

Bioassays of

Hiawatha & Hart Point Wastewater Treatment Facility

Putnam County

NPDES #FL0043389

Sampled December 5, 2005

February 2006

Biology Section
Bureau of Laboratories
Division of Resource Assessment and Management

Quality Manual No. 870346G
NELAC Certification No. E31780

Hiawatha & Hart Point Wastewater Treatment Facility, 116 Hiawatha Court, East Palatka, Putnam County, Florida, NPDES #FL0043389. Effluent samples for this facility were collected on December 5, 2005.

Introduction

The Hiawatha & Hart Point Wastewater Treatment Facility is an advanced domestic wastewater treatment facility which uses the activated-sludge process to treat domestic wastewater. The facility has a design flow of 0.036 million gallons per day (MGD) and had an average annual daily flow of 0.0224 MGD from December 2004 through November 2005. The wastewater treatment facility includes an anoxic/aeration tank, anoxic zone, five aeration tanks, two clarifiers, three sand filters, three chlorine contact chambers and an aerobic digester. Liquid chlorine is used for disinfection. Sodium bisulfate is used for dechlorination. Treated effluent discharges to the Class III fresh waters of the St. Johns River at discharge location D-001, which is approximately 15.24 meters (50 feet) in length at an approximate depth of 1.4 meters (4.6 feet). The point of discharge is located approximately at latitude 29º38'29" N, and longitude 81º36'58" W.

The facility is not currently under any Administrative or Consent Orders. The facility has no mixing zones. During the past year, the facility has had a number of permit violations for permitted limits for carbonaceous-biochemical oxygen demand (C-BOD), total nitrogen (TN), and total suspended solids (TSS). The last compliance enforcement inspection (CEI) which was conducted on February 18, 2005, put the facility "Significantly out of Compliance" due to exceedances (facility information provided by Joseph Emery of FDEP Northeast District).

Methods

Samples were collected from the EFD-1 NPDES sampling point for Outfall D-001 by Tom Kallemeyn (FDEP Northeast 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 screening 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. The Department uses the 48-hour acute screening toxicity test to provide reasonable assurance that the facility does not adversely affect waters of the state.

Prior to test initiation, the bioassay sample was aerated for 30 minutes at approximately 100 bubbles per minute, to increase the dissolved oxygen (DO) concentration from 2.4 mg/L to 8.0 mg/L. It was noted during the post-loading DO monitoring of the *Cyprinella leedsi* test that the DO had decreased to a concentration of 3.0 mg/L. Aeration was immediately started in all *C. leedsi* control and sample replicates. Aeration was continued throughout the remainder of the test period at a rate of approximately 100 bubbles per minute.

Toxicity Test Results

Tests were performed December 6 - 8, 2005.

Ceriodaphnia dubia 48-hour acute screening bioassay – LC_{50} > 100%, 10% mortality* in 100% sample at 48 hours

Cyprinella leedsi 48-hour acute screening bioassay – LC_{50} > 100%, 0% 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 2.06 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 the inorganic nitrogen concentration was 5.02 (±20%) mg dry wt/L (Table 1; Miller et al. 1978).

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 < 0.02 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. Zinc was detected in the effluent at levels that comply with Class III fresh water quality criteria. Copper, iron, lead, and nickel were detected between the laboratory method detection limits (MDL) and practical quantitation limits (PQL). The effluent specific conductance (1,429 µmhos/cm) exceeded the freshwater quality standard of 1,275 µmhos/cm (62-302.530(23), 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 the EFD-1 sampling site for Outfall D-001 for this facility on December 5, 2005, was not acutely toxic to either test species during the acute screen 48-hour bioassays. The effluent AGP result was less than the "problem" threshold for fresh receiving waters. The effluent specific conductance exceeded the freshwater 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 wt/L) of the freshwater species Pseudokirchneriella subcapitata *for total soluble nitrogen (TSIN) and total nitrogen (TN) limitation and ratios of nitrogen to phosphorus for samples collected from Hiawatha & Hart Point Wastewater Treatment Facility on December 5, 2005.*

Location	AGP (measured)	Predicted AGP (TSIN) ± 20%	Predicted AGP (TN) ± 20%	Inorganic N:P ratio	Total N:P ratio
Effluent Samples	2.06	5.02 ± 1.004	30.89 ± 6.178	5.5	8.13

Table 2. Effluent limits, Class III Freshwater Criteria, and microbiological and chemical data for samples collected from Hiawatha & Hart Point Wastewater Treatment Plant on December 5, 2005.

