

Effluent Quality Assessment

Dunedin Wastewater Treatment Plant

Pinellas County

NPDES #FL0021326

Sampled June 16, 17, 18 and 20, 2008

September 2008

Biology Section
Bureau of Laboratories
Division of Environmental Assessment and Restoration

Quality Manual No. 870346G
NELAC Certification No. E31780

City of Dunedin WWTP, 1140 Highland Ave., Dunedin, Pinellas County, Florida, 34697, NPDES #FL0021326. Effluent samples for bioassay and chemical analyses were collected for this facility on June 16, 2008. Additional effluent samples for chemical analyses were collected on June 17 and 18, 2008. Additional bioassay samples were collected on June 18 and 20, 2008.

Introduction

City of Dunedin WWTP is a Type I domestic advanced wastewater treatment plant which uses the A20 biological nutrient removal (BNR) process to treat domestic wastewater. The facility has a design flow of 6.0 million gallons daily (MGD) 12-month average daily flow (12MADF). The 12MADF through the facility from June 30, 2007, to May 31, 2008, was 1.477 MGD. The wastewater treatment plant consists of:

- a head works with two coarse bar screens, one mechanically and one manually cleaned;
- a grit removal and handling unit with cyclone and classifier;
- two fine bar screens, one mechanically and one manually cleaned;
- a raw sewage pumping station, pumping to both process and flow equalization;
- a sideline flow equalization basin;
- a plant influent flow meter using a 0.46 m (18-inch) Parshall flume;
- four anaerobic basins;
- four anoxic basins;
- four identical aeration basins;
- two clarifiers;
- four muti-media denitrification filters using methanol;
- a clear well;
- a backwash holding basin;
- two chlorine contact basins;
- two re-aeration basins;
- a dechlorination basin; and,
- parallel 21 and 36 inch pipes to the outfall.

The residuals handling stream consists of:

- a dissolved air flotation thickener with polymer additions;
- a rotary drum thickener; and,
- 4 aerobic digesters.

Stabilized residuals are land applied.

Filter backwash, residuals de-watering and other plant process waters are returned to the first anaerobic basin. Alum feed is available to the clarifiers to aid in phosphorous control.

Chlorination occurs in a gaseous chlorination system. Sulfur dioxide is used for dechlorination. Treated effluent is intermittently discharged to the Class III Marine waters of St. Joseph's Sound at discharge location D-001, which is approximately 365.8 m (1200 feet) in length and discharges at a depth of about 3.35 m (11 feet). The point of discharge is located approximately at latitude 28° 01' 10"N, longitude 82° 47' 39" W.

The facility's reuse system (R-001) is a 6.0 MGD annual average daily flow (AADF) permitted capacity slow rate public access system consisting of an urban reuse system within the city limits of Dunedin. Wet weather and reject storage capacity is not required for the facility because it has an alternative disposal site at Outfall D-001.

The facility has no Administrative Orders, Consent Orders, or mixing zones. A review of discharge monitoring report (DMR) data for the past year showed violations of permit conditions for total suspended solids (TSS) in December 2007 (value 10.6 mg/L, permit limit 10 mg/L) and,

fecal coliforms in October 2007 (value 78 colony forming units (CFU)/100 mL, permit limit 25 CFU/100 mL). (Facility information provided by Peter Wenner of FDEP Southwest District.)

Methods

Samples were collected on June 16, 2008, from the EFD-01 NPDES sampling point for Outfall D-001 by Peter Wenner, Michele Duggan, and Jason Cohen (FDEP Southwest District). Effluent samples for the bioassays were also collected on June 18 and 20, 2008 by Peter Wenner. Samples were collected following DEP-SOP-001/01 FS 2400 Wastewater Sampling. All DEP SOPs are available on the web at: http://www.floridadep.org/labs/qa/sops.htm.

See Appendix A for the completed chain of custody forms.

The chronic bioassay tests were performed in accordance with the facility's NPDES permit requirement of a screening test consisting of a control and a single concentration of 100% effluent.

Dunnett's procedure (available at Statistical Analysis for Biological Methods http://www.epa.gov/EERD/stat2.htm) and t-tests were used to analyze data from these tests.

The chronic screening toxicity tests and algal growth potential test were performed following internal DEP SOPs TA07_05, TA07_09, and TA08_01 through TA08_09. All internal DEP SOPs are available on the web at: http://www.floridadep.org/labs/cgi-bin/sop/biosop.asp.

Prior to test initiation, the first bioassay sample (LIMS sample #1108482) was aerated for 30 minutes at approximately 100 bubbles per minute, to decrease the dissolved oxygen concentration from 10.3 mg/L to 7.7 mg/L. The second and third bioassay samples did not need initial aeration.

An aliquot of the AGP sample was salinity adjusted to meet the minimum salinity requirements of the marine test species. Both a freshwater and a marine AGP test were performed.

Toxicity Test Results

Tests were performed June 17 – 24*, 2006.

Ceriodaphnia dubia chronic screening bioassay – NOEC = 100%

Pimephales promelas chronic screening bioassay – NOEC = 100%

The bioassay samples were not chronically toxic to the test organisms.

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

*NOTE: The *Ceriodaphnia dubia* bioassay was terminated on test day 6 (June 23, 2008) because termination criteria were met (≥ 60% of surviving control females having 3rd brood, and mean neonates per surviving control female ≥ 15).

Algal Growth Potential

The effluent Algal Growth Potential (AGP) was 0.436 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 phosphorus-limited. The predicted AGP based on orthophosphate concentrations was 6.0 (±20%) mg dry wt/L (Table 1; Miller et al. 1978).

The effluent Algal Growth Potential (AGP) was 3.0 U (U - Material analyzed for but not detected; value reported is the method detection limit) 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, Marshall Faircloth et. al., FDEP, with Ron Raschke USEPA Region 4, 1987).

See Table 1 for AGP results.

Chemistry Results

Total residual chlorine and total ammonia were not detected in any of the three bioassay samples in the laboratory. Total ammonia (0.05 U mg/L) was not detected in the sample collected and preserved for chemical analysis; therefore, the unionized ammonia concentration in the sample preserved for chemical analysis could not be calculated.

Arsenic, dibromochloromethane, nickel and zinc were detected in the effluent at levels that comply with Class III Marine water quality criteria (62-302.530, F.A.C.). Aluminum, cadmium and lead, were detected between the laboratory method detection limits (MDL) and practical quantitation limits (PQL).

Copper (11.5 µg/L) and total residual chlorine (TRC) (0.02 mg/L) in the effluent exceeded both Class III marine criteria and permit conditions, respectively, for copper (≤ 3.7 µg/L; 62-302.530(24), F.A.C.; NPDES permit # FL0021326), and TRC (≤0.01 mg/L; 62-302.530(18) F.A.C.). Another sample from the EFD-01 NPDES sampling point (Field ID 36485) was tested in the field for TRC (result, 2.2 mg/L) and also exceeded Class III marine water criteria and permit conditions.

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 samples collected from EFD-01 for this facility on June 16, 18, and 20, 2008, were not chronically toxic to either test species during the 7-day chronic screening bioassays. The effluent AGP result was less than the "problem" threshold for both freshwater and marine receiving waters. Effluent copper (11.5 µg/L) and total residual chlorine (TRC) (0.02 mg/L) exceeded Class III marine criteria and 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 1a. Measured and predicted algal growth potential (AGP; mg dry weight/L) for orthophosphate (OP) and total phosphorus (TP) limitation of the freshwater species *Pseudokirchneriella subcapitata* for samples collected from the City of Dunedin WWTP on June 16, 2008.

City of Dunedin Wastewater Treatment Plant NPDES# FL0021326					
Location	AGP (measured)	Predicted AGP (OP) ± 20%	Predicted AGP (TP) ± 20%	Inorganic N:P ratio	Total N:P ratio
Effluent	0.436	6.0 ± 1.2	21.1 ± 4.2	12.9	21.2

Table 1b. Measured algal growth potential (AGP; mg dry weight/L) of the saltwater species *Dunaliella tertiolecta* and ratios of nitrogen to phosphorus for samples collected from the City of Dunedin WWTP on June 16, 2008.

City of Dunedin Wastewater Treatment Plant NPDES# FL0021326			
Location	AGP (measured)	Inorganic N:P ratio	Total N:P ratio
Effluent	3.0 U	12.9	21.2
U - Material analyzed for but not detected; value reported is the method detection limit			

Table 2. Effluent limits, Class III Criteria for predominantly marine waters and chemical data for samples collected from City of Dunedin WWTP on June 16, 18, and 20, 2008.

City Of Dunedin WWTP NPDES# FL0021326	Class III Criteria	Effluent Limits	Effluent		
Organic Constituents (µg/L)					
Dibromochloromethane	≤ 22 a	≤ 34 a	28	s	
Metals (µg/L unless otherwise noted)					
Aluminum	≤ 1500	-	130	I	
Arsenic	≤ 50	-	4.9		
Cadmium	≤ 8.8	-	0.06	I	
Calcium (mg/L)	-	-	117		
Chromium-III	-	-	1	U	
Copper	≤ 3.7	≤ 3.7 s	11.5	F	1 I *
Iron	≤ 300	-	30	U	
Lead	≤ 8.5	-	0.33	I	
Magnesium (mg/L)	-	-	18.6		
Mercury	≤ 0.025	-	-		
Nickel	≤ 8.3	Report	1.49		
Selenium	≤ 71	-	0.5	U	
Silver	≤ 2.3	-	0.025	U	
Zinc	≤ 86	-	33		
Nutrients (mg/L)					
Ortho-phosphate	-	-	0.014		
Total Phosphorus	-	≤ 2.0 s	0.049	I	
Total Ammonia	-	-	0.05	U	
Un-ionized Ammonia	-	-	≤ 0.02	c	
Nitrate and Nitrite	-	-	0.13	F	0.011 *
Total Kjeldahl Nitrogen	-	-	0.91	J	
Organic Nitrogen	-	-	0.885	c	
Total Nitrogen	-	≤ 6.0 s	1.04	c	
General Physical and Chemical Parameters					
Dissolved Oxygen (mg/L)	≥ 4.0 s	≥ 5.0 s	8.3		
pH (SU)	6.5 - 8.5 s	6.5 - 8.5 s	7.9		
Conductivity (µmhos/cm)	-	-	0.73		
Temperature °C	-	-	29.2		
Salinity	-	-	0.85	£	
Total Residual Chlorine (mg/L)	≤ 0.01 s	≤ 0.01 s	0.02		2.2 †
Chlorophyll a (µg/L) - Corrected	-	-	0.73	I	
Phaeophytin (µg/L)	-	-	0.24	U	
Total Suspended Solids (mg/L)	-	≤ 10.0 s	4	U	
CBOD, 5 day (mg/L), N - inhibited	-	≤ 10.0 s	6		
Flow (MGD)	-	6.0 a	1.491	a	
Hardness (mg $CaCO_3$)	-	-	368.74	c	

Value exceeds the Class III Water Quality Criteria or permit limits

a - Annual average
b - Value is calculated based on hardness
c - Value is calculated
s - Single sample
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
† - Detected in alternate sample (field ID 36485)
* - Detected in Equipment Blank

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Request Number: RQ-2008-06-09-33
City of Dunedin - Mainland WWTF

Event ID *

Requester: Jennifer Paris
Field Report Prepared By:

Customer: SW-DIST
Collected By: PETER WENNER, JASON COHEN
Send Final Report To: [redacted] TOM GUCCIARDO

Project ID: FYI3
Sampling Agency: FDEP, SWD

PMAS: 1143

Lab ID *	Location	Collection (begin)	Collection (end)	Bottle Group(s)**
	EFD-01	☒ Comp ☐ Grab Date 6/16/08 Time 0800 Eastern Central	Date 6/16/08 Time 0800 Eastern Central	A
	Field ID 36483	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number
	Matrix (Include type e.g. Salt, Fresh, etc) DW EFFLUENT; Temp (C); pH	Sample Depth ☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number
	Latitude 28 ° 01 ' 10.3 "	Longitude 82 ° 47 ' 13.6 "	Comments TOXICITY SAMPLES	

Lab ID *	Location	Collection (begin)	Collection (end)	Bottle Group(s)**
	EQUIPMENT BLANK	☐ Comp ☒ Grab Date 6/16/08 Time 748 Eastern Central	Date Time Eastern Central	B
	Field ID 36486	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number
	Matrix (Include type e.g. Salt, Fresh, etc) DI H_2O; Temp (C); pH	Sample Depth ☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number
	Latitude ° ' "	Longitude ° ' "	Comments	

Lab ID *	Location	Collection (begin)	Collection (end)	Bottle Group(s)**
		☐ Comp ☐ Grab Date Time Eastern Central	Date Time Eastern Central	
	Field ID	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number
	Matrix (Include type e.g. Salt, Fresh, etc); Temp (C); pH	Sample Depth ☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number
	Latitude ° ' "	Longitude ° ' "	Comments	

Lab ID *	Location	Collection (begin)	Collection (end)	Bottle Group(s)**
		☐ Comp ☐ Grab Date Time Eastern Central	Date Time Eastern Central	
	Field ID	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number
	Matrix (Include type e.g. Salt, Fresh, etc); Temp (C); pH	Sample Depth ☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number
	Latitude ° ' "	Longitude ° ' "	Comments 2 Signature Req'd in Lab by JDP 937 6.17.08	

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	6/16/08 1205	DHL	Fahmeen Ghanem	06/17/08 0:50				

* Shaded Areas for Lab use only.

** Please see reverse side for Bottle Group information.

last revised October 1, 2003

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Event ID *

Request Number: RQ-2008-06-09-33
City of Dunedin - Mainland WWTF

Requester: Jennifer Paris
Collected By: Michele Duggan
Sampling Agency: FDEP

Field Report Prepared By: Michele Duggan
Send Final Report To Ilia Balcom

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

Lab ID *	Location EFD-01			☒ Comp ☐ Grab	Collection (begin) Date 06/6/08 Time 1015 Eastern Central		Collection (end) Date 06/7/08 Time 1045 Eastern Central		Bottle Group(s)** A
	Field ID 36485			Tot Res Chlorine (mg/L) 22.2 mg/L	Diss Oxygen (mg/L)		Storet Station Number		
	Matrix (Include type e.g. Salt, Fresh, etc) EFFLUENT	Temp (C)	pH	Sample Depth ☐ m ☐ ft		☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)		NPDES Number	
	Latitude o ' " .	Longitude o ' " .		Comments					
Lab ID *	Location EFB-01			☐ Comp ☒ Grab	Collection (begin) Date 06/7/08 Time 1115 Eastern Central		Collection (end) Date Time Eastern Central		Bottle Group(s)** C
	Field ID 36482			Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)		Storet Station Number		
	Matrix (Include type e.g. Salt, Fresh, etc) EFFLUENT	Temp (C)	pH	Sample Depth ☐ m ☐ ft		☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)		NPDES Number	
	Latitude o ' " .	Longitude o ' " .		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 o ' " .	Longitude o ' " .		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 o ' " .	Longitude o ' " .		Comments					

Relinquished By:	Date/Time	Shipping Method:	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
Michele Duggan	06/7/08 1400	DHL	ABP	6-18-08 0850				

* Shaded Areas for Lab use only.

