

Bioassays of

Sawgrass Wastewater Treatment Facility

St. Johns County

NPDES #FL0117897

Sampled October 23, 2006

January 2007

Biology Section
Bureau of Laboratories
Division of Resource Assessment and Management

Quality Manual No. 870346G
NELAC Certification No. E31780

Sawgrass Wastewater Treatment Facility, 10042 Sawgrass Drive West, Ponte Vedra Beach, St. Johns County, Florida, NPDES #FL0117897. Effluent samples for this facility were collected on October 23, 2006.

Introduction

Sawgrass Wastewater Treatment Facility is a wastewater treatment plant which uses the sequential batch-reactor process to treat domestic wastewater to advanced standards. The facility has a design flow of 1.5 million gallons per day (MGD) average annual daily flow (AADF). The AADF from October 2005 through September 2006 was 0.566 MGD. The facility consists of screening, grit removal, two sequencing batch reactors, one tertiary filter consisting of four cloth disk filters, two chlorine contact chambers, one dechlorination basin, two aerobic digesters, one flow equalization pond, and a 4.45 hectare (11 acre) reclaimed water storage pond. Sodium hypochlorite is used for chlorination and bisulfite is used for dechlorination. Treated effluent is discharged through Outfall D-001 into the Class III marine waters of the Intracoastal Waterway. Outfall D-001 is located approximately at latitude 30º 09' 47" N and longitude 81º 23' 32" W. Residuals are treated by aerobic digestion and are disposed by land application.

The facility has a slow-rate public access irrigation system, R-001, permitted for an AADF of 1.5 MGD. The discharge from the reuse system is to the Sawgrass Golf and Country Club. The reuse system serves as the primary method of effluent disposal.

There are no Administrative Orders (AO) or Consent Orders (CO) for this facility. The facility has no mixing zones. Discharge Monitoring Report (DMR) data from September 2005 to July 2006 showed that the facility was in violation of permitted limits for total suspended solids (limit 10 mg/L, October 2005 value 33.0 mg/L), fecal coliforms (limit 25 #/100mL, January 2006 value 20,000#/100mL), and total recoverable copper (limit 2.9 µg/L, February 2006 value 4.1 µg/L). (Facility information provided by Joseph Emery FDEP Northeast District.)

Methods

Samples were collected from the EFD-1 NPDES sampling point for Outfall D-001 by Chet McGhee (FDEP Northeast 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.

While the 48-hour acute screening toxicity test does 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 bioassay samples were salinity adjusted from an apparent salinity of less than 1 part per thousand (ppth) to approximately 20 ppth using 40 Fathoms® artificial sea salts. The salt control used for these tests was prepared by salting well water with artificial sea salts to approximately 20 ppth salinity. The purpose of the salt controls was to confirm that there was no effect of adding artificial sea salts to the sample. There was no mortality in the salt controls of either test species. These bioassay test samples were not salinity adjusted per current permit requirements but were adjusted to match the facility's most recent semi-annual monitoring bioassay test salinities per communications with FDEP Northeast District staff.

An aliquot of the AGP sample was salinity adjusted to 7 ppth to meet the minimum salinity requirements of the marine test species.

Toxicity Test Results

Tests were performed October 24 - 26, 2006.

Americamysis bahia 48-hour acute screening bioassay –	LC_{50} > 100%, 0% mortality* in 100% salinity adjusted sample at 48 hours
Menidia beryllina 48-hour acute screening bioassay –	LC_{50} > 100%, 5% mortality* in 100% salinity adjusted 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 reasonable assurance 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% provides reasonable assurance 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 156 mg dry wt/L of the unicellular green alga, *Pseudokirchneriella subcapitata*, formerly known as *Selenastrum capricornutum*. Raschke and Shultz (1987) found that AGP values above 5.0 mg dry weight/L represent a "problem" threshold for fresh receiving waters, implying nutrient enrichment. The analytical chemistry suggests that the effluent is nitrogen-limited. The predicted AGP based on inorganic nitrogen concentrations was 89 (±20%) mg dry wt/L (Table 1; Miller et al. 1978).

The salinity-adjusted effluent AGP was 28.6 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). One potential reason for the difference in growth between the freshwater and saltwater test species growth in the salinity-adjusted sample is that the orthophosphate could have been made biologically unavailable by the added salts (Manahan 1994).

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 in the sample collected and preserved for chemical analysis was 0.041 mg/L. 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 (3.5 mg/L) as measured in the field was less than the Class III Marine criterion for dissolved oxygen of ≥ 4.0 mg/L (62-302.530(31), F.A.C.).

Aluminum, copper, iron and zinc were detected in the effluent at levels that comply with Class III Marine water quality criteria. Atrazine, arsenic and nickel were 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 D-001 for this facility on October 23, 2006, was not acutely toxic to either test species during the 48-hour acute screen bioassays. The effluent AGP results exceeded the "problem" threshold for both fresh and marine receiving waters, suggesting nutrient enrichment may be an issue. Effluent dissolved oxygen violated the applicable water quality standard.

Literature Cited

Manahan, S. E. 1994. Environmental Chemistry, 6th edition. Lewis Publishers, USA. 811 pp.

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.

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.

Table 1. *Measured and predicted algal growth potential (AGP; mg dry weight/L) of the freshwater species* Psuedokirchneriella subcapitata f*or total soluble inorganic nitrogen (TSIN) and total nitrogen (TN) limitation, the AGP (salinity adjusted) of the saltwater species Dunaliella tertiolecta, and ratios of nitrogen to phosphorus for samples collected from Sawgrass Wastewater Treatment Facility on October 23, 2006.*

Location	**AGP (measured)**	**Predicted AGP (TSIN) ± 20%**	**Predicted AGP (TN) ± 20%**	**AGP (salinity adjusted)**	**Inorganic N:P ratio**	**Total N:P ratio**
Effluent Samples	156	88.96 ± 17.9	133 ± 26.6	28.6	0.9	1.25

Table 2. Effluent limits, Class III Criteria, microbiological, and chemical data for samples from Sawgrass Wastewater Treatment Facility collected on October 23, 2006.

Sawgrass WWTF NPDES # FL0117897	Class III Marine Stds	Effluent Limits D-001	Effluent Samples
Organic Constituents (µg/L)			
Atrazine	-	-	0.1 I
Metals (µg/L unless otherwise noted)			
Aluminum	≤ 1,500	-	18
Arsenic	≤ 50	-	0.62 I
Cadmium	≤ 9.3	-	0.05 U
Calcium (mg/L)	-	-	63.5
Chromium-III	-	-	0.3 U
Copper	≤ 3.7	≤ 2.9 s	1.13
Iron	≤ 300	-	35
Lead	≤ 8.5	-	0.2 U
Magnesium (mg/L)	-	-	31
Nickel	≤ 8.3	-	1.3 I
Selenium	≤ 71	-	0.5 U
Silver	≤ 2.3	-	0.025 U
Zinc	≤ 86	-	33
Nutrients (mg/L)			
Ortho-phosphate	-	-	2.6
Total Phosphorus	-	Report	2.8
Ammonia	-	-	0.041
Unionized Ammonia	-	-	< 0.02
Nitrate+Nitrite	-	-	2.3
Total Kjeldahl Nitrogen	-	-	1.2
Organic Nitrogen	-	-	1.16 c
Total Nitrogen	-	≤ 6.0 s	3.5 c
General Physical and Chemical Parameters			
Dissolved Oxygen (mg/L)	≥ 4.0 s	Report	3.5
pH (S.U.)	6.5-8.5 s	6.5-8.5 s	7.1
Conductivity (umhos/cm)	-	-	1,593
TSS	-	≤ 5 s	4 U
Temperature (C)	-	-	26.9
CBOD (mg/L)	-	≤ 20.0 s	1.8 AI
Flow (MGD)	-	≤ 1.2 a	0.566 a
Hardness (mg/L)	-	-	286.2 c
Total Residual Chlorine (mg/L)	≤ 0.01 s	≤ 0.01 s	< 0.03 U
Microbiology (# counts/100ml)			
Fecal Coliforms-Membrane Filter	≤ 800	≤ 25	2 U

Value exceeds the Class III Marine Water Quality Criteria (62-302, F.A.C.) and/or Effluent Limits

a - Annual average

c - Calculated value

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

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Event ID *

Request Number: RQ-2006-10-23-19
Sawgrass WWTF

Requester: Shannan Bogdanov
Field Report Prepared By: Melissa Long

Customer: NE-DIST
Collected By: Chet McGhee
Send Final Report To: Melissa Long

Project ID: FYI3
Sampling Agency: FDEP

PMAS: 1143

Lab ID *	Location: Sawgrass WWTP			☐ Comp ☒ Grab	Collection (begin) Eastern Central: Date 10/23/06 Time 9:25	Collection (end) Eastern Central: Date 10/23/06 Time 9:51		Bottle Group(s)**: A	
	Field ID: Final Effluent			Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L): 3.46	Storet Station Number			
	Matrix (Include type e.g. Salt, Fresh, etc	Temp (C): 26.9	pH: 7.1	Sample Depth ☐ m ☐ ft: 1593	☐ Salinity (PPTh) ☒ Sp Conductance (umho/cm)	NPDES Number			
	Latitude ° ' "	Longitude ° ' "		Comments: 43.6% DO					
Lab ID *	Location: Sawgrass WWTP			☐ Comp ☑ Grab	Collection (begin) Eastern Central: Date 10/23/06 Time 9:57	Collection (end) Eastern Central: Date 10/23/06 Time 9:57		Bottle Group(s)**: B	
	Field ID: Field Blank			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 ° ' "	Longitude ° ' "		Comments					
Lab ID *	Location			☐ Comp ☐ Grab	Collection (begin) Eastern Central: Date Time	Collection (end) Eastern Central: Date Time		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 ° ' "	Longitude ° ' "		Comments					
Lab ID *	Location			☐ Comp ☐ Grab	Collection (begin) Eastern Central: Date Time	Collection (end) Eastern Central: Date Time		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 ° ' "	Longitude ° ' "		Comments: 2 Bottles 9:53 10/24/06 [illegible]					

Relinquished By:	Date/Time	Shipping Method:	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
			Tom. E	9:30 10/24/06				

* Shaded Areas for Lab use only.

