

Biological Assessment of

Jungle Adventures/Clabrook Farm, Inc.

Orange County

NPDES #FL0043907

Sampled October 18, 2004

March 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:	Jungle Adventures – Clabrook Farm, Inc.
County:	Orange
NPDES Number:	FL0043907
Permit Expiration:	8/13/05

Toxics Sampling Inspection **(XSI)**

Date Sampled: October 18, 2004

Results: Effluent concentrations of copper, iron, and zinc exceeded Class III Fresh Water Quality Criteria (62-302.530, F.A.C.). Chromium and lead were detected in the effluent at levels that complied with Class III Water Quality Criteria (62-302.530, F.A.C.). Cadmium, nickel, selenium, and silver were found in the effluent at levels above the minimum detection limit (MDL) and below the practical quantitation limit (PQL). Iron concentrations at the Control and Test Sites exceeded the Class III Water Quality Criterion (62-302.530(39) F.A.C.). Lead was detected at the Control Site at a level that complied with the Class III Water Quality Criterion (62-302.530(40) F.A.C.), and zinc was detected between the MDL and PQL. Copper, lead, and zinc were detected at the Test Site at levels that complied with Class III Water Quality Criteria (62-302.530, F.A.C.). Effluent concentrations of bromodichloromethane (44 µg.L) and dibromochloromethane (50 µg/L) were sufficiently high that if those levels continue, they would exceed annual average Class III Water Quality Criteria of 22 and 34 µg/L, respectively (62-302.530(36)(b)5., 62-302.530(36)(b)2., F.A.C.). Concentrations of bromoform, chloroform, chloromethane, and methylene chloride were detected below the annual average Class III Water Quality Criteria (62-302, F.A.C.), and chloroethane was detected between the MDL and the PQL. Bromomethane was also detected in the effluent, and aluminum was detected in the effluent and at both the Control and Test Sites.

Compliance Biomonitoring Inspection **(CBI)**

Date Sampled: October 18, 2004

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: October 18, 2004

Results: Conductivity, pH, and dissolved oxygen levels in the effluent and at the Control and Test Sites complied with Class III Water Quality Criteria (62-302, F.A.C.) and facility permit limits, where applicable. Effluent oil and grease levels (11 mg/L) exceeded the Class III Water Quality Criterion of 5.0 mg/L (62-302.530(50)(a), F.A.C.), and contributed to higher levels at the Test Site than at the Control Site. The concentration of fecal coliforms in the effluent (4,600 counts/100ml) exceeded the single sample Class III Water Quality Criterion (800 counts/100ml; 62-302.530(6), F.A.C.), while fecal coliforms were detected at the Control and Test Sites at levels that complied with the criterion. Effluent total phosphorus (15 mg/L), ortho-phosphate (1.6 mg/L), total ammonia (3.6 mg/L), nitrate + nitrite (15 mg/L), and total Kjeldahl nitrogen (75 mg/L) concentrations and biochemical oxygen demand (100 mg/L) levels contributed to higher levels at the Test Site than at the Control Site. Test Site total phosphorus and orthophosphate levels ranked in the 80^{th} and 40^{th} percentile, respectively, when compared with levels typical of Florida streams, while Control Site concentrations ranked in the 30^{th} percentile for both phosphorus fractions. Test Site total Kjeldahl nitrogen, ammonia, and nitrate + nitrite levels ranked in the 95^{th}, 50^{th}, and 60^{th} percentile, respectively, when compared with levels typical of Florida streams, while Control Site concentrations rank in the 40^{th}, 20^{th}, and 20^{th} percentile for those nitrogen fractions. Unadjusted (187 mg dry weight/L) and salinity-adjusted (212 mg dry weight/L) AGP values for the effluent exceeded the “problem” thresholds of 5 and 10 mg dry weight/L for fresh and marine receiving waters, respectively.

Impact Bioassessment Inspection **(IBI)**

Date Sampled: October 18, 2004

Results: Chlorophyll-*a* was not detected in the effluent. Chlorophyll-a samples were not collected at the Control and Test Sites.

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

Jungle Adventures – Clabrook Farm, Inc. is located in Orange County, Florida (Appendix 1). This is an aquaculture facility, consisting of alligator farming and processing. Wastewater is generated from wash out operations from alligator processing and dressing and the two groups of hothouses where the alligators are grown. The biological treatment system is a packaged activated-sludge treatment plant with the following components: a flow equalization tank with two submersible pumps, an aeration tank, a clarifier, a chlorine contact chamber, and an effluent box. Effluent is discharged via outfall D-002 into the Class III fresh waters of Seminole Ranch Canal, then through a wetland and into Class III fresh waters of Lake Cone (see Facility Summary in Appendix 2). There is no design flow for this discharge, and the actual mean flow for the months of May, June, and July 2004 were 0.004, 0.002, and 0.004 million gallons per day, respectively (personal communication with Mike Eckoff, DEP Central District).

Surface Water Quality Criteria and facility permit limits are listed in Table 1. According to the facility's monthly discharge monitoring reports for the past four years, the plant has had numerous violations of its permit effluent limits for fecal and total coliforms, dissolved oxygen, total suspended solids (TSS), biochemical oxygen demand (BOD), and total residual chlorine. There were also several toxicity violations from August 2000 to October 2001, two for 96-hour acute bioassays with the water flea, *Ceriodaphnia dubia*, and three for 96-hour acute bioassays with the fish, *Cyprinella leedsi* (Appendix 2). Consent Order 99-1444 eliminated most of the numeric permit limits for this facility (see Facility Summary in Appendix 2).

Methods

The purpose of this investigation was to determine the potential effects of the facility's effluent on the water quality of the receiving waters. Chemical and biological comparisons were made between a Control Site (located in Seminole Ranch Canal approximately 50 m upstream from the discharge) and a Test Site (located in Seminole Ranch Canal approximately 50 m downstream of the discharge) (Appendix 1). 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). Some water samples were not shipped with sufficient ice and thus were not properly preserved, so analyses of nutrients, biochemical oxygen demand, total suspended solids, turbidity, chlorophyll *a*, and oil and grease were qualified with a "Y," indicating that the data may not be accurate.

The following were involved in this investigation: Phil Kane, Steve Kent, Mike Eckoff, and Vivian Garfein (FDEP Central District), FDEP Central District Laboratory in Orlando, and 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 Appendices 4 and 6. Metals were detected in the effluent and at Control and Test Sites. Effluent concentrations of copper (80.6 µg/L) and zinc (1,260 µg/L) exceeded Class III Water Quality Criteria of 30.5 and 387.8 µg/L, respectively (62-302.530(24), 62-302.530(71), F.A.C.). Iron concentrations in the effluent (4,780 µg/L), the Control Site (1,060 µg/L), and the Test Site (1,310 µg/L) samples exceeded the Class III Water Quality Criterion (1,000 µg/L; 62-302.530(39), F.A.C.). Chromium and lead were detected in the effluent at levels that complied with Class III Water Quality Criteria (62-302.530, F.A.C.). Cadmium, nickel, selenium, and silver were found in the effluent at levels above the MDL and below the PQL. Lead was detected at the Control Site at a level that complied with the Class III Water Quality Criterion (62-302.530(40) F.A.C.), and zinc was detected between the MDL and PQL. Copper, lead, and zinc were detected at the Test Site at levels that complied with Class III Water Quality Criteria (62-302.530, F.A.C.). Aluminum was detected in the effluent and Control and Test Site samples.
- Organic compounds, by-products of chlorination, were detected in the effluent at various levels (Table 1). Effluent concentrations of bromodichloromethane (44 µg/L) and dibromochloromethane (50 µg/L) were sufficiently high that if those levels continue, they would exceed annual average Class III Water Quality Criteria of 22 and 34 µg/L, respectively (62-302.530(36)(b) 5., 62-302.530(36)(b)2., F.A.C.). Concentrations of bromoform, chloroform, chloromethane, and methylene chloride were detected below the annual average Class III Water Quality Criteria (62-302, F.A.C.), and chloroethane was detected between the MDL and the PQL.

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

Jungle Adventure - Clabrook Farm, Inc. IWTF	Class III Fresh Standards	Effluent Limits	Effluent Samples	Control Site	Test Site
Organic Constituents (µg/L)					
Bromomethane	-	-	2.8	-	-
Chloroethane	-	-	1.8 I	-	-
Bromodichloromethane	≤ 22 a	-	44	-	-
Bromoform	≤ 360 a	-	18	-	-
Chloroform	≤ 470.8 a	-	59	-	-
Chloromethane	≤ 470.8 a	-	27	-	-
Dibromochloromethane	≤ 34 a	-	50	-	-
Methylene chloride	≤ 1580 a	-	2.1	-	-
Metals (µg/L unless otherwise noted)					
Aluminum	-	-	503	275	375
Arsenic	≤ 50	-	6 U	6 U	6 U
Cadmium	≤ 3.4 b	-	0.23 I	0.075 U	0.075 U
Calcium (mg/L)	-	-	210	34.6	37.1
Chromium-III	≤ 268.2 b	-	13.8	2 U	2 U
Copper	≤ 30.5 b	-	80.6	0.75 U	3.7
Iron	≤ 1000	-	4780	1060	1310
Lead	≤ 18.6 b	-	2.8	0.35	0.56
Magnesium (mg/L)	-	-	54.1	3.3	3.9
Nickel	≤ 168.5 b	-	5.7 I	2 U	2 U
Selenium	≤ 5	-	1.8 I	0.5 U	0.5 U
Silver	≤ 0.07	-	0.035 I	0.02 U	0.02 U
Zinc	≤ 387.8 b	-	1260	3.9 I	50
Nutrients (mg/L)					
Organic Carbon	-	-	29 AY	28 Y	26 Y
Ortho-phosphate	-	-	1.6 Y	0.044 Y	0.075 Y
Total Phosphorus	-	Report	15 YJ	0.099 Y	0.53 Y
Ammonia	-	Report	3.6 AY	0.042 Y	0.086 Y
Unionized Ammonia	≤ 0.02	Report	0.023 c	< 0.005 c	< 0.005 c
Nitrate+Nitrite	-	-	15 AY	0.037 Y	0.18 Y
Total Kjeldahl Nitrogen	-	Report	75 YJ	0.97 Y	3 Y
Organic Nitrogen	-	-	71.4 c	0.93 c	2.91 c
Total Nitrogen	-	Report	90 c	1.0 c	3.18 c
General Physical and Chemical Parameters					
Dissolved Oxygen (mg/L)	≥ 5	Report	6.6	6.4	6.4
pH (S.U.)	6.0 - 8.5	6.0 - 8.5	7.1	6.9	6.9
Conductivity (umhos/cm)	≤ 1275	-	290	289	334
Temperature (C)	-	Report	21	20.3	20.3
BOD (mg/L)	-	Report	100 Y	0.99 IY	4.1 AY
CBOD (mg/L)	-	-	106 AY	-	-
CBOD (mg/L) *	-	-	6.9	0.7 U	3.2
Total suspended solids (mg/L)	-	Report	600	4 U	34
Total suspended solids (mg/L) *	-	Report	10.8	3.1 I	21.3
Turbidity (NTU)	t	Report	260 YQ	2.2 Y	5.4 Y
Color (PCU)	-	-	500 Y	200 Y	250 Y
Oil and Grease (mg/L)	≤ 5	Report	11 Y	0.69 UY	2.8 IY
Hardness (mg/L)	-	-	747.2 c	100 c	108.7 c
Total Residual Chlorine (mg/L)	≤ 0.01	Report	-	-	-
Chlorophyll-*a* (µg/L)	-	-	5.9 UY	-	-
Phaeophytin-*a* (µg/L)	-	-	5.9 UY	-	-
MBAS (mg/L)	≤ 0.5	-	0.13 JY	-	-
Microbiology (# counts/100ml)					
Fecal Coliforms *	≤ 800 s	Report	4,600	210	450
Total Coliforms	≤ 2,400 s	Report	-	-	-
Toxicology (48-hour static acute screening bioassay, percent mortality in 100% effluent)					
Bioassay - *Cyprinella leedsi* (fish)	-	< 50**	0	-	-
Bioassay - *Ceriodaphnia dubia* (water flea)	-	< 50**	0	-	-

*Analysis performed at the DEP Central District Lab in Orlando

**Effluent limits pertain to a 96-hour static acute screening bioassays.

Value exceeds the Class III Fresh Water Quality Criteria (62-302, F.A.C.)

a - Annual average

b - Value is calculated based on hardness

c - Calculated value

m - Monthly average

s - Single sample

t - Shall not exceed 29 NTUs above background

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

I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.

J - Estimated value

Q - Sample held beyond normal holding time

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

Y - The analysis was from an unpreserved or imporperly preserved sample. The data may not be accurate.

