

Bioassays of

Mosaic Fertilizer, L.L.C. - Fort Meade Mine

Polk County

NPDES #FL0001198

Sampled October 16, 2006

February 2007

Biology Section
Bureau of Laboratories
Division of Resource Assessment and Management

Quality Manual No. 870346G
NELAC Certification No. E31780

Mosaic Fertilizer, L.L.C.-Fort Meade Mine, 3900 Peoples Road, Fort Meade, Polk County, Florida, NPDES #FL0001198. Effluent samples for this facility were collected on October 16, 2006.

Introduction

Mosaic Fertilizer, L.L.C.-Fort Meade Mine (formerly known as Cargill Fertilizer, Inc.) is a phosphate mining and beneficiation facility. In addition to the phosphate mining area and the beneficiation plant, the facility includes phosphatic clay settling areas, sand tailings disposal areas, and a mine water recirculation system. The mine ceased production in January 1996. The operators applied for a permit modification in June 2006 allowing mining activities to resume in specific areas. The modification was approved and mining operations are expected to resume in 2008. The beneficiation plant is currently not in use. The facility still receives reclaimed water from the City of Bowling Green Sewage Treatment Plant (STP).

The facility does not have a design flow. Discharge from the facility is intermittent and rainfall dependent. The annual average daily flow (AADF) from October 2005 through September 2006 was 1.13 million gallons per day (MGD). The flow during the sampling event was 0.01 MGD.

Process wastewater from the beneficiation process (when operational), storm water runoff, and reclaimed wastewater from the City of Bowling Green STP is treated by sedimentation in clay settling areas. Decanted water from the clay settling areas is returned to the beneficiation plant for reuse and is also discharged, as necessary, through permitted Outfalls D-001 and D-002. Outfall D-001 is located approximately at latitude 27º 39’ 39” N and longitude 81º 49’ 36” W. Outfall D-002 is located approximately at latitude 27º 42’ 13” N and longitude 81º 51’ 06” W. Outfall D-001 and Outfall D-002 discharge into the Class III freshwaters of Bryants Branch and Whidden Creek, respectively, thence into the Peace River.

There are no Administrative Orders (AO) or Consent Orders (CO) for this facility. The facility has no mixing zones. No permit violations or plant upsets were noted during the past year. (Facility information provided by Jacki Champion of the FDEP Bureau of Mine Reclamation Phosphate Management Program.)

Methods

Samples were collected from the EFF-01 (Steel Double V-notch weir) NPDES sampling point for Outfall D-001 by Jacki Champion, Scott Rose, and Jason Bivens (FDEP Southwest District Phosphate Management) following DEP-SOP-001/01 FS 2400 Wastewater Sampling. All DEP SOPs are available on the web at: http://www.floridadep.org/labs/qa/sops.htm. An additional effluent sample was collected and analyzed for phytoplankton analysis.

See Appendix A for the completed chain of custody form.

The 96-hour acute screening toxicity tests and algal growth potential test were performed following internal DEP SOPs TA07_01, TA07_02, and TA08_01 through TA08_09. All internal DEP SOPs are available on the web at: http://www.floridadep.org/labs/cgi-bin/sop/biosop.asp.

Toxicity Test Results

Tests were performed October 17 - 21, 2006.

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

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

The bioassay samples were not acutely toxic to the *Ceriodaphnia dubia* and *Cyprinella leedsi* test organisms.

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

Algal Growth Potential

The effluent Algal Growth Potential (AGP) was 7.37 mg dry wt/L of the unicellular green alga, *Pseudokirchneriella subcapitata*, formerly known as *Selenastrum capricornutum*. Raschke and Shultz (1987) found that AGP values above 5.0 mg dry weight/L represent a "problem" threshold for fresh receiving waters, implying nutrient enrichment. The analytical chemistry suggests that the effluent is nitrogen-limited. The predicted AGP based on inorganic nitrogen concentrations was 0.532 (±20%) mg dry wt/L (Table 1; Miller et al. 1978). The difference between the predicted AGP and actual AGP suggests that some organic nitrogen (predicted AGP 24.7 (± 20%) mg dry wt/L) was bio-available to the test algae.

See Table 1 for AGP results.

Chemistry Results

Total residual chlorine and total ammonia were not detected in the bioassay sample in the laboratory. The total ammonia concentration in the sample collected and preserved for chemical analysis was 0.014 mg/L. Based on the pH, salinity, and temperature of the effluent as collected, the calculated unionized ammonia concentration was < 0.02 mg/L.

The effluent dissolved oxygen (3.5 mg/L) as measured in the field was less than the Class III Freshwater criterion for dissolved oxygen (≥ 5.0 mg/L; 62-302.530(31), F.A.C.).

Iron was detected in the effluent at levels that comply with Class III fresh water quality criteria. Arsenic, copper, and simazine were detected between the laboratory method detection limits (MDL) and practical quantitation limits (PQL). Aluminum and atrazine were also detected in the effluent.

See Table 2 for results of analytes detected in the effluent, and corresponding limits. See Appendix E for a complete list of chemical analyses performed.

Phytoplankton Results

The diversity and number of diatoms and other phytoplankton taxa appeared within normal ranges. There was no evidence of nutrient enrichment based on the phytoplankton sample collected from outfall D-001.

See Appendix F for taxa lists.

Conclusion

The effluent sample collected from the EFF-01 sampling point for Outfall D-001 for this facility on October 16, 2006, was not acutely toxic to either test species during the 96-hour acute screening bioassays. The effluent AGP result exceeded the "problem" threshold for fresh receiving waters. Effluent dissolved oxygen violated the Class III Freshwater criterion.

Literature Cited

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

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

Table 1. *Measured and predicted algal growth potential (AGP; mg dry weight/L) of the freshwater species* Psuedokirchneriella subcapitata f*or total soluble inorganic nitrogen (TSIN) and total nitrogen (TN) limitation, and ratios of nitrogen to phosphorus for samples collected from Mosaic Fertilizer, L.L.C.-Fort Meade Mine on October 16, 2006.*

Location	**AGP (measured)**	**Predicted AGP (TSIN) ± 20%**	**Predicted AGP (TN) ± 20%**	**Inorganic N:P ratio**	**Total N:P ratio**
Effluent Samples	7.37	0.53 ± 0.106	24.7 ± 4.94	0.11	2.71

Table 2. Effluent limits, Class III Criteria, and chemical data for samples from Mosaic Fertilizer, L.L.C. - Fort Meade Mine Wastewater Treatment Facility collected on October 16, 2006.

Mosaic Fertilizer, L.L.C.-Fort Meade Mine NPDES# FL0001198	Class III Freshwater Stds	Effluent Limits D-001	Effluent Samples
Organic Constituents (µg/L)			
Atrazine	-	-	2.8
Simazine	-	-	0.058 I
Metals (µg/L unless otherwise noted)			
Aluminum	-	-	29
Arsenic	≤ 50	-	1.1 I
Cadmium	≤ 1.2 b	-	0.05 U
Calcium (mg/L)	-	-	25.9
Chromium-III	≤ 94 b	-	0.3 U
Copper	≤ 10.2 b	-	0.45 I
Iron	≤ 1000	-	519
Lead	≤ 3.6 b	-	0.2 U
Magnesium (mg/L)	-	-	11.3
Nickel	≤ 57.1 b	-	1 U
Selenium	≤ 5	-	0.5 U
Silver	≤ 0.07	-	0.025 U
Zinc	≤ 131.1 b	-	3 U
Nutrients (mg/L)			
Ortho-phosphate	-	-	0.13 YQ
Total Phosphorus	-	≤ 5 s	0.24 AY
Ammonia	-	-	0.014 IY
Unionized Ammonia	≤ 0.02	-	< 0.02
Nitrate+Nitrite	-	-	0.004 UY
Total Kjeldahl Nitrogen	-	-	0.65 YA
Organic Nitrogen	-	-	0.64 c
Total Nitrogen	-	≤ 3.0 s	0.65 c
General Physical and Chemical Parameters			
Alpha, Total (pCi/L)	≤15.0 s	-	1.4
Alpha-Counting Error (pCi/L)	-	-	1
Radium 226 (pCi/L)	-	-	0.3 U
Radium 226-Counting Error (pCi/L)	-	-	0.2
Radium 228 (pCi/L)	-	-	0.7 U
Radium 228-Counting Error (pCi/L)	-	-	0.5
Radium 226 + 228 (Total pCi/L)	≤ 5.0 s	-	0.7 U
Dissolved Oxygen (mg/L)	≥ 5.0 s	-	3.7
pH (S.U.)	6.0-8.5 s	6.0-8.5 s	7.4
Conductivity (umhos/cm)	≤ 1,275	≤ 1,275	231
Temperature (C)	-	-	21.6
Oil and Grease (mg/L)	≤ 5 s	-	1.7 UY
Flow (MGD)	-	-	1.1305 a
Chlorophyll-a (µg/L)	-	Report	1.7 U
Color (Pt-Co)	-	-	30 YQ
Hardness (mg/L)	-	-	111.2 c
Total Dissolved Solids (mg/L)	-	-	168 Y
Total Suspended Solids (mg/L)	-	≤ 20 s	4 UY
Fixed Suspended Solids (mg/L)	-	≤ 15 s	-
Turbidity (NTU)	≤ 29 ts	-	2.3 YQ
Chloride (mg/L)	-	-	6.1
Fluoride (mg/L)	≤ 10 s	-	0.63
Sulfate (mg/L)	-	-	95 Y
Residual Chlorine (mg/L)	≤ 0.01s	-	< 0.03 Q£

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

a - Annual average

b - Value is calculated based on hardness

c - Calculated value

s - Single sample

t - Shall not exceed 29 NTUs above background

£ - Analysis performed by Tallahassee lab staff

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.

Q - Sample held beyond normal holding time

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

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

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Event ID *

Request Number: RQ-2006-08-28-22
Mosaic-Ft. Meade Mine

Requester: Shannan Bogdanov

Field Report Prepared By: Jacki Champion

Customer: BMR-TAMPA

Collected By: Jacki Champion / Scott Rose / Jason Birch

Send Final Report To Vishwas Sathe

Project ID: FYI5

Sampling Agency: FDEP

PMAS: 1163

Lab ID *	Location	Comp / Grab	Collection (begin) Date Time Eastern Central	Collection (end) Date Time Eastern Central	Bottle Group(s)**
	Mosaic, Ft Meade - Outfall 001	☐ Comp ☒ Grab	Date 10/16/06 Time 10:15 Eastern Central	Date — Time — Eastern Central	A
	Field ID: Outfall 001	Tot Res Chlorine (mg/L): —	Diss Oxygen (mg/L): 3.70	Storet Station Number: —	
	Matrix (Include type e.g. Salt, Fresh, etc): Fresh Water	Temp (C): 21.59	pH: 7.36	Sample Depth ☐ m ☐ ft: 231	☐ Salinity (PPTh) ☒ Sp Conductance (umho/cm)
	Latitude o ' "	Longitude o ' "		NPDES Number: FL0001198	
	Comments: Received: AG, P, PK, Nutrients, metal, Radium, Alpha, silicate.				