** Please see reverse side for Bottle Group information.

last revised October 1, 2003

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Request Number: RQ-2008-06-09-33
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Send Final Report To ~~Ila Balcom~~ TOM GUCCIARDO

Project ID: FYI3
Sampling Agency: FDEP - SWD

PMAS: 1143

Lab ID *	Location			Collection (begin)	Collection (end)	Bottle Group(s)**
	EFD-01		☐ Comp ☒ Grab	Date 6/18/08 Time 0755 Eastern Central	Date Time Eastern Central	A
	Field ID: 36480		Tot Res Chlorine (mg/L): 0.02	Diss Oxygen (mg/L): 8.33	Storet Station Number	
	Matrix (Include type e.g. Salt, Fresh, etc): WWTP EFFLUENT	Temp (C): 29.17 pH: 7.93	Sample Depth ☐ m ☐ ft: 0.78	☒ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number	
	Latitude: 28 ° 01 ' 10.3 "	Longitude: 82 ° 47 ' 13.6 "	Comments: TOXICITY SAMPLE COMPOSITE START DATE 6/17/08 START TIME 0800 STOP DATE 6/18/08 STOP TIME 0800			

Lab ID *	Location			Collection (begin)	Collection (end)	Bottle Group(s)**
	FIELD BLANK		☐ Comp ☒ Grab	Date 6/18/08 Time 0815 Eastern Central	Date Time Eastern Central	B
	Field ID: 36481		Tot Res Chlorine (mg/L):	Diss Oxygen (mg/L):	Storet Station Number	
	Matrix (Include type e.g. Salt, Fresh, etc): DI H_2O	Temp (C): pH:	Sample Depth ☐ m ☐ ft:	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number	
	Latitude: o ' "	Longitude: o ' "	Comments:			

Lab ID *	Location			Collection (begin)	Collection (end)	Bottle Group(s)**
			☐ Comp ☐ Grab	Date Time Eastern Central	Date Time Eastern Central	
	Field ID:		Tot Res Chlorine (mg/L):	Diss Oxygen (mg/L):	Storet Station Number:	
	Matrix (Include type e.g. Salt, Fresh, etc):	Temp (C): pH:	Sample Depth ☐ m ☐ ft:	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number	
	Latitude: o ' "	Longitude: o ' "	Comments:			

Lab ID *	Location			Collection (begin)	Collection (end)	Bottle Group(s)**
			☐ Comp ☐ Grab	Date Time Eastern Central	Date Time Eastern Central	
	Field ID:		Tot Res Chlorine (mg/L):	Diss Oxygen (mg/L):	Storet Station Number:	
	Matrix (Include type e.g. Salt, Fresh, etc):	Temp (C): pH:	Sample Depth ☐ m ☐ ft:	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number	
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* Shaded Areas for Lab use only.

** Please see reverse side for Bottle Group information.

last revised October 1, 2003

Florida Department of Environmental Protection

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Event ID *

Request Number: RQ-2008-06-09-33
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Requester: Jennifer Paris
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Customer: SW-DIST
Collected By: PETER WENNER
Send Final Report To: [redacted] TOM GUCCIARDO

Project ID: FYI3
Sampling Agency: FDEP - SWD

PMAS: 1143

Lab ID *	Location			☒ Comp ☐ Grab	Collection (begin) Date Time Eastern Central	Collection (end) Date Time Eastern Central	Bottle Group(s)**
	EFD - 01				6/19/08 0800	6/20/08 0800	A
	Field ID: 36484			Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number	
	Matrix (Include type e.g. Salt, Fresh, etc): WWTP EFFLUENT	Temp (C)	pH	Sample Depth ☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number	
	Latitude: 28 ° 01 ' 10.3 "	Longitude: 82 ° 47 ' 13.6 "		Comments: 3-TOXICITY SAMPLES. 24-HOUR COMPOSITE			

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			

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			

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[signature]	6/20/08 0915	DHL	M Fairchild	6-21-08 1010				

3 BIOASSAY Trip Temp 0.8 °C MF 6-21-08

* Shaded Areas for Lab use only.

** Please see reverse side for Bottle Group information.

last revised October 1, 2003

Appendix B. Bench Sheets

FDEP Biology Laboratory - Chronic Screen Bench Sheet

Ceriodaphnia dubia

Facility: City of Dunedin WWTP
Address: 1140 Highland Avenue Dunedin 34697
County: Pinellas
NPDES Permit #: FL 0021326
Contact/District: Pete Werner / Southwest
LIMS entry: 7-1-08 MF verified: 7-1-08 BA

Diluent/ Batch: 20% DMW / 6-9-08 Test Days Used: 0-3
20% DMW / 6-17-08 Test Days Used: 4-5

SOP#: TA07_05 EPA 821-R-02-013 Method 1002.0

Start Date: 6-17-08 Time: 1200
End Date: 6-23-08 Time: 1400

Organism: *Ceriodaphnia dubia*
Organism Batch #: 22-08
Organism age : <24 hours
Feeding: Prior to Test and Daily
Food: YCT *P. subcapitata*
Food Batch: 7-26-07 1-31-08
Chamber size : 30 ml
Sample volume : 20 ml

Sample Received	Lab Sample #	LIMS Job #	LIMS Sample #	Collection Date/Time	Received Date/Time
Test Day 0	1	TLH-2008-06 17-40	1108482	6-16-08 0800	6-17-08 0957
Test Day 2	2	TLH-2008-06-19-11	1109408	6-18-08 0800	6-19-08 1025
Test Day 4	3	TLH-2008-06-23505	1109948	6-20-08 0800	6-21-08 1010

→ Stray mark

Water Quality Parameters	Field Chlorine (mg/L)			Lab Chlorine (mg/L)			Alkalinity (mg/L as $CaCO_3$)		
Lab Sample #:	1	2	3	1	2	3	1	2	3
Sample:	Not measured	0.02	Not measured	<0.03	<0.03	<0.03	246	235	215
Diluent/Control:				<0.03	<0.03	<0.03	MF 92	92	109/98 MF
Method:	—	Hach	—	Hach	Hach	Hach	Hach	Hach	Hach
Measured by:	—	P. Werner	—	JD	MF	MF	BA	BA	MF/BA
Verified by:	MF	MF	MF	MF	JD	JD	MF	MF	BA/MF

	Conductivity (circle one) (umhos-cm) (mmhos-cm)			Ammonia (mg/L)			Hardness (mg/L as $CaCO_3$)		
Lab Sample #:	1	2	3	1	2	3	1	2	3
Sample:	179	1577	1623	<0.017	<0.017	<0.017	381	352	243
Diluent/Control:	1574 MF	MF 1582	175	<0.017	<0.017	<0.017	MF 180	80	91
Method:	Mettler	Mettler	Mettler	Denver	Denver	Denver	Hach	Hach	Hach
Measured by:	MF	MF	MF	MF	BA	MF	BA	BA	MF/BA
Verified by:	JD	JD	JD	JD	MF	JD	MF	MF	BA/MF

Temperature Shipped ≤6° C (all samples) (yes) no
Holding Time ≤36 hours (yes) no
Light Intensity : 50 - 100 ft. candles
Photoperiod : 16 light 8 dark Test incubated in #2
Temperature Range °C:
Incubator # 2 min. 22.3 max. 25.6 mean 24.0
Room B246 min. 25.7 max. 26.6 mean 26.2

Test Replicate	Loaded from culture vial
1	A1
2	A4
3	A22
4	A26
5	A9
6	A28
7	B23
8	B25
9	B26
10	B29

Statistics	
Control % CV:	14.3
Dunnetts PMSD:	27.02%
Reproduction NOEC:	100%
Survival NOEC:	100%
T-test value	1.460
T- table value:	1.734 MF 1.734
df:	18

Investigators' signatures
Marshall Faircloth
Bruce Neas
James Daniels

Loretta C. Wolfe
REVIEWER

Comments:

Test Page 1 of 3

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revised 08/24/06 MF/SP

FDEP Biology Laboratory - Chronic Screen Bench Sheet

Ceriodaphnia dubia Survival and Reproduction

Facility: City of Dunedin

LIMS Sample # 110482 for lab sample 1.

Start Date: 6-17-08 Time: 1200

End Date: 6-23-08 Time: 1400

Conc.	Day	Replicate Number 1	2	3	4	5	6	7	8	9	10	Total Neonates	Surviving adults	Neonates per adult
Control	0*												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0		10	0
	3	0	0	0	0	4	0	0	0	0	0	4	10	0.4
	4	5	4	3	3	0	3	4	3	4	3	32	10	3.2
	5	6	8	8	6	9	7	8	9	7	9	77	10	7.7
	6	11	10	9	10	3	9	14	13	12	12	103	10	10.3
	7													
	8													
	Total	22	22	20	19	16	19	26	25	23	24	216	10	21.6

Organisms loaded by: MF	
Day	Counted/ verified by:
0	BA
1	MF
2	MF
3	MF
4	MF
5	MF
6	MF
7	—
8	—

Conc.	Day	Replicate Number 1	2	3	4	5	6	7	8	9	10	Total Neonates	Surviving adults	Neonates per adult
100% sample	0*												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0		10	0
	3	0	0	0	0	0	0	0	0	4	0	4	10	0.4
	4	4	0	2	3	3	4	5	0	0	4	25	10	2.5
	5	7	0	7	5	7	8	8	0	9	8	59	10	5.9
	6	12	0	8	8	9	9	12	0	16	7	81	10	8.1
	7													
	8													
	Total	23	0	17	16	19	21	25	0	29	19	169	10	16.9

Concentration	Mean neonates /adult	% survival
Control	21.6	100
100%	16.9	100

Test acceptability	
Mean control reproduction 15/female	(yes) no
3rd brood in 60% of surviving females	(yes) no
Control survival ≥80%:	(yes) no

Comments: Test terminated on Day 6 - control survival and reproduction criteria met. MF 6-23-07
Replicates 2 and 8 of 100% were IDed as female - aborted embryos in both replicates - MF 6-23-08

*Day 0 is test initiation day
X = Dead (original organism)

Appendix B. (continued)

FDEP Biology Laboratory - Chronic Screen Bench Sheet

Ceriodaphnia dubia Parameters

Facility: City of Dunedin

LIMS Sample # : 1108482 for lab sample 1

Circle µmhos-cm or mmhos-cm

Test Day ↓		Concentration	New Sample: Test Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity (µmhos/cm) (mmhos/cm)	Old Sample: Test Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity (µmhos/cm) (mmhos/cm)
Day 0	sample:	Control	M	8.1	25.2	7.7	179					
	1		M	8.3	24.8	8.1	1574					
	Measured by:			MF	MF	MF	MF					
	Recorded by:			MF	MF	MF	MF					
Day 1	sample:	Control	M	8.2	24.7	7.7	178	M	8.2	24.1	7.6	190
	1	100%	M	8.7	24.8	7.7	1592	M	8.6	24.1	7.7	1620
	Measured by:			MF	MF	MF	MF		MF	MF	MF	MF
	Recorded by:			MF	MF	MF	MF		MF	MF	MF	MF
Day 2	sample:	Control	M	8.2	24.1	7.8	182	M	8.3	24.6	7.6	186
	2	100%	M	8.7	25.4	7.6	1533	M	8.6	24.9	7.3	1608
	Measured by:			MF	MF	MF	MF		MF	MF	MF	MF
	Recorded by:			MF	MF	MF	MF		MF	MF	MF	MF
Day 3	sample:	Control	M	8.2	24.4	7.8	179	M	8.2	25.0	7.4	182
	2	100%	M	8.2	25.7	8.3	1547	M	8.5	24.9	7.3	1529
	Measured by:			MF	MF	MF	MF		MF	MF	MF	MF
	Recorded by:			MF	MF	MF	MF		MF	MF	MF	MF
Day 4	sample:	Control	M	8.2	24.8	~~8.3~~ 7.8	175	M	8.2	25.2	7.4	179
	3	100%	M	8.2	25.0	8.2	1590	M	8.5	25.2	7.1	1519
	Measured by:			MF	MF	MF	MF		MF	MF	MF	MF
	Recorded by:			MF	MF	MF	MF		MF	MF	MF	MF
Day 5	sample:	Control	M	8.3	24.3	7.8	172	M	8.2	25.0	7.4	190
	3	100%	M	8.4	25.5	7.6	1587	M	8.5	25.0	7.4	1602
	Measured by:			MF	MF	MF	MF		MF	MF	MF	MF
	Recorded by:			MF	MF	MF	MF		MF	MF	MF	MF
Day 6	sample:	Control	M					M	8.2	24.2	7.4	185
	3	100%	M	Not Renewed MF 6-23-08				M	8.5	24.1	7.4	1630
	Measured by:								MF	MF	MF	MF
	Recorded by:								MF	MF	MF	MF
Day 7	sample:	Control	M					M				
	3		M					M				
	Measured by:											
	Recorded by:											
Day 8	sample:	Control						M				
	3							M				
	Measured by:											
	Recorded by:											

Comments:

Replicate M= "Metered" vial, a surrogate vial for parameters

Test Page 3 of 3

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revised 08/24/06 MF/SP

FDEP Biology Laboratory - Chronic Screen Bench Sheet

Pimphales promelas or Menidia beryllina

Facility: City of Dunedin WWTP
Address: 1140 Highland Avenue, Dunedin, Fl. 34697
County: Pinellas
NPDES Permit #: FL 0021326
Contact/District: Pete Warner / Southwest

Test Species (circle one)
(P. promelas) SOP#: TA07_09 EPA-821-R-02-013 Method 1000.0
M. beryllina SOP#: TA07_14 EPA-821-R-02-014 Method 1006.0

Start Date: 6.17.08 Time: 1310
End Date: 6-24-08 Time: 1200

Diluent/ Batch:
MHW / 6-13-08 → 0-2 3 mf — Test Days Used: 0-4
MHW / 6-13-08 — Test Days Used: 5-6
ASW / _____ — Test Days Used: _____
ASW / _____ — Test Days Used: _____

Organism age : 2-8 hours / _____ days organism batch ~ P. promelas chronic 6-17-08
Feeding Prior to Test and Daily
Artemia Lot # : 38438
Chamber size : 1000 ml
Test volume : 500 ml

Artemia Batch #			
Day 0	101-08	Day 4	105-08
Day 1	102-08	Day 5	106-08
Day 2	103-08	Day 6	107-08

LIMS:	Date	Initials
Entry:	7-1-08	MF
Verification:	7-1-08	BA

Sample Received	Lab Sample #	LIMS Job #	LIMS Sample #	Collection Date/Time	Received Date/Time
Test Day 0	1	TLH- 2008-06-17-42	110882	6-16-08 0800	6-17-08 0957
Test Day 2	2	TLH- 2008-06-19-11	110940	6-18-08 0900	6-19-08 1025
Test Day 4	3	TLH- 2008-06-23-05	111998	6-20-08 0850	6-21-08 1010

Water Quality Parameters	Field Chlorine (mg/L)			Lab Chlorine (mg/L)			Alkalinity (mg/L as $CaCO_3$)			Hardness (mg/L as $CaCO_3$)		
Lab Sample #:	1	2	3	1	2	3	1	2	3	1	2	3
Sample:	Not measured	0.02	Not measured	<0.03	<0.03	<0.03	246	235	215	381	352	243
Diluent/Control:				<0.03	<0.03	<0.03	79	79	84	98	98	86
Method:	—	Hach	—	Hach	Hach	Hach	Hach	Hach	Hach	Hach	Hach	Hach
Measured by:	—	P. Warner	—	JD	MF	MF	BA	BA	MF	BA	BA	MF
Verified by:	MF	MF	MF	JD	JD	JD	MF	MF	MF	MF	MF	JD

	Conductivity (circle one) (umhos-cm) mmhos-cm			Ammonia (mg/L)			Salinity (ppth)		
Lab Sample#:	1	2	3	1	2	3	1	2	3
Sample:	1574	1577	1623	<0.017	<0.017	<0.017	<1	<1	<1
Diluent/Control:	341	334	317	<0.017	<0.017	<0.017	<1	<1	<1
Method:	Mettler	Mettler	Mettler	Denver	Denver	Denver	Mettler	Mettler	Mettler
Measured by:	JD	MF	MF	MF	BA	MF	JD	MF	MF
Verified by:	MF	JD	JD	JD	MF	JD	MF	JD	JD

Temperature Shipped ≤6° C (all samples) (yes) no
Holding Time ≤36 hours (yes) no
Light Intensity : 50 - 100 ft. candles
Photoperiod : 16 light 8 dark
Temperature Range °C:
Incubator # 2 min. 22.3 max. 25.6 mean 24.0
Water bath # ____ min. _____ max. _____ mean _____
Room B246 min. 25.7 max. 26.6 mean 26.2

Investigators' signatures
James Dimmitt
Marshall Faircloth
Brian Nash

Loretta C. Wolfe
REVIEWER

Statistics	
Control %cv:	7.24%
Dunnetts PMSD:	25.2%
Survival NOEC:	100%
Survival LOEC:	>100%
Growth NOEC:	100%
Growth LOEC:	>100%

Comments: Sample 1:
Initial D.O. 10.3, aerated for 30 mins @ 100bpm, Final D.O. 7.7 JD.

