

Effluent Quality Assessment

Monterey Water Reclamation Facility

Duval County

NPDES #FL0023604

Sampled June 24, 2013

August 2013

Biology Section
Bureau of Laboratories
Division of Environmental Assessment and Restoration
Quality Manual No. 870346G
NELAC Certification No. E31780

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Monterey Water Reclamation Facility (WRF), 5802 Harris Avenue, Jacksonville, Duval County, Florida, 32202. NPDES #FL0023604.

Facility Overview

Monterey WRF is an activated sludge domestic wastewater treatment facility. See Appendix A for a description of the facility, summary of permit limits, Administrative Order (AO) and Discharge Monitoring Report (DMR) information.

Methods

Effluent grab samples for toxicity testing were collected on June 24, 2013. Effluent composite samples for biological and chemical analyses for this facility were collected on June 24, 2013. All samples were collected from the EFD-1 NPDES sampling point for Outfall D-001 by Eesa Ali and Sharon Piltz (FDEP Northeast District) following DEP-SOP-001/01 FS 2400 Wastewater Sampling (see Appendix C).

The 96-hour acute definitive toxicity tests were performed following internal DEP SOPs TA07_03 and TA07_04 (see Appendix C).

Results

Chemistry Results (See Table 1 and Appendix D)

- Total residual chlorine was not detected in the bioassay sample in the laboratory. Total ammonia detected in the bioassay sample in the laboratory was 0.050 mg N/L. The total ammonia concentration in the composite sample collected and preserved for chemical analysis was 0.086 mg N/L. Based on the pH, salinity, and temperature of the effluent as collected, the calculated unionized ammonia concentration was < 0.02 mg/L.
- Copper, mercury, nickel, zinc, and fluoride were detected in the effluent at levels that comply with Class III Marine water Quality Criteria (62-302.530, F.A.C.) and/or permit limits. Carbonaceous biological oxygen demand (CBOD), iron and lead were detected between the laboratory method detection limits (MDL) and practical quantitation limits (PQL).

Toxicity Test Results (See Appendices D- G)

- Tests were performed June 25 - 29, 2013.

Americamysis bahia 96-hour acute definitive bioassay –	LC_{50} > 100%, 5%* mortality in 100% sample at 96 hours
Menidia beryllina 96-hour acute definitive bioassay –	LC_{50} > 100%, 0%* mortality in 100% sample at 96 hours

*NOTE: In a 96-hour acute definitive test of 100% effluent, mortality of <20% provides confidence that the effluent meets the acute toxicity criterion of Florida's Surface Water Quality Standards (Rule 62-302.500 (1) (a) 4, F.A.C.). Mortality between 20-50% indicates low to moderate levels of toxicity, and further action may be required. Mortality of >50% indicates that the effluent fails to meet the minimum requirement to discharge to waters of the state (Rule 62-4.244(3) (a), F.A.C.).

- The bioassay samples were not acutely toxic to the test organisms.
- Aliquots of the bioassay sample were salinity-adjusted from an apparent salinity of approximately 0.41 parts per thousand (ppth) to a salinity of approximately 20 ppth for the *Americamysis bahia* and *Menidia beryllina* tests per permit requirements. Forty Fathoms® marine mix artificial sea salts was used for the salinity adjustments. The salt control used for each test was prepared by diluting 20 ppth salinity artificial seawater

(ASW) with well water to a salinity of approximately 0.5 ppth then salting this solution with artificial sea salts to match the salinity of the appropriate test solution. The purpose of the salt controls was to confirm that there was no effect of adding artificial sea salts to the sample. There was no mortality in the salt controls of the *Americamysis bahia* test and 5% mortality in the salt controls of the *Menidia beryllina* test.

- The sample was aerated for 30 minutes at a rate of approximately 100 bubbles per minute to decrease the dissolved oxygen (DO) from 10.5 mg/L to 6.9 mg/L.

Conclusion

The effluent sample collected from the EFD-1 NPDES sampling point for this facility on June 24, 2013, was not acutely toxic to either test species during the 96-hour acute definitive bioassays. Effluent water quality samples collected on April 24, 2013, did not exceed water quality standards or permit conditions.

Literature Cited

None

Table 1. Effluent limits, Class III Criteria for predominantly marine waters, chemical and microbiological data, and qualifiers.

Monterey WRF	Class III Criteria	Effluent Limits	Effluent	
Metals (µg/L unless otherwise noted)				
Aluminum	≤ 1500	-	60	U
Arsenic	≤ 50	-	0.25	U
Cadmium	≤ 8.8	-	0.050	U
Calcium (mg/L)	-	-	74.5	
Chromium-III	-	-	0.30	U
Copper	≤ 3.7	-	1.97	
Iron	≤ 300	-	60	I
Lead	≤ 8.5	-	0.45	I
Magnesium (mg/L)	-	-	28.9	
Mercury	≤ 0.025	≤ 0.025	0.0024	
Nickel	≤ 8.3	-	1.63	
Selenium	≤ 71	-	0.20	U
Silver	≤ 2.3	-	0.025	U
Sodium	-	-	71.4	
Zinc	≤ 86	-	34	
Nutrients (mg/L)				
Ortho-phosphate	-	Report	2.5	
Total Phosphorus	-	Report	2.6	
Total Ammonia	-	Report	0.086	
Un-ionized Ammonia	-	Report	< 0.02	c
Nitrate and Nitrite	-	Report	5.3	
Total Kjeldahl Nitrogen	-	Report	0.78	
Organic Nitrogen	-	Report	0.6940	c
Total Nitrogen	-	Report	6.0800	c
Total Organic Carbon	-	-	-	
General Physical and Chemical Parameters				
Dissolved Oxygen (mg/L)	≥ 4.0	≥ 4.0	5.81	
pH (SU)	6.5 - 8.5	6.5 - 8.5	7.54	
Specific Conductance (µmhos/cm)	-	-	937	
Temperature (°C)	-	Report	29.72	
Salinity	-	-	≤ 0.42	c
Total Residual Chlorine (mg/L)	≤ 0.01	-	≤ 0.03	QU£
Total Suspended Solids (mg/L)	-	60 s	2	U
Alkalinity (mg CaCO3/L)	-	-	132	
CBOD, 5 day (mg/L), N - inhibited	-	60 s	1.4	I
Chloride (mg/L)	-	-	110	
Fluoride (mg/L)	≤ 5.0	-	0.58	
Sulfate (mg/L)	-	-	120	
Flow (MGD)	-	3.6 a	1.41	
Hardness (mg $CaCO_3$)	-	-	305.04	c
Microbiology (Number of colony forming units/100ml)				
Fecal Coliforms ¥	≤ 400s #	≤ 800s	11	B

A dash (-) indicates sample/measurement was not collected or criterion/limit does not exist.

Value exceeds the Class III Water Quality Criteria or permit limits

a - Annual average

c - Value is calculated

s - Single sample

B - Results based on colony counts outside the acceptance range

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

Q - Sample held beyond normal holding time

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

¥ - Fecal coliform analysis performed by Columbia Analytical Services

- If 10 or fewer samples are taken within a month, the single sample limit is 400 CFU (62-302.530(6), F.A.C.)

£ - measurement taken in the FDEP laboratory

Appendix A
Facility Summary

MONTEREY WRF (JEA) – FACILITY SUMMARY – FL0023604 – MAY - 2013

State of Florida
Department of Environmental Protection
Facility Introduction & Summary

PART I: Information gathered prior to sampling event	
Prepared By: Ed Jamro	Contact Number: (904) 256-1617
Facility Name (as it appears on permit): Monterey Water Reclamation Facility	Former Names:
NPDES Permit Number: FL0023604	Permit Expiration Date: 4/23/2014
Physical Address: 5802 Harris Avenue Jacksonville, Florida 32202	
District: NED	County: Duval
Function of Facility: Treat wastewater for discharge to St John's River.	
Facility Type: Domestic Wastewater	Permitted Capacity (MGD): 3.6
Mean Flow for previous 12 months for all EXTERNAL outfalls listed in permit (list date range including months): 1.48 MGD from 04/2012 – 03/2013.	
If applicable, Mean Flow for previous 12 months for REUSE outfall(s) (list date range including months): N/A	
Description of type of Discharge: Continuous operation, effluent mostly reused ☒Continuous ☐ Intermittent ☐ Seasonal ☐ Rainfall Dependent ☐ Other, please specify	

MONTEREY WRF (JEA) – FACILITY SUMMARY – FL0023604 – MAY - 2013

Description of Sampling Location(s) - actual permit designation of permitted sampling point(s):

EFD-1 – Final Effluent, immediately after disinfection (UV disinfection system) but prior to discharge to the St. Johns River.

Description of Permitted Outfall(s):
An existing 3.60 MGD AADF permitted discharge to the Saint Johns River (Class III marine waters – WBID 2213D) at discharge location (D-001) from an outfall which is a 16" DIP approximately 730 feet long and 130 feet from the shore with a multi-port diffuser (130 ports with each port being 1"diameter and spaced 4" - 6" on center, angled 30 degrees from horizontal) discharging at a depth of approximately 10.74 feet below the water surface.
D-001 is located approximately at latitude 30° 19' 49.6" North and longitude 81° 36' 44.4" West.

Description of Treatment Process (if multiple discharge points, include a detailed map or diagram of facility): Current Description:

An existing 3.60-million gallons per day (MGD) annual average daily flow (AADF) activated sludge wastewater treatment facility (WWTF) consisting of:

- **An influent headwork structure consisting of a mechanically cleaned bar screen, a manually cleaned bar screen used for backup, and a 190,000-gallon influent pump station;**
- **Three parallel SBR tanks with a total volume of 2.90 million gallons (MG). Motive pumps are provided for mixed liquor pumping; an air header with jets is manifolded with the discharge from the motive pumps, which recycle liquid from the basin, through the jets and back into the basin. Each SBR is equipped with a centrifugal blower with a capacity of approximately 1500 scfm;**
- **An ultraviolet (UV) disinfection system consisting of two parallel concrete UV disinfection chambers, each containing 5 lamp modules in series. Each module contains 40 vertical lamps;**
- **An effluent pump station consisting of a 1.0 MG equalization basin and a 6,100-gallon-per-minute (gpm) effluent pump.**
- **One aerobic digester which was originally a 4th SBR tank.**

The biosolids are dewatered via a centrifuge and treated to meet Class B pathogen and then either land applied, or transported to JEA – Buckman BMF [FLA188077] for further treatment and final disposal, and/or disposal in a Class I solid waste landfill.

MONTEREY WRF (JEA) – FACILITY SUMMARY – FL0023604 – MAY - 2013

PART I: Continued

List <u>current</u> Effluent Limits of Outfall(s) to be Sampled: This should include any AO or CO limits the facility may be under
(Leave cell blank if not applicable)

			Effluent Limitations				Monitoring Requirements			
Parameter	Units	Max/ Min	Annual Average	Monthly Average	Weekly Average	Single Sample	Monitoring Frequency	Sample Type	Monitoring Location Site Number	Notes
Flow, (total flow through the WWTF)	MGD	Maximum	3.60	Report	-	-	Continuous	Recording flow meters and totalizers	EFD-1	See Cond. I.A.4
Percent Capacity, (TMADF/Permitted Capacity) x 100	PERCENT	Maximum	-	Report	-	-	Monthly	Calculated	CAL-1	
BOD, Carbonaceous 5-day, Percent removal	MG/L	Maximum	20.0	25.0	45.0	60.0	Weekly	16-hour flow proportioned composite (FPC)	EFD-1	
BOD, Carbonaceous 5-day, 20°C	%	Minimum	-	85.0	-	-	Monthly	Calculated	CAL-2	
Solids, Total Suspended, Percent removal	MG/L	Maximum	20.0	30.0	45.0	60.0	Weekly	16-hour FPC	EFD-1	
Solids, Total Suspended, Percent removal	%	Minimum	-	85.0	-	-	Monthly	Calculated	CAL-2	
pH	SU	Range	-	-	-	6.5 to 8.5	Continuous	Meter	EFD-1	See Cond. I.A.3 & 13
Coliform, Fecal	#/100ML	Maximum	See Permit Condition I.A.5.				Weekly	Grab	EFD-1	

MONTEREY WRF (JEA) – FACILITY SUMMARY – FL0023604 – MAY - 2013

PART I: Continued

List current Effluent Limits of Outfall(s) to be Sampled: This should include any AO or CO limits the facility may be under
(Leave cell blank if not applicable)

Parameter	Units	Max/ Min	Annual Average	Monthly Average	Weekly Average	Single Sample	Monitoring Frequency	Sample Type	Monitoring Location Site Number	Notes
Dissolved Oxygen	MG/L	Minimum				4.0	Daily (7days/wk)	Grab	EFD-1	See Cond. I.A.6
Ultraviolet Light Transmittance	%	Minimum	-	-	-	-	Daily (7days/wk)	Monitored (Instrument)	EFF-1	See Cond. I.A.7
Ultraviolet Light Intensity	MW/cm^2	Minimum	-	-	-	-	Daily (7days/wk)	Monitored (Instrument)	EFF-1	See Cond. I.A.7
Nitrogen, Total	MG/L	Maximum	Report	Report	-	Report	Weekly	16-hour FPC	EFD-1	See Cond. I.A.12
TMDL – WLA, Nitrogen, Total (as N)	-	Maximum	Report (Lbs/yr)	Report (Lbs/mo)	-	-	Monthly	Calculated	CAL-3	See Cond. I.A.9
Mercury, Total Recoverable	µG/L	Maximum	-	-	-	0.025	Monthly	Grab	EFD-1	See Cond. I.A.10 & 12
Total Cyanide	µG/L	Maximum	-	-	-	1.0	Monthly	Grab	EFD-1	See Cond. I.A.10 & 11
Nitrogen, Organic, Total (as N)	MG/L	Maximum	-	-	-	Report	Quarterly	16-hour FPC	EFD-1	See Cond. I.A.15
Nitrogen, Ammonia, Total, (as N)	MG/L	Maximum	-	-	-	Report	Quarterly	Grab	EFD-1	See Cond. I.A.13 & 15
Temperature, Water	C Degree	Maximum	-	-	-	Report	Quarterly	Meter	EFD-1	See Cond. I.A.13 & 15

PART I: Continued

List current Effluent Limits of Outfall(s) to be Sampled: This should include any AO or CO limits the facility may be under
(Leave cell blank if not applicable)

Nitrogen, Ammonia, Total Unionized , (as N)	MG/L	Maximum	-	-	-	Report	Quarterly	Calculated	CAL-4	See Cond. I.A. 13 & 15
Nitrogen, Total Kjeldahl, (as N)	MG/L	Maximum	-	-	-	Report	Quarterly	16-hour FPC	EFD-1	See Cond. I.A.15
Nitrite plus Nitrate, Total (as N)	MG/L	Maximum	-	-	-	Report	Quarterly	16-hour FPC	EFD-1	See Cond. I.A.15
Phosphorus, Total (as P)	MG/L	Maximum	-	-	-	Report	Quarterly	16-hour FPC	EFD-1	See Cond. I.A.15
Phosphate, Ortho (as P)	MG/L	Maximum	-	-	-	Report	Quarterly	Grab and filtered	EFD-1	See Cond. I.A.15
Acute Whole Effluent Toxicity	See Permit Condition I.A.14								EFD-1	
Receiving Stream Monitoring	See Permit Condition I.A.15									

I.A.

