1/18/2005	EQUIPMENT BLANK	BNA-Water	Endosulfan sulfate	1.7	ug/L	U	1.7	6.7
1/18/2005	EQUIPMENT BLANK	BNA-Water	Endrin	1.7	ug/L	UJ	1.7	6.7
1/18/2005	EQUIPMENT BLANK	BNA-Water	Endrin aldehyde	4.4	ug/L	U	4.4	18
1/18/2005	EQUIPMENT BLANK	BNA-Water	Fluoranthene	1.1	ug/L	U	1.1	4.4
1/18/2005	EQUIPMENT BLANK	BNA-Water	Fluorene	1.1	ug/L	U	1.1	4.4
1/18/2005	EQUIPMENT BLANK	BNA-Water	Heptachlor	1.7	ug/L	UJ	1.7	6.7
1/18/2005	EQUIPMENT BLANK	BNA-Water	Heptachlor epoxide	1.7	ug/L	UJ	1.7	6.7
1/18/2005	EQUIPMENT BLANK	BNA-Water	Hexachlorobenzene	1.1	ug/L	U	1.1	4.4
1/18/2005	EQUIPMENT BLANK	BNA-Water	Hexachlorobutadiene	3.3	ug/L	U	3.3	13
1/18/2005	EQUIPMENT BLANK	BNA-Water	Hexachlorocyclopentadiene	3.3	ug/L	UJ	3.3	13
1/18/2005	EQUIPMENT BLANK	BNA-Water	Hexachloroethane	3.3	ug/L	UJ	3.3	13
1/18/2005	EQUIPMENT BLANK	BNA-Water	Indeno(1,2,3-cd)pyrene	1.1	ug/L	U	1.1	4.4
1/18/2005	EQUIPMENT BLANK	BNA-Water	Isophorone	1.1	ug/L	U	1.1	4.4
1/18/2005	EQUIPMENT BLANK	BNA-Water	N-Nitrosodi-n-propylamine	2.2	ug/L	U	2.2	8.9
1/18/2005	EQUIPMENT BLANK	BNA-Water	N-Nitrosodimethylamine	2.2	ug/L	U	2.2	8.9
1/18/2005	EQUIPMENT BLANK	BNA-Water	N-Nitrosodiphenylamine	3.3	ug/L	U	3.3	13
1/18/2005	EQUIPMENT BLANK	BNA-Water	Naphthalene	1.1	ug/L	U	1.1	4.4
1/18/2005	EQUIPMENT BLANK	BNA-Water	Nitrobenzene	2.2	ug/L	U	2.2	8.9
1/18/2005	EQUIPMENT BLANK	BNA-Water	Pentachlorophenol	3.3	ug/L	U	3.3	13
1/18/2005	EQUIPMENT BLANK	BNA-Water	Phenanthrene	1.1	ug/L	U	1.1	4.4
1/18/2005	EQUIPMENT BLANK	BNA-Water	Phenol	1.1	ug/L	U	1.1	4.4
1/18/2005	EQUIPMENT BLANK	BNA-Water	Pyrene	1.1	ug/L	U	1.1	4.4
1/18/2005	EQUIPMENT BLANK	BNA-Water	alpha-BHC	1.7	ug/L	U	1.7	6.7
1/18/2005	EQUIPMENT BLANK	BNA-Water	beta-BHC	1.7	ug/L	UJ	1.7	6.7
1/18/2005	EQUIPMENT BLANK	BNA-Water	delta-BHC	1.7	ug/L	U	1.7	6.7
1/18/2005	EQUIPMENT BLANK	BNA-Water	gamma-BHC	1.7	ug/L	UJ	1.7	6.7
1/18/2005	EQUIPMENT BLANK	GC-Water	Alachlor	0.58	ug/L	U	0.58	2.3
1/18/2005	EQUIPMENT BLANK	GC-Water	Ametryn	0.048	ug/L	U	0.048	0.19
1/18/2005	EQUIPMENT BLANK	GC-Water	Atrazine	0.048	ug/L	U	0.048	0.19
1/18/2005	EQUIPMENT BLANK	GC-Water	Azinphos Methyl	0.048	ug/L	U	0.048	0.19
1/18/2005	EQUIPMENT BLANK	GC-Water	Bromacil	0.19	ug/L	U	0.19	0.76
1/18/2005	EQUIPMENT BLANK	GC-Water	Butylate	0.19	ug/L	U	0.19	0.76
1/18/2005	EQUIPMENT BLANK	GC-Water	Chlorpyrifos Ethyl	0.048	ug/L	U	0.048	0.19
1/18/2005	EQUIPMENT BLANK	GC-Water	Chlorpyrifos Methyl	0.096	ug/L	U	0.096	0.38
1/18/2005	EQUIPMENT BLANK	GC-Water	Diazinon	0.048	ug/L	UJ	0.048	0.19
1/18/2005	EQUIPMENT BLANK	GC-Water	Ethion	0.048	ug/L	U	0.048	0.19
1/18/2005	EQUIPMENT BLANK	GC-Water	Ethoprop	0.096	ug/L	U	0.096	0.38
1/18/2005	EQUIPMENT BLANK	GC-Water	Fenamiphos	0.19	ug/L	U	0.19	0.76
1/18/2005	EQUIPMENT BLANK	GC-Water	Fonofos	0.096	ug/L	U	0.096	0.38
1/18/2005	EQUIPMENT BLANK	GC-Water	Hexazinone	0.096	ug/L	U	0.096	0.38
1/18/2005	EQUIPMENT BLANK	GC-Water	Malathion	0.14	ug/L	U	0.14	0.56
1/18/2005	EQUIPMENT BLANK	GC-Water	Metalaxyl	0.24	ug/L	U	0.24	0.96
1/18/2005	EQUIPMENT BLANK	GC-Water	Metolachlor	0.48	ug/L	U	0.48	1.9
1/18/2005	EQUIPMENT BLANK	GC-Water	Metribuzin	0.096	ug/L	U	0.096	0.38
1/18/2005	EQUIPMENT BLANK	GC-Water	Mevinphos	0.19	ug/L	U	0.19	0.76
1/18/2005	EQUIPMENT BLANK	GC-Water	Naled	0.77	ug/L	UJ	0.77	3.1
1/18/2005	EQUIPMENT BLANK	GC-Water	Norflurazon	0.096	ug/L	U	0.096	0.38
1/18/2005	EQUIPMENT BLANK	GC-Water	Parathion Ethyl	0.14	ug/L	UJ	0.14	0.56
1/18/2005	EQUIPMENT BLANK	GC-Water	Parathion Methyl	0.096	ug/L	U	0.096	0.38
1/18/2005	EQUIPMENT BLANK	GC-Water	Phorate	0.048	ug/L	U	0.048	0.19
1/18/2005	EQUIPMENT BLANK	GC-Water	Prometryn	0.14	ug/L	U	0.14	0.56
1/18/2005	EQUIPMENT BLANK	GC-Water	Simazine	0.048	ug/L	U	0.048	0.19
1/18/2005	EQUIPMENT BLANK	Metals-Water	Aluminum	5	ug/L	U	5	20
1/18/2005	EQUIPMENT BLANK	Metals-Water	Arsenic	6	ug/L	U	6	24
1/18/2005	EQUIPMENT BLANK	Metals-Water	Cadmium	0.075	ug/L	U	0.075	0.3

