

Bioassays of

City of Venice Reverse Osmosis WTP

Sarasota County

NPDES #FL0035335

Sampled December 4, 2006

March 2007

Biology Section
Bureau of Laboratories
Division of Resource Assessment and Management

Quality Manual No. 870346G
NELAC Certification No. E31780

City of Venice Reverse Osmosis WTP, 200 North Warfield Ave., Venice, Sarasota County, Florida, NPDES #FL0035335. Effluent samples for this facility were collected on December 4, 2006.

Introduction

The City of Venice Reverse Osmosis WTP is a water treatment facility that utilizes the reverse osmosis (RO) process to produce potable water for the City of Venice. The facility has a permitted maximum daily flow (averaged over seven consecutive days) of 3.56 million gallons per day (MGD). The seven-day rolling average flow reported on the November 2006 Discharge Monitoring Report was 2.69 MGD. The flow during the sampling event was 2.46 MGD. The facility had an annual average daily flow of 2.53 MGD from December 2005 through November 2006. Brackish groundwater is the source water for this facility. RO concentrate (effluent) is treated by the addition of liquid chlorine and air injection, in combination with in-line mixers, to oxidize the dissolved sulfides and raise the dissolved oxygen concentration in the effluent. Dechlorination is accomplished by a series of mechanical diffusers located within a multiple curved stainless steel piping device on the discharge side of the facility. Treated effluent is discharged through Outfall D-002 into the Class III Marine waters of the Intracoastal Waterway at a depth of approximately 2.35 m (7.7 feet). Outfall D-002 consists of a 20.1 m (66 feet) length of 0.6 m (2 feet) diameter HDPE pipe with a multi-port 0.05 m (2 inch) diffuser system, and is located approximately at latitude 27º 05' 58" N and longitude 82º 26' 27" W.

There are no Administrative Orders or Consent Orders for this facility. The facility has mixing zones for radiological parameters (64 m [210 feet] x 13.7 m [45 feet]) and for chronic toxicity (35.35 m [116 feet] x 9.14 m [30 feet]), both of which are centered on the point of discharge. A review of Discharge Monitoring Report data showed violations of permit limits for daily maximum hydrogen sulfide (January, April, and June 2005), copper daily maximum (May and June 2005), and hydrogen sulfide daily maximum and monthly average (August 2006). (Facility information provided by Lori Pillsbury and Joe Hillring of FDEP Southwest District.)

Methods

Samples were collected from the EFF-001 NPDES sampling point for Outfall D-002 by Lori Pillsbury and Peter Wenner (FDEP Southwest District) following DEP-SOP-001/01 FS 2400 Wastewater Sampling. All DEP SOPs are available on the web at: http://www.floridadep.org/labs/qa/sops.htm.

See Appendix A for the completed chain of custody form.

The 48-hour acute screening toxicity tests and algal growth potential test were performed following internal DEP SOPs TA07_03, TA07_04, and TA08_01 through TA08_09. All internal DEP SOPs are available on the web at: http://www.floridadep.org/labs/cgi-bin/sop/biosop.asp. While the 48-hour acute screening toxicity test does not reflect the permit required conditions, the Department uses it to provide reasonable assurance that the facility does not adversely affect waters of the state.

The bioassay sample salinity was adjusted from an apparent salinity of approximately 2.93 parts per thousand (ppth) to approximately 20 ppth using 40 Fathoms® artificial sea salts, per permit conditions. The salt control used for these tests was prepared by diluting 20 ppth artificial sea water to the apparent salinity of the original sample then adding sea salts to adjust the salinity to approximately 20 ppth. The purpose of the salt controls was to confirm that there was no effect of adding artificial sea salts to the sample. There was no mortality in the salt controls of either test species.

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

Toxicity Test Results

Tests were performed December 5-7, 2006.

Americamysis bahia 48-hour acute screening bioassay –	LC_{50} < 100%, 85% mortality* in 100% sample at 48 hours
Menidia beryllina 48-hour acute screening bioassay –	LC_{50} > 100%, 0% mortality* in 100% sample at 48 hours

The bioassay sample was acutely toxic to the *A. bahia* test organisms, but was not acutely toxic to the *M. beryllina* test organisms.

The chemistry results confirmed that the ion makeup of the sample was not in seawater proportions and that the apparent 2.93 ppth salinity of the sample was due to elevated levels of groundwater ions. The observed mortality in the *A. bahia* test is likely due, at least in part, to the seawater-ion imbalance of the sample. Previous research conducted by the FDEP Biology Section demonstrated that *A. bahia* is much more sensitive to seawater-ion imbalances than is *M. beryllina* (FDEP, 1995). The calcium concentration was 738 mg/L at 2.93 ppth salinity (salinity based on conductivity and temperature), which is approximately 21 times (21x) the nominal concentration of calcium in seawater of this salinity. The calculated calcium concentration in the salinity adjusted sample (942 mg/L) was approximately four times the nominal calcium concentration in seawater of this salinity (approximately 20 ppth). The elevated calcium is one source of toxicity in this sample, but other unidentified sources of toxicity cannot be ruled out without performing the major-seawater-ion imbalance toxicity testing protocols cited above.

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

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

Algal Growth Potential

The effluent Algal Growth Potential (AGP) was less than the method detection limit (MDL; 3.0 mg dry wt/L) of the saltwater species, *Dunaliella tertiolecta.* Raschke and Shultz found that AGP values above 10.0 mg dry weight/L represent a "problem" threshold for marine receiving waters, implying nutrient enrichment (personal communication with Ron Raschke USEPA Region 4, 1987). The analytical chemistry suggests that the effluent is phosphorus-limited.

Due to the apparent salinity of the sample, an AGP test with the freshwater species, *Pseudokirchneriella subcapitata*, was not performed. However, an inference can be made that the freshwater problem threshold of 5 mg dry wt/L (Raschke and Schultz, 1987) would not have been exceeded.

See Table 1 for AGP results.

Chemistry Results

Total residual chlorine was not detected in the bioassay sample in the laboratory. Total ammonia was detected in the bioassay sample at a concentration of 0.442 mg/L. Based on field measurements of pH, salinity, and temperature, the unionized ammonia concentration in the bioassay sample was < 0.02 mg/L. The total ammonia concentration in the sample collected and preserved for chemical analysis was 0.58

mg/L. Based on the pH, salinity, and temperature of the effluent as collected, the calculated unionized ammonia concentration was < 0.02 mg/L.

Arsenic was detected in the effluent at levels that comply with Class III marine water quality criteria (62-302.530, F.A.C.). The effluent total alpha particle activity (17.1 pCi/L) exceeded the water quality criterion of 15 pCi/L (62-302.530(58)(b), F.A.C.), but did not exceed the permitted limit (≤ 55 pCi/L).

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 Outfall D-002 for this facility on December 4, 2006, was acutely toxic to the *Americamysis bahia* test organisms but was not acutely toxic to the *Menidia beryllina* test organisms during the 48-hour acute screening bioassay. The toxicity was attributed, at least in part, to the seawater-ion imbalance in the effluent. The effluent AGP result was less than the "problem" threshold for marine receiving waters. Effluent total alpha particle activity exceeded Class III Marine water quality standards but did not violate any permit conditions.

Literature Cited

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. Algal growth potential (AGP; mg dry weight/L) of the saltwater species Dunaliella tertiolecta *and ratios of nitrogen to phosphorus for samples collected from City of Venice Reverse Osmosis Water Treatment Plant on December 4, 2006.*

Location	Salinity Adjusted AGP	Inorganic N:P ratio	Total N:P ratio
Effluent Samples	3.0 U	102.67	NA

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

Note: Total phosphorus was not detected; therefore the total nitrogen to total phosphorus ratio cannot be determined.

Table 2. Effluent limits, Class III Marine Criteria and chemical data for samples collected from City of Venice Reverse Osmosis Water Treatment Plant on December 4, 2006.

City of Venice Reverse Osmosis Water Treatment Plant NPDES# FL0035335	Class III Marine Stds	Effluent Limits	Effluent Grab Samples
Organic Constituents (µg/L)			
None Detected	-	-	-
Metals (µg/L unless otherwise noted)			
Aluminum	≤ 1,500	-	4 U
Arsenic	≤ 50	-	2.7
Cadmium	≤ 9.3	-	0.05 U
Calcium (mg/L)	-	-	738
Chromium-III	-	-	3.5 U
Copper	≤ 3.7	≤ 3.7 s#	0.6 U
Iron	≤ 300	-	5 U
Lead	≤ 8.5	-	0.2 U
Magnesium (mg/L)	-	-	305
Nickel	≤ 8.3	-	1 U
Selenium	≤ 71	-	0.5 U
Silver	≤ 2.3	-	0.025 U
Zinc	≤ 86	-	3 U
Nutrients (mg/L)			
Ortho-phosphate	-	-	0.006 I
Total Phosphorus	-	-	0.02 U
Ammonia	-	-	0.58
Unionized Ammonia	-	-	0.01 c
Nitrate+Nitrite	-	-	0.036
Total Kjeldahl Nitrogen	-	-	0.96
Organic Nitrogen	-	-	0.38 c
Total Nitrogen	-	-	1 c
General Physical and Chemical Parameters			
Alpha, Total (pCi/L)	≤ 15 s	≤ 55.0 s#	17.1
Alpha-Counting Error (pCi/L)	-	-	8.7
Radium 226 (pCi/L)	-	-	1.8
Radium 226-Counting Error (pCi/L)	-	-	0.2
Radium 228 (pCi/L)	-	-	1 U
Radium 228-Counting Error (pCi/L)	-	-	0.7
Radium 226 + Radium 228 (pCi/L)	≤ 5 s	≤ 17.0 s#	1.8 c
Dissolved Organic Carbon (mg/L)	-	-	5.6 I
Total Organic Carbon (mg/L)	-	-	6.2 I
Dissolved Oxygen (mg/L)	≥ 4.0 s	≥ 4.0 s	8.4
pH (S.U.)	6.5-8.5 s	6.5-8.5 s	7.4
Conductivity (umhos/cm)	-	-	5,155
Temperature (°C)	-	-	25
CBOD, 5 day (mg/L)	-	-	1.2 I
Flow (MGD)	-	3.56 w	2.69 w
Hardness (mg/L)	-	-	3,098.8 c
Total Residual Chlorine (mg/L)	≤ 0.01	≤ 0.01	< 0.02
Chloride (mg/L)	-	Report	590
Specific Conductance (µmhos/cm)	-	Report	5,320
Hydrogen Sulfide (mg/L)	-	≤ 0.04 s	0.33 A
Total Suspended Solids (mg/L)	-	≤ 5.0 s#	4 U
Turbidity (NTU)	≤ 29 t	-	9.6
Fluoride (mg/L)	≤ 5.0 s	≤ 5.0 m#	3.3

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

c - Calculated value

m - Monthly average

s - Single sample

t - Shall not exceed 29 NTUs above background

w - Permit limit based on seven-day rolling average flow

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

I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.