Lab ID *	Location	Comp / Grab	Collection (begin) Date Time Eastern Central	Collection (end) Date Time Eastern Central	Bottle Group(s)**
	Mosaic Ft Meade - Outfall 001	☐ Comp ☒ Grab	Date 10/16/06 Time 10:15 Eastern Central	Date — Time — Eastern Central	A (10-18-06)
	Field ID: Outfall 001 - Bioassay	Tot Res Chlorine (mg/L): —	Diss Oxygen (mg/L): 3.70	Storet Station Number: —	
	Matrix (Include type e.g. Salt, Fresh, etc): Fresh Water	Temp (C): 21.59	pH: 7.36	Sample Depth ☐ m ☐ ft: 231	☐ Salinity (PPTh) ☒ Sp Conductance (umho/cm)
	Latitude o ' "	Longitude o ' "		NPDES Number: FL0001198	
	Comments: Bioassay test -				

Lab ID *	Location	Comp / Grab	Collection (begin) Date Time Eastern Central	Collection (end) Date Time Eastern Central	Bottle Group(s)**
	Blank	☐ Comp ☒ Grab	Date 10/16/06 Time 10:50 Eastern Central	Date — Time — Eastern Central	D
	Field ID: Field Blank	Tot Res Chlorine (mg/L): —	Diss Oxygen (mg/L): —	Storet Station Number: —	
	Matrix (Include type e.g. Salt, Fresh, etc): Fresh Water	Temp (C): —	pH: —	Sample Depth ☐ m ☐ ft: —	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)
	Latitude o ' "	Longitude o ' "		NPDES Number: FL0001198	
	Comments:				

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

Relinquished By:	Date/Time	Shipping Method:	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
Jacki Champion	10/16/06 12:30	DHL	ABJ	10-17-06 09-05			[illegible]	10/18/06 0930

* Shaded Areas for Lab use only.

** Please see reverse side for Bottle Group information.

last revised October 1, 2003

2 Bioassay 10-17-06 10:00

ABJ 10-18-06 09-00

FDEP Biology Section - Acute Screen Bioassay Bench Sheets

Facility: Mosaic - Fort Meade

Address: 3900 Peeples Road

City: Ft. Meade County: Polk

Contact/District: JACKIE CHAMPION / SOUTHWEST

NPDES Permit #: FL 0001198

LIMS Job #: TLH-2006-10-1740 LIMS Sample #: 958945

Lims Data Entry: MF 10-24-06 Data Entry Verification: ~~PPV~~ 10/24/06

Sample Collection: Date: 10.16.06 Time: 10:15

Hold Time Start: Date: 10.16.06 Time: 10:15

Comments: NCR from Receiving - NCR 2220 Temperature preservation not intact. Samples received with temperature 10 degrees C. Sample were collected on 10/16/2006 and received on 10/17/2006 ~~*Refer also to Bioassay Samples on 10-17-06 MF 10-24-06~~ *Correction: Bioassay samples received on 10/17/06 were in compliance with Temperature requirements. Verified with Kathryn Burkett-DEP Chemistry Receiving Manager. MF 10-25-06

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

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

Test 1 validation: **Test 1:** SOP TA 07 01
Control survival ≥90%: (Yes) No
Temperature Range ≤3°C: (Yes) No

Test 2 validation: **Test 2:** SOP TA 07 02
Control survival ≥90%: (Yes) No
Temperature Range ≤3°C: (Yes) No

Initial sample handling:

PH adjustment : yes (no) Initial pH: ____ NaOH N HCl N ____ Drops mL Final pH: ____
Aeration : yes (no) Initial DO: ____mg/L Final DO: ____mg/L Duration: ____minutes Rate: ~____bubbles/min
Salinity adjusted (Test 1): yes (no) Initial Salinity: ____ Final Salinity: ____ Salts Hypersaline brine
Salinity adjusted (Test 2): yes (no) Initial Salinity: ____ Final Salinity: ____ Salts Hypersaline brine
Dechlorination: yes (no) ____mL of 0.025N Sodium Thiosulfate per liter of sample. Final TRC: ____

Temperature Range °C
Incubator # 2 Range 23.5-26.0
Room B246: 24.2-25.3
Waterbath: N/A

Sample Validation:
Temperature: Shipped ≤6°C (Yes) (No) Hand Delivered: Cooling (received °C < collected °C) Yes No ~~See NCR 2220~~ NCR 2220 MF refer to comments - see comment above. Bioassay samples were in compliance MF 10-25-06 MF refer to clarify on 10-17-06 ~~and Bioassay Samples on 10-17-06~~ Correction See Comment above MF 10-25-06
Holding Time: ≤36 Hours (Yes) No (Composite-end of collection; grab-when collected; 4 in 24 - time last sample collected)

Investigators' Signatures
James Daniel
Marshall Faircloth
Brent Pfeiffer
Jackie Champion
Nicole Wellendorf
REVIEWER

Water Quality Parameters	20% DMW 27-06	Moderately Hard Water/ (Well Water)	Salt Water ASW NSW Test 1	Salt Water ASW NSW Test 2	Other:	Original Sample	Method	Measured by	Verified by
Field Total Residual Cl_2 (mg/L):	N/A	N/A	N/A	N/A		Not measured		NA	MF
Lab Total Residual Cl_2 (mg/L):	<0.03	<0.03				<0.03	HACH	JD	MF/PM
Alkalinity (mg/L as $CaCO_3$):	91	146				119	HACH	PM	MF
Hardness (mg/L as $CaCO_3$):	103	153				118	HACH	PPV	MF
Total Ammonia (mg/L as N):	<0.017	<0.017				<0.017	DENVER	MF	PPV
Salinity (ppth):	<1	<1				<1	YSI / (Mettler)	JD BA	MF

V 1.4 9/12/05

Appendix B. (continued)

FDEP Biology Section - Bioassay Survival Sheet

LIMS Sample #: 958945 Test #: 1 Test Started: Date 10.1.06 Time: 12:30
Organism: C. dubia SOP #: TA 07_01 Test Ended: Date 10.2.06 Time: 1055
Organism Batch: 43-06 Diluent/ Batch: DMW 20% / 27-06
Organism Age: <24hrs old Food: (YCT) (P. subcapitata) Artemia
Chamber Size: 30 mL Batch: 2-06 4-06 —
Test Volume: 20 mL Feeding: (Prior to test) (Prior to renewal) Daily

Concentration	Replicate	Chamber #	Test Hour 0 hr	24 hr	48 hr BR	48 hr AR	72 hr	96 hr
Ctrl	A	4	5	5	5	5	5	5
	B	B	5	5	5	5	5	5
	C	C	5	5	5	5	5	5
	D	D	5	5	5	5	5	5
100%	A	A	5	5	5	5	5	5
	B	B	5	5	5	5	5	5
	C	C	5	5	5	5	5	5
	D	D	5	5	5	5	5	5
Organisms loaded by: BA		Checked by: [redacted]	BA	BA	BA	MF	MF	
Loading Verified by: PDV								

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

Comments:

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

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

V 2.1 11/01/2005

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Appendix B. (continued)

FDEP Biology Section - Bioassay Survival Sheet

LIMS Sample #: 958945 | Test #: 2 | Test Started: Date 10/17/06 Time: 1:00

Organism: C. leedsi | SOP #: TA 07_02 | Test Ended: Date 10-21-06 Time: 1045

Organism Batch: 2506 | Diluent/ Batch: Well H₂O / 10-16-06

Organism Age: 12 days | Food: YCT P. subcapitata (Artemia) Batch #

Chamber Size: 800 mL | Batch: — — 95L-536-90 / 2-06 @ 0 hr, 3-06 @ 48 hr

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	C1	5	5	5	5	5	5
	B	C2	5	5	5	5	5	5
	C	C3	5	5	5	5	5	5
	D	C4	5	5	5	5	5	5
100%	A	C5	5	5	5	5	5	5
	B	C6	5	5	5	5	5	5
	C	C7	5	5	5	5	5	5
	D	C8	5	5	5	5	5	5
Organisms loaded by: BD		Checked by:	[redacted]	BR	JD	JD	MF	MF

Loading Verified by: PPV

Comments:

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

Test Results:

% mortality in 100% sample: Ø

LC_{50}: >100% If Calculated: 95% CI________ Method:________

Screening Tests:

Report LC50 as >100%, =100%, or <100%.

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

V 2.1 11/01/2005

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FDEP Biology Section - Bioassay Parameter Sheet

LIMS Sample # : 958945 **Test #:** 1 of 2

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

Concentration	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	M		A	M		A
pH (S.U.)	7.7		7.6	7.8		8.2
Temperature °C	24.3		24.1	25.2		24.3
Dissolved Oxygen mg/L	8.0		7.6	7.1		7.7
Conductivity (µmhos) mmhos	172.7		208	172.9		204
(initials) Measured by:	BA		BA	BA		MF
(initials) Recorded by:	BA		BA	BA		MF

Comments: M = meter/vial BA

Concentration	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	M		A	M		A
pH (S.U.)	7.4		8.3	7.4		8.2
Temperature °C	24.7		24.0	25.0		24.0
Dissolved Oxygen mg/L	7.4		7.5	6.8		7.6
Conductivity (µmhos) mmhos	229		270	228		270
(initials) Measured by:	BA		BA	BA		MF
(initials) Recorded by:	BA		BA	BA		MF

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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V 2.0 2/24/04

FDEP Biology Section - Bioassay Parameter Sheet

LIMS Sample # : 958945 **Test #:** 2 of 2

TEST SOP #: TA07_02_ **Test Species:** *Ceriodaphnia dubia* (*Cyprinella leedsi*) *Pimephales promelas* *Americamysis bahia* *Menidia beryllina* Other:_____

Concentration Ctrl	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C	C	D	A
pH (S.U.)	7.8	7.9	8.1	7.9	7.9	8.1
Temperature °C	24.8	24.8	25.0	24.5	24.9	24.7
Dissolved Oxygen mg/L	7.7	5.7	6.6	7.1	6.5	6.7
Conductivity (µmhos) mmhos	261	279	281	267	271	281
(initials) Measured by:	JD	DA	JD	JD	MF	MF
(initials) Recorded by:	JD	DA	PPV	JD	MF	MF

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.)	7.4	7.9	7.9	7.3	7.7	8.0
Temperature °C	25.0	24.7	25.0	24.6	24.6	24.3
Dissolved Oxygen mg/L	5.8	6.3	6.7	6.9	6.1	6.8
Conductivity (µmhos) mmhos	232	245	251	236	237(A) 24.6½	242
(initials) Measured by:	JD	BA	JD	JD	MF	MF
(initials) Recorded by:	JD	BA	PPV	JD	MF	MF

Comments: (A) Transcription error MF 10-2006

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

Comments:

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

Comments:

V 2.0 2/24/04

Appendix C. SRT Bench Sheets and Statistical Analysis

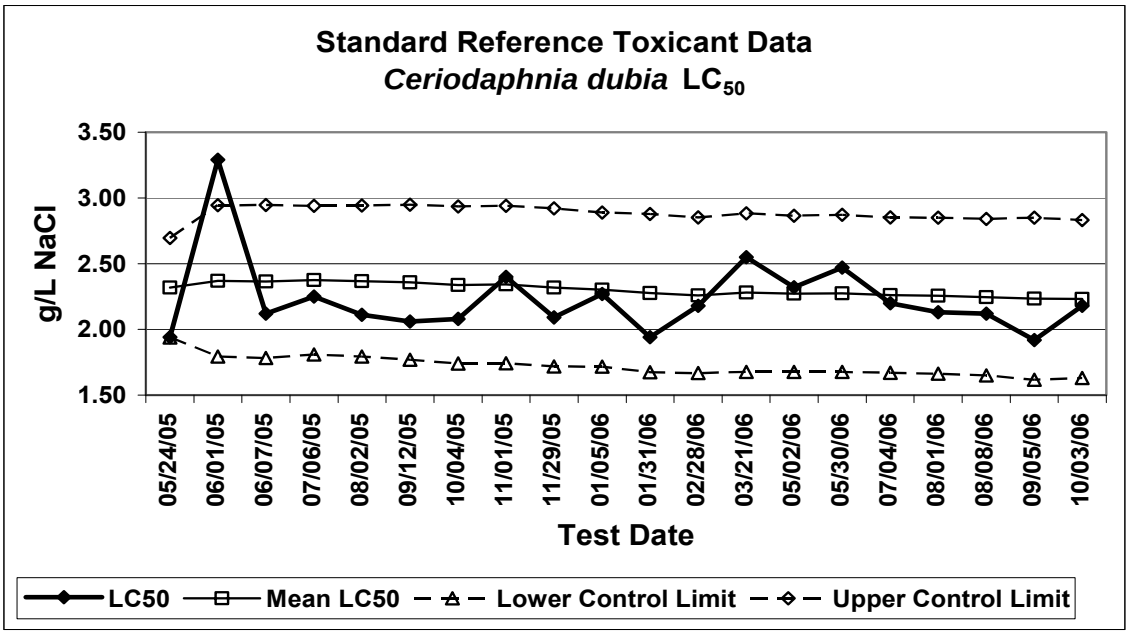
Florida Department of Environmental Protection
Bureau of Laboratories

Standard Reference Toxicant (SRT) Test Data - 48-hour Acute Toxicity
Ceriodaphnia dubia (water flea) - Sodium Chloride (NaCl)

Date	LC50	Mean LC50	Std Dev	Lower Control Limit	Upper Control Limit
05/24/05	1.94	2.32	0.19	1.94	2.70
06/01/05	3.29	2.37	0.29	1.79	2.94
06/07/05	2.12	2.36	0.29	1.78	2.95
07/06/05	2.25	2.37	0.28	1.81	2.94
08/02/05	2.11	2.37	0.29	1.79	2.94
09/12/05	2.06	2.36	0.29	1.77	2.95
10/04/05	2.08	2.34	0.30	1.74	2.94
11/01/05	2.40	2.34	0.30	1.74	2.94
11/29/05	2.09	2.32	0.30	1.72	2.92
01/05/06	2.27	2.30	0.29	1.72	2.89
01/31/06	1.94	2.28	0.30	1.67	2.88
02/28/06	2.18	2.26	0.30	1.67	2.85
03/21/06	2.55	2.28	0.30	1.68	2.88
05/02/06	2.32	2.27	0.30	1.68	2.87
05/30/06	2.47	2.27	0.30	1.68	2.87
07/04/06	2.20	2.26	0.30	1.67	2.85
08/01/06	2.13	2.26	0.30	1.66	2.85
08/08/06	2.12	2.24	0.30	1.65	2.84
09/05/06	1.92	2.23	0.31	1.62	2.85
10/03/06	2.18	2.23	0.30	1.63	2.83

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

CV = 13.46
EPA reference 75th quartile CV = 29%



Appendix C. (continued)

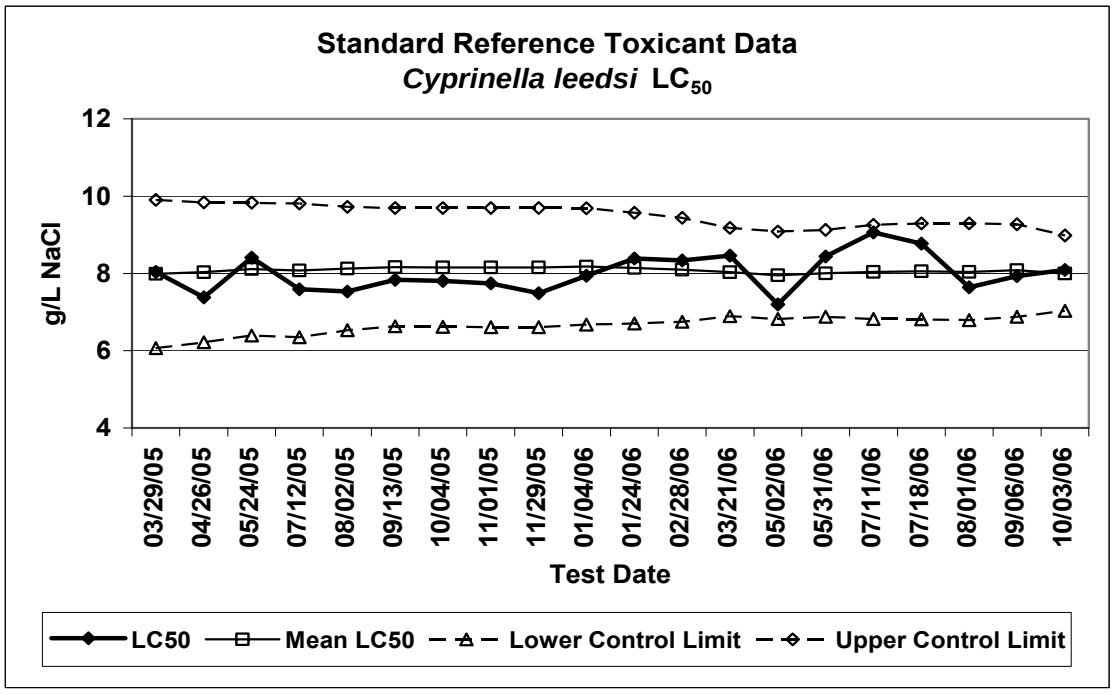
Florida Department of Environmental Protection
Bureau of Laboratories

Standard Reference Toxicant (SRT) Test Data - 48-hour Acute Toxicity
Cyprinella leedsi (bannerfin shiner) - Sodium Chloride (NaCl)

Date	LC50	Mean LC50	Std Dev	Lower Control Limit	Upper Control Limit
03/29/05	8.04	7.99	0.96	6.07	9.91
04/26/05	7.38	8.03	0.90	6.22	9.84
05/24/05	8.41	8.11	0.86	6.40	9.83
07/12/05	7.59	8.08	0.86	6.35	9.81
08/02/05	7.53	8.13	0.80	6.53	9.72
09/13/05	7.84	8.16	0.77	6.63	9.70
10/04/05	7.81	8.16	0.77	6.62	9.69
11/01/05	7.74	8.15	0.77	6.61	9.69
11/29/05	7.49	8.15	0.77	6.61	9.69
01/04/06	7.94	8.18	0.75	6.67	9.68
01/24/06	8.39	8.14	0.72	6.71	9.57
02/28/06	8.34	8.09	0.67	6.75	9.44
03/21/06	8.46	8.04	0.57	6.89	9.18
05/02/06	7.2	7.95	0.57	6.82	9.09
05/31/06	8.44	8.00	0.56	6.88	9.13
07/11/06	9.06	8.04	0.61	6.82	9.26
07/18/06	8.77	8.05	0.62	6.81	9.29
08/01/06	7.64	8.04	0.63	6.79	9.29
09/06/06	7.93	8.08	0.60	6.88	9.27
10/03/06	8.09	8.00	0.49	7.03	8.98

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

CV = 8.10
EPA reference 75th quartile CV = 19%



Appendix C. (continued)

FDEP Biology Section - Acute SRT Bench Sheet

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

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

Diluent/ Batch#: DMW / 26-06
Toxicant/ Batch# NACl / 13-06

Test Beginning: Date: 10306 Time: 12:50
Test Ending: Date: 10-7-06 Time: 11:45

Water Quality Parameters:	Diluent	Method	Initials
Total Residual Cl_2 (mg/L):	<0.03	Hach	PPV
Alkalinity (mg/L as $CaCO_3$):	88	Hach	EW
Hardness (mg/L as CaCO3):	88	Hach	EW
Total Ammonia (mg/L as N):	<0.017	Denver	MF
Salinity (ppth):	21	Mettler	BA

Organism Batch #/ Age: 4-06 / 5 BA 24 hours
Feeding: Prior to test / Prior to renewal Daily
Food: YCT / *P.subcapitata* / Artemia
Food Batch: 2-06 / 4-06 / –
Chamber size: 30 mL
Test volume: 20 mL per replicate

Conc. µg/L (g/L)	Rep.	Chamber#	Number Live 0 hr	Number Live 24 hr	Number Live 48 hr	pH (SU) 0 hr	pH (SU) 24 hr	pH (SU) 48 hr	Temperature (° C) 0 hr	Temperature (° C) 24 hr	Temperature (° C) 48 hr	D.O. (mg/l) 0 hr	D.O. (mg/l) 24 hr	D.O. (mg/l) 48 hr	UNCORRECTED Cond. (mmhos/cm) Cond. (µmhom/cm) 0 hr	24 hr	48 hr
			~~48 hr~~	72 hr	96 hr	~~48 hr~~	~~72 hr~~	~~96 hr~~	~~48 hr~~	~~72 hr~~	~~96 hr~~	~~48 hr~~	~~72 hr~~	~~96 hr~~	~~48 hr~~	~~72 hr~~	~~96 hr~~
Control	A	A	5	5	5	7.9		8.0	24.8		24.3	7.1		7.4	0.13		0.216
	B	B	5	5	5												
	C	C	5	5	5												
	D	D	5	5	5												
1.5	A	A	5	5	5	7.9		8.1	25.2		24.0	7.2		7.4	2.9		3.2
	B	B	5	5	5												
	C	C	5	5	5												
	D	D	5	5	5												
2.0	A	A	5	5	5	7.9		8.1	25.3		24.0	7.5		7.4	3.84		4.5
	B	B	5	5	5												
	C	C	5	5	5												
	D	D	5	5	3 2D												
2.5	A	A	5	4 1D	0 4D	8.0		8.1	25.2		~~24.0~~ BA	7.6		7.4	4.74		5.5
	B	B	5	5	0 5D												
	C	C	5	4 1D	0 4D												
	D	D	5	5	0 5D												
3.0	A	A	5	4 1D	0 4D	8.0		8.1	24.8		24.0	7.7		7.3	5.55		6.3
	B	B	5	3 2D	0 3D												
	C	C	5	4 1D	0 4D												
	D	D	5	5	0 5D												
4.0	A	A	5	0 5D	–	8.0	7.7	–	24.7	24.0	–	7.7	7.0	–	7.27	7.5	–
	B	B	5	0 5D	–												
	C	C	5	0 5D	–												
	D	D	5	0 5D	–												
	A																
	B																
	C																
	D																
Loaded / measured by:			MF	BA	BA	BA	BA	BA	BA	BA	BA	BA	BA	BA	BA	BA	BA
Recorded by:			BA	BA	BA	BA	BA	BA	BA	BA	BA	BA	BA	BA	BA	BA	BA

