

Effluent Quality Assessment

Study Estates Mobile Home Park WWTF

Duval County

NPDES #FL0043419

Sampled January 5, 2009

May 2009
(Resubmitted with corrected tables March 2011)

Biology Section
Bureau of Laboratories
Division of Environmental Assessment and Restoration

Quality Manual No. 870346G
NELAC Certification No. E31780

Study Estates Mobile Home Park WWTF, 8167 Old Kings Rd., Jacksonville, Duval County, Florida, 32219. NPDES #FL0043419. Effluent samples for this facility were collected on January 5, 2009.

Introduction

Study Estates Mobile Home Park Wastewater Treatment Facility (WWTF) uses an extended-aeration treatment process to treat domestic wastewater. Effluent discharge from this facility is continuous. The facility has a design capacity of 0.0175 million gallons daily (MGD) annual average daily flow (AADF). The AADF for September 2007 through August 2008 was 0.0026 MGD. The wastewater treatment system consists of:

- a 19,000 gallon (71,923 liter) aeration tank;
- a 5,000 gallon (18,927 liter) clarifier with a surface area of 63 square feet;
- a 340 gallon (1287 liter) chlorine contact tank;
- a sodium bisulfate dechlorination system; and,
- a 4,550 (17,224 liter) aerobic digester.

Liquid chlorine is used for chlorination and sodium bisulfate is used for dechlorination. The effluent is discharged to an unnamed ditch, and thence to the Class III freshwaters of Nine Mile Creek, at discharge location D-001. The point of discharge is located approximately at latitude 30° 24' 5" N, longitude 81° 45' 2" W. Wastewater residuals are treated and disposed of by Circle C Ranch.

The facility has no Administrative Orders, Consent Orders or mixing zones. A review of Discharge Monitoring Report (DMR) data for the past year revealed several permit violations. The facility exceeded the permitted maximum of 0.02 mg/L of unionized ammonia on 12/31/07, 1/31/08, 3/31/08, and 5/31/08; reported values were 0.034 mg/L, 0.053 mg/L, 0.025 mg/L, and 0.053 mg/L, respectively. The facility failed to meet the minimum of 85 percent removal (monthly average) of suspended solids on 12/31/07, 1/31/08, and 7/31/08. The reported percent removal of suspended solids was, respectively, 0.91 %, 79.4 %, and 0.93 %. The DMR review found the facility to be operating within permitted limits except as noted above. According to DMR trends over the past 5 years, total suspended solids and unionized ammonia appear to be increasing, and flow volume appears to be decreasing.

A Warning Letter (08-012) was issued June 6, 2008, for unionized ammonia (maximum) and for total residual chlorine (minimum, for disinfection, and maximum, for dechlorination) for samples collected between July 2007 and March 2008.

A third year inspection (FYI3) performed on March 29, 2004, showed that effluent samples were not acutely toxic to the test species in the 48-hour acute screen toxicity bioassays. The effluent AGP exceeded the "problem" threshold for fresh receiving waters by a factor of more than 22. Effluent dissolved oxygen did not comply with Class III fresh water quality criterion. (Facility information provided by Heather Webber of FDEP Northeast District.)

Methods

Samples were collected from the EFD-01 NPDES sampling point for Outfall D-001 by Eesa Ali and Sharon Piltz (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 96-hour acute 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.

The facility has no permitted toxicity test requirements; however, an acute screening test of ≥ 48 hour duration can provide 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.) if the mortality in 100% effluent is less than 20%.

Toxicity Test Results

Tests were performed January 6 - 10, 2009.

Ceriodaphnia dubia 96-hour acute screening bioassay –	LC_{50} > 100%, 0% mortality* in 100% sample at 96 hours
Cyprinella leedsi 96-hour acute screening bioassay –	LC_{50} > 100%, 0% mortality* in 100% sample at 96 hours

The bioassay sample was not acutely toxic to the test organisms.

*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.).

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.

Algal Growth Potential

The effluent Algal Growth Potential (AGP) was 701 mg dry wt/L of the unicellular green alga, *Pseudokirchneriella subcapitata*, formerly known as *Selenastrum capricornutum*. Raschke and Schultz (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 597 (±20%) mg dry wt/L (Table 1; Miller et al. 1978).

See Table 1 for AGP results.

Chemistry Results

Total residual chlorine (TRC) was not measured in the field, but was detected at a concentration of 0.05 mg/L in the bioassay sample in the laboratory. This value exceeds both the permitted limit (after dechlorination, ≤ 0.01 mg/L) and the class III water quality criterion for TRC (≤ 0.01 mg/L , 62-302.530(18) F.A.C.); however, the laboratory measurement was made approximately 24 hours after the holding time for TRC (must be analyzed immediately after sample collection) had expired. Total ammonia was also detected at a concentration of 6.225 mg N/L in the bioassay sample in the laboratory. The total ammonia concentration in the sample collected and preserved for chemical analysis was 7.9 mg N/L. Based on the pH, salinity, and temperature of the effluent as collected, the calculated unionized ammonia concentration was 0.22 mg/L.

Arsenic, copper, iron, and nickel were detected in the effluent at levels that comply with Class III fresh water quality criteria (62-302.530, F.A.C.). Chromium- III, lead, selenium, zinc, chlorophyll *a* (corrected), and total suspended solids were detected between the laboratory method detection limits (MDL) and practical quantitation limits (PQL).

Un-ionized ammonia (0.22 mg/L), total residual chlorine (TRC) (0.05 mg/L), and fecal coliforms (5700 colony forming units (CFU)/ 100ml) exceeded Class III fresh water criterion, respectively, ≤0.02 mg/L: 62-302.530(3) F.A.C., ≤0.01 mg/L: 62-302.530(18) F.A.C., and ≤400 CFU/100ml: 62-302.530(6) F.A.C.; as well as NPDES permit #FL0043419, respectively, ≤0.02mg/L, ≤0.01mg/L, and ≤800 CFU/100ml.

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-1 NPDES sampling point for Outfall D-001 for this facility on January 5, 2009, was not acutely toxic to either test species during the 96-hour acute screening bioassays. The effluent AGP result exceeded the "problem" threshold for fresh receiving waters and strongly suggests that nutrient enrichment may be an issue. Effluent un-ionized ammonia, total residual chlorine and fecal coliform colony forming units violated Class III fresh water quality criteria and the NPDES permit limits for the facility.

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) and total nitrogen (TN) limitation of the freshwater species *Pseudokirchneriella subcapitata* for samples collected from the Study Estates Mobile Home Park Wastewater Treatment Facility on January 5, 2009.

Study Estates Mobile Home Park WWTF NPDES# FL0043419					
Location	AGP (measured)	Predicted AGP (TSIN) ± 20%	Predicted AGP (TN) ± 20%	Inorganic N:P ratio	Total N:P ratio
Effluent	701.0	596.6 ± 119.3	790.4 ± 158.1	5.6	4.2

Table 2. Effluent limits, Class III Freshwater Criteria and chemical and microbiological data for samples collected from Study Estates Mobile Home Park Wastewater Treatment Facility on January 5, 2009.

Study Estates Mobile Home Park WWTF NPDES# FL0043419	Class III Criteria	Effluent Limits	Effluent	
Organic Constituents (µg/L)				
None Detected	-	-	-	
Metals (µg/L unless otherwise noted)				
Arsenic	≤ 50	-	3.76	
Cadmium	≤ 0.6 b	-	0.03	U
Calcium (mg/L)	-	-	92.2	
Chromium-III	≤ 207.8 b	-	0.31	I
Copper	≤ 23.4 b	-	2.1	
Iron	≤ 1,000	-	130	
Lead	≤ 12.5 b	-	0.28	I
Magnesium (mg/L)	-	-	15.2	
Nickel	≤ 129.5 b	-	1.24	
Selenium	≤ 5.0	-	0.39	I
Silver	≤ 0.07	-	0.01	U
Zinc	≤ 297.8 b	-	16	I
Nutrients (mg/L)				
Ortho-phosphate	-	Report	2.8	A
Total Phosphorus	-	Report	5	
Total Ammonia	-	Report	7.9	
Un-ionized Ammonia	≤ 0.02 s	≤ 0.02 s	0.22	c
Nitrate and Nitrite	-	Report	7.8	
Total Kjeldahl Nitrogen	-	Report	13	
Organic Nitrogen	-	Report	5.1	c
Total Nitrogen	-	Report	20.8	c
General Physical and Chemical Parameters				
Dissolved Oxygen (mg/L)	≥ 5.0	≥ 5.0 s	7.4	
pH (SU)	6.0 - 8.5	6.0 - 8.5 s	7.8	
Conductivity (µmhos/cm)	≤ 1,275	-	806.4	
Temperature (°C)	-	Report	18.9	
Salinity	-	-	0.36	£
Total Residual Chlorine (mg/L)	≤ 0.01	≤ 0.01 s	0.05	£Q
Chlorophyll *a* (µg/L) - Corrected	-	-	1.5	I
Phaeophytin (µg/L)	-	-	0.8	
Total Suspended Solids (mg/L)	-	≤ 60.0 s	9	I
CBOD, 5 day (mg/L), N - inhibited	-	≤ 60.0 s	24	J
Flow (MGD)	-	0.0175 a	0.0026	a
Hardness (mg $CaCO_3$)	-	-	292.82	c
Microbiology (Number of colony forming units/100ml)				
Fecal Coliforms ¥	≤ 400s #	≤ 800 s	5,700	s

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
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
J - Estimated value
Q - Sample held beyond normal holding time
U - Material analyzed for but not detected; value reported is the method detection limit
¥ - Fecal coliform analysis performed by Advanced Environmental Laboratories, Inc.
- If 10 or fewer samples are taken within a month, the single sample limit is 400 CFU (62-302.530(6), F.A.C.)
£ - Measurement taken in the FDEP laboratory