U - Material analyzed for but not detected; value reported is the method detection limit

- Permitted limit is for a composite sample

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Event ID *

Request Number: RQ-2006-12-04-27
City of Venice RO Plant

Requester: Shannan Bogdanov

Field Report Prepared By: L Pillsbury

Customer: SW-DIST

Collected By: L Pillsbury, P Wenner

Send Final Report To Ilia Balcom

Project ID: FYI3

Sampling Agency: FDEP

PMAS: 1163

Lab ID *	Location: Outfall D002			✓ Comp / Grab	Collection (begin) Date: 12/04/06 Time: 1015	Eastern / Central	Collection (end) Date	Time	Eastern / Central	Bottle Group(s)**
	Field ID: 34724			Tot Res Chlorine (mg/L): 0.00	Diss Oxygen (mg/L): 8.43		Storet Station Number			A
	Matrix (Include type e.g. Salt, Fresh, etc): salt	Temp (C): 24.96	pH: 7.38	Sample Depth: OUTFALL m / ft	2.77/5155		✓ Salinity (PPTh) / Sp Conductance (umho/cm)		NPDES Number	
	Latitude: N 27° 05 57.1	Longitude: W082° 26 24.6		Comments: Sampled thru OUTFALL composite sampler						
Lab ID *	Location: Field Blank			✓ Comp / Grab	Collection (begin) Date: 12/4/06 Time: 1330	Eastern / Central	Collection (end) Date	Time	Eastern / Central	Bottle Group(s)**
	Field ID: 34725			Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)		Storet Station Number			B
	Matrix (Include type e.g. Salt, Fresh, etc): FRESH	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						
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 bottles						

Relinquished By:	Date/Time	Shipping Method:	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
	12/04/06 1400	DHL				12.5.06	James Daniel	

* Shaded Areas for Lab use only.

** Please see reverse side for Bottle Group information.

last revised October 1, 2003

AGP 12.10 12-5-06

FDEP Biology Section - Acute Screen Bioassay Bench Sheets

Facility: CITY OF VENICE R/O WWTP

Address: 200 NORTH WARFIELD AVENUE

City: VENICE **County:** SARASOTA

Contact/District: SOUTHWEST / Lori Pillsbury

NPDES Permit #: FL 0035335

LIMS Job #: TLH-2006-12-05-3401 **LIMS Sample #:** 970697

Lims Data Entry: MF 12-8-06 Data Entry Verification: BA 12-8-06

Sample Collection: Date: 12-4-06 Time: 10:15

Hold Time Start: Date: 12-4-06 Time: 10:15

Comments: Sample salinity adjusted to ~ 20 parts per thousand (ppth) by the addition of artificial seasalts. Salt control prepared by adjusting Artificial seawater to the apparent salinity of the original sample, then adjusting the salinity to ~ 20 ppth with artificial seasalts, MF 12-8-06

(B) Culture room temps have lowered due to frequent overnight sub-freezing temperatures outside 12-8-06

Instructions (for below): Circle appropriate wording. If yes is circled, complete blanks.

Test Type: Screen
(Static) / Static Renewal / Flow-through
Test Duration: (48) 96 Hours.
Light Intensity : 50 - 100 ft. candles.
Photoperiod : 16 hours light 8 hours dark.

Test 1 validation: **Test 1:** SOP TA 07_03
Control survival ≥90%: (Yes) No
Temperature Range ≤3°C: (Yes) No

Test 2 validation: **Test 2:** SOP TA 07_04
Control survival ≥90%: (Yes) No
Temperature Range ≤3°C: (Yes) No

Initial sample handling:

PH adjustment : yes (no) Initial pH: ____ NaOH N HCl N ____ Drops mL Final pH: ____
Aeration : (Yes) no Initial DO: 9.5 mg/L Final DO: 8.8 mg/L Duration: 30 minutes Rate: ~ ____ bubbles/min
Salinity adjusted (Test 1): (Yes) no Initial Salinity: 2.93 Final Salinity: 20.0 (Salts) Hypersaline brine
Salinity adjusted (Test 2): (Yes) no Initial Salinity: 2.93 Final Salinity: 20.0 (Salts) Hypersaline brine
Dechlorination: yes (no) ____ mL of 0.025N Sodium Thiosulfate per liter of sample. Final TRC: ____

Temperature Range °C
Incubator # 2 Range 24.0-26.0
Room B246: 23.0 - 23.7 (B)
Waterbath: N/A

Sample Validation:

Temperature: Shipped ≤6°C (Yes) No Hand Delivered: Cooling (received °C < collected °C) Yes No
Holding Time: ≤36 Hours (Yes) No (Composite-end of collection; grab-when collected; 4 in 24 - time last sample collected)

Investigators' Signatures
Bruce Hayden
James Janik
Daisy Vichajkul
Marshall Faircloth

REVIEWER

Water Quality Parameters	20% DMW	Moderately Hard Water / (Well Water)	Salt Water (ASW) NSW Test 1	Salt Water ASW NSW Test 2	Other: Salt Ctrl	Original Sample	Method (A)	Measured by	Verified by
Field Total Residual Cl_2 (mg/L):	N/A	N/A	N/A	N/A	NA	~~NOT MEASURED~~ 0.00 MF		~~LORI PILLSBURY~~	MF
Lab Total Residual Cl_2 (mg/L):		<0.03	<0.03		—	<0.03	HACH	BA	~~BA~~
Alkalinity (mg/L as $CaCO_3$):		145	197		188	355	HACH	BA	~~BA~~
Hardness (mg/L as $CaCO_3$):		142	—		—	—	HACH	BA	~~BA~~
Total Ammonia (mg/L as N):		<0.017	<0.034		<0.034	0.442	DENVER	MF	~~BA~~
Salinity (ppth):		~~2~~ 1	~20		~20	2.93	YSI / Mettler	JD	BA

mf corrected sign 12/8/06

(A) Field result 0.00 mg/L changed to method detection limit <0.02 by MF - MF 12-8-06

V 1.4 9/12/05

Appendix B. (continued)

FDEP Biology Section - Bioassay Survival Sheet

LIMS Sample #: 970697 Test #: 1 Test Started: Date 12.5.06 Time: 13:00
Organism: A bahia SOP #: TA 07_03 Test Ended: Date 12-7-06 Time: 11:30
Organism Batch: 33-06 Diluent/ Batch: ASW / 21-06
Organism Age: 5 days Food: YCT *P. subcapitata* *Artemia*
Chamber Size: 1000 mL Batch: — — 17-06 / 1806 ESL-536-40
Test Volume: 500 mL Feeding: Prior to test - Prior to renewal (Daily)

Concentration	Replicate	Chamber #	Test Hour 0 hr	24 hr	48 hr BR	48 hr AR	72 hr	96 hr
Ctrl	A	E13	5	5	5			
	B	E14	5	5	5			
	C	E15	5	5	5			
	D	E16	5	5	5			
Salt Ctrl	A	E17	5	5	5			
	B	E18	5	5	5			
	C	E19	5	5	5			
	D	E20	5	5	5			
100%	A	E21	5	5	1 4D			
	B	E22	5	3 2D	1 2D			
	C	E23	5	4 1D	0 4D			
	D	E24	5	5	1 4D			

Organisms loaded by: JD Checked by: [redacted] JD JD
Loading Verified by: BA
m = missing d = dead BR = before renewal AR = after renewal

Comments:

Test Results:
% mortality in 100% sample: 85%
LC_{50}: <100% If Calculated: 95% CI_____ Method:_____
Screening Tests:
Report LC50 as >100%, =100%, or <100%.
Substitue highest test concentration used if other than 100% (example: Ocean outfall tested at 30% concentration).

V 2.1 11/01/2005

Page 62

Appendix B. (continued)

FDEP Biology Section - Bioassay Survival Sheet

LIMS Sample #: 970697 Test #: 2 Test Started: Date 12.5.06 Time: 1300
Organism: M. bergilina SOP #: TA 07_09 Test Ended: Date 12-7-06 Time: 1130
Organism Batch: 32-06 Diluent/ Batch: ASW 12-06
Organism Age: 13 days Food: YCT P. subcapitata Artemia
Chamber Size: 1000 mL Batch: — — 17-a
Test Volume: 500 mL Feeding: Prior to test - Prior to renewal - Daily 651-536-90

Concentration	Replicate	Chamber #	Test Hour 0 hr	24 hr	48 hr BR	48 hr AR	72 hr	96 hr
Ctrl	A	C1	5	5	5			
	B	C2	5	5	5			
	C	C3	5	5	4/0			
	D	C4	5	5	5			
Salt Ctrl	A	C5	5	5	5			
	B	C6	5	5	5			
	C	C7	5	5	5			
	D	C8	5	5	5			
100%	A	C9	5	5	5			
	B	C10	5	5	5			
	C	C11	5	5	5			
	D	C12	5	5	5			
Organisms loaded by: JD	Checked by: [redacted]		JD	JD				
Loading Verified by: BA								

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

Comments:

Test Results:
% mortality in 100% sample: 0%
LC_{50}: >100% If Calculated: 95% CI_____ Method:_____

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

V 2.1 11/01/2005

Page 63

FDEP Biology Section - Bioassay Parameter Sheet

LIMS Sample # : 970697 Test #: 1 of 2

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

Concentration ctrl	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C			
pH (S.U.)	8.5	8.2	8.0			
Temperature °C	24.0	24.4	24.5			
Dissolved Oxygen mg/L	7.2	5.2	5.4			
Conductivity µmhos (mmhos)	31.3	31.7	32.1			
(initials) Measured by:	JD	JD	BA			
(initials) Recorded by:	JD	JD	PPV			

Comments:

Concentration salt ctrl	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C			
pH (S.U.)	8.6	8.3	8.0			
Temperature °C	24.0	24.4	24.7			
Dissolved Oxygen mg/L	7.3	5.2	5.4			
Conductivity µmhos (mmhos)	32.2	32.7	32.9			
(initials) Measured by:	JD	JD	BA			
(initials) Recorded by:	JD	JD	PPV			

Comments:

Concentration 100%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C			
pH (S.U.)	8.1	8.2	8.1			
Temperature °C	24.0	24.3	25.1			
Dissolved Oxygen mg/L	7.2	5.6	5.3			
Conductivity µmhos (mmhos)	31.6	32.6	32.5			
(initials) Measured by:	JD	JD	BA			
(initials) Recorded by:	JD	JD	PPV			

Comments:

Concentration	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate						
pH (S.U.)						
Temperature °C						
Dissolved Oxygen mg/L						
Conductivity µmhos (mmhos)						
(initials) Measured by:						
(initials) Recorded by:						

Comments:

V 2.0 2/24/04

FDEP Biology Section - Bioassay Parameter Sheet

LIMS Sample # : 970697 Test #: 2 of 2

TEST SOP #: TA07_04 Test Species: *Ceriodaphnia dubia* *Cyprinella leedsi* *Pimephales promelas* *Americamysis bahia* (*Menidia beryllina*) Other:_____

