

Effluent Quality Assessment

City of Lakeland Glendale (Wasteload Reduction) WRF

(Formerly Carl W. Dicks WRF)

Polk County

NPDES #FL0039772

Sampled September 8, 2008

January 2009

Biology Section
Bureau of Laboratories
Division of Environmental Assessment and Restoration

Quality Manual No. 870346G
NELAC Certification No. E31780

City of Lakeland Glendale (Wasteload Reduction) WRF, 1825 Glendale Street, Lakeland, Polk County, Florida, 33803. NPDES #FL0039772. Effluent samples for this facility were collected on September 8, 2008.

Introduction

City of Lakeland Glendale (Wasteload Reduction) WRF is a Type I wastewater treatment facility which uses the activated-sludge plug flow treatment process to treat industrial and domestic wastewater. Effluent discharge from the facility is intermittent. The facility has a permitted capacity of 20.0 million gallons per day (MGD) annual average daily flow (AADF). The AADF through the facility from July 2007 through July 2008 was 4.23 MGD. The wastewater treatment system consists of:

- headworks;
- three primary clarifiers;
- three aeration basins;
- four secondary clarifiers;
- a two-phase anaerobic digestion system with two digestors;
- a pipeline (serves as the chlorine contact unit) for transporting effluent to the wetland treatment system and to the McIntosh Power Generating Station;
- a manmade wetlands treatment system, and,
- a series of holding ponds (for storage of treated effluent during abnormal flow events).

Chlorine gas is used for chlorination. Dechlorination is accomplished during flow through the wetlands. Domestic biosolids are transported to either the Glendale WRF or to the Northside WRF for stabilization/processing.

Treated effluent is disposed by discharge to surface waters or via industrial reuse.

Discharge to surface waters is via an unnamed ditch at discharge location D-001 into the Class III Freshwaters of the North Prong of the Alafia River. D-001 is approximately 3 m (10 feet) in length and discharges at a depth of approximately 0.15 m (0.5 feet). The point of discharge for Outfall D-001 is located approximately at latitude 27º 54’ 15” N, longitude 81º 57’ 23” W.

Industrial reuse is via reuse system R-001. In R-001, effluent is used as non-contact cooling water at the City of Lakeland McIntosh Power Generating Plant. The volume of water used on a daily basis fluctuates on an as needed basis. There are no restrictions on the volume that can be routed to the reuse system. The power plant evaporates water in the cooling process or returns cooling water into the Lakeland Glendale WWTP for final treatment in the manmade wetlands treatment system. The reuse in the power plant is not required as effluent disposal. R-001 is located approximately at latitude 28º 04’ 52” N, longitude 81º 55’ 22” W.

The facility’s permit was revised to include the construction and operation of a 1.5 MGD 12 Month Average Daily Flow activated sludge (extended-aeration process) domestic wastewater treatment facility to be used as a pretreatment system to reduce the high-strength wastewater from the industrial/commercial and residential area on the West side of Lakeland. The facility is currently under construction. (Facility information provided by Jason Cohen, Peter Wenner and Joe Squirteri FDEP Southwest District).

Methods

Samples were collected from the EFD-01 NPDES sampling point (at the outfall to the unnamed wetland) for Outfall D-001 by Jason Cohen and Peter Wenner (FDEP Southwest 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 screening toxicity tests and algal growth potential test were performed following internal DEP SOPs TA07_01, TA07_02, 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.

Prior to test initiation, bioassay samples were aerated for 20 minutes at approximately 100 bubbles per minute, to decrease the dissolved oxygen concentration from 10.3 mg/L to 7.5 mg/L.

Toxicity Test Results

Tests were performed September 9 - 11, 2008.

Ceriodaphnia dubia 48-hour acute screening bioassay –	LC_{50} > 100%, 0% mortality* in 100% sample at 48 hours
Pimephales promelas 48-hour acute screening bioassay –	LC_{50} > 100%, 0% 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 12.0 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 based on the ratio (86.2 : 1) of inorganic nitrogen to orthophosphate the effluent is phosphorus-limited and that based on the ratio (2.24 : 1) of total nitrogen to total phosphorus the effluent is nitrogen-limited. The AGP result and the predicted AGP suggest that at least a portion of the organic nitrogen was bio-available to the test species (Table 1; Miller et al. 1978).

See Table 1 for AGP results.

Chemistry Results

Total residual chlorine (TRC) and total ammonia were not detected in the bioassay sample in the laboratory. The TRC concentration in the effluent as measured in the field was 0.01 mg/L. The total ammonia concentration in the sample collected and preserved for chemical analysis was 0.016 mg/L I (I – the reported value is between the laboratory method detection limit and the laboratory practical quantitation limit). Based on the pH, salinity, and temperature of the effluent as collected, the calculated unionized ammonia concentration was < 0.02 mg/L.

The effluent specific conductance (1,274 µmhos/cm), although near the Class III freshwater criterion of ≤ 1,275 µmhos/cm, was approximately 235 µmhos/cm less than the facility's permitted calculated specific conductance limit of approximately 1,510 µmhos/cm.

No constituents were detected in the effluent at levels that did not comply with Class III fresh water quality criteria (62-302.530, F.A.C.). Arsenic, iron and lead were detected between the laboratory method detection limits (MDL) and practical quantitation limits (PQL). Nickel was detected in both the effluent and the field blank.

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 EFD-01 NPDES sampling point for Outfall D-001 for this facility on September 8, 2008, was not acutely toxic to either test species during the 48-hour acute screening bioassays. The effluent AGP result exceeded the "problem" threshold for fresh receiving waters. Effluent water quality samples did not exceed any applicable water quality standards or violate any permit conditions.

Literature Cited

Miller, W. E., T. E. Maloney, and J. C. Greene. 1978. The *Selenastrum capricornutum* Printz algal assay bottle test. EPA-600/9-78-018. U. S. EPA, Cincinnati, Ohio. 126 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) for total soluble inorganic nitrogen (TSIN), orthophosphate (OP), total nitrogen (TN) and total phosphorus (TP) limitation of the freshwater species *Pseudokirchneriella subcapitata* , and ratios of the nitrogen to phosphorus for samples collected from the City of Lakeland Glendale (Wasteload Reduction) WRF on September 8, 2008.

City of Lakeland Glendale (Wasteload Reduction) WRF							
Location	AGP (measured)	Predicted AGP (TSIN) ± 20%	Predicted AGP (OP) ± 20%	Predicted AGP (TN) ± 20%	Predicted AGP (TP) ± 20%	Inorganic N:P ratio	Total N:P ratio
Effluent grab	12.0 A	1.1 ± 0.22	1075.0 ± 215.0	42.3 ± 8.46	1075.0 ± 215.0	86.2	2.24

Note: Predicted AGP (OP) based on grab sample OP concentration. Inorganic N:P ratio calculated from grab sample OP and composite sample TSIN.

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

Table 2. Effluent limits, Class III Freshwater Criteria and chemical and microbiological data for samples collected from the City of Lakeland Glendale (Wasteload Reduction) WRF on September 8, 2008.