Hiawatha & Hart Point Wastewater Treatment Plant NPDES# FL0043389	Class III Freshwater Stds	Effluent Limits	Effluent Samples
Organic Constituents (µg/L)			
None Detected	-	-	-
Metals (µg/L unless otherwise noted)			
Aluminum	-	-	98
Arsenic	≤ 50	-	8 U
Cadmium	≤ 2.7 b	-	0.05 U
Calcium (mg/L)	-	-	70.2
Chromium-III	≤ 216.9 b	-	1 U
Copper	≤ 24.4 b	-	1.7 I
Iron	≤ 1,000	-	37 I
Lead	≤ 13.4 b	-	0.38 I
Magnesium (mg/L)	-	-	32.4
Nickel	≤ 135.4 b	-	3.4 I
Selenium	≤ 5	-	0.5 U
Silver	≤ 0.07	-	0.025 U
Zinc	≤ 311.4 b	-	38
Nutrients (mg/L)			
Ortho-phosphate	-	-	0.024
Total Phosphorus	-	≤ 2 s	0.1
Ammonia	-	-	0.049 A
Unionized Ammonia	≤ 0.02	≤ 0.02	< 0.02
Nitrate+Nitrite	-	-	0.083
Total Kjeldahl Nitrogen	-	-	0.73
Organic Nitrogen	-	-	0.68 c
Total Nitrogen	-	≤ 6 s	0.81 c
General Physical and Chemical Parameters			
Dissolved Oxygen (mg/L)	≥ 5	≥ 5	7
pH (S.U.)	6-8.5	6.5-8.5	6.7
Conductivity (umhos/cm)	≤ 1,275	-	1,429
Temperature (C)	-	-	21.1
CBOD (mg/L)	-	≤ 10 s	2.4 A
TSS (mg/L)	-	≤ 10 s	4 U
Total Residual Chlorine (mg/L) disinfection		≤ 0.01	< 0.03 *
Flow (MGD)	-	-	0.0224 a
Hardness (mg/L)	-	-	308.7 c
Microbiology (# counts/100ml)			
Fecal Coliforms-Membrane Filter	≤ 800 s	≤ 800 s	-

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 1.5 µm

s - Single sample

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

* - Analysis from bioassay sample in laboratory

FDEP Biology Section - Acute Screen Bioassay Bench Sheets

Facility: Hiawatha ; Hart Point WWTF

Address : 1116 Hiawatha Court

City: Palatka County: Putnam

Contact/District: Tom Kallemeyn / North-east Dist.

NPDES Permit #: FL 0043389

LIMS Job # TLH-2005-12-06-08 LIMS Sample #: 8842414

Lims Data Entry: 12-08-05 MF Data Entry Verification: 12-8-05 SP

Sample Collection: Date: 12-5 2005 Time: 1010

Hold Time Start: Date: 12-5-05 Time: 1010

Comments:
Static Acti constant aeration due to sample D.O. dropping to 3.0 after initial aeration up to 8.0 from 2.4.

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.

Initial sample handling:

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

PH adjustment : yes (no) Initial pH: ____ NaOH N HCl N ___ Drops ml. Final pH: ____

Aeration : (yes) no Initial DO: 2.4 mg/L Final DO: 8.0 mg/L Duration: 30 minutes Rate: ~ 100 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 25.4-26.0°C
Room B246 23.3, 24.4
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

Brad Pritchard
Jean Dinch
Erin Leif
Marshall Faircloth

Nicki 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:	Original Sample	Method	Measured by	Verified by
Field Total Residual Cl2 (mg/L):	N/A	N/A	N/A	N/A		not measured	-		SP
Lab Total Residual Cl2 (mg/L):	<0.03	<0.03				<0.03	HACH	SP	MF
Alkalinity (mg/L as $CaCO_3$)	840	140				605	HACH	~~Erin~~	SP
Hardness (mg/L as $CaCO_3$)	910	136				297	HACH	EW	SP
Total Ammonia (mg/L as N)	<0.017	<0.017				<0.017	DENVER	MF	SP
Salinity (ppth)	<1	<1				<1	YSI / Mettler	SP	MF

V 1.4 9/1/2005

Appendix 1. Bench Sheets (continued)

FDEP Biology Section - Bioassay Survival Sheet

LIMS Sample #: 884244 | Test #: 1 | Test Started: Date 12-6-05 Time: 1315

Organism: C. dubia | SOP #: TA 07_01 | Test Ended: Date 12-8-05 Time: 1315

Organism Batch: 45-05 | Diluent/ Batch: DMW / 36-05

Organism Age: ≤24 hrs | Food: YCT, *P. subcapitata*, *Artemia*

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	4 1d			
	B	B	5	5	4 1d			
	C	C	5	5	5			
	D	D	5	5	5			
Organisms loaded by: SP		Checked by:	[redacted]	JD	SP			

Loading Verified by: JD

Comments:

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

Test Results:

% mortality in 100% sample: 10

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 000037

Appendix 1. Bench Sheets (continued)

FDEP Biology Section - Bioassay Survival Sheet

LIMS Sample #: 884244 Test #: 2 Test Started: Date 12-6-05 Time: 1250
Organism: C. reedsi SOP #: TA 07_ 02 Test Ended: Date 12-8-05 Time: 1145
Organism Batch: 36-05 Diluent/ Batch: Well H2O, 12-5-05
Organism Age: 9 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	G9	5	5	5	5		
	B	G10	5	5	5	5		
	C	G11	5	5	5	5		
	D	G12	5	5	5	5		
100%	A	G13	5	5	5	5		
	B	G14	5	5	5	5		
	C	G15	5	5	5	5		
	D	G16	5	5	5	5		
Organisms loaded by: JJ		Checked by: [redacted]		JD	JS	JS		
Loading Verified by: SP								

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

Comments:

Test Results:
% mortality in 100% sample: 0
LC_{50}: >100 If Calculated: 95% CI _____ Method: _____
Screening Tests:
Report LC50 as >100%, =100%, or <100%.
Substitue highest test concentration used if other than 100% (example: Ocean outfall tested at 30% concentration).