3. Hourly measurement of pH and total residual chlorine for disinfection during the period of required operator attendance may be substituted for continuous measurement. *[Chapter 62-601, Figure 2]*

4. A recording flow meter with totalizer shall be utilized to measure flow and calibrated at least once every 12 months. [62-601.200(17) and .500(6)]

5. **The arithmetic mean of the monthly fecal coliform values collected during an annual period shall not exceed 200 per 100 mL of effluent sample. The geometric mean of the fecal coliform values for a minimum of 10 samples of effluent each collected on a separate day during a period of 30 consecutive days (monthly) shall not exceed 200 per 100 mL of sample. No more than 10 percent of the samples collected (the 90th percentile value) during a period of 30 consecutive days shall exceed 400 fecal coliform values per 100 mL of sample. Any one sample shall not exceed 800 fecal coliform values per 100 mL of sample. Note: To report the 90th percentile value, list the fecal coliform values obtained during the month in ascending order. Report the value of the sample that corresponds to the 90th percentile (multiply the number of samples by 0.9). For example, for 30 samples, report the corresponding fecal coliform number for the 27th value of ascending order.** ***[62-600.440(4)(c)]***

6. The average of DO level shall not be less than 5.0 mg/L in a 24-hour period and shall never be less than 4.0 mg/L. Normal daily and seasonal fluctuations above these levels shall be maintained. The lower St. Johns River has an SSAC for DO in accordance with the Lower St. Johns River Basin Management Action Plan (BMAP) adopted on October 10, 2008. *[62-302.530(30)]*

7. This facility utilizes an ultraviolet disinfection system as the primary means of disinfection. This UV system shall be monitored for proper operation on each day of operator attendance. The ultraviolet light intensity, ultraviolet light dosage, ultraviolet light transmittance and unit operation shall be verified. The operation and maintenance shall be performed on a regular basis in accordance with the manufacturer recommended factor of safety. *[62-600.440(4)(b)]*

8. The Florida water quality criteria and standards shall not be violated as a result of the discharge. *[62-620.320(9)] & [62-302.530]*

9. The permittee, JEA, shall meet the aggregate cap through collectively managing the total nitrogen loads from each individual JEA facility (Arlington East WRF -FL0026441; Beacon Hills WWTF - FL0026778; Buckman WWTF - FL0026000; District II WWTF - FL0026450; Jacksonville Heights WWTF -FL0023671; Julington Creek WWTF -FL0043591; Mandarin WRF- FL0023493; Monterey WRF - FL0023604; Royal Lakes WWTF - FL0026751; San Jose WWTF -FL0023663; San Pablo WWTF-FL0024767; Southwest District WWTF - FL0026468; WoodmereWWTF-FL0026786; and JEA Power Plant-FL), which are listed in the JEA - Aggregated Total Nitrogen (Permit ID: FL0620564). The monthly mass load and annually mass loads of total nitrogen shall be calculated as follows:

- Monthly Mass Load (ML)

  WL (Lbs/Mon) = (Flow $\left(\frac{MG}{Mon}\right)$ **x TN** $\left(\frac{mg}{L}\right)$ **x 8.34** $\left(\frac{L}{MG}\right)\left(\frac{Lbs}{mg}\right)$

  Where:

  ML = Monthly mass load of total nitrogen; (Lbs/Mon)

  Flow = Monthly total volume effluent discharged from D-001 in a given month; (million gallons (MG))

  TN = Monthly average concentration of total nitrogen monitored at EFD-1; (mg/L)

- Annually Mass Load (AL)

  The annual mass load is computed using a rolling twelve (12) month period. The calculation shall be the sum of the twelve most recent monthly mass loading of total nitrogen starting from the second month following permit issuance month.

10. The final limit for total cyanide and total recoverable mercury are held in abeyance until the final compliance date listed in Administrative Order AO-124NE accompanying this permit.

11. The permittee shall be deemed in compliance with the Surface Water Quality Standards for total cyanide, when the total cyanide concentration in the effluent meets permit limit specified Condition I.A.1, or shall be undetectable or less than the method detection limit (MDL) level established by Department corresponding to approved analytical method. *[62-4.246, 62-302.530(24), F.A.C.]*

12. EPA Method 1631E shall be used to analyze for mercury. Method 245.1 with a MDL of 4.2 ng/L operated in the high sensitivity mode can be used as for initial screening for mercury. If mercury is not detected (e.g., the results are less than the MDL of 4.2 ng/L), then mercury is in compliance with the water quality criterion of Rule 62-302.530(41), FAC. However, for any sample results that have a value greater than the MDL of 4.2 ng/l but less than the PQL, the permittee shall conduct an additional evaluation for mercury using EPA Method 1631E.

13. The pH and temperature of the effluent shall be taken at the time of total ammonia sample collection. The un-ionized ammonia fraction shall be calculated based on the total ammonia, pH, and temperature.

14. The permittee shall comply with the following requirements to evaluate acute **whole effluent toxicity** of the discharge from outfall D-001.

    a. **Effluent Limitation**

       (1) Whole effluent acute toxicity shall not result in an LC50 less than **30%** effluent in any routine or additional follow-up test. *[Rules 62-4.241(3), 62-4.244(3)(b), 62-302.200(1), and 62-302.500(1)(a)4, F.A.C.]*

    b. **Monitoring Frequency**

       (1) Routine toxicity tests shall be conducted semi-annually for the duration of this permit, starting no later than 6 months from the last test in the previous permit cycle.

    c. **Sampling Requirements**

       (1) Routine tests shall be conducted on four separate grab samples collected at evenly-spaced (6-hr) intervals over a 24-hour period. The four grab samples shall be used in eight bioassays (four bioassays for each species) and shall represent one test. If the duration of the discharge is less than 24-hours, the duration of discharge shall be documented on the chain-of-custody.

       (2) For additional follow-up tests, the first test shall be conducted on four separate grab samples collected at evenly-spaced (6-hr) intervals over a 24-hour period. The four grab samples shall be used in four separate bioassays for each species that failed the routine test. The four grab samples represent one test. The second follow-up test shall be run on a single grab sample collected on the day

and time when the greatest toxicity was identified in the routine or first additional follow-up test. Results for each additional test shall include the determination of LC50 values with 95% confidence limits.

d. Test Requirements

(1) Routine Tests: All routine tests shall be conducted using a control (0% effluent) and a minimum of five dilutions: 100%, 60%, 30%, 15%, and 7.5% final effluent.

(2) The permittee shall conduct 96-hour acute, static-renewal, multi-concentration toxicity tests using the mysid, *Americamysis bahia*, and the inland silverside, *Menidia beryllina*, concurrently

(3) All test species, procedures and quality assurance criteria used shall be in accordance with Methods for Measuring Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, 5th Edition, EPA-821-R-02-012. Any deviation of the bioassay procedures outlined herein shall be submitted in writing to the Department for review and approval prior to use. In the event the above method is revised, the permittee shall conduct acute toxicity testing in accordance with the revised method.

(4) The control water and dilution water used shall be artificial seawater and diluted to the test salinity as described in EPA-821-R-02-012, Section 7.2.4. The test salinity shall be 20 ppt.

15. Ambient stream monitoring and reporting shall be conducted in accordance with the locations, frequencies, and parameters in the latest, Department approved, version of JEA's Ambient Stream Monitoring Plan. The ambient stream sample event shall be coincided with the week the quarterly effluent-nutrients sample event collected at EFD-1 as described in Condition I.A.1. JEA will submit to the Department's Northeast District office a report with stream sample data results and graphical analyses for each sample location. Data qualifiers and any important comments concerning the sample event and sample results will be included. The annual report (calendar year monitoring period) shall be submitted to the Northeast District wastewater permitting section by March 1, of the following year. ***[62-4.240(3)(c)]***

16. When the chlorination disinfection system is used, a minimum of 0.50 mg/L total residual chlorine shall be maintained for a minimum contact time of 15 minutes based on peak hourly flow. ***[62-600.440(4)(b)]***

17. JEA shall provide an initial report concerning the integrity of the outfall and shall determine and propose an evaluation and analysis method. The initial report shall be submitted to DEP within one year from permit issuance. Then, annual reports shall be submitted based on the approved evaluation and analysis method to indicate the status of the outfall line on or before January 1 of each year. ***[BPJ]***

MONTEREY WRF (JEA) – FACILITY SUMMARY – FL0023604 – MAY - 2013

PART I: Continued

Receiving Waters:	Classification (indicate whether fresh or marine):
St. John's River	Class III marine waters (WBID 2213D)

Toxicity Test Requirements (routine and/or additional test language, test species, salinity adjustment, etc.):

96-hr Static Renewal .: See I.A.14. on page 7 & 8 of this report.
using the mysid, *Americamysis bahia*, and the inland silverside, *Menidia beryllina*, concurrently

Note – facility is under a formal compliance sampling plan for toxicity.

Administrative or Consent Orders (date executed, specific requirements, interim limit dates-if applicable, etc.):
CO-10-1979 was a short form CO and was closed in October 2010.

4/29/2009 – AO 124 NE – Submit plan of action identifying sources of cyanide and total recoverable mercury, submit a plan of action proposing actions to bring these parameters down to permitted levels, implement plan with periodic reported updates. Complete quarterly testing for Whole effluent Toxicity. Comply with permitted limits by 12/31/2012. The AO expired on 12/31/2012 and the facility is in compliance with the Cyanide and mercury limits.

Facility Mixing Zone Details (if applicable):
A toxicity mixing zone has been established for this discharge which begins forty meters from the eastern shoreline of the St Johns River and extends 182 meters along the axis of the diffuser pipe. The width of the mixing zone is 10.6 meters (5.3 meters on either side of the axis of the diffuser pipe) and covers 1,929 square meters.

List Permit Violations (DMR data) and plant upsets that occurred at the plant within the last year: NONE
March-2012 to March 2013

Date	Parameter and Units	Limit	Result
NONE	NONE	NONE	NONE

Describe previous FYI and WQBEL study:

The Third-Year inspection was conducted on July 31, 2006 for the effluent discharge through Outfall D-001:

(1) <u>Water Chemistry Results:</u>

Total ammonia was detected in the bioassay sample in the laboratory at a concentration of 0.05 mg/L. The total ammonia conc. in the sample collected and preserved for chemical analysis was 0.19 mg/L., u-NH3 was < 0.02 mg/L.

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

The concentration of total coliform bacteria (2,700 counts/100 mL) exceeded the Class III Marine water quality criteria.

(2) <u>Toxicity Results:</u>

The effluent samples collected on July 31, 2006 did not show acute toxicity to either test species at the 30% effluent test concentration:

- ***Americamysis bahia* 96-hour acute screening bioassay – LC50 > 30% effluent, 0% mortality in 30% effluent concentration at 48 hours**
- ***Menidia beryllina* 96-hour acute screening bioassay – LC50 > 30% effluent, 0% mortality in 30% effluent concentration at 48 hours**

Technology-based Effluent Limitations (TBEL's) & Water Quality Based Effluent Limitation (WQBEL)

(1) Technology-based Effluent Limitations (TBEL's

The Monterey WRF, a municipal wastewater treatment facility, is a category of discharger for which technology-based effluent limits have been promulgated by federal and state regulations. These regulations are performance standards that constitute all known available and reasonable assurance of prevention, control, and treatment for municipal wastewater.

The limitations and conditions of the CBOD5 and pH have been developed to comply with the technology-based standards of the Clean Water Act.

(2) Water Quality Based Effluent Limitation (WQBEL)

(a) Dissolved Oxygen: The STORET data shows that average dissolved oxygen (DO) concentrations of the water body complies with the water quality criterion. The facility is required monitor the DO level in the effluent in accordance with Rule 62-302.530(30), FAC.

(b) Enterococci: The Environmental Protection Agency (EPA) promulgated water quality criteria for Enterococci for coastal recreation waters in Florida effective December 16, 2004. However, the Monterey WRF discharges to WBID 2213D which is more than 12 miles away from coastal recreation waters of the U.S. Therefore, Enterococci limits and monitoring is not required in the effluent discharged from Outfall D-001.

(c) Cyanide: The Expanded Effluent Testing Data shows that the maximum concentration of total cyanide was 4 µg/L which exceeded the Florida Water Quality Criterion for total cyanide (< 1.0 µg/L). The permittee is required to monitor for cyanide with a MDL of 1.0 µg/L or at a MDL approved by the Department. Limit for cyanide is established based on Rules 62-302.530(24) and 62-601, FAC.

