

Biological Assessment of

US Agri-Chemicals - Bartow

Polk County

NPDES #FL0001961

Sampled March 10, 12 and 14, 2003

August 2003

Biology Section

Bureau of Laboratories

Division of Resource Assessment and Management

Quality Manual No. 870346G

NELAC Certification No. E31780

Florida Department of Environmental Protection

Fifth Year Inspection Summary

Discharger:	US Agri-Chemicals, Inc. – Bartow plant
County:	Polk
NPDES Number:	FL0001961
Permit Expiration:	June 25, 2003

Toxics Sampling Inspection **(XSI)**

Date Sampled: March 10, 12 and 14, 2003

Results: Aluminum, cadmium, chromium, iron, lead, and nickel were detected in the effluent at levels that complied with Class III Water Quality Criteria; cadmium, lead and nickel levels were above the minimum detection limit and below the practical quantitation level. Hexazinone, an agricultural herbicide, was detected in the effluent sample on March 10, 2003, but not on March 12 or 14. Radium 226 was detected in the effluent sample at 0.5 pCi/L, a level that complied with Class III Water Quality Criteria and facility permit limits.

Compliance Biomonitoring Inspection **(CBI)**

Date Sampled: March 10, 12 and 14, 2003

Results: The effluent sample was not toxic to the fish, *Cyprinella leedsi,* or to the water flea, *Ceriodaphnia dubia,* during the 7-day chronic toxicity bioassays.

Water Quality Inspection **(WQI)**

Date Sampled: March 10, 2003

Results: Fecal and total coliforms did not exceed Class III Water Quality Criteria in the effluent or in the Control and Test Site samples. Unionized ammonia at the Control Site was 0.0298 mg/L, an exceedance of Class III Water Quality Criteria (62-302.530 (3) F.A.C.).

Impact Bioassessment Inspection **(IBI)**

Date Sampled: March 10, 2003

Results: Nutrient levels in Bear Branch above the outfall at the Control Site were high (4.6 mg/L total phosphorus, 4.9 mg/L total nitrogen), but were even higher below the outfall at the Test Site after additional inputs from the facility (7.1 mg/L total phosphorus, 5.7 mg/L total nitrogen). Algal growth potential was more than 20 times the suggested "problem" threshold upstream of the outfall, downstream of the outfall and in the effluent sample. Chlorophyll *a* levels were 74 μg/L or higher

upstream of the outfall, downstream of the outfall and in the effluent sample. Dissolved oxygen was super-saturated at the Control Site, suggesting the possibility of strong diel shifts in dissolved oxygen in Bear Branch. These results, in combination with elevated nutrient levels, suggest that (1) Bear Branch is highly eutrophic both upstream and downstream of the outfall, (2) effluent from the U.S. Agri-Chemicals Bartow plant is contributing to over-enrichment of the receiving water, and (3) Bear Branch should be evaluated with respect to the Impaired Waters Rule criteria.

Biological assessments are prepared by FDEP staff to provide information for review of NPDES permit renewal applications. Biological assessments, in conjunction with other information concerning the subject facility and its receiving-water body, are used to determine appropriate permit conditions.

Introduction

The US Agri-Chemicals Corporation - Bartow Plant is located in Polk County, Florida (Appendix 1). This facility is a phosphate fertilizer and chemical manufacturing plant producing diammonium phosphate. Wastewater consisting of treated, contaminated non-process wastewater and stormwater is discharged from the plant into an adjacent lake system that flows through a ditch to Outfall 001 (see Facility Summary in Appendix 2). The effluent then flows into Bear Branch, a tributary of the Peace River. At any time, no more than 10% of the effluent from Outfall 001 is treated non-process wastewater (B. Irsch, FDEP Phosphate District). The design flow of the wastewater system is not known (Appendix 2). The mean flow was 5.29 MGD for the 12 months preceding the survey and flow during this survey ranged from 2.76-3.53 MGD (B. Irsch, FDEP Phosphate District, Tampa). Between January 27 and March 12, 2003, there was no effluent flow from Outfall 001 for approximately 12 days. During the remainder of this period, the effluent was a mix of stormwater and treated, contaminated, non-process wastewater. After March 13, the effluent contained only stormwater during the period of this survey.

Surface Water Quality Criteria and facility permit limits are listed in Table 1. According to the facility's monthly discharge monitoring reports, the plant has had no permit exceedances or plant upsets in the last year (Appendix 2).

Methods

The purpose of this investigation was to determine the discharger's effects on the receiving waters. Chemical and biological comparisons were made between a control site (located in Bear Branch upstream of the outfall) and a test site (located in Bear Branch approximately 10 meters downstream of the outfall). The headwaters of Bear Branch is an outfall draining from a lake on Cargill Phosphate Inc.-Bartow property. Detailed methods are given in Appendix 3.

All field and laboratory biological methods followed Biology Section Standard Operating Procedures (SOPs, see http://www.floridadep.org/labs/qa/2002sops.htm for details) and met DEP quality assurance/quality control standards (see http://www.floridadep.org/labs/qa/index.htm).

The following were involved in this investigation: Bonnie Hall and Brian Irsch (FDEP Phosphate District), and FDEP Central Laboratory in Tallahassee. The report was reviewed by District representatives and the Point Source Studies Review Committee (Wayne Magley, Chuck Ziegmont and Michael Tanski).

Results and Discussion

- Specific chemical results are reported in Table 1 and a complete list of chemical analytes can be reviewed in Appendix 4. Aluminum, cadmium, chromium, iron, lead and nickel were detected in one or more effluent samples from March 10, 12 and 14, 2003 at levels that complied with Class III Water Quality Criteria (Chapter 62-302 F.A.C.). Cadmium, lead, and nickel levels were above the minimum detection limit and below the practical quantitation limit. Hexazinone, an agricultural herbicide, was detected in the effluent at a level higher than the minimum detection limit but below the practical quantitation limit on March 10, 2003. This level was approximately an order of magnitude lower than the level reported to be associated with deleterious effects in the USEPA ECOTOX database. Effluent conductivity (µmhos/cm), pH (Standard Units) and dissolved oxygen (mg/L) complied with Class III Water Quality Criteria (Chapter 62-302 F.A.C.) and facility permit limits on March 10, 12 and 14, 2003.
- The variation in detection of metals and organic constituents on the three sample dates may be related to the proportion of the discharge composed of treated, contaminated, non-process wastewater. On March 10, treated, contaminated, non-process wastewater composed 2.8% of the discharge with the remainder being stormwater. In contrast, treated, contaminated, non-process wastewater was approximately 2.5% of the discharge on March 12 and only stormwater was discharged on March 14.
- Residual chlorine detected in the effluent from March 12, 2003 (0.04 mg/L, Table 1) is likely due to interference in the laboratory reading since this is an unchlorinated effluent.
- Radium 226 was detected in the effluent sample at 0.5 pCi/L (Table 1, Appendix 4). Levels of radioactive substances (total gross alpha, radium 226 and radium 228) in the effluent sample complied with Class III Water Quality Criteria (Chapter 62-302 F.A.C.) and facility permit limits.
- Habitat assessment scores were 71 at the Control Site and 96 at the Test Site (Table 1, data sheets in Appendix 8). The receiving water was a highly channelized stream, with the upstream headwaters consisting of the outflow from a lake on Cargill Fertilizer Inc. – Bartow property.

Table 1. Effluent limits, Class III Criteria and chemical, microbiological and toxicological data.

USAC Bartow	Class III Criteria	Effluent Limits 3/10/03	Effluent Limits 3/12/03	Effluent Limits 3/14/03	Effluent Samples 3/10/03	Effluent Samples 3/12/03	Effluent Samples 3/14/03	Control Site 3/10/03	Test Site 3/10/03
Organic Constituents (µg/L)									
Hexazinone	-	-	-	-	0.12 I	0.096 U	0.096 U	-	-
Metals (µg/L unless otherwise noted, Class III Criteria are less than or equal to the value given)									
Aluminum	-	-	-	-	174 A	147 A	165	-	-
Arsenic	50	-	-	-	4 U	13 U	4 U	-	-
Cadmium	b	1.945 b	1.888 b	1.700 b	0.072 I	0.058 I	0.025 U	-	-
Calcium (mg/L)	-	-	-	-	54.2 A	51.4 A	41.5	-	-
Chromium	b	151 b	146 b	131 b	2 U	2.1 I	2 U	-	-
Copper	b	16.78 b	16.24 b	14.49 b	0.75 U	1.7 U	2.1 U	-	-
Iron	1000	-	-	-	130	126 A	130	-	-
Lead	b	7.63 b	7.27 b	6.13 b	0.1 U	0.1 U	0.13 I	-	-
Magnesium (mg/L)	-	-	-	-	15.4 A	15.3 A	15.5	-	-
Nickel	b	93.3 b	90.3 b	185.5 b	2.4 I	3.4 I	2 U	-	-
Selenium	5.0	-	-	-	1 U	1 U	1 U	-	-
Silver	0.07	-	-	-	0.02 U	0.02 U	0.02 U	-	-
Zinc	b	214.4 b	207.6 b	80.7 b	5.6 U	4 U	4 U	-	-
Nutrients (mg/L)									
Ortho-phosphate	-	Report	Report	Report	5.4	-	-	3.9	6.5
Total Phosphorus	-	40.0 s	40.0 s	40.0 s	6.2	-	-	4.6	7.1
Total Ammonia	-	Report	Report	Report	6	-	-	2.7	3.2
Un-ionized Ammonia	≤ 0.02 s	≤ 0.02 s	≤ 0.02 s	≤ 0.02 s	0.0096	-	-	0.0298	0.0049
Nitrate and Nitrite	-	-	-	-	0.82	-	-	0.61	1.1
Total Kjeldahl Nitrogen	-	-	-	-	12	-	-	4.3	4.6
Organic Nitrogen	-	-	-	-	6	-	-	1.6	1.4
Total Nitrogen	-	Report	Report	Report	12.82	-	-	4.91	5.7
General Physical and Chemical Parameters									
Habitat Assessment	-	-	-	-	-	-	-	71	96
Dissolved Oxygen (mg/L)	≥ 5.0 s	5.0	5.0	5.0	6.7	6.0	7.7	10.4	7.2
pH (SU)	6.0-8.5 s	Report	Report	Report	6.4	6.4	6.4	7.2	6.4
Conductivity (µmhos/cm)	1275 s	1275 s	1275 s	1275 s	642	608	547	526	552
Temperature (°C)	-	Report	Report	Report	23.9	23.4	24.5	25.3	23.3
Color (Pt-Co)	-	-	-	-	60	-	-	60	60
Total Suspended Solids (mg/L)	-	-	-	-	10 I	-	-	18	12 I
Total Dissolved Solids (mg/L)	-	-	-	-	414	-	-	329	384
Turbidity (NTU)	40	-	-	-	6.6	-	-	11	6.7
Residual Chlorine (mg/L)	≤ 0.01	-	-	-	≤ 0.03	0.04 a	≤ 0.03	-	-
Chlorophyll *a* (µg/L)	-	-	-	-	92 A	-	-	130	74 A
Phaeophytin (µg/L)	-	-	-	-	0 A	-	-	0	0 A
Fluoride (mg/L)	10	10.0	10.0	10.0	2	-	-	1.6	1.9
Sulfate (mg/L)	-	Report	Report	Report	250	-	-	190	220
Flow (MGD)	-	Report	Report	Report	3.53	2.84	2.76	-	-
Hardness (mg $CaCO_3$)	-	-	-	-	198.8	191.3	167.5	-	-
Radioactive substances (pCi/L)									
Total Gross Alpha	15.0	15.0	-	-	2.3 U	-	-	-	-
Alpha-Counting Error	-	-	-	-	1.4	-	-	-	-
Radium 226	5.0 *	5.0 *	-	-	0.5	-	-	-	-
Radium 226- Counting Error	-	-	-	-	0.1	-	-	-	-
Radium 228	5.0 *	5.0 *	-	-	0.8 U	-	-	-	-
Radium 228-Counting Error	-	-	-	-	0.5	-	-	-	-
Toxicity (7 day chronic toxicity, screening bioassay, NOEC percent effluent)									
Bioassay - Water flea	-	**	-	-	100%	-	-	-	-
Bioassay - Fish	-	**	-	-	100%	-	-	-	-
Microbiology (number of counts/100ml)									
Fecal Coliforms	800	-	-	-	-	20 K	-	20 K	60 K
Total Coliforms	2400	-	-	-	-	560	-	20 K	740

Value exceeds the Class III Water Quality Criteria

a - Value probably represents interference in the laboratory reading. Effluent is unchlorinated.

b - Value is calculated based on hardness

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

I - Value reported is < the minimum quantitation limit, and ≥ the minimum detection limit

K - Actual value is known to be less than value given.

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

s - Single sample

* Combined Radium 226 and 228 shall not exceed 5.0 pCi/L.

** NOEC - A no observed effect concentration less than 100% effluent will constitute a violation of this permit

Table 2. Measured and predicted algal growth potential (AGP) for total soluble inorganic nitrogen (TSIN) limitation

Location	AGP (measured)	Predicted AGP (TSIN) ± 20%	Inorganic N:P ratio
Control (mg dry wt/L)	102.0	125.8 ± 25.2	0.8
Test (mg dry wt/L)	209.0	163.4 ± 32.7	0.7
Effluent (mg dry wt/L)	147.0	259.2 ± 51.8	1.3

- Dissolved oxygen (DO as mg/L), pH (Standard Units), and conductivity (umhos/cm) at the Test and Control Sites complied with Class III Water Quality Criteria (Table 1, Appendices 7 and 8, Chapter 62-302.530 F.A.C.). Dissolved oxygen was super-saturated at the Control Site on January 21, March 10 and March 12, 2003 (Appendices 7 and 8).

- The effluent samples were not toxic to the fish, *Pimephales promelas,* or to the water flea, *Ceriodaphnia dubia,* during the 7-day chronic toxicity bioassays (See Table 1 for the No Observed Effect Concentration and Appendix 7 for bioassay bench sheets). There was no significant difference in mortality for either the fish or the water flea. For the fish, there was no significant difference in the average weight of the control organisms and the average weight of the organisms in the 100% sample concentration ($p>0.05$). For the water flea, average reproduction was 26.0 neonates per adult in the control and 27.2 neonates per adult in the 100% sample, which did not differ significantly ($p>0.05$).

- Fecal and total coliforms were detected in the effluent and upstream and downstream of the discharge at levels that did not exceed Class III Water Quality Criteria.

- The equipment blank for the March 10, 2003 effluent sample recorded a value of 0.05 mg/L for orthophosphate (Appendix 4). Because the effluent sample had an orthophosphate result more than ten times the blank result, effluent orthophosphate is reported without qualification (Table 1).

- The effluent total nitrogen concentration was 12.82 mg/L and total phosphorus was 6.2 mg/L (Table 1). Ammonia in the effluent was elevated (6.0 mg/L). Nitrogen in the effluent was predominantly Kjeldahl nitrogen (12 mg/L). At the Control Site, nutrients were elevated prior to receiving the Bartow plant effluent; total nitrogen was 4.91 mg/L and total phosphorus was 4.6 mg/L. Unionized ammonia at the Control Site was 0.0298 mg/L, an exceedance of Class III Water Quality Criteria (0.02 mg/L, 62-302.530 (3) F.A.C.). Effluent nutrients contributed to elevated levels at the Test Site. Control and Test Site nutrient levels were greater than those in 95% of typical Florida streams for orthophosphate, total phosphorus, total Kjeldahl nitrogen and total ammonia (Appendix 6). Nitrate + nitrite levels were higher than 80% of typical Florida streams at the Control Site and 95% of typical Florida streams at the Test Site.

- Algal growth potential (AGP) is a measure of nutrients available for algal growth (Miller *et al.* 1978). Raschke and Shultz (1987) found that AGP above 5.0 mg dry weight/L represent a "problem" threshold for fresh receiving waters, implying nutrient enrichment. The AGP value at the upstream Control Site was 102 mg dry weight/L, more than 20 times the "problem" threshold (Table 2). The AGP values of the downstream Test Site (209 mg dry weight/L) and the effluent (147 mg dry weight/L) were more than 29 times this threshold. This indicates there is nutrient enrichment related to the Bartow plant discharge in this portion of Bear Branch. There was not evidence of growth inhibition in AGP data from the Control and Test Sites (Table 2). The effluent water sample produced less biomass than expected, suggesting growth inhibition. The herbicide Hexazinone was detected in the effluent, but the level was below that associated with detectable effects on algal growth in the EPA ECOTOX database. Hexazinone is unlikely to be the cause of reduced dry weight in AGP results from the effluent sample.

- Phytoplankton were analyzed from samples collected at the upstream Control Site, the downstream Test Site and from an effluent sample. The three samples were very similar, with approximately 45% green algae, 30% blue-green algae, 3% euglenoids and 20% diatoms (Table 3, Appendix 9).

- Phytoplankton chlorophyll *a* was 130 µg/L in the upstream Control Site sample (Tables 1, 3). The effluent chlorophyll *a* concentration was also elevated (92 µg/L), as was the concentration in the Test Site sample (74 µg/L). These high chlorophyll results suggest that Bear Branch is highly eutrophic, with chlorophyll levels exceeding the 20 µg/L annual average threshold that is one of the criteria for listing under the Impaired Waters Rule. These chlorophyll levels are a cause for concern if they persist throughout the year and potentially warrant further monitoring to determine if

Table 3. Phytoplankton composition at control and test sites.

USAC Bartow	Control Site	Test Site	Effluent
Number of Taxa	61	53	54
Shannon-Weaver Diversity	4.80	4.76	4.81
Chlorophyll *a* (ug/L)	130	74 A	92 A
Phaeophytin (ug/L)	0	0	0
Algal Density (number/ml)	43,422	11,399	33,474
Percent Dominant Taxon	14.9	15.8	10.7
Dominant Taxon (name)	*Cyclotella* sp.	*Selenastrum* sp.	*Cyanobium parvum*
Number of Algal Units Identified	310	303	300
Percentage Composition:			
Blue-green algae	26.5	30.7	31.3
Euglenophytes	2.3	4.3	2.3
Green algae	43.9	47.9	51.0
Diatoms	26.5	15.9	14.0
Other	0.8	1.3	1.4

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

Bear Branch would meet the threshold for nutrient impairment under the Impaired Waters Rule. The presence of high chlorophyll *a* levels and supersaturated dissolved oxygen in Bear Branch suggest the stream may have strong diel shifts in dissolved oxygen related to high phytoplankton production.

- No benthic macroinvertebrates or periphyton were collected because the facility had an intermittent discharge of treated wastewater and stormwater during the 28-day deployment of Hester-Dendy samplers and periphytometers.

Summary

Aluminum, cadmium, chromium, iron, lead and nickel were detected in the effluent at levels that complied with Class III Water Quality Criteria. Hexazinone, an agricultural herbicide, was detected in the effluent sample on March 10, 2003, but not on March 12 or 14. Radium 226 was detected in the effluent sample at 0.5 pCi/L, a level that complied with Class III Water Quality Criteria and facility permit limits. The effluent samples were not toxic to the fish, *Cyprinella leedsi,* or to the water flea, *Ceriodaphnia dubia,* during the 7-day chronic toxicity bioassays. Fecal and total coliform bacteria did not exceed Class III Water Quality Criteria in the effluent sample or in the Control and Test Site samples.

Nutrient levels in Bear Branch above the outfall were high (4.6 mg/L total phosphorus, 4.91 mg/L total nitrogen at the Control Site), but increased after additional inputs from the facility (7.1 mg/L total phosphorus, 5.7 mg/L total nitrogen at the Test Site). Ammonia levels in the effluent were elevated (6.0 mg/L) and are of particular concern. A permit limit on total ammonia content of the effluent should be considered. Ammonia levels were already elevated (2.7 mg/L) at the Control Site and unionized ammonia was 0.0298 mg/L, an exceedance of Class III Water Quality Criteria (≤0.02 mg/L, 62-302.530 (3) F.A.C.).

Algal growth potential was 102 mg dry weight/L above the outfall at the Control Site, and more than doubled after the effluent entered the receiving water (209 mg dry weight/L at the Test Site). There was evidence of growth inhibition in the AGP result from the effluent sample.

Chlorophyll *a* levels were 74 µg/L or higher upstream of the outfall, downstream of the outfall and in the effluent sample, and are a cause for concern if these chlorophyll *a* levels persist throughout the year. These results, in combination with elevated nutrient levels and super-saturated dissolved oxygen levels, suggest that (1) Bear Branch is highly eutrophic both upstream and downstream of the outfall, (2) effluent from the U.S. Agri-Chemicals Bartow plant is contributing to over-enrichment of the receiving water, and (3) Bear Branch should be evaluated with respect to the Impaired Waters Rule nutrient impairment criteria.

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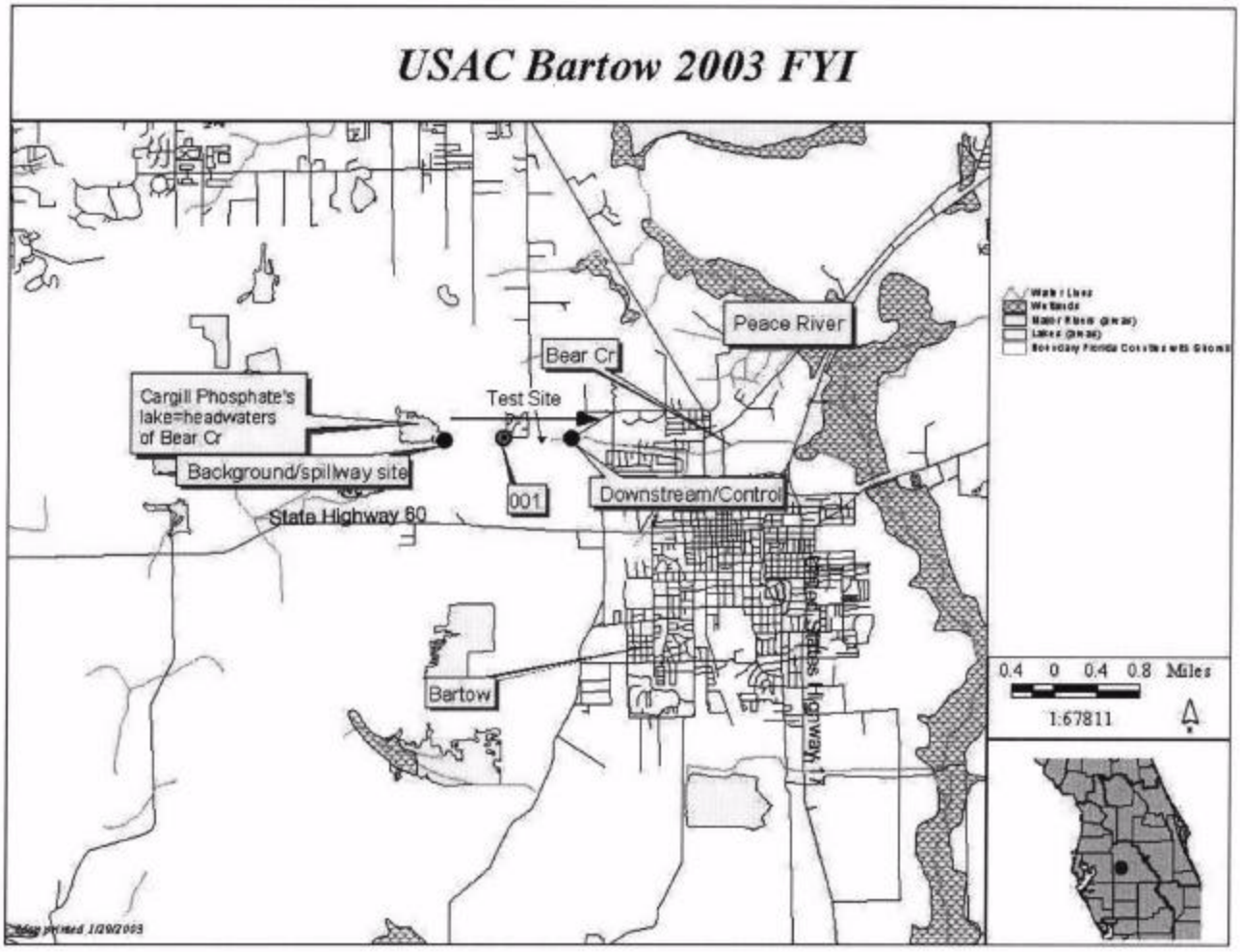
Appendices

- Appendix 1. Map of facility
- Appendix 2. Facility summary
- Appendix 3. Methods
- Appendix 4. Chemical analyses of effluent and receiving water.
- Appendix 5. Explanation of biological measurements
- Appendix 6. Typical values for selected parameters in Florida waters
- Appendix 7. Additional physical, chemical, toxicological and microbiological results
- Appendix 8. Habitat Assessment field sheets
- Appendix 9a. Phytoplankton: Taxa list and density (number of individuals per mL)
- Appendix 9b. Phytoplankton: Taxa list and number of individuals counted

Appendix 1

Map of U.S. Agri-Chemicals, Inc. – Bartow Plant

Note: Downstream/Control Site was not sampled in this inspection. Data reported are from the upstream spillway site (Control Site) and downstream of the facility outfall, labeled 001 (Test Site).