Table 2. Measured and predicted algal growth potential (AGP; mg dry wt/L) for total soluble nitrogen (TSIN) and ortho phosphate (OP) limitation of Pseudokirchneriella subcapitata *(fresh), and AGP of* Dunaliella tertiolecta *(salt-adjusted).*

Location	AGP (fresh)	Predicted AGP (TSIN) ± 20%	Predicted AGP (OP) ± 20%	Inorganic N:P ratio	Total N:P ratio	AGP (salt-adjusted)
Effluent Samples	187	706.8 ± 141.36	688 ± 137.6	11.62	6	212

Bromomethane was also detected in the effluent. Organic compounds were not measured at the Control and Test Sites.

- Effluent conductivity, pH, and dissolved oxygen complied with Class III Water Quality Criteria (Table 1, 62-302, F.A.C.) and facility permit limits, where applicable. Effluent conductivity, measured in the field and in two samples received at the laboratory the following day, was highly variable, and ranged from 290 µmhos/cm in the field, 534 µmhos/cm in the bioassay sample in the lab, to 3,270 µmhos/cm in the AGP sample in the lab (Table 1, Appendix 6, and DEP lab logbooks). This variability is likely due in part to collection method and in part to variable effluent; the field value could have been influenced by receiving waters, the toxicity sample was a composite of four grab samples, whereas the AGP sample was one grab.
- Effluent biochemical oxygen demand (BOD, 100 mg/L) appeared to contribute to higher BOD at the Test Site (4.1 mg/L) than at the Control Site (0.99 mg/L, Table 1). Effluent carbonaceous BOD (CBOD, 6.9 mg/L) contributed to higher CBOD at the Test Site (3.2 mg/L) than at the Control Site (undetected), as measured by the DEP Central District lab. The CBOD concentration of the effluent sample analyzed in the DEP's Tallahassee lab was 106 mg/L. This difference may be due to effluent variability or undetected sampling or analysis error; further study is warranted to determine the cause for this difference. Effluent oil and grease levels (11mg/L) exceeded the Class III Water Quality Criterion of 5.0 mg/L (62-302.530(50)(a), F.A.C.), and contributed to higher levels at the Test Site (2.8 mg/L) than at the Control Site (0.69 mg/L, Table 1).
- Dissolved oxygen, pH, and conductivity at the Test and Control Sites complied with Class III Water Quality Criteria (Table 1, 62-302.530, F.A.C.).
- Two total suspended solids (TSS) samples were collected from the effluent, and the two samples analyzed by the Central District and Tallahassee labs yielded different results, of 10.8 and 600 mg/L, respectively (Table 1). The latter concentration suggests that the effluent contributed to higher levels of TSS at the Test Site (21.3 and 34 mg/L) compared to the Control Site (3.1 and 4 mg/L, Table 1), as measured by the Central District and Tallahassee labs, respectively. The difference in effluent TSS values may be due to effluent variability or undetected sampling or analysis error; further study is warranted to determine the cause for this difference. The high turbidity result from the Tallahassee lab is consistent with the high TSS value. Effluent turbidity and color were high (260 NTU, 500 PCU) and contributed to higher levels at the Test Site (5.4 NTU, 250 PCU) than at the Control Site (2.2 NTU, 200 PCU).
- 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 it to provide reasonable assurance that the facility does not adversely affect waters of the state.
- The effluent fecal coliforms concentration (4,600 counts/100 ml) exceeded the Class III Water Quality Criterion (800 counts/100 ml; 62.302-530(6), F.A.C.; See Table 1 for results and Appendix 6 for laboratory worksheets). The fecal coliform concentrations at the Control and Test Sites were below the Class III Water Quality Criterion. Samples were not analyzed for total coliforms.
- The effluent total nitrogen and phosphorus concentrations were 90 and 15 mg/L, respectively (Table 1). Effluent total phosphorus, orthophosphate (1.6 mg/L), total ammonia (3.6 mg/L), nitrate + nitrite (15 mg/L), and total Kjeldahl nitrogen (75 mg/L) concentrations contributed to higher levels at the Test Site compared to the Control Site. Test Site total phosphorus and orthophosphate levels ranked in the 80th and 40th percentile, respectively, when compared with levels typical of Florida streams, while Control Site concentrations ranked in the

30th percentile for both phosphorus fractions (Appendix 5). Test Site total Kjeldahl nitrogen, ammonia, and nitrate+nitrite levels ranked in the 95th, 50th, and 60th percentile, respectively, when compared with levels typical of Florida streams, while Control Site concentrations ranked in the 40th, 20th, and 20th percentile for those nitrogen fractions (Appendix 5). Effluent unionized ammonia (0.02 mg/L), based on physical parameters taken in the field, met the Class III water quality criteria (≤ 0.02 mg/L; 62.302-530(3), F.A.C.).

- 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 for the effluent (187 mg dry wt/L) was well above this threshold (Table 2), indicating there is nutrient enrichment related to the Clabrook Farm discharge in this portion of the unnamed ditch, which drains to the Seminole Ranch Canal. AGP was not measured at the Control and Test Sites. The conductivity of the AGP sample (3,270 µmhos/cm) was sufficiently high to warrant a test with the marine alga, *Dunaliella tertiolecta*. That test yielded a result of 212 mg drywt/L, which exceeds the "problem" threshold of 10.0 mg dry wt/L for marine receiving waters (personal communication with Ron Raschke, USEPA Regiona 4, 1987).
- Chlorophyll-*a* was not detected in the effluent (Table 1). We note that nutrients in the water column may or may not fuel algal production immediately, depending upon the sum of environmental conditions that limit algal growth at the site (e.g. pH, shading, turbidity). Thus it is not necessarily contradictory for ambient nutrient levels to be high and for no chlorophyll to be detected in water samples. Chlorophyll-*a* was not measured at the Control or Test Sites.
- During this field sampling event, water samples were collected for fecal coliforms, CBOD, and TSS from the old pool discharge, former D-001. Those results are in Appendix 6. Levels of fecal coliforms (8,000 colonies/100 ml), CBOD (54.8 mg/L), and TSS (565.1 mg/L) were higher than those reported by the same lab (DEP Central District) for D-002 (Table 1).

Summary

Discharge monitoring reports for this facility indicate numerous past exceedances of former permit limits for fecal and total coliforms, dissolved oxygen, TSS, BOD, and total residual chlorine. Those permit limits were eliminated by Consent Order 99-1444. FDEP data from this inspection indicate water quality standards exceedances of copper, iron, zinc, turbidity, oil and grease, unionized ammonia, and fecal coliforms by this facility. If the levels of bromodichloromethane and dibromochloromethane measured in this inspection continue, they could exceed annual average water quality criteria. Bromomethane, chloroethane, bromoform, chloroform, chloromethane, methylene chloride, aluminum, cadmium, chromium, lead, nickel, selenium, and silver were also detected in the effluent, though at levels complying with water quality standards, where applicable. Effluent metals contributed to elevated levels of aluminum, copper, iron, lead, and zinc at the Test Site. Varying conductivity levels suggest that the effluent is quite variable, even within a 24-hour period. 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. Effluent nutrient levels were extremely high, and supported extremely high algal growth in the algal growth potential tests. Although analyses of nutrients and BOD were "Y"-qualified, due to the samples not being sufficiently preserved, the high AGP results confirm that nutrient levels of the effluent were indeed very high. Additional monitoring of this facility's discharge is warranted. Measures to improve treatment may be necessary.

Literature Cited

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Raschke, R. L. and D. A. Schultz. 1987. The use of the algal growth potential test for data assessment. J. Wat. Poll. Cont. Fed. 59(4): 222-227.

Ross, L. T. 1990. Methods for aquatic biology. Florida Department of Environmental Regulation Technical Series 10(1): 1-47.

USEPA. 2000. Nutrient Criteria Technical Guidance Manual – River and Streams. EPA-822-B-00-002.

USEPA. 2002. Short-term methods for estimating the chronic toxicity of effluents and receiving waters to freshwater organisms. 4th Edition. EPA-821-R-02-013.

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

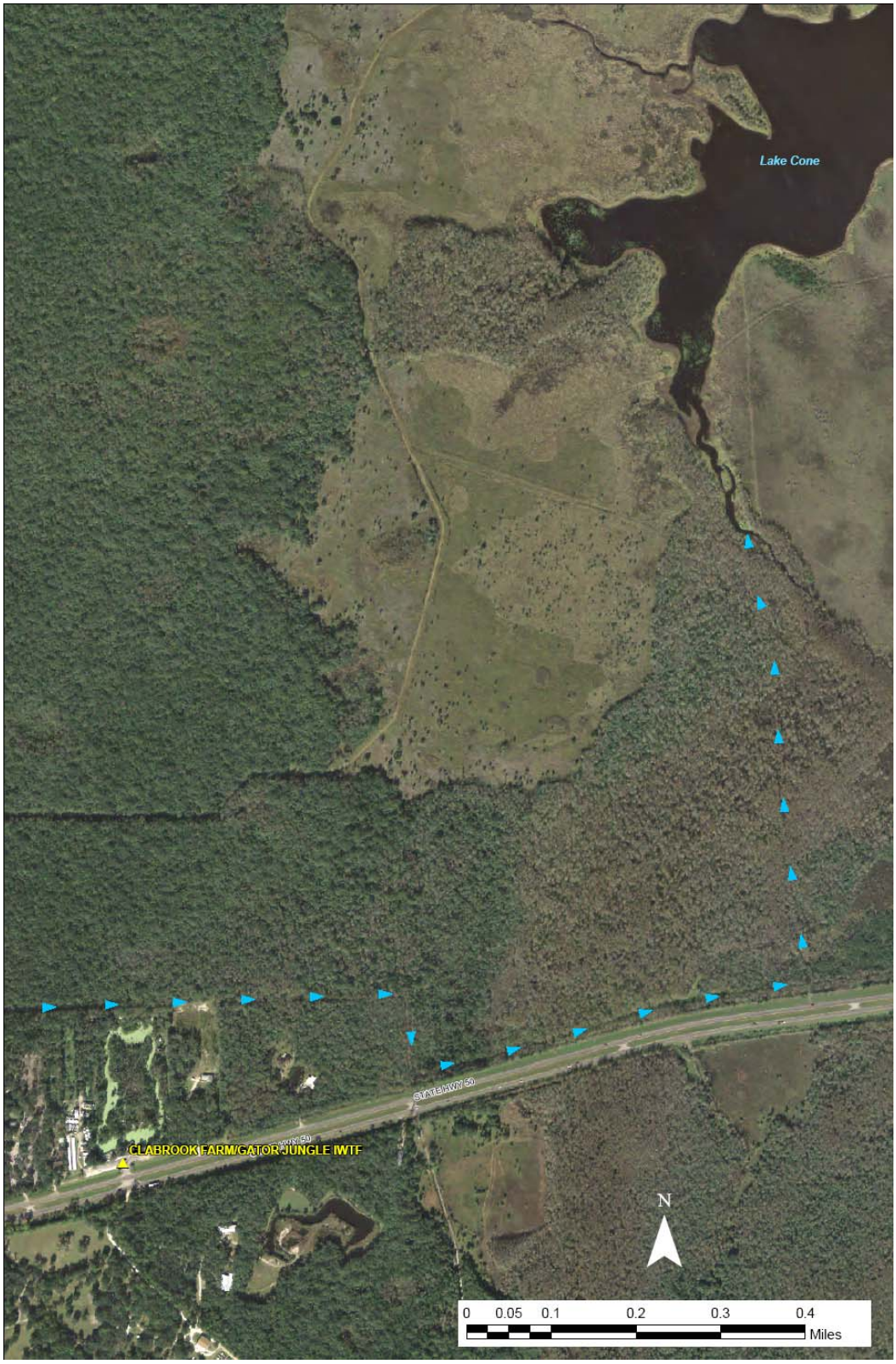
Appendix 1

Map of Facility

Clabrook Farms, Inc. FYI Sampling Sites



Path of Wastewater from D-002



Appendix 2

Facility Summary and DMR Data

State of Florida
Department of Environmental Protection
Facility Introduction

Things to include in the introduction:

- **Type of facility**
- **Former names**
- **Design flow**
- **Average flow (with dates of time period flow was measured)**
- **Description of the treatment process**
- **Chlorination/dechlorination methods (if applicable)**
- **Receiving water and classification (i.e. Class III fresh waters of the St. John's River)**
- **If mixing zone is present and for what. If several, list all.**
- **Sampling location, specify lat/longs of NPDES point and/or effluent collection point**
- **Any other information about the facility or the effluent that is relevant to the effluent samples. (i.e. recent violations, unusual discharge location, combined effluent with another facility, reason bioassay sample may be chlorinated, etc.)**

TEXT:

Facility Summary

Facility Name (as it appears on permit): Clabrook Farm/ Jungle Adventures Minor NonPOTW NPDES Discharge		**Former Names:**
Physical Address: 26205 East Highway 50 Christmas FL	**NPDES Permit No.:** 48-FL0043907-IW3S **Expiration Date:** August 13, 2005	**Prepared By:** Michael Eckoff
County: Orange **District:** Central	**State Permit No.:** 48-FL0043907-IW3S **Expiration Date:** August 13, 2005	**Facility Type:** Minor NonPOTW NPDES Discharge

Function of Facility: Aquaculture facility consisting of alligator farming and processing.