Investigators' Signatures
James Daniel
Marshall Fairbott
REVIEWER

Concentrations prepared by: BA
Loading verified by: BA
Light Intensity: 50-100 Ft. candles
Photoperiod: 16 hours Light / 8 hours dark
Temperature Range °C:
Incubator # 2 min. 24.4 max. 26.0 mean 25.1
Incubator # ____ min. ____ max. ____ mean ____
Room B246 min. 24.4 max. 25.3 mean 24.9

Remarks: (A) 24.0 BA 10-5-06

Statistical Results: Method: Spearman-Karber
(A) 48/96 hour LC50: 2.18
95% Confidence Interval: lower 2.11 upper 2.26

Revised 02/21/06

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Appendix C. (continued)

FDEP Biology Section - Acute SRT Bench Sheet

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

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

Diluent/ Batch#: DMW 1.26.06
Toxicant/ Batch# NaCl 1.13.06

Test Beginning: Date: 10306 Time: 12:50
Test Ending: Date: 10706 Time: 11:45

Water Quality Parameters:	Diluent	Method	Initials
Total Residual Cl_2 (mg/L):	2003	Hach	PPV
Alkalinity (mg/L as $CaCO_3$):	88	Hach	EW
Hardness (mg/L as CaCO3):	88	Hach	EW
Total Ammonia (mg/L as N):	20.17	Denver	MF
Salinity (ppth):	21	Mettler	BA

Organism Batch #/ Age: 4-06 1-2 24hrs BA
Feeding: Prior to test / Prior to renewal / Daily
Food: YCT / P.subcapitata / Artemia
Food Batch: 2-06 4-06 –
Chamber size: 30 mL
Test volume: 20 mL per replicate

Conc. µg/L (%)	Rep.	Chamber#	Number Live 0 hr	Number Live 24 hr	Number Live 48 hr	pH (SU) 0 hr	pH (SU) 24 hr	pH (SU) 48 hr	Temperature (°C) 0 hr	Temperature (°C) 24 hr	Temperature (°C) 48 hr	D.O. (mg/l) 0 hr	D.O. (mg/l) 24 hr	D.O. (mg/l) 48 hr	UNCORRECTED Cond. (mmhos/cm) 0 hr	UNCORRECTED Cond. (mmhos/cm) 24 hr	UNCORRECTED Cond. (mmhos/cm) 48 hr
			(48 hr)	(72 hr)	(96 hr)	48 hr	72 hr	96 hr	48 hr	72 hr	96 hr	48 hr	72 hr	96 hr	48 hr	72 hr	96 hr
Control	A	A	5	5	5	8.1		8.0	24.0		24.0	7.5		7.6	0.184		0.220
	B	B	5	5	5												
	C	C	5	5	5												
	D	D	5	5	5												
1.5	A	A	5	5	5	8.1		7.9	24.0		24.1	7.5		7.7	2.88		3.09
	B	B	5	5	5												
	C	C	5	5	5												
	D	D	5	5	5												
2.0	A	A	5	4D	3D	8.2		7.9	24.0		24.1	7.6		7.7	3.88		4.05
	B	B	5	5	5												
	C	C	5	5	4D												
	D	D	3	3	3												
2.5	A	A	0	–	–	–			—			—			—		
	B	B	–	–	–												
	C	C	–	–	–												
	D	D	–	–	–												
3.0	A	A	–	–	–	—			—			–			—		
	B	B	–	–	–												
	C	C	–	–	–												
	D	D	–	–	–												
4.0	A	A	–	–	–	—				—		—				—	
	B	B	–	–	–												
	C	C	–	–	–												
	D	D	–	–	–												
	A	–															
	B																
	C																
	D																
Loaded / measured by:			BA	BA	JD	BA		JD	BA		JD	BA		JD	BA		JD
Recorded by:			BA	BA	JD	BA		JD	BA		JD	BA		JD	BA		JD

Investigators' Signatures
James Daniels
Bruce Neidig
Marshall Faircloth
Nicki Wallerdorf
REVIEWER

Concentrations prepared by: BA
Loading verified by: BA
Light Intensity: 50-100 Ft. candles
Photoperiod: 16 hours Light / 8 hours dark
Temperature Range °C:
Incubator # 2 min. 24.4 max. 26.0 mean 25.1
Incubator # ____ min. _____ max. _____ mean _____
Room B246 min. 24.4 max. 25.3 mean 24.9

Remarks:

Statistical Results: Method: Spearman-Karber
48 / 96 hour LC50: 2.10
95% Confidence Interval: lower 2.00 upper 2.20

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Appendix C. (continued)

FDEP Biology Section - Acute SRT Bench Sheet

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

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

Diluent/ Batch#: Well H2O / 10-2-06
Toxicant/ Batch# NaCl / 14-06

Test Beginning: Date: 10.3.06 Time: 12:30
Test Ending: Date: 10-7-06 Time: 1140

Water Quality Parameters:	Diluent	Method	Initials
Total Residual Cl_2 (mg/L):	<0.03	Hach	ppv
Alkalinity (mg/L as $CaCO_3$):	134	Hach	ew
Hardness (mg/L as CaCO3):	133	Hach	ew
Total Ammonia (mg/L as N):	<0.07	Denver	mf
Salinity (ppth):	21	Mettler	BA

Organism Batch #/ Age: 24.06 / 12days
Feeding: Prior to test / Prior to renewal / Daily
Food: YCT P.*subcapitata* Artemia
Food Batch: — — 54-536-80
Chamber size: 1000 mL
Test volume: 500 mL per replicate

Conc. µg/L (60)	Rep.	Chamber#	Number Live 0 hr (48 hr)	Number Live 24 hr (72 hr)	Number Live 48 hr (96 hr)	pH (SU) 0 hr (48 hr)	pH (SU) 24 hr (72 hr)	pH (SU) 48 hr (96 hr)	Temperature (°C) 0 hr (48 hr)	Temperature (°C) 24 hr (72 hr)	Temperature (°C) 48 hr (96 hr)	D.O. (mg/l) 0 hr (48 hr)	D.O. (mg/l) 24 hr (72 hr)	D.O. (mg/l) 48 hr (96 hr)	UNCORRECTED Cond. (mmhos/cm) 0 hr (48 hr)	UNCORRECTED Cond. (mmhos/cm) 24 hr (72 hr)	UNCORRECTED Cond. (mmhos/cm) 48 hr (96 hr)
Control	A	F1	10	10	10	7.8		8.0	24.9		24.0	7.8		7.8	0.263		0.309
	B	F2	10	10	10		8.0			25.2			6.2			0.600 (B)	
	C										24.8 (C)						
	D																
60	A	F3	10	10	10	7.8		7.9	24.8		24.0	7.8		6.8	10.7		11.0
	B	F4	10	10	10		8.0			25.1			6.1			10.2	
	C										Steady Pack mf (Retired) 10-11-06						
	D																
70	A	F5	10	9(D)	8(D)	7.8		8.0	24.7		24.0	7.6		6.7	12.4		12.8
	B	F6	10	10	9(D)		8.0			25.1			6.1			12.2	
	C																
	D																
80	A	F7	10	7(3D)	7	7.8		8.0	24.6		24.1	7.5		6.5	13.9		14.3
	B	F8	10	7(3D)	7 (A) (3D)		7.9			25.0			5.9			13.7	
	C																
	D																
90	A	F9	10	2(8D)	2	7.8		8.1	24.6		24.2	7.5		6.5	15.4		15.8
	B	F10	10	1(9D)	0(9D)		7.9			25.1			5.8			15.6	
	C																
	D																
100	A	F11	10	0(10D)	—	7.8		—	24.4		—	7.5		—	16.8		—
	B	F12	10	0(10D)	/		8.0			25.1			5.7			17.1	
	C																
	D																
	A																
	B																
	C																
	D																
Loaded / measured by:			JD	JD	JD	BA	JD	BA	BA	JD	JD	BA	JD	BA	BA	JD	BA
Recorded by:			BA	JD	JD	BA	JD	BA	BA	JD	JD	BA	JD	BA	BA	JD	BA

Investigators' Signatures
Peggy P Rose
James Danish
Brooke Glutton
Marshall Faircloth
Erin Lacy
Nicole Willenby
REVIEWER

Concentrations prepared by: JD
Loading verified by: MF
Light Intensity: 50-100 Ft. candles
Photoperiod: 16 hours Light / 8 hours dark
Temperature Range °C:
Incubator # 2 min. 24.4 max. 26.0 mean 25.1
Incubator # ____ min. ____ max. ____ mean ____
Room B246 min. 24.1 max. 25.3 mean 24.9

Remarks:
(A) 96hr 60B Transcription error ID. 10.5.06
(B) 24hr C1C1B cond. was high, rep A was as expected.
(C) transcription error ID. 10.5.06

Statistical Results: Method: Spearman-Karber
(48) 96 hour LC50: 8.09
95% Confidence Interval: lower 7.79 upper 8.40

Revised 02/21/06

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Appendix C. (continued)

FDEP Biology Section - Acute SRT Bench Sheet

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

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

Diluent/ Batch#: 60/H2O / 10-2-06
Toxicant/ Batch# NaCl / 1-19-06

Test Beginning: Date: 10306 Time: 12:30
Test Ending: Date: 10706 Time: 11:40

Water Quality Parameters:

	Diluent	Method	Initials
Total Residual Cl_2 (mg/L):	<0.03	Hach	PPV
Alkalinity (mg/L as $CaCO_3$):	134	Hach	CW
Hardness (mg/L as CaCO3):	133	Hach	CW
Total Ammonia (mg/L as N):	<0.07	Denver	MF
Salinity (ppth):	21	Mettler	BA

Organism Batch #/ Age: 24.06 / 12days
Feeding: (Prior to test) (Prior to renewal) Daily
Food: YCT P.*subcapitata* (Artemia)
Food Batch: — — gs5-5-90
Chamber size: 1000 mL
Test volume: 500 mL per replicate

