

Effluent Quality Assessment

FPL Riviera Plant

Palm Beach County

NPDES #FL0001546

Sampled October 29, 2007

January 2008

Biology Section
Bureau of Laboratories
Division of Resource Assessment and Management

Quality Manual No. 870346G
NELAC Certification No. E31780

FPL-Riviera Plant, 200-300 Broadway, Riviera Beach, Palm Beach County, Florida, NPDES #FL0001546. Effluent samples for this facility were collected on October 29, 2007.

Introduction

Florida Power and Light (FPL) Riviera Plant is an electric power generating plant that uses steam turbines to generate power. The facility has a design flow of 500 million gallons per day (MGD) annual average daily flow (AADF). The AADF from September 2006 through August 2007 was 440 MGD. The plant consists of three steam-electric power generating units (Units 2, 3 and 4) with a total name plate rating of 673 Mega-Watts. Only Unit 3 and Unit 4 are operational; Unit 2 has been taken out of service. The plant has a once-through cooling-water (OTCW) system that uses water from the Class III marine waters of the Intracoastal Waterway (segment known as Lake Worth). The OTCW and auxiliary equipment cooling water (AECW) from Unit 3 (Outfall D-013) and Unit 4 (Outfall D-014) passes a Seal Well Overflow Structure (a structure that works as a damper for the discharge) and is then discharged through a submerged pipeline approximately 609 m (~2,000 feet) in length to the Intracoastal Waterway. The pipeline is located approximately at latitude 26º 45' 52" N, longitude 80º 03' 03" W. The OTCW and AECW are intermittently chlorinated and then dechlorinated with sodium bisulfite prior to discharge. Screen-wash water from the operation of Unit 3 and Unit 4 is not treated prior to discharge.

The facility has three land application systems, R-001, R-002 and R-003, each of which consist of one unlined percolation pond. Wastewater streams generated at the facility discharge into the percolation ponds and include water treatment plant effluent (reverse osmosis concentrate, softener regeneration, and filter backwash), stack washes, boiler side cleaning, ash sluices, air pre-heater washes, boiler fireside washes, dust collector washes, metal cleaning wastewater and curbed equipment area wastewater. These wastewaters are treated by settling in two solids-settling basins which are lined with HDPE membrane liners. Wastewater from curbed equipment areas also passes through an oil separator prior to discharge into the settling basins. Wastewater from the solids settling-basins discharges to three unlined percolation ponds. Discharge from the percolation ponds is to Class G-II groundwater.

The facility has no Administrative Orders or Consent Orders. The facility has no mixing zones or toxicity testing requirements. A review of Discharge Monitoring Report (DMR) data for the past year showed no permit violations. (Facility information provided by Lisa Gatch and Patrick Pierson of FDEP Southeast District.)

Methods

Samples were collected from the combined EFF-4 and EFF-5 NPDES sampling points at the Seal Well Overflow Structure for Outfall D-013 (Unit 3) and D-014 (Unit 4) by Terry Davis (FDEP Southeast District) following DEP-SOP-001/01 FS 2400 Wastewater Sampling. All DEP SOPs are available on the web at: http://www.floridadep.org/labs/qa/sops.htm.

See Appendix A for the completed chain of custody form.

The 48-hour acute screening toxicity tests and algal growth potential test were performed following internal DEP SOPs TA07_03, TA07_04, and TA08_01 through TA08_09. All internal DEP SOPs are available on the web at: http://www.floridadep.org/labs/cgi-bin/sop/biosop.asp.

Toxicity Test Results

Tests were performed October 30 – November 1, 2007.

Americamysis bahia 48-hour acute screening bioassay –	LC_{50} > 100%, 0% mortality* in 100% sample at 48 hours

Menidia beryllina 48-hour acute screening bioassay – LC_{50} > 100%, 5% mortality* in 100% sample at 48 hours

The bioassay samples were not acutely toxic to the test organisms.

See Appendix B for bioassay bench sheets. See Appendix C for results of the last 20 standard reference toxicant (SRT) tests and the bench sheets and statistical analyses of the SRT tests that correspond to these facility tests. See Appendix D for test organism receipts.

*NOTE: In a 48-hour acute screening test of 100% effluent, mortality of <20% provides confidence that the effluent meets the acute toxicity criterion of Florida's Surface Water Quality Standards (Rule 62-302.500 (1)(a)4, F.A.C.). Mortality between 20-50% indicates low to moderate levels of toxicity, and further action may be required. Mortality of >50% indicates that the effluent fails to meet the minimum requirement to discharge to waters of the state (Rule 62-4.244(3)(a), F.A.C.).

Algal Growth Potential

The effluent Algal Growth Potential (AGP) was less than the method detection limit of 3 mg dry wt/L of the saltwater species *Dunaliella tertiolecta.* 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). Ratios of nitrogen and phosphorus could not be calculated because ortho-phosphate and total phosphorus were not detected in the effluent sample. The absence of detectable concentrations of phosphorus suggests that the effluent is phosphorus-limited (Maloney et al. 1974).

See Table 1 for AGP results

Chemistry Results

Total residual chlorine and total ammonia were not detected in the bioassay sample in the laboratory. The total ammonia concentration (0.011 mg/L) in the sample collected and preserved for chemical analysis was between the laboratory method detection limits (MDL) and the practical quantitation limits (PQL). Based on the pH, salinity, and temperature of the effluent as collected, the calculated unionized ammonia concentration was < 0.02 mg/L.

The effluent dissolved oxygen (DO) as measured in the field (3.7 mg/L) violated the DO criteria for Class III marine waters (≥ 4.0 mg/L; 62-302.530(30), F.A.C.). Arsenic was detected between the laboratory method detection limits (MDL) and practical quantitation limits (PQL).

See Table 2 for results of analytes detected in the effluent, and corresponding limits. See Appendix E for a complete list of chemical analyses performed.

Conclusion

The effluent sample collected from the combined EFF-4 and EFF-5 NPDES sampling point for Outfalls D-013 and D-014 for this facility on October 29, 2007, was not acutely toxic to either test species during the 48-hour acute screening bioassays. The effluent AGP result was less than the method detection limit and therefore less than the "problem" threshold for marine receiving waters. The effluent dissolved oxygen violated the Class III marine water quality criterion for dissolved oxygen (62-302.530(30), F.A.C.).

Literature Cited

Maloney, T. E., W. E. Miller, and D. T. Specht. 1974. The Marine Algal Assay Procedure: Bottle Test. National Environmental Research Center Office of Research and Development. U. S. EPA, Corvallis, Oregon. 43 p.

Table 1. Measured algal growth potential (AGP; mg dry weight/L) of the saltwater species *Dunaliella tertiolecta* for a sample of effluent from combined Outfalls D-013 and D-014 of the FPL - Riviera Plant, collected on October 29, 2007.

FPL - Riviera Plant				
Location	AGP (measured)		Inorganic N:P ratio	Total N:P ratio
Effluent	3	AU	ND	ND

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

U - Material was analyzed for but not detected. The value reported is the minimum detection limit.

ND - Not determined. Nutrient ratios could not be calculated because ortho-phosphate and total phosphorus concentrations were less than their respective minimum detection limit.

Table 2. Effluent limits, Class III Criteria for predominantly marine waters and chemical data for samples collected from the FPL - Riviera Plant on October 29, 2007.

FPL - Riviera Plant NPDES# FL0001546	Class III Marine Standards	Effluent Limits Outfalls D-013 and D-014	Effluent Outfalls D-013 and D-014
Organic Constituents (µg/L)			
None Detected	-	-	-
Metals (µg/L unless otherwise noted)			
Aluminum	≤ 1,500	-	180 U
Arsenic	≤ 50	-	1.6 I
Cadmium	≤ 8.8	-	0.06 U
Calcium (mg/L)	-	-	386 A
Chromium-III	-	-	3 U
Copper	≤ 3.7	-	0.75 U
Iron	≤ 300	-	90 U
Lead	≤ 8.5	-	0.6 U
Magnesium (mg/L)	-	-	1,330 A
Nickel	≤ 8.3	-	0.75 U
Selenium	≤ 71	-	1.5 U
Silver	≤ 2.3	-	0.075 U
Zinc	≤ 86	-	15 U
Nutrients (mg/L)			
Ortho-phosphate	-	-	0.008 U
Total Phosphorus	-	-	0.02 U
Total Ammonia	-	-	0.011 I
Un-ionized Ammonia	-	-	≤ 0.02 c
Nitrate and Nitrite	-	-	0.004 I
Total Kjeldahl Nitrogen	-	-	0.21 I
Organic Nitrogen	-	-	0.199 c
Total Nitrogen	-	-	0.214 c
General Physical and Chemical Parameters			
Dissolved Oxygen (mg/L)	≥ 4.0 s	-	3.77 c
pH (SU)	6.5 - 8.5 s	-	7.8
Conductivity (µmhos/cm)	-	-	51,480
Temperature °C	-	Report	34.0
Salinity	-	-	28.1 c
Total Residual Chlorine (mg/L)	≤ 0.01	≤ 0.01 s	< 0.03 £U
Flow (MGD)	-	≤ 500 a	440 a
Hardness (mg $CaCO_3$)	-	-	6,441 c

