

Bioassays of

South Martin Regional Reverse Osmosis Plant

Martin County

NPDES #FL0184152

Sampled December 12, 2005

March 2006

Biology Section
Bureau of Laboratories
Division of Resource Assessment and Management

Quality Manual No. 870346G
NELAC Certification No. E31780

South Martin Regional Reverse Osmosis Plant, Water Street, Hobe Sound, Martin County, Florida, NPDES #FL0184152. Effluent samples for this facility were collected on December 12, 2005.

Introduction

The South Martin Regional Reverse Osmosis Plant is a water treatment plant which utilizes the reverse osmosis (RO) membrane treatment process to produce potable water. The facility has a design flow (concentrate) of 2.0 million gallons per day (MGD). The average annual daily flow (AADF) from December 2004 through November 2005 was 0.235 MGD. Effluent is treated by pH adjustment followed by aeration to remove hydrogen sulfide and provide oxygenation. Effluent is discharged through Outfall D-001 to the Class III marine waters of the Atlantic Ocean. The outfall, located approximately at latitude 27º04'03" N, and longitude 80º06'39"W, is approximately 457.2 m (1,500 feet) off the beach from the mean high water line in Hobe Sound, and discharges at a depth of approximately 4.57 m (15 feet).

The facility is not under any Administrative or Consent Orders. The facility has mixing zones for combined radium (radium 226 +228) and gross alpha. The dimension of the mixing zone for combined radium is 15 m (49.2 feet) long by 15 m (49.2 feet) wide, 4 m (13.1 feet) above the bottom, centered over the diffuser. The dimension of the gross alpha mixing zone is 5.5 m (18 feet) long by 5.5 m (18 feet) wide, 1 m (3.3 feet) above the bottom, centered over the diffuser. During the previous year, the facility had permit violations for copper (4 µg/L October 2005, limit 3.4 µg/L) and hydrogen sulfide (2 mg/L September 2005, limit 0.02 mg/L) (facility information provided by Terry Davis of FDEP Southeast District).

Methods

Samples were collected from the EFF-001 NPDES sampling point for Outfall D-001 by Terry Davis (FDEP Southeast District) following DEP-SOP-001/01 FS 2400 Wastewater Sampling. All DEP SOP's are available on the web at: http://www.floridadep.org/labs/qa/sops.htm.

The 48-hour acute screen toxicity tests and algal growth potential test were performed following internal DEP SOP's TA07_03, TA07_04, 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.

The bioassay samples were salinity adjusted from an apparent salinity of approximately 15.8 parts per thousand (ppth) to approximately 20 ppth using 40 Fathoms® artificial sea salts per NPDES permit requirements. The salt control used for these tests was prepared by diluting 20 ppth salinity artificial seawater (ASW) with well water to an approximate salinity of 15.8 ppth and then salting this solution with artificial sea salts to approximately 20 ppth salinity. The purpose of the salt controls was to confirm that there was no effect of adding artificial sea salts to the sample. There was no mortality in the salt control of the *Menidia beryllina* bioassay. There was excessive mortality in both the ASW control (40% mortality) and the salt control (25% mortality) of the *Americamysis bahia* bioassay.

Toxicity Test Results

Tests were performed December 13-15, 2005.

Americamysis bahia 48-hour acute screening bioassay – No Result Reported (Control Failure)

Menidia beryllina 48-hour acute screening bioassay – LC_{50} > 100%, 15% mortality* in 100% sample at 48 hours

The bioassay sample was not acutely toxic to the *Menidia beryllina* test organisms. The *Americamysis bahia* test for this sample was invalidated due to a control failure. The high mortality in both the unadjusted and salinity-adjusted controls suggests that the purchased *Americamysis bahia* test organisms were not in good health. The unhealthy appearance of the organisms was noted by laboratory personnel upon receipt of the organisms.

Although bioassay results are not available for the *A. bahia* test, it should be noted that chemistry results confirmed that the ion makeup of the sample was not in seawater proportions and that the apparent 15.8 ppth salinity (salinity based on conductivity and temperature) of the sample was due in part to elevated levels of ground-water ions. The calcium concentration was 645 mg/L at 15.8 ppth salinity, which is approximately three and a half times the normal concentration for calcium in seawater of this salinity. The calculated calcium concentration in the salinity adjusted sample was approximately three times the normal calcium concentration in seawater of this salinity (approximately 20 ppth). Previous research conducted by the FDEP Biology Section demonstrated that *A. bahia* is much more sensitive to seawater-ion imbalances than is *M. beryllina* (FDEP, 1995). This elevated calcium concentration has been shown to cause acute toxicity in *A. bahia*.

*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.).

See Appendix 1 for bioassay bench sheets.

Algal Growth Potential

The effluent Algal Growth Potential (AGP) was 0.906 mg dry wt/L of the saltwater species *Dunaliella tertiolecta.* Raschke and Shultz found that AGP values above 10.0 mg dry weight/L represent a "problem" threshold for marine receiving waters, implying nutrient enrichment (personal communication with Ron Raschke USEPA Region 4 1987). Total phosphorus was not detected in the effluent sample; therefore, nitrogen to phosphorus ratios are not calculable.

See Table 1 for AGP results.

Chemistry Results

Total residual chlorine was not detected in the bioassay sample in the laboratory. Total ammonia was detected in the bioassay sample in the laboratory at a concentration of 3.36 mg/L. The total ammonia concentration in the sample collected and preserved for chemical analysis was 4.1 mg/L. Based on the pH, salinity, and temperature of the effluent as collected, the calculated unionized ammonia concentration was 0.18 mg/L.

The effluent combined radium 226+228 concentration (12.2 pCi/L) exceeded Class III marine water quality criterion of ≤5 pCi/L (62-302.530(58)(a), F.A.C.). However, this facility has a mixing zone for this analyte.

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 D-001 for this facility on December 12, 2005, was not acutely toxic to the *Menidia beryllina* test species during the acute screen 48-hour bioassay. The *Americamysis bahia* test was invalidated due to excessive control mortality. Results of chemical analyses confirmed that the ionic imbalance within the effluent was such that in all likelihood the sample would have proved to be acutely toxic to the *Americamysis bahia* test organisms. The effluent AGP result was less than the "problem" threshold for marine receiving waters. The effluent concentration of combined radium 226+228 exceeded the marine water quality criterion; however, this facility has a mixing zone for this analyte.

Literature Cited

FDEP. 1995. Protocols for determining Major-Seawater-Ion Toxicity in Membrane-Technology Water-Treatment Concentrate. Biology and Chemistry Section, FDEP Bureau of Laboratories, Tallahassee, Florida. 99 pp.