V 2.1 11/01/2005

Page 000038

FDEP Biology Section - Bioassay Parameter Sheet

LIMS Sample # : 864244 Test #: 1 of 2

TEST SOP #: TA07_01 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	24.1	|	24.2			
Dissolved Oxygen mg/L	7.8	|	7.7			
Conductivity ~~µmhos~~ mmhos	175	|	208			"
(initials) Measured by:	~~ES~~		~~ES~~			
(initials) Recorded by:	~~ES~~		~~ES~~			

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.)	7.2	|	7.7			
Temperature °C	24.4	|	24.1			
Dissolved Oxygen mg/L	~~24.4~~ (A)	|	7.4			
Conductivity ~~µmhos~~ mmhos	1539	|	1650			
(initials) Measured by:	~~ES~~		~~ES~~			
(initials) Recorded by:	~~ES~~		~~ES~~			

Comments:
(A) 0 hr D.O. 7.0 mg/L

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

FDEP Biology Section - Bioassay Parameter Sheet

LIMS Sample # : 884244 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			
pH (S.U.)	7.9	8.3	8.5			
Temperature °C	24.1	25.2	25.9			
Dissolved Oxygen mg/L	8.0	7.9	7.3			
Conductivity (µmhos) mmhos	265	281	309			
(initials) Measured by:	JH	SF	JD			
(initials) Recorded by:	JH	SF	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.)	7.2	7.8	7.7			
Temperature °C	24.6	25.3	25.5			
Dissolved Oxygen mg/L	7.8	7.5	7.6			
Conductivity (µmhos) mmhos	1530	1588	1590			
(initials) Measured by:	JH	SF	JD			
(initials) Recorded by:	JH	SF	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

Appendix 2. Chemical Analyses performed on the effluent from the Hiawatha & Hart Point Wastewater Treatment Plant Outfall D-001, sampled on December 5, 2005.

Date Sampled	Field ID	Analysis	Component	Result	Units	Remark	MDL	PQL
12/5/2005 10:10	Hiawatha & Hart Pt	Bio-AGP/LimNut	Algal Growth Potential	2.06	mg DryWt/L		0.3	0.9
12/5/2005 10:10	Hiawatha & Hart Pt	Bio-BOD	Biochemical Oxygen Demand-5 Day,N-Inhib	2.4	mg/L	A	0.2	2
12/5/2005 10:10	Hiawatha & Hart Pt	Bio-Chl-a	Chlorophyll-A, Monochromatic, Water	0.85	ug/L	U	0.85	2.6
12/5/2005 10:10	Hiawatha & Hart Pt	Bio-Chl-a	Phaeophytin-A, Monochromatic, Water	1.5	ug/L	U	1.5	4.5
12/5/2005 10:10	Hiawatha & Hart Pt	Bio-Toxicology	Bioassay-Acute-Screen-FW-C.dubia, LC50	100	LC50	L		
12/5/2005 10:10	Hiawatha & Hart Pt	Bio-Toxicology	Bioassay-Acute-Screen-FW-Fish, LC50	100	LC50	L		
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	1,2,4-Trichlorobenzene	0.97	ug/L	U	0.97	3.9
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	1,2-Dichlorobenzene	0.97	ug/L	U	0.97	3.9
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	1,3-Dichlorobenzene	0.97	ug/L	U	0.97	3.9
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	1,4-Dichlorobenzene	0.97	ug/L	U	0.97	3.9
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	2,4,6-Trichlorophenol	0.97	ug/L	U	0.97	3.9
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	2,4-Dichlorophenol	0.97	ug/L	U	0.97	3.9
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	2,4-Dimethylphenol	49	ug/L	U	49	190
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	2,4-Dinitrophenol	15	ug/L	U	15	58
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	2,4-Dinitrotoluene	0.97	ug/L	U	0.97	3.9
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	2,6-Dinitrotoluene	0.97	ug/L	U	0.97	3.9
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	2-Chloronaphthalene	0.97	ug/L	U	0.97	3.9
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	2-Chlorophenol	0.97	ug/L	U	0.97	3.9
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	2-Methyl-4,6-dinitrophenol	2.9	ug/L	U	2.9	12
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	2-Nitrophenol	0.97	ug/L	U	0.97	3.9
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	3,3'-Dichlorobenzidine	39	ug/L	UJ	39	160
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	4,4'-DDD	1.5	ug/L	U	1.5	5.8
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	4,4'-DDE	1.5	ug/L	U	1.5	5.8
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	4,4'-DDT	1.5	ug/L	U	1.5	5.8
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	4-Bromophenyl phenyl ether	0.97	ug/L	U	0.97	3.9
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	4-Chloro-3-methylphenol	0.97	ug/L	U	0.97	3.9
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	4-Chlorophenyl phenyl ether	1.9	ug/L	U	1.9	7.8
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	4-Nitrophenol	15	ug/L	U	15	58
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	Acenaphthene	0.97	ug/L	U	0.97	3.9
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	Acenaphthylene	0.97	ug/L	U	0.97	3.9
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	Aldrin	1.5	ug/L	U	1.5	5.8
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	alpha-BHC	1.5	ug/L	U	1.5	5.8
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	Anthracene	0.97	ug/L	U	0.97	3.9
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	Benzidine	97	ug/L	U	97	390
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	Benzo(a)anthracene	0.97	ug/L	U	0.97	3.9
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	Benzo(a)pyrene	0.97	ug/L	U	0.97	3.9

Appendix 2. Chemical Analyses (continued)

