

Biological Assessment of

City of Mulberry WWTP

Polk County

NPDES #FL0020338

Sampled March 17, 2003

November 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:	City of Mulberry WWTP
County:	Polk
NPDES Number:	FL0020338
Permit Expiration:	March 13, 2005

Toxics Sampling Inspection **(XSI)**

Date Sampled: March 17, 19 and 21, 2003

Results: Cadmium, copper, iron, lead and zinc were detected in the effluent at levels that complied with Class III Water Quality Criteria. Aluminum, cadmium, chromium, iron, lead, nickel and zinc were detected at the Test and/or Control Sites at levels that complied with Class III Water Quality Criteria. The herbicide atrazine was detected in the effluent in each of the three effluent samples. The highest level of atrazine (2.2 μg/L, 3/17/2003 sample) was below the level shown to have chronic toxic effects on algae (3.0 μg/L, blue-green algae, *Microcystis aeruginosa*) in the EPA ECOTOX database.

Compliance Biomonitoring Inspection **(CBI)**

Date Sampled: March 17, 2003

Results: The effluent sample was chronically toxic to the fish, *Pimephales promelas,* during the seven-day chronic screening bioassay, a violation of permit limits and a failure to meet Class III Water Quality Criteria (62-302.530 (62) F.A.C.). The effluent sample was not toxic to the water flea, *Ceriodaphnia dubia,* during the seven-day chronic screening bioassay.

Water Quality Inspection **(WQI)**

Date Sampled: March 17, 2003

Results: Fecal and total coliform bacteria were detected in the effluent and the receiving water at levels that did not exceed Class III Water Quality Criteria or the facility's permit limits. Unionized ammonia in the effluent (≥0.0251 mg/L) exceeded the Class III Water Quality Criteria (≤0.02 mg/L, 62-320.530 (3) F.A.C.) in all three effluent samples. The facility's effluent contributed to enrichment of several forms of nitrogen in the Alafia River downstream of the outfall.

Impact Bioassessment Inspection **(IBI)**

Date Sampled: March 17, 2003

Results: The Algal Growth Potential (AGP) results for both the Control Site and Test site samples were above the suggested problem threshold of 5 mg dry weight/L, with the Test Site AGP value twice that of the Control Site. AGP was elevated in the effluent sample, but 35% less biomass was produced than would be predicted based on nutrient analyses, suggesting potential growth inhibition. Biological assemblages were degraded at the Test Site relative to the Control Site. Shannon-Weaver diversity in quantitative macroinvertebrate samples was more than 25% lower at the Test Site compared to the Control Site, an exceedance of the Biological Integrity Criterion, (62-302.530 (11) F.A.C.). The facility's effluent appears responsible for the biological degradation observed at the Test Site compared to the Control Site.

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 City of Mulberry WWTP is located in Polk County, Florida (Appendix 1). This facility is a sequencing batch reactor, domestic wastewater treatment plant (see Facility Summary in Appendix 2). The effluent is discharged into the North Prong of the Alafia River, a Class III fresh water of the state. The design flow of the wastewater system is 0.75 million gallons per day (MGD) as an annual average daily flow. The actual mean flow during this survey was 0.387-0.537 MGD (J. Squitieri, FDEP Southwest District).

Surface Water Quality Criteria and facility permit limits are listed in Table 1. According to the facility's discharge monitoring reports, the plant has had numerous exceedances of monthly average and single sample permit limits for total nitrogen, total suspended solids, fecal coliform bacteria, residual chlorine, CBOD and pH (Appendix 2). The City of Mulberry entered into a Consent Order, OGC File Number 02-0508, on April 23, 2003 to resolve the exceedances of the permit limits detailed in the Facility Summary, Appendix 2. The order required the City to construct a headworks structure, implement a pretreatment program and enforce current City ordinances to regulate potential sources of pollutants that may pass through or otherwise interfere with the treatment process. The City was given an interim limit for the annual average Total Nitrogen of 4.0 mg/L, where the permit limit is 3.0 mg/L, through September 30, 2003.