Table 1. Measured algal growth potential (AGP; mg dry weight/L) of the saltwater species Dunaliella tertiolecta *and ratios of nitrogen to phosphorus for samples collected from South Martin Regional Reverse Osmosis Plant on December 12, 2005.*

Location	AGP (measured)	Inorganic N:P ratio	Total N:P ratio
Effluent Samples	0.906 AV	174.07	Not Applicable *

A - Value reported is the mean of two or more determinations
V - Analyte was detected in both the sample and method blank
* - Total phosphorus were not detected in the analytical chemistry sample, so the total N:P ratio could not be calculated.

Table 2. Effluent limits, Class III Marine Criteria, and chemical data for samples collected from South Martin Regional Reverse Osmosis Plant on December 12, 2005.

South Martin Regional Reverse Osmosis Plant NPDES# FL0184152	Class III Marine Stds	Effluent Limits	Effluent Samples
Organic Constituents (µg/L)			
None Detected	-	-	-
Metals (µg/L unless otherwise noted)			
Aluminum	≤ 1,500	-	10 U
Arsenic	≤ 50	-	8 U
Cadmium	≤ 9.3	-	0.25 U
Calcium (mg/L)	-	-	645
Chromium-III	-	-	6 U
Copper	≤ 3.7	≤ 3.7	2.5 U
Iron	≤ 300	-	20 U
Lead	≤ 8.5	-	0.75 U
Magnesium (mg/L)	-	-	689
Nickel	≤ 8.3	-	2 U
Selenium	≤ 71	-	12 U
Silver	≤ 2.3	-	0.25 U
Zinc	≤ 86	-	6 U
Nutrients (mg/L)			
Ortho-phosphate	-	-	0.027
Total Phosphorus	-	Report	0.02 U
Ammonia	-	Report	4.1
Unionized Ammonia	-	-	0.18 c
Nitrate+Nitrite	-	-	0.6
Total Kjeldahl Nitrogen	-	Report	5.6
Organic Nitrogen	-	-	1.5 c
Total Nitrogen	-	Report	6.2 c
General Physical and Chemical Parameters			
Alpha, Total (pCi/L)	≤ 15	Report g	59.2 U
Alpha-Counting Error (pCi/L)	-	-	30.7
Radium 226 (pCi/L)	-	-	11.4
Radium 226-Counting Error (pCi/L)	-	-	0.5
Radium 228 (pCi/L)	-	-	0.8
Radium 228-Counting Error (pCi/L)	-	-	0.6
Combined Radium 226+228	≤ 5	Report g	12.2 c
Dissolved Oxygen (mg/L)	≥ 4.0	≥ 4.0 e	7.8
pH (S.U.)	6.5-8.5	6.5-8.5	7.9
Conductivity (umhos/cm)	-	-	25,250
Salinity (ppth)	-	Report	16.1 c
Temperature (C)	-	Report	23
Chlorophyll *a* (µg/L)	-	-	0.85 U
Phaeophytin *a* (µg/L)	-	-	1.5 U
Flow	-	≤ 2.0 d	0.256 a
Hardness (mg/L)	-	-	4,447.9 c
Hydrogen sulfide (mg/L)	-	≤ 0.02 d	-
Fluoride (mg/L)	≤ 5.0	≤ 5.0 d	-

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

a - Annual average

c - Calculated value

d - Daily maximum

e - Daily minimum

f - Nitrate+Nitrate was detected in the field blank at a concentration of 0.051 mg/L

g - mixing zone granted

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

FDEP Biology Section - Acute Screen Bioassay Bench Sheets

Facility: South Martin RO WTP
Address: Water Street
City: Hobe Sound County: Martin
Contact/District: Terry Davis/Southeast Dist.
NPDES Permit #: FL 0184152
LIMS Job #: TLH-2005-12-13-43 LIMS Sample #: 886391
Lims Data Entry: 12-15-05 SB Data Entry Verification: 12-16-05 MF

Sample Collection: Date: 12-12-05 Time: 1140
Hold Time Start: Date: 12-12-05 Time: 1140

Comments: Sample salinity adjusted to 20 parts per thousand per permit.
The mysid test was terminated due to ~~control~~ MF ~~mortality~~ MF control mortality - otherwise noted prior to test initiation that the mysid test organism did not look healthy.
MF 12-15-05 NCR 1838 created on 12-16-05
test reported as no Result.

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_03
Control survival ≥90%: Yes (No)
Temperature Range ≤3°C: (Yes) No
Test 2 validation: Test 2: SOP TA 07_04
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: 15.8 Final Salinity: 20.0 (Salts) Hypersaline brine
Salinity adjusted (Test 2): (yes) no Initial Salinity: 15.8 Final Salinity: 20.0 (Salts) Hypersaline brine
Dechlorination: yes (no) ____mL of 0.025N Sodium Thiosulfate per liter of sample. Final TRC: ____

Temperature Range °C
Incubator # 3 Range 237-258
Room B246: 242 242
Waterbath: n/a

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 Pinchard
Bruce Boykins
Erin Miller
Marshall Faircloth
James Daniel
Nicole Wellendorf
REVIEWER

Water Quality Parameters	20% DMW	Moderately Hard Water/ Well Water	Salt Water (ASW) NSW Test 1	Salt Water (ASW) NSW Test 2	Other: Salt adjusted sample	Original Sample	Method	Measured by	Verified by
Field Total Residual Cl2 (mg/L):	N/A	N/A	N/A	N/A	N/A	not measured	–		SP
Lab Total Residual Cl2 (mg/L):			<0.03	<0.03	<0.03	<0.03	HACH	SB/BB	SP
Alkalinity (mg/L as $CaCO_3$):			219	219	600	600	HACH	CW	BB
Hardness (mg/L as $CaCO_3$):			—	—	—	—	HACH	—	BB
Total Ammonia (mg/L as N):			<0.034	<0.034	3.36	3.36	DENVER	MF	BB
Salinity (ppth):			~20	~20	~20	15.8	YSI / Mettler	SB	BB

V 1.4 9/12/05

Appendix 1. Bench Sheets (continued)