** Please see reverse side for Bottle Group information.

last revised October 1, 2003

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1229 sw
10 24 06

FDEP Biology Section - Acute Screen Bioassay Bench Sheets

Facility: Sawgrass WWTF

Address: 10092 SAWGRASS DRIVE WEST

City: PONTE VEDRA **County:** ST. JOHN'S

Contact/District: NORTHEAST / Chet McGhee

NPDES Permit #: FL 0117847

LIMS Job #: TLH-2006-10-2487 **LIMS Sample #:** 960756

Lims Data Entry: 10-26-06 MF Data Entry Verification: 10-27-06 BA

Sample Collection: Date: 10.23.06 Time: 9:25

Hold Time Start: Date: 10.23.06 Time: 9:25

Comments: Sample salinity adjusted by adding artificial seasalts to a salinity of approximately 20 ppth (parts per thousand).
Salt control prepared by adding artificial seasalts to well water to a salinity of approximately 20 ppth, MF 10-24-06

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. ✓

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: <1 Final Salinity: ~20 (Salts) Hypersaline brine
Salinity adjusted (Test 2): (yes) no Initial Salinity: <1 Final Salinity: ~20 (Salts) Hypersaline brine
Dechlorination: yes (no) ____mL of 0.025N Sodium Thiosulfate per liter of sample. Final TRC: ____

Temperature Range °C
Incubator # 2 Range 24.1-25.9
Room B246: 23.5-24.0
Waterbath: N/A

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)

Investigators' Signatures
James Daniels
Phil Perez
Emily
Marshall Fairbath
Brad Blume
Heidi Wollendorf
REVIEWER

Water Quality Parameters	20% DMW	Moderately Hard Water/ (Well Water)	Salt Water (ASW) NSW Test 1	Salt Water (ASW) NSW Test 2 (Salted Gatol)	Other: Salinity adjusted Sawgrass	Original Sample	Method	Measured by	Verified by
Field Total Residual Cl_2 (mg/L):	N/A	N/A	N/A	N/A	—	N/A	— Not measured		MF
Lab Total Residual Cl_2 (mg/L):		<0.03	<0.03	<0.03	<0.03	<0.03	HACH	BA	PW
Alkalinity (mg/L as $CaCO_3$):		141	203	192	214	175	HACH	CW	PW
Hardness (mg/L as $CaCO_3$):		135	—	—	—	280	HACH	CW	PW
Total Ammonia (mg/L as N):		<0.017	<0.034	<0.034	<0.034	<0.017	DENVER	MF	PW
Salinity (ppth):		<1	~20	~20	~20	<1	YSI / Mettler	JD	MF

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Appendix B. (continued)

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FDEP Biology Section - Bioassay Survival Sheet

LIMS Sample #: 960756 **Test #:** 1 **Test Started:** Date 10.24.06 Time: 13:10
Organism: A.bahia **SOP #:** TA 07_03 **Test Ended:** Date 10.26.06 Time: 12:00
Organism Batch: 28-06 **Diluent/ Batch:** ASW 1 19-06
Organism Age: 5 days **Food:** YCT P. subcapitata (Artemia) 0 hr 24 hr
Chamber Size: 1000 mL **Batch:** — — GSL-53670 4-06 5-06
Test Volume: 500 mL **Feeding:** (Prior to test) - Prior to renewal - (Daily)

Concentration	Replicate	Chamber #	Test Hour: 0 hr	24 hr	48 hr BR	48 hr AR	72 hr	96 hr
Ctrl	A	B9	5	5	5			
	B	B10	5	5	5			
	C	B11	5	5	5			
	D	B12	5	5	5			
100%	A	B13	5	5	5			
	B	B14	5	5	5			
	C	B15	5	5	5			
	D	B16	5	5	5			
Salt control	A	B17	5	5	5			
	B	B18	5	5	5			
	C	B19	5	5	5			
	D	B20	5	5	5			
Organisms loaded by: DD		Checked by:	[redacted]	DB	mF			

Loading Verified by: PH

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

Comments:

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).

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Appendix B. (continued)

FDEP Biology Section - Bioassay Survival Sheet

LIMS Sample #: 960756 Test #: 2 Test Started: Date 10.24.06 Time: 13:15
Organism: M. beryllina SOP #: TA 07_ 04 Test Ended: Date 10.26.06 Time: 12:00
Organism Batch: 2806 Diluent/ Batch: ASW / 19-06
Organism Age: 13 days Food: YCT P. subcapitata Artemia 0hr
Chamber Size: 1000 mL Batch: — — GSL-536-90 4-06
Test Volume: 500 mL Feeding: (Prior to test) Prior to renewal - Daily

Concentration	Replicate	Chamber #	Test Hour 0 hr	24 hr	48 hr BR	48 hr AR	72 hr	96 hr
Ctrl	A	B1	5	5	5			
	B	B2	5	5	5			
	C	B3	5	5	5			
	D	B4	5	5	5			
100%	A	B5	5	5	5			
	B	B6	5	4ID	4			
	C	B7	5	5	5			
	D	B8	5	5	5			
Salt control	A	B21	5	5	5			
	B	B22	5	5	5			
	C	B23	5	5	5			
	D	B24	5	5	5			

Organisms loaded by: JD Checked by: [redacted] JD JD
Loading Verified by: HH

Comments:

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

Test Results:
% mortality in 100% sample: 5%
LC_{50}: >100% If Calculated: 95% CI_____ Method:_____

Screening Tests:
Report LC50 as >100%, =100%, or <100%.
Substitute highest test concentration used if other than 100% (example: Ocean outfall tested at 30% concentration).

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FDEP Biology Section - Bioassay Parameter Sheet

LIMS Sample # : 960756 **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	8.1			
Temperature °C	24.4	24.4	24.7			
Dissolved Oxygen mg/L	6.5	5.4	4.8			
Conductivity µmhos (mmhos)	31.7	32.3	31.9			
(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	8.0			
Temperature °C	24.3	24.5	24.6			
Dissolved Oxygen mg/L	6.8	4.8	4.5			
Conductivity µmhos (mmhos)	31.8	32.6	32.7			
(initials) Measured by:	JD	JD	JD			
(initials) Recorded by:	JD	JD	JD			

Comments:

Concentration Salt control	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C			
pH (S.U.)	8.5	8.3	8.1			
Temperature °C	24.2	24.6	24.7			
Dissolved Oxygen mg/L	7.0	4.8	4.5			
Conductivity µmhos (mmhos)	31.8	32.4	32.4			
(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:

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FDEP Biology Section - Bioassay Parameter Sheet

LIMS Sample # : 960756 **Test #:** 2 of 2

TEST SOP #: TA07_04 **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	24.3	24.5	24.8			
Dissolved Oxygen mg/L	6.9	5.8	5.4			
Conductivity µmhos (mmhos)	32.3	32.5	33.3			
(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	8.2	8.2			
Temperature °C	24.3	24.4	24.8			
Dissolved Oxygen mg/L	6.9	5.6	5.8			
Conductivity µmhos (mmhos)	32.0	32.4	33.0			
(initials) Measured by:	JD	JD	JD			
(initials) Recorded by:	JD	JD	JD			

Comments:

Concentration Salt control	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C			
pH (S.U.)	8.5	8.4	8.3			
Temperature °C	24.3	24.5	24.8			
Dissolved Oxygen mg/L	7.0	5.6	5.9			
Conductivity µmhos (mmhos)	31.6	32.4	32.8			
(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:

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Appendix C. SRT Bench Sheets and Statistical Analysis

