

Bioassays of

Mosaic Fertilizer, LLC

Green Bay Chemical Complex

Polk County

NPDES #FL0000752

Sampled November 7, 2005

February 2006

Biology Section
Bureau of Laboratories
Division of Resource Assessment and Management

Quality Manual No. 870346G
NELAC Certification No. E31780

Mosaic Fertilizer, LLC Green Bay Chemical Complex, 4390 County Road 640 West, Bartow, Polk County, Florida, NPDES #FL0000752. Effluent samples for this facility were collected on November 7, 2005.

Introduction

Mosaic Fertilizer, LLC-Green Bay Chemical Complex is a phosphate chemical plant which manufactures sulfuric acid, phosphoric acid, di-ammonium phosphate, and mono-ammonium phosphate products. The facility was formerly known as Farmland Hydro, L.P., and Cargill Fertilizer, LLC. The facility does not have a design flow. The monthly average flow from November 2004 through September 2005 was 2.991 million gallons per day (MGD).

Process water at the facility is ponded for cooling on top of a lined phosphogypsum stack, in cooling ponds, and in adjacent ditches. The process water is recirculated and returned to the chemical plant for reuse. Process cooling pond water may be treated onsite utilizing a 2-stage liming process. The lime treatment system consists of two settling ponds, 1st and 2nd stage lime slaker units, and a lime sludge settling area. Non-contact process water can be discharged directly or routed through an 85-acre onsite natural treatment system consisting of 3 polishing ponds in series. This natural treatment system can be used as a final treatment for either non-contact process water or treated process cooling water. The facility is permitted to discharge treated non-process wastewater, treated process pond water and storm water runoff through Outfall 001 (located approximately at latitude 27º50'37" N and longitude -81º56'05" W) to the North Prong of the Alafia River. Discharge of effluent is intermittent and rainfall dependent.

The facility is not currently under any Administrative Orders or Consent Orders. The Administrative Order for the facility which allowed best available technology (BAT) treated process water expired in September 2005. Under the AO, the facility had several permit violations including: exceeded the nitrogen loading target of 3,480 lbs/yr in June 2005 (N loading 429,346 lbs/yr), exceeded the phosphorus loading target of 3.395 lbs/yr in June 2005 (P loading 148,586 lbs/yr; exceeded the maximum pH (8.5 SU) in January (9.0 SU), February (9.0 SU), April (9.5 SU), and May 2005 (9.2 SU); and exceeded the maximum conductivity (1,275 µmhos/cm) in March 2005 (3,640 µmhos/cm). (Facility information provided by Jacki Champion of FDEP Southwest District Phosphate Management.)

Methods

Samples were collected from the EFF-01 NPDES sampling point for Outfall 001 by Jacki Champion and Scott Rose (FDEP Southwest District Phosphate Management) following DEP-SOP-001/01 FS 2400 Wastewater Sampling. All DEP SOP's are available on the web at: http://www.floridadep.org/labs/qa/sops.htm.

The 48-hour acute screen toxicity tests and algal growth potential test were performed following internal DEP SOP's TA07_01, TA07_02, and TA08_01 through TA08_09. All internal DEP SOP's are available on the web at: http://www.floridadep.org/labs/cgi-bin/sop/biosop.asp. While the 48-hour acute screening toxicity test does not reflect the permit required conditions, the Department uses it to provide reasonable assurance that the facility does not adversely affect waters of the state.

Toxicity Test Results

Tests were performed November 8-10, 2005.

Ceriodaphnia dubia 48-hour acute screening bioassay –	LC_{50} > 100%, 0% mortality* in 100% sample at 48 hours
Cyprinella leedsi 48-hour acute screening bioassay –	LC_{50} > 100%, 5% mortality* in 100% sample at 48 hours

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

See Appendix 1 for bioassay bench sheets.

*NOTE: In a 48-hour acute screening test of 100% effluent, mortality of <20% provides reasonable assurance 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% mortality indicates low to moderate levels of toxicity, and further action may be required. Mortality of >50% provides reasonable assurance 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.).

Algal Growth Potential

The effluent Algal Growth Potential (AGP) was 70.1 mg dry wt/L of the freshwater 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 50.1 (±20%) mg dry wt/L (Table 1; Miller et al. 1978).

See Table 1 for AGP results.

Chemistry Results

Total residual chlorine was detected in the bioassay sample in the laboratory at a concentration of 0.05 mg/L. Interference from substances within the sample is suspected to have given a false reading, as the facility does not use chlorine. Total ammonia was detected in the bioassay sample at a concentration of 0.990 mg/L. The total ammonia concentration in the sample collected and preserved for chemical analysis was 1.3 mg/L. Based on the pH, salinity, and temperature of the effluent as collected, the calculated unionized ammonia concentration was < 0.02 mg/L.

Aluminum was detected in the effluent. Arsenic, iron, and nickel were detected in the effluent at levels that comply with Class III fresh water quality criteria. Lead was detected between the laboratory method detection limit (MDL) and practical quantitation limit (PQL). The effluent concentration of oil and grease (20 mg/L) exceeded the Class III fresh water criterion of 5 mg/L (62-302.530(50), F.A.C.).

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

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

Conclusion

The effluent sample collected from Outfall 001 for this facility on November 7, 2005, was not acutely toxic to either test species during the acute screen 48-hour bioassays. The effluent AGP result exceeded the "problem" threshold for fresh receiving waters. The effluent oil and grease concentration exceeded the fresh water quality 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 freshwater species Pseudokirchneriella subcapitata *for total soluble nitrogen (TSIN) and total nitrogen (TN) limitation and ratios of nitrogen to phosphorus for samples collected from Mosaic Fertilizer, LLC- Green Bay Chemical Complex on November 7, 2005.*

Location	AGP (measured)	Predicted AGP (TSIN) ± 20%	Predicted AGP (TN) ± 20%	Inorganic N:P ratio	Total N:P ratio
Effluent Samples	70.1	50.12 ± 10.024	103.32 ± 20.664	0.57	1.01

Table 2. Effluent limits, Class III Freshwater Criteria, and chemical data for samples collected from Mosaic Fertilizer, LLC Green Bay Chemical Complex on November 7, 2005.

