

Effluent Quality Assessment

Ocean Maisonettes North WWTF

Palm Beach County

NPDES #FL0028380

Sampled November 2, 2009

March 2010

Biology Section
Bureau of Laboratories
Division of Environmental Assessment and Restoration

Quality Manual No. 870346G
NELAC Certification No. E31780

CONTENTS

Introduction

Methods

Results and Discussion

Literature Cited

Tables

Table 1	Measured and predicted algal growth potential (AGP)
Table 2	Effluent limits, Class III Marine Criteria and chemical and microbiological data

Appendices

Appendix A	Chain of Custody
Appendix B	Bioassay Bench Sheets
Appendix C	SRT Bench Sheets and Statistical Analyses
Appendix D	Organism Receipt
Appendix E	Chemical Analyses of Effluent
Appendix F	Facility Summary with Permit Limits and Permit Violations
Appendix G	EPA End Sheet

Ocean Maisonettes North WWTF, 6880 North Ocean Blvd., Ocean Ridge, Palm Beach County, Florida, 33435. NPDES #FL0028380. Effluent samples for bioassay, chemical and microbiological analyses for this facility were collected on November 2, 2009.

Introduction

Ocean Maisonettes North WWTF is a domestic wastewater treatment facility. The facility has an Administrative Order (AO-05-007) which requires that the facility connect to a sewer system when a system is available. The facility has no Consent Orders or Mixing Zones. Discharge Monitoring Report data show no effluent violations during the past year (See Appendix F for detailed facility information provided by Lisa Self of FDEP Southeast District.)

Methods

Samples for bioassay, algal growth potential (AGP), microbiological and chemical analyses were collected from the EFD-01 NPDES sampling point for Outfall D-001 by Terry Davis (FDEP Southeast District) following DEP-SOP-001/01 FS 2400 Wastewater Sampling. All DEP SOPs are available on the web at: http://www.floridadep.org/labs/qa/sops.htm.

See Appendix A for the completed chain of custody forms.

The freshwater acute screening toxicity tests and the 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.

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

Due to the initial low dissolved oxygen (DO) concentration (2.3 mg/L) measured in the bioassay sample in the laboratory, the bioassay sample was aerated for ~ 60 minutes to a DO concentration of ~ 5.7 mg/L. The DO concentration decreased after the initial aeration was terminated; therefore, all replicates of 100% sample and control water were aerated for the duration of the tests. The low DO in the sample is suspected to be the result of continuing biological and/or chemical oxygen demand.

Results and Discussion

Toxicity Test Results

Tests performed November 3 - 4, 2009.

Ceriodaphnia dubia acute screening bioassay – LC_{50} < 100%, 100% mortality in 100% sample at 24 hours

Cyprinella leedsi acute screening bioassay – LC_{50} < 100%, 100% mortality in 100% sample at 24 hours

The bioassay tests were terminated at 24 hours due to 100% mortality in the 100% effluent test concentration. The bioassay tests were subsequently invalidated due to the pH in the 100% effluent having decreased below pH 6.0 SU as measured at 24 hours (pH 5.4 SU in the *C. dubia* test and pH 4.8 SU in the *C. leedsi* test).

The observed mortality is thought to be due to the effluent pH decreasing below the pH tolerance of the test species. The suspected cause of the pH shift within the effluent is the chemical and/or biological processes that occurred within the effluent and the reaction of the products of these processes to aeration and possibly to the presence of excess dechlorination agent (sodium

thiosulfate) within the effluent. Biological oxygen demand (BOD) samples would help explain the shift but those samples were not collected.

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 241 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 ratio of inorganic nitrogen to orthophosphate in the effluent suggests that the effluent is nitrogen-limited; whereas, the ratio of total nitrogen to total phosphorus in the effluent suggests that the effluent is co-limited by both nitrogen and phosphorus (Table 1; Miller et al., 1978). To determine actual nutrient limitation, a limiting-nutrient algal growth potential test should be performed.

The salinity-adjusted effluent AGP was 3.0 U (U - Material was analyzed for but not detected; the report value is the minimum detection limit) mg dry wt/L of the saltwater species *Dunaliella tertiolecta.* Raschke and Schultz found that AGP values above 10.0 mg dry weight/L represent a "problem" threshold for marine receiving waters, implying nutrient enrichment (personal communication, Marshall Faircloth, et. al. FDEP, with Ron Raschke USEPA Region 4 1987). One potential reason for the lack of growth in the salinity-adjusted sample is precipitation of enough orthophosphate by the added salts that the sample became extremely phosphorus-limited (Manahan 1994).

See Table 1 for AGP results.

Chemistry Results

Total residual chlorine and total ammonia were not detected in the bioassay sample in the bioassay laboratory. The total ammonia concentration in the sample collected and preserved for chemical analysis was 0.075 J (J – Estimated value) mg N/L. Based on the pH, salinity, and temperature of the effluent as collected, the calculated unionized ammonia concentration was < 0.02 mg N/L.

Arsenic, nickel and zinc were detected in the effluent at levels that comply with Class III marine quality criteria (62-302.530, F.A.C.). Effluent copper (7.65 µg/L) violated the criterion for Class III marine waters for copper (≤ 3.7 µg/L; 62-302.530(23), F.A.C.). Cadmium, chromium, iron, lead and selenium were detected between the laboratory method detection limits (MDL) and the laboratory practical quantification limits (PQL). Fecal coliforms, 81 B (B – Results based on colony counts outside the acceptable range) cfu/100mL and *Enterococci*, 234 B (B – Results based on colony counts outside the acceptable range) cfu/100mL were detected in the effluent.

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 bioassay tests performed on effluent samples collected from the EFD-01 NPDES sampling point for Outfall D-001 for this facility on November 2, 2009, were invalidated due to the pH in the 100% effluent decreasing below the acceptable lower pH limit of 6.0 SU. The suspected cause of the decrease in pH is aeration in the presence of excess dechlorination agent (sodium thiosulfate). The effluent AGP result greatly exceeded the "problem" threshold for fresh receiving waters and by inference suggests that nutrient enrichment might be an issue in the marine receiving water although AGP in the salinity adjusted sample was less than the method detection limit. One potential reason for the lack of growth in the salinity-adjusted sample is precipitation of enough orthophosphate by the added salts that the sample

became extremely phosphorus-limited (Manahan 1994). Effluent copper (7.65 µg/L) violated the criterion for Class III marine waters for copper (≤ 3.7 µg/L; 62-302.530(23), F.A.C.). Other effluent water quality samples did not violate water quality criteria or permit limits.

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.

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

Table 1a. 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 nitrogen to phosphorus for samples collected from the Ocean Maisonttes North WWTF facility on November 2, 2009.

Ocean Maisonettes North WWTF							
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	241.0	234.7 ± 46.9	296.7 ± 59.3	345.8 ± 69.2	348.3 ± 69.7	8.9	11.2

Table 1b. Measured algal growth potential (AGP; mg dry weight/L) of the saltwater species *Dunaliella tertiolecta* and ratios of nitrogen to phosphorus for samples collected from the Ocean Maisonttes North WWTF facility on November 2, 2009.

Ocean Maisonettes North WWTF			
Location	AGP (measured)	Inorganic N:P ratio	Total N:P ratio
Effluent*	3.0 U	8.9	11.2

* - sample salinity adjusted to 7ppt

Table 2. Effluent limits, Class III Criteria for predominantly marine waters and chemical and microbiological data for samples collected from the Ocean Maisonettes WWTF facility on November 2, 2009.

Ocean Maisonettes North WWTF NPDES# FL0028380	Class III Criteria	Effluent Limits	Effluent	
Organic Constituents (µg/L)				
None Detected	-	-	None Detected	
Metals (µg/L unless otherwise noted)				
Aluminum	≤ 1500	-	60	U
Arsenic	≤ 50	-	1.8	
Cadmium	≤ 8.8	-	0.068	I
Calcium (mg/L)	-	-	72.5	
Chromium-III	-	-	0.3	I
Copper	≤ 3.7	-	7.65	
Iron	≤ 300	-	62	I
Lead	≤ 8.5	-	0.26	I
Magnesium (mg/L)	-	-	6.77	
Mercury	≤ 0.025	-	-	
Nickel	≤ 8.3	-	1.86	
Selenium	≤ 71	-	0.31	I
Silver	≤ 2.3	-	0.025	U
Zinc	≤ 86	-	37	
Nutrients (mg/L)				
Ortho-phosphate	-	-	0.69	
Total Phosphorus	-	-	0.81	
Total Ammonia	-	-	0.075	J
Un-ionized Ammonia	-	-	≤ 0.02	c
Nitrate and Nitrite	-	-	6.1	
Total Kjeldahl Nitrogen	-	-	3	
Organic Nitrogen	-	-	2.925	c
Total Nitrogen	-	-	9.1	c
General Physical and Chemical Parameters				
Dissolved Oxygen (mg/L)	≥ 4.0 s	-	-	
pH (SU)	6.5 - 8.5 s	6.5 - 8.5 s	7.0	
Conductivity (µmhos/cm)	-	-	1190	
Temperature (°C)	-	-	27.2	
Sample Depth (m)	-	-	0.1	
Total Residual Chlorine (mg/L)	≤ 0.01 s	≤ 0.5 s	0.5	
Chlorophyll *a* (µg/L) - Corrected	-	-	0.55	U
Phaeophytin (µg/L)	-	-	0.4	U
Total Suspended Solids (mg/L)	-	≤ 60 s	4	U
Flow (MGD)	-	≤ 0.01 m	0.0031	m
Hardness (mg $CaCO_3$)	-	-	208.91	c
Microbiology (Number of colony forming units/100ml)				
Fecal Coliforms @	≤ 400s #	≤ 200 a	81	B
Enterococci @	-	≤ 35 g	234	B

Value exceeds the Class III Water Quality Criteria or permit limits

a - Annual average
c - Value is calculated
g - 35 geometric mean monthly average
m - Three month average daily flow
s - Single sample
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
J - Estimated value
U - Material analyzed for but not detected; value reported is the method detection limit
@ - Fecal coliform and Enterococci analysis performed by Flowers Laboratory
# - If 10 or fewer samples are taken within a month, the single sample limit is 400 CFU (62-302.530(6), F.A.C.)

