

Effluent Quality Assessment

City Industries Ground Water Remediation

Orange County

NPDES # FL0043265

Sampled January 12, 2009

May 2009

Biology Section
Bureau of Laboratories
Division of Environmental Assessment and Restoration

Quality Manual No. 870346G
NELAC Certification No. E31780

City Industries Ground Water Remediation, 3825 Forsyth Road, Winter Park, Orange County, Florida, 32792. NPDES # FL0043265. Effluent samples for this facility were collected on January 12, 2009.

Introduction

City Industries Ground Water Remediation is an existing facility which pumps, treats, and discharges groundwater from an EPA Superfund Site. The superfund site is a former solvent recycling facility. The contaminants of interest include trichloroethylene, cis-1, 2-dichloroethene, and vinyl chloride. Analyses were not performed for these constituents during this sampling event. Effluent discharge from the facility is continuous. The facility has a permitted monthly average daily flow of 0.15 million gallons per day (mgd0h a maximum daily flow of 0.17 MGD. The average monthly flow from August 2007 to July 2008 was 0.03 MGD. Wastewater treatment consists of:

- thirteen groundwater wells;
- a piping system;
- a distribution header; and;
- an air stripping tower.

Treatment is part of a remediation plan approved by the EPA, and is not a part of the state's permit. Chlorine is not used at the facility. The treated wastewater is discharged via 15.24 cm (6 in) in diameter, 76 m (250 ft) long pipe through Outfall D-001 to the Class III Freshwaters of the Crane Creek Canal, thence to Union Park Canal, and finally to the Little Econlockhatchee River. Outfall D-001 is located approximately at latitude 28° 36' 5.48" N and longitude 81° 17' 40.25" W.

The facility has no Administrative or Consent Orders. A warning letter (OWL-WW-05-0051, 12/7/2005), was issued which stated: A review of the Discharge Monitoring Reports (DMRs) from October 2004 to July 2005 indicated that Total Phosphorus exceeded the maximum permit limit of 1.6 mg/L and the monthly average permit limit of 1.0 mg/L as follows:

Month	Maximum	Monthly avg.
11/04	1.9 mg/L	---------
4/05	28 mg/L	7.5 mg/L
5/05	1.7 mg/L	1.16 mg/L
7/05	3.3 mg/L	1.27 mg/L

This enforcement case was closed after the facility agreed to modify its treatment process in order to reduce phosphorus levels in the effluent. A review of discharge Monitoring Report (DMR) data (February 2007 through August 2008) showed a violation of permit limits for total recoverable copper in April, 2008 (4.6 µg/L, permitted value 4.4 µg/L).The original DMR data listed the permitted limit of Total Recoverable Copper as 0.00 µg/L, for further details see the CEI below. No other DMR violations were noted. A Compliance Evaluation Inspection (CEI) conducted January 24, 2008, by William Hesser noted that weekly samples were collected only twice in December, 2006. This was due to electrical problems at the facility which prevented additional sampling. The malfunction was reported to the DEP.

The CEI also noted that the total recoverable copper (calculated limit) at EFF-01 was reported as 0.00 µg/L, when it should have been 4.4 µg/L. The Phosphorus levels have declined since the facility modified its treatment process. (Facility information provided by William Hesser of FDEP Central District.)

Methods

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

See Appendix A for the completed chain of custody form.

The 96-hour acute definitive 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.

Toxicity Test Results

Tests were performed January 13 - 17, 2009.

Ceriodaphnia dubia 96-hour acute definitive bioassay –	LC_{50} > 100%, 5% mortality in 100% sample at 96 hours
Cyprinella leedsi 96-hour acute definitive bioassay –	LC_{50} > 100%, 0% mortality in 100% sample at 96 hours

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

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

Algal Growth Potential

The effluent Algal Growth Potential (AGP) was 21.6 mg dry wt/L of the unicellular green alga, *Pseudokirchneriella subcapitata*, formerly known as *Selenastrum capricornutum*. Raschke and Shultz (1987) found that AGP values above 5.0 mg dry weight/L represent a “problem” threshold for fresh receiving waters, implying nutrient enrichment. The analytical chemistry suggests that the effluent is nitrogen-limited. The predicted AGP based on inorganic nitrogen concentrations was 10.5 (±20%) mg dry wt/L (Table 1; Miller et al. 1978).

See Table 1 for AGP results.

Chemistry Results

Total residual chlorine and total ammonia were not detected in the bioassay sample in the laboratory. The total ammonia concentration in the sample collected and preserved for chemical analysis was estimated at 0.057 mg/L. Based on the pH, salinity, and temperature of the effluent as collected, the calculated unionized ammonia concentration was ≤0.02 mg/L.

Iron was detected in the effluent at levels that comply with Class III fresh water quality criteria (62-302.530, F.A.C.). Arsenic and Chromium-III were detected between the laboratory method detection limits (MDL) and practical quantitation limits (PQL). Aluminum, calcium, and magnesium were also detected in the bioassay sample in the laboratory.

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. See Appendix F for bioassay lab equipment.

Conclusion

The effluent sample collected from the EFF-01 NPDES sampling point for Outfall D-001 for this facility on January 12, 2009, was not acutely toxic to either test species during the 96-hour acute definitive bioassays. The effluent AGP result exceeded the "problem” threshold for fresh receiving waters, suggesting that nutrient enrichment may be an issue. Effluent water quality samples did not exceed any applicable water quality standards or violate any permit conditions.

Literature Cited

Miller, W. E., T. E. Maloney, and J. C. Greene. 1978. The *Selenastrum capricornutum* Printz algal assay bottle test. EPA-600/9-78-018. U. S. EPA, Cincinnati, Ohio. 126 p.

Raschke, R. L. and D. A. Schultz. 1987. The use of the algal growth potential test for data assessment. J. Wat. Poll. Cont. Fed. 59(4): 222-227.

Table 1. Measured and predicted algal growth potential (AGP; mg dry weight/L) for total soluble inorganic nitrogen (TSIN) and total nitrogen (TN) limitation of the freshwater species *Pseudokirchneriella subcapitata* for samples collected from the City Industries Groundwater Remediation facility on January 12, 2009.

City Industries Groundwater Remediation NPDES# FL0043265					
Location	**AGP (measured)**	**Predicted AGP (TSIN) ± 20%**	**Predicted AGP (TN) ± 20%**	**Inorganic N:P ratio**	**Total N:P ratio**
Effluent	21.6	10.5 ± 2.1	18.2 ± 3.6	0.4	0.6

Table 2. Effluent limits, Class III Freshwater Criteria and chemical data for samples collected from the City Industries Groundwater Remediation facility on January 12, 2009.

City Industries Groundwater Remediation NPDES# FL0043265	Class III Criteria	Effluent Limits	Effluent	
Organic Constituents (µg/L)				
None Detected	-	-	-	
Metals (µg/L unless otherwise noted)				
Aluminum	-	-	250	
Arsenic	≤ 50	-	0.44	I
Cadmium	≤ 0.2 b	-	0.03	U
Calcium (mg/L)	-	-	16.2	
Chromium-III	≤ 48.1 b	-	0.59	I
Copper	≤ 5.1 b	≤ 5.1 b	0.5	U
Iron	≤ 1,000	≤ 1,000 s	250	
Lead	≤ 1.3 b	-	0.2	U
Magnesium (mg/L)	-	-	2.1	
Nickel	≤ 28.6 b	-	0.25	UF
Selenium	≤ 5.0	-	0.2	U
Silver	≤ 0.07	-	0.01	U
Zinc	≤ 65.6 b	-	5	U
Nutrients (mg/L)				
Ortho-phosphate	-	-	0.69	
Total Phosphorus	-	≤ 1.6 s	0.82	
Total Ammonia	-	-	0.057	J
Un-ionized Ammonia	≤ 0.02 s	≤ 0.02 s	≤ 0.02	c
Nitrate and Nitrite	-	-	0.22	
Total Kjeldahl Nitrogen	-	-	0.26	
Organic Nitrogen	-	-	0.203	c
Total Nitrogen	-	≤ 4.8 s	0.48	c
General Physical and Chemical Parameters				
Dissolved Oxygen (mg/L)	≥ 5.0	≥ 6.0 s	8.3	J
pH (SU)	6.0 - 8.5	6.0 - 8.5	7.1	
Conductivity (µmhos/cm)	≤ 1,275	-	137.9	
Temperature (°C)	-	Report	21.9	
Total Residual Chlorine (mg/L)	≤ 0.01	-	≤ 0.03	£
Chlorophyll *a* (µg/L) - Corrected	-	-	0.55	U
Phaeophytin (µg/L)	-	-	0.24	U
CBOD, 5 day (mg/L), N - inhibited	-	≤ 8.0 s	0.2	U
Flow (MGD)	-	≤ 0.17 s	0.03	
Hardness (mg $CaCO_3$)	-	Report	49.10	c

Value exceeds the Class III Water Quality Criteria or permit limits

b - Value is calculated based on hardness

c - Value is calculated

s - Single sample

F - Analyte was detected in both sample and field blank

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

£ - Measured in Central Laboratories and entered into Tox sheets

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Event ID *

Request Number: RQ-2009-01-05-25
City Industries Groundwater Remediation Treatment

Requester: Jennifer Paris

Field Report Prepared By: KANE

Customer: CEN-DIST

Collected By: KANE, KENT

Send Final Report To ~~Gary Miller~~ PK Ph:1 Kane

Project ID: FYI3

Sampling Agency: FDEP CENTRAL DISTRICT

PMAS: 1143

Lab ID *	Location	Temp (C)	pH	Collection (begin)	Collection (end)	Bottle Group(s)**
	CITY INDUSTRIES 3825 FORSYTH ROAD ORLANDO Field ID: CITY			✓ Grab Date 1/12/09 Time 0847 Eastern Central	~~Collection (end)~~ PK ~~Eastern Central~~ Date Time	
	Matrix (Include type e.g. Salt, Fresh, etc): EFFLUENT	21.86	7.05	Tot Res Chlorine (mg/L)*	Diss Oxygen (mg/L): 8.27	Storet Station Number
	Latitude: 28° 36' 05"	Longitude: 081° 17' 40"		Sample Depth ☐ m ☐ ft: SURFACE 137.9	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number: FL0043265
				Comments: *Chlorine not used by facility		

Lab ID *	Location	Temp (C)	pH	Collection (begin)	Collection (end)	Bottle Group(s)**
	CITY INDUSTRIES 3825 FORSYTH ROAD ORLANDO Field ID: CITY			✓ Grab Date 1/12/09 Time 0900 Eastern Central	~~Collection (end)~~ PK ~~Eastern Central~~ Date Time	
	Matrix (Include type e.g. Salt, Fresh, etc): BIOASSAY FRESH	21.8	7.05	Tot Res Chlorine (mg/L)*	Diss Oxygen (mg/L): 8.27	Storet Station Number
	Latitude: ° ' "	Longitude: ° ' "		Sample Depth ☐ m ☐ ft: SURFACE 137.9	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number: FL0043265
				Comments: *Chlorine not used by facility.		