City of Lakeland Glendale (Wasteload Reduction) WRF NPDES #FL0039772	Class III Criteria	Effluent Limits	Effluent grab sample	Effluent composite sample
Metals (µg/L unless otherwise noted)				
Aluminum	-	-	-	60 U
Arsenic	≤ 50	-	-	1.7 I
Cadmium	≤ 0.61 b	-	-	0.072 U
Calcium (mg/L)	-	-	-	79.4 A
Chromium-III	≤ 213.1 b	-	-	0.5 U
Copper	≤ 24.0 b	-	-	0.5 U
Iron	≤ 1,000	-	-	43 I
Lead	≤ 13.0 b	-	-	0.28 I
Magnesium (mg/L)	-	-	-	25.2 A
Nickel	≤ 132.9 b	-	-	2.97 AV
Selenium	≤ 5.0	-	-	0.5 U
Silver	≤ 0.07	-	-	0.025 U
Zinc	≤ 305.7 b	-	-	5 U
Nutrients (mg/L)				
Ortho-phosphate	-	-	2.5	-
Total Phosphorus	-	Report p	-	2.5
Total Ammonia	-	-	-	0.016 I
Un-ionized Ammonia	≤ 0.02 s	-	-	< 0.02 c
Nitrate and Nitrite	-	-	-	0.013
Total Kjeldahl Nitrogen	-	-	-	1.1
Organic Nitrogen	-	-	-	1.084 c
Total Nitrogen	-	≤ 6.0 p	-	1.113 c
General Physical and Chemical Parameters				
Dissolved Oxygen (mg/L)	≥ 5.0	≥ 5.0 s	7.3	-
pH (SU)	6.0 - 8.5	6.0 - 8.5 s	0.0	-
Conductivity (µmhos/cm)	≤ 1,275	≤ 1,275*	1,274	-
Temperature °C	-	-	28.6	-
Salinity	-	-	0.63	-
Total Residual Chlorine (mg/L)	≤ 0.01	≥ 1.0 s**	0.01	0.01
Chlorophyll a (µg/L) - Corrected	-	-	15 A	-
Phaeophytin (µg/L)	-	-	4.8 A	-
Total Suspended Solids (mg/L)	-	≤ 10 s p	-	4 U
CBOD, 5 day (mg/L), N - inhibited	-	≤ 10 s p	-	2.6 A
Flow (MGD)	-	≤ 20 a	-	4.23 a
Hardness (mg $CaCO_3$)	-	-	294 £	302.04 c
Microbiology (Number of colony forming units/100ml)				
Fecal Coliforms	≤ 400s #	≤ 86 s	8 B	-

Value exceeds the Class III Water Quality Criteria or permit limits

a - Annual average
b - Value is calculated based on hardness
c - Value is calculated
p - Limit is based on a 24-hour flow proportioned sample
s - Single sample
A - Value reported is the mean of two or more determinations
B - Results based on colony counts outside the acceptance range
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
V - Analyte was detected in both sample and method blank
- If 10 or fewer samples are taken within a month, the single sample limit is 400 CFU (62-302.530(6), F.A.C.)
* Limit is no more than 1.5 times background or 1,275 µmhos-cm, whichever is greater
** Limit immediately after disinfection
£ - Analysis performed in bioassay lab

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Request Number: RQ-2008-09-08-20
Lakeland, City of - Glendale WRF

Event ID *

Requester: Jennifer Paris
Field Report Prepared By:

Customer: SW-DIST
Collected By: JASON COHEN, PETE WENNER
Send Final Report To Tom Gucciardo

Project ID: FYI3
Sampling Agency: FDEP SWD

PMAS: 1143

Lab ID *	Location	Field ID	Matrix (Include type e.g. Salt, Fresh, etc	Temp (C)	pH	Latitude	Longitude	Comp / Grab	Collection (begin) Date Time Eastern Central	Collection (end) Date Time Eastern Central	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number	Sample Depth m / ft	Salinity (PPTh) / Sp Conductance (umho/cm)	NPDES Number	Comments	Bottle Group(s)**
36737	D-001	36737	FRESH	28.63		29 54' 00.3"	081 o 56' 36.4"	Grab	9/8/08 1020 Eastern Central		0.01	7.32		0.02 m	0.63 / 1274 Salinity (PPTh) / Sp Conductance (umho/cm)		DO% 95.1	A
36740	FIELD BLANK	36740	DI WATER					Grab	9/8/08 Eastern Central									B
	~~D-001~~	~~36738~~ JC 9/8/08	FRESH					~~Comp~~ Grab	Eastern Central									
36738	D001	36738	FRESH					Comp	9/7/08 730 Eastern Central	9/8/08 830 Eastern Central	0.01						3 Biomass Red in Tox by J.D. 1040 9.9.08	A

Relinquished By:	Date/Time	Shipping Method:	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
	9/8/08 1300	DHL					JC	9-9-08/9:15a

* 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: Lakeland - Glendale WRF

Address: 1825 Glendale Street

City: Lakeland County: POLK 33803

Contact/District: P. Wenner JR Crisp MF / Southwest

NPDES Permit #: FL 0039772

LIMS Job #: 711-2003-09-05-29 LIMS Sample #: 113093

Lims Data Entry: 9-12-08 MF Data Entry Verification: JD 9.12.08

Sample Collection: Date: 9.8.08 Time: 1020

Hold Time Start: Date: 9.8.08 Time: 1020

Comments:

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 01

Control survival ≥90%: Yes No

Temperature Range ≤3°C: Yes No

Test 2 validation: Test 2: SOP TA 07 02

Control survival ≥90%: Yes No

Temperature Range ≤3°C: Yes No

(√one)

Test 1 incubated in: ☑ Incubator #: 2 ☐ Waterbath #:

Test 2 incubated in: ☑ Incubator #: 2 ☐ Waterbath #:

Initial sample handling:

PH adjustment: yes no Initial pH: ____ NaOH N HCl N ____ Drops mL Final pH: ____

Aeration: yes no Initial DO: 8.3 mg/L Final DO: 7.5 mg/L Duration: 20 minutes Rate: ~ 100 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 — IF Hand Delivered: Cooling (received °C < collected °C) NA 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: (If used)