Mosaic Fertilizer, LLC Green Bay Chemical Complex NPDES# FL0000752	Class III Freshwater Stds	Effluent Limits	Effluent Samples
Organic Constituents (µg/L)			
None detected	-	-	-
Metals (µg/L unless otherwise noted)			
Aluminum	-	-	108 A
Arsenic	≤ 50	-	2.81 A
Cadmium	≤ 2.3 b	-	0.05 U
Calcium (mg/L)	-	-	72.4 A
Chromium-III	≤ 181.8 b	-	2 U
Copper	≤ 20.3 b	-	0.5 U
Iron	≤ 1,000	-	64 A
Lead	≤ 10.1 b	-	0.083 fl
Magnesium (mg/L)	-	-	16.5 A
Nickel	≤ 112.8 b	-	1.22 A
Selenium	≤ 5	-	0.5 U
Silver	≤ 0.07	-	0.025 U
Zinc	≤ 259.3 b	-	3 U
Nutrients (mg/L)			
Ortho-phosphate	-	≤ 20	2.3
Total Phosphorus	-	≤35	2.7
Ammonia	-	Report	1.3
Unionized Ammonia	≤ 0.02	≤ 0.02	< 0.02 c
Nitrate+Nitrite	-	-	0.019
Total Kjeldahl Nitrogen	-	-	2.7
Organic Nitrogen	-	-	1.4 c
Total Nitrogen	-	Report	2.72 c
General Physical and Chemical Parameters			
Alpha, Total (pCi/L)	≤ 15	≤ 15	1.5 g
Alpha-Counting Error (pCi/L)	-	-	0.9
Radium 226 (pCi/L)	-	-	0.2
Radium 226-Counting Error (pCi/L)	-	-	0.1
Radium 228 (pCi/L)	-	-	0.9 U
Radium 228-Counting Error (pCi/L)	-	-	0.5
Radium 226+228 (pCi/L)	≤ 5	≤ 5	0.2 c
Dissolved Oxygen (mg/L)	≥ 5	≥ 5	6.1
pH (S.U.)	6-8.5	6-8.5	7
Conductivity (umhos/cm)	≤ 1,275	≤ 1,275	705
Temperature (C)	-	Report	23.7
Flow (MGD)	-	Report	2.991 a
Chlorophyll *a* (µg/L)	-	-	54 A
Phaeophytin (µg/L)	-	-	33 A
Color (PCU)	-	-	60 A
Turbidity (NTU)	≤ 29 t	-	6.4
TDS (mg/L)	-	-	468
TSS (mg/L)	-	-	10 I
Hardness (mg/L)	-	-	248.7 c
Oil and Grease (mg/L)	≤ 5	Report	20 h
Chloride (mg/L)	-	-	30
Fluoride (mg/L)	≤ 10	≤ 10	3
Sulfate (mg/L)	-	Report	230

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

a - Annual average

b - Value is calculated based on hardness

c - Calculated value

f - Lead was detected in the field blank at a concentration of 0.082 µg/L I

g- Alpha, total was detected in the field blank at a concentration of 1.7 pCi/L I

h- Oil and grease was detected in the field blank at a concentration of 4.1 mg/L I

k- Mixing zones for flouride and unionized ammonia extend 800 meters downstream of Outfall 001

t - Shall not exceed 29 NTUs above background

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

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

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

FDEP Biology Section - Acute Screen Bioassay Bench Sheets

Facility: Mosaic Fertilizer, LLC - Green Bay Chemical Complex
Address: County Road 640
City: Bartow County: Polk
Contact/District: Jacquelyn Champion / Southwest District
NPDES Permit #: FL 0000752
LIMS Job # TLH-2005-11-08-35 LIMS Sample #: 876554

Sample Collection: Date: 11-7-05 Time: 11:25
Hold Time Start: Date: 11-7-05 Time: 11:25

Comments:

Lims Data Entry: 11-14-05 SP
Data Entry Verification: 11-17-05 MF
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 01
Control survival ≥90%: (Yes) No
Temperature Range ≤3°C: (Yes) No
Test 2 validation: Test 2: SOP TA 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 # 3 Range 24.8-26.6
Room B246 23.9-25.2
Waterbath: —

Sample Validation:
Temperature: Shipped ≤6°C (Yes) No Hand Delivered: Cooling (received °C < collected °C) Yes No
Holding Time: ≤36 Hours (Yes) No (Composite-end of collection; grab-when collected, 4 in 24 - time last sample collected)

Investigators' Signatures
Sarah Fischer
Danielle Swindell
James David
Erin Lukas
Nicole Nellenbach
REVIEWER

Water Quality Parameters	20% DMW	Moderately Hard Water/ (Well Water)	Salt Water ASW NSW Test 1	Salt Water ASW NSW Test 2	Other:	Original Sample	Method	Measured by	Verified by
Field Total Residual Cl2 (mg/L):	N/A	N/A	N/A	N/A		not measured	—		
Lab Total Residual Cl2 (mg/L):	<0.03	<0.03				0.05	HACH		
Alkalinity (mg/L as $CaCO_3$):	85	89 141				98	HACH		
Hardness (mg/L as $CaCO_3$):	87	131				239	HACH		
Total Ammonia (mg/L as N):	<0.017	<0.017				0.910	DENVER		
Salinity (ppth):	<1	<1				<1	YSI (Mettler)		

V 1.4 9/12/05

Appendix 1. Bench Sheets (continued)

FDEP Biology Section - - Bioassay Bench Sheet

Survival

LIMS Sample #: 876554 Test #: 2nd 1 Test Started: Date 11-8-05 Time: 1330

Organism: C. dubia Test Ended: Date 11-10-05 Time: 1300

Organism Batch: 42-05 Diluent/ Batch: DMW / 33-05

Organism Age: <24 hrs Food: YCT *P. subcapitata* *Artemia* SOP: TA_07.01

Chamber Size: 30 mL Batch: 04-05 06-05 –

Test Volume: 20 mL Feeding: (Prior to test) - Prior to renewal - Daily

Concentration	Replicate	Chamber #	Test Hour 0 hr	24 hr	48 hr BR	48 hr AR	72 hr	96 hr
CTRL	A	A	5	5	5			
	B	B	5	5	5			
	C	C	5	5	5			
	D	D	5	5	5			
100%	A	A	5	5	5			
	B	B	5	5	5			
	C	C	5	5	5			
	D	D	5	5	5			
Organisms loaded by: JD		Checked by:	[redacted]	SP	JD			