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 (located approximately 6-7 meters upstream of the facility's discharge) and a test site (located approximately 6-7 meters downstream of the facility's discharge). Details of measurements and data interpretation are given in Appendix 3. Qualitative measures of benthic macroinvertebrate assemblages from dipnet samples were not collected for this inspection because of recent, heavy rains (per N.Cornwell, FDEP Southwest District). Three effluent samples were collected and analyzed as part of seven-day, chronic screening bioassays (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 FDEP quality assurance/quality control standards (see http://www.floridadep.org/labs/qa/index.htm).

The following were involved in this investigation: Andrea Grainger, Joseph Squitieri and Nahir Cornwell (FDEP Southwest 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. There was no evidence of blank contamination for any analyte. Cadmium, copper, iron, lead, and zinc were detected in the effluent at levels that complied with Class III Water Quality Criteria (FAC 62-302), but varied among the three effluent samples. Several of the metals were detected below the practical quantitation limit (PQL) (See Table 1).
- Ammonia concentration was elevated in each of the three effluent samples (2.7-5.2 mg/L). Unionized ammonia in the effluent (range 0.0251-0.038 mg/L) exceeded the Class III Water Quality Criteria (≤0.02 mg/L, 62-320.530 (3) F.A.C.) in all three effluent samples.
- The herbicide atrazine was detected in each of the three effluent samples. The highest level of atrazine (2.2 µg/L, 3/17/2003 sample) was just below the Lowest Observed Effect Concentration (LOEC, 3.0 µg/L) reported to have effects on population growth in algae (blue-green alga, *Microcystis aeruginosa*) in the EPA ECOTOX database (Bringmann and Kuhn 1978). Additional tests reported the No Observed Effect Concentration (NOEC) for three other algae as 3.0-3.7 µg/L with LOEC levels of 5.0-7.0 µg/L (Schaefer et al. 1994, Carrasco and Sabater 1997).
- Effluent conductivity (µmhos/cm), pH (Standard Units) and dissolved oxygen (mg/L) complied with Class III Water Quality Criteria (62-302 F.A.C.) and facility permit limits.
- The effluent sample was chronically, but not acutely, toxic to the fish, *Pimephales promelas,* during a seven-day chronic screening bioassay (See Table 1 for results and Appendix 6 for bioassay bench sheets). The average dry weight of the fish in the 100% sample concentration (0.425 mg) was significantly less ($p<0.05$) than the average control fish dry weight (0.593 mg). There was 87% survival of the fish in the 100% sample, compared to 85% survival in the laboratory control water during the 7-day test period. The No Observed Effect Concentration (NOEC) was less than 100%