Appendix B. (continued)

FDEP Biology Laboratory - Chronic Screen Bench Sheet
Pimphales promelas or Menidia beryllina Survival

Facility: City of Reedy WWTP

Organism: *P. promelas* *M.beryllina* (circle one)

LIMS Sample Number: 1108482 for lab sample #1

Start Date: 6/17/08 Time: 13:10
End Date: 6-24-08 Time: 1200

Concentration	Replicate (Chamber)	TEST DAY 0	1	2	3	4	5	6	7
Control	A / #17	10	10	10	10	10	10	10	8 20
	B / #19	10	10	10	10	10	10	10	9 10
	C / #1	10	10	10	10	10	10	10	10
	D / #20	10	10	10	10	10	10	10	10
100 % sample concentration	A / #11	10	10	10	10	10	10	10	10
	B / #12	10	10	10	10	10	10	10	10
	C / #13	10	10	10	10	10	10	10	10
	D / #14	10	10	9 10	+0 29	9	8 10	7 10	7
Control	A	10							
	B	10							
	C	10							
	D	10							
% sample concentration	A	10							
	B	10							
	C	10							
	D	10							
Loaded by: JD	Checked by:		JD	MF	BA	BA	MF	JD	JD
Verified by: JD/MF									

Comments:

Appendix B. (continued)

Biology Laboratory Chronic Screening Bioassay Benchsheet

Parameters

P. promelas SOP TA-07_09 *M. beryllina* SOP TA-07_14

Sample Source: City of Dunedin WWTP

LIMS Sample #: 1108482 (for Lab sample #1)

Test Day			Old Sample							New Sample						
							Cond							Cond		
		Conc.	Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	(µmhos/cm) (mmhos/cm)	Salinity ppth		Test Rep.	pH (su)	Temp (°C)	DO (mg/L)	(µmhos/cm) (mmhos/cm)	Salinity ppth	
Day 0	sample:	Control								A	8.1	24.0	7.7	341	<1	
	1	100%								A	8.3	25.3	7.8	1630	<1	
	Measured by:															
	Recorded by:															
Day 1	sample:	Control	B	7.9	24.2	7.2	376	<1		B	8.0	24.0	7.7	343	<1	
	1	100%	B	8.5	24.4	7.2	1635	<1		B	8.7	24.0	7.6	1570	<1	
	Measured by:										BA	BA	BA	BA	BA	
	Recorded by:										BA	BA	BA	BA	BA	
Day 2	sample:	Control	C	8.1	24.8	6.5	333	<1		C	8.1	24.8	7.5	334	<1	
	2	100%	C	8.5	24.8	6.7	1580	<1		C	8.6	25.2	7.6	1554	<1	
	Measured by:			MF	MF	MF	MF	MF			MF	MF	MF	MF	MF	
	Recorded by:			MF	MF	MF	MF	MF			MF	MF	MF	MF	MF	
Day 3	sample:	Control	D	7.6	24.5	6.3	337	<1		D	7.9	24.0	7.5	324	<1	
	2	100%	D	8.4	24.6	6.0	1519	<1		D	8.2	24.1	7.5	1528	<1	
	Measured by:			MF	MF	MF	MF	MF			BA	BA	BA	BA	BA	
	Recorded by:			MF	MF	MF	MF	MF			BA	BA	BA	BA	BA	
Day 4	sample:	Control	A	7.6	24.5	6.4	333	<1		A	8.1	24.6	7.7	326	<1	
	3	100%	A	8.3	24.7	6.4	1511 Re	<1		A	8.2	24.8	8.0	1569	<1	
	Measured by:			BA	BA	BA	BA	BA			MF	MF	MF	MF	MF	
	Recorded by:			BA	BA	BA	BA	BA			MF	MF	MF	MF	MF	
Day 5	sample:	Control	B	7.7	24.9	5.8	346	<1		B	8.0	24.2	7.4	317	<1	
	3	100%	B	8.1	25.0	5.7	1560	<1		B	8.3	24.6	7.2	1590	<1	
	Measured by:			MF	MF	MF	MF	MF			MF	MF	MF	MF	MF	
	Recorded by:			MF	MF	MF	MF	MF			MF	MF	MF	MF	MF	
Day 6	sample:	Control	C	7.4	24.2	5.2	328	<1		C	7.9	24.0	7.5	322	<1	
	3	100%	C	8.1	24.2	5.1	1616	<1		C	8.3	24.8	7.4	1620	<1	
	Measured by:															
	Recorded by:															
Day 7	sample:	Control	D	7.6	24.6	5.9	324	<1								
	3	100%	D	8.2	24.6	5.3	1577	<1								
	Measured by:															
	Recorded by:															

Test Rep. = Replicate Record Salinity < 1 if freshwater Circle µmhos-cm or mmhos-cm

Comments:

revised 6/24/05 mf

Test Page 3 of 4 PAGE 000 03

Appendix B. (continued)

FDEP Biology Laboratory - Chronic Screen Bench Sheet

Facility: City of Dunedin WWTP

LIMS Sample Number: 1108482 for lab sample #1

Balance - Ohaus 250D
S-weights - Bio-S-weights -01
oven - 630 sediment oven

Concentration	Replicate	Pan #	Pan wt. (g)	Pan + Fish (g)	Fish wt. (g)	Original # Fish	Mean wt. (mg)
			mean wt = fish wt divided by 10 convert g to mg: move decimal 3 places to right				
Control	A	1	0.02820	0.03330	0.00510	10	0.510
	B	2	0.02775	0.02846	0.00571	10	0.571
	C	3	0.02097	0.02580	0.00483	10	0.483
	D	4	0.02350	0.02857	0.00507	10	0.507
100 % sample	A	5	0.02195	0.02775	0.00580	10	0.580
	B	6	0.02360	0.03193	0.00833	10	0.833
	C	7	0.02216	0.02862	0.00646	10	0.646
	D	8	0.02243	0.02785	0.00542	10	0.542
Control	A					10	
	B					10	
	C					10	
	D					10	
% sample	A					10	
	B					10	
	C					10	
	D					10	
	Weighed by initials:		SO	TJ			

Control mean weight - 0.518
100% mean weight - 0.650

Growth	%CV	PMSD
Control	7.24	25.2

Growth	Table (A)	Calculated	dF
T-test	~~1.96996~~	-1.96996	6
Survival T-Test	1.9430 (A) 1.94300	-0.16147	6

Drying	
Temperature °C:	60
Hours:	24

weigh in Grams

Tare Weighing Date: 62408	Final Weighing Date:		Measured Value		S-weight Value
Tare Pan 1 after Pan 5	0.02822 @	0.02820	S-weights at tare	0.02000 @	0.02000
Tare Pan 1 after Pan 8	0.02821 @	0.02820		0.05004 @	0.05000
Final Pan 1 after Pan 5	0.03335 @	0.03330	S-weights at final	0.02000 @	0.02000
Final Pan 1 after Pan 8	0.03334 @	0.03330		0.05002 @	0.05000

MF

Comments:

000 04

Test Page 4 of 4 PAGE revised 08/24/06 MF/SP

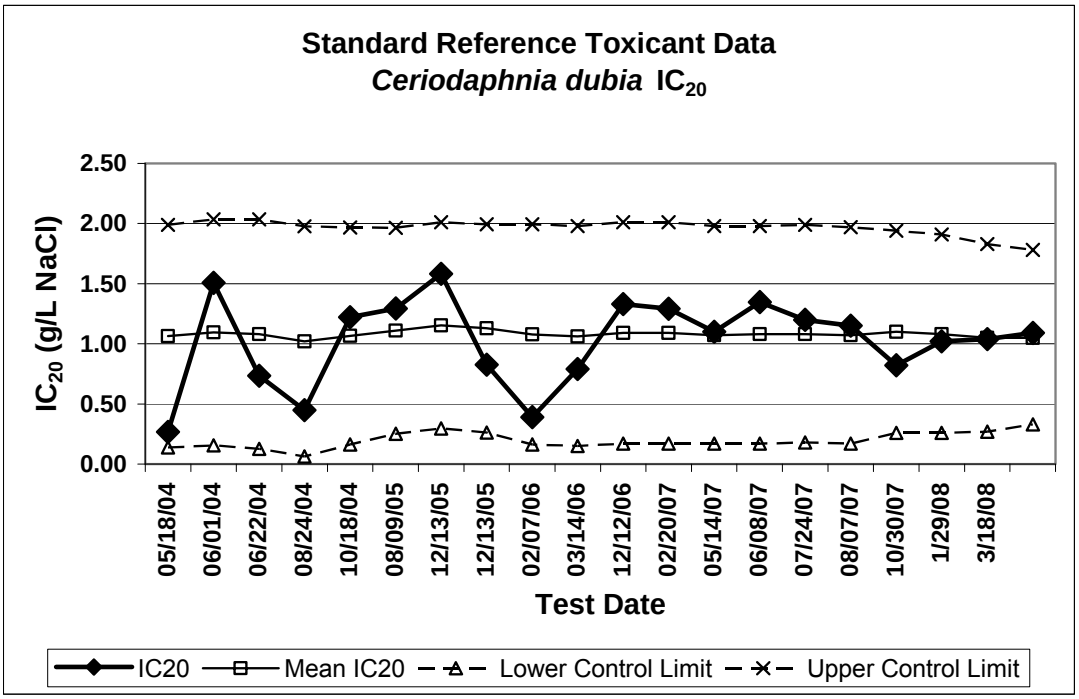
Appendix C. SRT Bench Sheets and Statistical Analysis

Florida Department of Environmental Protection
Bureau of Laboratories

Standard Reference Toxicant (SRT) Test Data - 7-Day Chronic Toxicity
Ceriodaphnia dubia (water flea) - Sodium Chloride (NaCl)

Date	IC20	Mean IC20	Std Dev	Lower Control Limit	Upper Control Limit
05/18/04	0.27	1.06	0.46	0.14	1.99
06/01/04	1.51	1.10	0.47	0.15	2.04
06/22/04	0.73	1.08	0.48	0.13	2.03
08/24/04	0.45	1.02	0.48	0.06	1.98
10/18/04	1.22	1.07	0.45	0.16	1.97
11/16/04	1.29	1.11	0.43	0.25	1.96
08/09/05	1.58	1.15	0.43	0.30	2.01
12/13/05	0.83	1.13	0.43	0.26	1.99
02/07/06	0.39	1.08	0.46	0.16	1.99
03/14/06	0.79	1.06	0.46	0.15	1.98
12/12/06	1.33	1.09	0.46	0.17	2.01
02/20/07	1.29	1.09	0.46	0.17	2.01
05/14/07	1.10	1.07	0.45	0.17	1.98
06/08/07	1.35	1.08	0.45	0.17	1.98
07/24/07	1.20	1.08	0.45	0.18	1.99
08/07/07	1.15	1.07	0.45	0.17	1.97
10/30/07	0.82	1.10	0.42	0.26	1.94
1/29/08	1.02	1.08	0.41	0.26	1.91
3/18/08	1.04	1.05	0.39	0.27	1.83
6/17/08	1.09	1.05	0.36	0.33	1.78

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



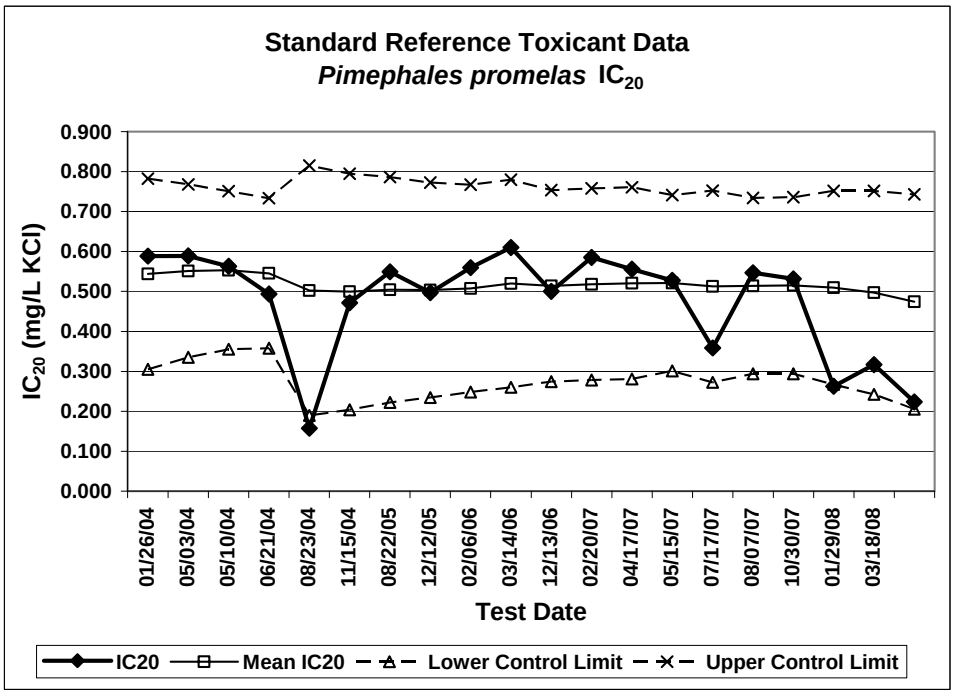
Appendix C. (continued)

Florida Department of Environmental Protection
Bureau of Laboratories

Standard Reference Toxicant (SRT) Test Data - 7-Day Chronic Toxicity
Pimephales promelas (fathead minnow) - Potassium Chloride (KCl)