Concentration Ctrl	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C			
pH (S.U.)	8.4	8.3	8.2			
Temperature °C	24.0	24.1	24.7			
Dissolved Oxygen mg/L	7.3	6.1	6.8			
Conductivity µmhos (mmhos)	31.3	31.4	32.3			
(initials) Measured by:	JD	JD	BA			
(initials) Recorded by:	JD	JD	DR			

Comments:

Concentration Salt Ctrl	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C			
pH (S.U.)	8.5	8.4	8.3			
Temperature °C	24.0	24.5	24.7			
Dissolved Oxygen mg/L	7.3	6.0	6.6			
Conductivity µmhos (mmhos)	32.4	32.5	32.3			
(initials) Measured by:	JD	JD	BA			
(initials) Recorded by:	JD	JD	DR			

Comments:

Concentration 100%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C			
pH (S.U.)	8.1	8.2	8.2			
Temperature °C	24.0	24.4	24.8			
Dissolved Oxygen mg/L	7.3	6.0	6.5			
Conductivity µmhos (mmhos)	32.7	32.3	32.4			
(initials) Measured by:	JD	JD	BA			
(initials) Recorded by:	JD	JD	DR			

Comments:

Concentration	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate						
pH (S.U.)						
Temperature °C						
Dissolved Oxygen mg/L						
Conductivity µmhos mmhos						
(initials) Measured by:						
(initials) Recorded by:						

Comments:

V 2.0 2/24/04

Appendix C. SRT Bench Sheets and Statistical Analysis

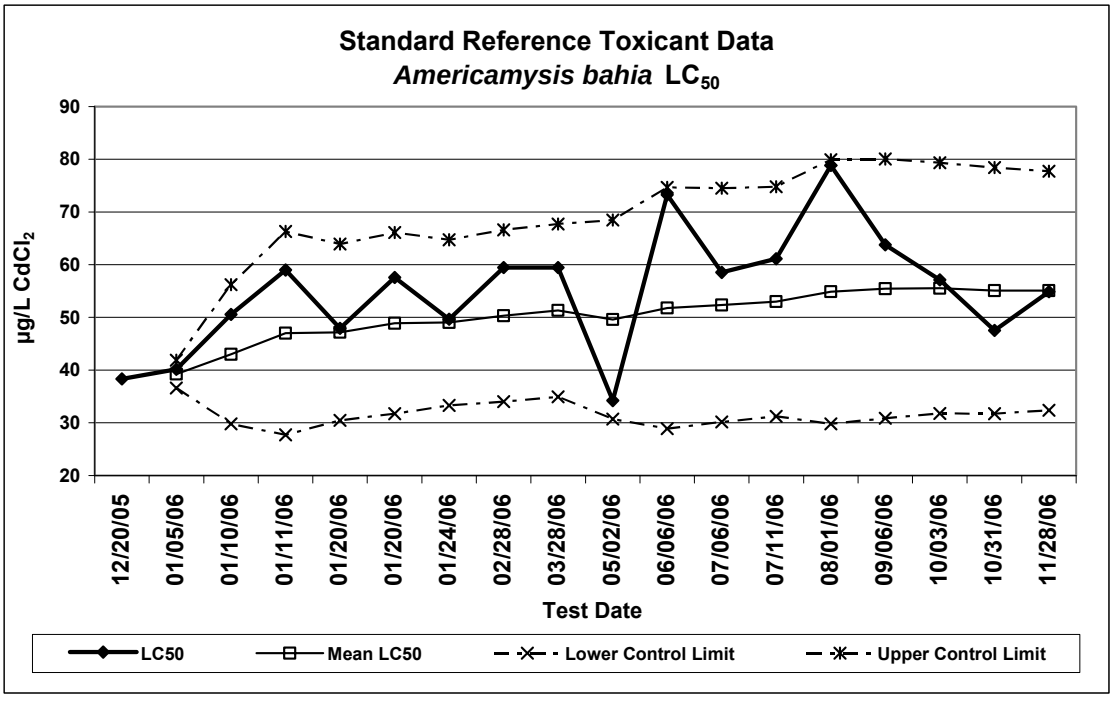
Florida Department of Environmental Protection
Bureau of Laboratories

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

Date	LC50	Mean LC50	Std Dev	Lower Control Limit	Upper Control Limit
12/20/05	38.30				
01/05/06	40.16	39.23	1.32	36.60	41.86
01/10/06	50.55	43.00	6.60	29.80	56.21
01/11/06	58.98	47.00	9.64	27.72	66.27
01/20/06	47.91	47.18	8.36	30.47	63.89
01/20/06	57.54	48.91	8.59	31.73	66.08
01/24/06	49.65	49.01	7.84	33.32	64.70
02/28/06	59.45	50.32	8.15	34.03	66.61
03/28/06	59.42	51.33	8.20	34.93	67.73
05/02/06	34.19	49.62	9.44	30.73	68.50
06/06/06	73.23	51.76	11.44	28.88	74.65
07/06/06	58.53	52.33	11.08	30.16	74.49
07/11/06	61.12	53.00	10.89	31.22	74.78
08/01/06	78.84	54.85	12.54	29.78	79.92
09/06/06	63.78	55.44	12.30	30.85	80.04
10/03/06	57.1	55.55	11.89	31.77	79.32
10/31/06	47.52	55.07	11.67	31.73	78.42
11/28/06	54.87	55.06	11.33	32.41	77.71

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

CV = 20.58
EPA reference 75th quartile CV = 26%



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

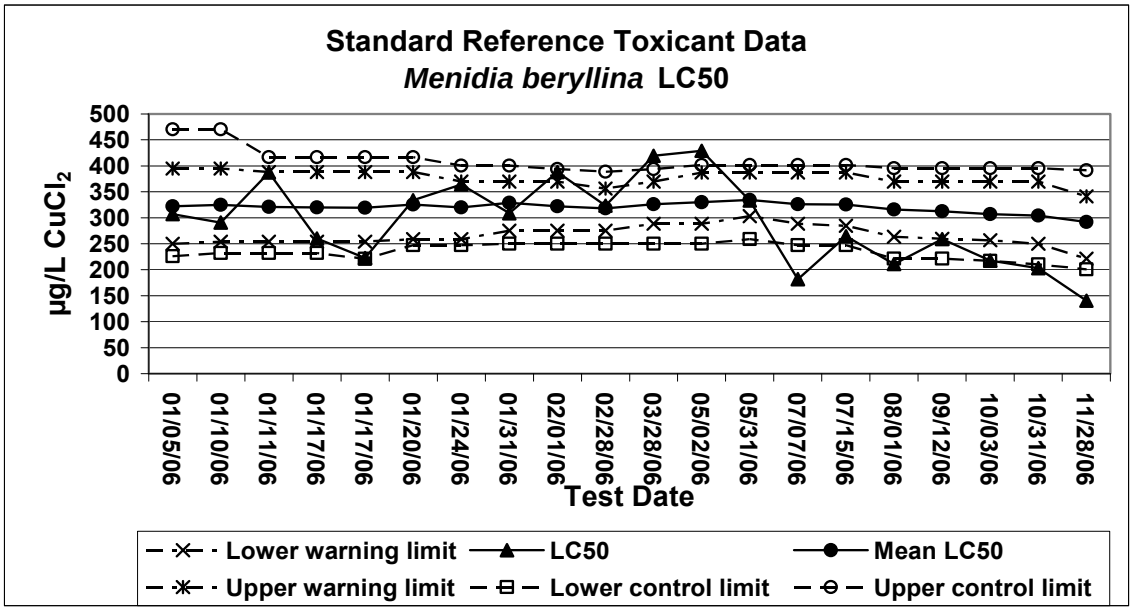
Appendix C. (continued)

Florida Department of Environmental Protection
Bureau of Laboratories

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

Date	LC50	Mean LC50	Lower control limit	Lower warning limit	Upper warning limit	Upper control limit
01/05/06	307.20	321.88	225.8	250.0	394.6	470.3
01/10/06	291.06	325.02	232.3	254.0	394.6	470.3
01/11/06	386.84	320.92	232.3	254.0	388.4	416.5
01/17/06	259.80	319.91	232.3	254.0	388.4	416.5
01/17/06	222.49	319.27	220.7	254.0	388.4	416.5
01/20/06	333.67	325.74	247.2	258.7	388.4	416.5
01/24/06	363.93	319.79	247.2	258.7	369.7	400.4
01/31/06	308.77	328.86	250.0	275.4	369.7	400.4
02/01/06	388.25	322.40	250.0	275.4	369.7	393.6
02/28/06	323.38	318.11	250.0	275.4	356.1	388.7
03/28/06	419.55	326.32	250.0	288.5	369.7	393.6
05/02/06	429.19	330.10	250.0	288.5	387.2	401.5
05/31/06	333.13	334.26	258.8	303.2	387.2	401.5
07/07/06	181.98	326.28	247.2	288.5	387.2	401.5
07/15/06	264.59	325.48	247.2	284.4	387.2	401.5
08/01/06	210.80	316.05	221.3	263.4	369.7	395.6
09/12/06	258.82	312.50	221.3	259.6	369.7	395.6
10/03/06	217.64	307.20	217.0	256.6	369.7	395.6
10/31/06	203.06	304.28	210.0	249.7	369.7	395.6
11/28/06	140.31	292.22	201.0	221.3	341.2	391.4

Means are of the last 20 SRT tests.
Upper warning and control limits are the 75th and 90th percentiles, respectively, of the past 20 LC50s.
Lower warning and control limits are the 25th and 10th percentiles, respectively, of the past 20 LC50s.
EPA reference 75th quartile CV = 21% **CV = 27.9***



* High variability due to change in fish supplier beginning 7/7/06.