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Request Number: RQ-2009-11-02-27
Ocean Maisonettes WWTP

Requester: Jennifer Paris

Field Report Prepared By: T. Davis

Customer: SE-DIST

Collected By: T. Davis

Send Final Report To Michael Hambor

Project ID: FYI3

Sampling Agency: Southeast District

PMAS: 1143

Event ID *

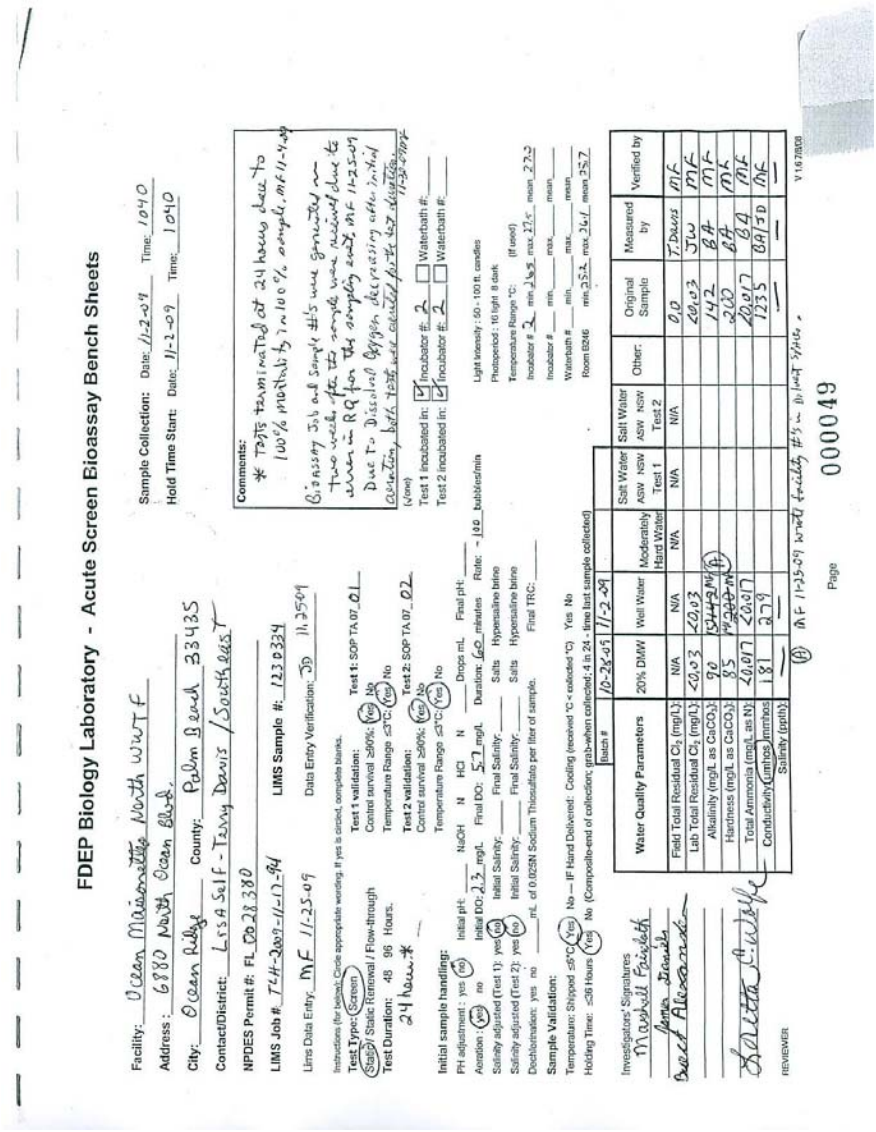
Lab ID *	Location	Effluent	☐ Comp ☒ Grab	Collection (begin) Date 2 Nov 09 Time 1040 Eastern Central		Collection (end) Date Time Eastern Central		Bottle Group(s)**
	Field ID	SE-OUT-1	Tot Res Chlorine (mg/L) 0.5	Diss Oxygen (mg/L)		Storet Station Number		4
	Matrix (Include type e.g. Salt, Fresh, etc) Water, Fresh	Temp (C) 24.19	pH 6.99	Sample Depth ☒ m ☐ ft 1,190		☐ Salinity (PPTh) ☒ Sp Conductance (umho/cm)	NPDES Number	
	Latitude ° ' "	Longitude ° ' "		Comments Dechlor sample = 0.0 mg/L				
Lab ID *	Location	Field Blank	☐ Comp ☒ Grab	Collection (begin) Date 2 Nov 09 Time 1030 Eastern Central		Collection (end) Date Time Eastern Central		Bottle Group(s)**
	Field ID	SE-OUT-2	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)		Storet Station Number		B
	Matrix (Include type e.g. Salt, Fresh, etc) Water, Field	Temp (C)	pH	Sample Depth ☒ m ☐ ft .01		☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number	
	Latitude ° ' "	Longitude ° ' "		Comments				
Lab ID *	Location		☐ Comp ☐ Grab	Collection (begin) Date Time Eastern Central		Collection (end) Date Time Eastern Central		Bottle Group(s)**
	Field ID		Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)		Storet Station Number		
	Matrix (Include type e.g. Salt, Fresh, etc)	Temp (C)	pH	Sample Depth ☐ m ☐ ft		☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number	
	Latitude ° ' "	Longitude ° ' "		Comments				
Lab ID *	Location		☐ Comp ☐ Grab	Collection (begin) Date Time Eastern Central		Collection (end) Date Time Eastern Central		Bottle Group(s)**
	Field ID		Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)		Storet Station Number		
	Matrix (Include type e.g. Salt, Fresh, etc)	Temp (C)	pH	Sample Depth ☐ m ☐ ft		☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number	
	Latitude ° ' "	Longitude ° ' "		Comments 2 Bergsky Rec'd intor by J.D. 10:33 11/3/09				
Relinquished By:	Date/Time	Shipping Method:	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
	11/2/09 1300	FedEx		11-3-09 0935				

* Shaded Areas for Lab use only.

** Please see reverse side for Bottle Group information.

last revised October 1, 2003

Appendix B. Bench Sheets



FDEP Biology Laboratory - Acute Screen Bioassay Bench Sheets

Facility: Ocean Manor Life North West
Address: 6880 North Ocean Blvd.
City: Ocean Ridge County: Palm Beach 33435
Contact/District: Lisa Self - Tony Davis / South Coast
NPDES Permit #: FL 0028380
LIMS Job #: TH-2009-11-13-94 LIMS Sample #: 123 0324
Lims Data Entry: MF 11-25-09 Data Entry Verification: JD 11-25-09

Sample Collection: Date: 11-2-09 Time: 1040
Hold Time Start: Date: 11-2-09 Time: 1040

Comments:
* Tests terminated at 24 hours due to 100% mortality in 100% sample. MF 11-25-09
Bioassay Job # Sample #5 was generated on two weeks after the sample was received due to issues in RQ for the sample. Sample was received 11-25-09 Due To Dissolved Oxygen, decreasing after initial duration, both tests were terminated at 96 hours. MF 11-25-09

Instructions (for below): Circle appropriate wording. If yes is circled, complete blanks.
Test Type: (Screen) Definitive / Static Renewal / Flow-through
Test Duration: 48 96 Hours. 24 hour *

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

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: 5.7 mg/L Duration: 60 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 0.023N Sodium Thiosulfate per liter of sample. Final TRC: ____

Sample Validation:
Temperature: Shipped ≤5°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)

Light intensity: 50 - 100 ft. candles
Photoperiod: 16 light 8 dark
Temperature Range °C: (If used)
Incubator # 2 min 23.5 max 23.5 mean 23.2
Incubator # ___ min ___ max ___ mean ___
Waterbath # ___ min ___ max ___ mean ___
Room B246 min 25.2 max 26.1 mean 25.7

Investigators' Signatures
Marshall Faircloth
James Saunders
Daryl Alexander
Alicia Whaley

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
Batch #	10-28-09	11-2-09							
Field Total Residual Cl_2 (mg/L):	N/A	N/A	N/A	N/A	N/A		0.0	T. Davis	MF
Lab Total Residual Cl_2 (mg/L):	<0.03	<0.03					<0.03	JW	MF
Alkalinity (mg/L as $CaCO_3$):	90	134 mg/L (A)					142	BA	MF
Hardness (mg/L as $CaCO_3$):	85	4200 mg/L (A)					200	BA	MF
Total Ammonia (mg/L as N):	<0.01	<0.01					<0.01	BA	MF
Conductivity (mmhos, mmhos)	181	379					1235	BA/SD	MF
Salinity (ppth):	—	—					—	—	—

REVIEWER: (A) MF 11-25-09 Water Quality #5 ~ 24 hour Values.

V 1.0 7/2008

FDEP Biology Laboratory - Bioassay Survival Bench Sheet

LIMS Sample #: 1230334 Test #: 1 SOP#:TA 07 01 Test Started: Date 11.3.9 Time: 12.15

Organism/Batch/Age: Cidubi / 39/09 / < 24 hr Test Ended: Date 11-4-09 Time: 1200

Chamber/Test Volume: 300/ 200 ml Diluent/ Batch: DMW / 10.28.09 Test Duration: 48 hr 96 hr (24 hr)

Food/Batch: [✓] YCT______ [✓] P.sub 7-23-09

[ ] 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				
	B	B	5	5				
	C	C	5	4 (1D)				
	D	D	5	5				
100%	A	A	5	0 5D				
	B	B	5	0 5D				
	C	C	5	0 5D				
	D	D	5	0 5D				

Loaded/Verified by: [initials] / [initials] Checked by: [initials] MF

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

Test Results:

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

% mortality in 100% sample: 100% LC50: <100%

If Calculated: 95% CI__________ Method__________

Comments: 100% mortality in 100% sample at 24 hours - test Terminated MF 11-4-09

V 2.3 7/15/2008

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

Page 000050

FDEP Biology Laboratory - Bioassay Survival Bench Sheet

LIMS Sample #: 1230334 Test #: 2/2 SOP#:TA 07 02 Test Started: Date 11.3.09 Time: 1200

Organism/Batch/Age: C.leedsi / 11.3.09 / 13days Test Ended: Date 11-4-09 Time: 1130

Chamber/Test Volume: 1000 / 500 ml Diluent/ Batch: well / 11.2.09 Test Duration: 48 hr 96 hr (24hr)

Food/Batch: ☐ YCT_____ ☐ P.sub_____

☑ Artemia Lot# 23613 Batch #: 0hr 11-3-09 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	F13	5	5				
	B	F14	5	5				
	C	F15	5	5				
	D	F16	5	5				
100%	A	F17	5	0 5D				
	B	F18	5	0 5D				
	C	F19	5	0 5D				
	D	F20	5	0 5D				
Loaded/Verified by: [initials] / [initials]		Checked by:	[initials]	[initials]				

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

Comments: Terminated at 24 hours due to 100% mortality in the 100% Sample test concentration. MF 11-4-09

Test Results:

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

% mortality in 100% sample: 100% 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).