Date Sampled	Field ID	Analysis	Component	Result	Units	Remark	MDL	PQL
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	Benzo(b)fluoranthene	0.97	ug/L	U	0.97	3.9
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	Benzo(g,h,i)perylene	0.97	ug/L	U	0.97	3.9
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	Benzo(k)fluoranthene	0.97	ug/L	U	0.97	3.9
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	beta-BHC	1.5	ug/L	U	1.5	5.8
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	Bis(2-chloroethoxy)methane	0.97	ug/L	U	0.97	3.9
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	Bis(2-chloroethyl)ether	0.97	ug/L	U	0.97	3.9
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	Bis(2-chloroisopropyl)ether	2.9	ug/L	U	2.9	12
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	Bis(2-ethylhexyl)phthalate	15	ug/L	U	15	58
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	Butyl benzyl phthalate	4.9	ug/L	U	4.9	19
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	Chrysene	0.97	ug/L	U	0.97	3.9
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	delta-BHC	1.5	ug/L	U	1.5	5.8
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	Dibenzo(a,h)anthracene	0.97	ug/L	U	0.97	3.9
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	Dieldrin	1.5	ug/L	U	1.5	5.8
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	Diethyl phthalate	0.97	ug/L	U	0.97	3.9
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	Dimethyl phthalate	49	ug/L	U	49	190
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	Di-n-butyl phthalate	4.9	ug/L	U	4.9	19
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	Di-n-octyl phthalate	0.97	ug/L	U	0.97	3.9
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	Endosulfan I	3.9	ug/L	U	3.9	16
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	Endosulfan II	3.9	ug/L	U	3.9	16
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	Endosulfan sulfate	1.5	ug/L	U	1.5	5.8
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	Endrin	1.5	ug/L	U	1.5	5.8
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	Endrin aldehyde	3.9	ug/L	U	3.9	16
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	Fluoranthene	0.97	ug/L	U	0.97	3.9
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	Fluorene	0.97	ug/L	U	0.97	3.9
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	gamma-BHC	1.5	ug/L	U	1.5	5.8
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	Heptachlor	1.5	ug/L	U	1.5	5.8
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	Heptachlor epoxide	1.5	ug/L	U	1.5	5.8
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	Hexachlorobenzene	0.97	ug/L	U	0.97	3.9
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	Hexachlorobutadiene	2.9	ug/L	U	2.9	12
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	Hexachlorocyclopentadiene	2.9	ug/L	U	2.9	12
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	Hexachloroethane	2.9	ug/L	U	2.9	12
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	Indeno(1,2,3-cd)pyrene	0.97	ug/L	U	0.97	3.9
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	Isophorone	0.97	ug/L	U	0.97	3.9
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	Naphthalene	0.97	ug/L	U	0.97	3.9
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	Nitrobenzene	1.9	ug/L	U	1.9	7.8
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	N-Nitrosodimethylamine	1.9	ug/L	U	1.9	7.8
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	N-Nitrosodi-n-propylamine	1.9	ug/L	U	1.9	7.8

Appendix 2. Chemical Analyses (continued)