The monitoring requirements and limitation of total cyanide is new and more stringent than the previous permit requirements. Therefore, in accordance with Sections 403.088(2)(e) and (f) of the FS, the permit shall be issued and accompanied by an administrative order (AO-124NE) which contains interim limits and establishes a schedule for achieving compliance with the final limits for total cyanide.

(d) Mercury: The Expanded Effluent Testing Data shows that the maximum concentration of mercury was 0.090 µg/L which exceeded the Florida Water Quality Criterion for mercury. Pursuant with Section 403.088(2)(d), F.S., and Rule 62-620.320(1), F.A.C, to provide a reasonable assurance of the permit, the permittee is required to monitor for total recoverable mercury. Limit and monitoring frequency of the parameters are based on Rules 62-302.530 (41) and 62-601, FAC.

The monitoring requirement and limitation for total recoverable mercury is new and more stringent than the previous permit requirement. Therefore, in accordance with Sections 403.088(2)(e) and (f) of the F.S., the permit shall be issued and accompanied by an administrative order which contains interim limits and establishes a schedule for achieving compliance with the final limits for total recoverable mercury.

(e) Nutrients: Nutrient impairment is addressed under the TMDL for the Lower St. Johns River (adopted by the Department on June 3, 2008). The nutrient/TN allocation for the facility listed in the Lower St. Johns River Basin Management Action Plan (BMAP) adopted on October 10, 2008.

MONTEREY WRF (JEA) – FACILITY SUMMARY – FL0023604 – MAY - 2013

Describe previous or current Enforcement Actions (including WLs): **None in last two years directly associated with this WWTP.**
Describe any violations or problems noted in previous inspection: **None listed. Inspection conducted on 09/5/2012.**
Discuss whether DMR trends within previous five years are improving or declining: **Total recoverable mercury as well as Total nitrogen concentration and mass appear to be decreasing over the past 5 years**
Additional Comments (this should include a trend of the Effluent, i.e. if the facility is now Reuse): **NONE.**

MONTEREY WRF (JEA) – FACILITY SUMMARY – FL0023604 – MAY - 2013

PART II: Sampling Event Information	
Date(s) sample collected: June 24, 2013 - planned	Sampler(s): Eesa Ali, Sharon Piltz
Temperature (Deg C):	pH (SU):
Dissolved Oxygen (mg/L):	Conductivity (umhos/cm):
Total Residual Chlorine (mg/L):	Total Residual Chlorine - after Disinfection (mg/L):
Method of Chlorination:	Method of De-chlorination:
Flow During Sample Collection for each outfall(MGD):	
Mean Flow for each outfall for previous 12 months based on sampling date (If samples are taken on more than one day, indicate Mean Flow for each day):	
Describe Discharge during Sampling Event: ☐ Continuous ☐ Intermittent ☐ Seasonal ☐ Rainfall Dependent ☐ Other, please specify	
Describe any conditions, difficulties or abnormal events that occurred during the sample collection and any other additional comments here:	

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Request Number: RQ-2013-06-24-16
FYI3 Monterey WRF Sampling Inspection

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

Event ID *

Requester: Michelle Fish
Collected By: E.Ai, S.Pi, Tz
Sampling Agency: FDEP NED
Field Report Prepared By: S.Pi, Tz
Send Final Report To: Heather Webber

Lab ID *	Location: Monterey WWTF 3YI EFD-1 GRAB			☐ Comp ☑ Grab	Collection (comp begin or grab) Eastern Date 6/24/13 Time 1030 Central		Composite end Date Time Eastern Central		Bottle Group(s)**	A
	Field ID			Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L) 5.81		Storet Station Number			
	Matrix (include type e.g. Salt, Fresh, etc) EFF	Temp (C) 29.72	pH 7.54	Sample Depth 0.5 ☑ m ☐ ft	0.46 ☐ Salinity (PPTh) 9.57 ☑ Sp Conductance (umho/cm)		NPDES Number			
	Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms		Comments						
Lab ID *	Location: Monterey WWTF 3YI EFD-1 24HR			☑ Comp ☐ Grab	Collection (comp begin or grab) Eastern Date 6/23/13 Time 1600 Central		Composite end Date 6/24/13 Time 0800 Eastern Central		Bottle Group(s)**	B
	Field ID			Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)		Storet Station Number			
	Matrix (include type e.g. Salt, Fresh, etc) EFF	Temp (C) *	pH	Sample Depth ☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)		NPDES Number			
	Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms		Comments Fridge Temp 2.6°C Time Comp not Flow						
Lab ID *	Location: Field Blank			☐ Comp ☑ Grab	Collection (comp begin or grab) Eastern Date 6/24/13 Time 1048 Central		Composite end Date Time Eastern Central		Bottle Group(s)**	C
	Field ID			Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)		Storet Station Number			
	Matrix (include type e.g. Salt, Fresh, etc) DI	Temp (C)	pH	Sample Depth ☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)		NPDES Number			
	Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms		Comments						
Lab ID *	Location: Equipment Blank			☐ Comp ☑ Grab	Collection (comp begin or grab) Eastern Date 6/24/13 Time 1415 Central		Composite end Date Time Eastern Central		Bottle Group(s)**	D
	Field ID			Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)		Storet Station Number			
	Matrix (include type e.g. Salt, Fresh, etc) DI	Temp (C)	pH	Sample Depth ☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)		NPDES Number			
	Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms		Comments						

Relinquished By:	Date/Time 6/24/13	Shipping Method: FedEx	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time 6/25/13 8:30

* Shaded Areas for Lab use only.

** Please see reverse side for Bottle Group information.

last revised October 1, 2003

CR 6.25.13
4 bottles 1030

Appendix C
Explanation of measurements

(1) Quality Assurance and Quality Control

FDEP's quality assurance requirements for analytical laboratories and field activities are codified in Chapter 62-160, F.A.C., Quality Assurance (QA Rule) and in internal Standard Operating Procedures (FDEP SOPs). Methods for all analyses are on file at the FDEP Central Laboratory in Tallahassee and may be viewed on the web at http://www.floridadep.org/labs/sop/index.htm and/or http://www.floridadep.org/labs/qa/index.htm .

(2) Chemical Analyses of the Effluent

The effluent was analyzed for nutrients, metals, organic constituents (base, neutral, and acid extractables) and pesticides following FDEP SOPs. The results from these analyses were compared with Water Quality Criteria (62-302, F.A.C.) and facility permit limits. Exceedances of Water Quality Criteria may constitute violations of specific provisions of Chapter 62-302 (F.A.C.) and/ or facility permit limits.

(3) Toxicity Bioassays

Greater than 50% mortality in an acute toxicity test may constitute an exceedance of 62-302.500(1)a and/or a violation of facility permit limits. An inhibition concentration greater than 25% in a chronic test may constitute exceedances of 62-302.530(20), 62-302.530(61) and/or a violation of facility permit limits. A no observed effect concentration (NOEC) less than 100% effluent in a chronic test may constitute an exceedance of 62-302.530(61) and/or a violation of facility permit limits. Standard reference toxicant (SRT) tests are conducted monthly to ensure quality in toxicity testing.

(4) Bacteriological Testing

High levels of fecal coliform bacteria may constitute an exceedance of 62-302.530(6) and/or a violation of facility permit limits. Fecal coliform and enterococci results often are based on colony counts outside the acceptable range (B-qualifier). The dilutions performed on the sample did not yield results within the method acceptable range of 20-60 colony forming units per plate. The B-qualifier does not affect data quality.

(5) Algal Growth Potential (AGP)

The algal growth potential (AGP) value is the peak growth of the alga within that 14-day period, recorded as mg dry weight/L. Raschke and Shultz (1987) found that an AGP above 5.0 mg dry weight/L represents a “problem” threshold for fresh receiving waters, implying nutrient enrichment. High AGP values may constitute exceedances of 62-302.530(46), F.A.C., 62-302.530(47)(a), F.A.C. and/or 62-302.530(47)(b), F.A.C..

The concentration of nutrients in a water sample may be used to calculate the expected yield of AGP under the assumption that other required nutrients (e.g. silicon, micronutrients) are present in excess (Miller *et al*. 1978). The expected amount of production is calculated as 38 times the total soluble inorganic nitrogen (nitrate and nitrite plus ammonia) under nitrogen limitation or 430 times the ortho-phosphate (OP) concentration under phosphorus limitation with an error of $\pm$ 20%. When the ratio of nitrogen to phosphorus (N: P) is less than 10:1, nitrogen limitation of algal production is likely. When the N: P ratio is 20:1 or greater, phosphorus limitation is likely (USEPA 2000). For ratios in-between, co-limitation may occur. Production of lower biomass than expected may be evidence of growth inhibition related to toxic compounds present in the water sample tested and may constitute an exceedance of 62-302.530(61), F.A.C.

(7) Chlorophyll *a* Content

Chlorophyll *a* content is an estimate of algal biomass . High algal biomass implies nutrient stress (Stevenson and Bahls 1999) and may be constitute exceedances of 62-302.530(46) F.A.C., 62-302.530(47)(a) F.A.C. and/or 62-302.530(47)(b) F.A.C..

(8) Definition of Qualifiers

A - Value reported is the mean of two or more determinations
B - Results based on colony counts outside the acceptable range.
I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
J - Estimated value
K - Actual value is known to be less than value given
L - Actual value is known to be greater than value given
N - Presumptive evidence of presence of material.
O - Sampled, but analysis lost or not performed.
Q - Sample held beyond normal holding time.
T - Value reported is less than the criterion of detection.
U - Material was analyzed for but not detected. The reported value is the method detection limit for the sample analyzed.
V - Analyte was detected in both sample and method blank.
X - Too few individuals to calculate SCI value.
Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate
Z - Colonies were too numerous to count (TNTC)

Appendix D
Chemical Analyses of Effluent

Date Sampled	Field ID	Analysis Group	Components	Result	Remark	Units	MDL	PQL
6/24/2013 10:30	Monterey GRAB	Overflow	Fecal Coliforms-Membrane Filter	11	B	cfu/100 mL	1.6	
6/24/2013 10:30	Monterey GRAB	Toxicology	Bioassay-Acute-Def-SW-Mysid, LC50	100	L	LC50		
6/24/2013 10:30	Monterey GRAB	Toxicology	Bioassay-Acute-Def-SW-Fish, LC50	100	L	LC50		
6/24/2013 10:30	Monterey GRAB	Metals	Lead	0.45	I	ug/L	0.2	0.8
6/24/2013 10:30	Monterey GRAB	Metals	Silver	0.025	U	ug/L	0.025	0.1
6/24/2013 10:30	Monterey GRAB	Metals	Chromium	0.30	U	ug/L	0.3	1.2
6/24/2013 10:30	Monterey GRAB	Metals	Potassium	10.2		mg/L	0.3	1.2
6/24/2013 10:30	Monterey GRAB	Metals	Nickel	1.63		ug/L	0.25	1
6/24/2013 10:30	Monterey GRAB	Metals	Selenium	0.20	U	ug/L	0.2	0.8
6/24/2013 10:30	Monterey GRAB	Metals	Zinc	34		ug/L	5	20
6/24/2013 10:30	Monterey GRAB	Metals	Arsenic	0.25	U	ug/L	0.25	1
6/24/2013 10:30	Monterey GRAB	Metals	Copper	1.97		ug/L	0.5	1
6/24/2013 10:30	Monterey GRAB	Metals	Mercury	2.4		ng/L	0.1	0.4
6/24/2013 10:30	Monterey GRAB	Metals	Cadmium	0.050	U	ug/L	0.05	0.2
6/24/2013 10:30	Monterey GRAB	Metals	Iron	60	I	ug/L	30	120
6/24/2013 10:30	Monterey GRAB	Metals	Sodium	71.4		mg/L	0.5	2
6/24/2013 10:30	Monterey GRAB	Metals	Magnesium	28.9		mg/L	0.04	0.16
6/24/2013 10:30	Monterey GRAB	Metals	Calcium	74.5		mg/L	0.075	0.3
6/24/2013 10:30	Monterey GRAB	Metals	Aluminum	60	U	ug/L	60	240
6/24/2013 10:30	Monterey GRAB	Nutrients	Chloride	110		mg Cl/L	2	5
6/24/2013 10:30	Monterey GRAB	Nutrients	O-Phosphate-P	2.5		mg P/L	0.08	0.2
6/24/2013 10:30	Monterey GRAB	Nutrients	Fluoride	0.58		mg F/L	0.035	0.1
6/24/2013 10:30	Monterey GRAB	Nutrients	Ammonia-N	0.062		mg N/L	0.002	0.005
6/24/2013 10:30	Monterey GRAB	Nutrients	Alkalinity	132		mg CaCO3/L	0.65	2.5
6/24/2013 10:30	Monterey GRAB	Nutrients	Sulfate	120		mg SO4/L	2	5
6/24/2013 10:30	Monterey GRAB	Pesticides	Fenamiphos	0.028	U	ug/L	0.028	0.11
6/24/2013 10:30	Monterey GRAB	Pesticides	Diazinon	0.0094	U	ug/L	0.0094	0.038
6/24/2013 10:30	Monterey GRAB	Pesticides	Alachlor	0.057	UJ	ug/L	0.057	0.23
6/24/2013 10:30	Monterey GRAB	Pesticides	Naled	0.038	UJ	ug/L	0.038	0.15
6/24/2013 10:30	Monterey GRAB	Pesticides	Metalaxyl	0.038	U	ug/L	0.038	0.15
6/24/2013 10:30	Monterey GRAB	Pesticides	Azinphos Methyl	0.019	U	ug/L	0.019	0.075
6/24/2013 10:30	Monterey GRAB	Pesticides	Ametryn	0.0094	U	ug/L	0.0094	0.038
6/24/2013 10:30	Monterey GRAB	Pesticides	Parathion Methyl	0.0094	U	ug/L	0.0094	0.038
6/24/2013 10:30	Monterey GRAB	Pesticides	Metolachlor	0.057	U	ug/L	0.057	0.23
6/24/2013 10:30	Monterey GRAB	Pesticides	Ethion	0.0094	U	ug/L	0.0094	0.038