Conc. µg/L (TI)	Rep.	Chamber#	Number Live 0 hr	24 hr	48 hr	pH (SU) 0 hr	24 hr	48 hr	Temperature (° C) 0 hr	24 hr	48 hr	D.O. (mg/l) 0 hr	24 hr	48 hr	UNCORRECTED Cond. (mmhos/cm) 0 hr	24 hr	48 hr
			(48 hr)	72 hr	96 hr	(48 hr)	72 hr	96 hr	(48 hr)	72 hr	96 hr	(48 hr)	72 hr	96 hr	(48 hr) Cond. (µmhos/cm)	72 hr	96 hr
Control	A	F1	10	10	10	8.0		8.1	25.0		24.1	7.1		7.1	0.224		0.283
	B	F2	10	10	10		8.0			24.0			7.5			0.28	
	C																
	D																
6.0	A	F3	10	10	10	8.0		8.0	24.9		24.4	7.1		7.0	859		917
	B	F4	10	9/10	9		7.9			24.1			7.0			9.29	
	C																
	D																
7.0	A	F5	8	8	8	7.9		8.1	24.9		24.6	7.1		7.0	12.9		12.3
	B	F6	9	9	9		7.9			24.6			6.8			13.22	
	C																
	D																
8.0	A	F7	7	7	7	7.9		8.2	24.9		24.7	7.2		7.0	14.2		14.1
	B	F8	7	6/10	6		7.9			24.7			6.7			14.4	
	C																
	D																
9.0	A	F9	2	2	1/10	8.0		8.2	24.9	24.8	24.6	7.2	(A)	7.0	15.5	(A)	15.9
	B	F10	0	—	—		8.0						6.7			15.8	
	C																
	D																
10.0	A	F11	—	—	—	—		—	—		—	—		—	—		—
	B	F12	—	—	—		—			—			—			—	
	C																
	D																
	A																
	B																
	C																
	D																
Loaded / measured by:			BA	JD	JD	JD	BA	JD	JD	JD	JD	JD	BA	JD	JD	BA	JD
Recorded by:			BA	JD	JD	JD	BA	JD	JD	BA	JD	JD	BA	JD	JD	BA	JD

Investigators' Signatures
Steve Parker
James Daniels
Marshall Faircloth
Bruce Albertson
Chris Lange
Mirta Wellendorf
REVIEWER

Concentrations prepared by: JD
Loading verified by: NA
Light Intensity: 50-100 Ft. candles
Photoperiod: 16 hours Light / 8 hours dark
Temperature Range °C:
Incubator # 2 min. 24.4 max. 26.0 mean 25.1
Incubator # ____ min. ____ max. ____ mean ____
Room B246 min. 24.4 max. 25.3 mean 24.9

Remarks: (A) 72hr, 96hr samples taken from Rep A's BA 10-6-06

Statistical Results: Method: Spearman-Karber
48 (96) hour LC50: 8.01
95% Confidence Interval: lower 7.69 upper 8.34

Revised 02/21/06

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Appendix C. (continued)

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

DATE: 10/03/06 DURATION: 96 h TOXICANT : NaCl
SPECIES: *C. dubia*

RAW DATA: Concentration (g/L)	Number Exposed	Mortalities
.00	20	0
1.50	20	0
2.00	20	5
2.50	20	20
3.00	20	20
4.00	20	20

SPEARMAN-KARBER TRIM: .00%

SPEARMAN-KARBER ESTIMATES: LC50: 2.10
95% LOWER CONFIDENCE: 2.00
95% UPPER CONFIDENCE: 2.20

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

DATE: 10-03-06 DURATION: 96 h TOXICANT : NaCl
SPECIES: *C. leedsi*

RAW DATA: Concentration (g/L)	Number Exposed	Mortalities
.00	20	0
6.00	20	1
7.00	20	3
8.00	20	7
9.00	20	19
10.00	20	20

SPEARMAN-KARBER TRIM: 5.00%

SPEARMAN-KARBER ESTIMATES: LC50: 8.01
95% LOWER CONFIDENCE: 7.69
95% UPPER CONFIDENCE: 8.34

Appendix D. Test Organism Receipts

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

NELAC Accredited

Organism Shipment Record

State of Florida Aquaculture Certificate Number AQ0668007

Date: 10/2/06

Shipped to: FDEP

P.O. No: _____

Species	Quantity	Age	Brood Number	Temperature	Salinity
Mysidopsis bahia	150+	4 Days	MS060928	25°C	~20‰
Menidia beryllina	150+	12 Days	SS060930	25°C	~30‰
Cyprinella leedsi	200+	11 Days	CL060901	25°C	
Pimephales promelas	150+	7 Days	FM060925-1550	25°C	

Packed by: Frank Garcia

Shipped Via: FedEx 2nd Day

Notes: FedEx

Thank you for your order

Appendix D. (continued)

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

NELAC Accredited

Organism Shipment Record

State of Florida Aquaculture Certificate Number AQ0668007

Date: 10/16/06

Shipped to: FDEP

P.O. No: _____

Species	Quantity	Age	Brood Number	Temperature	Salinity
Mysidopsis bahia					
Menidia beryllina					
Cyprinella leedsi	100+	11 Days	CH061005	25°C	
Pimephales promelas					

Packed by: FrankGary

Shipped Via: FEDEX

Notes: _____

Thank you for your order.

Appendix E. Chemical Analyses performed on the effluent from the Mosaic Fertilizer, L.L.C.-Fort Meade Mine Outfall D-001, sampled on October 16, 2006.

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
10/16/2006 10:15	OUTFALL 001	Bio-AGP/LimNut	Algal Growth Potential	7.37	mg DryWt/L		0.3	0.9
10/16/2006 10:15	OUTFALL 001	Bio-Chl-a	Chlorophyll-A, Monochromatic, Water	1.7	ug/L	U	1.7	5.2
10/16/2006 10:15	OUTFALL 001	Bio-Chl-a	Phaeophytin-A, Monochromatic, Water	3	ug/L	U	3	9
10/16/2006 10:15	OUTFALL 001	Bio-Peri/Phyto	Phytoplankton-Quantitative-# Wet Taxa	48	#Taxa			
10/16/2006 10:15	OUTFALL 001	Bio-Peri/Phyto	Phytoplankton-Quantitative-#Diatom Taxa	39	#Taxa			
10/16/2006 10:15	OUTFALL-001-BIOASSAY	Bio-Toxicology	Bioassay-Acute-Screen-FW-C.dubia, LC50	100	LC50	L		
10/16/2006 10:15	OUTFALL-001-BIOASSAY	Bio-Toxicology	Bioassay-Acute-Screen-FW-Fish, LC50	100	LC50	L		
10/16/2006 10:50	FIELD BLANK	BNA-Water	1,2,4-Trichlorobenzene	0.98	ug/L	U	0.98	3.9
10/16/2006 10:50	FIELD BLANK	BNA-Water	1,2-Dichlorobenzene	0.98	ug/L	U	0.98	3.9
10/16/2006 10:50	FIELD BLANK	BNA-Water	1,3-Dichlorobenzene	0.98	ug/L	U	0.98	3.9
10/16/2006 10:50	FIELD BLANK	BNA-Water	1,4-Dichlorobenzene	0.98	ug/L	U	0.98	3.9
10/16/2006 10:50	FIELD BLANK	BNA-Water	2,4,6-Trichlorophenol	0.98	ug/L	U	0.98	3.9
10/16/2006 10:50	FIELD BLANK	BNA-Water	2,4-Dichlorophenol	0.98	ug/L	U	0.98	3.9
10/16/2006 10:50	FIELD BLANK	BNA-Water	2,4-Dimethylphenol	49	ug/L	U	49	200
10/16/2006 10:50	FIELD BLANK	BNA-Water	2,4-Dinitrophenol	15	ug/L	U	15	59
10/16/2006 10:50	FIELD BLANK	BNA-Water	2,4-Dinitrotoluene	0.98	ug/L	U	0.98	3.9
10/16/2006 10:50	FIELD BLANK	BNA-Water	2,6-Dinitrotoluene	0.98	ug/L	U	0.98	3.9
10/16/2006 10:50	FIELD BLANK	BNA-Water	2-Chloronaphthalene	0.98	ug/L	U	0.98	3.9
10/16/2006 10:50	FIELD BLANK	BNA-Water	2-Chlorophenol	0.98	ug/L	U	0.98	3.9
10/16/2006 10:50	FIELD BLANK	BNA-Water	2-Methyl-4,6-dinitrophenol	2.9	ug/L	U	2.9	12
10/16/2006 10:50	FIELD BLANK	BNA-Water	2-Nitrophenol	0.98	ug/L	UJ	0.98	3.9
10/16/2006 10:50	FIELD BLANK	BNA-Water	3,3'-Dichlorobenzidine	39	ug/L	UJ	39	160
10/16/2006 10:50	FIELD BLANK	BNA-Water	4,4'-DDD	1.5	ug/L	U	1.5	5.9
10/16/2006 10:50	FIELD BLANK	BNA-Water	4,4'-DDE	1.5	ug/L	U	1.5	5.9
10/16/2006 10:50	FIELD BLANK	BNA-Water	4,4'-DDT	1.5	ug/L	U	1.5	5.9
10/16/2006 10:50	FIELD BLANK	BNA-Water	4-Bromophenyl phenyl ether	0.98	ug/L	U	0.98	3.9
10/16/2006 10:50	FIELD BLANK	BNA-Water	4-Chloro-3-methylphenol	0.98	ug/L	U	0.98	3.9
10/16/2006 10:50	FIELD BLANK	BNA-Water	4-Chlorophenyl phenyl ether	2	ug/L	U	2	7.8
10/16/2006 10:50	FIELD BLANK	BNA-Water	4-Nitrophenol	15	ug/L	U	15	59
10/16/2006 10:50	FIELD BLANK	BNA-Water	Acenaphthene	0.98	ug/L	U	0.98	3.9
10/16/2006 10:50	FIELD BLANK	BNA-Water	Acenaphthylene	0.98	ug/L	U	0.98	3.9
10/16/2006 10:50	FIELD BLANK	BNA-Water	Aldrin	1.5	ug/L	U	1.5	5.9
10/16/2006 10:50	FIELD BLANK	BNA-Water	Anthracene	0.98	ug/L	U	0.98	3.9
10/16/2006 10:50	FIELD BLANK	BNA-Water	Benzidine	98	ug/L	U	98	390
10/16/2006 10:50	FIELD BLANK	BNA-Water	Benzo(a)anthracene	0.98	ug/L	U	0.98	3.9
10/16/2006 10:50	FIELD BLANK	BNA-Water	Benzo(a)pyrene	0.98	ug/L	U	0.98	3.9
10/16/2006 10:50	FIELD BLANK	BNA-Water	Benzo(b)fluoranthene	0.98	ug/L	U	0.98	3.9
10/16/2006 10:50	FIELD BLANK	BNA-Water	Benzo(g,h,i)perylene	0.98	ug/L	U	0.98	3.9
10/16/2006 10:50	FIELD BLANK	BNA-Water	Benzo(k)fluoranthene	0.98	ug/L	U	0.98	3.9
10/16/2006 10:50	FIELD BLANK	BNA-Water	Bis(2-chloroethoxy)methane	0.98	ug/L	U	0.98	3.9
10/16/2006 10:50	FIELD BLANK	BNA-Water	Bis(2-chloroethyl)ether	0.98	ug/L	U	0.98	3.9
10/16/2006 10:50	FIELD BLANK	BNA-Water	Bis(2-chloroisopropyl)ether	2.9	ug/L	U	2.9	12
10/16/2006 10:50	FIELD BLANK	BNA-Water	Bis(2-ethylhexyl)phthalate	15	ug/L	U	15	59