Date Sampled	Field ID	Analysis	Component	Result	Units	Remark	MDL	PQL
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	N-Nitrosodiphenylamine	2.9	ug/L	UJ	2.9	12
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	Pentachlorophenol	2.9	ug/L	U	2.9	12
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	Phenanthrene	0.97	ug/L	U	0.97	3.9
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	Phenol	0.97	ug/L	U	0.97	3.9
12/5/2005 10:10	Hiawatha & Hart Pt	BNA-Water	Pyrene	0.97	ug/L	U	0.97	3.9
12/5/2005 10:21	Equipment Blank	BNA-Water	1,2,4-Trichlorobenzene	0.95	ug/L	U	0.95	3.8
12/5/2005 10:21	Equipment Blank	BNA-Water	1,2-Dichlorobenzene	0.95	ug/L	U	0.95	3.8
12/5/2005 10:21	Equipment Blank	BNA-Water	1,3-Dichlorobenzene	0.95	ug/L	U	0.95	3.8
12/5/2005 10:21	Equipment Blank	BNA-Water	1,4-Dichlorobenzene	0.95	ug/L	U	0.95	3.8
12/5/2005 10:21	Equipment Blank	BNA-Water	2,4,6-Trichlorophenol	0.95	ug/L	U	0.95	3.8
12/5/2005 10:21	Equipment Blank	BNA-Water	2,4-Dichlorophenol	0.95	ug/L	U	0.95	3.8
12/5/2005 10:21	Equipment Blank	BNA-Water	2,4-Dimethylphenol	48	ug/L	U	48	190
12/5/2005 10:21	Equipment Blank	BNA-Water	2,4-Dinitrophenol	14	ug/L	U	14	57
12/5/2005 10:21	Equipment Blank	BNA-Water	2,4-Dinitrotoluene	0.95	ug/L	U	0.95	3.8
12/5/2005 10:21	Equipment Blank	BNA-Water	2,6-Dinitrotoluene	0.95	ug/L	U	0.95	3.8
12/5/2005 10:21	Equipment Blank	BNA-Water	2-Chloronaphthalene	0.95	ug/L	U	0.95	3.8
12/5/2005 10:21	Equipment Blank	BNA-Water	2-Chlorophenol	0.95	ug/L	U	0.95	3.8
12/5/2005 10:21	Equipment Blank	BNA-Water	2-Methyl-4,6-dinitrophenol	2.9	ug/L	U	2.9	11
12/5/2005 10:21	Equipment Blank	BNA-Water	2-Nitrophenol	0.95	ug/L	U	0.95	3.8
12/5/2005 10:21	Equipment Blank	BNA-Water	3,3'-Dichlorobenzidine	38	ug/L	UJ	38	150
12/5/2005 10:21	Equipment Blank	BNA-Water	4,4'-DDD	1.4	ug/L	U	1.4	5.7
12/5/2005 10:21	Equipment Blank	BNA-Water	4,4'-DDE	1.4	ug/L	U	1.4	5.7
12/5/2005 10:21	Equipment Blank	BNA-Water	4,4'-DDT	1.4	ug/L	U	1.4	5.7
12/5/2005 10:21	Equipment Blank	BNA-Water	4-Bromophenyl phenyl ether	0.95	ug/L	U	0.95	3.8
12/5/2005 10:21	Equipment Blank	BNA-Water	4-Chloro-3-methylphenol	0.95	ug/L	U	0.95	3.8
12/5/2005 10:21	Equipment Blank	BNA-Water	4-Chlorophenyl phenyl ether	1.9	ug/L	U	1.9	7.6
12/5/2005 10:21	Equipment Blank	BNA-Water	4-Nitrophenol	14	ug/L	U	14	57
12/5/2005 10:21	Equipment Blank	BNA-Water	Acenaphthene	0.95	ug/L	U	0.95	3.8
12/5/2005 10:21	Equipment Blank	BNA-Water	Acenaphthylene	0.95	ug/L	U	0.95	3.8
12/5/2005 10:21	Equipment Blank	BNA-Water	Aldrin	1.4	ug/L	U	1.4	5.7
12/5/2005 10:21	Equipment Blank	BNA-Water	alpha-BHC	1.4	ug/L	U	1.4	5.7
12/5/2005 10:21	Equipment Blank	BNA-Water	Anthracene	0.95	ug/L	U	0.95	3.8
12/5/2005 10:21	Equipment Blank	BNA-Water	Benzidine	95	ug/L	U	95	380
12/5/2005 10:21	Equipment Blank	BNA-Water	Benzo(a)anthracene	0.95	ug/L	U	0.95	3.8
12/5/2005 10:21	Equipment Blank	BNA-Water	Benzo(a)pyrene	0.95	ug/L	U	0.95	3.8
12/5/2005 10:21	Equipment Blank	BNA-Water	Benzo(b)fluoranthene	0.95	ug/L	U	0.95	3.8
12/5/2005 10:21	Equipment Blank	BNA-Water	Benzo(g,h,i)perylene	0.95	ug/L	U	0.95	3.8

Appendix 2. Chemical Analyses (continued)

Date Sampled	Field ID	Analysis	Component	Result	Units	Remark	MDL	PQL
12/5/2005 10:21	Equipment Blank	BNA-Water	Benzo(k)fluoranthene	0.95	ug/L	U	0.95	3.8
12/5/2005 10:21	Equipment Blank	BNA-Water	beta-BHC	1.4	ug/L	U	1.4	5.7
12/5/2005 10:21	Equipment Blank	BNA-Water	Bis(2-chloroethoxy)methane	0.95	ug/L	U	0.95	3.8
12/5/2005 10:21	Equipment Blank	BNA-Water	Bis(2-chloroethyl)ether	0.95	ug/L	U	0.95	3.8
12/5/2005 10:21	Equipment Blank	BNA-Water	Bis(2-chloroisopropyl)ether	2.9	ug/L	U	2.9	11
12/5/2005 10:21	Equipment Blank	BNA-Water	Bis(2-ethylhexyl)phthalate	14	ug/L	U	14	57
12/5/2005 10:21	Equipment Blank	BNA-Water	Butyl benzyl phthalate	4.8	ug/L	U	4.8	19
12/5/2005 10:21	Equipment Blank	BNA-Water	Chrysene	0.95	ug/L	U	0.95	3.8
12/5/2005 10:21	Equipment Blank	BNA-Water	delta-BHC	1.4	ug/L	U	1.4	5.7
12/5/2005 10:21	Equipment Blank	BNA-Water	Dibenzo(a,h)anthracene	0.95	ug/L	U	0.95	3.8
12/5/2005 10:21	Equipment Blank	BNA-Water	Dieldrin	1.4	ug/L	U	1.4	5.7
12/5/2005 10:21	Equipment Blank	BNA-Water	Diethyl phthalate	0.95	ug/L	U	0.95	3.8
12/5/2005 10:21	Equipment Blank	BNA-Water	Dimethyl phthalate	48	ug/L	U	48	190
12/5/2005 10:21	Equipment Blank	BNA-Water	Di-n-butyl phthalate	4.8	ug/L	U	4.8	19
12/5/2005 10:21	Equipment Blank	BNA-Water	Di-n-octyl phthalate	0.95	ug/L	U	0.95	3.8
12/5/2005 10:21	Equipment Blank	BNA-Water	Endosulfan I	3.8	ug/L	U	3.8	15
12/5/2005 10:21	Equipment Blank	BNA-Water	Endosulfan II	3.8	ug/L	U	3.8	15
12/5/2005 10:21	Equipment Blank	BNA-Water	Endosulfan sulfate	1.4	ug/L	U	1.4	5.7
12/5/2005 10:21	Equipment Blank	BNA-Water	Endrin	1.4	ug/L	U	1.4	5.7
12/5/2005 10:21	Equipment Blank	BNA-Water	Endrin aldehyde	3.8	ug/L	U	3.8	15
12/5/2005 10:21	Equipment Blank	BNA-Water	Fluoranthene	0.95	ug/L	U	0.95	3.8
12/5/2005 10:21	Equipment Blank	BNA-Water	Fluorene	0.95	ug/L	U	0.95	3.8
12/5/2005 10:21	Equipment Blank	BNA-Water	gamma-BHC	1.4	ug/L	U	1.4	5.7
12/5/2005 10:21	Equipment Blank	BNA-Water	Heptachlor	1.4	ug/L	U	1.4	5.7
12/5/2005 10:21	Equipment Blank	BNA-Water	Heptachlor epoxide	1.4	ug/L	U	1.4	5.7
12/5/2005 10:21	Equipment Blank	BNA-Water	Hexachlorobenzene	0.95	ug/L	U	0.95	3.8
12/5/2005 10:21	Equipment Blank	BNA-Water	Hexachlorobutadiene	2.9	ug/L	U	2.9	11
12/5/2005 10:21	Equipment Blank	BNA-Water	Hexachlorocyclopentadiene	2.9	ug/L	U	2.9	11
12/5/2005 10:21	Equipment Blank	BNA-Water	Hexachloroethane	2.9	ug/L	U	2.9	11
12/5/2005 10:21	Equipment Blank	BNA-Water	Indeno(1,2,3-cd)pyrene	0.95	ug/L	U	0.95	3.8
12/5/2005 10:21	Equipment Blank	BNA-Water	Isophorone	0.95	ug/L	U	0.95	3.8
12/5/2005 10:21	Equipment Blank	BNA-Water	Naphthalene	0.95	ug/L	U	0.95	3.8
12/5/2005 10:21	Equipment Blank	BNA-Water	Nitrobenzene	1.9	ug/L	U	1.9	7.6
12/5/2005 10:21	Equipment Blank	BNA-Water	N-Nitrosodimethylamine	1.9	ug/L	U	1.9	7.6
12/5/2005 10:21	Equipment Blank	BNA-Water	N-Nitrosodi-n-propylamine	1.9	ug/L	U	1.9	7.6
12/5/2005 10:21	Equipment Blank	BNA-Water	N-Nitrosodiphenylamine	2.9	ug/L	UJ	2.9	11
12/5/2005 10:21	Equipment Blank	BNA-Water	Pentachlorophenol	2.9	ug/L	U	2.9	11