Date Sampled	Field ID	Analysis Group	Components	Result	Remark	Units	MDL	PQL
6/24/2013 10:30	Monterey GRAB	Pesticides	Chlorpyrifos Methyl	0.0094	U	ug/L	0.0094	0.038
6/24/2013 10:30	Monterey GRAB	Pesticides	Phorate	0.0047	U	ug/L	0.0047	0.019
6/24/2013 10:30	Monterey GRAB	Pesticides	Metribuzin	0.019	U	ug/L	0.019	0.075
6/24/2013 10:30	Monterey GRAB	Pesticides	Hexazinone	0.028	UJ	ug/L	0.028	0.11
6/24/2013 10:30	Monterey GRAB	Pesticides	Fonofos	0.0094	U	ug/L	0.0094	0.038
6/24/2013 10:30	Monterey GRAB	Pesticides	Chlorpyrifos Ethyl	0.0094	U	ug/L	0.0094	0.038
6/24/2013 10:30	Monterey GRAB	Pesticides	Bromacil	0.038	U	ug/L	0.038	0.15
6/24/2013 10:30	Monterey GRAB	Pesticides	Prometryn	0.019	U	ug/L	0.019	0.075
6/24/2013 10:30	Monterey GRAB	Pesticides	Ethoprop	0.0047	U	ug/L	0.0047	0.019
6/24/2013 10:30	Monterey GRAB	Pesticides	Norflurazon	0.028	U	ug/L	0.028	0.11
6/24/2013 10:30	Monterey GRAB	Pesticides	Mevinphos	0.0094	U	ug/L	0.0094	0.038
6/24/2013 10:30	Monterey GRAB	Pesticides	Butylate	0.019	U	ug/L	0.019	0.075
6/24/2013 10:30	Monterey GRAB	Pesticides	Atrazine	0.0094	U	ug/L	0.0094	0.038
6/24/2013 10:30	Monterey GRAB	Pesticides	Simazine	0.0094	U	ug/L	0.0094	0.038
6/24/2013 10:30	Monterey GRAB	Pesticides	Parathion Ethyl	0.019	U	ug/L	0.019	0.075
6/24/2013 10:30	Monterey GRAB	Pesticides	Malathion	0.0094	U	ug/L	0.0094	0.038
6/24/2013 10:30	Monterey GRAB	Priority Organic Pollutants	Hexachlorocyclopentadiene	3.0	U	ug/L	3	12
6/24/2013 10:30	Monterey GRAB	Priority Organic Pollutants	Hexachloroethane	3.0	U	ug/L	3	12
6/24/2013 10:30	Monterey GRAB	Priority Organic Pollutants	Isophorone	1.0	U	ug/L	1	4
6/24/2013 10:30	Monterey GRAB	Priority Organic Pollutants	3,3'-Dichlorobenzidine	40	U	ug/L	40	160
6/24/2013 10:30	Monterey GRAB	Priority Organic Pollutants	Chrysene	0.20	U	ug/L	0.2	0.81
6/24/2013 10:30	Monterey GRAB	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	3.0	U	ug/L	3	12
6/24/2013 10:30	Monterey GRAB	Priority Organic Pollutants	2-Nitrophenol	1.0	U	ug/L	1	4
6/24/2013 10:30	Monterey GRAB	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	2.0	U	ug/L	2	8.1
6/24/2013 10:30	Monterey GRAB	Priority Organic Pollutants	Butyl benzyl phthalate	1.0	U	ug/L	1	4
6/24/2013 10:30	Monterey GRAB	Priority Organic Pollutants	Di-n-octyl phthalate	1.0	U	ug/L	1	4
6/24/2013 10:30	Monterey GRAB	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.20	U	ug/L	0.2	0.81
6/24/2013 10:30	Monterey GRAB	Priority Organic Pollutants	Hexachlorobenzene	1.0	U	ug/L	1	4
6/24/2013 10:30	Monterey GRAB	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	2.0	U	ug/L	2	8.1
6/24/2013 10:30	Monterey GRAB	Priority Organic Pollutants	Pyrene	0.20	U	ug/L	0.2	0.81
6/24/2013 10:30	Monterey GRAB	Priority Organic Pollutants	2,4-Dichlorophenol	1.0	U	ug/L	1	4
6/24/2013 10:30	Monterey GRAB	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.20	U	ug/L	0.2	0.81
6/24/2013 10:30	Monterey GRAB	Priority Organic Pollutants	Fluorene	0.20	U	ug/L	0.2	0.81
6/24/2013 10:30	Monterey GRAB	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	3.0	U	ug/L	3	12
6/24/2013 10:30	Monterey GRAB	Priority Organic Pollutants	Pentachlorophenol	3.0	U	ug/L	3	12
6/24/2013 10:30	Monterey GRAB	Priority Organic Pollutants	2,4-Dimethylphenol	10	U	ug/L	10	40
6/24/2013 10:30	Monterey GRAB	Priority Organic Pollutants	Acenaphthene	0.20	U	ug/L	0.2	0.81
6/24/2013 10:30	Monterey GRAB	Priority Organic Pollutants	Benzo(a)anthracene	0.20	U	ug/L	0.2	0.81
6/24/2013 10:30	Monterey GRAB	Priority Organic Pollutants	Benzo(b)fluoranthene	0.20	U	ug/L	0.2	0.81
6/24/2013 10:30	Monterey GRAB	Priority Organic Pollutants	Dimethyl phthalate	1.0	U	ug/L	1	4

Date Sampled	Field ID	Analysis Group	Components	Result	Remark	Units	MDL	PQL
6/24/2013 10:30	Monterey GRAB	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.20	U	ug/L	0.2	0.81
6/24/2013 10:30	Monterey GRAB	Priority Organic Pollutants	Phenanthrene	0.20	U	ug/L	0.2	0.81
6/24/2013 10:30	Monterey GRAB	Priority Organic Pollutants	2,4-Dinitrophenol	15	U	ug/L	15	61
6/24/2013 10:30	Monterey GRAB	Priority Organic Pollutants	2,6-Dinitrotoluene	1.0	U	ug/L	1	4
6/24/2013 10:30	Monterey GRAB	Priority Organic Pollutants	Anthracene	0.20	U	ug/L	0.2	0.81
6/24/2013 10:30	Monterey GRAB	Priority Organic Pollutants	Benzidine	100	U	ug/L	100	400
6/24/2013 10:30	Monterey GRAB	Priority Organic Pollutants	Benzo(a)pyrene	0.20	U	ug/L	0.2	0.81
6/24/2013 10:30	Monterey GRAB	Priority Organic Pollutants	Bis(2-chloroethyl)ether	1.0	U	ug/L	1	4
6/24/2013 10:30	Monterey GRAB	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	2.0	U	ug/L	2	8.1
6/24/2013 10:30	Monterey GRAB	Priority Organic Pollutants	2-Chloronaphthalene	1.0	U	ug/L	1	4
6/24/2013 10:30	Monterey GRAB	Priority Organic Pollutants	2-Chlorophenol	1.0	U	ug/L	1	4
6/24/2013 10:30	Monterey GRAB	Priority Organic Pollutants	4-Bromophenyl phenyl ether	1.0	U	ug/L	1	4
6/24/2013 10:30	Monterey GRAB	Priority Organic Pollutants	Benzo(k)fluoranthene	0.20	U	ug/L	0.2	0.81
6/24/2013 10:30	Monterey GRAB	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	3.0	U	ug/L	3	12
6/24/2013 10:30	Monterey GRAB	Priority Organic Pollutants	Diethyl phthalate	1.0	U	ug/L	1	4
6/24/2013 10:30	Monterey GRAB	Priority Organic Pollutants	Hexachlorobutadiene	3.0	U	ug/L	3	12
6/24/2013 10:30	Monterey GRAB	Priority Organic Pollutants	Naphthalene	0.20	U	ug/L	0.2	0.81
6/24/2013 10:30	Monterey GRAB	Priority Organic Pollutants	Phenol	1.0	U	ug/L	1	4
6/24/2013 10:30	Monterey GRAB	Priority Organic Pollutants	1,2,4-Trichlorobenzene	1.0	U	ug/L	1	4
6/24/2013 10:30	Monterey GRAB	Priority Organic Pollutants	2,4,6-Trichlorophenol	1.0	U	ug/L	1	4
6/24/2013 10:30	Monterey GRAB	Priority Organic Pollutants	2,4-Dinitrotoluene	1.0	U	ug/L	1	4
6/24/2013 10:30	Monterey GRAB	Priority Organic Pollutants	4-Chloro-3-methylphenol	1.0	U	ug/L	1	4
6/24/2013 10:30	Monterey GRAB	Priority Organic Pollutants	4-Nitrophenol	15	U	ug/L	15	61
6/24/2013 10:30	Monterey GRAB	Priority Organic Pollutants	Acenaphthylene	0.20	U	ug/L	0.2	0.81
6/24/2013 10:30	Monterey GRAB	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	1.0	U	ug/L	1	4
6/24/2013 10:30	Monterey GRAB	Priority Organic Pollutants	Di-n-butyl phthalate	1.0	U	ug/L	1	4
6/24/2013 10:30	Monterey GRAB	Priority Organic Pollutants	Fluoranthene	0.20	U	ug/L	0.2	0.81
6/24/2013 10:30	Monterey GRAB	Priority Organic Pollutants	N-Nitrosodimethylamine	2.0	U	ug/L	2	8.1
6/24/2013 10:30	Monterey GRAB	Priority Organic Pollutants	Nitrobenzene	2.0	U	ug/L	2	8.1
6/24/2013 10:30	Monterey GRAB	Field Parameter	Sample Depth	0.5		m		
6/24/2013 10:30	Monterey GRAB	Field Parameter	Specific Conductance	937		umhos/cm		
6/24/2013 10:30	Monterey GRAB	Field Parameter	Temperature	29.72		C		
6/24/2013 10:30	Monterey GRAB	Field Parameter	Dissolved Oxygen	5.81		mg/L		
6/24/2013 10:30	Monterey GRAB	Field Parameter	pH	7.54				
6/24/2013 8:00	Monterey 24HTC	Chlorophyll/Grain Size/BOD	Biochemical Oxygen Demand-5 Day,N-Inhib	1.4	I	mg/L	0.2	2
6/24/2013 8:00	Monterey 24HTC	Nutrients	NO2NO3-N	5.3		mg N/L	0.04	0.1
6/24/2013 8:00	Monterey 24HTC	Nutrients	Kjeldahl Nitrogen	0.78		mg N/L	0.16	0.4
6/24/2013 8:00	Monterey 24HTC	Nutrients	Ammonia-N	0.086		mg N/L	0.002	0.005
6/24/2013 8:00	Monterey 24HTC	Nutrients	TSS	2	U	mg/L	2	10
6/24/2013 8:00	Monterey 24HTC	Nutrients	Total-P	2.6		mg P/L	0.025	0.25

Date Sampled	Field ID	Analysis Group	Components	Result	Remark	Units	MDL	PQL
6/24/2013 10:48	Field Blank	Metals	Iron	30	U	ug/L	30	120
6/24/2013 10:48	Field Blank	Metals	Aluminum	60	U	ug/L	60	240
6/24/2013 10:48	Field Blank	Metals	Chromium	0.30	U	ug/L	0.3	1.2
6/24/2013 10:48	Field Blank	Metals	Potassium	0.30	U	mg/L	0.3	1.2
6/24/2013 10:48	Field Blank	Metals	Selenium	0.20	U	ug/L	0.2	0.8
6/24/2013 10:48	Field Blank	Metals	Copper	0.50	U	ug/L	0.5	1
6/24/2013 10:48	Field Blank	Metals	Calcium	0.075	U	mg/L	0.075	0.3
6/24/2013 10:48	Field Blank	Metals	Magnesium	0.040	U	mg/L	0.04	0.16
6/24/2013 10:48	Field Blank	Metals	Sodium	0.50	U	mg/L	0.5	2
6/24/2013 10:48	Field Blank	Metals	Zinc	5.0	U	ug/L	5	20
6/24/2013 10:48	Field Blank	Metals	Arsenic	0.25	U	ug/L	0.25	1
6/24/2013 10:48	Field Blank	Metals	Lead	0.20	U	ug/L	0.2	0.8
6/24/2013 10:48	Field Blank	Metals	Nickel	0.25	U	ug/L	0.25	1
6/24/2013 10:48	Field Blank	Metals	Cadmium	0.050	U	ug/L	0.05	0.2
6/24/2013 10:48	Field Blank	Metals	Silver	0.025	U	ug/L	0.025	0.1
6/24/2013 10:48	Field Blank	Nutrients	Alkalinity	0.65	U	mg CaCO3/L	0.65	2.5
6/24/2013 10:48	Field Blank	Nutrients	Chloride	0.20	U	mg Cl/L	0.2	0.5
6/24/2013 10:48	Field Blank	Nutrients	O-Phosphate-P	0.004	U	mg P/L	0.004	0.01
6/24/2013 10:48	Field Blank	Nutrients	Sulfate	0.20	U	mg SO4/L	0.2	0.5
6/24/2013 10:48	Field Blank	Nutrients	Fluoride	0.035	U	mg F/L	0.035	0.1
6/24/2013 10:48	Field Blank	Nutrients	Ammonia-N	0.002	U	mg N/L	0.002	0.005
6/24/2013 10:48	Field Blank	Pesticides	Phorate	0.0048	U	ug/L	0.0048	0.019
6/24/2013 10:48	Field Blank	Pesticides	Bromacil	0.038	U	ug/L	0.038	0.15
6/24/2013 10:48	Field Blank	Pesticides	Malathion	0.0095	U	ug/L	0.0095	0.038
6/24/2013 10:48	Field Blank	Pesticides	Norflurazon	0.029	U	ug/L	0.029	0.11
6/24/2013 10:48	Field Blank	Pesticides	Parathion Methyl	0.0095	U	ug/L	0.0095	0.038
6/24/2013 10:48	Field Blank	Pesticides	Atrazine	0.0095	U	ug/L	0.0095	0.038
6/24/2013 10:48	Field Blank	Pesticides	Diazinon	0.0095	U	ug/L	0.0095	0.038
6/24/2013 10:48	Field Blank	Pesticides	Ethoprop	0.0048	U	ug/L	0.0048	0.019
6/24/2013 10:48	Field Blank	Pesticides	Fonofos	0.0095	U	ug/L	0.0095	0.038
6/24/2013 10:48	Field Blank	Pesticides	Metolachlor	0.057	U	ug/L	0.057	0.23
6/24/2013 10:48	Field Blank	Pesticides	Alachlor	0.057	UJ	ug/L	0.057	0.23
6/24/2013 10:48	Field Blank	Pesticides	Chlorpyrifos Methyl	0.0095	U	ug/L	0.0095	0.038
6/24/2013 10:48	Field Blank	Pesticides	Fenamiphos	0.029	U	ug/L	0.029	0.11
6/24/2013 10:48	Field Blank	Pesticides	Hexazinone	0.029	UJ	ug/L	0.029	0.11
6/24/2013 10:48	Field Blank	Pesticides	Simazine	0.0095	U	ug/L	0.0095	0.038
6/24/2013 10:48	Field Blank	Pesticides	Ametryn	0.0095	U	ug/L	0.0095	0.038
6/24/2013 10:48	Field Blank	Pesticides	Chlorpyrifos Ethyl	0.0095	U	ug/L	0.0095	0.038
6/24/2013 10:48	Field Blank	Pesticides	Prometryn	0.019	U	ug/L	0.019	0.076
6/24/2013 10:48	Field Blank	Pesticides	Butylate	0.019	U	ug/L	0.019	0.076