Sampling Location (specify lat/longs of NPDES point): D-001 28° 32' 26.68" N, 80° 58' 36.02" W
D-002 28° 32' 26.68" N, 80° 58' 41.92" W

Description of treatment process: The existing biological treatment system is a packaged activated sludge treatment plant. The packaged treatment plant has the following components:

1) a flow equalization tank;
2) two submersible pumps within the flow equalization tank;
3) an aeration tank;
4) a clarifier;
5) chlorine contact chamber;
6) effluent box.

The improved treatment system is as follows:
The raw wastewater flows through a bar screen into a new 6,000 gallon clarifier that has a hopper bottom. From there the wastewater flows into one of two (2) new 6,000 gallon surge tanks. The 2 new surge tanks, are connected hydraulically and have a blower installed. Settled solids from the clarifier are transferred to a new digestor, which is adapted from the existing surge tank, and to the existing digestor (the two digestors are hydraulically connected). Settled solids from the clarifier may also be recycled to the bar screen. From the surge tank, the water flows through a splitter box which passes the average daily flow amount into the existing aeration tank, while shunting the excess flow back to the surge tank. The existing aeration tank discharges into the existing clarifier. Settled solids are recycled from the existing clarifier back into the existing aeration tank, with occasional solids transfer into the existing digestor. From the clarifier, the wastewater flows into the existing chlorine contact chamber, thence into the new post-aeration tank. Finally, the flow is discharged through a totalizing flow meter, which also provides instantaneous readings, into the Seminole Ranch canal.

Receiving Waters: Seminole Ranch Canal, which flows through a natural, unnamed wetland system to the northeast into Lake Cone.	**Classification:** Class III fresh surface water bodies of the State.

Temperature (C):	**Design Flow:**
pH (SU):	**Mean Flow:**
Conductivity (umhos/cm):	**Flow During Survey:**
Dissolved Oxygen (mg/L):	**Total Residual Chlorine (mg/L):**

Discharge is: **Continuous** **Intermittent** **Seasonal** **Rainfall Dependent** **Other**

Facility Mixing Zone Details: None

List Effluent Limits:

Parameter and Units	Limit	Describe special permit conditions and permit modifications:
D-001		
Flow (MGD)	Report Monthly Avg. Report Daily Max.	Daily Metered

pH	The pH shall not be less than 6.0 standard units, nor greater than 8.5 standard units. The pH shall not vary more than one unit above or below natural background of predominantly fresh waters, provided that the pH is not lowered to less than six units in predominantly fresh waters, or raised above 8.5 units. If natural background is less than six units, in predominantly fresh waters , the pH shall vary below natural background or vary more than one unit above natural background of predominantly fresh waters. If natural background is higher than 8.5 units, the pH shall not vary above natural background or vary more than one unit below natural background of predominantly fresh waters (fresh waters). The permittee shall grab sample the effluent at Sampling Location EFF-01 monthly and report the results on the provided Discharge Monitoring Report (DMR) Form.	Monthly Grab
D-002		
Flow (MGD)	Report Monthly Avg. Report Daily Max.	Daily Metered
BOD_5 (mg/L)	Report Daily Max.	Monthly Grab
TSS (mg/L)	Report Daily Max.	Monthly Grab
Dissolved Oxygen (mg/L)	Report Daily Min.	Monthly In-situ
Turbidity (NTU)	Report Daily Max.	Monthly In-situ
TKN (mg/L)	Report Daily Max.	Monthly Grab
Nitrogen as Ammonia (mg/L)	Report Daily Max.	Monthly Grab
Un-ionized Ammonia as NH_3 (mg/L)	Report Daily Max.	Monthly Grab
Total Nitrogen as N (mg/L)	Report Daily Max.	Monthly Grab

Total Phosphorus (mg/L)	Report Daily Max.	Monthly Grab
Fecal Coliform (#/100mL)	Report Daily Max.	Monthly Grab
Total Coliform (#/100mL)	Report Daily Max.	Monthly Grab
Total Residual Chlorine (mg/L)	Report Daily Max.	Monthly Grab
Surfactants (mg/L)	Report Daily Max.	Monthly Grab
Temperature (°C)	Report Daily Max.	Monthly Grab
PH	The pH shall not be less than 6.0 standard units, nor greater than 8.5 standard units. The pH shall not vary more than one unit above or below natural background of predominantly fresh waters, provided that the pH is not lowered to less than six units in predominantly fresh waters, or raised above 8.5 units. If natural background is less than six units, in predominantly fresh waters , the pH shall vary below natural background or vary more than one unit above natural background of predominantly fresh waters. If natural background is higher than 8.5 units, the pH shall not vary above natural background or vary more than one unit below natural background of predominantly fresh waters (fresh waters). The Respondent shall grab sample the effluent at Sampling Location EFF-01 monthly and report the results on the provided Discharge Monitoring Report (DMR) Form.	Monthly Grab
Acute Toxicity (Annual) Daphnid. Ceriodaphnia dubia and bannerfish shiner, Cyprinella leedsi	The permittee shall initiate the toxicity tests described below to evaluate whole effluent toxicity of the discharge from outfall D-002. All test species, procedures and quality assurance criteria used shall be	24 hour composite

	in accordance with Methods of Measuring Acute Toxicity of Effluent to Freshwater and Marine Organisms, EPA/600/4-90/027F or the most current edition. The control water and dilution water used will be moderately hard water as described in EPA/600/4-90/027F, Table 6, or the most current edition. A Standard Reference Toxicant (SRT) Quality Assurance (QA) acute toxicity test shall be conducted concurrently, or no greater than 30 days before the date of the "routine" test, with each species used in the toxicity tests. The results of all toxicity tests shall be submitted with the DMR. Any deviation of the bioassay procedures outlined herein shall be submitted in writing to the Department for review and approval prior to use. The permittee shall conduct 96 hour acute static renewal toxicity tests using the daphnid, Ceriodaphnia dubia, and bannerfish shiner, Cyprinella leedsi. All tests will be conducted on four separate grab samples collected at evenly spaced (six hour) intervals over a 24 hour period and used in four separate tests in order to catch any peaks of toxicity and to account for daily variations in effluent quality. If control mortality exceeds 10% for either species in any test, the test for that species (including the control) shall be repeated. A test will be considered valid only if control mortality does not exceed 10% for either species. If, in any separate grab sample test, 100% mortality occurs prior to	

	the end of the test and control mortality is less than 10% at that time, that test (including the control) shall be terminated with the conclusion that the sample demonstrates unacceptable acute toxicity. The toxicity tests specified above shall be conducted once every twelve months (once a year). Results from "routine" tests shall be reported according to EPA/600/4-90/027F, Section 12, Report Preparation (or the most current edition) and shall be submitted to the Florida Department of Environmental Protection, Central District Office, Attention: Dr. Phil Kane, 3319 Maguire Boulevard, Suite 232, Orlando FL 32803. All "routine" tests shall be conducted using a control (0% effluent) and a test concentration of 100% final effluent. Mortalities of greater than 50% in a 100% effluent in any "routine" sample or an LC50 of less than 100% effluent in any additional definitive test will constitute a violation of these permit conditions and Rules 62-302.200(1), 62-302.500(1)(a)(4) and 62-4.244(3)(a), F.A.C. If unacceptable acute toxicity (greater than 20% mortality of either test species in any grab sample test) is found in a "routine" test, the permittee shall conduct three additional tests on each species which indicated unacceptable toxicity. The first additional test will include four grab samples taken as described in Specific Condition I.A.1 and run as four separate definitive analyses. The second and third additional	

	definitive tests will be run on a single grab sample collected on the day and time when the greatest toxicity was identified in the "routine" test. Results for each additional test will include the determination of LC50 values with 95% confidence limits. The first additional test shall be conducted using control (0% effluent) and a minimum of five dilutions: 100%, 50%, 25%, 12.5% and 6.25% effluent. The dilution series may be modified in the second and third test to more accurately identify the toxicity, such that at least two dilutions above and two dilutions below the target toxicity and a control (0% effluent) are run. For each additional test, the sample collection requirements and the test acceptability criteria specified in Specific Condition I.D.4. must be met for the test to be considered valid. The first test shall begin within two weeks of the end of the "failed routine" test, and shall be conducted weekly thereafter until three valid tests are completed. The additional tests will be used to determine if the toxicity found in the "routine" test is still present. Results from additional tests, required due to unacceptable acute toxicity in the "routine" tests, shall be submitted in a single report prepared according to EPA/600/4-90/027F, Section 12, or the most current edition, and submitted within 45 days of completion of the third additional, valid test. Upon completion of the third additional test, the permittee will meet with the Department	

	within 30 days of the report submittal to identify corrective actions necessary to remedy the unacceptable acute toxicity.	
Description of permitted outfall: D-001 is a stormwater discharge and D-002 is treated effluent from the improved treatment system.		
List permit violations (DMR data) and plant upsets that occurred at the plant within the last year: None		
Describe previous impact bioassessments, WQBEL's, and previous or current enforcement actions: Under enforcement for: (a) discharging through the emergency discharge outfall located in the alligator viewing pond during times other than a 10 year/24 hour storm event; (b) effluent disposal at an unapproved land application site or site not specified in a permit; (c) failure to notify the Department of the discharges from the alligator viewing pond; (d) failure to sample the discharge from the emergency discharge outfall; (e) failure to construct the emergency discharge structure in accordance with the design plans and install a flow meter at the outfall location; (f) failure to submit Quarterly Groundwater Monitoring Data.		
Discuss MOR trends to prior data; is trend improving or declining:		
Additional Information:		

Clabrook Farms, Inc. / Jungle Adventure, FL0043907
DMR Report of Effluent Violations from 8/00 to 9/04