Lab ID *	Location	Temp (C)	pH	Collection (begin)	Collection (end)	Bottle Group(s)**
	CITY INDUSTRIES 3825 FORSYTH ROAD ORLANDO Field ID: CITY			✓ Grab Date 1/12/09 Time 0911 Eastern Central	~~Collection (end)~~ PK ~~Eastern Central~~ Date Time	
	Matrix (Include type e.g. Salt, Fresh, etc): BLANK			Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number
	Latitude: ° ' "	Longitude: ° ' "		Sample Depth ☐ m ☐ ft: SURFACE	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number: FL0043265
				Comments		

Lab ID *	Location	Temp (C)	pH	Collection (begin)	Collection (end)	Bottle Group(s)**
	Field ID			☐ Grab Date Time Eastern Central	Date Time Eastern Central	
	Matrix (Include type e.g. Salt, Fresh, etc)			Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number
	Latitude: ° ' "	Longitude: ° ' "		Sample Depth ☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number
				Comments: Bioassay Rec'd 1:15 pm by J.D. 1/13/09 10:42		

Relinquished By:	Date/Time	Shipping Method:	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
KANE/KENT	1/12/09	FEDEX		1-13-09 09:50				

* Shaded Areas for Lab use only.

** Please see reverse side for Bottle Group information.

last revised October 1, 2003

FDEP Biology Laboratory - Acute Definitive Bioassay Bench Sheets

Facility: City Industries Groundwater Remediation

Address: 3825 Forsyth Rd

City: Winter Park County: Orange

Contact/District: Orange Bill Hesser / Central

NPDES Permit #: FL 0043265

LIMS Job #: TLH 2009-01-13.83 LIMS Sample #: 1158287

Lims Data Entry: MF 1-21-09 Data Entry Verification: BA 1-21-09

Sample Collection: Date: 1-12-09 Time: 8:47

Hold Time Start: Date: 1-12-09 Time: 8:47

Comments: (A) Transcription error BA 1-20-09

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

Test Type: Definitive

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

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

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

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

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)

Light Intensity : 50 - 100 ft. candles

Photoperiod : 16 light 8 dark

Temperature Range °C:

Incubator # 2 min 25.2 max 26.2 mean 25.7

Incubator # ____ min ____ max ____ mean ____

Room B246 min 24.0 max 25.6 mean 24.8

Investigators' Signatures

James Parish

(A) BA

Amelia Rankin

Marshall Faircloth

Bruce Alexander

Anita C. Wolfe

REVIEWER

Water Quality Parameters	20% DMW	Moderately Hard Water/ (Well Water)	Salt Water ASW NSW Test 1	Salt Water ASW NSW Test 2	Other:	Original Sample	Method	Measured by	Verified by
Field Total Residual Cl_2 (mg/L):	N/A	N/A	N/A	N/A	–	no + measured		BA	
Lab Total Residual Cl_2 (mg/L):	<0.03	<0.03				<0.03	HACH	JD	BA
Alkalinity (mg/L as $CaCO_3$):	82	89 DUP 141				44	HACH	BA/AR	JS
Hardness (mg/L as $CaCO_3$):	113	138				50	HACH	BA/AR	JD
Total Ammonia (mg/L as N):	<0.017	<0.017				<0.017	DENVER	BA	JD
Salinity (ppth):	0.0	0.0				0.0	YSI / Mettler	JD	DA

V 1.4 9/12/05

Appendix B. (continued)

FDEP Biology Laboratory - Bioassay Survival Bench Sheet

LIMS Sample #: 1158287 Test #: 1/2 Test Started: Date 1/13-09 Time: 1305
Organism: c. dubia SOP #: TA 07_01 Test Ended: Date 1/17-09 Time: 1310
Organism Batch: 2-09 Diluent/ Batch: DMW 1.6.09
Organism Age: <24hrs Food: YCT P. subcapitata Artemia
Chamber Size: 30 mL Batch: 6.18.08 7.18.08 —
Test Volume: 20 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	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
6.25%	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
12.5%	A	A	5	5	5	5	5	5
	B	B	5	5	5	5	5	5
	C	C	5	5	5	5	5	5
	D	D	5	5	5	5	5	5
25%	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
50%	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
100%	A	A	5	5	5	5	5	5
	B	B	5	5	5	5	5	5
	C	C	5	5	5	5	5	5
	D	D	5	4 D	4	4	4	4
Organisms loaded by: BH		Checked by:	D	D	D	D	D	D
Loading Verified by: D								

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

Comments:

Test Results:
% mortality in 100% sample: 5%
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).

Appendix B. (continued)

FDEP Biology Laboratory - Bioassay Survival Bench Sheet

corrected 1 year mf 1-21-09

LIMS Sample #: 115287 Test #: 2/2 Test Started: Date 1.13.09 mf Time: 1300

Organism: Ceriodaphnia Test Ended: Date 1.17.09 mf Time: 1200

Organism Batch: 1.13.09 Diluent/ Batch: Well 1 1.12.09

Organism Age: 12 days Food: YCT *P. subcapitata* Artemia

Chamber Size: 1000 mL Batch: Lot #: 38438, Batch #: 5-09, 6-09

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	A1	10	10	10	10	10	10
	B	A2	10	10	10	10	10	10
6.25%	A	A3	10	10	10	10	10	10
	B	A4	10	10	10	10	10	10
12.5%	A	A5	10	10	10	10	10	10
	B	A6	10	10	10	10	10	10
25%	A	A7	10	10	10	10	10	10
	B	A8	10	10	10	10	10	10
50%	A	A9	10	10	10	10	10	10
	B	A10	10	10	10	10	10	10
100%	A	A11	10	10	10	10	10	10
	B	A12	10	10	10	10	10	10
Organisms loaded by: DS		Checked by:	DS	DS	DS	DS	DS	DS
Loading Verified by: BP								

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).

FDEP Biology Laboratory - Bioassay Parameter Bench Sheet

LIMS Sample # : 115287 Test #: 1 (1/20 1/12/09) of 2

TEST SOP #: TA07_01 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	M		M	M		M
pH (S.U.)	8.2		8.1	8.1		8.1
Temperature °C	23.9		24.0	23.7		24.7
Dissolved Oxygen mg/L	7.6		7.7	7.5		7.0
Conductivity (µmhos) mmhos	177.4 3.75 (A)		220	182		220
(initials) Measured by:	ADR		JD	ADR		JD
(initials) Recorded by:	ADR		JD	ADR		JD

Comments: (A) transcription error ADR 1/13/09

Concentration 0.25%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	M		M	M		M
pH (S.U.)	8.2		8.2	8.2		8.2
Temperature °C	24.7		24.0	24.4		24.7
Dissolved Oxygen mg/L	7.6		7.7	7.4		7.2
Conductivity (µmhos) mmhos	177.7		229	179		187.6
(initials) Measured by:	ADR		JD	ADR		JD
(initials) Recorded by:	ADR		JD	ADR		JD

Comments:

Concentration 12.5%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	M		M	M		M
pH (S.U.)	8.2		8.3	8.2		8.2
Temperature °C	24.6		24.0	24.3		24.4
Dissolved Oxygen mg/L	7.6		7.7	7.4		7.4
Conductivity (µmhos) mmhos	176.7		229	176		195.6
(initials) Measured by:	ADR		JD	ADR		JD
(initials) Recorded by:	ADR		JD	ADR		JD

Comments:

Concentration 25%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	M		M	M		M
pH (S.U.)	8.1		8.2	8.1		8.2
Temperature °C	24.4		24.0	24.0		24.4
Dissolved Oxygen mg/L	7.5		7.7	7.5		7.4
Conductivity (µmhos) mmhos	170.4		210	173		191.7
(initials) Measured by:	ADR		JD	ADR		JD
(initials) Recorded by:	ADR		JD	ADR		JD

Comments:

V 2.0 2/24/04

FDEP Biology Laboratory - Bioassay Parameter Bench Sheet

LIMS Sample # : 115 8287 **Test #:** 1 of 2

TEST SOP #: TA07_ 01 **Test Species:** (*Ceriodaphnia dubia*) *Cyprinella leedsi* *Pimephales promelas* *Americamysis bahia* *Menidia beryllina* Other:_____

Concentration 50 %	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	M		M	M		M
pH (S.U.)	8.0		8.2	8.0		8.2
Temperature °C	24.3		24.0	23.9		24.4
Dissolved Oxygen mg/L	7.7		7.7	7.4		7.5
Conductivity (µmhos) mmhos	159.0		207	161		180
(initials) Measured by:	[illegible]		JD	[illegible]		JD
(initials) Recorded by:	[illegible]		JD	[illegible]		JD

Comments:

Concentration 100 %	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	M		M	M		M
pH (S.U.)	7.8		8.0	7.9		8.1
Temperature °C	24.1		24.0	24.9		24.1
Dissolved Oxygen mg/L	7.8		7.8	7.4	JD 7.9	7.6
Conductivity (µmhos) mmhos	137.4		197.6	139		164
(initials) Measured by:	[illegible]		JD	[illegible]		JD
(initials) Recorded by:	[illegible]		JD	[illegible]		JD

Comments: (4) transcription error / 1.16.09 JD 1-16-09 Date error corrected

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:

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 Laboratory - Bioassay Parameter Bench Sheet

LIMS Sample # : 1158287 Test #: 2 of 2

TEST SOP #: TA07_02 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	A	A	B	A
pH (S.U.)	7.6	7.8	7.9	7.8	7.9	7.8
Temperature °C	24.7	24.0	24.0	24.0	24.0	24.0
Dissolved Oxygen mg/L	7.5	6.8	7.1	7.5	6.8	6.9
Conductivity (µmhos) mmhos	275	283	297	297	285	297
(initials) Measured by:	JD	JD	JD	JD	JD	JD
(initials) Recorded by:	JD	JD	JD	JD	JD	JD