Appendix 2. Chemical Analyses (continued)

Date Sampled	Field ID	Analysis	Component	Result	Units	Remark	MDL	PQL
12/5/2005 10:21	Equipment Blank	BNA-Water	Phenanthrene	0.95	ug/L	U	0.95	3.8
12/5/2005 10:21	Equipment Blank	BNA-Water	Phenol	0.95	ug/L	U	0.95	3.8
12/5/2005 10:21	Equipment Blank	BNA-Water	Pyrene	0.95	ug/L	U	0.95	3.8
12/5/2005 10:10	Hiawatha & Hart Pt	GC-Water	Alachlor	0.6	ug/L	U	0.6	2.4
12/5/2005 10:10	Hiawatha & Hart Pt	GC-Water	Ametryn	0.05	ug/L	U	0.05	0.2
12/5/2005 10:10	Hiawatha & Hart Pt	GC-Water	Atrazine	0.05	ug/L	U	0.05	0.2
12/5/2005 10:10	Hiawatha & Hart Pt	GC-Water	Azinphos Methyl	0.2	ug/L	U	0.2	0.8
12/5/2005 10:10	Hiawatha & Hart Pt	GC-Water	Bromacil	0.2	ug/L	U	0.2	0.8
12/5/2005 10:10	Hiawatha & Hart Pt	GC-Water	Butylate	0.2	ug/L	U	0.2	0.8
12/5/2005 10:10	Hiawatha & Hart Pt	GC-Water	Chlorpyrifos Ethyl	0.05	ug/L	U	0.05	0.2
12/5/2005 10:10	Hiawatha & Hart Pt	GC-Water	Chlorpyrifos Methyl	0.1	ug/L	U	0.1	0.4
12/5/2005 10:10	Hiawatha & Hart Pt	GC-Water	Diazinon	0.05	ug/L	U	0.05	0.2
12/5/2005 10:10	Hiawatha & Hart Pt	GC-Water	Ethion	0.05	ug/L	U	0.05	0.2
12/5/2005 10:10	Hiawatha & Hart Pt	GC-Water	Ethoprop	0.1	ug/L	U	0.1	0.4
12/5/2005 10:10	Hiawatha & Hart Pt	GC-Water	Fenamiphos	0.2	ug/L	UJ	0.2	0.8
12/5/2005 10:10	Hiawatha & Hart Pt	GC-Water	Fonofos	0.1	ug/L	U	0.1	0.4
12/5/2005 10:10	Hiawatha & Hart Pt	GC-Water	Hexazinone	0.1	ug/L	U	0.1	0.4
12/5/2005 10:10	Hiawatha & Hart Pt	GC-Water	Malathion	0.15	ug/L	UJ	0.15	0.6
12/5/2005 10:10	Hiawatha & Hart Pt	GC-Water	Metalaxyl	0.25	ug/L	U	0.25	1
12/5/2005 10:10	Hiawatha & Hart Pt	GC-Water	Metolachlor	0.5	ug/L	U	0.5	2
12/5/2005 10:10	Hiawatha & Hart Pt	GC-Water	Metribuzin	0.1	ug/L	U	0.1	0.4
12/5/2005 10:10	Hiawatha & Hart Pt	GC-Water	Mevinphos	0.2	ug/L	U	0.2	0.8
12/5/2005 10:10	Hiawatha & Hart Pt	GC-Water	Naled	0.8	ug/L	U	0.8	3.2
12/5/2005 10:10	Hiawatha & Hart Pt	GC-Water	Norflurazon	0.15	ug/L	U	0.15	0.6
12/5/2005 10:10	Hiawatha & Hart Pt	GC-Water	Parathion Ethyl	0.15	ug/L	U	0.15	0.6
12/5/2005 10:10	Hiawatha & Hart Pt	GC-Water	Parathion Methyl	0.1	ug/L	U	0.1	0.4
12/5/2005 10:10	Hiawatha & Hart Pt	GC-Water	Phorate	0.05	ug/L	U	0.05	0.2
12/5/2005 10:10	Hiawatha & Hart Pt	GC-Water	Prometryn	0.15	ug/L	U	0.15	0.6
12/5/2005 10:10	Hiawatha & Hart Pt	GC-Water	Simazine	0.05	ug/L	U	0.05	0.2
12/5/2005 10:21	Equipment Blank	GC-Water	Alachlor	0.58	ug/L	U	0.58	2.3
12/5/2005 10:21	Equipment Blank	GC-Water	Ametryn	0.048	ug/L	U	0.048	0.19
12/5/2005 10:21	Equipment Blank	GC-Water	Atrazine	0.048	ug/L	U	0.048	0.19
12/5/2005 10:21	Equipment Blank	GC-Water	Azinphos Methyl	0.19	ug/L	U	0.19	0.76
12/5/2005 10:21	Equipment Blank	GC-Water	Bromacil	0.19	ug/L	U	0.19	0.76
12/5/2005 10:21	Equipment Blank	GC-Water	Butylate	0.19	ug/L	U	0.19	0.76
12/5/2005 10:21	Equipment Blank	GC-Water	Chlorpyrifos Ethyl	0.048	ug/L	U	0.048	0.19
12/5/2005 10:21	Equipment Blank	GC-Water	Chlorpyrifos Methyl	0.096	ug/L	U	0.096	0.38