Appendix 2

State of Florida
Department of Environmental Protection
Facility Summary

Facility Name: US Agri-Chemicals Corporation		**Prepared By:** Brian Irsch
Location: Bartow	**County:** Polk	**District:** SWD
Federal Permit No.: FL0001961 **Expiration Date:** 6/25/2003	**State Permit No.:**FL0001961 **Expiration Date:** 6/25/2003	**Facility Type:** Industrial
Function of Facility: Phosphate Fertilizer & Chemical Manufacturing Plant		
Description of treatment process: Contact process water used for cooling, scrubbing and feed water for the DAP plant is recirculated in an at grade unlined pond located directly west of the DAP plant. Construction of two lined ponds within the adjacent phosphogypsum stack system is included in NPDES Permit No. FL0174106. Upon completion of these ponds, and when the leachate inventory has been reduced adequately, the DAP plant will begin using these ponds to collect seepage from the gypsum stack system for consumption in the DAP process. Wastewater consisting of treated contaminated non-process wastewater and stormwater is discharged from the DAP plant into an adjacent lake system which then flows into a ditch to Outfall 001and discharges to Bear Branch and thence to the Peace River.		
Receiving Waters: Bear Branch a tributary of the Peace River		**Classification:** III Fresh
Design Flow: N/A	**Mean Flow:** 5.29 MGD	**Flow During Survey:** 3.9 MGD
Discharge is: Continuous Intermittent Seasonal Rainfall Dependent Other		
Facility Mixing Zone Details: N/A		
List Effluent Limits:		

Parameters (units)	Discharge Limitations			Monitoring Requirements	
	Monthly Minimum	Monthly Average	Daily Maximum	Frequency	Sample Type
Flow (MGD)	**N/A**	**Report**	**Report**	**Continuous**	**Recorder**
Gross Alpha Particle Activity (pCi/l)	**N/A**	**N/A**	**15.0 See I.A.7.**	**1/Quarter**	**24hr/Comp**
Combined Radium 226 & 228 (pCi/l)	**N/A**	**N/A**	**5.0 See I.A.6.**	**1/Quarter**	**24 hr/Comp**
pH (standard units)	**Report ***	**Report**	**Report ***	**Continuous**	**Recorder**
Total Ammonia as N (mg/l)	**N/A**	**Report**	**Report**	**1/Month**	**Grab**
Ammonia (un-ionized) as NH_3 (mg/l)	**N/A**	**N/A**	**0.02**	**1/Month**	**Calculation**
Specific Conductance (µmhos/centimeter)	**N/A**	**N/A**	**See I.A.14**	**1/Month**	**Grab**
Dissolved Oxygen (mg/l)	**5.0**	**N/A**	**N/A**	**1/Month**	**Grab**
Total Fluoride as F (mg/l)	**N/A**	**Report**	**10.0**	**1/Week**	**24 hr/Comp**
Temperature (°C)	**N/A**	**N/A**	**Report See IA.8.**	**1/Week**	**Grab-In-Situ**
Total Sulfates (mg/l)	**N/A**	**N/A**	**Report**	**1/Week**	**24 hr/Comp**
Ortho-Phosphate as P (mg/l)	**N/A**	**Report**	**Report**	**1/Week**	**24 hr/Comp**

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Total Phosphorus as P (mg/l)	**N/A**	**30.0**	**40.0**	**1/Week**	**24 hr/Comp**
Total Phosphorus as P (lb/day)	**N/A**	**Report**	**Report See I.A.5.**	**1/Week**	**Calc.**
Total Nitrogen as N (lb/day)	**N/A**	**Report**	**Report See I.A.5.**	**1/Week**	**Calc.**
Total Nitrogen as N (mg/l)	**N/A**	**Report**	**Report**	**1/Week**	**24 hr/Comp**
Toxicity	**See I.A.12. and 13. below**				

* Interim Limit – **Report only until Final Agency Action is taken on permit renewal application.**

2. There shall be no discharge of floating solids or visible foam in other than trace amounts. [62-302.500, F.A.C.]

3. The discharge shall not cause a visible sheen on the receiving water. [62-302.500, F.A.C.]

4. Discharge of process cooling pond water contained in the phosphogypsum stack system is not authorized by thi permit. Discharges from the phosphogypsum stack system are addressed in NPDES Permit No. FL0174106.

5. The reported nutrient loading for Nitrogen and Phosphorus in I.A.1. above are to be calculated using the total daily flow recorded for the day on which the sample is taken.

6. During any sampling event performed in accordance with the monitoring requirements of I.A.1. above, a properly preserved sample must be taken for the determination of gross alpha activity as well as combined radium (Ra 226 & 228). The sample must be first analyzed for gross alpha activity. If the total value of gross alpha activity exceeds the MCL of 15 pCi/l, the same sample shall be analyzed for total radium.

7. This parameter represents the Gross alpha particle activity including radium 226, but excluding radon and uranium. [62-302.530(58)(b) F.A.C.]

8. Effluent samples for pH and temperature shall be taken simultaneously with each total ammonia grab sample. Un-ionized ammonia shall be calculated in accordance with Table I (attached). All measured values for pH, temperature, and total ammonia used to calculate an un-ionized ammonia value shall be reported as an attachment to the Discharge Monitoring Report (DMR). All calculated un-ionized ammonia values shall also be reported on the attachment. The daily maximum value for un-ionized ammonia for each reporting period shall be reported on the DMR.

9. The discharge of nutrients shall be limited in accordance with Rule 62.302.530(48) a. and b, F.A.C. The limitations for total phosphorus is based upon reported discharge quality, and /or ambient conditions.

10. Unless specified elsewhere in the permit, samples taken in compliance with the monitoring requirements specified in I.A.1. shall be taken at the nearest accessible point after final treatment but prior to actual mixing with the receiving water.

11. If no discharge occurs on the day of a specified monitoring requirement, a sample shall be collected on the day of the next discharge. The sample shall be taken at the nearest accessible point after treatment but before mixing with the receiving water body, unless specified otherwise.

Description of permitted outfall: Outfall 001 is the primary Outfall for the facility. The structure is a rectangular wier at a drop inlet culvert system. There is a spillway wier located at the upgradient, property boundary. It monitors incoming flow rates.

List permit violations (DMR data) and plant upsets that occurred at the plant within the last year: N/A

Describe previous impact bioassessments, WQBEL's, and previous or current enforcement actions: NA

Discuss MOR trends to prior data; is trend improving or declining: None available
Additional Information:

Appendix 3

Methods

The purpose of this investigation was to determine the discharger's effects on the biota of the receiving waters. Chemical and biological comparisons were made between a control site and a test site. A habitat assessment was performed *in situ* to compare biological conditions at the control and test sites. The resulting scores were based upon the examinations of the physical structure and extent of disturbance at the study sites and aid in the interpretation of biological community data. Supplemental physical and chemical data were collected on the effluent and at both study sites.

The effluent was analyzed for nutrients, metals, organic constituents (base, neutral, and acid extractables) and pesticides. The results from these analyses were compared with Water Quality Limits (62-302 F.A.C.) and facility permit limits (Table 1, Appendix 2). A list of the analytes tested for, the minimum detection limit and the practical quantitation limit are given in Appendix 4. Methods used for all chemical analyses are on file at the FDEP Central Chemistry Laboratory in Tallahassee and may be viewed on the web at http://www.floridadep.org/labs/sop/index.htm.

Seven-day chronic screening toxicity bioassays were performed on the effluent sample using the water flea, *Ceriodaphnia dubia,* and the fish, *Cyprinella leedsi* (Weber 1993). An effluent sample and water samples from the control and test sites were autoclaved, filtered (0.45 μm), inoculated with the unicellular green alga, *Pseudokirchneriella subcapitata* (formerly *Selenastrum capricornutum*, USEPA 2002), and incubated for 14 days (Miller et al. 1978). The algal growth potential (AGP) value is the peak growth of the alga within that 14-day period, recorded as mg dry weight/L (Miller et al. 1978). To measure possible inhibition of algal growth based on possible toxicants in effluent or site water, AGP results were compared to expected levels of dry weight production based on the nutrient content of the water (Miller et al. 1978, Appendix 5).

Phytoplankton were sampled in the effluent and at control and test sites using grab samples. Phytoplankton were subsampled and identified to the lowest practicable level, usually species. Algal assemblages were examined for (1) cell density, (2) community composition, (3) taxa richness, and (4) Shannon-Weaver Diversity Index. To estimate phytoplankton biomass, chlorophyll *a* concentration was measured on water samples from the effluent stream, test site and control site.

Statistical comparisons of the proportions of taxa, major groups were made using 95% confidence intervals on proportions. A 95% confidence interval is the range of values above and below a given proportion that has a 95% chance of containing the true proportion (Sokal and Rohlf 1995). If the 95% confidence intervals for two proportions do not overlap, then the proportion of X in sample 1 is significantly different from the proportion of X in sample 2 at $p<0.05$. A "$p<0.05$" level of significance means that there is less than a 5% chance that the true proportions in the two samples are the same. All comparisons that are labeled as significant in the text have a probability <0.05 that the proportions are the same.

Appendix 4
Chemical analyses of effluent and receiving waters

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
03/10/03	BEAR CREEK ABOVE OUTFALL	Bio-AGP/LimNut	Algal Growth Potential	102	mg DryWt/L		0.1	0.3
03/10/03	BEAR CREEK ABOVE OUTFALL	Bio-Chl-a	Chlorophyll-A, Monochromatic, Water	130	ug/L		2.8	8.5
03/10/03	BEAR CREEK ABOVE OUTFALL	Bio-Chl-a	Phaeophytin-A, Monochromatic, Water	0	ug/L		2.8	8.5
03/10/03	BEAR CREEK ABOVE OUTFALL	Bio-Peri/Phyto	Phytoplankton-Quantitative-# Wet Taxa	40	#Taxa			
03/10/03	BEAR CREEK ABOVE OUTFALL	Bio-Peri/Phyto	Phytoplankton-Quantitative-#Diatom Taxa	21	#Taxa			
03/10/03	BEAR CREEK ABOVE OUTFALL	Nutrients-Liquid	Ammonia-N	2.7	mg N/L		0.2	0.4
03/10/03	BEAR CREEK ABOVE OUTFALL	Nutrients-Liquid	Color	60	PCU		10	10
03/10/03	BEAR CREEK ABOVE OUTFALL	Nutrients-Liquid	Fluoride	1.6	mg F/L		0.065	0.2
03/10/03	BEAR CREEK ABOVE OUTFALL	Nutrients-Liquid	NO2NO3-N	0.61	mg N/L		0.008	0.02
03/10/03	BEAR CREEK ABOVE OUTFALL	Nutrients-Liquid	N_KJEL_TOT	4.3	mg N/L		0.12	0.4
03/10/03	BEAR CREEK ABOVE OUTFALL	Nutrients-Liquid	O-Phosphate-P	3.9	mg P/L		0.2	0.5
03/10/03	BEAR CREEK ABOVE OUTFALL	Nutrients-Liquid	Sulfate	190	mg SO4/L		2	5
03/10/03	BEAR CREEK ABOVE OUTFALL	Nutrients-Liquid	TDS	329	mg/L		15	60
03/10/03	BEAR CREEK ABOVE OUTFALL	Nutrients-Liquid	TSS	18	mg/L		4	16
03/10/03	BEAR CREEK ABOVE OUTFALL	Nutrients-Liquid	Total-P	4.6	mg P/L		0.16	0.32
03/10/03	BEAR CREEK ABOVE OUTFALL	Nutrients-Liquid	Turbidity	11	NTU		0.05	0.05
03/10/03	BEAR CREEK BELOW OUTFALL	Bio-AGP/LimNut	Algal Growth Potential	209	mg DryWt/L		0.1	0.3
03/10/03	BEAR CREEK BELOW OUTFALL	Bio-Chl-a	Chlorophyll-A, Monochromatic, Water	74	ug/L	A	1.7	5.1
03/10/03	BEAR CREEK BELOW OUTFALL	Bio-Chl-a	Phaeophytin-A, Monochromatic, Water	0	ug/L	A	1.7	5.1
03/10/03	BEAR CREEK BELOW OUTFALL	Bio-Peri/Phyto	Phytoplankton-Quantitative-# Wet Taxa	38	#Taxa			
03/10/03	BEAR CREEK BELOW OUTFALL	Bio-Peri/Phyto	Phytoplankton-Quantitative-#Diatom Taxa	15	#Taxa			
03/10/03	BEAR CREEK BELOW OUTFALL	Nutrients-Liquid	Ammonia-N	3.2	mg N/L		0.2	0.4
03/10/03	BEAR CREEK BELOW OUTFALL	Nutrients-Liquid	Color	60	PCU		10	10
03/10/03	BEAR CREEK BELOW OUTFALL	Nutrients-Liquid	Fluoride	1.9	mg F/L		0.065	0.2
03/10/03	BEAR CREEK BELOW OUTFALL	Nutrients-Liquid	NO2NO3-N	1.1	mg N/L		0.008	0.02
03/10/03	BEAR CREEK BELOW OUTFALL	Nutrients-Liquid	N_KJEL_TOT	4.6	mg N/L		0.12	0.4
03/10/03	BEAR CREEK BELOW OUTFALL	Nutrients-Liquid	O-Phosphate-P	6.5	mg P/L		0.32	0.8
03/10/03	BEAR CREEK BELOW OUTFALL	Nutrients-Liquid	Sulfate	220	mg SO4/L		2	5
03/10/03	BEAR CREEK BELOW OUTFALL	Nutrients-Liquid	TDS	384	mg/L		15	60
03/10/03	BEAR CREEK BELOW OUTFALL	Nutrients-Liquid	TSS	12	mg/L	I	4	16
03/10/03	BEAR CREEK BELOW OUTFALL	Nutrients-Liquid	Total-P	7.1	mg P/L		0.16	0.32
03/10/03	BEAR CREEK BELOW OUTFALL	Nutrients-Liquid	Turbidity	6.7	NTU		0.05	0.05
03/10/03	OUTFALL 001	BNA-Water	1,2,4,5-Tetrachlorobenzene	0.95	ug/L	U	0.95	3.8
03/10/03	OUTFALL 001	BNA-Water	1,2,4-Trichlorobenzene	0.95	ug/L	U	0.95	3.8
03/10/03	OUTFALL 001	BNA-Water	1,2-Dichlorobenzene	0.95	ug/L	U	0.95	3.8
03/10/03	OUTFALL 001	BNA-Water	1,3,5-Trinitrobenzene	3.8	ug/L	U	3.8	15
03/10/03	OUTFALL 001	BNA-Water	1,3-Dichlorobenzene	0.95	ug/L	U	0.95	3.8
03/10/03	OUTFALL 001	BNA-Water	1,3-Dinitrobenzene	1.9	ug/L	U	1.9	7.6
03/10/03	OUTFALL 001	BNA-Water	1,4-Dichlorobenzene	0.95	ug/L	U	0.95	3.8
03/10/03	OUTFALL 001	BNA-Water	1,4-Naphthoquinone	19	ug/L	UJ	19	76
03/10/03	OUTFALL 001	BNA-Water	1-Naphthylamine	9.5	ug/L	UJ	9.5	38
03/10/03	OUTFALL 001	BNA-Water	2,3,4,6-Tetrachlorophenol	1.9	ug/L	U	1.9	7.6
03/10/03	OUTFALL 001	BNA-Water	2,4,5-Trichlorophenol	0.95	ug/L	U	0.95	3.8
03/10/03	OUTFALL 001	BNA-Water	2,4,6-Trichlorophenol	0.95	ug/L	U	0.95	3.8
03/10/03	OUTFALL 001	BNA-Water	2,4-Dichlorophenol	0.95	ug/L	U	0.95	3.8
03/10/03	OUTFALL 001	BNA-Water	2,4-Dimethylphenol	48	ug/L	U	48	190
03/10/03	OUTFALL 001	BNA-Water	2,4-Dinitrophenol	14	ug/L	U	14	57
03/10/03	OUTFALL 001	BNA-Water	2,4-Dinitrotoluene	0.95	ug/L	U	0.95	3.8
03/10/03	OUTFALL 001	BNA-Water	2,6-Dichlorophenol	0.95	ug/L	U	0.95	3.8
03/10/03	OUTFALL 001	BNA-Water	2,6-Dinitrotoluene	0.95	ug/L	U	0.95	3.8
03/10/03	OUTFALL 001	BNA-Water	2-Acetylaminofluorene	0.95	ug/L	U	0.95	3.8
03/10/03	OUTFALL 001	BNA-Water	2-Chloronaphthalene	0.95	ug/L	U	0.95	3.8
03/10/03	OUTFALL 001	BNA-Water	2-Chlorophenol	0.95	ug/L	U	0.95	3.8
03/10/03	OUTFALL 001	BNA-Water	2-Methyl-4,6-dinitrophenol	2.9	ug/L	U	2.9	11
03/10/03	OUTFALL 001	BNA-Water	2-Methylnaphthalene	0.95	ug/L	U	0.95	3.8
03/10/03	OUTFALL 001	BNA-Water	2-Naphthylamine	9.5	ug/L	U	9.5	38
03/10/03	OUTFALL 001	BNA-Water	2-Nitroaniline	0.95	ug/L	U	0.95	3.8
03/10/03	OUTFALL 001	BNA-Water	2-Nitrophenol	0.95	ug/L	U	0.95	3.8
03/10/03	OUTFALL 001	BNA-Water	2-Picoline	0.95	ug/L	U	0.95	3.8
03/10/03	OUTFALL 001	BNA-Water	3,3'-Dichlorobenzidine	38	ug/L	U	38	150
03/10/03	OUTFALL 001	BNA-Water	3,3'-Dimethylbenzidine	19	ug/L	UJ	19	76
03/10/03	OUTFALL 001	BNA-Water	3-Methylcholanthrene	0.95	ug/L	U	0.95	3.8
03/10/03	OUTFALL 001	BNA-Water	3-Nitroaniline	0.95	ug/L	U	0.95	3.8
03/10/03	OUTFALL 001	BNA-Water	4,4'-DDD	1.4	ug/L	U	1.4	5.7
03/10/03	OUTFALL 001	BNA-Water	4,4'-DDE	1.4	ug/L	U	1.4	5.7
03/10/03	OUTFALL 001	BNA-Water	4,4'-DDT	1.4	ug/L	U	1.4	5.7
03/10/03	OUTFALL 001	BNA-Water	4-Aminobiphenyl	3.8	ug/L	U	3.8	15
03/10/03	OUTFALL 001	BNA-Water	4-Bromophenyl phenyl ether	0.95	ug/L	U	0.95	3.8