FDEP Biology Section - Bioassay Survival Sheet

LIMS Sample #: 886391 | Test #: 1 | Test Started: Date 12/13/05 Time: 1330
Organism: A. bahia | SOP #: TA 07_03 | Test Ended: Date 12-14-05 Time: 1300
Organism Batch: 29-05 | Diluent/ Batch: ASW / 16-05
Organism Age: 3 days | Food: YCT F. subcapitata Artemia
Chamber Size: 1000 mL | Batch: - - GSL 53690
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	B1	5	3^{JD}				
	B	B2	5	2^{JD}				
	C	B3	5	3^{JD}				
	D	B4	5	4^{JD}				
Salt CTRL	A	B5 F1	5	4^{JD}				
	B	B6 F2	5	5				
	C	B7 F3	5	4^{JD}				
	D	B8 F4	5	3^{JD}				
100%	A	B5	5	2^{JD}				
	B	B6	5	2^{JD}				
	C	B7	5	3^{JD}				
	D	B8	5	2^{JD}				
Organisms loaded by: JD		Checked by:	[redacted]	JD				

Loading Verified by: JD

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

Comments: See NCR 1838. No Result. Test organisms did not appear healthy prior to test initiation. MF 12-15-05

Test Results:

% mortality in 100% sample: NA

LC_{50}: NA If Calculated: 95% CI______ Method:______

Screening Tests:

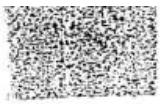
Report LC50 as >100%, =100%, or <100%.

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

V 2.1 11/01/2005

Page 000052

Appendix 1. Bench Sheets (continued)



FDEP Biology Section - Bioassay Survival Sheet

LIMS Sample #: 886391 Test #: 2 Test Started: Date 12/1/05 Time: 1345
Organism: M. bahia SOP #: TA 07_ 04 Test Ended: Date 12-15-05 Time: 1235
Organism Batch: 30-05 Diluent/ Batch: ASW 1 16-05
Organism Age: 10 days Food: YCT P. subcapitata Artemia
Chamber Size: 1000 mL Batch: — — GSL 536-90
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	B9	5	5	5			
	B	B10	5	5	5			
	C	B11	5	5	5			
	D	B12	5	5	5			
Salt CTRL	A	B13 F5	5	5	5			
	B	B14 F6	5	5	5			
	C	B15 F7	5	5	5			
	D	B16 F8	5	4 ID	4			
100%	A	B13	5	3 ID	3			
	B	B14	5	5	4 ID			
	C	B15	5	5	5			
	D	B16	5	5	5			
Organisms loaded by: JD	Checked by:		JD	SP				
Loading Verified by: SP								

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

Comments:

Test Results:
% mortality in 100% sample: 15
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

Page 000053

FDEP Biology Section - Bioassay Parameter Sheet

LIMS Sample # : 886391 Test #: 1 of 2

TEST SOP #: TA07_03 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 (B)			
pH (S.U.)	8.2	8.2	8.1			
Temperature °C	25.0	24.0	24.2			
Dissolved Oxygen mg/L	7.2	5.6	6.6			
Conductivity µmhos (mmhos)	~~36.1~~ (A)	32.0	32.9			
(initials) Measured by:	[illegible]	[illegible]	[illegible]			
(initials) Recorded by:	[illegible]	[illegible]	[illegible]			

Comments:
(A) ~~So~~ conductivity 32.8 m control water salinity to high
(B) 48 hour parameters for A. bahia not measured. M. beryllina parameters mistakenly written in.

Concentration Salt CTRL	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C (B)			
pH (S.U.)	8.4	8.2	8.1			
Temperature °C	24.3	24.3	24.6			
Dissolved Oxygen mg/L	7.5	5.6	6.6			
Conductivity µmhos (mmhos)	32.1	31.3	31.6			
(initials) Measured by:	[illegible]	[illegible]	[illegible]			
(initials) Recorded by:	[illegible]	[illegible]	[illegible]			

Comments:

Concentration 100%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C (B)			
pH (S.U.)	8.0	8.2	8.3			
Temperature °C	24.2	24.2	24.5			
Dissolved Oxygen mg/L	7.5	5.7	6.4			
Conductivity µmhos (mmhos)	32.6	31.8	31.9			
(initials) Measured by:	[illegible]	[illegible]	[illegible]			
(initials) Recorded by:	[illegible]	[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:

V 2.0 2/24/04

FDEP Biology Section - Bioassay Parameter Sheet

LIMS Sample # : 886391 Test #: 2 of 2

TEST SOP #: TA07_04 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			
pH (S.U.)	8.3	8.2	8.1			
Temperature °C	25.2	25.5	24.7			
Dissolved Oxygen mg/L	7.4	5.9	6.6			
Conductivity µmhos (mmhos)	33.1	~~31.6~~ (A)	32.9			
(initials) Measured by:						
(initials) Recorded by:						

Comments:
(A) transcription error SP

Concentration Salt CTRL	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C			
pH (S.U.)	8.4	8.2	8.1			
Temperature °C	24.4	25.5	25.1			
Dissolved Oxygen mg/L	7.6	6.1	6.6			
Conductivity µmhos (mmhos)	32.1	31.9	31.6			
(initials) Measured by:						
(initials) Recorded by:						

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.)	8.0	8.2	8.3			
Temperature °C	24.1	24.0	24.7			
Dissolved Oxygen mg/L	7.5	6.1	6.4			
Conductivity µmhos (mmhos)	32.7	32.2	31.9			
(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 2. Chemical Analyses performed on the effluent from the South Martin Regional Reverse Osmosis Plant Outfall D-001, sampled on December 12, 2005.