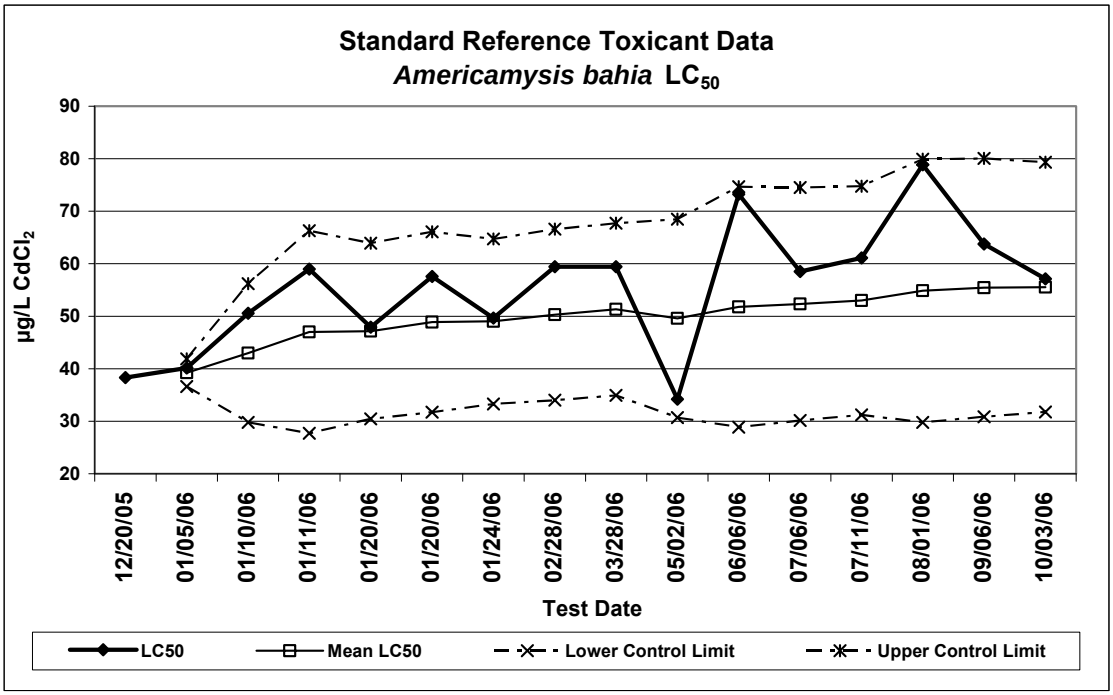
Florida Department of Environmental Protection
Bureau of Laboratories

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
12/20/05	38.30				
01/05/06	40.16	39.23	1.32	36.60	41.86
01/10/06	50.55	43.00	6.60	29.80	56.21
01/11/06	58.98	47.00	9.64	27.72	66.27
01/20/06	47.91	47.18	8.36	30.47	63.89
01/20/06	57.54	48.91	8.59	31.73	66.08
01/24/06	49.65	49.01	7.84	33.32	64.70
02/28/06	59.45	50.32	8.15	34.03	66.61
03/28/06	59.42	51.33	8.20	34.93	67.73
05/02/06	34.19	49.62	9.44	30.73	68.50
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	54.85	12.54	29.78	79.92
09/06/06	63.78	55.44	12.30	30.85	80.04
10/03/06	57.1	55.55	11.89	31.77	79.32

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

CV = 21.40
EPA reference 75th quartile CV = 26%



*Fewer than 20 points are charted due to recent initiation of SRT testing using $CdCl_2$.

Appendix C. (continued)

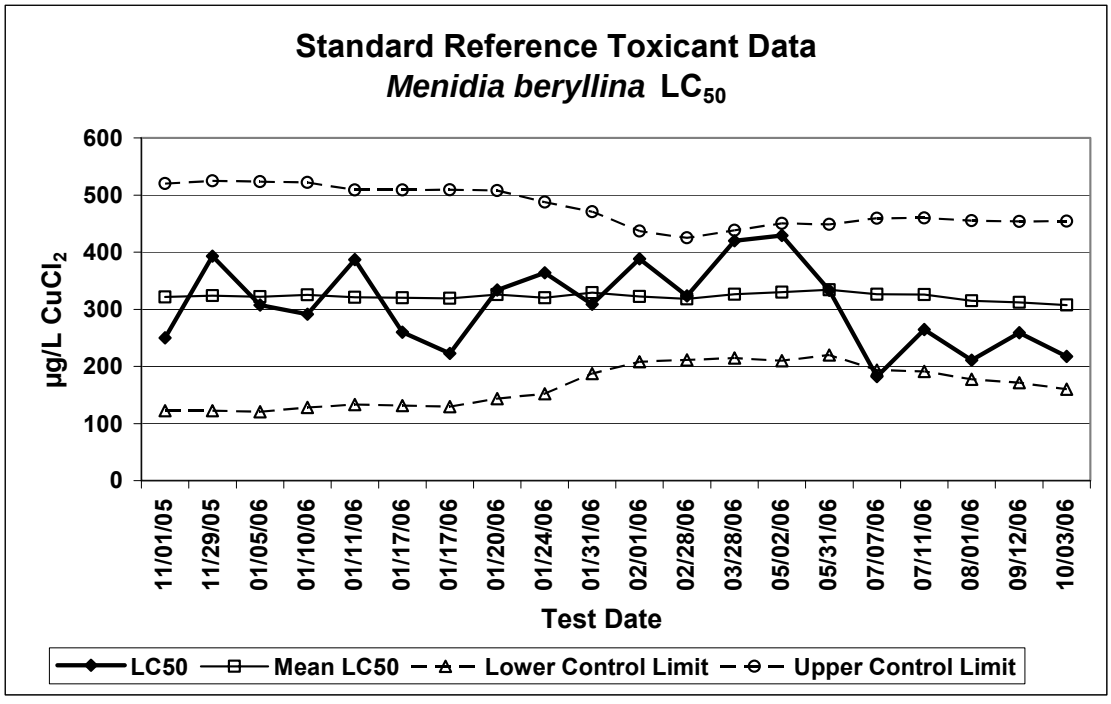
Florida Department of Environmental Protection
Bureau of Laboratories

Standard Reference Toxicant (SRT) Test Data - 48-hour Acute Toxicity
Menidia beryllina (inland silverside) - Copper Chloride ($CuCl_2$)

Date	LC50	Mean LC50	Std Dev	Lower Control Limit	Upper Control Limit
11/01/05	250.00	321.21	99.50	122.21	520.21
11/29/05	392.98	323.59	100.67	122.25	524.94
01/05/06	307.20	321.88	100.64	120.60	523.16
01/10/06	291.06	325.02	98.52	127.97	522.07
01/11/06	386.84	320.92	93.81	133.29	508.54
01/17/06	259.80	319.91	94.38	131.15	508.67
01/17/06	222.49	319.27	95.03	129.21	509.32
01/20/06	333.67	325.74	91.10	143.54	507.95
01/24/06	363.93	319.79	83.89	152.01	487.58
01/31/06	308.77	328.86	70.76	187.34	470.39
02/01/06	388.25	322.40	57.22	207.96	436.83
02/28/06	323.38	318.11	53.47	211.18	425.04
03/28/06	419.55	326.32	55.87	214.58	438.07
05/02/06	429.19	330.10	60.20	209.69	450.51
05/31/06	333.13	334.26	57.18	219.91	448.61
07/07/06	181.98	326.28	66.48	193.32	459.25
07/11/06	264.59	325.48	67.16	191.17	459.79
08/01/06	210.80	314.87	73.29	177.19	454.91
09/12/06	258.82	311.92	72.38	171.51	453.48
10/03/06	217.64	307.20	73.53	160.14	454.27

Means are of the last 20 SRT tests.
Lower Confidence Limit = mean - 2 * Std Dev
Upper Confidence Limit = mean + 2 * Std Dev

CV = 23.94
EPA reference 75th quartile CV = 21%



Appendix C. (continued)

FDEP Biology Section - 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: Definitive
Static / (Static Renewal)
Test Page 1 of 2

Diluent/ Batch#: ASW / 10-06
Toxicant/ Batch# $CdCl_2$ / 12-06

Test Beginning: Date: 10,306 Time: 12:40
Test Ending: Date: 10-7-06 Time: 11:35

Water Quality Parameters:	Diluent	Method	Initials
Total Residual Cl_2 (mg/L):	<0.03	Hach	PPV
Alkalinity (mg/L as $CaCO_3$):	200	Hach	EW
Hardness (mg/L as CaCO3):	—	Hach	—
Total Ammonia (mg/L as N):	<0.034	Denver	MF
Salinity (ppth):	~20	Mettler	BA

Organism Batch #/ Age: 27-061 5days
Feeding: (Prior to test) (Prior to renewal) (Daily)
Food: YCT P.*subcapitata* (Artemia)
Food Batch: — — 951-536-40
Chamber size: 1000 mL
Test volume: 500 mL per replicate

Conc. (ug/L) g/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 Cond. (mmhos/cm) Cond. (µmhom/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	A1	5	5	5	8.1			24.0			7.1			32.0		
	B	A2	5	5	5		8.2			24.0			5.5			31.7	
	C	A3	5	5	5			8.0			24.6			6.1			32.4
	D	A4	5	5	5												
20	A	A5	5	5	5	8.4			24.1			7.1			31.9		
	B	A6	5	5	5		8.1			24.2			5.4			32.3	
	C	A7	5	5	5			7.9			24.9			5.2			32.7
	D	A9	5	5	5												
30	A	A9	5	5	410	8.4			24.2			7.1			31.4		
	B	A10	5	5	5		8.2			24.1			5.2			32.0	
	C	A11	5	5	5			8.1			24.7			5.1			32.6
	D	A12	5	5	5												
45	A	A13	5	5	410	8.4			24.2			7.1			31.8		
	B	A14	5	5	410		8.1			24.1			5.3			32.0	
	C	A15	5	5	5			8.1			24.4			5.1			32.6
	D	A16	5	5	310												
67	A	A17	D	5	320	8.4			24.2		24.6	7.1			31.6		
	B	A18	5	5	220		8.2			24.2			5.2			31.8	
	C	A19	5	5	140			8.1						5.1			32.1
	D	A20	5	5	140												
100	A	A21	5	5	050	8.4			24.1		24.22	7.1			31.6		
	B	A22	5	410	040		8.2			24.2			5.3			32.1	
	C	A23	5	320	030			8.1			25.0			5.1			32.3
	D	A24	5	5	050												
	A																
	B																
	C																
	D																
Loaded / measured by:			JD	JD	JD	BA	JD	BA	BA	JD	JD	BA	JD	BA	BA	JD	BA
Recorded by:			BA	JD	JD	BA	JD	BA	BA	JD	JD	BA	JD	BA	BA	JD	BA