1/18/2005	EQUIPMENT BLANK	Metals-Water	Calcium	0.075	mg/L	U	0.075	0.3
1/18/2005	EQUIPMENT BLANK	Metals-Water	Chromium	2	ug/L	U	2	8
1/18/2005	EQUIPMENT BLANK	Metals-Water	Copper	0.5	ug/L	U	0.5	2
1/18/2005	EQUIPMENT BLANK	Metals-Water	Iron	10	ug/L	U	10	40
1/18/2005	EQUIPMENT BLANK	Metals-Water	Lead	0.075	ug/L	U	0.075	0.3
1/18/2005	EQUIPMENT BLANK	Metals-Water	Magnesium	0.02	mg/L	U	0.02	0.08
1/18/2005	EQUIPMENT BLANK	Metals-Water	Nickel	2	ug/L	U	2	8
1/18/2005	EQUIPMENT BLANK	Metals-Water	Selenium	0.5	ug/L	U	0.5	2
1/18/2005	EQUIPMENT BLANK	Metals-Water	Silver	0.025	ug/L	U	0.025	0.1
1/18/2005	EQUIPMENT BLANK	Metals-Water	Zinc	3	ug/L	U	3	12
1/18/2005	EQUIPMENT BLANK	Nutrients-Liquid	Ammonia-N	0.01	mg N/L	U	0.01	0.02
1/18/2005	EQUIPMENT BLANK	Nutrients-Liquid	Kjeldahl Nitrogen	0.06	mg N/L	U	0.06	0.2
1/18/2005	EQUIPMENT BLANK	Nutrients-Liquid	NO2NO3-N	0.004	mg N/L	U	0.004	0.01
1/18/2005	EQUIPMENT BLANK	Nutrients-Liquid	Nitrate-N	0.02	mg N/L	U	0.02	0.04
1/18/2005	EQUIPMENT BLANK	Nutrients-Liquid	O-Phosphate-P	0.004	mg P/L	U	0.004	0.01
1/18/2005	EQUIPMENT BLANK	Nutrients-Liquid	Total-P	0.004	mg P/L	U	0.004	0.01
1/18/2005	TEST SITE	Bio-AGP/LimNut	Algal Growth Potential	0.451	mg DryWt/L	I	0.3	0.9
1/18/2005	TEST SITE	Bio-Chl-a	Chlorophyll-A, Monochromatic, Periphyton	0.19	mg/m2	U	0.19	0.57
1/18/2005	TEST SITE	Bio-Chl-a	Chlorophyll-A, Monochromatic, Water	1.4	ug/L	U	1.4	4.3
1/18/2005	TEST SITE	Bio-Chl-a	Phaeophytin-A, Monochromatic, Periphyton	0.19	mg/m2	U	0.19	0.57
1/18/2005	TEST SITE	Bio-Chl-a	Phaeophytin-A, Monochromatic, Water	1.4	ug/L	U	1.4	4.3
1/18/2005	TEST SITE	Bio-Invertebrates	Macroinvert-FW-Qual-Dipnetx20-# Taxa	24	# Taxa			
1/18/2005	TEST SITE	Bio-Peri/Phyto	Periphyton-Quantitative-# Diatom Taxa	25	#Taxa			
1/18/2005	TEST SITE	Bio-Peri/Phyto	Periphyton-Quantitative-# Wet Taxa	13	#Taxa			
1/18/2005	TEST SITE	Nutrients-Liquid	Ammonia-N	0.022	mg N/L		0.01	0.02
1/18/2005	TEST SITE	Nutrients-Liquid	Kjeldahl Nitrogen	0.71	mg N/L	A	0.06	0.2
1/18/2005	TEST SITE	Nutrients-Liquid	NO2NO3-N	0.03	mg N/L		0.004	0.01
1/18/2005	TEST SITE	Nutrients-Liquid	Nitrate-N	0.039	mg N/L	I	0.02	0.04
1/18/2005	TEST SITE	Nutrients-Liquid	O-Phosphate-P	0.013	mg P/L		0.004	0.01
1/18/2005	TEST SITE	Nutrients-Liquid	Total-P	0.033	mg P/L		0.008	0.02

Appendix 5

Typical Values for Selected Parameters in Florida Streams

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	**0.19 U**
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	**ND**
Hester-Dendy Taxa Richness	6	6.5	9	11.5	13	15	17	21.5	26	29	32	**ND**
Dipnet Taxa Richness	9	12	17	20	22	24.5	26	28	31	37	53	**28**
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	**0.76**
Total Ammonia	0.02	0.02	0.04	0.05	0.06	0.08	0.11	0.14	0.20	0.34	0.60	**0.015 I**
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	**0.037**
Total Phosphorus	0.02	0.03	0.05	0.06	0.10	0.13	0.18	0.25	0.39	0.74	1.51	**0.008 U**
Orthophosphate	0.01	0.01	0.03	0.04	0.05	0.08	0.11	0.17	0.27	0.59	1.37	**0.008 I**

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	**0.19 U**
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	**ND**
Hester-Dendy Taxa Richness	6	6.5	9	11.5	13	15	17	21.5	26	29	32	**ND**
Dipnet Taxa Richness	9	12	17	20	22	24.5	26	28	31	37	53	**23**
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	**0.71 A**
Total Ammonia	0.02	0.02	0.04	0.05	0.06	0.08	0.11	0.14	0.20	0.34	0.60	**0.022**
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	**0.03**
Total Phosphorus	0.02	0.03	0.05	0.06	0.10	0.13	0.18	0.25	0.39	0.74	1.51	**0.033**
Orthophosphate	0.01	0.01	0.03	0.04	0.05	0.08	0.11	0.17	0.27	0.59	1.37	**0.013**

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.