Comments:

Concentration 6.25%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	A	A	B	A
pH (S.U.)	7.7	8.1	8.1	8.0	8.0	8.0
Temperature °C	24.8	24.1	24.0	24.1	24.0	24.1
Dissolved Oxygen mg/L	7.4	6.8	6.8	7.3	6.4	6.8
Conductivity (µmhos) mmhos	269	277	282	278	277	283
(initials) Measured by:	JD	JD	JD	JD	JD	JD
(initials) Recorded by:	JD	JD	JD	JD	JD	JD

Comments: (1) Transcription error 1.15.09 JD

Concentration 12.5%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	A	A	B	A
pH (S.U.)	7.8	8.1	8.2	8.0	8.0	8.0
Temperature °C	24.8	24.1	24.0	24.2	24.0	24.0
Dissolved Oxygen mg/L	7.5	6.9	6.8	7.3	6.5	6.6
Conductivity (µmhos) mmhos	262	270	274	269	275	279
(initials) Measured by:	JD	JD	JD	JD	JD	JD
(initials) Recorded by:	JD	JD	JD	JD	JD	JD

Comments:

Concentration 25%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	A	A	B	A
pH (S.U.)	7.8	8.1	8.2	8.0	8.1	8.0
Temperature °C	24.8	24.1	24.0	24.3	24.1	24.1
Dissolved Oxygen mg/L	7.6	6.9	6.9	7.4	6.6	6.6
Conductivity (µmhos) mmhos	245	253	258	252	254	261
(initials) Measured by:	JD	JD	JD	JD	JD	JD
(initials) Recorded by:	JD	JD	JD	JD	JD	JD

Comments:

V 2.0 2/24/04

FDEP Biology Laboratory - Bioassay Parameter Bench Sheet

LIMS Sample # : 1158287 **Test #:** 2 of 2

TEST SOP #: TA07_02 **Test Species:** *Ceriodaphnia dubia* (*Cyprinella leedsi*) *Pimephales promelas* *Americamysis bahia* *Menidia beryllina* Other:_____

Concentration 50%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	A	A	B	A
pH (S.U.)	7.8	8.0	8.0	8.1	8.0	8.0
Temperature °C	25.1	24.7	24.1	24.4	24.0	24.0
Dissolved Oxygen mg/L	7.6	6.6	6.9	7.1	6.5	6.7
Conductivity ~~µmhos~~ mmhos	213	223	225	215	216	219
(initials) Measured by:	JD	JD	JD	JD	JD	JD
(initials) Recorded by:	JD	JD	JD	JD	JD	JD

Comments:

Concentration 100%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	A	A	B	A
pH (S.U.)	7.9	8.0	8.0	8.1	8.0	7.8
Temperature °C	24.8	24.2	24.0	24.9	24.3	24.0
Dissolved Oxygen mg/L	7.6	6.8	6.8	7.4	6.4	6.7
Conductivity ~~µmhos~~ mmhos	139.1	150.6	157.8	143.4	148.9	143.1
(initials) Measured by:	JD	JD	JD	JD	JD	JD
(initials) Recorded by:	JD	JD	JD	JD	JD	JD

Comments:

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

Comments:

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

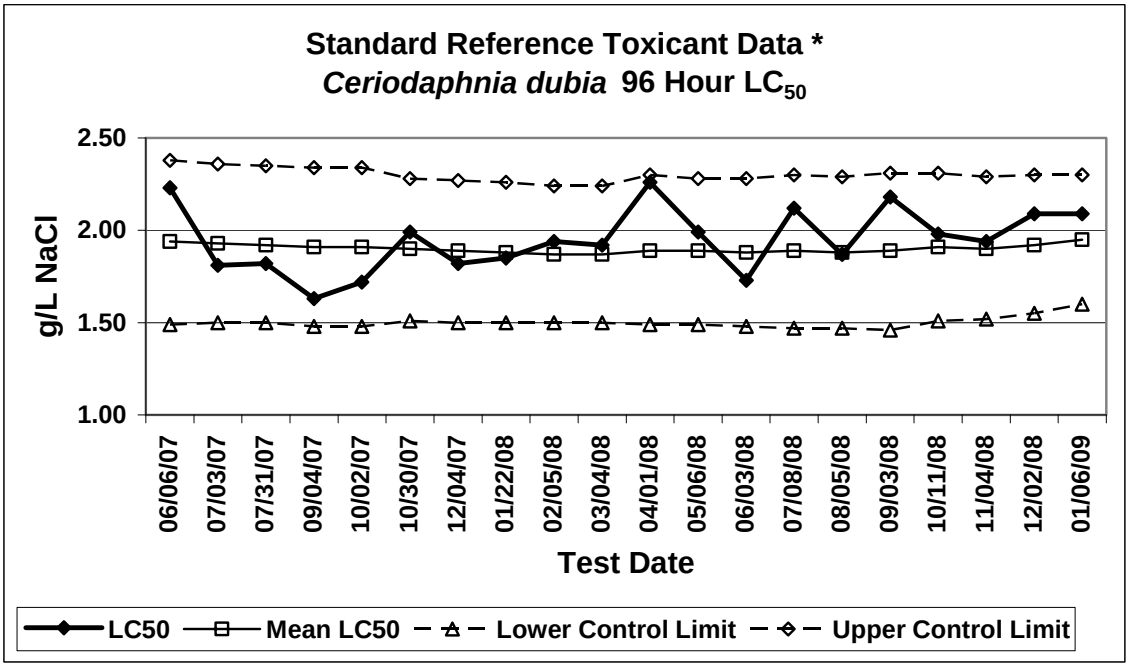
Florida Department of Environmental Protection
Bureau of Laboratories

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

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

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

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



Appendix C. (continued)

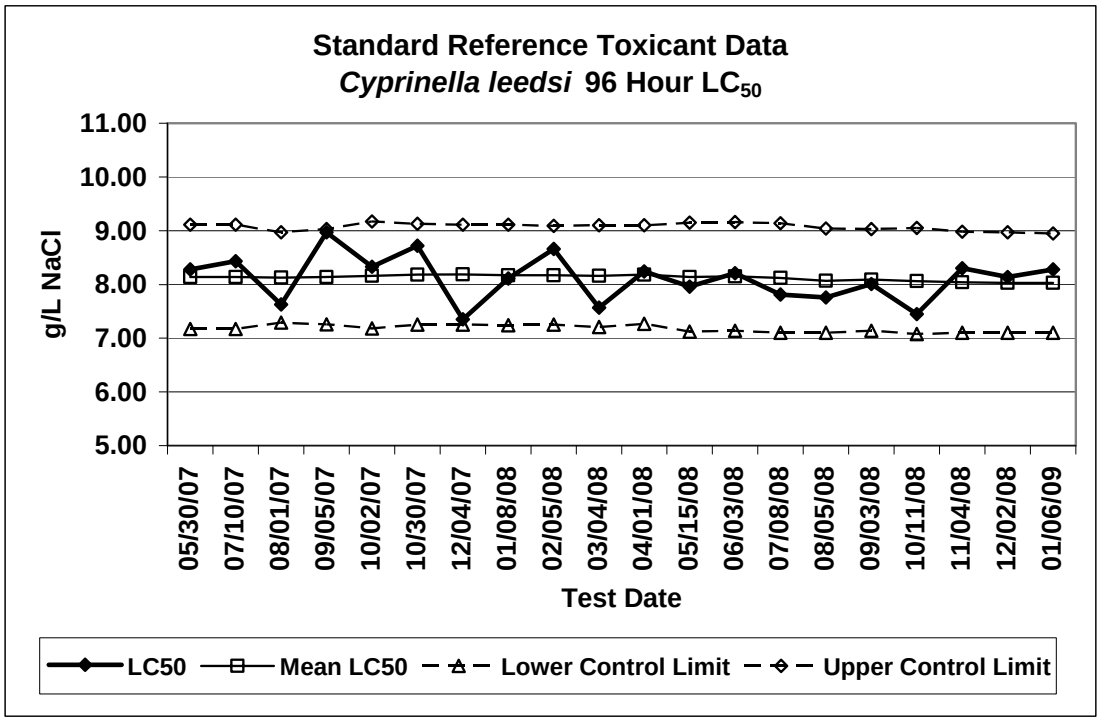
Florida Department of Environmental Protection
Bureau of Laboratories