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Event ID *

Request Number: RQ-2009-01-05-20
Study Estates MHP

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

Requester: Jennifer Paris
Collected By: SP/EA
Sampling Agency: DEP
Field Report Prepared By: EA
Send Final Report To: Tom Kallemeyn

Lab ID *	Location	Collection (begin)	Collection (end)	Bottle Group(s)**
	Location: study estates final eff	☐ Comp ☑ Grab; Date 1/5/09 Time 1011 Eastern/Central	Date Time Eastern/Central	A
	Field ID	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L): 7.42	Storet Station Number
	Matrix (Include type e.g. Salt, Fresh, etc): effluent; Temp (C): 18.88; pH: 7.81	Sample Depth ☐ m ☐ ft: na	806.4	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm); NPDES Number
	Latitude ° ' "	Longitude ° ' "	Comments	

Lab ID *	Location	Collection (begin)	Collection (end)	Bottle Group(s)**
	Location: blank	☐ Comp ☑ Grab; Date 1/5/09 Time 1011 Eastern/Central	Date Time Eastern/Central	R
	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	Collection (begin)	Collection (end)	Bottle Group(s)**
	Location	☐ Comp ☐ Grab; Date Time Eastern/Central	Date Time Eastern/Central	
	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	Collection (begin)	Collection (end)	Bottle Group(s)**
	Location	☐ Comp ☐ Grab; Date Time Eastern/Central	Date Time Eastern/Central	
	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	

Relinquished By	Date/Time	Shipping Method	Received By	Date/Time	Relinquished By	Date/Time	Received By	Date/Time
EA	1/5/09	fedEx						1-6-09 9:30

* Shaded Areas for Lab use only

** Please see reverse side for Bottle Group information

last revised October 1, 2003

2 biology bags M. Burdett 1-6-09 10:15

PNG ② PO4. 2:38 pm 1/6/09

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FDEP Biology Laboratory - Acute Screen Bioassay Bench Sheets

Facility: Study Estates Mobile Home Park WWTF

Address: 8167 Old Kings Road

City: Jacksonville County: Duval 32219

Contact/District: Easa Ali / Northeast

NPDES Permit #: FL 0043419

LIMS Job #: TLH-2009-01-06-41 LIMS Sample #: 1156689

Lims Data Entry: 1-13-09 MF Data Entry Verification: 1-13-09 JD

Sample Collection: Date: 1-5-09 Time: 1011

Hold Time Start: Date: 1-5-09 Time: 1011

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: ____mg/L Final DO: ____mg/L Duration: ____minutes Rate: ~____bubbles/min

Salinity adjusted (Test 1): yes (no) Initial Salinity: ____ Final Salinity: ____ Salts Hypersaline brine

Salinity adjusted (Test 2): yes (no) Initial Salinity: ____ Final Salinity: ____ Salts Hypersaline brine

Dechlorination: yes (no) ____mL of 0.025N Sodium Thiosulfate per liter of sample. Final TRC: ____

Light Intensity: 50 - 100 ft. candles

Photoperiod: 16 light 8 dark

Temperature Range °C: (If used)

Incubator # 2 min 24.9 max 26.2 mean 25.5

Incubator # ____ min. ____ max. ____ mean ____

Waterbath # ____ min. ____ max. ____ mean ____

Room B246 min. 25.5 max. 25.9 mean 25.2

Sample Validation:

Temperature: Shipped ≤6°C (Yes) No — IF 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

Bruce Alsbrook

Marshall Faircloth

James Driscoll

Loletta C. Wolfe

REVIEWER

Batch #	1-6-09	1-5-09							
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		not Measured	MF	
Lab Total Residual Cl_2 (mg/L):	<0.03	0.04					0.05	AR	BA
Alkalinity (mg/L as $CaCO_3$):	82	157				NA 289	287	BA	MF
Hardness (mg/L as $CaCO_3$):	113	140				~~277~~	277	BA	MF
Total Ammonia (mg/L as N):	<0.017	<0.017					6.125	MF	BA
Conductivity: (µmhos) mmhos	188	287				~~838~~	838	MF	JD
Salinity (ppth):	<1	<1				~~0.13~~	0.36	MF	JD

NA - Not applicable in this Column MF 11/27/09

V 1.6 7/8/08

Appendix B. (continued)

FDEP Biology Laboratory - Bioassay Survival Bench Sheet

LIMS Sample #: 1156689 Test #: 1 SOP#:TA 07 01 Test Started: Date 1-6-09 Time: 1500

Organism/Batch/Age: C. dubia / 1-09 / <24 hours Test Ended: Date 1-10-09 Time: 1130

Chamber/Test Volume: 30 / 20 ml Diluent/ Batch: OMW 20% / 1.6.09 Test Duration: 48 hr (96 hr)

Food/Batch: [✓] YCT 6-18-08 [✓] P.sub 7-18-08

[ ] Artemia Lot#____ Batch #: 0hr____ 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	A	5	5	5	5	4 1D	4
	B	B	5	5	5	5	5	5
	C	C	5	5	5	5	5	5
	D	D	5	5	5	5	5	5
100%	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
Loaded/Verified by: BA/[illegible]		Checked by:	BA	BA	[illegible]	[illegible]	BA	MF

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____

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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Appendix B. (continued)

FDEP Biology Laboratory - Bioassay Survival Bench Sheet

LIMS Sample #: 1156689 Test #: 2 SOP#:TA 07 02 Test Started: Date 1-6-09 Time: 1510

Organism/Batch/Age: C. leedsi / 1-06-09 / 13 days Test Ended: Date 1-10-09 Time: 1140

Chamber/Test Volume: ~~1,000~~ 500 ml Diluent/ Batch: Well H_2O / 1-5-09 Test Duration: 48 hr (96 hr)

Food/Batch: ☐ YCT____ ☐ P.sub____

☑ Artemia Lot# 38348 Batch #: 0hr 1-09 24hr____ 48hr 3-09 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	(A) 5 B1	5	5	5	5	5	5
	B	5 B2	5	5	5	5	5	5
	C	5 B3	5	5	5	5	5	5
	D	5 B4	5	5	5	5	5	5
100%	A	5 B5	5	5	5	5	5	5
	B	5 B6	5	5	5	5	5	5
	C	5 B7	5	5	5	5	5	5
	D	5 B8	5	5	5	5	5	5
Loaded/Verified by: BA/ MF		Checked by:	BA	ABL	ABL	B	B	MF

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

Comments: (A) Transcription error BA 1-7-09

Test Results:

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

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

If Calculated: 95% CI______ Method______

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 # : 1156689 **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: Control	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	M		M	M		A
pH (S.U.)	8.1		8.0	8.2		8.0
Temperature °C	24.9		24.0	24.3		24.6
Dissolved Oxygen mg/L aerate if < 4	8.0		7.6	7.8		7.4
Conductivity (µmhos) mmhos	188		222	177.9		198
Salinity ppth	—		—	—		—
(initials) Measured by:	MF		JD	[illegible]		MF
(initials) Recorded by:	MF		JD	[illegible]		MF

Comments: M - material

Concentration: 100%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	M		M	M		A
pH (S.U.)	8.0		8.5	7.9		8.4
Temperature °C	25.1		24.1	25.9		24.5
Dissolved Oxygen mg/L aerate if < 4	8.4		6.4	6.0		7.0
Conductivity (µmhos) mmhos	824		843	828		824
Salinity ppth	—		—	—		—
(initials) Measured by:	MF		JD	[illegible]		MF
(initials) Recorded by:	MF		JD	[illegible]		MF

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:

00 022

Page

FDEP Biology Laboratory - Bioassay Parameter Bench Sheet

LIMS Sample # : 1156689 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 Control	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C	C	D	A
pH (S.U.)	7.8	8.1	8.1	7.8	7.9	8.3
Temperature °C	24.7	24.0	24.0	24.0	24.3	25.0
Dissolved Oxygen mg/L aerate if < 4	8.1	7.5	6.9	7.6	7.1 7.9	7.0
Conductivity (µmhos) mmhos	287	275	294	288	305	289
Salinity ppth	—	—	—	—	—	—
(initials) Measured by:	MF	JD	JD	JD	JD	MF
(initials) Recorded by:	MF	JD	JD	JD	JD	MF

Comments: ① Transcription error 1.9.09 J.D.

Concentration 100%o	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C	C	D	A
pH (S.U.)	8.0	8.2	8.1	7.9	7.9	7.9
Temperature °C	25.1	24.0	24.1	25.5	25.0	25.0
Dissolved Oxygen mg/L aerate if < 4	8.4	6.1	4.6	5.6	① 4.2	4.2
Conductivity (µmhos) mmhos	820	767	819	828	829	843
Salinity ppth	—	—	—	—	—	—
(initials) Measured by:	MF	JD	JD	JD	JD	MF
(initials) Recorded by:	MF	JD	JD	JD	JD	MF

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:

Appendix B. (continued)

Bioassay Instrument ID

Test ID: Study Estate, NHP Unit P Dates: January 6 - 10, 2009

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+	✓
Metiler-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).