Appendix C. (continued)

FDEP Biology Section - Acute SRT Bench Sheet

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

Method from EPA-821-R-02-012
Test Type: Definitive
Static / (Static Renewal)
Test Page 1 of 2

Diluent/ Batch#: ASW 1 20-06
Toxicant/ Batch# dich 1 H-06

Test Beginning: Date: 11.28.06 Time: 1300
Test Ending: Date: 12-2-06 Time: 1035

Water Quality Parameters:	Diluent	Method	Initials
Total Residual Cl_2 (mg/L):	<0.03	Hach	PDV
Alkalinity (mg/L as $CaCO_3$):	200	Hach	~
Hardness (mg/L as CaCO3):	—	Hach	—
Total Ammonia (mg/L as N):	<0.034	Denver	MF
Salinity (ppth):	25.0	Mettler	BA

Organism Batch #/ Age: 31-06 15 days
Feeding: (Prior to test) Prior to renewal / Daily
Food: YCT P.subcapitata (Artemia)
Food Batch: — — 13-06, 14-06, 13-06, 16-06 GSL-536-90
Chamber size: 1000 mL
Test volume: 500 mL per replicate

Conc. mg/L g/L	Rep.	Chamber#	Number Live 0 hr / 24 hr / 48 hr (~~48 hr / 72 hr / 96 hr~~)	pH (SU) 0 hr / 24 hr / 48 hr (~~48 hr / 72 hr / 96 hr~~)	Temperature (° C) 0 hr / 24 hr / 48 hr (~~48 hr / 72 hr / 96 hr~~)	D.O. (mg/l) 0 hr / 24 hr / ~~48 hr~~ (~~48 hr / 72 hr / 96 hr~~)	UNCORRECTED Cond. (mmhos/cm) Cond. (µmhom/cm) 0 hr / 24 hr / 48 hr (~~48 hr / 72 hr / 96 hr~~)
Control	A	N	5 5 5	8.4 — 7.9	24.0 — 24.6	6.8 — 5.3	31.8 — 31.8
	B	D2	5 5 5	— 8.2 —	— 25.3 —	— 5.8 —	— 31.7 —
	C	D3	5 5 5				
	D	D1	5 5 5				
20	A	D5	5 5 5	8.4 — 8.0	24.0 — 24.4	6.7 — 5.1	31.9 — 32.4
	B	D6	5 5 5	— 8.2 —	— 24.5 —	— 5.6 —	— 31.7 —
	C	D7	5 5 5				
	D	D8	5 5 5				
30	A	D9	5 5 5	8.4 — 8.0	24.0 — 24.4	6.7 — 5.4	31.7 — 32.5
	B	D10	5 5 5	— 8.1 —	— 24.8 —	— 5.4 —	— 29.5 —
	C	D11	5 5 5				
	D	D12	5 5 5				
45	A	D13	5 5 3 4D	8.4 — 8.0	24.0 — 24.5	6.8 — 5.4	31.8 — 32.4
	B	D14	5 5 4 1D	— 8.2 —	— 24.7 —	— 5.5 —	— 32.0 —
	C	D15	5 5 4 1D				
	D	D16	5 5 4 1D				
67	A	D17	5 5 0 5D	8.4 — 8.0	24.0 — 24.5	6.8 — 5.5	31.7 — 32.3
	B	D18	5 5 2 3D	— 8.2 —	— 24.7 —	— 5.5 —	— 31.8 —
	C	D19	5 5 2 3D				
	D	D20	5 4D 1 3D				
100	A	D21	5 5 0 5D	8.4 — 8.1	24.0 — 24.5	6.9 — 5.8	32.0 — 32.3
	B	D22	5 5 0 5D	— 8.3 —	— 24.5 —	— 5.9 —	— 31.8 —
	C	D23	5 5 0 5D				
	D	D24	5 4D 0 4D				
	A						
	B						
	C						
	D						
Loaded / measured by:			JD JD JD	BA PDV PDV	BA JD PDV	BA PDV PDV	BA PDV PDV
Recorded by:			DM JD JD	BA PDV PDV	BA JD PDV	BA PDV PDV	BA PDV PDV

Investigators' Signatures
Jason Dalal
Brad Graham
Marshall Faircloth
~~Betsy~~ Vicki Lord
Erin Wilcox
REVIEWER

Concentrations prepared by: PDV
Loading verified by: BA
Light Intensity: 50-100 Ft. candles
Photoperiod: 16 hours Light / 8 hours dark
Temperature Range °C:
Incubator # 2 min. 24.0 max. 26.2 mean 25.1
Incubator # ___ min. ___ max. ___ mean ___
Room B246 min. 23.2 max. 24.9 mean 24.1

Remarks:
~~For~~ 48-HR READINGS, ~~THESE~~ THEY'RE SUPPOSE TO BE WRITTEN IN ZOW C NOT A. PDV 12/5/06.
@ MARK UNDER Diluent measured at 20 PPT

Statistical Results: Method: Spearman-Karber
48 / 96 hour LC50: 54.87
95% Confidence Interval: lower 49.17 upper 61.29

Revised 02/21/06

Page 000064

Appendix C. (continued)

FDEP Biology Section - Acute SRT Bench Sheet

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

Method from EPA-821-R-02-012
Test Type: Definitive
Static / (Static Renewal)
Test Page 2 of 2

Diluent/ Batch#: ASW / 1.20.06
Toxicant/ Batch#: $CaCl_2$ / 1.19.06

Test Beginning: Date: 11.28.06 Time: 1300
Test Ending: Date: 12-2-06 Time: 1035

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

Organism Batch #/ Age: 31-06 / 5 day
Feeding: (Prior to test) / (Prior to renewal) / Daily
Food: YCT P.*subcapitata* (Artemia)
Food Batch: — — — 13-06 -16-06 / GSL-536-90
Chamber size: 1000 mL
Test volume: 500 mL per replicate

Conc. ppt g/L	Rep.	Chamber#	Number Live 0 hr	Number Live 24 hr	Number Live 48 hr	pH (SU) 0 hr	pH (SU) 24 hr	pH (SU) 48 hr	Temperature (° C) 0 hr	Temperature (° C) 24 hr	Temperature (° C) 48 hr	D.O. (mg/l) 0 hr	D.O. (mg/l) 24 hr	D.O. (mg/l) 48 hr	UNCORRECTED Cond. (mmhos/cm) Cond. (µmhom/cm) 0 hr	UNCORRECTED Cond. (mmhos/cm) Cond. (µmhom/cm) 24 hr	UNCORRECTED Cond. (mmhos/cm) Cond. (µmhom/cm) 48 hr
			48 hr	72 hr	96 hr	48 hr	72 hr	96 hr	48 hr	72 hr	96 hr	48 hr	72 hr	96 hr	48 hr	72 hr	96 hr
Control	A	D1	5	5	5			8.0	240 (2)		24.6	9		4.4	32 (2)		32.3
	B	D2	5	5	5				@						@		
	C	D3	5	5	5	8.3			240			5.8			32.8		
	D	D4	5	5	5		8.1			24.4			4.9			31.7	
20	A	D5	5	5	5			8.0			25.3			4.1			32.2
	B	D6	5	5	5												
	C	D7	5	5	5	8.3			240			6.0			32.1		
	D	D8	5	5	4 (10)		8.1			24.5			4.9			31.8	
30	A	D9	5	4 1D	4			8.0			24.8			4.0			31.9
	B	D10	5	5	2 3D												
	C	D11	5	5	1 4D	8.3			240			6.2			32.1		
	D	D12	5	5	5		8.1			24.5			4.9			31.9	
45	A	D13	3	1 2D	0 1D			8.1			24.7			5.0			32.2
	B	D14	4	2 3D	0 2D												
	C	D15	4	3 1D	1 2D	8.3			240			6.3			32.1		
	D	D16	4	3 1D	2 1D		8.1			24.5			5.1			31.7	
67	A	D17	—	—	—			—			—			—			—
	B	D18	2	0 2D	—												
	C	D19	2	0 2D	—	8.3			240			6.3			32.0		
	D	D20	1	0 1D	—		8.1			24.5			5.1			31.6	
100	A	3D D3021	—	—	—			—			—			—			—
	B	D2122	—	—	—												
	C	3D D2223	—	—	—	—			—			—			—		
	D	D24	—	—			—			—			—			—	
	A																
	B																
	C																
	D																
Loaded / measured by:			JD	JD	MF	PPV	BA	MF	PPV	BA	MF	PPV	BA	MF	PPV	BA	MF
Recorded by:			JD	JD	MF	JD	PPV	MF	JD	PPV	MF	JD	PPV	MF	JD	PPV	MF

Investigators' Signatures
James Daniels
Shane Aaglum
Marshall Faircloth
Daisy McDaniel
Erin Wilcox

Concentrations prepared by: BA
Loading verified by: —
Light Intensity: 50-100 Ft. candles
Photoperiod: 16 hours Light / 8 hours dark
Temperature Range °C:
Incubator # 2 min. 24.0 max. 26.7 mean 25.1
Incubator # ___ min. ___ max. ___ mean ___
Room B246 min. 23.2 max. 24.4 mean 24.1

Remarks:
① transcription error S.D. 12/4/06
② transcription error S.D. 12/4/06

Statistical Results: Method: Spearman-Karber
48 / 96 hour LC50: 32.57
95% Confidence Interval: lower 28.85 upper 36.78

REVIEWER

Revised 02/21/06

Page 000065

Appendix C. (continued)

FDEP Biology Section - Acute SRT Bench Sheet

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

Method from EPA-821-R-02-012
Test Type: Definitive
Static / Static Renewal
Test Page 1 of 2

Diluent/ Batch#: ASW / 20-06
Toxicant/ Batch# CuCl2 / 14-06

Test Beginning: Date: 11/28/06 Time: 13:05
Test Ending: Date: 12-2-06 Time: 10:50

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

Organism Batch #/ Age: 3-06 / 14-15
Feeding: ~~Prior to test~~ / ~~Prior to renewal~~ / Daily
Food: YCT P.*subcapitata* Artemia GSL 53690 (121)
Food Batch: - - 13-06, 15-06
Chamber size: 1000 mL
Test volume: 500 mL per replicate

Conc. µg/L g/L	Rep.	Chamber#	Number Live 0 hr (~~48 hr~~)	24 hr (~~72 hr~~)	48 hr (~~96 hr~~)	pH (SU) 0 hr (~~48 hr~~)	24 hr (~~72 hr~~)	48 hr (~~96 hr~~)	Temperature (° C) 0 hr (~~48 hr~~)	24 hr (~~72 hr~~)	48 hr (~~96 hr~~)	D.O. (mg/l) 0 hr (~~48 hr~~)	24 hr (~~72 hr~~)	48 hr (~~96 hr~~)	UNCORRECTED Cond. (mmhos/cm) Cond. (µmhom/cm) 0 hr (~~48 hr~~)	24 hr (~~72 hr~~)	48 hr (~~96 hr~~)
Control	A	E1	10	10	10	8.4		8.3	24.0		24.6	7.0		6.5	31.7		31.9
	B	E2	10	10	10		8.3			24.9			6.0			31.6	
	C																
	D																
3.25	A	E3	10	10	10	8.4		8.2	24.0		24.4	6.8		6.6	31.9		32.6
	B	E4	10	10	9 D		8.3			25.4			6.1			32.2	
	C																
	D																
6.25	A	E5	10	9 D	8 D	8.4		8.2	24.0		24.4	6.8		6.6	31.8		32.7
	B	E6	10	9 D	9		8.3			25.5			6.0			31.9	
	C																
	D																
12.5	A	E7	10	10	10	8.4		8.2	24.0		24.4	6.8		6.5	32.0		32.7
	B	E8	10	5 SD	5		8.2			25.1			5.9			32.1	
	C																
	D																
25.0	A	E9	10	1 D	0 D	8.4	~~8.2~~	8.2	24.0		24.4	6.8		6.5	31.8		32.4
	B	E10	10	1 D	1		8.2			24.9			5.8			31.8	
	C																
	D																
50.0	A	E11	10	0 D	—	8.4		—	24.0		—	6.8		—	31.9		—
	B	E12	10	0 D	—		8.2			25.2			5.9			32.2	
	C																
	D																
	A																
	B																
	C																
	D																
Loaded / measured by:			JD	JD	PPV	BA	PPV	PPV	BA	JD	PPV	BA	PPV	PPV	BA	PPV	PPV
Recorded by:			BA	JD	PPV	BA	PPV	PPV	BA	JD	PPV	BB	PPV	PPV	BA	PPV	PPV