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
03/10/03	OUTFALL 001	BNA-Water	4-Chloro-3-methylphenol	0.95	ug/L	U	0.95	3.8
03/10/03	OUTFALL 001	BNA-Water	4-Chloroaniline	0.95	ug/L	U	0.95	3.8
03/10/03	OUTFALL 001	BNA-Water	4-Chlorophenyl phenyl ether	1.9	ug/L	U	1.9	7.6
03/10/03	OUTFALL 001	BNA-Water	4-Nitroaniline	0.95	ug/L	UJ	0.95	3.8
03/10/03	OUTFALL 001	BNA-Water	4-Nitrophenol	14	ug/L	U	14	57
03/10/03	OUTFALL 001	BNA-Water	5-Nitro-o-toluidine	0.95	ug/L	U	0.95	3.8
03/10/03	OUTFALL 001	BNA-Water	7,12-Dimethylbenz(a)anthracene	0.95	ug/L	U	0.95	3.8
03/10/03	OUTFALL 001	BNA-Water	Acenaphthene	0.95	ug/L	U	0.95	3.8
03/10/03	OUTFALL 001	BNA-Water	Acenaphthylene	0.95	ug/L	U	0.95	3.8
03/10/03	OUTFALL 001	BNA-Water	Acetophenone	0.95	ug/L	U	0.95	3.8
03/10/03	OUTFALL 001	BNA-Water	Aldrin	1.4	ug/L	U	1.4	5.7
03/10/03	OUTFALL 001	BNA-Water	Aniline	0.95	ug/L	U	0.95	3.8
03/10/03	OUTFALL 001	BNA-Water	Anthracene	0.95	ug/L	U	0.95	3.8
03/10/03	OUTFALL 001	BNA-Water	Azobenzene/1,2-Diphenylhydrazine	0.95	ug/L	U	0.95	3.8
03/10/03	OUTFALL 001	BNA-Water	Benzidine	95	ug/L	U	95	380
03/10/03	OUTFALL 001	BNA-Water	Benzo(a)anthracene	0.95	ug/L	U	0.95	3.8
03/10/03	OUTFALL 001	BNA-Water	Benzo(a)pyrene	0.95	ug/L	U	0.95	3.8
03/10/03	OUTFALL 001	BNA-Water	Benzo(b)fluoranthene	0.95	ug/L	U	0.95	3.8
03/10/03	OUTFALL 001	BNA-Water	Benzo(g,h,i)perylene	0.95	ug/L	U	0.95	3.8
03/10/03	OUTFALL 001	BNA-Water	Benzo(k)fluoranthene	0.95	ug/L	U	0.95	3.8
03/10/03	OUTFALL 001	BNA-Water	Benzyl alcohol	0.95	ug/L	U	0.95	3.8
03/10/03	OUTFALL 001	BNA-Water	Bis(2-chloroethoxy)methane	0.95	ug/L	U	0.95	3.8
03/10/03	OUTFALL 001	BNA-Water	Bis(2-chloroethyl)ether	0.95	ug/L	U	0.95	3.8
03/10/03	OUTFALL 001	BNA-Water	Bis(2-chloroisopropyl)ether	2.9	ug/L	U	2.9	11
03/10/03	OUTFALL 001	BNA-Water	Bis(2-ethylhexyl)phthalate	14	ug/L	U	14	57
03/10/03	OUTFALL 001	BNA-Water	Butyl benzyl phthalate	4.8	ug/L	U	4.8	19
03/10/03	OUTFALL 001	BNA-Water	Chrysene	0.95	ug/L	U	0.95	3.8
03/10/03	OUTFALL 001	BNA-Water	Di-n-butyl phthalate	4.8	ug/L	U	4.8	19
03/10/03	OUTFALL 001	BNA-Water	Di-n-octyl phthalate	0.95	ug/L	U	0.95	3.8
03/10/03	OUTFALL 001	BNA-Water	Dibenzo(a,h)anthracene	0.95	ug/L	U	0.95	3.8
03/10/03	OUTFALL 001	BNA-Water	Dibenzofuran	0.95	ug/L	U	0.95	3.8
03/10/03	OUTFALL 001	BNA-Water	Dieldrin	1.4	ug/L	U	1.4	5.7
03/10/03	OUTFALL 001	BNA-Water	Diethyl phthalate	0.95	ug/L	U	0.95	3.8
03/10/03	OUTFALL 001	BNA-Water	Dimethyl phthalate	48	ug/L	U	48	190
03/10/03	OUTFALL 001	BNA-Water	Dimethylaminoazobenzene	0.95	ug/L	U	0.95	3.8
03/10/03	OUTFALL 001	BNA-Water	Dinoseb	3.8	ug/L	U	3.8	15
03/10/03	OUTFALL 001	BNA-Water	Diphenylamine	2.9	ug/L	U	2.9	11
03/10/03	OUTFALL 001	BNA-Water	Endosulfan I	3.8	ug/L	U	3.8	15
03/10/03	OUTFALL 001	BNA-Water	Endosulfan II	3.8	ug/L	U	3.8	15
03/10/03	OUTFALL 001	BNA-Water	Endosulfan sulfate	1.4	ug/L	U	1.4	5.7
03/10/03	OUTFALL 001	BNA-Water	Endrin	1.4	ug/L	U	1.4	5.7
03/10/03	OUTFALL 001	BNA-Water	Endrin aldehyde	3.8	ug/L	U	3.8	15
03/10/03	OUTFALL 001	BNA-Water	Ethyl methanesulfonate	0.95	ug/L	U	0.95	3.8
03/10/03	OUTFALL 001	BNA-Water	Fluoranthene	0.95	ug/L	U	0.95	3.8
03/10/03	OUTFALL 001	BNA-Water	Fluorene	0.95	ug/L	U	0.95	3.8
03/10/03	OUTFALL 001	BNA-Water	Heptachlor	1.4	ug/L	U	1.4	5.7
03/10/03	OUTFALL 001	BNA-Water	Heptachlor epoxide	1.4	ug/L	U	1.4	5.7
03/10/03	OUTFALL 001	BNA-Water	Hexachlorobenzene	0.95	ug/L	U	0.95	3.8
03/10/03	OUTFALL 001	BNA-Water	Hexachlorobutadiene	2.9	ug/L	U	2.9	11
03/10/03	OUTFALL 001	BNA-Water	Hexachlorocyclopentadiene	2.9	ug/L	UJ	2.9	11
03/10/03	OUTFALL 001	BNA-Water	Hexachloroethane	2.9	ug/L	U	2.9	11
03/10/03	OUTFALL 001	BNA-Water	Hexachloropropene	1.9	ug/L	U	1.9	7.6
03/10/03	OUTFALL 001	BNA-Water	Indeno(1,2,3-cd)pyrene	0.95	ug/L	U	0.95	3.8
03/10/03	OUTFALL 001	BNA-Water	Isophorone	0.95	ug/L	UJ	0.95	3.8
03/10/03	OUTFALL 001	BNA-Water	Isosafrole	0.95	ug/L	U	0.95	3.8
03/10/03	OUTFALL 001	BNA-Water	Methapyrilene	3.8	ug/L	UJ	3.8	15
03/10/03	OUTFALL 001	BNA-Water	Methyl methanesulfonate	0.95	ug/L	UJ	0.95	3.8
03/10/03	OUTFALL 001	BNA-Water	N-Nitrosodi-n-butylamine	0.95	ug/L	U	0.95	3.8
03/10/03	OUTFALL 001	BNA-Water	N-Nitrosodi-n-propylamine	1.9	ug/L	U	1.9	7.6
03/10/03	OUTFALL 001	BNA-Water	N-Nitrosodiethylamine	0.95	ug/L	U	0.95	3.8
03/10/03	OUTFALL 001	BNA-Water	N-Nitrosodimethylamine	1.9	ug/L	U	1.9	7.6
03/10/03	OUTFALL 001	BNA-Water	N-Nitrosodiphenylamine	2.9	ug/L	U	2.9	11
03/10/03	OUTFALL 001	BNA-Water	N-Nitrosomethylethylamine	1.9	ug/L	U	1.9	7.6
03/10/03	OUTFALL 001	BNA-Water	N-Nitrosomorpholine	0.95	ug/L	U	0.95	3.8
03/10/03	OUTFALL 001	BNA-Water	N-Nitrosopiperidine	0.95	ug/L	U	0.95	3.8
03/10/03	OUTFALL 001	BNA-Water	N-Nitrosopyrrolidine	1.9	ug/L	U	1.9	7.6
03/10/03	OUTFALL 001	BNA-Water	Naphthalene	0.95	ug/L	U	0.95	3.8
03/10/03	OUTFALL 001	BNA-Water	Nitrobenzene	1.9	ug/L	U	1.9	7.6
03/10/03	OUTFALL 001	BNA-Water	Nitroquinoline-1-oxide	19	ug/L	U	19	76
03/10/03	OUTFALL 001	BNA-Water	Pentachlorobenzene	0.95	ug/L	U	0.95	3.8
03/10/03	OUTFALL 001	BNA-Water	Pentachloroethane	48	ug/L	U	48	190
03/10/03	OUTFALL 001	BNA-Water	Pentachloronitrobenzene	0.95	ug/L	U	0.95	3.8
03/10/03	OUTFALL 001	BNA-Water	Pentachlorophenol	2.9	ug/L	U	2.9	11

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
03/10/03	OUTFALL 001	BNA-Water	Phenacetin	3.8	ug/L	U	3.8	11
03/10/03	OUTFALL 001	BNA-Water	Phenanthrene	0.95	ug/L	U	0.95	3.8
03/10/03	OUTFALL 001	BNA-Water	Phenol	0.95	ug/L	U	0.95	3.8
03/10/03	OUTFALL 001	BNA-Water	Pyrene	0.95	ug/L	U	0.95	3.8
03/10/03	OUTFALL 001	BNA-Water	Pyridine	3.8	ug/L	U	3.8	15
03/10/03	OUTFALL 001	BNA-Water	Safrole	0.95	ug/L	U	0.95	3.8
03/10/03	OUTFALL 001	BNA-Water	alpha-BHC	1.4	ug/L	U	1.4	5.7
03/10/03	OUTFALL 001	BNA-Water	beta-BHC	1.4	ug/L	U	1.4	5.7
03/10/03	OUTFALL 001	BNA-Water	delta-BHC	1.4	ug/L	U	1.4	5.7
03/10/03	OUTFALL 001	BNA-Water	gamma-BHC	1.4	ug/L	U	1.4	5.7
03/10/03	OUTFALL 001	BNA-Water	m,p-Cresols	1.9	ug/L	U	1.9	7.6
03/10/03	OUTFALL 001	BNA-Water	o-Cresol	1.9	ug/L	U	1.9	7.6
03/10/03	OUTFALL 001	BNA-Water	o-Toluidine	0.95	ug/L	U	0.95	3.8
03/10/03	OUTFALL 001	Bio-AGP/LimNut	Algal Growth Potential	147	mg DryWt/L		0.1	0.3
03/10/03	OUTFALL 001	Bio-Chl-a	Chlorophyll-A, Monochromatic, Water	92	ug/L	A	2.6	7.9
03/10/03	OUTFALL 001	Bio-Chl-a	Phaeophytin-A, Monochromatic, Water	0	ug/L	A	2.6	7.9
03/10/03	OUTFALL 001	Bio-Peri/Phyto	Phytoplankton-Quantitative-# Wet Taxa	42	#Taxa			
03/10/03	OUTFALL 001	Bio-Peri/Phyto	Phytoplankton-Quantitative-#Diatom Taxa	13	#Taxa			
03/10/03	OUTFALL 001	Bio-Toxicology	Bioassay-Chronic-Scrn-FW-C.dubia, NOEC	100	NOEC			
03/10/03	OUTFALL 001	Bio-Toxicology	Bioassay-Chronic-Scrn-FW-Fish, NOEC	100	NOEC			
03/10/03	OUTFALL 001	GC-Water	Alachlor	0.57	ug/L	U	0.57	2.28
03/10/03	OUTFALL 001	GC-Water	Ametryn	0.048	ug/L	U	0.048	0.192
03/10/03	OUTFALL 001	GC-Water	Atrazine	0.048	ug/L	U	0.048	0.192
03/10/03	OUTFALL 001	GC-Water	Azinphos Methyl	0.048	ug/L	U	0.048	0.192
03/10/03	OUTFALL 001	GC-Water	Bromacil	0.19	ug/L	U	0.19	0.76
03/10/03	OUTFALL 001	GC-Water	Butylate	0.19	ug/L	UJ	0.19	0.76
03/10/03	OUTFALL 001	GC-Water	Chlorpyrifos Ethyl	0.048	ug/L	U	0.048	0.192
03/10/03	OUTFALL 001	GC-Water	Chlorpyrifos Methyl	0.095	ug/L	U	0.095	0.38
03/10/03	OUTFALL 001	GC-Water	Diazinon	0.048	ug/L	UJ	0.048	0.192
03/10/03	OUTFALL 001	GC-Water	Ethion	0.048	ug/L	U	0.048	0.192
03/10/03	OUTFALL 001	GC-Water	Ethoprop	0.095	ug/L	U	0.095	0.38
03/10/03	OUTFALL 001	GC-Water	Fenamiphos	0.19	ug/L	U	0.19	0.76
03/10/03	OUTFALL 001	GC-Water	Fonofos	0.095	ug/L	U	0.095	0.38
03/10/03	OUTFALL 001	GC-Water	Hexazinone	0.12	ug/L	I	0.095	0.38
03/10/03	OUTFALL 001	GC-Water	Malathion	0.14	ug/L	U	0.14	0.56
03/10/03	OUTFALL 001	GC-Water	Metalaxyl	0.24	ug/L	U	0.24	0.96
03/10/03	OUTFALL 001	GC-Water	Metolachlor	0.48	ug/L	UJ	0.48	1.92
03/10/03	OUTFALL 001	GC-Water	Metribuzin	0.095	ug/L	U	0.095	0.38
03/10/03	OUTFALL 001	GC-Water	Mevinphos	0.19	ug/L	U	0.19	0.76
03/10/03	OUTFALL 001	GC-Water	Naled	0.76	ug/L	U	0.76	3.04
03/10/03	OUTFALL 001	GC-Water	Norflurazon	0.095	ug/L	U	0.095	0.38
03/10/03	OUTFALL 001	GC-Water	Parathion Ethyl	0.14	ug/L	U	0.14	0.56
03/10/03	OUTFALL 001	GC-Water	Parathion Methyl	0.095	ug/L	U	0.095	0.38
03/10/03	OUTFALL 001	GC-Water	Phorate	0.048	ug/L	U	0.048	0.192
03/10/03	OUTFALL 001	GC-Water	Prometryn	0.14	ug/L	U	0.14	0.56
03/10/03	OUTFALL 001	GC-Water	Simazine	0.048	ug/L	U	0.048	0.192
03/10/03	OUTFALL 001	Metals-Water	Aluminum	174	ug/L	A	10	40
03/10/03	OUTFALL 001	Metals-Water	Arsenic	4	ug/L	U	4	16
03/10/03	OUTFALL 001	Metals-Water	Cadmium	0.072	ug/L	I	0.025	0.1
03/10/03	OUTFALL 001	Metals-Water	Calcium	54.2	mg/L	A	0.05	0.2
03/10/03	OUTFALL 001	Metals-Water	Chromium	2	ug/L	U	2	8
03/10/03	OUTFALL 001	Metals-Water	Copper	0.75	ug/L	U	0.75	3
03/10/03	OUTFALL 001	Metals-Water	Iron	130	ug/L		7	28
03/10/03	OUTFALL 001	Metals-Water	Lead	0.1	ug/L	U	0.1	0.4
03/10/03	OUTFALL 001	Metals-Water	Magnesium	15.4	mg/L	A	0.01	0.04
03/10/03	OUTFALL 001	Metals-Water	Nickel	2.4	ug/L	I	2	8
03/10/03	OUTFALL 001	Metals-Water	Selenium	1	ug/L	U	1	4
03/10/03	OUTFALL 001	Metals-Water	Silver	0.02	ug/L	U	0.02	0.08
03/10/03	OUTFALL 001	Metals-Water	Zinc	5.6	ug/L	U	4	16
03/10/03	OUTFALL 001	Nutrients-Liquid	Ammonia-N	6	mg N/L		0.2	0.4
03/10/03	OUTFALL 001	Nutrients-Liquid	Color	60	PCU		10	10
03/10/03	OUTFALL 001	Nutrients-Liquid	Fluoride	2	mg F/L		0.065	0.2
03/10/03	OUTFALL 001	Nutrients-Liquid	NO2NO3-N	0.82	mg N/L		0.008	0.02
03/10/03	OUTFALL 001	Nutrients-Liquid	N_KJEL_TOT	12	mg N/L		0.3	1
03/10/03	OUTFALL 001	Nutrients-Liquid	O-Phosphate-P	5.4	mg P/L		0.12	0.3
03/10/03	OUTFALL 001	Nutrients-Liquid	Sulfate	250	mg SO4/L		2	5
03/10/03	OUTFALL 001	Nutrients-Liquid	TDS	414	mg/L		15	60
03/10/03	OUTFALL 001	Nutrients-Liquid	TSS	10	mg/L	I	4	16
03/10/03	OUTFALL 001	Nutrients-Liquid	Total-P	6.2	mg P/L		0.16	0.32
03/10/03	OUTFALL 001	Nutrients-Liquid	Turbidity	6.6	NTU		0.05	0.05
03/10/03	OUTFALL 001	Overflow	Alpha, Total	2.3	pCi/L	U		
03/10/03	OUTFALL 001	Overflow	Alpha-Counting Error	1.4	pCi/L			
03/10/03	OUTFALL 001	Overflow	Radium 226	0.5	pCi/L			

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
03/10/03	OUTFALL 001	Overflow	Radium 226-Counting Error	0.1	pCi/L			
03/10/03	OUTFALL 001	Overflow	Radium 228	0.8	pCi/L	U		
03/10/03	OUTFALL 001	Overflow	Radium 228-Counting Error	0.5	pCi/L			
03/10/03	EQUIP BLK	BNA-Water	1,2,4,5-Tetrachlorobenzene	0.95	ug/L	U	0.95	3.8
03/10/03	EQUIP BLK	BNA-Water	1,2,4-Trichlorobenzene	0.95	ug/L	U	0.95	3.8
03/10/03	EQUIP BLK	BNA-Water	1,2-Dichlorobenzene	0.95	ug/L	U	0.95	3.8
03/10/03	EQUIP BLK	BNA-Water	1,3,5-Trinitrobenzene	3.8	ug/L	U	3.8	15
03/10/03	EQUIP BLK	BNA-Water	1,3-Dichlorobenzene	0.95	ug/L	U	0.95	3.8
03/10/03	EQUIP BLK	BNA-Water	1,3-Dinitrobenzene	1.9	ug/L	U	1.9	7.6
03/10/03	EQUIP BLK	BNA-Water	1,4-Dichlorobenzene	0.95	ug/L	U	0.95	3.8
03/10/03	EQUIP BLK	BNA-Water	1,4-Naphthoquinone	19	ug/L	UJ	19	76
03/10/03	EQUIP BLK	BNA-Water	1-Naphthylamine	9.5	ug/L	UJ	9.5	38
03/10/03	EQUIP BLK	BNA-Water	2,3,4,6-Tetrachlorophenol	1.9	ug/L	U	1.9	7.6
03/10/03	EQUIP BLK	BNA-Water	2,4,5-Trichlorophenol	0.95	ug/L	U	0.95	3.8
03/10/03	EQUIP BLK	BNA-Water	2,4,6-Trichlorophenol	0.95	ug/L	U	0.95	3.8
03/10/03	EQUIP BLK	BNA-Water	2,4-Dichlorophenol	0.95	ug/L	U	0.95	3.8
03/10/03	EQUIP BLK	BNA-Water	2,4-Dimethylphenol	48	ug/L	U	48	190
03/10/03	EQUIP BLK	BNA-Water	2,4-Dinitrophenol	14	ug/L	U	14	57
03/10/03	EQUIP BLK	BNA-Water	2,4-Dinitrotoluene	0.95	ug/L	U	0.95	3.8
03/10/03	EQUIP BLK	BNA-Water	2,6-Dichlorophenol	0.95	ug/L	U	0.95	3.8
03/10/03	EQUIP BLK	BNA-Water	2,6-Dinitrotoluene	0.95	ug/L	U	0.95	3.8
03/10/03	EQUIP BLK	BNA-Water	2-Acetylaminofluorene	0.95	ug/L	U	0.95	3.8
03/10/03	EQUIP BLK	BNA-Water	2-Chloronaphthalene	0.95	ug/L	U	0.95	3.8
03/10/03	EQUIP BLK	BNA-Water	2-Chlorophenol	0.95	ug/L	U	0.95	3.8
03/10/03	EQUIP BLK	BNA-Water	2-Methyl-4,6-dinitrophenol	2.9	ug/L	U	2.9	11
03/10/03	EQUIP BLK	BNA-Water	2-Methylnaphthalene	0.95	ug/L	U	0.95	3.8
03/10/03	EQUIP BLK	BNA-Water	2-Naphthylamine	9.5	ug/L	U	9.5	38
03/10/03	EQUIP BLK	BNA-Water	2-Nitroaniline	0.95	ug/L	U	0.95	3.8
03/10/03	EQUIP BLK	BNA-Water	2-Nitrophenol	0.95	ug/L	U	0.95	3.8
03/10/03	EQUIP BLK	BNA-Water	2-Picoline	0.95	ug/L	U	0.95	3.8
03/10/03	EQUIP BLK	BNA-Water	3,3'-Dichlorobenzidine	38	ug/L	U	38	150
03/10/03	EQUIP BLK	BNA-Water	3,3'-Dimethylbenzidine	19	ug/L	UJ	19	76
03/10/03	EQUIP BLK	BNA-Water	3-Methylcholanthrene	0.95	ug/L	U	0.95	3.8
03/10/03	EQUIP BLK	BNA-Water	3-Nitroaniline	0.95	ug/L	U	0.95	3.8
03/10/03	EQUIP BLK	BNA-Water	4,4'-DDD	1.4	ug/L	U	1.4	5.7
03/10/03	EQUIP BLK	BNA-Water	4,4'-DDE	1.4	ug/L	U	1.4	5.7
03/10/03	EQUIP BLK	BNA-Water	4,4'-DDT	1.4	ug/L	U	1.4	5.7
03/10/03	EQUIP BLK	BNA-Water	4-Aminobiphenyl	3.8	ug/L	U	3.8	15
03/10/03	EQUIP BLK	BNA-Water	4-Bromophenyl phenyl ether	0.95	ug/L	U	0.95	3.8
03/10/03	EQUIP BLK	BNA-Water	4-Chloro-3-methylphenol	0.95	ug/L	U	0.95	3.8
03/10/03	EQUIP BLK	BNA-Water	4-Chloroaniline	0.95	ug/L	U	0.95	3.8
03/10/03	EQUIP BLK	BNA-Water	4-Chlorophenyl phenyl ether	1.9	ug/L	U	1.9	7.6
03/10/03	EQUIP BLK	BNA-Water	4-Nitroaniline	0.95	ug/L	UJ	0.95	3.8
03/10/03	EQUIP BLK	BNA-Water	4-Nitrophenol	14	ug/L	U	14	57
03/10/03	EQUIP BLK	BNA-Water	5-Nitro-o-toluidine	0.95	ug/L	U	0.95	3.8
03/10/03	EQUIP BLK	BNA-Water	7,12-Dimethylbenz(a)anthracene	0.95	ug/L	U	0.95	3.8
03/10/03	EQUIP BLK	BNA-Water	Acenaphthene	0.95	ug/L	U	0.95	3.8
03/10/03	EQUIP BLK	BNA-Water	Acenaphthylene	0.95	ug/L	U	0.95	3.8
03/10/03	EQUIP BLK	BNA-Water	Acetophenone	0.95	ug/L	U	0.95	3.8
03/10/03	EQUIP BLK	BNA-Water	Aldrin	1.4	ug/L	U	1.4	5.7
03/10/03	EQUIP BLK	BNA-Water	Aniline	0.95	ug/L	U	0.95	3.8
03/10/03	EQUIP BLK	BNA-Water	Anthracene	0.95	ug/L	U	0.95	3.8
03/10/03	EQUIP BLK	BNA-Water	Azobenzene/1,2-Diphenylhydrazine	0.95	ug/L	U	0.95	3.8
03/10/03	EQUIP BLK	BNA-Water	Benzidine	95	ug/L	U	95	380
03/10/03	EQUIP BLK	BNA-Water	Benzo(a)anthracene	0.95	ug/L	U	0.95	3.8
03/10/03	EQUIP BLK	BNA-Water	Benzo(a)pyrene	0.95	ug/L	U	0.95	3.8
03/10/03	EQUIP BLK	BNA-Water	Benzo(b)fluoranthene	0.95	ug/L	U	0.95	3.8
03/10/03	EQUIP BLK	BNA-Water	Benzo(g,h,i)perylene	0.95	ug/L	U	0.95	3.8
03/10/03	EQUIP BLK	BNA-Water	Benzo(k)fluoranthene	0.95	ug/L	U	0.95	3.8
03/10/03	EQUIP BLK	BNA-Water	Benzyl alcohol	0.95	ug/L	U	0.95	3.8
03/10/03	EQUIP BLK	BNA-Water	Bis(2-chloroethoxy)methane	0.95	ug/L	U	0.95	3.8
03/10/03	EQUIP BLK	BNA-Water	Bis(2-chloroethyl)ether	0.95	ug/L	U	0.95	3.8
03/10/03	EQUIP BLK	BNA-Water	Bis(2-chloroisopropyl)ether	2.9	ug/L	U	2.9	11
03/10/03	EQUIP BLK	BNA-Water	Bis(2-ethylhexyl)phthalate	14	ug/L	U	14	57
03/10/03	EQUIP BLK	BNA-Water	Butyl benzyl phthalate	4.8	ug/L	U	4.8	19
03/10/03	EQUIP BLK	BNA-Water	Chrysene	0.95	ug/L	U	0.95	3.8
03/10/03	EQUIP BLK	BNA-Water	Di-n-butyl phthalate	4.8	ug/L	U	4.8	19
03/10/03	EQUIP BLK	BNA-Water	Di-n-octyl phthalate	0.95	ug/L	U	0.95	3.8
03/10/03	EQUIP BLK	BNA-Water	Dibenzo(a,h)anthracene	0.95	ug/L	U	0.95	3.8
03/10/03	EQUIP BLK	BNA-Water	Dibenzofuran	0.95	ug/L	U	0.95	3.8
03/10/03	EQUIP BLK	BNA-Water	Dieldrin	1.4	ug/L	U	1.4	5.7
03/10/03	EQUIP BLK	BNA-Water	Diethyl phthalate	0.95	ug/L	U	0.95	3.8
03/10/03	EQUIP BLK	BNA-Water	Dimethyl phthalate	48	ug/L	U	48	190