Records by M. Fairchild

V 1.1 6/12/08 MF

PAGE 00 024

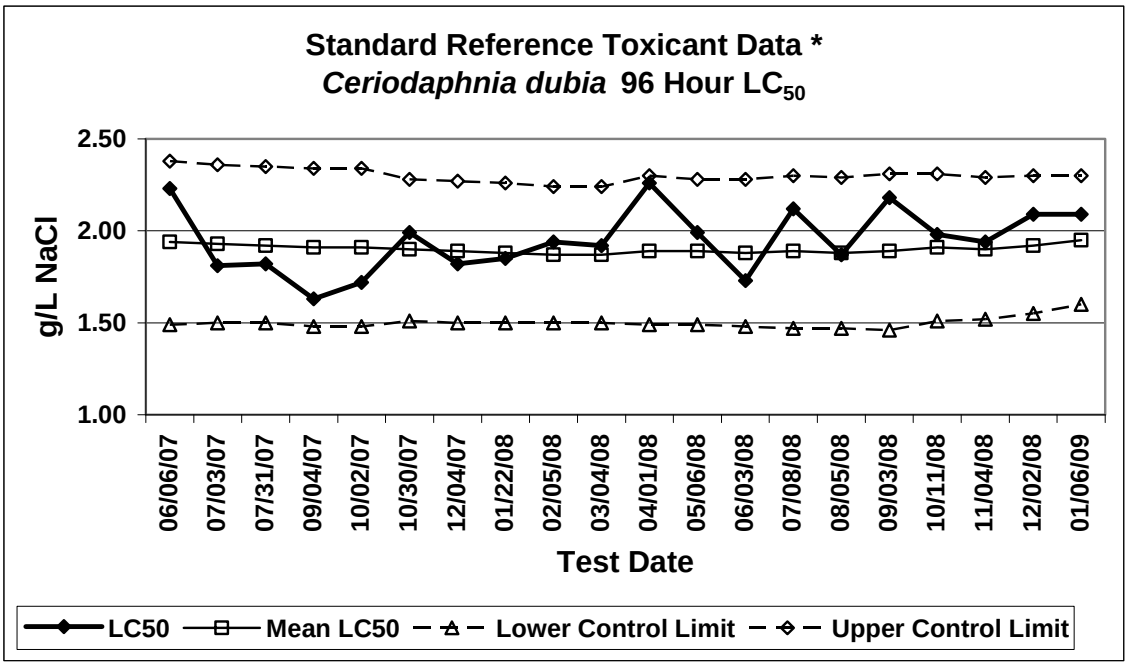
Appendix C. SRT Bench Sheets and Statistical Analysis

Standard Reference Toxicant (SRT) Test Data - 96-hour Acute Toxicity
Ceriodaphnia dubia (water flea) - Sodium Chloride (NaCl)

Date	LC50	Mean LC50	Std Dev	Lower Control Limit	Upper Control Limit
06/06/07	2.23	1.94	0.22	1.49	2.38
07/03/07	1.81	1.93	0.22	1.50	2.36
07/31/07	1.82	1.92	0.21	1.50	2.35
09/04/07	1.63	1.91	0.22	1.48	2.34
10/02/07	1.72	1.91	0.21	1.48	2.34
10/30/07	1.99	1.90	0.19	1.51	2.28
12/04/07	1.82	1.89	0.19	1.50	2.27
01/22/08	1.85	1.88	0.19	1.50	2.26
02/05/08	1.94	1.87	0.18	1.50	2.24
03/04/08	1.92	1.87	0.18	1.50	2.24
04/01/08	2.26	1.89	0.20	1.49	2.30
05/06/08	1.99	1.89	0.20	1.49	2.28
06/03/08	1.73	1.88	0.20	1.48	2.28
07/08/08	2.12	1.89	0.21	1.47	2.30
08/05/08	1.87	1.88	0.20	1.47	2.29
09/03/08	2.18	1.89	0.21	1.46	2.31
10/11/08	1.98	1.91	0.20	1.51	2.31
11/04/08	1.94	1.90	0.19	1.52	2.29
12/02/08	2.09	1.92	0.19	1.55	2.30
01/06/09	2.09	1.95	0.17	1.60	2.30

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

CV = 8.92
EPA reference 75th quartile CV = 29%



Appendix C. (continued)

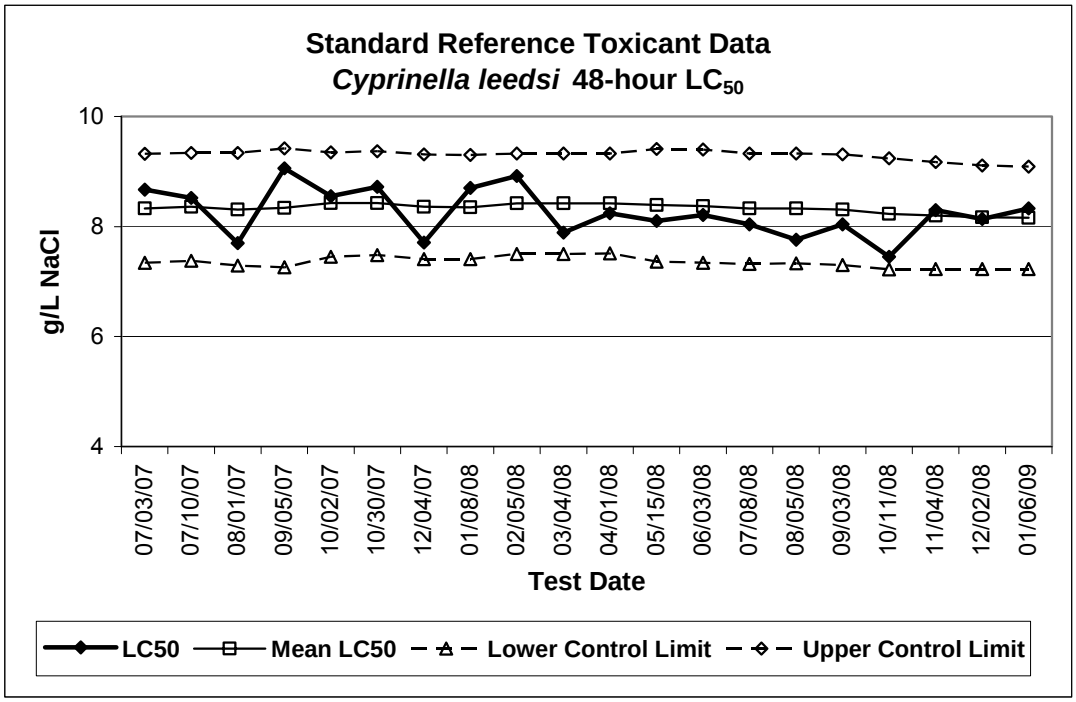
Florida Department of Environmental Protection
Bureau of Laboratories

Standard Reference Toxicant (SRT) Test Data - 48-hour Acute Toxicity
Cyprinella leedsi (bannerfin shiner) - Sodium Chloride (NaCl)

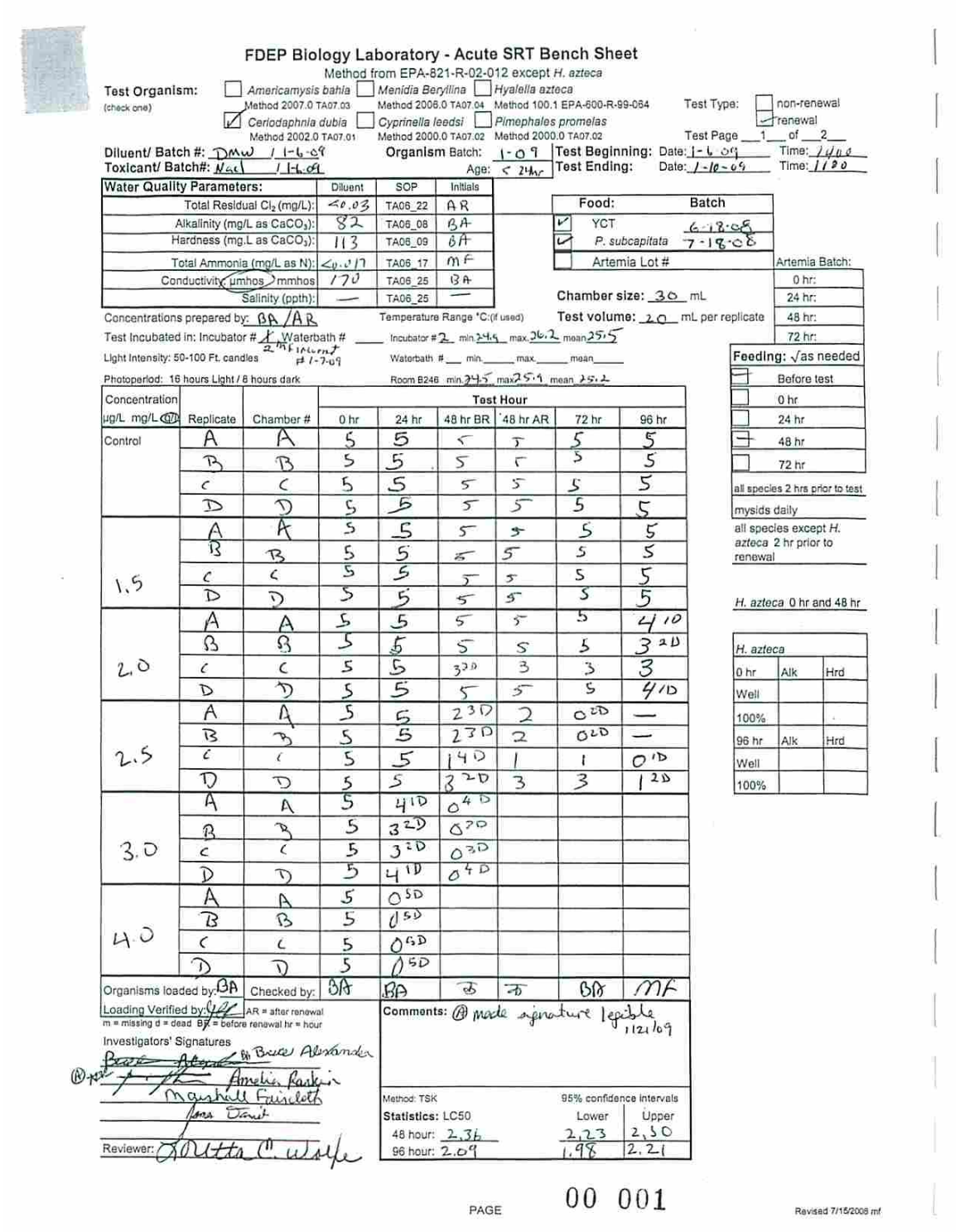
Date	LC50	Mean LC50	Std Dev	Lower Control Limit	Upper Control Limit
07/03/07	8.67	8.33	0.50	7.34	9.32
07/10/07	8.52	8.36	0.49	7.38	9.34
08/01/07	7.7	8.31	0.51	7.29	9.34
09/05/07	9.06	8.34	0.54	7.26	9.42
10/02/07	8.55	8.43	0.47	7.45	9.35
10/30/07	8.72	8.43	0.47	7.48	9.37
12/04/07	7.71	8.36	0.47	7.41	9.31
01/08/08	8.7	8.35	0.47	7.41	9.30
02/05/08	8.92	8.42	0.46	7.50	9.33
03/04/08	7.89	8.42	0.46	7.50	9.33
04/01/08	8.24	8.42	0.45	7.51	9.33
05/15/08	8.1	8.39	0.51	7.36	9.41
06/03/08	8.21	8.37	0.51	7.34	9.40
07/08/08	8.04	8.33	0.50	7.32	9.33
08/05/08	7.76	8.33	0.50	7.33	9.33
09/03/08	8.04	8.31	0.50	7.30	9.31
10/11/08	7.45	8.23	0.51	7.22	9.24
11/04/08	8.3	8.20	0.48	7.23	9.17
12/02/08	8.14	8.17	0.47	7.23	9.11
01/06/09	8.33	8.16	0.47	7.23	9.09