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
12/12/2005 11:40	51-SMR-1	Bio-AGP/LimNut	Algal Growth Potential	0.906	mg DryWt/L	AV	0.3	0.9
12/12/2005 11:40	51-SMR-1	Bio-Chl-a	Chlorophyll-A, Monochromatic, Water	0.85	ug/L	U	0.85	2.6
12/12/2005 11:40	51-SMR-1	Bio-Chl-a	Phaeophytin-A, Monochromatic, Water	1.5	ug/L	U	1.5	4.5
12/12/2005 11:40	51-SMR-1	Bio-Toxicology	Bioassay-Acute-Screen-SW-Fish, LC50	100	LC50	L		
12/12/2005 11:40	51-SMR-1	Bio-Toxicology	Bioassay-Acute-Screen-SW-Mysid, LC50	No Result	LC50			
12/12/2005 11:40	51-SMR-1	BNA-Water	1,2,4-Trichlorobenzene	0.96	ug/L	U	0.96	3.8
12/12/2005 11:40	51-SMR-1	BNA-Water	1,2-Dichlorobenzene	0.96	ug/L	U	0.96	3.8
12/12/2005 11:40	51-SMR-1	BNA-Water	1,3-Dichlorobenzene	0.96	ug/L	U	0.96	3.8
12/12/2005 11:40	51-SMR-1	BNA-Water	1,4-Dichlorobenzene	0.96	ug/L	U	0.96	3.8
12/12/2005 11:40	51-SMR-1	BNA-Water	2,4,6-Trichlorophenol	0.96	ug/L	U	0.96	3.8
12/12/2005 11:40	51-SMR-1	BNA-Water	2,4-Dichlorophenol	0.96	ug/L	U	0.96	3.8
12/12/2005 11:40	51-SMR-1	BNA-Water	2,4-Dimethylphenol	48	ug/L	U	48	190
12/12/2005 11:40	51-SMR-1	BNA-Water	2,4-Dinitrophenol	14	ug/L	U	14	58
12/12/2005 11:40	51-SMR-1	BNA-Water	2,4-Dinitrotoluene	0.96	ug/L	U	0.96	3.8
12/12/2005 11:40	51-SMR-1	BNA-Water	2,6-Dinitrotoluene	0.96	ug/L	U	0.96	3.8
12/12/2005 11:40	51-SMR-1	BNA-Water	2-Chloronaphthalene	0.96	ug/L	U	0.96	3.8
12/12/2005 11:40	51-SMR-1	BNA-Water	2-Chlorophenol	0.96	ug/L	U	0.96	3.8
12/12/2005 11:40	51-SMR-1	BNA-Water	2-Methyl-4,6-dinitrophenol	2.9	ug/L	U	2.9	12
12/12/2005 11:40	51-SMR-1	BNA-Water	2-Nitrophenol	0.96	ug/L	U	0.96	3.8
12/12/2005 11:40	51-SMR-1	BNA-Water	3,3'-Dichlorobenzidine	38	ug/L	U	38	150
12/12/2005 11:40	51-SMR-1	BNA-Water	4,4'-DDD	1.4	ug/L	U	1.4	5.8
12/12/2005 11:40	51-SMR-1	BNA-Water	4,4'-DDE	1.4	ug/L	U	1.4	5.8
12/12/2005 11:40	51-SMR-1	BNA-Water	4,4'-DDT	1.4	ug/L	U	1.4	5.8
12/12/2005 11:40	51-SMR-1	BNA-Water	4-Bromophenyl phenyl ether	0.96	ug/L	U	0.96	3.8
12/12/2005 11:40	51-SMR-1	BNA-Water	4-Chloro-3-methylphenol	0.96	ug/L	U	0.96	3.8
12/12/2005 11:40	51-SMR-1	BNA-Water	4-Chlorophenyl phenyl ether	1.9	ug/L	U	1.9	7.7
12/12/2005 11:40	51-SMR-1	BNA-Water	4-Nitrophenol	14	ug/L	U	14	58
12/12/2005 11:40	51-SMR-1	BNA-Water	Acenaphthene	0.96	ug/L	U	0.96	3.8
12/12/2005 11:40	51-SMR-1	BNA-Water	Acenaphthylene	0.96	ug/L	U	0.96	3.8
12/12/2005 11:40	51-SMR-1	BNA-Water	Aldrin	1.4	ug/L	U	1.4	5.8
12/12/2005 11:40	51-SMR-1	BNA-Water	alpha-BHC	1.4	ug/L	U	1.4	5.8
12/12/2005 11:40	51-SMR-1	BNA-Water	Anthracene	0.96	ug/L	U	0.96	3.8
12/12/2005 11:40	51-SMR-1	BNA-Water	Benzidine	96	ug/L	U	96	380
12/12/2005 11:40	51-SMR-1	BNA-Water	Benzo(a)anthracene	0.96	ug/L	U	0.96	3.8
12/12/2005 11:40	51-SMR-1	BNA-Water	Benzo(a)pyrene	0.96	ug/L	U	0.96	3.8
12/12/2005 11:40	51-SMR-1	BNA-Water	Benzo(b)fluoranthene	0.96	ug/L	U	0.96	3.8
12/12/2005 11:40	51-SMR-1	BNA-Water	Benzo(g,h,i)perylene	0.96	ug/L	U	0.96	3.8

Appendix 2. Chemical Analyses (continued)

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
12/12/2005 11:40	51-SMR-1	BNA-Water	Benzo(k)fluoranthene	0.96	ug/L	U	0.96	3.8
12/12/2005 11:40	51-SMR-1	BNA-Water	beta-BHC	1.4	ug/L	U	1.4	5.8
12/12/2005 11:40	51-SMR-1	BNA-Water	Bis(2-chloroethoxy)methane	0.96	ug/L	U	0.96	3.8
12/12/2005 11:40	51-SMR-1	BNA-Water	Bis(2-chloroethyl)ether	0.96	ug/L	U	0.96	3.8
12/12/2005 11:40	51-SMR-1	BNA-Water	Bis(2-chloroisopropyl)ether	2.9	ug/L	U	2.9	12
12/12/2005 11:40	51-SMR-1	BNA-Water	Bis(2-ethylhexyl)phthalate	14	ug/L	U	14	58
12/12/2005 11:40	51-SMR-1	BNA-Water	Butyl benzyl phthalate	4.8	ug/L	U	4.8	19
12/12/2005 11:40	51-SMR-1	BNA-Water	Chrysene	0.96	ug/L	U	0.96	3.8
12/12/2005 11:40	51-SMR-1	BNA-Water	delta-BHC	1.4	ug/L	U	1.4	5.8
12/12/2005 11:40	51-SMR-1	BNA-Water	Dibenzo(a,h)anthracene	0.96	ug/L	U	0.96	3.8
12/12/2005 11:40	51-SMR-1	BNA-Water	Dieldrin	1.4	ug/L	U	1.4	5.8
12/12/2005 11:40	51-SMR-1	BNA-Water	Diethyl phthalate	0.96	ug/L	U	0.96	3.8
12/12/2005 11:40	51-SMR-1	BNA-Water	Dimethyl phthalate	48	ug/L	U	48	190
12/12/2005 11:40	51-SMR-1	BNA-Water	Di-n-butyl phthalate	4.8	ug/L	U	4.8	19
12/12/2005 11:40	51-SMR-1	BNA-Water	Di-n-octyl phthalate	0.96	ug/L	U	0.96	3.8
12/12/2005 11:40	51-SMR-1	BNA-Water	Endosulfan I	3.8	ug/L	U	3.8	15
12/12/2005 11:40	51-SMR-1	BNA-Water	Endosulfan II	3.8	ug/L	U	3.8	15
12/12/2005 11:40	51-SMR-1	BNA-Water	Endosulfan sulfate	1.4	ug/L	U	1.4	5.8
12/12/2005 11:40	51-SMR-1	BNA-Water	Endrin	1.4	ug/L	UJ	1.4	5.8
12/12/2005 11:40	51-SMR-1	BNA-Water	Endrin aldehyde	3.8	ug/L	U	3.8	15
12/12/2005 11:40	51-SMR-1	BNA-Water	Fluoranthene	0.96	ug/L	U	0.96	3.8
12/12/2005 11:40	51-SMR-1	BNA-Water	Fluorene	0.96	ug/L	U	0.96	3.8
12/12/2005 11:40	51-SMR-1	BNA-Water	gamma-BHC	1.4	ug/L	U	1.4	5.8
12/12/2005 11:40	51-SMR-1	BNA-Water	Heptachlor	1.4	ug/L	U	1.4	5.8
12/12/2005 11:40	51-SMR-1	BNA-Water	Heptachlor epoxide	1.4	ug/L	U	1.4	5.8
12/12/2005 11:40	51-SMR-1	BNA-Water	Hexachlorobenzene	0.96	ug/L	U	0.96	3.8
12/12/2005 11:40	51-SMR-1	BNA-Water	Hexachlorobutadiene	2.9	ug/L	U	2.9	12
12/12/2005 11:40	51-SMR-1	BNA-Water	Hexachlorocyclopentadiene	2.9	ug/L	UJ	2.9	12
12/12/2005 11:40	51-SMR-1	BNA-Water	Hexachloroethane	2.9	ug/L	U	2.9	12
12/12/2005 11:40	51-SMR-1	BNA-Water	Indeno(1,2,3-cd)pyrene	0.96	ug/L	U	0.96	3.8
12/12/2005 11:40	51-SMR-1	BNA-Water	Isophorone	0.96	ug/L	U	0.96	3.8
12/12/2005 11:40	51-SMR-1	BNA-Water	Naphthalene	0.96	ug/L	U	0.96	3.8
12/12/2005 11:40	51-SMR-1	BNA-Water	Nitrobenzene	1.9	ug/L	U	1.9	7.7
12/12/2005 11:40	51-SMR-1	BNA-Water	N-Nitrosodimethylamine	1.9	ug/L	U	1.9	7.7
12/12/2005 11:40	51-SMR-1	BNA-Water	N-Nitrosodi-n-propylamine	1.9	ug/L	U	1.9	7.7
12/12/2005 11:40	51-SMR-1	BNA-Water	N-Nitrosodiphenylamine	2.9	ug/L	U	2.9	12
12/12/2005 11:40	51-SMR-1	BNA-Water	Pentachlorophenol	2.9	ug/L	U	2.9	12
12/12/2005 11:40	51-SMR-1	BNA-Water	Phenanthrene	0.96	ug/L	U	0.96	3.8

