

Bioassays of

Melbourne/Joe Mullins Reverse Osmosis Drinking Water Facility

Brevard County

NPDES #FL0043443

Sampled June 14, 2004

November 2004

Biology Section
Bureau of Laboratories
Division of Resource Assessment and Management

Quality Manual No. 870346G
NELAC Certification No. E31780

Melbourne/Joe Mullins Reverse Osmosis Drinking Water Facility, 5980 Lake Washington Road, Melbourne, Brevard County, Florida, NPDES #FL0043443. Effluent samples for this facility were collected on June 14-15, 2004

Introduction

Melbourne/Joe Mullins Reverse Osmosis Water Treatment Facility produces potable water for the City via reverse osmosis of groundwater, and has a permitted discharge for leftover brine disposal. The design flow is 1.25 MGD. Monthly average flows for March, April, and May 2004, were 0.974, 1.005, and 1.023 MGD, respectively. The brine travels through a 34,000-foot long force-main, which is injected with air immediately prior to discharge to insure compliance with standards for total residual chlorine (chlorine is not currently added to the effluent) and dissolved oxygen. The brine is then discharged via outfall D-001 into the Eau Galle River, a Class III marine water body. The outfall is approximately two feet in length and depth, and located approximately 100 feet downstream of the salinity control barrier. A consent order granted this facility mixing zones that extend 1,500 feet downstream from the point of discharge and 50 feet upstream from the point of discharge but downstream from the salinity control barrier. The mixing zones includes flow, unionized hydrogen sulfide, total phosphorus, dissolved oxygen, total nitrogen, chlorides, turbidity, specific conductance, pH, gross alpha activity, and radium (226+228). (Facility information provided by Michael Eckoff, Gene Elliott, and Clarence Anderson of FDEP Central District office.)

Methods

Samples were collected every 6 hours for 24 hours from the D-001 NPDES sampling point by Phil Kane and Steve Kent (FDEP Central District) following DEP-SOP-001/01 FS 2400 Wastewater Sampling. All DEP SOP's are available on the web at: http://www.floridadep.org/labs/qa/sops.htm

The toxicity tests and algal growth potential test were performed following internal DEP SOP's TA07_03,TA07_04, and TA08_01 through TA08_07. All internal DEP SOP's are available on the web at: http://www.floridadep.org/labs/cgi-bin/sop/biosop.asp. The 96-hr acute definitive toxicity tests were conducted per the permit requirements.

Sample salinity was adjusted from 7 parts per thousand (ppth) to 20 ppth with 40 Fathoms® artificial sea salts, to comply with permit conditions. Salt controls were prepared by diluting artificial seawater to 7 ppth with well water and then raising the salinity to 20 ppth with 40 Fathoms® salts.

The Trimmed Spearman-Karber method was used to calculate the LC_{50}s for these tests.

Toxicity Test Results

Tests were performed June 14-15, 2004.

Americamysis bahia 96-hr acute definitive bioassay Sample 1 – LC_{50} = 88.6%, 60% mortality in 100% sample at 96 hours

Menidia beryllina 96-hr acute definitive bioassay Sample 1 – LC_{50} > 100%, 0% mortality in 100% sample at 96 hours

Americamysis bahia 96-hr acute definitive bioassay Sample 2 – LC_{50} = 91.0%, 60% mortality in 100% sample at 96 hours

Menidia beryllina 96-hr acute definitive bioassay Sample 2 – LC_{50} > 100%, 0% mortality in 100% sample at 96 hours

Americamysis bahia 96-hr acute definitive bioassay Sample 3 – LC_{50} = 76.5%, 80% mortality in 100% sample at 96 hours

Menidia beryllina 96-hr acute definitive bioassay Sample 3 – LC_{50} > 100%, 0% mortality in 100% sample at 96 hours

Americamysis bahia 96-hr acute definitive bioassay Sample 4 – LC_{50} = 75.8%, 80% mortality in 100% sample at 96 hours

Menidia beryllina 96-hr acute definitive bioassay Sample 4 – LC_{50} > 100%, 0% mortality in 100% sample at 96 hours

Bioassay samples did not show acute toxicity to the fish, *Menidia beryllina*. The consent order requires results from the mysid, *Americamysis bahia*, test to be used for "monitoring only" purposes.

The chemistry results confirmed that the ion makeup of the effluent was not in seawater proportions and that the apparent 7.0 ppth salinity of the effluent was due to elevated levels of ground-water ions. The observed mortality in the *A. bahia* tests is likely due, at least in part, to the seawater-ion imbalance of the effluent. Previous research conducted by the FDEP Biology Section demonstrated that *A. bahia* is much more sensitive to seawater-ion imbalances than is *M. beryllina* (Wolfe *et al.* 1995). The calcium concentration was 669 mg/L at 7.0 ppth salinity (salinity based on conductivity and temperature). This is approximately eight times (8X) the normal concentration for calcium in seawater of this salinity. The calcium concentrations in the salinity-adjusted 100% sample test concentrations were approximately 3.45 times the calcium concentration in seawater of the same salinity. The elevated calcium is one source of toxicity in this sample, but other unidentified sources of toxicity cannot be ruled out without performing the major-seawater-ion imbalance toxicity testing protocols cited above.

See Appendix 1 for bioassay bench sheets.

Algal Growth Potential

The effluent AGP was 1.89 mg dry wt/L of *Dunaliella tertiolecta*. Raschke and Shultz found that Algal Growth Potential (AGP) values above 10.0 mg dry wt/L represent a "problem" threshold for marine receiving waters, implying nutrient enrichment (personal communication with Ron Raschke USEPA Region 4 1987). The analytical chemistry data reveal that the effluent is phosphorus-limited.

See Table 1 for AGP results.

Chemistry Results

Total residual chlorine (TRC) was detected in the field in concentrations of 0.08 mg/L, 0.04 mg/L, 0.04 mg/L and 0.05 mg/L, respectively, in the four bioassay samples. TRC was detected in the lab at 0.05 mg/L in each of the four bioassay samples. The TRC measured in the samples in both the field and laboratory is thought to be the result of interfering substances within the samples and not actual TRC since the effluent is not chlorinated. Total ammonia was not detected in any of the four bioassay samples in the laboratory or in the single sample collected and preserved for chemical analysis.

Iron and silver were detected at levels between the minimum detection limit and practical quantitation limit.

Effluent total alpha (59.4 pCi/L) and radium 226+228 (20.1 pCi/L) levels exceeded the Marine Water Quality Standards of ≤5 and ≤5, respectively (62-302.530(58b) and (58a), F.A.C.), but the facility has mixing zones for these analytes.

See Table 2 for results of analytes detected in the effluent, and corresponding limits.

See Appendix 2 for a complete list of chemical analyses performed.

Conclusion

The effluent samples collected from D-001 for this facility on June 14-15, 2004, was not acutely toxic to the fish, *Menidia beryllina*, but was acutely toxic to the mysid, *Americamysis bahia*, during the 96-hour bioassays. The cause of toxicity was attributed, at least in part, to the elevated calcium concentrations in the sample. The potential toxic contribution of other toxicants cannot be determined without performing the major-seawater-ion imbalance toxicity testing protocol. Effluent total alpha and radium 226+228 exceeded water quality standards for Class III Marine waters. The effluent AGP result was less than the "problem" threshold for marine receiving waters.

References

Wolfe, S.H., Whiting, D.D., Mikulski, T., Wenkert, L., Brackett, K., Fitzpatrick, T., and Merritt, J. 1995. Protocols for determining Major-Seawater-Ion Toxicity in Membrane-Technology Water-Treatment Concentrate. Biology and Chemistry Section, FDEP Bureau of Laboratories, Tallahassee, Florida. 99 pp.

Table 1. Measured algal growth potential (AGP) of Dunaliella tertiolecta *and N:P ratios for samples collected from the Melbourne Reverse Osmosis facility on June 14-15, 2004.*

Location	AGP (measured)	Inorganic N:P ratio	Total N:P ratio
Effluent	1.89 (mg dry wt/L)	223.3	119.2

Table 2. Effluent limits, Class III Marine Criteria and chemical data for samples collected from the Melbourne Reverse Osmosis facility on June 14-15, 2004.

Melbourne Reverse Osmosis	Class III Marine Stds	Effluent Limits	Effluent Samples	Effluent Toxicity Sample 1	Effluent Toxicity Sample 2	Effluent Toxicity Sample 3	Effluent Toxicity Sample 4
Organic Constituents (µg/L)							
None Detected	-	-	-	-	-	-	-
Metals (µg/L unless otherwise noted)							
Sodium	-	Report	1490	-	-	-	-
Aluminum	≤1500	≤1500	5 U	-	-	-	-
Arsenic	≤50	-	13 U	-	-	-	-
Cadmium	≤9.3	-	0.15 U	-	-	-	-
Calcium (mg/L)	-	-	669	-	-	-	-
Chromium-III	-	-	2 U	-	-	-	-
Total Chromium	-	≤50	-	-	-	-	-
Copper	≤3.7	≤2.9	0.25 U	-	-	-	-
Iron	≤300	≤300	12 I	-	-	-	-
Lead	≤8.5	-	0.05 U	-	-	-	-
Magnesium (mg/L)	-	-	334	-	-	-	-
Nickel	≤8.3	-	6 U	-	-	-	-
Selenium	≤71	-	6 U	-	-	-	-
Silver	-	≤2.3	0.032 I	-	-	-	-
Zinc	≤86	≤86	18 U	-	-	-	-
Nutrients (mg/L)							
Chloride	-	Report	3300 A	-	-	-	-
Sulfide	-	-	0.1 UY	-	-	-	-
Hydrogen sulfide	-	Report	-	-	-	-	-
Unionized hydrogen sulfide	-	Report	-	-	-	-	-
Ortho-phosphate	-	-	0.009 I	-	-	-	-
Total Phosphorus	-	≤1.0 a	0.024 I	-	-	-	-
Ammonia	-	-	0.01 U	-	-	-	-
Unionized Ammonia	-	-	< 0.001 c	-	-	-	-
Nitrate+Nitrite	-	-	2	-	-	-	-
Total Kjeldahl Nitrogen	-	-	0.86	-	-	-	-
Organic Nitrogen	-	-	0.86 c	-	-	-	-
Total Nitrogen	-	≤3.0 a	2.86 c	-	-	-	-
Turbidity (NTU)	-	< 29 above bkgd.	0.2	-	-	-	-
Fluoride	≤5	≤5	1.5	-	-	-	-
General Physical and Chemical Parameters							
Alpha, Total (pCi/L)	≤15	Report	59.4 J	-	-	-	-
Alpha-Counting Error (pCi/L)	-	-	18.1	-	-	-	-
Radium 226 (pCi/L)	-	-	18.6	-	-	-	-
Radium 226-Counting Error (pCi/L)	-	-	0.6	-	-	-	-
Radium 228 (pCi/L)	-	-	1.5	-	-	-	-
Radium 228-Counting Error (pCi/L)	-	-	0.7	-	-	-	-
Radium 226 + 228 (pCi/L)	≤5	Report	20.1 c	-	-	-	-
Dissolved Oxygen (mg/L)	≥4	≥5	-	-	-	-	8.9
pH (S.U.)	6.5 - 8.5	6.5 - 8.5	7.6	-	-	-	7.6
Conductivity (umhos/cm)	-	Report	12,160	-	-	-	12,160
Temperature (C)	-	Report	27.7	-	-	-	27.7
Flow (MGD)	-	< 1.25	-	-	-	-	-
AGP (mg DryWt/L)	-	-	1.89	-	-	-	-
Total Residual Chlorine - field (mg/L)	≤0.01	≤0.01	-	0.08	0.04	0.04	0.05
Total Residual Chlorine - lab (mg/L)	≤0.01	≤0.01	-	0.05	0.05	0.05	0.05

Value exceeds the Class III Marine Water Quality Criteria (62-302, F.A.C.)

a - annual average

c - calculated value

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

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

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

Y - The analysis was from an unpreserved or imporperly preserved sample. The data may not be accurate.