Page 000051

FDEP Biology Laboratory - Bioassay Parameter Bench Sheet

LIMS Sample # : 1230334 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	A				
pH (S.U.)	7.8	8.3				
Temperature °C	24.0	24.2				
Dissolved Oxygen mg/L aerate if < 4	7.9	8.0				
Conductivity (µmhos) mmhos	181	192				
Salinity ppth	—	—				
(initials) Measured by:	BA	MF				
(initials) Recorded by:	BA	MF				

Comments: Due to DO decreasing after initial/duration, tests were aerated for the duration of the test. MF 11-30-09

Concentration: 100%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	M	A				
pH (S.U.)	7.3	5.4				
Temperature °C	24.9	24.3				
Dissolved Oxygen mg/L aerate if < 4	5.7	8.1				
Conductivity (µmhos) mmhos	1235	1270				
Salinity ppth	—	—				
(initials) Measured by:	BA	MF				
(initials) Recorded by:	BA	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:

000052

FDEP Biology Laboratory - Bioassay Parameter Bench Sheet

LIMS Sample # : 1230334 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				
pH (S.U.)	7.8	8.4				
Temperature °C	24.0	24.0				
Dissolved Oxygen mg/L aerate if < 4	7.8	8.0				
Conductivity (µmhos) mmhos	279	323				
Salinity ppth	—	—				
(initials) Measured by:	~~JS~~	JS				
(initials) Recorded by:	~~JS~~	JS				

Comments: Due to DO decreasing after initial aeration, tests were aerated for the duration of the tests. MF 11-30-09

Concentration 100%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B				
pH (S.U.)	7.5	~~6.5~~ 4.8 MF				
Temperature °C	24.1	24.0				
Dissolved Oxygen mg/L aerate if < 4	3.9	8.1				
Conductivity (µmhos) mmhos	1235	1212				
Salinity ppth	—	—				
(initials) Measured by:	JS	JS				
(initials) Recorded by:	JS	JS				

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: Exxon Mobil offer N. WWTF Dates: 11.3.09 - 11.4.09

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)

Filled out 12.1.09 BA

V 1.1 6/12/08 MF

000054

PAGE

Appendix C. SRT Bench Sheets and Statistical Analysis

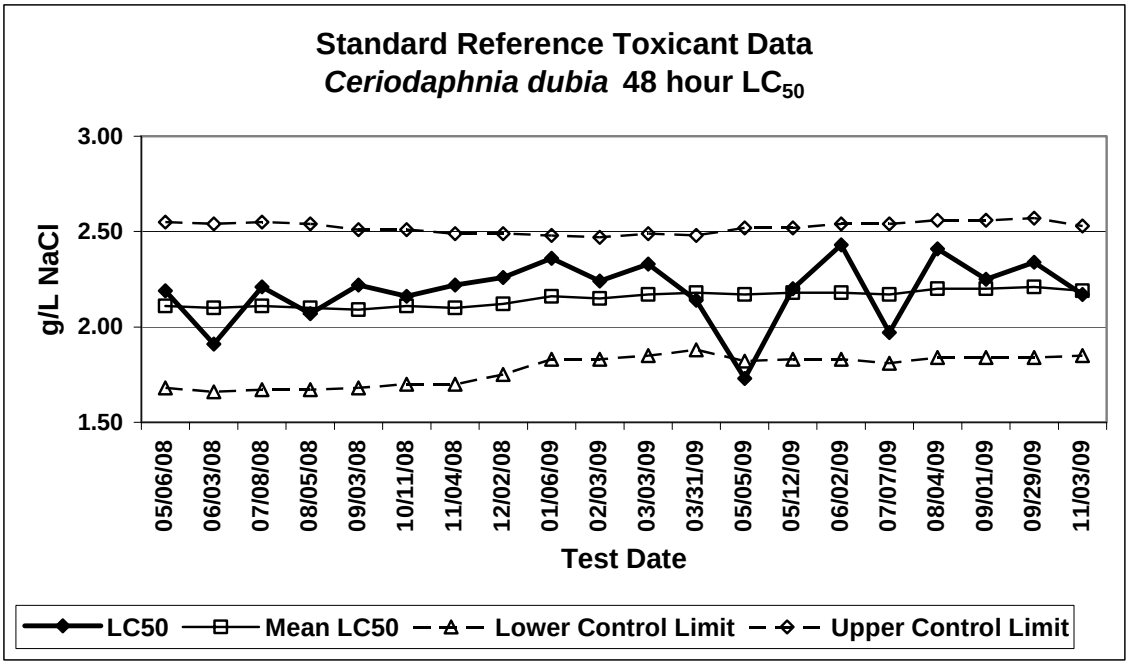
Florida Department of Environmental Protection
Bureau of Laboratories

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
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
10/11/08	2.16	2.11	0.20	1.70	2.51
11/04/08	2.22	2.10	0.20	1.70	2.49
12/02/08	2.26	2.12	0.19	1.75	2.49
01/06/09	2.36	2.16	0.16	1.83	2.48
02/03/09	2.24	2.15	0.16	1.83	2.47
03/03/09	2.33	2.17	0.16	1.85	2.49
03/31/09	2.14	2.18	0.15	1.88	2.48
05/05/09	1.73	2.17	0.18	1.82	2.52
05/12/09	2.20	2.18	0.17	1.83	2.52
06/02/09	2.43	2.18	0.18	1.83	2.54
07/07/09	1.97	2.17	0.18	1.81	2.54
08/04/09	2.41	2.20	0.18	1.84	2.56
09/01/09	2.25	2.20	0.18	1.84	2.56
09/29/09	2.34	2.21	0.18	1.84	2.57
11/03/09	2.17	2.19	0.17	1.85	2.53

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

CV = 7.75
EPA reference 75th quartile CV = 29%



Appendix C. (continued)

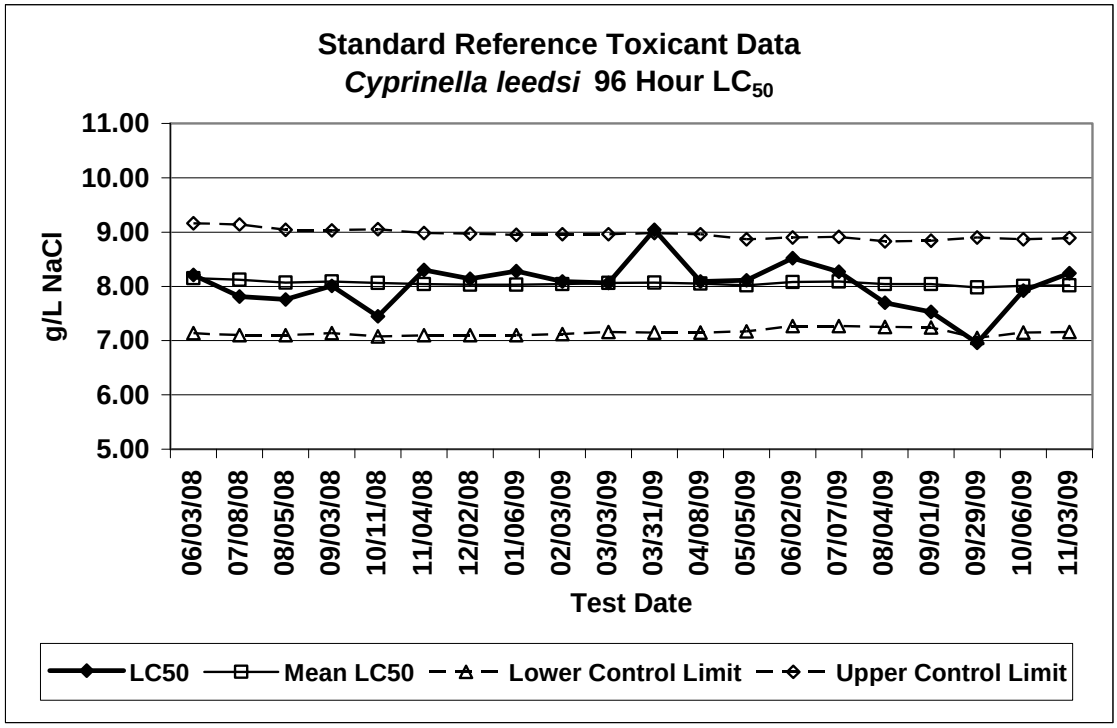
Florida Department of Environmental Protection
Bureau of Laboratories

Standard Reference Toxicant (SRT) Test Data - 96-hour Acute Toxicity
Cyprinella leedsi (bannerfin shiner) - Sodium Chloride (NaCl)

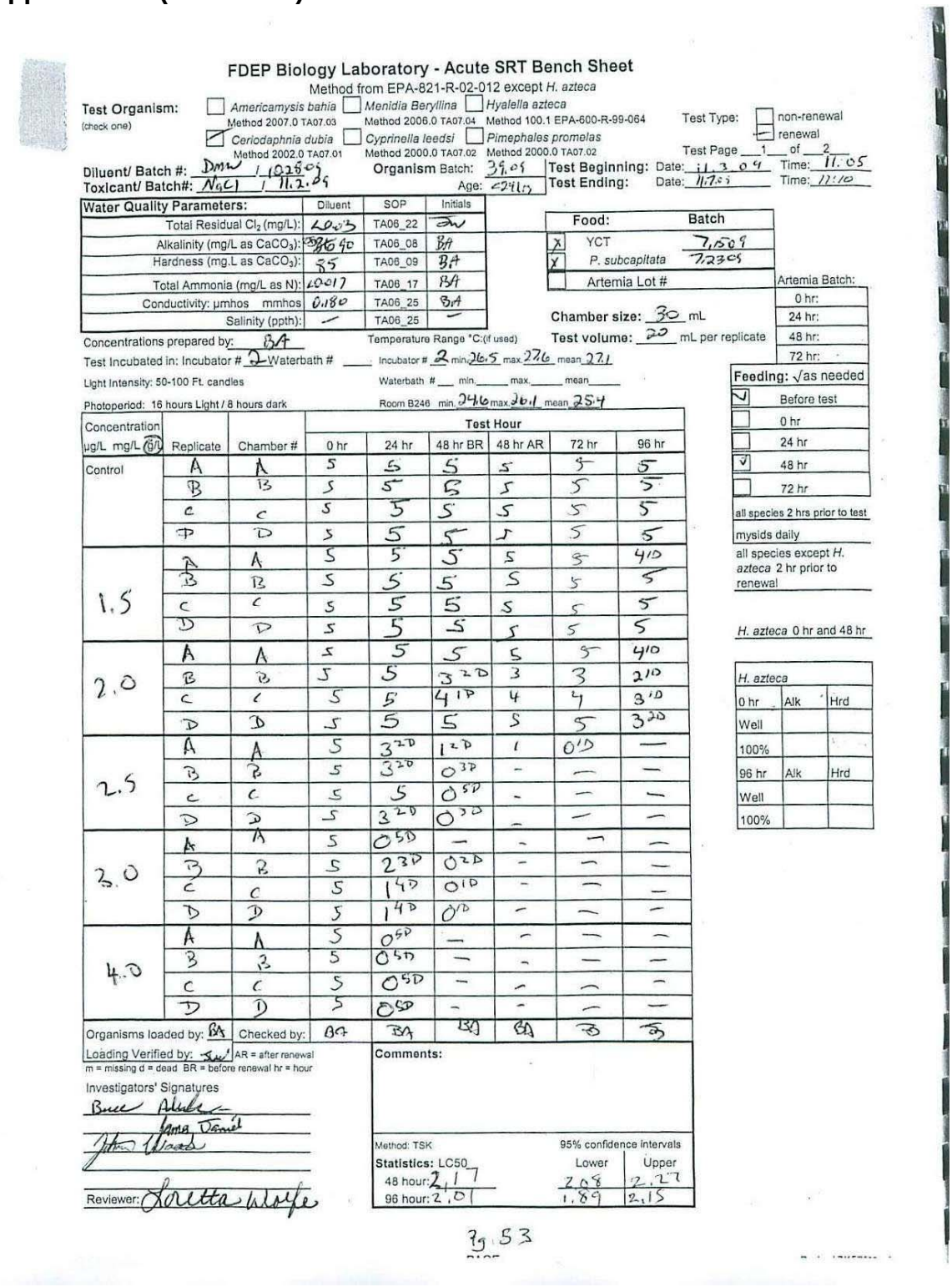
Date	LC50	Mean LC50	Std Dev	Lower Control Limit	Upper Control Limit
06/03/08	8.21	8.15	0.51	7.14	9.16
07/08/08	7.81	8.12	0.51	7.10	9.14
08/05/08	7.76	8.07	0.48	7.10	9.04
09/03/08	8.01	8.09	0.47	7.14	9.03
10/11/08	7.45	8.06	0.49	7.08	9.05
11/04/08	8.30	8.04	0.47	7.10	8.98
12/02/08	8.14	8.03	0.47	7.10	8.97
01/06/09	8.28	8.03	0.46	7.10	8.95
02/03/09	8.09	8.04	0.46	7.12	8.96
03/03/09	8.06	8.06	0.45	7.16	8.96
03/31/09	9.04	8.07	0.46	7.15	8.98
04/08/09	8.09	8.05	0.45	7.15	8.96
05/05/09	8.11	8.02	0.43	7.17	8.87
06/02/09	8.52	8.08	0.41	7.27	8.90
07/07/09	8.27	8.09	0.41	7.27	8.91
08/04/09	7.70	8.04	0.40	7.25	8.83
09/01/09	7.53	8.04	0.40	7.24	8.84
09/29/09	6.96	7.98	0.46	7.05	8.90
10/06/09	7.92	8.01	0.43	7.15	8.87
11/03/09	8.24	8.02	0.43	7.16	8.89