Investigators' Signatures
Dawn R. Lee
Jennifer Daniels
Byron Kuhlers
Marshall Faircloth
Erin Smith
Nicole Wellendorf
REVIEWER

Concentrations prepared by: JD
Loading verified by: MF PPV
Light Intensity: 50-100 Ft. candles
Photoperiod: 16 hours Light / 8 hours dark
Temperature Range °C:
Incubator # 2 min. 24.4 max. 26.0 mean 25.1
Incubator # ____ min. ____ max. ____ mean ____
Room B246 min. 24.4 max. 25.3 mean 24.9

Remarks:

Statistical Results: Method: Spearman-Karber
(48) 96 hour LC50: 57.1
95% Confidence Interval: lower 50.13 upper 64.27

Revised 02/21/06

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Appendix C. (continued)

FDEP Biology Section - 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: Definitive
Static (Static Renewal)
Test Page 2 of 2

Diluent/ Batch#: ASW 118-06
Toxicant/ Batch# CdCl2 112-06

Test Beginning: Date: 10306 Time: 12:40
Test Ending: Date: 10.7.06 Time: 11:35

Water Quality Parameters:	Diluent	Method	Initials
Total Residual Cl_2 (mg/L):	ZAD5	Hach	PPV
Alkalinity (mg/L as $CaCO_3$):	200	Hach	EW
Hardness (mg/L as CaCO3):	—	Hach	—
Total Ammonia (mg/L as N):	20.034	Denver	MF
Salinity (ppth):	~20	Mettler	BA

Organism Batch #/ Age: 2706 / 5days
Feeding: (Prior to test) Prior to renewal / Daily
Food: YCT P.subcapitata (Artemia)
Food Batch: — — 951-536-40
Chamber size: 1000 mL
Test volume: 500 mL per replicate

Conc. (ug/l) g/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 Cond. (mmhos/cm) Cond. (µmhom/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	A1	5 / 5 / 5	8.3 (A) / 8.0	24.0 (A) / 24.2	6.5 (A) / 4.9	31.3 (B) / 33.1
	B	A2	5 / 5 / 5	BA	BA	BA	BA
	C	A3	5 / 5 / 5				
	D	A4	5 / 5 / 5	8.1	24.0	6.8	32.4
20	A	A5	5 / 5 / 5	8.3 (B) / 8.0	24.2 (B) / 24.3	6.3 (B) / 4.7	32.0 (B) / 33.0
	B	A6	5 / 5 / 410				
	C	A7	5 / 5 / 5				
	D	A8	5 / 5 / 410	8.2	24.7	6.7	32.6
30	A	A9	4 / 4 / 220	8.3 (C) / 8.1	24.2 (C) / 24.5	6.3 (C) / 4.6	31.8 (C) / 32.7
	B	A10	5 / 5 / 320				
	C	A11	5 / 320 / 030				
	D	A12	5 / 329 / 210	8.2	24.4	6.3	32.3
45	A	A13	4 / 310 / 170	8.3 (D) / 8.1	24.2 (D) / 24.6	6.4 (D) / 4.9	31.8 (D) / 32.5
	B	A14	4 / 310 / 030				
	C	A15	5 / 5 / 140				
	D	A16	3 / 210 / 110	8.2	24.4	6.0	32.2
67	A	A17	3 / 120 / 1	8.3 (E) / 8.2	24.2 (E) / 24.6	6.4 (E) / 5.3	31.9 (E) / 32.7
	B	A18	2 / 110 / 010				
	C	A19	1 / 010 / —				
	D	A20	1 / 010 / —	8.2	24.0	6.0	32.3
100	A	A21	0 / — / —	— / — / —	— / — / —	— / — / —	— / — / —
	B	A22	0 / — / —				
	C	A23	0 / — / —				
	D	A24	0 / — / —	—	—	—	—
	A						
	B						
	C						
	D						
Loaded / measured by:			BA / JD / JD	JD / BA / JD	JD / JD / JD	JD / BA / JD	BA / BA / JD
Recorded by:			BA / JD / JD	JD / BA / JD	JD / RA / JD	JD / BA / JD	JD / BA / JD

Investigators' Signatures
REVIEWER

Concentrations prepared by: JD
Loading verified by: —
Light Intensity: 50-100 Ft. candles
Photoperiod: 16 hours Light / 8 hours dark
Temperature Range °C:
Incubator # 2 min. 24.4 max. 26.0 mean 25.1
Incubator # ___ min. ___ max. ___ mean ___
Room B246 min. 24.4 max. 25.3 mean 24.9

Remarks:
(A) Transcription error 10-11-06 BA
(B) Transcription error - Parameters "C" recorded in "A" 10-12-06 BA

Statistical Results: Method: Spearman-Karber
48 / (96) hour LC50: 28.33
95% Confidence Interval: lower 24.79 upper 32.38

Revised 02/21/06

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Appendix C. (continued)

FDEP Biology Section - 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: Definitive
Static / (Static Renewal)
Test Page 1 of 2

Diluent/ Batch#: ASW 118-06
Toxicant/ Batch# $CuCl_2$ 112-06

Test Beginning: Date: 10306 Time: 1245
Test Ending: Date: 10-7-06 Time: 1130

Water Quality Parameters:	Diluent	Method	Initials
Total Residual Cl_2 (mg/L):	<0.03	Hach	PPV
Alkalinity (mg/L as $CaCO_3$):	200	Hach	EW
Hardness (mg/L as CaCO3):	—	Hach	—
Total Ammonia (mg/L as N):	<0.054	Denver	MF
Salinity (ppth):	~20	Mettler	BA

Organism Batch #/ Age: 27-061 13 days
Feeding: (Prior to test) (Prior to renewal) / Daily
Food: YCT P.*subcapitata* (Artemia)
Food Batch: — — 951-536-50
Chamber size: ~~500~~ mL 1000 JD. 10.06.06
Test volume: 500 mL per replicate

Conc. (ppt) g/L	Rep.	Chamber#	Number Live 0 hr	Number Live 24 hr	Number Live 48 hr	pH (SU) 0 hr	pH (SU) 24 hr	pH (SU) 48 hr	Temperature (° C) 0 hr	Temperature (° C) 24 hr	Temperature (° C) 48 hr	D.O. (mg/l) 0 hr	D.O. (mg/l) 24 hr	D.O. (mg/l) 48 hr	UNCORRECTED Cond. (mmhos/cm) Cond. (µmhom/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	F13	10	10	10	8.4		8.1	24.0		24.3	7.1		6.5	32.0		32.5
	B	F14	10	10	10		8.2			24.0			5.8			31.3	
	C																
	D																
3.25	A	F15	10	10	10	8.4		8.2	24.0		24.3	7.0		6.3	32.0		32.7
	B	F16	10	10	10		8.2			24.3			5.7			32.2	
	C																
	D																
62.5	A	F17	10	10	10	8.4		8.2	24.0		24.4	7.1		6.1	31.9		33.0
	B	F18	10	10	10		8.2			24.2			5.5			31.9	
	C																
	D																
125	A	F19	10	9/0	9	8.4		8.2	24.1		24.4	7.1		6.1	32.0		33.5
	B	F20	10	9/0	9		8.2			24.2			5.3			32.3	
	C																
	D																
250	A	F21	10	3/0	3	8.4		8.2	24.1		24.4	7.1		6.1	31.6		32.6
	B	F22	10	5/0	5		8.2			24.3			5.3			31.9	
	C																
	D																
500	A	F23	10	0/0	—	8.4		—	24.1		24.3	7.1	~~7.0~~ (A) 4.0	—	31.8		—
	B	F24	10	0/0	—		8.1			24.1						32.2	
	C																
	D																
	A																
	B																
	C																
	D																
Loaded / measured by:			JD	JD	JD	BA	JD	BA	BA	JD	~~JD~~ BA	BA	JD	BA	BA	JD	BA
Recorded by:			BA	JD	JD	BA	JD	BA	BA	JD	BA	BA	JD	BA	BA	JD	BA

Investigators' Signatures
Peter D. Frederick
James Daniel
David Palm
Marshall Faircloth
Gin Tang
Nigel Willoughby
REVIEWER

Concentrations prepared by: JD
Loading verified by: MF
Light Intensity: 50-100 Ft. candles
Photoperiod: 16 hours Light / 8 hours dark
Temperature Range °C:
Incubator # 2 min 24.4 max. 26.0 mean 25.1
Incubator # ____ min. ____ max. ____ mean ____
Room B246 min. 24.4 max. 25.3 mean 24.9

Remarks: (A) recorded in wrong replicate on 10-12-06 /JD

Statistical Results: Method: Spearman-Karber
(48) 96 hour LC50: 217.64
95% Confidence Interval: lower 182.14 upper 260.06