Investigators' Signatures
James Daniels
Bruce Mullin
Marshall Faircloth
Betsy Nicholson
Erin Wilcox
REVIEWER

Concentrations prepared by: JD
Loading verified by: BA
Light Intensity: 50-100 Ft. candles
Photoperiod: 16 hours Light / 8 hours dark
Temperature Range °C:
Incubator # 2 min. 24.0 max. 25.7 mean 25.1
Incubator # ___ min. ___ max. ___ mean ___
Room B246 min. 23.2 max. 24.9 mean 24.1

Remarks:

Statistical Results: Method: Spearman-Karber
48 / 96 hour LC50: 140.31
95% Confidence Interval: lower 114.82 upper 171.45

Revised 02/21/06

Page 000066

Appendix C. (continued)

FDEP Biology Section - Acute SRT Bench Sheet

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

Method from EPA-821-R-02-012
Test Type: Definitive
Static / Static Renewal
Test Page 2 of 2

Diluent/ Batch#: ASW 120-06
Toxicant/ Batch# $CuCl_2$ / 1906

Test Beginning: Date: 11/29/06 Time: 1305
Test Ending: Date: 12-2-06 Time: 1050

Water Quality Parameters:	Diluent	Method	Initials
Total Residual Cl_2 (mg/L):	0.03	Hach	PPV
Alkalinity (mg/L as $CaCO_3$):	800	Hach	[illegible]
Hardness (mg/L as CaCO3):	—	Hach	—
Total Ammonia (mg/L as N):	0.034	Denver	MF
Salinity (ppth):	~20	Mettler	BA

Organism Batch #/ Age: 31-06 / 10-2hrs
Feeding: Prior to test / Prior to renewal / Daily
Food: YCT P.subcapitata Artemia GSL 53690 (Lot)
Food Batch: — — 13-06, 15-06
Chamber size: 1000 mL
Test volume: 500 mL per replicate

Conc. (ug/L) g/L	Rep.	Chamber#	Number Live 0 hr / 48 hr	24 hr / 72 hr	48 hr / 96 hr	pH (SU) 0 hr	24 hr	48 hr	Temperature (° C) 0 hr	24 hr	48 hr	D.O. (mg/l) 0 hr	24 hr	48 hr	UNCORRECTED Cond. (mmhos/cm) 0 hr	24 hr	48 hr
Control	A	E1	10	9 ID	8 ID	8.3		8.1	24.0		25.0	6.5		6.0	31.9		32.5
	B	E2	10	10	10		8.0			24.6			5.2			31.9	
	C																
	D																
31.25	A	E3	10	10	10	8.3		8.1	24.0		24.8	6.5		5.6	32.1		32.3
	B	E4	9	9	9		8.1			24.9			5.3			32.0	
	C																
	D																
62.5	A	E5	8	8	8	8.4		8.2	24.0		25.3	6.6		5.5	32.1		32.5
	B	E6	9	9	9		8.2			24.8			5.4			32.1	
	C																
	D																
125	A	E7	10	10	10	8.4		8.2	24.0		24.9	6.5		5.7	32.1		32.0
	B	E8	5	5	5		8.2			24.8			5.5			31.7	
	C																
	D																
250	A	E9	—	—	—	8.4											
	B	E10	1	1	1		8.2	8.1	24.0	24.6	25.3	6.5	5.7	5.6	31.8	31.7	32.3
	C																
	D																
500	A	E11	—	—	—	—		—	—		—	—		—	—		—
	B	E12	—	—	—		—			—			—			—	
	C																
	D																
	A																
	B																
	C																
	D																
Loaded / measured by:			JD	JD	MF	PPV	BA	MF	PPV	BA	MF	PPV	BA	MF	PPV	BA	MF
Recorded by:			JD	JD	MF	JD	PPV	MF	JD	PPV	MF	JD	PPV	MF	JD	PPV	MF

Investigators' Signatures
Jason Dansish
Brad Hanson
Marshall Fairchild
Patsy Michaud
Erin Wilcox
REVIEWER

Concentrations prepared by: _____
Loading verified by: —
Light Intensity: 50-100 Ft. candles
Photoperiod: 16 hours Light / 8 hours dark
Temperature Range °C:
Incubator # 2 min. 24.0 max. 26.2 mean 25.1
Incubator # ___ min. ___ max. ___ mean ___
Room B246 min. 23.2 max. 24.4 mean 24.1

Remarks:
LC50 - 48hr + 96hr verified by MF 12-15-06

Statistical Results: 157.17 Method: Spearman-Karber
48 (96) hour LC50: 140.34 BA
95% Confidence Interval: lower 114.99 upper 179.25
129.14

Revised 02/21/06

Page 000067

Appendix C. (continued)

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

DATE: 11-28-06 DURATION: 48 h TOXICANT : $CdCl_2$
SPECIES: *A. bahia*

RAW DATA: Concentration --- ---- (ug/L)	Number Exposed	Mortalities
0	20	0
20	20	0
30	20	0
45	20	5
67	20	15
100	20	20

SPEARMAN-KARBER TRIM: .00%

SPEARMAN-KARBER ESTIMATES: **LC50: 54.87**
95% LOWER CONFIDENCE: 49.17
95% UPPER CONFIDENCE: 61.24

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

DATE: 11-28-06 DURATION: 48 h TOXICANT : $CuCl_2$
SPECIES: *M. beryllina*

RAW DATA: Concentration --- ---- (ug/L)	Number Exposed	Mortalities
0	20	0
31.25	20	1
62.50	20	3
125.00	20	5
250.00	20	19
500.00	20	20

SPEARMAN-KARBER TRIM: 5.00%

SPEARMAN-KARBER ESTIMATES: **LC50: 140.31**
95% LOWER CONFIDENCE: 114.82
95% UPPER CONFIDENCE: 171.45

Appendix D. Test Organism Receipts

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

NELAC Accredited

Organism Shipment Record

State of Florida Aquaculture Certificate Number AQ0668007

Date: 11/27/06

Shipped to: T-DEP

P.O. No: _____

Species	Quantity	Age	Brood Number	Temperature	Salinity
Mysidopsis bahia	150+	4 Days	M5061123	25°C	~20‰
Menidia beryllina	150+	9 Days	SSC06118	25°C	~20‰
Cyprinella leedsi	150+	12 Days	CL061115	25°C	
Pimephales promelas	150+	7 Days	FM061120-1530	25°C	

Packed by: Frank Gonzi

Shipped Via: FedEx

Notes: _____

Thank you for your order

Appendix D. (continued)

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

NELAC Accredited

Organism Shipment Record

State of Florida Aquaculture Certificate Number AQ0668007

Date: 12/4/06

Shipped to: T-DEP

P.O. No: _____

Species	Quantity	Age	Brood Number	Temperature	Salinity
Mysidopsis bahia	150+	4 Days	MS061130	25°C	~30‰
	250+	6 Days	MS061128	25°C	~30‰
Menidia beryllina	150+	12 Days	SS061120	25°C	~20‰
	250+	9 Days	SS061175	25°C	~30‰
Cyprinella leedsi					
Pimephales promelas					

Packed by: Frank Gonzi

Shipped Via: FedEx

Notes: _____

Thank you for your order.

Appendix E. Chemical Analyses performed on the effluent from the City of Venice Reverse Osmosis WTP Outfall D-002, sampled on December 4, 2006.

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
12/4/2006 10:15	Outfall D-002	Bio-AGP/LimNut	Algal Growth Potential-Salinity Adjusted	3	mg DryWt/L	U	3	3
12/4/2006 10:15	Outfall D-002	Bio-BOD	Biochemical Oxygen Demand-5 Day,N-Inhib	1.2	mg/L	I	0.2	2
12/4/2006 10:15	Outfall D-002	Bio-Chl-a	Chlorophyll-A, Monochromatic, Water	0.85	ug/L	U	0.85	2.6
12/4/2006 10:15	Outfall D-002	Bio-Chl-a	Phaeophytin-A, Monochromatic, Water	1.5	ug/L	U	1.5	4.5
12/4/2006 10:15	Outfall D-002	Bio-Toxicology	Bioassay-Acute-Screen-SW-Fish, LC50	100	LC50	L		
12/4/2006 10:15	Outfall D-002	Bio-Toxicology	Bioassay-Acute-Screen-SW-Mysid, LC50	100	LC50	K		
12/4/2006 10:15	Outfall D-002	BNA-Water	1,2,4-Trichlorobenzene	0.95	ug/L	U	0.95	3.8
12/4/2006 10:15	Outfall D-002	BNA-Water	1,2-Dichlorobenzene	0.95	ug/L	U	0.95	3.8
12/4/2006 10:15	Outfall D-002	BNA-Water	1,3-Dichlorobenzene	0.95	ug/L	U	0.95	3.8
12/4/2006 10:15	Outfall D-002	BNA-Water	1,4-Dichlorobenzene	0.95	ug/L	U	0.95	3.8
12/4/2006 10:15	Outfall D-002	BNA-Water	2,4,6-Trichlorophenol	0.95	ug/L	U	0.95	3.8
12/4/2006 10:15	Outfall D-002	BNA-Water	2,4-Dichlorophenol	0.95	ug/L	U	0.95	3.8
12/4/2006 10:15	Outfall D-002	BNA-Water	2,4-Dimethylphenol	48	ug/L	U	48	190
12/4/2006 10:15	Outfall D-002	BNA-Water	2,4-Dinitrophenol	14	ug/L	U	14	57
12/4/2006 10:15	Outfall D-002	BNA-Water	2,4-Dinitrotoluene	0.95	ug/L	U	0.95	3.8
12/4/2006 10:15	Outfall D-002	BNA-Water	2,6-Dinitrotoluene	0.95	ug/L	U	0.95	3.8
12/4/2006 10:15	Outfall D-002	BNA-Water	2-Chloronaphthalene	0.95	ug/L	U	0.95	3.8
12/4/2006 10:15	Outfall D-002	BNA-Water	2-Chlorophenol	0.95	ug/L	U	0.95	3.8
12/4/2006 10:15	Outfall D-002	BNA-Water	2-Methyl-4,6-dinitrophenol	2.9	ug/L	U	2.9	11
12/4/2006 10:15	Outfall D-002	BNA-Water	2-Nitrophenol	0.95	ug/L	U	0.95	3.8
12/4/2006 10:15	Outfall D-002	BNA-Water	3,3'-Dichlorobenzidine	38	ug/L	UJ	38	150
12/4/2006 10:15	Outfall D-002	BNA-Water	4,4'-DDD	1.4	ug/L	UJ	1.4	5.7
12/4/2006 10:15	Outfall D-002	BNA-Water	4,4'-DDE	1.4	ug/L	UJ	1.4	5.7
12/4/2006 10:15	Outfall D-002	BNA-Water	4,4'-DDT	1.4	ug/L	UJ	1.4	5.7
12/4/2006 10:15	Outfall D-002	BNA-Water	4-Bromophenyl phenyl ether	0.95	ug/L	U	0.95	3.8
12/4/2006 10:15	Outfall D-002	BNA-Water	4-Chloro-3-methylphenol	0.95	ug/L	U	0.95	3.8
12/4/2006 10:15	Outfall D-002	BNA-Water	4-Chlorophenyl phenyl ether	1.9	ug/L	U	1.9	7.6
12/4/2006 10:15	Outfall D-002	BNA-Water	4-Nitrophenol	14	ug/L	U	14	57
12/4/2006 10:15	Outfall D-002	BNA-Water	Acenaphthene	0.95	ug/L	U	0.95	3.8
12/4/2006 10:15	Outfall D-002	BNA-Water	Acenaphthylene	0.95	ug/L	U	0.95	3.8
12/4/2006 10:15	Outfall D-002	BNA-Water	Aldrin	1.4	ug/L	UJ	1.4	5.7
12/4/2006 10:15	Outfall D-002	BNA-Water	Anthracene	0.95	ug/L	U	0.95	3.8
12/4/2006 10:15	Outfall D-002	BNA-Water	Benzidine	95	ug/L	U	95	380
12/4/2006 10:15	Outfall D-002	BNA-Water	Benzo(a)anthracene	0.95	ug/L	U	0.95	3.8
12/4/2006 10:15	Outfall D-002	BNA-Water	Benzo(a)pyrene	0.95	ug/L	U	0.95	3.8
12/4/2006 10:15	Outfall D-002	BNA-Water	Benzo(b)fluoranthene	0.95	ug/L	U	0.95	3.8