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
03/10/03	EQUIP BLK	BNA-Water	Dimethylaminoazobenzene	0.95	ug/L	U	0.95	3.8
03/10/03	EQUIP BLK	BNA-Water	Dinoseb	3.8	ug/L	U	3.8	15
03/10/03	EQUIP BLK	BNA-Water	Diphenylamine	2.9	ug/L	U	2.9	11
03/10/03	EQUIP BLK	BNA-Water	Endosulfan I	3.8	ug/L	U	3.8	15
03/10/03	EQUIP BLK	BNA-Water	Endosulfan II	3.8	ug/L	U	3.8	15
03/10/03	EQUIP BLK	BNA-Water	Endosulfan sulfate	1.4	ug/L	U	1.4	5.7
03/10/03	EQUIP BLK	BNA-Water	Endrin	1.4	ug/L	U	1.4	5.7
03/10/03	EQUIP BLK	BNA-Water	Endrin aldehyde	3.8	ug/L	U	3.8	15
03/10/03	EQUIP BLK	BNA-Water	Ethyl methanesulfonate	0.95	ug/L	U	0.95	3.8
03/10/03	EQUIP BLK	BNA-Water	Fluoranthene	0.95	ug/L	U	0.95	3.8
03/10/03	EQUIP BLK	BNA-Water	Fluorene	0.95	ug/L	U	0.95	3.8
03/10/03	EQUIP BLK	BNA-Water	Heptachlor	1.4	ug/L	U	1.4	5.7
03/10/03	EQUIP BLK	BNA-Water	Heptachlor epoxide	1.4	ug/L	U	1.4	5.7
03/10/03	EQUIP BLK	BNA-Water	Hexachlorobenzene	0.95	ug/L	U	0.95	3.8
03/10/03	EQUIP BLK	BNA-Water	Hexachlorobutadiene	2.9	ug/L	U	2.9	11
03/10/03	EQUIP BLK	BNA-Water	Hexachlorocyclopentadiene	2.9	ug/L	UJ	2.9	11
03/10/03	EQUIP BLK	BNA-Water	Hexachloroethane	2.9	ug/L	U	2.9	11
03/10/03	EQUIP BLK	BNA-Water	Hexachloropropene	1.9	ug/L	U	1.9	7.6
03/10/03	EQUIP BLK	BNA-Water	Indeno(1,2,3-cd)pyrene	0.95	ug/L	U	0.95	3.8
03/10/03	EQUIP BLK	BNA-Water	Isophorone	0.95	ug/L	UJ	0.95	3.8
03/10/03	EQUIP BLK	BNA-Water	Isosafrole	0.95	ug/L	U	0.95	3.8
03/10/03	EQUIP BLK	BNA-Water	Methapyrilene	3.8	ug/L	UJ	3.8	15
03/10/03	EQUIP BLK	BNA-Water	Methyl methanesulfonate	0.95	ug/L	UJ	0.95	3.8
03/10/03	EQUIP BLK	BNA-Water	N-Nitrosodi-n-butylamine	0.95	ug/L	U	0.95	3.8
03/10/03	EQUIP BLK	BNA-Water	N-Nitrosodi-n-propylamine	1.9	ug/L	U	1.9	7.6
03/10/03	EQUIP BLK	BNA-Water	N-Nitrosodiethylamine	0.95	ug/L	U	0.95	3.8
03/10/03	EQUIP BLK	BNA-Water	N-Nitrosodimethylamine	1.9	ug/L	U	1.9	7.6
03/10/03	EQUIP BLK	BNA-Water	N-Nitrosodiphenylamine	2.9	ug/L	U	2.9	11
03/10/03	EQUIP BLK	BNA-Water	N-Nitrosomethylethylamine	1.9	ug/L	U	1.9	7.6
03/10/03	EQUIP BLK	BNA-Water	N-Nitrosomorpholine	0.95	ug/L	U	0.95	3.8
03/10/03	EQUIP BLK	BNA-Water	N-Nitrosopiperidine	0.95	ug/L	U	0.95	3.8
03/10/03	EQUIP BLK	BNA-Water	N-Nitrosopyrrolidine	1.9	ug/L	U	1.9	7.6
03/10/03	EQUIP BLK	BNA-Water	Naphthalene	0.95	ug/L	U	0.95	3.8
03/10/03	EQUIP BLK	BNA-Water	Nitrobenzene	1.9	ug/L	U	1.9	7.6
03/10/03	EQUIP BLK	BNA-Water	Nitroquinoline-1-oxide	19	ug/L	U	19	76
03/10/03	EQUIP BLK	BNA-Water	Pentachlorobenzene	0.95	ug/L	U	0.95	3.8
03/10/03	EQUIP BLK	BNA-Water	Pentachloroethane	48	ug/L	U	48	190
03/10/03	EQUIP BLK	BNA-Water	Pentachloronitrobenzene	0.95	ug/L	U	0.95	3.8
03/10/03	EQUIP BLK	BNA-Water	Pentachlorophenol	2.9	ug/L	U	2.9	11
03/10/03	EQUIP BLK	BNA-Water	Phenacetin	3.8	ug/L	U	3.8	11
03/10/03	EQUIP BLK	BNA-Water	Phenanthrene	0.95	ug/L	U	0.95	3.8
03/10/03	EQUIP BLK	BNA-Water	Phenol	0.95	ug/L	U	0.95	3.8
03/10/03	EQUIP BLK	BNA-Water	Pyrene	0.95	ug/L	U	0.95	3.8
03/10/03	EQUIP BLK	BNA-Water	Pyridine	3.8	ug/L	U	3.8	15
03/10/03	EQUIP BLK	BNA-Water	Safrole	0.95	ug/L	U	0.95	3.8
03/10/03	EQUIP BLK	BNA-Water	alpha-BHC	1.4	ug/L	U	1.4	5.7
03/10/03	EQUIP BLK	BNA-Water	beta-BHC	1.4	ug/L	U	1.4	5.7
03/10/03	EQUIP BLK	BNA-Water	delta-BHC	1.4	ug/L	U	1.4	5.7
03/10/03	EQUIP BLK	BNA-Water	gamma-BHC	1.4	ug/L	U	1.4	5.7
03/10/03	EQUIP BLK	BNA-Water	m,p-Cresols	1.9	ug/L	U	1.9	7.6
03/10/03	EQUIP BLK	BNA-Water	o-Cresol	1.9	ug/L	U	1.9	7.6
03/10/03	EQUIP BLK	BNA-Water	o-Toluidine	0.95	ug/L	U	0.95	3.8
03/10/03	EQUIP BLK	GC-Water	Alachlor	0.67	ug/L	U	0.67	2.68
03/10/03	EQUIP BLK	GC-Water	Ametryn	0.056	ug/L	U	0.056	0.224
03/10/03	EQUIP BLK	GC-Water	Atrazine	0.056	ug/L	U	0.056	0.224
03/10/03	EQUIP BLK	GC-Water	Azinphos Methyl	0.056	ug/L	U	0.056	0.224
03/10/03	EQUIP BLK	GC-Water	Bromacil	0.22	ug/L	U	0.22	0.88
03/10/03	EQUIP BLK	GC-Water	Butylate	0.22	ug/L	UJ	0.22	0.88
03/10/03	EQUIP BLK	GC-Water	Chlorpyrifos Ethyl	0.056	ug/L	U	0.056	0.224
03/10/03	EQUIP BLK	GC-Water	Chlorpyrifos Methyl	0.11	ug/L	U	0.11	0.44
03/10/03	EQUIP BLK	GC-Water	Diazinon	0.056	ug/L	UJ	0.056	0.224
03/10/03	EQUIP BLK	GC-Water	Ethion	0.056	ug/L	U	0.056	0.224
03/10/03	EQUIP BLK	GC-Water	Ethoprop	0.11	ug/L	U	0.11	0.44
03/10/03	EQUIP BLK	GC-Water	Fenamiphos	0.22	ug/L	U	0.22	0.88
03/10/03	EQUIP BLK	GC-Water	Fonofos	0.11	ug/L	U	0.11	0.44
03/10/03	EQUIP BLK	GC-Water	Hexazinone	0.11	ug/L	U	0.11	0.44
03/10/03	EQUIP BLK	GC-Water	Malathion	0.17	ug/L	U	0.17	0.68
03/10/03	EQUIP BLK	GC-Water	Metalaxyl	0.28	ug/L	U	0.28	1.12
03/10/03	EQUIP BLK	GC-Water	Metolachlor	0.56	ug/L	UJ	0.56	2.24
03/10/03	EQUIP BLK	GC-Water	Metribuzin	0.11	ug/L	U	0.11	0.44
03/10/03	EQUIP BLK	GC-Water	Mevinphos	0.22	ug/L	U	0.22	0.88
03/10/03	EQUIP BLK	GC-Water	Naled	0.9	ug/L	U	0.9	3.6
03/10/03	EQUIP BLK	GC-Water	Norflurazon	0.11	ug/L	U	0.11	0.44

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
03/10/03	EQUIP BLK	GC-Water	Parathion Ethyl	0.17	ug/L	U	0.17	0.68
03/10/03	EQUIP BLK	GC-Water	Parathion Methyl	0.11	ug/L	U	0.11	0.44
03/10/03	EQUIP BLK	GC-Water	Phorate	0.056	ug/L	U	0.056	0.224
03/10/03	EQUIP BLK	GC-Water	Prometryn	0.17	ug/L	U	0.17	0.68
03/10/03	EQUIP BLK	GC-Water	Simazine	0.056	ug/L	U	0.056	0.224
03/10/03	EQUIP BLK	Metals-Water	Aluminum	10	ug/L	U	10	40
03/10/03	EQUIP BLK	Metals-Water	Arsenic	3	ug/L	U	3	12
03/10/03	EQUIP BLK	Metals-Water	Cadmium	0.025	ug/L	U	0.025	0.1
03/10/03	EQUIP BLK	Metals-Water	Calcium	0.05	mg/L	U	0.05	0.2
03/10/03	EQUIP BLK	Metals-Water	Chromium	2	ug/L	U	2	8
03/10/03	EQUIP BLK	Metals-Water	Copper	0.75	ug/L	U	0.75	3
03/10/03	EQUIP BLK	Metals-Water	Iron	7	ug/L	U	7	28
03/10/03	EQUIP BLK	Metals-Water	Lead	0.1	ug/L	U	0.1	0.4
03/10/03	EQUIP BLK	Metals-Water	Magnesium	0.01	mg/L	U	0.01	0.04
03/10/03	EQUIP BLK	Metals-Water	Nickel	2	ug/L	U	2	8
03/10/03	EQUIP BLK	Metals-Water	Selenium	1	ug/L	U	1	4
03/10/03	EQUIP BLK	Metals-Water	Silver	0.02	ug/L	U	0.02	0.08
03/10/03	EQUIP BLK	Metals-Water	Zinc	5.6	ug/L	U	4	16
03/10/03	EQUIP BLK	Nutrients-Liquid	Ammonia-N	0.01	mg N/L	U	0.01	0.02
03/10/03	EQUIP BLK	Nutrients-Liquid	Fluoride	0.065	mg F/L	U	0.065	0.2
03/10/03	EQUIP BLK	Nutrients-Liquid	NO2NO3-N	0.004	mg N/L	U	0.004	0.01
03/10/03	EQUIP BLK	Nutrients-Liquid	N_KJEL_TOT	0.06	mg N/L	U	0.06	0.2
03/10/03	EQUIP BLK	Nutrients-Liquid	O-Phosphate-P	0.05	mg P/L		0.004	0.01
03/10/03	EQUIP BLK	Nutrients-Liquid	Total-P	0.02	mg P/L	U	0.02	0.04
03/12/03	OUTFALL 001	BNA-Water	1,2,4,5-Tetrachlorobenzene	0.96	ug/L	U	0.96	3.8
03/12/03	OUTFALL 001	BNA-Water	1,2,4-Trichlorobenzene	0.96	ug/L	U	0.96	3.8
03/12/03	OUTFALL 001	BNA-Water	1,2-Dichlorobenzene	0.96	ug/L	U	0.96	3.8
03/12/03	OUTFALL 001	BNA-Water	1,3,5-Trinitrobenzene	3.8	ug/L	U	3.8	15
03/12/03	OUTFALL 001	BNA-Water	1,3-Dichlorobenzene	0.96	ug/L	U	0.96	3.8
03/12/03	OUTFALL 001	BNA-Water	1,3-Dinitrobenzene	1.9	ug/L	U	1.9	7.7
03/12/03	OUTFALL 001	BNA-Water	1,4-Dichlorobenzene	0.96	ug/L	U	0.96	3.8
03/12/03	OUTFALL 001	BNA-Water	1,4-Naphthoquinone	19	ug/L	UJ	19	77
03/12/03	OUTFALL 001	BNA-Water	1-Naphthylamine	9.6	ug/L	UJ	9.6	38
03/12/03	OUTFALL 001	BNA-Water	2,3,4,6-Tetrachlorophenol	1.9	ug/L	U	1.9	7.7
03/12/03	OUTFALL 001	BNA-Water	2,4,5-Trichlorophenol	0.96	ug/L	U	0.96	3.8
03/12/03	OUTFALL 001	BNA-Water	2,4,6-Trichlorophenol	0.96	ug/L	U	0.96	3.8
03/12/03	OUTFALL 001	BNA-Water	2,4-Dichlorophenol	0.96	ug/L	U	0.96	3.8
03/12/03	OUTFALL 001	BNA-Water	2,4-Dimethylphenol	48	ug/L	U	48	190
03/12/03	OUTFALL 001	BNA-Water	2,4-Dinitrophenol	14	ug/L	U	14	58
03/12/03	OUTFALL 001	BNA-Water	2,4-Dinitrotoluene	0.96	ug/L	U	0.96	3.8
03/12/03	OUTFALL 001	BNA-Water	2,6-Dichlorophenol	0.96	ug/L	U	0.96	3.8
03/12/03	OUTFALL 001	BNA-Water	2,6-Dinitrotoluene	0.96	ug/L	U	0.96	3.8
03/12/03	OUTFALL 001	BNA-Water	2-Acetylaminofluorene	0.96	ug/L	U	0.96	3.8
03/12/03	OUTFALL 001	BNA-Water	2-Chloronaphthalene	0.96	ug/L	U	0.96	3.8
03/12/03	OUTFALL 001	BNA-Water	2-Chlorophenol	0.96	ug/L	U	0.96	3.8
03/12/03	OUTFALL 001	BNA-Water	2-Methyl-4,6-dinitrophenol	2.9	ug/L	U	2.9	12
03/12/03	OUTFALL 001	BNA-Water	2-Methylnaphthalene	0.96	ug/L	U	0.96	3.8
03/12/03	OUTFALL 001	BNA-Water	2-Naphthylamine	9.6	ug/L	U	9.6	38
03/12/03	OUTFALL 001	BNA-Water	2-Nitroaniline	0.96	ug/L	U	0.96	3.8
03/12/03	OUTFALL 001	BNA-Water	2-Nitrophenol	0.96	ug/L	U	0.96	3.8
03/12/03	OUTFALL 001	BNA-Water	2-Picoline	0.96	ug/L	U	0.96	3.8
03/12/03	OUTFALL 001	BNA-Water	3,3'-Dichlorobenzidine	38	ug/L	U	38	150
03/12/03	OUTFALL 001	BNA-Water	3,3'-Dimethylbenzidine	19	ug/L	UJ	19	77
03/12/03	OUTFALL 001	BNA-Water	3-Methylcholanthrene	0.96	ug/L	U	0.96	3.8
03/12/03	OUTFALL 001	BNA-Water	3-Nitroaniline	0.96	ug/L	U	0.96	3.8
03/12/03	OUTFALL 001	BNA-Water	4,4'-DDD	1.4	ug/L	U	1.4	5.8
03/12/03	OUTFALL 001	BNA-Water	4,4'-DDE	1.4	ug/L	U	1.4	5.8
03/12/03	OUTFALL 001	BNA-Water	4,4'-DDT	1.4	ug/L	U	1.4	5.8
03/12/03	OUTFALL 001	BNA-Water	4-Aminobiphenyl	3.8	ug/L	U	3.8	15
03/12/03	OUTFALL 001	BNA-Water	4-Bromophenyl phenyl ether	0.96	ug/L	U	0.96	3.8
03/12/03	OUTFALL 001	BNA-Water	4-Chloro-3-methylphenol	0.96	ug/L	U	0.96	3.8
03/12/03	OUTFALL 001	BNA-Water	4-Chloroaniline	0.96	ug/L	U	0.96	3.8
03/12/03	OUTFALL 001	BNA-Water	4-Chlorophenyl phenyl ether	1.9	ug/L	U	1.9	7.7
03/12/03	OUTFALL 001	BNA-Water	4-Nitroaniline	0.96	ug/L	U	0.96	3.8
03/12/03	OUTFALL 001	BNA-Water	4-Nitrophenol	14	ug/L	U	14	58
03/12/03	OUTFALL 001	BNA-Water	5-Nitro-o-toluidine	0.96	ug/L	U	0.96	3.8
03/12/03	OUTFALL 001	BNA-Water	7,12-Dimethylbenz(a)anthracene	0.96	ug/L	U	0.96	3.8
03/12/03	OUTFALL 001	BNA-Water	Acenaphthene	0.96	ug/L	U	0.96	3.8
03/12/03	OUTFALL 001	BNA-Water	Acenaphthylene	0.96	ug/L	U	0.96	3.8
03/12/03	OUTFALL 001	BNA-Water	Acetophenone	0.96	ug/L	U	0.96	3.8
03/12/03	OUTFALL 001	BNA-Water	Aldrin	1.4	ug/L	U	1.4	5.8
03/12/03	OUTFALL 001	BNA-Water	Aniline	0.96	ug/L	U	0.96	3.8
03/12/03	OUTFALL 001	BNA-Water	Anthracene	0.96	ug/L	U	0.96	3.8

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
03/12/03	OUTFALL 001	BNA-Water	Azobenzene/1,2-Diphenylhydrazine	0.96	ug/L	U	0.96	3.8
03/12/03	OUTFALL 001	BNA-Water	Benzidine	96	ug/L	U	96	380
03/12/03	OUTFALL 001	BNA-Water	Benzo(a)anthracene	0.96	ug/L	U	0.96	3.8
03/12/03	OUTFALL 001	BNA-Water	Benzo(a)pyrene	0.96	ug/L	U	0.96	3.8
03/12/03	OUTFALL 001	BNA-Water	Benzo(b)fluoranthene	0.96	ug/L	U	0.96	3.8
03/12/03	OUTFALL 001	BNA-Water	Benzo(g,h,i)perylene	0.96	ug/L	U	0.96	3.8
03/12/03	OUTFALL 001	BNA-Water	Benzo(k)fluoranthene	0.96	ug/L	U	0.96	3.8
03/12/03	OUTFALL 001	BNA-Water	Benzyl alcohol	0.96	ug/L	U	0.96	3.8
03/12/03	OUTFALL 001	BNA-Water	Bis(2-chloroethoxy)methane	0.96	ug/L	U	0.96	3.8
03/12/03	OUTFALL 001	BNA-Water	Bis(2-chloroethyl)ether	0.96	ug/L	U	0.96	3.8
03/12/03	OUTFALL 001	BNA-Water	Bis(2-chloroisopropyl)ether	2.9	ug/L	U	2.9	12
03/12/03	OUTFALL 001	BNA-Water	Bis(2-ethylhexyl)phthalate	14	ug/L	U	14	58
03/12/03	OUTFALL 001	BNA-Water	Butyl benzyl phthalate	4.8	ug/L	U	4.8	19
03/12/03	OUTFALL 001	BNA-Water	Chrysene	0.96	ug/L	U	0.96	3.8
03/12/03	OUTFALL 001	BNA-Water	Di-n-butyl phthalate	4.8	ug/L	U	4.8	19
03/12/03	OUTFALL 001	BNA-Water	Di-n-octyl phthalate	0.96	ug/L	U	0.96	3.8
03/12/03	OUTFALL 001	BNA-Water	Dibenzo(a,h)anthracene	0.96	ug/L	U	0.96	3.8
03/12/03	OUTFALL 001	BNA-Water	Dibenzofuran	0.96	ug/L	U	0.96	3.8
03/12/03	OUTFALL 001	BNA-Water	Dieldrin	1.4	ug/L	U	1.4	5.8
03/12/03	OUTFALL 001	BNA-Water	Diethyl phthalate	0.96	ug/L	U	0.96	3.8
03/12/03	OUTFALL 001	BNA-Water	Dimethyl phthalate	48	ug/L	U	48	190
03/12/03	OUTFALL 001	BNA-Water	Dimethylaminoazobenzene	0.96	ug/L	U	0.96	3.8
03/12/03	OUTFALL 001	BNA-Water	Dinoseb	3.8	ug/L	UJ	3.8	15
03/12/03	OUTFALL 001	BNA-Water	Diphenylamine	2.9	ug/L	U	2.9	12
03/12/03	OUTFALL 001	BNA-Water	Endosulfan I	3.8	ug/L	U	3.8	15
03/12/03	OUTFALL 001	BNA-Water	Endosulfan II	3.8	ug/L	U	3.8	15
03/12/03	OUTFALL 001	BNA-Water	Endosulfan sulfate	1.4	ug/L	U	1.4	5.8
03/12/03	OUTFALL 001	BNA-Water	Endrin	1.4	ug/L	U	1.4	5.8
03/12/03	OUTFALL 001	BNA-Water	Endrin aldehyde	3.8	ug/L	U	3.8	15
03/12/03	OUTFALL 001	BNA-Water	Ethyl methanesulfonate	0.96	ug/L	U	0.96	3.8
03/12/03	OUTFALL 001	BNA-Water	Fluoranthene	0.96	ug/L	U	0.96	3.8
03/12/03	OUTFALL 001	BNA-Water	Fluorene	0.96	ug/L	U	0.96	3.8
03/12/03	OUTFALL 001	BNA-Water	Heptachlor	1.4	ug/L	U	1.4	5.8
03/12/03	OUTFALL 001	BNA-Water	Heptachlor epoxide	1.4	ug/L	U	1.4	5.8
03/12/03	OUTFALL 001	BNA-Water	Hexachlorobenzene	0.96	ug/L	U	0.96	3.8
03/12/03	OUTFALL 001	BNA-Water	Hexachlorobutadiene	2.9	ug/L	U	2.9	12
03/12/03	OUTFALL 001	BNA-Water	Hexachlorocyclopentadiene	2.9	ug/L	U	2.9	12
03/12/03	OUTFALL 001	BNA-Water	Hexachloroethane	2.9	ug/L	U	2.9	12
03/12/03	OUTFALL 001	BNA-Water	Hexachloropropene	1.9	ug/L	UJ	1.9	7.7
03/12/03	OUTFALL 001	BNA-Water	Indeno(1,2,3-cd)pyrene	0.96	ug/L	U	0.96	3.8
03/12/03	OUTFALL 001	BNA-Water	Isophorone	0.96	ug/L	U	0.96	3.8
03/12/03	OUTFALL 001	BNA-Water	Isosafrole	0.96	ug/L	U	0.96	3.8
03/12/03	OUTFALL 001	BNA-Water	Methapyrilene	3.8	ug/L	UJ	3.8	15
03/12/03	OUTFALL 001	BNA-Water	Methyl methanesulfonate	0.96	ug/L	UJ	0.96	3.8
03/12/03	OUTFALL 001	BNA-Water	N-Nitrosodi-n-butylamine	0.96	ug/L	U	0.96	3.8
03/12/03	OUTFALL 001	BNA-Water	N-Nitrosodi-n-propylamine	1.9	ug/L	U	1.9	7.7
03/12/03	OUTFALL 001	BNA-Water	N-Nitrosodiethylamine	0.96	ug/L	U	0.96	3.8
03/12/03	OUTFALL 001	BNA-Water	N-Nitrosodimethylamine	1.9	ug/L	U	1.9	7.7
03/12/03	OUTFALL 001	BNA-Water	N-Nitrosodiphenylamine	2.9	ug/L	U	2.9	12
03/12/03	OUTFALL 001	BNA-Water	N-Nitrosomethylethylamine	1.9	ug/L	U	1.9	7.7
03/12/03	OUTFALL 001	BNA-Water	N-Nitrosomorpholine	0.96	ug/L	U	0.96	3.8
03/12/03	OUTFALL 001	BNA-Water	N-Nitrosopiperidine	0.96	ug/L	U	0.96	3.8
03/12/03	OUTFALL 001	BNA-Water	N-Nitrosopyrrolidine	1.9	ug/L	U	1.9	7.7
03/12/03	OUTFALL 001	BNA-Water	Naphthalene	0.96	ug/L	U	0.96	3.8
03/12/03	OUTFALL 001	BNA-Water	Nitrobenzene	1.9	ug/L	U	1.9	7.7
03/12/03	OUTFALL 001	BNA-Water	Nitroquinoline-1-oxide	19	ug/L	UJ	19	77
03/12/03	OUTFALL 001	BNA-Water	Pentachlorobenzene	0.96	ug/L	U	0.96	3.8
03/12/03	OUTFALL 001	BNA-Water	Pentachloroethane	48	ug/L	U	48	190
03/12/03	OUTFALL 001	BNA-Water	Pentachloronitrobenzene	0.96	ug/L	U	0.96	3.8
03/12/03	OUTFALL 001	BNA-Water	Pentachlorophenol	2.9	ug/L	U	2.9	12
03/12/03	OUTFALL 001	BNA-Water	Phenacetin	3.8	ug/L	U	3.8	12
03/12/03	OUTFALL 001	BNA-Water	Phenanthrene	0.96	ug/L	U	0.96	3.8
03/12/03	OUTFALL 001	BNA-Water	Phenol	0.96	ug/L	U	0.96	3.8
03/12/03	OUTFALL 001	BNA-Water	Pyrene	0.96	ug/L	U	0.96	3.8
03/12/03	OUTFALL 001	BNA-Water	Pyridine	3.8	ug/L	U	3.8	15
03/12/03	OUTFALL 001	BNA-Water	Safrole	0.96	ug/L	U	0.96	3.8
03/12/03	OUTFALL 001	BNA-Water	alpha-BHC	1.4	ug/L	U	1.4	5.8
03/12/03	OUTFALL 001	BNA-Water	beta-BHC	1.4	ug/L	U	1.4	5.8
03/12/03	OUTFALL 001	BNA-Water	delta-BHC	1.4	ug/L	U	1.4	5.8
03/12/03	OUTFALL 001	BNA-Water	gamma-BHC	1.4	ug/L	U	1.4	5.8
03/12/03	OUTFALL 001	BNA-Water	m,p-Cresols	1.9	ug/L	U	1.9	7.7
03/12/03	OUTFALL 001	BNA-Water	o-Cresol	1.9	ug/L	U	1.9	7.7
03/12/03	OUTFALL 001	BNA-Water	o-Toluidine	0.96	ug/L	U	0.96	3.8