Incubator # 2 min. 25.7 max. 26.7 mean 26.2

Incubator # ____ min. ____ max. ____ mean ____

Waterbath # ____ min. ____ max. ____ mean ____

Room B246 min. 25.2 max. 25.7 mean 25.5

Investigators' Signatures

James French

Marshall Cuscleth

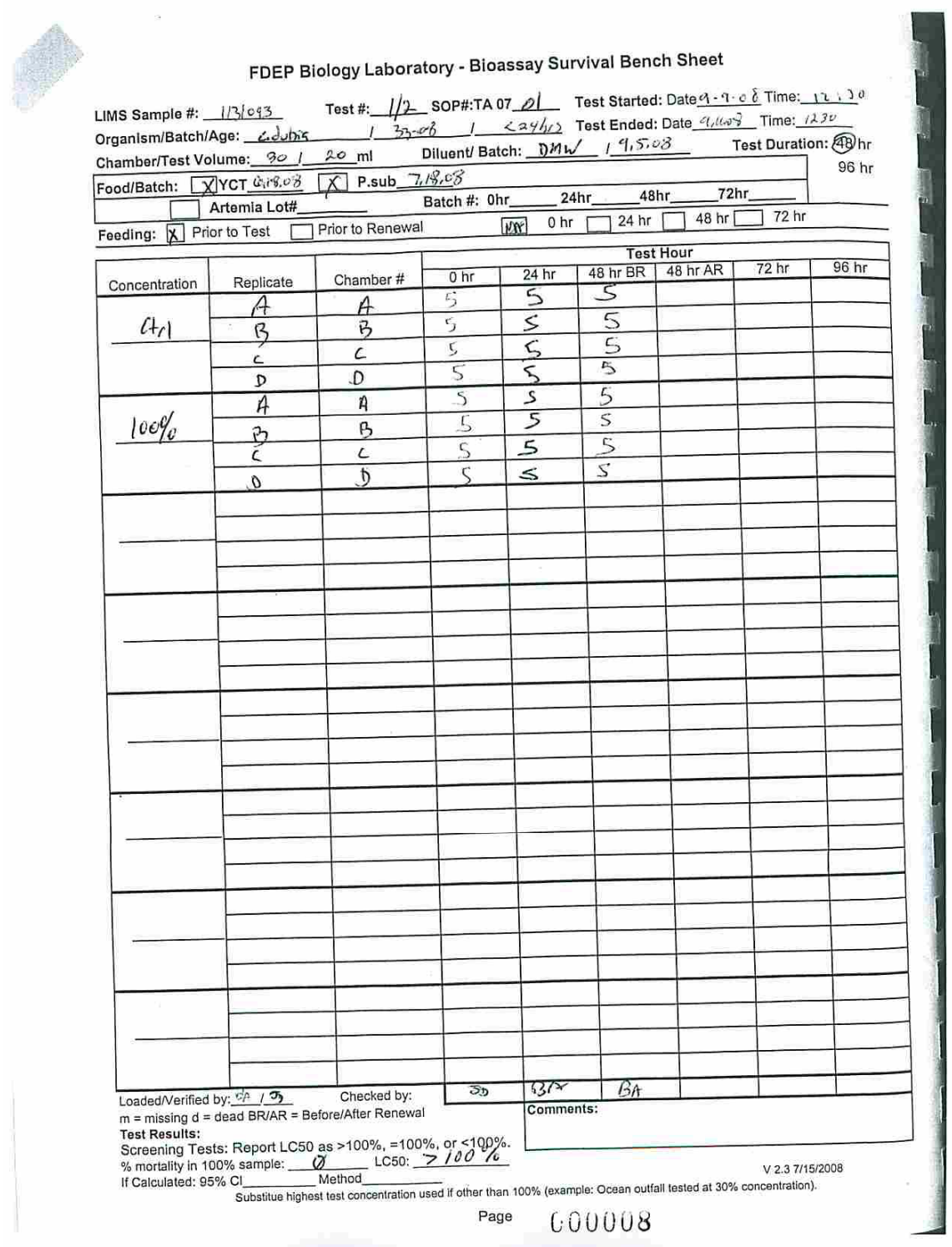
Loretta Cuscleth

REVIEWER

Batch #	9-5-08		9-2-08						
Water Quality Parameters	20% DMW	Well Water	Moderately Hard Water	Salt Water ASW NSW Test 1	Salt Water ASW NSW Test 2	Other:	Original Sample	Measured by	Verified by
Field Total Residual Cl_2 (mg/L):	N/A	N/A	N/A	N/A	N/A	N/A	0.01	P WENNER	MF
Lab Total Residual Cl_2 (mg/L):	<0.03		<0.03				<0.03	JD	BA
Alkalinity (mg/L as $CaCO_3$):	86		97				18.7	BA	JD
Hardness (mg/L as $CaCO_3$):	86		96				294	BA	JD
Total Ammonia (mg/L as N):	<0.017		<0.017				<0.017	BA	JD
Conductivity: µmhos (mmhos)	0.177		0.328			0.7 50	1308	JD	BA
Salinity (ppth):	<1		<1				<1	JD	BA

V 1.6 7/8/08

Appendix B. (continued)



FDEP Biology Laboratory - Bioassay Survival Bench Sheet

LIMS Sample #: 173093 Test #: 1/2 SOP#:TA 07 01 Test Started: Date 9-9-08 Time: 12:30

Organism/Batch/Age: C.dubia / 33-08 / <24hrs Test Ended: Date 9,11,08 Time: 1230

Chamber/Test Volume: 30 / 20 ml Diluent/ Batch: DMW / 9,5,08 Test Duration: (48) 96 hr

Food/Batch: [X] YCT 6.18.08 [X] P.sub 7,18,08

[ ] Artemia Lot# Batch #: 0hr 24hr 48hr 72hr

Feeding: [X] Prior to Test [ ] Prior to Renewal [NA] 0 hr [ ] 24 hr [ ] 48 hr [ ] 72 hr

Concentration	Replicate	Chamber #	Test Hour 0 hr	24 hr	48 hr BR	48 hr AR	72 hr	96 hr
Ctl	A	A	5	5	5			
	B	B	5	5	5			
	C	C	5	5	5			
	D	D	5	5	5			
100%	A	A	5	5	5			
	B	B	5	5	5			
	C	C	5	5	5			
	D	D	5	5	5			
			55	53X	BA			

Loaded/Verified by: CP / JS 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%

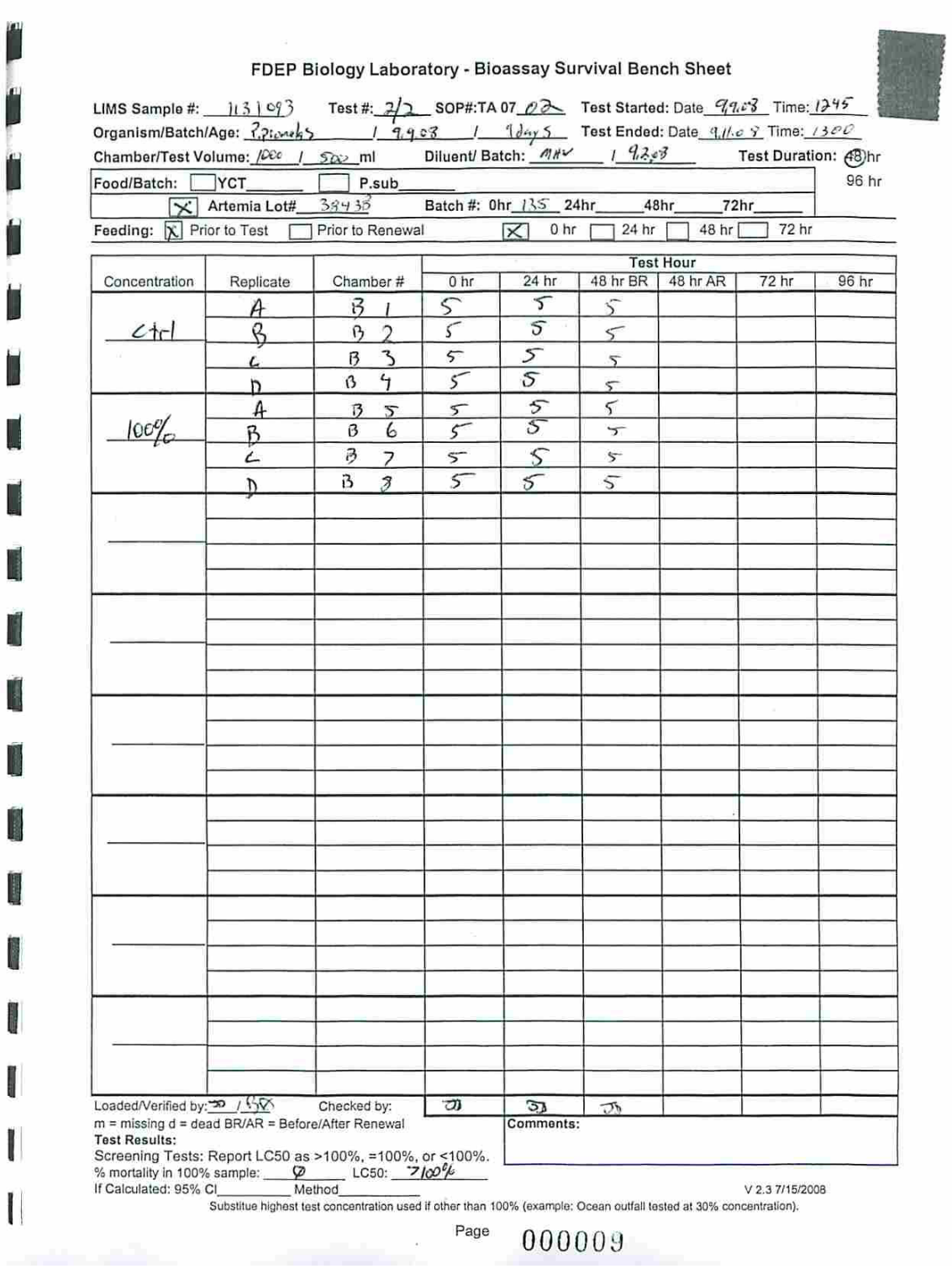
If Calculated: 95% CI Method

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

V 2.3 7/15/2008

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Appendix B. (continued)



FDEP Biology Laboratory - Bioassay Survival Bench Sheet

LIMS Sample #: 131093 Test #: 212 SOP#:TA 07 02 Test Started: Date 9.9.08 Time: 1245

Organism/Batch/Age: 2 Pimephales / 9.9.08 / 1day 5 Test Ended: Date 9.11.08 Time: 1300

Chamber/Test Volume: 1000 / 500 ml Diluent/ Batch: MH2 / 9.2.08 Test Duration: (48) hr 96 hr

Food/Batch: ☐ YCT ☐ P.sub

☒ Artemia Lot# 38435 Batch #: 0hr 135 24hr 48hr 72hr

Feeding: ☒ Prior to Test ☐ Prior to Renewal ☒ 0 hr ☐ 24 hr ☐ 48 hr ☐ 72 hr

Concentration	Replicate	Chamber #	Test Hour 0 hr	24 hr	48 hr BR	48 hr AR	72 hr	96 hr
Ctrl	A	B 1	5	5	5			
	B	B 2	5	5	5			
	C	B 3	5	5	5			
	D	B 4	5	5	5			
100%	A	B 5	5	5	5			
	B	B 6	5	5	5			
	C	B 7	5	5	5			
	D	B 8	5	5	5			