Date	IC20	Mean IC20	Std Dev	Lower Control Limit	Upper Control Limit
01/26/04	0.588	0.544	0.12	0.305	0.782
05/03/04	0.589	0.551	0.11	0.335	0.768
05/10/04	0.563	0.553	0.10	0.355	0.751
06/21/04	0.494	0.546	0.09	0.358	0.734
08/23/04	0.157	0.503	0.16	0.190	0.815
11/15/04	0.472	0.499	0.15	0.204	0.795
08/22/05	0.549	0.504	0.14	0.222	0.786
12/12/05	0.497	0.503	0.13	0.234	0.772
02/06/06	0.559	0.508	0.13	0.248	0.767
03/14/06	0.610	0.520	0.13	0.260	0.780
12/13/06	0.501	0.514	0.12	0.274	0.754
02/20/07	0.585	0.518	0.12	0.278	0.758
04/17/07	0.556	0.521	0.12	0.281	0.761
05/15/07	0.528	0.521	0.11	0.301	0.741
07/17/07	0.358	0.513	0.12	0.273	0.753
08/07/07	0.547	0.514	0.11	0.294	0.734
10/30/07	0.531	0.515	0.11	0.294	0.736
01/29/08	0.263	0.509	0.12	0.267	0.752
03/18/08	0.317	0.497	0.13	0.242	0.752
06/17/08	0.223	0.474	0.13	0.205	0.743

Means are from all SRT tests, up to 20 tests..
Lower Confidence Limit = mean - 2 * Std Dev
Upper Confidence Limit = mean + 2 * Std Dev



FDEP Biology Laboratory - Chronic SRT Bench Sheet

Ceriodaphnia dubia

Diluent/ Batch: 20% DMW / 6-9-08 Test Days Used: 0-3
20% DMW / 6-17-08 Test Days Used: 4-5
Toxicant/ Batch: NaCl / 6-17-08 3g/L

SOP # : TA 07_05
EPA-821-R-02-013 Method 1002.0

Organism: *Ceriodaphnia dubia*
Organism Batch #/ Age: 22-08 / <24 hr. Start Date: 6-12-08 Time: 1200
Feeding: Prior to Test and Daily End Date: 6-23-08 Time: 1415
Food: YCT *P. subcapitata*
Food Batch: 1-31-08 ↔ 7-26-07 renewal date/batch MF 6-23-08
Chamber size: 30 mL ✓
Test Volume: 20 mL ✓

Batch 6-17-08 20% DMW

Water Quality Parameters	20% DMW 6-9-08	Diluent -(or other)	Method	Measured by:	Verified by:
Lab Total Residual Cl_2 (mg/L):	<0.03	<0.03	HACH	JD	MF
Alkalinity (mg/L as $CaCO_3$):	92	109	HACH	BA	MF
Hardness (mg/L as $CaCO_3$):	80	91	HACH	BA	MF
Total Ammonia (mg/L as N):	<0.017	<0.017	DENVER	MF	~~MF~~
Conductivity (umhos-cm) mmhos-cm :	175	173	~~YSI~~ (Mettler)	MF	~~MF~~

Results	
Control % CV:	38
Dunnetts PMSD:	32.6
Reproduction NOEC:	1.3
Reproduction LOEC:	2.0
Survival NOEC:	2.0
Survival LOEC:	3.0
ICP_{20}:	1.09
ICP_{25}:	1.15

Day	Concentrations prepared by	Counted by
0	MF	BA
1	MF	ML
2	MF	MF
3	MF	MF
4	MF	BA
5	MF	MF
6	—	MF
7		
8		

Test Replicate	Loaded from culture vial
1	A1
2	A4
3	A22
4	A26
5	A9
6	A28
7	B23
8	B25
9	B26
10	B29

Comments:

Investigators' signatures

Marshall Faircloth
Bruce Atchison
Jason Tindal

Loretta C. Wolfe
REVIEWER

Light Intensity : 50 - 100 ft. candles
Photoperiod : 16 light 8 dark
Temperature Range °C:
Incubator # 2 min. 22.3 max. 25.6 mean 24.0
Incubator # ____ min. _____ max. _____ mean _____
Room B246 min. 25.7 max. 26.6 mean 26.2

08/24/06 MF/SP

Appendix C. (continued)

Ceriodaphnia dubia Survival and Reproduction

Start Date: 6-17.08 Time: 1200 Loaded by: MF
End Date: 6-23.08 Time: 1415 Verified by: BA

Concentration	Day	Replicate Number 1	2	3	4	5	6	7	8	9	10	Total neonates	Live adults	Neonates per adult
Control	0												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0
	3	4	0	0	0	4	0	0	0	3	0	11	10	1.1
	4	0	2	3	4	0	5	4	4	0	0	22	10	2.2
	5	7	7	7	5	5	8	9	4	9	0	61	10	6.1
	6	11	11	9	10	12	10	10	6	10	0	89	10	8.9
	7													
	8													
	Total	22	20	19	19	21	23	23	14	22	0	183	10	18.3
0.59 ppth	0												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0
	3	0	0	0	0	2	0	0	0	0	0	2	10	0.2
	4	0	3	3	4	0	4	4	4	4	2	28	10	2.8
	5	9	7	8	7	9	10	9	0	9	7	75	10	7.9
	6	13	9	11	10	10	10	13	12	12	9	109	10	10.9
	7													
	8													
	Total	22	19	22	21	21	24	26	16	25	18	214		21.4
0.89 ppth	0												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0
	3	0	0	0	0	0	0	0	0	0	0	0	10	0
	4	5	4	1	4	3	4	6	V4	3	4	38	10	3.8
	5	6	7	8	9	6	6	6	10	9	2	69	10	6.9
	6	9	9	9	11	7	12	10	10	8	0	85	10	8.5
	7													
	8													
	Total	20	20	18	24	16	22	22	24	20	6	192		19.2

Comments: Test terminated on Day 6 - Control survival and reproduction criteria met MF 6-23.08
Rep 10 control IDed as female by mike Heger 6-23.08 MF

Appendix C. (continued)

FDEP Biology Laboratory - Chronic SRT Bench Sheet

Ceriodaphnia dubia Survival and Reproduction

Concentration	Day	Replicate Number 1	2	3	4	5	6	7	8	9	10	Total neonates	Live adults	Neonates per adult
1.3 ppth	0												10	
	1												10	
	2	0	0	0	0	0	0	0	0	0	0	0	10	0
	3	0	0	0	0	0	0	0	0	0	0	0	10	0
	4	2	2	2	3	4	√4	2	1	0	0	20	10	2.0
	5	7	6	9	9	5	9	6	0	0	0	51	10	5.1
	6	6	X 0	11	10	9	10	8	0	0	0	54	9	5.4
	7													
	8													
	Total	15	8	22	22	18	23	16	1	0	0	125	9 (10)	12.5
2.0 ppth	0												10	
	1												10	
	2	X0	0	0	0	0	0	0	0	0	0	0	9	0
	3		0	0	0	0	0	0	0	0	0	0	9	0
	4		0	0	2	0	0	0	0	0	0	2	9	0.2
	5		0	0	0	0	0	2	0	1	1	4	9	0.4
	6		0	4	3	5	4	2	0	0	3	21	9	2.1
	7													
	8													
	Total		0	4	5	5	4	4	0	1	4	27	9 (10)	2.7
3.0 ppth	0												10	
	1		X						X				8	
	2	X0	Xm 0	X 0	X 0	X	X	X	0	X	X	0	0	
	3													
	4													
	5													
	6													
	7													
	8													
	Total	0	0	0	0	0	0	0	0	0	0	0	0	

Comments: 1.3 ppth 9 to 10 Food as female by Mike Heyn 6-23-06 MF

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Appendix C. (continued)

FDEP Biology Laboratory - Chronic SRT Bench Sheet

Ceriodaphnia dubia Parameters

Test Day		New Sample				Conductivity	Old Sample				Conductivity
	Replicate	pH	Temp	DO	(µmhos/cm)	Replicate	pH	Temp	DO	(µmhos/cm)	
↓ Conc.		(su)	(°C)	(mg/L)	(mmhos/cm)		(su)	(°C)	(mg/L)	(mmhos/cm)	
Day 0 Control	M	8.1	25.2	7.6	0.175						
0.59 ppth	M	8.1	25.1	7.7	1.302						
0.89 ppth	M	8.1	24.9	7.6	1.845						
1.3ppth	M	8.1	24.8	7.6	2.620						
2.0 ppth	M	8.1	24.8	7.6	3.78						
3.0 ppth	M	8.2	24.6	7.6	5.54						
Measured by:		MF	MF	MF	MF						
Recorded by:		MF	MF	MF	MF						
Day 1 Control	M	8.2	24.7	7.8	0.180	M	8.1	24.6	7.6	0.186	
0.59 ppth	M	8.2	24.7	7.8	1.27	M	8.1	24.6	7.6	1.32	
0.89 ppth	M	8.2	24.6	7.8	1.84	M	8.1	24.4	7.5	1.93	
1.3ppth	M	8.2	24.7	7.8	2.65	M	8.1	24.4	7.4	2.68	
2.0 ppth	M	8.2	24.6	7.8	3.79	M	8.1	24.4	7.4	3.85	
3.0 ppth	M	8.2	24.6	7.7	5.52	M	8.1	24.5	7.3	5.58	
Measured by:		MF	MF	MF	MF		MF	MF	MF	MF	
Recorded by:		MF	MF	MF	MF		MF	MF	MF	MF	
Day 2 Control	M	8.2	24.1	7.9	0.181	M	8.1	24.2	7.6	0.184	
0.59 ppth	M	8.1	24.4	7.9	1.29	M	8.0	24.3	7.8	1.31	
0.89 ppth	M	8.1	24.5	7.9	1.84	M	8.0	24.2	7.8	1.90	
1.3ppth	M	8.1	24.7	7.9	2.62	M	8.0	24.2	7.8	2.73	
2.0 ppth	M	8.1	24.9	7.9	3.77	M	8.0	24.2	7.7	3.87	
3.0 ppth	M	8.1	25.1	7.8	5.49	M	8.0	24.2	7.6	5.51	
Measured by:		MF	MF	MF	MF		MF	MF	MF	MF	
Recorded by:		MF	MF	MF	MF		MF	MF	MF	MF	
Day 3 Control	M	8.2	24.4	7.8	0.179	M	8.1	24.6	0.200 (A)	7.3	
0.59 ppth	M	8.1	24.5	8.0	1.26	M	8.0	24.8	1.22	7.3	
0.89 ppth	M	8.1	24.4	7.9	1.80	M	8.0	24.5	1.84	7.4	
1.3ppth	M	8.1	24.5	7.9	2.59	M	8.0	24.8	2.58	7.3	
2.0 ppth	M	8.1	24.6	7.8	3.73	M	8.0	24.7	3.67	7.3	
3.0 ppth	M	will add on 8-19-08 MF				M					
Measured by:		MF	MF	MF	MF		MF	MF	MF	MF	
Recorded by:		MF	MF	MF	MF		MF	MF	MF	MF	

Comments: (A) Reversed DO and Conductivity location - MF 8-20-08

M= "Metered" vial, a surrogate vial for parameters

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Appendix C. (continued)

FDEP Biology Laboratory - Chronic SRT Bench Sheet

Ceriodaphnia dubia Parameters

mmhos/cm BA

Test Day ↓	Conc.	Replicate	New Sample pH (su)	Temp (°C)	DO (mg/L)	Conductivity (µmhos/cm) (mmhos/cm)	Replicate	Old Sample pH (su)	Temp (°C)	DO (mg/L)	Conductivity (µmhos/cm) (mmhos/cm)
Day 4	Control	M	8.0	24.3	7.6	0.173	A	8.1	24.3	7.1	0.176
	0.59 ppth	M	8.0	24.2	7.4	1221	A	8.0	24.3	7.3	1.25
	0.89 ppth	M	8.0	24.2	7.5	1.774	A	8.0	24.4	7.3	1.8
	1.3ppth	M	8.0	24.1	7.4	2,550	A	8.1	24.4	7.2	2.6
	2.0 ppth	M	8.1	24.0	7.5	3.65	A	8.0	24.3	7.1	3.71
	3.0 ppth	M									
	Measured by:		BA	BA	BA	BA		DA	BA	BA	BA
	Recorded by:		BA	BA	BA	BA		BA	BA	BA	BA
Day 5	Control	M	8.2	24.6	7.8	0.173	M	8.2	25.0	7.4	0.182
	0.59 ppth	M	8.1	24.7	7.7	1.22	M	8.2	24.9	7.5	1.29
	0.89 ppth	M	8.2	24.7	7.8	1.75	M	8.2	24.8	7.4	1.91
	1.3ppth	M	8.2	24.8	7.7	2.55	M	8.2	24.7	7.4	2.72
	2.0 ppth	M	8.1	24.8	7.7	3.65	M	8.2	24.9	7.3	3.72
	3.0 ppth	M									
	Measured by:		MF	MF	MF	MF		MF	MF	MF	MF
	Recorded by:		MF	MF	MF	MF		MF	MF	MF	MF
Day 6	Control	M						8.2	24.7	7.3	0.174
	0.59 ppth	M						8.1	24.4	7.3	1.20
	0.89 ppth	M						8.1	24.4	7.3	1.77
	1.3ppth	M	Not Renewed					8.1	24.4	7.4	2.57
	2.0 ppth	M		6-23-08 MF				8.1	24.3	7.5	3.66
	3.0 ppth	M									
	Measured by:							MF	MF	MF	MF
	Recorded by:							MF	MF	MF	MF
Day 7	Control	M									
	0.59 ppth	M									
	0.89 ppth	M									
	1.3ppth	M									
	2.0 ppth	M									
	3.0 ppth	M									
	Measured by:										
	Recorded by:										
Day 8	Control	M									
	0.59 ppth	M									
	0.89 ppth	M									
	1.3ppth	M									
	2.0 ppth	M									
	3.0 ppth	M									
	Measured by:										
	Recorded by:										

Replicate M= "Metered" vial, a surrogate vial for parameters

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Appendix C. (continued)

FDEP Biology Laboratory - Chronic SRT Benchsheet

Pimephales promelas or *Menidia beryllina*

Test Species (circle one)

(*P. promelas*)	SOP#: TA07_09	EPA-821-R-02-013	Method 1000.0
M. beryllina	SOP#: TA07_14	EPA-821-R-02-014	Method 1006.0

Diluent/ Batch: MW 613.08 Test Days Used: 0-2

Diluent/ Batch: MW 618.08 Test Days Used: 3-4

Toxicant/ Batch # : 1/2 KCl in MW 6.16.08 MW 6-21-08 5-6

Artemia Lot # : 38438

Start Date: 6/17/08 Time: 1200

End Date: 6-24-08 Time: 1200

Organism Batch #/ Age: 6-17-08 <48hours

Artemia Batch # —	Day 2 103-08	Day 5 106-08
Day 0 101-08	Day 3 104-08	Day 6 107-08
Day1 102-08	Day 4 105-08	

Chamber size : 1000 ml

Test volume : 500 ml

Feeding: *P. promelas* 0.15 g wet wt. 2X day 6 hour interval

M. beryllina 0.10 g wet wt days 0-2 0.15g wet wt. days 3-7

Water Quality Parameters	Diluent 6-13-08	Diluent 6-18-08 / 6-21-08 (or other)	Method	Measured by	Verified by
Total Residual Cl_2 (mg/L):	<003	<0.03/<003	HACH	JD	MF
Alkalinity (mg/L as $CaCO_3$):	79	86/84	HACH	BA/MF/MF	MF/JD
Hardness (mg/L as $CaCO_3$):	98	89/86	HACH	BA/MF/MF	MF/JD
Total Ammonia (mg/L as N):	<0.017	<0.017/<0.017	DENVER	MF	JD
Conductivity µmhos-cm mmhos-cm:	341	334/317	METTLER	JD/MF/MF	MF/JD

Statistics	
Growth NOEC:	0.25
Growth LOEC:	0.5
Growth IC_{20}:	0.3333
Growth IC_{25}:	0.2479
Ctrl % CV:	10.378%
Dunnetts PMSD:	18.6
Survival NOEC:	0.25
Survival LOEC:	0.5