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

CV = 5.37
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 / 10285 Toxicant/ Batch#: NaCl / 11.2.04

Organism Batch: 39.05 Age: <24hr

Test Beginning: Date: 11.3.04 Time: 11:05

Test Ending: Date: 11.7.04 Time: 11:10

Water Quality Parameters:	Diluent	SOP	Initials
Total Residual Cl_2 (mg/L):	<0.03	TA06_22	DW
Alkalinity (mg/L as $CaCO_3$):	40	TA06_08	BA
Hardness (mg.L as $CaCO_3$):	35	TA06_09	BA
Total Ammonia (mg/L as N):	<0.017	TA06_17	BA
Conductivity: µmhos mmhos	0.180	TA06_25	BA
Salinity (ppth):	—	TA06_25	—

Food:	Batch
☒ YCT	7.1509
☒ *P. subcapitata*	7.2305
☐ 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. 26.5 max. 27.6 mean 27.1

Light Intensity: 50-100 Ft. candles Waterbath # ___ min. ___ max. ___ mean ___

Photoperiod: 16 hours Light / 8 hours dark Room B246 min. 24.6 max. 26.1 mean 25.4

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	4D
	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	4D
	B	B	5	5	3 2D	3	3	2D
	C	C	5	5	4 1D	4	4	3 1D
	D	D	5	5	5	5	5	3 2D
2.5	A	A	5	3 2D	1 2D	1	0 1D	—
	B	B	5	3 2D	0 3D	-	—	—
	C	C	5	5	0 5D	-	—	—
	D	D	5	3 2D	0 3D	-	—	—
3.0	A	A	5	0 5D	—	-	—	—
	B	B	5	2 3D	0 2D	-	—	—
	C	C	5	1 4D	0 1D	-	—	—
	D	D	5	1 4D	0 1D	-	—	—
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	BA	BA

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

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

Comments:

Investigators' Signatures

Bruce Alvarez

Anna Daniel

John Wood

Reviewer: Loretta Wolfe

Method: TSK

Statistics: LC50	95% confidence intervals Lower	Upper
48 hour: 2.17	2.08	2.27
96 hour: 2.01	1.89	2.15

Pg 53

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: 11.3.09 Time: 1105
Test Ending: Date: 11.7.09 Time: 1110

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	M	0 hr	7.8	24.0	8.1	0.180	—
	—	24 hr	—	—	—	—	—
	A	48 hr BR	8.0	24.0	7.4	0.189	
	M	48 hr AR	7.8	24.0	7.6	0.178	
		72 hr					
	M	96 hr	8.0	24.0	8.3	0.193	
1.5	M	0 hr	7.8	24.1	8.1	3.02	—
	—	24 hr	—	—	—	—	—
	A	48 hr BR	7.9	24.0	7.6	3.09	
	M	48 hr AR	7.8	24.0	7.7	2.85	
		72 hr					
	M	96 hr	8.1	24.0	8.6	2.99	
2.0	M	0 hr	7.8	24.2	8.2	3.85	—
	—	24 hr	—	—	—	—	—
	A	48 hr BR	7.9	24.0	7.6	4.01	
	M	48 hr AR	7.8	24.0	7.8	3.81	
		72 hr					
	M	96 hr	8.1	24.1	8.5	3.99	
2.5	M	0 hr	7.8	24.1	8.1	4.68	—
	—	24 hr	—	—	—	—	—
	A	48 hr BR	8.0	24.0	7.5	4.77	
	M	48 hr AR	7.8	24.0	8.0	4.70	
	M	72 hr	8.0	24.8	8.4	4.67	
		96 hr					
3.0	M	0 hr	7.8	24.1	8.0	5.61	—
	—	24 hr	—	—	—	—	—
	A	48 hr BR	8.0	24.0	7.5	5.84	
		48 hr AR					
		72 hr					
		96 hr					
4.0	M	0 hr	7.9	24.0	7.9	7.25	—
	A	24 hr	7.8	24.0	7.2	7.43	—
		48 hr BR					
		48 hr AR					
		72 hr					
		96 hr					

Investigators Signatures

Reviewed By: Loretta Wolfe

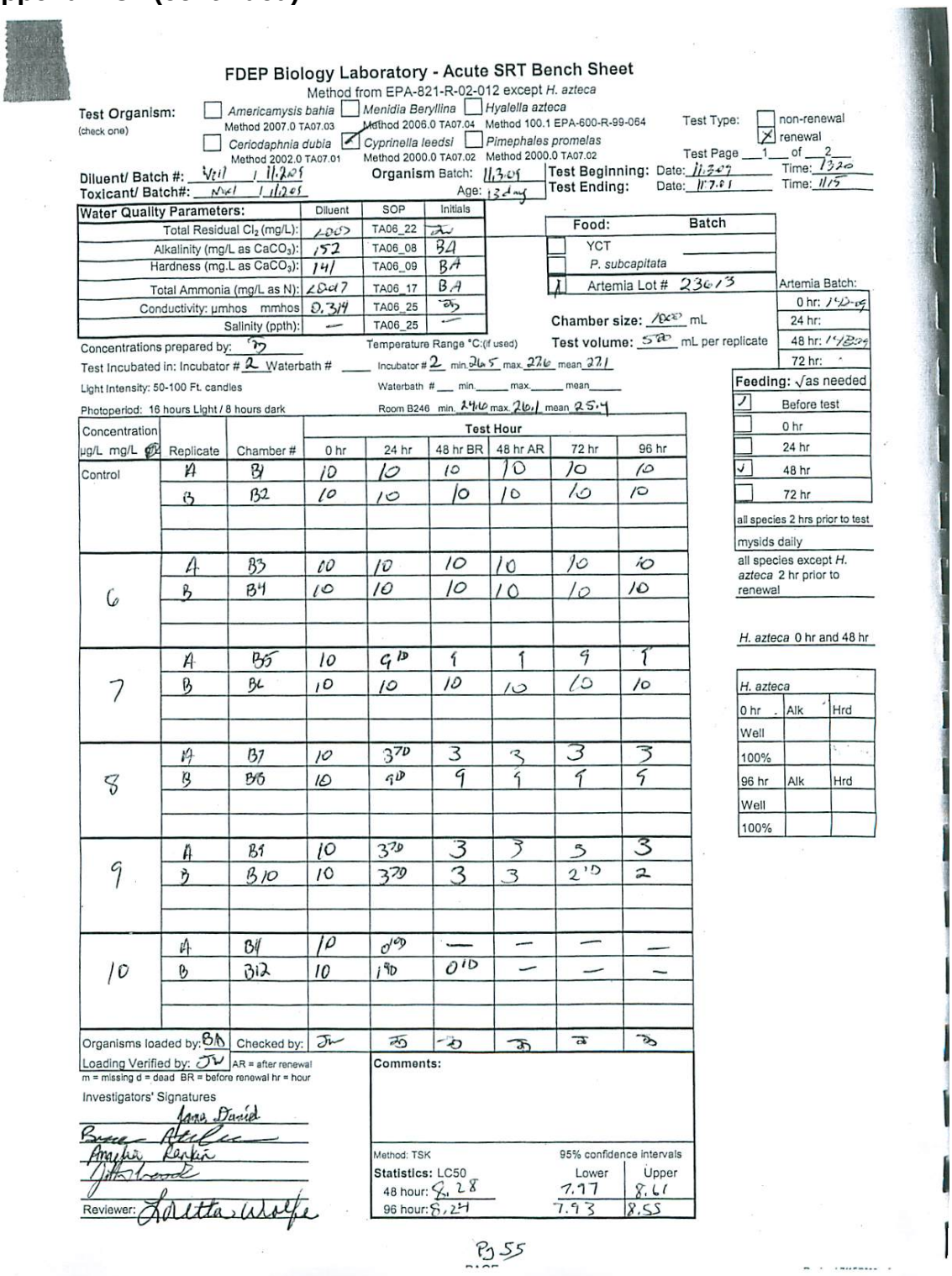
Measured by:
0 hr: BA
24 hr: BA
48 hr BR: BA
48 hr AR: BA
72 hr: B
96 hr: B

Measure/record salinity for marine tests

Comments:

BJ 54

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 #: Veil / 11.2.05
Toxicant/ Batch#: NaCl / 11.2.05

Organism Batch: 11.3.05 Age: 13 2 day

Test Beginning: Date: 11.3.05 Time: 1320
Test Ending: Date: 11.7.05 Time: 1115

Water Quality Parameters:		Diluent	SOP	Initials
Total Residual Cl_2 (mg/L):		<.05	TA06_22	JW
Alkalinity (mg/L as $CaCO_3$):		152	TA06_08	BA
Hardness (mg.L as $CaCO_3$):		141	TA06_09	BA
Total Ammonia (mg/L as N):		<0.07	TA06_17	BA
Conductivity: µmhos	mmhos	0.314	TA06_25	JW
Salinity (ppth):		—	TA06_25	—

Food:	Batch
☐ YCT	
☐ *P. subcapitata*	
☒ Artemia Lot # 23613	Artemia Batch:

Artemia Batch:
- 0 hr: 11.2.05
- 24 hr:
- 48 hr: 11.3.05
- 72 hr:

Chamber size: 100 mL
Test volume: 500 mL per replicate

Concentrations prepared by: BA

Temperature Range °C:(if used)

Test Incubated in: Incubator # 2 Waterbath # ___ Incubator # 2 min 26.5 max 27.6 mean 27.1