Loaded/Verified by: JD / [illegible] Checked by: JD JD JD

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

Test Results:

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

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

If Calculated: 95% CI_____ Method_____

Comments:

V 2.3 7/15/2008

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 # : 1131093 Test #: 1 of 2

TEST SOP #: TA07 01 Test Species: ☒ *Ceriodaphnia dubia* ☐ *Cyprinella leedsi* ☐ *Pimephales promelas*

Test aerated: yes (no) (circle one) Check 1: ☐ *Americamysis bahia* ☐ *Menidia beryllina* ☐ Other: _____

Concentration Ctrl	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	M		A			
pH (S.U.)	8.0		8.0			
Temperature °C	24.4		24.5			
Dissolved Oxygen mg/L aerate if < 4	7.3		7.3			
Conductivity ~~µmhos~~ BA ~~mmhos~~	0.177		0.187			
Salinity ppth			—			
(initials) Measured by:	BA		BA			
(initials) Recorded by:	BA		BA			

Comments:

Concentration 100%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	M		A			
pH (S.U.)	8.2		8.5			
Temperature °C	24.6		24.4			
Dissolved Oxygen mg/L aerate if < 4	7.5		7.2			
Conductivity ~~µmhos~~ BA ~~mmhos~~	1.291		1.480			
Salinity ppth			—			
(initials) Measured by:	BA		BA			
(initials) Recorded by:	BA		BA			

Comments:

Salinity only needs measuring if saltwater.

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 aerate if < 4						
Conductivity µmhos mmhos						
Salinity ppth						
(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 aerate if < 4						
Conductivity µmhos mmhos						
Salinity ppth						
(initials) Measured by:						
(initials) Recorded by:						

Comments:

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FDEP Biology Laboratory - Bioassay Parameter Bench Sheet

LIMS Sample # : 113093 Test #: 2 of 2

TEST SOP #: TA07 02 Test Species: ☐ *Ceriodaphnia dubia* ☐ *Cyprinella leedsi* ☒ *Pimephales promelas*

Test aerated: yes (no) (circle one) Check 1: ☐ *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.)	8.0	8.0	7.7			
Temperature °C	24.5	24.3	24.1			
Dissolved Oxygen mg/L aerate if < 4	7.5	7.0	7.2			
Conductivity (µmhos) mmhos	328	334	338			
Salinity ppth						
(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	8.3	8.4			
Temperature °C	24.8	24.3	24.2			
Dissolved Oxygen mg/L aerate if < 4	7.5	7.0	7.2			
Conductivity (µmhos) mmhos	1295	1290	1311			
Salinity ppth						
(initials) Measured by:	JD	JD	JD			
(initials) Recorded by:	JD	JD	JD			

Comments:

Salinity only needs measuring if saltwater.

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 aerate if < 4						
Conductivity µmhos mmhos						
Salinity ppth						
(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 aerate if < 4						
Conductivity µmhos mmhos						
Salinity ppth						
(initials) Measured by:						
(initials) Recorded by:						

Comments:

Bioassay Instrument ID

Test ID: Lakeland - Glendale WRF Dates: September 9-11-2008 mt

METER / DEVICE	ID	SOP	Parameter	Method	√used
YSI Model 58 Dissolved Oxygen Meter	90H018262	TA06_04	Dissolved Oxygen	SM 4500 O G	✓
Accumet AR-10 pH Meter	93312105	TA06_23	pH	SM 4500 H+	✓
Mettler-Toledo SevenMulti Conductivity Meter	SN 1225117049 Probe H04257	TA06_25	Conductivity	SM 2510 B	✓
			Salinity	SM 2520 B	✓
Denver Model 225 ISE with ammonia probe	SN K01377	TA06_17	Ammonia	SM 4500 NH3 F	✓
Thermometer (DO probe)	YSI 5750 SN 05J1720	TA06_05	Temperature	SM-2530B modified DEP SOP-001/01 FT1400	✓
Hach Pocket Colorimeter II	05050C026378	TA06_22	Total Residual Chlorine	EPA 330.5 SM 4500 CL G	✓
Alkalinity (Hach Kit)	No SN	TA06_08	Alkalinity	SM 2320 B	✓
Hardness (Hach Kit)	No SN	TA06_09	Hardness	SM 2340 C	✓
OHAUS Balance 250D	1125481084	TA06_21 TA06_27	Weight	-	
S-Weights	BIO-S-WEIGHTS-01	NA	Balance check	-	

SM-2530B modified to allow use of electronic and non-mercury filled thermometers.
Insert other device information in blank spaces(if used). Test ID = Facility or SRTs (acute SRT--Chronic SRT)

V 1.1 6/12/08 MF

000012

PAGE

Appendix C. SRT Bench Sheets and Statistical Analysis

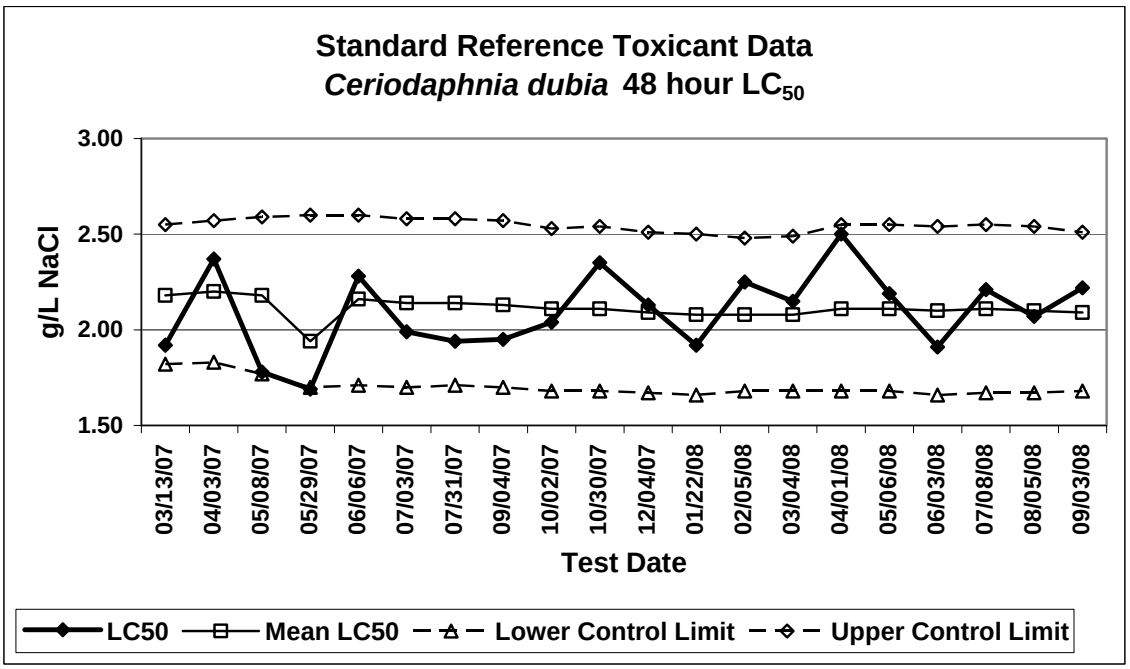
Florida Department of Environmental Protection
Bureau of Laboratories

Standard Reference Toxicant (SRT) Test Data - 48-hour Acute Toxicity
Ceriodaphnia dubia (water flea) - Sodium Chloride (NaCl)

Date	LC50	Mean LC50	Std Dev	Lower Control Limit	Upper Control Limit
03/13/07	1.92	2.18	0.18	1.82	2.55
04/03/07	2.37	2.20	0.18	1.83	2.57
05/08/07	1.78	2.18	0.21	1.77	2.59
05/29/07	1.69	1.94	0.23	1.70	2.60
06/06/07	2.28	2.16	0.22	1.71	2.60
07/03/07	1.99	2.14	0.22	1.70	2.58
07/31/07	1.94	2.14	0.22	1.71	2.58
09/04/07	1.95	2.13	0.22	1.70	2.57
10/02/07	2.04	2.11	0.21	1.68	2.53
10/30/07	2.35	2.11	0.21	1.68	2.54
12/04/07	2.13	2.09	0.20	1.67	2.51
01/22/08	1.92	2.08	0.20	1.66	2.50
02/05/08	2.25	2.08	0.20	1.68	2.48
03/04/08	2.15	2.08	0.20	1.68	2.49
04/01/08	2.50	2.11	0.22	1.68	2.55
05/06/08	2.19	2.11	0.22	1.68	2.55
06/03/08	1.91	2.10	0.22	1.66	2.54
07/08/08	2.21	2.11	0.22	1.67	2.55
08/05/08	2.07	2.10	0.22	1.67	2.54
09/03/08	2.22	2.09	0.21	1.68	2.51