Light Intensity : 50 - 100 ft. candles

Photoperiod : 16 light 8 dark

Temperature Range °C:

Incubator # 2 min. 22.3 max. 25.6 mean 24.0

Water bath # ____ min.____ max.____ mean____

Room B246 min. 25.7 max. 26.6 mean 26.2

P. promelas PMSD Bounds for Growth: Lower 12 Upper 30

M. beryllina PMSD Bounds for Growth: Lower 11 Upper 28

Investigators' signatures

James Dami

Marshall Faircloth

Bruce Allen

Loretta C Wolfe

REVIEWER

Comments:

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revised 8/24/06 MF/SP

Appendix C. (continued)

FDEP Biology Laboratory - Chronic SRT Benchsheet

Pimephales promelas or Menidia beryllina Survival

Organism: (*P. promelas*) *M.beryllina* (circle one) D = dead M = missing

Concentration: µg/L (g/L) (circle one)

			TEST DAY							
Concentration	Replicate	Chamber	0	1	2	3	4	5	6	7
Control	A	F1	10	10	10	10	10	10	10	10
	B	F2	10	10	10	10	10	10	10	10
	C	F3	10	10	10	10	10	10	10	10
	D	F4	10	10	10	10	10	10	10	10
0,0625 0,0625mF	A	F5	10	10	10	10	10	9 ID	9	9
	B	F6	10	10	10	10	10	10	10	10
	C	F7	10	10	10	10	10	10	10	10
	D	F8	10	10	10	10	10	10	10	10
.125	A	F9	10	10	10	10	10	10	10	10
	B	F10	10	10	9 ID	9	9	9	9	9
	C	F11	10	10	10	10	10	10	10	10
	D	F12	10	10	10	10	10	10	10	10
.25	A	F13	10	10	10	10	9 ID	9	9	9
	B	F14	10	10	10	10	10	8 ID	–	–
	C	F15	10	10	10	10	10	10	10	10
	D	F16	10	10	10	10	10	10	10	10
.5	A	F17	10	10	mF 9 ID	9	9	9	9	9
	B	F18	10	10	10	10	10	10	10	10
	C	F19	10	10	10	9 ID	9	9	9	9
	D	F20	10	9 ID	9	9	9	8 ID	8	8
1.0	A	F21	10	9 ID	0 ID	0	0	–	–	–
	B	F22	10	2 ID	1 ID	1	0 ID	–	–	–
	C	F23	10	2 ID	1 ID	1	1	1	1	1
	D	F24	10	1 ID	1	1	1	0 ID	–	–
	A		10							
	B		10							
	C		10							
	D		10							
Loaded by (0 hr): JD		Checked by*:		JD	MF	BA	BA	MF	JD	JD
		Concentrations prepared by:		MF	MF	BA	BA	MF	JD	JD

Comments: A - Lab accident replicate discarded MF 8.22.08

*verified by for 0 hour

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Test Page 2 of 6 PAGE revised 8/24/06 MF/SP

Appendix C. (continued)

FDEP Biology Laboratory - Chronic SRT Benchsheet

Pimephales promelas or *Menidia beryllina* Parameters

Start Date: 6.17.08 Time: 1200

End Date: 6-24-08 Time: 1200

Organism: (*P. promelas*) *M. beryllina* (circle one)

Concentration: µg/L (g/L) (circle one)

circle µmhos or mmhos

Test Day		Before Renewal					Test Start and After Renewal				
		Test	pH	Temp	DO	Conductivity	Test	pH	Temp	DO	Conductivity
↓	Concentration	Replicate	(su)	(°C)	(mg/L)	(µmhos mmhos)	Replicate	(su)	(°C)	(mg/L)	(µmhos mmhos)
Day 0	Control						A	8.0	24.0	7.6	354
	.0625						A	8.1	24.0	7.6	471
	.125						A	8.1	24.0	7.6	596
	.25						A	8.1	24.1	7.8	846
	.5						A	8.2	24.2	7.8	1327
	1.0						A	8.2	24.5	7.9	2260
							A				
	Measured by:							JB	JB	JB	JB
	Recorded by:							JB	JB	JB	JB
↓	Concentration	Replicate	pH	Temp	DO	Conductivity	Replicate	pH	Temp	DO	Conductivity
Day 1	Control	B	7.9	24.3	7.1	367	B	8.0	24.0	7.4	352
	.0625	B	8.0	24.3	7.1	480	B	8.2	24.0	7.5	472
	.125	B	8.0	24.3	7.2	600	B	8.2	24.0	7.5	595
	.25	B	8.0	24.5	7.2	846	B	8.2	24.0	7.5	830
	.5	B	8.0	24.5	7.1	1337	B	8.2	24.0	7.4	1302
	1.0	B	8.0	24.4	7.1	2300	B	8.2	24.0	7.4	2240
		B					B				
	Measured by:		JB	JB	JB	JB		BA	BA	BA	BA
	Recorded by:		JB	JB	JB	JB		BA	BA	BA	BA
↓	Concentration	Replicate	pH	Temp	DO	Conductivity	Replicate	pH	Temp	DO	Conductivity
Day 2	Control	C	7.8	25.0	7.0	333	C	7.9	24.6	7.2	338
	.0625	C	7.8	25.0	6.9	457	C	8.0	24.5	7.4	458
	.125	C	7.8	24.9	6.7	578	C	8.0	24.5	7.5	575
	.25	C	7.7	25.0	6.4	817	C	7.9	24.3	7.5	817
	.5	C	7.7	24.9	6.4	1289	C	7.9	24.4	7.4	1285
	1.0	C	7.7	24.9	6.3	2220	C	8.0	24.3	7.4	2220
		C					C				mf No Lecom 6/19/08
	Measured by:		MF	MF	MF	MF		MF	MF	MF	MF
	Recorded by:		MF	MF	MF	MF		MF	MF	MF	MF
↓	Concentration	Replicate	pH	Temp	DO	Conductivity	Replicate	pH	Temp	DO	Conductivity
Day 3	Control	D	7.6	24.4	6.3	334	D	8.0	24.0	7.4	331
	0.0625	D	7.6	24.4	6.1	460	D	8.0	24.0	7.5	454
	0.125	D	7.6	24.6	6.2	577	D	8.0	24.0	7.6	575
	0.25	D	7.6	24.4	6.2	811	D	8.0	24.0	7.6	820
	0.5	D	7.6	24.4	6.3	1286	D	8.0	24.0	7.7	1274
	1.0	D	7.6	24.5	6.3	2230	D	8.0	24.0	7.7	2240
		D					D				
	Measured by:		MF	MF	MF	MF		BA	BA	BA	BA
	Recorded by:		MF	MF	MF	MF		BA	BA	BA	BA

Comments:

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revised 8/24/06 MF/SP

Appendix C. (continued)

FDEP Biology Laboratory - Chronic SRT Benchsheet

Pimephales promelas or *Menidia beryllina* Parameters

Organism: (*P. promelas*) *M.beryllina* (circle one)

Concentration: µg/L (g/L) (circle one)

circle µmhos or mmhos

Test Day		Before Renewal					After Renewal				
	Concentration	Test Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity (µmhos) mmhos	Test Replicate	pH (su)	Temp (°C)	DO (mg/L)	Conductivity (µmhos) mmhos
Day 4	Control	A	7.9	24.3	6.8	334	A	8.0	24.2	7.3	316
	0.0625	A	7.8	24.4	6.8	455	A	8.0	24.1	7.4	474
	0.125	A	7.8	24.5	6.7	578	A	8.0	24.0	7.4	560
	0.25	A	7.8	24.5	6.6	820	A	8.0	24.0	7.4	761
	0.5	A	7.8	24.5	6.6	1283	A	8.0	24.0	7.5	1251
	1.0	A	7.8	24.6	6.7	2240	A	8.0	24.0	7.5	2170
		A					A				
	Measured by:		BA	BA	BA	BA		BA	BA	BA	BA
	Recorded by:		BA	BA	BA	BA		BA	BA	BA	BA
	Concentration	Replicate	pH	Temp	DO	Conductivity	Replicate	pH	Temp	DO	Conductivity
Day 5	Control	B	7.8 MF	24.3	6.8	326	B	8.1	24.3	7.6	322
	0.0625	B	7.8	24.6	6.7	486	B	8.0	24.5	7.2	490
	0.125	B	7.8	24.7	6.3	577	B	8.0	24.5	7.3	573
	0.25	B	7.8	24.7	6.3	770	CB	8.0	24.5	7.4	762
	0.5	B	7.8	24.5	6.5	1277	B	8.0	24.4	7.5	1280
	1.0	MF BC	7.8	24.6	6.6	2190	B	7.9	24.3	7.3	2180
		B					B				
	Measured by:		MF	MF	MF	MF		MF	MF	MF	MF
	Recorded by:		MF	MF	MF	MF		MF	MF	MF	MF
	Concentration	Replicate	pH	Temp	DO	Conductivity	Replicate	pH	Temp	DO	Conductivity
Day 6	Control	C	7.6	24.4	5.1	330	C	8.1	24.0	7.5	327
	.0625	C	7.5	24.3	5.2	493	C	8.1	24.0	7.5	490
	.125	C	7.5	24.5	5.1	574	C	8.0	24.0	7.5	591
	.25	C	7.6	24.5	6.3	768	C	8.1	24.0	7.5	776
	.5	C	7.7	24.4	6.3	1269	C	8.1	24.0	7.5	1260
	1.0	C	7.7	24.6	6.3	2300	C	8.0	24.0	7.5	2210
		C					C				
	Measured by:		JP	JP	JP	JP		JP	JP	JP	JP
	Recorded by:		JP	JP	JP	JP		JP	JP	JP	JP
	Concentration	Replicate	pH	Temp	DO	Conductivity	Replicate	pH	Temp	DO	Conductivity
Day 7	Control	D	7.7	24.4	5.8	328	D				
	.0625	D	7.7	24.5	5.9	490	D				
	.125	D	7.6	24.6	4.4	592	D				
	.25	D	7.5	24.9	4.4	773	D				
	.5	D	7.6	24.5	5.4	1245	D				
	1.0	D	7.6	24.5	5.4	2190	D				
		D					D				
	Measured by:		JP	JP	JP	JP					
	Recorded by:		JP	JP	JP	JP					

Comments:

Test Page 4 of 6

PAGE 000016

revised 8/24/06 MF/SP

Appendix C. (continued)

FDEP Biology Laboratory - Chronic SRT Benchsheet

Pimephales promelas or *Menidia beryllina* Weights

SOP TA06_21

Organism: (*P. promelas*) *M.beryllina* (circle one)

Concentration: µg/L (g/L) (circle one)

mean wt = fish wt divided by 10

convert g to mg: move decimal 3 places to right

Concentration	Replicate	Pan #	Pan wt. (g)	Pan + Fish (g)	Fish wt. (g)	Original # of fish	Mean wt. (mg)
Control	A	9	0.02808	0.02284	0.00524	10	0.524
	B	10	0.02792	0.02308	0.00484	10	0.484
	C	11	0.02843	0.02245	0.00598	10	0.598
	D	12	0.02893	0.02293	0.00600	10	0.600
.0625	A	13	0.03257	0.02739	0.00518	10	0.518
	B	14	0.02951	0.02359	0.00592	10	0.592
	C	15	0.02972	0.02314	0.00658	10	0.658
	D	16	0.02854	0.02337	0.00517	10	0.517
.125	A	17	0.03081	0.02304	0.00777	10	0.777
	B	18	0.02946	0.02278	0.00668	10	0.668
	C	19	0.02859	0.02240	0.00619	10	0.619
	D	20	0.02913	0.02248	0.00665	10	0.665
.25	A	21	0.02693	0.02231	0.00462	10	0.462
	B	—	—	—	—	10	—
	C	22	0.03034	0.02599	0.00435	10	0.435
	D	23	0.02635	0.02186	0.00449	10	0.449
.5	A	24	0.02793	0.02351	0.00442	10	0.442
	B	25	0.03201	0.02730	0.00471	10	0.471
	C	26	0.02956	0.02635	0.00321	10	0.321
	D	27	0.02963	0.02620	0.00343	10	0.343
1.0	A	—	—			10	
	B	—	—			10	
	C	28	0.02597	0.02550	0.00047	10	0.047
	D	—	—			10	
	A					10	
	B					10	
	C					10	
	D	Recorded by	MF	MF		10	
			Weighed by:	JD	JD		

Comments:

Note: Pan number (#) refers to actual Pan number.

Test Page 5 of 6 PAGE 000017 revised 8/24/06 MF/DP

Appendix C. (continued)

FDEP Biology Laboratory - Chronic SRT Benchsheet

Pimephales promelas or *Menidia beryllina* QC

SOPs TA07_09, TA07_14 and TA06_21

Empty Pan Weights Date: 6-24-06

WT in Grams	Pan 1 wt.	Pan 1 initial wt.
after Pan 5	0.02821	@ 0.02820
after Pan 10	0.02820	@ 0.02820
after Pan 15	0.02820	@ 0.02820
after Pan 20	0.02821	@ 0.02820
after Pan 25	0.02821	@ 0.02820
after Pan 30		@
after Pan 35		@
after Pan 40		@
after Pan 45		@
after Pan 48		@

Weight in Grams

	Measured Value	S-weight Value
S-weights	0.02000	@ 0.02000
	0.05004	@ 0.05000

Balance - OHaus 250D
S-weights BIO-S-Weights-01

Fish + Pan Weights Date: 6-26-06

WT in Grams	Pan 1 wt.	Pan 1 initial wt.
after Pan 5	0.02807	@ 0.02808
after Pan 10	0.02807	@ 0.02808
after Pan 15	0.02808	@ 0.02808
after Pan 20	0.02807	@ 0.02808
after Pan 25	0.02808	@ 0.02808
after Pan 30		@
after Pan 35		@
after Pan 40		@
after Pan 45		@
after Pan 48		@

Weight in Grams

	Measured Value	S-weight Value
S-weights	0.02000	@ 0.02000
	0.05002	@ 0.05002

Drying Oven ID: 630F Sabinet Oven
Temperature °C: 60°C
Drying Hours: 24 Hours
In 0800 - 6-25-08
out 0800 - 6-26-08

Note: Pan number (5, 10, etc.) refers to sequence of weighing as actual Pan #s may differ.