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

CV = 5.7
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 / 1-6-09 Toxicant/ Batch#: NaCl / 1-6-09

Organism Batch: 1-09 Age: < 24hr

Test Beginning: Date: 1-6-09 Time: 1400

Test Ending: Date: 1-10-09 Time: 1130

Water Quality Parameters:	Diluent	SOP	Initials
Total Residual Cl_2 (mg/L):	<0.03	TA06_22	AR
Alkalinity (mg/L as $CaCO_3$):	82	TA06_08	BA
Hardness (mg.L as $CaCO_3$):	113	TA06_09	BA
Total Ammonia (mg/L as N):	<0.07	TA06_17	MF
Conductivity: µmhos / mmhos	170	TA06_25	BA
Salinity (ppth):	—	TA06_25	—

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 / AR

Temperature Range °C: (if used)

Test Incubated in: Incubator # 1 Waterbath # ____ Incubator # 2 min. 24.9 max. 26.2 mean 25.5

Light Intensity: 50-100 Ft. candles (2 MF Instrument # 1-7-09)

Waterbath # ___ min. ____ max. ____ mean ____

Photoperiod: 16 hours Light / 8 hours dark

Room B246 min. 24.5 max 25.9 mean 25.2

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 (circle)	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	5	5
	D	D	5	5	5	5	5	5
2.0	A	A	5	5	5	5	5	4 1D
	B	B	5	5	5	5	5	3 2D
	C	C	5	5	3 2D	3	3	3
	D	D	5	5	5	5	5	4 1D
2.5	A	A	5	5	2 3D	2	0 2D	—
	B	B	5	5	2 3D	2	0 2D	—
	C	C	5	5	1 4D	1	1	0 1D
	D	D	5	5	3 2D	3	3	1 2D
3.0	A	A	5	4 1D	0 4D			
	B	B	5	3 2D	0 3D			
	C	C	5	3 2D	0 3D			
	D	D	5	4 1D	0 4D			
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	~~B~~	~~B~~	BA	MF

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

Loading Verified by: AR = after renewal

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

Comments: @ made signature legible 1/21/09

Investigators' Signatures

@ Bruce Alexander

Amelia Parkin

Marshall Faircloth

Jana Davis

Reviewer: Britta C. Wolfe

Method: TSK	95% confidence Intervals	
Statistics: LC50	Lower	Upper
48 hour: 2.36	2.23	2.50
96 hour: 2.09	1.98	2.21

PAGE 00 001

Revised 7/15/2008 mf

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: 1-6-09 Time: 1400
Test Ending: Date: 1-10-09 Time: 1100
Test Type: ☐ non-renewal ☑ renewal

hr = hour AR = after renewal BR = before renewal

Concentration µg/L mg/L (circle)	Replicate	Test Hour	pH (SU)	Temperature (°C)	Dissolved Oxygen (mg/L)	Conductivity ☐ µmhos ☐ mmhos	Salinity (ppth)
Control	M	0 hr	7.9	24.0	7.6	0.~~1[illegible]~~ 0.170	corrected reading 1-12-09 MF
	A	24 hr					
	M	48 hr BR	8.0	23.7	7.2	0.235	
	M	48 hr AR	8.1	24.0	7.8	0.179	
		72 hr					
	A	96 hr	8.1	24.1	7.5	0.195	
1.5	M	0 hr	7.9	24.0	7.7	2.91	
	A	24 hr					
	M	48 hr BR	8.0	23.5	6.5	3.41	
	M	48 hr AR	8.1	24.0	7.7	2.87	
		72 hr					
	A	96 hr	8.0	24.1	7.6	3.01	
2.0	M	0 hr	8.0	24.0	7.8	3.81	
	A	24 hr					
	M	48 hr BR	8.1	23.4	6.1	4.59	
	M	48 hr AR	8.1	24.0	7.8	3.83	
		72 hr					
	A	96 hr	8.0	24.0	7.6	4.29	
2.5	M	0 hr	8.0	24.0	7.8	4.75	
	A	24 hr					
	M	48 hr BR	8.1	23.5	6.6	5.45	
	M	48 hr AR	8.1	24.0	7.8	4.74	
		72 hr					
	D	96 hr	8.0	24.1	7.6	5.18	
3.0	M	0 hr	8.1	24.0	7.8	5.62	
	A	24 hr					
	M	48 hr BR	8.1	23.5	6.3	6.19	
	M (A)	48 hr AR	8.1	24.1	7.7	5.59	
		72 hr					
		96 hr					
4.0	M	0 hr	8.1	24.0	7.9	7.3	
	A	24 hr	7.7	24.0	6.7	7.2	
		48 hr BR					
		48 hr AR					
	NA MF	72 hr					
	~~D~~ 1-10-09	96 hr					

Investigators Signatures
(B) Brent Alexander
Amalia Rankin
Marshall Faircloth
James David
Bruce Alexander
Reviewed By: Loretta C. Wolf

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

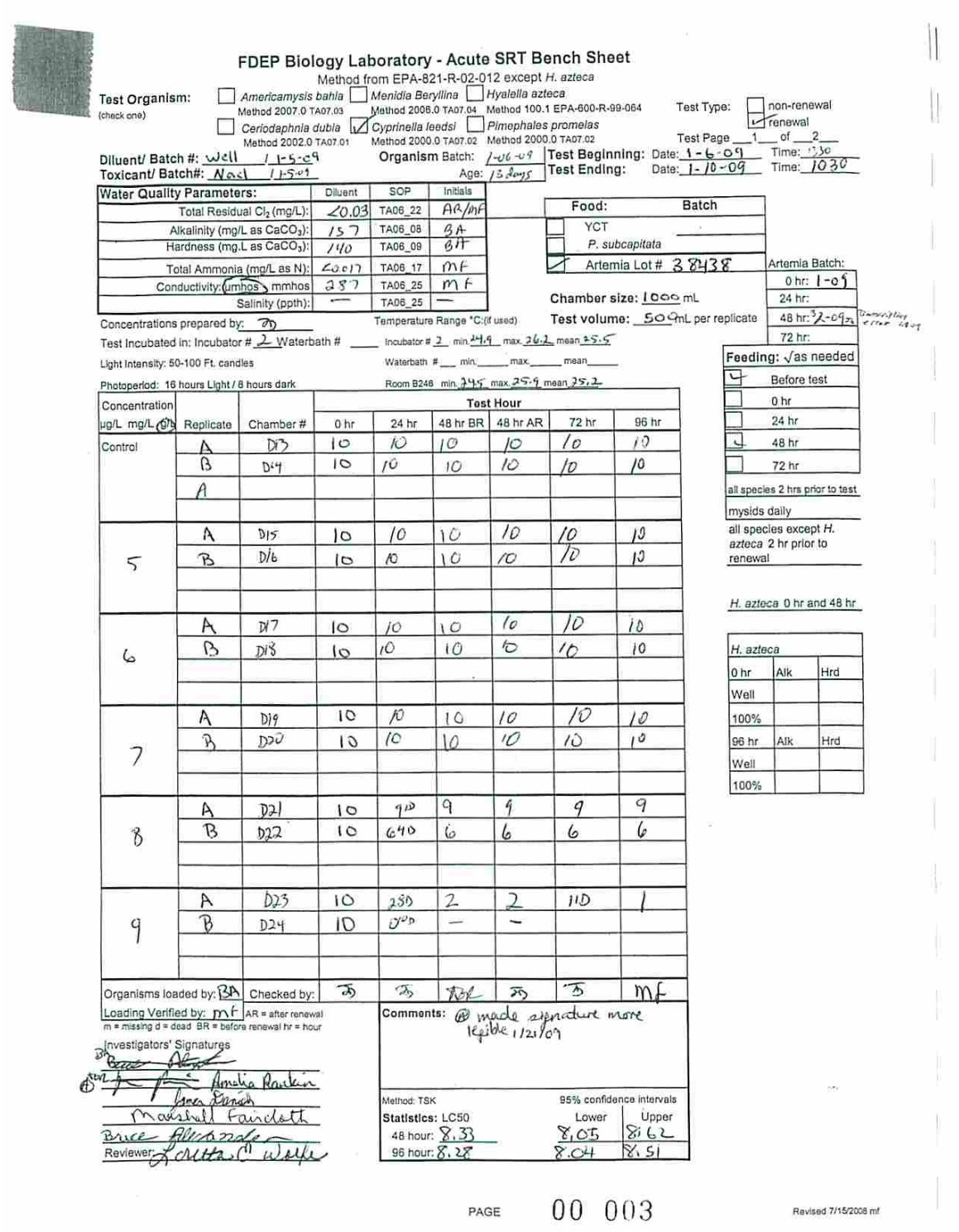
Measure/record salinity for marine tests