Monitoring Date	Outfall Indicator	Parameter Code	Parameter Description	Monitoring Location Code	Data	Limit	Statistical Base	Units
8/31/2000	002-T	P TAN3B	LC50 STATRE 96HR ACU CERIODAPHNIA	P	<12.5	100	MINIMUM	PER- CENT
8/31/2000	002-T	P TAN6H	LC50 STATRE 96HR ACUCYPRINELLA LEEDSI	P	<6.25	100	MINIMUM	PER- CENT
1/31/2001	002-T	P TAN6H	LC50 STATRE 96HR ACUCYPRINELLA LEEDSI	P	34.74	100	MINIMUM	PER- CENT
10/31/2001	002-T	P TAN3B	LC50 STATRE 96HR ACU CERIODAPHNIA	P	31.86	100	MINIMUM	PER- CENT
10/31/2001	002-T	P TAN6H	LC50 STATRE 96HR ACUCYPRINELLA LEEDSI	P	11.66	100	MINIMUM	PER- CENT
1/31/2003	002-1	P 00300	OXYGEN, DISSOLVED (DO)	1	0.7	5.0	MINIMUM	MG/L
1/31/2003	002-1	P 31505	COLIFORM, TOT, MPN, COMPLETED, (100 ML)	1	20000	2400	DAILY MX	#/ 100ML
1/31/2003	002-1	P 31615	FECAL COLIFORM, MPN,EC MED, 44 5C	1	20000	800	DAILY MX	#/ 100ML
2/28/2003	002-1	P 00300	OXYGEN, DISSOLVED (DO)	1	1.6	5.0	MINIMUM	MG/L
2/28/2003	002-1	P 00530	SOLIDS, TOTAL SUSPENDED	1	90	ADDMON	ANNL AVG	MG/L
2/28/2003	002-1	P 00530	SOLIDS, TOTAL SUSPENDED	1	90	50	MO AVG	MG/L
2/28/2003	002-1	P 00530	SOLIDS, TOTAL SUSPENDED	1	90	ADDMON	DAILY MX	MG/L
3/31/2003	002-1	P 00300	OXYGEN, DISSOLVED (DO)	1	1.3	5.0	MINIMUM	MG/L
4/30/2003	002-1	P 31505	COLIFORM, TOT, MPN, COMPLETED, (100 ML)	1	3500000	2400	DAILY MX	#/ 100ML
4/30/2003	002-1	P 31615	FECAL COLIFORM, MPN,EC MED, 44 5C	1	227000	800	DAILY MX	#/ 100ML
5/31/2003	002-1	P 00300	OXYGEN, DISSOLVED (DO)	1	3.1	5.0	MINIMUM	MG/L
5/31/2003	002-1	P 00310	BOD, 5-DAY (20 DEG C)	1	89	ADDMON	ANNL AVG	MG/L
5/31/2003	002-1	P 00310	BOD, 5-DAY (20 DEG C)	1	89	50	MO AVG	MG/L
5/31/2003	002-1	P 00310	BOD, 5-DAY (20 DEG C)	1	89	ADDMON	DAILY MX	MG/L
5/31/2003	002-1	P 00530	SOLIDS, TOTAL SUSPENDED	1	53.0	ADDMON	ANNL AVG	MG/L
5/31/2003	002-1	P 00530	SOLIDS, TOTAL SUSPENDED	1	53.0	50	MO AVG	MG/L
5/31/2003	002-1	P 00530	SOLIDS, TOTAL SUSPENDED	1	53.0	ADDMON	DAILY MX	MG/L
5/31/2003	002-1	P 31505	COLIFORM, TOT, MPN, COMPLETED, (100 ML)	1	6300000	2400	DAILY MX	#/ 100ML
5/31/2003	002-1	P 31615	FECAL COLIFORM, MPN,EC MED, 44 5C	1	2400000	800	DAILY MX	#/ 100ML
7/31/2003	002-1	P 00300	OXYGEN, DISSOLVED (DO)	1	4.2	5.0	MINIMUM	MG/L
7/31/2003	002-1	P 31505	COLIFORM, TOT, MPN, COMPLETED, (100 ML)	1	2200000	2400	DAILY MX	#/ 100ML
7/31/2003	002-1	P 31615	FECAL COLIFORM, MPN,EC MED, 44 5C	1	270000	800	DAILY MX	#/ 100ML
8/31/2003	002-1	P 00300	OXYGEN, DISSOLVED (DO)	1	1.1	5.0	MINIMUM	MG/L
8/31/2003	002-1	P 31505	COLIFORM, TOT, MPN, COMPLETED, (100 ML)	1	8180	2400	DAILY MX	#/ 100ML
8/31/2003	002-1	P 31615	FECAL COLIFORM, MPN,EC MED, 44 5C	1	1000	800	DAILY MX	#/ 100ML
10/31/2003	002-1	P 00300	OXYGEN, DISSOLVED (DO)	1	3.1	5.0	MINIMUM	MG/L
10/31/2003	002-1	P 00530	SOLIDS, TOTAL SUSPENDED	1	82.5	ADDMON	ANNL AVG	MG/L
10/31/2003	002-1	P 00530	SOLIDS, TOTAL SUSPENDED	1	82.5	50	MO AVG	MG/L
10/31/2003	002-1	P 00530	SOLIDS, TOTAL SUSPENDED	1	82.5	ADDMON	DAILY MX	MG/L
10/31/2003	002-1	P 31505	COLIFORM, TOT, MPN, COMPLETED, (100 ML)	1	10300000	2400	DAILY MX	#/ 100ML
10/31/2003	002-1	P 31615	FECAL COLIFORM, MPN,EC MED, 44 5C	1	3500000	800	DAILY MX	#/ 100ML
11/30/2003	002-1	P 00300	OXYGEN, DISSOLVED (DO)	1	2.6	5.0	MINIMUM	MG/L
11/30/2003	002-1	P 31505	COLIFORM, TOT, MPN, COMPLETED, (100 ML)	1	500000	2400	DAILY MX	#/ 100ML
11/30/2003	002-1	P 31615	FECAL COLIFORM, MPN,EC MED, 44 5C	1	200000	800	DAILY MX	#/ 100ML
12/31/2003	002-1	P 00300	OXYGEN, DISSOLVED (DO)	1	4.6	5.0	MINIMUM	MG/L
12/31/2003	002-1	P 31505	COLIFORM, TOT, MPN, COMPLETED, (100 ML)	1	20000	2400	DAILY MX	#/ 100ML
12/31/2003	002-1	P 31615	FECAL COLIFORM, MPN,EC MED, 44 5C	1	20000	800	DAILY MX	#/ 100ML
2/29/2004	002-1	P 31505	COLIFORM, TOT, MPN, COMPLETED, (100 ML)	1	4900000	2400	DAILY MX	#/ 100ML
8/31/2004	002-1	P 50060	CHLORINE, TOTAL RESIDUAL	1	0.5	0.01	DAILY MX	MG/L

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 fecal coliform bacteria following FDEP SOPs MB1_0 and MB1_1. High levels of fecal 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..

If the salinity of the sample is > 1 part per thousand, the sample is adjusted to at least 7 parts per thousand (FDEP SOP TA08_01) and the test species used is *Dunaliella tertiolecta* (Maloney et al. 1974). Raschke and Shultz found that AGP values above 10.0 mg dry weight/L represent a "problem" threshold for marine receiving waters, implying nutrient enrichment (personal communication with Ron Raschke USEPA Region 4 1987).

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..

Appendix 4

Chemical analysis of effluent and receiving water.

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
10/18/2004 9:45	EFFLUENT	Bio-AGP/LimNut	Algal Growth Potential	187	mg DryWt/L		0.3	0.9
10/18/2004 9:45	EFFLUENT	Bio-AGP/LimNut	Algal Growth Potential-Salinity Adjusted	212	mg DryWt/L		0.3	0.9
10/18/2004 9:45	DOWNSTREAM	Bio-BOD	Biochemical Oxygen Demand-5 Day	4.1	mg/L	AY		
10/18/2004 9:45	EFFLUENT	Bio-BOD	Biochemical Oxygen Demand-5 Day	100	mg/L	Y		
10/18/2004 9:45	EFFLUENT	Bio-BOD	Biochemical Oxygen Demand-5 Day,N-Inhib	106	mg/L	AY		
10/18/2004 10:00	UPSTREAM	Bio-BOD	Biochemical Oxygen Demand-5 Day	0.99	mg/L	IY		
10/18/2004 9:45	EFFLUENT	Bio-Chl-a	Chlorophyll-A, Monochromatic, Water	5.9	ug/L	UY	5.9	18
10/18/2004 9:45	EFFLUENT	Bio-Chl-a	Phaeophytin-A, Monochromatic, Water	5.9	ug/L	UY	5.9	18
10/18/2004 14:00	EFFLUENT TOXICITY	Bio-Toxicology	Bioassay-Acute-Screen-FW-C.dubia, LC50	100	LC50	L		
10/18/2004 14:00	EFFLUENT TOXICITY	Bio-Toxicology	Bioassay-Acute-Screen-FW-Fish, LC50	100	LC50	L		
10/18/2004 9:45	EFFLUENT	BNA-Water	1,2,4-Trichlorobenzene	0.95	ug/L	U	0.95	3.8
10/18/2004 9:45	EFFLUENT	BNA-Water	1,2-Dichlorobenzene	0.95	ug/L	U	0.95	3.8
10/18/2004 9:45	EFFLUENT	BNA-Water	1,3-Dichlorobenzene	0.95	ug/L	U	0.95	3.8
10/18/2004 9:45	EFFLUENT	BNA-Water	1,4-Dichlorobenzene	0.95	ug/L	U	0.95	3.8
10/18/2004 9:45	EFFLUENT	BNA-Water	2,4,6-Trichlorophenol	0.95	ug/L	U	0.95	3.8
10/18/2004 9:45	EFFLUENT	BNA-Water	2,4-Dichlorophenol	0.95	ug/L	U	0.95	3.8
10/18/2004 9:45	EFFLUENT	BNA-Water	2,4-Dimethylphenol	48	ug/L	U	48	190
10/18/2004 9:45	EFFLUENT	BNA-Water	2,4-Dinitrophenol	14	ug/L	U	14	57
10/18/2004 9:45	EFFLUENT	BNA-Water	2,4-Dinitrotoluene	0.95	ug/L	U	0.95	3.8
10/18/2004 9:45	EFFLUENT	BNA-Water	2,6-Dinitrotoluene	0.95	ug/L	U	0.95	3.8
10/18/2004 9:45	EFFLUENT	BNA-Water	2-Chloronaphthalene	0.95	ug/L	U	0.95	3.8
10/18/2004 9:45	EFFLUENT	BNA-Water	2-Chlorophenol	0.95	ug/L	U	0.95	3.8
10/18/2004 9:45	EFFLUENT	BNA-Water	2-Methyl-4,6-dinitrophenol	2.9	ug/L	U	2.9	11
10/18/2004 9:45	EFFLUENT	BNA-Water	2-Nitrophenol	0.95	ug/L	U	0.95	3.8
10/18/2004 9:45	EFFLUENT	BNA-Water	3,3'-Dichlorobenzidine	38	ug/L	U	38	150
10/18/2004 9:45	EFFLUENT	BNA-Water	4,4'-DDD	1.4	ug/L	U	1.4	5.7
10/18/2004 9:45	EFFLUENT	BNA-Water	4,4'-DDE	1.4	ug/L	U	1.4	5.7
10/18/2004 9:45	EFFLUENT	BNA-Water	4,4'-DDT	1.4	ug/L	U	1.4	5.7
10/18/2004 9:45	EFFLUENT	BNA-Water	4-Bromophenyl phenyl ether	0.95	ug/L	U	0.95	3.8
10/18/2004 9:45	EFFLUENT	BNA-Water	4-Chloro-3-methylphenol	0.95	ug/L	U	0.95	3.8
10/18/2004 9:45	EFFLUENT	BNA-Water	4-Chlorophenyl phenyl ether	1.9	ug/L	U	1.9	7.6
10/18/2004 9:45	EFFLUENT	BNA-Water	4-Nitrophenol	14	ug/L	U	14	57
10/18/2004 9:45	EFFLUENT	BNA-Water	Acenaphthene	0.95	ug/L	U	0.95	3.8
10/18/2004 9:45	EFFLUENT	BNA-Water	Acenaphthylene	0.95	ug/L	U	0.95	3.8
10/18/2004 9:45	EFFLUENT	BNA-Water	Aldrin	1.4	ug/L	U	1.4	5.7
10/18/2004 9:45	EFFLUENT	BNA-Water	Anthracene	0.95	ug/L	U	0.95	3.8
10/18/2004 9:45	EFFLUENT	BNA-Water	Benzidine	95	ug/L	U	95	380
10/18/2004 9:45	EFFLUENT	BNA-Water	Benzo(a)anthracene	0.95	ug/L	U	0.95	3.8
10/18/2004 9:45	EFFLUENT	BNA-Water	Benzo(a)pyrene	0.95	ug/L	U	0.95	3.8
10/18/2004 9:45	EFFLUENT	BNA-Water	Benzo(b)fluoranthene	0.95	ug/L	U	0.95	3.8
10/18/2004 9:45	EFFLUENT	BNA-Water	Benzo(g,h,i)perylene	0.95	ug/L	U	0.95	3.8
10/18/2004 9:45	EFFLUENT	BNA-Water	Benzo(k)fluoranthene	0.95	ug/L	U	0.95	3.8
10/18/2004 9:45	EFFLUENT	BNA-Water	Bis(2-chloroethoxy)methane	0.95	ug/L	U	0.95	3.8
10/18/2004 9:45	EFFLUENT	BNA-Water	Bis(2-chloroethyl)ether	0.95	ug/L	U	0.95	3.8