Bioassay Parameters

LIMS Sample # : 760877 Test # : 2 of 2

TEST SOP: TA07_ 04 Test Species: *Ceriodaphnia dubia* *Cyprinella leedsi* *Pimephales promelas* *Americamysis bahia* ~~*Menidia beryllina*~~ Other:

V.1 2/24/04

Concentration 50%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C	A	B	A
pH (S.U.)	8.2	8.3	8.4	8.3	8.2	8.3
Temperature °C	25.1	25.1	24.9	24.3	24.2	24.1
Dissolved Oxygen mg/L	7.0	5.8	6.3	7.1	4.6	6.5
Conductivity µmhos (mmhos)	33.1	32.9	32.4	31.3	31.9	32.0
(initials) Measured by:	DN	CAP	CAP	CAP	JD	JD
(initials) Recorded by:	CAP	DN	DN	CAP	JD	JD

Comments:

Concentration 100%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C	A	B	A
pH (S.U.)	8.0	8.2	8.3	8.1	8.1	8.4
Temperature °C	25.0	25.1	24.8	24.2	24.2	24.1
Dissolved Oxygen mg/L	7.0	5.7	6.3	7.1	4.6	6.5
Conductivity µmhos (mmhos)	33.1	31.8	31.6	30.6	31.2	31.4
(initials) Measured by:	DN	CAP	CAP	CAP	JD	JD
(initials) Recorded by:	CAP	DN	DN	CAP	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:

[redacted]

V.1 2/24/04

FDEP Biology Section - Acute 4/24 Definitive Bioassay Bench Sheets

Facility: Melbourne RO
Address: Lake Washington Rd.
City: Melbourne County: Brevard
Contact/District: Phil Kane / Central
NPDES Permit #: FL 0043443
LIMS Job #: TLH-2004-06-16-04-01 LIMS Sample #: 760874

Sample Collection: Date: 6/14/04 Time: 1400
Hold Time Start: Date: 6/15/04 Time: 0800
Sample: 1 of 4

Comments: Sample salinity adjusted to 20‰ per permit per Central District with 40-fathoms artificial sea salts, Salt control was well water diluted ASW to 7ppth salinity then salted to 20ppth salinity with 40-fathoms artificial sea salts - MF 6/16/04

Lims Data Entry: 6-24-04 CAP
Data Entry Verification: 6-24-04 MF

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.
Initial sample handling:

Test 1 validation:
Control survival ≥90%: (Yes) No
Temperature Range ≤3°C: (Yes) No

Test 2 validation:
Control survival ≥90%: (Yes) No
Temperature Range ≤3°C: (Yes) No

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: 7.0 Final Salinity: 20 (Salts) Hypersaline brine
Salinity adjusted (Test 2): (yes) no Initial Salinity: 7.0 Final Salinity: 20 (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)

Temperature Range °C
Incubator # 3 Range 23.5-24.5°C
Room B240: 24-25.0°C
Waterbath: N/A

Investigators' Signatures
Christa Levine
Lynne Nicholson
Meredith Lapidot
Sarah Pinchard
Jeremy Samuel

REVIEWER

V.2 2/26/04

Water Quality Parameters	20% DMW	Well Water	Salt Water (SW) NSW Test 1	Salt Water (SW) NSW Test 2	Moderately Hard Water	Original Sample	Method	Measured by	Verified by
Field Total Residual Cl2 (mg/L):	N/A	N/A	N/A	N/A	N/A	0.08	Hach pocket	Phil Kane	CAP
Lab Total Residual Cl2 (mg/L):			<0.03	<0.05		0.05	HACH	CAP / SP	MF
Alkalinity (mg/L as $CaCO_3$):			263	263		356	HACH	JD / DN	CAP
Hardness (mg/L as $CaCO_3$):			—	—		—	HACH	—	CAP
Total Ammonia (mg/L as N):			<0.034	<0.034		<0.017	DENVER	MF	CAP
Salinity (ppt):			20	20		7.0	YSI	CAP/MF	DN

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[redacted]

FDEP Biology Section - - Bioassay Bench Sheet

Survival

760274 (CTP)

LIMS Sample #: 676274 Test #: 1 Test Started: Date 6/16/04 Time: 1400

Organism: A. bahia Test Ended: Date 6/20/04 Time: 1300

Organism Batch: 3 Diluent/ Batch: ASW / #28

Organism Age: 5 days Food: YCT *P. subcapitata* Artemia 0199/0425G

Chamber Size 1000 mL Batch: ___ ___

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	5	5	5	5	5	5
	B	A2	5	5	5	5	5	5
	C	A3	5	5	5	5	5	5
	D	A4	5	5	5	5	5	5
SAIT CTRL	A	A25	5	5	5	5	5	5
	B	A26	5	5	5	5	5	5
	C	A27	5	5	5	5	~~4~~ 5	4D
	D	A28	5	5	5	5	5	5
6.25%	A	A5	5	5	5	5	5	5
	B	A6	5	5	5	5	5	5
	C	A7	5	5	5	5	4m	4
	D	A8	5	5	5	5	-5	5
12.5%	A	A9	5	5	5	5	5	5
	B	A10	5	5	5	5	5	5
	C	A11	5	5	5	5	5	5
	D	A12	5	5	5	5	5	5
25%	A	A13	5	5	5	5	5	5
	B	A14	5	5	5	5	5	5
	C	A15	5	5	5	5	4D	4
	D	A16	5	5	5	5	5	5
50%	A	A17	5	5	5	5	5	5
	B	A18	5	5	5	5	5	5
	C	A19	5	5	5	5	5	5
	D	A20	5	5	5	5	5	5
100%	A	A21	5	5	3D	3	3	2D
	B	A22	5	5	5	5	5	4D
	C	A23	5	5	1D	1	1	1
	D	A24	D 4D5	4D	1D	1	1	1
Organisms loaded by: MF		Checked by:	JD	JD	JD	JD	JD	JD
Loading Verified by: JD		(initials)						

Comments: LC_{50} recorded in LIMS to 3 significant figures - as 88.6

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

Test Results: v

% mortality in 100% sample 60%

LC_{50}: 88.64 If Calculated: 95% CI 71.23 - 110.31 Method: TSK

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).

QD

FDEP Biology Section - - Bioassay Bench Sheet

Survival

LIMS Sample #: 760874 Test #: 2 Test Started: Date 6/16/04 Time: 1430

Organism: M. tumidula Test Ended: Date 6/22/04 Time: 1320

Organism Batch: 20 Diluent/ Batch: ASW, #28

Organism Age: 11 days Food: YCT *P. subcapitata* Artemia 01940495G

Chamber Size 1000 mL Batch: ____ ____

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	D1	10	10	10	10	10	10
	B	D2	10	10	10	10	10	10
				(DN) ~~10~~				
				~~10~~				
SALT CTRL	A	D5	10	10	10	10	10	10
	B	D6	10	10	10	10	10	10
				~~10~~				
				~~10~~				
6.25%	A	D9	10	10	10	10	10	10
	B	D10	10	10	10	10	10	10
				~~10~~				
				~~10~~				
12.5%	A	D13	10	10	10	10	10	10
	B	D14	10	10	10	10	10	10
				~~10~~				
				~~10~~				
25%	A	D17	10	10	10	10	10	10
	B	D18	10	10	10	10	10	10
				~~10~~				
				~~10~~				
50%	A	D21	10	10	10	10	10	10
	B	D22	10	10	10	10	10	10
				~~10~~				
				~~10~~				
100%	A	~~D2~~ B13	10	10	10	10	10	10
	B	B14	10	10	10	10	10	10
				~~10~~				
				~~10~~				
Organisms loaded by: MF		Checked by:	SS	DN	DN	JB	JB	JD
Loading Verified by: DP		(Initials)						

Comments:

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

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).

Bioassay Parameters

LIMS Sample # : 760874 Test # : 1 of 2

TEST SOP: TA07_ 03 Test Species: *Ceriodaphnia dubia* *Cyprinella leedsi* *Pimephales promelas* ~~*Americamysis bahia*~~ *Menidia beryllina* Other:

V.1 2/24/04

Concentration CTRL	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C	C	D	A
pH (S.U.)	8.4	8.4	8.3	8.4	8.3	8.2
Temperature °C	25.0	24.8	25.6	25.5	25.7	25.3
Dissolved Oxygen mg/L	6.7	5.9	5.7	7.1	5.3	5.7
Conductivity µmhos ~~mmhos~~	32.9	32.1	33.8	32.2	336	333
~~(initials) Measured by:~~	DN	CAP	CAP	DN	JD	JD
(initials) Recorded by:	CAP	DN	CAP	CAP	JD	JD

Comments:

Concentration SALT CTRL	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C	C	D	A
pH (S.U.)	8.4	8.3	8.3	8.3	8.2	8.2
Temperature °C	24.8	24.7	25.3	25.2	25.6	25.7
Dissolved Oxygen mg/L	6.8	6.0	5.7	7.1	5.3	5.7
Conductivity µmhos ~~mmhos~~	31.8	31.5	32.4	31.1	322	328
~~(initials) Measured by:~~	DN	CAP	CAP	DN	JD	JD
(initials) Recorded by:	CAP	DN	CAP	CAP	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	C	C	D	A
pH (S.U.)	8.4	8.3	8.3	8.4	8.2	8.2
Temperature °C	25.0	24.8	25.9	25.2	25.5	25.7
Dissolved Oxygen mg/L	6.8	6.0	6.1	7.2	5.8	5.7
Conductivity µmhos ~~mmhos~~	32.9	32.7	33.9	32.2	331	336
~~(initials) Measured by:~~	DN	CAP	CAP	DN	JD	JD
(initials) Recorded by:	CAP	DN	CAP	CAP	JD	JD

Comments:

Concentration 12.5	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C	C	D	A
pH (S.U.)	8.4	8.3	8.3	8.4	8.3	8.3
Temperature °C	25.0	24.7	25.8	25.0	25.3	25.1
Dissolved Oxygen mg/L	6.9	6.2	5.7	7.2	5.7	5.7
Conductivity µmhos ~~mmhos~~	32.7	32.2	33.9	32.4	334	338
~~(initials) Measured by:~~	DN	CAP	CAP	DN	JD	JD
(initials) Recorded by:	CAP	DN	CAP	CAP	JD	JD

Comments:

V.1 2/24/04

000064

Bioassay Parameters (CAP)

LIMS Sample # : 760874 Test # : 2nd of 2

TEST SOP: TA07_03_ Test Species: *Ceriodaphnia dubia* *Cyprinella leedsi* *Pimephales promelas* (CAP) *Americamysis bahia* ~~*Menidia beryllina*~~ Other:_____

V.1 2/24/04

Concentration 25 %	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C	C	D	A
pH (S.U.)	8.3	8.3	8.3	8.3	8.3	8.3
Temperature °C	25.0	24.6	25.6	25.0	25.4	25.2
Dissolved Oxygen mg/L	6.8	6.0	5.8	7.0	5.8	5.6
Conductivity µmhos (mmhos)	32.7	32.2	33.4	32.3	32.6	33.9
(initials) Measured by:	DN	CAP	CAP	DN	JD	JD
(initials) Recorded by:	CAP	DN	CAP	CAP	JD	JD

Comments:

Concentration 50 %	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C	C	D	A
pH (S.U.)	8.2	8.3	8.3	8.2	8.2	8.3
Temperature °C	24.9	24.5	25.3	25.0	25.3	25.2
Dissolved Oxygen mg/L	6.8	6.1	5.9	7.1	6.0	5.6
Conductivity µmhos (mmhos)	32.3	32.7	32.5	31.6	32.0	33.1
(initials) Measured by:	DN	CAP	CAP	DN	JD	JD
(initials) Recorded by:	CAP	DN	CAP	CAP	JD	JD

Comments:

Concentration 100%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C	C	D	A
pH (S.U.)	8.0	8.3	8.3	8.0	8.2	8.2
Temperature °C	25.0	24.6	25.1	25.0	25.3	25.2
Dissolved Oxygen mg/L	6.9	6.1	6.0	7.6	6.0	5.5
Conductivity µmhos (mmhos)	31.1	32.0	31.7	30.7	31.5	32.3
(initials) Measured by:	DN	CAP	CAP	DN	JD	JD
(initials) Recorded by:	CAP	DN	CAP	CAP	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:

V.1 2/24/04

Bioassay Parameters

LIMS Sample # : 760874 **Test # :** 2 of 2

TEST SOP: TA07_ 04 Test Species: *Ceriodaphnia dubia Cyprinella leedsi Pimephales promelas Americamysis bahia Menidia beryllina* Other:_____