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

City of Mulberry WWTP	Class III Criteria	Effluent Limits 3-17-03	Effluent Limits 3-19-03	Effluent Limits 3-21-03	Effluent Samples 3-17-03	Effluent Samples 3-19-03	Effluent Samples 3-21-03	Control Site 3-17-03	Test Site 3-17-03
Organic Constituents (µg/L)									
Atrazine	-	-	-	-	2.2	0.84	0.42	-	-
Metals (µg/L unless otherwise noted, Class III Criteria are less than or equal to the value given)									
Aluminum	-	-	-	-	10 U	10 U	10 U	285	294
Arsenic	50				4 U	4 U	5 U	4 U	4 U
Cadmium	b	1.722	1.759	1.758	0.1	0.087 I	0.087 I	0.081 I	0.051 I
Calcium (mg/L)	-	-	-	-	46.7	48.9	48.7	43.6	44.1
Chromium	b	133.181	136.168	136.112	2 U	2 U	8.8 U	2.4 I	2.1 I
Copper	b	14.691	15.035	15.029	2.3 I	3.1 U	2.2 U	2.1 U	2.1 U
Iron	1000				64	72	110 I	574	575
Lead	b	6.259	6.478	6.474	0.46	0.42	0.51	0.41	0.48
Magnesium (mg/L)	-	-	-	-	13	12.8	12.9	13.7	13.7
Nickel	b	81.777	83.672	83.637	2 U	2 U	2 U	3.2 I	3.1 I
Selenium	5.0				1 U	1 U	1 U	1 U	1 U
Silver	0.07				0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Zinc	b	187.969	192.332	192.250	52	57	66	4 U	6.7 I
Nutrients (mg/L)									
Ortho-phosphate	-	-	-	-	3	-	-	4	3.9
Total Phosphorus	-	-	-	-	-	-	-	4.4	4.1
Total Ammonia	-	-	-	-	3.2	5.2	2.7	0.065	0.21
Un-ionized Ammonia	≤ 0.02 s	-	-	-	0.031	0.038	0.025	< 0.02	< 0.02
Nitrate and Nitrite	-	-	-	-	1.1	-	-	0.16	0.29
Total Kjeldahl Nitrogen	-	-	-	-	3.6 J	-	-	0.84 J	0.95 J
Organic Nitrogen	-	-	-	-	0.4	-	-	0.78	0.74
Total Nitrogen	-	6.0 s	6.0 s	6.0 s	4.7	-	-	1	1.24
General Physical and Chemical Parameters									
Habitat Assessment	-	-	-	-	-	-	-	109	99
Dissolved Oxygen (mg/L)	≥ 5.0 s	5.5 s	5.5 s	5.5 s	7.9	7.5	7.6	5.3	4.8
pH (SU)	6.0-8.5 s	6.0-8.5 s	6.0-8.5 s	6.0-8.5 s	7.1	7.0	7.1	6.9	7.0
Conductivity (µmhos/cm)	1275 s	-	-	-	892	1044	1063	694	708
Temperature (°C)	-	-	-	-	25.5	25.8	26.1	22.5	23.6
Total Suspended Solids (mg/L)	-	10.0 s	10.0 s	10.0 s	1 U	-	-	8	8
Turbidity (NTU)	29	-	-	-	0.7	-	-	6.3	7.9
Residual Chlorine (mg/L)	≤ 0.01	≤ 0.01	≤ 0.01	≤ 0.01	<0.02	<0.02	<0.02	-	-
CBOD, 5 day (mg/L)	-	10.0 s	10.0 s	10.0 s	2.0 U	-	-	2.0 U	2.0 U
BOD, 5 day (mg/L)	-	-	-	-	2.0 U	-	-	2.0 U	2.0 U
Chlorophyll *a* (µg/L)	-	-	-	-	0.85 U	-	-	0.85 U	0.85 U
Phaeophytin (µg/L)	-	-	-	-	0.85 U	-	-	0.85 U	0.85 U
Flow (MGD)	-	0.75 *	0.75 *	0.75 *	0.387	0.444	0.537	-	-
Hardness (mg $CaCO_3$)	-	-	-	-	170.1439	174.8137	174.7261	165.3	166.5
Toxicity (7-day chronic screening bioassay, no observed effect concentration)									
Bioassay - Water flea	-	NOEC	NOEC	NOEC	100%	-	-	-	-
Bioassay - Fish	-	NOEC	NOEC	NOEC	100% K	-	-	-	-
Microbiology (Number of counts/100ml)									
Fecal Coliforms	800 s	25 s	25 s	25 s	1 K	-	-	250	210
Total Coliforms	2400 s	-	-	-	40 K	-	-	570	490

Value exceeds the Class III Water Quality Criteria

b - Value is calculated based on hardness

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

J - Estimated value

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

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

* - Annual average daily flow.

effluent since growth effects were observed in the 100% sample concentration. This constitutes a violation of the facility's permit and an exceedance of Chapter 62-302.530(62) F.A.C.. The effluent was not acutely or chronically toxic to the water flea, *Ceriodaphnia dubia,* during the seven-day chronic screening bioassay. The presence of atrazine and unionized ammonia in the effluent samples may have contributed to the chronic toxicity detected in the seven-day chronic screening bioassay of the fish, *Pimephales promelas.*