Comments:

Test Page 6 of 6 PAGE 000018 revised 8/24/06 MF/SP

Appendix C. (continued)

City of Dunedin WWTP *C. dubia* survival T-test

	City of Dunedin			
Sample:	WWTP	Date tested:	6/17-23/2008	
Species:	Ceriodaphnia dubia	Test Type:	chronic screen	
	Treatment A	Treatment B	# of Reps/Sample	10
	Control	100% Effluent		
	1.00	1.00		p=0.05
	1.00	1.00	df	Table t-value
	1.00	1.00	1	6.31400
	1.00	1.00	2	2.92000
	1.00	1.00	3	2.35300
	1.00	1.00	4	2.13200
	1.00	1.00	5	2.01500
	1.00	1.00	6	1.94300
	1.00	1.00	7	1.89500
	1.00	1.00	8	1.86000
Average	1.000	1.000	9	1.83300
			10	1.81200
	t-value=	0.00000	18	1.73400
	df=	18.00000		

City of Dunedin *C. dubia* Reproduction T-test

	City of Dunedin			
Sample:	WWTP	Dates tested:	3/18/2008 - 3/24/2008	
Species:	*Ceriodaphnia dubia*	Test Type:	chronic screen	
	Teatment A	Treatment B	#of Reps./sample	10
Replicate #	Control	100% Effluent		
1	22.000	23.000		p=0.05
2	22.000	0.000	df	Table t-value
3	20.000	17.000	1	6.31400
4	19.000	16.000	2	2.92000
5	16.000	19.000	3	2.35300
6	19.000	21.000	4	2.13200
7	26.000	25.000	5	2.01500
8	25.000	0.000	6	1.94300
9	23.000	29.000	7	1.89500
10	24.000	19.000	8	1.86000
			9	1.83300
Average	21.60000	16.90000	10	1.81200
			18	1.734
	t-value=	1.45951		
	df=	18		

Appendix C. (continued)

City of Dunedin WWTP *P. promelas* Survival T-test

Sample: City of Dunedin WWTP Dates tested: 06/17/2008 - 06/24/2008
Species: *Pimephales promelas* Test Type: Chronic Screen

	Treatment A	Treatment B	# of Reps/Sample	4	df	p=0.05 Table t-value
	Control	100% Effluent			1	6.31400
	0.80	1.00			2	2.92000
	0.90	1.00			3	2.35300
	1.00	1.00			4	2.13200
	1.00	0.70			5	2.01500
					6	1.94300
Average	0.925	0.925			7	1.89500
					8	1.86000
t-value=		-0.16147			9	1.83300
df=		6.00000			10	1.81200
					18	1.73400

City of Dunedin WWTP *P. promelas* growth T-test

Sample: City of Dunedin WWTP Date tested: 06/17/2008-06/24/2008
Species: *Pimephales promelas* Test Type: Chronic screen

	Teatment A	Treatment B	#of Reps./sample	4
Replicate #	Control	100%		
1	0.510	0.580		p=0.05
2	0.571	0.833	df	Table t-value
3	0.483	0.646	1	6.31400
4	0.507	0.542	2	2.92000
5			3	2.35300
6			4	2.13200
7			5	2.01500
8			6	1.94300
9			7	1.89500
10			8	1.86000
			9	1.83300
Average	0.51775	0.65025	10	1.81200
			18	1.734
	t-value=	-1.96996		
	df=	6		

Appendix C. (continued)

Ceriodaphnia Survival and Reproduction Test-Reproduction

Start Date:	6/17/2008	Test ID:	cdjun08srt	Sample ID:	REF-Ref Toxicant	
End Date:	6/23/2008	Lab ID:	DEP TOXLAB-FDEP Biology To	Sample Type:	NACL-Sodium chloride	
Sample Date:		Protocol:	EPAFW02-EPA/821/R-02-013	Test Species:	CD-Ceriodaphnia dubia	
Comments:	SRT concurrent with City of Dunedin WWTP chronic test					

Conc-gm/L	1	2	3	4	5	6	7	8	9	10
D-Control	22.000	20.000	19.000	19.000	21.000	23.000	23.000	14.000	22.000	0.000
0.59	22.000	19.000	22.000	21.000	21.000	24.000	26.000	16.000	25.000	18.000
0.89	20.000	20.000	18.000	24.000	16.000	22.000	22.000	24.000	20.000	6.000
1.3	15.000	8.000	22.000	22.000	18.000	23.000	16.000	1.000	0.000	0.000
2	0.000	0.000	4.000	5.000	5.000	4.000	4.000	0.000	1.000	4.000
3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

			Transform: Untransformed					Isotonic	
Conc-gm/L	Mean	N-Mean	Mean	Min	Max	CV%	N	Mean	N-Mean
D-Control	18.300	1.0000	18.300	0.000	23.000	38.038	10	19.850	1.0000
0.59	21.400	1.1694	21.400	16.000	26.000	14.645	10	19.850	1.0000
0.89	19.200	1.0492	19.200	6.000	24.000	27.428	10	19.200	0.9673
1.3	12.500	0.6831	12.500	0.000	23.000	75.637	10	12.500	0.6297
2	2.700	0.1475	2.700	0.000	5.000	80.104	10	2.700	0.1360
3	0.000	0.0000	0.000	0.000	0.000	0.000	10	0.000	0.0000

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates non-normal distribution (p <= 0.01)	0.897696	0.93	-1.16698	1.946864
Bartlett's Test indicates unequal variances (p = 3.72E-04)	20.64643	13.2767		

Linear Interpolation (200 Resamples)

Point	gm/L	SD	95% CL		Skew
IC05	0.9110	0.1343	0.6492	1.1558	0.1387
IC10	0.9717	0.1229	0.7347	1.3254	0.9154
IC15	1.0324	0.1217	0.8127	1.3688	0.9317
IC20	1.0932	0.1249	0.8870	1.4122	0.7682
IC25	1.1539	0.1248	0.9907	1.4556	0.6271
IC40	1.3421	0.1300	1.1273	1.5859	0.0552
IC50	1.4839	0.1365	1.1996	1.6727	-0.4286

Ceriodaphnia Survival and Reproduction Test-Reproduction

Start Date:	6/17/2008	Test ID:	cdjun08srt	Sample ID:	REF-Ref Toxicant	
End Date:	6/23/2008	Lab ID:	DEP TOXLAB-FDEP Biology To	Sample Type:	NACL-Sodium chloride	
Sample Date:		Protocol:	EPAFW02-EPA/821/R-02-013	Test Species:	CD-Ceriodaphnia dubia	
Comments:	SRT concurrent with City of Dunedin WWTP chronic test					

Conc-gm/L	1	2	3	4	5	6	7	8	9	10
D-Control	22.000	20.000	19.000	19.000	21.000	23.000	23.000	14.000	22.000	0.000
0.59	22.000	19.000	22.000	21.000	21.000	24.000	26.000	16.000	25.000	18.000
0.89	20.000	20.000	18.000	24.000	16.000	22.000	22.000	24.000	20.000	6.000
1.3	15.000	8.000	22.000	22.000	18.000	23.000	16.000	1.000	0.000	0.000
2	0.000	0.000	4.000	5.000	5.000	4.000	4.000	0.000	1.000	4.000
3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

			Transform: Untransformed						1-Tailed	
Conc-gm/L	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD
D-Control	18.300	1.0000	18.300	0.000	23.000	38.038	10			
0.59	21.400	1.1694	21.400	16.000	26.000	14.645	10	-1.155	2.223	5.967
0.89	19.200	1.0492	19.200	6.000	24.000	27.428	10	-0.335	2.223	5.967
1.3	12.500	0.6831	12.500	0.000	23.000	75.637	10	2.161	2.223	5.967
*2	2.700	0.1475	2.700	0.000	5.000	80.104	10	5.813	2.223	5.967
3	0.000	0.0000	0.000	0.000	0.000	0.000	10			

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates non-normal distribution (p <= 0.01)	0.897696	0.93	-1.16698	1.946864
Bartlett's Test indicates unequal variances (p = 3.72E-04)	20.64643	13.2767		

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU	MSDu	MSDp	MSB	MSE	F-Prob	df
Dunnett's Test Treatments vs D-Control	1.3	2	1.612452		5.967118	0.326072	567.17	36.01556	3.9E-08	4, 45

Appendix C. (continued)

Larval Fish Growth and Survival Test-7 Day Growth

Start Date:	6/17/2008	Test ID:	ppsrtjun08	Sample ID:	REF-Ref Toxicant
End Date:	6/24/2008	Lab ID:	DEP TOXLAB-FDEP Biology To	Sample Type:	KCL-Potassium chloride
Sample Date:		Protocol:	EPAFW02-EPA/821/R-02-013	Test Species:	PP-Pimephales promelas
Comments:	P. promelas chronic srt concurrent with City of Dunedin				

Conc-%	1	2	3	4
D-Control	0.5240	0.4840	0.5980	0.6000
0.0625	0.5180	0.5920	0.6580	0.5170
0.125	0.7770	0.6680	0.6190	0.6650
0.25	0.4620	0.4350	0.4490	
0.5	0.4420	0.4710	0.3210	0.3430
1	0.0000	0.0000	0.0470	0.0000

			Transform: Untransformed					Isotonic	
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	Mean	N-Mean
D-Control	0.5515	1.0000	0.5515	0.4840	0.6000	10.378	4	0.6017	1.0000
0.0625	0.5713	1.0358	0.5713	0.5170	0.6580	11.845	4	0.6017	1.0000
0.125	0.6823	1.2371	0.6823	0.6190	0.7770	9.825	4	0.6017	1.0000
0.25	0.4487	0.8135	0.4487	0.4350	0.4620	3.010	3	0.4487	0.7457
0.5	0.3943	0.7149	0.3943	0.3210	0.4710	18.618	4	0.3943	0.6553
1	0.0118	0.0213	0.0118	0.0000	0.0470	200.000	4	0.0118	0.0195

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.946069	0.881	0.355882	-0.81156
Bartlett's Test indicates equal variances (p = 0.25)	6.603223	15.08627		

Linear Interpolation (200 Resamples)

Point	%	SD	95% CL(Exp)		Skew
IC05	0.1496	0.0024	0.1429	0.1594	0.7836
IC10	0.1742	0.0048	0.1607	0.1938	0.7833
IC15	0.1987	0.0071	0.1786	0.2282	0.7832
IC20	0.2233	0.0221	0.1965	0.2626	10.4386
IC25	0.2479	0.0612	0.2144	0.6518	2.6382
IC40	0.5435	0.0443	0.3536	0.6392	-0.8497
IC50	0.6221	0.0330	0.5004	0.7055	-0.5229

Start Date:	6/17/2008	Test ID:	ppsrtjun08	Sample ID:	REF-Ref Toxicant
End Date:	6/24/2008	Lab ID:	DEP TOXLAB-FDEP Biology To	Sample Type:	KCL-Potassium chloride
Sample Date:		Protocol:	EPAFW02-EPA/821/R-02-013	Test Species:	PP-Pimephales promelas
Comments:	P. promelas chronic srt concurrent with City of Dunedin				

Conc-%	1	2	3	4
D-Control	0.5240	0.4840	0.5980	0.6000
0.0625	0.5180	0.5920	0.6580	0.5170
0.125	0.7770	0.6680	0.6190	0.6650
0.25	0.4620	0.4350	0.4490	
0.5	0.4420	0.4710	0.3210	0.3430
1	0.0000	0.0000	0.0470	0.0000

			Transform: Untransformed					1-Tailed		
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD
D-Control	0.5515	1.0000	0.5515	0.4840	0.6000	10.378	4			
0.0625	0.5713	1.0358	0.5713	0.5170	0.6580	11.845	4	-0.490	2.567	0.1035
0.125	0.6823	1.2371	0.6823	0.6190	0.7770	9.825	4	-3.244	2.567	0.1035
0.25	0.4487	0.8135	0.4487	0.4350	0.4620	3.010	3	2.362	2.567	0.1117
*0.5	0.3943	0.7149	0.3943	0.3210	0.4710	18.618	4	3.902	2.567	0.1035
*1	0.0118	0.0213	0.0118	0.0000	0.0470	200.000	4	13.393	2.567	0.1035

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.946069	0.881	0.355882	-0.81156
Bartlett's Test indicates equal variances (p = 0.25)	6.603223	15.08627		

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU	MSDu	MSDp	MSB	MSE	F-Prob	df
Bonferroni t Test Treatments vs D-Control	0.25	0.5	0.353553	400	0.103453	0.187584	0.21907	0.003249	1.3E-10	5, 17

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: 6/16/08

Shipped to: FDEP

P.O. No: N/A

Species	Quantity	Age	Brood Number	Temp.	pH	Salinity
Mysidopsis bahia	100	4 DAYS	MS080612	25°C	7.8 s.u.	26 °/oo
Menidia beryllina	100	12 DAYS	SS080604	25°C	7.8 s.u	26 °/oo
						Hardness
Cyprinella leedsi						
Pimephales promelas	350	<24 HRS	FM 080615-1620	25°C	7.9 s.u.	80 mg/L
	150	8 DAYS	FM080608	25°C	7.9 s.u	80 mg/L

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 of Dunedin Wastewater Treatment Plant Outfall D-001, sampled on June 16, 18, and 20, 2008.

Date Sampled	Field D	Analysis Group	Components	Results	Remarks	Units	MDL	PQL
6/16/2008 8:00	Effluent	Toxicology	Bioassay-Chronic-Scrn-FW-Fish, NOEC	100		NOEC		
6/16/2008 8:00	Effluent	Toxicology	Bioassay-Chronic-Scrn-FW-C.dubia, NOEC	100		NOEC		
6/18/2008 7:55	Effluent	AGP/LN	Algal Growth Potential	0.436		mg DryWt/L	0.3	0.9
6/18/2008 7:55	Effluent	AGP/LN	Algal Growth Potential-Salinity Adjusted	3	U	mg DryWt/L	3	3
6/18/2008 7:55	Effluent	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	0.73	I	ug/L	0.55	1.7
6/18/2008 7:55	Effluent	Chlorophyll/Grain Size/BOD	Phaeophytin-a	0.24	U	ug/L	0.24	0.71
6/18/2008 7:55	Effluent	Overflow	Fecal Coliforms-Membrane Filter	100	Z	#/100 mL	1	
6/18/2008 7:55	Effluent	Nutrients	O-Phosphate-P	0.014		mg P/L	0.004	0.01
6/18/2008 7:55	Effluent	Pesticides	Simazine	0.05	U	ug/L	0.05	0.2
6/18/2008 7:55	Effluent	Pesticides	Alachlor	0.6	U	ug/L	0.6	2.4
6/18/2008 7:55	Effluent	Pesticides	Mevinphos	0.2	U	ug/L	0.2	0.8
6/18/2008 7:55	Effluent	Pesticides	Phorate	0.05	U	ug/L	0.05	0.2
6/18/2008 7:55	Effluent	Pesticides	Azinphos Methyl	0.2	UJ	ug/L	0.2	0.8
6/18/2008 7:55	Effluent	Pesticides	Fenamiphos	0.2	U	ug/L	0.2	0.8
6/18/2008 7:55	Effluent	Pesticides	Metolachlor	0.5	U	ug/L	0.5	2
6/18/2008 7:55	Effluent	Pesticides	Naled	0.8	U	ug/L	0.8	3.2
6/18/2008 7:55	Effluent	Pesticides	Norflurazon	0.15	U	ug/L	0.15	0.6
6/18/2008 7:55	Effluent	Pesticides	Parathion Ethyl	0.15	U	ug/L	0.15	0.6
6/18/2008 7:55	Effluent	Pesticides	Parathion Methyl	0.1	U	ug/L	0.1	0.4
6/18/2008 7:55	Effluent	Pesticides	Fonofos	0.1	U	ug/L	0.1	0.4
6/18/2008 7:55	Effluent	Pesticides	Chlorpyrifos Ethyl	0.05	U	ug/L	0.05	0.2
6/18/2008 7:55	Effluent	Pesticides	Prometryn	0.15	U	ug/L	0.15	0.6
6/18/2008 7:55	Effluent	Pesticides	Chlorpyrifos Methyl	0.1	U	ug/L	0.1	0.4
6/18/2008 7:55	Effluent	Pesticides	Hexazinone	0.1	U	ug/L	0.1	0.4
6/18/2008 7:55	Effluent	Pesticides	Diazinon	0.05	U	ug/L	0.05	0.2
6/18/2008 7:55	Effluent	Pesticides	Atrazine	0.05	U	ug/L	0.05	0.2
6/18/2008 7:55	Effluent	Pesticides	Ametryn	0.05	U	ug/L	0.05	0.2
6/18/2008 7:55	Effluent	Pesticides	Metribuzin	0.1	U	ug/L	0.1	0.4
6/18/2008 7:55	Effluent	Pesticides	Malathion	0.15	U	ug/L	0.15	0.6
6/18/2008 7:55	Effluent	Pesticides	Ethoprop	0.1	U	ug/L	0.1	0.4
6/18/2008 7:55	Effluent	Pesticides	Ethion	0.05	U	ug/L	0.05	0.2
6/18/2008 7:55	Effluent	Pesticides	Metalaxyl	0.25	U	ug/L	0.25	1
6/18/2008 7:55	Effluent	Pesticides	Bromacil	0.2	U	ug/L	0.2	0.8