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
10/16/2006 10:50	FIELD BLANK	BNA-Water	Butyl benzyl phthalate	4.9	ug/L	U	4.9	20
10/16/2006 10:50	FIELD BLANK	BNA-Water	Chrysene	0.98	ug/L	U	0.98	3.9
10/16/2006 10:50	FIELD BLANK	BNA-Water	Di-n-butyl phthalate	4.9	ug/L	U	4.9	20
10/16/2006 10:50	FIELD BLANK	BNA-Water	Di-n-octyl phthalate	0.98	ug/L	U	0.98	3.9
10/16/2006 10:50	FIELD BLANK	BNA-Water	Dibenzo(a,h)anthracene	0.98	ug/L	U	0.98	3.9
10/16/2006 10:50	FIELD BLANK	BNA-Water	Dieldrin	1.5	ug/L	U	1.5	5.9
10/16/2006 10:50	FIELD BLANK	BNA-Water	Diethyl phthalate	2	ug/L	U	2	8
10/16/2006 10:50	FIELD BLANK	BNA-Water	Dimethyl phthalate	49	ug/L	U	49	200
10/16/2006 10:50	FIELD BLANK	BNA-Water	Endosulfan I	3.9	ug/L	U	3.9	16
10/16/2006 10:50	FIELD BLANK	BNA-Water	Endosulfan II	3.9	ug/L	U	3.9	16
10/16/2006 10:50	FIELD BLANK	BNA-Water	Endosulfan sulfate	1.5	ug/L	U	1.5	5.9
10/16/2006 10:50	FIELD BLANK	BNA-Water	Endrin	1.5	ug/L	U	1.5	5.9
10/16/2006 10:50	FIELD BLANK	BNA-Water	Endrin aldehyde	3.9	ug/L	U	3.9	16
10/16/2006 10:50	FIELD BLANK	BNA-Water	Fluoranthene	0.98	ug/L	U	0.98	3.9
10/16/2006 10:50	FIELD BLANK	BNA-Water	Fluorene	0.98	ug/L	U	0.98	3.9
10/16/2006 10:50	FIELD BLANK	BNA-Water	Heptachlor	1.5	ug/L	U	1.5	5.9
10/16/2006 10:50	FIELD BLANK	BNA-Water	Heptachlor epoxide	1.5	ug/L	U	1.5	5.9
10/16/2006 10:50	FIELD BLANK	BNA-Water	Hexachlorobenzene	0.98	ug/L	U	0.98	3.9
10/16/2006 10:50	FIELD BLANK	BNA-Water	Hexachlorobutadiene	2.9	ug/L	U	2.9	12
10/16/2006 10:50	FIELD BLANK	BNA-Water	Hexachlorocyclopentadiene	2.9	ug/L	U	2.9	12
10/16/2006 10:50	FIELD BLANK	BNA-Water	Hexachloroethane	2.9	ug/L	U	2.9	12
10/16/2006 10:50	FIELD BLANK	BNA-Water	Indeno(1,2,3-cd)pyrene	0.98	ug/L	U	0.98	3.9
10/16/2006 10:50	FIELD BLANK	BNA-Water	Isophorone	0.98	ug/L	U	0.98	3.9
10/16/2006 10:50	FIELD BLANK	BNA-Water	N-Nitrosodi-n-propylamine	2	ug/L	U	2	7.8
10/16/2006 10:50	FIELD BLANK	BNA-Water	N-Nitrosodimethylamine	2	ug/L	U	2	7.8
10/16/2006 10:50	FIELD BLANK	BNA-Water	N-nitrosodiphenylamine/diphenylamine	2.9	ug/mL	UJ	2.9	12
10/16/2006 10:50	FIELD BLANK	BNA-Water	Naphthalene	0.98	ug/L	U	0.98	3.9
10/16/2006 10:50	FIELD BLANK	BNA-Water	Nitrobenzene	2	ug/L	U	2	7.8
10/16/2006 10:50	FIELD BLANK	BNA-Water	Pentachlorophenol	2.9	ug/L	U	2.9	12
10/16/2006 10:50	FIELD BLANK	BNA-Water	Phenanthrene	0.98	ug/L	U	0.98	3.9
10/16/2006 10:50	FIELD BLANK	BNA-Water	Phenol	0.98	ug/L	U	0.98	3.9
10/16/2006 10:50	FIELD BLANK	BNA-Water	Pyrene	0.98	ug/L	U	0.98	3.9
10/16/2006 10:50	FIELD BLANK	BNA-Water	alpha-BHC	1.5	ug/L	U	1.5	5.9
10/16/2006 10:50	FIELD BLANK	BNA-Water	beta-BHC	1.5	ug/L	U	1.5	5.9
10/16/2006 10:50	FIELD BLANK	BNA-Water	delta-BHC	1.5	ug/L	U	1.5	5.9
10/16/2006 10:50	FIELD BLANK	BNA-Water	gamma-BHC	1.5	ug/L	U	1.5	5.9
10/16/2006 10:15	OUTFALL 001	BNA-Water	1,2,4-Trichlorobenzene	0.96	ug/L	U	0.96	3.8
10/16/2006 10:15	OUTFALL 001	BNA-Water	1,2-Dichlorobenzene	0.96	ug/L	U	0.96	3.8
10/16/2006 10:15	OUTFALL 001	BNA-Water	1,3-Dichlorobenzene	0.96	ug/L	U	0.96	3.8
10/16/2006 10:15	OUTFALL 001	BNA-Water	1,4-Dichlorobenzene	0.96	ug/L	U	0.96	3.8
10/16/2006 10:15	OUTFALL 001	BNA-Water	2,4,6-Trichlorophenol	0.96	ug/L	U	0.96	3.8
10/16/2006 10:15	OUTFALL 001	BNA-Water	2,4-Dichlorophenol	0.96	ug/L	U	0.96	3.8
10/16/2006 10:15	OUTFALL 001	BNA-Water	2,4-Dimethylphenol	48	ug/L	U	48	190
10/16/2006 10:15	OUTFALL 001	BNA-Water	2,4-Dinitrophenol	14	ug/L	U	14	58
10/16/2006 10:15	OUTFALL 001	BNA-Water	2,4-Dinitrotoluene	0.96	ug/L	U	0.96	3.8

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
10/16/2006 10:15	OUTFALL 001	BNA-Water	2,6-Dinitrotoluene	0.96	ug/L	U	0.96	3.8
10/16/2006 10:15	OUTFALL 001	BNA-Water	2-Chloronaphthalene	0.96	ug/L	U	0.96	3.8
10/16/2006 10:15	OUTFALL 001	BNA-Water	2-Chlorophenol	0.96	ug/L	U	0.96	3.8
10/16/2006 10:15	OUTFALL 001	BNA-Water	2-Methyl-4,6-dinitrophenol	2.9	ug/L	U	2.9	12
10/16/2006 10:15	OUTFALL 001	BNA-Water	2-Nitrophenol	0.96	ug/L	UJ	0.96	3.8
10/16/2006 10:15	OUTFALL 001	BNA-Water	3,3'-Dichlorobenzidine	38	ug/L	UJ	38	150
10/16/2006 10:15	OUTFALL 001	BNA-Water	4,4'-DDD	1.4	ug/L	U	1.4	5.8
10/16/2006 10:15	OUTFALL 001	BNA-Water	4,4'-DDE	1.4	ug/L	U	1.4	5.8
10/16/2006 10:15	OUTFALL 001	BNA-Water	4,4'-DDT	1.4	ug/L	U	1.4	5.8
10/16/2006 10:15	OUTFALL 001	BNA-Water	4-Bromophenyl phenyl ether	0.96	ug/L	U	0.96	3.8
10/16/2006 10:15	OUTFALL 001	BNA-Water	4-Chloro-3-methylphenol	0.96	ug/L	U	0.96	3.8
10/16/2006 10:15	OUTFALL 001	BNA-Water	4-Chlorophenyl phenyl ether	1.9	ug/L	U	1.9	7.7
10/16/2006 10:15	OUTFALL 001	BNA-Water	4-Nitrophenol	14	ug/L	U	14	58
10/16/2006 10:15	OUTFALL 001	BNA-Water	Acenaphthene	0.96	ug/L	U	0.96	3.8
10/16/2006 10:15	OUTFALL 001	BNA-Water	Acenaphthylene	0.96	ug/L	U	0.96	3.8
10/16/2006 10:15	OUTFALL 001	BNA-Water	Aldrin	1.4	ug/L	U	1.4	5.8
10/16/2006 10:15	OUTFALL 001	BNA-Water	Anthracene	0.96	ug/L	U	0.96	3.8
10/16/2006 10:15	OUTFALL 001	BNA-Water	Benzidine	96	ug/L	U	96	380
10/16/2006 10:15	OUTFALL 001	BNA-Water	Benzo(a)anthracene	0.96	ug/L	U	0.96	3.8
10/16/2006 10:15	OUTFALL 001	BNA-Water	Benzo(a)pyrene	0.96	ug/L	U	0.96	3.8
10/16/2006 10:15	OUTFALL 001	BNA-Water	Benzo(b)fluoranthene	0.96	ug/L	U	0.96	3.8
10/16/2006 10:15	OUTFALL 001	BNA-Water	Benzo(g,h,i)perylene	0.96	ug/L	U	0.96	3.8
10/16/2006 10:15	OUTFALL 001	BNA-Water	Benzo(k)fluoranthene	0.96	ug/L	U	0.96	3.8
10/16/2006 10:15	OUTFALL 001	BNA-Water	Bis(2-chloroethoxy)methane	0.96	ug/L	U	0.96	3.8
10/16/2006 10:15	OUTFALL 001	BNA-Water	Bis(2-chloroethyl)ether	0.96	ug/L	U	0.96	3.8
10/16/2006 10:15	OUTFALL 001	BNA-Water	Bis(2-chloroisopropyl)ether	2.9	ug/L	U	2.9	12
10/16/2006 10:15	OUTFALL 001	BNA-Water	Bis(2-ethylhexyl)phthalate	14	ug/L	U	14	58
10/16/2006 10:15	OUTFALL 001	BNA-Water	Butyl benzyl phthalate	4.8	ug/L	U	4.8	19
10/16/2006 10:15	OUTFALL 001	BNA-Water	Chrysene	0.96	ug/L	U	0.96	3.8
10/16/2006 10:15	OUTFALL 001	BNA-Water	Di-n-butyl phthalate	4.8	ug/L	U	4.8	19
10/16/2006 10:15	OUTFALL 001	BNA-Water	Di-n-octyl phthalate	0.96	ug/L	U	0.96	3.8
10/16/2006 10:15	OUTFALL 001	BNA-Water	Dibenzo(a,h)anthracene	0.96	ug/L	U	0.96	3.8
10/16/2006 10:15	OUTFALL 001	BNA-Water	Dieldrin	1.4	ug/L	U	1.4	5.8
10/16/2006 10:15	OUTFALL 001	BNA-Water	Diethyl phthalate	1.9	ug/L	U	1.9	7.5
10/16/2006 10:15	OUTFALL 001	BNA-Water	Dimethyl phthalate	48	ug/L	U	48	190
10/16/2006 10:15	OUTFALL 001	BNA-Water	Endosulfan I	3.8	ug/L	U	3.8	15
10/16/2006 10:15	OUTFALL 001	BNA-Water	Endosulfan II	3.8	ug/L	U	3.8	15
10/16/2006 10:15	OUTFALL 001	BNA-Water	Endosulfan sulfate	1.4	ug/L	U	1.4	5.8
10/16/2006 10:15	OUTFALL 001	BNA-Water	Endrin	1.4	ug/L	U	1.4	5.8
10/16/2006 10:15	OUTFALL 001	BNA-Water	Endrin aldehyde	3.8	ug/L	U	3.8	15
10/16/2006 10:15	OUTFALL 001	BNA-Water	Fluoranthene	0.96	ug/L	U	0.96	3.8
10/16/2006 10:15	OUTFALL 001	BNA-Water	Fluorene	0.96	ug/L	U	0.96	3.8
10/16/2006 10:15	OUTFALL 001	BNA-Water	Heptachlor	1.4	ug/L	U	1.4	5.8
10/16/2006 10:15	OUTFALL 001	BNA-Water	Heptachlor epoxide	1.4	ug/L	U	1.4	5.8
10/16/2006 10:15	OUTFALL 001	BNA-Water	Hexachlorobenzene	0.96	ug/L	U	0.96	3.8