Appendix 2. Chemical Analyses (continued)

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
12/12/2005 11:40	51-SMR-1	BNA-Water	Phenol	0.96	ug/L	U	0.96	3.8
12/12/2005 11:40	51-SMR-1	BNA-Water	Pyrene	0.96	ug/L	U	0.96	3.8
12/12/2005 11:40	51-SMR-2	BNA-Water	1,2,4-Trichlorobenzene	0.96	ug/L	U	0.96	3.8
12/12/2005 11:40	51-SMR-2	BNA-Water	1,2-Dichlorobenzene	0.96	ug/L	U	0.96	3.8
12/12/2005 11:40	51-SMR-2	BNA-Water	1,3-Dichlorobenzene	0.96	ug/L	U	0.96	3.8
12/12/2005 11:40	51-SMR-2	BNA-Water	1,4-Dichlorobenzene	0.96	ug/L	U	0.96	3.8
12/12/2005 11:40	51-SMR-2	BNA-Water	2,4,6-Trichlorophenol	0.96	ug/L	U	0.96	3.8
12/12/2005 11:40	51-SMR-2	BNA-Water	2,4-Dichlorophenol	0.96	ug/L	U	0.96	3.8
12/12/2005 11:40	51-SMR-2	BNA-Water	2,4-Dimethylphenol	48	ug/L	U	48	190
12/12/2005 11:40	51-SMR-2	BNA-Water	2,4-Dinitrophenol	14	ug/L	U	14	58
12/12/2005 11:40	51-SMR-2	BNA-Water	2,4-Dinitrotoluene	0.96	ug/L	U	0.96	3.8
12/12/2005 11:40	51-SMR-2	BNA-Water	2,6-Dinitrotoluene	0.96	ug/L	U	0.96	3.8
12/12/2005 11:40	51-SMR-2	BNA-Water	2-Chloronaphthalene	0.96	ug/L	U	0.96	3.8
12/12/2005 11:40	51-SMR-2	BNA-Water	2-Chlorophenol	0.96	ug/L	U	0.96	3.8
12/12/2005 11:40	51-SMR-2	BNA-Water	2-Methyl-4,6-dinitrophenol	2.9	ug/L	U	2.9	12
12/12/2005 11:40	51-SMR-2	BNA-Water	2-Nitrophenol	0.96	ug/L	U	0.96	3.8
12/12/2005 11:40	51-SMR-2	BNA-Water	3,3'-Dichlorobenzidine	38	ug/L	U	38	150
12/12/2005 11:40	51-SMR-2	BNA-Water	4,4'-DDD	1.4	ug/L	U	1.4	5.8
12/12/2005 11:40	51-SMR-2	BNA-Water	4,4'-DDE	1.4	ug/L	U	1.4	5.8
12/12/2005 11:40	51-SMR-2	BNA-Water	4,4'-DDT	1.4	ug/L	U	1.4	5.8
12/12/2005 11:40	51-SMR-2	BNA-Water	4-Bromophenyl phenyl ether	0.96	ug/L	U	0.96	3.8
12/12/2005 11:40	51-SMR-2	BNA-Water	4-Chloro-3-methylphenol	0.96	ug/L	U	0.96	3.8
12/12/2005 11:40	51-SMR-2	BNA-Water	4-Chlorophenyl phenyl ether	1.9	ug/L	U	1.9	7.7
12/12/2005 11:40	51-SMR-2	BNA-Water	4-Nitrophenol	14	ug/L	U	14	58
12/12/2005 11:40	51-SMR-2	BNA-Water	Acenaphthene	0.96	ug/L	U	0.96	3.8
12/12/2005 11:40	51-SMR-2	BNA-Water	Acenaphthylene	0.96	ug/L	U	0.96	3.8
12/12/2005 11:40	51-SMR-2	BNA-Water	Aldrin	1.4	ug/L	U	1.4	5.8
12/12/2005 11:40	51-SMR-2	BNA-Water	alpha-BHC	1.4	ug/L	U	1.4	5.8
12/12/2005 11:40	51-SMR-2	BNA-Water	Anthracene	0.96	ug/L	U	0.96	3.8
12/12/2005 11:40	51-SMR-2	BNA-Water	Benzidine	96	ug/L	U	96	380
12/12/2005 11:40	51-SMR-2	BNA-Water	Benzo(a)anthracene	0.96	ug/L	U	0.96	3.8
12/12/2005 11:40	51-SMR-2	BNA-Water	Benzo(a)pyrene	0.96	ug/L	U	0.96	3.8
12/12/2005 11:40	51-SMR-2	BNA-Water	Benzo(b)fluoranthene	0.96	ug/L	U	0.96	3.8
12/12/2005 11:40	51-SMR-2	BNA-Water	Benzo(g,h,i)perylene	0.96	ug/L	U	0.96	3.8
12/12/2005 11:40	51-SMR-2	BNA-Water	Benzo(k)fluoranthene	0.96	ug/L	U	0.96	3.8
12/12/2005 11:40	51-SMR-2	BNA-Water	beta-BHC	1.4	ug/L	U	1.4	5.8
12/12/2005 11:40	51-SMR-2	BNA-Water	Bis(2-chloroethoxy)methane	0.96	ug/L	U	0.96	3.8
12/12/2005 11:40	51-SMR-2	BNA-Water	Bis(2-chloroethyl)ether	0.96	ug/L	U	0.96	3.8