Loading Verified by: SP

Comments:

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

Test Results:

% mortality in 100% sample 0

LC_{50}: >100 If Calculated: 95% CI_______ Method:_______

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

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

V 2.0 4/12/05

Page 000047

Appendix 1. Bench Sheets (continued)

[redacted]

FDEP Biology Section - - Bioassay Bench Sheet
Survival

LIMS Sample #: 8760554 Test #: 2 Test Started: Date 11-8-05 Time: 1315
Organism: C. leedsi Test Ended: Date 11-10-05 Time: 1310
Organism Batch: 33-05 Diluent/ Batch: Well H2O, 11-8-05
Organism Age: 6 days Food: YCT P. subcapitata Artemia SOP: TA_07.02
Chamber Size: 1000 mL Batch: – – GSL 536-90
Test Volume: 500 mL Feeding: (Prior to test) Prior to renewal - Daily

Concentration	Chamber #	Replicate	0 hr	24 hr	48 hr BR	48 hr AR	72 hr	96 hr
CTRL	C1	A	~~5~~ 10	10	10			
	C2	B	~~5~~ 10	9 10	9			
	C3	C	~~5~~ 10	10	10			
	C4	D	~~5~~ 10	9 10	9			
100%	C5	A	~~5~~ 10	10	10			
	C6	B	~~5~~ 10	10	10			
	C7	C	~~5~~ 10	9 10	9			
	C8	D	~~5~~ 10	9 10	9			
Organisms loaded by: JD		Checked by:	[redacted]	SP	JD			

Loading Verified by: SP

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

Comments: 10 animals were loaded per replicate rather than usual five – "extra" organisms were not removed due to potential injury to remaining organisms. MF 11-8-05

Test Results:

% mortality in 100% sample 5

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

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

V 2.0 4/12/05 Page 000048

Appendix 1. Bench Sheets (continued)

Bioassay Parameters

LIMS Sample #: 870551 Test #: 1 of 2

TEST SOP: TA07_ C\ 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			
pH (S.U.)	7.8		8.1			
Temperature °C	25.3		23.9			
Dissolved Oxygen mg/L	7.8		7.0			
Conductivity µmhos mmhos	170		149			
(initials) Measured by:	[illegible]		[illegible]			
(initials) Recorded by:	[illegible]		[illegible]			

Comments:

Concentration 100%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A		B			
pH (S.U.)	7.3		8.1			
Temperature °C	25.1		23.9			
Dissolved Oxygen mg/L	7.9		7.3			
Conductivity µmhos mmhos	692		737			
(initials) Measured by:	[illegible]		[illegible]			
(initials) Recorded by:	[illegible]		[illegible]			

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:

V2.0 2/24/04

000049

Page

Bioassay Parameters

LIMS Sample # : 876554 Test # : 2 of 2

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

~~V 1 2/24/04~~

Concentration CTRL	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C			
pH (S.U.)	8.0	7.9	8.1			
Temperature °C	25.2	24.5	24.0			
Dissolved Oxygen mg/L	7.8	6.4	6.4			
Conductivity (µmhos) mmhos	256	311	342			
(initials) Measured by:	[redacted]	[redacted]	JD			
(initials) Recorded by:	[redacted]	[redacted]	JD			

Comments:

Concentration 100%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C			
pH (S.U.)	7.4	7.6	7.9			
Temperature °C	25.0	24.8	24.2			
Dissolved Oxygen mg/L	7.9	6.9	7.2			
Conductivity (µmhos) mmhos	701	726	764			
(initials) Measured by:	[redacted]	[redacted]	JD			
(initials) Recorded by:	[redacted]	[redacted]	JD			

Comments:

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

Comments:

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

Comments:

V 2.0 2/24/04

[redacted]

Appendix 2. Chemical Analyses performed on the effluent from the Mosaic Fertilizer, LLC Green Bay Chemical Complex Outfall 001, sampled on November 7, 2005.