Value exceeds the Class III Water Quality Criteria or permit limits

a - Annual average
c - Value is calculated
s - Single sample
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
U - Material analyzed for but not detected; value reported is the method detection limit
£ - Analysis performed in bioassay laboratory

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Request Number: RQ-2007-10-29-24
FPL Riveria Plant

Event ID *

Requester: Michael Tanski
Field Report Prepared By: Terry Davis
Collected By: Terry Davis
Send Final Report To: Terry Davis or Bill Theil
Sampling Agency: Southeast District

Customer: SE-DIST
Project ID: FYI3
PMAS: 1143

Lab ID *	Location: Seal well - Unit 3+4 disc			☐ Comp ☒ Grab	Collection (begin) Date: 29 Oct 07 Time: 1108 Eastern Central		Collection (end) Date Time Eastern Central		Bottle Group(s)**
	Field ID: SL-FPLR-1			Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L): 6.22		Storet Station Number		A
	Matrix (Include type e.g. Salt, Fresh, etc)	Temp (C): 19.01	pH: 7.80	Sample Depth: ☒ m ☐ ft .1	51,480	☐ Salinity (PPTh) ☒ Sp Conductance (umho/cm)	NPDES Number		
	Latitude o ' "	Longitude o ' "		Comments: Pres w/ H_2SO_4 or HNO_3 to pH < 2 as required					
Lab ID *	Location: Field Blank			☐ Comp ☒ Grab	Collection (begin) Date Time: 1125 Eastern Central		Collection (end) Date Time Eastern Central		Bottle Group(s)**
	Field ID: SL-FPLR-2			Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)		Storet Station Number		B
	Matrix (Include type e.g. Salt, Fresh, etc): D.I. water	Temp (C)	pH	Sample Depth: ☒ m ☐ ft .01		☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number		
	Latitude o ' "	Longitude o ' "		Comments: Pres w/ H_2SO_4 or HNO_3 to pH < 2 as required					
Lab ID *	Location			☐ Comp ☐ Grab	Collection (begin) Date Time Eastern Central		Collection (end) Date Time Eastern Central		Bottle Group(s)**
	Field ID			Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)		Storet Station Number		
	Matrix (Include type e.g. Salt, Fresh, etc)	Temp (C)	pH	Sample Depth: ☐ m ☐ ft		☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number		
	Latitude o ' "	Longitude o ' "		Comments					
Lab ID *	Location			☐ Comp ☐ Grab	Collection (begin) Date Time Eastern Central		Collection (end) Date Time Eastern Central		Bottle Group(s)**
	Field ID			Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)		Storet Station Number		
	Matrix (Include type e.g. Salt, Fresh, etc)	Temp (C)	pH	Sample Depth: ☐ m ☐ ft		☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number		
	Latitude o ' "	Longitude o ' "		Comments: 2 bisney 958. 10/30/07 Fax J.D.					

Relinquished By:	Date/Time	Shipping Method:	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
T Davis	10/29/07 1300	DHL	ABF	10/31/07 09-10				

* Shaded Areas for Lab use only.

** Please see reverse side for Bottle Group information.

last revised October 1, 2003

FDEP Biology Laboratory - Acute Screen Bioassay Bench Sheets

Facility: FPL- Riviera Plant

Address: 200-300 Broadway

City: Riviera Beach County: Palm Beach

Contact/District: Terry Davis / Southeast

NPDES Permit #: FL 0001546

LIMS Job #: TLH-2007-10-30-23 LIMS Sample #: 1058005

Lims Data Entry: 11-15-07 MF Data Entry Verification: BA 11-15-07

Sample Collection: Date: 10/29/07 Time: 1108

Hold Time Start: Date: 10/29/07 Time: 1108

Comments:
Sample received at ~ 35 parts per thousand
Salinity - MF 10-30-07

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.

Test 1 validation: **Test 1:** SOP TA 07 03
Control survival ≥90%: (Yes) No
Temperature Range ≤3°C: (Yes) No

Test 2 validation: **Test 2:** SOP TA 07 04
Control survival ≥90%: (Yes) No
Temperature Range ≤3°C: (Yes) No

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: ____

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)

Light Intensity : 50 - 100 ft. candles

Photoperiod : 16 light 8 dark

Temperature Range °C:

Incubator # 2 min 24.7 max 25.9 mean 25.3

Incubator # ____ min ____ max ____ mean ____

Room B246 min 24.5 max 25.9 mean 25.2

Investigators' Signatures

James Daniels

Marshall Faircloth

Lorette Wolfe
REVIEWER

Water Quality Parameters	20% DMW	Moderately Hard Water/ Well Water	Salt Water (ASW) NSW Test 1	Salt Water ASW NSW Test 2	Other:	Original Sample	Method	Measured by	Verified by
Field Total Residual Cl_2 (mg/L):	N/A	N/A	N/A	N/A		NOT measured			MF
Lab Total Residual Cl_2 (mg/L):			~~0.03~~ <0.02 MF			< 0.03	HACH	JD	BA
Alkalinity (mg/L as $CaCO_3$):			25			133	HACH	BA	JD
Hardness (mg/L as $CaCO_3$):	—	—	-	-	-	-	HACH	—	—
Total Ammonia (mg/L as N):			<0.068			<0.068	DENVER	MF	BA
Salinity (ppth):			≈35			≈35	YSI / Mettler	JD	BA

V 1.4 9/12/05

Appendix B. (continued)

[redacted]

FDEP Biology Laboratory - Bioassay Survival Bench Sheet

LIMS Sample #: 1058005 Test #: 1/2 SOP#:TA 07_____ Test Started: Date 10.30.07 Time: 1200

Organism/Batch/Age: Atherinops/10.30.07/5days Test Ended: Date 11.1.07 Time: 1030

Chamber/Test Volume: 1000 / 500 ml Diluent/ Batch: 35ppt ASW / 072607

Food/Batch: YCT — P.sub — Artemia 0hr 14:07 24hr 15:07 48hr — 72hr — Artemia Lot# 631-536-90

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	C1	5	5	5			
	B	C2	5	5	5			
	C	C3	5	5	5			
	D	C4	5	5	5			
100%	A	C5	5	5	5			
	B	C6	5	5	5			
	C	C7	5	5	5			
	D	C8	5	5	5			
			JD	JD	JD			

Loaded/Verified by: JD TBA Checked by:

m = missing d = dead BR/AR = Before/After Renewal

Comments:

Test Results:

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

% mortality in 100% sample: 0 LC50: >100%

If Calculated: 95% CI_____ Method_____

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

Appendix B. (continued)

FDEP Biology Laboratory - Bioassay Survival Bench Sheet

LIMS Sample #: 1058005 Test #: 2/2 SOP#:TA 07_____ Test Started: Date 10.30.07 Time: 1205

Organism/Batch/Age: Mbahia/10.30.07 Test Ended: Date 11.1.07 Time: 1030

Chamber/Test Volume: 1000 / 500 ml Diluent/ Batch: 35ppt ASW / 102607

Food/Batch: YCT — P.sub — Artemia 0hr 11-07 24hr — 48hr — 72hr — Artemia Lot# 651-536-90

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	C9	5	5	4 1D			
	B	C10	5	5	5			
	C	C11	5	5	4 1D			
	D	C12	5	5	5			
100%	A	C13	5	5	5			
	B	C14	5	4 1D	4			
	C	C15	5	5	5			
	D	C16	5	5	5			
Loaded/Verified by: JD / JA		Checked by:	JD	JD	JD			

m = missing d = dead BR/AR = Before/After Renewal

Comments:

Test Results:

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

% mortality in 100% sample: 5% LC50: >100%

If Calculated: 95% CI__________ Method__________

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

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FDEP Biology Laboratory - Bioassay Parameter Bench Sheet

LIMS Sample # : 1058005 Test #: 1 of 2

TEST SOP #: TA07_03 Test Species: *Ceriodaphnia dubia* *Cyprinella leedsi* *Pimephales promelas* (*Americamysis bahia*) *Menidia beryllina* Other:_____

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.)	8.4	8.3	8.2			
Temperature °C	24.4	24.0	24.0			
Dissolved Oxygen mg/L	5.7	5.6	5.5			
Conductivity µmhos (mmhos)	51.0	51.6	53.0			
(initials) Measured by:	JD	JD	JD			
(initials) Recorded by:	JD	JD	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.)	8.2	8.1	7.9			
Temperature °C	24.7	24.1	24.2			
Dissolved Oxygen mg/L	5.8	5.6	5.3			
Conductivity µmhos (mmhos)	54.3	54.4	55.1			
(initials) Measured by:	JD	JD	JD			
(initials) Recorded by:	JD	JD	JD			

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:

000024

V 2.0 2/24/04

FDEP Biology Laboratory - Bioassay Parameter Bench Sheet

LIMS Sample # : 1058005 **Test #:** 2 of 2

TEST SOP #: TA07_ 64 **Test Species:** *Ceriodaphnia dubia* *Cyprinella leedsi* *Pimephales promelas* *Americamysis bahia* (*Menidia beryllina*) Other:_____

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.)	8.4	8.3	8.3			
Temperature °C	24.4	24.1	24.2			
Dissolved Oxygen mg/L	5.4	5.5	5.4			
Conductivity µmhos ~~mmhos~~	50.6	51.5	52.1			
(initials) Measured by:	JJ	JJ	JJ			
(initials) Recorded by:	JJ	JJ	JJ			

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.)	8.2	8.1	8.1			
Temperature °C	25.1	24.4	24.3			
Dissolved Oxygen mg/L	5.9	5.6	5.7			
Conductivity µmhos ~~mmhos~~	54.3	54.2	54.8			
(initials) Measured by:	JJ	JJ	JJ			
(initials) Recorded by:	JJ	JJ	JJ			

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:

Appendix C. SRT Bench Sheets and Statistical Analysis

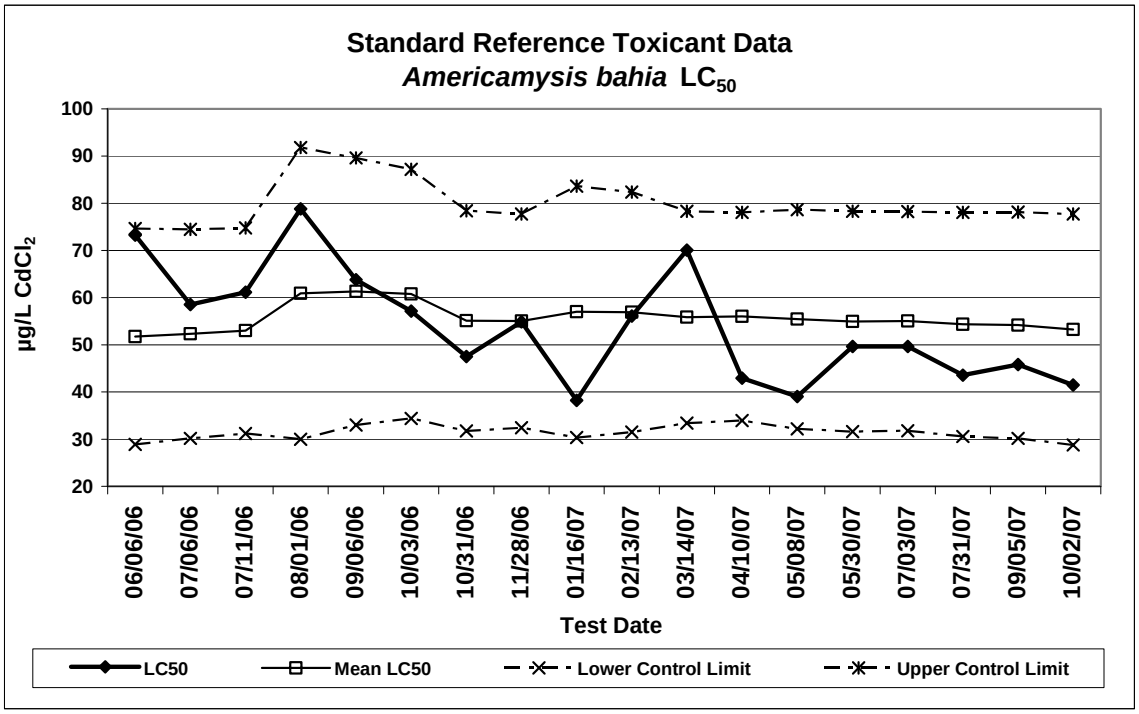
Florida Department of Environmental Protection
Bureau of Laboratories

Standard Reference Toxicant (SRT) Test Data - 48-hour Acute Toxicity
Americamysis bahia (mysid shrimp) - Cadmium Chloride ($CdCl_2$)

Date	LC50	Mean LC50	Std Dev	Lower Control Limit	Upper Control Limit
03/28/06	59.42	51.33	8.2	34.93	67.73
05/02/06	34.19	49.62	9.44	30.73	68.5
06/06/06	73.23	51.76	11.44	28.88	74.65
07/06/06	58.53	52.33	11.08	30.16	74.49
07/11/06	61.12	53.00	10.89	31.22	74.78
08/01/06	78.84	60.89	15.46	29.97	91.81
09/06/06	63.78	61.30	14.16	32.99	89.61
10/03/06	57.10	60.78	13.19	34.40	87.16
10/31/06	47.52	55.07	11.67	31.73	78.42
11/28/06	54.87	55.06	11.33	32.41	77.71
01/16/07	38.23	56.98	13.34	30.31	83.66
02/13/07	56.06	56.91	12.72	31.47	82.34
03/14/07	70.07	55.86	11.23	33.40	78.32
04/10/07	42.91	56.00	11.04	33.91	78.08
05/08/07	39.00	55.42	11.63	32.16	78.68
05/30/07	49.64	54.95	11.67	31.62	78.29
07/03/07	49.64	55.04	11.62	31.80	78.27
07/31/07	43.54	54.34	11.88	30.58	78.10
09/05/07	45.79	54.15	11.99	30.17	78.13
10/02/07	41.44	53.25	12.24	28.76	77.73

Lower Confidence Limit = mean - 2 * Std Dev
Upper Confidence Limit = mean + 2 * Std Dev

CV = 22.99
EPA reference 75th quartile CV = 26%



Appendix C. (continued)

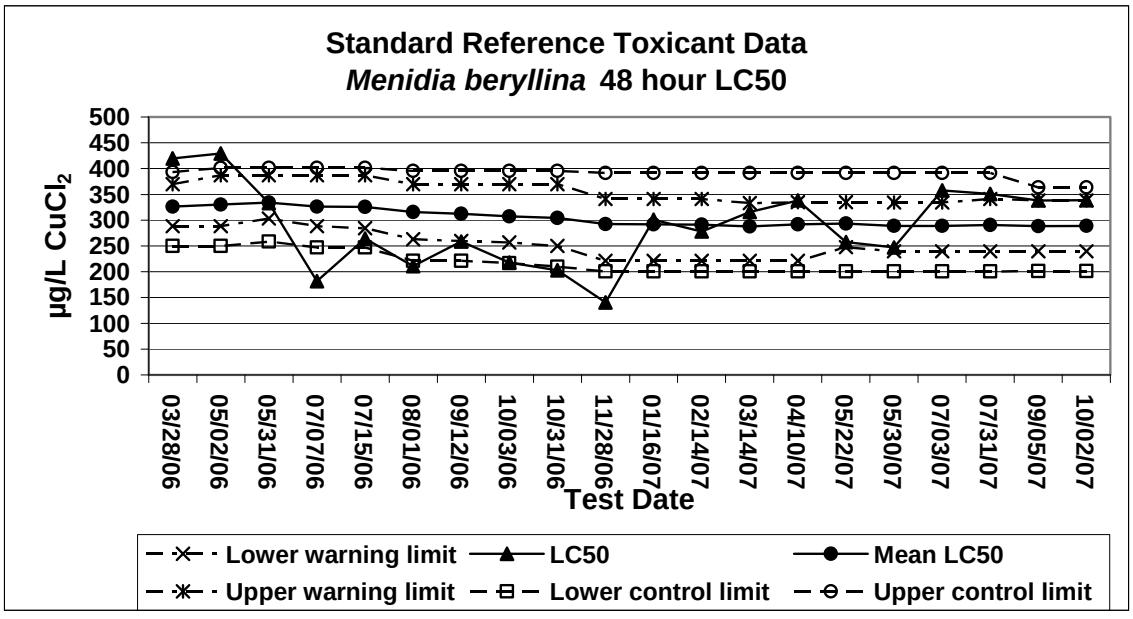
Florida Department of Environmental Protection
Bureau of Laboratories

Standard Reference Toxicant (SRT) Test Data - Acute Toxicity
Menidia beryllina (Inland silverside) - Copper Chloride ($CuCl_2$)

Date	LC50	Mean LC50	Lower control limit	Lower warning limit	Upper warning limit	Upper control limit
03/28/06	419.55	326.32	250.0	288.5	369.7	393.6
05/02/06	429.19	330.10	250.0	288.5	387.2	401.5
05/31/06	333.13	334.26	258.8	303.2	387.2	401.5
07/07/06	181.98	326.28	247.2	288.5	387.2	401.5
07/15/06	264.59	325.48	247.2	284.4	387.2	401.5
08/01/06	210.80	316.05	221.3	263.4	369.7	395.6
09/12/06	258.82	312.50	221.3	259.6	369.7	395.6
10/03/06	217.64	307.20	217.0	256.6	369.7	395.6
10/31/06	203.06	304.28	210.0	249.7	369.7	395.6
11/28/06	140.31	292.22	201.0	221.3	341.2	391.4
01/16/07	301.29	291.93	201.0	221.3	341.2	391.4
02/14/07	278.00	291.27	201.0	221.3	341.2	391.4
03/14/07	316.16	287.74	201.0	221.3	333.3	391.4
04/10/07	338.35	291.67	201.0	221.3	334.8	391.4
05/22/07	257.44	293.42	201.0	247.5	334.8	391.4
05/30/07	247.36	289.10	201.0	239.9	334.4	391.4
07/03/07	357.65	288.79	201.0	239.9	334.4	391.4
07/31/07	350.68	290.88	201.0	239.9	341.4	391.4
09/05/07	338.18	288.38	201.0	239.9	338.2	363.8
10/02/07	338.90	289.15	201.0	239.9	338.4	363.8

Means are of the last 20 SRT tests.
Upper warning and control limits are the 75th and 90th percentiles, respectively, of the past 20 LC50s.
Lower warning and control limits are the 25th and 10th percentiles, respectively, of the past 20 LC50s.