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

CV = 9.95
EPA reference 75th quartile CV = 29%



Appendix C. (continued)

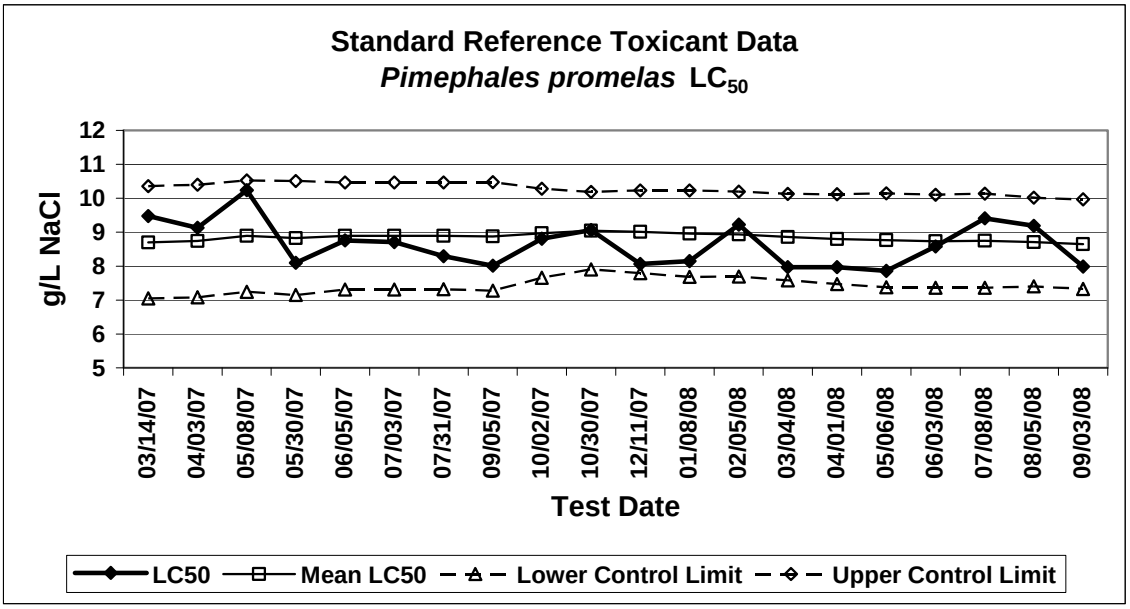
Florida Department of Environmental Protection
Bureau of Laboratories

Standard Reference Toxicant (SRT) Test Data - 48-hour Acute Toxicity
Pimephales promelas (fathead minnow) - Sodium Chloride (NaCl)

Date	LC50	Mean LC50	Std Dev	Lower Control Limit	Upper Control Limit
03/14/07	9.48	8.70	0.83	7.05	10.36
04/03/07	9.13	8.74	0.83	7.08	10.40
05/08/07	10.24	8.89	0.82	7.24	10.53
05/30/07	8.10	8.83	0.84	7.15	10.51
06/05/07	8.76	8.89	0.79	7.31	10.47
07/03/07	8.71	8.89	0.79	7.31	10.47
07/31/07	8.29	8.89	0.79	7.32	10.47
09/05/07	8.01	8.88	0.80	7.28	10.48
10/02/07	8.81	8.97	0.66	7.66	10.28
10/30/07	9.06	9.05	0.57	7.90	10.19
12/11/07	8.06	9.01	0.61	7.79	10.23
01/08/08	8.15	8.96	0.64	7.68	10.23
02/05/08	9.22	8.94	0.63	7.69	10.20
03/04/08	7.97	8.86	0.64	7.58	10.13
04/01/08	7.97	8.80	0.66	7.47	10.12
05/06/08	7.86	8.77	0.69	7.38	10.15
06/03/08	8.58	8.73	0.68	7.36	10.10
07/08/08	9.41	8.75	0.70	7.36	10.14
08/05/08	9.19	8.71	0.66	7.40	10.02
09/03/08	7.99	8.65	0.66	7.33	9.97

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

CV = 7.63
EPA reference 75th quartile CV = 19%



Appendix C. (continued)

FDEP Biology Laboratory - Acute SRT Bench Sheet

Method from EPA-821-R-02-012 except *H. azteca*

Test Organism: (check one)
☐ *Americamysis bahia* Method 2007.0 TA07.03 ☐ *Menidia Beryllina* Method 2006.0 TA07.04 ☐ *Hyalella azteca* Method 100.1 EPA-600-R-99-064
☒ *Ceriodaphnia dubia* Method 2002.0 TA07.01 ☐ *Cyprinella leedsi* Method 2000.0 TA07.02 ☐ *Pimephales promelas* Method 2000.0 TA07.02

Test Type: ☐ non-renewal ☑ renewal
Test Page 1 of 2

Diluent/ Batch #: DMW 1.8-26-08 **Organism Batch:** 32-08 **Test Beginning:** Date: 9-3-08 Time: 10:20
Toxicant/ Batch#: 3 NaCl 1.9-2-08 Age: <24hrs **Test Ending:** Date: 9.7.08 Time: 11:10

Water Quality Parameters:	Diluent	SOP	Initials
Total Residual Cl_2 (mg/L):	<0.03	TA06_22	JD
Alkalinity (mg/L as $CaCO_3$):	91	TA06_08	BA
Hardness (mg.L as $CaCO_3$):	85	TA06_09	BA
Total Ammonia (mg/L as N):	<0.017	TA06_17	ME
Conductivity: µmhos (mmhos)	0.173	TA06_25	BA
Salinity (ppth):	<1	TA06_25	BA

Food:	Batch
☑ YCT	6-18-08
☑ *P. subcapitata*	7-18-08
☐ Artemia Lot #	

Artemia Batch:
0 hr:
24 hr:
48 hr:
72 hr:

Chamber size: 30 mL
Test volume: 20 mL per replicate

Concentrations prepared by: BA
Temperature Range °C:(if used)
Test Incubated in: Incubator # 2 Waterbath # ____ Incubator # 2 min. 25.4 max. 26.5 mean 25.9
Light Intensity: 50-100 Ft. candles Waterbath # ___ min.____ max.____ mean____
Photoperiod: 16 hours Light / 8 hours dark Room B246 min. 25.1 max. 25.8 mean 25.5

Feeding: √as needed
☑ Before test
☐ 0 hr
☐ 24 hr
☑ 48 hr
☐ 72 hr

all species 2 hrs prior to test
mysids daily
all species except *H. azteca* 2 hr prior to renewal
H. azteca 0 hr and 48 hr

Concentration µg/L mg/L g/L	Replicate	Chamber #	Test Hour 0 hr	24 hr	48 hr BR	48 hr AR	72 hr	96 hr
Control	A	A	5	5	5	5	5	5
	B	B	5	5	5	5	5	5
	C	C	5	5	5	5	5	5
	D	D	5	5	5	5	5	5
1.5	A	A	5	5	5	5	5	5
	B	B	5	5	5	5	5	5
	C	C	5	5	5	5	3 2D	3
	D	D	5	5	5	5	3 2D	3
2.0	A	A	5	5	5	5	5	5
	B	B	5	5	5	5	5	5
	C	C	5	5	5	5	5	5
	D	D	5	5	3 2D	3	0 1D	2
2.5	A	A	5	5	2 3D	2	2	0 2D
	B	B	5	5	0 5D	–	–	–
	C	C	5	3 2D	0 3D	–	–	–
	D	D	5	4 1D	0 4D	–	–	–
3.0	A	A	5	5	0 5D	–	–	–
	B	B	5	2 3D	0 2D	–	–	–
	C	C	5	4 1D	0 4D	–	–	–
	D	D	5	5	0 5D	–	–	–
4.0	A	A	5	0 5D	–	–	–	–
	B	B	5	0 5D	–	–	–	–
	C	C	5	0 5D	–	–	–	–
	D	D	5	0 5D	–	–	–	–