FDEP Biology Section - Acute
Bioassay Bench Sheets

Facility: Brittany Estates Mobile Home Park, WWTF
Address: 5010 N.E. Waldo Rd
City: Gainesville **County:** Alachua
Contact/District: P. O'Conner / North east
NPDES Permit #: FL 0040215
LIMS Job #: TLH-2005-01-19-18 **LIMS Sample #:** 809127

Sample Collection: Date: 1/18/05 Time: 0950
Hold time Start: Date: 1/18/05 Time: 0950

Comments:

Lims Data Entry: 1-21-05 MF
Data Entry Verification: 1/31/05 DN

Instructions (for below): Circle appropriate wording. If yes is circled complete blanks.

Test Type: ~~Screening~~/Definitive
(Static) Static Renewal / Flow-through
Test Duration: (48) 96 Hours.
Light Intensity : 50 - 100 ft. candles.
Photoperiod : 16 hours light 8 hours dark.
Initial sample handling:

Test 1 validation:
Control survival ≥90%: (Yes) No
Temperature Range ≤3°C: (Yes) No

Test 2 validation:
Control survival ≥90%: (Yes) No
Temperature Range ≤3°C: (Yes) No

PH adjustment : yes (no) Initial pH NaOH N HCl N Drops mL Final pH
Aeration : yes (no) Initial DO: mg/L Final DO: mg/L Duration: minutes Rate: - bubbles/min
Salinity adjusted (Test 1): yes (no) Initial Salinity: Final Salinity: Salts Hypersaline brine
Salinity adjusted (Test 2): yes (no) Initial Salinity: Final Salinity: Salts Hypersaline brine
Dechlorination: yes (no) mL of 0.025N Sodium Thiosulfate per liter of sample. Final TRC

Sample Validation:
Temperature: Shipped ≤6°C (Yes) No Hand Delivered: Cooling (received °C < collected °C) Yes No
Holding Time: ≤36 Hours (Yes) No (Composite-end of collection; grab-when collected; 4 in 24 - time last sample collected)

Temperature Range °C
Incubator # 3 Range 24.5 - 25.0
Room B246: 22.4 - 23.7
Waterbath: N/A

Investigators' Signatures
Dean Nicholson
James Daniel
Marshall Faircloth

REVIEWER

V.3 10/12/04

Water Quality Parameters	20% DMW	Well Water	Salt Water ASW NSW Test 1	Salt Water ASW NSW Test 2	Moderately Hard Water	Original Sample	Method	Measured by	Verified by
Field Total Residual Cl2 (mg/L):	N/A	N/A	N/A	N/A	N/A	Not measured	—	—	DN
Lab Total Residual Cl2 (mg/L):	<0.03	<0.03				0.03	HACH	JD	DN
Alkalinity (mg/L as $CaCO_3$):	44	152				109	HACH	JD	DN
Hardness (mg/L as $CaCO_3$):	125	146				152	HACH	JD	DN
Total Ammonia (mg/L as N):	<0.017	<0.017				0.037	DENVER	DN	JD
Salinity (ppth):	<1	<1				<1	YSI Mettler	DN	MF

FDEP Biology Section - - Bioassay Bench Sheet
Survival

LIMS Sample #: 809127 Test #: 1 Test Started: Date 01/19/05 Time: 1320
Organism: C. dubia Test Ended: Date 01/21/05 Time: 1300
Organism Batch: 3-05 Diluent/ Batch: 20% DMW / 2-05
Organism Age: <24 hr Food: (YCT) (R. subcapitata) Artemia
Chamber Size 30 mL Batch: 5 41
Test Volume 20 mL Feeding: (Prior to test) - Prior to renewal - Daily

Concentration	Replicate	Chamber #	Test Hour 0 hr	24 hr	48 hr BR	48 hr AR	72 hr	96 hr
CTRL	A	A	5	5	5			
	B	B	5	5	5			
	C	C	5	5	5			
	D	D	5	5	5			
100%	A	A	5	5	5			
	B	B	5	5	5			
	C	C	5	5	5			
	D	D	5	5	5			
					DN	DN			
Organisms loaded by: JD		Checked by: (initials)	DN	DN	DN			

Loading Verified by: DN

Comments:

m = missing d = dead BR = before renewal AR = after renewal

Test Results:

% mortality in 100% sample Ø

LC_{50}: >100 If Calculated: 95% CI______ Method:______

Screening Tests: Report LC50 as >100%, =100%, or <100%.

Substitue highest test concentration used if other than 100% (example: Ocean outfall tested at 30% concentration).

V.1 2/23/04

FDEP Biology Section - - Bioassay Bench Sheet
Survival

LIMS Sample #: 809127 Test #: 2 Test Started: Date 01/19/05 Time: 1250
Organism: C. leedsi Test Ended: Date 01/21/05 Time: 1300
Organism Batch: 3-05 Diluent/ Batch: Well H_2O
Organism Age: 14 dys Food: YCT P. subcapitata (Artemia)
Chamber Size 1000 mL Batch: ___ ___ 4125425G
Test Volume 500 mL Feeding: (Prior to test) - Prior to renewal - Daily

Concentration	Replicate	Chamber #	Test Hour 0 hr	24 hr	48 hr BR	48 hr AR	72 hr	96 hr
CTRL	A	F1	5	5	5			
	B	F2	5	5	5			
	C	F3	5	5	5			
	D	F4	5	5	5			
100%	A	F5	5	5	5			
	B	F6	5	5	5			
	C	F7	5	5	3 2D			
	D	F8	5	5	5			
Organisms loaded by: SD		Checked by: (initials)	DN	DN	DN			

Loading Verified by: DN

Comments:

m = missing d = dead BR = before renewal AR = after renewal

Test Results:

% mortality in 100% sample 10%

LC_{50}: >100 If Calculated: 95% CI______ Method:______

Screening Tests: Report LC50 as >100%, =100%, or <100%.