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

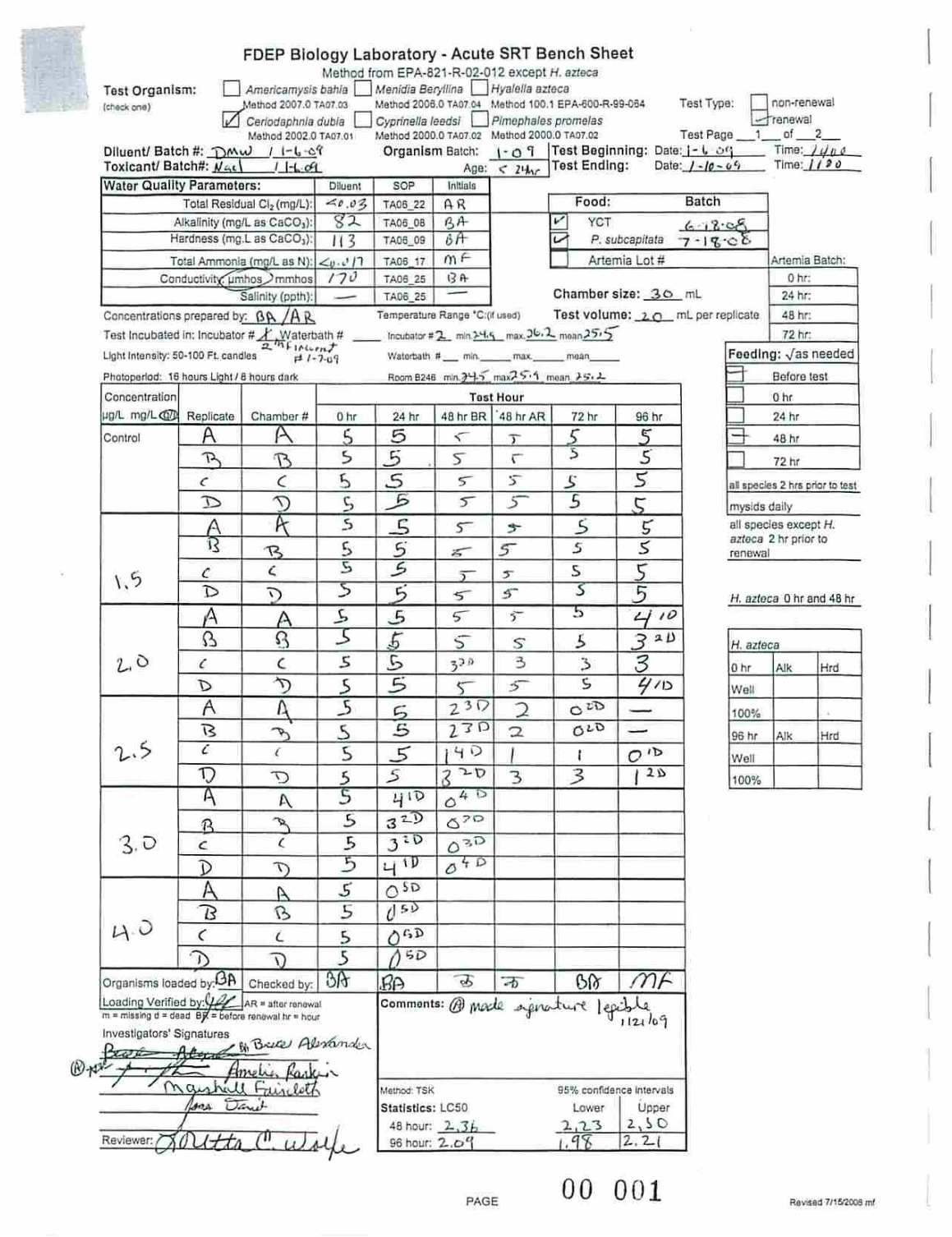
Date	LC50	Mean LC50	Std Dev	Lower Control Limit	Upper Control Limit
05/30/07	8.28	8.14	0.48	7.17	9.11
07/10/07	8.43	8.14	0.48	7.17	9.11
08/01/07	7.63	8.13	0.42	7.29	8.97
09/05/07	8.97	8.14	0.44	7.26	9.03
10/02/07	8.33	8.16	0.50	7.18	9.17
10/30/07	8.72	8.18	0.47	7.25	9.13
12/04/07	7.35	8.19	0.47	7.25	9.11
01/08/08	8.11	8.17	0.47	7.24	9.11
02/05/08	8.66	8.17	0.47	7.25	9.09
03/04/08	7.57	8.16	0.47	7.21	9.10
04/01/08	8.24	8.18	0.46	7.27	9.10
05/15/08	7.96	8.14	0.51	7.12	9.15
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

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

CV = 5.77
EPA reference 75th quartile CV = 19%



Appendix C. (continued)



FDEP Biology Laboratory - Acute SRT Bench Sheet

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

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

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

Diluent/ Batch #: DMW / 1-6-09
Toxicant/ Batch#: NaCl / 1-6-09
Organism Batch: 1-09 Age: < 24hr
Test Beginning: Date: 1-6-09 Time: 1400
Test Ending: Date: 1-10-09 Time: 1120

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

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

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

Concentrations prepared by: BA / AR
Test Incubated in: Incubator # 1 2nd Waterbath # ____ Incubator # 2 min. 24.9 max. 26.2 mean 25.5
Light Intensity: 50-100 Ft. candles Incubator #1 1-7-09 Waterbath # ___ min. ___ max. ___ mean ___
Photoperiod: 16 hours Light / 8 hours dark Room B246 min. 24.5 max 25.9 mean 25.2

Temperature Range °C:(if used)
Chamber size: 30 mL
Test volume: 20 mL per replicate

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 ug/L	mg/L (NH3)	Replicate	Chamber #	Test Hour 0 hr	24 hr	48 hr BR	48 hr AR	72 hr	96 hr
Control		A	A	5	5	5	5	5	5
		B	B	5	5	5	5	5	5
		C	C	5	5	5	5	5	5
		D	D	5	5	5	5	5	5
1.5		A	A	5	5	5	5	5	5
		B	B	5	5	5	5	5	5
		C	C	5	5	5	5	5	5
		D	D	5	5	5	5	5	5
2.0		A	A	5	5	5	5	5	4 1D
		B	B	5	5	5	5	5	3 2D
		C	C	5	5	3 2D	3	3	3
		D	D	5	5	5	5	5	4 1D
2.5		A	A	5	5	2 3D	2	0 2D	—
		B	B	5	5	2 3D	2	0 2D	—
		C	C	5	5	1 4D	1	1	0 1D
		D	D	5	5	3 2D	3	3	1 2D
3.0		A	A	5	4 1D	0 4D			
		B	B	5	3 2D	0 3D			
		C	C	5	3 2D	0 3D			
		D	D	5	4 1D	0 4D			
4.0		A	A	5	0 5D				
		B	B	5	0 5D				
		C	C	5	0 5D				
		D	D	5	0 5D				
Organisms loaded by: BA			Checked by:	BA	BA	☑	☑	BA	MF

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

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

Investigators' Signatures
BA Bruce Alexander
Amelia Rankin
Marshall Faircloth
Jonas Daniel
Reviewer: Dr. Otto C. Wolfe

Comments: @ made signature illegible 1/21/09

Method: TSK
Statistics: LC50

95% confidence intervals	Lower	Upper
48 hour: 2.36	2.23	2.50
96 hour: 2.09	1.98	2.21

Revised 7/15/2008 mf

Appendix C. (continued)

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

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

Test Page 2 of 2

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

Test Beginning: Date: 1-6-09 Time: 1400
Test Ending: Date: 1-10-09 Time: 1100

Test Type: ☐ non-renewal ☑ renewal

hr = hour AR = after renewal BR = before renewal

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

corrected conductivity readings 1-12-09 MF

Investigators Signatures
BA Brian Alexander
(B) Amelia Rankin
Marshall Faircloth
James David
Brian Alexander
Reviewed By: Kristie Wolf

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

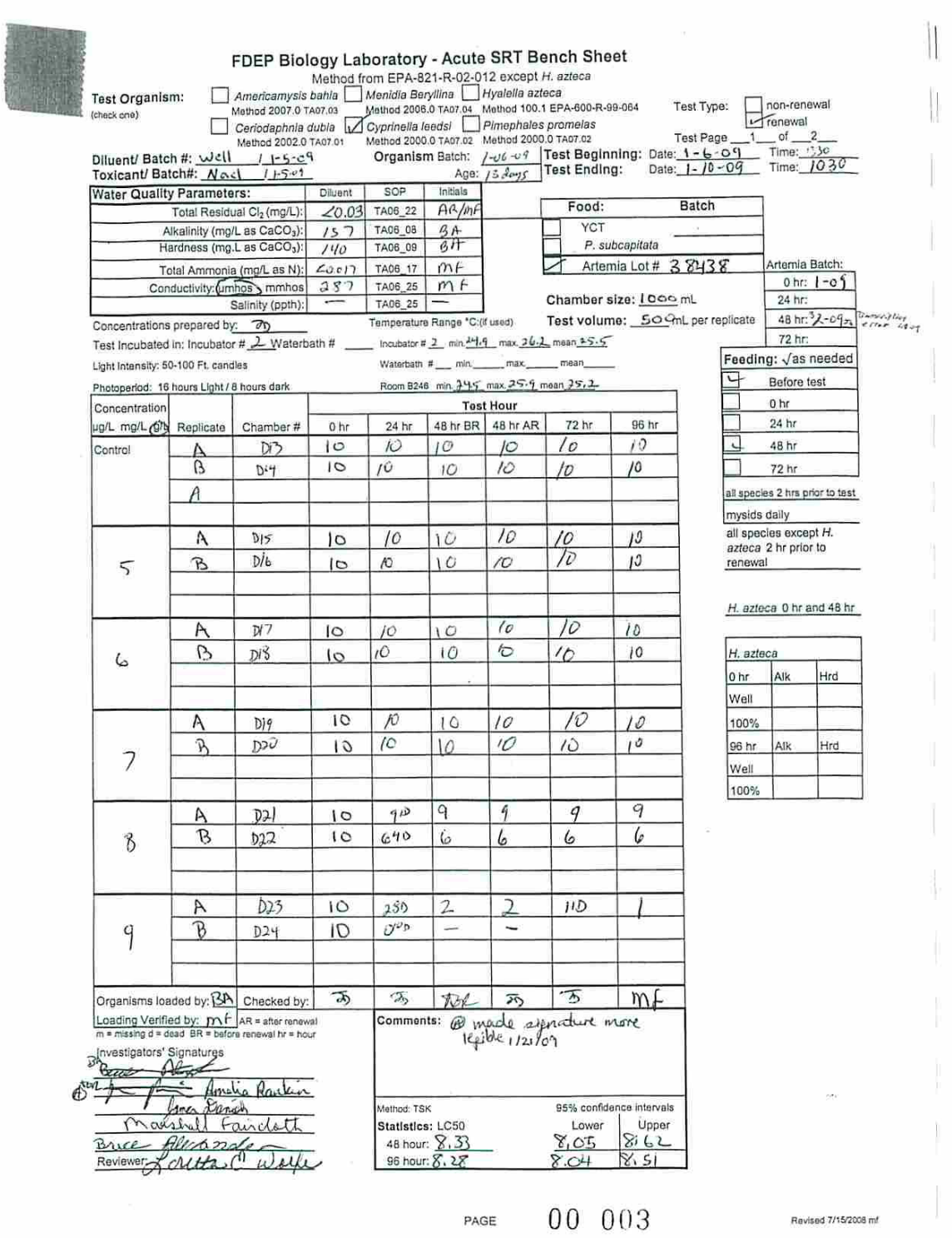
Measure/record salinity for marine tests

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

PAGE 00 002

Revised 07/15/2008 MF

Appendix C. (continued)



FDEP Biology Laboratory - Acute SRT Bench Sheet

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

Test Organism: (check one) ☐ *Americamysis bahia* Method 2007.0 TA07.03 ☐ *Menidia Beryllina* Method 2008.0 TA07.04 ☐ *Hyalella azteca* Method 100.1 EPA-600-R-99-064 ☐ *Ceriodaphnia dubia* Method 2002.0 TA07.01 ☑ *Cyprinella leedsi* Method 2000.0 TA07.02 ☐ *Pimephales promelas* Method 2000.0 TA07.02

Test Type: ☐ non-renewal ☑ renewal

Test Page 1 of 2

Diluent/ Batch #: well 1-5-09 Organism Batch: 1-06-09 Test Beginning: Date: 1-6-09 Time: 1130