Appendix 2. Chemical Analyses (continued)

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
12/12/2005 11:40	51-SMR-2	BNA-Water	Bis(2-chloroisopropyl)ether	2.9	ug/L	U	2.9	12
12/12/2005 11:40	51-SMR-2	BNA-Water	Bis(2-ethylhexyl)phthalate	14	ug/L	U	14	58
12/12/2005 11:40	51-SMR-2	BNA-Water	Butyl benzyl phthalate	4.8	ug/L	U	4.8	19
12/12/2005 11:40	51-SMR-2	BNA-Water	Chrysene	0.96	ug/L	U	0.96	3.8
12/12/2005 11:40	51-SMR-2	BNA-Water	delta-BHC	1.4	ug/L	U	1.4	5.8
12/12/2005 11:40	51-SMR-2	BNA-Water	Dibenzo(a,h)anthracene	0.96	ug/L	U	0.96	3.8
12/12/2005 11:40	51-SMR-2	BNA-Water	Dieldrin	1.4	ug/L	U	1.4	5.8
12/12/2005 11:40	51-SMR-2	BNA-Water	Diethyl phthalate	0.96	ug/L	U	0.96	3.8
12/12/2005 11:40	51-SMR-2	BNA-Water	Dimethyl phthalate	48	ug/L	U	48	190
12/12/2005 11:40	51-SMR-2	BNA-Water	Di-n-butyl phthalate	4.8	ug/L	U	4.8	19
12/12/2005 11:40	51-SMR-2	BNA-Water	Di-n-octyl phthalate	0.96	ug/L	U	0.96	3.8
12/12/2005 11:40	51-SMR-2	BNA-Water	Endosulfan I	3.8	ug/L	U	3.8	15
12/12/2005 11:40	51-SMR-2	BNA-Water	Endosulfan II	3.8	ug/L	U	3.8	15
12/12/2005 11:40	51-SMR-2	BNA-Water	Endosulfan sulfate	1.4	ug/L	U	1.4	5.8
12/12/2005 11:40	51-SMR-2	BNA-Water	Endrin	1.4	ug/L	UJ	1.4	5.8
12/12/2005 11:40	51-SMR-2	BNA-Water	Endrin aldehyde	3.8	ug/L	U	3.8	15
12/12/2005 11:40	51-SMR-2	BNA-Water	Fluoranthene	0.96	ug/L	U	0.96	3.8
12/12/2005 11:40	51-SMR-2	BNA-Water	Fluorene	0.96	ug/L	U	0.96	3.8
12/12/2005 11:40	51-SMR-2	BNA-Water	gamma-BHC	1.4	ug/L	U	1.4	5.8
12/12/2005 11:40	51-SMR-2	BNA-Water	Heptachlor	1.4	ug/L	U	1.4	5.8
12/12/2005 11:40	51-SMR-2	BNA-Water	Heptachlor epoxide	1.4	ug/L	U	1.4	5.8
12/12/2005 11:40	51-SMR-2	BNA-Water	Hexachlorobenzene	0.96	ug/L	U	0.96	3.8
12/12/2005 11:40	51-SMR-2	BNA-Water	Hexachlorobutadiene	2.9	ug/L	U	2.9	12
12/12/2005 11:40	51-SMR-2	BNA-Water	Hexachlorocyclopentadiene	2.9	ug/L	UJ	2.9	12
12/12/2005 11:40	51-SMR-2	BNA-Water	Hexachloroethane	2.9	ug/L	U	2.9	12
12/12/2005 11:40	51-SMR-2	BNA-Water	Indeno(1,2,3-cd)pyrene	0.96	ug/L	U	0.96	3.8
12/12/2005 11:40	51-SMR-2	BNA-Water	Isophorone	0.96	ug/L	U	0.96	3.8
12/12/2005 11:40	51-SMR-2	BNA-Water	Naphthalene	0.96	ug/L	U	0.96	3.8
12/12/2005 11:40	51-SMR-2	BNA-Water	Nitrobenzene	1.9	ug/L	U	1.9	7.7
12/12/2005 11:40	51-SMR-2	BNA-Water	N-Nitrosodimethylamine	1.9	ug/L	U	1.9	7.7
12/12/2005 11:40	51-SMR-2	BNA-Water	N-Nitrosodi-n-propylamine	1.9	ug/L	U	1.9	7.7
12/12/2005 11:40	51-SMR-2	BNA-Water	N-Nitrosodiphenylamine	2.9	ug/L	U	2.9	12
12/12/2005 11:40	51-SMR-2	BNA-Water	Pentachlorophenol	2.9	ug/L	U	2.9	12
12/12/2005 11:40	51-SMR-2	BNA-Water	Phenanthrene	0.96	ug/L	U	0.96	3.8
12/12/2005 11:40	51-SMR-2	BNA-Water	Phenol	0.96	ug/L	U	0.96	3.8
12/12/2005 11:40	51-SMR-2	BNA-Water	Pyrene	0.96	ug/L	U	0.96	3.8
12/12/2005 11:40	51-SMR-1	GC-Water	Alachlor	0.57	ug/L	U	0.57	2.3
12/12/2005 11:40	51-SMR-1	GC-Water	Ametryn	0.048	ug/L	U	0.048	0.19