Light Intensity: 50-100 Ft. candles

Waterbath # ___ min.____ max.____ mean____

Photoperiod: 16 hours Light / 8 hours dark

Room B246 min. 24.6 max 26.1 mean 25.4

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	Replicate	Chamber #	Test Hour 0 hr	24 hr	48 hr BR	48 hr AR	72 hr	96 hr
Control		A	B1	10	10	10	10	10	10
		B	B2	10	10	10	10	10	10
6		A	B3	10	10	10	10	10	10
		B	B4	10	10	10	10	10	10
7		A	B5	10	9 D	9	9	9	9
		B	B6	10	10	10	10	10	10
8		A	B7	10	3 7D	3	3	3	3
		B	B8	10	9 D	9	9	9	9
9		A	B9	10	3 7D	3	3	3	3
		B	B10	10	3 7D	3	3	2 D	2
10		A	B11	10	0 D	—	—	—	—
		B	B12	10	1 D	0 D	—	—	—

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

Organisms loaded by: BA Checked by: JW

Loading Verified by: JW

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

Investigators' Signatures

Jane Daniel
Brian Atchison
Amythia Rankin
Jeff Lovell

Reviewer: Loretta Wolfe

Comments:

Method: TSK

Statistics: LC50	95% confidence intervals Lower	Upper
48 hour: 8.28	7.97	8.61
96 hour: 8.24	7.93	8.55

Pg 55

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
- ☐ *Ceriodaphnia dubia* Method 2002.0 TA07.01
- ☐ *Menidia Beryllina* Method 2006.0 TA07.04
- ☑ *Cyprinella leedsi* Method 2000.0 TA07.02
- ☐ *Hyalella azteca* Method 100.1 EPA-600-R-99-064
- ☐ *Pimephales promelas* Method 2000.0 TA07.02

Test Beginning: Date: 11.3.09 Time: 1320

Test Ending: Date: 11.7.09 Time: 1115

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	24.3	7.6	0.314	
	B	24 hr	8.1	24.0	6.4	0.296	
	A	48 hr BR	8.1	25.4	7.2	0.289	
	A	48 hr AR	8.0	24.4	7.6	0.285	
	B	72 hr	8.0	24.8	7.0	0.293	
	A	96 hr	8.1	25.0	8.2	0.304	
6	A	0 hr	7.9	24.3	8.2	10.9	
	B	24 hr	7.9	24.0	6.1	11.2	
	A	48 hr BR	7.9	25.3	6.2	11.3	
	A	48 hr AR	8.0	24.4	7.8	10.2	
	B	72 hr	7.9	24.6	7.0	10.4	
	A	96 hr	8.1	24.9	7.7	10.6	
7	A	0 hr	8.0	24.3	7.8	12.9	
	B	24 hr	7.9	24.0	5.9	13.2	
	A	48 hr BR	7.9	25.3	6.2	13.2	
	A	48 hr AR	8.0	24.4	7.5	12.9	
	B	72 hr	7.9	24.7	7.1	12.2	
		96 hr	8.1	24.7	7.5	12.1	
8	A	0 hr	8.0	24.2	8.0	14.9	
	B	24 hr	7.9	24.0	5.7	15.1	
	A	48 hr BR	8.0	24.7	6.8	15.1	
	A	48 hr AR	8.0	24.4	7.5	14.8	
	B	72 hr	7.9	24.3	6.9	14.9	
		96 hr	8.0	24.6	7.4	15.3	
9	A	0 hr	8.0	24.2	8.0	16.7	
	B	24 hr	7.9	24.0	5.7	16.9	
	A	48 hr BR	8.0	24.5	6.9	17.1	
	A	48 hr AR	8.0	24.4	7.5	16.6	
	B	72 hr	8.0	24.3	7.2	16.9	
		96 hr	8.0	24.6		17.2	
10	A	0 hr	7.9	24.3	7.9	18.2	
	B	24 hr	7.9	24.0	5.8	18.4	
	B	48 hr BR	8.1	24.4	6.9	18.3	
	–	48 hr AR	–	–	–	–	
	–	72 hr	–	–	–	–	
	–	96 hr	–	–	–	–	

Investigators Signatures

Measured by:

0 hr: JS
24 hr: JSD
48 hr BR: JS
48 hr AR:
72 hr: JS
96 hr: JS

Measure/record salinity for marine tests

Comments:

Reviewed By: Loretta Wolfe

Pg 5L

Appendix C. (continued)
***Ceriodaphnia dubia* Acute Standard Reference Toxicant Test**

DATE: 11-3-09 DURATION: 48 h TOXICANT : NaCl
SPECIES: *Ceriodaphnia dubia*

RAW DATA: Concentration (g/L)	Number Exposed	Mortalities
.00	20	0
1.50	20	0
2.00	20	3
2.50	20	19
3.00	20	20
4.00	20	20

SPEARMAN-KARBER TRIM: .00%

SPEARMAN-KARBER ESTIMATES: LC50: 2.17
95% LOWER CONFIDENCE: 2.08
95% UPPER CONFIDENCE: 2.27

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

DATE: 11-3-09 DURATION: 48 h TOXICANT : NaCl
SPECIES: *Cyprinella leedsi*

RAW DATA: Concentration (g/L)	Number Exposed	Mortalities
.00	20	0
6.00	20	0
7.00	20	1
8.00	20	8
9.00	20	14
10.00	20	20

SPEARMAN-KARBER TRIM: .00%

SPEARMAN-KARBER ESTIMATES: LC50: 8.28
95% LOWER CONFIDENCE: 7.97
95% UPPER CONFIDENCE: 8.61

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: 11/2/09

Shipped to: FDEP

P.O. No: N/A

Species	Quantity	Age	Brood Number	Temp.	pH	Salinity
Mysidopsis bahia	150	4 DAYS	MS091029	25°C	8.0 s.u	20‰
Menidia beryllina	150	12 DAYS	SS091021	25°C	8.0 s.u	20‰
						Hardness
Cyprinella leedsi	200	12 DAYS	CL091021	25°C	7.8 s.u	80 mg/L
Pimephales promelas	150	8 DAYS	FM091025	25°C	7.8 s.u	80 mg/L

Packed by: PM

Shipped Via: FED EX

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 E. Chemical Analyses performed on the effluent from the Ocean Maisonettes North WWTF, Outfall D-001, sampled on November 2, 2009.

Date	Field ID	Analysis	Component	Result	Remark	Unit	MDL	PQL
11/2/2009 10:40	Effluent	AGP/LN	Algal Growth Potential-Salinity Adjusted	3	U	mg DryWt/L	3	3
11/2/2009 10:40	Effluent	AGP/LN	Algal Growth Potential	241		mg DryWt/L	0.3	0.9
11/2/2009 10:40	Effluent	Chlorophyll/Grain Size/BOD	Phaeophytin-a	0.4	U	ug/L	0.4	1.2
11/2/2009 10:40	Effluent	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	0.55	U	ug/L	0.55	1.7
11/2/2009 10:40	Effluent	Overflow	Fecal Coliforms-Membrane Filter	81	B	#/100 mL		
11/2/2009 10:40	Effluent	Overflow	Enterococci-Membrane Filter	234	B	#/100 mL		
11/2/2009 10:40	Effluent	Toxicology	Bioassay-Acute-Screen-FW-Fish, LC50	100	K	LC50		
11/2/2009 10:40	Effluent	Toxicology	Bioassay-Acute-Screen-FW-C.dubia, LC50	100	K	LC50		
11/2/2009 10:40	Effluent	Metals	Cadmium	0.068	I	ug/L	0.03	0.12
11/2/2009 10:40	Effluent	Metals	Magnesium	6.77		mg/L	0.04	0.16
11/2/2009 10:40	Effluent	Metals	Copper	7.65		ug/L	0.5	0.5
11/2/2009 10:40	Effluent	Metals	Lead	0.26	I	ug/L	0.2	0.8
11/2/2009 10:40	Effluent	Metals	Selenium	0.31	I	ug/L	0.2	0.8
11/2/2009 10:40	Effluent	Metals	Silver	0.025	U	ug/L	0.025	0.1
11/2/2009 10:40	Effluent	Metals	Zinc	37		ug/L	5	20
11/2/2009 10:40	Effluent	Metals	Chromium	0.3	I	ug/L	0.3	1.2
11/2/2009 10:40	Effluent	Metals	Arsenic	1.8		ug/L	0.25	1
11/2/2009 10:40	Effluent	Metals	Iron	62	I	ug/L	30	120
11/2/2009 10:40	Effluent	Metals	Calcium	72.5		mg/L	0.075	0.3
11/2/2009 10:40	Effluent	Metals	Aluminum	60	U	ug/L	60	240
11/2/2009 10:40	Effluent	Metals	Nickel	1.86		ug/L	0.25	1
11/2/2009 10:40	Effluent	Nutrients	NO2NO3-N	6.1		mg N/L	0.04	0.1
11/2/2009 10:40	Effluent	Nutrients	O-Phosphate-P	0.69		mg P/L	0.02	0.05
11/2/2009 10:40	Effluent	Nutrients	Kjeldahl Nitrogen	3		mg N/L	0.08	0.2
11/2/2009 10:40	Effluent	Nutrients	TSS	4	U	mg/L	4	16
11/2/2009 10:40	Effluent	Nutrients	Total-P	0.81		mg P/L	0.02	0.05
11/2/2009 10:40	Effluent	Nutrients	Ammonia-N	0.075	J	mg N/L	0.01	0.02
11/2/2009 10:40	Effluent	Pesticides	Ametryn	0.05	U	ug/L	0.05	0.2
11/2/2009 10:40	Effluent	Pesticides	Diazinon	0.05	U	ug/L	0.05	0.2
11/2/2009 10:40	Effluent	Pesticides	Parathion Methyl	0.1	U	ug/L	0.1	0.4
11/2/2009 10:40	Effluent	Pesticides	Aldrin	0.01	U	ug/L	0.01	0.04
11/2/2009 10:40	Effluent	Pesticides	Endrin Aldehyde	0.02	U	ug/L	0.02	0.08
11/2/2009 10:40	Effluent	Pesticides	Atrazine	0.05	U	ug/L	0.05	0.2

Appendix E. (continued)