Toxicant/ Batch#: NaCl 1-5-09 Age: 13 days Test Ending: Date: 1-10-09 Time: 1030

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

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

Artemia Batch:

0 hr:	1-09
24 hr:	
48 hr:	1-09
72 hr:	

Chamber size: 1000 mL

Test volume: 500 mL per replicate

Concentrations prepared by: JD

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

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

Photoperiod: 16 hours Light / 8 hours dark Room B246 min. 24.5 max. 25.9 mean 25.2

Temperature Range °C:(if used)

Feeding: √as needed

4	Before test
	0 hr
	24 hr
4	48 hr
	72 hr

all species 2 hrs prior to test

mysids daily

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

H. azteca 0 hr and 48 hr

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

Concentration µg/L	mg/L (%)	Replicate	Chamber #	Test Hour 0 hr	24 hr	48 hr BR	48 hr AR	72 hr	96 hr
Control		A	D13	10	10	10	10	10	10
		B	D14	10	10	10	10	10	10
		A							
5		A	D15	10	10	10	10	10	10
		B	D16	10	10	10	10	10	10
6		A	D17	10	10	10	10	10	10
		B	D18	10	10	10	10	10	10
7		A	D19	10	10	10	10	10	10
		B	D20	10	10	10	10	10	10
8		A	D21	10	9D	9	9	9	9
		B	D22	10	6D	6	6	6	6
9		A	D23	10	2D	2	2	1D	1
		B	D24	10	0D	—	—		
Organisms loaded by: BA		Checked by:		JD	JD	TSK	JD	JD	MF

Loading Verified by: MF AR = after renewal

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

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

Investigators' Signatures

BA Bruce Allen

@ Amelia Rankin

Tara Enoch

Marshall Faircloth

Bruce Almazan

Reviewer: Lorraine Wolfe

Method: TSK

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

Revised 7/15/2008 mf

Appendix C. (continued)

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

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

Test Page 2 of 2

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

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

Test Type: ☐ non-renewal ☑ renewal

hr = hour AR = after renewal BR = before renewal

Concentration µg/L mg/L (circle)	Replicate	Test Hour	pH (SU)	Temperature (°C)	Dissolved Oxygen (mg/L)	Conductivity ☐ µmhos ☑ mmhos	Salinity (ppth)
Control	A	0 hr	7.8	24.0	8.0	0.318	
	B	24 hr	8.0	24.1	6.7	0.346	
	A	48 hr BR	8.2	24.6	7.0	0.326	
	A	48 hr AR	8.1	24.0	7.5	0.289	
	B	72 hr	8.1	24.0	5.9	0.301	
	A	96 hr	8.2	25.1	7.1	0.290	
5.0	A	0 hr	7.8	24.0	8.0	9.43	
	B	24 hr	8.0	24.3	6.7	9.86	
	A	48 hr BR	8.1	24.6	6.8	9.39	
	A	48 hr AR	8.1	24.0	7.4	9.18	
	B	72 hr	8.1	24.0	6.4	9.48	
	A	96 hr	8.1	25.2	6.5	9.6	
6.0	A	0 hr	7.9	24.0	8.1	11.4	
	B	24 hr	8.0	24.4	6.8	10.9	
	A	48 hr BR	8.1	24.6	6.8	11.4	
	A	48 hr AR	8.1	24.0	7.5	11.3	
	B	72 hr	8.1	24.0	5.7 (R)	11.45	
	A	96 hr	8.2	25.1	6.5	11.5	
7.0	A	0 hr	8.0	24.0	8.0	13.1	
	B	24 hr	8.0	24.4	6.8	12.4	
	A	48 hr BR	8.2	24.6	6.8	13.0	
	A	48 hr AR	8.1	24.0	7.4	12.9	
	B	72 hr	8.1	24.0	6.0	13.11	
	A	96 hr	8.2	25.0	6.5	13.2	
8.0	A	0 hr	8.1	24.0	8.1	14.4	
	B	24 hr	8.0	24.7	6.9	14.1	
	A	48 hr BR	8.2	24.5	6.8	14.8	
	A	48 hr AR	8.1	24.0	7.4	14.7	
	B	72 hr	8.1	24.0	6.0	14.87	
	A	96 hr	8.2	25.0	6.4	14.9	
9.0	A	0 hr	8.1	24.0	8.0	16.6	
	B	24 hr	8.0	24.6	6.6	15.8	
	A	48 hr BR	8.2	24.5	6.8	16.7	
	A	48 hr AR	8.1	24.2	7.4	16.5	
	A	72 hr	8.2	24.0	6.4	16.68	
	A	96 hr	8.2	25.2	6.9	16.8	

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

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

Measure/record salinity for marine tests

Comments: (R) transcription error 1/12/09 1/6/09
(B) made signature more legible 1/21/09

PAGE 00 004

Revised 07/15/2008 MF

Appendix C. (continued)

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

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

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

SPEARMAN-KARBER TRIM: 0.00%

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

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

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

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

SPEARMAN-KARBER TRIM: 5.00%

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

Appendix D. Test Organism Receipts

MARINCO BIOASSAY LABORATORY
The Aquatic Toxicology Specialists

NELAP Certification # E84191

Organism Shipment Record

State of Florida Aquaculture Certificate Number AQ0668007

Date: 1/5/09

Shipped to: FDEP

P.O. No:

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

Packed by:

Shipped Via: FedEx

Notes:

Thank you for your order.

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

Appendix D. (continued)

MARINCO BIOASSAY LABORATORY
The Aquatic Toxicology Specialists

NELAP Certification # E84191

Organism Shipment Record

State of Florida Aquaculture Certificate Number AQ0668007

Date: 1/12/09

Shipped to: FDEP

P.O. No: _____

Species	Quantity	Age	Brood Number	Temp.	pH	Salinity
Mysidopsis bahia						
Menidia beryllina						
						Hardness
Cyprinella leedsi	150	11 DAYS	CL090101	25°C	7.8	80 mg/L
Pimephales promelas						

Packed by: [signature]

Shipped Via: FedEx

Notes: _____

Thank you for your order.

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

Appendix E. Chemical Analyses performed on the effluent from the City Industries Ground Water Remediation Facility Outfall D-001, sampled on January 12, 2009.

Date Sampled	Field ID	Analysis Group	Components	Results	Remarks	Units	MDL	PQL
1/12/2009 8:47	CITY EFFLUENT	AGP/LN	Algal Growth Potential	21.6		mg DryWt/L	0.3	0.9
1/12/2009 8:47	CITY EFFLUENT	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	0.55	U	ug/L	0.55	1.7
1/12/2009 8:47	CITY EFFLUENT	Chlorophyll/Grain Size/BOD	Biochemical Oxygen Demand-5 Day,N-Inhib	0.2	U	mg/L	0.2	2
1/12/2009 8:47	CITY EFFLUENT	Chlorophyll/Grain Size/BOD	Phaeophytin-a	0.24	U	ug/L	0.24	0.71
1/12/2009 9:00	CITY EFFLUENT	Toxicology	Bioassay-Acute-Def-FW-Fish, LC50	100	L	LC50		
1/12/2009 9:00	CITY EFFLUENT	Toxicology	Bioassay-Acute-Def-FW-C.dubia, LC50	100	L	LC50		
1/12/2009 8:47	CITY EFFLUENT	Metals	Silver	0.01	U	ug/L	0.01	0.04
1/12/2009 8:47	CITY EFFLUENT	Metals	Magnesium	2.1		mg/L	0.04	0.16
1/12/2009 8:47	CITY EFFLUENT	Metals	Nickel	0.25	U	ug/L	0.25	1
1/12/2009 8:47	CITY EFFLUENT	Metals	Selenium	0.2	U	ug/L	0.2	0.8
1/12/2009 8:47	CITY EFFLUENT	Metals	Calcium	16.2		mg/L	0.075	0.3
1/12/2009 8:47	CITY EFFLUENT	Metals	Lead	0.2	U	ug/L	0.2	0.8
1/12/2009 8:47	CITY EFFLUENT	Metals	Copper	0.5	U	ug/L	0.5	1
1/12/2009 8:47	CITY EFFLUENT	Metals	Chromium	0.59	I	ug/L	0.2	0.8
1/12/2009 8:47	CITY EFFLUENT	Metals	Iron	250		ug/L	30	120
1/12/2009 8:47	CITY EFFLUENT	Metals	Cadmium	0.03	U	ug/L	0.03	0.12
1/12/2009 8:47	CITY EFFLUENT	Metals	Arsenic	0.44	I	ug/L	0.25	1
1/12/2009 8:47	CITY EFFLUENT	Metals	Zinc	5	U	ug/L	5	20
1/12/2009 8:47	CITY EFFLUENT	Metals	Aluminum	250		ug/L	60	240
1/12/2009 8:47	CITY EFFLUENT	Nutrients	Kjeldahl Nitrogen	0.26		mg N/L	0.08	0.2
1/12/2009 8:47	CITY EFFLUENT	Nutrients	Ammonia-N	0.057	J	mg N/L	0.01	0.02
1/12/2009 8:47	CITY EFFLUENT	Nutrients	O-Phosphate-P	0.69		mg P/L	0.08	0.2
1/12/2009 8:47	CITY EFFLUENT	Nutrients	Total-P	0.82		mg P/L	0.02	0.06
1/12/2009 8:47	CITY EFFLUENT	Nutrients	NO2NO3-N	0.22		mg N/L	0.004	0.01
1/12/2009 8:47	CITY EFFLUENT	Pesticides	Prometryn	0.15	U	ug/L	0.15	0.6
1/12/2009 8:47	CITY EFFLUENT	Pesticides	Atrazine	0.05	U	ug/L	0.05	0.2
1/12/2009 8:47	CITY EFFLUENT	Pesticides	Azinphos Methyl	0.2	U	ug/L	0.2	0.8
1/12/2009 8:47	CITY EFFLUENT	Pesticides	Bromacil	0.2	UJ	ug/L	0.2	0.8
1/12/2009 8:47	CITY EFFLUENT	Pesticides	Butylate	0.2	U	ug/L	0.2	0.8
1/12/2009 8:47	CITY EFFLUENT	Pesticides	Diazinon	0.05	U	ug/L	0.05	0.2
1/12/2009 8:47	CITY EFFLUENT	Pesticides	Metolachlor	0.5	U	ug/L	0.5	2