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
03/12/03	OUTFALL 001	GC-Water	Alachlor	0.58	ug/L	U	0.58	2.32
03/12/03	OUTFALL 001	GC-Water	Ametryn	0.048	ug/L	U	0.048	0.192
03/12/03	OUTFALL 001	GC-Water	Atrazine	0.048	ug/L	U	0.048	0.192
03/12/03	OUTFALL 001	GC-Water	Azinphos Methyl	0.048	ug/L	U	0.048	0.192
03/12/03	OUTFALL 001	GC-Water	Bromacil	0.19	ug/L	U	0.19	0.76
03/12/03	OUTFALL 001	GC-Water	Butylate	0.19	ug/L	U	0.19	0.76
03/12/03	OUTFALL 001	GC-Water	Chlorpyrifos Ethyl	0.048	ug/L	U	0.048	0.192
03/12/03	OUTFALL 001	GC-Water	Chlorpyrifos Methyl	0.096	ug/L	U	0.096	0.384
03/12/03	OUTFALL 001	GC-Water	Diazinon	0.048	ug/L	U	0.048	0.192
03/12/03	OUTFALL 001	GC-Water	Ethion	0.048	ug/L	U	0.048	0.192
03/12/03	OUTFALL 001	GC-Water	Ethoprop	0.096	ug/L	U	0.096	0.384
03/12/03	OUTFALL 001	GC-Water	Fenamiphos	0.19	ug/L	U	0.19	0.76
03/12/03	OUTFALL 001	GC-Water	Fonofos	0.096	ug/L	U	0.096	0.384
03/12/03	OUTFALL 001	GC-Water	Hexazinone	0.096	ug/L	U	0.096	0.384
03/12/03	OUTFALL 001	GC-Water	Malathion	0.14	ug/L	U	0.14	0.56
03/12/03	OUTFALL 001	GC-Water	Metalaxyl	0.24	ug/L	U	0.24	0.96
03/12/03	OUTFALL 001	GC-Water	Metolachlor	0.48	ug/L	U	0.48	1.92
03/12/03	OUTFALL 001	GC-Water	Metribuzin	0.096	ug/L	U	0.096	0.384
03/12/03	OUTFALL 001	GC-Water	Mevinphos	0.19	ug/L	U	0.19	0.76
03/12/03	OUTFALL 001	GC-Water	Naled	0.77	ug/L	UJ	0.77	3.08
03/12/03	OUTFALL 001	GC-Water	Norflurazon	0.096	ug/L	U	0.096	0.384
03/12/03	OUTFALL 001	GC-Water	Parathion Ethyl	0.14	ug/L	U	0.14	0.56
03/12/03	OUTFALL 001	GC-Water	Parathion Methyl	0.096	ug/L	U	0.096	0.384
03/12/03	OUTFALL 001	GC-Water	Phorate	0.048	ug/L	U	0.048	0.192
03/12/03	OUTFALL 001	GC-Water	Prometryn	0.14	ug/L	U	0.14	0.56
03/12/03	OUTFALL 001	GC-Water	Simazine	0.048	ug/L	U	0.048	0.192
03/12/03	OUTFALL 001	Metals-Water	Aluminum	147	ug/L	A	10	40
03/12/03	OUTFALL 001	Metals-Water	Arsenic	13	ug/L	U	3	12
03/12/03	OUTFALL 001	Metals-Water	Cadmium	0.058	ug/L	I	0.025	0.1
03/12/03	OUTFALL 001	Metals-Water	Calcium	51.4	mg/L	A	0.05	0.2
03/12/03	OUTFALL 001	Metals-Water	Chromium	2.1	ug/L	I	2	8
03/12/03	OUTFALL 001	Metals-Water	Copper	1.7	ug/L	U	0.75	3
03/12/03	OUTFALL 001	Metals-Water	Iron	126	ug/L	A	7	28
03/12/03	OUTFALL 001	Metals-Water	Lead	0.1	ug/L	U	0.1	0.4
03/12/03	OUTFALL 001	Metals-Water	Magnesium	15.3	mg/L	A	0.01	0.04
03/12/03	OUTFALL 001	Metals-Water	Nickel	3.4	ug/L	I	2	8
03/12/03	OUTFALL 001	Metals-Water	Selenium	1	ug/L	U	1	4
03/12/03	OUTFALL 001	Metals-Water	Silver	0.02	ug/L	U	0.02	0.08
03/12/03	OUTFALL 001	Metals-Water	Zinc	4	ug/L	U	4	16
03/14/03	OUTFALL 001	BNA-Water	1,2,4,5-Tetrachlorobenzene	0.95	ug/L	U	0.95	3.8
03/14/03	OUTFALL 001	BNA-Water	1,2,4-Trichlorobenzene	0.95	ug/L	U	0.95	3.8
03/14/03	OUTFALL 001	BNA-Water	1,2-Dichlorobenzene	0.95	ug/L	U	0.95	3.8
03/14/03	OUTFALL 001	BNA-Water	1,3,5-Trinitrobenzene	3.8	ug/L	U	3.8	15
03/14/03	OUTFALL 001	BNA-Water	1,3-Dichlorobenzene	0.95	ug/L	U	0.95	3.8
03/14/03	OUTFALL 001	BNA-Water	1,3-Dinitrobenzene	1.9	ug/L	U	1.9	7.6
03/14/03	OUTFALL 001	BNA-Water	1,4-Dichlorobenzene	0.95	ug/L	U	0.95	3.8
03/14/03	OUTFALL 001	BNA-Water	1,4-Naphthoquinone	19	ug/L	UJ	19	76
03/14/03	OUTFALL 001	BNA-Water	1-Naphthylamine	9.5	ug/L	UJ	9.5	38
03/14/03	OUTFALL 001	BNA-Water	2,3,4,6-Tetrachlorophenol	1.9	ug/L	U	1.9	7.6
03/14/03	OUTFALL 001	BNA-Water	2,4,5-Trichlorophenol	0.95	ug/L	U	0.95	3.8
03/14/03	OUTFALL 001	BNA-Water	2,4,6-Trichlorophenol	0.95	ug/L	U	0.95	3.8
03/14/03	OUTFALL 001	BNA-Water	2,4-Dichlorophenol	0.95	ug/L	U	0.95	3.8
03/14/03	OUTFALL 001	BNA-Water	2,4-Dimethylphenol	48	ug/L	U	48	190
03/14/03	OUTFALL 001	BNA-Water	2,4-Dinitrophenol	14	ug/L	U	14	57
03/14/03	OUTFALL 001	BNA-Water	2,4-Dinitrotoluene	0.95	ug/L	U	0.95	3.8
03/14/03	OUTFALL 001	BNA-Water	2,6-Dichlorophenol	0.95	ug/L	U	0.95	3.8
03/14/03	OUTFALL 001	BNA-Water	2,6-Dinitrotoluene	0.95	ug/L	U	0.95	3.8
03/14/03	OUTFALL 001	BNA-Water	2-Acetylaminofluorene	0.95	ug/L	U	0.95	3.8
03/14/03	OUTFALL 001	BNA-Water	2-Chloronaphthalene	0.95	ug/L	U	0.95	3.8
03/14/03	OUTFALL 001	BNA-Water	2-Chlorophenol	0.95	ug/L	U	0.95	3.8
03/14/03	OUTFALL 001	BNA-Water	2-Methyl-4,6-dinitrophenol	2.9	ug/L	U	2.9	11
03/14/03	OUTFALL 001	BNA-Water	2-Methylnaphthalene	0.95	ug/L	U	0.95	3.8
03/14/03	OUTFALL 001	BNA-Water	2-Naphthylamine	9.5	ug/L	U	9.5	38
03/14/03	OUTFALL 001	BNA-Water	2-Nitroaniline	0.95	ug/L	U	0.95	3.8
03/14/03	OUTFALL 001	BNA-Water	2-Nitrophenol	0.95	ug/L	U	0.95	3.8
03/14/03	OUTFALL 001	BNA-Water	2-Picoline	0.95	ug/L	U	0.95	3.8
03/14/03	OUTFALL 001	BNA-Water	3,3'-Dichlorobenzidine	38	ug/L	U	38	150
03/14/03	OUTFALL 001	BNA-Water	3,3'-Dimethylbenzidine	19	ug/L	UJ	19	76
03/14/03	OUTFALL 001	BNA-Water	3-Methylcholanthrene	0.95	ug/L	U	0.95	3.8
03/14/03	OUTFALL 001	BNA-Water	3-Nitroaniline	0.95	ug/L	U	0.95	3.8
03/14/03	OUTFALL 001	BNA-Water	4,4'-DDD	1.4	ug/L	U	1.4	5.7
03/14/03	OUTFALL 001	BNA-Water	4,4'-DDE	1.4	ug/L	U	1.4	5.7
03/14/03	OUTFALL 001	BNA-Water	4,4'-DDT	1.4	ug/L	U	1.4	5.7

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
03/14/03	OUTFALL 001	BNA-Water	4-Aminobiphenyl	3.8	ug/L	U	3.8	15
03/14/03	OUTFALL 001	BNA-Water	4-Bromophenyl phenyl ether	0.95	ug/L	U	0.95	3.8
03/14/03	OUTFALL 001	BNA-Water	4-Chloro-3-methylphenol	0.95	ug/L	U	0.95	3.8
03/14/03	OUTFALL 001	BNA-Water	4-Chloroaniline	0.95	ug/L	U	0.95	3.8
03/14/03	OUTFALL 001	BNA-Water	4-Chlorophenyl phenyl ether	1.9	ug/L	U	1.9	7.6
03/14/03	OUTFALL 001	BNA-Water	4-Nitroaniline	0.95	ug/L	U	0.95	3.8
03/14/03	OUTFALL 001	BNA-Water	4-Nitrophenol	14	ug/L	U	14	57
03/14/03	OUTFALL 001	BNA-Water	5-Nitro-o-toluidine	0.95	ug/L	U	0.95	3.8
03/14/03	OUTFALL 001	BNA-Water	7,12-Dimethylbenz(a)anthracene	0.95	ug/L	U	0.95	3.8
03/14/03	OUTFALL 001	BNA-Water	Acenaphthene	0.95	ug/L	U	0.95	3.8
03/14/03	OUTFALL 001	BNA-Water	Acenaphthylene	0.95	ug/L	U	0.95	3.8
03/14/03	OUTFALL 001	BNA-Water	Acetophenone	0.95	ug/L	U	0.95	3.8
03/14/03	OUTFALL 001	BNA-Water	Aldrin	1.4	ug/L	U	1.4	5.7
03/14/03	OUTFALL 001	BNA-Water	Aniline	0.95	ug/L	U	0.95	3.8
03/14/03	OUTFALL 001	BNA-Water	Anthracene	0.95	ug/L	U	0.95	3.8
03/14/03	OUTFALL 001	BNA-Water	Azobenzene/1,2-Diphenylhydrazine	0.95	ug/L	U	0.95	3.8
03/14/03	OUTFALL 001	BNA-Water	Benzidine	95	ug/L	U	95	380
03/14/03	OUTFALL 001	BNA-Water	Benzo(a)anthracene	0.95	ug/L	U	0.95	3.8
03/14/03	OUTFALL 001	BNA-Water	Benzo(a)pyrene	0.95	ug/L	U	0.95	3.8
03/14/03	OUTFALL 001	BNA-Water	Benzo(b)fluoranthene	0.95	ug/L	U	0.95	3.8
03/14/03	OUTFALL 001	BNA-Water	Benzo(g,h,i)perylene	0.95	ug/L	U	0.95	3.8
03/14/03	OUTFALL 001	BNA-Water	Benzo(k)fluoranthene	0.95	ug/L	U	0.95	3.8
03/14/03	OUTFALL 001	BNA-Water	Benzyl alcohol	0.95	ug/L	U	0.95	3.8
03/14/03	OUTFALL 001	BNA-Water	Bis(2-chloroethoxy)methane	0.95	ug/L	U	0.95	3.8
03/14/03	OUTFALL 001	BNA-Water	Bis(2-chloroethyl)ether	0.95	ug/L	U	0.95	3.8
03/14/03	OUTFALL 001	BNA-Water	Bis(2-chloroisopropyl)ether	2.9	ug/L	U	2.9	11
03/14/03	OUTFALL 001	BNA-Water	Bis(2-ethylhexyl)phthalate	14	ug/L	U	14	57
03/14/03	OUTFALL 001	BNA-Water	Butyl benzyl phthalate	4.8	ug/L	U	4.8	19
03/14/03	OUTFALL 001	BNA-Water	Chrysene	0.95	ug/L	U	0.95	3.8
03/14/03	OUTFALL 001	BNA-Water	Di-n-butyl phthalate	4.8	ug/L	U	4.8	19
03/14/03	OUTFALL 001	BNA-Water	Di-n-octyl phthalate	0.95	ug/L	U	0.95	3.8
03/14/03	OUTFALL 001	BNA-Water	Dibenzo(a,h)anthracene	0.95	ug/L	U	0.95	3.8
03/14/03	OUTFALL 001	BNA-Water	Dibenzofuran	0.95	ug/L	U	0.95	3.8
03/14/03	OUTFALL 001	BNA-Water	Dieldrin	1.4	ug/L	U	1.4	5.7
03/14/03	OUTFALL 001	BNA-Water	Diethyl phthalate	0.95	ug/L	U	0.95	3.8
03/14/03	OUTFALL 001	BNA-Water	Dimethyl phthalate	48	ug/L	U	48	190
03/14/03	OUTFALL 001	BNA-Water	Dimethylaminoazobenzene	0.95	ug/L	U	0.95	3.8
03/14/03	OUTFALL 001	BNA-Water	Dinoseb	3.8	ug/L	UJ	3.8	15
03/14/03	OUTFALL 001	BNA-Water	Diphenylamine	2.9	ug/L	U	2.9	11
03/14/03	OUTFALL 001	BNA-Water	Endosulfan I	3.8	ug/L	U	3.8	15
03/14/03	OUTFALL 001	BNA-Water	Endosulfan II	3.8	ug/L	U	3.8	15
03/14/03	OUTFALL 001	BNA-Water	Endosulfan sulfate	1.4	ug/L	U	1.4	5.7
03/14/03	OUTFALL 001	BNA-Water	Endrin	1.4	ug/L	U	1.4	5.7
03/14/03	OUTFALL 001	BNA-Water	Endrin aldehyde	3.8	ug/L	U	3.8	15
03/14/03	OUTFALL 001	BNA-Water	Ethyl methanesulfonate	0.95	ug/L	U	0.95	3.8
03/14/03	OUTFALL 001	BNA-Water	Fluoranthene	0.95	ug/L	U	0.95	3.8
03/14/03	OUTFALL 001	BNA-Water	Fluorene	0.95	ug/L	U	0.95	3.8
03/14/03	OUTFALL 001	BNA-Water	Heptachlor	1.4	ug/L	U	1.4	5.7
03/14/03	OUTFALL 001	BNA-Water	Heptachlor epoxide	1.4	ug/L	U	1.4	5.7
03/14/03	OUTFALL 001	BNA-Water	Hexachlorobenzene	0.95	ug/L	U	0.95	3.8
03/14/03	OUTFALL 001	BNA-Water	Hexachlorobutadiene	2.9	ug/L	U	2.9	11
03/14/03	OUTFALL 001	BNA-Water	Hexachlorocyclopentadiene	2.9	ug/L	U	2.9	11
03/14/03	OUTFALL 001	BNA-Water	Hexachloroethane	2.9	ug/L	U	2.9	11
03/14/03	OUTFALL 001	BNA-Water	Hexachloropropene	1.9	ug/L	UJ	1.9	7.6
03/14/03	OUTFALL 001	BNA-Water	Indeno(1,2,3-cd)pyrene	0.95	ug/L	U	0.95	3.8
03/14/03	OUTFALL 001	BNA-Water	Isophorone	0.95	ug/L	U	0.95	3.8
03/14/03	OUTFALL 001	BNA-Water	Isosafrole	0.95	ug/L	U	0.95	3.8
03/14/03	OUTFALL 001	BNA-Water	Methapyrilene	3.8	ug/L	UJ	3.8	15
03/14/03	OUTFALL 001	BNA-Water	Methyl methanesulfonate	0.95	ug/L	UJ	0.95	3.8
03/14/03	OUTFALL 001	BNA-Water	N-Nitrosodi-n-butylamine	0.95	ug/L	U	0.95	3.8
03/14/03	OUTFALL 001	BNA-Water	N-Nitrosodi-n-propylamine	1.9	ug/L	U	1.9	7.6
03/14/03	OUTFALL 001	BNA-Water	N-Nitrosodiethylamine	0.95	ug/L	U	0.95	3.8
03/14/03	OUTFALL 001	BNA-Water	N-Nitrosodimethylamine	1.9	ug/L	U	1.9	7.6
03/14/03	OUTFALL 001	BNA-Water	N-Nitrosodiphenylamine	2.9	ug/L	U	2.9	11
03/14/03	OUTFALL 001	BNA-Water	N-Nitrosomethylethylamine	1.9	ug/L	U	1.9	7.6
03/14/03	OUTFALL 001	BNA-Water	N-Nitrosomorpholine	0.95	ug/L	U	0.95	3.8
03/14/03	OUTFALL 001	BNA-Water	N-Nitrosopiperidine	0.95	ug/L	U	0.95	3.8
03/14/03	OUTFALL 001	BNA-Water	N-Nitrosopyrrolidine	1.9	ug/L	U	1.9	7.6
03/14/03	OUTFALL 001	BNA-Water	Naphthalene	0.95	ug/L	U	0.95	3.8
03/14/03	OUTFALL 001	BNA-Water	Nitrobenzene	1.9	ug/L	U	1.9	7.6
03/14/03	OUTFALL 001	BNA-Water	Nitroquinoline-1-oxide	19	ug/L	UJ	19	76
03/14/03	OUTFALL 001	BNA-Water	Pentachlorobenzene	0.95	ug/L	U	0.95	3.8
03/14/03	OUTFALL 001	BNA-Water	Pentachloroethane	48	ug/L	U	48	190