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
10/18/2004 9:45	EFFLUENT	BNA-Water	Bis(2-chloroisopropyl)ether	2.9	ug/L	U	2.9	11
10/18/2004 9:45	EFFLUENT	BNA-Water	Bis(2-ethylhexyl)phthalate	14	ug/L	U	14	57
10/18/2004 9:45	EFFLUENT	BNA-Water	Butyl benzyl phthalate	4.8	ug/L	U	4.8	19
10/18/2004 9:45	EFFLUENT	BNA-Water	Chrysene	0.95	ug/L	U	0.95	3.8
10/18/2004 9:45	EFFLUENT	BNA-Water	Di-n-butyl phthalate	4.8	ug/L	U	4.8	19
10/18/2004 9:45	EFFLUENT	BNA-Water	Di-n-octyl phthalate	0.95	ug/L	U	0.95	3.8
10/18/2004 9:45	EFFLUENT	BNA-Water	Dibenzo(a,h)anthracene	0.95	ug/L	U	0.95	3.8
10/18/2004 9:45	EFFLUENT	BNA-Water	Dieldrin	1.4	ug/L	U	1.4	5.7
10/18/2004 9:45	EFFLUENT	BNA-Water	Diethyl phthalate	0.95	ug/L	U	0.95	3.8
10/18/2004 9:45	EFFLUENT	BNA-Water	Dimethyl phthalate	48	ug/L	U	48	190
10/18/2004 9:45	EFFLUENT	BNA-Water	Endosulfan I	3.8	ug/L	U	3.8	15
10/18/2004 9:45	EFFLUENT	BNA-Water	Endosulfan II	3.8	ug/L	U	3.8	15
10/18/2004 9:45	EFFLUENT	BNA-Water	Endosulfan sulfate	1.4	ug/L	U	1.4	5.7
10/18/2004 9:45	EFFLUENT	BNA-Water	Endrin	1.4	ug/L	U	1.4	5.7
10/18/2004 9:45	EFFLUENT	BNA-Water	Endrin aldehyde	3.8	ug/L	U	3.8	15
10/18/2004 9:45	EFFLUENT	BNA-Water	Fluoranthene	0.95	ug/L	U	0.95	3.8
10/18/2004 9:45	EFFLUENT	BNA-Water	Fluorene	0.95	ug/L	U	0.95	3.8
10/18/2004 9:45	EFFLUENT	BNA-Water	Heptachlor	1.4	ug/L	U	1.4	5.7
10/18/2004 9:45	EFFLUENT	BNA-Water	Heptachlor epoxide	1.4	ug/L	U	1.4	5.7
10/18/2004 9:45	EFFLUENT	BNA-Water	Hexachlorobenzene	0.95	ug/L	U	0.95	3.8
10/18/2004 9:45	EFFLUENT	BNA-Water	Hexachlorobutadiene	2.9	ug/L	U	2.9	11
10/18/2004 9:45	EFFLUENT	BNA-Water	Hexachlorocyclopentadiene	2.9	ug/L	UJ	2.9	11
10/18/2004 9:45	EFFLUENT	BNA-Water	Hexachloroethane	2.9	ug/L	U	2.9	11
10/18/2004 9:45	EFFLUENT	BNA-Water	Indeno(1,2,3-cd)pyrene	0.95	ug/L	U	0.95	3.8
10/18/2004 9:45	EFFLUENT	BNA-Water	Isophorone	0.95	ug/L	U	0.95	3.8
10/18/2004 9:45	EFFLUENT	BNA-Water	N-Nitrosodi-n-propylamine	1.9	ug/L	U	1.9	7.6
10/18/2004 9:45	EFFLUENT	BNA-Water	N-Nitrosodimethylamine	1.9	ug/L	U	1.9	7.6
10/18/2004 9:45	EFFLUENT	BNA-Water	N-Nitrosodiphenylamine	2.9	ug/L	U	2.9	11
10/18/2004 9:45	EFFLUENT	BNA-Water	Naphthalene	0.95	ug/L	U	0.95	3.8
10/18/2004 9:45	EFFLUENT	BNA-Water	Nitrobenzene	1.9	ug/L	U	1.9	7.6
10/18/2004 9:45	EFFLUENT	BNA-Water	Pentachlorophenol	2.9	ug/L	U	2.9	11
10/18/2004 9:45	EFFLUENT	BNA-Water	Phenanthrene	0.95	ug/L	U	0.95	3.8
10/18/2004 9:45	EFFLUENT	BNA-Water	Phenol	0.95	ug/L	U	0.95	3.8
10/18/2004 9:45	EFFLUENT	BNA-Water	Pyrene	0.95	ug/L	U	0.95	3.8
10/18/2004 9:45	EFFLUENT	BNA-Water	alpha-BHC	1.4	ug/L	U	1.4	5.7
10/18/2004 9:45	EFFLUENT	BNA-Water	beta-BHC	1.4	ug/L	U	1.4	5.7
10/18/2004 9:45	EFFLUENT	BNA-Water	delta-BHC	1.4	ug/L	U	1.4	5.7
10/18/2004 9:45	EFFLUENT	BNA-Water	gamma-BHC	1.4	ug/L	U	1.4	5.7
10/18/2004 12:00	BLANK	BNA-Water	1,2,4-Trichlorobenzene	0.95	ug/L	U	0.95	3.8
10/18/2004 12:00	BLANK	BNA-Water	1,2-Dichlorobenzene	0.95	ug/L	U	0.95	3.8
10/18/2004 12:00	BLANK	BNA-Water	1,3-Dichlorobenzene	0.95	ug/L	U	0.95	3.8
10/18/2004 12:00	BLANK	BNA-Water	1,4-Dichlorobenzene	0.95	ug/L	U	0.95	3.8
10/18/2004 12:00	BLANK	BNA-Water	2,4,6-Trichlorophenol	0.95	ug/L	U	0.95	3.8
10/18/2004 12:00	BLANK	BNA-Water	2,4-Dichlorophenol	0.95	ug/L	U	0.95	3.8
10/18/2004 12:00	BLANK	BNA-Water	2,4-Dimethylphenol	48	ug/L	U	48	190
10/18/2004 12:00	BLANK	BNA-Water	2,4-Dinitrophenol	14	ug/L	U	14	57
10/18/2004 12:00	BLANK	BNA-Water	2,4-Dinitrotoluene	0.95	ug/L	U	0.95	3.8
10/18/2004 12:00	BLANK	BNA-Water	2,6-Dinitrotoluene	0.95	ug/L	U	0.95	3.8

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
10/18/2004 12:00	BLANK	BNA-Water	2-Chloronaphthalene	0.95	ug/L	U	0.95	3.8
10/18/2004 12:00	BLANK	BNA-Water	2-Chlorophenol	0.95	ug/L	U	0.95	3.8
10/18/2004 12:00	BLANK	BNA-Water	2-Methyl-4,6-dinitrophenol	2.9	ug/L	U	2.9	11
10/18/2004 12:00	BLANK	BNA-Water	2-Nitrophenol	0.95	ug/L	U	0.95	3.8
10/18/2004 12:00	BLANK	BNA-Water	3,3'-Dichlorobenzidine	38	ug/L	U	38	150
10/18/2004 12:00	BLANK	BNA-Water	4,4'-DDD	1.4	ug/L	U	1.4	5.7
10/18/2004 12:00	BLANK	BNA-Water	4,4'-DDE	1.4	ug/L	U	1.4	5.7
10/18/2004 12:00	BLANK	BNA-Water	4,4'-DDT	1.4	ug/L	U	1.4	5.7
10/18/2004 12:00	BLANK	BNA-Water	4-Bromophenyl phenyl ether	0.95	ug/L	U	0.95	3.8
10/18/2004 12:00	BLANK	BNA-Water	4-Chloro-3-methylphenol	0.95	ug/L	U	0.95	3.8
10/18/2004 12:00	BLANK	BNA-Water	4-Chlorophenyl phenyl ether	1.9	ug/L	U	1.9	7.6
10/18/2004 12:00	BLANK	BNA-Water	4-Nitrophenol	14	ug/L	U	14	57
10/18/2004 12:00	BLANK	BNA-Water	Acenaphthene	0.95	ug/L	U	0.95	3.8
10/18/2004 12:00	BLANK	BNA-Water	Acenaphthylene	0.95	ug/L	U	0.95	3.8
10/18/2004 12:00	BLANK	BNA-Water	Aldrin	1.4	ug/L	U	1.4	5.7
10/18/2004 12:00	BLANK	BNA-Water	Anthracene	0.95	ug/L	U	0.95	3.8
10/18/2004 12:00	BLANK	BNA-Water	Benzidine	95	ug/L	U	95	380
10/18/2004 12:00	BLANK	BNA-Water	Benzo(a)anthracene	0.95	ug/L	U	0.95	3.8
10/18/2004 12:00	BLANK	BNA-Water	Benzo(a)pyrene	0.95	ug/L	U	0.95	3.8
10/18/2004 12:00	BLANK	BNA-Water	Benzo(b)fluoranthene	0.95	ug/L	U	0.95	3.8
10/18/2004 12:00	BLANK	BNA-Water	Benzo(g,h,i)perylene	0.95	ug/L	U	0.95	3.8
10/18/2004 12:00	BLANK	BNA-Water	Benzo(k)fluoranthene	0.95	ug/L	U	0.95	3.8
10/18/2004 12:00	BLANK	BNA-Water	Bis(2-chloroethoxy)methane	0.95	ug/L	U	0.95	3.8
10/18/2004 12:00	BLANK	BNA-Water	Bis(2-chloroethyl)ether	0.95	ug/L	U	0.95	3.8
10/18/2004 12:00	BLANK	BNA-Water	Bis(2-chloroisopropyl)ether	2.9	ug/L	U	2.9	11
10/18/2004 12:00	BLANK	BNA-Water	Bis(2-ethylhexyl)phthalate	14	ug/L	U	14	57
10/18/2004 12:00	BLANK	BNA-Water	Butyl benzyl phthalate	4.8	ug/L	U	4.8	19
10/18/2004 12:00	BLANK	BNA-Water	Chrysene	0.95	ug/L	U	0.95	3.8
10/18/2004 12:00	BLANK	BNA-Water	Di-n-butyl phthalate	4.8	ug/L	U	4.8	19
10/18/2004 12:00	BLANK	BNA-Water	Di-n-octyl phthalate	0.95	ug/L	U	0.95	3.8
10/18/2004 12:00	BLANK	BNA-Water	Dibenzo(a,h)anthracene	0.95	ug/L	U	0.95	3.8
10/18/2004 12:00	BLANK	BNA-Water	Dieldrin	1.4	ug/L	U	1.4	5.7
10/18/2004 12:00	BLANK	BNA-Water	Diethyl phthalate	0.95	ug/L	U	0.95	3.8
10/18/2004 12:00	BLANK	BNA-Water	Dimethyl phthalate	48	ug/L	U	48	190
10/18/2004 12:00	BLANK	BNA-Water	Endosulfan I	3.8	ug/L	U	3.8	15
10/18/2004 12:00	BLANK	BNA-Water	Endosulfan II	3.8	ug/L	U	3.8	15
10/18/2004 12:00	BLANK	BNA-Water	Endosulfan sulfate	1.4	ug/L	U	1.4	5.7
10/18/2004 12:00	BLANK	BNA-Water	Endrin	1.4	ug/L	U	1.4	5.7
10/18/2004 12:00	BLANK	BNA-Water	Endrin aldehyde	3.8	ug/L	U	3.8	15
10/18/2004 12:00	BLANK	BNA-Water	Fluoranthene	0.95	ug/L	U	0.95	3.8
10/18/2004 12:00	BLANK	BNA-Water	Fluorene	0.95	ug/L	U	0.95	3.8
10/18/2004 12:00	BLANK	BNA-Water	Heptachlor	1.4	ug/L	U	1.4	5.7
10/18/2004 12:00	BLANK	BNA-Water	Heptachlor epoxide	1.4	ug/L	U	1.4	5.7
10/18/2004 12:00	BLANK	BNA-Water	Hexachlorobenzene	0.95	ug/L	U	0.95	3.8
10/18/2004 12:00	BLANK	BNA-Water	Hexachlorobutadiene	2.9	ug/L	U	2.9	11
10/18/2004 12:00	BLANK	BNA-Water	Hexachlorocyclopentadiene	2.9	ug/L	UJ	2.9	11
10/18/2004 12:00	BLANK	BNA-Water	Hexachloroethane	2.9	ug/L	U	2.9	11
10/18/2004 12:00	BLANK	BNA-Water	Indeno(1,2,3-cd)pyrene	0.95	ug/L	U	0.95	3.8