Revised 02/21/06

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Appendix C. (continued)

FDEP Biology Section - 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: Definitive
Static / Static Renewal
Test Page 2 of 2

Diluent/ Batch#: ASW 108-06
Toxicant/ Batch# CuCl2 112-06

Test Beginning: Date: 10.3.06 Time: 12:45
Test Ending: Date: 10.7.06 Time: 11:30

Water Quality Parameters:	Diluent	Method	Initials
Total Residual Cl_2 (mg/L):	<0.03	Hach	PPV
Alkalinity (mg/L as $CaCO_3$):	200	Hach	EW
Hardness (mg/L as CaCO3):	mfg-2 46	Hach	—
Total Ammonia (mg/L as N):	<0.034 <0.039	Denver	MF
Salinity (ppth):	20	Mettler	BA

Organism Batch #/ Age: 27-06 / 13 days
Feeding: Prior to test / Prior to renewal / Daily
Food: YCT P.subcapitata Artemia
Food Batch: — — 951-536-90
Chamber size: 1000 mL
Test volume: 500 mL per replicate

Conc. (g/L)	Rep.	Chamber#	Number Live 0 hr	Number Live 24 hr	Number Live 48 hr	pH (SU) 0 hr	pH (SU) 24 hr	pH (SU) 48 hr	Temperature (°C) 0 hr	Temperature (°C) 24 hr	Temperature (°C) 48 hr	D.O. (mg/l) 0 hr	D.O. (mg/l) 24 hr	D.O. (mg/l) 48 hr	UNCORRECTED Cond. (mmhos/cm) 0 hr	UNCORRECTED Cond. (mmhos/cm) 24 hr	UNCORRECTED Cond. (mmhos/cm) 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	F13	10	10	8 20	8.3		8.2	24.3	24.6 (A)	24.2	6.2		6.1	318		328
	B	F14	10	10	10		8.1						7.0			325	
	C																
	D																
3.125	A	F15	10	10	10	8.3		8.2	24.4	24.7 (A)	24.4	6.5		6.1	319		332
	B	F16	10	10	10		8.2						6.7			325	
	C																
	D																
6.25	A	F17	10	10	10	8.3		8.2	24.3	24.4 (A)	24.6	6.7		6.0	321		
	B	F18	10	10	10		8.2						6.5			32.7	329
	C																
	D																
12.5	A	F19	9	9	9	8.3		8.2	24.3	25.2 (A)	24.7	6.6		6.0	319		333
	B	F20	9	9	9		8.2						6.4			325	
	C																
	D																
25.0	A	F21	3	3	3	8.3		8.2	24.3	25.0 (A)	24.7	6.7		6.1	318		329
	B	F22	5	5	5		8.3						6.3			32.3	
	C																
	D																
50.0	A	F23	—	—	—	—		—	—		—	—		—	—		—
	B	F24	—	—	—		—			—			—			—	
	C																
	D																
	A																
	B																
	C																
	D																
Loaded / measured by:			BA	JD	JD	JD	BA	JD	JD	JD	JD	JD	BA	JD	JD	BA	JD
Recorded by:			BA	JD	JD	JD	BA	JD	JD	DA	JD	JD	BA	JD	JD	BA	JD

Investigators' Signatures
REVIEWER

Concentrations prepared by: JD
Loading verified by: —
Light Intensity: 50-100 Ft. candles
Photoperiod: 16 hours Light / 8 hours dark
Temperature Range °C:
Incubator # 2 min. 24.4 max. 26.0 mean 25.1
Incubator # ____ min. ____ max. ____ mean ____
Room B246 min. 24.1 max. 25.3 mean 24.9

Remarks: (A) 72 hour temperature recorded in error. Replicate too - should be replicate "B" MF 10-12-06 for BA

Statistical Results: Method: Spearman-Karber
48 / 96 hour LC50: 224.51
95% Confidence Interval: lower 189.09 upper 266.56

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Appendix C. (continued)

***Americamysis bahia* Acute Standard Reference Toxicant Test**

DATE: 10-03-06 DURATION: 48 h TOXICANT : $CdCl_2$
SPECIES: *A. bahia*

RAW DATA: Concentration (ug/L)	Number Exposed	Mortalities
0	20	0
20	20	0
30	20	1
45	20	4
67	20	13
100	20	20

SPEARMAN-KARBER TRIM: .00%

SPEARMAN-KARBER ESTIMATES: **LC50: 57.10**
95% LOWER CONFIDENCE: 50.73
95% UPPER CONFIDENCE: 64.27

***Menidia beryllina* Acute Standard Reference Toxicant Test**

DATE: 10-03-06 DURATION: 48 h TOXICANT : $CuCl_2$
SPECIES: *M. beryllina*

RAW DATA: Concentration (ug/L)	Number Exposed	Mortalities
0	20	0
31.25	20	0
62.50	20	0
125.00	20	2
250.00	20	12
500.00	20	20

SPEARMAN-KARBER TRIM: .00%

SPEARMAN-KARBER ESTIMATES: **LC50: 217.64**
95% LOWER CONFIDENCE: 182.14
95% UPPER CONFIDENCE: 260.06

Appendix D. Test Organism Receipt

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: 10/2/06

Shipped to: FDEP

P.O. No: _____

Species	Quantity	Age	Brood Number	Temperature	Salinity
Mysidopsis bahia	150+	4 Days	MS060928	25°C	~20‰
Menidia beryllina	150+	12 Days	SS060930	25°C	~30‰
Cyprinella leedsi	200+	11 Days	CL060901	25°C	
Pimephales promelas	150+	7 Days	FM060925-1550	25°C	

Packed by: Frank Gan

Shipped Via: FedEx

Notes: FedEx

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: 10/23/06

Shipped to: FDEP

P.O. No: _____

Species	Quantity	Age	Brood Number	Temperature	Salinity
Mysidopsis bahia	100+	4 Days	MS061019	25°C	~30‰
Menidia beryllina	100+	12 Days	SS061011	25°C	~30‰
Cyprinella leedsi	100+	11 Days	CL061012	25°C	
Pimephales promelas					

Packed by: Frank Gauzi

Shipped Via: FedEx

Notes: _____

Thank you for your order.

Appendix E. Chemical Analyses performed on the effluent from the Sawgrass Wastewater Treatment Facility Outfall D-001, sampled on October 23, 2006.

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
10/23/2006 9:25	FINAL EFFLUENT	Bio-AGP/LimNut	Algal Growth Potential	156	mg DryWt/L		0.3	0.9
10/23/2006 9:25	FINAL EFFLUENT	Bio-AGP/LimNut	Algal Growth Potential-Salinity Adjusted	28.6	mg DryWt/L		3	3
10/23/2006 9:25	FINAL EFFLUENT	Bio-BOD	Biochemical Oxygen Demand-5 Day,N-Inhib	1.8	mg/L	AI	0.2	2
10/23/2006 9:25	FINAL EFFLUENT	Bio-Chl-a	Chlorophyll-A, Monochromatic, Water	0.85	ug/L	U	0.85	2.6
10/23/2006 9:25	FINAL EFFLUENT	Bio-Chl-a	Phaeophytin-A, Monochromatic, Water	1.5	ug/L	U	1.5	4.5
10/23/2006 9:25	FINAL EFFLUENT	Bio-Toxicology	Bioassay-Acute-Screen-SW-Fish, LC50	100	LC50	L		
10/23/2006 9:25	FINAL EFFLUENT	Bio-Toxicology	Bioassay-Acute-Screen-SW-Mysid, LC50	100	LC50	L		
10/23/2006 9:33	FIELD BLANK	BNA-Water	1,2,4-Trichlorobenzene	0.98	ug/L	U	0.98	3.9
10/23/2006 9:33	FIELD BLANK	BNA-Water	1,2-Dichlorobenzene	0.98	ug/L	U	0.98	3.9
10/23/2006 9:33	FIELD BLANK	BNA-Water	1,3-Dichlorobenzene	0.98	ug/L	U	0.98	3.9
10/23/2006 9:33	FIELD BLANK	BNA-Water	1,4-Dichlorobenzene	0.98	ug/L	U	0.98	3.9
10/23/2006 9:33	FIELD BLANK	BNA-Water	2,4,6-Trichlorophenol	0.98	ug/L	U	0.98	3.9
10/23/2006 9:33	FIELD BLANK	BNA-Water	2,4-Dichlorophenol	0.98	ug/L	U	0.98	3.9
10/23/2006 9:33	FIELD BLANK	BNA-Water	2,4-Dimethylphenol	49	ug/L	U	49	200
10/23/2006 9:33	FIELD BLANK	BNA-Water	2,4-Dinitrophenol	15	ug/L	U	15	59
10/23/2006 9:33	FIELD BLANK	BNA-Water	2,4-Dinitrotoluene	0.98	ug/L	U	0.98	3.9
10/23/2006 9:33	FIELD BLANK	BNA-Water	2,6-Dinitrotoluene	0.98	ug/L	U	0.98	3.9
10/23/2006 9:33	FIELD BLANK	BNA-Water	2-Chloronaphthalene	0.98	ug/L	U	0.98	3.9
10/23/2006 9:33	FIELD BLANK	BNA-Water	2-Chlorophenol	0.98	ug/L	U	0.98	3.9
10/23/2006 9:33	FIELD BLANK	BNA-Water	2-Methyl-4,6-dinitrophenol	2.9	ug/L	U	2.9	12
10/23/2006 9:33	FIELD BLANK	BNA-Water	2-Nitrophenol	0.98	ug/L	UJ	0.98	3.9
10/23/2006 9:33	FIELD BLANK	BNA-Water	3,3'-Dichlorobenzidine	39	ug/L	UJ	39	160
10/23/2006 9:33	FIELD BLANK	BNA-Water	4,4'-DDD	1.5	ug/L	U	1.5	5.9
10/23/2006 9:33	FIELD BLANK	BNA-Water	4,4'-DDE	1.5	ug/L	U	1.5	5.9
10/23/2006 9:33	FIELD BLANK	BNA-Water	4,4'-DDT	1.5	ug/L	U	1.5	5.9
10/23/2006 9:33	FIELD BLANK	BNA-Water	4-Bromophenyl phenyl ether	0.98	ug/L	U	0.98	3.9
10/23/2006 9:33	FIELD BLANK	BNA-Water	4-Chloro-3-methylphenol	0.98	ug/L	U	0.98	3.9
10/23/2006 9:33	FIELD BLANK	BNA-Water	4-Chlorophenyl phenyl ether	2	ug/L	U	2	7.8
10/23/2006 9:33	FIELD BLANK	BNA-Water	4-Nitrophenol	15	ug/L	U	15	59
10/23/2006 9:33	FIELD BLANK	BNA-Water	Acenaphthene	0.98	ug/L	U	0.98	3.9
10/23/2006 9:33	FIELD BLANK	BNA-Water	Acenaphthylene	0.98	ug/L	U	0.98	3.9
10/23/2006 9:33	FIELD BLANK	BNA-Water	Aldrin	1.5	ug/L	U	1.5	5.9