Date	Field ID	Analysis	Component	Result	Remark	Unit	MDL	PQL
11/2/2009 10:40	Effluent	Pesticides	Chlorpyrifos Ethyl	0.05	U	ug/L	0.05	0.2
11/2/2009 10:40	Effluent	Pesticides	Chlorpyrifos Methyl	0.1	U	ug/L	0.1	0.4
11/2/2009 10:40	Effluent	Pesticides	Metolachlor	0.5	U	ug/L	0.5	2
11/2/2009 10:40	Effluent	Pesticides	DDE-p,p'	0.02	U	ug/L	0.02	0.08
11/2/2009 10:40	Effluent	Pesticides	Gamma-BHC	0.01	U	ug/L	0.01	0.04
11/2/2009 10:40	Effluent	Pesticides	Bromacil	0.2	UJ	ug/L	0.2	0.8
11/2/2009 10:40	Effluent	Pesticides	Ethion	0.05	U	ug/L	0.05	0.2
11/2/2009 10:40	Effluent	Pesticides	Metalaxyl	0.25	U	ug/L	0.25	1
11/2/2009 10:40	Effluent	Pesticides	Norflurazon	0.15	U	ug/L	0.15	0.6
11/2/2009 10:40	Effluent	Pesticides	Phorate	0.05	U	ug/L	0.05	0.2
11/2/2009 10:40	Effluent	Pesticides	Prometryn	0.15	U	ug/L	0.15	0.6
11/2/2009 10:40	Effluent	Pesticides	Endosulfan I	0.02	U	ug/L	0.02	0.08
11/2/2009 10:40	Effluent	Pesticides	Methoxychlor	0.05	U	ug/L	0.05	0.2
11/2/2009 10:40	Effluent	Pesticides	Alachlor	0.6	U	ug/L	0.6	2.4
11/2/2009 10:40	Effluent	Pesticides	Mevinphos	0.2	U	ug/L	0.2	0.8
11/2/2009 10:40	Effluent	Pesticides	Chlordane	0.2	U	ug/L	0.2	0.8
11/2/2009 10:40	Effluent	Pesticides	Dieldrin	0.02	U	ug/L	0.02	0.08
11/2/2009 10:40	Effluent	Pesticides	Endrin	0.05	U	ug/L	0.05	0.2
11/2/2009 10:40	Effluent	Pesticides	Toxaphene	0.75	U	ug/L	0.75	3
11/2/2009 10:40	Effluent	Pesticides	Butylate	0.2	U	ug/L	0.2	0.8
11/2/2009 10:40	Effluent	Pesticides	Fonofos	0.1	UJ	ug/L	0.1	0.4
11/2/2009 10:40	Effluent	Pesticides	Malathion	0.15	U	ug/L	0.15	0.6
11/2/2009 10:40	Effluent	Pesticides	Naled	0.8	UJ	ug/L	0.8	3.2
11/2/2009 10:40	Effluent	Pesticides	Simazine	0.05	U	ug/L	0.05	0.2
11/2/2009 10:40	Effluent	Pesticides	Ethoprop	0.1	U	ug/L	0.1	0.4
11/2/2009 10:40	Effluent	Pesticides	Metribuzin	0.1	U	ug/L	0.1	0.4
11/2/2009 10:40	Effluent	Pesticides	Delta-BHC	0.01	U	ug/L	0.01	0.04
11/2/2009 10:40	Effluent	Pesticides	Hexazinone	0.1	UJ	ug/L	0.1	0.4
11/2/2009 10:40	Effluent	Pesticides	Parathion Ethyl	0.15	U	ug/L	0.15	0.6
11/2/2009 10:40	Effluent	Pesticides	Alpha-BHC	0.01	U	ug/L	0.01	0.04
11/2/2009 10:40	Effluent	Pesticides	Beta-BHC	0.01	U	ug/L	0.01	0.04
11/2/2009 10:40	Effluent	Pesticides	DDD-p,p'	0.02	U	ug/L	0.02	0.08
11/2/2009 10:40	Effluent	Pesticides	DDT-p,p'	0.03	U	ug/L	0.03	0.12
11/2/2009 10:40	Effluent	Pesticides	Azinphos Methyl	0.2	UJ	ug/L	0.2	0.8

Appendix E. (continued)

Date	Field ID	Analysis	Component	Result	Remark	Unit	MDL	PQL
11/2/2009 10:40	Effluent	Pesticides	Fenamiphos	0.2	U	ug/L	0.2	0.8
11/2/2009 10:40	Effluent	Pesticides	Endosulfan II	0.02	U	ug/L	0.02	0.08
11/2/2009 10:40	Effluent	Pesticides	Endosulfan Sulfate	0.02	U	ug/L	0.02	0.08
11/2/2009 10:40	Effluent	Pesticides	Heptachlor	0.01	U	ug/L	0.01	0.04
11/2/2009 10:40	Effluent	Pesticides	Heptachlor Epoxide	0.02	U	ug/L	0.02	0.08
11/2/2009 10:40	Effluent	Priority Organic Pollutants	2,6-Dinitrotoluene	0.98	U	ug/L	0.98	3.9
11/2/2009 10:40	Effluent	Priority Organic Pollutants	Isophorone	0.98	U	ug/L	0.98	3.9
11/2/2009 10:40	Effluent	Priority Organic Pollutants	Benzo(a)pyrene	0.98	U	ug/L	0.98	3.9
11/2/2009 10:40	Effluent	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	15	U	ug/L	15	59
11/2/2009 10:40	Effluent	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	2	U	ug/L	2	7.8
11/2/2009 10:40	Effluent	Priority Organic Pollutants	Nitrobenzene	2	U	ug/L	2	7.8
11/2/2009 10:40	Effluent	Priority Organic Pollutants	4-Bromophenyl phenyl ether	0.98	U	ug/L	0.98	3.9
11/2/2009 10:40	Effluent	Priority Organic Pollutants	Diethyl phthalate	0.98	U	ug/L	0.98	3.9
11/2/2009 10:40	Effluent	Priority Organic Pollutants	4-Nitrophenol	15	U	ug/L	15	59
11/2/2009 10:40	Effluent	Priority Organic Pollutants	4-Chloro-3-methylphenol	0.98	U	ug/L	0.98	3.9
11/2/2009 10:40	Effluent	Priority Organic Pollutants	2,4-Dinitrophenol	15	U	ug/L	15	59
11/2/2009 10:40	Effluent	Priority Organic Pollutants	2,4-Dimethylphenol	9.8	U	ug/L	9.8	39
11/2/2009 10:40	Effluent	Priority Organic Pollutants	Pentachlorophenol	2.9	U	ug/L	2.9	12
11/2/2009 10:40	Effluent	Priority Organic Pollutants	1,2,4-Trichlorobenzene	0.98	U	ug/L	0.98	3.9
11/2/2009 10:40	Effluent	Priority Organic Pollutants	2,4,6-Trichlorophenol	0.98	U	ug/L	0.98	3.9
11/2/2009 10:40	Effluent	Priority Organic Pollutants	2-Chloronaphthalene	0.98	U	ug/L	0.98	3.9
11/2/2009 10:40	Effluent	Priority Organic Pollutants	Benzidine	98	U	ug/L	98	390
11/2/2009 10:40	Effluent	Priority Organic Pollutants	Bis(2-chloroethyl)ether	0.98	U	ug/L	0.98	3.9
11/2/2009 10:40	Effluent	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.98	U	ug/L	0.98	3.9
11/2/2009 10:40	Effluent	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.98	U	ug/L	0.98	3.9
11/2/2009 10:40	Effluent	Priority Organic Pollutants	N-Nitrosodimethylamine	2	U	ug/L	2	7.8
11/2/2009 10:40	Effluent	Priority Organic Pollutants	Naphthalene	0.98	U	ug/L	0.98	3.9
11/2/2009 10:40	Effluent	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	2.9	U	ug/L	2.9	12
11/2/2009 10:40	Effluent	Priority Organic Pollutants	2-Nitrophenol	0.98	U	ug/L	0.98	3.9
11/2/2009 10:40	Effluent	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	2	U	ug/L	2	7.8
11/2/2009 10:40	Effluent	Priority Organic Pollutants	Acenaphthene	0.98	U	ug/L	0.98	3.9
11/2/2009 10:40	Effluent	Priority Organic Pollutants	Anthracene	0.98	U	ug/L	0.98	3.9
11/2/2009 10:40	Effluent	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.98	U	ug/L	0.98	3.9
11/2/2009 10:40	Effluent	Priority Organic Pollutants	Chrysene	0.98	U	ug/L	0.98	3.9

Appendix E. (continued)

Date	Field ID	Analysis	Component	Result	Remark	Unit	MDL	PQL
11/2/2009 10:40	Effluent	Priority Organic Pollutants	Phenanthrene	0.98	U	ug/L	0.98	3.9
11/2/2009 10:40	Effluent	Priority Organic Pollutants	3,3'-Dichlorobenzidine	39	U	ug/L	39	160
11/2/2009 10:40	Effluent	Priority Organic Pollutants	Acenaphthylene	0.98	U	ug/L	0.98	3.9
11/2/2009 10:40	Effluent	Priority Organic Pollutants	Benzo(a)anthracene	0.98	U	ug/L	0.98	3.9
11/2/2009 10:40	Effluent	Priority Organic Pollutants	Fluorene	0.98	U	ug/L	0.98	3.9
11/2/2009 10:40	Effluent	Priority Organic Pollutants	Hexachlorobutadiene	2.9	U	ug/L	2.9	12
11/2/2009 10:40	Effluent	Priority Organic Pollutants	Hexachlorocyclopentadiene	2.9	U	ug/L	2.9	12
11/2/2009 10:40	Effluent	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	2.9	U	ug/L	2.9	12
11/2/2009 10:40	Effluent	Priority Organic Pollutants	Phenol	0.98	U	ug/L	0.98	3.9
11/2/2009 10:40	Effluent	Priority Organic Pollutants	2,4-Dichlorophenol	0.98	U	ug/L	0.98	3.9
11/2/2009 10:40	Effluent	Priority Organic Pollutants	Benzo(b)fluoranthene	0.98	U	ug/L	0.98	3.9
11/2/2009 10:40	Effluent	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	0.98	U	ug/L	0.98	3.9
11/2/2009 10:40	Effluent	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	2.9	U	ug/L	2.9	12
11/2/2009 10:40	Effluent	Priority Organic Pollutants	Di-n-butyl phthalate	4.9	U	ug/L	4.9	20
11/2/2009 10:40	Effluent	Priority Organic Pollutants	Di-n-octyl phthalate	0.98	U	ug/L	0.98	3.9
11/2/2009 10:40	Effluent	Priority Organic Pollutants	Hexachloroethane	2.9	U	ug/L	2.9	12
11/2/2009 10:40	Effluent	Priority Organic Pollutants	2,4-Dinitrotoluene	0.98	U	ug/L	0.98	3.9
11/2/2009 10:40	Effluent	Priority Organic Pollutants	Benzo(k)fluoranthene	0.98	U	ug/L	0.98	3.9
11/2/2009 10:40	Effluent	Priority Organic Pollutants	Butyl benzyl phthalate	4.9	U	ug/L	4.9	20
11/2/2009 10:40	Effluent	Priority Organic Pollutants	Dimethyl phthalate	9.8	U	ug/L	9.8	39
11/2/2009 10:40	Effluent	Priority Organic Pollutants	Hexachlorobenzene	0.98	U	ug/L	0.98	3.9
11/2/2009 10:40	Effluent	Priority Organic Pollutants	Pyrene	0.98	U	ug/L	0.98	3.9
11/2/2009 10:40	Effluent	Priority Organic Pollutants	2-Chlorophenol	0.98	U	ug/L	0.98	3.9
11/2/2009 10:40	Effluent	Priority Organic Pollutants	Fluoranthene	0.98	U	ug/L	0.98	3.9
11/2/2009 10:40	Effluent	Field Parameter	Total Residual Chlorine	0.5		mg/L		
11/2/2009 10:40	Effluent	Field Parameter	Temperature	27.19		C		
11/2/2009 10:40	Effluent	Field Parameter	Sample Depth	0.1		m		
11/2/2009 10:40	Effluent	Field Parameter	pH	6.99				
11/2/2009 10:40	Effluent	Field Parameter	Specific Conductance	1190		umhos/cm		
11/2/2009 10:50	Field Blank	Metals	Copper	0.5	U	ug/L	0.5	0.5
11/2/2009 10:50	Field Blank	Metals	Calcium	0.075	U	mg/L	0.075	0.3
11/2/2009 10:50	Field Blank	Metals	Lead	0.2	U	ug/L	0.2	0.8
11/2/2009 10:50	Field Blank	Metals	Cadmium	0.03	U	ug/L	0.03	0.12
11/2/2009 10:50	Field Blank	Metals	Magnesium	0.04	U	mg/L	0.04	0.16