EPA reference 75th quartile CV = 21% **CV = 26.54**



Appendix C. (continued)

[redacted]

FDEP Biology Laboratory - Acute SRT Bench Sheet

Test Organism: (*Americamysis bahia* Method 2007.0) *Menidia beryllina* Method 2006.0 *Hyalella azteca* Method 100.1 EPA-600-R-99-064
Ceriodaphnia dubia Method 2002.0 *Cyprinella leedsi* Method 2000.0 *Pimephales promelas* Method 2000.0 Other: _____

Method from EPA-821-R-02-012
Test Type: 48 hour non-renewal (96 hour renewal)
Test Page 1 of 2

Diluent/ Batch #: ASW / 9.28.07
Toxicant/ Batch#: KCl2 / 10-2-07

Test Beginning: Date: 10.2.07 Time: 1300
Test Ending: Date: 10-6-07 Time: 11:00

Water Quality Parameters	Diluent	Method	Initials
Total Residual Cl_2 (mg/L):	<0.03	Hach	JD
Alkalinity (mg/L as $CaCO_3$):	224	Hach	BA
Hardness (mg/L as $CaCO_3$):	—	Hach	—
Total Ammonia (mg/L as N):	<0.034	Denver	MF
Salinity (ppth):	~20 ppth	Mettler	JD

Organism Batch #/ Age: 10.2.07 / 5 days
Feeding: Prior to test / Prior to renewal / (Daily)
Food: YCT *P.subcapitata* Artemia: Lot # GSL-536-90
Food Batch: _____ _____ 0hr 10:47 24hr 14:30 48hr 14:40 72hr 14:50
Chamber size: 400 mL
Test volume: 250 mL per replicate

Conc. g/L (mg/L)	Rep.	Chamber #	Number Live 0 hr (48 hr)	24 hr (72 hr)	48 hr (96 hr)	pH (SU) 0 hr (48 hr)	24 hr (72 hr)	48 hr (96 hr)	Temperature (°C) 0 hr (48 hr)	24 hr (72 hr)	48 hr (96 hr)	D.O. (mg/L) 0 hr (48 hr)	24 hr (72 hr)	48 hr (96 hr)	Uncorrected Conductivity µmhom/cm (µmhos/cm) 0 hr (48 hr)	24 hr (72 hr)	48 hr (96 hr)
Control	A	Tox 1	5	5	5	8.4		8.1	24.0		24.5	6.5		5.3	33.4		35.8
	B	Tox 2	5	5	5		8.2			24.4			5.0			32.2	
	C	Tox 3	5	5	5												
	D	Tox 4	5	5	5												
20	A	Tox 5	5	5	5	8.4		8.1	24.0		24.4	6.6		5.6	33.5		35.6
	B	Tox 6	5	5	5		8.2			24.2			5.2			32.6	
	C	Tox 7	5	5	5												
	D	Tox 8	5	5	5												
30	A	Tox 9	5	5	5	8.4		8.1	24.1		24.4	6.7		5.0	33.3		35.8
	B	Tox 10	5	5	5		8.2			24.1			4.9			33.6	
	C	Tox 11	5	5	4 1D												
	D	Tox 12	5	5	5												
45	A	Tox 13	5	5	2 2D	8.4		8.1	24.1		24.2	6.7		5.3	33.3		35.4
	B	Tox 14	5	4 1D	2 2D		8.2			24.0			4.7			33.5	
	C	Tox 15	5	5	1 4D												
	D	Tox 16	5	5	1 4D												
67	A	Tox 17	5	5	0 5D	8.4		8.1	24.0		24.2	6.6		5.3	32.8		35.4
	B	Tox 18	5	3 2D	0 3D		8.2			24.0			4.8			33.5	
	C	Tox 19	5	2 3D	0 2D												
	D	Tox 20	5	5	1 4D												
100	A	Tox 21	5	3 2D	0 3D	8.4		8.1	24.0		24.1	6.6		5.4	33.1		35.4
	B	Tox 22	5	5	0 5D		8.2			24.1			4.7			33.6	
	C	Tox 23	5	1 4D	0 1D												
	D	Tox 24	5	3 2D	0 3D												
	A																
	B																
	C																
	D																
Loaded / measured by:			JD	JD	MF	JD	JD	BA	JD	JD	BA	JD	JD	BA	JD	JD	BA
Recorded by:			JD	JD	MF	JD	JD	BA	JD	JD	BA	JD	JD	BA	JD	JD	BA

Investigators' Signatures
Jean Daniels
Marshall Faircloth
Beth Alexander
Linda C. Wolfe
REVIEWER

Concentrations prepared by: JD
Loading verified by: BA
Light Intensity: 50-100 Ft. candles
Photoperiod: 16 hours Light / 8 hours dark
Temperature Range °C:
Incubator # 2 min. 24.8 max. 25.7 mean 25.3
Incubator # ___ min. _____ max. _____ mean. _____
Room B246 min. 24.7 max. 25.9 mean 25.3

Comments:

Statistics: Method: Spearman-Karber
48 / 96 hour LC_{50}: 41.44
95% Confidence Interval: lower 37.52 upper 45.76

revised 08/24/06 SP

Appendix C. (continued)

FDEP Biology Laboratory - Acute SRT Bench Sheet

Test Organism: *Americamysis bahia* Method 2007.0 (*Menidia beryllina* Method 2006.0) *Hyalella azteca* Method 100.1 EPA-600-R-99-064
Ceriodaphnia dubia Method 2002.0 *Cyprinella leedsi* Method 2000.0 *Pimephales promelas* Method 2000.0 Other: ____

Method from EPA-821-R-02-012
Test Type: 48 hour non-renewal (96 hour renewal)
Test Page 1 of 2

Diluent/ Batch #: ASW / 9.28.07
Toxicant/ Batch#: CuSO4 / 10.1.07

Test Beginning: Date: 10.2.07 Time: 12:45
Test Ending: Date: 10-6-07 Time: 11:45

Water Quality Parameters	Diluent	Method	Initials
Total Residual Cl_2 (mg/L):	2003	Hach	JD
Alkalinity (mg/L as $CaCO_3$):	224	Hach	BA
Hardness (mg.L as $CaCO_3$):	—	Hach	—
Total Ammonia (mg/L as N):	<0.034	Denver	MF
Salinity (ppth):	20 ppth	Mettler	JD

Organism Batch #/ Age: 10-2-07 / 13days
Feeding: (Prior to test) (Prior to renewal) / Daily
Food: YCT *P.subcapitata* Artemia: Lot # GSL-536-90
Food Batch: — — 0hr 142-01 24hr — 48hr 1747-07 72hr —
Chamber size: 1000 mL
Test Volume: 500 mL per replicate

Conc. g/L (µg/L) mg/L	Rep.	Chamber #	Number Live 0 hr	24 hr	48 hr	pH (SU) 0 hr	24 hr	48 hr	Temperature (°C) 0 hr	24 hr	48 hr	D.O. (mg/L) 0 hr	24 hr	48 hr	Uncorrected Conductivity µmhom/cm (mmhos/cm) 0 hr	24 hr	48 hr
			~~48 hr~~	~~72 hr~~	~~96 hr~~	~~48 hr~~	~~72 hr~~	~~96 hr~~	~~48 hr~~	~~72 hr~~	~~96 hr~~	~~48 hr~~	~~72 hr~~	~~96 hr~~	~~48 hr~~	~~72 hr~~	~~96 hr~~
Control	A	F9	10	10	10	8.4		8.2	24.0		24.2	6.6		5.7	335		34.8
	B	F10	10	10	10		8.3						5.2			33.7	
	C																
	D																
100	A	F11	10	10	10	8.4		8.2	24.1		24.4	6.8		5.7	33.4		34.6
	B	F12	10	10	10		8.3						5.3			33.2	
	C																
	D																
200	A	F13	10	10	10	8.4		8.2	24.0		24.6	6.8		5.8	33.2		34.8
	B	F14	10	10	10		8.3						5.4			33.7	
	C																
	D																
300	A	F15	10	9/10	9	8.4		8.2	24.1		24.5	6.9		5.8	33.4		34.7
	B	F16	10	9/10	9		8.3						5.4			33.3	
	C																
	D																
400	A	F17	10	3/10	0/10	8.4		8.2	24.1		24.5	6.9		5.9	33.0		34.4
	B	F18	10	1/10	1		8.3						5.6			33.0	
	C																
	D																
500	A	F19	10	0/10	—	8.4		—	24.1		—	6.9		—	333		—
	B	F20	10	0/10	—		8.3						5.7			32.9	
	C																
	D																
	A																
	B																
	C																
	D																
Loaded / measured by:			JD	JD	MF	JD	JD	BA	JD	JD	BA	JD	JD	BA	JD	JD	BA
Recorded by:			JD	JD	MF	JD	JD	BA	JD	JD	BA	JD	JD	BA	JD	JD	BA