Date Sampled	Field ID	Analysis Group	Components	Result	Remark	Units	MDL	PQL
6/24/2013 10:48	Field Blank	Pesticides	Metalaxyl	0.038	U	ug/L	0.038	0.15
6/24/2013 10:48	Field Blank	Pesticides	Naled	0.038	UJ	ug/L	0.038	0.15
6/24/2013 10:48	Field Blank	Pesticides	Azinphos Methyl	0.019	U	ug/L	0.019	0.076
6/24/2013 10:48	Field Blank	Pesticides	Ethion	0.0095	U	ug/L	0.0095	0.038
6/24/2013 10:48	Field Blank	Pesticides	Metribuzin	0.019	U	ug/L	0.019	0.076
6/24/2013 10:48	Field Blank	Pesticides	Mevinphos	0.0095	U	ug/L	0.0095	0.038
6/24/2013 10:48	Field Blank	Pesticides	Parathion Ethyl	0.019	U	ug/L	0.019	0.076
6/24/2013 10:48	Field Blank	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	2.9	U	ug/L	2.9	12
6/24/2013 10:48	Field Blank	Priority Organic Pollutants	Phenol	0.98	U	ug/L	0.98	3.9
6/24/2013 10:48	Field Blank	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	0.98	U	ug/L	0.98	3.9
6/24/2013 10:48	Field Blank	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	2.9	U	ug/L	2.9	12
6/24/2013 10:48	Field Blank	Priority Organic Pollutants	Chrysene	0.20	U	ug/L	0.2	0.78
6/24/2013 10:48	Field Blank	Priority Organic Pollutants	Pentachlorophenol	2.9	U	ug/L	2.9	12
6/24/2013 10:48	Field Blank	Priority Organic Pollutants	Pyrene	0.20	U	ug/L	0.2	0.78
6/24/2013 10:48	Field Blank	Priority Organic Pollutants	1,2,4-Trichlorobenzene	0.98	U	ug/L	0.98	3.9
6/24/2013 10:48	Field Blank	Priority Organic Pollutants	2,4,6-Trichlorophenol	0.98	U	ug/L	0.98	3.9
6/24/2013 10:48	Field Blank	Priority Organic Pollutants	4-Chloro-3-methylphenol	0.98	U	ug/L	0.98	3.9
6/24/2013 10:48	Field Blank	Priority Organic Pollutants	Di-n-butyl phthalate	0.98	U	ug/L	0.98	3.9
6/24/2013 10:48	Field Blank	Priority Organic Pollutants	Fluoranthene	0.20	U	ug/L	0.2	0.78
6/24/2013 10:48	Field Blank	Priority Organic Pollutants	Fluorene	0.20	U	ug/L	0.2	0.78
6/24/2013 10:48	Field Blank	Priority Organic Pollutants	Hexachlorocyclopentadiene	2.9	U	ug/L	2.9	12
6/24/2013 10:48	Field Blank	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	2.0	U	ug/L	2	7.8
6/24/2013 10:48	Field Blank	Priority Organic Pollutants	Naphthalene	0.20	U	ug/L	0.2	0.78
6/24/2013 10:48	Field Blank	Priority Organic Pollutants	Nitrobenzene	2.0	U	ug/L	2	7.8
6/24/2013 10:48	Field Blank	Priority Organic Pollutants	Phenanthrene	0.20	U	ug/L	0.2	0.78
6/24/2013 10:48	Field Blank	Priority Organic Pollutants	3,3'-Dichlorobenzidine	39	U	ug/L	39	160
6/24/2013 10:48	Field Blank	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.20	U	ug/L	0.2	0.78
6/24/2013 10:48	Field Blank	Priority Organic Pollutants	Dimethyl phthalate	0.98	U	ug/L	0.98	3.9
6/24/2013 10:48	Field Blank	Priority Organic Pollutants	Acenaphthylene	0.20	U	ug/L	0.2	0.78
6/24/2013 10:48	Field Blank	Priority Organic Pollutants	Acenaphthene	0.20	U	ug/L	0.2	0.78
6/24/2013 10:48	Field Blank	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	2.0	U	ug/L	2	7.8
6/24/2013 10:48	Field Blank	Priority Organic Pollutants	2-Chloronaphthalene	0.98	U	ug/L	0.98	3.9
6/24/2013 10:48	Field Blank	Priority Organic Pollutants	2-Chlorophenol	0.98	U	ug/L	0.98	3.9
6/24/2013 10:48	Field Blank	Priority Organic Pollutants	Benzo(a)anthracene	0.20	U	ug/L	0.2	0.78
6/24/2013 10:48	Field Blank	Priority Organic Pollutants	Butyl benzyl phthalate	0.98	U	ug/L	0.98	3.9
6/24/2013 10:48	Field Blank	Priority Organic Pollutants	Di-n-octyl phthalate	0.98	U	ug/L	0.98	3.9
6/24/2013 10:48	Field Blank	Priority Organic Pollutants	Hexachlorobenzene	0.98	U	ug/L	0.98	3.9
6/24/2013 10:48	Field Blank	Priority Organic Pollutants	2-Nitrophenol	0.98	U	ug/L	0.98	3.9
6/24/2013 10:48	Field Blank	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.20	U	ug/L	0.2	0.78
6/24/2013 10:48	Field Blank	Priority Organic Pollutants	Hexachloroethane	2.9	U	ug/L	2.9	12

Date Sampled	Field ID	Analysis Group	Components	Result	Remark	Units	MDL	PQL
6/24/2013 10:48	Field Blank	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	2.9	U	ug/L	2.9	12
6/24/2013 10:48	Field Blank	Priority Organic Pollutants	2,4-Dinitrophenol	15	U	ug/L	15	59
6/24/2013 10:48	Field Blank	Priority Organic Pollutants	2,4-Dinitrotoluene	0.98	U	ug/L	0.98	3.9
6/24/2013 10:48	Field Blank	Priority Organic Pollutants	2,6-Dinitrotoluene	0.98	U	ug/L	0.98	3.9
6/24/2013 10:48	Field Blank	Priority Organic Pollutants	4-Bromophenyl phenyl ether	0.98	U	ug/L	0.98	3.9
6/24/2013 10:48	Field Blank	Priority Organic Pollutants	Anthracene	0.20	U	ug/L	0.2	0.78
6/24/2013 10:48	Field Blank	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.20	U	ug/L	0.2	0.78
6/24/2013 10:48	Field Blank	Priority Organic Pollutants	Bis(2-chloroethyl)ether	0.98	U	ug/L	0.98	3.9
6/24/2013 10:48	Field Blank	Priority Organic Pollutants	N-Nitrosodimethylamine	2.0	U	ug/L	2	7.8
6/24/2013 10:48	Field Blank	Priority Organic Pollutants	2,4-Dichlorophenol	0.98	U	ug/L	0.98	3.9
6/24/2013 10:48	Field Blank	Priority Organic Pollutants	Benzo(a)pyrene	0.20	U	ug/L	0.2	0.78
6/24/2013 10:48	Field Blank	Priority Organic Pollutants	Benzo(k)fluoranthene	0.20	U	ug/L	0.2	0.78
6/24/2013 10:48	Field Blank	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	2.0	U	ug/L	2	7.8
6/24/2013 10:48	Field Blank	Priority Organic Pollutants	Hexachlorobutadiene	2.9	U	ug/L	2.9	12
6/24/2013 10:48	Field Blank	Priority Organic Pollutants	Isophorone	0.98	U	ug/L	0.98	3.9
6/24/2013 10:48	Field Blank	Priority Organic Pollutants	2,4-Dimethylphenol	9.8	U	ug/L	9.8	39
6/24/2013 10:48	Field Blank	Priority Organic Pollutants	4-Nitrophenol	15	U	ug/L	15	59
6/24/2013 10:48	Field Blank	Priority Organic Pollutants	Benzidine	98	U	ug/L	98	390
6/24/2013 10:48	Field Blank	Priority Organic Pollutants	Benzo(b)fluoranthene	0.20	U	ug/L	0.2	0.78
6/24/2013 10:48	Field Blank	Priority Organic Pollutants	Diethyl phthalate	0.98	U	ug/L	0.98	3.9
6/24/2013 14:13	Equipment Blank	Nutrients	Total-P	0.002	U	mg P/L	0.002	0.005
6/24/2013 14:13	Equipment Blank	Nutrients	Kjeldahl Nitrogen	0.080	U	mg N/L	0.08	0.2
6/24/2013 14:13	Equipment Blank	Nutrients	NO2NO3-N	0.004	U	mg N/L	0.004	0.01
6/24/2013 14:13	Equipment Blank	Nutrients	Ammonia-N	0.002	U	mg N/L	0.002	0.005

FDEP Biology Laboratory - Acute Bioassay Bench Sheets

Facility: Monterey WRF

Address: 5802 Harris Ave.

City: Jacksonville County: Duval

Contact/District: East AP Eesa Ali/NED

NPDES Permit #: FL0023604

LIMS Job #: TLH-2013-06-25-56 LIMS Sample #: 15176087

Lims Data Entry: 7-1-13 MF mf Data Entry Verification: 7-1-13 CR

Sample Collection: Date: 6.24.13 Time: 1030

Hold Time Start: Date: 6.24.13 Time: 1030

Comments:

Initial sample handling:

Instructions: Check yes or no. If yes is checked, complete blanks

PH adjustment: ☐ yes ☑ no Initial pH: ____ NaOH ____ N HCl ____ N ____ Drops mL Final pH: ____

Aeration: ☑ yes ☐ no Initial DO: 10.5 mg/L Final DO: 6.9 mg/L Duration: 30 minutes Rate: ~100 bubbles/min

Salinity adjusted (Test 1): ☑ yes ☐ no AP Initial Salinity: 0.41 ppt Final Salinity: 20ppt (Salts) Hypersaline brine

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

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

Sample Validation:

Instructions: Check yes or no. Fill in temperatures.