Appendix 2. Chemical Analyses (continued)

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
12/12/2005 11:40	51-SMR-1	GC-Water	Atrazine	0.048	ug/L	U	0.048	0.19
12/12/2005 11:40	51-SMR-1	GC-Water	Azinphos Methyl	0.19	ug/L	U	0.19	0.76
12/12/2005 11:40	51-SMR-1	GC-Water	Bromacil	0.19	ug/L	U	0.19	0.76
12/12/2005 11:40	51-SMR-1	GC-Water	Butylate	0.19	ug/L	U	0.19	0.76
12/12/2005 11:40	51-SMR-1	GC-Water	Chlorpyrifos Ethyl	0.048	ug/L	U	0.048	0.19
12/12/2005 11:40	51-SMR-1	GC-Water	Chlorpyrifos Methyl	0.095	ug/L	U	0.095	0.38
12/12/2005 11:40	51-SMR-1	GC-Water	Diazinon	0.048	ug/L	U	0.048	0.19
12/12/2005 11:40	51-SMR-1	GC-Water	Ethion	0.048	ug/L	U	0.048	0.19
12/12/2005 11:40	51-SMR-1	GC-Water	Ethoprop	0.095	ug/L	U	0.095	0.38
12/12/2005 11:40	51-SMR-1	GC-Water	Fenamiphos	0.19	ug/L	U	0.19	0.76
12/12/2005 11:40	51-SMR-1	GC-Water	Fonofos	0.095	ug/L	U	0.095	0.38
12/12/2005 11:40	51-SMR-1	GC-Water	Hexazinone	0.095	ug/L	U	0.095	0.38
12/12/2005 11:40	51-SMR-1	GC-Water	Malathion	0.14	ug/L	UJ	0.14	0.56
12/12/2005 11:40	51-SMR-1	GC-Water	Metalaxyl	0.24	ug/L	U	0.24	0.96
12/12/2005 11:40	51-SMR-1	GC-Water	Metolachlor	0.48	ug/L	U	0.48	1.9
12/12/2005 11:40	51-SMR-1	GC-Water	Metribuzin	0.095	ug/L	U	0.095	0.38
12/12/2005 11:40	51-SMR-1	GC-Water	Mevinphos	0.19	ug/L	U	0.19	0.76
12/12/2005 11:40	51-SMR-1	GC-Water	Naled	0.76	ug/L	UJ	0.76	3
12/12/2005 11:40	51-SMR-1	GC-Water	Norflurazon	0.14	ug/L	U	0.14	0.56
12/12/2005 11:40	51-SMR-1	GC-Water	Parathion Ethyl	0.14	ug/L	U	0.14	0.56
12/12/2005 11:40	51-SMR-1	GC-Water	Parathion Methyl	0.095	ug/L	U	0.095	0.38
12/12/2005 11:40	51-SMR-1	GC-Water	Phorate	0.048	ug/L	U	0.048	0.19
12/12/2005 11:40	51-SMR-1	GC-Water	Prometryn	0.14	ug/L	U	0.14	0.56
12/12/2005 11:40	51-SMR-1	GC-Water	Simazine	0.048	ug/L	U	0.048	0.19
12/12/2005 11:40	51-SMR-2	GC-Water	Alachlor	0.61	ug/L	U	0.61	2.4
12/12/2005 11:40	51-SMR-2	GC-Water	Ametryn	0.051	ug/L	U	0.051	0.2
12/12/2005 11:40	51-SMR-2	GC-Water	Atrazine	0.051	ug/L	U	0.051	0.2
12/12/2005 11:40	51-SMR-2	GC-Water	Azinphos Methyl	0.2	ug/L	U	0.2	0.8
12/12/2005 11:40	51-SMR-2	GC-Water	Bromacil	0.2	ug/L	U	0.2	0.8
12/12/2005 11:40	51-SMR-2	GC-Water	Butylate	0.2	ug/L	U	0.2	0.8
12/12/2005 11:40	51-SMR-2	GC-Water	Chlorpyrifos Ethyl	0.051	ug/L	U	0.051	0.2
12/12/2005 11:40	51-SMR-2	GC-Water	Chlorpyrifos Methyl	0.1	ug/L	U	0.1	0.4
12/12/2005 11:40	51-SMR-2	GC-Water	Diazinon	0.051	ug/L	U	0.051	0.2
12/12/2005 11:40	51-SMR-2	GC-Water	Ethion	0.051	ug/L	U	0.051	0.2
12/12/2005 11:40	51-SMR-2	GC-Water	Ethoprop	0.1	ug/L	U	0.1	0.4
12/12/2005 11:40	51-SMR-2	GC-Water	Fenamiphos	0.2	ug/L	U	0.2	0.8
12/12/2005 11:40	51-SMR-2	GC-Water	Fonofos	0.1	ug/L	U	0.1	0.4
12/12/2005 11:40	51-SMR-2	GC-Water	Hexazinone	0.1	ug/L	U	0.1	0.4

Appendix 2. Chemical Analyses (continued)