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Components	Results	Remarks	Units	MDL	PQL
1/12/2009 8:47	CITY EFFLUENT	Pesticides	Parathion Ethyl	0.15	U	ug/L	0.15	0.6
1/12/2009 8:47	CITY EFFLUENT	Pesticides	Alachlor	0.6	U	ug/L	0.6	2.4
1/12/2009 8:47	CITY EFFLUENT	Pesticides	Ametryn	0.05	U	ug/L	0.05	0.2
1/12/2009 8:47	CITY EFFLUENT	Pesticides	Malathion	0.15	U	ug/L	0.15	0.6
1/12/2009 8:47	CITY EFFLUENT	Pesticides	Phorate	0.05	U	ug/L	0.05	0.2
1/12/2009 8:47	CITY EFFLUENT	Pesticides	Chlorpyrifos Methyl	0.1	U	ug/L	0.1	0.4
1/12/2009 8:47	CITY EFFLUENT	Pesticides	Fenamiphos	0.2	U	ug/L	0.2	0.8
1/12/2009 8:47	CITY EFFLUENT	Pesticides	Simazine	0.05	U	ug/L	0.05	0.2
1/12/2009 8:47	CITY EFFLUENT	Pesticides	Mevinphos	0.2	U	ug/L	0.2	0.8
1/12/2009 8:47	CITY EFFLUENT	Pesticides	Metribuzin	0.1	U	ug/L	0.1	0.4
1/12/2009 8:47	CITY EFFLUENT	Pesticides	Metalaxyl	0.25	U	ug/L	0.25	1
1/12/2009 8:47	CITY EFFLUENT	Pesticides	Fonofos	0.1	U	ug/L	0.1	0.4
1/12/2009 8:47	CITY EFFLUENT	Pesticides	Ethoprop	0.1	U	ug/L	0.1	0.4
1/12/2009 8:47	CITY EFFLUENT	Pesticides	Naled	0.8	UJ	ug/L	0.8	3.2
1/12/2009 8:47	CITY EFFLUENT	Pesticides	Norflurazon	0.15	U	ug/L	0.15	0.6
1/12/2009 8:47	CITY EFFLUENT	Pesticides	Parathion Methyl	0.1	U	ug/L	0.1	0.4
1/12/2009 8:47	CITY EFFLUENT	Pesticides	Hexazinone	0.1	U	ug/L	0.1	0.4
1/12/2009 8:47	CITY EFFLUENT	Pesticides	Ethion	0.05	U	ug/L	0.05	0.2
1/12/2009 8:47	CITY EFFLUENT	Pesticides	Chlorpyrifos Ethyl	0.05	U	ug/L	0.05	0.2
1/12/2009 8:47	CITY EFFLUENT	Priority Organic Pollutants	2,4-Dimethylphenol	9.5	U	ug/L	9.5	38
1/12/2009 8:47	CITY EFFLUENT	Priority Organic Pollutants	2,4-Dinitrophenol	14	U	ug/L	14	57
1/12/2009 8:47	CITY EFFLUENT	Priority Organic Pollutants	Acenaphthene	0.95	U	ug/L	0.95	3.8
1/12/2009 8:47	CITY EFFLUENT	Priority Organic Pollutants	Benzo(b)fluoranthene	0.95	U	ug/L	0.95	3.8
1/12/2009 8:47	CITY EFFLUENT	Priority Organic Pollutants	Benzo(k)fluoranthene	0.95	U	ug/L	0.95	3.8
1/12/2009 8:47	CITY EFFLUENT	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	0.95	U	ug/L	0.95	3.8
1/12/2009 8:47	CITY EFFLUENT	Priority Organic Pollutants	Dimethyl phthalate	9.5	UJ	ug/L	9.5	38
1/12/2009 8:47	CITY EFFLUENT	Priority Organic Pollutants	Endosulfan sulfate	1.4	U	ug/L	1.4	5.7
1/12/2009 8:47	CITY EFFLUENT	Priority Organic Pollutants	Heptachlor	1.4	U	ug/L	1.4	5.7
1/12/2009 8:47	CITY EFFLUENT	Priority Organic Pollutants	1,1-Dichloroethene	0.5	U	ug/L	0.5	2
1/12/2009 8:47	CITY EFFLUENT	Priority Organic Pollutants	2,4,6-Trichlorophenol	0.95	U	ug/L	0.95	3.8
1/12/2009 8:47	CITY EFFLUENT	Priority Organic Pollutants	3,3'-Dichlorobenzidine	38	UJ	ug/L	38	150
1/12/2009 8:47	CITY EFFLUENT	Priority Organic Pollutants	Fluorene	0.95	U	ug/L	0.95	3.8
1/12/2009 8:47	CITY EFFLUENT	Priority Organic Pollutants	Pentachlorophenol	2.8	U	ug/L	2.8	11
1/12/2009 8:47	CITY EFFLUENT	Priority Organic Pollutants	Phenanthrene	0.95	U	ug/L	0.95	3.8

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Components	Results	Remarks	Units	MDL	PQL
1/12/2009 8:47	CITY EFFLUENT	Priority Organic Pollutants	Phenol	0.95	U	ug/L	0.95	3.8
1/12/2009 8:47	CITY EFFLUENT	Priority Organic Pollutants	2,6-Dinitrotoluene	0.95	U	ug/L	0.95	3.8
1/12/2009 8:47	CITY EFFLUENT	Priority Organic Pollutants	2-Chlorophenol	0.95	U	ug/L	0.95	3.8
1/12/2009 8:47	CITY EFFLUENT	Priority Organic Pollutants	Benzo(a)anthracene	0.95	U	ug/L	0.95	3.8
1/12/2009 8:47	CITY EFFLUENT	Priority Organic Pollutants	Benzo(a)pyrene	0.95	U	ug/L	0.95	3.8
1/12/2009 8:47	CITY EFFLUENT	Priority Organic Pollutants	Chrysene	0.95	U	ug/L	0.95	3.8
1/12/2009 8:47	CITY EFFLUENT	Priority Organic Pollutants	Di-n-butyl phthalate	4.7	U	ug/L	4.7	19
1/12/2009 8:47	CITY EFFLUENT	Priority Organic Pollutants	Endrin aldehyde	3.8	U	ug/L	3.8	15
1/12/2009 8:47	CITY EFFLUENT	Priority Organic Pollutants	Heptachlor epoxide	1.4	U	ug/L	1.4	5.7
1/12/2009 8:47	CITY EFFLUENT	Priority Organic Pollutants	Hexachlorobutadiene	2.8	U	ug/L	2.8	11
1/12/2009 8:47	CITY EFFLUENT	Priority Organic Pollutants	4,4'-DDT	1.4	U	ug/L	1.4	5.7
1/12/2009 8:47	CITY EFFLUENT	Priority Organic Pollutants	Benzidine	95	U	ug/L	95	380
1/12/2009 8:47	CITY EFFLUENT	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	14	U	ug/L	14	57
1/12/2009 8:47	CITY EFFLUENT	Priority Organic Pollutants	Butyl benzyl phthalate	4.7	U	ug/L	4.7	19
1/12/2009 8:47	CITY EFFLUENT	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.95	U	ug/L	0.95	3.8
1/12/2009 8:47	CITY EFFLUENT	Priority Organic Pollutants	Dieldrin	1.4	U	ug/L	1.4	5.7
1/12/2009 8:47	CITY EFFLUENT	Priority Organic Pollutants	Endosulfan II	3.8	U	ug/L	3.8	15
1/12/2009 8:47	CITY EFFLUENT	Priority Organic Pollutants	Endrin	1.4	U	ug/L	1.4	5.7
1/12/2009 8:47	CITY EFFLUENT	Priority Organic Pollutants	Nitrobenzene	1.9	U	ug/L	1.9	7.6
1/12/2009 8:47	CITY EFFLUENT	Priority Organic Pollutants	Pyrene	0.95	U	ug/L	0.95	3.8
1/12/2009 8:47	CITY EFFLUENT	Priority Organic Pollutants	2,4-Dinitrotoluene	0.95	U	ug/L	0.95	3.8
1/12/2009 8:47	CITY EFFLUENT	Priority Organic Pollutants	2-Chloronaphthalene	0.95	U	ug/L	0.95	3.8
1/12/2009 8:47	CITY EFFLUENT	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	2.8	U	ug/L	2.8	11
1/12/2009 8:47	CITY EFFLUENT	Priority Organic Pollutants	N-Nitrosodimethylamine	1.9	U	ug/L	1.9	7.6
1/12/2009 8:47	CITY EFFLUENT	Priority Organic Pollutants	Naphthalene	0.95	U	ug/L	0.95	3.8
1/12/2009 8:47	CITY EFFLUENT	Priority Organic Pollutants	delta-BHC	1.4	U	ug/L	1.4	5.7
1/12/2009 8:47	CITY EFFLUENT	Priority Organic Pollutants	1,2,4-Trichlorobenzene	0.95	U	ug/L	0.95	3.8
1/12/2009 8:47	CITY EFFLUENT	Priority Organic Pollutants	4,4'-DDE	1.4	U	ug/L	1.4	5.7
1/12/2009 8:47	CITY EFFLUENT	Priority Organic Pollutants	4-Chloro-3-methylphenol	0.95	U	ug/L	0.95	3.8
1/12/2009 8:47	CITY EFFLUENT	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	1.9	U	ug/L	1.9	7.6
1/12/2009 8:47	CITY EFFLUENT	Priority Organic Pollutants	Acenaphthylene	0.95	U	ug/L	0.95	3.8
1/12/2009 8:47	CITY EFFLUENT	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.95	U	ug/L	0.95	3.8
1/12/2009 8:47	CITY EFFLUENT	Priority Organic Pollutants	Diethyl phthalate	0.95	U	ug/L	0.95	3.8
1/12/2009 8:47	CITY EFFLUENT	Priority Organic Pollutants	Hexachlorocyclopentadiene	2.8	U	ug/L	2.8	11