Appendix E. (continued)

Date Sampled	Field D	Analysis Group	Components	Results	Remarks	Units	MDL	PQL
6/18/2008 7:55	Effluent	Pesticides	Butylate	0.2	U	ug/L	0.2	0.8
6/18/2008 7:55	Effluent	Priority Organic Pollutants	2,4-Dinitrophenol	15	U	ug/L	15	58
6/18/2008 7:55	Effluent	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	1.9	U	ug/L	1.9	7.8
6/18/2008 7:55	Effluent	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.97	U	ug/L	0.97	3.9
6/18/2008 7:55	Effluent	Priority Organic Pollutants	Chrysene	0.97	U	ug/L	0.97	3.9
6/18/2008 7:55	Effluent	Priority Organic Pollutants	Endosulfan sulfate	1.5	U	ug/L	1.5	5.8
6/18/2008 7:55	Effluent	Priority Organic Pollutants	Heptachlor epoxide	1.5	U	ug/L	1.5	5.8
6/18/2008 7:55	Effluent	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.97	U	ug/L	0.97	3.9
6/18/2008 7:55	Effluent	Priority Organic Pollutants	1,2,4-Trichlorobenzene	0.97	U	ug/L	0.97	3.9
6/18/2008 7:55	Effluent	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	2.9	U	ug/L	2.9	12
6/18/2008 7:55	Effluent	Priority Organic Pollutants	4-Bromophenyl phenyl ether	0.97	U	ug/L	0.97	3.9
6/18/2008 7:55	Effluent	Priority Organic Pollutants	Benzidine	97	U	ug/L	97	390
6/18/2008 7:55	Effluent	Priority Organic Pollutants	Benzo(a)anthracene	0.97	U	ug/L	0.97	3.9
6/18/2008 7:55	Effluent	Priority Organic Pollutants	Di-n-octyl phthalate	0.97	U	ug/L	0.97	3.9
6/18/2008 7:55	Effluent	Priority Organic Pollutants	Hexachloroethane	2.9	U	ug/L	2.9	12
6/18/2008 7:55	Effluent	Priority Organic Pollutants	Nitrobenzene	1.9	U	ug/L	1.9	7.8
6/18/2008 7:55	Effluent	Priority Organic Pollutants	Pentachlorophenol	2.9	U	ug/L	2.9	12
6/18/2008 7:55	Effluent	Priority Organic Pollutants	2,4-Dichlorophenol	0.97	U	ug/L	0.97	3.9
6/18/2008 7:55	Effluent	Priority Organic Pollutants	2,4-Dinitrotoluene	0.97	U	ug/L	0.97	3.9
6/18/2008 7:55	Effluent	Priority Organic Pollutants	2-Chloronaphthalene	0.97	U	ug/L	0.97	3.9
6/18/2008 7:55	Effluent	Priority Organic Pollutants	Butyl benzyl phthalate	4.9	U	ug/L	4.9	19
6/18/2008 7:55	Effluent	Priority Organic Pollutants	Dieldrin	1.5	U	ug/L	1.5	5.8
6/18/2008 7:55	Effluent	Priority Organic Pollutants	Fluoranthene	0.97	U	ug/L	0.97	3.9
6/18/2008 7:55	Effluent	Priority Organic Pollutants	Hexachlorobutadiene	2.9	U	ug/L	2.9	12
6/18/2008 7:55	Effluent	Priority Organic Pollutants	2,4,6-Trichlorophenol	0.97	U	ug/L	0.97	3.9
6/18/2008 7:55	Effluent	Priority Organic Pollutants	2,6-Dinitrotoluene	0.97	U	ug/L	0.97	3.9
6/18/2008 7:55	Effluent	Priority Organic Pollutants	Anthracene	0.97	U	ug/L	0.97	3.9
6/18/2008 7:55	Effluent	Priority Organic Pollutants	Diethyl phthalate	0.97	U	ug/L	0.97	3.9
6/18/2008 7:55	Effluent	Priority Organic Pollutants	Endrin	1.5	U	ug/L	1.5	5.8
6/18/2008 7:55	Effluent	Priority Organic Pollutants	Fluorene	0.97	U	ug/L	0.97	3.9
6/18/2008 7:55	Effluent	Priority Organic Pollutants	Hexachlorobenzene	0.97	U	ug/L	0.97	3.9
6/18/2008 7:55	Effluent	Priority Organic Pollutants	Isophorone	0.97	U	ug/L	0.97	3.9
6/18/2008 7:55	Effluent	Priority Organic Pollutants	Pyrene	0.97	U	ug/L	0.97	3.9
6/18/2008 7:55	Effluent	Priority Organic Pollutants	beta-BHC	1.5	U	ug/L	1.5	5.8
6/18/2008 7:55	Effluent	Priority Organic Pollutants	gamma-BHC	1.5	U	ug/L	1.5	5.8

Appendix E. (continued)

Date Sampled	Field D	Analysis Group	Components	Results	Remarks	Units	MDL	PQL
6/18/2008 7:55	Effluent	Priority Organic Pollutants	4,4'-DDE	1.5	U	ug/L	1.5	5.8
6/18/2008 7:55	Effluent	Priority Organic Pollutants	Benzo(b)fluoranthene	0.97	U	ug/L	0.97	3.9
6/18/2008 7:55	Effluent	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	2.9	U	ug/L	2.9	12
6/18/2008 7:55	Effluent	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	15	U	ug/L	15	58
6/18/2008 7:55	Effluent	Priority Organic Pollutants	Hexachlorocyclopentadiene	2.9	U	ug/L	2.9	12
6/18/2008 7:55	Effluent	Priority Organic Pollutants	Naphthalene	0.97	U	ug/L	0.97	3.9
6/18/2008 7:55	Effluent	Priority Organic Pollutants	delta-BHC	1.5	U	ug/L	1.5	5.8
6/18/2008 7:55	Effluent	Priority Organic Pollutants	3,3'-Dichlorobenzidine	39	U	ug/L	39	160
6/18/2008 7:55	Effluent	Priority Organic Pollutants	4-Nitrophenol	15	U	ug/L	15	58
6/18/2008 7:55	Effluent	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.97	U	ug/L	0.97	3.9
6/18/2008 7:55	Effluent	Priority Organic Pollutants	Dimethyl phthalate	9.7	U	ug/L	9.7	39
6/18/2008 7:55	Effluent	Priority Organic Pollutants	Phenol	0.97	U	ug/L	0.97	3.9
6/18/2008 7:55	Effluent	Priority Organic Pollutants	alpha-BHC	1.5	U	ug/L	1.5	5.8
6/18/2008 7:55	Effluent	Priority Organic Pollutants	4,4'-DDD	1.5	U	ug/L	1.5	5.8
6/18/2008 7:55	Effluent	Priority Organic Pollutants	Benzo(a)pyrene	0.97	U	ug/L	0.97	3.9
6/18/2008 7:55	Effluent	Priority Organic Pollutants	Bis(2-chloroethyl)ether	0.97	U	ug/L	0.97	3.9
6/18/2008 7:55	Effluent	Priority Organic Pollutants	Di-n-butyl phthalate	4.9	U	ug/L	4.9	19
6/18/2008 7:55	Effluent	Priority Organic Pollutants	Heptachlor	1.5	U	ug/L	1.5	5.8
6/18/2008 7:55	Effluent	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	1.9	U	ug/L	1.9	7.8
6/18/2008 7:55	Effluent	Priority Organic Pollutants	Phenanthrene	0.97	U	ug/L	0.97	3.9
6/18/2008 7:55	Effluent	Priority Organic Pollutants	2,4-Dimethylphenol	9.7	U	ug/L	9.7	39
6/18/2008 7:55	Effluent	Priority Organic Pollutants	2-Chlorophenol	0.97	U	ug/L	0.97	3.9
6/18/2008 7:55	Effluent	Priority Organic Pollutants	2-Nitrophenol	0.97	U	ug/L	0.97	3.9
6/18/2008 7:55	Effluent	Priority Organic Pollutants	4,4'-DDT	1.5	U	ug/L	1.5	5.8
6/18/2008 7:55	Effluent	Priority Organic Pollutants	4-Chloro-3-methylphenol	0.97	U	ug/L	0.97	3.9
6/18/2008 7:55	Effluent	Priority Organic Pollutants	Acenaphthene	0.97	U	ug/L	0.97	3.9
6/18/2008 7:55	Effluent	Priority Organic Pollutants	Acenaphthylene	0.97	U	ug/L	0.97	3.9
6/18/2008 7:55	Effluent	Priority Organic Pollutants	Aldrin	1.5	U	ug/L	1.5	5.8
6/18/2008 7:55	Effluent	Priority Organic Pollutants	Benzo(k)fluoranthene	0.97	U	ug/L	0.97	3.9
6/18/2008 7:55	Effluent	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	0.97	U	ug/L	0.97	3.9
6/18/2008 7:55	Effluent	Priority Organic Pollutants	Endosulfan I	3.9	U	ug/L	3.9	16
6/18/2008 7:55	Effluent	Priority Organic Pollutants	Endosulfan II	3.9	U	ug/L	3.9	16
6/18/2008 7:55	Effluent	Priority Organic Pollutants	Endrin aldehyde	3.9	UJ	ug/L	3.9	16
6/18/2008 7:55	Effluent	Priority Organic Pollutants	N-Nitrosodimethylamine	1.9	U	ug/L	1.9	7.8
6/18/2008 7:55	Effluent	Priority Organic Pollutants	Dibromochloromethane	28		ug/L	0.2	1

Appendix E. (continued)

Date Sampled	Field D	Analysis Group	Components	Results	Remarks	Units	MDL	PQL
6/18/2008 7:55	Effluent	Field Parameter	Total Residual Chlorine	0.02		mg/L		
6/18/2008 7:55	Effluent	Field Parameter	pH	7.93				
6/18/2008 7:55	Effluent	Field Parameter	Dissolved Oxygen	8.33		mg/L		
6/18/2008 7:55	Effluent	Field Parameter	Specific Conductance	0.73		umhos/cm		
6/18/2008 7:55	Effluent	Field Parameter	Temperature	29.17		C		
6/16/2008 7:48	Equip. blank	Chlorophyll/Grain Size/BOD	Biochemical Oxygen Demand-5 Day,N-Inhib	0.2	U	mg/L	0.2	2
6/16/2008 7:48	Equip. blank	Metals	Selenium	0.5	U	ug/L	0.5	2
6/16/2008 7:48	Equip. blank	Metals	Magnesium	0.04	U	mg/L	0.04	0.16
6/16/2008 7:48	Equip. blank	Metals	Cadmium	0.02	U	ug/L	0.02	0.08
6/16/2008 7:48	Equip. blank	Metals	Zinc	5	U	ug/L	5	20
6/16/2008 7:48	Equip. blank	Metals	Silver	0.025	U	ug/L	0.025	0.1
6/16/2008 7:48	Equip. blank	Metals	Copper	1	I	ug/L	0.5	2
6/16/2008 7:48	Equip. blank	Metals	Antimony	0.5	U	ug/L	0.5	2
6/16/2008 7:48	Equip. blank	Metals	Beryllium	0.025	U	ug/L	0.025	0.1
6/16/2008 7:48	Equip. blank	Metals	Nickel	0.25	U	ug/L	0.25	1
6/16/2008 7:48	Equip. blank	Metals	Chromium	1	U	ug/L	1	4
6/16/2008 7:48	Equip. blank	Metals	Arsenic	0.5	U	ug/L	0.5	2
6/16/2008 7:48	Equip. blank	Metals	Iron	30	U	ug/L	30	120
6/16/2008 7:48	Equip. blank	Metals	Calcium	0.075	U	mg/L	0.075	0.3
6/16/2008 7:48	Equip. blank	Metals	Lead	0.2	U	ug/L	0.2	0.8
6/16/2008 7:48	Equip. blank	Metals	Aluminum	60	U	ug/L	60	240
6/16/2008 7:48	Equip. blank	Nutrients	Total-P	0.02	U	mg P/L	0.02	0.06
6/16/2008 7:48	Equip. blank	Nutrients	Ammonia-N	0.01	U	mg N/L	0.01	0.02
6/16/2008 7:48	Equip. blank	Nutrients	NO2NO3-N	0.011		mg N/L	0.004	0.01
6/16/2008 7:48	Equip. blank	Nutrients	TSS	4	U	mg/L	4	16
6/16/2008 7:48	Equip. blank	Nutrients	Kjeldahl Nitrogen	0.08	U	mg N/L	0.08	0.2
6/18/2008 7:55	TRIP BLK	Priority Organic Pollutants	Dibromochloromethane	0.2	U	ug/L	0.2	1
6/18/2008 8:15	Field blank	Nutrients	O-Phosphate-P	0.004	U	mg P/L	0.004	0.01
6/18/2008 8:15	Field blank	Pesticides	Simazine	0.049	U	ug/L	0.049	0.2
6/18/2008 8:15	Field blank	Pesticides	Hexazinone	0.097	U	ug/L	0.097	0.39
6/18/2008 8:15	Field blank	Pesticides	Chlorpyrifos Methyl	0.097	U	ug/L	0.097	0.39
6/18/2008 8:15	Field blank	Pesticides	Azinphos Methyl	0.19	UJ	ug/L	0.19	0.76
6/18/2008 8:15	Field blank	Pesticides	Chlorpyrifos Ethyl	0.049	U	ug/L	0.049	0.2
6/18/2008 8:15	Field blank	Pesticides	Ethoprop	0.097	U	ug/L	0.097	0.39
6/18/2008 8:15	Field blank	Pesticides	Fonofos	0.097	U	ug/L	0.097	0.39

Appendix E. (continued)