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
10/23/2006 9:33	FIELD BLANK	BNA-Water	Anthracene	0.98	ug/L	U	0.98	3.9
10/23/2006 9:33	FIELD BLANK	BNA-Water	Benzidine	98	ug/L	U	98	390
10/23/2006 9:33	FIELD BLANK	BNA-Water	Benzo(a)anthracene	0.98	ug/L	U	0.98	3.9
10/23/2006 9:33	FIELD BLANK	BNA-Water	Benzo(a)pyrene	0.98	ug/L	U	0.98	3.9
10/23/2006 9:33	FIELD BLANK	BNA-Water	Benzo(b)fluoranthene	0.98	ug/L	U	0.98	3.9
10/23/2006 9:33	FIELD BLANK	BNA-Water	Benzo(g,h,i)perylene	0.98	ug/L	U	0.98	3.9
10/23/2006 9:33	FIELD BLANK	BNA-Water	Benzo(k)fluoranthene	0.98	ug/L	U	0.98	3.9
10/23/2006 9:33	FIELD BLANK	BNA-Water	Bis(2-chloroethoxy)methane	0.98	ug/L	U	0.98	3.9
10/23/2006 9:33	FIELD BLANK	BNA-Water	Bis(2-chloroethyl)ether	0.98	ug/L	U	0.98	3.9
10/23/2006 9:33	FIELD BLANK	BNA-Water	Bis(2-chloroisopropyl)ether	2.9	ug/L	U	2.9	12
10/23/2006 9:33	FIELD BLANK	BNA-Water	Bis(2-ethylhexyl)phthalate	15	ug/L	U	15	59
10/23/2006 9:33	FIELD BLANK	BNA-Water	Butyl benzyl phthalate	4.9	ug/L	U	4.9	20
10/23/2006 9:33	FIELD BLANK	BNA-Water	Chrysene	0.98	ug/L	U	0.98	3.9
10/23/2006 9:33	FIELD BLANK	BNA-Water	Di-n-butyl phthalate	4.9	ug/L	U	4.9	20
10/23/2006 9:33	FIELD BLANK	BNA-Water	Di-n-octyl phthalate	0.98	ug/L	U	0.98	3.9
10/23/2006 9:33	FIELD BLANK	BNA-Water	Dibenzo(a,h)anthracene	0.98	ug/L	U	0.98	3.9
10/23/2006 9:33	FIELD BLANK	BNA-Water	Dieldrin	1.5	ug/L	U	1.5	5.9
10/23/2006 9:33	FIELD BLANK	BNA-Water	Diethyl phthalate	0.98	ug/L	U	0.98	3.9
10/23/2006 9:33	FIELD BLANK	BNA-Water	Dimethyl phthalate	49	ug/L	U	49	200
10/23/2006 9:33	FIELD BLANK	BNA-Water	Endosulfan I	3.9	ug/L	U	3.9	16
10/23/2006 9:33	FIELD BLANK	BNA-Water	Endosulfan II	3.9	ug/L	U	3.9	16
10/23/2006 9:33	FIELD BLANK	BNA-Water	Endosulfan sulfate	1.5	ug/L	U	1.5	5.9
10/23/2006 9:33	FIELD BLANK	BNA-Water	Endrin	1.5	ug/L	UJ	1.5	5.9
10/23/2006 9:33	FIELD BLANK	BNA-Water	Endrin aldehyde	3.9	ug/L	U	3.9	16
10/23/2006 9:33	FIELD BLANK	BNA-Water	Fluoranthene	0.98	ug/L	U	0.98	3.9
10/23/2006 9:33	FIELD BLANK	BNA-Water	Fluorene	0.98	ug/L	U	0.98	3.9
10/23/2006 9:33	FIELD BLANK	BNA-Water	Heptachlor	1.5	ug/L	U	1.5	5.9
10/23/2006 9:33	FIELD BLANK	BNA-Water	Heptachlor epoxide	1.5	ug/L	U	1.5	5.9
10/23/2006 9:33	FIELD BLANK	BNA-Water	Hexachlorobenzene	0.98	ug/L	U	0.98	3.9
10/23/2006 9:33	FIELD BLANK	BNA-Water	Hexachlorobutadiene	2.9	ug/L	U	2.9	12
10/23/2006 9:33	FIELD BLANK	BNA-Water	Hexachlorocyclopentadiene	2.9	ug/L	U	2.9	12
10/23/2006 9:33	FIELD BLANK	BNA-Water	Hexachloroethane	2.9	ug/L	U	2.9	12
10/23/2006 9:33	FIELD BLANK	BNA-Water	Indeno(1,2,3-cd)pyrene	0.98	ug/L	U	0.98	3.9
10/23/2006 9:33	FIELD BLANK	BNA-Water	Isophorone	0.98	ug/L	U	0.98	3.9

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
10/23/2006 9:33	FIELD BLANK	BNA-Water	N-Nitrosodi-n-propylamine	2	ug/L	U	2	7.8
10/23/2006 9:33	FIELD BLANK	BNA-Water	N-Nitrosodimethylamine	2	ug/L	U	2	7.8
10/23/2006 9:33	FIELD BLANK	BNA-Water	N-nitrosodiphenylamine/diphenylamine	2.9	ug/mL	U	2.9	12
10/23/2006 9:33	FIELD BLANK	BNA-Water	Naphthalene	0.98	ug/L	U	0.98	3.9
10/23/2006 9:33	FIELD BLANK	BNA-Water	Nitrobenzene	2	ug/L	U	2	7.8
10/23/2006 9:33	FIELD BLANK	BNA-Water	Pentachlorophenol	2.9	ug/L	U	2.9	12
10/23/2006 9:33	FIELD BLANK	BNA-Water	Phenanthrene	0.98	ug/L	U	0.98	3.9
10/23/2006 9:33	FIELD BLANK	BNA-Water	Phenol	0.98	ug/L	U	0.98	3.9
10/23/2006 9:33	FIELD BLANK	BNA-Water	Pyrene	0.98	ug/L	U	0.98	3.9
10/23/2006 9:33	FIELD BLANK	BNA-Water	alpha-BHC	1.5	ug/L	U	1.5	5.9
10/23/2006 9:33	FIELD BLANK	BNA-Water	beta-BHC	1.5	ug/L	U	1.5	5.9
10/23/2006 9:33	FIELD BLANK	BNA-Water	delta-BHC	1.5	ug/L	U	1.5	5.9
10/23/2006 9:33	FIELD BLANK	BNA-Water	gamma-BHC	1.5	ug/L	U	1.5	5.9
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	1,2,4-Trichlorobenzene	0.97	ug/L	U	0.97	3.9
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	1,2-Dichlorobenzene	0.97	ug/L	U	0.97	3.9
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	1,3-Dichlorobenzene	0.97	ug/L	U	0.97	3.9
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	1,4-Dichlorobenzene	0.97	ug/L	U	0.97	3.9
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	2,4,6-Trichlorophenol	0.97	ug/L	U	0.97	3.9
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	2,4-Dichlorophenol	0.97	ug/L	U	0.97	3.9
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	2,4-Dimethylphenol	49	ug/L	U	49	190
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	2,4-Dinitrophenol	15	ug/L	U	15	58
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	2,4-Dinitrotoluene	0.97	ug/L	U	0.97	3.9
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	2,6-Dinitrotoluene	0.97	ug/L	U	0.97	3.9
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	2-Chloronaphthalene	0.97	ug/L	U	0.97	3.9
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	2-Chlorophenol	0.97	ug/L	U	0.97	3.9
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	2-Methyl-4,6-dinitrophenol	2.9	ug/L	U	2.9	12
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	2-Nitrophenol	0.97	ug/L	UJ	0.97	3.9
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	3,3'-Dichlorobenzidine	39	ug/L	UJ	39	160
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	4,4'-DDD	1.5	ug/L	U	1.5	5.8
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	4,4'-DDE	1.5	ug/L	U	1.5	5.8
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	4,4'-DDT	1.5	ug/L	U	1.5	5.8
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	4-Bromophenyl phenyl ether	0.97	ug/L	U	0.97	3.9
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	4-Chloro-3-methylphenol	0.97	ug/L	U	0.97	3.9
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	4-Chlorophenyl phenyl ether	1.9	ug/L	U	1.9	7.8