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
10/18/2004 12:00	BLANK	BNA-Water	Isophorone	0.95	ug/L	U	0.95	3.8
10/18/2004 12:00	BLANK	BNA-Water	N-Nitrosodi-n-propylamine	1.9	ug/L	U	1.9	7.6
10/18/2004 12:00	BLANK	BNA-Water	N-Nitrosodimethylamine	1.9	ug/L	U	1.9	7.6
10/18/2004 12:00	BLANK	BNA-Water	N-Nitrosodiphenylamine	2.9	ug/L	U	2.9	11
10/18/2004 12:00	BLANK	BNA-Water	Naphthalene	0.95	ug/L	U	0.95	3.8
10/18/2004 12:00	BLANK	BNA-Water	Nitrobenzene	1.9	ug/L	U	1.9	7.6
10/18/2004 12:00	BLANK	BNA-Water	Pentachlorophenol	2.9	ug/L	U	2.9	11
10/18/2004 12:00	BLANK	BNA-Water	Phenanthrene	0.95	ug/L	U	0.95	3.8
10/18/2004 12:00	BLANK	BNA-Water	Phenol	0.95	ug/L	U	0.95	3.8
10/18/2004 12:00	BLANK	BNA-Water	Pyrene	0.95	ug/L	U	0.95	3.8
10/18/2004 12:00	BLANK	BNA-Water	alpha-BHC	1.4	ug/L	U	1.4	5.7
10/18/2004 12:00	BLANK	BNA-Water	beta-BHC	1.4	ug/L	U	1.4	5.7
10/18/2004 12:00	BLANK	BNA-Water	delta-BHC	1.4	ug/L	U	1.4	5.7
10/18/2004 12:00	BLANK	BNA-Water	gamma-BHC	1.4	ug/L	U	1.4	5.7
10/18/2004 9:45	EFFLUENT	GC-Water	Alachlor	0.6	ug/L	U	0.6	2.4
10/18/2004 9:45	EFFLUENT	GC-Water	Ametryn	0.05	ug/L	U	0.05	0.2
10/18/2004 9:45	EFFLUENT	GC-Water	Atrazine	0.05	ug/L	U	0.05	0.2
10/18/2004 9:45	EFFLUENT	GC-Water	Azinphos Methyl	0.05	ug/L	U	0.05	0.2
10/18/2004 9:45	EFFLUENT	GC-Water	Bromacil	0.2	ug/L	U	0.2	0.8
10/18/2004 9:45	EFFLUENT	GC-Water	Butylate	0.2	ug/L	U	0.2	0.8
10/18/2004 9:45	EFFLUENT	GC-Water	Chlorpyrifos Ethyl	0.05	ug/L	U	0.05	0.2
10/18/2004 9:45	EFFLUENT	GC-Water	Chlorpyrifos Methyl	0.1	ug/L	U	0.1	0.4
10/18/2004 9:45	EFFLUENT	GC-Water	Diazinon	0.05	ug/L	U	0.05	0.2
10/18/2004 9:45	EFFLUENT	GC-Water	Ethion	0.05	ug/L	U	0.05	0.2
10/18/2004 9:45	EFFLUENT	GC-Water	Ethoprop	0.1	ug/L	U	0.1	0.4
10/18/2004 9:45	EFFLUENT	GC-Water	Fenamiphos	0.2	ug/L	U	0.2	0.8
10/18/2004 9:45	EFFLUENT	GC-Water	Fonofos	0.1	ug/L	U	0.1	0.4
10/18/2004 9:45	EFFLUENT	GC-Water	Hexazinone	0.1	ug/L	U	0.1	0.4
10/18/2004 9:45	EFFLUENT	GC-Water	Malathion	0.15	ug/L	U	0.15	0.6
10/18/2004 9:45	EFFLUENT	GC-Water	Metalaxyl	0.25	ug/L	U	0.25	1
10/18/2004 9:45	EFFLUENT	GC-Water	Metolachlor	0.5	ug/L	U	0.5	2
10/18/2004 9:45	EFFLUENT	GC-Water	Metribuzin	0.1	ug/L	U	0.1	0.4
10/18/2004 9:45	EFFLUENT	GC-Water	Mevinphos	0.2	ug/L	U	0.2	0.8
10/18/2004 9:45	EFFLUENT	GC-Water	Naled	0.8	ug/L	UJ	0.8	3.2
10/18/2004 9:45	EFFLUENT	GC-Water	Norflurazon	0.1	ug/L	U	0.1	0.4
10/18/2004 9:45	EFFLUENT	GC-Water	Parathion Ethyl	0.15	ug/L	UJ	0.15	0.6
10/18/2004 9:45	EFFLUENT	GC-Water	Parathion Methyl	0.1	ug/L	U	0.1	0.4
10/18/2004 9:45	EFFLUENT	GC-Water	Phorate	0.05	ug/L	U	0.05	0.2
10/18/2004 9:45	EFFLUENT	GC-Water	Prometryn	0.15	ug/L	U	0.15	0.6
10/18/2004 9:45	EFFLUENT	GC-Water	Simazine	0.05	ug/L	U	0.05	0.2
10/18/2004 12:00	BLANK	GC-Water	Alachlor	0.57	ug/L	U	0.57	2.3
10/18/2004 12:00	BLANK	GC-Water	Ametryn	0.048	ug/L	U	0.048	0.19
10/18/2004 12:00	BLANK	GC-Water	Atrazine	0.048	ug/L	U	0.048	0.19
10/18/2004 12:00	BLANK	GC-Water	Azinphos Methyl	0.048	ug/L	U	0.048	0.19
10/18/2004 12:00	BLANK	GC-Water	Bromacil	0.19	ug/L	U	0.19	0.76
10/18/2004 12:00	BLANK	GC-Water	Butylate	0.19	ug/L	U	0.19	0.76
10/18/2004 12:00	BLANK	GC-Water	Chlorpyrifos Ethyl	0.048	ug/L	U	0.048	0.19
10/18/2004 12:00	BLANK	GC-Water	Chlorpyrifos Methyl	0.095	ug/L	U	0.095	0.38

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
10/18/2004 12:00	BLANK	GC-Water	Diazinon	0.048	ug/L	U	0.048	0.19
10/18/2004 12:00	BLANK	GC-Water	Ethion	0.048	ug/L	U	0.048	0.19
10/18/2004 12:00	BLANK	GC-Water	Ethoprop	0.095	ug/L	U	0.095	0.38
10/18/2004 12:00	BLANK	GC-Water	Fenamiphos	0.19	ug/L	U	0.19	0.76
10/18/2004 12:00	BLANK	GC-Water	Fonofos	0.095	ug/L	U	0.095	0.38
10/18/2004 12:00	BLANK	GC-Water	Hexazinone	0.095	ug/L	U	0.095	0.38
10/18/2004 12:00	BLANK	GC-Water	Malathion	0.14	ug/L	U	0.14	0.56
10/18/2004 12:00	BLANK	GC-Water	Metalaxyl	0.24	ug/L	U	0.24	0.96
10/18/2004 12:00	BLANK	GC-Water	Metolachlor	0.48	ug/L	U	0.48	1.9
10/18/2004 12:00	BLANK	GC-Water	Metribuzin	0.095	ug/L	U	0.095	0.38
10/18/2004 12:00	BLANK	GC-Water	Mevinphos	0.19	ug/L	U	0.19	0.76
10/18/2004 12:00	BLANK	GC-Water	Naled	0.76	ug/L	UJ	0.76	3
10/18/2004 12:00	BLANK	GC-Water	Norflurazon	0.095	ug/L	U	0.095	0.38
10/18/2004 12:00	BLANK	GC-Water	Parathion Ethyl	0.14	ug/L	UJ	0.14	0.56
10/18/2004 12:00	BLANK	GC-Water	Parathion Methyl	0.095	ug/L	U	0.095	0.38
10/18/2004 12:00	BLANK	GC-Water	Phorate	0.048	ug/L	U	0.048	0.19
10/18/2004 12:00	BLANK	GC-Water	Prometryn	0.14	ug/L	U	0.14	0.56
10/18/2004 12:00	BLANK	GC-Water	Simazine	0.048	ug/L	U	0.048	0.19
10/18/2004 9:45	DOWNSTREAM	Metals-Water	Aluminum	375	ug/L		5	20
10/18/2004 9:45	DOWNSTREAM	Metals-Water	Arsenic	6	ug/L	U	6	24
10/18/2004 9:45	DOWNSTREAM	Metals-Water	Cadmium	0.075	ug/L	U	0.075	0.3
10/18/2004 9:45	DOWNSTREAM	Metals-Water	Calcium	37.1	mg/L		0.05	0.2
10/18/2004 9:45	DOWNSTREAM	Metals-Water	Chromium	2	ug/L	U	2	8
10/18/2004 9:45	DOWNSTREAM	Metals-Water	Copper	3.7	ug/L		0.75	3
10/18/2004 9:45	DOWNSTREAM	Metals-Water	Iron	1,310	ug/L		10	40
10/18/2004 9:45	DOWNSTREAM	Metals-Water	Lead	0.56	ug/L		0.075	0.3
10/18/2004 9:45	DOWNSTREAM	Metals-Water	Magnesium	3.9	mg/L		0.02	0.08
10/18/2004 9:45	DOWNSTREAM	Metals-Water	Nickel	2	ug/L	U	2	8
10/18/2004 9:45	DOWNSTREAM	Metals-Water	Selenium	0.5	ug/L	U	0.5	2
10/18/2004 9:45	DOWNSTREAM	Metals-Water	Silver	0.02	ug/L	U	0.02	0.08
10/18/2004 9:45	DOWNSTREAM	Metals-Water	Zinc	50	ug/L		3	12
10/18/2004 9:45	EFFLUENT	Metals-Water	Aluminum	503	ug/L		5	20
10/18/2004 9:45	EFFLUENT	Metals-Water	Arsenic	6	ug/L	U	6	24
10/18/2004 9:45	EFFLUENT	Metals-Water	Cadmium	0.23	ug/L	I	0.075	0.3
10/18/2004 9:45	EFFLUENT	Metals-Water	Calcium	210	mg/L		0.1	0.4
10/18/2004 9:45	EFFLUENT	Metals-Water	Chromium	13.8	ug/L		2	8
10/18/2004 9:45	EFFLUENT	Metals-Water	Copper	80.6	ug/L		0.75	3
10/18/2004 9:45	EFFLUENT	Metals-Water	Iron	4,780	ug/L		10	40
10/18/2004 9:45	EFFLUENT	Metals-Water	Lead	2.8	ug/L		0.075	0.3
10/18/2004 9:45	EFFLUENT	Metals-Water	Magnesium	54.1	mg/L		0.02	0.08
10/18/2004 9:45	EFFLUENT	Metals-Water	Nickel	5.7	ug/L	I	2	8
10/18/2004 9:45	EFFLUENT	Metals-Water	Selenium	1.8	ug/L	I	0.5	2
10/18/2004 9:45	EFFLUENT	Metals-Water	Silver	0.035	ug/L	I	0.02	0.08
10/18/2004 9:45	EFFLUENT	Metals-Water	Zinc	1,260	ug/L		3	12
10/18/2004 10:00	UPSTREAM	Metals-Water	Aluminum	275	ug/L		5	20
10/18/2004 10:00	UPSTREAM	Metals-Water	Arsenic	6	ug/L	U	6	24
10/18/2004 10:00	UPSTREAM	Metals-Water	Cadmium	0.075	ug/L	U	0.075	0.3
10/18/2004 10:00	UPSTREAM	Metals-Water	Calcium	34.6	mg/L		0.05	0.2

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
10/18/2004 10:00	UPSTREAM	Metals-Water	Chromium	2	ug/L	U	2	8
10/18/2004 10:00	UPSTREAM	Metals-Water	Copper	0.75	ug/L	U	0.75	3
10/18/2004 10:00	UPSTREAM	Metals-Water	Iron	1,060	ug/L		10	40
10/18/2004 10:00	UPSTREAM	Metals-Water	Lead	0.35	ug/L		0.075	0.3
10/18/2004 10:00	UPSTREAM	Metals-Water	Magnesium	3.3	mg/L		0.02	0.08
10/18/2004 10:00	UPSTREAM	Metals-Water	Nickel	2	ug/L	U	2	8
10/18/2004 10:00	UPSTREAM	Metals-Water	Selenium	0.5	ug/L	U	0.5	2
10/18/2004 10:00	UPSTREAM	Metals-Water	Silver	0.02	ug/L	U	0.02	0.08
10/18/2004 10:00	UPSTREAM	Metals-Water	Zinc	3.9	ug/L	I	3	12
10/18/2004 12:00	BLANK	Metals-Water	Aluminum	5	ug/L	U	5	20
10/18/2004 12:00	BLANK	Metals-Water	Arsenic	6	ug/L	U	6	24
10/18/2004 12:00	BLANK	Metals-Water	Cadmium	0.075	ug/L	U	0.075	0.3
10/18/2004 12:00	BLANK	Metals-Water	Calcium	0.05	mg/L	U	0.05	0.2
10/18/2004 12:00	BLANK	Metals-Water	Chromium	2	ug/L	U	2	8
10/18/2004 12:00	BLANK	Metals-Water	Copper	0.75	ug/L	U	0.75	3
10/18/2004 12:00	BLANK	Metals-Water	Iron	10	ug/L	U	10	40
10/18/2004 12:00	BLANK	Metals-Water	Lead	0.075	ug/L	U	0.075	0.3
10/18/2004 12:00	BLANK	Metals-Water	Magnesium	0.02	mg/L	U	0.02	0.08
10/18/2004 12:00	BLANK	Metals-Water	Nickel	2	ug/L	U	2	8
10/18/2004 12:00	BLANK	Metals-Water	Selenium	0.5	ug/L	U	0.5	2
10/18/2004 12:00	BLANK	Metals-Water	Silver	0.02	ug/L	U	0.02	0.08
10/18/2004 12:00	BLANK	Metals-Water	Zinc	3	ug/L	U	3	12
10/18/2004 9:45	DOWNSTREAM	Nutrients-Liquid	Ammonia-N	0.086	mg N/L	Y	0.01	0.02
10/18/2004 9:45	DOWNSTREAM	Nutrients-Liquid	Color	250	PCU	Y	25	25
10/18/2004 9:45	DOWNSTREAM	Nutrients-Liquid	Kjeldahl Nitrogen	3	mg N/L	Y	0.06	0.2
10/18/2004 9:45	DOWNSTREAM	Nutrients-Liquid	NO2NO3-N	0.18	mg N/L	Y	0.004	0.01
10/18/2004 9:45	DOWNSTREAM	Nutrients-Liquid	O-Phosphate-P	0.075	mg P/L	Y	0.004	0.01
10/18/2004 9:45	DOWNSTREAM	Nutrients-Liquid	Organic Carbon	26	mg C/L	Y	1	5
10/18/2004 9:45	DOWNSTREAM	Nutrients-Liquid	TSS	34	mg/L		4	16
10/18/2004 9:45	DOWNSTREAM	Nutrients-Liquid	Total-P	0.53	mg P/L	Y	0.02	0.06
10/18/2004 9:45	DOWNSTREAM	Nutrients-Liquid	Turbidity	5.4	NTU	Y	0.05	0.05
10/18/2004 9:45	EFFLUENT	Nutrients-Liquid	Ammonia-N	3.6	mg N/L	AY	0.2	0.4
10/18/2004 9:45	EFFLUENT	Nutrients-Liquid	Color	500	PCU	Y	50	50
10/18/2004 9:45	EFFLUENT	Nutrients-Liquid	Kjeldahl Nitrogen	75	mg N/L	YJ	3	10
10/18/2004 9:45	EFFLUENT	Nutrients-Liquid	NO2NO3-N	15	mg N/L	AY	0.4	1
10/18/2004 9:45	EFFLUENT	Nutrients-Liquid	O-Phosphate-P	1.6	mg P/L	Y	0.04	0.1
10/18/2004 9:45	EFFLUENT	Nutrients-Liquid	Organic Carbon	29	mg C/L	AY	1	5
10/18/2004 9:45	EFFLUENT	Nutrients-Liquid	TSS	600	mg/L		20	80
10/18/2004 9:45	EFFLUENT	Nutrients-Liquid	Total-P	15	mg P/L	YJ	1	3
10/18/2004 9:45	EFFLUENT	Nutrients-Liquid	Turbidity	260	NTU	YQ	0.5	0.5
10/18/2004 10:00	UPSTREAM	Nutrients-Liquid	Ammonia-N	0.042	mg N/L	Y	0.01	0.02
10/18/2004 10:00	UPSTREAM	Nutrients-Liquid	Color	200	PCU	Y	25	25
10/18/2004 10:00	UPSTREAM	Nutrients-Liquid	Kjeldahl Nitrogen	0.97	mg N/L	Y	0.06	0.2
10/18/2004 10:00	UPSTREAM	Nutrients-Liquid	NO2NO3-N	0.037	mg N/L	Y	0.004	0.01
10/18/2004 10:00	UPSTREAM	Nutrients-Liquid	O-Phosphate-P	0.044	mg P/L	Y	0.004	0.01
10/18/2004 10:00	UPSTREAM	Nutrients-Liquid	Organic Carbon	28	mg C/L	Y	1	5
10/18/2004 10:00	UPSTREAM	Nutrients-Liquid	TSS	4	mg/L	U	4	16
10/18/2004 10:00	UPSTREAM	Nutrients-Liquid	Total-P	0.099	mg P/L	Y	0.02	0.06