Substitue highest test concentration used if other than 100% (example: Ocean outfall tested at 30% concentration).

V.1 2/23/04

Bioassay Parameters

LIMS Sample # : 809127 **Test # :** 1 **of** 2

TEST SOP: TA07_ 01 **Test Species:** (*Ceriodaphnia dubia*) *Cyprinella leedsi* *Pimephales promelas* *Americamysis bahia* *Menidia beryllina* Other:_____

V.1 2/24/04

Concentration CTRL	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A		B			
pH (S.U.)	7.6		(A) ~~7.6~~ DN			
Temperature °C	24.0		24.0			
Dissolved Oxygen mg/L	8.0		7.6			
Conductivity (µmhos) mmhos	195		230			
(initials) Measured by:	DN		DN			
(initials) Recorded by:	DN		DN			

Comments: (A) pH = 7.9, entry error DN 1/21/05

Concentration 100%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A		B			
pH (S.U.)	7.4		8.0			
Temperature °C	24.0		24.1			
Dissolved Oxygen mg/L	7.8		7.5			
Conductivity (µmhos) mmhos	430		475			
(initials) Measured by:	DN		DN			
(initials) Recorded by:	DN		DN			

Comments:

Concentration	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate						
pH (S.U.)						
Temperature °C						
Dissolved Oxygen mg/L						
Conductivity µmhos mmhos						
(initials) Measured by:						
(initials) Recorded by:						

Comments:

Concentration	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate						
pH (S.U.)						
Temperature °C						
Dissolved Oxygen mg/L						
Conductivity µmhos mmhos						
(initials) Measured by:						
(initials) Recorded by:						

Comments:

000046

V.1 2/24/04

STATE OF FLORIDA

DEPT. OF ENVIRONMENTAL PROTECTION

NORTHEAST DISTRICT

Division of Water Facilities
Surface Water Section
7825 Baymeadows Way,suite 200B
Jacksonville, Florida 32256

Microbiology Report

Name: Brittany Estates **Survey type:** 5YI
Sample: Effluent/Surface water **Sample date:** 01/18/05

D.O.H.accred.#E32890 S.M.9222B S.M.9222D

Lab I.D.#	Site Name	Date	Time	Total colif. #cfu/100ml	code	Fecal colif. #cfu/100ml
050047	Brittany Estates final efl	1/18/2005	9:50	340		10
050048	Britt.Estates Test	1/18/2005	10:55	1160		450
050049	Britt.Estates control	1/18/2005	11:35	1080		440

Results for NELAP accredited tests contained in this report meet the requirements for the National Environmental Accredidation Program.

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 less than the minimum quantitation limit,
and greater than or equal to the minimum detection limit.
J - Estimated Value.
K - Actual value is known to be less than value given.
L - Actual value is known to be greater than value given.
N - Presumptive evidence of presence of material.
O - Sampled, but analysis lost or not performed.
Q - Sample held beyond normal holding time.
T - Value reported is less than the criterion of detection.
U - Material was analyzed for but not detected; the value reported
is the minimum detection limit.
V - Analyte was detected in both sample and method blank.
Z - Colonies were too numerous to count (TNTC).

SURVEY TYPE: Ambient Monitoring--Trend,Reference Stream,Reference Lake,BioReconn,Special project
Permit Compliance--5th Year,3rd Year,CSI,CEI,PAI,RI,Complaint Potable Water--Sanitary Survey,Facility Inspec
SAMPLE TYPE: Suface Water,Ground Water,Potable Water,Treated Effluent,Untreated Effluent,Sediment,Sludge,Soil

Signature Sample Results:Jeremy Parrish Date: 1/25/2005

Appendix 7

Habitat Assessment Field Sheets

DEP-SOP-001/01: Form FD 9000-3 (December 11, 2001)

PHYSICAL/CHEMICAL CHARACTERIZATION FIELD SHEET

SUBMITTING AGENCY CODE: / SUBMITTING AGENCY NAME:	STORET STATION NUMBER:	DATE (M/D/Y):	TIME	RECEIVING BODY OF WATER:
		01/18/05	1200	

REMARKS:	COUNTY:	LOCATION:	FIELD ID/NAME:
	Allegheny	Little Wolford Creek Above Brittany Rd. mile 0.0	Control

RIPARIAN ZONE/STREAM FEATURES

PREDOMINANT LAND-USE IN WATERSHED (specify relative percent in each category):

FOREST/NATURAL	SILVICULTURE	FIELD/PASTURE	AGRICULTURAL	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER (SPECIFY)
20	20			60			

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: 4-5

LIST & MAP DOMINANT VEGETATION ON BACK

ARTIFICIALLY CHANNELIZED ☐ no ☐ ☒ ☐ (recent, severe; some recovery; mostly recovered, more sinuous)

ARTIFICIALLY IMPOUNDED ☐ yes

HIGH WATER MARK: 2.0 + 0.1 = 2.1 (m above present water level) (present depth in m) (m above bed)

TYPICAL WIDTH (m) DEPTH (M)/VELOCITY (M/SEC) TRANSECT: 1-2 m wide

m/s | 0.2 m/s | m/s

m deep | 0.1 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 TYPE	% COVERAGE	# TIMES SAMPLED	METHOD	SUBSTRATE TYPES	% COVERAGE	# TIMES SAMPLED	METHOD
WOODY DEBRIS (SNAGS)				SAND	94%	6	D-Net
LEAF PACKS OR MATS	3	7	D-Net	MUD/MUCK/SILT			
AQUATIC VEGETATION				OTHER:			
ROCK OR SHELL RUBBLE				OTHER:			
UNDERCUT BANKS/ROOTS	3	7	D-Net	DRAW AERIAL VIEW SKETCH OF HABITATS FOUND IN 100 M SECTION			

WATER QUALITY	DEPTH (M):	TEMP. (°C):	PH (SU):	D.O. (MG/L):	COND. (UMHOS/CM) OR SALINITY (PPT):			SECCHI (M):
OP								
ID-DEPTH	0.05	9.7	7.08	10.9	19.6			0.1C
ITTOM								

STEM TYPE: STREAM: 1ST-2ND ORDER ☐ 3RD-4TH ORDER ☐ 5TH-6TH ORDER ☐ 7TH ORDER OR GREATER ☐ LAKE: ☐ WETLAND: ☐ ESTUARY: ☐ OTHER: ☐