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	4-Nitrophenol	15	ug/L	U	15	58
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	Acenaphthene	0.97	ug/L	U	0.97	3.9
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	Acenaphthylene	0.97	ug/L	U	0.97	3.9
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	Aldrin	1.5	ug/L	U	1.5	5.8
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	Anthracene	0.97	ug/L	U	0.97	3.9
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	Benzidine	97	ug/L	U	97	390
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	Benzo(a)anthracene	0.97	ug/L	U	0.97	3.9
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	Benzo(a)pyrene	0.97	ug/L	U	0.97	3.9
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	Benzo(b)fluoranthene	0.97	ug/L	U	0.97	3.9
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	Benzo(g,h,i)perylene	0.97	ug/L	U	0.97	3.9
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	Benzo(k)fluoranthene	0.97	ug/L	U	0.97	3.9
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	Bis(2-chloroethoxy)methane	0.97	ug/L	U	0.97	3.9
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	Bis(2-chloroethyl)ether	0.97	ug/L	U	0.97	3.9
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	Bis(2-chloroisopropyl)ether	2.9	ug/L	U	2.9	12
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	Bis(2-ethylhexyl)phthalate	15	ug/L	U	15	58
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	Butyl benzyl phthalate	4.9	ug/L	U	4.9	19
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	Chrysene	0.97	ug/L	U	0.97	3.9
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	Di-n-butyl phthalate	4.9	ug/L	U	4.9	19
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	Di-n-octyl phthalate	0.97	ug/L	U	0.97	3.9
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	Dibenzo(a,h)anthracene	0.97	ug/L	U	0.97	3.9
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	Dieldrin	1.5	ug/L	U	1.5	5.8
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	Diethyl phthalate	0.97	ug/L	U	0.97	3.9
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	Dimethyl phthalate	49	ug/L	U	49	190
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	Endosulfan I	3.9	ug/L	U	3.9	16
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	Endosulfan II	3.9	ug/L	U	3.9	16
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	Endosulfan sulfate	1.5	ug/L	U	1.5	5.8
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	Endrin	1.5	ug/L	UJ	1.5	5.8
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	Endrin aldehyde	3.9	ug/L	U	3.9	16
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	Fluoranthene	0.97	ug/L	U	0.97	3.9
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	Fluorene	0.97	ug/L	U	0.97	3.9
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	Heptachlor	1.5	ug/L	U	1.5	5.8
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	Heptachlor epoxide	1.5	ug/L	U	1.5	5.8
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	Hexachlorobenzene	0.97	ug/L	U	0.97	3.9
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	Hexachlorobutadiene	2.9	ug/L	U	2.9	12

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	Hexachlorocyclopentadiene	2.9	ug/L	U	2.9	12
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	Hexachloroethane	2.9	ug/L	U	2.9	12
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	Indeno(1,2,3-cd)pyrene	0.97	ug/L	U	0.97	3.9
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	Isophorone	0.97	ug/L	U	0.97	3.9
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	N-Nitrosodi-n-propylamine	1.9	ug/L	U	1.9	7.8
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	N-Nitrosodimethylamine	1.9	ug/L	U	1.9	7.8
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	N-nitrosodiphenylamine/diphenylamine	2.9	ug/mL	U	2.9	12
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	Naphthalene	0.97	ug/L	U	0.97	3.9
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	Nitrobenzene	1.9	ug/L	U	1.9	7.8
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	Pentachlorophenol	2.9	ug/L	U	2.9	12
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	Phenanthrene	0.97	ug/L	U	0.97	3.9
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	Phenol	0.97	ug/L	U	0.97	3.9
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	Pyrene	0.97	ug/L	U	0.97	3.9
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	alpha-BHC	1.5	ug/L	U	1.5	5.8
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	beta-BHC	1.5	ug/L	U	1.5	5.8
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	delta-BHC	1.5	ug/L	U	1.5	5.8
10/23/2006 9:25	FINAL EFFLUENT	BNA-Water	gamma-BHC	1.5	ug/L	U	1.5	5.8
10/23/2006 9:33	FIELD BLANK	GC-Water	Alachlor	0.61	ug/L	UJ	0.61	2.4
10/23/2006 9:33	FIELD BLANK	GC-Water	Ametryn	0.051	ug/L	U	0.051	0.2
10/23/2006 9:33	FIELD BLANK	GC-Water	Atrazine	0.051	ug/L	U	0.051	0.2
10/23/2006 9:33	FIELD BLANK	GC-Water	Azinphos Methyl	0.2	ug/L	U	0.2	0.8
10/23/2006 9:33	FIELD BLANK	GC-Water	Bromacil	0.2	ug/L	UJ	0.2	0.8
10/23/2006 9:33	FIELD BLANK	GC-Water	Butylate	0.2	ug/L	UJ	0.2	0.8
10/23/2006 9:33	FIELD BLANK	GC-Water	Chlorpyrifos Ethyl	0.051	ug/L	U	0.051	0.2
10/23/2006 9:33	FIELD BLANK	GC-Water	Chlorpyrifos Methyl	0.1	ug/L	U	0.1	0.4
10/23/2006 9:33	FIELD BLANK	GC-Water	Diazinon	0.051	ug/L	UJ	0.051	0.2
10/23/2006 9:33	FIELD BLANK	GC-Water	Ethion	0.051	ug/L	U	0.051	0.2
10/23/2006 9:33	FIELD BLANK	GC-Water	Ethoprop	0.1	ug/L	U	0.1	0.4
10/23/2006 9:33	FIELD BLANK	GC-Water	Fenamiphos	0.2	ug/L	U	0.2	0.8
10/23/2006 9:33	FIELD BLANK	GC-Water	Fonofos	0.1	ug/L	U	0.1	0.4
10/23/2006 9:33	FIELD BLANK	GC-Water	Hexazinone	0.1	ug/L	U	0.1	0.4
10/23/2006 9:33	FIELD BLANK	GC-Water	Malathion	0.15	ug/L	U	0.15	0.6
10/23/2006 9:33	FIELD BLANK	GC-Water	Metalaxyl	0.25	ug/L	UJ	0.25	1
10/23/2006 9:33	FIELD BLANK	GC-Water	Metolachlor	0.51	ug/L	U	0.51	2

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
10/23/2006 9:33	FIELD BLANK	GC-Water	Metribuzin	0.1	ug/L	U	0.1	0.4
10/23/2006 9:33	FIELD BLANK	GC-Water	Mevinphos	0.2	ug/L	U	0.2	0.8
10/23/2006 9:33	FIELD BLANK	GC-Water	Naled	0.81	ug/L	U	0.81	3.2
10/23/2006 9:33	FIELD BLANK	GC-Water	Norflurazon	0.15	ug/L	U	0.15	0.6
10/23/2006 9:33	FIELD BLANK	GC-Water	Parathion Ethyl	0.15	ug/L	U	0.15	0.6
10/23/2006 9:33	FIELD BLANK	GC-Water	Parathion Methyl	0.1	ug/L	U	0.1	0.4
10/23/2006 9:33	FIELD BLANK	GC-Water	Phorate	0.051	ug/L	U	0.051	0.2
10/23/2006 9:33	FIELD BLANK	GC-Water	Prometryn	0.15	ug/L	U	0.15	0.6
10/23/2006 9:33	FIELD BLANK	GC-Water	Simazine	0.051	ug/L	U	0.051	0.2
10/23/2006 9:25	FINAL EFFLUENT	GC-Water	Alachlor	0.64	ug/L	UJ	0.64	2.6
10/23/2006 9:25	FINAL EFFLUENT	GC-Water	Ametryn	0.053	ug/L	U	0.053	0.21
10/23/2006 9:25	FINAL EFFLUENT	GC-Water	Atrazine	0.1	ug/L	I	0.053	0.21
10/23/2006 9:25	FINAL EFFLUENT	GC-Water	Azinphos Methyl	0.21	ug/L	U	0.21	0.84
10/23/2006 9:25	FINAL EFFLUENT	GC-Water	Bromacil	0.21	ug/L	UJ	0.21	0.84
10/23/2006 9:25	FINAL EFFLUENT	GC-Water	Butylate	0.21	ug/L	UJ	0.21	0.84
10/23/2006 9:25	FINAL EFFLUENT	GC-Water	Chlorpyrifos Ethyl	0.053	ug/L	U	0.053	0.21
10/23/2006 9:25	FINAL EFFLUENT	GC-Water	Chlorpyrifos Methyl	0.11	ug/L	U	0.11	0.44
10/23/2006 9:25	FINAL EFFLUENT	GC-Water	Diazinon	0.053	ug/L	UJ	0.053	0.21
10/23/2006 9:25	FINAL EFFLUENT	GC-Water	Ethion	0.053	ug/L	U	0.053	0.21
10/23/2006 9:25	FINAL EFFLUENT	GC-Water	Ethoprop	0.11	ug/L	U	0.11	0.44
10/23/2006 9:25	FINAL EFFLUENT	GC-Water	Fenamiphos	0.21	ug/L	U	0.21	0.84
10/23/2006 9:25	FINAL EFFLUENT	GC-Water	Fonofos	0.11	ug/L	U	0.11	0.44
10/23/2006 9:25	FINAL EFFLUENT	GC-Water	Hexazinone	0.11	ug/L	U	0.11	0.44
10/23/2006 9:25	FINAL EFFLUENT	GC-Water	Malathion	0.16	ug/L	U	0.16	0.64
10/23/2006 9:25	FINAL EFFLUENT	GC-Water	Metalaxyl	0.27	ug/L	UJ	0.27	1.1
10/23/2006 9:25	FINAL EFFLUENT	GC-Water	Metolachlor	0.53	ug/L	U	0.53	2.1
10/23/2006 9:25	FINAL EFFLUENT	GC-Water	Metribuzin	0.11	ug/L	U	0.11	0.44
10/23/2006 9:25	FINAL EFFLUENT	GC-Water	Mevinphos	0.21	ug/L	U	0.21	0.84
10/23/2006 9:25	FINAL EFFLUENT	GC-Water	Naled	0.85	ug/L	U	0.85	3.4
10/23/2006 9:25	FINAL EFFLUENT	GC-Water	Norflurazon	0.16	ug/L	U	0.16	0.64
10/23/2006 9:25	FINAL EFFLUENT	GC-Water	Parathion Ethyl	0.16	ug/L	U	0.16	0.64
10/23/2006 9:25	FINAL EFFLUENT	GC-Water	Parathion Methyl	0.11	ug/L	U	0.11	0.44
10/23/2006 9:25	FINAL EFFLUENT	GC-Water	Phorate	0.053	ug/L	U	0.053	0.21
10/23/2006 9:25	FINAL EFFLUENT	GC-Water	Prometryn	0.16	ug/L	U	0.16	0.64