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
12/4/2006 10:15	Outfall D-002	BNA-Water	Benzo(g,h,i)perylene	0.95	ug/L	U	0.95	3.8
12/4/2006 10:15	Outfall D-002	BNA-Water	Benzo(k)fluoranthene	0.95	ug/L	U	0.95	3.8
12/4/2006 10:15	Outfall D-002	BNA-Water	Bis(2-chloroethoxy)methane	0.95	ug/L	U	0.95	3.8
12/4/2006 10:15	Outfall D-002	BNA-Water	Bis(2-chloroethyl)ether	0.95	ug/L	U	0.95	3.8
12/4/2006 10:15	Outfall D-002	BNA-Water	Bis(2-chloroisopropyl)ether	2.9	ug/L	U	2.9	11
12/4/2006 10:15	Outfall D-002	BNA-Water	Bis(2-ethylhexyl)phthalate	14	ug/L	U	14	57
12/4/2006 10:15	Outfall D-002	BNA-Water	Butyl benzyl phthalate	4.8	ug/L	U	4.8	19
12/4/2006 10:15	Outfall D-002	BNA-Water	Chrysene	0.95	ug/L	U	0.95	3.8
12/4/2006 10:15	Outfall D-002	BNA-Water	Di-n-butyl phthalate	4.8	ug/L	U	4.8	19
12/4/2006 10:15	Outfall D-002	BNA-Water	Di-n-octyl phthalate	0.95	ug/L	U	0.95	3.8
12/4/2006 10:15	Outfall D-002	BNA-Water	Dibenzo(a,h)anthracene	0.95	ug/L	U	0.95	3.8
12/4/2006 10:15	Outfall D-002	BNA-Water	Dieldrin	1.4	ug/L	UJ	1.4	5.7
12/4/2006 10:15	Outfall D-002	BNA-Water	Diethyl phthalate	0.95	ug/L	U	0.95	3.8
12/4/2006 10:15	Outfall D-002	BNA-Water	Dimethyl phthalate	48	ug/L	U	48	190
12/4/2006 10:15	Outfall D-002	BNA-Water	Endosulfan I	3.8	ug/L	U	3.8	15
12/4/2006 10:15	Outfall D-002	BNA-Water	Endosulfan II	3.8	ug/L	UJ	3.8	15
12/4/2006 10:15	Outfall D-002	BNA-Water	Endosulfan sulfate	1.4	ug/L	UJ	1.4	5.7
12/4/2006 10:15	Outfall D-002	BNA-Water	Endrin	1.4	ug/L	UJ	1.4	5.7
12/4/2006 10:15	Outfall D-002	BNA-Water	Endrin aldehyde	3.8	ug/L	UJ	3.8	15
12/4/2006 10:15	Outfall D-002	BNA-Water	Fluoranthene	0.95	ug/L	U	0.95	3.8
12/4/2006 10:15	Outfall D-002	BNA-Water	Fluorene	0.95	ug/L	U	0.95	3.8
12/4/2006 10:15	Outfall D-002	BNA-Water	Heptachlor	1.4	ug/L	U	1.4	5.7
12/4/2006 10:15	Outfall D-002	BNA-Water	Heptachlor epoxide	1.4	ug/L	U	1.4	5.7
12/4/2006 10:15	Outfall D-002	BNA-Water	Hexachlorobenzene	0.95	ug/L	U	0.95	3.8
12/4/2006 10:15	Outfall D-002	BNA-Water	Hexachlorobutadiene	2.9	ug/L	U	2.9	11
12/4/2006 10:15	Outfall D-002	BNA-Water	Hexachlorocyclopentadiene	2.9	ug/L	U	2.9	11
12/4/2006 10:15	Outfall D-002	BNA-Water	Hexachloroethane	2.9	ug/L	U	2.9	11
12/4/2006 10:15	Outfall D-002	BNA-Water	Indeno(1,2,3-cd)pyrene	0.95	ug/L	U	0.95	3.8
12/4/2006 10:15	Outfall D-002	BNA-Water	Isophorone	0.95	ug/L	U	0.95	3.8
12/4/2006 10:15	Outfall D-002	BNA-Water	N-Nitrosodi-n-propylamine	1.9	ug/L	U	1.9	7.6
12/4/2006 10:15	Outfall D-002	BNA-Water	N-Nitrosodimethylamine	1.9	ug/L	U	1.9	7.6
12/4/2006 10:15	Outfall D-002	BNA-Water	N-Nitrosodiphenylamine/ Diphenylamine	2.9	ug/mL	UJ	2.9	11
12/4/2006 10:15	Outfall D-002	BNA-Water	Naphthalene	0.95	ug/L	U	0.95	3.8
12/4/2006 10:15	Outfall D-002	BNA-Water	Nitrobenzene	1.9	ug/L	U	1.9	7.6
12/4/2006 10:15	Outfall D-002	BNA-Water	Pentachlorophenol	2.9	ug/L	U	2.9	11
12/4/2006 10:15	Outfall D-002	BNA-Water	Phenanthrene	0.95	ug/L	U	0.95	3.8
12/4/2006 10:15	Outfall D-002	BNA-Water	Phenol	0.95	ug/L	U	0.95	3.8

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
12/4/2006 10:15	Outfall D-002	BNA-Water	Pyrene	0.95	ug/L	U	0.95	3.8
12/4/2006 10:15	Outfall D-002	BNA-Water	alpha-BHC	1.4	ug/L	UJ	1.4	5.7
12/4/2006 10:15	Outfall D-002	BNA-Water	beta-BHC	1.4	ug/L	U	1.4	5.7
12/4/2006 10:15	Outfall D-002	BNA-Water	delta-BHC	1.4	ug/L	UJ	1.4	5.7
12/4/2006 10:15	Outfall D-002	BNA-Water	gamma-BHC	1.4	ug/L	U	1.4	5.7
12/4/2006 13:30	Field Blank	BNA-Water	1,2,4-Trichlorobenzene	0.96	ug/L	U	0.96	3.8
12/4/2006 13:30	Field Blank	BNA-Water	1,2-Dichlorobenzene	0.96	ug/L	U	0.96	3.8
12/4/2006 13:30	Field Blank	BNA-Water	1,3-Dichlorobenzene	0.96	ug/L	U	0.96	3.8
12/4/2006 13:30	Field Blank	BNA-Water	1,4-Dichlorobenzene	0.96	ug/L	U	0.96	3.8
12/4/2006 13:30	Field Blank	BNA-Water	2,4,6-Trichlorophenol	0.96	ug/L	U	0.96	3.8
12/4/2006 13:30	Field Blank	BNA-Water	2,4-Dichlorophenol	0.96	ug/L	U	0.96	3.8
12/4/2006 13:30	Field Blank	BNA-Water	2,4-Dimethylphenol	48	ug/L	U	48	190
12/4/2006 13:30	Field Blank	BNA-Water	2,4-Dinitrophenol	14	ug/L	U	14	58
12/4/2006 13:30	Field Blank	BNA-Water	2,4-Dinitrotoluene	0.96	ug/L	U	0.96	3.8
12/4/2006 13:30	Field Blank	BNA-Water	2,6-Dinitrotoluene	0.96	ug/L	U	0.96	3.8
12/4/2006 13:30	Field Blank	BNA-Water	2-Chloronaphthalene	0.96	ug/L	U	0.96	3.8
12/4/2006 13:30	Field Blank	BNA-Water	2-Chlorophenol	0.96	ug/L	U	0.96	3.8
12/4/2006 13:30	Field Blank	BNA-Water	2-Methyl-4,6-dinitrophenol	2.9	ug/L	U	2.9	12
12/4/2006 13:30	Field Blank	BNA-Water	2-Nitrophenol	0.96	ug/L	U	0.96	3.8
12/4/2006 13:30	Field Blank	BNA-Water	3,3'-Dichlorobenzidine	38	ug/L	UJ	38	150
12/4/2006 13:30	Field Blank	BNA-Water	4,4'-DDD	1.4	ug/L	UJ	1.4	5.8
12/4/2006 13:30	Field Blank	BNA-Water	4,4'-DDE	1.4	ug/L	UJ	1.4	5.8
12/4/2006 13:30	Field Blank	BNA-Water	4,4'-DDT	1.4	ug/L	UJ	1.4	5.8
12/4/2006 13:30	Field Blank	BNA-Water	4-Bromophenyl phenyl ether	0.96	ug/L	U	0.96	3.8
12/4/2006 13:30	Field Blank	BNA-Water	4-Chloro-3-methylphenol	0.96	ug/L	U	0.96	3.8
12/4/2006 13:30	Field Blank	BNA-Water	4-Chlorophenyl phenyl ether	1.9	ug/L	U	1.9	7.7
12/4/2006 13:30	Field Blank	BNA-Water	4-Nitrophenol	14	ug/L	U	14	58
12/4/2006 13:30	Field Blank	BNA-Water	Acenaphthene	0.96	ug/L	U	0.96	3.8
12/4/2006 13:30	Field Blank	BNA-Water	Acenaphthylene	0.96	ug/L	U	0.96	3.8
12/4/2006 13:30	Field Blank	BNA-Water	Aldrin	1.4	ug/L	UJ	1.4	5.8
12/4/2006 13:30	Field Blank	BNA-Water	Anthracene	0.96	ug/L	U	0.96	3.8
12/4/2006 13:30	Field Blank	BNA-Water	Benzidine	96	ug/L	U	96	380
12/4/2006 13:30	Field Blank	BNA-Water	Benzo(a)anthracene	0.96	ug/L	U	0.96	3.8
12/4/2006 13:30	Field Blank	BNA-Water	Benzo(a)pyrene	0.96	ug/L	U	0.96	3.8
12/4/2006 13:30	Field Blank	BNA-Water	Benzo(b)fluoranthene	0.96	ug/L	U	0.96	3.8
12/4/2006 13:30	Field Blank	BNA-Water	Benzo(g,h,i)perylene	0.96	ug/L	U	0.96	3.8
12/4/2006 13:30	Field Blank	BNA-Water	Benzo(k)fluoranthene	0.96	ug/L	U	0.96	3.8