Organisms loaded by: BA Checked by: BA BA BA BA JD JD
Loading Verified by: MF AR = after renewal
m = missing d = dead BR = before renewal hr = hour

Investigators' Signatures
Brett Alan
Marshall Faircloth
James David

Reviewer: Loretta C. Wolfe

Comments:

Method: TSK
Statistics: LC50
48 hour: 2.122
96 hour: 2.118

95% confidence Intervals

	Lower	Upper
48 hour:	2.13	2.32
96 hour:	unreliable	

H. azteca		
0 hr	Alk	Hrd
Well		
100%		
96 hr	Alk	Hrd
Well		
100%		

000015

Appendix C. (continued)

FDEP Biology Laboratory - Acute SRT Bench Sheet
0-96 hour parameters

Methods from EPA-821-R-02-012 except *H. azteca*

Test Page 2 of 2

Test Organism: (check one)
- ☐ *Americamysis bahia* Method 2007.0 TA07.03
- ☐ *Menidia Beryllina* Method 2006.0 TA07.04
- ☐ *Hyalella azteca* Method 100.1 EPA-600-R-99-064
- ☒ *Ceriodaphnia dubia* Method 2002.0 TA07.01
- ☐ *Cyprinella leedsi* Method 2000.0 TA07.02
- ☐ *Pimephales promelas* Method 2000.0 TA07.02

Test Beginning: Date: 9-3-08 Time: 10:20
Test Ending: Date: 9.7.08 Time: 11:10

Test Type: ☐ non-renewal ☑ renewal

hr = hour AR = after renewal BR = before renewal

Concentration µg/L mg/L g/L	Replicate	Test Hour	pH (SU)	Temperature (°C)	Dissolved Oxygen (mg/L)	Conductivity ☐µmhos ☑µmhos	Salinity (ppth)
Control	M	0 hr	7.9	24.0	7.3	0.173	0.0
	—	24 hr	—	~~24.3~~	—	~~0.174~~	~~0.5~~
	M	48 hr BR/AR	8.1	24.3	7.7	0.174	—
	A	48 hr ~~AR~~/BR	8.0	24.0	6.4	0.181	—
		72 hr					
	M	96 hr	7.8	24.7	7.2	0.192	
1.5	M	0 hr	7.9	24.3	7.3	2.94	1.50
	—	24 hr	—	—	—	—	—
	M	48 hr ~~BR~~/AR	8.1	24.7	7.7	2.95	—
	A	48 hr ~~AR~~/BR	8.0	24.0	6.4	3.16	—
		72 hr					
	M	96 hr	7.9	24.8	7.4	3.13	
2.0	M	0 hr	8.0	24.6	7.1	3.87	2.02
	—	24 hr	—	—	—	—	—
	M	48 hr ~~BR~~/AR	8.1	24.7	7.5	3.87	—
	A	48 hr ~~AR~~/BR	8.0	24.0	6.5	4.2	—
		72 hr					
	M	96 hr	8.0	24.8	7.5	4.3	
2.5	M	0 hr	8.1	24.6	7.2	4.79	2.54
	—	24 hr	—	—	—	—	—
	M	48 hr ~~BR~~/AR	8.1	24.7	7.4	4.66	—
	A	48 hr ~~AR~~/BR	8.0	24.0	6.7	5.25	—
		72 hr					
	M	96 hr	8.1	24.7	7.5	4.74	
3.0	M	0 hr	8.1	24.6	7.3	5.62	3.01
	—	24 hr	—	—	—	—	—
	A	48 hr BR	8.0	24.0	6.6	5.24	—
		48 hr AR					
		72 hr					
		96 hr					
4.0	M	0 hr	8.1	24.6	7.3	7.36	4.03
	A	24 hr	7.9	24.0	7.2	7.48	—
		48 hr BR					
		48 hr AR					
		72 hr					
		96 hr					

Investigators Signatures
Brad Attwood
James Davis
Marshall Faircloth
Reviewed By: Loretta Culpepper

Measured by:
0 hr: BA
24 hr: BA
48 hr BR: BA
48 hr AR: BA
72 hr: JD
96 hr: JD

Measure/record salinity for marine tests

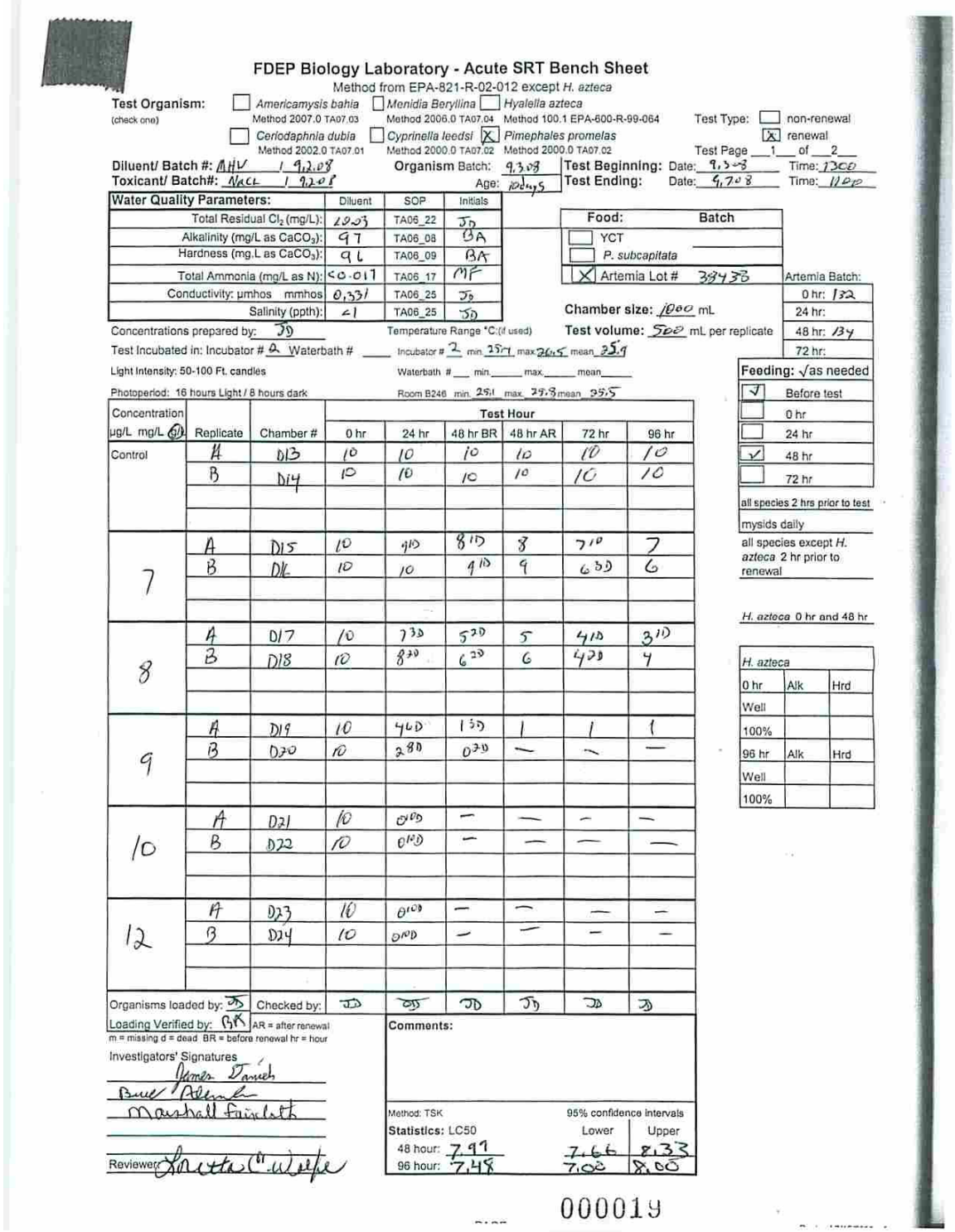
Comments: M = Meter Vial

000016

PAGE

Revised 07/15/2008 MF

Appendix C. (continued)