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
10/16/2006 10:15	OUTFALL 001	BNA-Water	Hexachlorobutadiene	2.9	ug/L	U	2.9	12
10/16/2006 10:15	OUTFALL 001	BNA-Water	Hexachlorocyclopentadiene	2.9	ug/L	U	2.9	12
10/16/2006 10:15	OUTFALL 001	BNA-Water	Hexachloroethane	2.9	ug/L	U	2.9	12
10/16/2006 10:15	OUTFALL 001	BNA-Water	Indeno(1,2,3-cd)pyrene	0.96	ug/L	U	0.96	3.8
10/16/2006 10:15	OUTFALL 001	BNA-Water	Isophorone	0.96	ug/L	U	0.96	3.8
10/16/2006 10:15	OUTFALL 001	BNA-Water	N-Nitrosodi-n-propylamine	1.9	ug/L	U	1.9	7.7
10/16/2006 10:15	OUTFALL 001	BNA-Water	N-Nitrosodimethylamine	1.9	ug/L	U	1.9	7.7
10/16/2006 10:15	OUTFALL 001	BNA-Water	N-nitrosodiphenylamine/diphenylamine	2.9	ug/mL	UJ	2.9	12
10/16/2006 10:15	OUTFALL 001	BNA-Water	Naphthalene	0.96	ug/L	U	0.96	3.8
10/16/2006 10:15	OUTFALL 001	BNA-Water	Nitrobenzene	1.9	ug/L	U	1.9	7.7
10/16/2006 10:15	OUTFALL 001	BNA-Water	Pentachlorophenol	2.9	ug/L	U	2.9	12
10/16/2006 10:15	OUTFALL 001	BNA-Water	Phenanthrene	0.96	ug/L	U	0.96	3.8
10/16/2006 10:15	OUTFALL 001	BNA-Water	Phenol	0.96	ug/L	U	0.96	3.8
10/16/2006 10:15	OUTFALL 001	BNA-Water	Pyrene	0.96	ug/L	U	0.96	3.8
10/16/2006 10:15	OUTFALL 001	BNA-Water	alpha-BHC	1.4	ug/L	U	1.4	5.8
10/16/2006 10:15	OUTFALL 001	BNA-Water	beta-BHC	1.4	ug/L	U	1.4	5.8
10/16/2006 10:15	OUTFALL 001	BNA-Water	delta-BHC	1.4	ug/L	U	1.4	5.8
10/16/2006 10:15	OUTFALL 001	BNA-Water	gamma-BHC	1.4	ug/L	U	1.4	5.8
10/16/2006 10:50	FIELD BLANK	GC-Water	Alachlor	0.57	ug/L	UJ	0.57	2.3
10/16/2006 10:50	FIELD BLANK	GC-Water	Ametryn	0.048	ug/L	U	0.048	0.19
10/16/2006 10:50	FIELD BLANK	GC-Water	Atrazine	0.048	ug/L	U	0.048	0.19
10/16/2006 10:50	FIELD BLANK	GC-Water	Azinphos Methyl	0.19	ug/L	U	0.19	0.76
10/16/2006 10:50	FIELD BLANK	GC-Water	Bromacil	0.19	ug/L	U	0.19	0.76
10/16/2006 10:50	FIELD BLANK	GC-Water	Butylate	0.19	ug/L	UJ	0.19	0.76
10/16/2006 10:50	FIELD BLANK	GC-Water	Chlorpyrifos Ethyl	0.048	ug/L	U	0.048	0.19
10/16/2006 10:50	FIELD BLANK	GC-Water	Chlorpyrifos Methyl	0.095	ug/L	U	0.095	0.38
10/16/2006 10:50	FIELD BLANK	GC-Water	Diazinon	0.048	ug/L	U	0.048	0.19
10/16/2006 10:50	FIELD BLANK	GC-Water	Ethion	0.048	ug/L	U	0.048	0.19
10/16/2006 10:50	FIELD BLANK	GC-Water	Ethoprop	0.095	ug/L	U	0.095	0.38
10/16/2006 10:50	FIELD BLANK	GC-Water	Fenamiphos	0.19	ug/L	U	0.19	0.76
10/16/2006 10:50	FIELD BLANK	GC-Water	Fonofos	0.095	ug/L	U	0.095	0.38
10/16/2006 10:50	FIELD BLANK	GC-Water	Hexazinone	0.095	ug/L	U	0.095	0.38
10/16/2006 10:50	FIELD BLANK	GC-Water	Malathion	0.14	ug/L	U	0.14	0.56
10/16/2006 10:50	FIELD BLANK	GC-Water	Metalaxyl	0.24	ug/L	UJ	0.24	0.96
10/16/2006 10:50	FIELD BLANK	GC-Water	Metolachlor	0.48	ug/L	UJ	0.48	1.9
10/16/2006 10:50	FIELD BLANK	GC-Water	Metribuzin	0.095	ug/L	U	0.095	0.38
10/16/2006 10:50	FIELD BLANK	GC-Water	Mevinphos	0.19	ug/L	U	0.19	0.76
10/16/2006 10:50	FIELD BLANK	GC-Water	Naled	0.76	ug/L	U	0.76	3
10/16/2006 10:50	FIELD BLANK	GC-Water	Norflurazon	0.14	ug/L	U	0.14	0.56
10/16/2006 10:50	FIELD BLANK	GC-Water	Parathion Ethyl	0.14	ug/L	U	0.14	0.56
10/16/2006 10:50	FIELD BLANK	GC-Water	Parathion Methyl	0.095	ug/L	U	0.095	0.38
10/16/2006 10:50	FIELD BLANK	GC-Water	Phorate	0.048	ug/L	U	0.048	0.19
10/16/2006 10:50	FIELD BLANK	GC-Water	Prometryn	0.14	ug/L	U	0.14	0.56
10/16/2006 10:50	FIELD BLANK	GC-Water	Simazine	0.048	ug/L	U	0.048	0.19
10/16/2006 10:15	OUTFALL 001	GC-Water	Alachlor	0.6	ug/L	UJ	0.6	2.4

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
10/16/2006 10:15	OUTFALL 001	GC-Water	Ametryn	0.05	ug/L	U	0.05	0.2
10/16/2006 10:15	OUTFALL 001	GC-Water	Atrazine	2.8	ug/L		0.05	0.2
10/16/2006 10:15	OUTFALL 001	GC-Water	Azinphos Methyl	0.2	ug/L	U	0.2	0.8
10/16/2006 10:15	OUTFALL 001	GC-Water	Bromacil	0.2	ug/L	U	0.2	0.8
10/16/2006 10:15	OUTFALL 001	GC-Water	Butylate	0.2	ug/L	UJ	0.2	0.8
10/16/2006 10:15	OUTFALL 001	GC-Water	Chlorpyrifos Ethyl	0.05	ug/L	U	0.05	0.2
10/16/2006 10:15	OUTFALL 001	GC-Water	Chlorpyrifos Methyl	0.1	ug/L	U	0.1	0.4
10/16/2006 10:15	OUTFALL 001	GC-Water	Diazinon	0.05	ug/L	U	0.05	0.2
10/16/2006 10:15	OUTFALL 001	GC-Water	Ethion	0.05	ug/L	U	0.05	0.2
10/16/2006 10:15	OUTFALL 001	GC-Water	Ethoprop	0.1	ug/L	U	0.1	0.4
10/16/2006 10:15	OUTFALL 001	GC-Water	Fenamiphos	0.2	ug/L	U	0.2	0.8
10/16/2006 10:15	OUTFALL 001	GC-Water	Fonofos	0.1	ug/L	U	0.1	0.4
10/16/2006 10:15	OUTFALL 001	GC-Water	Hexazinone	0.1	ug/L	U	0.1	0.4
10/16/2006 10:15	OUTFALL 001	GC-Water	Malathion	0.15	ug/L	U	0.15	0.6
10/16/2006 10:15	OUTFALL 001	GC-Water	Metalaxyl	0.25	ug/L	UJ	0.25	1
10/16/2006 10:15	OUTFALL 001	GC-Water	Metolachlor	0.5	ug/L	UJ	0.5	2
10/16/2006 10:15	OUTFALL 001	GC-Water	Metribuzin	0.1	ug/L	U	0.1	0.4
10/16/2006 10:15	OUTFALL 001	GC-Water	Mevinphos	0.2	ug/L	U	0.2	0.8
10/16/2006 10:15	OUTFALL 001	GC-Water	Naled	0.8	ug/L	U	0.8	3.2
10/16/2006 10:15	OUTFALL 001	GC-Water	Norflurazon	0.15	ug/L	U	0.15	0.6
10/16/2006 10:15	OUTFALL 001	GC-Water	Parathion Ethyl	0.15	ug/L	U	0.15	0.6
10/16/2006 10:15	OUTFALL 001	GC-Water	Parathion Methyl	0.1	ug/L	U	0.1	0.4
10/16/2006 10:15	OUTFALL 001	GC-Water	Phorate	0.05	ug/L	U	0.05	0.2
10/16/2006 10:15	OUTFALL 001	GC-Water	Prometryn	0.15	ug/L	U	0.15	0.6
10/16/2006 10:15	OUTFALL 001	GC-Water	Simazine	0.058	ug/L	I	0.05	0.2
10/16/2006 10:50	FIELD BLANK	Metals-Water	Aluminum	4	ug/L	U	4	16
10/16/2006 10:50	FIELD BLANK	Metals-Water	Arsenic	0.5	ug/L	U	0.5	2
10/16/2006 10:50	FIELD BLANK	Metals-Water	Cadmium	0.05	ug/L	U	0.05	0.2
10/16/2006 10:50	FIELD BLANK	Metals-Water	Calcium	0.02	mg/L	U	0.02	0.08
10/16/2006 10:50	FIELD BLANK	Metals-Water	Chromium	0.3	ug/L	U	0.3	1.2
10/16/2006 10:50	FIELD BLANK	Metals-Water	Copper	0.2	ug/L	U	0.2	0.8
10/16/2006 10:50	FIELD BLANK	Metals-Water	Iron	5	ug/L	U	5	20
10/16/2006 10:50	FIELD BLANK	Metals-Water	Lead	0.2	ug/L	U	0.2	0.8
10/16/2006 10:50	FIELD BLANK	Metals-Water	Magnesium	0.005	mg/L	U	0.005	0.02
10/16/2006 10:50	FIELD BLANK	Metals-Water	Nickel	1	ug/L	U	1	4
10/16/2006 10:50	FIELD BLANK	Metals-Water	Selenium	0.5	ug/L	U	0.5	2
10/16/2006 10:50	FIELD BLANK	Metals-Water	Silver	0.025	ug/L	U	0.025	0.1
10/16/2006 10:50	FIELD BLANK	Metals-Water	Zinc	3	ug/L	U	3	12
10/16/2006 10:15	OUTFALL 001	Metals-Water	Aluminum	29	ug/L		4	16
10/16/2006 10:15	OUTFALL 001	Metals-Water	Arsenic	1.1	ug/L	I	0.5	2
10/16/2006 10:15	OUTFALL 001	Metals-Water	Cadmium	0.05	ug/L	U	0.05	0.2
10/16/2006 10:15	OUTFALL 001	Metals-Water	Calcium	25.9	mg/L		0.02	0.08
10/16/2006 10:15	OUTFALL 001	Metals-Water	Chromium	0.3	ug/L	U	0.3	1.2
10/16/2006 10:15	OUTFALL 001	Metals-Water	Copper	0.45	ug/L	I	0.2	0.8
10/16/2006 10:15	OUTFALL 001	Metals-Water	Iron	519	ug/L		5	20