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
12/4/2006 13:30	Field Blank	BNA-Water	Bis(2-chloroethoxy)methane	0.96	ug/L	U	0.96	3.8
12/4/2006 13:30	Field Blank	BNA-Water	Bis(2-chloroethyl)ether	0.96	ug/L	U	0.96	3.8
12/4/2006 13:30	Field Blank	BNA-Water	Bis(2-chloroisopropyl)ether	2.9	ug/L	U	2.9	12
12/4/2006 13:30	Field Blank	BNA-Water	Bis(2-ethylhexyl)phthalate	14	ug/L	U	14	58
12/4/2006 13:30	Field Blank	BNA-Water	Butyl benzyl phthalate	4.8	ug/L	U	4.8	19
12/4/2006 13:30	Field Blank	BNA-Water	Chrysene	0.96	ug/L	U	0.96	3.8
12/4/2006 13:30	Field Blank	BNA-Water	Di-n-butyl phthalate	4.8	ug/L	U	4.8	19
12/4/2006 13:30	Field Blank	BNA-Water	Di-n-octyl phthalate	0.96	ug/L	U	0.96	3.8
12/4/2006 13:30	Field Blank	BNA-Water	Dibenzo(a,h)anthracene	0.96	ug/L	U	0.96	3.8
12/4/2006 13:30	Field Blank	BNA-Water	Dieldrin	1.4	ug/L	UJ	1.4	5.8
12/4/2006 13:30	Field Blank	BNA-Water	Diethyl phthalate	0.96	ug/L	U	0.96	3.8
12/4/2006 13:30	Field Blank	BNA-Water	Dimethyl phthalate	48	ug/L	U	48	190
12/4/2006 13:30	Field Blank	BNA-Water	Endosulfan I	3.8	ug/L	U	3.8	15
12/4/2006 13:30	Field Blank	BNA-Water	Endosulfan II	3.8	ug/L	UJ	3.8	15
12/4/2006 13:30	Field Blank	BNA-Water	Endosulfan sulfate	1.4	ug/L	UJ	1.4	5.8
12/4/2006 13:30	Field Blank	BNA-Water	Endrin	1.4	ug/L	UJ	1.4	5.8
12/4/2006 13:30	Field Blank	BNA-Water	Endrin aldehyde	3.8	ug/L	UJ	3.8	15
12/4/2006 13:30	Field Blank	BNA-Water	Fluoranthene	0.96	ug/L	U	0.96	3.8
12/4/2006 13:30	Field Blank	BNA-Water	Fluorene	0.96	ug/L	U	0.96	3.8
12/4/2006 13:30	Field Blank	BNA-Water	Heptachlor	1.4	ug/L	U	1.4	5.8
12/4/2006 13:30	Field Blank	BNA-Water	Heptachlor epoxide	1.4	ug/L	U	1.4	5.8
12/4/2006 13:30	Field Blank	BNA-Water	Hexachlorobenzene	0.96	ug/L	U	0.96	3.8
12/4/2006 13:30	Field Blank	BNA-Water	Hexachlorobutadiene	2.9	ug/L	U	2.9	12
12/4/2006 13:30	Field Blank	BNA-Water	Hexachlorocyclopentadiene	2.9	ug/L	U	2.9	12
12/4/2006 13:30	Field Blank	BNA-Water	Hexachloroethane	2.9	ug/L	U	2.9	12
12/4/2006 13:30	Field Blank	BNA-Water	Indeno(1,2,3-cd)pyrene	0.96	ug/L	U	0.96	3.8
12/4/2006 13:30	Field Blank	BNA-Water	Isophorone	0.96	ug/L	U	0.96	3.8
12/4/2006 13:30	Field Blank	BNA-Water	N-Nitrosodi-n-propylamine	1.9	ug/L	U	1.9	7.7
12/4/2006 13:30	Field Blank	BNA-Water	N-Nitrosodimethylamine	1.9	ug/L	U	1.9	7.7
12/4/2006 13:30	Field Blank	BNA-Water	N-Nitrosodiphenylamine/ Diphenylamine	2.9	ug/mL	UJ	2.9	12
12/4/2006 13:30	Field Blank	BNA-Water	Naphthalene	0.96	ug/L	U	0.96	3.8
12/4/2006 13:30	Field Blank	BNA-Water	Nitrobenzene	1.9	ug/L	U	1.9	7.7
12/4/2006 13:30	Field Blank	BNA-Water	Pentachlorophenol	2.9	ug/L	U	2.9	12
12/4/2006 13:30	Field Blank	BNA-Water	Phenanthrene	0.96	ug/L	U	0.96	3.8
12/4/2006 13:30	Field Blank	BNA-Water	Phenol	0.96	ug/L	U	0.96	3.8
12/4/2006 13:30	Field Blank	BNA-Water	Pyrene	0.96	ug/L	U	0.96	3.8
12/4/2006 13:30	Field Blank	BNA-Water	alpha-BHC	1.4	ug/L	UJ	1.4	5.8

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
12/4/2006 13:30	Field Blank	BNA-Water	beta-BHC	1.4	ug/L	U	1.4	5.8
12/4/2006 13:30	Field Blank	BNA-Water	delta-BHC	1.4	ug/L	UJ	1.4	5.8
12/4/2006 13:30	Field Blank	BNA-Water	gamma-BHC	1.4	ug/L	U	1.4	5.8
12/4/2006 10:15	Outfall D-002	GC-Water	Alachlor	0.59	ug/L	UJ	0.59	2.4
12/4/2006 10:15	Outfall D-002	GC-Water	Ametryn	0.05	ug/L	U	0.05	0.2
12/4/2006 10:15	Outfall D-002	GC-Water	Atrazine	0.05	ug/L	U	0.05	0.2
12/4/2006 10:15	Outfall D-002	GC-Water	Azinphos Methyl	0.2	ug/L	UJ	0.2	0.8
12/4/2006 10:15	Outfall D-002	GC-Water	Bromacil	0.2	ug/L	UJ	0.2	0.8
12/4/2006 10:15	Outfall D-002	GC-Water	Butylate	0.2	ug/L	UJ	0.2	0.8
12/4/2006 10:15	Outfall D-002	GC-Water	Chlorpyrifos Ethyl	0.05	ug/L	U	0.05	0.2
12/4/2006 10:15	Outfall D-002	GC-Water	Chlorpyrifos Methyl	0.099	ug/L	UJ	0.099	0.4
12/4/2006 10:15	Outfall D-002	GC-Water	Diazinon	0.05	ug/L	U	0.05	0.2
12/4/2006 10:15	Outfall D-002	GC-Water	Ethion	0.05	ug/L	U	0.05	0.2
12/4/2006 10:15	Outfall D-002	GC-Water	Ethoprop	0.099	ug/L	U	0.099	0.4
12/4/2006 10:15	Outfall D-002	GC-Water	Fenamiphos	0.2	ug/L	U	0.2	0.8
12/4/2006 10:15	Outfall D-002	GC-Water	Fonofos	0.099	ug/L	U	0.099	0.4
12/4/2006 10:15	Outfall D-002	GC-Water	Hexazinone	0.099	ug/L	UJ	0.099	0.4
12/4/2006 10:15	Outfall D-002	GC-Water	Malathion	0.15	ug/L	U	0.15	0.6
12/4/2006 10:15	Outfall D-002	GC-Water	Metalaxyl	0.25	ug/L	U	0.25	1
12/4/2006 10:15	Outfall D-002	GC-Water	Metolachlor	0.5	ug/L	U	0.5	2
12/4/2006 10:15	Outfall D-002	GC-Water	Metribuzin	0.099	ug/L	U	0.099	0.4
12/4/2006 10:15	Outfall D-002	GC-Water	Mevinphos	0.2	ug/L	U	0.2	0.8
12/4/2006 10:15	Outfall D-002	GC-Water	Naled	0.79	ug/L	U	0.79	3.2
12/4/2006 10:15	Outfall D-002	GC-Water	Norflurazon	0.15	ug/L	UJ	0.15	0.6
12/4/2006 10:15	Outfall D-002	GC-Water	Parathion Ethyl	0.15	ug/L	U	0.15	0.6
12/4/2006 10:15	Outfall D-002	GC-Water	Parathion Methyl	0.099	ug/L	U	0.099	0.4
12/4/2006 10:15	Outfall D-002	GC-Water	Phorate	0.05	ug/L	U	0.05	0.2
12/4/2006 10:15	Outfall D-002	GC-Water	Prometryn	0.15	ug/L	UJ	0.15	0.6
12/4/2006 10:15	Outfall D-002	GC-Water	Simazine	0.05	ug/L	U	0.05	0.2
12/4/2006 13:30	Field Blank	GC-Water	Alachlor	0.58	ug/L	UJ	0.58	2.3
12/4/2006 13:30	Field Blank	GC-Water	Ametryn	0.049	ug/L	U	0.049	0.2
12/4/2006 13:30	Field Blank	GC-Water	Atrazine	0.049	ug/L	U	0.049	0.2
12/4/2006 13:30	Field Blank	GC-Water	Azinphos Methyl	0.19	ug/L	UJ	0.19	0.76
12/4/2006 13:30	Field Blank	GC-Water	Bromacil	0.19	ug/L	UJ	0.19	0.76
12/4/2006 13:30	Field Blank	GC-Water	Butylate	0.19	ug/L	UJ	0.19	0.76
12/4/2006 13:30	Field Blank	GC-Water	Chlorpyrifos Ethyl	0.049	ug/L	U	0.049	0.2
12/4/2006 13:30	Field Blank	GC-Water	Chlorpyrifos Methyl	0.097	ug/L	UJ	0.097	0.39