Appendix E. (continued)

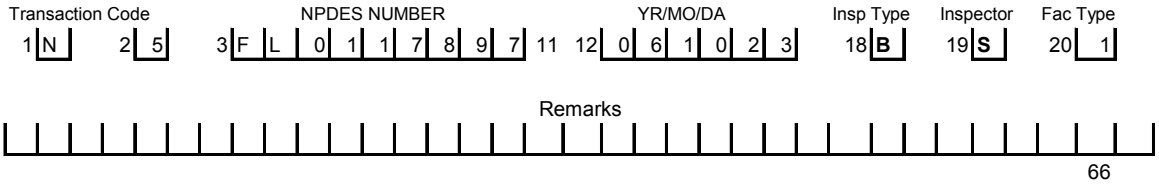
Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
10/23/2006 9:25	FINAL EFFLUENT	GC-Water	Simazine	0.053	ug/L	U	0.053	0.21
10/23/2006 9:33	FIELD BLANK	Metals-Water	Aluminum	4	ug/L	U	4	16
10/23/2006 9:33	FIELD BLANK	Metals-Water	Arsenic	0.5	ug/L	U	0.5	2
10/23/2006 9:33	FIELD BLANK	Metals-Water	Cadmium	0.05	ug/L	U	0.05	0.2
10/23/2006 9:33	FIELD BLANK	Metals-Water	Calcium	0.02	mg/L	U	0.02	0.08
10/23/2006 9:33	FIELD BLANK	Metals-Water	Chromium	0.3	ug/L	U	0.3	1.2
10/23/2006 9:33	FIELD BLANK	Metals-Water	Copper	0.2	ug/L	U	0.2	0.8
10/23/2006 9:33	FIELD BLANK	Metals-Water	Iron	5	ug/L	U	5	20
10/23/2006 9:33	FIELD BLANK	Metals-Water	Lead	0.2	ug/L	U	0.2	0.8
10/23/2006 9:33	FIELD BLANK	Metals-Water	Magnesium	0.005	mg/L	U	0.005	0.02
10/23/2006 9:33	FIELD BLANK	Metals-Water	Nickel	1	ug/L	U	1	4
10/23/2006 9:33	FIELD BLANK	Metals-Water	Selenium	0.5	ug/L	U	0.5	2
10/23/2006 9:33	FIELD BLANK	Metals-Water	Silver	0.025	ug/L	U	0.025	0.1
10/23/2006 9:33	FIELD BLANK	Metals-Water	Zinc	3	ug/L	U	3	12
10/23/2006 9:25	FINAL EFFLUENT	Metals-Water	Aluminum	18	ug/L		4	16
10/23/2006 9:25	FINAL EFFLUENT	Metals-Water	Arsenic	0.62	ug/L	I	0.5	2
10/23/2006 9:25	FINAL EFFLUENT	Metals-Water	Cadmium	0.05	ug/L	U	0.05	0.2
10/23/2006 9:25	FINAL EFFLUENT	Metals-Water	Calcium	63.5	mg/L		0.02	0.08
10/23/2006 9:25	FINAL EFFLUENT	Metals-Water	Chromium	0.3	ug/L	U	0.3	1.2
10/23/2006 9:25	FINAL EFFLUENT	Metals-Water	Copper	1.13	ug/L		0.2	0.8
10/23/2006 9:25	FINAL EFFLUENT	Metals-Water	Iron	35	ug/L		5	20
10/23/2006 9:25	FINAL EFFLUENT	Metals-Water	Lead	0.2	ug/L	U	0.2	0.8
10/23/2006 9:25	FINAL EFFLUENT	Metals-Water	Magnesium	31	mg/L		0.005	0.02
10/23/2006 9:25	FINAL EFFLUENT	Metals-Water	Nickel	1.3	ug/L	I	1	4
10/23/2006 9:25	FINAL EFFLUENT	Metals-Water	Selenium	0.5	ug/L	U	0.5	2
10/23/2006 9:25	FINAL EFFLUENT	Metals-Water	Silver	0.025	ug/L	U	0.025	0.1
10/23/2006 9:25	FINAL EFFLUENT	Metals-Water	Zinc	33	ug/L		3	12
10/23/2006 9:33	FIELD BLANK	Nutrients-Liquid	Ammonia-N	0.01	mg N/L	U	0.01	0.02
10/23/2006 9:33	FIELD BLANK	Nutrients-Liquid	Kjeldahl Nitrogen	0.08	mg N/L	U	0.08	0.2
10/23/2006 9:33	FIELD BLANK	Nutrients-Liquid	NO2NO3-N	0.004	mg N/L	U	0.004	0.01
10/23/2006 9:33	FIELD BLANK	Nutrients-Liquid	O-Phosphate-P	0.004	mg P/L	U	0.004	0.01
10/23/2006 9:33	FIELD BLANK	Nutrients-Liquid	Total-P	0.02	mg P/L	U	0.02	0.06
10/23/2006 9:25	FINAL EFFLUENT	Nutrients-Liquid	Ammonia-N	0.041	mg N/L		0.01	0.02
10/23/2006 9:25	FINAL EFFLUENT	Nutrients-Liquid	Kjeldahl Nitrogen	1.2	mg N/L		0.08	0.2

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
10/23/2006 9:25	FINAL EFFLUENT	Nutrients-Liquid	NO2NO3-N	2.3	mg N/L		0.02	0.05
10/23/2006 9:25	FINAL EFFLUENT	Nutrients-Liquid	O-Phosphate-P	2.6	mg P/L		0.08	0.2
10/23/2006 9:25	FINAL EFFLUENT	Nutrients-Liquid	Specific_Conductance	1.59E+03	umhos/cm		2	8
10/23/2006 9:25	FINAL EFFLUENT	Nutrients-Liquid	TSS	4	mg/L	U	4	16
10/23/2006 9:25	FINAL EFFLUENT	Nutrients-Liquid	Total-P	2.8	mg P/L		0.1	0.3

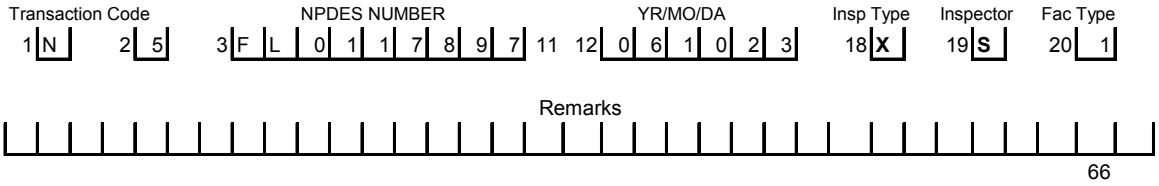
The Bioassay of Sawgrass Wastewater Treatment Facility effluent sampled on October 23, 2006. NPDES #FL0117897.

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



The Priority Pollutants Analysis of Sawgrass Wastewater Treatment Facility effluent sampled on October 23, 2006. NPDES #FL0117897.

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



Biological Analyses of Sawgrass Wastewater Treatment Facility effluent sampled on October 23, 2006. NPDES #FL0117897.

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