Date Sampled	Field ID	Analysis	Component	Result	Units	Remark	MDL	PQL
11/7/2005 11:25	OUTFALL 001	Bio-AGP/LimNut	Algal Growth Potential	70.1	mg DryWt/L		0.3	0.9
11/7/2005 11:25	OUTFALL 001	Bio-Chl-a	Chlorophyll-A, Monochromatic, Water	54	ug/L	A	1.7	5.1
11/7/2005 11:25	OUTFALL 001	Bio-Chl-a	Phaeophytin-A, Monochromatic, Water	33	ug/L	A	1.7	5.1
11/7/2005 11:25	OUTFALL 001	Bio-Toxicology	Bioassay-Acute-Screen-FW-C.dubia, LC50	100	LC50	L		
11/7/2005 11:25	OUTFALL 001	Bio-Toxicology	Bioassay-Acute-Screen-FW-Fish, LC50	100	LC50	L		
11/7/2005 11:25	OUTFALL 001	BNA-Water	1,2,4-Trichlorobenzene	1.1	ug/L	U	1.1	4.2
11/7/2005 11:25	OUTFALL 001	BNA-Water	1,2-Dichlorobenzene	1.1	ug/L	U	1.1	4.2
11/7/2005 11:25	OUTFALL 001	BNA-Water	1,3-Dichlorobenzene	1.1	ug/L	U	1.1	4.2
11/7/2005 11:25	OUTFALL 001	BNA-Water	1,4-Dichlorobenzene	1.1	ug/L	U	1.1	4.2
11/7/2005 11:25	OUTFALL 001	BNA-Water	2,4,6-Trichlorophenol	1.1	ug/L	U	1.1	4.2
11/7/2005 11:25	OUTFALL 001	BNA-Water	2,4-Dichlorophenol	1.1	ug/L	U	1.1	4.2
11/7/2005 11:25	OUTFALL 001	BNA-Water	2,4-Dimethylphenol	53	ug/L	U	53	210
11/7/2005 11:25	OUTFALL 001	BNA-Water	2,4-Dinitrophenol	16	ug/L	U	16	63
11/7/2005 11:25	OUTFALL 001	BNA-Water	2,4-Dinitrotoluene	1.1	ug/L	U	1.1	4.2
11/7/2005 11:25	OUTFALL 001	BNA-Water	2,6-Dinitrotoluene	1.1	ug/L	UJ	1.1	4.2
11/7/2005 11:25	OUTFALL 001	BNA-Water	2-Chloronaphthalene	1.1	ug/L	U	1.1	4.2
11/7/2005 11:25	OUTFALL 001	BNA-Water	2-Chlorophenol	1.1	ug/L	U	1.1	4.2
11/7/2005 11:25	OUTFALL 001	BNA-Water	2-Methyl-4,6-dinitrophenol	3.2	ug/L	U	3.2	13
11/7/2005 11:25	OUTFALL 001	BNA-Water	2-Nitrophenol	1.1	ug/L	U	1.1	4.2
11/7/2005 11:25	OUTFALL 001	BNA-Water	3,3'-Dichlorobenzidine	42	ug/L	U	42	170
11/7/2005 11:25	OUTFALL 001	BNA-Water	4,4'-DDD	1.6	ug/L	U	1.6	6.3
11/7/2005 11:25	OUTFALL 001	BNA-Water	4,4'-DDE	1.6	ug/L	U	1.6	6.3
11/7/2005 11:25	OUTFALL 001	BNA-Water	4,4'-DDT	1.6	ug/L	UJ	1.6	6.3
11/7/2005 11:25	OUTFALL 001	BNA-Water	4-Bromophenyl phenyl ether	1.1	ug/L	U	1.1	4.2
11/7/2005 11:25	OUTFALL 001	BNA-Water	4-Chloro-3-methylphenol	1.1	ug/L	U	1.1	4.2
11/7/2005 11:25	OUTFALL 001	BNA-Water	4-Chlorophenyl phenyl ether	2.1	ug/L	U	2.1	8.4
11/7/2005 11:25	OUTFALL 001	BNA-Water	4-Nitrophenol	16	ug/L	UJ	16	63
11/7/2005 11:25	OUTFALL 001	BNA-Water	Acenaphthene	1.1	ug/L	U	1.1	4.2
11/7/2005 11:25	OUTFALL 001	BNA-Water	Acenaphthylene	1.1	ug/L	U	1.1	4.2
11/7/2005 11:25	OUTFALL 001	BNA-Water	Aldrin	1.6	ug/L	U	1.6	6.3
11/7/2005 11:25	OUTFALL 001	BNA-Water	alpha-BHC	1.6	ug/L	U	1.6	6.3
11/7/2005 11:25	OUTFALL 001	BNA-Water	Anthracene	1.1	ug/L	U	1.1	4.2
11/7/2005 11:25	OUTFALL 001	BNA-Water	Benzidine	110	ug/L	U	110	420
11/7/2005 11:25	OUTFALL 001	BNA-Water	Benzo(a)anthracene	1.1	ug/L	U	1.1	4.2
11/7/2005 11:25	OUTFALL 001	BNA-Water	Benzo(a)pyrene	1.1	ug/L	U	1.1	4.2
11/7/2005 11:25	OUTFALL 001	BNA-Water	Benzo(b)fluoranthene	1.1	ug/L	U	1.1	4.2

Appendix 2. Chemical Analyses (continued)

Date Sampled	Field ID	Analysis	Component	Result	Units	Remark	MDL	PQL
11/7/2005 11:25	OUTFALL 001	BNA-Water	Benzo(g,h,i)perylene	1.1	ug/L	U	1.1	4.2
11/7/2005 11:25	OUTFALL 001	BNA-Water	Benzo(k)fluoranthene	1.1	ug/L	U	1.1	4.2
11/7/2005 11:25	OUTFALL 001	BNA-Water	beta-BHC	1.6	ug/L	U	1.6	6.3
11/7/2005 11:25	OUTFALL 001	BNA-Water	Bis(2-chloroethoxy)methane	1.1	ug/L	U	1.1	4.2
11/7/2005 11:25	OUTFALL 001	BNA-Water	Bis(2-chloroethyl)ether	1.1	ug/L	U	1.1	4.2
11/7/2005 11:25	OUTFALL 001	BNA-Water	Bis(2-chloroisopropyl)ether	3.2	ug/L	UJ	3.2	13
11/7/2005 11:25	OUTFALL 001	BNA-Water	Bis(2-ethylhexyl)phthalate	16	ug/L	U	16	63
11/7/2005 11:25	OUTFALL 001	BNA-Water	Butyl benzyl phthalate	5.3	ug/L	U	5.3	21
11/7/2005 11:25	OUTFALL 001	BNA-Water	Chrysene	1.1	ug/L	U	1.1	4.2
11/7/2005 11:25	OUTFALL 001	BNA-Water	delta-BHC	1.6	ug/L	U	1.6	6.3
11/7/2005 11:25	OUTFALL 001	BNA-Water	Dibenzo(a,h)anthracene	1.1	ug/L	U	1.1	4.2
11/7/2005 11:25	OUTFALL 001	BNA-Water	Dieldrin	1.6	ug/L	U	1.6	6.3
11/7/2005 11:25	OUTFALL 001	BNA-Water	Diethyl phthalate	1.1	ug/L	U	1.1	4.2
11/7/2005 11:25	OUTFALL 001	BNA-Water	Dimethyl phthalate	53	ug/L	U	53	210
11/7/2005 11:25	OUTFALL 001	BNA-Water	Di-n-butyl phthalate	5.3	ug/L	U	5.3	21
11/7/2005 11:25	OUTFALL 001	BNA-Water	Di-n-octyl phthalate	1.1	ug/L	U	1.1	4.2
11/7/2005 11:25	OUTFALL 001	BNA-Water	Endosulfan I	4.2	ug/L	U	4.2	17
11/7/2005 11:25	OUTFALL 001	BNA-Water	Endosulfan II	4.2	ug/L	U	4.2	17
11/7/2005 11:25	OUTFALL 001	BNA-Water	Endosulfan sulfate	1.6	ug/L	U	1.6	6.3
11/7/2005 11:25	OUTFALL 001	BNA-Water	Endrin	1.6	ug/L	UJ	1.6	6.3
11/7/2005 11:25	OUTFALL 001	BNA-Water	Endrin aldehyde	4.2	ug/L	U	4.2	17
11/7/2005 11:25	OUTFALL 001	BNA-Water	Fluoranthene	1.1	ug/L	U	1.1	4.2
11/7/2005 11:25	OUTFALL 001	BNA-Water	Fluorene	1.1	ug/L	U	1.1	4.2
11/7/2005 11:25	OUTFALL 001	BNA-Water	gamma-BHC	1.6	ug/L	U	1.6	6.3
11/7/2005 11:25	OUTFALL 001	BNA-Water	Heptachlor	1.6	ug/L	UJ	1.6	6.3
11/7/2005 11:25	OUTFALL 001	BNA-Water	Heptachlor epoxide	1.6	ug/L	U	1.6	6.3
11/7/2005 11:25	OUTFALL 001	BNA-Water	Hexachlorobenzene	1.1	ug/L	U	1.1	4.2
11/7/2005 11:25	OUTFALL 001	BNA-Water	Hexachlorobutadiene	3.2	ug/L	U	3.2	13
11/7/2005 11:25	OUTFALL 001	BNA-Water	Hexachlorocyclopentadiene	3.2	ug/L	UJ	3.2	13
11/7/2005 11:25	OUTFALL 001	BNA-Water	Hexachloroethane	3.2	ug/L	U	3.2	13
11/7/2005 11:25	OUTFALL 001	BNA-Water	Indeno(1,2,3-cd)pyrene	1.1	ug/L	U	1.1	4.2
11/7/2005 11:25	OUTFALL 001	BNA-Water	Isophorone	1.1	ug/L	U	1.1	4.2
11/7/2005 11:25	OUTFALL 001	BNA-Water	Naphthalene	1.1	ug/L	U	1.1	4.2
11/7/2005 11:25	OUTFALL 001	BNA-Water	Nitrobenzene	2.1	ug/L	UJ	2.1	8.4
11/7/2005 11:25	OUTFALL 001	BNA-Water	N-Nitrosodimethylamine	2.1	ug/L	U	2.1	8.4
11/7/2005 11:25	OUTFALL 001	BNA-Water	N-Nitrosodi-n-propylamine	2.1	ug/L	U	2.1	8.4
11/7/2005 11:25	OUTFALL 001	BNA-Water	N-Nitrosodiphenylamine	3.2	ug/L	U	3.2	13
11/7/2005 11:25	OUTFALL 001	BNA-Water	Pentachlorophenol	3.2	ug/L	U	3.2	13