ATER ODORS (CHECK BOX):	NORMAL: ☒	SEWAGE: ☐	PETROLEUM: ☐	CHEMICAL: ☐	OTHER: ☐	
ATER SURFACE OILS (CHECK BOX):	NONE: ☒	SHEEN: ☐	GLOBS: ☐	SLICK: ☐		
URITY (CHECK BOX):	CLEAR: ☒	SLIGHTLY TURBID: ☐	TURBID: ☐	OPAQUE: ☐		
OR (CHECK BOX):	TANNIC: ☒	GREEN (ALGAE): ☐	CLEAR: ☐	OTHER: ☐		

OTHER CONDITIONS/NOTES:

ABUNDANCE:	ABSENT	RARE	COMMON	ABUNDANT
PERIPHYTON	☐	☐	☐	☐
FISH	☐	☒	☐	☐
AQUATIC MACROPHYTES	☐	☐	☐	☐
IRON/SULFUR BACTERIA	☐	☐	☐	☐

SAMPLING TEAM: Kathomeyer O'Connor

SIGNATURE: [signature]

DATE: 1/18/05

Fax:904-448-4363 FD 9000-5 (December 11, 2001)

DEP

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

STREAM/RIVER HABITAT ASSESSMENT FIELD SHEET

SUBMITTING AGENCY CODE: / SUBMITTING AGENCY NAME:	STORET STATION NUMBER: 21FLA 20020098	DATE SAMPLED: 01/18/05	RECEIVING BODY OF WATER:
REMARKS:	COUNTY: Alachua	LOCATION: Little Hatchett Creek Above Bellamy Rd MHP Rd	FIELD GRAB#: Control

Habitat Parameter	Optimal	Suboptimal	Marginal	Poor
Primary Habitat Components Substrate Diversity 8	Four or more productive habitats present (snags, live roots/undercut banks, aquatic vegetation, leaf packs (partially decayed), rock) 20 19 18 17 16	Three productive habitats present. Adequate habitat. Some substrates may be new fall (fresh leaves or snags) 15 14 13 12 11	Two productive habitats present. Less than desirable habitat, frequently disturbed or removed 10 9 8 7 6	One or less productive habitat. Lack of habitat obvious, substrates unstable or smothered 5 4 3 2 1
Substrate Availability 10	Greater than 50% productive habitat present at site 20 19 18 17 16	16% to 50% productive habitat, by areal extent 15 14 13 12 11	9% to 15% productive habitat 10 9 8 7 6	Less than 9% productive habitat 5 4 3 2 1
Water Velocity 14	Max. observed at typical transect: > 0.25 m/sec. Sum < 1 m/sec 20 19 18 17 16	Max. observed at typical transect: 0.1 to 0.25 m/sec 15 14 13 12 11	Max. observed at typical transect: 0.05 to 0.1 m/sec 10 9 8 7 6	Max. observed at typical transect: <0.05 m/sec; or ripple occurring: > 1 m/sec 5 4 3 2 1
Habitat Smothering 10 Primary Score 42	Less than 20% of habitats affected by sand or silt accumulation 20 19 18 17 16	20%-50% of habitats affected by sand or silt accumulation 15 14 13 12 11	Smothering of 50%-80% of the habitats with sand or silt, pools shallow, frequent sediment movement 10 9 8 7 6	Smothering of >80% of habitats with sand or silt, as severe problem, pools absent 5 4 3 2 1
Secondary Habitat Components Artificial Channelization 10	No artificial channelization or dredging. Stream with normal, sinuous pattern 20 19 18 17 16	May have been channelized in the past (>20 yrs), but mostly recovered, fairly good sinuous pattern 15 14 13 12 11	Channelized, recovered/not recovered, but > 80% of area affected 10 9 8 7 6	Artificially channelized, box-cut banks, straight, thalweg habitat highly altered 5 4 3 2 1
Bank Stability Right Bank 6 Left Bank 6	Stable. No evidence of erosion or bank failure. Little potential for future problems. 10 9	Moderately stable. Infrequent or small areas of erosion, mostly healed over. 8 7 6	Moderately unstable. Moderate areas of erosion, high erosion potential during floods 5 4	Unstable. Many (60%-80%) raw, eroded areas. Obvious bank sloughing 3 2 1
Riparian Buffer Zone Width Right Bank 3 Left Bank 3	Width of native vegetation (least buffered side) greater than 18 m 10 9	Width of native vegetation (least buffered side) 12 to 18 m 9 7 6	Width of native vegetation 6 to 12 m, human activities still close to system 5 4	Less than 6 m of native buffer zone due to intensive human activities 3 2 1
Riparian Zone Vegetation Quality Right Bank 5 Left Bank 5 Secondary zone 38	Over 90% of riparian surfaces consist of native plants, including trees, understory shrubs, or non-woody macrophytes. Normal, expected plant community for given sunlight & habitat conditions 10 9	50% to 90% of riparian zone is vegetated, and/or one class of plants normally expected for the sunlight & habitat conditions is not represented. Some disruption in community evident. 8 7 6	25% to 50% of riparian zone is vegetated, and/or one or two expected classes of plants are not represented. Patches of bare soil or closely cropped vegetation, disruption obvious. 5 4	Less than 25% of stream bank surfaces are vegetated and/or poor plant community (e.g. grass monoculture or exotics) present. Vegetation removed to stubble height of 2 inches or less 3 2 1

80 TOTAL SCORE

ANALYSIS DATE: 1/11/05	ANALYST: O'CONNOR	SIGNATURE:

DEP-SOP-001/01: Form FD 9000-3 (December 11, 2001)
PHYSICAL/CHEMICAL CHARACTERIZATION FIELD SHEET

SUBMITTING AGENCY CODE: / SUBMITTING AGENCY NAME:	STORET STATION NUMBER:	DATE (MM/DD/YY):	TIME	RECEIVING BODY OF WATER:
	20020099	11/18/04	1040	

REMARKS:	COUNTY:	LOCATION:	FIELD NAME:
	Alachua	Little Watchtt Creek below Brittany Est Mitt Pond	TEST

RIPARIAN ZONE/STREAM FEATURES

PREDOMINANT LAND-USE IN WATERSHED (specify relative percent in each category):

FOREST/NATURAL	SILVICULTURE	FIELD/PASTURE	AGRICULTURAL	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER (SPECIFY)
20	20			60			