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
12/4/2006 13:30	Field Blank	GC-Water	Diazinon	0.049	ug/L	U	0.049	0.2
12/4/2006 13:30	Field Blank	GC-Water	Ethion	0.049	ug/L	U	0.049	0.2
12/4/2006 13:30	Field Blank	GC-Water	Ethoprop	0.097	ug/L	U	0.097	0.39
12/4/2006 13:30	Field Blank	GC-Water	Fenamiphos	0.19	ug/L	U	0.19	0.76
12/4/2006 13:30	Field Blank	GC-Water	Fonofos	0.097	ug/L	U	0.097	0.39
12/4/2006 13:30	Field Blank	GC-Water	Hexazinone	0.097	ug/L	UJ	0.097	0.39
12/4/2006 13:30	Field Blank	GC-Water	Malathion	0.15	ug/L	U	0.15	0.6
12/4/2006 13:30	Field Blank	GC-Water	Metalaxyl	0.24	ug/L	U	0.24	0.96
12/4/2006 13:30	Field Blank	GC-Water	Metolachlor	0.49	ug/L	U	0.49	2
12/4/2006 13:30	Field Blank	GC-Water	Metribuzin	0.097	ug/L	U	0.097	0.39
12/4/2006 13:30	Field Blank	GC-Water	Mevinphos	0.19	ug/L	U	0.19	0.76
12/4/2006 13:30	Field Blank	GC-Water	Naled	0.78	ug/L	U	0.78	3.1
12/4/2006 13:30	Field Blank	GC-Water	Norflurazon	0.15	ug/L	UJ	0.15	0.6
12/4/2006 13:30	Field Blank	GC-Water	Parathion Ethyl	0.15	ug/L	U	0.15	0.6
12/4/2006 13:30	Field Blank	GC-Water	Parathion Methyl	0.097	ug/L	U	0.097	0.39
12/4/2006 13:30	Field Blank	GC-Water	Phorate	0.049	ug/L	U	0.049	0.2
12/4/2006 13:30	Field Blank	GC-Water	Prometryn	0.15	ug/L	UJ	0.15	0.6
12/4/2006 13:30	Field Blank	GC-Water	Simazine	0.049	ug/L	U	0.049	0.2
12/4/2006 10:15	Outfall D-002	Metals-Water	Aluminum	4	ug/L	U	4	16
12/4/2006 10:15	Outfall D-002	Metals-Water	Arsenic	2.7	ug/L		0.5	2
12/4/2006 10:15	Outfall D-002	Metals-Water	Cadmium	0.05	ug/L	U	0.05	0.2
12/4/2006 10:15	Outfall D-002	Metals-Water	Calcium	738	mg/L		0.2	0.8
12/4/2006 10:15	Outfall D-002	Metals-Water	Chromium	3.5	ug/L	U	3.5	14
12/4/2006 10:15	Outfall D-002	Metals-Water	Copper	0.6	ug/L	U	0.6	2.4
12/4/2006 10:15	Outfall D-002	Metals-Water	Iron	5	ug/L	U	5	20
12/4/2006 10:15	Outfall D-002	Metals-Water	Lead	0.2	ug/L	U	0.2	0.8
12/4/2006 10:15	Outfall D-002	Metals-Water	Magnesium	305	mg/L		0.05	0.2
12/4/2006 10:15	Outfall D-002	Metals-Water	Nickel	1	ug/L	U	1	4
12/4/2006 10:15	Outfall D-002	Metals-Water	Selenium	0.5	ug/L	U	0.5	2
12/4/2006 10:15	Outfall D-002	Metals-Water	Silver	0.025	ug/L	U	0.025	0.1
12/4/2006 10:15	Outfall D-002	Metals-Water	Zinc	3	ug/L	U	3	12
12/4/2006 13:30	Field Blank	Metals-Water	Aluminum	4	ug/L	U	4	16
12/4/2006 13:30	Field Blank	Metals-Water	Arsenic	0.5	ug/L	U	0.5	2
12/4/2006 13:30	Field Blank	Metals-Water	Cadmium	0.05	ug/L	U	0.05	0.2
12/4/2006 13:30	Field Blank	Metals-Water	Calcium	0.02	mg/L	U	0.02	0.08
12/4/2006 13:30	Field Blank	Metals-Water	Chromium	0.3	ug/L	U	0.3	1.2
12/4/2006 13:30	Field Blank	Metals-Water	Copper	0.22	ug/L	U	0.22	0.88

Appendix E. (continued)

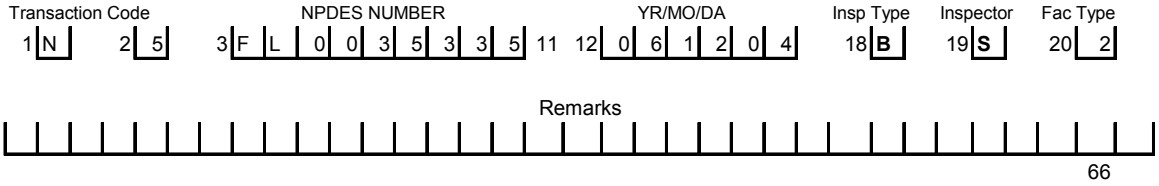
Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
12/4/2006 13:30	Field Blank	Metals-Water	Iron	5	ug/L	U	5	20
12/4/2006 13:30	Field Blank	Metals-Water	Lead	0.2	ug/L	U	0.2	0.8
12/4/2006 13:30	Field Blank	Metals-Water	Magnesium	0.005	mg/L	U	0.005	0.02
12/4/2006 13:30	Field Blank	Metals-Water	Nickel	1	ug/L	U	1	4
12/4/2006 13:30	Field Blank	Metals-Water	Selenium	0.5	ug/L	U	0.5	2
12/4/2006 13:30	Field Blank	Metals-Water	Silver	0.025	ug/L	U	0.025	0.1
12/4/2006 13:30	Field Blank	Metals-Water	Zinc	3	ug/L	U	3	12
12/4/2006 10:15	Outfall D-002	Nutrients-Liquid	Ammonia-N	0.58	mg N/L		0.01	0.02
12/4/2006 10:15	Outfall D-002	Nutrients-Liquid	Chloride	590	mg Cl/L		40	100
12/4/2006 10:15	Outfall D-002	Nutrients-Liquid	Fluoride	3.3	mg F/L		0.05	0.1
12/4/2006 10:15	Outfall D-002	Nutrients-Liquid	Kjeldahl Nitrogen	0.96	mg N/L		0.16	0.4
12/4/2006 10:15	Outfall D-002	Nutrients-Liquid	NO2NO3-N	0.036	mg N/L		0.004	0.01
12/4/2006 10:15	Outfall D-002	Nutrients-Liquid	O-Phosphate-P	0.006	mg P/L	I	0.004	0.01
12/4/2006 10:15	Outfall D-002	Nutrients-Liquid	Organic Carbon	5.6	mg C/L	I	2	10
12/4/2006 10:15	Outfall D-002	Nutrients-Liquid	Organic Carbon	6.2	mg C/L	I	2	10
12/4/2006 10:15	Outfall D-002	Nutrients-Liquid	Specific_Conductance	5.32E+03	umhos/cm		2	8
12/4/2006 10:15	Outfall D-002	Nutrients-Liquid	Sulfide	0.33	mg S/L	A	0.05	0.2
12/4/2006 10:15	Outfall D-002	Nutrients-Liquid	TSS	4	mg/L	U	4	16
12/4/2006 10:15	Outfall D-002	Nutrients-Liquid	Total-P	0.02	mg P/L	U	0.02	0.06
12/4/2006 10:15	Outfall D-002	Nutrients-Liquid	Turbidity	9.6	NTU		0.05	0.05
12/4/2006 13:30	Field Blank	Nutrients-Liquid	Ammonia-N	0.01	mg N/L	U	0.01	0.02
12/4/2006 13:30	Field Blank	Nutrients-Liquid	Chloride	0.2	mg Cl/L	U	0.2	0.5
12/4/2006 13:30	Field Blank	Nutrients-Liquid	Fluoride	0.05	mg F/L	U	0.05	0.1
12/4/2006 13:30	Field Blank	Nutrients-Liquid	Kjeldahl Nitrogen	0.08	mg N/L	U	0.08	0.2
12/4/2006 13:30	Field Blank	Nutrients-Liquid	NO2NO3-N	0.004	mg N/L	U	0.004	0.01
12/4/2006 13:30	Field Blank	Nutrients-Liquid	O-Phosphate-P	0.004	mg P/L	U	0.004	0.01
12/4/2006 13:30	Field Blank	Nutrients-Liquid	Sulfide	0.05	mg S/L	U	0.05	0.2
12/4/2006 13:30	Field Blank	Nutrients-Liquid	Total-P	0.02	mg P/L	U	0.02	0.06
12/4/2006 10:15	Outfall D-002	Overflow	Alpha, Total	17.1	pCi/L			
12/4/2006 10:15	Outfall D-002	Overflow	Alpha-Counting Error	8.7	pCi/L			
12/4/2006 10:15	Outfall D-002	Overflow	Radium 226	1.8	pCi/L			
12/4/2006 10:15	Outfall D-002	Overflow	Radium 226-Counting Error	0.2	pCi/L			
12/4/2006 10:15	Outfall D-002	Overflow	Radium 228	1	pCi/L	U		
12/4/2006 10:15	Outfall D-002	Overflow	Radium 228-Counting Error	0.7	pCi/L			
12/4/2006 13:30	Field Blank	Overflow	Alpha, Total	0.6	pCi/L			
12/4/2006 13:30	Field Blank	Overflow	Alpha-Counting Error	0.5	pCi/L			
12/4/2006 13:30	Field Blank	Overflow	Radium 226	0.2	pCi/L	U		

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
12/4/2006 13:30	Field Blank	Overflow	Radium 226-Counting Error	0.1	pCi/L			
12/4/2006 13:30	Field Blank	Overflow	Radium 228	0.9	pCi/L	U		
12/4/2006 13:30	Field Blank	Overflow	Radium 228-Counting Error	0.5	pCi/L			

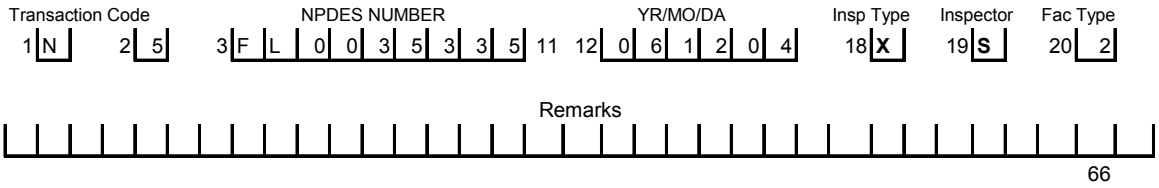
The Bioassay of City of Venice Reverse Osmosis WTP effluent sampled on December 4, 2006. NPDES #FL0035335.

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



The Priority Pollutants Analysis of City of Venice Reverse Osmosis WTP effluent sampled on December 4, 2006. NPDES #FL0035335.

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



Biological Analyses of City of Venice Reverse Osmosis WTP effluent sampled on December 4, 2006. NPDES #FL0035335.

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