- Habitat assessment scores were 109 at the Control Site and 99 at the Test Site, placing both sites in the suboptimal category (Table 1, data sheets in Appendix 7). Both sites lost points for low substrate diversity and availability, as well as for poor riparian vegetation quality and width. The area sampled was on the North Fork of the Alafia River, and was partially developed with obvious sources of non-point source pollution, upstream point source inputs, and poor riparian condition. The stream had an open canopy, with tannic and slightly turbid water.
- The pH (Standard Units) and conductivity (μmhos/cm) at the Test and Control Sites complied with Class III Water Quality Criteria (Table 1, 62-302.530 F.A.C.). Dissolved oxygen (mg/L) at the downstream Test Site was 4.8 mg/L, which did not meet the 5.0 mg/L minimum Class III Water Quality Criteria set by Chapter 62-302.530 (31) F. A. C..
- Fecal and total coliform bacteria were detected in the effluent and receiving waters at levels that did not exceed Class III Water Quality Criteria and facility permit limits (See Table 1 for results and Appendix 6 for laboratory worksheets).
- The effluent total nitrogen concentration was 4.7 mg/L and was composed mainly of ammonia and nitrate + nitrite (Table 1). Ammonia concentration was elevated in the effluent and unionized ammonia in the effluent (0.03 mg/L) exceeded the Class III Water Quality Criteria (≤0.02 mg/L, 62-320.530 (3) F.A.C.). The effluent total phosphorus sample could not be processed, but orthophosphate (3 mg/L) was elevated in the effluent. The water sample from the Control Site indicated upstream sources of nutrient inputs, especially phosphorus (e.g. total phosphorus 4.4 mg/L, Table 1). For orthophosphate, the effluent did not elevate levels at the Test Site. In contrast, ammonia and nitrate + nitrite were higher at the Test Site compared to the Control Site (Table 1). Levels of orthophosphate and total phosphorus at both the Control and Test Sites were greater than those at 95% of typical Florida streams (Appendix 5). The pattern was different for nitrogen compounds. Levels of total Kjeldahl nitrogen (TKN), ammonia, and nitrate + nitrite were greater than those of 30%, 40%, and 60% of typical Florida streams, respectively, at the Control Site, while levels at the Test Site were comparable to those at 40%, 80%, and 70% of typical Florida streams, respectively (Appendix 5). The facility's effluent contributed to enrichment of several forms of nitrogen in the Alafia River downstream of the outfall.
- Total Suspended Solids (TSS) was below detection limits in the effluent, but water samples from the Control and Test Sites had 8 mg/L of TSS (Table 1, Appendix 6). The effluent had low, but measurable, turbidity (Table 1). Turbidity was relatively high both up and downstream of the discharge. Turbidity at the Control Site was greater than that at 70% of typical Florida streams, while turbidity at the Test Site was higher than that at 80% of typical Florida streams (Appendix 5).
- Metals detected in water samples from the Test and Control Sites complied with Class III Water Quality Criteria. Several of the metals were detected below the PQL or between the MDL and PQL (See Table 1).
- 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 of the upstream Control Site sample was 9.87 mg dry weight/L (Table 2). The AGP value of the downstream Test Site sample (21.8 mg dry weight/L) was twice as high as that of the Control Site sample and was more than four times the suggested

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)	9.87	8.6 ± 1.7	0.1
Test (mg dry wt/L)	21.8	19.0 ± 3.8	0.1
Effluent (mg dry wt/L)	105	163.4 ± 32.7	1.4

Table 3. Periphyton composition at control and test sites.

City of Mulberry WWTP	Control Site	Test Site
Number of Taxa	26	19
Shannon-Weaver Diversity	2.77	2.14
Chlorophyll *a* (mg/m^2)	14	23 A
Phaeophytin (mg/m^2)	0	0 A
Algal Density ($number/cm^2$)	419,292	547,410
Percent Dominant Taxon	52.3	61.4
Dominant Taxon (name)	*Cocconeis placentula*	*Cocconeis placentula*
Number of Algal Units Identified	308	308
Percentage Composition:		
Blue-green algae	20.5	25.7
Green algae	2.3	1.0
Diatoms	77.3	73.4

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

"problem" threshold. There was no evidence of growth inhibition in AGP data from the Test or Control Site (Table 2). Effluent AGP was elevated (105 mg dry weight/L) and more than 20 times the suggested "problem" threshold. However, growth in the effluent was approximately 35% lower than expected based upon nutrient chemistry results, suggesting that algal growth in the effluent sample was inhibited. This inhibition may be related to the presence of atrazine in the effluent. These data indicate nutrient enrichment related to the Mulberry WWTP discharge in this portion of the Alafia River.