V.1 2/24/04

Concentration CTRL	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C	A	B	A
pH (S.U.)	8.4	8.3	8.4	8.4	8.3	8.4
Temperature °C	24.9	24.9	25.4	25.5	24.8	24.8
Dissolved Oxygen mg/L	6.8	6.0	5.9	7.0	5.2	6.8
Conductivity µmhos (mmhos)	31.9	32.3	32.3	31.2	29.2	31.6
(initials) Measured by:	DN	CAP	CAP	CAP	JD	JD
(initials) Recorded by:	CAP	DN	CAP	CAP	JD	JD

Comments:

Concentration SALT CTRL	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C	A	B	A
pH (S.U.)	8.4	8.3	8.3	8.4	8.3	8.2
Temperature °C	24.9	25.0	25.4	25.3	24.7	24.6
Dissolved Oxygen mg/L	6.9	5.9	6.0	6.8	4.8	6.9
Conductivity µmhos (mmhos)	31.4	31.8	32.3	30.6	30.7	31.4
(initials) Measured by:	DN	CAP	CAP	CAP	JD	JD
(initials) Recorded by:	CAP	DN	CAP	CAP	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	C	A	B	A
pH (S.U.)	8.4	8.3	8.3	8.4	8.2	8.4
Temperature °C	24.9	24.8	25.3	25.1	24.7	24.6
Dissolved Oxygen mg/L	7.0	5.5	6.0	6.8	4.5	6.8
Conductivity µmhos (mmhos)	32.6	32.7	33.2	31.1	31.9	32.7
(initials) Measured by:	DN	CAP	CAP	CAP	JD	JD
(initials) Recorded by:	CAP	DN	CAP	CAP	JD	JD

Comments:

Concentration 12.5%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C	A	B	A
pH (S.U.)	8.4	8.3	8.4	8.4	8.2	8.4
Temperature °C	24.9	25.1	25.2	25.0	24.8	24.6
Dissolved Oxygen mg/L	7.0	5.4	6.1	6.9	4.3	6.9
Conductivity µmhos (mmhos)	32.7	32.8	33.0	31.4	32.0	32.6
(initials) Measured by:	DN	CAP	CAP	CAP	JD	JD
(initials) Recorded by:	CAP	DN	CAP	CAP	JD	JD

Comments:

V.1 2/24/04

Bioassay Parameters

LIMS Sample # : 760874 **Test # :** 2 of 2

TEST SOP: TA07 04 **Test Species:** *Ceriodaphnia dubia* *Cyprinella leedsi* *Pimephales promelas* *Americamysis bahia* *Menidia beryllina* Other:

V.1 2/24/04

Concentration 25%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C	A	B	A
pH (S.U.)	8.3	8.3	8.4	8.3	8.2	8.5
Temperature °C	24.9	25.0	25.2	25.0	24.8	24.6
Dissolved Oxygen mg/L	7.0	5.7	6.3	6.5	4.1	6.8
Conductivity µmhos (mmhos)	32.6	32.0	33.1	31.3	32.4	32.7
(initials) Measured by:	DN	CAP	CAP	CAP	JD	JD
(initials) Recorded by:	CAP	DN	CAP	CAP	JD	JD

Comments:

Concentration 50%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C	A	B	A
pH (S.U.)	8.2	8.3	8.4	8.2	8.2	8.5
Temperature °C	24.9	25.1	25.1	24.9	24.8	24.4
Dissolved Oxygen mg/L	7.0	5.7	6.3	6.7	4.1	6.7
Conductivity µmhos (mmhos)	32.2	32.6	32.0	30.4	31.9	30.8
(initials) Measured by:	DN	CAP	CAP	CAP	JD	JD
(initials) Recorded by:	CAP	DN	CAP	CAP	JD	JD

Comments:

Concentration 100%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C	A	B	A
pH (S.U.)	8.0	8.3	8.3	8.3	8.1	8.4
Temperature °C	24.9	25.0	25.1	24.9	24.8	24.4
Dissolved Oxygen mg/L	7.1	5.7	6.2	7.1	4.3	6.6
Conductivity µmhos (mmhos)	31.7	31.4	32.1	30.6	31.1	31.1
(initials) Measured by:	DN	CAP	CAP	CAP	JD	JD
(initials) Recorded by:	CAP	DN	DN	CAP	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:

V.1 2/24/04

FDEP Biology Section - Acute 4/24 Definitive Bioassay Bench Sheets

Facility: Melbourne RO

Sample Collection: Date: 6/14/04 Time: 2000

Hold Time Start: Date: 6/15/04 Time: 0800

LIMS Job #: TLH-2004-06-16-041-02 LIMS Sample #: 760875

Sample: 2 of 4

Lims Data Entry: 6-24-04 CAP

Data Entry Verification: 6-24-04 MF

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

Comments:

Test 1 validation:

Control survival ≥90%: (Yes) No

Temperature Range ≤3°C: (Yes) No

Test 2 validation:

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: 7.0 Final Salinity: 20 (Salts) Hypersaline brine

Salinity adjusted (Test 2) (yes) no Initial Salinity: 7.0 Final Salinity: 20 (Salts) Hypersaline brine

Dechlorination: yes (no) Sodium Thiosulfate added: ml/L

Water Quality Parameters	Original Sample	Method	Measured by	Verified by
Field Total Residual Cl2 (mg/L):	0.04	Tap water	Phil Lee	CAP
Lab Total Residual Cl2 (mg/L):	0.05	HACH	CAP	MF
Alkalinity (mg/L as $CaCO_3$):	345	HACH	DN	CAP
Hardness (mg/L as $CaCO_3$):	—	HACH	—	CAP
Total Ammonia (mg/L as N):	<0.017	DENVER	MF	CAP
Salinity (ppt):	7.0	YSI	CAP MF	DN

FDEP Biology Section - - Bioassay Bench Sheet

Survival

LIMS Sample #: 760975 Test #: 1 Test Started: Date 6/16/04 Time: 1420

Organism: A. bahia Test Ended: Date 6/20/04 Time: 1300

Organism Batch: 3 Diluent/ Batch: ASW, #28

Organism Age: 5 days Food: YCT *P. subcapitata* (Artemia) 0194042504

Chamber Size 1000 mL Batch:

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	H1	5	5	5	5	5	4 10
	B	H2	5	5	5	5	5	5
	C	H3	5	5	5	5	5	5
	D	H4	5	5	5	5	5	5
6.25%	A	H5	5	5	5	5	4 10	3 10
	B	H6	5	5	5	5	4 10	4
	C	H7	5	5	5	5	5	4 10
	D	H8	5	5	5	5	5	5
12.5%	A	H9	5	5	5	5	5	5
	B	H10	5	5	5	5	5	5
	C	H11	5	5	5	5	5	5
	D	H12	5	5	5	5	5	5
25%	A	H13	5	5	5	5	5	5
	B	H14	5	5	5	5	5	5
	C	H15	5	5	5	5	5	5
	D	H16	5	5	5	5	5	5
50%	A	H 17	5	5	5	5	5	5
	B	H 18	5	5	5	5	5	5
	C	H 19	5	5	5	5	5	5
	D	H 20	5	5	5	5	5	5
100%	A	H 21	5	3 2D	4 2D @3	3	2 1D	2
	B	H 22	5	4 1D	3 1D	3	2 1D	2
	C	H 23	5	4 1D	2 2D	2	2	1 1D
	D	H24	5	3 2D	3	3	3	3
Organisms loaded by: MF		Checked by: SP	SP	DN	SD	SD	TD	TD
Loading Verified by: SP		(initials)						

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

Comments: LC_{50} recorded in LIMS to 3 significant figures as 9.10

Test Results:

% mortality in 100% sample 60%

LC_{50}: 90.98 If Calculated: 95% CI _____ Method: TSK

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).

@ 10.

FDEP Biology Section - - Bioassay Bench Sheet

Survival

LIMS Sample #: 760275 Test #: 2 Test Started: Date 6/16/04 Time: 1430

Organism: M. tenuicornis Test Ended: Date 6/20/04 Time: 1320

Organism Batch: 20 Diluent/ Batch: HSW1 #38

Organism Age: 11 Days Food: YCT *P. subcapitata* Artemia 0194N425G

Chamber Size 1000 mL Batch: ____

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
CRL	A	G1	10	10	10	10	9D	9
	B	G2	10	10	10	10	10	10
6.25%	A	G3	10	10	10	10	10	10
	B	G4	10	10	10	10	10	10
12.5%	A	G5	10	10	10	10	10	10
	B	G6	10	10	10	10	10	10
25%	A	G7	10	10	10	10	10	10
	B	G8	10	10	10	10	10	10
50%	A	G9	10	10	10	10	9D	9
	B	G10	10	10	10	10	10	10
100%	A	G11	10	10	10	10	10	10
	B	G12	10	10	10	10	10	10
Organisms loaded by: MF		Checked by: (Initials)	ZP	DN	DN	JD	JD	JD
Loading Verified by: RO								

Comments:

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

Test Results:

% mortality in 100% sample 0

LC_{50}: >100 If Calculated: 95% CI ____ Method: ____

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

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

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Page

V.1 2/23/04

LIMS Sample # : 760875 Test # : 1 of 2

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

V.1 2/24/04

Concentration CTRL	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C	C	D	A
pH (S.U.)	8.5	8.3	8.3	8.4	8.2	8.3
Temperature °C	25.0	24.7	25.0	24.5	25.5	24.3
Dissolved Oxygen mg/L	7.0	5.7	6.2	7.4	7.9	7.0
Conductivity µmhos mmhos	31.9	32.2	33.3	31.4	32.0	33.5
(initials) Measured by:	DN	CAP	CAP	DN	JD	JD
(initials) Recorded by:	CAP	DN	DN	DN	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	C	C	D	A
pH (S.U.)	8.4	8.4	8.4	8.4	8.3	8.4
Temperature °C	25.0	24.5	24.9	24.5	25.3	24.3
Dissolved Oxygen mg/L	7.0	6.3	6.3	7.3	7.9	6.9
Conductivity µmhos mmhos	32.5	32.6	33.0	31.9	33.5	33.8
(initials) Measured by:	DN	CAP	CAP	DN	JD	JD
(initials) Recorded by:	CAP	DN	DN	DN	JD	JD

Comments:

Concentration 12.5%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C	C	D	A
pH (S.U.)	8.4	8.3	8.3	8.4	8.3	8.3
Temperature °C	25.0	24.7	24.8	24.4	25.1	24.3
Dissolved Oxygen mg/L	7.0	6.3	6.5	7.3	5.2	6.9
Conductivity µmhos mmhos	32.5	33.3	33.4	31.9	33.1	33.4
(initials) Measured by:	DN	CAP	CAP	DN	JD	JD
(initials) Recorded by:	CAP	DN	DN	CAP	JD	JD

Comments:

Concentration 25%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C	C	D	A
pH (S.U.)	8.3	8.3	8.3	8.3	8.3	8.4
Temperature °C	25.0	24.6	24.8	24.5	25.0	24.2
Dissolved Oxygen mg/L	7.0	6.1	6.4	7.4	5.2	7.0
Conductivity µmhos mmhos	32.4	32.8	33.3	31.7	33.4	33.6
(initials) Measured by:	DN	CAP	CAP	DN	JD	JD
(initials) Recorded by:	CAP	DN	DN	CAP	JD	JD

Comments:

V.1 2/24/04

000011

Bioassay Parameters

LIMS Sample # : 760875 Test # : 1 of 2

TEST SOP: TA07 03 Test Species: *Ceriodaphnia dubia* *Cyprinella leedsi* *Pimephales promelas* *Americamysis bahia* *Menidia beryllina* Other:

V.1 2/24/04

Concentration 50%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	D	C	C	D	A
pH (S.U.)	8.2	8.3	8.3	8.2	8.2	8.4
Temperature °C	25.0	24.5	24.6	24.5	25.0	24.1
Dissolved Oxygen mg/L	7.0	6.1	6.3	7.5	5.1	6.9
Conductivity µmhos mmhos	32.0	32.4	32.9	31.5	32.4	32.1
(initials) Measured by:	DN	CAP	CAP	DN	JD	JD
(initials) Recorded by:	CAP	DN	DN	CAP	JD	JD