Appendix 2. Chemical Analyses (continued)

Date Sampled	Field ID	Analysis	Component	Result	Units	Remark	MDL	PQL
12/5/2005 10:21	Equipment Blank	GC-Water	Diazinon	0.048	ug/L	U	0.048	0.19
12/5/2005 10:21	Equipment Blank	GC-Water	Ethion	0.048	ug/L	U	0.048	0.19
12/5/2005 10:21	Equipment Blank	GC-Water	Ethoprop	0.096	ug/L	U	0.096	0.38
12/5/2005 10:21	Equipment Blank	GC-Water	Fenamiphos	0.19	ug/L	UJ	0.19	0.76
12/5/2005 10:21	Equipment Blank	GC-Water	Fonofos	0.096	ug/L	U	0.096	0.38
12/5/2005 10:21	Equipment Blank	GC-Water	Hexazinone	0.096	ug/L	U	0.096	0.38
12/5/2005 10:21	Equipment Blank	GC-Water	Malathion	0.14	ug/L	UJ	0.14	0.56
12/5/2005 10:21	Equipment Blank	GC-Water	Metalaxyl	0.24	ug/L	U	0.24	0.96
12/5/2005 10:21	Equipment Blank	GC-Water	Metolachlor	0.48	ug/L	U	0.48	1.9
12/5/2005 10:21	Equipment Blank	GC-Water	Metribuzin	0.096	ug/L	U	0.096	0.38
12/5/2005 10:21	Equipment Blank	GC-Water	Mevinphos	0.19	ug/L	U	0.19	0.76
12/5/2005 10:21	Equipment Blank	GC-Water	Naled	0.77	ug/L	U	0.77	3.1
12/5/2005 10:21	Equipment Blank	GC-Water	Norflurazon	0.14	ug/L	U	0.14	0.56
12/5/2005 10:21	Equipment Blank	GC-Water	Parathion Ethyl	0.14	ug/L	U	0.14	0.56
12/5/2005 10:21	Equipment Blank	GC-Water	Parathion Methyl	0.096	ug/L	U	0.096	0.38
12/5/2005 10:21	Equipment Blank	GC-Water	Phorate	0.048	ug/L	U	0.048	0.19
12/5/2005 10:21	Equipment Blank	GC-Water	Prometryn	0.14	ug/L	U	0.14	0.56
12/5/2005 10:21	Equipment Blank	GC-Water	Simazine	0.048	ug/L	U	0.048	0.19
12/5/2005 10:10	Hiawatha & Hart Pt	Metals-Water	Aluminum	98	ug/L		5	20
12/5/2005 10:10	Hiawatha & Hart Pt	Metals-Water	Arsenic	8	ug/L	U	8	32
12/5/2005 10:10	Hiawatha & Hart Pt	Metals-Water	Cadmium	0.05	ug/L	U	0.05	0.2
12/5/2005 10:10	Hiawatha & Hart Pt	Metals-Water	Calcium	70.2	mg/L		0.05	0.2
12/5/2005 10:10	Hiawatha & Hart Pt	Metals-Water	Chromium	1	ug/L	U	1	4
12/5/2005 10:10	Hiawatha & Hart Pt	Metals-Water	Copper	1.7	ug/L	I	0.5	2
12/5/2005 10:10	Hiawatha & Hart Pt	Metals-Water	Iron	37	ug/L	I	10	40
12/5/2005 10:10	Hiawatha & Hart Pt	Metals-Water	Lead	0.38	ug/L	I	0.22	0.88
12/5/2005 10:10	Hiawatha & Hart Pt	Metals-Water	Magnesium	32.4	mg/L		0.01	0.04
12/5/2005 10:10	Hiawatha & Hart Pt	Metals-Water	Nickel	3.4	ug/L	I	1	4
12/5/2005 10:10	Hiawatha & Hart Pt	Metals-Water	Selenium	0.5	ug/L	U	0.5	2
12/5/2005 10:10	Hiawatha & Hart Pt	Metals-Water	Silver	0.025	ug/L	U	0.025	0.1
12/5/2005 10:10	Hiawatha & Hart Pt	Metals-Water	Zinc	38	ug/L		3	12
12/5/2005 10:21	Equipment Blank	Metals-Water	Aluminum	5	ug/L	U	5	20
12/5/2005 10:21	Equipment Blank	Metals-Water	Arsenic	4	ug/L	U	4	16
12/5/2005 10:21	Equipment Blank	Metals-Water	Cadmium	0.05	ug/L	U	0.05	0.2
12/5/2005 10:21	Equipment Blank	Metals-Water	Calcium	0.05	mg/L	U	0.05	0.2
12/5/2005 10:21	Equipment Blank	Metals-Water	Chromium	1	ug/L	U	1	4
12/5/2005 10:21	Equipment Blank	Metals-Water	Copper	0.25	ug/L	U	0.25	1