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
03/14/03	OUTFALL 001	BNA-Water	Pentachloronitrobenzene	0.95	ug/L	U	0.95	3.8
03/14/03	OUTFALL 001	BNA-Water	Pentachlorophenol	2.9	ug/L	U	2.9	11
03/14/03	OUTFALL 001	BNA-Water	Phenacetin	3.8	ug/L	U	3.8	11
03/14/03	OUTFALL 001	BNA-Water	Phenanthrene	0.95	ug/L	U	0.95	3.8
03/14/03	OUTFALL 001	BNA-Water	Phenol	0.95	ug/L	U	0.95	3.8
03/14/03	OUTFALL 001	BNA-Water	Pyrene	0.95	ug/L	U	0.95	3.8
03/14/03	OUTFALL 001	BNA-Water	Pyridine	3.8	ug/L	U	3.8	15
03/14/03	OUTFALL 001	BNA-Water	Safrole	0.95	ug/L	U	0.95	3.8
03/14/03	OUTFALL 001	BNA-Water	alpha-BHC	1.4	ug/L	U	1.4	5.7
03/14/03	OUTFALL 001	BNA-Water	beta-BHC	1.4	ug/L	U	1.4	5.7
03/14/03	OUTFALL 001	BNA-Water	delta-BHC	1.4	ug/L	U	1.4	5.7
03/14/03	OUTFALL 001	BNA-Water	gamma-BHC	1.4	ug/L	U	1.4	5.7
03/14/03	OUTFALL 001	BNA-Water	m,p-Cresols	1.9	ug/L	U	1.9	7.6
03/14/03	OUTFALL 001	BNA-Water	o-Cresol	1.9	ug/L	U	1.9	7.6
03/14/03	OUTFALL 001	BNA-Water	o-Toluidine	0.95	ug/L	U	0.95	3.8
03/14/03	OUTFALL 001	GC-Water	Alachlor	0.58	ug/L	U	0.58	2.32
03/14/03	OUTFALL 001	GC-Water	Ametryn	0.048	ug/L	U	0.048	0.192
03/14/03	OUTFALL 001	GC-Water	Atrazine	0.048	ug/L	U	0.048	0.192
03/14/03	OUTFALL 001	GC-Water	Azinphos Methyl	0.048	ug/L	U	0.048	0.192
03/14/03	OUTFALL 001	GC-Water	Bromacil	0.19	ug/L	U	0.19	0.76
03/14/03	OUTFALL 001	GC-Water	Butylate	0.19	ug/L	U	0.19	0.76
03/14/03	OUTFALL 001	GC-Water	Chlorpyrifos Ethyl	0.048	ug/L	U	0.048	0.192
03/14/03	OUTFALL 001	GC-Water	Chlorpyrifos Methyl	0.096	ug/L	U	0.096	0.384
03/14/03	OUTFALL 001	GC-Water	Diazinon	0.048	ug/L	U	0.048	0.192
03/14/03	OUTFALL 001	GC-Water	Ethion	0.048	ug/L	UJ	0.048	0.192
03/14/03	OUTFALL 001	GC-Water	Ethoprop	0.096	ug/L	U	0.096	0.384
03/14/03	OUTFALL 001	GC-Water	Fenamiphos	0.19	ug/L	U	0.19	0.76
03/14/03	OUTFALL 001	GC-Water	Fonofos	0.096	ug/L	UJ	0.096	0.384
03/14/03	OUTFALL 001	GC-Water	Hexazinone	0.096	ug/L	U	0.096	0.384
03/14/03	OUTFALL 001	GC-Water	Malathion	0.14	ug/L	UJ	0.14	0.56
03/14/03	OUTFALL 001	GC-Water	Metalaxyl	0.24	ug/L	U	0.24	0.96
03/14/03	OUTFALL 001	GC-Water	Metolachlor	0.48	ug/L	U	0.48	1.92
03/14/03	OUTFALL 001	GC-Water	Metribuzin	0.096	ug/L	U	0.096	0.384
03/14/03	OUTFALL 001	GC-Water	Mevinphos	0.19	ug/L	U	0.19	0.76
03/14/03	OUTFALL 001	GC-Water	Naled	0.77	ug/L	U	0.77	3.08
03/14/03	OUTFALL 001	GC-Water	Norflurazon	0.096	ug/L	U	0.096	0.384
03/14/03	OUTFALL 001	GC-Water	Parathion Ethyl	0.14	ug/L	UJ	0.14	0.56
03/14/03	OUTFALL 001	GC-Water	Parathion Methyl	0.096	ug/L	U	0.096	0.384
03/14/03	OUTFALL 001	GC-Water	Phorate	0.048	ug/L	U	0.048	0.192
03/14/03	OUTFALL 001	GC-Water	Prometryn	0.14	ug/L	U	0.14	0.56
03/14/03	OUTFALL 001	GC-Water	Simazine	0.048	ug/L	U	0.048	0.192
03/14/03	OUTFALL 001	Metals-Water	Aluminum	165	ug/L		10	40
03/14/03	OUTFALL 001	Metals-Water	Arsenic	4	ug/L	U	4	16
03/14/03	OUTFALL 001	Metals-Water	Cadmium	0.025	ug/L	U	0.025	0.1
03/14/03	OUTFALL 001	Metals-Water	Calcium	41.5	mg/L		0.05	0.2
03/14/03	OUTFALL 001	Metals-Water	Chromium	2	ug/L	U	2	8
03/14/03	OUTFALL 001	Metals-Water	Copper	2.1	ug/L	U	0.75	3
03/14/03	OUTFALL 001	Metals-Water	Iron	130	ug/L		7	28
03/14/03	OUTFALL 001	Metals-Water	Lead	0.13	ug/L	I	0.1	0.4
03/14/03	OUTFALL 001	Metals-Water	Magnesium	15.5	mg/L		0.01	0.04
03/14/03	OUTFALL 001	Metals-Water	Nickel	2	ug/L	U	2	8
03/14/03	OUTFALL 001	Metals-Water	Selenium	1	ug/L	U	1	4
03/14/03	OUTFALL 001	Metals-Water	Silver	0.02	ug/L	U	0.02	0.08
03/14/03	OUTFALL 001	Metals-Water	Zinc	4	ug/L	U	4	16

Appendix 5

Explanation of Biological Measures

(1) Habitat Assessment:

Eight aspects of the physical structure and extent of disturbance are ranked, with 20 possible points for each factor (FDEP SOP FT 3100, based on Plafkin *et al.*, 1989 and Barbour and Stribling, 1994). The Habitat Assessment score includes types and amounts of benthic substrates, water velocity, amount of sand or silt accumulation, extent of artificial channelization, bank stability, and riparian zone width and vegetation type. All scores are summed to yield an overall Habitat Assessment score. Habitat Assessment score ranges from 11-160 and overall habitat quality is assigned to one of four categories: Optimal (120-160 points), Suboptimal (80-119 points), Marginal (40-79 points), and Poor (11-39 points).

(2) Effluent and Water Samples from Control and Test Sites

Algal Growth Potential (AGP): The effluent and water from control and test sites are autoclaved, filtered (0.45μm), inoculated with the unicellular green alga, *Pseudokirchneriella subcapitata* (formerly *Selenastrum capricornutum*, USEPA 2002), and incubated for 14 days. The algal growth potential (AGP) value is the peak growth of the alga within that 14-day period, recorded as mg dry weight/L (Miller *et al.* 1978). Raschke and Shultz (1987) found that an AGP above 5.0 mg dry weight/L represents a "problem" threshold for fresh receiving waters, implying nutrient enrichment. High AGP values may constitute one line of evidence for violation of 62-302.530(47) F.A.C., 62-302.530(48)(a) F.A.C. and/or 62-302.530(48)(b) F.A.C..

The concentration of nutrients in a water sample may be used to calculate the expected yield of AGP under the assumption that other required nutrients (e.g. silicon, micronutrients) are present in excess (Miller *et al.* 1978). The expected amount of production is calculated as 38 times the total soluble inorganic nitrogen (nitrate and nitrite plus ammonia) under nitrogen limitation or 430 times the ortho-phosphate (OP) concentration under phosphorus limitation with an error of ± 20%. When the ratio of nitrogen to phosphorus (N:P) is less than 11:1, nitrogen limitation of algal production is likely. When the N:P ratio is above 11:1, phosphorus limitation is likely. Production of lower biomass than expected may be evidence of growth inhibition related to toxic compounds present in the water sample tested and may be a violation of 62-302.530(62) F.A.C..

(3) Algal Phytoplankton and Periphyton Assemblages

Chlorophyll *a* Content: Chlorophyll *a* content is measured in both phytoplankton and periphyton samples to estimate algal biomass (APHA 1992, modified from *Standard Methods* 10200H). High algal biomass implies nutrient stress (Stevenson and Bahls 1999) and may be a violation of 62-302.530(47) F.A.C., 62-302.530(48)(a) F.A.C. and/or 62-302.530(48)(b) F.A.C..

Cell Density: Cell density is estimated as number/ml for phytoplankton samples and number/cm^2 for periphyton samples (APHA 1992, modified from *Standard Methods* 10200F and 10900G).

Taxa richness: Taxa richness is the number of distinct algal taxa present in a sample. Stress tends to reduce the number of different types of algae present in a sample, but moderate nutrient enrichment of nutrient poor waters may sometimes be correlated with increased algal taxa richness (Stevenson and Bahls 1999).

Community Composition: Shifts in relative proportions of major groups of algae downstream of a point source, compared to upstream, control conditions, may indicate negative effects of a discharge (Stevenson and Bahls 1999) and may constitute violations of 62-302.530(47) F.A.C., 62-302.530(48)(a) F.A.C., 62-302.530(48)(b) F.A.C. and/or 62-302.530(62) F.A.C..

Shannon-Weaver Diversity Index: This index is specified in the Florida Administrative Code 62-302 as a measure of biological integrity. Low diversity scores are undesirable. Where diversity is low, only a few taxa are abundant as compared to an area where many taxa are present with more equitable abundance among taxa (Magurran 1988). Low diversity scores related to a facility's effluent may constitute violations of 62-302.530(47) F.A.C., 62-302.530(48)(a) F.A.C., 62-302.530(48)(b) F.A.C. and/or 62-302.530(62) F.A.C..

Appendix 6

Typical Values for Selected Parameters in Florida Waters

Percentile Distribution (1617 stations)

CONTROL SITE

Parameter	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	95%	Measured
Periphyton Chlorophyll *a* (mg/m^2)	0.31	0.43	0.77	1.04	2.16	2.94	6.45	10.51	17.00	39.51	60.85	**ND**
Hester-Dendy Diversity	0.84	2.12	2.48	2.74	2.88	3.09	3.25	3.40	3.52	3.76	3.90	**ND**
Hester-Dendy Taxa Richness	6	6.5	9	11.5	13	15	17	21.5	26	29	32	**ND**
Dipnet Taxa Richness	9	12	17	20	22	24.5	26	28	31	37	53	**ND**
Total Kjeldahl Nitrogen	0.30	0.39	0.56	0.73	0.87	1.00	1.11	1.26	1.49	1.93	**2.80**	**4.3**
Total Ammonia	0.02	0.02	0.04	0.05	0.06	0.08	0.11	0.14	0.20	0.34	**0.60**	**2.7**
Nitrate plus Nitrite	0.01	0.01	0.03	0.05	0.07	0.10	0.14	0.20	**0.32**	0.64	1.05	**0.61**
Total Phosphorus	0.02	0.03	0.05	0.06	0.10	0.13	0.18	0.25	0.39	0.74	**1.51**	**4.6**
Orthophosphate	0.01	0.01	0.03	0.04	0.05	0.08	0.11	0.17	0.27	0.59	**1.37**	**3.9**
Turbidity (NTU)	0.60	0.90	1.20	1.45	2.10	2.80	3.60	4.50	6.65	10.45	16.30	**ND**

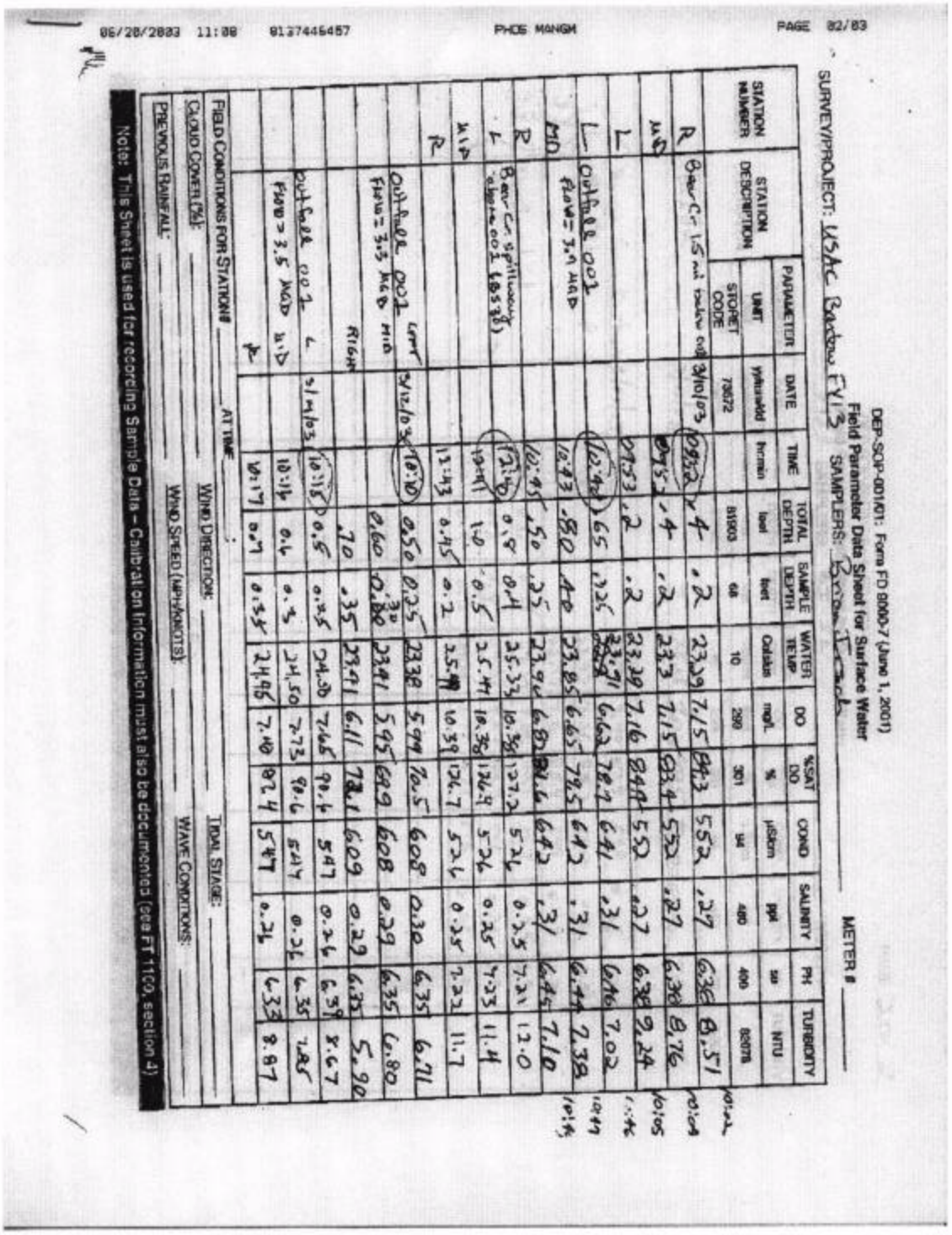
TEST SITE

Parameter	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	95%	Measured
Periphyton Chlorophyll *a* (mg/m^2)	0.31	0.43	0.77	1.04	2.16	2.94	6.45	10.51	17.00	39.51	60.85	**ND**
Hester-Dendy Diversity	0.84	2.12	2.48	2.74	2.88	3.09	3.25	3.40	3.52	3.76	3.90	**ND**
Hester-Dendy Taxa Richness	6	6.5	9	11.5	13	15	17	21.5	26	29	32	**ND**
Dipnet Taxa Richness	9	12	17	20	22	24.5	26	28	31	37	53	**ND**
Total Kjeldahl Nitrogen	0.30	0.39	0.56	0.73	0.87	1.00	1.11	1.26	1.49	1.93	**2.80**	**4.6**
Total Ammonia	0.02	0.02	0.04	0.05	0.06	0.08	0.11	0.14	0.20	0.34	**0.60**	**3.2**
Nitrate plus Nitrite	0.01	0.01	0.03	0.05	0.07	0.10	0.14	0.20	0.32	0.64	**1.05**	**1.1**
Total Phosphorus	0.02	0.03	0.05	0.06	0.10	0.13	0.18	0.25	0.39	0.74	**1.51**	**7.1**
Orthophosphate	0.01	0.01	0.03	0.04	0.05	0.08	0.11	0.17	0.27	0.59	**1.37**	**6.5**
Turbidity (NTU)	0.60	0.90	1.20	1.45	2.10	2.80	3.60	4.50	6.65	10.45	16.30	**ND**

Taxa richness and diversity values are for benthic macroinvertebrates. Hester-Dendy sample= benthic macroinvertebrates collected from a standardized multi-plate sampler. Dipnet taxa richness = number of taxa collected in standardized dipnet sweep samples. Diversity = Shannon-Weaver H'. NTU = Nephelometric turbidity units. Adapted from Joe Hand, FDER, personal communication, 1991 (data collected 1980-1989). ND = No data.

Appendix 7

Additional physical, chemical, toxicological and microbiological results



06/20/2003 11:08 8137446457 PHOS MANGM PAGE 02/03

DEP-SOP-001/01: Form FD 9000-7 (June 1, 2001)

Field Parameter Data Sheet for Surface Water

SURVEY/PROJECT: USAC Basins FY13 SAMPLERS: Brian Leech METER #

STATION NUMBER	STATION DESCRIPTION	PARAMETER	DATE	TIME	TOTAL DEPTH	SAMPLE DEPTH	WATER TEMP	DO	%SAT DO	COND	SALINITY	PH	TURBIDITY
		UNIT	mm/dd/yy	hr:min	feet	feet	Celsius	mg/L	%	µS/cm	ppt	su	NTU
		STORET CODE	73072		81903	68	10	299	301	94	480	400	00078
R	Base Cr 1.5 mi below outfall 002		3/10/03	09:32	4	0.2	23.19	7.15	94.3	552	.27	6.36	8.51
MID				09:53	4	0.2	23.3	7.15	93.4	552	.27	6.38	8.76
L				09:53	2	0.2	23.39	7.16	94.4	552	.27	6.38	9.24
L	Outfall 002			(10:44)	6.5	3.25	23.31	6.62	78.7	641	.31	6.46	7.02
	Flow = 3.9 MGD			10:43	8.0	4.0	23.85	6.65	79.5	642	.31	6.44	7.38
MID				10:45	5.0	2.5	23.94	6.80	81.6	642	.31	6.45	7.10
R	Base Cr. upstream			(11:10)	1.0	0.5	25.32	10.38	127.2	524	0.25	7.21	12.0
L	Alpha 002 (85%)			11:11	1.0	0.5	25.44	10.39	126.9	524	0.25	7.23	11.4
MID				11:13	0.45	0.2	25.48	10.39	126.7	524	0.25	7.22	11.7
R													
	Outfall 002 (85%)		3/12/03	(10:10)	0.50	0.25	23.38	5.99	70.5	608	0.30	6.35	6.71
	Flow = 3.5 MGD				0.60	0.30	23.41	5.95	69.9	608	0.29	6.35	6.80
		RIGHT			.70	.35	23.41	6.11	73.1	609	0.29	6.35	5.90
	Outfall 002 L		3/14/03	10:15	0.5	0.25	24.30	7.65	90.4	547	0.26	6.39	8.67
	Flow = 3.5 MGD			10:14	0.6	0.3	24.50	7.73	90.6	547	0.26	6.35	7.85
				10:17	0.7	0.35	24.96	7.90	92.4	547	0.26	6.33	8.87

FIELD CONDITIONS FOR STATION# _____ AT TIME _____ TIDAL STAGE: _____

CLOUD COVER (%): _____ WIND DIRECTION: _____

PREVIOUS RAINFALL: _____ WIND SPEED (MPH-KNOTS): _____ WAVE CONDITIONS: _____

Note: This Sheet is used for recording Sample Data – Calibration information must also be documented (see FT 1100, section 4)

DEP-SOP-001/01: Form FD 9000-7 (June 1, 2001)

Field Parameter Data Sheet for Surface Water

SURVEY/PROJECT: USAC BARROW FY03 SAMPLERS: BI JL METER # ____

STATION NUMBER	STATION DESCRIPTION	PARAMETER	DATE	TIME	TOTAL DEPTH	SAMPLE DEPTH	WATER TEMP	DO	%SAT DO	COND	SALINITY	PH	TURBIDITY
		UNIT	yy/mm/dd	hr:min	feet	feet	Celsius	mg/L	%	µS/cm	ppt	su	NTU
		STORET CODE	73672		61903	68	10	299	301	94	480	400	82078
	BLANK		3/10/03	12:00	—	—	25.05	7.82	99.5	83.00	0.00	7.45	—
	Down Gradient MW OF 001		3/12/03	9:46			22.97	7.48	87.9	549	0.26	6.34	
4 QA SAMPLES		R		9:48			22.97	7.26	85.2	548	0.26	6.33	
		L		9:49			22.97	7.36	85.9	549	0.27	6.33	
	Up Gradient OF 001	L		11:19	0.6	0.36	24.34	9.86	118.1	517	0.25	6.93	
		MS/MSD		11:20	0.8	0.4	24.34	9.87	118.2	516	0.25	6.91	
		R		11:21	0.4	0.2	24.36	9.79	117.1	516	0.25	6.92	
												—	—

FIELD CONDITIONS FOR STATION# ____ AT TIME ____:

CLOUD COVER (%): 90 WIND DIRECTION: SE TIDAL STAGE: —

PREVIOUS RAINFALL: ____ WIND SPEED (MPH/KNOTS): ____ WAVE CONDITIONS: —

Note: This Sheet is used for recording Sample Data – Calibration information must also be documented (see FT 1000, section 4)

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FL DEP SW District Chemistry Laboratory
3804 Coconut Palm Drive
Tampa, FL 33619
ph # 813-744-6100 DEP CompQAP # 880078

Project: USAC BARTOW Type: GYP Requested By: IRSCH

Site	Date	Time	Depth	Log	Samplers
ABOVE 001	03/12/03	1118		28415	IRSCH
OUTFALL 001	03/12/03	1010		28416	IRSCH
BELOW 001	03/12/03	0946		28417	IRSCH

Code	Parameter	Units	Site ID ABOVE 001	Site ID OUTFALL 001	Site ID BELOW 001
00029	Log Number	LOG	28415	28416	28417
31501	TOTAL COLIFORM	#/100ml	20K	560	740
31616	FECAL COLIFORM	#/100ml	20K	20K	60K

BUREAU OF
MINE RECLAMATION
MAR 17 2003
PHOSPHATE MANAGEMENT

A denotes mean, B counts unacceptable, J estimate, K less than
L greater than, OO data lost, P too numerous to count, Q out of
holding time, T value below detection limit, U not detected

Table 1. Data recorded during the chronic screening bioassays of a sample of effluent from US Agri-Chemicals Corporation, Bartow, Polk County, Florida, NPDES# FL0001961, performed from 11 to 18 March 2003.

Facility:	US Agri-Chemicals Corporation		NPDES #:	FL0001961	Facility Type:	Industrial	Analysts: Marshall Faircloth
Location:	Bartow		Contact/District:	Irsch/SW			Joshua Ayres
County:	Polk		Test type:	chronic renewal screen			James Daniels
Sample #1 Collection Date:	3/10/2003	Time: 1040	# tests:	2	Receiving Water:	Bear Branch	Jacquelyn Brynda
Sample #2 Collection Date:	3/12/2003	Time: 1010	Chlorination Type:	non-chlorinated		Class III Fresh	Christa Pierini
Sample #3 Collection Date:	3/14/2003	Time: 1015					
Test Beginning Date:	3/11/2003	Time: 1330				Page 1 of 3	
Test Ending Date:	3/18/2003	Time: 0900	FDEP SOP#:	TA07 05			Reviewer: Rob Buda

Organism: *Ceriodaphnia dubia* Life stage: <24 hrs [a]Feeding: YCT / Algae
Chamber size: 30mL Food Batch #: 1 / 11

Concentrations	Sample/Diluent Volume(mL)	# Young 0 hr	24 hr	48 hr	72 hr	96 hr	120 hr	144 hr	168 hr	Total
Control A	0/20	0	0	0	0	4	7	1	14	26
Control B	0/20	0	0	0	0	4	11	0	18	33
Control C	0/20	0	0	0	0	3	10	0	13	26
Control D	0/20	0	0	0	0	4	0	11	12	27
Control E	0/20	0	0	0	0	4	8	2	17	31
Control F	0/20	0	0	0	0	3	10	0	14	27
Control G	0/20	0	0	0	0	5	8	0	17	30
Control H	0/20	0	0	0	0	4	8	0	13	25
Control I	0/20	0	0	0	0	3	9	0	11	23
Control J	0/20	0	0	0	0	3	9	0	10	12
100% A	20/0	0	0	0	0	5	13	0	15	33
100% B	20/0	0	0	0	0	3	8	10	0	21
100% C	20/0	0	0	0	0	3	10	0	17	30
100% D	20/0	0	0	0	0	3	13	0	16	32
100% E	20/0	0	0	0	0	4	10	0	16	30
100% F	20/0	0	0	0	0	2	8	14	0	24
100% G	20/0	0	0	0	1	4	9	0	16	30
100% H	20/0	0	0	0	0	4	9	0	17	30
100% I	20/0	0	0	0	0	1	8	14	0	23
100% J	20/0	0	0	0	0	3	8	8	0	19

Total Young	Young	Young per Adult
Control	260	26.0
100%	272	27.2

[a] Temperatures of room and test incubator were continuously recorded on a strip chart recorder.
Room Temperature range for the test period was 25.0-27.0°C.
Incubator #3 temperature range for the test period was 23.0-27.0°C.
[b] Organisms were fed daily.
Light Intensity during the test was 50-100 foot candles.
Photoperiod during the test was 16 hours of light : 8 hours of dark.