Comments:

Concentration 100%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C	C	D	A B
pH (S.U.)	8.0	8.2	8.3	8.0	8.2	8.3
Temperature °C	25.0	24.6	24.6	24.6	25.0	24.1
Dissolved Oxygen mg/L	7.1	6.2	6.4	7.4	5.0	6.9
Conductivity µmhos mmhos	31.5	31.5	32.3	30.9	31.7	32.1
(initials) Measured by:	DN	CAP	CAP	DN	JD	JD
(initials) Recorded by:	CAP	DN	DN	CAP	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.1 2/24/04

LIMS Sample # : 760875 Test # : 2 of 2

TEST SOP: TA07_07_ Test Species: *Ceriodaphnia dubia* *Cyprinella leedsi* *Pimephales promelas* *Americamysis bahia* ~~*Menidia beryllina*~~ Other:

V.1 2/24/04

Concentration MTRL	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C	A	B	A
pH (S.U.)	8.5	8.4	8.4	8.4	81	8.3
Temperature °C	24.8	24.9	25.0	24.9	24.8	24.0
Dissolved Oxygen mg/L	7.0	5.9	6.6	7.1	4.5	6.1
Conductivity µmhos ~~mmhos~~	32.2	31.4	32.8	31.1	32.9	32.3
(initials) ~~Measured~~ by:	DN	CAP	DN	CAP	SD	SD
(initials) Recorded by:	CAP	DN	DN	CAP	SD	SD

Comments:

Concentration 6.25%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C	A	B	A
pH (S.U.)	8.4	8.4	8.4	8.4	83	8.4
Temperature °C	24.9	24.9	25.0	24.8	24.7	24.0
Dissolved Oxygen mg/L	7.0	5.8	6.4	6.7	4.9	6.4
Conductivity µmhos ~~mmhos~~	32.3	32.8	33.5	32.0	32.8	32.9 24.6
(initials) Measured by:	DN	CAP	CAP	CAP	SD	SD
(initials) Recorded by:	CAP	DN	DN	CAP	SD	SD

Comments:

Concentration 12.5%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C	A	B	A
pH (S.U.)	8.4	8.4	8.4	8.4	83	8.4
Temperature °C	24.9	25.0	25.0	24.7	24.7	24.2
Dissolved Oxygen mg/L	7.0	5.8	6.3	6.9	4.4	6.6
Conductivity µmhos ~~mmhos~~	32.7	32.9	32.7	31.6	32.8	32.8
(initials) ~~Measured~~ by:	DN	CAP	DN	CAP	SD	SD
(initials) Recorded by:	CAP	DN	DN	CAP	SD	SD

Comments:

Concentration 25%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C	A	B	A
pH (S.U.)	8.3	8.3	8.4	8.4	83	8.4
Temperature °C	24.9	24.9	~~24.9~~ 25.0	24.7	24.6	24.1
Dissolved Oxygen mg/L	7.0	5.7	6.2	6.9	4.4	6.6
Conductivity µmhos ~~mmhos~~	32.4	32.3	33.3	32.1	32.5	32.8
(initials) Measured by:	DN	CAP	CAP	CAP	SD	SD
(initials) Recorded by:	CAP	DN	DN	CAP	SD	SD

Comments:

V.1 2/24/04

Bioassay Parameters

LIMS Sample # : 60875 Test # : 2 of 2

TEST SOP: TA07_ 01 Test Species: *Ceriodaphnia dubia* *Cyprinella leedsi* *Pimephales promelas* *Americamysis bahia* ~~*Menidia beryllina*~~, Other:

V.1 2/24/04

Concentration 50%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C	A	B	A
pH (S.U.)	8.2	8.3	8.3	8.3	8.2	8.4
Temperature °C	25.0	25.0	25.0	24.6	24.6	24.0
Dissolved Oxygen mg/L	7.1	5.7	6.5	6.8	4.5	6.7
Conductivity µmhos mmhos	32.0	32.3	32.5	31.3	32.1	32.2
(initials) Measured by:	DN	CAP	DN	CAP	JD	JD
(initials) Recorded by:	CAP	DN	DN	CAP	JD	JD

Comments:

Concentration 100%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C	A	B	A
pH (S.U.)	8.0	8.2	8.3	8.1	8.1	8.4
Temperature °C	24.9	25.0	25.0	24.5	24.6	24.0
Dissolved Oxygen mg/L	7.1	5.7	6.3	7.0	4.5	6.7
Conductivity µmhos mmhos	31.8	31.5	32.2	30.5	31.4	31.5
(initials) Measured by:	DN	CAP	DN	CAP	JD	JD
(initials) Recorded by:	CAP	DN	DN	CAP	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:

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[redacted]

[redacted]

FDEP Biology Section - Acute 4/24 Definitive Bioassay Bench Sheets

Facility: Melbourne RO

Sample Collection: Date: CAP 6/15/04 ~~6/16/04~~ Time: 0200

Hold Time Start: Date: 6/15/04 Time: 0800

LIMS Job #: TLH2004-06-16-04:03 LIMS Sample #: 760876

Sample: 3 of 4

Lims Data Entry: 6-24-04 CAP

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

Data Entry Verification: 6-24-04 MF

Comments:

Test 1 validation:
Control survival ≥90%: (Yes) No
Temperature Range ≤3°C: (Yes) No

Test 2 validation:
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: 7.0 Final Salinity: 20 (Salts) Hypersaline brine
Salinity adjusted (Test 2) (yes) no Initial Salinity: 7.0 Final Salinity: 20 (Salts) Hypersaline brine
Dechlorination: yes (no) Sodium Thiosulfate added: ml/L

Water Quality Parameters	Original Sample	Method	Measured by	Verified by
Field Total Residual Cl2 (mg/L):	0.04	field meter	CAP CAP Paul Kane	CAP
Lab Total Residual Cl2 (mg/L):	0.05	HACH	CAP	MF
Alkalinity (mg/L as $CaCO_3$):	353	HACH	DN	CAP
Hardness (mg/L as $CaCO_3$):	—	HACH	—	CAP
Total Ammonia (mg/L as N):	<0.017	DENVER	MF	CAP
Salinity (ppt):	7.0	YSI	CAP MF	DN

[redacted]

FDEP Biology Section - - Bioassay Bench Sheet

Survival

LIMS Sample #: 760976 Test #: 1 Test Started: Date 6/16/04 Time: 1440

Organism: A. bahia Test Ended: Date 6/20/04 Time: 1300

Organism Batch: 3 Diluent/ Batch: ASW / #28

Organism Age: 5 days Food: YCT *P. subcapitata* Artemia C/7434/50

Chamber Size 1000 mL Batch: ___ ___

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	E1	5	5	5	5	5	5
	B	E2	5	5	5	5	5	5
	C	E3	5	5	5	5	5	5
	D	E4	5	5	5	5	5	5
6.25%	A	E5	5	5	5	5	5	5
	B	E6	5	5	5	5	5	5
	C	E7	5	5	5	5	5	5
	D	E8	5	5	5	5	5	5
12.5%	A	E9	5	5	5	5	5	5
	B	E10	5	5	5	5	5	5
	C	E11	5	5	5	5	5	5
	D	E12	5	5	5	5	5	5
25%	A	E13	5	5	5	5	5	5
	B	E14	5	5	4D	4	4	4
	C	E15	5	5	5	5	5	5
	D	E16	5	5	5	5	5	5
50%	A	E17	5	5	5	5	5	5
	B	E18	5	5	5	5	5	5
	C	E19	5	5	5	5	5	5
	D	E20	5	5	5	5	5	5
100%	A	E21	~~3D~~	3D	1D @	1	0 1D	—
	B	E22	5	5	3D	3	0 1D	2
	C	E23	5	5	0 5D	0	—	—
	D	E24	5	2 3D	2	2	2	2
Organisms loaded by: MF		Checked by:	SD	DW	JD	JD	JD	JD
Loading Verified by: JD		(initials)						

Comments: LC_{50} recorded in LIMS to 3 significant figures as 76.5

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

Test Results:

% mortality in 100% sample 90%

LC_{50}: 76.47 If Calculated: 95% CI 69.12-84.59 Method: TSK

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).

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Page 1 of 1 JD

FDEP Biology Section - - Bioassay Bench Sheet

Survival

LIMS Sample #: 760776 Test #: 2 Test Started: Date 6/16/04 Time: 1430

Organism: M. tenuetina Test Ended: Date 6/20/04 Time: 1320

Organism Batch: 20 Diluent/ Batch: ASW 1H 28

Organism Age: 11 day Food: YCT *P. subcapitata* Artemia Batch: D19401256

Chamber Size 1000 mL Batch: ___ ___

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	D3	10	10	10	10	9 ID	9
	B	D4	10	10	10	10	10	9 ID
6.25%	A	D7	10	10	10	10	10	10
	B	D8	10	~~9~~ 9 ID	9	9	9	8 ID
12.5%	A	D11	10	10	10	10	10	10
	B	D12	10	10	10	10	10	10
25%	A	D15	10	10	10	10	10	10
	B	D16	10	10	10	10	10	9 ID
50%	A	D19	10	10	10	10	10	10
	B	D20	10	10	10	10	10	10
100%	A	D23	10	10	10	10	10	10
	B	D24	10	10	10	10	10	10
Organisms loaded by: JD		Checked by:	JD	JD	DN	JD	JD	JD
Loading Verified by: JD		(Initials)						

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).

PPD

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Bioassay Parameters

LIMS Sample # : 760876 **Test # :** 1 of 2

TEST SOP: TA07_ 03 **Test Species:** *Ceriodaphnia dubia Cyprinella leedsi Pimephales promelas* (*Americamysis bahia*) *Menidia beryllina* Other:_____

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Concentration CTRL	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C	C	D	A
pH (S.U.)	8.4	8.4	8.3	8.4	8.3	8.3
Temperature °C	25.0	24.9	24.8	24.5	24.7	24.4
Dissolved Oxygen mg/L	7.0	5.8	6.1	7.2	5.6	5.7
Conductivity µmhos (mmhos)	32.2	32.0	33.7	31.4	32.0	32.6
(initials) Measured by:	DN	CAP	CAP	DN	JD	JD
(initials) Recorded by:	CAP	DN	DN	CAP	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	C	C	D	A
pH (S.U.)	8.4	8.4	8.3	8.4	8.3	8.3
Temperature °C	25.0	24.9	24.6	24.5	24.4	24.5
Dissolved Oxygen mg/L	7.0	5.9	6.1	7.2	5.7	5.9
Conductivity µmhos (mmhos)	32.3	33.3	33.5	31.9	33.1	33.6
(initials) Measured by:	DN	CAP	CAP	DN	JD	JD
(initials) Recorded by:	CAP	DN	DN	CAP	JD	JD

Comments:

Concentration 12.5%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C	C	D	A
pH (S.U.)	8.4	8.3	8.3	8.4	8.3	8.3
Temperature °C	24.9	24.8	24.5	24.5	24.9	24.6
Dissolved Oxygen mg/L	7.0	6.0	6.4	7.3	5.8	5.9
Conductivity µmhos (mmhos)	32.7	33.6	33.4	32.0	33.6	34.1
(initials) Measured by:	DN	CAP	CAP	DN	JD	JD
(initials) Recorded by:	CAP	DN	DN	CAP	JD	JD

Comments:

Concentration 25%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C	C	D	A
pH (S.U.)	8.3	8.3	8.3	8.3	8.3	8.2
Temperature °C	25.1	24.9	24.5	24.4	24.8	24.6
Dissolved Oxygen mg/L	7.0	5.8	6.4	7.0	5.8	5.8
Conductivity µmhos (mmhos)	32.4	32.9	33.3	31.9	33.4	33.9
(initials) Measured by:	DN	CAP	CAP	DN	JD	JD
(initials) Recorded by:	CAP	DN	DN	CAP	JD	JD

Comments:

V.1 2/24/04

Bioassay Parameters

LIMS Sample # : 760876 **Test # :** 1 of 2

TEST SOP: TA07_ 03 **Test Species:** *Ceriodaphnia dubia* *Cyprinella leedsi* *Pimephales promelas* *Americamysis bahia* *Menidia beryllina* Other:_____