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: 2 6

LIST & MAP DOMINANT VEGETATION ON BACK

ARTIFICIALLY CHANNELIZED ☐ no ☐ ☒ ☐ (none, others, some recovery, mostly recovered, meandering)

ARTIFICIALLY IMPOUNDED ☐ yes

HIGH WATER MARK: 2.0 + 0.1 = 2.1
(m above present water level) (present depth in m) (m above bed)

TYPICAL WIDTH (M) DEPTH (M)/VELOCITY (M/SEC) TRANSECT (~2 m wide)

m/s	0.2 m/s	m/s
m deep	0.1 m deep	m deep

CANOPY COVER %: OPEN ☐ LIGHTLY SHADED (11-45%): ☒ MODERATELY SHADED (45-80%): ☐ 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 SEVERE SILT SMOTHERING: NONE SLIGHT MODERATE SEVERE OTHER:

SUBSTRATE TYPE	% COVERAGE	# TIMES SAMPLED	METHOD	SUBSTRATE TYPES	% COVERAGE	# TIMES SAMPLED	METHOD
WOODY DEBRIS (SNAGS)				SAND	94	6	Dipnet
LEAF PACKS OF MATR	2	1	Dipnet	MUD/MUCK/SILT			
AQUATIC VEGETATION				OTHER:			
CORAL OR SHELL RUBBLE				OTHER:			
UNDERCUT BANKS/ROOTS	4	1	Dipnet	DRAW AERIAL VIEW SKETCH OF HABITATS FOUND IN 100 M SECTION			

WATER QUALITY	DEPTH (M):	TEMP. (°C):	PH (SU):	D.O. (MG/L):	COND. (UMHO/CM) OR SALINITY (PPT):			SECCHI (M):
SURFACE	0.05	11.76	7.09	10.1	267			0.14
MIDDEPTH								
BOTTOM								

TYPE STREAM: 1ST ORDER ☒ 2ND ORDER 3RD–4TH ORDER 5TH – 6TH ORDER 7TH ORDER OR GREATER LAKE: ☐ WETLAND: ☐ ESTUARY: ☐ OTHER: ☐

ODORS (CHECK BOX):	NORMAL: ☒	SEWAGE: ☐	PETROLEUM: ☐	CHEMICAL: ☐	OTHER: ☐	
SURFACE OILS (CHECK BOX):	NONE: ☒	SHEEN: ☐	GLOBS: ☐	SLICK: ☐		
(CHECK BOX):	CLEAR: ☒	SLIGHTLY TURBID: ☐	TURBID: ☐	OPAQUE: ☐		
(CHECK BOX):	TANNIC: ☒	GREEN (ALGAE): ☐	CLEAR: ☐	OTHER: ☐		

CONDITIONS/NOTES:

ABUNDANCE:	ABSENT	RARE	COMMON	ABUNDANT
PERIPHYTON	☐	☒	☐	☐
FISH	☐	☒	☐	☐
AQUATIC MACROPHYTES	☐	☒	☐	☐
IRON/SULFUR BACTERIA	☐	☒	☐	☐

TEAM: Kallenbach, O'Connor

SIGNATURE: [signature]

DATE: 11/18/04

STATE OF FLORIDA, DEPARTMENT OF ENVIRONMENTAL PROTECTION
STREAM/RIVER HABITAT ASSESSMENT FIELD SHEET

SUBMITTING AGENCY CODE: / SUBMITTING AGENCY NAME:	STORET STATION NUMBER: 20020099	DATE (MM/DD/YY): 01/18/05	RECEIVING BODY OF WATER:
REMARKS:	COUNTY: Alachua	LOCATION: Lake Wauburg Creek below Bethany Est MHP Pond	FIELD ID/NAME: TEST

Habitat Parameter	Optimal	Suboptimal	Marginal	Poor
Primary Habitat Components Substrate Diversity 9	Four or more productive habitats present (snags, tree roots/undercut banks, aquatic vegetation, leaf packs (partially decayed), rock) 20 19 18 17 16	Three productive habitats present. Adequate habitat. Some substrates may be new fall (fresh leaves or snags) 15 14 13 12 11	Two productive habitats present. Less than desirable habitat, frequently disturbed or removed 10 9 8 7 6	One or less productive habitat. Lack of habitat obvious, substrates unstable or embedded 5 4 3 2 1
Substrate Availability 8	Greater than 30% productive habitat present at site 20 19 18 17 16	16% to 30% productive habitat, by areal extent 15 14 13 12 11	6% to 15% productive habitat 10 9 8 7 6	Less than 5% productive habitat 5 4 3 2 1
Water Velocity 15	Max. observed at typical transect: > 0.25 m/sec. But < 1 m/sec 20 19 18 17 16	Max. observed at typical transect: 0.1 to 0.25 m/sec 15 14 13 12 11	Max. observed at typical transect: 0.06 to 0.1 m/sec 10 9 8 7 6	Max. observed at typical transect: <0.06 m/sec; or eddy occurring: > 1 m/sec 5 4 3 2 1
Habitat Smothering 5 Primary Score 40	Less than 20% of habitats affected by sand or silt accumulation 20 19 18 17 16	20%-60% of habitats affected by sand or silt accumulation 15 14 13 12 11	Smothering of 50%-80% of the habitats with sand or silt, pools shallow, frequent sediment movement 10 9 8 7 6	Smothering of >80% of habitats with sand or silt, as severe problem, pools absent 5 4 3 2 1
Secondary Habitat Components Artificial Channelization 13	No artificial channelization or dredging. Stream with normal, sinuous pattern 20 19 18 17 16	May have been channelized in the past (>20 yrs), but mostly recovered, fairly good sinuous pattern 15 14 13 12 11	Channelized, somewhat recovered, but > 80% of area affected 10 9 8 7 6	Artificially channelized, box-cut banks, straight, instream habitat highly altered 5 4 3 2 1
Bank Stability Right Bank 5 Left Bank 5	Stable. No evidence of erosion or bank failure. Little potential for future problems. 10 9	Moderately stable. Infrequent or small areas of erosion, mostly healed over. 8 7 6	Moderately unstable. Moderate areas of erosion, high erosion potential during floods. 5 4	Unstable. Many (60%-80%) raw, eroded areas. Obvious bank sloughing. 3 2 1
Riparian Buffer Zone Width Right Bank 4 Left Bank 1	Width of native vegetation (least buffered side) greater than 18 m 10 9	Width of native vegetation (least buffered side) 12 to 18 m 8 7 6	Width of native vegetation 6 to 12 m, human activities still close to system 5 4	Less than 6 m of native buffer zone due to intensive human activities 3 2 1
Riparian Zone Vegetation Quality Right Bank 6 Left Bank 4 Secondary Score 9	Over 90% of riparian surfaces consist of native plants, including trees, understory shrubs, or non-woody macrophytes. Normal, expected plant community for given sunlight & habitat conditions 10 9	50% to 90% of riparian zone is vegetated, and/or one class of plants normally expected for the sunlight & habitat conditions is not represented. Some disruption in community evident. 8 7 6	25% to 50% of riparian zone is vegetated, and/or one or two expected classes of plants are not represented. Patches of bare soil or closely cropped vegetation, disruption obvious. 5 4	Less than 25% of stream bank surfaces are vegetated and/or poor plant community (e.g. grass monoculture or exotics) present. Vegetation removed to stubble height of 2 inches or less 3 2 1