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Components	Results	Remarks	Units	MDL	PQL
1/12/2009 8:47	CITY EFFLUENT	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.95	U	ug/L	0.95	3.8
1/12/2009 8:47	CITY EFFLUENT	Priority Organic Pollutants	Isophorone	0.95	U	ug/L	0.95	3.8
1/12/2009 8:47	CITY EFFLUENT	Priority Organic Pollutants	beta-BHC	1.4	U	ug/L	1.4	5.7
1/12/2009 8:47	CITY EFFLUENT	Priority Organic Pollutants	2,4-Dichlorophenol	0.95	U	ug/L	0.95	3.8
1/12/2009 8:47	CITY EFFLUENT	Priority Organic Pollutants	4-Bromophenyl phenyl ether	0.95	U	ug/L	0.95	3.8
1/12/2009 8:47	CITY EFFLUENT	Priority Organic Pollutants	4-Nitrophenol	14	U	ug/L	14	57
1/12/2009 8:47	CITY EFFLUENT	Priority Organic Pollutants	Di-n-octyl phthalate	0.95	U	ug/L	0.95	3.8
1/12/2009 8:47	CITY EFFLUENT	Priority Organic Pollutants	Endosulfan I	3.8	U	ug/L	3.8	15
1/12/2009 8:47	CITY EFFLUENT	Priority Organic Pollutants	Hexachloroethane	2.8	U	ug/L	2.8	11
1/12/2009 8:47	CITY EFFLUENT	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	1.9	U	ug/L	1.9	7.6
1/12/2009 8:47	CITY EFFLUENT	Priority Organic Pollutants	gamma-BHC	1.4	U	ug/L	1.4	5.7
1/12/2009 8:47	CITY EFFLUENT	Priority Organic Pollutants	2-Nitrophenol	0.95	U	ug/L	0.95	3.8
1/12/2009 8:47	CITY EFFLUENT	Priority Organic Pollutants	4,4'-DDD	1.4	U	ug/L	1.4	5.7
1/12/2009 8:47	CITY EFFLUENT	Priority Organic Pollutants	Aldrin	1.4	U	ug/L	1.4	5.7
1/12/2009 8:47	CITY EFFLUENT	Priority Organic Pollutants	Anthracene	0.95	U	ug/L	0.95	3.8
1/12/2009 8:47	CITY EFFLUENT	Priority Organic Pollutants	Bis(2-chloroethyl)ether	0.95	U	ug/L	0.95	3.8
1/12/2009 8:47	CITY EFFLUENT	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	2.8	U	ug/L	2.8	11
1/12/2009 8:47	CITY EFFLUENT	Priority Organic Pollutants	Fluoranthene	0.95	U	ug/L	0.95	3.8
1/12/2009 8:47	CITY EFFLUENT	Priority Organic Pollutants	Hexachlorobenzene	0.95	U	ug/L	0.95	3.8
1/12/2009 8:47	CITY EFFLUENT	Priority Organic Pollutants	alpha-BHC	1.4	U	ug/L	1.4	5.7
1/12/2009 9:00	CITY EFFLUENT	Field Parameter	Specific Conductance	137.9		umhos/cm		
1/12/2009 9:00	CITY EFFLUENT	Field Parameter	Temperature	21.86		C		
1/12/2009 8:47	CITY EFFLUENT	Field Parameter	Temperature	21.86		C		
1/12/2009 9:00	CITY EFFLUENT	Field Parameter	Dissolved Oxygen	8.27		mg/L		
1/12/2009 8:47	CITY EFFLUENT	Field Parameter	Specific Conductance	137.9		umhos/cm		
1/12/2009 9:00	CITY EFFLUENT	Field Parameter	pH	7.05				
1/12/2009 8:47	CITY EFFLUENT	Field Parameter	Dissolved Oxygen	8.27		mg/L		
1/12/2009 8:47	CITY EFFLUENT	Field Parameter	pH	7.05				
1/12/2009 9:11	CITY BLANK	Metals	Cadmium	0.03	U	ug/L	0.03	0.12
1/12/2009 9:11	CITY BLANK	Metals	Zinc	5	U	ug/L	5	20
1/12/2009 9:11	CITY BLANK	Metals	Iron	30	U	ug/L	30	120
1/12/2009 9:11	CITY BLANK	Metals	Magnesium	0.04	U	mg/L	0.04	0.16
1/12/2009 9:11	CITY BLANK	Metals	Aluminum	60	U	ug/L	60	240
1/12/2009 9:11	CITY BLANK	Metals	Calcium	0.075	U	mg/L	0.075	0.3

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Components	Results	Remarks	Units	MDL	PQL
1/12/2009 9:11	CITY BLANK	Metals	Lead	0.2	U	ug/L	0.2	0.8
1/12/2009 9:11	CITY BLANK	Metals	Arsenic	0.25	U	ug/L	0.25	1
1/12/2009 9:11	CITY BLANK	Metals	Selenium	0.2	U	ug/L	0.2	0.8
1/12/2009 9:11	CITY BLANK	Metals	Copper	0.82	I	ug/L	0.5	1
1/12/2009 9:11	CITY BLANK	Metals	Chromium	0.2	U	ug/L	0.2	0.8
1/12/2009 9:11	CITY BLANK	Metals	Silver	0.01	U	ug/L	0.01	0.04
1/12/2009 9:11	CITY BLANK	Metals	Nickel	0.54	I	ug/L	0.25	1
1/12/2009 9:11	CITY BLANK	Nutrients	NO2NO3-N	0.004	U	mg N/L	0.004	0.01
1/12/2009 9:11	CITY BLANK	Nutrients	Kjeldahl Nitrogen	0.08	U	mg N/L	0.08	0.2
1/12/2009 9:11	CITY BLANK	Nutrients	O-Phosphate-P	0.004	U	mg P/L	0.004	0.01
1/12/2009 9:11	CITY BLANK	Nutrients	Ammonia-N	0.01	U	mg N/L	0.01	0.02
1/12/2009 9:11	CITY BLANK	Nutrients	Total-P	0.02	U	mg P/L	0.02	0.06
1/12/2009 9:11	CITY BLANK	Pesticides	Metolachlor	0.47	U	ug/L	0.47	1.9
1/12/2009 9:11	CITY BLANK	Pesticides	Alachlor	0.57	U	ug/L	0.57	2.3
1/12/2009 9:11	CITY BLANK	Pesticides	Ethion	0.047	U	ug/L	0.047	0.19
1/12/2009 9:11	CITY BLANK	Pesticides	Fenamiphos	0.19	U	ug/L	0.19	0.76
1/12/2009 9:11	CITY BLANK	Pesticides	Hexazinone	0.095	U	ug/L	0.095	0.38
1/12/2009 9:11	CITY BLANK	Pesticides	Parathion Methyl	0.095	U	ug/L	0.095	0.38
1/12/2009 9:11	CITY BLANK	Pesticides	Phorate	0.047	U	ug/L	0.047	0.19
1/12/2009 9:11	CITY BLANK	Pesticides	Malathion	0.14	U	ug/L	0.14	0.56
1/12/2009 9:11	CITY BLANK	Pesticides	Ethoprop	0.095	U	ug/L	0.095	0.38
1/12/2009 9:11	CITY BLANK	Pesticides	Diazinon	0.047	U	ug/L	0.047	0.19
1/12/2009 9:11	CITY BLANK	Pesticides	Atrazine	0.047	U	ug/L	0.047	0.19
1/12/2009 9:11	CITY BLANK	Pesticides	Norflurazon	0.14	U	ug/L	0.14	0.56
1/12/2009 9:11	CITY BLANK	Pesticides	Prometryn	0.14	U	ug/L	0.14	0.56
1/12/2009 9:11	CITY BLANK	Pesticides	Chlorpyrifos Methyl	0.095	U	ug/L	0.095	0.38
1/12/2009 9:11	CITY BLANK	Pesticides	Chlorpyrifos Ethyl	0.047	U	ug/L	0.047	0.19
1/12/2009 9:11	CITY BLANK	Pesticides	Parathion Ethyl	0.14	U	ug/L	0.14	0.56
1/12/2009 9:11	CITY BLANK	Pesticides	Naled	0.76	UJ	ug/L	0.76	3
1/12/2009 9:11	CITY BLANK	Pesticides	Fonofos	0.095	U	ug/L	0.095	0.38
1/12/2009 9:11	CITY BLANK	Pesticides	Bromacil	0.19	UJ	ug/L	0.19	0.76
1/12/2009 9:11	CITY BLANK	Pesticides	Ametryn	0.047	U	ug/L	0.047	0.19
1/12/2009 9:11	CITY BLANK	Pesticides	Mevinphos	0.19	U	ug/L	0.19	0.76
1/12/2009 9:11	CITY BLANK	Pesticides	Metribuzin	0.095	U	ug/L	0.095	0.38