Appendix 2. Chemical Analyses (continued)

Date Sampled	Field ID	Analysis	Component	Result	Units	Remark	MDL	PQL
11/7/2005 11:25	OUTFALL 001	BNA-Water	Phenanthrene	1.1	ug/L	U	1.1	4.2
11/7/2005 11:25	OUTFALL 001	BNA-Water	Phenol	1.1	ug/L	UJ	1.1	4.2
11/7/2005 11:25	OUTFALL 001	BNA-Water	Pyrene	1.1	ug/L	U	1.1	4.2
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	1,2,4-Trichlorobenzene	1.2	ug/L	U	1.2	4.8
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	1,2-Dichlorobenzene	1.2	ug/L	U	1.2	4.8
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	1,3-Dichlorobenzene	1.2	ug/L	U	1.2	4.8
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	1,4-Dichlorobenzene	1.2	ug/L	U	1.2	4.8
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	2,4,6-Trichlorophenol	1.2	ug/L	U	1.2	4.8
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	2,4-Dichlorophenol	1.2	ug/L	U	1.2	4.8
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	2,4-Dimethylphenol	60	ug/L	U	60	240
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	2,4-Dinitrophenol	18	ug/L	U	18	72
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	2,4-Dinitrotoluene	1.2	ug/L	U	1.2	4.8
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	2,6-Dinitrotoluene	1.2	ug/L	UJ	1.2	4.8
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	2-Chloronaphthalene	1.2	ug/L	U	1.2	4.8
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	2-Chlorophenol	1.2	ug/L	U	1.2	4.8
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	2-Methyl-4,6-dinitrophenol	3.6	ug/L	U	3.6	14
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	2-Nitrophenol	1.2	ug/L	U	1.2	4.8
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	3,3'-Dichlorobenzidine	48	ug/L	U	48	190
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	4,4'-DDD	1.8	ug/L	U	1.8	7.2
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	4,4'-DDE	1.8	ug/L	U	1.8	7.2
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	4,4'-DDT	1.8	ug/L	UJ	1.8	7.2
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	4-Bromophenyl phenyl ether	1.2	ug/L	U	1.2	4.8
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	4-Chloro-3-methylphenol	1.2	ug/L	U	1.2	4.8
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	4-Chlorophenyl phenyl ether	2.4	ug/L	U	2.4	9.6
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	4-Nitrophenol	18	ug/L	UJ	18	72
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	Acenaphthene	1.2	ug/L	U	1.2	4.8
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	Acenaphthylene	1.2	ug/L	U	1.2	4.8
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	Aldrin	1.8	ug/L	U	1.8	7.2
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	alpha-BHC	1.8	ug/L	U	1.8	7.2
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	Anthracene	1.2	ug/L	U	1.2	4.8
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	Benzidine	120	ug/L	U	120	480
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	Benzo(a)anthracene	1.2	ug/L	U	1.2	4.8
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	Benzo(a)pyrene	1.2	ug/L	U	1.2	4.8
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	Benzo(b)fluoranthene	1.2	ug/L	U	1.2	4.8
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	Benzo(g,h,i)perylene	1.2	ug/L	U	1.2	4.8
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	Benzo(k)fluoranthene	1.2	ug/L	U	1.2	4.8
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	beta-BHC	1.8	ug/L	U	1.8	7.2
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	Bis(2-chloroethoxy)methane	1.2	ug/L	U	1.2	4.8

Appendix 2. Chemical Analyses (continued)