Appendix E. (continued)

Date	Field ID	Analysis	Component	Result	Remark	Unit	MDL	PQL
11/2/2009 10:50	Field Blank	Metals	Arsenic	0.25	U	ug/L	0.25	1
11/2/2009 10:50	Field Blank	Metals	Aluminum	60	U	ug/L	60	240
11/2/2009 10:50	Field Blank	Metals	Zinc	5	U	ug/L	5	20
11/2/2009 10:50	Field Blank	Metals	Silver	0.025	U	ug/L	0.025	0.1
11/2/2009 10:50	Field Blank	Metals	Chromium	0.3	U	ug/L	0.3	1.2
11/2/2009 10:50	Field Blank	Metals	Iron	30	U	ug/L	30	120
11/2/2009 10:50	Field Blank	Metals	Nickel	0.25	U	ug/L	0.25	1
11/2/2009 10:50	Field Blank	Metals	Selenium	0.2	U	ug/L	0.2	0.8
11/2/2009 10:50	Field Blank	Nutrients	Total-P	0.004	U	mg P/L	0.004	0.01
11/2/2009 10:50	Field Blank	Nutrients	NO2NO3-N	0.028		mg N/L	0.004	0.01
11/2/2009 10:50	Field Blank	Nutrients	Ammonia-N	0.01	U	mg N/L	0.01	0.02
11/2/2009 10:50	Field Blank	Nutrients	Kjeldahl Nitrogen	0.08	U	mg N/L	0.08	0.2
11/2/2009 10:50	Field Blank	Nutrients	O-Phosphate-P	0.004	U	mg P/L	0.004	0.01
11/2/2009 10:50	Field Blank	Pesticides	Alachlor	0.57	U	ug/L	0.57	2.3
11/2/2009 10:50	Field Blank	Pesticides	Chlorpyrifos Methyl	0.095	U	ug/L	0.095	0.38
11/2/2009 10:50	Field Blank	Pesticides	Malathion	0.14	U	ug/L	0.14	0.56
11/2/2009 10:50	Field Blank	Pesticides	Metolachlor	0.47	U	ug/L	0.47	1.9
11/2/2009 10:50	Field Blank	Pesticides	Naled	0.76	UJ	ug/L	0.76	3
11/2/2009 10:50	Field Blank	Pesticides	Endrin	0.047	U	ug/L	0.047	0.19
11/2/2009 10:50	Field Blank	Pesticides	Diazinon	0.047	U	ug/L	0.047	0.19
11/2/2009 10:50	Field Blank	Pesticides	Ethion	0.047	U	ug/L	0.047	0.19
11/2/2009 10:50	Field Blank	Pesticides	Mevinphos	0.19	U	ug/L	0.19	0.76
11/2/2009 10:50	Field Blank	Pesticides	Phorate	0.047	U	ug/L	0.047	0.19
11/2/2009 10:50	Field Blank	Pesticides	Methoxychlor	0.047	U	ug/L	0.047	0.19
11/2/2009 10:50	Field Blank	Pesticides	Aldrin	0.0095	U	ug/L	0.0095	0.038
11/2/2009 10:50	Field Blank	Pesticides	Endosulfan Sulfate	0.019	U	ug/L	0.019	0.076
11/2/2009 10:50	Field Blank	Pesticides	Gamma-BHC	0.0095	U	ug/L	0.0095	0.038
11/2/2009 10:50	Field Blank	Pesticides	Metalaxyl	0.24	U	ug/L	0.24	0.96
11/2/2009 10:50	Field Blank	Pesticides	Norflurazon	0.14	U	ug/L	0.14	0.56
11/2/2009 10:50	Field Blank	Pesticides	DDD-p,p'	0.019	U	ug/L	0.019	0.076
11/2/2009 10:50	Field Blank	Pesticides	Endosulfan II	0.019	U	ug/L	0.019	0.076
11/2/2009 10:50	Field Blank	Pesticides	Heptachlor	0.0095	U	ug/L	0.0095	0.038
11/2/2009 10:50	Field Blank	Pesticides	Parathion Ethyl	0.14	U	ug/L	0.14	0.56
11/2/2009 10:50	Field Blank	Pesticides	Prometryn	0.14	U	ug/L	0.14	0.56

Appendix E. (continued)

Date	Field ID	Analysis	Component	Result	Remark	Unit	MDL	PQL
11/2/2009 10:50	Field Blank	Pesticides	Simazine	0.047	U	ug/L	0.047	0.19
11/2/2009 10:50	Field Blank	Pesticides	Beta-BHC	0.0095	U	ug/L	0.0095	0.038
11/2/2009 10:50	Field Blank	Pesticides	Delta-BHC	0.0095	U	ug/L	0.0095	0.038
11/2/2009 10:50	Field Blank	Pesticides	Dieldrin	0.019	U	ug/L	0.019	0.076
11/2/2009 10:50	Field Blank	Pesticides	Azinphos Methyl	0.19	U	ug/L	0.19	0.76
11/2/2009 10:50	Field Blank	Pesticides	Chlorpyrifos Ethyl	0.047	U	ug/L	0.047	0.19
11/2/2009 10:50	Field Blank	Pesticides	Metribuzin	0.095	U	ug/L	0.095	0.38
11/2/2009 10:50	Field Blank	Pesticides	Parathion Methyl	0.095	U	ug/L	0.095	0.38
11/2/2009 10:50	Field Blank	Pesticides	Chlordane	0.19	U	ug/L	0.19	0.76
11/2/2009 10:50	Field Blank	Pesticides	Ametryn	0.047	U	ug/L	0.047	0.19
11/2/2009 10:50	Field Blank	Pesticides	Ethoprop	0.095	U	ug/L	0.095	0.38
11/2/2009 10:50	Field Blank	Pesticides	Fenamiphos	0.19	U	ug/L	0.19	0.76
11/2/2009 10:50	Field Blank	Pesticides	Fonofos	0.095	UJ	ug/L	0.095	0.38
11/2/2009 10:50	Field Blank	Pesticides	DDE-p,p'	0.019	U	ug/L	0.019	0.076
11/2/2009 10:50	Field Blank	Pesticides	Atrazine	0.047	U	ug/L	0.047	0.19
11/2/2009 10:50	Field Blank	Pesticides	Bromacil	0.19	UJ	ug/L	0.19	0.76
11/2/2009 10:50	Field Blank	Pesticides	Butylate	0.19	U	ug/L	0.19	0.76
11/2/2009 10:50	Field Blank	Pesticides	Hexazinone	0.095	UJ	ug/L	0.095	0.38
11/2/2009 10:50	Field Blank	Pesticides	Alpha-BHC	0.0095	U	ug/L	0.0095	0.038
11/2/2009 10:50	Field Blank	Pesticides	DDT-p,p'	0.028	U	ug/L	0.028	0.11
11/2/2009 10:50	Field Blank	Pesticides	Endosulfan I	0.019	U	ug/L	0.019	0.076
11/2/2009 10:50	Field Blank	Pesticides	Endrin Aldehyde	0.019	U	ug/L	0.019	0.076
11/2/2009 10:50	Field Blank	Pesticides	Heptachlor Epoxide	0.019	U	ug/L	0.019	0.076
11/2/2009 10:50	Field Blank	Pesticides	Toxaphene	0.71	U	ug/L	0.71	2.8
11/2/2009 10:50	Field Blank	Priority Organic Pollutants	1,2,4-Trichlorobenzene	0.96	U	ug/L	0.96	3.8
11/2/2009 10:50	Field Blank	Priority Organic Pollutants	Bis(2-chloroethyl)ether	0.96	U	ug/L	0.96	3.8
11/2/2009 10:50	Field Blank	Priority Organic Pollutants	Acenaphthylene	0.96	U	ug/L	0.96	3.8
11/2/2009 10:50	Field Blank	Priority Organic Pollutants	Nitrobenzene	1.9	U	ug/L	1.9	7.6
11/2/2009 10:50	Field Blank	Priority Organic Pollutants	Hexachloroethane	2.9	U	ug/L	2.9	11
11/2/2009 10:50	Field Blank	Priority Organic Pollutants	Fluoranthene	0.96	U	ug/L	0.96	3.8
11/2/2009 10:50	Field Blank	Priority Organic Pollutants	2,6-Dinitrotoluene	0.96	U	ug/L	0.96	3.8
11/2/2009 10:50	Field Blank	Priority Organic Pollutants	Naphthalene	0.96	U	ug/L	0.96	3.8
11/2/2009 10:50	Field Blank	Priority Organic Pollutants	2-Chlorophenol	0.96	U	ug/L	0.96	3.8
11/2/2009 10:50	Field Blank	Priority Organic Pollutants	3,3'-Dichlorobenzidine	38	U	ug/L	38	150

Appendix E. (continued)