Comments:
(A) 48 hr AR not applicable MF 1-12-09
(B) made signature legible 1/21/09

PAGE 00 002

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 #: Well 1-5-09
Toxicant/ Batch#: NaCl 1-5-09
Organism Batch: 1-06-09 Age: 13 days
Test Beginning: Date: 1-6-09 Time: 1330
Test Ending: Date: 1-10-09 Time: 1030

Water Quality Parameters:	Diluent	SOP	Initials
Total Residual Cl_2 (mg/L):	<0.03	TA06_22	AR/MF
Alkalinity (mg/L as $CaCO_3$):	157	TA06_08	BA
Hardness (mg.L as $CaCO_3$):	140	TA06_09	BA
Total Ammonia (mg/L as N):	<0.017	TA06_17	MF
Conductivity: (umhos) mmhos	287	TA06_25	MF
Salinity (ppth):	—	TA06_25	—

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

Chamber size: 1000 mL
Test volume: 500 mL per replicate

Artemia Batch:
- 0 hr: 1-09
- 24 hr:
- 48 hr: 1-09 (Transferred after 48-09)
- 72 hr:

Concentrations prepared by: JD
Test Incubated in: Incubator # 2 Waterbath # ____ Temperature Range °C:(if used)
Incubator # 2 min 24.9 max 26.2 mean 25.5
Light Intensity: 50-100 Ft. candles
Waterbath # ___ min ____ max ____ mean ____
Photoperiod: 16 hours Light / 8 hours dark
Room B248 min 24.5 max 25.9 mean 25.2

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%		

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
	A							
5	A	D15	10	10	10	10	10	10
	B	D16	10	10	10	10	10	10
6	A	D17	10	10	10	10	10	10
	B	D18	10	10	10	10	10	10
7	A	D19	10	10	10	10	10	10
	B	D20	10	10	10	10	10	10
8	A	D21	10	9	9	9	9	9
	B	D22	10	6	6	6	6	6
9	A	D23	10	2	2	2	1	1
	B	D24	10	0	—	—		
Organisms loaded by: BA	Checked by:		JD	JD	TSK	JD	JD	MF

Loading Verified by: MF AR = after renewal
m = missing d = dead BR = before renewal hr = hour

Comments: @ made signature more legible 1/21/09

Investigators' Signatures
BA Bruce Almonde
TSK Amelia Rankin
Sara Ranch
Marshall Faircloth
Bruce Almonde
Reviewer: Kristen Welke

Method: TSK

Statistics: LC50	95% confidence intervals Lower	Upper
48 hour: 8.33	8.05	8.62
96 hour: 8.28	8.04	8.51

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Revised 7/15/2008 mf

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: 1-6-09 Time: 1330
Test Ending: Date: 1-10-09 Time: 1030

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	7.8	24.0	8.0	0.318	
	B	24 hr	8.0	24.1	6.7	0.346	
	A	48 hr BR	8.2	24.6	7.0	0.326	
	A	48 hr AR	8.1	24.0	7.5	0.289	
	B	72 hr	8.1	24.0	5.9	0.301	
	A	96 hr	8.2	25.1	7.1	0.290	
50	A	0 hr	7.8	24.0	8.0	9.43	
	B	24 hr	8.0	24.3	6.7	9.86	
	A	48 hr BR	8.1	24.6	6.8	9.39	
	A	48 hr AR	8.1	24.0	7.4	9.18	
	B	72 hr	8.1	24.0	6.4	9.48	
	A	96 hr	8.1	25.2	6.5	9.6	
6.0	A	0 hr	7.9	24.0	8.1	11.4	
	B	24 hr	8.0	24.4	6.8	10.9	
	A	48 hr BR	8.1	24.6	6.8	11.4	
	A	48 hr AR	8.1	24.0	7.5	11.3	
	B	72 hr	8.1	24.0	5 & 7 (B)	11.45	
	A	96 hr	8.2	25.1	6.5	11.5	
7.0	A	0 hr	8.0	24.0	8.0	13.1	
	B	24 hr	8.0	24.4	6.8	12.4	
	A	48 hr BR	8.2	24.6	6.8	13.0	
	A	48 hr AR	8.1	24.0	7.4	12.9	
	B	72 hr	8.1	24.0	6.0	13.11	
	A	96 hr	8.2	25.0	6.5	13.2	
8.0	A	0 hr	8.1	24.0	8.1	14.4	
	B	24 hr	8.0	24.7	6.9	14.1	
	A	48 hr BR	8.2	24.5	6.8	14.8	
	A	48 hr AR	8.1	24.0	7.4	14.7	
	B	72 hr	8.1	24.0	6.0	14.87	
	A	96 hr	8.2	25.0	6.4	14.9	
9.0	A	0 hr	8.1	24.0	8.0	16.6	
	B	24 hr	8.0	24.6	6.6	15.8	
	A	48 hr BR	8.2	24.5	6.8	16.7	
	A	48 hr AR	8.1	24.2	7.4	16.5	
	A	72 hr	8.2	24.0	6.4	16.68	
	A	96 hr	8.2	25.2	6.9	16.8	

Investigators Signatures
Amelia Rankin
Marshall Faircloth
James Daniel
Brad Alexander
Reviewed By: Melissa C. Wolfe

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

Measure/record salinity for marine tests

Comments: (A) transcription error 1/12/09 1/16/09
(B) made signature more legible 1/21/09

PAGE 00 004

Revised 07/15/2008 MF

Appendix C. (continued)

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

DATE: 1-6-09 DURATION: 96 hr TOXICANT: NaCl
SPECIES: ***Ceriodaphnia dubia***

RAW DATA: Concentration (g/L)	Number Exposed	Mortalities
0.00	20	0
1.50	20	0
2.00	20	6
2.50	20	19
3.00	20	20
4.00	20	20

SPEARMAN-KARBER TRIM: 0.00%

SPEARMAN-KARBER ESTIMATES: LC50: 2.09
95% LOWER CONFIDENCE: 1.98
95% UPPER CONFIDENCE: 2.21

***Cyprinella leedsi* Acute Standard Reference Toxicant Test**

DATE: 1-6-09 DURATION: 96 hr TOXICANT: NaCl
SPECIES: ***Cyprinella leedsi***

RAW DATA: Concentration (g/L)	Number Exposed	Mortalities
0.00	20	0
5.00	20	0
6.00	20	0
7.00	20	0
8.00	20	5
9.00	20	19

SPEARMAN-KARBER TRIM: 5.00%

SPEARMAN-KARBER ESTIMATES: LC50: 8.28
95% LOWER CONFIDENCE: 8.04
95% UPPER CONFIDENCE: 8.51

Appendix D. Test Organism Receipt

MARINCO BIOASSAY LABORATORY
The Aquatic Toxicology Specialists

NELAP Certification # E84191

Organism Shipment Record

State of Florida Aquaculture Certificate Number AQ0668007

Date: 1/5/09

Shipped to: FDEP

P.O. No: _____

Species	Quantity	Age	Brood Number	Temp.	pH	Salinity
Mysidopsis bahia	150	4 DAYS	M5090101	25°C	7.9	20‰
Menidia beryllina	150	12 DAYS	SS081224	25°C	7.9	20‰
						Hardness
Cyprinella leedsi	200	12 DAYS	CL081224	25°C	7.7	76mg/L
Pimephales promelas	150	7 DAYS	FM081229	25°C	7.7	76mg/L

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Appendix E. Chemical Analyses performed on the effluent from the Study Estates Mobile Home Park Wastewater Treatment Facility Outfall D-001, sampled on January 5, 2009.