Date Sampled	Field ID	Analysis	Component	Result	Units	Remark	MDL	PQL
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	Bis(2-chloroethyl)ether	1.2	ug/L	U	1.2	4.8
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	Bis(2-chloroisopropyl)ether	3.6	ug/L	UJ	3.6	14
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	Bis(2-ethylhexyl)phthalate	18	ug/L	U	18	72
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	Butyl benzyl phthalate	6	ug/L	U	6	24
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	Chrysene	1.2	ug/L	U	1.2	4.8
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	delta-BHC	1.8	ug/L	U	1.8	7.2
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	Dibenzo(a,h)anthracene	1.2	ug/L	U	1.2	4.8
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	Dieldrin	1.8	ug/L	U	1.8	7.2
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	Diethyl phthalate	1.4	ug/L	I	1.2	4.8
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	Dimethyl phthalate	60	ug/L	U	60	240
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	Di-n-butyl phthalate	6	ug/L	U	6	24
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	Di-n-octyl phthalate	1.2	ug/L	U	1.2	4.8
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	Endosulfan I	4.8	ug/L	U	4.8	19
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	Endosulfan II	4.8	ug/L	U	4.8	19
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	Endosulfan sulfate	1.8	ug/L	U	1.8	7.2
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	Endrin	1.8	ug/L	UJ	1.8	7.2
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	Endrin aldehyde	4.8	ug/L	U	4.8	19
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	Fluoranthene	1.2	ug/L	U	1.2	4.8
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	Fluorene	1.2	ug/L	U	1.2	4.8
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	gamma-BHC	1.8	ug/L	U	1.8	7.2
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	Heptachlor	1.8	ug/L	UJ	1.8	7.2
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	Heptachlor epoxide	1.8	ug/L	U	1.8	7.2
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	Hexachlorobenzene	1.2	ug/L	U	1.2	4.8
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	Hexachlorobutadiene	3.6	ug/L	U	3.6	14
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	Hexachlorocyclopentadiene	3.6	ug/L	UJ	3.6	14
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	Hexachloroethane	3.6	ug/L	U	3.6	14
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	Indeno(1,2,3-cd)pyrene	1.2	ug/L	U	1.2	4.8
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	Isophorone	1.2	ug/L	U	1.2	4.8
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	Naphthalene	1.2	ug/L	U	1.2	4.8
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	Nitrobenzene	2.4	ug/L	UJ	2.4	9.6
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	N-Nitrosodimethylamine	2.4	ug/L	U	2.4	9.6
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	N-Nitrosodi-n-propylamine	2.4	ug/L	U	2.4	9.6
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	N-Nitrosodiphenylamine	3.6	ug/L	U	3.6	14
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	Pentachlorophenol	3.6	ug/L	U	3.6	14
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	Phenanthrene	1.2	ug/L	U	1.2	4.8
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	Phenol	1.2	ug/L	UJ	1.2	4.8
11/7/2005 10:30	EQUIPMENT BLANK	BNA-Water	Pyrene	1.2	ug/L	U	1.2	4.8
11/7/2005 11:25	OUTFALL 001	GC-Water	Alachlor	0.6	ug/L	U	0.6	2.4

Appendix 2. Chemical Analyses (continued)

Date Sampled	Field ID	Analysis	Component	Result	Units	Remark	MDL	PQL
11/7/2005 11:25	OUTFALL 001	GC-Water	Ametryn	0.05	ug/L	U	0.05	0.2
11/7/2005 11:25	OUTFALL 001	GC-Water	Atrazine	0.05	ug/L	U	0.05	0.2
11/7/2005 11:25	OUTFALL 001	GC-Water	Azinphos Methyl	0.2	ug/L	UJ	0.2	0.8
11/7/2005 11:25	OUTFALL 001	GC-Water	Bromacil	0.2	ug/L	U	0.2	0.8
11/7/2005 11:25	OUTFALL 001	GC-Water	Butylate	0.2	ug/L	U	0.2	0.8
11/7/2005 11:25	OUTFALL 001	GC-Water	Chlorpyrifos Ethyl	0.05	ug/L	U	0.05	0.2
11/7/2005 11:25	OUTFALL 001	GC-Water	Chlorpyrifos Methyl	0.1	ug/L	U	0.1	0.4
11/7/2005 11:25	OUTFALL 001	GC-Water	Diazinon	0.05	ug/L	U	0.05	0.2
11/7/2005 11:25	OUTFALL 001	GC-Water	Ethion	0.05	ug/L	U	0.05	0.2
11/7/2005 11:25	OUTFALL 001	GC-Water	Ethoprop	0.1	ug/L	U	0.1	0.4
11/7/2005 11:25	OUTFALL 001	GC-Water	Fenamiphos	0.2	ug/L	U	0.2	0.8
11/7/2005 11:25	OUTFALL 001	GC-Water	Fonofos	0.1	ug/L	U	0.1	0.4
11/7/2005 11:25	OUTFALL 001	GC-Water	Hexazinone	0.1	ug/L	U	0.1	0.4
11/7/2005 11:25	OUTFALL 001	GC-Water	Malathion	0.15	ug/L	UJ	0.15	0.6
11/7/2005 11:25	OUTFALL 001	GC-Water	Metalaxyl	0.25	ug/L	U	0.25	1
11/7/2005 11:25	OUTFALL 001	GC-Water	Metolachlor	0.5	ug/L	U	0.5	2
11/7/2005 11:25	OUTFALL 001	GC-Water	Metribuzin	0.1	ug/L	U	0.1	0.4
11/7/2005 11:25	OUTFALL 001	GC-Water	Mevinphos	0.2	ug/L	U	0.2	0.8
11/7/2005 11:25	OUTFALL 001	GC-Water	Naled	0.8	ug/L	UJ	0.8	3.2
11/7/2005 11:25	OUTFALL 001	GC-Water	Norflurazon	0.15	ug/L	U	0.15	0.6
11/7/2005 11:25	OUTFALL 001	GC-Water	Parathion Ethyl	0.15	ug/L	U	0.15	0.6
11/7/2005 11:25	OUTFALL 001	GC-Water	Parathion Methyl	0.1	ug/L	U	0.1	0.4
11/7/2005 11:25	OUTFALL 001	GC-Water	Phorate	0.05	ug/L	U	0.05	0.2
11/7/2005 11:25	OUTFALL 001	GC-Water	Prometryn	0.15	ug/L	U	0.15	0.6
11/7/2005 11:25	OUTFALL 001	GC-Water	Simazine	0.05	ug/L	U	0.05	0.2
11/7/2005 10:30	EQUIPMENT BLANK	GC-Water	Alachlor	0.78	ug/L	U	0.78	3.1
11/7/2005 10:30	EQUIPMENT BLANK	GC-Water	Ametryn	0.065	ug/L	U	0.065	0.26
11/7/2005 10:30	EQUIPMENT BLANK	GC-Water	Atrazine	0.065	ug/L	U	0.065	0.26
11/7/2005 10:30	EQUIPMENT BLANK	GC-Water	Azinphos Methyl	0.26	ug/L	UJ	0.26	1
11/7/2005 10:30	EQUIPMENT BLANK	GC-Water	Bromacil	0.26	ug/L	U	0.26	1
11/7/2005 10:30	EQUIPMENT BLANK	GC-Water	Butylate	0.26	ug/L	U	0.26	1
11/7/2005 10:30	EQUIPMENT BLANK	GC-Water	Chlorpyrifos Ethyl	0.065	ug/L	U	0.065	0.26
11/7/2005 10:30	EQUIPMENT BLANK	GC-Water	Chlorpyrifos Methyl	0.13	ug/L	U	0.13	0.52
11/7/2005 10:30	EQUIPMENT BLANK	GC-Water	Diazinon	0.065	ug/L	U	0.065	0.26
11/7/2005 10:30	EQUIPMENT BLANK	GC-Water	Ethion	0.065	ug/L	U	0.065	0.26
11/7/2005 10:30	EQUIPMENT BLANK	GC-Water	Ethoprop	0.13	ug/L	U	0.13	0.52
11/7/2005 10:30	EQUIPMENT BLANK	GC-Water	Fenamiphos	0.26	ug/L	U	0.26	1
11/7/2005 10:30	EQUIPMENT BLANK	GC-Water	Fonofos	0.13	ug/L	U	0.13	0.52