Date Sampled	Field D	Analysis Group	Components	Results	Remarks	Units	MDL	PQL
6/18/2008 8:15	Field blank	Pesticides	Parathion Ethyl	0.15	U	ug/L	0.15	0.6
6/18/2008 8:15	Field blank	Pesticides	Alachlor	0.58	U	ug/L	0.58	2.3
6/18/2008 8:15	Field blank	Pesticides	Fenamiphos	0.19	U	ug/L	0.19	0.76
6/18/2008 8:15	Field blank	Pesticides	Prometryn	0.15	U	ug/L	0.15	0.6
6/18/2008 8:15	Field blank	Pesticides	Bromacil	0.19	U	ug/L	0.19	0.76
6/18/2008 8:15	Field blank	Pesticides	Diazinon	0.049	U	ug/L	0.049	0.2
6/18/2008 8:15	Field blank	Pesticides	Metalaxyl	0.24	U	ug/L	0.24	0.96
6/18/2008 8:15	Field blank	Pesticides	Metolachlor	0.49	U	ug/L	0.49	2
6/18/2008 8:15	Field blank	Pesticides	Metribuzin	0.097	U	ug/L	0.097	0.39
6/18/2008 8:15	Field blank	Pesticides	Butylate	0.19	U	ug/L	0.19	0.76
6/18/2008 8:15	Field blank	Pesticides	Ethion	0.049	U	ug/L	0.049	0.2
6/18/2008 8:15	Field blank	Pesticides	Naled	0.78	U	ug/L	0.78	3.1
6/18/2008 8:15	Field blank	Pesticides	Norflurazon	0.15	U	ug/L	0.15	0.6
6/18/2008 8:15	Field blank	Pesticides	Phorate	0.049	U	ug/L	0.049	0.2
6/18/2008 8:15	Field blank	Pesticides	Malathion	0.15	U	ug/L	0.15	0.6
6/18/2008 8:15	Field blank	Pesticides	Mevinphos	0.19	U	ug/L	0.19	0.76
6/18/2008 8:15	Field blank	Pesticides	Parathion Methyl	0.097	U	ug/L	0.097	0.39
6/18/2008 8:15	Field blank	Pesticides	Ametryn	0.049	U	ug/L	0.049	0.2
6/18/2008 8:15	Field blank	Pesticides	Atrazine	0.049	U	ug/L	0.049	0.2
6/18/2008 8:15	Field blank	Priority Organic Pollutants	2,6-Dinitrotoluene	0.97	U	ug/L	0.97	3.9
6/18/2008 8:15	Field blank	Priority Organic Pollutants	2-Chloronaphthalene	0.97	U	ug/L	0.97	3.9
6/18/2008 8:15	Field blank	Priority Organic Pollutants	2-Nitrophenol	0.97	U	ug/L	0.97	3.9
6/18/2008 8:15	Field blank	Priority Organic Pollutants	Bis(2-chloroethyl)ether	0.97	U	ug/L	0.97	3.9
6/18/2008 8:15	Field blank	Priority Organic Pollutants	4,4'-DDD	1.5	U	ug/L	1.5	5.8
6/18/2008 8:15	Field blank	Priority Organic Pollutants	Acenaphthylene	0.97	U	ug/L	0.97	3.9
6/18/2008 8:15	Field blank	Priority Organic Pollutants	Endosulfan I	3.9	U	ug/L	3.9	16
6/18/2008 8:15	Field blank	Priority Organic Pollutants	N-Nitrosodimethylamine	1.9	U	ug/L	1.9	7.8
6/18/2008 8:15	Field blank	Priority Organic Pollutants	Naphthalene	0.97	U	ug/L	0.97	3.9
6/18/2008 8:15	Field blank	Priority Organic Pollutants	Phenanthrene	0.97	U	ug/L	0.97	3.9
6/18/2008 8:15	Field blank	Priority Organic Pollutants	Phenol	0.97	U	ug/L	0.97	3.9
6/18/2008 8:15	Field blank	Priority Organic Pollutants	Pyrene	0.97	U	ug/L	0.97	3.9
6/18/2008 8:15	Field blank	Priority Organic Pollutants	2,4-Dichlorophenol	0.97	U	ug/L	0.97	3.9
6/18/2008 8:15	Field blank	Priority Organic Pollutants	2,4-Dinitrotoluene	0.97	U	ug/L	0.97	3.9
6/18/2008 8:15	Field blank	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	1.9	U	ug/L	1.9	7.8
6/18/2008 8:15	Field blank	Priority Organic Pollutants	Benzidine	97	U	ug/L	97	390

Appendix E. (continued)

Date Sampled	Field D	Analysis Group	Components	Results	Remarks	Units	MDL	PQL
6/18/2008 8:15	Field blank	Priority Organic Pollutants	Benzo(k)fluoranthene	0.97	U	ug/L	0.97	3.9
6/18/2008 8:15	Field blank	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	2.9	U	ug/L	2.9	12
6/18/2008 8:15	Field blank	Priority Organic Pollutants	Butyl benzyl phthalate	4.9	U	ug/L	4.9	19
6/18/2008 8:15	Field blank	Priority Organic Pollutants	Di-n-octyl phthalate	0.97	U	ug/L	0.97	3.9
6/18/2008 8:15	Field blank	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.97	U	ug/L	0.97	3.9
6/18/2008 8:15	Field blank	Priority Organic Pollutants	Dimethyl phthalate	9.7	U	ug/L	9.7	39
6/18/2008 8:15	Field blank	Priority Organic Pollutants	Hexachlorobutadiene	2.9	U	ug/L	2.9	12
6/18/2008 8:15	Field blank	Priority Organic Pollutants	4,4'-DDT	1.5	U	ug/L	1.5	5.8
6/18/2008 8:15	Field blank	Priority Organic Pollutants	Di-n-butyl phthalate	4.9	U	ug/L	4.9	19
6/18/2008 8:15	Field blank	Priority Organic Pollutants	Diethyl phthalate	0.97	U	ug/L	0.97	3.9
6/18/2008 8:15	Field blank	Priority Organic Pollutants	Heptachlor epoxide	1.5	U	ug/L	1.5	5.8
6/18/2008 8:15	Field blank	Priority Organic Pollutants	2-Chlorophenol	0.97	U	ug/L	0.97	3.9
6/18/2008 8:15	Field blank	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	2.9	U	ug/L	2.9	12
6/18/2008 8:15	Field blank	Priority Organic Pollutants	4-Chloro-3-methylphenol	0.97	U	ug/L	0.97	3.9
6/18/2008 8:15	Field blank	Priority Organic Pollutants	4-Nitrophenol	15	U	ug/L	15	58
6/18/2008 8:15	Field blank	Priority Organic Pollutants	Acenaphthene	0.97	U	ug/L	0.97	3.9
6/18/2008 8:15	Field blank	Priority Organic Pollutants	Anthracene	0.97	U	ug/L	0.97	3.9
6/18/2008 8:15	Field blank	Priority Organic Pollutants	Benzo(b)fluoranthene	0.97	U	ug/L	0.97	3.9
6/18/2008 8:15	Field blank	Priority Organic Pollutants	Endosulfan sulfate	1.5	U	ug/L	1.5	5.8
6/18/2008 8:15	Field blank	Priority Organic Pollutants	2,4-Dimethylphenol	9.7	U	ug/L	9.7	39
6/18/2008 8:15	Field blank	Priority Organic Pollutants	3,3'-Dichlorobenzidine	39	U	ug/L	39	160
6/18/2008 8:15	Field blank	Priority Organic Pollutants	4-Bromophenyl phenyl ether	0.97	U	ug/L	0.97	3.9
6/18/2008 8:15	Field blank	Priority Organic Pollutants	Aldrin	1.5	U	ug/L	1.5	5.8
6/18/2008 8:15	Field blank	Priority Organic Pollutants	Benzo(a)pyrene	0.97	U	ug/L	0.97	3.9
6/18/2008 8:15	Field blank	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	0.97	U	ug/L	0.97	3.9
6/18/2008 8:15	Field blank	Priority Organic Pollutants	Endosulfan II	3.9	U	ug/L	3.9	16
6/18/2008 8:15	Field blank	Priority Organic Pollutants	Endrin aldehyde	3.9	UJ	ug/L	3.9	16
6/18/2008 8:15	Field blank	Priority Organic Pollutants	Fluoranthene	0.97	U	ug/L	0.97	3.9
6/18/2008 8:15	Field blank	Priority Organic Pollutants	Fluorene	0.97	U	ug/L	0.97	3.9
6/18/2008 8:15	Field blank	Priority Organic Pollutants	Hexachlorobenzene	0.97	U	ug/L	0.97	3.9
6/18/2008 8:15	Field blank	Priority Organic Pollutants	Hexachlorocyclopentadiene	2.9	U	ug/L	2.9	12
6/18/2008 8:15	Field blank	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.97	U	ug/L	0.97	3.9
6/18/2008 8:15	Field blank	Priority Organic Pollutants	Isophorone	0.97	U	ug/L	0.97	3.9
6/18/2008 8:15	Field blank	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	1.9	U	ug/L	1.9	7.8
6/18/2008 8:15	Field blank	Priority Organic Pollutants	Nitrobenzene	1.9	U	ug/L	1.9	7.8

Appendix E. (continued)

Date Sampled	Field D	Analysis Group	Components	Results	Remarks	Units	MDL	PQL
6/18/2008 8:15	Field blank	Priority Organic Pollutants	delta-BHC	1.5	U	ug/L	1.5	5.8
6/18/2008 8:15	Field blank	Priority Organic Pollutants	2,4,6-Trichlorophenol	0.97	U	ug/L	0.97	3.9
6/18/2008 8:15	Field blank	Priority Organic Pollutants	2,4-Dinitrophenol	15	U	ug/L	15	58
6/18/2008 8:15	Field blank	Priority Organic Pollutants	Benzo(a)anthracene	0.97	U	ug/L	0.97	3.9
6/18/2008 8:15	Field blank	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	15	U	ug/L	15	58
6/18/2008 8:15	Field blank	Priority Organic Pollutants	Chrysene	0.97	U	ug/L	0.97	3.9
6/18/2008 8:15	Field blank	Priority Organic Pollutants	Endrin	1.5	U	ug/L	1.5	5.8
6/18/2008 8:15	Field blank	Priority Organic Pollutants	Hexachloroethane	2.9	U	ug/L	2.9	12
6/18/2008 8:15	Field blank	Priority Organic Pollutants	Pentachlorophenol	2.9	U	ug/L	2.9	12
6/18/2008 8:15	Field blank	Priority Organic Pollutants	gamma-BHC	1.5	U	ug/L	1.5	5.8
6/18/2008 8:15	Field blank	Priority Organic Pollutants	1,2,4-Trichlorobenzene	0.97	U	ug/L	0.97	3.9
6/18/2008 8:15	Field blank	Priority Organic Pollutants	4,4'-DDE	1.5	U	ug/L	1.5	5.8
6/18/2008 8:15	Field blank	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.97	U	ug/L	0.97	3.9
6/18/2008 8:15	Field blank	Priority Organic Pollutants	Dieldrin	1.5	U	ug/L	1.5	5.8
6/18/2008 8:15	Field blank	Priority Organic Pollutants	Heptachlor	1.5	U	ug/L	1.5	5.8
6/18/2008 8:15	Field blank	Priority Organic Pollutants	alpha-BHC	1.5	U	ug/L	1.5	5.8
6/18/2008 8:15	Field blank	Priority Organic Pollutants	beta-BHC	1.5	U	ug/L	1.5	5.8
6/18/2008 8:15	Field blank	Priority Organic Pollutants	Dibromochloromethane	0.2	U	ug/L	0.2	1
6/17/2008 10:45	Effluent	Chlorophyll/Grain Size/BOD	Biochemical Oxygen Demand-5 Day,N-Inhib	6		mg/L	0.2	2
6/17/2008 10:45	Effluent	Metals	Chromium	1	U	ug/L	1	4
6/17/2008 10:45	Effluent	Metals	Copper	11.5		ug/L	0.5	2
6/17/2008 10:45	Effluent	Metals	Antimony	0.5	U	ug/L	0.5	2
6/17/2008 10:45	Effluent	Metals	Arsenic	4.9		ug/L	0.5	2
6/17/2008 10:45	Effluent	Metals	Beryllium	0.025	U	ug/L	0.025	0.1
6/17/2008 10:45	Effluent	Metals	Aluminum	130	I	ug/L	60	240
6/17/2008 10:45	Effluent	Metals	Silver	0.025	U	ug/L	0.025	0.1
6/17/2008 10:45	Effluent	Metals	Cadmium	0.06	I	ug/L	0.02	0.08
6/17/2008 10:45	Effluent	Metals	Iron	30	U	ug/L	30	120
6/17/2008 10:45	Effluent	Metals	Nickel	1.49		ug/L	0.25	1
6/17/2008 10:45	Effluent	Metals	Zinc	33		ug/L	5	20
6/17/2008 10:45	Effluent	Metals	Selenium	0.5	U	ug/L	0.5	2
6/17/2008 10:45	Effluent	Metals	Calcium	117		mg/L	0.075	0.3
6/17/2008 10:45	Effluent	Metals	Lead	0.33	I	ug/L	0.2	0.8
6/17/2008 10:45	Effluent	Metals	Magnesium	18.6		mg/L	0.04	0.16
6/17/2008 10:45	Effluent	Nutrients	Total-P	0.049	I	mg P/L	0.02	0.06

Appendix E. (continued)

Date Sampled	Field D	Analysis Group	Components	Results	Remarks	Units	MDL	PQL
6/17/2008 10:45	Effluent	Nutrients	Ammonia-N	0.05	U	mg N/L	0.05	0.1
6/17/2008 10:45	Effluent	Nutrients	NO2NO3-N	0.13		mg N/L	0.04	0.1
6/17/2008 10:45	Effluent	Nutrients	TSS	4	U	mg/L	4	16
6/17/2008 10:45	Effluent	Nutrients	Kjeldahl Nitrogen	0.91	J	mg N/L	0.08	0.2
6/17/2008 10:45	Effluent	Field Parameter	Total Residual Chlorine	2.2		mg/L		
6/16/2008 11:15	Effluent	Nutrients	TSS	4	U	mg/L	4	16

Appendix F. Bioassay Meter Identification

FDEP Biology Laboratory - Bioassay Instrument Identification

Test Dates: June 17 - 24 2008

Test ID: City of Dunedin WWTP SRT Dates: June 17 - 24 2008

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 Salinity	SM 2510 B 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	-	√

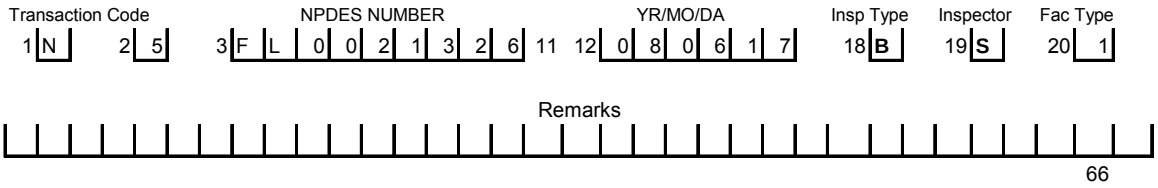
SM-2530B modified to allow use electronic and non-mercury filled thermometers.
Insert other device information in blank spaces(if used). Test ID = Facility or SRTs (acute SRT--Chronic SRT)

Comments:

V 1.4 8/21/08 BA

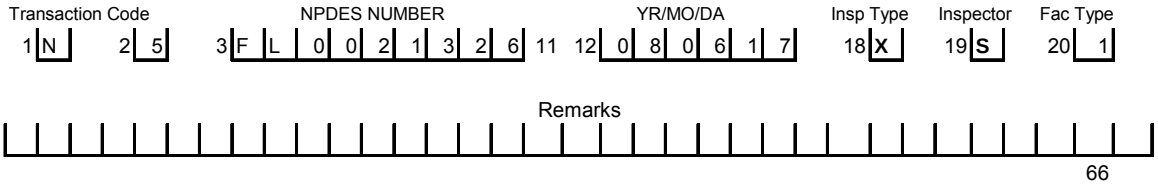
The Bioassay of City of Dunedin WWTP effluent sampled on June 16, 18, and 20, 2008. NPDES #FL0021326.

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



The Priority Pollutants Analysis of City of Dunedin WWTP effluent sampled on June 16, 18, and 20, 2008. NPDES #FL0021326.

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



Biological Analyses of City of Dunedin WWTP effluent sampled on June 16, 18, and 20, 2008. NPDES #FL0021326.

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