LIMS	
Job number 1:	TLH-2003-03-11-26
sample number 1:	658224
Job number 2:	TLH-2003-03-13-03
sample number 2:	659276
Job number 3:	TLH-2003-03-17-11
sample number 3:	660150

Data Transcription Verification	
date:	6/24/2003
by:	Cathy Oaks
	Brad Richardson

Total Residual CL2 [c]	mg/L	Method
Field:	-	-
Lab Sample 1:	<0.03	Hach
Lab Sample 2:	0.04	Hach
Lab Sample 3:	<0.03	Hach

Ammonia	Total (mg/L)	Unionized (mg/L)
Control water :	<0.017	<0.017
100% Sample 1:	4.31	0.024
100% Sample 2:	4.52	0.024
100% Sample 3:	5.44	0.018

Alk & Hardness	Alkalinity (mg/L)	Hardness (mg/L)
Control water:	71	81
100% Sample 1:	28	174
100% Sample 2:	34	182
100% Sample 3:	22	190

Ceriodaphnia dubia			After Renewal "new sample"			Conductivity Uncorrected	Before Renewal "old sample"	
Concentrations	Surrogate	Hour	pH	Temperature	Dissolved Oxygen	umhos/cm	pH	Dissolved Oxygen
Control	A	0	8.0	25.3	7.5	170	-	-
100%			6.9	25.4	7.0	565	-	-
Control	B	24	8.1	25.8	7.4	191	8.0	7.4
100%			6.9	24.9	7.9	525	7.1	6.9
Control	C	48	8.2	25.8	7.3	-	8.0	7.6
100%			6.9	25.4	7.6	-	7.2	7.6
Control	D	72	8.2	25.4	7.3	180	7.9	6.8
100%			6.8	25.3	7.3	505	7.1	7.0
Control	E	96	8.1	26.1	7.4	160	8.0	7.5
100%			6.7	26.0	7.4	477	7.1	7.4
Control	F	120	8.3	24.7	7.8	175	8.0	7.7
100%			6.8	24.6	6.9	590	7.1	7.7
Control	G	144	8.3	25.2	7.3	215	8.0	7.4
100%			6.8	25.1	7.1	690	7.1	7.3
Control	H	168	-	-	-	-	7.9	7.3
100%			-	-	-	-	7.1	6.8

Continued

Table 1. Data recorded during the chronic screening bioassays of a sample of effluent from US Agri-Chemicals Corporation, Bartow, Polk County, Florida, NPDES# FL0001961, performed from 11 to 18 March 2003.

Facility:	US Agri-Chemicals Corporation		NPDES #:	FL0001961	Facility Type:	Industrial	Analysts:	Marshall Faircloth
Location:	Bartow		Contact/District:	Irsch/SW				Joshua Ayres
County:	Polk		Test type:	chronic renewal screen				James Daniels
Sample #1 Collection Date:	3/10/2003	Time: 1040	# tests:	2	Receiving Water:	Bear Branch		Jacquelyn Brynda
Sample #2 Collection Date:	3/12/2003	Time: 1010	Chlorination Type:	non-chlorinated		Class III Fresh		Christa Pierini
Sample #3 Collection Date:	3/14/2003	Time: 1015						
Test Beginning Date:	3/11/2003	Time: 1330				Page 2 of 3		
Test Ending Date:	3/18/2003	Time: 1330	FDEP SOP#:	TA07 09			Reviewer:	Rob Buda

Organism: ***Pimephales promelas*** Life stage: 24 hours [A]Feeding: Artemia
Chamber size: 1 L Food Batch #: 01940425G

	Sample/Diluent	Survival # Alive							
Concentration	Volume(mL)	0 hr	24 hr	48 hr	72 hr	96 hr	120 hr	144 hr	168 hr
Control A	0/500	10	10	10	10	10	10	10	10
Control B	0/500	10	10	10	10	10	10	10	10
Control C	0/500	10	10	10	10	10	10	10	10
Control D	0/500	10	10	10	10	10	10	10	9
100% A	500/0	10	10	10	10	10	10	9	7
100% B	500/0	10	10	10	10	10	9	9	9
100% C	500/0	10	10	10	10	10	10	10	10
100% D	500/0	10	10	10	9	9	9	9	9

[A] Organisms were fed daily.

[B] Temperatures of room and test incubator were continuously recorded on a strip chart recorder.
Room Temperature range for the test period was 25.0-27.0°C.
Incubator #3 temperature range for the test period was 23.0-27.0°C.

Light Intensity during the test was 50-100 foot candles.
Photoperiod during the test was 16 hours of light : 8 hours of dark.

			Before Renewal			Conductivity Uncorrected	After Renewal			Conductivity Uncorrected
Concentrations	Replicate	Hour	pH	Temperature[B]	Dissolved Oxygen	umhos/cm	pH	Temperature[B]	Dissolved Oxygen	umhos/cm
Control	A	0	8.0	25.8	7.6	315	-	-	-	-
100%			6.9	25.6	7.0	570	-	-	-	-
Control	B	24	7.4	24.9	7.1	346	7.0	25.6	7.2	321
100%			7.0	24.2	7.0	550	6.8	25.0	7.4	514
Control	C	48	7.7	24.5	7.0	338	7.9	25.8	7.4	347
100%			6.9	24.8	6.6	536	6.9	25.6	7.5	581
Control	D	72	7.6	24.4	6.1	315	7.9	25.9	7.2	325
100%			6.8	24.2	5.7	595	6.7	25.1	6.7	540
Control	A	96	7.6	24.3	6.7	310	7.9	25.8	7.1	295
100%			6.7	24.2	6.4	475	6.7	25.8	6.7	492
Control	B	120	7.7	24.8	6.0	315	7.8	24.8	6.6	290
100%			6.6	25.1	4.9	540	6.6	24.9	6.8	590
Control	C	144	7.3	24.9	5.0	310	7.8	25.8	7.2	280
100%			6.2	25.0	3.9	600	6.7	25.7	7.1	570
Control	D	168	7.4	26.0	6.0	300	-	-	-	-
100%			5.9	25.3	5.0	610	-	-	-	-

Continued

LIMS	
Job number 1:	TLH-2003-03-11-26
sample number 1:	658224
Job number 2:	TLH-2003-03-13-03
sample number 2:	659276
Job number 3:	TLH-2003-03-17-11
sample number 3:	660150

Data Transcription Verification	
date:	6/24/2003
by:	Cathy Oaks
	Brad Richardson

Total Residual Cl2	mg/L	Method
Field:	-	-
Lab Sample 1:	<0.03	Hach
Lab Sample 2:	0.04	Hach
Lab Sample 3:	<0.03	Hach

Ammonia	Total (mg/L)	Unionized (mg/L)
Control water :	<0.017	<0.017
100% Sample 1:	4.31	0.024
100% Sample 2:	4.52	0.024
100% Sample 3:	5.44	0.018

Alk & Hardness	Alkalinity (mg/L)	Hardness (mg/L)
Control water:	79	98
100% Sample 1:	28	174
100% Sample 2:	34	182
100% Sample 3:	22	190

Salinity [C]	ppt
100% sample:	<1
Control:	<1

[C] Salinity based on conductivity and temperature.

Table 1. Data recorded during the chronic screening bioassays of a sample of effluent from US Agri-Chemicals Corporation, Bartow, Polk County, Florida, NPDES# FL0001961, performed from 11 to 18 March 2003.
Concluded

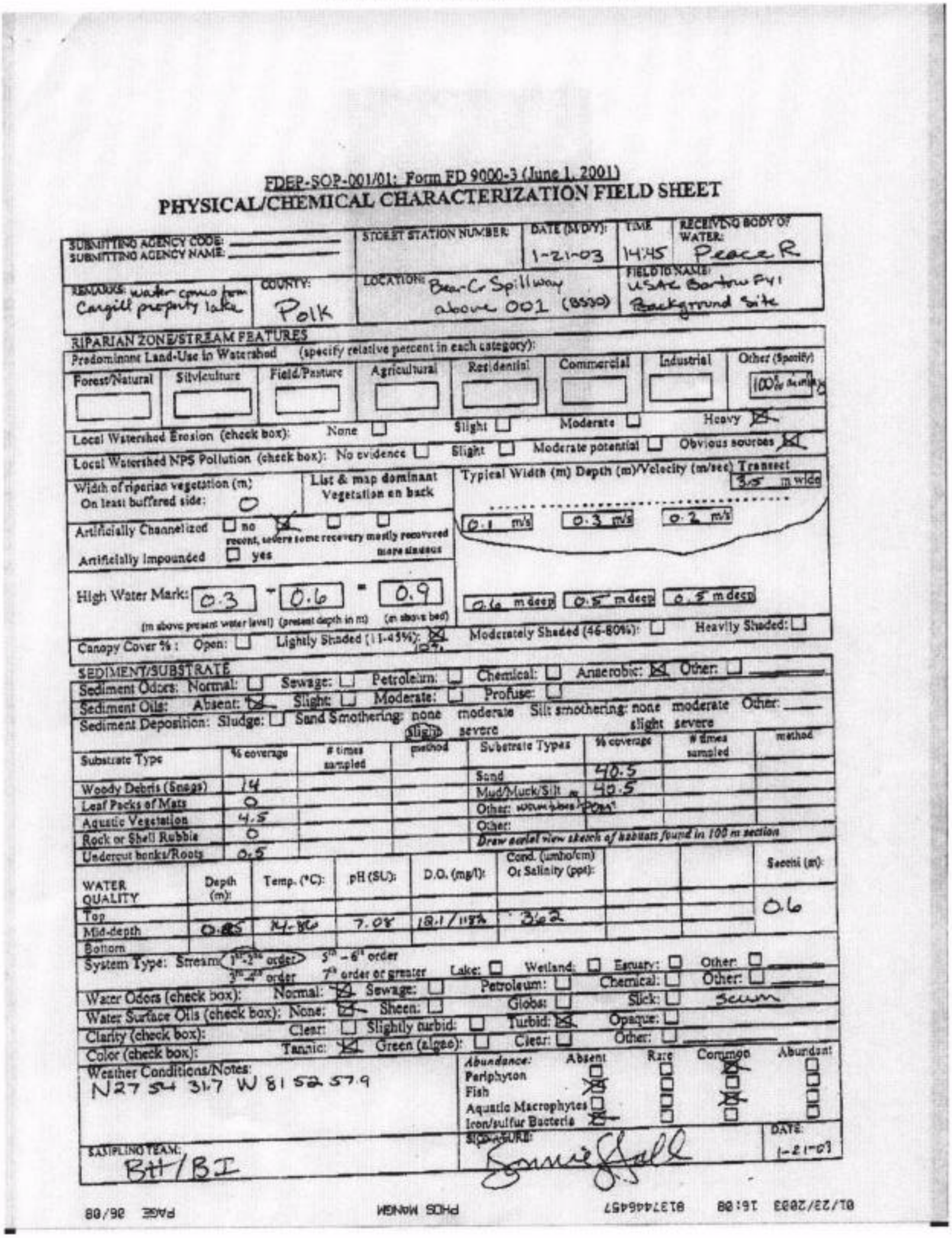
Facility:	**US Agri-Chemicals Corporation**		**NPDES #:**	**FL0001961**	**Facility Type:**	**Industrial**	**Analysts: Marshall Faircloth**
Location:	**Bartow**		**Contact/District:**	**Irsch/SW**			**Joshua Ayres**
County:	**Polk**		**Test type:**	**chronic renewal screen**			**James Daniels**
Sample #1 Collection Date:	**3/10/2003**	**Time: 1040**	**# tests:**	**2**	**Receiving Water:**	**Bear Branch**	**Jacquelyn Brynda**
Sample #2 Collection Date:	**3/12/2003**	**Time: 1010**	**Chlorination Type:**	**non-chlorinated**		**Class III Fresh**	**Christa Pierini**
Sample #3 Collection Date:	**3/14/2003**	**Time: 1015**					
Test Beginning Date:	**3/11/2003**	**Time: 1350**				**Page 3 of 3**	
Test Ending Date:	**3/18/2003**	**Time: 1330**	**FDEP SOP#:**	**TA07_09**			**Reviewer: Rob Buda**
Tare weighing Date:	**3/18/03**						
Final weighing Date:	**3/20/03**						

		A	B	B-A	C	(B-A)/10[A]
Concentration	Rep #	Wgt.of Pan (g)	Dry Wgt. of Pan and larve	Total Dry Wgt. of larve (g)	Number of surviving larve	Mean Dry Wgt. Of 10 larve/rep. (mg)
Control A	1	0.01720	0.02262	0.00542	10	0.542
Control B	2	0.01789	0.02247	0.00458	10	0.458
Control C	3	0.01689	0.02152	0.00463	10	0.463
Control D	4	0.01689	0.02047	0.00358	9	0.358
100% A	5	0.01694	0.02034	0.0034	7	0.340
100% B	6	0.01767	0.02148	0.00381	9	0.381
100% C	7	0.01744	0.02246	0.00502	10	0.502
100% D	8	0.01725	0.02165	0.00440	9	0.440

[A] Mean dry weight is determined by dividing the total dry weight per replicate by the number of larve originally loaded in that replicate.

Appendix 8

Habitat Assessment Field Sheets



FDEP-SOP-001/01: Form FD 9000-3 (June 1, 2001)

PHYSICAL/CHEMICAL CHARACTERIZATION FIELD SHEET

SUBMITTING AGENCY CODE: / SUBMITTING AGENCY NAME:	STORET STATION NUMBER:	DATE (M/D/Y): 1-21-03	TIME: 14:45	RECEIVING BODY OF WATER: Peace R.
REMARKS: water comes from Cargill property lake	COUNTY: Polk	LOCATION: Bear Cr Spillway above 001 (8330)		FIELD ID NAME: USAC Bartow FY1 Background site

RIPARIAN ZONE/STREAM FEATURES

Predominant Land-Use in Watershed (specify relative percent in each category):

Forest/Natural	Silviculture	Field/Pasture	Agricultural	Residential	Commercial	Industrial	Other (Specify)
							100% [illegible]

Local Watershed Erosion (check box): None ☐ Slight ☐ Moderate ☐ Heavy ☒

Local Watershed NPS Pollution (check box): No evidence ☐ Slight ☐ Moderate potential ☐ Obvious sources ☒

Width of riparian vegetation (m); On least buffered side: 0

List & map dominant Vegetation on back

Typical Width (m) Depth (m)/Velocity (m/sec) Transect: 3.5 m wide

0.1 m/s | 0.3 m/s | 0.2 m/s

0.6 m deep | 0.5 m deep | 0.5 m deep

Artificially Channelized ☐ no ☒ recent, severe ☐ some recovery ☐ mostly recovered ☐ more distance

Artificially Impounded ☐ yes

High Water Mark: 0.3 (m above present water level) - 0.6 (present depth in m) = 0.9 (m above bed)

Canopy Cover %: Open: ☐ Lightly Shaded (11-45%): ☒ 15% Moderately Shaded (46-80%): ☐ Heavily Shaded: ☐

SEDIMENT/SUBSTRATE

Sediment Odors: Normal: ☐ Sewage: ☐ Petroleum: ☐ Chemical: ☐ Anaerobic: ☒ Other: ☐

Sediment Oils: Absent: ☒ Slight: ☐ Moderate: ☐ Profuse: ☐

Sediment Deposition: Sludge: ☐ Sand Smothering: none moderate (slight) severe Silt smothering: none moderate slight severe Other:

Substrate Type	% coverage	# times sampled	method	Substrate Types	% coverage	# times sampled	method
Woody Debris (Snags)	14			Sand	40.5		
Leaf Packs of Mats	0			Mud/Muck/Silt	40.5		
Aquatic Vegetation	4.5			Other: [illegible]			
Rock or Shell Rubble	0			Other:			
Undercut banks/Roots	0.5			*Draw aerial view sketch of habitats found in 100 m section*			

WATER QUALITY	Depth (m):	Temp. (°C):	pH (SU):	D.O. (mg/l):	Cond. (umho/cm) Or Salinity (ppt):			Secchi (m):
Top								0.6
Mid-depth	0.85	14.86	7.08	10.1 / 118%	362			
Bottom								

System Type: Stream (1st-2nd order) 3rd-4th order 5th-6th order 7th order or greater Lake: ☐ Wetland: ☐ Estuary: ☐ Other: ☐

Water Odors (check box): Normal: ☒ Sewage: ☐ Petroleum: ☐ Chemical: ☐ Other: ☐

Water Surface Oils (check box): None: ☒ Sheen: ☐ Globs: ☐ Slick: ☐ Scum

Clarity (check box): Clear: ☐ Slightly turbid: ☐ Turbid: ☒ Opaque: ☐

Color (check box): Tannic: ☒ Green (algae): ☐ Clear: ☐ Other: ☐

Weather Conditions/Notes: N27 54 31.7 W81 52 57.9

Abundance:	Absent	Rare	Common	Abundant
Periphyton	☐	☐	☒	☐
Fish	☒	☐	☐	☐
Aquatic Macrophytes	☐	☐	☒	☐
Iron/sulfur Bacteria	☒	☐	☐	☐

SAMPLING TEAM: BH/BI

SIGNATURE: [signature]

DATE: 1-21-03

FDEP-SOP-001/01: Form FD 9000-5 (June 1, 2001)

STREAM/RIVER HABITAT ASSESSMENT FIELD SHEET

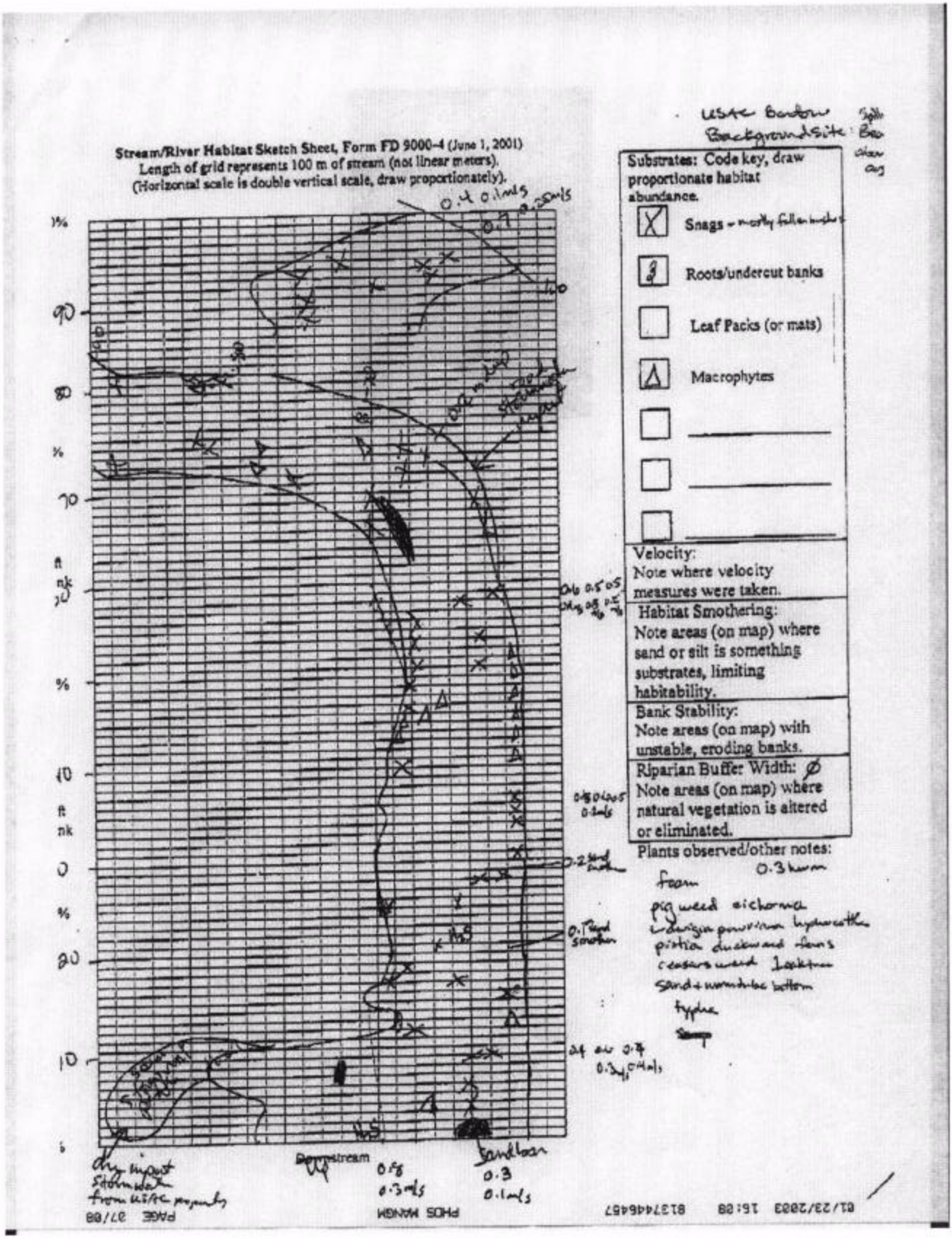
SUBMITTING AGENCY CODE: / SUBMITTING AGENCY NAME:	STORET STATION NUMBER:	DATE (MO/DY/YR): 1-21-03	RECEIVING BODY OF WATER: Peace R
REMARKS:	COUNTY: Polk	LOCATION: Bear Cr Spillway (SS30) above Rt 2	FIELD DESIGNATE: WBAC Southern Pol Background Site

Habitat Parameter	Optimal	Suboptimal	Marginal	Poor
Primary Habitat Components Substrate Diversity 10	Four or more productive habitats present (snags, tree roots/undercut banks, aquatic vegetation, leaf packs (partially decayed), rock). 20 19 18 17 16	Three productive habitats present. Adequate habitat. Some substrates may be new fall (fresh leaves or snags). 15 14 13 12 11	Two productive habitats present. Less than desirable habitat, frequently disturbed or removed. 10 9 8 7 6	One or less productive habitat. Lack of habitat is obvious, substrates unstable or smothered. 5 4 3 2 1
Substrate Availability 8.	Greater than 30% productive habitat present at site. 20 19 18 17 16	16% to 30% productive habitat, by aerial extent. 15 14 13 12 11	6% to 15% productive habitat 10 9 8 7 6	Less than 5% productive habitat. 5 4 3 2 1
Water Velocity 16	Max. observed at typical transect: > 0.25 m/sec. But < 1 m/sec 20 19 18 17 16	Max. observed at typical transect: 0.1 to 0.25 m/sec 15 14 13 12 11	Max. observed at typical transect: 0.05 to 0.1 m/sec 10 9 8 7 6	Max. observed at typical transect: <0.05 m/sec. Or spate occurring: > 1 m/sec 5 4 3 2 1
Habitat: Smothering 12 Primary Score (45)	Less than 20% of habitats affected by sand or silt accumulation 20 19 18 17 16	20%-50% of habitats affected by sand or silt accumulation 15 14 13 12 (11)	Smothering of 50%-80% of the habitats with sand or silt, pools shallow, frequent sediment movement 10 9 8 7 6	Smothering of >80% of habitats with sand or silt, as severe problem, pools absent 5 4 3 2 1
Secondary Habitat Components Artificial Channelization 2	No artificial channelization or dredging. Stream with normal, sinuous pattern 20 19 18 17 16	Many have been channelized in the past (>20 yrs), but mostly recovered, fairly good sinuous pattern 15 14 13 12 11	Channelized, somewhat recovered, but > 80% of area affected 10 9 8 7 6	Artificially channelized, box-cut banks, straight, instream habitat highly altered 5 4 3 2 1
Bank Stability Right Bank 8 Left Bank 8	Stable. No evidence of erosion or bank failure. Little potential for future problems. 10 9	Moderately stable. Infrequent or small areas of erosion, mostly healed over. 8 7 6	Moderately unstable. Moderate areas of erosion, high erosion potential during floods. 5 4	Unstable. Many (60%-80%) raw, eroded areas. Obvious bank sloughing. 3 2 1
Riparian Buffer Zone Width Right Bank 2 Left Bank 1	Width of native vegetation (least buffered side) greater than 18 m 10 9	Width of native vegetation (least buffered side) 12m to 18 m 8 7 6	Width of native vegetation 6 to 12 m, human activities still close to system 5 4	Less than 6 m of native buffer zone due to intensive human activities (3 2 1)
Riparian Zone Vegetation Quality Right Bank 3 Left Bank 2 Secondary Score 26	Over 80% of riparian surfaces consist of native plants, including trees, understory shrubs, or non-woody macrophytes. Normal, expected plant community for given sunlight & habitat conditions. 10 9	50% to 80% of riparian zone is vegetated, and/or one class of plants normally expected for the sunlight & habitat conditions is not represented. Some disruption in community evident. 8 7 6	25% to 50% of riparian ozone is vegetated, and/or one or two expected classes of plants are not represented. Patches of bare soil or closely cropped vegetation, disruption obvious. 5 4	Less than 25% of streambank surfaces are vegetated and/or poor plant community (e.g. grass monoculture or exotics) present. Vegetation removed to stubble height of 2 inches or less. 3 2 1