Temperature: Shipped ≤ 6°C ☑ Yes ☐ No — IF Hand Delivered: Cooling ☐ Yes ☐ No (received ____°C collected ____°C)

Holding Time: ≤ 36 Hours ☑ Yes ☐ No (Composite-end of collection; grab-when collected; 4 in 24 - time last sample collected)

Investigators' Signatures:	Initials:
Cassidy Reichert	CR
Adrienne Pennington	AP
Marshall Faircloth	MF
Bruce Buckler	BB
REVIEWER: Liz Miller	

Diluent/Control Batch#:				5.29.13	6.25.13				
Water Quality Parameters	20% DMW	Well Water	Moderately Hard Water	Salt Water (ASW) NSW Test 1	Salt Water (ASW) NSW Test 2	Other: salted sample	Original Sample	Measured by	Verified by
Field Total Residual Cl_2 (mg/L):	N/A	N/A	N/A	N/A	N/A	N/A	Not measured		MF
Lab Total Residual Cl_2 (mg/L):				<0.03	<0.03	—	<0.03	CR/AP	AP/CR
Alkalinity (mg/L as $CaCO_3$):				179	203.	207	140	CR/AP	AP/CR
Hardness (mg/L as $CaCO_3$):						—	296	CR	AP
Total Ammonia (mg/L as N):				<0.034	<0.034	—	0.0501	MF	CR
Conductivity: ☐ µmhos ☑ mmhos				30.6	32.0	30.7	~~30.7~~ CR	AP	CR
Salinity (ppth):				18.6	19.9	18.9	~~18.9~~ CR	AP	CR

0.41 → 0.944 CR ~~0.949~~

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FDEP Biology Laboratory - Acute Bioassay Survival Bench Sheet

LIMS Sample # 1512687 **SOP#: TA 07** 03 DT RM **Test #** 1 of 2

Test Species:
Batch #: 6.25.13 Age: 5 days
- ☐ *Ceriodaphnia dubia*
- ☐ *Cyprinella leedsi*
- ☐ *Pimephales promelas*
- ☐ *Menidia beryllina*
- ☑ *Americamysis bahia*
- ☐ Other:

Test Validation
Control Survival ≥ 90%: ☑ Yes ☐ No
Temperature Range ≤ 3° C: ☑ Yes ☐ No
Diluent (Batch # 6.25.13 5.29.13 **)**
☑ ASW ☐ MHWCD ☐ MHW ☐ Well

Test Type: ☐ Screen ☑ Definitive ☐ Static ☑ Static Renewal ☐ Flow-Through

Test Duration: ☐ 48 hr ☑ 96 hr ☐ ___hr

Test Started: Date 6.25.13 Time 1430

Test Ended: Date 6.29.13 Time 0900

Chamber Size 500 ml
Test Volume: 250 ml

Concentration	Replicate	Chamber #	Test Hour 0 hr	24 hr	48 hr BR	48 hr AR	72 hr	96 hr
Control	A	K1	5	5	5	5	5	5
	B	K2	5	5	5	5	5	5
	C	K3	5	5	5	5	5	5
	D	K4	5	5	5	5	5	5
7.5%	A	K5	5	5	5	5	5	5
	B	K6	5	5	4ID	4	4	4
	C	K7	5	5	5	5	5	5
	D	K8	5	5	5	5	5	5
15%	A	K9	5	5	5	5	5	5
	B	K10	5	5	5	5	5	5
	C	K11	5	5	5	5	5	5
	D	K12	5	5	5	5	5	5
30%	A	K13	5	5	5	5	5	5
	B	K14	5	5	5	5	5	5
	C	K15	5	5	5	5	5	5
	D	K16	5	5	5	5	5	5
60%	A	K17	5	5	4ID	4	4	3MF
	B	K18	5	5	5	5	5	5
	C	K19	5	5	5	5	5	5
	D	K20	5	5	5	5	5	5
100%	A	K21	5	5	5	5	5	5
	B	K22	5	5	5	5	5	5
	C	K23	5	5	5	5	5	4ID
	D	K24	5	5	5	5	5	5
Salt control	A	I1	5	5	5	5	5	5
	B	I2	5	5	5	5	5	5
	C	I3	5	5	5	5	5	5
	D	I4	5	5	5	5	5	5
Checked or Verified by:			CR	CR	AP	AP	AP	ME

Food
- ☐ YCT Batch#_____
- ☐ P. subcapitata Batch#_____
- ☑ Artemia Lot# 08812

Feeding and Artemia Batch #
- ☑ 0 hr 6.24.13 ☑ Prior to Test
- ☑ 24 hr 6.25.13
- ☑ 48 hr 6.26.13 ☑ Prior to Renewal
- ☑ 72 hr 6.27.13

Temperature Range (°C)
Incubator # 3
min. 24.0 max. 26.8 mean ___
Incubator #___
min.____max.____mean____
Waterbath #___
min.____max.____mean____
Room B246
min. 24.5 max. 25.4 mean ___
Light intensity (ft. candles): 50-100
Photoperiod (hours): 16 light, 8 dark

Loaded/ Verified by: AP / CR
m = missing, d = dead, BR/AR Before/ After Renewal

Test Results:
Screening Tests: Report LC50 as >100%, =100%, or <100%.
% mortality in 100% sample: 5% LC50: >100%
Calculated LC50 (Definitive) 95% CI_____ Method_____

Comments:

V. 2.6 2-15-13

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

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Biology Laboratory - Acute Biossay Survival Bench Sheet

LIMS Sample # 1512687 SOP#: TA 07 02 fm 04 Test # 2 of 2

Test Species:
Batch #: 6.25.13 Age: 13 days
- ☐ *Ceriodaphnia dubia*
- ☐ *Cyprinella leedsi*
- ☐ *Pimephales promelas*
- ☑ *Menidia beryllina*
- ☐ *Americamysis bahia*
- ☐ Other:_____

Test Validation
Control Survival ≥ 90%:
☑ Yes ☐ No
Temperature Range ≤ 3° C:
☑ Yes ☐ No

Diluent (Batch # 6.25.13 5.29.13**)**
☑ ASW ☐ MHWCD
☐ MHW ☐ Well

Test Type: ☐ Screen ☑ Definitive
☐ Static ☑ Static Renewal ☐ Flow-Through

Test Duration:
☐ 48 hr
☑ 96 hr
☐ ___hr

Test Started:
Date 6.25.13 Time 1445

Test Ended:
Date 6.29-13 Time 0900

Chamber Size 1000 ml
Test Volume 500 ml

Concentration	Replicate	Chamber #	Test Hour 0 hr	24 hr	48 hr BR	48 hr AR	72 hr	96 hr
Control	A	F1	10	10	10	10	10	10
	B	F2	10	10	10	10	10	10
7.5%	A	F3	10	10	10	10	10	10
	B	F4	10	10	10	10	10	10
15%	A	F5	10	10	10	10	10	10
	B	F6	10	9 ID	9	9	9	9
30%	A	F7	10	10	10	10	10	10
	B	F8	10	10	10	10	10	10
60%	A	F9	10	10	10	10	10	10
	B	F10	10	10	10	10	10	10
100%	A	F11	10	10	10	10	10	10
	B	F12	10	10	10	10	10	10
Salt Control	A	A1	10	10	10	10	10	10
	B	A2	10	9 ID	9	9	9	9
Checked or Verified by:			AP	AP	AP	AP	AP	MF

Food
- ☐ YCT Batch#_____
- ☐ P. subcapitata Batch#_____
- ☑ Artemia Lot# 08817

Feeding and Artemia Batch #
- ☑ 0 hr 6.24.13 ☐ Prior to Test
- ☐ 24 hr____
- ☑ 48 hr 6.26.13 ☑ Prior to Renewal
- ☐ 72 hr____

Temperature Range (°C)
Incubator # 3 6.25.13 - 6.27.13 1400
min 24.6 max 26.6 mean ___

Incubator # 5 6.27.13 - 6.29.13
min 24.5 max 25.7 mean ___

Waterbath #___
min.____ max.____ mean____

Room B246
min 24.5 max 25.4 mean ___

Light intensity (ft. candles): 50-100

Photoperiod (hours): 16 light, 8 dark

Loaded/ Verified by: CR / AP

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

Test Results:
Screening Tests: Report LC50 as >100%, =100%, or <100%.
% mortality in 100% sample: 0% LC50: >100%
Calculated LC50 (Definitive) 95% CI_____ Method_____

Comments:

V. 2.6 2-15-13

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

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LIMS Sample # 1512687 Test # 1 of 2

Test Species:

☐ *Ceriodaphnia dubia* ☐ *Pimephales promelas* ☑ *Americamysis bahia*
☐ *Cyprinella leedsi* ☐ *Menidia beryllina* ☐ Other:_____

Test aerated:
(if DO is < 4.0 mg/L)
☐ Yes ☑ No

Concentration	Replicate	Test Hour	pH (SU)	Temperature (°C)	Dissolved Oxygen (mg/L)	Conductivity ☐ µmhos ☑ mmhos	Salinity* (ppth)
Control	A	0 hr	8.0	24.4	6.9	30.6	18.6
	B	24 hr	8.0	25.9	6.3	31.4	19.5
	C	48 hr BR	7.8	24.7	5.3	31.9	20.1
	C	48 hr AR	8.1	24.5	6.5	32.0	19.9
	D	72 hr	8.1	24.1	6.3	32.4	20.5
	A	96 hr	7.9	24.9	6.0	33.5	21.1
7.5‰	A	0 hr	8.1	24.5	7.0	30.9	18.8
	B	24 hr	8.0	25.4	6.3	31.8	19.6
	C	48 hr BR	7.8	24.9	5.2	32.4	20.3
	C	48 hr AR	8.2	24.4	6.5	32.4	20.2
	D	72 hr	8.1	24.8	6.3	32.7	20.8
	A	96 hr	7.9	24.5	5.8	34.0	21.3
15‰	A	0 hr	8.2	24.5	7.0	31.0	18.9
	B	24 hr	8.0	25.7	6.2	31.9	19.7
	C	48 hr BR	7.9	24.5	5.1	31.7	19.9
	C	48 hr AR	8.2	24.3	6.4	32.3	20.1
	D	72 hr	8.1	25.1	6.1	32.6	20.7
	A	96 hr	7.9	24.8	5.8	33.0	20.7
30‰	A	0 hr	8.3	24.5	7.0	30.9	18.9
	B	24 hr	8.1	25.9	5.9	31.7	19.6
	C	48 hr BR	7.9	25.0	5.2	32.1	20.1
	C	48 hr AR	8.2	24.4	6.4	32.0	19.9
	D	72 hr	8.1	24.7	5.8	32.3	20.5
	A	96 hr	7.9	24.8	5.3	33.0	20.7
60‰	A	0 hr	8.5	24.5	7.0	30.7	18.8
	B	24 hr	8.2	26.3	5.9	31.5	19.5
	C	48 hr BR	8.0	24.7	5.3	31.8	19.9
	C	48 hr AR	8.3	24.5	6.4	31.7	19.7
	D	72 hr	8.2	24.7	5.7	31.8	20.1
	A	96 hr	8.0	24.8	5.5	32.8	20.5
100‰	A	0 hr	8.6	24.5	7.1	30.7	18.9
	B	24 hr	8.3	25.4	6.0	31.9	19.7
	C	48 hr BR	8.1	25.1	5.3	31.7	19.8
	C	48 hr AR	8.4	24.7	6.3	31.3	19.4
	D	72 hr	8.2	24.6	5.7	31.6	19.9
	A	96 hr	8.0	24.6	5.5	31.9	20.1
salt control	A	0 hr	9.4	24.9	7.1	31.2	18.9
	B	24 hr	8.1	26.1	6.1	32.4	19.4
	C	48 hr BR	7.9	24.7	5.3	32.3	20.2
	C	48 hr AR	8.9	24.2	6.2	31.8	19.8
	D	72 hr	8.1	24.2	5.6	33.8	~~21.~~ 20.9 AP
	A	96 hr	8.0	24.9	5.7	33.2	20.8
		0 hr					
		24 hr					
		48 hr BR					
		48 hr AR					
		72 hr					
		96 hr					

*Measure/ record salinity for marine tests

Comments:

Measured By:
0 hr: AP
24 hr: AP/CR
48 hr BR: AP/CR
48 hr AR: AP/CR
72 hr: AP/CR
96 hr: [illegible]

FDEP Biology Laboratory - Bioassay Parameter Sheet

LIMS Sample # 1512687 Test # 2 of 2

Test Species:

☐ *Ceriodaphnia dubia* ☐ *Pimephales promelas* ☐ *Americamysis bahia*

☐ *Cyprinella leedsi* ☑ *Menidia beryllina* ☐ Other:_____

Test aerated: (if DO is < 4.0 mg/L) ☐ Yes ☑ No

Concentration	Replicate	Test Hour	pH (SU)	Temperature (°C)	Dissolved Oxygen (mg/L)	Conductivity ☐ µmhos ☑ mmhos	Salinity* (ppth)
control	A	0 hr	8.0	24.4	6.9	30.6	18.6
	B	24 hr	8.0	24.6	6.8	31.7	18.8
	A	48 hr BR	7.9	25.3	6.86 AP	32.5	19.9
	A	48 hr AR	8.2	24.4	6.8	32.0	19.8
	B	72 hr	8.0	25.0	6.6	32.0	20.8
	A	96 hr	8.0	25.1	6.7	34.1	21.4
7.5%	A	0 hr	8.1	24.5	7.0	30.9	18.8
	B	24 hr	8.1	24.6	6.8	32.0	19.3
	A	48 hr BR	8.1	25.5	6.6	31.9	19.9
	A	48 hr AR	8.2	24.5	6.8	32.3	20.1
	B	72 hr	8.1	24.6	6.5	32.1	20.9
	A	96 hr	8.0	24.8	6.8	32.4	20.5
15%	A	0 hr	8.2	24.5	7.0	31.0	18.9
	B	24 hr	8.2	24.5	6.8	31.6	19.1
	A	48 hr BR	8.1	25.7	6.6	32.5	20.3
	A	48 hr AR	8.2	24.5	6.7	32.4	20.2
	B	72 hr	8.1	24.2	6.5	31.6	20.6
	A	96 hr	8.0	24.9	6.8	mf 33.6	21.1
30%	A	0 hr	8.3	24.5	7.0	30.9	18.9
	B	24 hr	8.2	24.6	6.9	31.6	19.1
	A	48 hr BR	8.2	25.2	6.6	31.9	20.0
	A	48 hr AR	8.3	24.6	6.6	32.1	20.0
	B	72 hr	8.1	24.5	6.5	31.9	20.7
	A	96 hr	8.1	24.8	6.8	33.2	20.7
60%	A	0 hr	8.5	24.5	7.0	30.7	18.8
	B	24 hr	8.3	24.3	6.8	31.3	19.0
	A	48 hr BR	8.3	25.4	6.6	31.9	19.9
	A	48 hr AR	8.4	24.8	6.6	31.8	19.8
	B	72 hr	8.2	24.2	6.5	31.1	20.1
	A	96 hr	8.1	24.9	6.9	32.8	20.5
100%	A	0 hr	8.6	24.5	7.1	30.7	18.8
	B	24 hr	8.5	24.7	6.8	31.3	19.0
	A	48 hr BR	8.4	25.6	6.6	32.1	20.1
	A	48 hr AR	8.5	25.0	6.6	31.4	19.5
	B	72 hr	8.3	24.7	6.5	31.1	20.1
	A	96 hr	8.2	24.9	6.9	30.3	19.0
salt control	A	0 hr	9.4	24.9	7.1	31.2	18.9
	B	24 hr	8.7	24.5	6.7	32.3	19.7
	A	48 hr BR	8.3	25.4	6.5	32.1	20.1
	A	48 hr AR	8.9	24.4	6.6	31.9	19.9
	B	72 hr	8.4	24.4	6.3	31.8	20.5
	A	96 hr	8.2	24.5	6.9	33.2	20.8
		0 hr					
		24 hr					
		48 hr BR					
		48 hr AR					
		72 hr					
		96 hr					