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
10/18/2004 10:00	UPSTREAM	Nutrients-Liquid	Turbidity	2.2	NTU	Y	0.05	0.05
10/18/2004 12:00	BLANK	Nutrients-Liquid	Ammonia-N	0.01	mg N/L	UY	0.01	0.02
10/18/2004 12:00	BLANK	Nutrients-Liquid	Kjeldahl Nitrogen	0.06	mg N/L	UY	0.06	0.2
10/18/2004 12:00	BLANK	Nutrients-Liquid	NO2NO3-N	0.15	mg N/L	Y	0.004	0.01
10/18/2004 12:00	BLANK	Nutrients-Liquid	O-Phosphate-P	0.004	mg P/L	UY	0.004	0.01
10/18/2004 12:00	BLANK	Nutrients-Liquid	Total-P	0.02	mg P/L	UY	0.02	0.06
10/18/2004 9:45	DOWNSTREAM	Overflow	Oil and Grease	2.8	mg/L	IY		
10/18/2004 9:45	EFFLUENT	Overflow	MBAS	0.13	mg/L	JY		
10/18/2004 9:45	EFFLUENT	Overflow	Oil and Grease	11	mg/L	Y		
10/18/2004 10:00	UPSTREAM	Overflow	Oil and Grease	0.69	mg/L	UY		
10/18/2004 12:00	BLANK	Overflow	Oil and Grease	1.2	mg/L	IY		
10/18/2004 9:45	EFFLUENT	VOC-Water	Bromodichloromethane	44	ug/L		0.2	1
10/18/2004 9:45	EFFLUENT	VOC-Water	Bromoform	18	ug/L		0.5	2
10/18/2004 9:45	EFFLUENT	VOC-Water	Bromomethane	2.8	ug/L		0.5	2
10/18/2004 9:45	EFFLUENT	VOC-Water	Chloroethane	1.8	ug/L	I	0.5	2
10/18/2004 9:45	EFFLUENT	VOC-Water	Chloroform	59	ug/L		0.2	1
10/18/2004 9:45	EFFLUENT	VOC-Water	Chloromethane	27	ug/L		0.5	2
10/18/2004 9:45	EFFLUENT	VOC-Water	Dibromochloromethane	50	ug/L		0.2	1
10/18/2004 9:45	EFFLUENT	VOC-Water	Methylene chloride	2.1	ug/L		0.5	2
10/18/2004 12:00	BLANK	VOC-Water	1,1,1-Trichloroethane	0.2	ug/L	U	0.2	1
10/18/2004 12:00	BLANK	VOC-Water	1,1,2,2-Tetrachloroethane	0.2	ug/L	U	0.2	1
10/18/2004 12:00	BLANK	VOC-Water	1,1,2-Trichloroethane	0.2	ug/L	U	0.2	1
10/18/2004 12:00	BLANK	VOC-Water	1,1-Dichloroethane	0.2	ug/L	U	0.2	1
10/18/2004 12:00	BLANK	VOC-Water	1,1-Dichloroethene	0.2	ug/L	U	0.2	1
10/18/2004 12:00	BLANK	VOC-Water	1,2-Dichlorobenzene	0.2	ug/L	U	0.2	1
10/18/2004 12:00	BLANK	VOC-Water	1,2-Dichloroethane	0.2	ug/L	U	0.2	1
10/18/2004 12:00	BLANK	VOC-Water	1,2-Dichloropropane	0.2	ug/L	U	0.2	1
10/18/2004 12:00	BLANK	VOC-Water	1,3-Dichlorobenzene	0.2	ug/L	U	0.2	1
10/18/2004 12:00	BLANK	VOC-Water	1,4-Dichlorobenzene	0.2	ug/L	U	0.2	1
10/18/2004 12:00	BLANK	VOC-Water	2-Butanone	5	ug/L	U	5	20
10/18/2004 12:00	BLANK	VOC-Water	2-Chloroethylvinyl ether	0.5	ug/L	U	0.5	2
10/18/2004 12:00	BLANK	VOC-Water	2-Hexanone	5	ug/L	U	5	20
10/18/2004 12:00	BLANK	VOC-Water	4-Methyl-2-Pentanone	5	ug/L	U	5	20
10/18/2004 12:00	BLANK	VOC-Water	Acetone	5	ug/L	U	5	20
10/18/2004 12:00	BLANK	VOC-Water	Benzene	0.5	ug/L	U	0.5	1
10/18/2004 12:00	BLANK	VOC-Water	Bromodichloromethane	0.2	ug/L	U	0.2	1
10/18/2004 12:00	BLANK	VOC-Water	Bromoform	0.5	ug/L	U	0.5	2
10/18/2004 12:00	BLANK	VOC-Water	Bromomethane	0.5	ug/L	U	0.5	2
10/18/2004 12:00	BLANK	VOC-Water	Carbon disulfide	0.5	ug/L	U	0.5	2
10/18/2004 12:00	BLANK	VOC-Water	Carbon tetrachloride	0.2	ug/L	U	0.2	1
10/18/2004 12:00	BLANK	VOC-Water	Chlorobenzene	0.2	ug/L	U	0.2	1
10/18/2004 12:00	BLANK	VOC-Water	Chloroethane	0.5	ug/L	U	0.5	2
10/18/2004 12:00	BLANK	VOC-Water	Chloroform	0.2	ug/L	U	0.2	1
10/18/2004 12:00	BLANK	VOC-Water	Chloromethane	0.5	ug/L	U	0.5	2
10/18/2004 12:00	BLANK	VOC-Water	Dibromochloromethane	0.2	ug/L	U	0.2	1
10/18/2004 12:00	BLANK	VOC-Water	Ethylbenzene	0.5	ug/L	U	0.5	2
10/18/2004 12:00	BLANK	VOC-Water	Methyl-t-butyl ether	0.5	ug/L	U	0.5	2
10/18/2004 12:00	BLANK	VOC-Water	Methylene chloride	0.5	ug/L	U	0.5	2

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
10/18/2004 12:00	BLANK	VOC-Water	Styrene	0.5	ug/L	U	0.5	2
10/18/2004 12:00	BLANK	VOC-Water	Tetrachloroethene	0.2	ug/L	U	0.2	1
10/18/2004 12:00	BLANK	VOC-Water	Toluene	0.5	ug/L	U	0.5	2
10/18/2004 12:00	BLANK	VOC-Water	Trichloroethene	0.5	ug/L	U	0.5	2
10/18/2004 12:00	BLANK	VOC-Water	Trichlorofluoromethane	0.5	ug/L	U	0.5	2
10/18/2004 12:00	BLANK	VOC-Water	Vinyl chloride	0.5	ug/L	U	0.5	2
10/18/2004 12:00	BLANK	VOC-Water	cis-1,2-Dichloroethene	0.5	ug/L	U	0.5	2
10/18/2004 12:00	BLANK	VOC-Water	cis-1,3-Dichloropropene	0.5	ug/L	U	0.5	2
10/18/2004 12:00	BLANK	VOC-Water	m,p-Xylene	0.5	ug/L	U	0.5	2
10/18/2004 12:00	BLANK	VOC-Water	o-Chlorotoluene	0.5	ug/L	U	0.5	2
10/18/2004 12:00	BLANK	VOC-Water	o-Xylene	0.5	ug/L	U	0.5	2
10/18/2004 12:00	BLANK	VOC-Water	trans-1,2-Dichloroethene	0.5	ug/L	U	0.5	2
10/18/2004 12:00	BLANK	VOC-Water	trans-1,3-Dichloropropene	0.2	ug/L	U	0.2	1

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
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	**0.97**
Total Ammonia	0.02	0.02	**0.04**	0.05	0.06	0.08	0.11	0.14	0.20	0.34	0.60	**0.042**
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	**0.099**
Orthophosphate	0.01	0.01	0.03	**0.04**	0.05	0.08	0.11	0.17	0.27	0.59	1.37	**0.044**
Turbidity (NTU)	0.60	0.90	1.20	1.45	**2.10**	2.80	3.60	4.50	6.65	10.45	16.30	**2.2**

TEST SITE

Parameter	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	95%	Measured
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**	**3**
Total Ammonia	0.02	0.02	0.04	0.05	0.06	**0.08**	0.11	0.14	0.20	0.34	0.60	**0.086**
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	**0.18**
Total Phosphorus	0.02	0.03	0.05	0.06	0.10	0.13	0.18	0.25	**0.39**	0.74	1.51	**0.53**
Orthophosphate	0.01	0.01	0.03	0.04	**0.05**	0.08	0.11	0.17	0.27	0.59	1.37	**0.075**
Turbidity (NTU)	0.60	0.90	1.20	1.45	2.10	2.80	3.60	**4.50**	6.65	10.45	16.30	**5.4**

NTU = Nephelometric turbidity units. Adapted from Joe Hand, FDER, personal communication, 1991 (data collected 1980-1989).

Appendix 6

Additional physical, chemical, toxicological and microbiological results

FDEP Biology Section - Acute Bioassay Bench Sheets

Facility: Clabrook Farm / Gator Jungle WTF
Address: 2620S State Road 50
City: Christmas County: Orange
Contact/District: Phil Kane / Central
NPDES Permit #: FL0043397
LIMS Job #: TLH-2004-10-19-01 LIMS Sample #: 7888555

Sample Collection: Date: 10/18/04 Time: 1400
Hold Time Start: Date: 10/18/04 Time: 1400

Comments: (A) field chlorine 70.05mg/L pH, Field sheet, looked at incorrect field sheet, MF 10-20-04

Lims Data Entry: 10-21-04 MF
Instructions (for below): Circle appropriate wording. If yes is circled complete blanks.
Test Type: Screen
(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:
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 ____

Data Entry Verification: 10/21/04 DN
SOP# TA07021.02
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

Temperature Range °C
Incubator # 3 Range 24.2 - 24.7
Room B246: 23.8°C - 24.2°C
Waterbath: NA

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)

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	—	~~Lab Analysis~~ (A)	MF	MF
Lab Total Residual Cl2 (mg/L):	<0.03	<0.03				<0.03	HACH	DP	DN
Alkalinity (mg/L as $CaCO_3$):	87	151				94	HACH	DN	DP
Hardness (mg/L as $CaCO_3$):	92	131				145	HACH	DN	DP
Total Ammonia (mg/L as N):	<0.017	<0.017				0.235	DENVER	MF	DN
Salinity (ppth):	<1	<1				<1	YSI (Mettler)	MF	DN

Investigators' Signatures
Darin Nicholson
Mandell Faircloth
Mark Wetherington
Paul Pinheiro
Jenna Dowd
Mark Wetherington

REVIEWER

V.3 10/12/04

Page 1

FDEP Biology Section - - Bioassay Bench Sheet
Survival

LIMS Sample #: 788555 Test #: 1 Test Started: Date 10/19/04 Time: 1500
Organism: C. dubia Test Ended: Date 10-21-04 Time: 1400
Organism Batch: 39 Diluent/ Batch: 20/30/0 DMW (A) MF / 37
Organism Age: <24hr Food: (YCT) (P. subcapitata) Artemia
Chamber Size 30 mL Batch: 5 34
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			
Organisms loaded by: MF Loading Verified by: JD		Checked by: (initials)	JD	JD	MF			