Investigators' Signatures
James Dazzio
Marshall Faircloth
Bill Brattle

Concentrations prepared by: JD
Loading verified by: BA
Light Intensity: 50-100 Ft. candles
Photoperiod: 16 hours Light / 8 hours dark
Temperature Range °C:
Incubator # 2 min 24.8 max 25.7 mean 25.3
Incubator # ___ min. ___ max. ___ mean ___
Room B246 min 24.7 max 25.4 mean 25.1

Comments:

Statistics: Method: Spearman-Karber
48 / 96 hour LC_{50}: 338.91
95% Confidence Interval: lower 324.5 upper 357.27

Dr. Mitta C. Wolfe
REVIEWER

revised 08/24/06 SP

Appendix C. (continued)

DATE: 10/2/07 TEST NUMBER: 1 DURATION: 48 h
TOXICANT: CdCl2
SPECIES: *Americamysis bahia*

RAW DATA: Concentration (µg/L)	Number Exposed	Mortalities
.00	20	0
20.00	20	0
30.00	20	1
45.00	20	14
67.00	20	19
100.00	20	20

SPEARMAN-KARBER TRIM: .00%

SPEARMAN-KARBER ESTIMATES: LC50: 41.44
95% LOWER CONFIDENCE: 37.52
95% UPPER CONFIDENCE: 45.76

DATE: 10/2/07 TEST NUMBER: 1 DURATION: 48 h
TOXICANT : CuCl2
SPECIES: *Menidia beryllina*

RAW DATA: Concentration (ug/L)	Number Exposed	Mortalities
.00	20	0
100.00	20	0
200.00	20	0
300.00	20	2
400.00	20	19
500.00	20	20

SPEARMAN-KARBER TRIM: .00%

SPEARMAN-KARBER ESTIMATES: LC50: 338.91
95% LOWER CONFIDENCE: 321.50
95% UPPER CONFIDENCE: 357.27

Appendix D. Test Organism Receipts

MBL Aquaculture
4569 Samuel Street
Sarasota, Florida 34233
TEL: (800) 889-0384
FAX: (941) 922-3874
EMAIL: sales@mblaquaculture.com
WEB: www.MBLAquaculture.com

NELAC Accredited

Organism Shipment Record

State of Florida Aquaculture Certificate Number AQ0668007

Date: 10/1/07

Shipped to: FDEP

P.O. No: N/A

Species	Quantity	Age	Brood Number	Temperature	Salinity
Mysidopsis bahia	150	4 DAYS	MS070927	25°C	20
Menidia beryllina	150	12 DAYS	SS070919	25°C	20
Cyprinella leedsi	150	12 DAYS	CL070919	25°C	
Pimephales promelas	150	7 DAYS	FM070924	25°C	

Packed by: JW

Shipped Via: Fed Ex

Notes:

Thank you for your order.

Appendix D. (continued)

MBL Aquaculture
4569 Samuel Street
Sarasota, Florida 34233
TEL: (800) 889-0384
FAX: (941) 922-3874
EMAIL: sales@mblaquaculture.com
WEB: www.MBLAquaculture.com

NELAC Accredited

Organism Shipment Record

State of Florida Aquaculture Certificate Number AQ0668007

Date: 10/29/07

Shipped to: FL. DEP

P.O. No: N/A

Species	Quantity	Age	Brood Number	Temperature	Salinity
Mysidopsis bahia	100	7 DAYS	MS071025	25°C	25‰
Menidia beryllina	100	10 DAYS	MSC71019	25°C	25‰
Cyprinella leedsi	150	12 DAYS	CL071017	25°C	
Pimephales promelas	350	< 24HRS	FMC71023-1510	25°C	
	150			25°C	

Packed by: _____

Shipped Via: _____

Notes: _____

Thank you for your order.

Appendix E. Chemical Analyses performed on the effluent from the FPL-Riviera Plant combined Outfalls D-013 and D-014, sampled on October 29, 2007.

Date Sampled	Field ID	Analyses	Component	Result	Remark	Units	MDL	PQL
10/29/2007 11:08	Effluent	AGP/LN	Algal Growth Potential	3	A U	mg DryWt/L	3	3
10/29/2007 11:08	Effluent	Chlorophyll/Grain Size/BOD	Phaeophytin-a	0.53	I	ug/L	0.24	0.71
10/29/2007 11:08	Effluent	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	1.6	I	ug/L	0.55	1.7
10/29/2007 11:08	Effluent	Toxicology	Bioassay-Acute-Screen-SW-Fish, LC50	100	L	LC50		
10/29/2007 11:08	Effluent	Toxicology	Bioassay-Acute-Screen-SW-Mysid, LC50	100	L	LC50		
10/29/2007 11:08	Effluent	Metals	Lead	0.6	U	ug/L	0.6	2.4
10/29/2007 11:08	Effluent	Metals	Iron	90	U	ug/L	90	360
10/29/2007 11:08	Effluent	Metals	Calcium	386	A	mg/L	0.22	0.9
10/29/2007 11:08	Effluent	Metals	Chromium	3	U	ug/L	3	12
10/29/2007 11:08	Effluent	Metals	Cadmium	0.06	U	ug/L	0.06	0.24
10/29/2007 11:08	Effluent	Metals	Copper	0.75	U	ug/L	0.75	3
10/29/2007 11:08	Effluent	Metals	Magnesium	1330	A	mg/L	2	8
10/29/2007 11:08	Effluent	Metals	Aluminum	180	U	ug/L	180	720
10/29/2007 11:08	Effluent	Metals	Selenium	1.5	U	ug/L	1.5	6
10/29/2007 11:08	Effluent	Metals	Arsenic	1.6	I	ug/L	1.5	6
10/29/2007 11:08	Effluent	Metals	Silver	0.075	U	ug/L	0.075	0.3
10/29/2007 11:08	Effluent	Metals	Nickel	0.75	U	ug/L	0.75	3
10/29/2007 11:08	Effluent	Metals	Zinc	15	U	ug/L	15	60
10/29/2007 11:08	Effluent	Nutrients	Kjeldahl Nitrogen	0.21	I	mg N/L	0.16	0.4
10/29/2007 11:08	Effluent	Nutrients	Total-P	0.02	U	mg P/L	0.02	0.06
10/29/2007 11:08	Effluent	Nutrients	Ammonia-N	0.011	I	mg N/L	0.01	0.02
10/29/2007 11:08	Effluent	Nutrients	O-Phosphate-P	0.008	U	mg P/L	0.008	0.02
10/29/2007 11:08	Effluent	Nutrients	NO2NO3-N	0.004	I	mg N/L	0.004	0.01
10/29/2007 11:08	Effluent	Pesticides	Azinphos Methyl	0.19	U	ug/L	0.19	0.76
10/29/2007 11:08	Effluent	Pesticides	Chlorpyrifos Methyl	0.095	U	ug/L	0.095	0.38
10/29/2007 11:08	Effluent	Pesticides	Metalaxyl	0.24	U	ug/L	0.24	0.96
10/29/2007 11:08	Effluent	Pesticides	Metolachlor	0.48	U	ug/L	0.48	1.9
10/29/2007 11:08	Effluent	Pesticides	Simazine	0.048	U	ug/L	0.048	0.19
10/29/2007 11:08	Effluent	Pesticides	Butylate	0.19	U	ug/L	0.19	0.76
10/29/2007 11:08	Effluent	Pesticides	Fonofos	0.095	U	ug/L	0.095	0.38
10/29/2007 11:08	Effluent	Pesticides	Naled	0.76	U	ug/L	0.76	3
10/29/2007 11:08	Effluent	Pesticides	Ethion	0.048	U	ug/L	0.048	0.19

Appendix E. (continued)