Appendix 2. Chemical Analyses (continued)

Date Sampled	Field ID	Analysis	Component	Result	Units	Remark	MDL	PQL
12/5/2005 10:21	Equipment Blank	Metals-Water	Iron	10	ug/L	U	10	40
12/5/2005 10:21	Equipment Blank	Metals-Water	Lead	1.5	ug/L		0.075	0.3
12/5/2005 10:21	Equipment Blank	Metals-Water	Magnesium	0.01	mg/L	U	0.01	0.04
12/5/2005 10:21	Equipment Blank	Metals-Water	Nickel	1	ug/L	U	1	4
12/5/2005 10:21	Equipment Blank	Metals-Water	Selenium	0.5	ug/L	U	0.5	2
12/5/2005 10:21	Equipment Blank	Metals-Water	Silver	0.025	ug/L	U	0.025	0.1
12/5/2005 10:21	Equipment Blank	Metals-Water	Zinc	3	ug/L	U	3	12
12/5/2005 10:10	Hiawatha & Hart Pt	Nutrients-Liquid	Ammonia-N	0.049	mg N/L	A	0.01	0.02
12/5/2005 10:10	Hiawatha & Hart Pt	Nutrients-Liquid	Kjeldahl Nitrogen	0.73	mg N/L		0.16	0.4
12/5/2005 10:10	Hiawatha & Hart Pt	Nutrients-Liquid	NO2NO3-N	0.083	mg N/L		0.004	0.01
12/5/2005 10:10	Hiawatha & Hart Pt	Nutrients-Liquid	O-Phosphate-P	0.024	mg P/L		0.004	0.01
12/5/2005 10:10	Hiawatha & Hart Pt	Nutrients-Liquid	Total-P	0.1	mg P/L		0.02	0.06
12/5/2005 10:10	Hiawatha & Hart Pt	Nutrients-Liquid	TSS	4	mg/L	U	4	16
12/5/2005 10:21	Equipment Blank	Nutrients-Liquid	Ammonia-N	0.01	mg N/L	U	0.01	0.02
12/5/2005 10:21	Equipment Blank	Nutrients-Liquid	Kjeldahl Nitrogen	0.08	mg N/L	U	0.08	0.2
12/5/2005 10:21	Equipment Blank	Nutrients-Liquid	NO2NO3-N	0.004	mg N/L	U	0.004	0.01
12/5/2005 10:21	Equipment Blank	Nutrients-Liquid	O-Phosphate-P	0.004	mg P/L	U	0.004	0.01
12/5/2005 10:21	Equipment Blank	Nutrients-Liquid	Total-P	0.02	mg P/L	U	0.02	0.06

The Bioassay of Hiawatha & Hart Point Wastewater Treatment Plant effluent sampled on December 5, 2005. NPDES #FL0043389.

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 4 3 3 8 9 11	12 0 5 1 2 0 5	18 **B**	19 **S**	20 1

Remarks

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The Priority Pollutants Analysis of Hiawatha & Hart Point Wastewater Treatment Plant effluent sampled on December 5, 2005. NPDES #FL0043389.

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 4 3 3 8 9 11	12 0 5 1 2 0 5	18 **X**	19 **S**	20 1

Remarks

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Biological Analyses of Hiawatha & Hart Point Wastewater Treatment Plant effluent sampled on December 5, 2005. NPDES #FL0043389.

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 4 3 3 8 9 11	12 0 5 1 2 0 5	18 **S**	19 **S**	20 1

Remarks

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