V.1 2/24/04

Concentration 50%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C	C	D	A
pH (S.U.)	8.2	8.3	8.3	8.2	83	83
Temperature °C	25.1	25.0	24.6	24.4	24.7	24.6
Dissolved Oxygen mg/L	7.0	5.7	6.2	7.2	5.7	5.6
Conductivity µmhos (mmhos)	32.0	32.6	32.9	31.5	32.2	33.9
(initials) Measured by:	DN	CAP	CAP	DN	JD	JD
(initials) Recorded by:	CAP	DN	DN	CAP	JD	JD

Comments:

Concentration 100%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C	C	0	A
pH (S.U.)	8.0	8.2	8.3		8.2	8.3
Temperature °C	25.2	24.9	24.6	24.0	24.8	24.6
Dissolved Oxygen mg/L	7.1	5.8	6.2	7.4	5.7	6.2
Conductivity µmhos (mmhos)	31.8	32.3	31.3		31.8	33.0
(initials) Measured by:	DN	CAP	CAP		JD	JD
(initials) Recorded by:	CAP	DN	DN	CAP	JD	JD

Comments: 48 hr. after renewal parameters for 0 (the C is dead) CAP
pH 8.2
Temp. 24.4
to
Cond. 31.8
DN - measured
CAP - recorded

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.1 2/24/04

Bioassay Parameters

LIMS Sample # : 760876 **Test # :** 2 of 2

TEST SOP: TA07_ 04 **Test Species:** *Ceriodaphnia dubia Cyprinella leedsi Pimephales promelas Americamysis bahia* (*Menidia beryllina*) Other:_____

V.1 2/24/04

Concentration CTRL	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C	A	B	A
pH (S.U.)	8.5	8.4	8.4	8.4	8.3	8.4
Temperature °C	24.9	25.0	25.1	24.5	24.5	24.1
Dissolved Oxygen mg/L	6.9	5.9	6.4	6.7	4.7	6.8
Conductivity µmhos (mmhos)	31.7	32.3	32.8	31.3	32.7	31.9
(initials) Measured by:	DN	CAP	CAP	CAP	JD	JD
(initials) Recorded by:	CAP	DN	DN	CAP	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	C	A	B	A
pH (S.U.)	8.4	8.4	8.4	8.4	8.3	8.4
Temperature °C	24.9	25.0	25.0	24.5	24.4	24.0
Dissolved Oxygen mg/L	6.9	5.7	6.4	7.0	4.5	6.8
Conductivity µmhos (mmhos)	32.7	33.0	32.8	31.9	32.8	32.7
(initials) Measured by:	DN	CAP	CAP	CAP	JD	JD
(initials) Recorded by:	CAP	DN	DN	CAP	JD	JD

Comments:

Concentration 12.5%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C	A	B	A
pH (S.U.)	8.4	8.3	8.4	8.4	8.3	8.4
Temperature °C	25.1	25.1	25.0	24.5	24.4	24.0
Dissolved Oxygen mg/L	7.0	5.7	6.4	7.0	4.4	6.9
Conductivity µmhos (mmhos)	32.8	33.1	33.0	32.0	32.8	32.8
(initials) Measured by:	DN	CAP	CAP	CAP	JD	JD
(initials) Recorded by:	CAP	DN	DN	CAP	JD	JD

Comments:

Concentration 25%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C	A	B	A
pH (S.U.)	8.3	8.3	8.4	8.3	8.3	8.4
Temperature °C	25.1	25.1	25.0	24.5	24.3	24.1
Dissolved Oxygen mg/L	7.0	5.7	6.3	7.1	4.3	6.6
Conductivity µmhos (mmhos)	32.6	32.7	33.2	31.8	32.4	32.7
(initials) Measured by:	DN	CAP	CAP	CAP	JD	JD
(initials) Recorded by:	CAP	DN	DN	CAP	JD	JD

Comments:

V.1 2/24/04

Bioassay Paramoters

LIMS Sample # : 760876 Test # : 2 of 2

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

V.1 2/24/04

Concentration 50%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C	A	B	A
pH (S.U.)	8.2	8.3	8.4	8.2	8.2	8.5
Temperature °C	25.2	25.1	25.0	24.5	24.3	24.2
Dissolved Oxygen mg/L	7.0	5.7	6.4	7.0	4.4	6.5
Conductivity µmhos (mmhos)	32.2	32.3	32.2	31.1	32.1	32.3
(initials) Measured by:	DN	CAP	CAP	CAP	JD	JD
(initials) Recorded by:	CAP	DN	DN	CAP	JD	JD

Comments:

Concentration 100%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C	A	B	A
pH (S.U.)	8.0	8.2	8.3	8.1	8.2	8.4
Temperature °C	25.2	25.1	25.0	24.5	24.3	24.2
Dissolved Oxygen mg/L	7.0	5.6	6.4	7.1	4.4	6.6
Conductivity µmhos (mmhos)	31.4	32.0	31.9	31.5	31.6	31.6
(initials) Measured by:	DN	CAP	CAP	CAP	JD	JD
(initials) Recorded by:	CAP	DN	DN	CAP	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.1 2/24/04

FDEP Biology Section - Acute 4/24 Definitive Bioassay Bench Sheets

Facility: Melbourne RO

Sample Collection: Date: 6/15/04 Time: 0800

Hold Time Start: Date: 6/15/04 Time: 0800

LIMS Job #: TH-2004-06-16-04-04 LIMS Sample #: 760877

Sample: 4 of 4

Lims Data Entry: 6-24-04 CAP

Data Entry Verification: 6-24-04 MF

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

Comments:

Test 1 validation:
Control survival ≥90%: (Yes) No
Temperature Range ≤3°C: (Yes) No

Test 2 validation:
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: 7.0 Final Salinity: 20 (Salts) Hypersaline brine

Salinity adjusted (Test 2): (yes) no Initial Salinity: 7.0 Final Salinity: 20 (Salts) Hypersaline brine

Dechlorination: yes (no) Sodium Thiosulfate added: ml/L

Water Quality Parameters	Original Sample	Method	Measured by	Verified by
Field Total Residual Cl2 (mg/L):	0.05	Orbeco	Ani Kane	CAP
Lab Total Residual Cl2 (mg/L):	0.05	HACH	CAP	MF
Alkalinity (mg/L as $CaCO_3$):	352	HACH	DN	CAP
Hardness (mg/L as $CaCO_3$):	—	HACH	—	CAP
Total Ammonia (mg/L as N):	<0.017	DENVER	MF	CAP
Salinity (ppt):	7.0	YSI	CAP/MF	DN

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[redacted]

FDEP Biology Section - - Bioassay Bench Sheet

Survival

LIMS Sample #: 760977 Test #: 1 Test Started: Date 6/16/04 Time: 1455

Organism: A. bahia Test Ended: Date 6/20/04 Time: 1300

Organism Batch: 3 Diluent/ Batch: ASW, #25

Organism Age: 5 days Food: YCT *P. subcapitata* Artemia 019404254

Chamber Size 1000 mL Batch: ___ ___

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	F1	5	5	5	5	5	5
	B	F2	5	5	5	5	5	5
	C	F3	5	5	5	5	5	5
	D	F4	5	5	5	5	5	5
6.25%	A	F5	5	5	5	5	5	5
	B	F6	5	5	5	5	5	5
	C	F7	5	5	5	5	5	5
	D	F8	5	5	5	5	5	5
12.5%	A	F9	5	5	5	5	5	5
	B	F10	5	5	5	5	5	5
	C	F11	5	5	5	5	5	5
	D	F12	5	5	5	5	5	5
25%	A	F13	5	5	5	5	5	5
	B	F14	5	5	5	5	5	5
	C	F15	5	5	5	5	5	5
	D	F16	5	5	5	5	5	5
50%	A	F17	5	5	5	5	5	5
	B	F18	5	5	5	5	5	5
	C	F19	5	5	5	5	5	5
	D	F20	5	5	4 1D	4	4	4
100%	A	F21	5	14D	0 1D	—	—	—
	B	F22	5 ~~2D~~ 3D	3 2D	2 1D	2	2	1 1D
	C	F23	5	5	1 4D	1	1	1
	D	F24	5	4 1D	~~3D~~ 3 1D	3	2 1D	2
Organisms loaded by: MF		Checked by:	JD	JD	JD	JD	JD	JD
Loading Verified by: JD		(Initials)						

Comments: LC_{50} recorded in Unit to 3 significant figures as 75.6

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

Test Results:

% mortality in 100% sample 80%

LC_{50}: 75.79 If Calculated: 95% CI 68.20-84.22 Method: TSK

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

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

FDEP Biology Section - - Bioassay Bench Sheet

Survival

LIMS Sample #: 760877 Test #: 2 Test Started: Date 6/16/04 Time: 1440

Organism: M beryllina Test Ended: Date 6/20/04 Time: 1320

Organism Batch: 20 Diluent/ Batch: ASW, #28

Organism Age: 11 days Food: YCT *P. subcapitata* Artemia C/9404056

Chamber Size 1000 mL Batch: ___ ___ ___

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	G13	10	10	10	10	10	10
	B	G14	10	10	10	10	10	10
6.25%	A	G15	10	10	10	10	10	10
	B	G16	10	10	10	10	10	10
12.5%	A	G17	10	10	10	10	10	10
	B	G18	10	10	10	10	10	10
25%	A	G19	10	10	10	10	10	10
	B	G20	10	9 9+	9	9	9	9
50%	A	G21	10	10	10	10	10	9 10
	B	G22	10	10	10	10	10	10
100%	A	G23	10	10	10	10	10	10
	B	G24	10	10	10	10	10	10
Organisms loaded by: JD	Checked by:		JD	JD	DN	JD	JD	JD
Loading Verified by: JD	(initials)							

Comments:

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

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).

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V.1 2/23/04

Bioassay Parameters

LIMS Sample #: 760877 Test #: 1 of 2

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

V.1 2/24/04

Concentration CTRL	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C	C	D	A
pH (S.U.)	8.5	8.4	8.4	8.4	8.3	8.3
Temperature °C	25.0	24.9	25.1	24.4	24.5	24.7
Dissolved Oxygen mg/L	7.0	5.8	6.4	7.6	4.9@	5.6
Conductivity µmhos (mmhos)	32.8	32.5	31.9	31.6	33.2	32.8
(initials) Measured by:	DN	CAP	CAP	DN	JD	JD
(initials) Recorded by:	CAP	DN	DN	DN	JD	JD

Comments: @ 5.8 RD

Concentration 6.25%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C	C	D	A
pH (S.U.)	8.4	8.4	8.4	8.4	8.3	8.3
Temperature °C	25.1	24.9	25.0	24.4	24.5	24.7
Dissolved Oxygen mg/L	7.0	5.9	6.4	7.3	5.7	5.6
Conductivity µmhos (mmhos)	33.1	33.1	32.9	31.5	33.2	33.9
(initials) Measured by:	DN	CAP	CAP	DN	JD	JD
(initials) Recorded by:	CAP	DN	DN	CAP	JD	JD

Comments:

Concentration 12.5%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C	C	D	A
pH (S.U.)	8.4	8.4	8.3	8.3	8.3	8.2
Temperature °C	25.1	24.9	25.0	24.4	24.6	24.7
Dissolved Oxygen mg/L	7.0	5.8	6.4	7.4	5.6	5.5
Conductivity µmhos (mmhos)	32.9	33.4	35.3	31.9	33.8	33.6
(initials) Measured by:	DN	CAP	CAP	DN	JD	JD
(initials) Recorded by:	CAP	DN	DN	CAP	JD	JD

Comments:

Concentration 25%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C	C	D	A
pH (S.U.)	8.3	8.3	8.3	8.3	8.3	8.2
Temperature °C	25.1	24.9	25.0	24.3	24.5	24.7
Dissolved Oxygen mg/L	7.0	5.3	6.3	7.2	5.7	5.4
Conductivity µmhos (mmhos)	32.7	32.8	33.8	30.8	33.1	33.6
(initials) Measured by:	DN	CAP	CAP	DN	JD	JD
(initials) Recorded by:	CAP	DN	DN	CAP	JD	JD

Comments:

V.1 2/24/04

Bioassay Parameters

LIMS Sample # : 760877 Test # : 2 1 of 2

TEST SOP: TA07 03 Test Species: *Ceriodaphnia dubia* *Cyprinella leedsi* *Pimephales promelas* *Americamysis bahia* *Menidia beryllina* Other:

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Concentration 50%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C	C	D	A
pH (S.U.)	8.2	8.3	8.3	8.2	83	82
Temperature °C	25.1	25.1	25.0	~~24.3~~	24.4	24.7
Dissolved Oxygen mg/L	7.1	5.4	6.4	7.3	5.6	5.2
Conductivity µmhos (mmhos)	32.4	32.9	32.3	31.0	30.2	33.1
(initials) Measured by:	DN	CAP	LD	DN	JD	JD
(initials) Recorded by:	CAP	DN	DN	DN	JD	JD

Comments:

Concentration 100%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C	C	D	B
pH (S.U.)	8.0	8.2	8.3	8.0	8.2	8.2
Temperature °C	25.1	25.1	25.0	24.0	24.5	24.6
Dissolved Oxygen mg/L	7.1	5.5	6.4	7.6	5.6	5.2
Conductivity µmhos (mmhos)	31.7	32.1	33.9	30.8	32.0	32.5
(initials) Measured by:	DN	CAP	CAP	DN	JD	JD
(initials) Recorded by:	CAP	DN	DN	DN	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.1 2/24/04

[redacted]

Bioassay Parameters

LIMS Sample # : 760877 Test # : 2 of 2

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

V.1 2/24/04

Concentration CTRL	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C	A	B	A
pH (S.U.) (OA 8.5)	8.0	8.4	8.4	8.4	8.2	8.4
Temperature °C	25.0	24.8	24.9	24.4	24.2	24.0
Dissolved Oxygen mg/L	7.2	5.7	6.4	7.0	4.7	6.9
Conductivity µmhos (mmhos)	31.1	32.2	32.0	31.9	32.8	32.7
(initials) Measured by:	DN	CAP	CAP	CAP	JD	JD
(initials) Recorded by:	CAP	DN	DN	CAP	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	C	A	B	A
pH (S.U.)	8.4	8.4	8.4	8.4	8.3	8.4
Temperature °C	25.1	25.9	24.9	24.3	24.2	24.0
Dissolved Oxygen mg/L	7.2	5.9	6.5	7.0	4.6	6.8
Conductivity µmhos (mmhos)	32.3	33.2	33.0	31.3	31.5	32.7
(initials) Measured by:	DN	CAP	CAP	CAP	JD	JD
(initials) Recorded by:	CAP	DN	DN	CAP	JD	JD

Comments:

Concentration 12.5%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C	A	B	A
pH (S.U.)	8.3	8.4	8.4	8.4	8.3	8.4
Temperature °C	25.2	25.0	24.9	24.3	24.2	24.1
Dissolved Oxygen mg/L	7.1	5.8	6.5	7.0	4.7	6.7
Conductivity µmhos (mmhos)	32.6	33.0	32.8	32.2	32.9	32.7
(initials) Measured by:	DN	CAP	CAP	CAP	JD	JD
(initials) Recorded by:	CAP	DN	DN	CAP	JD	JD

Comments:

Concentration 25%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C	A	B	A
pH (S.U.)	8.3	8.3	8.4	8.3	8.3	8.4
Temperature °C	25.1	25.0	24.9	24.3	24.2	24.1
Dissolved Oxygen mg/L	7.0	5.8	6.4	7.0	4.6	6.6
Conductivity µmhos (mmhos)	33.0	32.9	32.9	32.0	31.9	32.6
(initials) Measured by:	DN	CAP	CAP	CAP	JD	JD
(initials) Recorded by:	CAP	DN	DN	CAP	JD	JD

Comments:

V.1 2/24/04

000027

Appendix 2. Chemical Analyses performed on the effluent from the Melbourne Reverse Osmosis Plant Outfall D-001, sampled on June 14-15, 2004.

DATE SAMPLED	FIELD ID	ANALYSIS GROUP	COMPONENT	RESULT	UNITS	REMARK	MDL	PQL
6/15/2004	MELRO	Bio-AGP/LimNut	Algal Growth Potential	1.89	mg DryWt/L		0.1	0.3
6/15/2004	MELRO	Bio-Chl-a	Chlorophyll-A, Monochromatic, Water	0.96	ug/L	U	0.96	2.9
6/15/2004	MELRO	Bio-Chl-a	Phaeophytin-A, Monochromatic, Water	0.96	ug/L	U	0.96	2.9
6/15/2004	MELRO TOXICITY #1 1400 HOURS	Bio-Toxicology	Bioassay-Acute-Def-SW-Fish, LC50	100	LC50	L		
6/15/2004	MELRO TOXICITY #1 1400 HOURS	Bio-Toxicology	Bioassay-Acute-Def-SW-Mysid, LC50	88.6	LC50			
6/15/2004	MELRO TOXICITY #2 2000 HOURS	Bio-Toxicology	Bioassay-Acute-Def-SW-Fish, LC50	100	LC50	L		
6/15/2004	MELRO TOXICITY #2 2000 HOURS	Bio-Toxicology	Bioassay-Acute-Def-SW-Mysid, LC50	91	LC50			
6/15/2004	MELRO TOXICITY #3 0200 HOURS	Bio-Toxicology	Bioassay-Acute-Def-SW-Fish, LC50	100	LC50	L		
6/15/2004	MELRO TOXICITY #3 0200 HOURS	Bio-Toxicology	Bioassay-Acute-Def-SW-Mysid, LC50	76.5	LC50			
6/15/2004	MELRO TOXICITY #4 0800 HOURS	Bio-Toxicology	Bioassay-Acute-Def-SW-Fish, LC50	100	LC50	L		
6/15/2004	MELRO TOXICITY #4 0800 HOURS	Bio-Toxicology	Bioassay-Acute-Def-SW-Mysid, LC50	75.8	LC50			
6/15/2004	MELRO	BNA-Water	1,2,4-Trichlorobenzene	0.94	ug/L	U	0.94	3.8
6/15/2004	MELRO	BNA-Water	1,2-Dichlorobenzene	0.94	ug/L	U	0.94	3.8
6/15/2004	MELRO	BNA-Water	1,3-Dichlorobenzene	0.94	ug/L	U	0.94	3.8
6/15/2004	MELRO	BNA-Water	1,4-Dichlorobenzene	0.94	ug/L	U	0.94	3.8
6/15/2004	MELRO	BNA-Water	2,4,6-Trichlorophenol	0.94	ug/L	U	0.94	3.8
6/15/2004	MELRO	BNA-Water	2,4-Dichlorophenol	0.94	ug/L	U	0.94	3.8
6/15/2004	MELRO	BNA-Water	2,4-Dimethylphenol	47	ug/L	U	47	190
6/15/2004	MELRO	BNA-Water	2,4-Dinitrophenol	14	ug/L	U	14	57
6/15/2004	MELRO	BNA-Water	2,4-Dinitrotoluene	0.94	ug/L	U	0.94	3.8
6/15/2004	MELRO	BNA-Water	2,6-Dinitrotoluene	0.94	ug/L	U	0.94	3.8
6/15/2004	MELRO	BNA-Water	2-Chloronaphthalene	0.94	ug/L	U	0.94	3.8
6/15/2004	MELRO	BNA-Water	2-Chlorophenol	0.94	ug/L	U	0.94	3.8
6/15/2004	MELRO	BNA-Water	2-Methyl-4,6-dinitrophenol	2.8	ug/L	U	2.8	11
6/15/2004	MELRO	BNA-Water	2-Nitrophenol	0.94	ug/L	U	0.94	3.8
6/15/2004	MELRO	BNA-Water	3,3'-Dichlorobenzidine	38	ug/L	U	38	150
6/15/2004	MELRO	BNA-Water	4,4'-DDD	1.4	ug/L	U	1.4	5.7
6/15/2004	MELRO	BNA-Water	4,4'-DDE	1.4	ug/L	U	1.4	5.7
6/15/2004	MELRO	BNA-Water	4,4'-DDT	1.4	ug/L	U	1.4	5.7
6/15/2004	MELRO	BNA-Water	4-Bromophenyl phenyl ether	0.94	ug/L	U	0.94	3.8
6/15/2004	MELRO	BNA-Water	4-Chloro-3-methylphenol	0.94	ug/L	U	0.94	3.8
6/15/2004	MELRO	BNA-Water	4-Chlorophenyl phenyl ether	1.9	ug/L	U	1.9	7.5
6/15/2004	MELRO	BNA-Water	4-Nitrophenol	14	ug/L	U	14	57
6/15/2004	MELRO	BNA-Water	Acenaphthene	0.94	ug/L	U	0.94	3.8
6/15/2004	MELRO	BNA-Water	Acenaphthylene	0.94	ug/L	U	0.94	3.8
6/15/2004	MELRO	BNA-Water	Aldrin	1.4	ug/L	U	1.4	5.7
6/15/2004	MELRO	BNA-Water	Anthracene	0.94	ug/L	U	0.94	3.8
6/15/2004	MELRO	BNA-Water	Benzidine	94	ug/L	U	94	380
6/15/2004	MELRO	BNA-Water	Benzo(a)anthracene	0.94	ug/L	U	0.94	3.8
6/15/2004	MELRO	BNA-Water	Benzo(a)pyrene	0.94	ug/L	U	0.94	3.8
6/15/2004	MELRO	BNA-Water	Benzo(b)fluoranthene	0.94	ug/L	U	0.94	3.8
6/15/2004	MELRO	BNA-Water	Benzo(g,h,i)perylene	0.94	ug/L	U	0.94	3.8
6/15/2004	MELRO	BNA-Water	Benzo(k)fluoranthene	0.94	ug/L	U	0.94	3.8
6/15/2004	MELRO	BNA-Water	Bis(2-chloroethoxy)methane	0.94	ug/L	U	0.94	3.8
6/15/2004	MELRO	BNA-Water	Bis(2-chloroethyl)ether	0.94	ug/L	U	0.94	3.8
6/15/2004	MELRO	BNA-Water	Bis(2-chloroisopropyl)ether	2.8	ug/L	U	2.8	11
6/15/2004	MELRO	BNA-Water	Bis(2-ethylhexyl)phthalate	14	ug/L	U	14	57
6/15/2004	MELRO	BNA-Water	Butyl benzyl phthalate	4.7	ug/L	U	4.7	19
6/15/2004	MELRO	BNA-Water	Chrysene	0.94	ug/L	U	0.94	3.8
6/15/2004	MELRO	BNA-Water	Di-n-butyl phthalate	4.7	ug/L	U	4.7	19
6/15/2004	MELRO	BNA-Water	Di-n-octyl phthalate	0.94	ug/L	U	0.94	3.8
6/15/2004	MELRO	BNA-Water	Dibenzo(a,h)anthracene	0.94	ug/L	U	0.94	3.8
6/15/2004	MELRO	BNA-Water	Dieldrin	1.4	ug/L	U	1.4	5.7
6/15/2004	MELRO	BNA-Water	Diethyl phthalate	0.94	ug/L	U	0.94	3.8