86 TOTAL SCORE

ANALYSIS DATE: 1/18/05	ANALYST: O'Connor	SIGNATURE:

Appendix 8a

Taxa list and density (number/cm^2) for periphyton collected from glass microscope slides incubated for 28 days upstream and downstream of the Brittany Estates WWTP facility discharge, January, 18, 2005.

	Control Site	Test Site
Bacillariophyta		
Achnanthes sp.	1985	2205
Achnanthes exigua	284	389
Achnanthes lanceolata	4822	1297
Achnanthes lanceolata apiculata	-	259
Capartogramma crucicula	-	130
Cocconeis sp.	425	259
Cocconeis placentula	993	-
Cocconeis scutellum	3120	-
Cyclotella sp.	-	130
Cymbella aspera	142	-
Cymbella minuta	284	-
Diploneis sp.	-	130
Encyonema evergladianum	142	-
Eunotia sp.	15032	5968
Fragilaria sp.	284	259
Fragilariaceae	-	130
Frustulia sp.	142	-
Gomphonema parvulum	284	259
Gyrosigma sp.	-	130
Hippodonta sp.	-	259
Hippodonta capitata	284	-
Mastogloia sp.	-	130
Navicula sp.	1985	1168
Navicula constans	142	-
Navicula minima	284	-
Navicula rostellata	1135	2854
Naviculaceae	-	130
Nitzschia sp.	2127	4800
Nitzschia nana	-	130
Pinnularia sp.	1135	2854
Sellaphora sp.	-	130
Sellaphora pupula	142	-
Stauroneis sp.	-	259
Synedra ulna	284	-
Chlorophycota	-	-
Chlamydomonas sp.	425	-
Chlorococcum sp.	142	-
Oedogonium sp.	142	-
Scenedesmus dimorphus	142	-
Scenedesmus quadricauda	142	-
Selenastrum sp.	284	-

Cyanophycota		
Anabaena sp.	142	-
Calothrix sp.	-	259
Chlorella sp.	-	1686
Cosmarium sp.	-	259
Cyanobium parvum	-	389
Jaaginema sp.	851	2335
Planktolyngbya sp.	567	1038
Pseudanabaena sp.	2978	2595
Scenedesmus quadricauda	-	389
Schizothrix sp.	142	2984
Synechocystis sp.	142	908
Euglenophycota	-	-
Euglena sp.	-	259
Lepocinclis sp.	142	-
Phacus sp.	142	259
Trachelomonas sp.	-	649

Appendix 8b

Taxa list and number of individuals counted for periphyton collected from glass microscope slides incubated for 28 days upstream and downstream of the Brittany Estates WWTP facility discharge, January 18, 2005.

	Control Site	Test Site
Bacillariophyta		
Achnanthes sp.	-	2
Achnanthes exigua	-	1
Achnanthes hungarica	-	1
Achnanthes lanceolata	2	2
Achnanthes lanceolata apiculata	7	-
Achnanthes lanceolata rostrata	17	-
Achnanthes minutissima	1	-
Amphora sp.	-	1
Aulacoseira sp.	-	3
Aulacoseira granulata	-	1
Bacillariophyceae	283	87
Bacillariophyta	-	1
Brachysira vitrea	-	1
Capartogramma crucicula	-	1
Cocconeis placentula	85	4
Cocconeis scutellum	-	1
Coscinodiscophyceae	-	1
Cyclotella sp.	6	-
Cyclotella atomus	1	-
Cyclotella meneghiniana	1	-
Cymbella sp.	-	1
Cymbella affinis	1	-
Cymbellaceae	1	-
Cymbellaceae	-	1
Diadesmis confervacea	4	1
Encyonema evergladianum	-	1
Encyonema silesiacum	3	-
Eunotia sp.	83	3
Fragilaria sp.	-	1
Fragilaria capucina	1	1
Fragilaria pinnata	-	1
Fragilariaceae	2	9
Fragilariophyceae	-	1
Frustulia sp.	-	1
Frustulia rhomboides	8	-
Geissleria decussis	1	-
Gomphonema sp.	7	3
Gomphonema affine	-	1
Gomphonema parvulum	8	1
Gyrosigma sp.	1	1
Hippodonta capitata	1	1
Hippodonta hungarica	1	1
Melosira sp.	2	1
Navicula sp.	4	6
Navicula cryptocephala	-	1
Navicula minima	12	2

Nitzschia sp.	5	8
Nitzschia serpentiraphe	-	1
Nitzschia sinuata	-	1
Pinnularia sp.	-	1
Stauroneis sp.	-	1
Synedra ulna	3	1
Terpsinoe musica	2	-
Tryblionella sp.	-	1
Chlorophycota		
Chlorella sp.	3	7
Chlorococcum sp.	1	-
Closterium gracile	1	-
Closterium parvulum	1	-
Coleochaete sp.	3	-
Cosmarium sp.	1	-
Gloeocystis gigas	2	-
Protococcus sp.	4	-
Scenedesmus bijuga	1	-
Scenedesmus dimorphus	-	3
Selenastrum sp.	-	3
Stigeoclonium sp.	5	-
Cyanophycota		
Anabaena sp.	-	2
Cyanobium parvum	2	-
Jaaginema sp.	4	3
Pseudanabaena sp.	3	-
Synechocystis sp.	6	4
Euglenophycota		
Strombomonas urceolata	-	1
Trachelomonas sp.	-	2

Appendix 9a

Qualitative benthic macroinvertebrate collections (n = 20 discrete dipnet sweeps) upstream and downstream of Brittany Estates WWT facility (January 18, 2005). Taxa list and number of individuals counted (collapsed). See SOP LT 7100 sect. 4.2.1 for method on collapsing taxa.