Appendix E. (continued)

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
10/16/2006 10:15	OUTFALL 001	Metals-Water	Lead	0.2	ug/L	U	0.2	0.8
10/16/2006 10:15	OUTFALL 001	Metals-Water	Magnesium	11.3	mg/L		0.005	0.02
10/16/2006 10:15	OUTFALL 001	Metals-Water	Nickel	1	ug/L	U	1	4
10/16/2006 10:15	OUTFALL 001	Metals-Water	Selenium	0.5	ug/L	U	0.5	2
10/16/2006 10:15	OUTFALL 001	Metals-Water	Silver	0.025	ug/L	U	0.025	0.1
10/16/2006 10:15	OUTFALL 001	Metals-Water	Zinc	3	ug/L	U	3	12
10/16/2006 10:50	FIELD BLANK	Nutrients-Liquid	Ammonia-N	0.01	mg N/L	U	0.01	0.02
10/16/2006 10:50	FIELD BLANK	Nutrients-Liquid	Kjeldahl Nitrogen	0.08	mg N/L	U	0.08	0.2
10/16/2006 10:50	FIELD BLANK	Nutrients-Liquid	NO2NO3-N	0.004	mg N/L	U	0.004	0.01
10/16/2006 10:50	FIELD BLANK	Nutrients-Liquid	O-Phosphate-P	0.004	mg P/L	U	0.004	0.01
10/16/2006 10:50	FIELD BLANK	Nutrients-Liquid	Total-P	0.02	mg P/L	U	0.02	0.06
10/16/2006 10:15	OUTFALL 001	Nutrients-Liquid	Ammonia-N	0.014	mg N/L	IY	0.01	0.02
10/16/2006 10:15	OUTFALL 001	Nutrients-Liquid	Chloride	6.1	mg Cl/L		0.2	0.5
10/16/2006 10:15	OUTFALL 001	Nutrients-Liquid	Color	30	PCU	YQ	5	5
10/16/2006 10:15	OUTFALL 001	Nutrients-Liquid	Fluoride	0.63	mg F/L		0.05	0.1
10/16/2006 10:15	OUTFALL 001	Nutrients-Liquid	Kjeldahl Nitrogen	0.65	mg N/L	YA	0.08	0.2
10/16/2006 10:15	OUTFALL 001	Nutrients-Liquid	NO2NO3-N	0.004	mg N/L	UY	0.004	0.01
10/16/2006 10:15	OUTFALL 001	Nutrients-Liquid	O-Phosphate-P	0.13	mg P/L	YQ	0.008	0.02
10/16/2006 10:15	OUTFALL 001	Nutrients-Liquid	Specific_Conductance	261	umhos/cm	Y	2	8
10/16/2006 10:15	OUTFALL 001	Nutrients-Liquid	Sulfate	95	mg SO4/L	Y	0.4	1
10/16/2006 10:15	OUTFALL 001	Nutrients-Liquid	TDS	168	mg/L	Y	15	60
10/16/2006 10:15	OUTFALL 001	Nutrients-Liquid	TSS	4	mg/L	UY	4	16
10/16/2006 10:15	OUTFALL 001	Nutrients-Liquid	Total-P	0.24	mg P/L	AY	0.02	0.06
10/16/2006 10:15	OUTFALL 001	Nutrients-Liquid	Turbidity	2.3	NTU	YQ	0.05	0.05
10/16/2006 10:50	FIELD BLANK	Overflow	Oil and Grease	1.7	mg/L	U		
10/16/2006 10:15	OUTFALL 001	Overflow	Alpha, Total	1.4	pCi/L			
10/16/2006 10:15	OUTFALL 001	Overflow	Alpha-Counting Error	1	pCi/L			
10/16/2006 10:15	OUTFALL 001	Overflow	Oil and Grease	1.7	mg/L	UY		
10/16/2006 10:15	OUTFALL 001	Overflow	Radium 226	0.3	pCi/L	U		
10/16/2006 10:15	OUTFALL 001	Overflow	Radium 226-Counting Error	0.2	pCi/L			
10/16/2006 10:15	OUTFALL 001	Overflow	Radium 228	0.7	pCi/L	U		
10/16/2006 10:15	OUTFALL 001	Overflow	Radium 228-Counting Error	0.5	pCi/L			

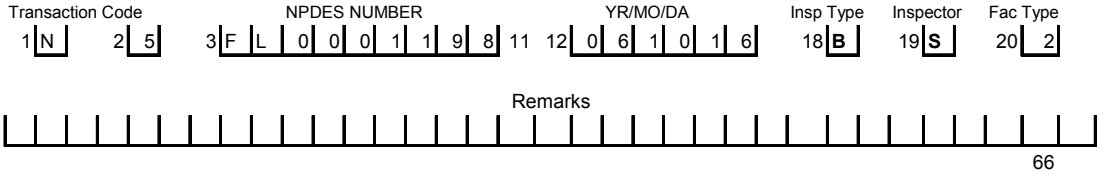
Appendix F: Taxa list and density (number/mL) for phytoplankton collected in the effluent from the Mosaic Fertilizer, L.L.C.-Fort Meade Mine Outfall D-001, sampled on October 16, 2006.

Scientific Name	Diatom (# Individuals)
Fragilaria berolinensis	13
Fragilaria capucina	8
Diadesmis confervacea	6
Gomphonema parvulum	10
Navicula sp.	9
Neidium sp.	3
Navicula constans	2
Cocconeis sp.	1
Naviculaceae	1
Synedra ulna	3
Fragilariaceae	14
Fragilaria sp.	1
Achnanthes exigua	21
Navicula cryptocephala	24
Nitzschia sp.	133
Nitzschia palea	77
Nitzschia nana	1
Achnanthes minutissima	18
Sellaphora pupula	15
Navicula minima	31
Achnanthes lanceolata	5
Eunotia bilunaris	1
Pinnularia sp.	1
Nitzschia amphibia	3
Navicula seminulum	20
Nitzschia gracilis	11
Navicula rostellata	1
Craticula sp.	2
Gomphonema sp.	2
Cocconeis placentula	8
Hippodonta capitata	2
Hippodonta sp.	2
Achnanthes sp.	9
Achnanthes clevei	1
Fragilaria construens	1
Cyclotella sp.	16
Stephanodiscus sp.	13
Cyclotella meneghiniana	9
Aulacoseira sp.	2

Scientific Name	Wet Algae (# Indiv.)	Wet Algae density (# Indiv./ml)
Cryptophyceae	1	6
Cryptomonas sp.	7	41
Cyanobium parvum	9	52
Cyanobium plancticum	4	23
Microcystis sp.	1	6
Merismopedia warmingiana	4	23
Pseudanabaena sp.	2	12
Chroococcus dispersus	1	6
Merismopedia tenuissima	1	6
Oscillatoria sp.	1	6
Rhabdogloea sp.	1	6
Glenodinium sp.	9	52
Anabaena sp.	10	58
Jaaginema sp.	29	169
Planktolyngbya sp.	4	23
Synechocystis sp.	12	70
Chroomonas sp.	1	6
Chlorophyceae	4	23
Pediastrum duplex	1	6
Scenedesmus arcuatus	1	6
Pediastrum obtusum	1	6
Scenedesmus obliquus	2	12
Chlorella sp.	6	35
Selenastrum sp.	33	192
Scenedesmus quadricauda	7	41
Scenedesmus bijuga	5	29
Gloeocystis sp.	1	6
Chlamydomonas sp.	6	35
Ankistrodesmus falcatus	4	23
Scenedesmus sp.	20	117
Pediastrum tetras	1	6
Crucigenia tetrapedia	1	6
Planktosphaeria sp.	1	6
Trachelomonas speciosa	1	6
Trachelomonas sp.	18	105
Euglena sp.	4	23
Phacus sp.	3	17
Lepocinclis sp.	4	23
Mougeotia sp.	4	23
Scenedesmus bicaudatus	2	12
Staurastrum sp.	1	6
Characium sp.	1	6
Tetraedron gracile	1	6
Tetraedron minimum	3	17
Closterium venus venus	1	6
Pteromonas cordiformis	1	6
Bacillariophyceae	60	350

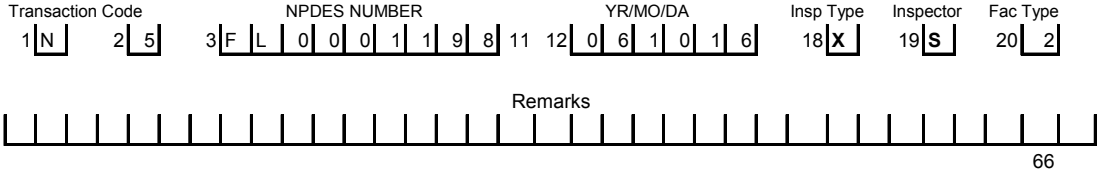
The Bioassay of Mosaic Fertilizer, L.L.C.-Ft. Meade Mine, effluent sampled on October 16, 2006. NPDES #FL0001198.

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



The Priority Pollutants Analysis of Mosaic Fertilizer, L.L.C.-Ft. Meade Mine, effluent sampled on October 16, 2006. NPDES #FL0001198.

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



Biological Analyses of Mosaic Fertilizer, L.L.C.-Ft. Meade Mine, effluent sampled on October 16, 2006. NPDES #FL0001198.

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