FDEP Biology Laboratory - Acute SRT Bench Sheet

Method from EPA-821-R-02-012 except *H. azteca*

Test Organism: (check one)
- ☐ *Americamysis bahia* Method 2007.0 TA07.03
- ☐ *Menidia Beryllina* Method 2006.0 TA07.04
- ☐ *Hyalella azteca* Method 100.1 EPA-600-R-99-064
- ☐ *Ceriodaphnia dubia* Method 2002.0 TA07.01
- ☐ *Cyprinella leedsi* Method 2000.0 TA07.02
- ☒ *Pimephales promelas* Method 2000.0 TA07.02

Test Type: ☐ non-renewal ☒ renewal

Test Page 1 of 2

Diluent/ Batch #: AHV / 9,208

Toxicant/ Batch#: NaCL / 9,208

Organism Batch: 9,308 Age: 10days

Test Beginning: Date: 9,3-8 Time: 1300

Test Ending: Date: 9,708 Time: 1100

Water Quality Parameters:	Diluent	SOP	Initials
Total Residual Cl_2 (mg/L):	2.03	TA06_22	JD
Alkalinity (mg/L as $CaCO_3$):	97	TA06_08	BA
Hardness (mg.L as $CaCO_3$):	96	TA06_09	BA
Total Ammonia (mg/L as N):	<0.017	TA06_17	MF
Conductivity: µmhos mmhos	0,331	TA06_25	JD
Salinity (ppth):	<1	TA06_25	JD

Food:	Batch
☐ YCT	
☐ *P. subcapitata*	
☒ Artemia Lot # 38438	Artemia Batch:

Chamber size: 1000 mL

Test volume: 500 mL per replicate

Artemia Batch:
- 0 hr: 132
- 24 hr:
- 48 hr: 134
- 72 hr:

Concentrations prepared by: JD

Temperature Range °C:(if used)

Test Incubated in: Incubator # 2 Waterbath # ___ Incubator # 2 min 25.1 max 26.5 mean 25.9

Light Intensity: 50-100 Ft. candles

Waterbath # ___ min ___ max ___ mean ___

Photoperiod: 16 hours Light / 8 hours dark

Room B246 min 25.1 max 29.3 mean 25.5

Concentration µg/L mg/L (circle)	Replicate	Chamber #	Test Hour 0 hr	24 hr	48 hr BR	48 hr AR	72 hr	96 hr
Control	A	D13	10	10	10	10	10	10
	B	D14	10	10	10	10	10	10
7	A	D15	10	9D	8D	8	7D	7
	B	D16	10	10	9D	9	6D	6
8	A	D17	10	7D	5D	5	4D	3D
	B	D18	10	8D	6D	6	4D	4
9	A	D19	10	4D	1D	1	1	1
	B	D20	10	2D	0D	—	—	—
10	A	D21	10	0D	—	—	—	—
	B	D22	10	0D	—	—	—	—
12	A	D23	10	0D	—	—	—	—
	B	D24	10	0D	—	—	—	—
Organisms loaded by: JD	Checked by:		JD	JD	JD	JD	JD	JD
Loading Verified by: BK	AR = after renewal							

m = missing d = dead BR = before renewal hr = hour

Feeding: √as needed
- ☑ Before test
- ☐ 0 hr
- ☐ 24 hr
- ☑ 48 hr
- ☐ 72 hr

all species 2 hrs prior to test

mysids daily

all species except *H. azteca* 2 hr prior to renewal

H. azteca 0 hr and 48 hr

H. azteca		
0 hr	Alk	Hrd
Well		
100%		
96 hr	Alk	Hrd
Well		
100%		

Investigators' Signatures

James Daniels

Bruce Allen

Marshall Fairclath

Reviewer: Loretta C. Wolfe

Comments:

Method: TSK

Statistics: LC50	95% confidence intervals Lower	Upper
48 hour: 7.97	7.66	8.33
96 hour: 7.48	7.08	8.00

000019

Appendix C. (continued)

FDEP Biology Laboratory - Acute SRT Bench Sheet
0-96 hour parameters

Methods from EPA-821-R-02-012 except *H. azteca*

Test Page 2 of 2

Test Organism: (check one)
- ☐ *Americamysis bahia* Method 2007.0 TA07.03
- ☐ *Menidia Beryllina* Method 2006.0 TA07.04
- ☐ *Hyalella azteca* Method 100.1 EPA-600-R-99-064
- ☐ *Ceriodaphnia dubia* Method 2002.0 TA07.01
- ☐ *Cyprinella leedsi* Method 2000.0 TA07.02
- ☒ *Pimephales promelas* Method 2000.0 TA07.02

Test Beginning: Date: 9.3.08 Time: 1300
Test Ending: Date: 9.7.08 Time: 1100

Test Type: ☐ non-renewal ☒ renewal

hr = hour AR = after renewal BR = before renewal

Concentration µg/L mg/L ☒	Replicate	Test Hour	pH (SU)	Temperature (° C)	Dissolved Oxygen (mg/L)	Conductivity ☐ µmhos ☒ mmhos	Salinity (ppth)
Control	A	0 hr	8.2	24.1	7.4	0.331	
	B	24 hr	7.8	24.2	6.8	0.344	
	A	48 hr BR	7.9	24.0	7.2	0.352	
	A	48 hr AR	8.0	24.0	7.4	0.356	
	B	72 hr	7.9	24.2	6.5	0.349	
	A	96 hr	7.9	24.4	7.0	0.367	
7	A	0 hr	8.1	24.6	7.4	12.8	
	B	24 hr	7.7	24.5	6.4	12.8	
	A	48 hr BR	7.8	24.3	6.7	12.7	
	A	48 hr AR	8.0	24.0	7.3	12.9	
	B	72 hr	7.9	24.2	6.4	12.9	
	A	96 hr	7.9	24.4	6.9	13.2	
8	A	0 hr	8.1	24.7	7.5	14.6	
	B	24 hr	7.7	24.4	6.3	14.3	
	A	48 hr BR	7.8	24.5	6.5	14.2	
	A	48 hr AR	7.8	24.0	7.3	14.7	
	B	72 hr	7.8	24.2	6.5	14.9	
	A	96 hr	7.9	24.2	6.9	14.9	
9	A	0 hr	8.1	24.8	7.5	16.2	
	B	24 hr	7.7	24.4	6.3	16.0	
	A	48 hr BR	7.8	24.2	6.6	16.0	
	A	48 hr AR	8.0	24.0	7.3	15.6	
	B	72 hr	7.9	24.2	6.6	15.7	
	A	96 hr	7.9	24.4	7.0	15.9	
10	A	0 hr	8.1	25.0	7.5	17.9	
	B	24 hr	7.7	24.4	6.1	17.5	
		48 hr BR					
		48 hr AR					
		72 hr					
		96 hr					
12	A	0 hr	8.1	24.9	7.4	20.1	
	B	24 hr	7.6	24.3	5.9	20.8	
		48 hr BR					
		48 hr AR					
		72 hr					
		96 hr					

Investigators Signatures
James Daniel
Bruce Allen
Marshall Faircloth

Reviewed By: Loretta C. Wolfe

Measured by:
0 hr: JD
24 hr: JD
48 hr BR: JD
48 hr AR: JD
72 hr: JF
96 hr: JD

Measure/record salinity for marine tests

Comments:

PAGE 000020

Revised 07/15/2008 MF

Appendix C. (continued)

***Ceriodaphnia dubia* Acute Standard Reference Toxicant Test**

DATE: 9-3-08 DURATION: 48 hr TOXICANT : NaCl
SPECIES: *Ceriodaphnia dubia*

RAW DATA: Concentration (g/L)	Number Exposed	Mortalities
.00	20	0
1.50	20	0
2.00	20	2
2.50	20	18
3.00	20	20
4.00	20	20

SPEARMAN-KARBER TRIM: .00%

SPEARMAN-KARBER ESTIMATES: LC50: 2.22
95% LOWER CONFIDENCE: 2.13
95% UPPER CONFIDENCE: 2.32

***Pimephales promelas* Acute Standard Reference Toxicant Test**

DATE: 9-3-08 DURATION: 48 hr TOXICANT : NaCl
SPECIES: *Pimephales promelas*

RAW DATA: Concentration (g/L)	Number Exposed	Mortalities
.00	20	0
7.00	20	3
8.00	20	9
9.00	20	19
10.00	20	20
12.00	20	20

SPEARMAN-KARBER TRIM: 15.00%

SPEARMAN-KARBER ESTIMATES: LC50: 7.99
95% LOWER CONFIDENCE: 7.66
95% UPPER CONFIDENCE: 8.33

Appendix D. Test Organism Receipts

MARINCO BIOASSAY LABORATORY
The Aquatic Toxicology Specialists

NELAP Certification # E84191

Organism Shipment Record

State of Florida Aquaculture Certificate Number AQ0668007

Date: 9/2/08

Shipped to: FDEP

P.O. No: N/A

Species	Quantity	Age	Brood Number	Temp.	pH	Salinity
Mysidopsis bahia	150	4 DAYS	M30808 29	25°C	7.9 s.u.	20‰
Menidia beryllina	150	12 DAYS	SS080821	25°C	7.9 s.u.	20‰
						Hardness
Cyprinella leedsi	150	12 DAYS	CL080821	25°C	7.8 s.u	80mg/L
Pimephales promelas	150	9 DAYS	FM080824	25°C	7.8 s.u	80mg/L

Packed by: MP

Shipped Via: FedEx

Notes: _____

Thank you for your order.