Date Sampled	Field ID	Analyses	Component	Result	Remark	Units	MDL	PQL
10/29/2007 11:08	Effluent	Pesticides	Malathion	0.14	U	ug/L	0.14	0.56
10/29/2007 11:08	Effluent	Pesticides	Ametryn	0.048	U	ug/L	0.048	0.19
10/29/2007 11:08	Effluent	Pesticides	Diazinon	0.048	U	ug/L	0.048	0.19
10/29/2007 11:08	Effluent	Pesticides	Alachlor	0.57	U	ug/L	0.57	2.3
10/29/2007 11:08	Effluent	Pesticides	Bromacil	0.19	U	ug/L	0.19	0.76
10/29/2007 11:08	Effluent	Pesticides	Chlorpyrifos Ethyl	0.048	U	ug/L	0.048	0.19
10/29/2007 11:08	Effluent	Pesticides	Fenamiphos	0.19	U	ug/L	0.19	0.76
10/29/2007 11:08	Effluent	Pesticides	Hexazinone	0.095	U	ug/L	0.095	0.38
10/29/2007 11:08	Effluent	Pesticides	Phorate	0.048	U	ug/L	0.048	0.19
10/29/2007 11:08	Effluent	Pesticides	Ethoprop	0.095	U	ug/L	0.095	0.38
10/29/2007 11:08	Effluent	Pesticides	Mevinphos	0.19	U	ug/L	0.19	0.76
10/29/2007 11:08	Effluent	Pesticides	Prometryn	0.14	U	ug/L	0.14	0.56
10/29/2007 11:08	Effluent	Pesticides	Atrazine	0.048	U	ug/L	0.048	0.19
10/29/2007 11:08	Effluent	Pesticides	Metribuzin	0.095	U	ug/L	0.095	0.38
10/29/2007 11:08	Effluent	Pesticides	Norflurazon	0.14	U	ug/L	0.14	0.56
10/29/2007 11:08	Effluent	Pesticides	Parathion Ethyl	0.14	U	ug/L	0.14	0.56
10/29/2007 11:08	Effluent	Pesticides	Parathion Methyl	0.095	U	ug/L	0.095	0.38
10/29/2007 11:08	Effluent	Priority Organic Pollutants	2,4-Dimethylphenol	9.4	U	ug/L	9.4	38
10/29/2007 11:08	Effluent	Priority Organic Pollutants	2,4-Dinitrophenol	14	UJ	ug/L	14	57
10/29/2007 11:08	Effluent	Priority Organic Pollutants	Dimethyl phthalate	47	U	ug/L	47	190
10/29/2007 11:08	Effluent	Priority Organic Pollutants	Hexachlorobenzene	0.94	U	ug/L	0.94	3.8
10/29/2007 11:08	Effluent	Priority Organic Pollutants	Acenaphthylene	0.94	U	ug/L	0.94	3.8
10/29/2007 11:08	Effluent	Priority Organic Pollutants	Diethyl phthalate	0.94	U	ug/L	0.94	3.8
10/29/2007 11:08	Effluent	Priority Organic Pollutants	Endrin	1.4	U	ug/L	1.4	5.7
10/29/2007 11:08	Effluent	Priority Organic Pollutants	Fluoranthene	0.94	U	ug/L	0.94	3.8
10/29/2007 11:08	Effluent	Priority Organic Pollutants	Naphthalene	0.94	U	ug/L	0.94	3.8
10/29/2007 11:08	Effluent	Priority Organic Pollutants	Pyrene	0.94	U	ug/L	0.94	3.8
10/29/2007 11:08	Effluent	Priority Organic Pollutants	2,6-Dinitrotoluene	0.94	U	ug/L	0.94	3.8
10/29/2007 11:08	Effluent	Priority Organic Pollutants	2-Chlorophenol	0.94	U	ug/L	0.94	3.8
10/29/2007 11:08	Effluent	Priority Organic Pollutants	4,4'-DDD	1.4	U	ug/L	1.4	5.7
10/29/2007 11:08	Effluent	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	1.9	U	ug/L	1.9	7.5
10/29/2007 11:08	Effluent	Priority Organic Pollutants	Acenaphthene	0.94	U	ug/L	0.94	3.8
10/29/2007 11:08	Effluent	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	2.8	U	ug/L	2.8	11
10/29/2007 11:08	Effluent	Priority Organic Pollutants	Butyl benzyl phthalate	4.7	U	ug/L	4.7	19

Appendix E. (continued)

Date Sampled	Field ID	Analyses	Component	Result	Remark	Units	MDL	PQL
10/29/2007 11:08	Effluent	Priority Organic Pollutants	Fluorene	0.94	U	ug/L	0.94	3.8
10/29/2007 11:08	Effluent	Priority Organic Pollutants	Heptachlor	1.4	U	ug/L	1.4	5.7
10/29/2007 11:08	Effluent	Priority Organic Pollutants	Hexachlorobutadiene	2.8	U	ug/L	2.8	11
10/29/2007 11:08	Effluent	Priority Organic Pollutants	Hexachlorocyclopentadiene	2.8	U	ug/L	2.8	11
10/29/2007 11:08	Effluent	Priority Organic Pollutants	Isophorone	0.94	U	ug/L	0.94	3.8
10/29/2007 11:08	Effluent	Priority Organic Pollutants	Pentachlorophenol	2.8	U	ug/L	2.8	11
10/29/2007 11:08	Effluent	Priority Organic Pollutants	gamma-BHC	1.4	U	ug/L	1.4	5.7
10/29/2007 11:08	Effluent	Priority Organic Pollutants	2,4-Dinitrotoluene	0.94	U	ug/L	0.94	3.8
10/29/2007 11:08	Effluent	Priority Organic Pollutants	4-Chloro-3-methylphenol	0.94	U	ug/L	0.94	3.8
10/29/2007 11:08	Effluent	Priority Organic Pollutants	Aldrin	1.4	U	ug/L	1.4	5.7
10/29/2007 11:08	Effluent	Priority Organic Pollutants	Benzidine	94	U	ug/L	94	380
10/29/2007 11:08	Effluent	Priority Organic Pollutants	Benzo(a)anthracene	0.94	U	ug/L	0.94	3.8
10/29/2007 11:08	Effluent	Priority Organic Pollutants	Chrysene	0.94	U	ug/L	0.94	3.8
10/29/2007 11:08	Effluent	Priority Organic Pollutants	alpha-BHC	1.4	U	ug/L	1.4	5.7
10/29/2007 11:08	Effluent	Priority Organic Pollutants	2,4,6-Trichlorophenol	0.94	U	ug/L	0.94	3.8
10/29/2007 11:08	Effluent	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	2.8	U	ug/L	2.8	11
10/29/2007 11:08	Effluent	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.94	U	ug/L	0.94	3.8
10/29/2007 11:08	Effluent	Priority Organic Pollutants	Bis(2-chloroethyl)ether	0.94	U	ug/L	0.94	3.8
10/29/2007 11:08	Effluent	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	14	U	ug/L	14	57
10/29/2007 11:08	Effluent	Priority Organic Pollutants	Endosulfan II	3.8	U	ug/L	3.8	15
10/29/2007 11:08	Effluent	Priority Organic Pollutants	Endrin aldehyde	3.8	U	ug/L	3.8	15
10/29/2007 11:08	Effluent	Priority Organic Pollutants	Hexachloroethane	2.8	U	ug/L	2.8	11
10/29/2007 11:08	Effluent	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	1.9	U	ug/L	1.9	7.5
10/29/2007 11:08	Effluent	Priority Organic Pollutants	Nitrobenzene	1.9	U	ug/L	1.9	7.5
10/29/2007 11:08	Effluent	Priority Organic Pollutants	beta-BHC	1.4	U	ug/L	1.4	5.7
10/29/2007 11:08	Effluent	Priority Organic Pollutants	4,4'-DDE	1.4	U	ug/L	1.4	5.7
10/29/2007 11:08	Effluent	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	0.94	U	ug/L	0.94	3.8
10/29/2007 11:08	Effluent	Priority Organic Pollutants	Di-n-octyl phthalate	0.94	U	ug/L	0.94	3.8
10/29/2007 11:08	Effluent	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.94	U	ug/L	0.94	3.8
10/29/2007 11:08	Effluent	Priority Organic Pollutants	Heptachlor epoxide	1.4	U	ug/L	1.4	5.7
10/29/2007 11:08	Effluent	Priority Organic Pollutants	N-Nitrosodimethylamine	1.9	U	ug/L	1.9	7.5
10/29/2007 11:08	Effluent	Priority Organic Pollutants	delta-BHC	1.4	U	ug/L	1.4	5.7
10/29/2007 11:08	Effluent	Priority Organic Pollutants	4,4'-DDT	1.4	U	ug/L	1.4	5.7
10/29/2007 11:08	Effluent	Priority Organic Pollutants	4-Bromophenyl phenyl ether	0.94	U	ug/L	0.94	3.8

Appendix E. (continued)