*Measure/ record salinity for marine tests

Comments:

Measured By:
0 hr: AP
24 hr: ~~AP~~/CR
48 hr BR: ~~AP~~/CR
48 hr AR: ~~AP~~/CR
72 hr: ~~AP~~/CR
96 hr: mf

00077

Page

V. 2.3 1-13-10

Test ID: Monterey WRF Dates: 6.25.13- 6.29.13

METER / DEVICE	ID	SOP	Parameter	Method	√ used
YSI Model 58 Dissolved Oxygen Meter	90H018262	TA06_04	Dissolved Oxygen	SM 4500 O G	✓
YSI DO Probe	5905	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	✓
Traceable Thermometer	#1-SN101686412 #2-SN221295527 #3-SN240116020 #4-SN80361795 #5-SN61990624	TA06_05	Temperature	SM-2530B modified DEP SOP-001/01 FT1400	✓ #4
Hach Pocket Colorimeter II #1	05110C042029	TA06_22	Total Residual Chlorine	EPA 330.5 SM 4500 CL G	·
Hach Pocket Colorimeter II #2	05050C026378	TA06_22	Total Residual Chlorine	EPA 330.5 SM 4500 CL G	✓
Alkalinity (Hach Kit)	No SN	TA06_08	Alkalinity	SM 2320 B	✓
Hardness (Hach Kit)	No SN	TA06_09	Hardness	SM 2340 C	✓
OHAUS Balance 250D	1125481084	TA06_21 TA06_27	Weight	-	
S-Weights	BIO-S-WEIGHTS-01	NA	Balance check	-	

SM-2530B modified to allow use of electronic and non-mercury filled thermometers.

Insert other device information in blank spaces(if used). Test ID = Facility or SRTs (acute SRT--Chronic SRT)

Entered By: 7213 AP

V 1.3 2/15/13 MF

PAGE

Appendix F.
Standard Reference Toxicant Data

Florida Department of Environmental Protection
Bureau of Laboratories

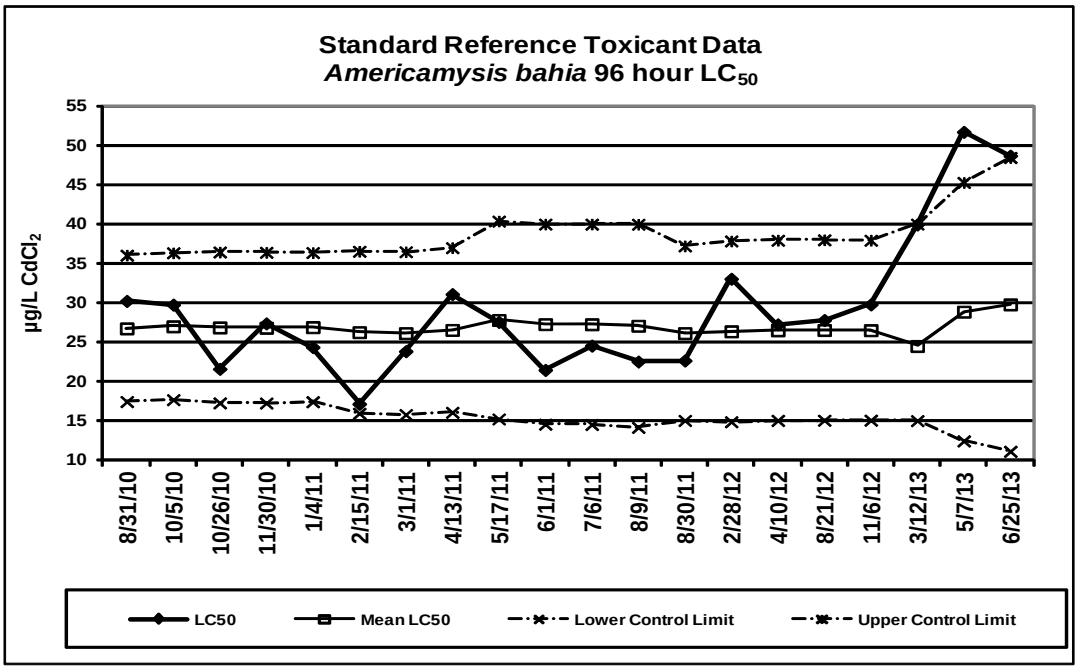
Standard Reference Toxicant (SRT) Test Data - 96-hour Acute Toxicity
Americamysis bahia (mysid shrimp) - Cadmium Chloride ($CdCl_2$)

Date	LC50	Mean LC50	Std Dev	Lower Control Limit	Upper Control Limit
8/31/10	30.17	26.68	4.66	17.37	35.99
10/5/10	29.70	26.94	4.67	17.60	36.29
10/26/10	21.53	26.80	4.80	17.20	36.39
11/30/10	27.31	26.76	4.79	17.18	36.35
1/4/11	24.29	26.83	4.74	17.35	36.32
2/15/11	17.08	26.19	5.15	15.88	36.49
3/1/11	23.78	26.07	5.18	15.71	36.43
4/13/11	31.04	26.48	5.24	16.00	36.95
5/17/11	27.50	27.75	6.29	15.16	40.33
6/1/11	21.40	27.22	6.36	14.49	39.95
7/6/11	24.49	27.20	6.37	14.45	39.94
8/9/11	22.46	27.01	6.46	14.09	39.93
8/30/11	22.59	26.07	5.55	14.96	37.17
2/28/12	32.99	26.30	5.75	14.80	37.80
4/10/12	27.19	26.44	5.73	14.97	37.90
8/21/12	27.74	26.47	5.74	14.99	37.95
11/6/12	29.73	26.45	5.73	15.00	37.90
3/12/13	39.90	24.44	6.25	14.94	39.95
5/7/13	51.68	28.80	8.22	12.36	45.25
6/25/13	48.66	29.73	9.35	11.04	48.42

CV = 31.44

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

EPA reference 75th quartile CV = 26%



FDEP Biology Laboratory - Acute SRT Bench Sheet

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

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

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

Diluent/ Batch #: ASW 1.5.29.13
Toxicant/ Batch#: 100ug/L Cd(NO3)2 / 6.25.13
Organism Batch: 6.25.13 Age: 5 days
Test Beginning: Date: 6.25.13 Time: 1200
Test Ending: Date: 6-27-13 Time: 0830

Water Quality Parameters:	Diluent	SOP	Initials
Total Residual Cl_2 (mg/L):	<0.03	TA06_22	CR
Alkalinity (mg/L as $CaCO_3$):	179	TA06_08	CR
Hardness (mg.L as $CaCO_3$):		TA06_09	
Total Ammonia (mg/L as N):	<0.034	TA06_17	MF
Conductivity: µmhos (mmhos)	30.8	TA06_25	BA
Salinity (ppth):	19.1	TA06_25	BA

Food:	Batch
☐ YCT	
☐ *P. subcapitata*	
☑ Artemia Lot # 08812	

Artemia Batch:
0 hr: 124.13
24 hr: 125.13
48 hr: 126.13
72 hr: 127.13

Chamber size: 500 mL
Test volume: 250 mL per replicate

Concentrations prepared by: BA
Test Incubated in: Incubator # 2 Waterbath # ____
Light Intensity: 50-100 Ft. candles
Photoperiod: 16 hours Light / 8 hours dark

Temperature Range °C:(if used)
Incubator # 2 min 24.4 max 25.7 mean –
Waterbath # ___ min. ___ max. ___ mean ___
Room B246 min 24.1 max 25.4 mean –

Feeding: √ as needed
☑ Before test
☑ 24 hr
☑ 48 hr
☑ 72 hr

all species 2 hrs prior to test

mysids daily

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

H. azteca 0 hr and 48 hr

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

Concentration µg/L mg/L g/L	Replicate	Chamber #	Test Hour 0 hr	24 hr	48 hr BR	48 hr AR	72 hr	96 hr
Control	A	Y1	5	5	5	5	5	5
	B	Y2	5	5	5	5	5	5
	C	Y3	5	5	5	5	5	5
	D	Y4	5	5	5	5	5	5
20	A	Y5	5	4 1D	4	4	4	~~5~~ 4 5M
	B	Y6	5	5	5	5	5	5
	C	Y7	5	5	5	5	5	5
	D	Y8	5	5	5	5	5	5
30	A	Y9	5	5	5	5	5	5
	B	Y10	5	5	5	5	5	5
	C	Y11	5	5	5	5	5	5
	D	Y12	5	5	5	5	5	4 1D
45	A	Y13	5	5	5	~~5 1D~~ 5 CR	4 1D	4
	B	Y14	5	5	4 1D	4	4	4
	C	Y15	5	5	4 1D	~~3 1D~~ 4 CR	3 1D	2 1D
	D	Y16	5	5	5	5	5	4 1D
67	A	Y17	5	5	1 4D	~~1 0 1D~~ CR	0 1D	—
	B	Y18	5	5	2 3D	2	2	0 2D
	C	Y19	5	5	1 4D	1	1	0 1D
	D	Y20	5	5	4 1D	~~4 1 3D~~ CR	1 3D	1
100	A	Y21	5	4 1D	1 3D	~~CR 0 1D~~ 1	0 1D	
	B	Y22	5	5	0 5D	0	0	
	C	Y23	5	5	0 5D	0	0	
	D	Y24	5	5	1 4D	~~CR 0 1D~~ 1	0 1D	
Organisms loaded by: BA	Checked by:		AP	CR	CR	CR	CR	MF
Loading Verified by: AP	AR = after renewal							

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

Investigators' Signatures
Brian Acosta
Jessica Beckett
Rhiannon Pennington
Marshall Faircloth

Reviewer: Liz Mercier

Comments:

Method: TSK

Statistics: LC50 MF	95% confidence intervals Lower	Upper
48 hour: ~~48.66~~	–	–
96 hour: 48.66	44.06	53.74

Revised 7/15/2008 mf

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

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

Test Page 2 of 2

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

Test Beginning: Date: 6.25.13 Time: 1200
Test Ending: Date: 6.29-13 Time: 0830

Test Type: ☐ non-renewal ☑ renewal

hr = hour AR = after renewal BR = before renewal

Concentration µg/L mg/L g/L	Replicate	Test Hour	pH (SU)	Temperature (° C)	Dissolved Oxygen (mg/L)	Conductivity ☐ µmhos ☒ mmhos	Salinity (ppth)
Control	A	0 hr	8.0	24.5	6.1	30.8	19.1
	B	24 hr	8.0	24.2	6.5	30.6	18.5
	CR/AC	48 hr BR	7.9	24.0	6.1	30.4	19.7
	C	48 hr AR	8.2	24.3	6.8	30.4	19.6
	D	72 hr	8.1	24.9	6.5	33.3	21.0
	A	96 hr	7.9	24.9	6.7	33.8	21.1
20	A	0 hr	8.0	24.6	6.3	31.1	19.3
	B	24 hr	8.0	24.2	6.5	31.0	18.8
	CR/AC	48 hr BR	7.8	23.6	6.0	30.9	20.0
	C	48 hr AR	8.2	24.3	6.8	30.7	20.1
	D	72 hr	8.0	25.1	6.5	32.5	20.9
	A	96 hr	8.0	25.5	6.5	34.2	21.2
30	A	0 hr	8.0	24.6	6.5	31.2	19.4
	B	24 hr	8.0	24.0	6.4	31.1	18.9
	CR/AC	48 hr BR	7.9	23.8	5.8	30.5	19.7
	C	48 hr AR	8.1	24.2	6.7	30.8	20.1
	D	72 hr	8.1	25.1	6.2	33.1	20.8
	A	96 hr	8.0	25.1	6.3	33.8	21.0
45	A	0 hr	8.0	24.6	6.6	31.1	19.4
	B	24 hr	8.0	24.9	6.3	31.7	19.1
	CR/AC	48 hr BR	7.9	23.8	5.7	30.6	19.7
	C	48 hr AR	8.1	24.3	6.6	30.3	19.8
	D	72 hr	8.0	24.8	6.1	32.8	20.6
	A	96 hr	8.0	24.8	6.3	33.1	20.5
67	A	0 hr	8.0	24.5	6.8	31.0	19.3
	B	24 hr	8.0	24.3	6.3	31.1	18.8
	CR/AC	48 hr BR	7.9	24.1	5.8	30.8	19.8
	C	48 hr AR	8.1	24.4	6.6	30.3	19.8
	D	72 hr	8.1	24.6	6.3	32.6	20.4
	B	96 hr	8.0	25.1	6.3	32.9	20.4
100	A	0 hr	8.1	24.5	6.8	31.2	19.4
	B	24 hr	8.0	24.2	6.3	31.2	19.0
	CR/AC	48 hr BR	7.9	24.1	5.9	30.7	19.7
	D	48 hr AR	8.1	24.4	6.7	30.5	19.8
	D	72 hr	8.0	24.5	6.3	32.0	20.0
		96 hr					

Investigators Signatures
Bree Adams
Cassidy Peacock
Adrienne Pennington
Marshall Faircloth

Reviewed By: Liz Moore

Measured by:
0 hr: BA
24 hr: CR/AP
48 hr BR: AP/CR
48 hr AR: AP/CR
72 hr: CR/AP
96 hr: MF

Measure/record salinity for marine tests

Comments:

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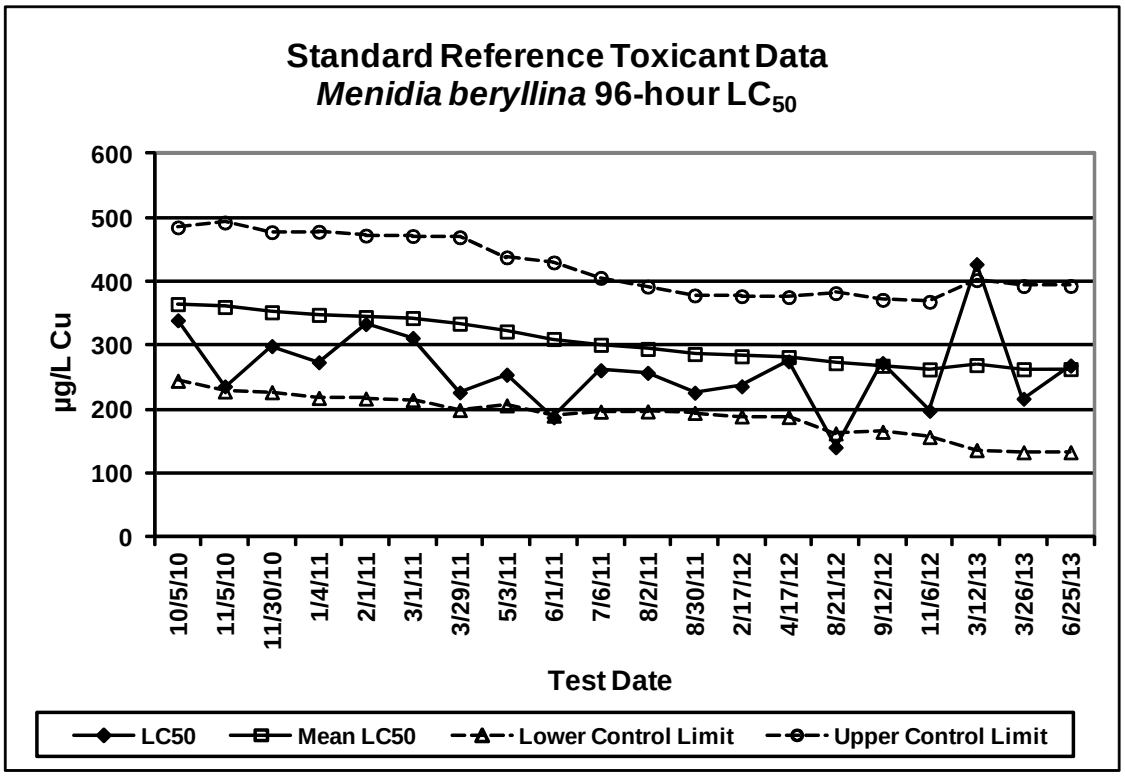
Revised 07/15/2008 MF

Florida Department of Environmental Protection
Bureau of Laboratories

Standard Reference Toxicant (SRT) Test Data - 96-hour Acute Toxicity
Menidia beryllina (inland silverside) - Copper Chloride ($CuCl_2$) as Cu

Date	LC50	Mean LC50	Std Dev	Lower Control Limit	Upper Control Limit
10/5/10	340.06	365.40	60.01	245.39	485.42
11/5/10	236.68	360.93	66.11	228.71	493.15
11/30/10	299.75	352.65	62.62	227.41	477.89
1/4/11	274.39	348.59	65.00	218.58	478.60
2/1/11	334.16	345.13	63.77	217.60	472.66
3/1/11	312.31	343.58	64.19	215.20	471.96
3/29/11	227.2	334.81	67.59	199.62	470.00
5/3/11	255.03	322.69	57.93	206.82	438.55
6/1/11	188.24	310.77	59.92	190.93	430.62
7/6/11	261.89	301.82	52.33	197.15	406.48
8/2/11	257.93	295.20	48.81	197.58	392.81
8/30/11	226.9	287.16	45.93	195.30	379.02
2/17/12	236.77	283.69	47.03	189.63	377.76
4/17/12	275.73	282.54	46.92	188.69	376.38
8/21/12	141.42	272.92	54.90	163.12	382.71
9/12/12	273.15	268.94	51.60	165.74	372.14
11/6/12	198.5	263.29	52.87	157.56	369.03
3/12/13	427.86	269.96	66.44	137.08	402.85
3/26/13	217.38	263.62	65.02	133.58	393.66
6/25/13	269.29	263.77	65.03	133.71	393.84

CV = 24.65
EPA reference 75th quartile CV = 21%



FDEP Biology Laboratory - Acute SRT Bench Sheet

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

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

Test Type: ☐ non-renewal ☑ renewal

Test Page 1 of 2

Diluent/ Batch #: AGW 1.5.29.13
Toxicant/ Batch#: $CuCl_2$ 1.6.25.13
Organism Batch: 6.25.13 Age: 13 days
Test Beginning: Date: 6.25.13 Time: 1300
Test Ending: Date: 6-29-13 Time 0800

Water Quality Parameters:	Diluent	SOP	Initials
Total Residual Cl_2 (mg/L):	<0.03	TA06_22	CR
Alkalinity (mg/L as $CaCO_3$):	179	TA06_08	CR
Hardness (mg.L as $CaCO_3$):		TA06_09	
Total Ammonia (mg/L as N):	<0.034	TA06_17	MF
Conductivity: µmhos ~~mmhos~~	31.2	TA06_25	BA
Salinity (ppth):	19.3	TA06_25	BA

Food:	Batch
☐ YCT	
☐ *P. subcapitata*	
☑ Artemia Lot # 08812	Artemia Batch:

Artemia Batch:
- 0 hr: 124.13
- 24 hr:
- 48 hr: 126.13
- 72 hr:

Chamber size: 1000 mL
Test volume: 500 mL per replicate

Concentrations prepared by: BA
Test Incubated in: Incubator # 2 Waterbath # ___
Temperature Range °C:(if used) Incubator # 2 min 24.4 max 25.7 mean – 6.25.13-6.27.13 1400
~~Waterbath~~ Incubator # 5 min 24.5 max 25.7 mean – 6.27.13-6.29.13
Light Intensity: 50-100 Ft. candles
Photoperiod: 16 hours Light / 8 hours dark
Room B246 min 24.5 max 25.4 mean –

Feeding: √ as needed
- ☑ Before test
- ☐ 24 hr
- ☑ 48 hr
- ☐ 72 hr

all species 2 hrs prior to test

mysids daily

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

H. azteca 0 hr and 48 hr

Concentration µg/L mg/L g/L	Replicate	Chamber #	Test Hour 0 hr	24 hr	48 hr BR	48 hr AR	72 hr	96 hr
Control	A	D1	10	10	10	10	10	10
	B	D2	10	9 1D	9	9	9	9
100	A	D3	10	9 1D	9	9	9	9
	B	D4	10	10	10	10	10	10
200	A	D5	10	9 1D	8 1D	8	8	8
	B	D6	10	9 1D	9	9	8 1D	8
300	A	D7	10	6 4D	5 1D	5	5	4 1D
	B	D8	10	4 6D	3 1D	3	3	3
400	A	D9	10	5 5D	3 2D	3	1 2D	1
	B	D10	10	5 5D	4 1D	4	3 1D	3
500	A	D11	10	0 10D				
	B	D12	10	0 10D				
Organisms loaded by: BA		Checked by:	AP	CR	CR	CR	CR	MF
Loading Verified by: AP								

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

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

Comments:

Investigators' Signatures
Bruce Alkstein
Sandra Reboli
Brandon Pennington
Marshall Faircloth

Reviewer: Liz Miller

Method: TSK

Statistics: LC50	95% confidence intervals Lower	Upper
48 hour: –	–	–
96 hour: 269.29	237.49	305.33

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Revised 7/15/2008 mf

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

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

Test Page 2 of 2

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

Test Beginning: Date: 6.25.13 Time: 1300
Test Ending: Date: 6.29.13 Time: 0800

Test Type: ☐ non-renewal ☑ renewal

hr = hour AR = after renewal BR = before renewal

Concentration µg/L mg/L g/L	Replicate	Test Hour	pH (SU)	Temperature (°C)	Dissolved Oxygen (mg/L)	Conductivity ☐ µmhos ☒ mmhos	Salinity (ppth)
Control	A	0 hr	8.1	25.1	6.7	31.2	19.3
	B	24 hr	8.0	24.8	7.2	31.3	19.3
	A	48 hr BR	8.0	24.4	6.6	30.9	19.5
	A	48 hr AR	8.1	24.4	6.9	30.8	~~18.7~~ 19.5 AP
	B	72 hr	8.1	25.1	6.4	33.0	20.6
	A	96 hr	8.0	24.8	6.6	33.6	20.9
100	A	0 hr	8.1	25.0	6.6	31.5	19.6
	B	24 hr	8.1	25.3	7.0	31.6	19.7
	A	48 hr BR	8.0	25.0	6.7	31.3	19.7
	A	48 hr AR	8.2	24.3	6.8	31.1	19.9
	B	72 hr	8.1	24.9	6.4	33.0	20.8
	A	96 hr	8.0	24.6	6.8	33.5	20.9
200	A	0 hr	8.1	25.0	6.7	31.3	19.5
	B	24 hr	8.1	24.9	7.0	31.3	19.6
	A	48 hr BR	8.1	25.2	6.7	31.1	19.6
	A	48 hr AR	8.2	24.3	6.7	31.2	19.9
	B	72 hr	8.1	25.3	6.5	33.1	20.8
	A	96 hr	8.0	24.8	6.9	33.1	20.7
300	A	0 hr	8.1	24.9	6.8	31.3	19.5
	B	24 hr	8.1	25.0	7.0	31.2	19.5
	A	48 hr BR	8.1	25.1	6.7	31.0	19.5
	A	48 hr AR	8.2	24.2	6.7	30.8	19.6
	B	72 hr	8.1	25.3	6.6	32.3	20.3
	A	96 hr	8.0	24.5	7.0	32.5	20.2
400	A	0 hr	8.1	24.7	6.9	31.1	19.4
	B	24 hr	8.1	25.4	7.1	31.6	19.6
	A	48 hr BR	8.1	24.9	6.7	31.3	19.7
	A	48 hr AR	8.2	24.3	6.8	30.9	19.7
	B	72 hr	8.1	25.6	6.4	32.4	20.3
	A	96 hr	8.0	24.8	7.1	32.7	20.4
500	A	0 hr	8.1	24.6	6.9	31.3	19.5
	B	24 hr	8.1	25.2	7.1	31.5	19.5
	~~CR~~ A	48 hr BR					
		48 hr AR					
		72 hr					
		96 hr					

Investigators Signatures
Becca Bartlett
Cassidy Hesselti
Alexandra Pennington
Marshall Faircloth

Reviewed By: Sig Miller

Measured by:
0 hr: BA
24 hr: CR/AP
48 hr BR: AP/CR
48 hr AR: AP/CR
72 hr: CR/AP
96 hr: MA

Measure/record salinity for marine tests

Comments:

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Revised 07/15/2008 MF

Appendix G.
Organism Receipt

MARINCO BIOASSAY LABORATORY
The Aquatic Toxicology Specialists

NELAP Certification # E84191

Shipment Record

State of Florida Aquaculture Certificate Number AQ0668007

Shipping Date: 6/24/13

Ship to: FDEP

P.O. No: _____

Species	Quantity	Age	Brood/Lot Number	Temp. (°C)	pH (S.U.)	Salinity (‰)
Mysidopsis bahia	400 ac	4 days	MS130620	25	7.9	20
Menidia beryllina	400 ac	12 days	SS130612	25	7.9	20
						Hardness mg/L
Cyprinella leedsi						
Pimephales promelas						
Ceriodaphnia dubia						
Daphnia magna						
YCT						
P. subcapitata						

Packed by: PM | AB

Shipped Via: Fed Ex

Notes: _____

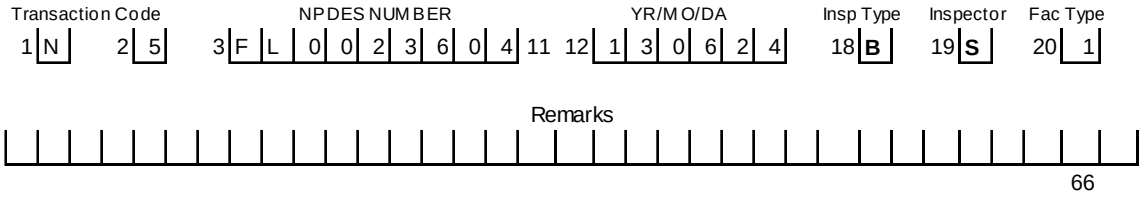
Thank you for your order.

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

EPA End Sheet

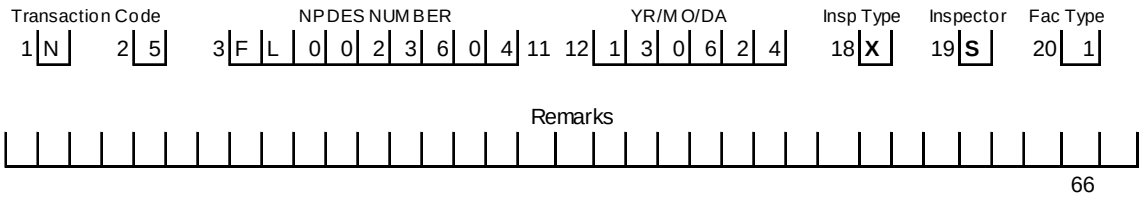
The Bioassay of Monterey Water Reclamation Facility effluent sampled on June 24, 2013. NPDES #FL0023604.

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



The Priority Pollutants Analysis of Monterey Water Reclamation Facility effluent sampled on June 24, 2013. NPDES #FL0023604.

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



Biological Analyses of Monterey Water Reclamation Facility effluent sampled on June 24, 2013. NPDES #FL0023604.

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