4569 Samuel Street · Sarasota, FL 34233 · Tel: 941-925-3594 · Fax: 941-922-3874 · Web: www.biologylab.com

Appendix D. (continued)

MARINCO BIOASSAY LABORATORY
The Aquatic Toxicology Specialists

NELAP Certification # E84191

Organism Shipment Record

State of Florida Aquaculture Certificate Number AQ0668007

Date: 9/8/08

Shipped to: FDEP

P.O. No: N/A

Species	Quantity	Age	Brood Number	Temp.	pH	Salinity
Mysidopsis bahia						
Menidia beryllina	150	12 DAYS	SS080827	25°C	7.9 s.u.	19 ‰
						Hardness
Cyprinella leedsi						
Pimephales promelas	100 acute	8 DAYS	FM080831	25°C	7.8 s.u.	84 mg/L

Packed by: [signature]

Shipped Via: FedEx

Notes: 11 #'s

Thank you for your order.

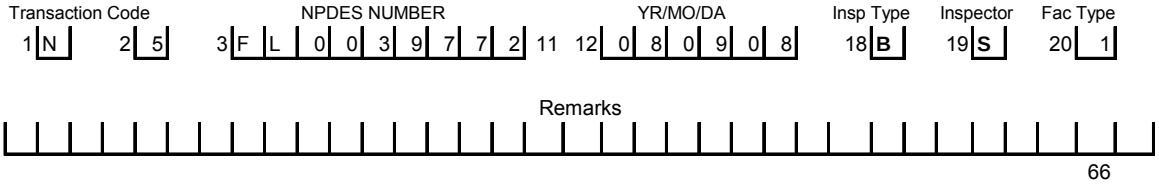
4569 Samuel Street · Sarasota, FL 34233 · Tel: 941-925-3594 · Fax: 941-922-3874 · Web: www.biologylab.com

Appendix E. Chemical Analyses performed on the effluent from the City of Lakeland Glendale (Wasteload Reduction) WRF Outfall D-001, sampled on September 8, 2008.

Date Sampled	Field ID	Analysis	Component	Result	Remark	Units	MDL	PQL
9/8/2008 10:20	Effluent grab	AGP/LN	Algal Growth Potential	12	A	mg DryWt/L	0.3	0.9
9/8/2008 10:20	Effluent grab	Chlorophyll/Grain Size/BOD	Phaeophytin-a	4.8	A	ug/L	0.24	0.71
9/8/2008 10:20	Effluent grab	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	15	A	ug/L	0.55	1.7
9/8/2008 10:20	Effluent grab	Overflow	Fecal Coliforms-Membrane Filter	8	B	#/100 mL	2	
9/8/2008 10:20	Effluent grab	Toxicology	Bioassay-Acute-Screen-FW-C.dubia, LC50	100	L	LC50		
9/8/2008 10:20	Effluent grab	Toxicology	Bioassay-Acute-Screen-FW-Fish, LC50	100	L	LC50		
9/8/2008 10:20	Effluent grab	Nutrients	O-Phosphate-P	2.5		mg P/L	0.08	0.2
9/8/2008 10:20	Effluent grab	Field Parameter	Total Residual Chlorine	0.01		mg/L		
9/8/2008 10:20	Effluent grab	Field Parameter	Specific Conductance	1274		umhos/cm		
9/8/2008 10:20	Effluent grab	Field Parameter	Temperature	28.63		C		
9/8/2008 10:20	Effluent grab	Field Parameter	Sample Depth	0.02		m		
9/8/2008 10:20	Effluent grab	Field Parameter	Dissolved Oxygen	7.32		mg/L		
9/8/2008 8:30	Effluent comp	Chlorophyll/Grain Size/BOD	Biochemical Oxygen Demand-5 Day,N-Inhib	2.6	A	mg/L	0.2	2
9/8/2008 8:30	Effluent comp	Metals	Silver	0.025	U	ug/L	0.025	0.1
9/8/2008 8:30	Effluent comp	Metals	Arsenic	1.7	I	ug/L	0.5	2
9/8/2008 8:30	Effluent comp	Metals	Nickel	2.97	AV	ug/L	0.25	1
9/8/2008 8:30	Effluent comp	Metals	Zinc	5	U	ug/L	5	20
9/8/2008 8:30	Effluent comp	Metals	Calcium	79.4	A	mg/L	0.075	0.3
9/8/2008 8:30	Effluent comp	Metals	Copper	0.5	U	ug/L	0.5	2
9/8/2008 8:30	Effluent comp	Metals	Cadmium	0.072	U	ug/L	0.072	0.29
9/8/2008 8:30	Effluent comp	Metals	Lead	0.28	I	ug/L	0.2	0.8
9/8/2008 8:30	Effluent comp	Metals	Iron	43	I	ug/L	30	120
9/8/2008 8:30	Effluent comp	Metals	Magnesium	25.2	A	mg/L	0.04	0.16
9/8/2008 8:30	Effluent comp	Metals	Aluminum	60	U	ug/L	60	240
9/8/2008 8:30	Effluent comp	Metals	Selenium	0.5	U	ug/L	0.5	2
9/8/2008 8:30	Effluent comp	Metals	Chromium	0.5	U	ug/L	0.5	2
9/8/2008 8:30	Effluent comp	Nutrients	Total-P	2.5		mg P/L	0.1	0.3
9/8/2008 8:30	Effluent comp	Nutrients	TSS	4	U	mg/L	4	16
9/8/2008 8:30	Effluent comp	Nutrients	Ammonia-N	0.016	I	mg N/L	0.01	0.02
9/8/2008 8:30	Effluent comp	Nutrients	NO2NO3-N	0.013		mg N/L	0.004	0.01
9/8/2008 8:30	Effluent comp	Nutrients	Kjeldahl Nitrogen	1.1		mg N/L	0.08	0.2
9/8/2008 8:30	Effluent comp	Field Parameter	Total Residual Chlorine	0.01		mg/L		
9/8/2008 10:10	Field Blank	Nutrients	O-Phosphate-P	0.004	U	mg P/L	0.004	0.01

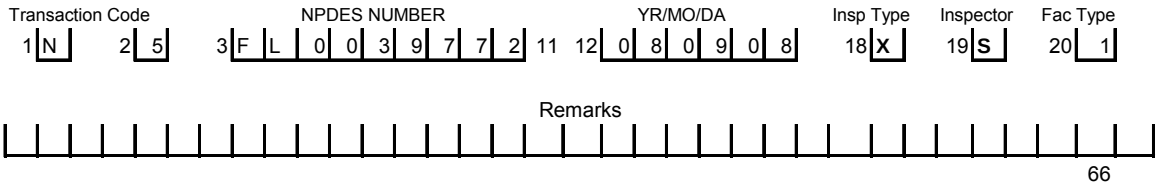
The Bioassay of the City of Lakeland Glendale Water Reclamation Facility effluent sampled on September 8, 2008. NPDES #FL0039772.

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



The Priority Pollutants Analysis of the City of Lakeland Glendale Water Reclamation Facility effluent sampled on September 8, 2008. NPDES #FL0039772.

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



Biological Analyses of the City of Lakeland Glendale Water Reclamation Facility effluent sampled on September 8, 2008. NPDES #FL0039772.

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