	Control Site	Test Site
Acari		
Hygrobates sp.	1	-
Oribatida	1	-
Amphipoda		
Talitridae	1	-
Annelida		
Oligochaeta		
Eclipidrilus sp.	-	1
Nais communis complex	5	-
Tubificidae	-	1
Hexapoda		
Coleoptera		
Sperchopsis tessellatus	-	1
Diptera		
Ablabesmyia mallochi	1	3
Chironomus sp.	3	5
Corynoneura sp.	4	3
Labrundinia pilosella	1	-
Lopescladius sp.	1	-
Paratanytarsus sp.	-	1
Pentaneura inconspicua	1	2
Polypedilum flavum	4	2
Polypedilum illinoense grp.	-	6
Rheocricotopus robacki	4	1
Rheosmittia sp.	-	1
Rheotanytarsus exiguus grp.	9	9
Rheotanytarsus pellucidus	4	2
Simulium sp.	34	40
Thienemannimyia grp. sp.	3	2
Tipulidae	1	-
Ephemeroptera		
Baetis intercalaris	-	1
Maccaffertium sp.	-	6
Procloeon sp.	-	3
Pseudocloeon sp.	3	-
Odonata		
Argia sp.	3	1
Calopteryx dimidiata	1	-
Progomphus alachuensis	1	-
Trichoptera		

Cheumatopsyche sp.	-	8
Hydropsyche sp.	1	-
Mollusca		
Bivalvia		
Sphaeriidae	1	-
Gastropoda		
Ancylidae	2	4
Micromenetus sp.	-	1
Physidae	1	-

Appendix 9b

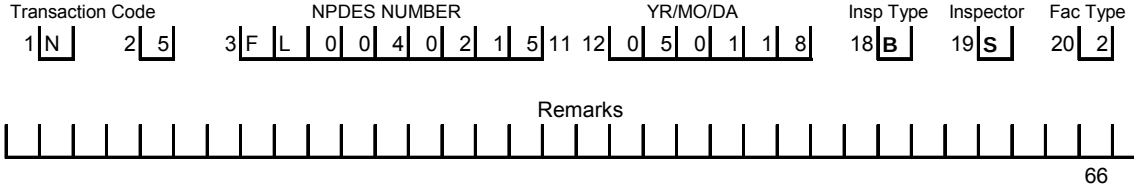
Qualitative benthic macroinvertebrate collections (n = 20 discrete dipnet sweeps) upstream and downstream of Brittany Estates WWTP facility (January 18, 2005). Taxa list and number of individuals counted.

	Control Site	Test Site
Acari		
Hygrobates	1	-
Oribatida	1	-
Amphipoda		
Talitridae	1	-
Annelida		
Oligochaeta		
Eclipidrilus sp.	-	1
Nais communis complex	3	-
Nais sp.	2	-
Tubificidae	-	1
Hexapoda		
Coleoptera		
Sperchopsis tessellatus	-	1
Diptera		
Ablabesmyia mallochi	1	3
Chironomidae	2	5
Chironomus sp.	3	4
Corynoneura sp.	4	3
Labrundinia pilosella	1	-
Lopescladius sp.	1	-
Paratanytarsus sp.	-	1
Pentaneura inconspicua	1	2
Polypedilum flavum	4	2
Polypedilum illinoense grp.	4	5
Rheocricotopus robacki	4	1
Rheosmittia sp.	-	1
Rheotanytarsus exiguus grp.	7	6
Rheotanytarsus pellucidus	4	2
Simulium sp.	34	40
Thienemannimyia grp.	3	2
Tipulidae	1	-
Ephemeroptera		
Baetidae	2	1
Baetis intercalaris	-	1
Heptageniidae	4	-
Maccaffertium sp.	9	6
Procloeon sp.	-	2
Pseudocloeon sp.	1	-
Odonata		
Argia sp.	3	1
Calopteryx dimidiata	1	-
Progomphus alachuensis	1	-

Trichoptera		
Cheumatopsyche sp.	2	7
Hydropsyche sp.	1	-
Trichoptera	-	1
Mollusca		
Bivalvia		
Sphaeriidae	1	-
Gastropoda		
Ancylidae	2	4
Micromenetus sp.	-	1
Physidae	1	-

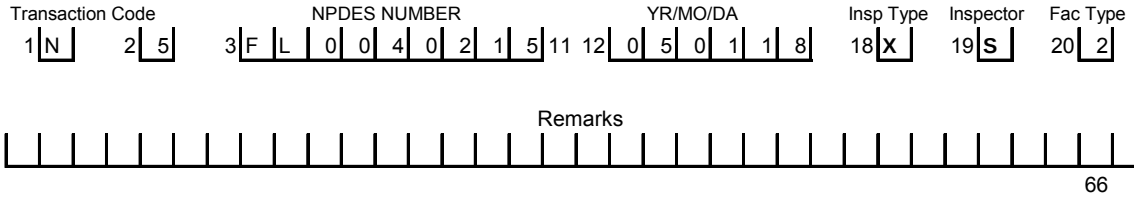
The Bioassay of the Brittany Estates Mobile Home Park WWTP effluent sampled on January 18, 2005, NPDES #FL0040215

Fill Out This Section For All Surface Water Discharger Inspections(CEI, CSI, CBI, PAI, XSI-RI Optional)



The Priority Pollutants Analysis for Bioassay of the Brittany Estates Mobile Home Park WWTP effluent sampled on January 18, 2005, NPDES #FL0040215.

Fill Out This Section For All Surface Water Discharger Inspections(CEI, CSI, CBI, PAI, XSI-RI Optional)



Biological Analyses of the Brittany Estates Mobile Home Park WWTP effluent sampled on January 18, 2005, NPDES #FL0040215.

Fill Out This Section For All Surface Water Discharger Inspections(CEI, CSI, CBI, PAI, XSI-RI Optional)