Date Sampled	Field ID	Analysis Group	Components	Results	Remark	Units	MDL	PQL
1/5/2009 10:11	BLANK	Metals	Iron	30	U	ug/L	30	120
1/5/2009 10:11	BLANK	Metals	Copper	0.5	U	ug/L	0.5	1
1/5/2009 10:11	BLANK	Metals	Aluminum	60	U	ug/L	60	240
1/5/2009 10:11	BLANK	Metals	Lead	0.2	U	ug/L	0.2	0.8
1/5/2009 10:11	BLANK	Metals	Selenium	0.2	U	ug/L	0.2	0.8
1/5/2009 10:11	BLANK	Metals	Cadmium	0.03	U	ug/L	0.03	0.12
1/5/2009 10:11	BLANK	Metals	Nickel	0.25	U	ug/L	0.25	1
1/5/2009 10:11	BLANK	Metals	Zinc	5	U	ug/L	5	20
1/5/2009 10:11	BLANK	Metals	Magnesium	0.04	U	mg/L	0.04	0.16
1/5/2009 10:11	BLANK	Metals	Calcium	0.075	U	mg/L	0.075	0.3
1/5/2009 10:11	BLANK	Metals	Silver	0.01	U	ug/L	0.01	0.04
1/5/2009 10:11	BLANK	Metals	Chromium	0.2	U	ug/L	0.2	0.8
1/5/2009 10:11	BLANK	Metals	Arsenic	0.25	U	ug/L	0.25	1
1/5/2009 10:11	BLANK	Nutrients	Ammonia-N	0.01	U	mg N/L	0.01	0.02
1/5/2009 10:11	BLANK	Nutrients	Kjeldahl Nitrogen	0.08	U	mg N/L	0.08	0.2
1/5/2009 10:11	BLANK	Nutrients	O-Phosphate-P	0.004	U	mg P/L	0.004	0.01
1/5/2009 10:11	BLANK	Nutrients	NO2NO3-N	0.004	U	mg N/L	0.004	0.01
1/5/2009 10:11	BLANK	Nutrients	Total-P	0.02	U	mg P/L	0.02	0.06
1/5/2009 10:11	BLANK	Pesticides	Simazine	0.051	U	ug/L	0.051	0.2
1/5/2009 10:11	BLANK	Pesticides	Bromacil	0.2	U	ug/L	0.2	0.8
1/5/2009 10:11	BLANK	Pesticides	Ethion	0.051	U	ug/L	0.051	0.2
1/5/2009 10:11	BLANK	Pesticides	Metalaxyl	0.25	U	ug/L	0.25	1
1/5/2009 10:11	BLANK	Pesticides	Parathion Methyl	0.1	U	ug/L	0.1	0.4
1/5/2009 10:11	BLANK	Pesticides	Chlorpyrifos Ethyl	0.051	U	ug/L	0.051	0.2
1/5/2009 10:11	BLANK	Pesticides	Metribuzin	0.1	U	ug/L	0.1	0.4
1/5/2009 10:11	BLANK	Pesticides	Prometryn	0.15	U	ug/L	0.15	0.6
1/5/2009 10:11	BLANK	Pesticides	Phorate	0.051	U	ug/L	0.051	0.2
1/5/2009 10:11	BLANK	Pesticides	Ametryn	0.051	U	ug/L	0.051	0.2
1/5/2009 10:11	BLANK	Pesticides	Ethoprop	0.1	U	ug/L	0.1	0.4
1/5/2009 10:11	BLANK	Pesticides	Norflurazon	0.15	U	ug/L	0.15	0.6
1/5/2009 10:11	BLANK	Pesticides	Malathion	0.15	U	ug/L	0.15	0.6
1/5/2009 10:11	BLANK	Pesticides	Diazinon	0.051	U	ug/L	0.051	0.2
1/5/2009 10:11	BLANK	Pesticides	Azinphos Methyl	0.2	UJ	ug/L	0.2	0.8

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Components	Results	Remark	Units	MDL	PQL
1/5/2009 10:11	BLANK	Pesticides	Fonofos	0.1	U	ug/L	0.1	0.4
1/5/2009 10:11	BLANK	Pesticides	Alachlor	0.61	U	ug/L	0.61	2.4
1/5/2009 10:11	BLANK	Pesticides	Metolachlor	0.51	U	ug/L	0.51	2
1/5/2009 10:11	BLANK	Pesticides	Hexazinone	0.1	U	ug/L	0.1	0.4
1/5/2009 10:11	BLANK	Pesticides	Fenamiphos	0.2	UJ	ug/L	0.2	0.8
1/5/2009 10:11	BLANK	Pesticides	Butylate	0.2	U	ug/L	0.2	0.8
1/5/2009 10:11	BLANK	Pesticides	Atrazine	0.051	U	ug/L	0.051	0.2
1/5/2009 10:11	BLANK	Pesticides	Parathion Ethyl	0.15	U	ug/L	0.15	0.6
1/5/2009 10:11	BLANK	Pesticides	Naled	0.81	UJ	ug/L	0.81	3.2
1/5/2009 10:11	BLANK	Pesticides	Mevinphos	0.2	U	ug/L	0.2	0.8
1/5/2009 10:11	BLANK	Pesticides	Chlorpyrifos Methyl	0.1	U	ug/L	0.1	0.4
1/5/2009 10:11	BLANK	Priority Organic Pollutants	2,4,6-Trichlorophenol	1	U	ug/L	1	4.1
1/5/2009 10:11	BLANK	Priority Organic Pollutants	2,4-Dimethylphenol	10	U	ug/L	10	41
1/5/2009 10:11	BLANK	Priority Organic Pollutants	2,4-Dinitrotoluene	1	U	ug/L	1	4.1
1/5/2009 10:11	BLANK	Priority Organic Pollutants	2-Chlorophenol	1	U	ug/L	1	4.1
1/5/2009 10:11	BLANK	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	3	U	ug/L	3	12
1/5/2009 10:11	BLANK	Priority Organic Pollutants	Aldrin	1.5	U	ug/L	1.5	6.1
1/5/2009 10:11	BLANK	Priority Organic Pollutants	Anthracene	1	U	ug/L	1	4.1
1/5/2009 10:11	BLANK	Priority Organic Pollutants	Fluoranthene	1	U	ug/L	1	4.1
1/5/2009 10:11	BLANK	Priority Organic Pollutants	Heptachlor	1.5	U	ug/L	1.5	6.1
1/5/2009 10:11	BLANK	Priority Organic Pollutants	Hexachlorobenzene	1	U	ug/L	1	4.1
1/5/2009 10:11	BLANK	Priority Organic Pollutants	delta-BHC	1.5	U	ug/L	1.5	6.1
1/5/2009 10:11	BLANK	Priority Organic Pollutants	1,2,4-Trichlorobenzene	1	U	ug/L	1	4.1
1/5/2009 10:11	BLANK	Priority Organic Pollutants	4,4'-DDD	1.5	U	ug/L	1.5	6.1
1/5/2009 10:11	BLANK	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	1	U	ug/L	1	4.1
1/5/2009 10:11	BLANK	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	15	U	ug/L	15	61
1/5/2009 10:11	BLANK	Priority Organic Pollutants	Dimethyl phthalate	10	UJ	ug/L	10	41
1/5/2009 10:11	BLANK	Priority Organic Pollutants	Endosulfan I	4.1	U	ug/L	4.1	16
1/5/2009 10:11	BLANK	Priority Organic Pollutants	Heptachlor epoxide	1.5	U	ug/L	1.5	6.1
1/5/2009 10:11	BLANK	Priority Organic Pollutants	N-Nitrosodimethylamine	2	U	ug/L	2	8.1
1/5/2009 10:11	BLANK	Priority Organic Pollutants	3,3'-Dichlorobenzidine	41	UJ	ug/L	41	160
1/5/2009 10:11	BLANK	Priority Organic Pollutants	Bis(2-chloroethyl)ether	1	U	ug/L	1	4.1
1/5/2009 10:11	BLANK	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	3	U	ug/L	3	12
1/5/2009 10:11	BLANK	Priority Organic Pollutants	Endosulfan II	4.1	U	ug/L	4.1	16

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Components	Results	Remark	Units	MDL	PQL
1/5/2009 10:11	BLANK	Priority Organic Pollutants	Endrin	1.5	U	ug/L	1.5	6.1
1/5/2009 10:11	BLANK	Priority Organic Pollutants	Endrin aldehyde	4.1	U	ug/L	4.1	16
1/5/2009 10:11	BLANK	Priority Organic Pollutants	Hexachloroethane	3	U	ug/L	3	12
1/5/2009 10:11	BLANK	Priority Organic Pollutants	Nitrobenzene	2	U	ug/L	2	8.1
1/5/2009 10:11	BLANK	Priority Organic Pollutants	Pentachlorophenol	3	U	ug/L	3	12
1/5/2009 10:11	BLANK	Priority Organic Pollutants	Pyrene	1	U	ug/L	1	4.1
1/5/2009 10:11	BLANK	Priority Organic Pollutants	alpha-BHC	1.5	U	ug/L	1.5	6.1
1/5/2009 10:11	BLANK	Priority Organic Pollutants	2-Chloronaphthalene	1	U	ug/L	1	4.1
1/5/2009 10:11	BLANK	Priority Organic Pollutants	Acenaphthylene	1	U	ug/L	1	4.1
1/5/2009 10:11	BLANK	Priority Organic Pollutants	Hexachlorocyclopentadiene	3	U	ug/L	3	12
1/5/2009 10:11	BLANK	Priority Organic Pollutants	2-Nitrophenol	1	U	ug/L	1	4.1
1/5/2009 10:11	BLANK	Priority Organic Pollutants	4,4'-DDE	1.5	U	ug/L	1.5	6.1
1/5/2009 10:11	BLANK	Priority Organic Pollutants	4,4'-DDT	1.5	U	ug/L	1.5	6.1
1/5/2009 10:11	BLANK	Priority Organic Pollutants	4-Bromophenyl phenyl ether	1	U	ug/L	1	4.1
1/5/2009 10:11	BLANK	Priority Organic Pollutants	Acenaphthene	1	U	ug/L	1	4.1
1/5/2009 10:11	BLANK	Priority Organic Pollutants	Benzidine	100	U	ug/L	100	410
1/5/2009 10:11	BLANK	Priority Organic Pollutants	Benzo(k)fluoranthene	1	U	ug/L	1	4.1
1/5/2009 10:11	BLANK	Priority Organic Pollutants	Butyl benzyl phthalate	5.1	U	ug/L	5.1	20
1/5/2009 10:11	BLANK	Priority Organic Pollutants	Di-n-octyl phthalate	1	U	ug/L	1	4.1
1/5/2009 10:11	BLANK	Priority Organic Pollutants	Dibenzo(a,h)anthracene	1	U	ug/L	1	4.1
1/5/2009 10:11	BLANK	Priority Organic Pollutants	Naphthalene	1	U	ug/L	1	4.1
1/5/2009 10:11	BLANK	Priority Organic Pollutants	beta-BHC	1.5	U	ug/L	1.5	6.1
1/5/2009 10:11	BLANK	Priority Organic Pollutants	2,6-Dinitrotoluene	1	U	ug/L	1	4.1
1/5/2009 10:11	BLANK	Priority Organic Pollutants	4-Nitrophenol	15	U	ug/L	15	61
1/5/2009 10:11	BLANK	Priority Organic Pollutants	Benzo(g,h,i)perylene	1	U	ug/L	1	4.1
1/5/2009 10:11	BLANK	Priority Organic Pollutants	Fluorene	1	U	ug/L	1	4.1
1/5/2009 10:11	BLANK	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	1	U	ug/L	1	4.1
1/5/2009 10:11	BLANK	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	2	U	ug/L	2	8.1
1/5/2009 10:11	BLANK	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	2	U	ug/L	2	8.1
1/5/2009 10:11	BLANK	Priority Organic Pollutants	Benzo(a)pyrene	1	U	ug/L	1	4.1
1/5/2009 10:11	BLANK	Priority Organic Pollutants	Chrysene	1	U	ug/L	1	4.1
1/5/2009 10:11	BLANK	Priority Organic Pollutants	Dieldrin	1.5	U	ug/L	1.5	6.1
1/5/2009 10:11	BLANK	Priority Organic Pollutants	Hexachlorobutadiene	3	U	ug/L	3	12
1/5/2009 10:11	BLANK	Priority Organic Pollutants	Phenol	1	U	ug/L	1	4.1