Date Sampled	Field ID	Analyses	Component	Result	Remark	Units	MDL	PQL
10/29/2007 11:08	Effluent	Priority Organic Pollutants	4-Nitrophenol	14	U	ug/L	14	57
10/29/2007 11:08	Effluent	Priority Organic Pollutants	Benzo(b)fluoranthene	0.94	U	ug/L	0.94	3.8
10/29/2007 11:08	Effluent	Priority Organic Pollutants	Dieldrin	1.4	U	ug/L	1.4	5.7
10/29/2007 11:08	Effluent	Priority Organic Pollutants	Endosulfan I	3.8	U	ug/L	3.8	15
10/29/2007 11:08	Effluent	Priority Organic Pollutants	Endosulfan sulfate	1.4	U	ug/L	1.4	5.7
10/29/2007 11:08	Effluent	Priority Organic Pollutants	2,4-Dichlorophenol	0.94	U	ug/L	0.94	3.8
10/29/2007 11:08	Effluent	Priority Organic Pollutants	2-Chloronaphthalene	0.94	U	ug/L	0.94	3.8
10/29/2007 11:08	Effluent	Priority Organic Pollutants	2-Nitrophenol	0.94	U	ug/L	0.94	3.8
10/29/2007 11:08	Effluent	Priority Organic Pollutants	Anthracene	0.94	U	ug/L	0.94	3.8
10/29/2007 11:08	Effluent	Priority Organic Pollutants	Benzo(a)pyrene	0.94	U	ug/L	0.94	3.8
10/29/2007 11:08	Effluent	Priority Organic Pollutants	Benzo(k)fluoranthene	0.94	U	ug/L	0.94	3.8
10/29/2007 11:08	Effluent	Priority Organic Pollutants	Di-n-butyl phthalate	4.7	U	ug/L	4.7	19
10/29/2007 11:08	Effluent	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.94	U	ug/L	0.94	3.8
10/29/2007 11:08	Effluent	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	2.8	U	ug/L	2.8	11
10/29/2007 11:08	Effluent	Priority Organic Pollutants	Phenanthrene	0.94	U	ug/L	0.94	3.8
10/29/2007 11:08	Effluent	Priority Organic Pollutants	Phenol	0.94	U	ug/L	0.94	3.8
10/29/2007 11:08	Effluent	Priority Organic Pollutants	1,2,4-Trichlorobenzene	0.94	U	ug/L	0.94	3.8
10/29/2007 11:08	Effluent	Field Parameters	Temperature	34.01		C		
10/29/2007 11:08	Effluent	Field Parameters	pH	7.8				
10/29/2007 11:08	Effluent	Field Parameters	Specific Conductance	51480		umhos/cm		
10/29/2007 11:25	Field Blank	Metals	Aluminum	60	U	ug/L	60	240
10/29/2007 11:25	Field Blank	Metals	Arsenic	0.5	U	ug/L	0.5	2
10/29/2007 11:25	Field Blank	Metals	Magnesium	0.04	U	mg/L	0.04	0.16
10/29/2007 11:25	Field Blank	Metals	Lead	0.2	U	ug/L	0.2	0.8
10/29/2007 11:25	Field Blank	Metals	Cadmium	0.02	U	ug/L	0.02	0.08
10/29/2007 11:25	Field Blank	Metals	Calcium	0.075	U	mg/L	0.075	0.3
10/29/2007 11:25	Field Blank	Metals	Selenium	0.5	U	ug/L	0.5	2
10/29/2007 11:25	Field Blank	Metals	Silver	0.025	U	ug/L	0.025	0.1
10/29/2007 11:25	Field Blank	Metals	Chromium	1	U	ug/L	1	4
10/29/2007 11:25	Field Blank	Metals	Zinc	5	U	ug/L	5	20
10/29/2007 11:25	Field Blank	Metals	Iron	30	U	ug/L	30	120
10/29/2007 11:25	Field Blank	Metals	Nickel	0.25	U	ug/L	0.25	1
10/29/2007 11:25	Field Blank	Metals	Copper	0.25	U	ug/L	0.25	1

Appendix E. (continued)

Date Sampled	Field ID	Analyses	Component	Result	Remark	Units	MDL	PQL
10/29/2007 11:25	Field Blank	Nutrients	NO2NO3-N	0.004	U	mg N/L	0.004	0.01
10/29/2007 11:25	Field Blank	Nutrients	Kjeldahl Nitrogen	0.08	U	mg N/L	0.08	0.2
10/29/2007 11:25	Field Blank	Nutrients	Ammonia-N	0.01	U	mg N/L	0.01	0.02
10/29/2007 11:25	Field Blank	Nutrients	Total-P	0.02	U	mg P/L	0.02	0.06
10/29/2007 11:25	Field Blank	Nutrients	O-Phosphate-P	0.004	U	mg P/L	0.004	0.01
10/29/2007 11:25	Field Blank	Pesticides	Metribuzin	0.095	U	ug/L	0.095	0.38
10/29/2007 11:25	Field Blank	Pesticides	Prometryn	0.14	U	ug/L	0.14	0.56
10/29/2007 11:25	Field Blank	Pesticides	Diazinon	0.048	U	ug/L	0.048	0.19
10/29/2007 11:25	Field Blank	Pesticides	Ametryn	0.048	U	ug/L	0.048	0.19
10/29/2007 11:25	Field Blank	Pesticides	Azinphos Methyl	0.19	U	ug/L	0.19	0.76
10/29/2007 11:25	Field Blank	Pesticides	Butylate	0.19	U	ug/L	0.19	0.76
10/29/2007 11:25	Field Blank	Pesticides	Hexazinone	0.095	U	ug/L	0.095	0.38
10/29/2007 11:25	Field Blank	Pesticides	Fenamiphos	0.19	U	ug/L	0.19	0.76
10/29/2007 11:25	Field Blank	Pesticides	Ethoprop	0.095	U	ug/L	0.095	0.38
10/29/2007 11:25	Field Blank	Pesticides	Chlorpyrifos Methyl	0.095	U	ug/L	0.095	0.38
10/29/2007 11:25	Field Blank	Pesticides	Ethion	0.048	U	ug/L	0.048	0.19
10/29/2007 11:25	Field Blank	Pesticides	Alachlor	0.57	U	ug/L	0.57	2.3
10/29/2007 11:25	Field Blank	Pesticides	Mevinphos	0.19	U	ug/L	0.19	0.76
10/29/2007 11:25	Field Blank	Pesticides	Phorate	0.048	U	ug/L	0.048	0.19
10/29/2007 11:25	Field Blank	Pesticides	Parathion Methyl	0.095	U	ug/L	0.095	0.38
10/29/2007 11:25	Field Blank	Pesticides	Fonofos	0.095	U	ug/L	0.095	0.38
10/29/2007 11:25	Field Blank	Pesticides	Parathion Ethyl	0.14	U	ug/L	0.14	0.56
10/29/2007 11:25	Field Blank	Pesticides	Naled	0.76	U	ug/L	0.76	3
10/29/2007 11:25	Field Blank	Pesticides	Malathion	0.14	U	ug/L	0.14	0.56
10/29/2007 11:25	Field Blank	Pesticides	Chlorpyrifos Ethyl	0.048	U	ug/L	0.048	0.19
10/29/2007 11:25	Field Blank	Pesticides	Bromacil	0.19	U	ug/L	0.19	0.76
10/29/2007 11:25	Field Blank	Pesticides	Norflurazon	0.14	U	ug/L	0.14	0.56
10/29/2007 11:25	Field Blank	Pesticides	Metolachlor	0.48	U	ug/L	0.48	1.9
10/29/2007 11:25	Field Blank	Pesticides	Metalaxyl	0.24	U	ug/L	0.24	0.96
10/29/2007 11:25	Field Blank	Pesticides	Atrazine	0.048	U	ug/L	0.048	0.19
10/29/2007 11:25	Field Blank	Pesticides	Simazine	0.048	U	ug/L	0.048	0.19
10/29/2007 11:25	Field Blank	Priority Organic Pollutants	2,4-Dichlorophenol	0.95	U	ug/L	0.95	3.8
10/29/2007 11:25	Field Blank	Priority Organic Pollutants	2,4-Dimethylphenol	9.5	U	ug/L	9.5	38
10/29/2007 11:25	Field Blank	Priority Organic Pollutants	2-Chlorophenol	0.95	U	ug/L	0.95	3.8

Appendix E. (continued)