Appendix 2. Chemical Analyses (continued)

Date Sampled	Field ID	Analysis	Component	Result	Units	Remark	MDL	PQL
11/7/2005 10:30	EQUIPMENT BLANK	GC-Water	Hexazinone	0.13	ug/L	U	0.13	0.52
11/7/2005 10:30	EQUIPMENT BLANK	GC-Water	Malathion	0.19	ug/L	UJ	0.19	0.76
11/7/2005 10:30	EQUIPMENT BLANK	GC-Water	Metalaxyl	0.32	ug/L	U	0.32	1.3
11/7/2005 10:30	EQUIPMENT BLANK	GC-Water	Metolachlor	0.65	ug/L	U	0.65	2.6
11/7/2005 10:30	EQUIPMENT BLANK	GC-Water	Metribuzin	0.13	ug/L	U	0.13	0.52
11/7/2005 10:30	EQUIPMENT BLANK	GC-Water	Mevinphos	0.26	ug/L	U	0.26	1
11/7/2005 10:30	EQUIPMENT BLANK	GC-Water	Naled	1	ug/L	UJ	1	4
11/7/2005 10:30	EQUIPMENT BLANK	GC-Water	Norflurazon	0.19	ug/L	U	0.19	0.76
11/7/2005 10:30	EQUIPMENT BLANK	GC-Water	Parathion Ethyl	0.19	ug/L	U	0.19	0.76
11/7/2005 10:30	EQUIPMENT BLANK	GC-Water	Parathion Methyl	0.13	ug/L	U	0.13	0.52
11/7/2005 10:30	EQUIPMENT BLANK	GC-Water	Phorate	0.065	ug/L	U	0.065	0.26
11/7/2005 10:30	EQUIPMENT BLANK	GC-Water	Prometryn	0.19	ug/L	U	0.19	0.76
11/7/2005 10:30	EQUIPMENT BLANK	GC-Water	Simazine	0.065	ug/L	U	0.065	0.26
11/7/2005 11:25	OUTFALL 001	Metals-Water	Aluminum	108	ug/L	A	5	20
11/7/2005 11:25	OUTFALL 001	Metals-Water	Arsenic	2.81	ug/L	A	0.25	1
11/7/2005 11:25	OUTFALL 001	Metals-Water	Cadmium	0.05	ug/L	U	0.05	0.2
11/7/2005 11:25	OUTFALL 001	Metals-Water	Calcium	72.4	mg/L	A	0.05	0.2
11/7/2005 11:25	OUTFALL 001	Metals-Water	Chromium	2	ug/L	U	2	8
11/7/2005 11:25	OUTFALL 001	Metals-Water	Copper	0.5	ug/L	U	0.5	2
11/7/2005 11:25	OUTFALL 001	Metals-Water	Iron	64	ug/L	A	10	40
11/7/2005 11:25	OUTFALL 001	Metals-Water	Lead	0.083	ug/L	I	0.075	0.3
11/7/2005 11:25	OUTFALL 001	Metals-Water	Magnesium	16.5	mg/L	A	0.01	0.04
11/7/2005 11:25	OUTFALL 001	Metals-Water	Nickel	1.22	ug/L	A	0.25	1
11/7/2005 11:25	OUTFALL 001	Metals-Water	Selenium	0.5	ug/L	U	0.5	2
11/7/2005 11:25	OUTFALL 001	Metals-Water	Silver	0.025	ug/L	U	0.025	0.1
11/7/2005 11:25	OUTFALL 001	Metals-Water	Zinc	3	ug/L	U	3	12
11/7/2005 10:30	EQUIPMENT BLANK	Metals-Water	Aluminum	5	ug/L	U	5	20
11/7/2005 10:30	EQUIPMENT BLANK	Metals-Water	Arsenic	0.76	ug/L	U	0.76	3
11/7/2005 10:30	EQUIPMENT BLANK	Metals-Water	Cadmium	0.05	ug/L	U	0.05	0.2
11/7/2005 10:30	EQUIPMENT BLANK	Metals-Water	Calcium	0.05	mg/L	U	0.05	0.2
11/7/2005 10:30	EQUIPMENT BLANK	Metals-Water	Chromium	2	ug/L	U	2	8
11/7/2005 10:30	EQUIPMENT BLANK	Metals-Water	Copper	0.5	ug/L	U	0.5	2
11/7/2005 10:30	EQUIPMENT BLANK	Metals-Water	Iron	10	ug/L	U	10	40
11/7/2005 10:30	EQUIPMENT BLANK	Metals-Water	Lead	0.082	ug/L	I	0.075	0.3
11/7/2005 10:30	EQUIPMENT BLANK	Metals-Water	Magnesium	0.01	mg/L	U	0.01	0.04
11/7/2005 10:30	EQUIPMENT BLANK	Metals-Water	Nickel	0.25	ug/L	U	0.25	1
11/7/2005 10:30	EQUIPMENT BLANK	Metals-Water	Selenium	0.5	ug/L	U	0.5	2
11/7/2005 10:30	EQUIPMENT BLANK	Metals-Water	Silver	0.025	ug/L	U	0.025	0.1