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Components	Results	Remarks	Units	MDL	PQL
1/12/2009 9:11	CITY BLANK	Pesticides	Metalaxyl	0.24	U	ug/L	0.24	0.96
1/12/2009 9:11	CITY BLANK	Pesticides	Butylate	0.19	U	ug/L	0.19	0.76
1/12/2009 9:11	CITY BLANK	Pesticides	Simazine	0.047	U	ug/L	0.047	0.19
1/12/2009 9:11	CITY BLANK	Pesticides	Azinphos Methyl	0.19	U	ug/L	0.19	0.76
1/12/2009 9:11	CITY BLANK	Priority Organic Pollutants	1,2,4-Trichlorobenzene	0.96	U	ug/L	0.96	3.8
1/12/2009 9:11	CITY BLANK	Priority Organic Pollutants	3,3'-Dichlorobenzidine	38	UJ	ug/L	38	150
1/12/2009 9:11	CITY BLANK	Priority Organic Pollutants	4,4'-DDT	1.4	U	ug/L	1.4	5.7
1/12/2009 9:11	CITY BLANK	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	1.9	U	ug/L	1.9	7.6
1/12/2009 9:11	CITY BLANK	Priority Organic Pollutants	Endosulfan II	3.8	U	ug/L	3.8	15
1/12/2009 9:11	CITY BLANK	Priority Organic Pollutants	Heptachlor	1.4	U	ug/L	1.4	5.7
1/12/2009 9:11	CITY BLANK	Priority Organic Pollutants	Heptachlor epoxide	1.4	U	ug/L	1.4	5.7
1/12/2009 9:11	CITY BLANK	Priority Organic Pollutants	N-Nitrosodimethylamine	1.9	U	ug/L	1.9	7.6
1/12/2009 9:11	CITY BLANK	Priority Organic Pollutants	2,4-Dimethylphenol	9.6	U	ug/L	9.6	38
1/12/2009 9:11	CITY BLANK	Priority Organic Pollutants	4-Chloro-3-methylphenol	0.96	U	ug/L	0.96	3.8
1/12/2009 9:11	CITY BLANK	Priority Organic Pollutants	Acenaphthylene	0.96	U	ug/L	0.96	3.8
1/12/2009 9:11	CITY BLANK	Priority Organic Pollutants	Butyl benzyl phthalate	4.8	U	ug/L	4.8	19
1/12/2009 9:11	CITY BLANK	Priority Organic Pollutants	Chrysene	0.96	U	ug/L	0.96	3.8
1/12/2009 9:11	CITY BLANK	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.96	U	ug/L	0.96	3.8
1/12/2009 9:11	CITY BLANK	Priority Organic Pollutants	Dimethyl phthalate	9.6	UJ	ug/L	9.6	38
1/12/2009 9:11	CITY BLANK	Priority Organic Pollutants	Endrin	1.4	U	ug/L	1.4	5.7
1/12/2009 9:11	CITY BLANK	Priority Organic Pollutants	Hexachloroethane	2.9	U	ug/L	2.9	11
1/12/2009 9:11	CITY BLANK	Priority Organic Pollutants	Phenol	0.96	U	ug/L	0.96	3.8
1/12/2009 9:11	CITY BLANK	Priority Organic Pollutants	delta-BHC	1.4	U	ug/L	1.4	5.7
1/12/2009 9:11	CITY BLANK	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	2.9	U	ug/L	2.9	11
1/12/2009 9:11	CITY BLANK	Priority Organic Pollutants	4-Nitrophenol	14	U	ug/L	14	57
1/12/2009 9:11	CITY BLANK	Priority Organic Pollutants	Aldrin	1.4	U	ug/L	1.4	5.7
1/12/2009 9:11	CITY BLANK	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	0.96	U	ug/L	0.96	3.8
1/12/2009 9:11	CITY BLANK	Priority Organic Pollutants	Endrin aldehyde	3.8	U	ug/L	3.8	15
1/12/2009 9:11	CITY BLANK	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	1.9	U	ug/L	1.9	7.6
1/12/2009 9:11	CITY BLANK	Priority Organic Pollutants	2-Nitrophenol	0.96	U	ug/L	0.96	3.8
1/12/2009 9:11	CITY BLANK	Priority Organic Pollutants	Acenaphthene	0.96	U	ug/L	0.96	3.8
1/12/2009 9:11	CITY BLANK	Priority Organic Pollutants	Bis(2-chloroethyl)ether	0.96	U	ug/L	0.96	3.8
1/12/2009 9:11	CITY BLANK	Priority Organic Pollutants	Diethyl phthalate	0.96	U	ug/L	0.96	3.8
1/12/2009 9:11	CITY BLANK	Priority Organic Pollutants	Fluorene	0.96	U	ug/L	0.96	3.8

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Components	Results	Remarks	Units	MDL	PQL
1/12/2009 9:11	CITY BLANK	Priority Organic Pollutants	Hexachlorocyclopentadiene	2.9	U	ug/L	2.9	11
1/12/2009 9:11	CITY BLANK	Priority Organic Pollutants	Isophorone	0.96	U	ug/L	0.96	3.8
1/12/2009 9:11	CITY BLANK	Priority Organic Pollutants	Naphthalene	0.96	U	ug/L	0.96	3.8
1/12/2009 9:11	CITY BLANK	Priority Organic Pollutants	Nitrobenzene	1.9	U	ug/L	1.9	7.6
1/12/2009 9:11	CITY BLANK	Priority Organic Pollutants	2-Chloronaphthalene	0.96	U	ug/L	0.96	3.8
1/12/2009 9:11	CITY BLANK	Priority Organic Pollutants	4,4'-DDE	1.4	U	ug/L	1.4	5.7
1/12/2009 9:11	CITY BLANK	Priority Organic Pollutants	Benzo(a)anthracene	0.96	U	ug/L	0.96	3.8
1/12/2009 9:11	CITY BLANK	Priority Organic Pollutants	Benzo(a)pyrene	0.96	U	ug/L	0.96	3.8
1/12/2009 9:11	CITY BLANK	Priority Organic Pollutants	Dieldrin	1.4	U	ug/L	1.4	5.7
1/12/2009 9:11	CITY BLANK	Priority Organic Pollutants	Endosulfan I	3.8	U	ug/L	3.8	15
1/12/2009 9:11	CITY BLANK	Priority Organic Pollutants	Fluoranthene	0.96	U	ug/L	0.96	3.8
1/12/2009 9:11	CITY BLANK	Priority Organic Pollutants	Hexachlorobenzene	0.96	U	ug/L	0.96	3.8
1/12/2009 9:11	CITY BLANK	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.96	U	ug/L	0.96	3.8
1/12/2009 9:11	CITY BLANK	Priority Organic Pollutants	Pyrene	0.96	U	ug/L	0.96	3.8
1/12/2009 9:11	CITY BLANK	Priority Organic Pollutants	beta-BHC	1.4	U	ug/L	1.4	5.7
1/12/2009 9:11	CITY BLANK	Priority Organic Pollutants	2,4,6-Trichlorophenol	0.96	U	ug/L	0.96	3.8
1/12/2009 9:11	CITY BLANK	Priority Organic Pollutants	2,6-Dinitrotoluene	0.96	U	ug/L	0.96	3.8
1/12/2009 9:11	CITY BLANK	Priority Organic Pollutants	2-Chlorophenol	0.96	U	ug/L	0.96	3.8
1/12/2009 9:11	CITY BLANK	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.96	U	ug/L	0.96	3.8
1/12/2009 9:11	CITY BLANK	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	14	U	ug/L	14	57
1/12/2009 9:11	CITY BLANK	Priority Organic Pollutants	Di-n-octyl phthalate	0.96	U	ug/L	0.96	3.8
1/12/2009 9:11	CITY BLANK	Priority Organic Pollutants	2,4-Dichlorophenol	0.96	U	ug/L	0.96	3.8
1/12/2009 9:11	CITY BLANK	Priority Organic Pollutants	2,4-Dinitrotoluene	0.96	U	ug/L	0.96	3.8
1/12/2009 9:11	CITY BLANK	Priority Organic Pollutants	4,4'-DDD	1.4	U	ug/L	1.4	5.7
1/12/2009 9:11	CITY BLANK	Priority Organic Pollutants	4-Bromophenyl phenyl ether	0.96	U	ug/L	0.96	3.8
1/12/2009 9:11	CITY BLANK	Priority Organic Pollutants	Benzo(b)fluoranthene	0.96	U	ug/L	0.96	3.8
1/12/2009 9:11	CITY BLANK	Priority Organic Pollutants	Benzo(k)fluoranthene	0.96	U	ug/L	0.96	3.8
1/12/2009 9:11	CITY BLANK	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	2.9	U	ug/L	2.9	11
1/12/2009 9:11	CITY BLANK	Priority Organic Pollutants	1,1-Dichloroethene	0.5	U	ug/L	0.5	2
1/12/2009 9:11	CITY BLANK	Priority Organic Pollutants	2,4-Dinitrophenol	14	U	ug/L	14	57
1/12/2009 9:11	CITY BLANK	Priority Organic Pollutants	Anthracene	0.96	U	ug/L	0.96	3.8
1/12/2009 9:11	CITY BLANK	Priority Organic Pollutants	Benzidine	96	U	ug/L	96	380
1/12/2009 9:11	CITY BLANK	Priority Organic Pollutants	Di-n-butyl phthalate	4.8	U	ug/L	4.8	19
1/12/2009 9:11	CITY BLANK	Priority Organic Pollutants	Endosulfan sulfate	1.4	U	ug/L	1.4	5.7

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Components	Results	Remarks	Units	MDL	PQL
1/12/2009 9:11	CITY BLANK	Priority Organic Pollutants	Hexachlorobutadiene	2.9	U	ug/L	2.9	11
1/12/2009 9:11	CITY BLANK	Priority Organic Pollutants	Pentachlorophenol	2.9	U	ug/L	2.9	11
1/12/2009 9:11	CITY BLANK	Priority Organic Pollutants	Phenanthrene	0.96	U	ug/L	0.96	3.8
1/12/2009 9:11	CITY BLANK	Priority Organic Pollutants	alpha-BHC	1.4	U	ug/L	1.4	5.7
1/12/2009 9:11	CITY BLANK	Priority Organic Pollutants	gamma-BHC	1.4	U	ug/L	1.4	5.7
1/12/2009 8:47	TRIP BLANK	Priority Organic Pollutants	1,1-Dichloroethene	0.5	U	ug/L	0.5	2

Appendix F. Toxicology Meter ID

FDEP Biology Laboratory - Bioassay Instrument Identification

Test ID: City Industries Ground Water Remediation

Test Dates: January 13 - 17, 2009

SRT Dates: January 6 - 10, 2009

METER / DEVICE	ID	SOP	Parameter	Method	√ used
YSI Model 58 Dissolved Oxygen Meter	90H018262	TA06_04	Dissolved Oxygen	SM 4500 O G	√
Accumet AR-10 pH Meter	93312105	TA06_23	pH	SM 4500 H^+	√
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 electronic and non-mercury filled thermometers.
Insert other device information in blank spaces(if used). Test ID = Facility or SRTs (acute SRT--Chronic SRT)

Comments:

V 1.4 8/21/08 BA

The Bioassay of the City Industries Ground Water Remediation Plant effluent sampled on January 12, 2009. NPDES# FL0043265.

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

Transaction Code	NPDES NUMBER	YR/MO/DA	Insp Type	Inspector	Fac Type
1 N 2 5	3 F L 0 0 4 3 2 6 5 11	12 0 9 0 1 1 2	18 **B**	19 **S**	20 1

Remarks

N P D E S # 4 8 - F L 0 0 4 3 2 6 5

66

The Priority Pollutants Analysis of the City Industries Ground Water Remediation Plant effluent sampled on January 12, 2009. NPDES# FL0043265.

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

Transaction Code	NPDES NUMBER	YR/MO/DA	Insp Type	Inspector	Fac Type
1 N 2 5	3 F L 0 0 4 3 2 6 5 11	12 0 9 0 1 1 2	18 **X**	19 **S**	20 1

Remarks

N P D E S # 4 8 - F L 0 0 4 3 2 6 5

66

Biological Analyses of the City Industries Ground Water Remediation Plant effluent sampled on January 12, 2009. NPDES# FL0043265.

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

Transaction Code	NPDES NUMBER	YR/MO/DA	Insp Type	Inspector	Fac Type
1 N 2 5	3 F L 0 0 4 3 2 6 5 11	12 0 9 0 1 1 2	18 **S**	19 **S**	20 1

Remarks

N P D E S # 4 8 - F L 0 0 4 3 2 6 5

66