Date	Field ID	Analysis	Component	Result	Remark	Unit	MDL	PQL
11/2/2009 10:50	Field Blank	Priority Organic Pollutants	Chrysene	0.96	U	ug/L	0.96	3.8
11/2/2009 10:50	Field Blank	Priority Organic Pollutants	Di-n-octyl phthalate	0.96	U	ug/L	0.96	3.8
11/2/2009 10:50	Field Blank	Priority Organic Pollutants	Hexachlorobutadiene	2.9	U	ug/L	2.9	11
11/2/2009 10:50	Field Blank	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	1.9	U	ug/L	1.9	7.6
11/2/2009 10:50	Field Blank	Priority Organic Pollutants	Phenanthrene	0.96	U	ug/L	0.96	3.8
11/2/2009 10:50	Field Blank	Priority Organic Pollutants	2,4-Dinitrotoluene	0.96	U	ug/L	0.96	3.8
11/2/2009 10:50	Field Blank	Priority Organic Pollutants	4-Bromophenyl phenyl ether	0.96	U	ug/L	0.96	3.8
11/2/2009 10:50	Field Blank	Priority Organic Pollutants	Benzo(a)anthracene	0.96	U	ug/L	0.96	3.8
11/2/2009 10:50	Field Blank	Priority Organic Pollutants	Fluorene	0.96	U	ug/L	0.96	3.8
11/2/2009 10:50	Field Blank	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	2.9	U	ug/L	2.9	11
11/2/2009 10:50	Field Blank	Priority Organic Pollutants	2,4,6-Trichlorophenol	0.96	U	ug/L	0.96	3.8
11/2/2009 10:50	Field Blank	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	2.9	U	ug/L	2.9	11
11/2/2009 10:50	Field Blank	Priority Organic Pollutants	4-Chloro-3-methylphenol	0.96	U	ug/L	0.96	3.8
11/2/2009 10:50	Field Blank	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	1.9	U	ug/L	1.9	7.6
11/2/2009 10:50	Field Blank	Priority Organic Pollutants	Benzidine	96	U	ug/L	96	380
11/2/2009 10:50	Field Blank	Priority Organic Pollutants	Benzo(a)pyrene	0.96	U	ug/L	0.96	3.8
11/2/2009 10:50	Field Blank	Priority Organic Pollutants	Benzo(k)fluoranthene	0.96	U	ug/L	0.96	3.8
11/2/2009 10:50	Field Blank	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	0.96	U	ug/L	0.96	3.8
11/2/2009 10:50	Field Blank	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	14	U	ug/L	14	57
11/2/2009 10:50	Field Blank	Priority Organic Pollutants	Diethyl phthalate	0.96	U	ug/L	0.96	3.8
11/2/2009 10:50	Field Blank	Priority Organic Pollutants	Hexachlorobenzene	0.96	U	ug/L	0.96	3.8
11/2/2009 10:50	Field Blank	Priority Organic Pollutants	Hexachlorocyclopentadiene	2.9	U	ug/L	2.9	11
11/2/2009 10:50	Field Blank	Priority Organic Pollutants	2,4-Dinitrophenol	14	U	ug/L	14	57
11/2/2009 10:50	Field Blank	Priority Organic Pollutants	4-Nitrophenol	14	U	ug/L	14	57
11/2/2009 10:50	Field Blank	Priority Organic Pollutants	Anthracene	0.96	U	ug/L	0.96	3.8
11/2/2009 10:50	Field Blank	Priority Organic Pollutants	Butyl benzyl phthalate	4.8	U	ug/L	4.8	19
11/2/2009 10:50	Field Blank	Priority Organic Pollutants	Dimethyl phthalate	9.6	U	ug/L	9.6	38
11/2/2009 10:50	Field Blank	Priority Organic Pollutants	Isophorone	0.96	U	ug/L	0.96	3.8
11/2/2009 10:50	Field Blank	Priority Organic Pollutants	Pentachlorophenol	2.9	U	ug/L	2.9	11
11/2/2009 10:50	Field Blank	Priority Organic Pollutants	Phenol	0.96	U	ug/L	0.96	3.8
11/2/2009 10:50	Field Blank	Priority Organic Pollutants	2-Chloronaphthalene	0.96	U	ug/L	0.96	3.8
11/2/2009 10:50	Field Blank	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	2.9	U	ug/L	2.9	11
11/2/2009 10:50	Field Blank	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.96	U	ug/L	0.96	3.8
11/2/2009 10:50	Field Blank	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.96	U	ug/L	0.96	3.8

Appendix E. (continued)

Date	Field ID	Analysis	Component	Result	Remark	Unit	MDL	PQL
11/2/2009 10:50	Field Blank	Priority Organic Pollutants	N-Nitrosodimethylamine	1.9	U	ug/L	1.9	7.6
11/2/2009 10:50	Field Blank	Priority Organic Pollutants	Pyrene	0.96	U	ug/L	0.96	3.8
11/2/2009 10:50	Field Blank	Priority Organic Pollutants	2-Nitrophenol	0.96	U	ug/L	0.96	3.8
11/2/2009 10:50	Field Blank	Priority Organic Pollutants	Acenaphthene	0.96	U	ug/L	0.96	3.8
11/2/2009 10:50	Field Blank	Priority Organic Pollutants	Benzo(b)fluoranthene	0.96	U	ug/L	0.96	3.8
11/2/2009 10:50	Field Blank	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.96	U	ug/L	0.96	3.8
11/2/2009 10:50	Field Blank	Priority Organic Pollutants	Di-n-butyl phthalate	4.8	U	ug/L	4.8	19
11/2/2009 10:50	Field Blank	Priority Organic Pollutants	2,4-Dichlorophenol	0.96	U	ug/L	0.96	3.8
11/2/2009 10:50	Field Blank	Priority Organic Pollutants	2,4-Dimethylphenol	9.6	U	ug/L	9.6	38

Appendix F. Facility Summary

State of Florida
Department of Environmental Protection
Facility Introduction & Summary

PART I: Information gathered prior to sampling event	
Prepared By: Lisa Self	Contact Number: 561-681-6699
Facility Name (as it appears on permit): Ocean Maisonettes North WWTF	Former Names:
NPDES Permit Number: FL0028380	Permit Expiration Date: 8/7/2010
Physical Address: 6880 North Ocean Blvd, Ocean Ridge, Florida, 33435	
District: Southeast	County: Palm Beach
Function of Facility: domestic wastewater treatment and disposal	
Facility Type:	Permitted Capacity (MGD): .01 TMADF
Mean Flow for previous 12 months for all EXTERNAL outfalls listed in permit (list date range including months): .003 MGD (influent)	
If applicable, Mean Flow for previous 12 months for REUSE outfall(s) (list date range including months): N/A	
Description of type of Discharge: ☒ Continuous ☐ Intermittent ☐ Seasonal ☐ Rainfall Dependent ☐ Other, please specify	
Description of Sampling Location(s) - actual permit designation of permitted sampling point(s): INF-01 - elapsed time meter at onsite lift station OTH-2 – calculated % capapcity EFA-01 – after chlorine contact chamber and before dechlorination basin EFD01 – after dechlorination basin and before discharge	
Description of Permitted Outfall(s): one outfall to Spanish River at lat. 26°32'30" N, long 80°02'35" W	
Description of Treatment Process (if multiple discharge points, include a detailed map or diagram of facility): secondary treatment with extended aeration, clarification, chlorine disinfection, and dechlorination prior to discharge.	

Appendix F. (continued)

PART I: Continued										
List current Effluent Limits of Outfall(s) to be Sampled: This should include any AO or CO limits the facility may be under (Leave cell blank if not applicable)										
			Effluent Limitations				Monitoring Requirements			
Parameter	Units	Max/Min	Annual Average	Monthly Average	Weekly Average	Single Sample	Monitoring Frequency	Sample Type	Monitoring Location Site Number	Notes
flow (influent)	mgd	max	0.01 mgd 3-mo. ADF	report only			5 days/wk	meter	INF-01	
CBOD (effluent)	mg/L	max	20.0			60.0	monthly	grab	EFA-01	
TSS (effluent)	mg/L	max	20.0			60.0	monthly	grab	EFA-01	
pH	SU	range				6.5 to 8.5	5 days/wk	grab	EFA-01	
fecal coliform	#/100 ml	max	200	report geo. mean			monthly	grab	EFA-01	
enterococci	#/100 ml	max		35 geo. mean			5 samples/mo.	grab	EFA-01	
TRC for dechlor.	mg/L	max				0.01	monthly	grab	EFD-01	
TRC for disinfec.	mg/L	max				0.50	5 days/wk	grab	EFA-01	
% capacity	%	max		report						

Appendix F. (continued)

PART I: Continued			
Receiving Waters: Spanish River near junction with Intracoastal Waterway	Classification (indicate whether fresh or marine): III marine		
Toxicity Test Requirements (routine and/or additional test language, test species, salinity adjustment, etc.): Permit requires no toxicity testing nor annual effluent analysis due to small size of facility and lack of industrial components. The WWTF serves only seasonal residential connections.			
Administrative or Consent Orders (date executed, specific requirements, interim limit dates-if applicable, etc.): AO-05-007 requires only that facility connect when available			
Facility Mixing Zone Details (if applicable): n/a			
List Permit Violations (DMR data) and plant upsets that occurred at the plant within the last year:			
Date	Parameter and Units	Limit	Result
No effluent violations. PCS shows two chlorine violations, but both are data entry errors where decimals are misplaced. Original DMRs show no violations.			
Describe previous FYI and WQBEL study:			
Describe previous or current Enforcement Actions (including WLs): none.			
Describe any violations or problems noted in previous inspection: minor solids accumulation in chlorine contact and declorination tanks.			
Discuss whether DMR trends within previous five years are improving or declining: no significant change—operation is continuous but strongly seasonal.			
Additional Comments (this should include a trend of the Effluent, i.e. if the facility is now Reuse): no changes.			

Appendix F. (continued)

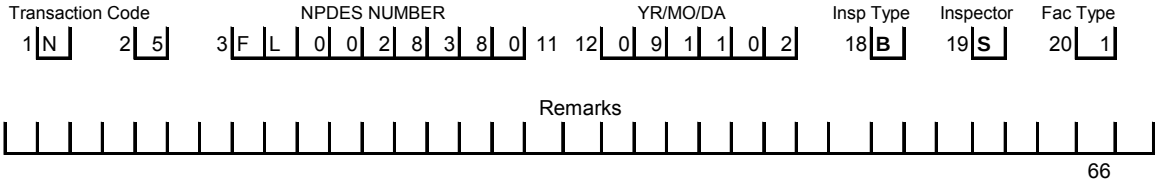
PART II: Sampling Event Information	
Date(s) sample collected: 2 Nov., 09	Sampler(s): T. Davis
Temperature (Deg C): 27.19	pH (SU): 6.99
Dissolved Oxygen (mg/L):	Conductivity (umhos/cm): 1,190
Total Residual Chlorine (mg/L): Dechlor = 0.0	Total Residual Chlorine - after Disinfection (mg/L): 0.5
Method of Chlorination: Contact Lisa Self	Method of De-chlorination Contact Lisa Self
Flow During Sample Collection for each outfall(MGD): Contact Lisa Self	
Mean Flow for each outfall for previous 12 months based on sampling date (If samples are taken on more than one day, indicate Mean Flow for each day):	
Describe Discharge during Sampling Event: ☒ Continuous ☐ Intermittent ☐ Seasonal ☐ Rainfall Dependent ☐ Other, please specify	
Describe any conditions, difficulties or abnormal events that occurred during the sample collection and any other additional comments here:	

Page 4 of 4 v3.0 07/07/08

Appendix G. EPA End Sheet

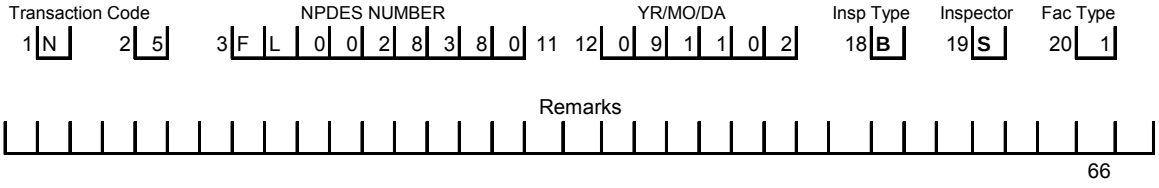
The Bioassay of the Ocean Maisonettes North WWTF effluent sampled on November 2, 2009. NPDES #FL0028380.

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



The Priority Pollutants Analysis of the Ocean Maisonettes North WWTF effluent sampled on November 2, 2009. NPDES #FL0028380.

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



Biological Analyses of the Ocean Maisonettes North WWTF effluent sampled on November 2, 2009. NPDES #FL0028380.

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