Appendix 2. Chemical Analyses (continued)

Date Sampled	Field ID	Analysis	Component	Result	Units	Remark	MDL	PQL
11/7/2005 10:30	EQUIPMENT BLANK	Metals-Water	Zinc	3	ug/L	U	3	12
11/7/2005 11:25	OUTFALL 001	Nutrients-Liquid	Ammonia-N	1.3	mg N/L		0.05	0.1
11/7/2005 11:25	OUTFALL 001	Nutrients-Liquid	Chloride	30	mg Cl/L		1	2.5
11/7/2005 11:25	OUTFALL 001	Nutrients-Liquid	Color	60	PCU	A	5	5
11/7/2005 11:25	OUTFALL 001	Nutrients-Liquid	Fluoride	3	mg F/L		0.05	0.1
11/7/2005 11:25	OUTFALL 001	Nutrients-Liquid	Kjeldahl Nitrogen	2.7	mg N/L		0.16	0.4
11/7/2005 11:25	OUTFALL 001	Nutrients-Liquid	NO2NO3-N	0.019	mg N/L		0.004	0.01
11/7/2005 11:25	OUTFALL 001	Nutrients-Liquid	O-Phosphate-P	2.3	mg P/L		0.08	0.2
11/7/2005 11:25	OUTFALL 001	Nutrients-Liquid	Sulfate	230	mg SO4/L		2	5
11/7/2005 11:25	OUTFALL 001	Nutrients-Liquid	TDS	468	mg/L		15	60
11/7/2005 11:25	OUTFALL 001	Nutrients-Liquid	Total-P	2.7	mg P/L		0.1	0.3
11/7/2005 11:25	OUTFALL 001	Nutrients-Liquid	TSS	10	mg/L	I	4	16
11/7/2005 11:25	OUTFALL 001	Nutrients-Liquid	Turbidity	6.4	NTU		0.05	0.05
11/7/2005 10:30	EQUIPMENT BLANK	Nutrients-Liquid	Ammonia-N	0.01	mg N/L	U	0.01	0.02
11/7/2005 10:30	EQUIPMENT BLANK	Nutrients-Liquid	Fluoride	0.05	mg F/L	U	0.05	0.1
11/7/2005 10:30	EQUIPMENT BLANK	Nutrients-Liquid	Kjeldahl Nitrogen	0.08	mg N/L	U	0.08	0.2
11/7/2005 10:30	EQUIPMENT BLANK	Nutrients-Liquid	NO2NO3-N	0.004	mg N/L	U	0.004	0.01
11/7/2005 10:30	EQUIPMENT BLANK	Nutrients-Liquid	O-Phosphate-P	0.004	mg P/L	U	0.004	0.01
11/7/2005 10:30	EQUIPMENT BLANK	Nutrients-Liquid	Sulfate	0.2	mg SO4/L	U	0.2	0.5
11/7/2005 10:30	EQUIPMENT BLANK	Nutrients-Liquid	Total-P	0.02	mg P/L	U	0.02	0.06
11/7/2005 11:25	OUTFALL 001	Overflow	Alpha, Total	1.5	pCi/L			
11/7/2005 11:25	OUTFALL 001	Overflow	Alpha-Counting Error	0.9	pCi/L			
11/7/2005 11:25	OUTFALL 001	Overflow	Oil and Grease	20	mg/L			
11/7/2005 11:25	OUTFALL 001	Overflow	Radium 226	0.2	pCi/L			
11/7/2005 11:25	OUTFALL 001	Overflow	Radium 226-Counting Error	0.1	pCi/L			
11/7/2005 11:25	OUTFALL 001	Overflow	Radium 228	0.9	pCi/L	U		
11/7/2005 11:25	OUTFALL 001	Overflow	Radium 228-Counting Error	0.5	pCi/L			
11/7/2005 10:30	EQUIPMENT BLANK	Overflow	Alpha, Total	1.7	pCi/L			
11/7/2005 10:30	EQUIPMENT BLANK	Overflow	Alpha-Counting Error	0.8	pCi/L			
11/7/2005 10:30	EQUIPMENT BLANK	Overflow	Oil and Grease	4.1	mg/L	I		
11/7/2005 10:30	EQUIPMENT BLANK	Overflow	Radium 226	0.1	pCi/L	U		
11/7/2005 10:30	EQUIPMENT BLANK	Overflow	Radium 226-Counting Error	0.1	pCi/L			
11/7/2005 10:30	EQUIPMENT BLANK	Overflow	Radium 228	0.9	pCi/L	U		
11/7/2005 10:30	EQUIPMENT BLANK	Overflow	Radium 228-Counting Error	0.5	pCi/L			

The Bioassay of Mosaic Fertilizer, LLC Green Bay Chemical Complex effluent sampled on November 7, 2005. NPDES #FL0000752.

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

Transaction Code	NPDES NUMBER	YR/MO/DA	Insp Type	Inspector	Fac Type
1 N 2 5	3 F L 0 0 0 0 7 5 2 11	12 0 5 1 1 0 7	18 **B**	19 **S**	20 2

Remarks

66

The Priority Pollutants Analysis of Mosaic Fertilizer, LLC Green Bay Chemical Complex effluent sampled on November 7, 2005. NPDES #FL0000752.

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

Transaction Code	NPDES NUMBER	YR/MO/DA	Insp Type	Inspector	Fac Type
1 N 2 5	3 F L 0 0 0 0 7 5 2 11	12 0 5 1 1 0 7	18 **X**	19 **S**	20 2

Remarks

66

Biological Analyses of Mosaic Fertilizer, LLC Green Bay Chemical Complex effluent sampled on November 7, 2005. NPDES #FL0000752.

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

Transaction Code	NPDES NUMBER	YR/MO/DA	Insp Type	Inspector	Fac Type
1 N 2 5	3 F L 0 0 0 0 7 5 2 11	12 0 5 1 1 0 7	18 **S**	19 **S**	20 2

Remarks

66