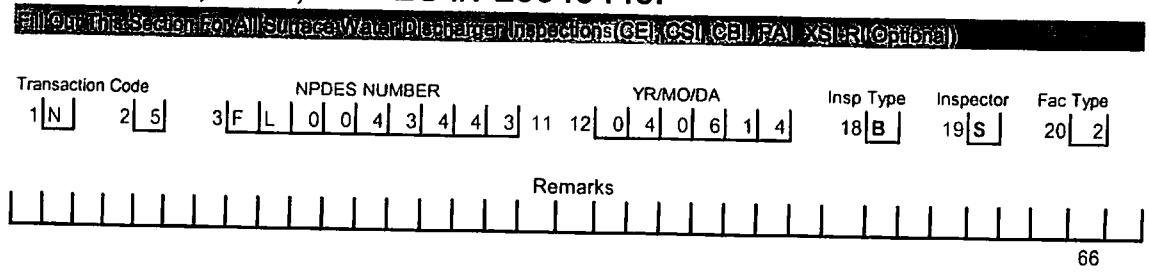
6/15/2004	MELRO	BNA-Water	Dimethyl phthalate	47	ug/L	U	47	190
6/15/2004	MELRO	BNA-Water	Endosulfan I	3.8	ug/L	U	3.8	15
6/15/2004	MELRO	BNA-Water	Endosulfan II	3.8	ug/L	U	3.8	15
6/15/2004	MELRO	BNA-Water	Endosulfan sulfate	1.4	ug/L	U	1.4	5.7
6/15/2004	MELRO	BNA-Water	Endrin	1.4	ug/L	U	1.4	5.7
6/15/2004	MELRO	BNA-Water	Endrin aldehyde	3.8	ug/L	UJ	3.8	15
6/15/2004	MELRO	BNA-Water	Fluoranthene	0.94	ug/L	U	0.94	3.8
6/15/2004	MELRO	BNA-Water	Fluorene	0.94	ug/L	U	0.94	3.8
6/15/2004	MELRO	BNA-Water	Heptachlor	1.4	ug/L	U	1.4	5.7
6/15/2004	MELRO	BNA-Water	Heptachlor epoxide	1.4	ug/L	U	1.4	5.7
6/15/2004	MELRO	BNA-Water	Hexachlorobenzene	0.94	ug/L	U	0.94	3.8
6/15/2004	MELRO	BNA-Water	Hexachlorobutadiene	2.8	ug/L	U	2.8	11
6/15/2004	MELRO	BNA-Water	Hexachlorocyclopentadiene	2.8	ug/L	U	2.8	11
6/15/2004	MELRO	BNA-Water	Hexachloroethane	2.8	ug/L	U	2.8	11
6/15/2004	MELRO	BNA-Water	Indeno(1,2,3-cd)pyrene	0.94	ug/L	U	0.94	3.8
6/15/2004	MELRO	BNA-Water	Isophorone	0.94	ug/L	U	0.94	3.8
6/15/2004	MELRO	BNA-Water	N-Nitrosodi-n-propylamine	1.9	ug/L	U	1.9	7.5
6/15/2004	MELRO	BNA-Water	N-Nitrosodimethylamine	1.9	ug/L	U	1.9	7.5
6/15/2004	MELRO	BNA-Water	N-Nitrosodiphenylamine	2.8	ug/L	U	2.8	11
6/15/2004	MELRO	BNA-Water	Naphthalene	0.94	ug/L	U	0.94	3.8
6/15/2004	MELRO	BNA-Water	Nitrobenzene	1.9	ug/L	U	1.9	7.5
6/15/2004	MELRO	BNA-Water	Pentachlorophenol	2.8	ug/L	U	2.8	11
6/15/2004	MELRO	BNA-Water	Phenanthrene	0.94	ug/L	U	0.94	3.8
6/15/2004	MELRO	BNA-Water	Phenol	0.94	ug/L	U	0.94	3.8
6/15/2004	MELRO	BNA-Water	Pyrene	0.94	ug/L	U	0.94	3.8
6/15/2004	MELRO	BNA-Water	alpha-BHC	1.4	ug/L	U	1.4	5.7
6/15/2004	MELRO	BNA-Water	beta-BHC	1.4	ug/L	U	1.4	5.7
6/15/2004	MELRO	BNA-Water	delta-BHC	1.4	ug/L	U	1.4	5.7
6/15/2004	MELRO	BNA-Water	gamma-BHC	1.4	ug/L	U	1.4	5.7
6/15/2004	MELRO BLANK	BNA-Water	1,2,4-Trichlorobenzene	0.95	ug/L	U	0.95	3.8
6/15/2004	MELRO BLANK	BNA-Water	1,2-Dichlorobenzene	0.95	ug/L	U	0.95	3.8
6/15/2004	MELRO BLANK	BNA-Water	1,3-Dichlorobenzene	0.95	ug/L	U	0.95	3.8
6/15/2004	MELRO BLANK	BNA-Water	1,4-Dichlorobenzene	0.95	ug/L	U	0.95	3.8
6/15/2004	MELRO BLANK	BNA-Water	2,4,6-Trichlorophenol	0.95	ug/L	U	0.95	3.8
6/15/2004	MELRO BLANK	BNA-Water	2,4-Dichlorophenol	0.95	ug/L	U	0.95	3.8
6/15/2004	MELRO BLANK	BNA-Water	2,4-Dimethylphenol	48	ug/L	U	48	190
6/15/2004	MELRO BLANK	BNA-Water	2,4-Dinitrophenol	14	ug/L	U	14	57
6/15/2004	MELRO BLANK	BNA-Water	2,4-Dinitrotoluene	0.95	ug/L	U	0.95	3.8
6/15/2004	MELRO BLANK	BNA-Water	2,6-Dinitrotoluene	0.95	ug/L	U	0.95	3.8
6/15/2004	MELRO BLANK	BNA-Water	2-Chloronaphthalene	0.95	ug/L	U	0.95	3.8
6/15/2004	MELRO BLANK	BNA-Water	2-Chlorophenol	0.95	ug/L	U	0.95	3.8
6/15/2004	MELRO BLANK	BNA-Water	2-Methyl-4,6-dinitrophenol	2.9	ug/L	U	2.9	11
6/15/2004	MELRO BLANK	BNA-Water	2-Nitrophenol	0.95	ug/L	U	0.95	3.8
6/15/2004	MELRO BLANK	BNA-Water	3,3'-Dichlorobenzidine	38	ug/L	U	38	150
6/15/2004	MELRO BLANK	BNA-Water	4,4'-DDD	1.4	ug/L	U	1.4	5.7
6/15/2004	MELRO BLANK	BNA-Water	4,4'-DDE	1.4	ug/L	U	1.4	5.7
6/15/2004	MELRO BLANK	BNA-Water	4,4'-DDT	1.4	ug/L	U	1.4	5.7
6/15/2004	MELRO BLANK	BNA-Water	4-Bromophenyl phenyl ether	0.95	ug/L	U	0.95	3.8
6/15/2004	MELRO BLANK	BNA-Water	4-Chloro-3-methylphenol	0.95	ug/L	U	0.95	3.8
6/15/2004	MELRO BLANK	BNA-Water	4-Chlorophenyl phenyl ether	1.9	ug/L	U	1.9	7.6
6/15/2004	MELRO BLANK	BNA-Water	4-Nitrophenol	14	ug/L	U	14	57
6/15/2004	MELRO BLANK	BNA-Water	Acenaphthene	0.95	ug/L	U	0.95	3.8
6/15/2004	MELRO BLANK	BNA-Water	Acenaphthylene	0.95	ug/L	U	0.95	3.8
6/15/2004	MELRO BLANK	BNA-Water	Aldrin	1.4	ug/L	U	1.4	5.7
6/15/2004	MELRO BLANK	BNA-Water	Anthracene	0.95	ug/L	U	0.95	3.8
6/15/2004	MELRO BLANK	BNA-Water	Benzidine	95	ug/L	U	95	380
6/15/2004	MELRO BLANK	BNA-Water	Benzo(a)anthracene	0.95	ug/L	U	0.95	3.8
6/15/2004	MELRO BLANK	BNA-Water	Benzo(a)pyrene	0.95	ug/L	U	0.95	3.8
6/15/2004	MELRO BLANK	BNA-Water	Benzo(b)fluoranthene	0.95	ug/L	U	0.95	3.8
6/15/2004	MELRO BLANK	BNA-Water	Benzo(g,h,i)perylene	0.95	ug/L	U	0.95	3.8
6/15/2004	MELRO BLANK	BNA-Water	Benzo(k)fluoranthene	0.95	ug/L	U	0.95	3.8
6/15/2004	MELRO BLANK	BNA-Water	Bis(2-chloroethoxy)methane	0.95	ug/L	U	0.95	3.8
6/15/2004	MELRO BLANK	BNA-Water	Bis(2-chloroethyl)ether	0.95	ug/L	U	0.95	3.8
6/15/2004	MELRO BLANK	BNA-Water	Bis(2-chloroisopropyl)ether	2.9	ug/L	U	2.9	11
6/15/2004	MELRO BLANK	BNA-Water	Bis(2-ethylhexyl)phthalate	14	ug/L	U	14	57
6/15/2004	MELRO BLANK	BNA-Water	Butyl benzyl phthalate	4.8	ug/L	U	4.8	19
6/15/2004	MELRO BLANK	BNA-Water	Chrysene	0.95	ug/L	U	0.95	3.8
6/15/2004	MELRO BLANK	BNA-Water	Di-n-butyl phthalate	4.8	ug/L	U	4.8	19
6/15/2004	MELRO BLANK	BNA-Water	Di-n-octyl phthalate	0.95	ug/L	U	0.95	3.8
6/15/2004	MELRO BLANK	BNA-Water	Dibenzo(a,h)anthracene	0.95	ug/L	U	0.95	3.8