Comments: (A) Stray mark Well 2 look like 3. MF 10-19-04

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 #: 788555 Test #: 2

Test Started: Date 10/19/04 Time: 1545

Organism: C. leedsi

Test Ended: Date 10/19/04 (21) Time: 1400 correct date MF - 10-21-04

Organism Batch: 25

Diluent/ Batch: Well / N/A

Organism Age: 13 days

Food: YCT P. subcapitata (Artemia)

Batch: — — 04125425G

Chamber Size 1000 mL

Test Volume 500 mL

Feeding (Prior to test) - Prior to renewal - Daily

Concentration	Replicate	Chamber #	0 hr	24 hr	48 hr BR	48 hr AR	72 hr	96 hr
CTRL	A	G1	5	5	5			
	B	G2	5	5	5			
	C	G3	5	5	5			
	D	G4	5	5	5			
100%	A	G5	5	5	5			
	B	G6	5	5	5			
	C	G7	5	5	5			
	D	G8	5	5	5			
Organisms loaded by: MF (A) JD		Checked by: (initials)	NKW	JD	JD			

Loading Verified by: NKW

Comments: (A) initials on incorrect test MF 10-19-04

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

Bioassay Parameters

LIMS Sample # : 788555 **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		A			
pH (S.U.)	8.1		7.9			
Temperature °C	25.3		24.5			
Dissolved Oxygen mg/L	7.4		8.2			
Conductivity (µmhos / mmhos)	209		215			
(initials) Measured by:	JD		MF			
(initials) Recorded by:	JD		MF			

Comments:

Concentration 100%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A		A			
pH (S.U.)	8.1		8.2			
Temperature °C	24.7		24.3			
Dissolved Oxygen mg/L	7.7		8.1			
Conductivity (µmhos / mmhos)	528		590			
(initials) Measured by:	JD		MF			
(initials) Recorded by:	JD		MF			

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:

V.1 2/24/04

Bioassay Parameters

LIMS Sample # : 788555 **Test # :** 2 of 2

TEST SOP: TA07_ 02 **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	C			
pH (S.U.)	8.1	8.2	8.3			
Temperature °C	24.7	24.1	24.2			
Dissolved Oxygen mg/L	8.7	7.4	6.7			
Conductivity (µmhos) mmhos	284	285	305			
(initials) Measured by:	JD	DN	JD			
(initials) Recorded by:	JD	DN	JD			

Comments:

Concentration 100%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C			
pH (S.U.)	7.6	8.0	8.1			
Temperature °C	25.2	24.0	24.3			
Dissolved Oxygen mg/L	~~4.2~~ 8.1④	7.4	6.8			
Conductivity (µmhos) mmhos	528	533	560			
(initials) Measured by:	JD	DN	JD			
(initials) Recorded by:	JD	DN	JD			

Comments: ④ D.O. meter Transcription error JD

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:

V.1 2/24/04

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

CENTRAL DISTRICT

3319 Maguire Boulevard Suite 232

Orlando, FL 32803-3767

Phone 407-894-7555

NELAC Certification no. E33863

LABORATORY ANALYSIS REPORT

Report Date: November 5, 2004
Subject: Gator Jungle/Clabrook Farms
Document no. CD-04-10-15

To: Dr Phil Kane
FDEP Central District
3319 Maguire Boulevard Suite 232
Orlando, FL. 32803-3767
From: Donald P. Smith

Sample Site **Upstream of pipe (effluent) at unnamed ditch**
Sample Date: October 18, 2004
Collected by: Dr Phil Kane

Fecal Coliform Analytical Method: SM9222d

Laboratory no:	19640fc	Field ID:	gator
Sample Time:	10/18/04 10:00	Analysis Start:	10/18/04 15:40
Sample Hold Time:	5hr 40min	Batch no:	tc02-42
Analysis Result:	210 Units:	Colonies/100ml	Result Code

Note:

CBOD Analytical Method: SM5210b

Laboratory no:	19640cbod	Field ID:	gator
Sample Time:	10/18/04 10:00	Analysis Start:	10/19/04 15:45
Sample Hold Time:	29hr 45min	Batch no:	bo01-288
Analysis Result:	0.7 Units:	mg/L	Results Code: U

Note:

Report Date: November 5, 2004
Subject: Gator Jungle/Clabrook Farms
Document no. CD-04-10-15
To: Dr Phil Kane
Continued

TSS Analytical Method: EPA 160.2

Laboratory no:	19640tss	Field ID:	gator
Sample Time:	10/18/04 10:00	Analysis Start:	10/21/04 11:50
Sample Hold Time:	73hrs 50min	Batch no:	tr02-46
Analysis Result:	3.1 Units:	mg/L	Result Code I

Note:

Codes
A - Value reported is the mean of two or more determinations.
B - Results based on colony counts outside of the acceptable range.
I - The reported value is between the laboratory method detection limit and the laboratory practcal quantitation limit.
J - Estimated value.
L - Actual value is known to be greater than the value given.
Q - Sample held beyond normal holding time.
U - Material was analyzed for but not detected. The value reported is the minimum detection limit.
Z - Colonies were too numerous to count (TNTC).

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

CENTRAL DISTRICT

3319 Maguire Boulevard Suite 232

Orlando, FL 32803-3767

Phone 407-894-7555

NELAC Certification no. E33863

LABORATORY ANALYSIS REPORT

Report Date:	November 5, 2004
Subject:	Gator Jungle/Clabrook Farms
Document no.	CD-04-10-12
To:	Dr Phil Kane FDEP Central District 3319 Maguire Boulevard Suite 232 Orlando, FL. 32803-3767
From:	Donald P. Smith
Sample Site	Effluent at unnamed ditch pipe D002
Sample Date:	October 18, 2004
Collected by:	Dr Phil Kane

Fecal Coliform Analytical Method: SM9222d

Laboratory no:	19637fc		Field ID:	gator
Sample Time:	10/18/04 10:20		Analysis Start:	10/18/04 15:40
Sample Hold Time:	5hr 20min		Batch no:	tc02-42
Analysis Result:	4600	Units:	Colonies/100ml	Result Code

Note:

CBOD Analytical Method: SM5210b

Laboratory no:	19637cbdo		Field ID:	gator
Sample Time:	10/18/04 10:20		Analysis Start:	10/19/04 15:45
Sample Hold Time:	29hr 25min		Batch no:	bo01-288
Analysis Result:	6.9	Units:	mg/L	Results Code:

Note:

Report Date:	November 5, 2004
Subject:	Gator Jungle/Clabrook Farms
Document no.	CD-04-10-12
To:	Dr Phil Kane
Continued	

TSS			Analytical Method:	EPA 160.2
Laboratory no:	19637tss		Field ID:	gator
Sample Time:	10/18/04 10:20		Analysis Start:	10/21/04 11:50
Sample Hold Time:	73hrs 30min		Batch no:	tr02-46
Analysis Result:	10.8	Units:	mg/L	Result Code
Note:	First result of duplicate analysis reported.			

Codes
A - Value reported is the mean of two or more determinations.
B - Results based on colony counts outside of the acceptable range.
I - The reported value is between the laboratory method detection limit and the laboratory practcal quantitation limit.
J - Estimated value.
L - Actual value is known to be greater than the value given.
Q - Sample held beyond normal holding time.
U - Material was analyzed for but not detected. The value reported is the minimum detection limit.
Z - Colonies were too numerous to count (TNTC).

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

CENTRAL DISTRICT

3319 Maguire Boulevard Suite 232

Orlando, FL 32803-3767

Phone 407-894-7555

NELAC Certification no. E33863

LABORATORY ANALYSIS REPORT

Report Date: November 5, 2004
Subject: Gator Jungle/Clabrook Farms
Document no. CD-04-10-13

To: Dr Phil Kane
FDEP Central District
3319 Maguire Boulevard Suite 232
Orlando, FL. 32803-3767
From: Donald P. Smith

Sample Site **Downstream at unnamed ditch effluent pipe area.**
Sample Date: **October 18, 2004**
Collected by: Dr Phil Kane

Fecal Coliform Analytical Method: SM9222d

Laboratory no:	19638fc		Field ID:	gator
Sample Time:	10/18/04 09:45		Analysis Start:	10/18/04 15:40
Sample Hold Time:	5hr 55min		Batch no:	tc02-42
Analysis Result:	450	Units:	Colonies/100ml	Result Code

Note:

CBOD Analytical Method: SM5210b

Laboratory no:	19638cbod		Field ID:	gator
Sample Time:	10/18/04 09:45		Analysis Start:	10/19/04 15:45
Sample Hold Time:	30hr		Batch no:	bo01-288
Analysis Result:	3.2	Units:	mg/L	Results Code:

Note:

Report Date:	November 5, 2004
Subject:	Gator Jungle/Clabrook Farms
Document no.	CD-04-10-13
To:	Dr Phil Kane
Continued	

TSS Analytical Method: EPA 160.2

Laboratory no:	19638tss	Field ID:	gator
Sample Time:	10/18/04 09:45	Analysis Start:	10/21/04 11:50
Sample Hold Time:	74hrs 5min	Batch no:	tr02-46
Analysis Result:	21.3 Units:	mg/L	Result Code

Note:

Codes

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J - Estimated value.
L - Actual value is known to be greater than the value given.
Q - Sample held beyond normal holding time.
U - Material was analyzed for but not detected. The value reported is the minimum detection limit.
Z - Colonies were too numerous to count (TNTC).

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LABORATORY ANALYSIS REPORT

Report Date:	November 5, 2004
Subject:	Gator Jungle/Clabrook Farms
Document no.	CD-04-10-14
To:	Dr Phil Kane FDEP Central District 3319 Maguire Boulevard Suite 232 Orlando, FL. 32803-3767
From:	Donald P. Smith
Sample Site	Effluent at old pool discharge
Sample Date:	October 18, 2004
Collected by:	Dr Phil Kane

Fecal Coliform Analytical Method: SM9222d

Laboratory no:	19639fc		Field ID:	gator
Sample Time:	10/18/04 11:10		Analysis Start:	10/18/04 15:40
Sample Hold Time:	4hr 30min		Batch no:	tc02-42
Analysis Result:	8000	Units:	Colonies/100ml	Result Code
Note:	First result of duplicate analysis reported.			

CBOD Analytical Method: SM5210b

Laboratory no:	19639cbod		Field ID:	gator
Sample Time:	10/18/04 11:10		Analysis Start:	10/19/04 15:45
Sample Hold Time:	28hr 35min		Batch no:	bo01-288
Analysis Result:	54.8	Units:	mg/L	Result Code
Note:				

Report Date:	November 5, 2004
Subject:	Gator Jungle/Clabrook Farms
Document no.	CD-04-10-14
To:	Dr Phil Kane
Continued	

TSS			Analytical Method:	EPA 160.2
Laboratory no:	19639tss		Field ID:	gator
Sample Time:	10/18/04 11:10		Analysis Start:	10/21/04 11:50
Sample Hold Time:	72hrs 40min		Batch no:	tr02-46
Analysis Result:	565.1	Units:	mg/L	Result Code

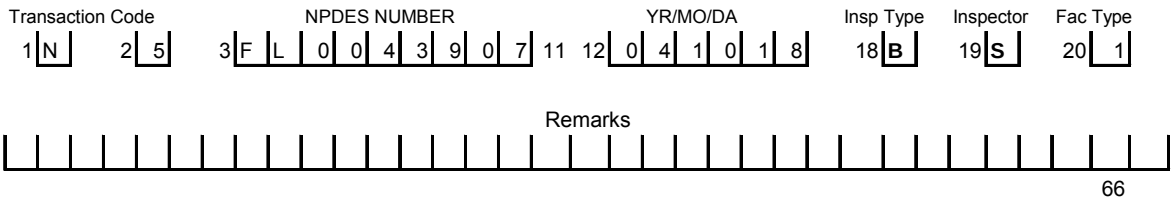
Note:

Codes

A - Value reported is the mean of two or more determinations.
B - Results based on colony counts outside of the acceptable range.
I - The reported value is between the laboratory method detection limit and the laboratory practcal quantitation limit.
J - Estimated value.
L - Actual value is known to be greater than the value given.
Q - Sample held beyond normal holding time.
U - Material was analyzed for but not detected. The value reported is the minimum detection limit.
Z - Colonies were too numerous to count (TNTC).

The Bioassay of Jungle Adventure - Clabrook Farm, Inc. IWTF effluent sampled on October 18, 2004, NPDES #FL0043907.

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



The Priority Pollutants Analysis for Bioassay of Jungle Adventure - Clabrook Farm, Inc. IWTF effluent sampled on October 18, 2004, NPDES #FL0043907.

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