(71) TOTAL SCORE

ANALYSIS DATE: 1-21-03	ANALYST: B Hill	SIGNATURE:

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USAC Bankow
Background site
Stream/River Habitat Sketch Sheet, Form FD 9000-4 (June 1, 2001)
Length of grid represents 100 m of stream (not linear meters).
(Horizontal scale is double vertical scale, draw proportionately).
Substrates: Code key, draw proportionate habitat abundance.
Snags – mostly fallen trunks
Roots/undercut banks
Leaf Packs (or mats)
Macrophytes
Velocity:
Note where velocity measures were taken.
Habitat Smothering:
Note areas (on map) where sand or silt is something substrates, limiting habitability.
Bank Stability:
Note areas (on map) with unstable, eroding banks.
Riparian Buffer Width:
Note areas (on map) where natural vegetation is altered or eliminated.
Plants observed/other notes:
foam
pig weed eichornia
Ludwigia peruviana hydrocotyle
pistia duckweed ferns
cesars weed Ludwigia
Sand + woody debris bottom
typha
Downstream
Sandbar
0.3
0.1 m/s
PHOS MANGM
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N 27 54 30.2
W 81 52 26.8

FDEP-SOP-001/01: Form FD 9000-3 (June 1, 2001)

PHYSICAL/CHEMICAL CHARACTERIZATION FIELD SHEET

SUBMITTING AGENCY CODE: / SUBMITTING AGENCY NAME:	STORET STATION NUMBER:	DATE (M/D/Y): 1/21/03	TIME: 12:45	RECEIVING BODY OF WATER: Peace R.
REMARKS: almost NO riparian 8.8 MGD	COUNTY: Polk	LOCATION: Bear Creek tailwood	FIELD ID/NAME: USAC Bartow FGI Test Site	

RIPARIAN ZONE/STREAM FEATURES

Predominant Land-Use in Watershed (specify relative percent in each category):

Forest/Natural	Silviculture	Field/Pasture	Agricultural	Residential	Commercial	Industrial	Other (Specify)
							100% mining

Local Watershed Erosion (check box): None ☐ Slight ☐ Moderate ☒ Heavy ☐

Local Watershed NPS Pollution (check box): No evidence ☐ Slight ☐ Moderate potential ☐ Obvious sources ☒

Width of riparian vegetation (m) On least buffered side: 0

List & map dominant Vegetation on back

Artificially Channelized ☐ no ☒ recent, severe ☐ some recovery ☐ mostly recovered, more sinuous

Artificially Impounded ☒ yes

Typical Width (m) Depth (m)/Velocity (m/sec) Transect: 3.5 m wide

0.3 m/s 0.4 m/s 0.2 m/s

0.3 m deep 0.4 m deep 0.1 m deep

High Water Mark: 0.4 + 0.4 = 0.8
(m above present water level) (present depth in m) (m above bed)

Canopy Cover %: Open: ☐ Lightly Shaded (11-45%): ☒ 20% Moderately Shaded (46-80%): ☐ Heavily Shaded: ☐

SEDIMENT/SUBSTRATE

Sediment Odors: Normal: ☒ Sewage: ☐ Petroleum: ☐ Chemical: ☐ Anaerobic: ☐ Other: ☐

Sediment Oils: Absent: ☒ Slight: ☐ Moderate: ☐ Profuse: ☐

Sediment Deposition: Sludge: ☐ Sand Smothering: none moderate slight severe Silt smothering: none moderate slight severe Other:

Substrate Type	% coverage	# times sampled	method	Substrate Types	% coverage	# times sampled	method
* Woody Debris (Snags)	9			Sand *	78		
Leaf Packs or Mats	0			Mud/Muck/Silt			
* Aquatic Vegetation	1.5			Other:			
* Rock or Shell Rubble	10.5			Other:			
Undercut banks/Roots	1			Draw aerial view sketch of habitats found in 100 m section			

WATER QUALITY	Depth (m):	Temp. (°C):	pH (SU):	D.O. (mg/l):	Cond. (umho/cm) Or Salinity (ppt):			Secchi (m):
Top								
Mid-depth	0.25	14.26	6.69	9.99/98%	453			0.4L
Bottom								

System Type: Stream: (1st-2nd order) 3rd-4th order 5th-6th order 7th order or greater Lake: ☐ Wetland: ☐ Estuary: ☐ Other: ☐

Water Odors (check box): Normal: ☒ Sewage: ☐ Petroleum: ☐ Chemical: ☐ Other: ☐

Water Surface Oils (check box): None: ☒ Sheen: ☐ Globs: ☐ Slick: ☐ Trace-Slight

Clarity (check box): Clear: ☐ Slightly turbid: ☒ Turbid: ☐ Opaque: ☐

Color (check box): Tannic: ☒ Green (algae): ☐ Clear: ☐ Other: ☐

Weather Conditions/Notes:
below Cargill mine discharge
USAC is treating + discharging today
samples taken today

Abundance:	Absent	Rare	Common	Abundant
Periphyton	☐	☐	☒	☐
Fish	☐	☐	☒	☐
Aquatic Macrophytes	☐	☐	☒	☐
Iron/sulfur Bacteria	☒	☐	☐	☐

SAMPLING TEAM: BH

SIGNATURE: Bonnie Hall

DATE: 1/21/03

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FDEP-SOP-001/01: Form FD 9000-5 (June 1, 2001)

STREAM/RIVER HABITAT ASSESSMENT FIELD SHEET

SUBMITTING AGENCY CODE: / SUBMITTING AGENCY NAME:	STORET STATION NUMBER:	DATE (M/D/Y): 1/21/03	RECEIVING BODY OF WATER: Peace R

REMARKS:	COUNTY: Polk	LOCATION: Bear Creek below 002	FIELD ID NAME: BY1 USA. Below Test Site

Habitat Parameter	Optimal	Suboptimal	Marginal	Poor
Primary Habitat Components Substrate Diversity 13	Four or more productive habitats present (snags, tree roots/undercut banks, aquatic vegetation, leaf packs (partially decayed), rock). 20 19 18 17 16	Three productive habitats present. Adequate habitat. Some substrates may be new fall (fresh leaves or snags). 15 14 (13) 12 ~~11~~	Two productive habitats present. Less than desirable habitat, frequently disturbed or removed. 10 9 ~~8~~ 7 6	One or less productive habitat. Lack of habitat is obvious, substrates unstable or smothered. 5 4 3 2 1
Substrate Availability 12	Greater than 50% productive habitat present at site. 20 19 18 17 16	16% to 50% productive habitat, by aerial extent. 15 14 (13) 12 11	6% to 15% productive habitat 10 9 8 7 6	Less than 5% productive habitat. 5 4 3 2 1
Water Velocity 19	Max. observed at typical transect: > 0.25 m/sec. But < 1 m/sec 0.7 m/s 20 19 18 17 16	Max. observed at typical transect: 0.1 to 0.25 m/sec 15 14 13 12 11	Max. observed at typical transect: 0.05 to 0.1 m/sec 10 9 8 7 6	Max. observed at typical transect: <0.05 m/sec. Or zone occurring: > 1 m/sec 5 4 3 2 1
Habitat Smothering 17	Less than 20% of habitats affected by sand or silt accumulation 20 19 18 17 16	20%-50% of habitats affected by sand or silt accumulation 15 14 13 12 11	Smothering of 50%-80% of the habitats with sand or silt, pools shallow, frequent sediment movement 10 9 8 7 6	Smothering of >80% of habitats with sand or silt, as severe problem, pools absent 5 4 3 2 1
Primary Score 61				
Secondary Habitat Components Artificial Channelization 4	No artificial channelization or dredging. Stream with normal, sinuous pattern 20 19 18 17 16	May have been channelized in the past (>20 yrs), but mostly recovered, fairly good sinuous pattern 15 14 13 12 11	Channelized, somewhat recovered, but > 80% of area affected 10 9 8 7 6	Artificially channelized, box-cut banks, straight. Instream habitat highly altered 5 4 3 2 1
Bank Stability Right Bank 10 Left Bank 10	Stable. No evidence of erosion or bank failure. Little potential for future problems. 10 9	Moderately stable. Infrequent or small areas of erosion, mostly healed over. 8 7 6	Moderately unstable. Moderate areas of erosion, high erosion potential during floods. 5 4	Unstable. Many (60%-80%) raw, eroded areas. Obvious bank sloughing 3 2 1
Riparian Buffer Zone Width Right Bank 2 Left Bank 2	Width of native vegetation (least buffered side) greater than 18 m 10 9	Width of native vegetation (least buffered side) 12m to 18 m 8 7 6	Width of native vegetation 6 to 12 m, human activities still close to system 5 4	Less than 6 m of native buffer zone due to intensive human activities 3 2 1
Riparian Zone Vegetation Quality Right Bank 4 Left Bank 3	Over 80% of riparian surfaces consist of native plants, including trees, understory shrubs, or non-woody macrophytes. Normal, expected plant community for given sunlight & habitat conditions. 10 9	50% to 80% of riparian zone is vegetated, and/or one class of plants normally expected for the sunlight & habitat conditions is not represented. Some disruption in community evident. 8 7 5	25% to 50% of riparian ozone is vegetated, and/or one or two expected classes of plants are not represented. Patches of bare soil or closely cropped vegetation, disruption obvious. 5 4	Less than 25% of streambank surfaces are vegetated and/or poor plant community (e.g. grass monoculture or exotics) present. Vegetation removed to stubble height of 2 inches or less. 3 2 1
Secondary Score 35				
TOTAL SCORE 96				

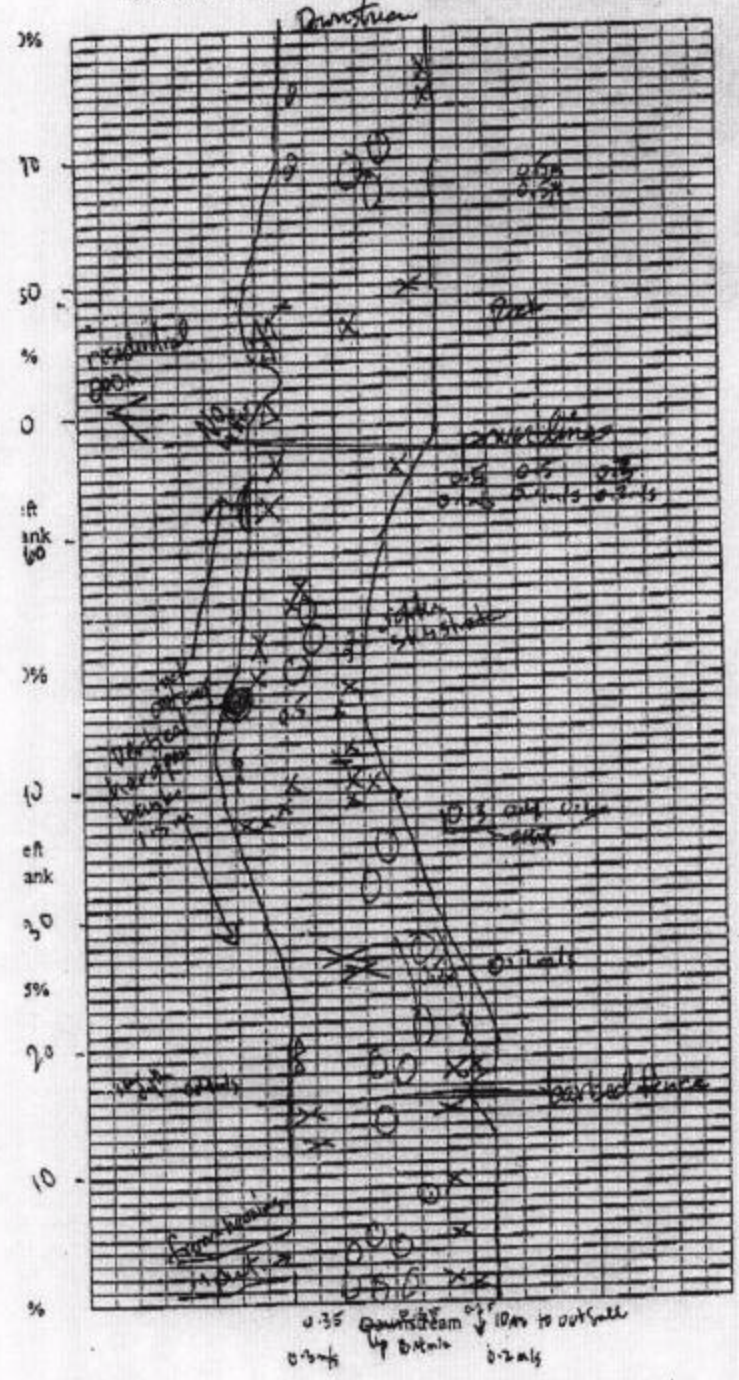
ANALYSIS DATE: 1-21-03	ANALYST: B Hall	SIGNATURE: B Hall

10-15% Wood Smoke

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USAC Bamboo Test Site
10 m below 001 Bear Cr 4/21/03

Stream/River Habitat Sketch Sheet, Form FD 9000-4 (June 1, 2001)
Length of grid represents 100 m of stream (not linear meters).
(Horizontal scale is double vertical scale, draw proportionately).



Substrates: Code key, draw proportionate habitat abundance.

- [X] Snags
- [R] Roots/undercut banks
- [ ] Leaf Packs (or mats)
- [A] Macrophytes
- [O] rock >2.5" dia some marine sandstone
- [ ] _____
- [ ] _____

Velocity:
Note where velocity measures were taken.

Habitat Smothering:
Note areas (on map) where sand or silt is something substrates, limiting habitability.

Bank Stability:
Note areas (on map) with unstable, eroding banks.

Riparian Buffer Width:
Note areas (on map) where natural vegetation is altered or eliminated.

Plants observed/other notes:
foam, secchi 0.3L, 0.4L, 0.4L, hard sand bottom periphyton mats dead catfish turbid 30% algae commelinagrass jeptericjbasto myrica juncus ludwigia peruviana palm hydrocotle vines lantana 70° Fair/clear

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Appendix 9a

Taxa list and density (number/mL) for phytoplankton collected from the effluent and upstream and downstream of US Agri-Chemicals, Inc.- Bartow plant discharge, March 10, 2003.

	Outfall 001 Effluent	Test Site	Control Site
Bacillariophyta			
Achnanthes exigua	-	38	140
Achnanthes hungarica	112	75	140
Aulacoseira sp.	112	38	140
Brachysira sp.	-	38	-
Cocconeis placentula	112	38	140
Cyclotella sp.	1,785	527	6,863
Cyclotella meneghiniana	1,004	489	700
Cyclotella pseudostelligera	112	-	-
Cyclotella striata	-	-	420
Diadesmis sp.	-	-	140
Encyonema evergladianum	112	-	140
Eunotia sp.	-	75	140
Fragilaria delicatissima	-	-	140
Fragilariaceae	112	-	-
Gomphonema sp.	112	-	-
Gomphonema parvulum	112	75	140
Hippodonta sp.	-	-	140
Hippodonta hungarica	-	-	140
Navicula sp.	-	-	140
Navicula clementis	-	-	140
Navicula minima	112	38	-
Naviculaceae	-	113	-
Nitzschia sp.	781	113	980
Nitzschia amphibia	-	38	280
Nitzschia frustulum	-	-	140
Nitzschia nana	-	38	-
Nitzschia palea	-	-	140
Pinnularia sp.	112	75	140
Chlorophycota			
Actinastrum sp.	335	75	560
Ankistrodesmus falcatus	-	263	420
Chlamydomonas sp.	1,227	150	1,261
Chlorella sp.	2,901	1,053	3,222
Chlorococcum sp.	112	113	420
Chlorogonium sp.	-	-	420
Chlorophyceae	446	75	280
Coccomonas sp.	223	301	560
Coelastrum sp.	-	75	-
Coelastrum microporum	112	-	-
Crucigenia crucifera	335	113	140
Crucigenia tetrapedia	558	113	-
Dictyosphaerium sp.	-	38	420
Dictyosphaerium pulchellum	669	-	-
Kirchneriella lunaris	112	-	280
Micractinium sp.	335	38	420
Nannochloris sp.	1,897	75	2,661
Oocystis sp.	223	-	-
Planktosphaeria gelatinosa	335	38	840
Scenedesmus sp.	2,232	489	1,401
Scenedesmus acuminatus	223	-	140
Scenedesmus bicaudatus	223	150	140
Scenedesmus bijuga	-	75	140
Scenedesmus dimorphus	-	75	-
Scenedesmus quadricauda	893	339	560
Schroederia setigera	223	113	280
Selenastrum sp.	3,236	1,693	4,202
Tetraedron minimum	-	-	140
Tetrastrum heteracanthum	112	-	140
Tetrastrum staurogeniaeforme	112	-	-

(Appendix 9a continued)

	Outfall 001 Effluent	Test Site	Control Site
Chrysophyta			
Mallomonas sp.	-	-	140
Cyanophycota			
Anabaena sp.	335	113	420
Aphanocapsa sp.	112	38	140
Chroococcaceae	335	150	280
Chroococcus minutus	223	75	280
Cyanobium parvum	3,571	1,241	3,362
Cyanobium plancticum	2,566	715	1,821
Lyngbya sp.	-	-	280
Merismopedia minima	112	38	280
Merismopedia tenuissima	669	188	980
Microcystis sp.	446	113	140
Myxosarcina amethystina	-	38	-
Oscillatoria sp.	893	376	2,521
Oscillatoria agardhii	223	113	140
Rhabdogloea sp.	1,004	301	840
Euglenophycota			
Lepocinclis sp.	112	-	-
Strombomonas urceolata	558	451	980
Trachelomonas sp.	112	38	-
Prasinophyta			
Spermatozoopsis sp.	112	-	-
Pyrrophycophyta			
Glenodinium sp.	112	113	140
Xanthophyta			
Centritractus belanophorus	223	38	140

Appendix 9b

Taxa list and number of individuals counted for phytoplankton collected from the effluent and upstream and downstream of US Agri-Chemicals, Inc.- Bartow plant discharge, March 10, 2003.

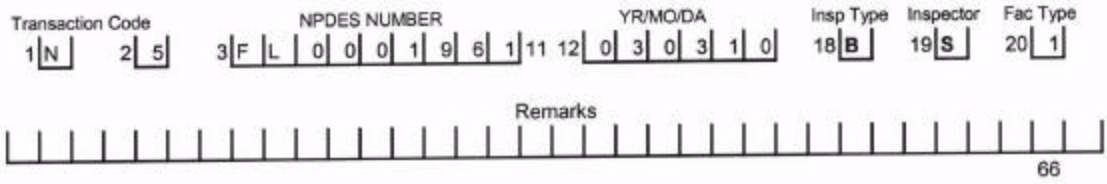
	Outfall 001 Effluent	Test Site	Control Site
Bacillariophyta			
Achnanthes exigua	-	1	1
Achnanthes hungarica	1	2	1
Aulacoseira sp.	1	1	1
Brachysira sp.	-	1	-
Cocconeis placentula	1	1	1
Cyclotella sp.	16	14	49
Cyclotella meneghiniana	9	13	5
Cyclotella pseudostelligera	1	-	-
Cyclotella striata	-	-	3
Diadesmis sp.	-	-	1
Encyonema evergladianum	1	-	1
Eunotia sp.	-	2	1
Fragilaria delicatissima	-	-	1
Fragilariaceae	1	-	-
Gomphonema sp.	1	-	-
Gomphonema parvulum	1	2	1
Hippodonta sp.	-	-	1
Hippodonta hungarica	-	-	1
Navicula sp.	-	-	1
Navicula clementis	-	-	1
Navicula minima	1	1	-
Naviculaceae	-	3	-
Nitzschia sp.	7	3	7
Nitzschia amphibia	-	1	2
Nitzschia frustulum	-	-	1
Nitzschia nana	-	1	-
Nitzschia palea	-	-	1
Pinnularia sp.	1	2	1
Chlorophycota			
Actinastrum sp.	3	2	4
Ankistrodesmus falcatus	-	7	3
Chlamydomonas sp.	11	4	9
Chlorella sp.	26	28	23
Chlorococcum sp.	1	3	3
Chlorogonium sp.	-	-	3
Chlorophyceae	4	2	2
Coccomonas sp.	2	8	4
Coelastrum sp.	-	2	-
Coelastrum microporum	1	-	-
Crucigenia crucifera	3	3	1
Crucigenia tetrapedia	5	3	-
Dictyosphaerium sp.	-	1	3
Dictyosphaerium pulchellum	6	-	-
Kirchneriella lunaris	1	-	2
Micractinium sp.	3	1	3
Nannochloris sp.	17	2	19
Oocystis sp.	2	-	-
Planktosphaeria gelatinosa	3	1	6
Scenedesmus sp.	20	13	10
Scenedesmus acuminatus	2	-	1
Scenedesmus bicaudatus	2	4	1
Scenedesmus bijuga	-	2	1
Scenedesmus dimorphus	-	2	-
Scenedesmus quadricauda	8	9	4
Schroederia setigera	2	3	2
Selenastrum sp.	29	45	30
Tetraedron minimum	-	-	1
Tetrastrum heteracanthum	1	-	1
Tetrastrum staurogeniaeforme	1	-	-

(Appendix 9b continued)

	Outfall 001 Effluent	Test Site	Control Site
Chrysophyta			
Mallomonas sp.	-	-	1
Cyanophycota			
Anabaena sp.	3	3	3
Aphanocapsa sp.	1	1	1
Chroococcaceae	3	4	2
Chroococcus minutus	2	2	2
Cyanobium parvum	32	33	24
Cyanobium plancticum	23	19	13
Lyngbya sp.	-	-	2
Merismopedia minima	1	1	2
Merismopedia tenuissima	6	5	7
Microcystis sp.	4	3	1
Myxosarcina amethystina	-	1	-
Oscillatoria sp.	8	10	18
Oscillatoria agardhii	2	3	1
Rhabdogloea sp.	9	8	6
Euglenophycota			
Lepocinclis sp.	1	-	-
Strombomonas urceolata	5	12	7
Trachelomonas sp.	1	1	-
Prasinophyta			
Spermatozoopsis sp.	1	-	-
Pyrrophycophyta			
Glenodinium sp.	1	3	1
Xanthophyta			
Centritractus belanophorus	2	1	1

The Bioassay of U.S. Agri-Chemicals Corporation- Bartow Chemical Plant effluent sampled on March 10, 2003, NPDES #FL0001961.

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



The Priority Pollutants Analysis for Bioassay of U.S. Agri-Chemicals Corporation-Bartow Chemical Plant effluent sampled on March 10, 2003, NPDES #FL0001961.

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