Date Sampled	Field ID	Analyses	Component	Result	Remark	Units	MDL	PQL
10/29/2007 11:25	Field Blank	Priority Organic Pollutants	4-Chloro-3-methylphenol	0.95	U	ug/L	0.95	3.8
10/29/2007 11:25	Field Blank	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	22	I	ug/L	14	57
10/29/2007 11:25	Field Blank	Priority Organic Pollutants	Hexachlorobutadiene	2.9	U	ug/L	2.9	11
10/29/2007 11:25	Field Blank	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	1.9	U	ug/L	1.9	7.6
10/29/2007 11:25	Field Blank	Priority Organic Pollutants	Naphthalene	0.95	U	ug/L	0.95	3.8
10/29/2007 11:25	Field Blank	Priority Organic Pollutants	gamma-BHC	1.4	U	ug/L	1.4	5.7
10/29/2007 11:25	Field Blank	Priority Organic Pollutants	2,4-Dinitrophenol	14	UJ	ug/L	14	57
10/29/2007 11:25	Field Blank	Priority Organic Pollutants	2-Nitrophenol	0.95	U	ug/L	0.95	3.8
10/29/2007 11:25	Field Blank	Priority Organic Pollutants	4,4'-DDT	1.4	U	ug/L	1.4	5.7
10/29/2007 11:25	Field Blank	Priority Organic Pollutants	Benzo(k)fluoranthene	0.95	U	ug/L	0.95	3.8
10/29/2007 11:25	Field Blank	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	0.95	U	ug/L	0.95	3.8
10/29/2007 11:25	Field Blank	Priority Organic Pollutants	Di-n-butyl phthalate	4.8	U	ug/L	4.8	19
10/29/2007 11:25	Field Blank	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.95	U	ug/L	0.95	3.8
10/29/2007 11:25	Field Blank	Priority Organic Pollutants	Dimethyl phthalate	48	U	ug/L	48	190
10/29/2007 11:25	Field Blank	Priority Organic Pollutants	Fluorene	0.95	U	ug/L	0.95	3.8
10/29/2007 11:25	Field Blank	Priority Organic Pollutants	Hexachlorocyclopentadiene	2.9	U	ug/L	2.9	11
10/29/2007 11:25	Field Blank	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	2.9	U	ug/L	2.9	11
10/29/2007 11:25	Field Blank	Priority Organic Pollutants	Phenanthrene	0.95	U	ug/L	0.95	3.8
10/29/2007 11:25	Field Blank	Priority Organic Pollutants	alpha-BHC	1.4	U	ug/L	1.4	5.7
10/29/2007 11:25	Field Blank	Priority Organic Pollutants	Aldrin	1.4	U	ug/L	1.4	5.7
10/29/2007 11:25	Field Blank	Priority Organic Pollutants	Benzo(a)anthracene	0.95	U	ug/L	0.95	3.8
10/29/2007 11:25	Field Blank	Priority Organic Pollutants	Fluoranthene	0.95	U	ug/L	0.95	3.8
10/29/2007 11:25	Field Blank	Priority Organic Pollutants	Hexachlorobenzene	0.95	U	ug/L	0.95	3.8
10/29/2007 11:25	Field Blank	Priority Organic Pollutants	delta-BHC	1.4	U	ug/L	1.4	5.7
10/29/2007 11:25	Field Blank	Priority Organic Pollutants	2,6-Dinitrotoluene	0.95	U	ug/L	0.95	3.8
10/29/2007 11:25	Field Blank	Priority Organic Pollutants	4,4'-DDD	1.4	U	ug/L	1.4	5.7
10/29/2007 11:25	Field Blank	Priority Organic Pollutants	Acenaphthene	0.95	U	ug/L	0.95	3.8
10/29/2007 11:25	Field Blank	Priority Organic Pollutants	Benzo(b)fluoranthene	0.95	U	ug/L	0.95	3.8
10/29/2007 11:25	Field Blank	Priority Organic Pollutants	Di-n-octyl phthalate	0.95	U	ug/L	0.95	3.8
10/29/2007 11:25	Field Blank	Priority Organic Pollutants	Heptachlor	1.4	U	ug/L	1.4	5.7
10/29/2007 11:25	Field Blank	Priority Organic Pollutants	Pyrene	0.95	U	ug/L	0.95	3.8
10/29/2007 11:25	Field Blank	Priority Organic Pollutants	2-Chloronaphthalene	0.95	U	ug/L	0.95	3.8
10/29/2007 11:25	Field Blank	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	2.9	U	ug/L	2.9	11
10/29/2007 11:25	Field Blank	Priority Organic Pollutants	4-Nitrophenol	14	U	ug/L	14	57

Appendix E. (continued)

Date Sampled	Field ID	Analyses	Component	Result	Remark	Units	MDL	PQL
10/29/2007 11:25	Field Blank	Priority Organic Pollutants	Acenaphthylene	0.95	U	ug/L	0.95	3.8
10/29/2007 11:25	Field Blank	Priority Organic Pollutants	Benzidine	95	U	ug/L	95	380
10/29/2007 11:25	Field Blank	Priority Organic Pollutants	Bis(2-chloroethyl)ether	0.95	U	ug/L	0.95	3.8
10/29/2007 11:25	Field Blank	Priority Organic Pollutants	Chrysene	0.95	U	ug/L	0.95	3.8
10/29/2007 11:25	Field Blank	Priority Organic Pollutants	Diethyl phthalate	0.97	I	ug/L	0.95	3.8
10/29/2007 11:25	Field Blank	Priority Organic Pollutants	Endosulfan II	3.8	U	ug/L	3.8	15
10/29/2007 11:25	Field Blank	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.95	U	ug/L	0.95	3.8
10/29/2007 11:25	Field Blank	Priority Organic Pollutants	3,3'-Dichlorobenzidine	38	U	ug/L	38	150
10/29/2007 11:25	Field Blank	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	1.9	U	ug/L	1.9	7.6
10/29/2007 11:25	Field Blank	Priority Organic Pollutants	Anthracene	0.95	U	ug/L	0.95	3.8
10/29/2007 11:25	Field Blank	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.95	U	ug/L	0.95	3.8
10/29/2007 11:25	Field Blank	Priority Organic Pollutants	Dieldrin	1.4	U	ug/L	1.4	5.7
10/29/2007 11:25	Field Blank	Priority Organic Pollutants	beta-BHC	1.4	U	ug/L	1.4	5.7
10/29/2007 11:25	Field Blank	Priority Organic Pollutants	1,2,4-Trichlorobenzene	0.95	U	ug/L	0.95	3.8
10/29/2007 11:25	Field Blank	Priority Organic Pollutants	Benzo(a)pyrene	0.95	U	ug/L	0.95	3.8
10/29/2007 11:25	Field Blank	Priority Organic Pollutants	Endosulfan I	3.8	U	ug/L	3.8	15
10/29/2007 11:25	Field Blank	Priority Organic Pollutants	Endosulfan sulfate	1.4	U	ug/L	1.4	5.7
10/29/2007 11:25	Field Blank	Priority Organic Pollutants	Endrin	1.4	U	ug/L	1.4	5.7
10/29/2007 11:25	Field Blank	Priority Organic Pollutants	Hexachloroethane	2.9	U	ug/L	2.9	11
10/29/2007 11:25	Field Blank	Priority Organic Pollutants	Nitrobenzene	1.9	U	ug/L	1.9	7.6
10/29/2007 11:25	Field Blank	Priority Organic Pollutants	Phenol	0.95	U	ug/L	0.95	3.8
10/29/2007 11:25	Field Blank	Priority Organic Pollutants	2,4,6-Trichlorophenol	0.95	U	ug/L	0.95	3.8
10/29/2007 11:25	Field Blank	Priority Organic Pollutants	2,4-Dinitrotoluene	0.95	U	ug/L	0.95	3.8
10/29/2007 11:25	Field Blank	Priority Organic Pollutants	4,4'-DDE	1.4	U	ug/L	1.4	5.7
10/29/2007 11:25	Field Blank	Priority Organic Pollutants	4-Bromophenyl phenyl ether	0.95	U	ug/L	0.95	3.8
10/29/2007 11:25	Field Blank	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	2.9	U	ug/L	2.9	11
10/29/2007 11:25	Field Blank	Priority Organic Pollutants	Butyl benzyl phthalate	4.8	U	ug/L	4.8	19
10/29/2007 11:25	Field Blank	Priority Organic Pollutants	Endrin aldehyde	3.8	U	ug/L	3.8	15
10/29/2007 11:25	Field Blank	Priority Organic Pollutants	Heptachlor epoxide	1.4	U	ug/L	1.4	5.7
10/29/2007 11:25	Field Blank	Priority Organic Pollutants	Isophorone	0.95	U	ug/L	0.95	3.8
10/29/2007 11:25	Field Blank	Priority Organic Pollutants	N-Nitrosodimethylamine	1.9	U	ug/L	1.9	7.6
10/29/2007 11:25	Field Blank	Priority Organic Pollutants	Pentachlorophenol	2.9	U	ug/L	2.9	11

The Bioassay of FPL-Riviera Plant effluent sampled on October 29, 2007. NPDES #FL0001546.

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

Transaction Code	NPDES NUMBER	YR/MO/DA	Insp Type	Inspector	Fac Type
1 N 2 5	3 F L 0 0 0 1 5 4 6 11	12 0 7 1 0 2 9	18 B	19 S	20 2

Remarks

66

The Priority Pollutants Analysis of FPL-Riviera Plant effluent sampled on October 29, 2007. NPDES #FL0001546.

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

Transaction Code	NPDES NUMBER	YR/MO/DA	Insp Type	Inspector	Fac Type
1 N 2 5	3 F L 0 0 0 1 5 4 6 11	12 0 7 1 0 2 9	18 X	19 S	20 2

Remarks

66

Biological Analyses of FPL-Riviera Plant effluent sampled on October 29, 2007. NPDES #FL0001546.

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

Transaction Code	NPDES NUMBER	YR/MO/DA	Insp Type	Inspector	Fac Type
1 N 2 5	3 F L 0 0 0 1 5 4 6 11	12 0 7 1 0 2 9	18 S	19 S	20 2

Remarks