6/15/2004	MELRO BLANK	BNA-Water	Dieldrin	1.4	ug/L	U	1.4	5.7
6/15/2004	MELRO BLANK	BNA-Water	Diethyl phthalate	0.95	ug/L	U	0.95	3.8
6/15/2004	MELRO BLANK	BNA-Water	Dimethyl phthalate	48	ug/L	U	48	190
6/15/2004	MELRO BLANK	BNA-Water	Endosulfan I	3.8	ug/L	U	3.8	15
6/15/2004	MELRO BLANK	BNA-Water	Endosulfan II	3.8	ug/L	U	3.8	15
6/15/2004	MELRO BLANK	BNA-Water	Endosulfan sulfate	1.4	ug/L	U	1.4	5.7
6/15/2004	MELRO BLANK	BNA-Water	Endrin	1.4	ug/L	U	1.4	5.7
6/15/2004	MELRO BLANK	BNA-Water	Endrin aldehyde	3.8	ug/L	UJ	3.8	15
6/15/2004	MELRO BLANK	BNA-Water	Fluoranthene	0.95	ug/L	U	0.95	3.8
6/15/2004	MELRO BLANK	BNA-Water	Fluorene	0.95	ug/L	U	0.95	3.8
6/15/2004	MELRO BLANK	BNA-Water	Heptachlor	1.4	ug/L	U	1.4	5.7
6/15/2004	MELRO BLANK	BNA-Water	Heptachlor epoxide	1.4	ug/L	U	1.4	5.7
6/15/2004	MELRO BLANK	BNA-Water	Hexachlorobenzene	0.95	ug/L	U	0.95	3.8
6/15/2004	MELRO BLANK	BNA-Water	Hexachlorobutadiene	2.9	ug/L	U	2.9	11
6/15/2004	MELRO BLANK	BNA-Water	Hexachlorocyclopentadiene	2.9	ug/L	U	2.9	11
6/15/2004	MELRO BLANK	BNA-Water	Hexachloroethane	2.9	ug/L	U	2.9	11
6/15/2004	MELRO BLANK	BNA-Water	Indeno(1,2,3-cd)pyrene	0.95	ug/L	U	0.95	3.8
6/15/2004	MELRO BLANK	BNA-Water	Isophorone	0.95	ug/L	U	0.95	3.8
6/15/2004	MELRO BLANK	BNA-Water	N-Nitrosodi-n-propylamine	1.9	ug/L	U	1.9	7.6
6/15/2004	MELRO BLANK	BNA-Water	N-Nitrosodimethylamine	1.9	ug/L	U	1.9	7.6
6/15/2004	MELRO BLANK	BNA-Water	N-Nitrosodiphenylamine	2.9	ug/L	U	2.9	11
6/15/2004	MELRO BLANK	BNA-Water	Naphthalene	0.95	ug/L	U	0.95	3.8
6/15/2004	MELRO BLANK	BNA-Water	Nitrobenzene	1.9	ug/L	U	1.9	7.6
6/15/2004	MELRO BLANK	BNA-Water	Pentachlorophenol	2.9	ug/L	U	2.9	11
6/15/2004	MELRO BLANK	BNA-Water	Phenanthrene	0.95	ug/L	U	0.95	3.8
6/15/2004	MELRO BLANK	BNA-Water	Phenol	0.95	ug/L	U	0.95	3.8
6/15/2004	MELRO BLANK	BNA-Water	Pyrene	0.95	ug/L	U	0.95	3.8
6/15/2004	MELRO BLANK	BNA-Water	alpha-BHC	1.4	ug/L	U	1.4	5.7
6/15/2004	MELRO BLANK	BNA-Water	beta-BHC	1.4	ug/L	U	1.4	5.7
6/15/2004	MELRO BLANK	BNA-Water	delta-BHC	1.4	ug/L	U	1.4	5.7
6/15/2004	MELRO BLANK	BNA-Water	gamma-BHC	1.4	ug/L	U	1.4	5.7
6/15/2004	MELRO	GC-Water	Alachlor	0.57	ug/L	U	0.57	2.3
6/15/2004	MELRO	GC-Water	Ametryn	0.047	ug/L	U	0.047	0.19
6/15/2004	MELRO	GC-Water	Atrazine	0.047	ug/L	U	0.047	0.19
6/15/2004	MELRO	GC-Water	Azinphos Methyl	0.047	ug/L	U	0.047	0.19
6/15/2004	MELRO	GC-Water	Bromacil	0.19	ug/L	U	0.19	0.76
6/15/2004	MELRO	GC-Water	Butylate	0.19	ug/L	U	0.19	0.76
6/15/2004	MELRO	GC-Water	Chlorpyrifos Ethyl	0.047	ug/L	U	0.047	0.19
6/15/2004	MELRO	GC-Water	Chlorpyrifos Methyl	0.094	ug/L	U	0.094	0.38
6/15/2004	MELRO	GC-Water	Diazinon	0.047	ug/L	U	0.047	0.19
6/15/2004	MELRO	GC-Water	Ethion	0.047	ug/L	U	0.047	0.19
6/15/2004	MELRO	GC-Water	Ethoprop	0.094	ug/L	U	0.094	0.38
6/15/2004	MELRO	GC-Water	Fenamiphos	0.19	ug/L	U	0.19	0.76
6/15/2004	MELRO	GC-Water	Fonofos	0.094	ug/L	U	0.094	0.38
6/15/2004	MELRO	GC-Water	Hexazinone	0.094	ug/L	U	0.094	0.38
6/15/2004	MELRO	GC-Water	Malathion	0.14	ug/L	U	0.14	0.57
6/15/2004	MELRO	GC-Water	Metalaxyl	0.24	ug/L	U	0.24	0.94
6/15/2004	MELRO	GC-Water	Metolachlor	0.47	ug/L	U	0.47	1.9
6/15/2004	MELRO	GC-Water	Metribuzin	0.094	ug/L	U	0.094	0.38
6/15/2004	MELRO	GC-Water	Mevinphos	0.19	ug/L	U	0.19	0.76
6/15/2004	MELRO	GC-Water	Naled	0.75	ug/L	UJ	0.7547 2	3.02
6/15/2004	MELRO	GC-Water	Norflurazon	0.094	ug/L	U	0.094	0.38
6/15/2004	MELRO	GC-Water	Parathion Ethyl	0.14	ug/L	U	0.14	0.57
6/15/2004	MELRO	GC-Water	Parathion Methyl	0.094	ug/L	U	0.094	0.38
6/15/2004	MELRO	GC-Water	Phorate	0.047	ug/L	U	0.047	0.19
6/15/2004	MELRO	GC-Water	Prometryn	0.14	ug/L	U	0.14	0.57
6/15/2004	MELRO	GC-Water	Simazine	0.047	ug/L	U	0.047	0.19
6/15/2004	MELRO BLANK	GC-Water	Alachlor	0.57	ug/L	U	0.57	2.3
6/15/2004	MELRO BLANK	GC-Water	Ametryn	0.048	ug/L	U	0.048	0.19
6/15/2004	MELRO BLANK	GC-Water	Atrazine	0.048	ug/L	U	0.048	0.19
6/15/2004	MELRO BLANK	GC-Water	Azinphos Methyl	0.048	ug/L	U	0.048	0.19
6/15/2004	MELRO BLANK	GC-Water	Bromacil	0.19	ug/L	U	0.19	0.76
6/15/2004	MELRO BLANK	GC-Water	Butylate	0.19	ug/L	U	0.19	0.76
6/15/2004	MELRO BLANK	GC-Water	Chlorpyrifos Ethyl	0.048	ug/L	U	0.048	0.19
6/15/2004	MELRO BLANK	GC-Water	Chlorpyrifos Methyl	0.095	ug/L	U	0.095	0.38
6/15/2004	MELRO BLANK	GC-Water	Diazinon	0.048	ug/L	U	0.048	0.19
6/15/2004	MELRO BLANK	GC-Water	Ethion	0.048	ug/L	U	0.048	0.19
6/15/2004	MELRO BLANK	GC-Water	Ethoprop	0.095	ug/L	U	0.095	0.38
6/15/2004	MELRO BLANK	GC-Water	Fenamiphos	0.19	ug/L	U	0.19	0.76

6/15/2004	MELRO BLANK	GC-Water	Fonofos	0.095	ug/L	U	0.095	0.38
6/15/2004	MELRO BLANK	GC-Water	Hexazinone	0.095	ug/L	U	0.095	0.38
6/15/2004	MELRO BLANK	GC-Water	Malathion	0.14	ug/L	U	0.14	0.57
6/15/2004	MELRO BLANK	GC-Water	Metalaxyl	0.24	ug/L	U	0.24	0.95
6/15/2004	MELRO BLANK	GC-Water	Metolachlor	0.48	ug/L	U	0.48	1.9
6/15/2004	MELRO BLANK	GC-Water	Metribuzin	0.095	ug/L	U	0.095	0.38
6/15/2004	MELRO BLANK	GC-Water	Mevinphos	0.19	ug/L	U	0.19	0.76
6/15/2004	MELRO BLANK	GC-Water	Naled	0.76	ug/L	UJ	0.7619	3.05
6/15/2004	MELRO BLANK	GC-Water	Norflurazon	0.095	ug/L	U	0.095	0.38
6/15/2004	MELRO BLANK	GC-Water	Parathion Ethyl	0.14	ug/L	U	0.14	0.57
6/15/2004	MELRO BLANK	GC-Water	Parathion Methyl	0.095	ug/L	U	0.095	0.38
6/15/2004	MELRO BLANK	GC-Water	Phorate	0.048	ug/L	U	0.048	0.19
6/15/2004	MELRO BLANK	GC-Water	Prometryn	0.14	ug/L	U	0.14	0.57
6/15/2004	MELRO BLANK	GC-Water	Simazine	0.048	ug/L	U	0.048	0.19
6/15/2004	MELRO	Metals-Water	Aluminum	5	ug/L	U	5	20
6/15/2004	MELRO	Metals-Water	Arsenic	13	ug/L	U	13	52
6/15/2004	MELRO	Metals-Water	Cadmium	0.15	ug/L	U	0.15	0.6
6/15/2004	MELRO	Metals-Water	Calcium	669	mg/L		0.5	2
6/15/2004	MELRO	Metals-Water	Chromium	2	ug/L	U	2	8
6/15/2004	MELRO	Metals-Water	Copper	0.25	ug/L	U	0.25	1
6/15/2004	MELRO	Metals-Water	Iron	12	ug/L	I	5	20
6/15/2004	MELRO	Metals-Water	Lead	0.05	ug/L	U	0.05	0.2
6/15/2004	MELRO	Metals-Water	Magnesium	334	mg/L		0.2	0.8
6/15/2004	MELRO	Metals-Water	Nickel	6	ug/L	U	6	24
6/15/2004	MELRO	Metals-Water	Selenium	6	ug/L	U	6	24
6/15/2004	MELRO	Metals-Water	Silver	0.032	ug/L	I	0.02	0.08
6/15/2004	MELRO	Metals-Water	Sodium	1.49E+03	mg/L		2	8
6/15/2004	MELRO	Metals-Water	Zinc	18	ug/L	U	18	72
6/15/2004	MELRO BLANK	Metals-Water	Aluminum	5	ug/L	U	5	20
6/15/2004	MELRO BLANK	Metals-Water	Arsenic	5	ug/L	U	5	20
6/15/2004	MELRO BLANK	Metals-Water	Cadmium	0.025	ug/L	U	0.025	0.1
6/15/2004	MELRO BLANK	Metals-Water	Calcium	0.056	mg/L	I	0.05	0.2
6/15/2004	MELRO BLANK	Metals-Water	Chromium	2	ug/L	U	2	8
6/15/2004	MELRO BLANK	Metals-Water	Copper	0.9	ug/L	I	0.25	1
6/15/2004	MELRO BLANK	Metals-Water	Iron	5	ug/L	U	5	20
6/15/2004	MELRO BLANK	Metals-Water	Lead	0.16	ug/L	I	0.05	0.2
6/15/2004	MELRO BLANK	Metals-Water	Magnesium	0.02	mg/L	U	0.02	0.08
6/15/2004	MELRO BLANK	Metals-Water	Nickel	2	ug/L	U	2	8
6/15/2004	MELRO BLANK	Metals-Water	Selenium	1	ug/L	U	1	4
6/15/2004	MELRO BLANK	Metals-Water	Silver	0.02	ug/L	U	0.02	0.08
6/15/2004	MELRO BLANK	Metals-Water	Sodium	0.2	mg/L	U	0.2	0.8
6/15/2004	MELRO BLANK	Metals-Water	Zinc	2	ug/L	U	2	8
6/15/2004	MELRO	Nutrients-Liquid	Ammonia-N	0.01	mg N/L	U	0.01	0.02
6/15/2004	MELRO	Nutrients-Liquid	Chloride	3.30E+03	mg Cl/L	A	40	100
6/15/2004	MELRO	Nutrients-Liquid	Chloride	3.40E+03	mg Cl/L		40	100
6/15/2004	MELRO	Nutrients-Liquid	Fluoride	1.5	mg F/L		0.05	0.1
6/15/2004	MELRO	Nutrients-Liquid	NO2NO3-N	2	mg N/L		0.04	0.1
6/15/2004	MELRO	Nutrients-Liquid	N_KJEL_TOT	0.86	mg N/L		0.06	0.2
6/15/2004	MELRO	Nutrients-Liquid	O-Phosphate-P	0.009	mg P/L	I	0.004	0.01
6/15/2004	MELRO	Nutrients-Liquid	Sulfide	0.1	mg S/L	UY	0.1	0.4
6/15/2004	MELRO	Nutrients-Liquid	Total-P	0.024	mg P/L	I	0.02	0.06
6/15/2004	MELRO	Nutrients-Liquid	Turbidity	0.2	NTU		0.05	0.05
6/15/2004	MELRO BLANK	Nutrients-Liquid	Ammonia-N	0.01	mg N/L	U	0.01	0.02
6/15/2004	MELRO BLANK	Nutrients-Liquid	NO2NO3-N	0.004	mg N/L	U	0.004	0.01
6/15/2004	MELRO BLANK	Nutrients-Liquid	N_KJEL_TOT	0.06	mg N/L	U	0.06	0.2
6/15/2004	MELRO BLANK	Nutrients-Liquid	O-Phosphate-P	0.004	mg P/L	U	0.004	0.01
6/15/2004	MELRO BLANK	Nutrients-Liquid	Sulfide	0.05	mg S/L	UY	0.05	0.2
6/15/2004	MELRO BLANK	Nutrients-Liquid	Total-P	0.02	mg P/L	U	0.02	0.06
6/15/2004	MELRO	Overflow	Alpha, Total	59.4	pCi/L	J		
6/15/2004	MELRO	Overflow	Alpha-Counting Error	18.1	pCi/L			
6/15/2004	MELRO	Overflow	Radium 226	18.6	pCi/L			
6/15/2004	MELRO	Overflow	Radium 226-Counting Error	0.6	pCi/L			
6/15/2004	MELRO	Overflow	Radium 228	1.5	pCi/L			
6/15/2004	MELRO	Overflow	Radium 228-Counting Error	0.7	pCi/L			
6/15/2004	MELRO BLANK	Overflow	Alpha, Total	0.7	pCi/L	U		
6/15/2004	MELRO BLANK	Overflow	Alpha-Counting Error	0.4	pCi/L			
6/15/2004	MELRO BLANK	Overflow	Radium 226	0.2	pCi/L	U		

6/15/2004	MELRO BLANK	Overflow	Radium 226-Counting Error	0.1	pCi/L	
6/15/2004	MELRO BLANK	Overflow	Radium 228	1	pCi/L	U
6/15/2004	MELRO BLANK	Overflow	Radium 228-Counting Error	0.6	pCi/L	

The Bioassay of Melbourne Reverse Osmosis effluent sampled on June 14-15, 2004, NPDES #FL0043443.



The Priority Pollutants Analysis for Bioassay of Melbourne Reverse Osmosis effluent sampled on June 14-15, 2004, NPDES #FL0043443.