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Components	Results	Remark	Units	MDL	PQL
1/5/2009 10:11	BLANK	Priority Organic Pollutants	gamma-BHC	1.5	U	ug/L	1.5	6.1
1/5/2009 10:11	BLANK	Priority Organic Pollutants	2,4-Dichlorophenol	1	U	ug/L	1	4.1
1/5/2009 10:11	BLANK	Priority Organic Pollutants	2,4-Dinitrophenol	15	U	ug/L	15	61
1/5/2009 10:11	BLANK	Priority Organic Pollutants	4-Chloro-3-methylphenol	1	U	ug/L	1	4.1
1/5/2009 10:11	BLANK	Priority Organic Pollutants	Benzo(a)anthracene	1	U	ug/L	1	4.1
1/5/2009 10:11	BLANK	Priority Organic Pollutants	Benzo(b)fluoranthene	1	U	ug/L	1	4.1
1/5/2009 10:11	BLANK	Priority Organic Pollutants	Di-n-butyl phthalate	5.1	U	ug/L	5.1	20
1/5/2009 10:11	BLANK	Priority Organic Pollutants	Diethyl phthalate	1	U	ug/L	1	4.1
1/5/2009 10:11	BLANK	Priority Organic Pollutants	Endosulfan sulfate	1.5	U	ug/L	1.5	6.1
1/5/2009 10:11	BLANK	Priority Organic Pollutants	Isophorone	1	U	ug/L	1	4.1
1/5/2009 10:11	BLANK	Priority Organic Pollutants	Phenanthrene	1	U	ug/L	1	4.1
1/5/2009 10:11	EFFLUENT	AGP/LN	Algal Growth Potential	701		mg DryWt/L	0.3	0.9
1/5/2009 10:11	EFFLUENT	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	1.5	I	ug/L	0.55	1.7
1/5/2009 10:11	EFFLUENT	Chlorophyll/Grain Size/BOD	Phaeophytin-a	0.8		ug/L	0.24	0.71
1/5/2009 10:11	EFFLUENT	Chlorophyll/Grain Size/BOD	Biochemical Oxygen Demand-5 Day,N-Inhib	24	J	mg/L	0.2	2
1/5/2009 10:11	EFFLUENT	Overflow	Fecal Coliforms-Membrane Filter	5700		#/100 mL	100	
1/5/2009 10:11	EFFLUENT	Toxicology	Bioassay-Acute-Screen-FW-Fish, LC50	100	L	LC50		
1/5/2009 10:11	EFFLUENT	Toxicology	Bioassay-Acute-Screen-FW-C.dubia, LC50	100	L	LC50		
1/5/2009 10:11	EFFLUENT	Metals	Chromium	0.31	I	ug/L	0.2	0.8
1/5/2009 10:11	EFFLUENT	Metals	Cadmium	0.03	U	ug/L	0.03	0.12
1/5/2009 10:11	EFFLUENT	Metals	Arsenic	3.76		ug/L	0.25	1
1/5/2009 10:11	EFFLUENT	Metals	Calcium	92.2		mg/L	0.075	0.3
1/5/2009 10:11	EFFLUENT	Metals	Lead	0.28	I	ug/L	0.2	0.8
1/5/2009 10:11	EFFLUENT	Metals	Selenium	0.39	I	ug/L	0.2	0.8
1/5/2009 10:11	EFFLUENT	Metals	Iron	130		ug/L	30	120
1/5/2009 10:11	EFFLUENT	Metals	Copper	2.1		ug/L	0.5	1
1/5/2009 10:11	EFFLUENT	Metals	Magnesium	15.2		mg/L	0.04	0.16
1/5/2009 10:11	EFFLUENT	Metals	Silver	0.01	U	ug/L	0.01	0.04
1/5/2009 10:11	EFFLUENT	Metals	Nickel	1.24		ug/L	0.25	1
1/5/2009 10:11	EFFLUENT	Metals	Zinc	16	I	ug/L	5	20
1/5/2009 10:11	EFFLUENT	Metals	Aluminum	86	I	ug/L	60	240
1/5/2009 10:11	EFFLUENT	Nutrients	O-Phosphate-P	2.8	A	mg P/L	0.08	0.2
1/5/2009 10:11	EFFLUENT	Nutrients	Kjeldahl Nitrogen	13		mg N/L	0.4	1
1/5/2009 10:11	EFFLUENT	Nutrients	NO2NO3-N	7.8		mg N/L	0.2	0.5

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Components	Results	Remark	Units	MDL	PQL
1/5/2009 10:11	EFFLUENT	Nutrients	Ammonia-N	7.9		mg N/L	0.2	0.4
1/5/2009 10:11	EFFLUENT	Nutrients	Total-P	5		mg P/L	0.1	0.3
1/5/2009 10:11	EFFLUENT	Nutrients	TSS	9	I	mg/L	4	16
1/5/2009 10:11	EFFLUENT	Pesticides	Alachlor	0.6	U	ug/L	0.6	2.4
1/5/2009 10:11	EFFLUENT	Pesticides	Ametryn	0.05	U	ug/L	0.05	0.2
1/5/2009 10:11	EFFLUENT	Pesticides	Butylate	0.2	U	ug/L	0.2	0.8
1/5/2009 10:11	EFFLUENT	Pesticides	Diazinon	0.05	U	ug/L	0.05	0.2
1/5/2009 10:11	EFFLUENT	Pesticides	Fonofos	0.1	U	ug/L	0.1	0.4
1/5/2009 10:11	EFFLUENT	Pesticides	Parathion Methyl	0.1	U	ug/L	0.1	0.4
1/5/2009 10:11	EFFLUENT	Pesticides	Ethion	0.05	U	ug/L	0.05	0.2
1/5/2009 10:11	EFFLUENT	Pesticides	Atrazine	0.05	U	ug/L	0.05	0.2
1/5/2009 10:11	EFFLUENT	Pesticides	Bromacil	0.2	U	ug/L	0.2	0.8
1/5/2009 10:11	EFFLUENT	Pesticides	Ethoprop	0.1	U	ug/L	0.1	0.4
1/5/2009 10:11	EFFLUENT	Pesticides	Metribuzin	0.1	U	ug/L	0.1	0.4
1/5/2009 10:11	EFFLUENT	Pesticides	Mevinphos	0.2	U	ug/L	0.2	0.8
1/5/2009 10:11	EFFLUENT	Pesticides	Simazine	0.05	U	ug/L	0.05	0.2
1/5/2009 10:11	EFFLUENT	Pesticides	Norflurazon	0.15	U	ug/L	0.15	0.6
1/5/2009 10:11	EFFLUENT	Pesticides	Phorate	0.05	U	ug/L	0.05	0.2
1/5/2009 10:11	EFFLUENT	Pesticides	Azinphos Methyl	0.2	UJ	ug/L	0.2	0.8
1/5/2009 10:11	EFFLUENT	Pesticides	Prometryn	0.15	U	ug/L	0.15	0.6
1/5/2009 10:11	EFFLUENT	Pesticides	Naled	0.8	UJ	ug/L	0.8	3.2
1/5/2009 10:11	EFFLUENT	Pesticides	Metalaxyl	0.25	U	ug/L	0.25	1
1/5/2009 10:11	EFFLUENT	Pesticides	Hexazinone	0.1	U	ug/L	0.1	0.4
1/5/2009 10:11	EFFLUENT	Pesticides	Malathion	0.15	U	ug/L	0.15	0.6
1/5/2009 10:11	EFFLUENT	Pesticides	Parathion Ethyl	0.15	U	ug/L	0.15	0.6
1/5/2009 10:11	EFFLUENT	Pesticides	Metolachlor	0.5	U	ug/L	0.5	2
1/5/2009 10:11	EFFLUENT	Pesticides	Fenamiphos	0.2	UJ	ug/L	0.2	0.8
1/5/2009 10:11	EFFLUENT	Pesticides	Chlorpyrifos Methyl	0.1	U	ug/L	0.1	0.4
1/5/2009 10:11	EFFLUENT	Pesticides	Chlorpyrifos Ethyl	0.05	U	ug/L	0.05	0.2
1/5/2009 10:11	EFFLUENT	Priority Organic Pollutants	2,4-Dinitrotoluene	0.97	U	ug/L	0.97	3.9
1/5/2009 10:11	EFFLUENT	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	2.9	U	ug/L	2.9	12
1/5/2009 10:11	EFFLUENT	Priority Organic Pollutants	4-Bromophenyl phenyl ether	0.97	U	ug/L	0.97	3.9
1/5/2009 10:11	EFFLUENT	Priority Organic Pollutants	4-Chloro-3-methylphenol	0.97	U	ug/L	0.97	3.9
1/5/2009 10:11	EFFLUENT	Priority Organic Pollutants	Benzidine	97	U	ug/L	97	390