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
12/12/2005 11:40	51-SMR-2	GC-Water	Malathion	0.15	ug/L	UJ	0.15	0.6
12/12/2005 11:40	51-SMR-2	GC-Water	Metalaxyl	0.25	ug/L	U	0.25	1
12/12/2005 11:40	51-SMR-2	GC-Water	Metolachlor	0.51	ug/L	U	0.51	2
12/12/2005 11:40	51-SMR-2	GC-Water	Metribuzin	0.1	ug/L	U	0.1	0.4
12/12/2005 11:40	51-SMR-2	GC-Water	Mevinphos	0.2	ug/L	U	0.2	0.8
12/12/2005 11:40	51-SMR-2	GC-Water	Naled	0.81	ug/L	UJ	0.81	3.2
12/12/2005 11:40	51-SMR-2	GC-Water	Norflurazon	0.15	ug/L	U	0.15	0.6
12/12/2005 11:40	51-SMR-2	GC-Water	Parathion Ethyl	0.15	ug/L	U	0.15	0.6
12/12/2005 11:40	51-SMR-2	GC-Water	Parathion Methyl	0.1	ug/L	U	0.1	0.4
12/12/2005 11:40	51-SMR-2	GC-Water	Phorate	0.051	ug/L	U	0.051	0.2
12/12/2005 11:40	51-SMR-2	GC-Water	Prometryn	0.15	ug/L	U	0.15	0.6
12/12/2005 11:40	51-SMR-2	GC-Water	Simazine	0.051	ug/L	U	0.051	0.2
12/12/2005 11:40	51-SMR-1	Metals-Water	Aluminum	10	ug/L	U	10	40
12/12/2005 11:40	51-SMR-1	Metals-Water	Arsenic	8	ug/L	U	8	32
12/12/2005 11:40	51-SMR-1	Metals-Water	Cadmium	0.25	ug/L	U	0.25	1
12/12/2005 11:40	51-SMR-1	Metals-Water	Calcium	645	mg/L		1	4
12/12/2005 11:40	51-SMR-1	Metals-Water	Chromium	6	ug/L	U	6	24
12/12/2005 11:40	51-SMR-1	Metals-Water	Copper	2.5	ug/L	U	2.5	10
12/12/2005 11:40	51-SMR-1	Metals-Water	Iron	20	ug/L	U	20	80
12/12/2005 11:40	51-SMR-1	Metals-Water	Lead	0.75	ug/L	U	0.75	3
12/12/2005 11:40	51-SMR-1	Metals-Water	Magnesium	689	mg/L		0.2	0.8
12/12/2005 11:40	51-SMR-1	Metals-Water	Nickel	2	ug/L	U	2	8
12/12/2005 11:40	51-SMR-1	Metals-Water	Selenium	12	ug/L	U	12	48
12/12/2005 11:40	51-SMR-1	Metals-Water	Silver	0.25	ug/L	U	0.25	1
12/12/2005 11:40	51-SMR-1	Metals-Water	Zinc	6	ug/L	U	6	24
12/12/2005 11:40	51-SMR-2	Metals-Water	Aluminum	5	ug/L	U	5	20
12/12/2005 11:40	51-SMR-2	Metals-Water	Arsenic	4	ug/L	U	4	16
12/12/2005 11:40	51-SMR-2	Metals-Water	Cadmium	0.05	ug/L	U	0.05	0.2
12/12/2005 11:40	51-SMR-2	Metals-Water	Calcium	0.05	mg/L	U	0.05	0.2
12/12/2005 11:40	51-SMR-2	Metals-Water	Chromium	1	ug/L	U	1	4
12/12/2005 11:40	51-SMR-2	Metals-Water	Copper	0.25	ug/L	U	0.25	1
12/12/2005 11:40	51-SMR-2	Metals-Water	Iron	10	ug/L	U	10	40
12/12/2005 11:40	51-SMR-2	Metals-Water	Lead	0.075	ug/L	U	0.075	0.3
12/12/2005 11:40	51-SMR-2	Metals-Water	Magnesium	0.01	mg/L	U	0.01	0.04
12/12/2005 11:40	51-SMR-2	Metals-Water	Nickel	1	ug/L	U	1	4
12/12/2005 11:40	51-SMR-2	Metals-Water	Selenium	0.5	ug/L	U	0.5	2
12/12/2005 11:40	51-SMR-2	Metals-Water	Silver	0.025	ug/L	U	0.025	0.1
12/12/2005 11:40	51-SMR-2	Metals-Water	Zinc	3	ug/L	U	3	12

Appendix 2. Chemical Analyses (continued)

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
12/12/2005 11:40	51-SMR-1	Nutrients-Liquid	Ammonia-N	4.1	mg N/L		0.4	0.8
12/12/2005 11:40	51-SMR-1	Nutrients-Liquid	Kjeldahl Nitrogen	5.6	mg N/L		0.16	0.4
12/12/2005 11:40	51-SMR-1	Nutrients-Liquid	NO2NO3-N	0.6	mg N/L		0.004	0.01
12/12/2005 11:40	51-SMR-1	Nutrients-Liquid	O-Phosphate-P	0.027	mg P/L		0.004	0.01
12/12/2005 11:40	51-SMR-1	Nutrients-Liquid	Total-P	0.02	mg P/L	U	0.02	0.06
12/12/2005 11:40	51-SMR-2	Nutrients-Liquid	Ammonia-N	0.01	mg N/L	U	0.01	0.02
12/12/2005 11:40	51-SMR-2	Nutrients-Liquid	Kjeldahl Nitrogen	0.08	mg N/L	U	0.08	0.2
12/12/2005 11:40	51-SMR-2	Nutrients-Liquid	NO2NO3-N	0.051	mg N/L		0.004	0.01
12/12/2005 11:40	51-SMR-2	Nutrients-Liquid	O-Phosphate-P	0.004	mg P/L	U	0.004	0.01
12/12/2005 11:40	51-SMR-2	Nutrients-Liquid	Total-P	0.02	mg P/L	U	0.02	0.06
12/12/2005 11:40	51-SMR-1	Overflow	Alpha, Total	59.2	pCi/L	U		
12/12/2005 11:40	51-SMR-1	Overflow	Alpha-Counting Error	30.7	pCi/L			
12/12/2005 11:40	51-SMR-1	Overflow	Radium 226	11.4	pCi/L			
12/12/2005 11:40	51-SMR-1	Overflow	Radium 226-Counting Error	0.5	pCi/L			
12/12/2005 11:40	51-SMR-1	Overflow	Radium 228	0.8	pCi/L			
12/12/2005 11:40	51-SMR-1	Overflow	Radium 228-Counting Error	0.6	pCi/L			
12/12/2005 11:40	51-SMR-2	Overflow	Alpha, Total	0.7	pCi/L	U		
12/12/2005 11:40	51-SMR-2	Overflow	Alpha-Counting Error	0.5	pCi/L			
12/12/2005 11:40	51-SMR-2	Overflow	Radium 226	0.2	pCi/L	U		
12/12/2005 11:40	51-SMR-2	Overflow	Radium 226-Counting Error	0.1	pCi/L			
12/12/2005 11:40	51-SMR-2	Overflow	Radium 228	0.8	pCi/L	U		
12/12/2005 11:40	51-SMR-2	Overflow	Radium 228-Counting Error	0.5	pCi/L			

The Bioassay of South Martin Regional Reverse Osmosis Plant effluent sampled on December 12, 2005. NPDES #FL0184152.

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 1 8 4 1 5 2 11	12 0 5 1 2 1 2	18 **B**	19 **S**	20 2

Remarks

66

The Priority Pollutants Analysis of South Martin Regional Reverse Osmosis Plant effluent sampled on December 12, 2005. NPDES #FL0184152.

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 1 8 4 1 5 2 11	12 0 5 1 2 1 2	18 **X**	19 **S**	20 2

Remarks

66

Biological Analyses of South Martin Regional Reverse Osmosis Plant effluent sampled on December 12, 2005. NPDES #FL0184152.

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 1 8 4 1 5 2 11	12 0 5 1 2 1 2	18 **S**	19 **S**	20 2

Remarks

66