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Components	Results	Remark	Units	MDL	PQL
1/5/2009 10:11	EFFLUENT	Priority Organic Pollutants	Benzo(k)fluoranthene	0.97	U	ug/L	0.97	3.9
1/5/2009 10:11	EFFLUENT	Priority Organic Pollutants	Di-n-octyl phthalate	0.97	U	ug/L	0.97	3.9
1/5/2009 10:11	EFFLUENT	Priority Organic Pollutants	Dieldrin	1.5	U	ug/L	1.5	5.8
1/5/2009 10:11	EFFLUENT	Priority Organic Pollutants	Diethyl phthalate	0.97	U	ug/L	0.97	3.9
1/5/2009 10:11	EFFLUENT	Priority Organic Pollutants	Pentachlorophenol	2.9	U	ug/L	2.9	12
1/5/2009 10:11	EFFLUENT	Priority Organic Pollutants	Phenol	0.97	U	ug/L	0.97	3.9
1/5/2009 10:11	EFFLUENT	Priority Organic Pollutants	Benzo(a)anthracene	0.97	U	ug/L	0.97	3.9
1/5/2009 10:11	EFFLUENT	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	0.97	U	ug/L	0.97	3.9
1/5/2009 10:11	EFFLUENT	Priority Organic Pollutants	Dimethyl phthalate	9.7	UJ	ug/L	9.7	39
1/5/2009 10:11	EFFLUENT	Priority Organic Pollutants	Endosulfan I	3.9	U	ug/L	3.9	16
1/5/2009 10:11	EFFLUENT	Priority Organic Pollutants	2,4-Dichlorophenol	0.97	U	ug/L	0.97	3.9
1/5/2009 10:11	EFFLUENT	Priority Organic Pollutants	2,4-Dinitrophenol	15	U	ug/L	15	58
1/5/2009 10:11	EFFLUENT	Priority Organic Pollutants	2-Chloronaphthalene	0.97	U	ug/L	0.97	3.9
1/5/2009 10:11	EFFLUENT	Priority Organic Pollutants	2-Chlorophenol	0.97	U	ug/L	0.97	3.9
1/5/2009 10:11	EFFLUENT	Priority Organic Pollutants	Acenaphthene	0.97	U	ug/L	0.97	3.9
1/5/2009 10:11	EFFLUENT	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	2.9	U	ug/L	2.9	12
1/5/2009 10:11	EFFLUENT	Priority Organic Pollutants	Endosulfan II	3.9	U	ug/L	3.9	16
1/5/2009 10:11	EFFLUENT	Priority Organic Pollutants	Fluorene	0.97	U	ug/L	0.97	3.9
1/5/2009 10:11	EFFLUENT	Priority Organic Pollutants	Hexachlorocyclopentadiene	2.9	U	ug/L	2.9	12
1/5/2009 10:11	EFFLUENT	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.97	U	ug/L	0.97	3.9
1/5/2009 10:11	EFFLUENT	Priority Organic Pollutants	N-Nitrosodimethylamine	1.9	U	ug/L	1.9	7.8
1/5/2009 10:11	EFFLUENT	Priority Organic Pollutants	2,4-Dimethylphenol	9.7	U	ug/L	9.7	39
1/5/2009 10:11	EFFLUENT	Priority Organic Pollutants	2,6-Dinitrotoluene	0.97	U	ug/L	0.97	3.9
1/5/2009 10:11	EFFLUENT	Priority Organic Pollutants	2-Nitrophenol	0.97	U	ug/L	0.97	3.9
1/5/2009 10:11	EFFLUENT	Priority Organic Pollutants	Butyl benzyl phthalate	4.9	U	ug/L	4.9	19
1/5/2009 10:11	EFFLUENT	Priority Organic Pollutants	Chrysene	0.97	U	ug/L	0.97	3.9
1/5/2009 10:11	EFFLUENT	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.97	U	ug/L	0.97	3.9
1/5/2009 10:11	EFFLUENT	Priority Organic Pollutants	Endrin	1.5	U	ug/L	1.5	5.8
1/5/2009 10:11	EFFLUENT	Priority Organic Pollutants	Isophorone	0.97	U	ug/L	0.97	3.9
1/5/2009 10:11	EFFLUENT	Priority Organic Pollutants	4,4'-DDE	1.5	U	ug/L	1.5	5.8
1/5/2009 10:11	EFFLUENT	Priority Organic Pollutants	Aldrin	1.5	U	ug/L	1.5	5.8
1/5/2009 10:11	EFFLUENT	Priority Organic Pollutants	Anthracene	0.97	U	ug/L	0.97	3.9
1/5/2009 10:11	EFFLUENT	Priority Organic Pollutants	Benzo(a)pyrene	0.97	U	ug/L	0.97	3.9
1/5/2009 10:11	EFFLUENT	Priority Organic Pollutants	Benzo(b)fluoranthene	0.97	U	ug/L	0.97	3.9

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Components	Results	Remark	Units	MDL	PQL
1/5/2009 10:11	EFFLUENT	Priority Organic Pollutants	Bis(2-chloroethyl)ether	0.97	U	ug/L	0.97	3.9
1/5/2009 10:11	EFFLUENT	Priority Organic Pollutants	Endrin aldehyde	3.9	U	ug/L	3.9	16
1/5/2009 10:11	EFFLUENT	Priority Organic Pollutants	Naphthalene	0.97	U	ug/L	0.97	3.9
1/5/2009 10:11	EFFLUENT	Priority Organic Pollutants	3,3'-Dichlorobenzidine	39	UJ	ug/L	39	160
1/5/2009 10:11	EFFLUENT	Priority Organic Pollutants	4,4'-DDD	1.5	U	ug/L	1.5	5.8
1/5/2009 10:11	EFFLUENT	Priority Organic Pollutants	4-Nitrophenol	15	U	ug/L	15	58
1/5/2009 10:11	EFFLUENT	Priority Organic Pollutants	Acenaphthylene	0.97	U	ug/L	0.97	3.9
1/5/2009 10:11	EFFLUENT	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.97	U	ug/L	0.97	3.9
1/5/2009 10:11	EFFLUENT	Priority Organic Pollutants	Di-n-butyl phthalate	4.9	U	ug/L	4.9	19
1/5/2009 10:11	EFFLUENT	Priority Organic Pollutants	Fluoranthene	0.97	U	ug/L	0.97	3.9
1/5/2009 10:11	EFFLUENT	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	1.9	U	ug/L	1.9	7.8
1/5/2009 10:11	EFFLUENT	Priority Organic Pollutants	Nitrobenzene	1.9	U	ug/L	1.9	7.8
1/5/2009 10:11	EFFLUENT	Priority Organic Pollutants	Pyrene	0.97	U	ug/L	0.97	3.9
1/5/2009 10:11	EFFLUENT	Priority Organic Pollutants	beta-BHC	1.5	U	ug/L	1.5	5.8
1/5/2009 10:11	EFFLUENT	Priority Organic Pollutants	delta-BHC	1.5	U	ug/L	1.5	5.8
1/5/2009 10:11	EFFLUENT	Priority Organic Pollutants	gamma-BHC	1.5	U	ug/L	1.5	5.8
1/5/2009 10:11	EFFLUENT	Priority Organic Pollutants	1,2,4-Trichlorobenzene	0.97	U	ug/L	0.97	3.9
1/5/2009 10:11	EFFLUENT	Priority Organic Pollutants	2,4,6-Trichlorophenol	0.97	U	ug/L	0.97	3.9
1/5/2009 10:11	EFFLUENT	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	1.9	U	ug/L	1.9	7.8
1/5/2009 10:11	EFFLUENT	Priority Organic Pollutants	Hexachlorobenzene	0.97	U	ug/L	0.97	3.9
1/5/2009 10:11	EFFLUENT	Priority Organic Pollutants	Hexachlorobutadiene	2.9	U	ug/L	2.9	12
1/5/2009 10:11	EFFLUENT	Priority Organic Pollutants	Hexachloroethane	2.9	U	ug/L	2.9	12
1/5/2009 10:11	EFFLUENT	Priority Organic Pollutants	Phenanthrene	0.97	U	ug/L	0.97	3.9
1/5/2009 10:11	EFFLUENT	Priority Organic Pollutants	alpha-BHC	1.5	U	ug/L	1.5	5.8
1/5/2009 10:11	EFFLUENT	Priority Organic Pollutants	4,4'-DDT	1.5	U	ug/L	1.5	5.8
1/5/2009 10:11	EFFLUENT	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	15	U	ug/L	15	58
1/5/2009 10:11	EFFLUENT	Priority Organic Pollutants	Endosulfan sulfate	1.5	U	ug/L	1.5	5.8
1/5/2009 10:11	EFFLUENT	Priority Organic Pollutants	Heptachlor	1.5	U	ug/L	1.5	5.8
1/5/2009 10:11	EFFLUENT	Priority Organic Pollutants	Heptachlor epoxide	1.5	U	ug/L	1.5	5.8
1/5/2009 10:11	EFFLUENT	Field Parameter	Temperature	18.88		C		
1/5/2009 10:11	EFFLUENT	Field Parameter	Dissolved Oxygen	7.4		mg/L		
1/5/2009 10:11	EFFLUENT	Field Parameter	Specific Conductance	806.4		umhos/cm		
1/5/2009 10:11	EFFLUENT	Field Parameter	pH	7.81				

The Bioassay of Study Estates Mobile Home Park Wastewater Treatment Facility effluent sampled on January 5, 2009. NPDES #FL0043419.

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

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

Remarks

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The Priority Pollutants Analysis of Study Estates Mobile Home Park Wastewater Treatment Facility effluent sampled on January 5, 2009. NPDES #FL0043419.

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

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

Remarks

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Biological Analyses of Study Estates Mobile Home Park Wastewater Treatment Facility effluent sampled on January 5, 2009. NPDES #FL0043419.

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

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

Remarks

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