- Chlorophyll *a* was not detected in water samples from the effluent, Control Site or Test Site despite high nutrient availability (Table 1). This may have been related to the tannic color noted for the stream (Appendix 7), upstream shading (see aerial photo in Appendix 1) and the relatively high turbidity results (Table 1).
- There were some differences in algal community composition and chlorophyll *a* concentration between periphyton samples collected at the Test and Control Sites (Table 3, Appendix 8). A mix of blue-green algae, green algae and diatoms were found on periphytometers after the 28-day incubation period; however, there were seven fewer taxa in the Test Site sample (19) than in the Control Site sample (26). The Shannon-Weaver diversity was 23% lower at the Test Site compared to the Control Site. This suggests the possibility that algal assemblages may have been affected by the facility's discharge.
- Quantitative measures of benthic macroinvertebrate assemblages from Hester-Dendy samplers showed degradation at the Test Site compared to the Control Site (Table 4, Appendix 9). Shannon-Weaver diversity at the Test Site was more than 25% lower than that at the Control Site, an exceedance of the Biological Integrity Criterion (62-302.530 (11) F.A.C.). Four times as many individuals were collected on Hester-Dendy samplers from the Test Site as compared to the Control Site; two-thirds of the individuals collected were *Cheumatopsyche* sp., which is often abundant in eutrophic or nutrient enriched streams. Shannon-Weaver diversity at the Test Site was lower than 95% of typical Florida streams, while diversity at the Control Site was somewhat better, ranking lower than approximately 80% of typical Florida streams.

Summary

The herbicide atrazine was detected in each of the three effluent samples. Metals detected in the effluent and receiving water samples complied with Class III Water Quality Criteria (FAC 62-302). Fecal and total coliform bacteria were detected in the effluent and receiving waters at levels that did not exceed Class III Water Quality Criteria and facility permit limits.

The effluent was chronically toxic to the fish, *Pimephales promelas,* during a seven-day chronic screening bioassay, an exceedance of Chapter 62-302.530(62) F.A.C. and a violation of the facility's permit limits. Unionized ammonia exceeded the Class III Water Quality Criteria (62-320.530 (3) F.A.C.) in each of the three effluent samples.

The North Prong of the Alafia River was enriched in orthophosphate and total phosphate upstream of the facility. However, the facility's effluent contributed to enrichment of several forms of nitrogen in the Alafia River downstream of the outfall. In particular, ammonia concentration was elevated in the effluent. AGP results from the Control Site sample were almost twice the suggested "problem" threshold. Effluent AGP was elevated and showed signs of algal growth inhibition. In the Test Site sample, AGP was twice as high as the result from the upstream Control Site. These results suggest that the facility's effluent is contributing to

Table 4. Macroinvertebrate Hester-Dendy Samples - Quantitative

City of Mulberry WWTP	Control Site	Test Site
Summary Statistics		
Shannon-Weaver Diversity	2.44	1.68
Number of Taxa	18	34
Florida Index	12	23
Number of EPT Taxa	5	8
Percent Dominant Taxon	32.3	66.6
Dominant Taxon (name)	*Polypedilum flavum*	*Cheumatopsyche* sp.
Dominant Taxon (group)	Diptera	Trichoptera
Total Number of Individuals	542	1995
Community Composition: Percent of total		
Coleoptera	22.7	1.7
Diptera	40.2	21.4
Ephemeroptera	6.6	8.5
Gastropoda	1.7	0.5
Trichoptera	28.0	67.0
Other	0.8	1.0
Functional Feeding Groups: Percent of total		
Piercer	0.2	0.0
Predators	1.2	0.9
Surface Deposit Feeders	31.2	15.4
Suspension Feeders	34.3	68.7
Scrapers	16.7	5.1
Scavenger	0.0	0.1
Shredders	16.4	9.8
Unknown	0.0	0.1

Value is more than 25% less than control value and does not meet Biological Integrity Criterion.

nutrient enrichment of the Alafia River. Unionized and total ammonia levels in the effluent are of particular concern.

Quantitative measures of benthic macroinvertebrate assemblages from Hester-Dendy samplers showed degradation at the Test Site compared to the Control Site. Shannon-Weaver diversity at the Test Site was more than 25% lower than that at the Control Site, an exceedance of the Biological Integrity Criterion (62-302.530 (11) F.A.C.). Four times as many individuals were collected on Hester-Dendy samplers from the Test Site as compared to the Control Site, a further possible indication of eutrophic conditions.

Additional monitoring that addresses these concerns, especially with respect to nitrogen enrichment, unionized ammonia, atrazine, and toxicity is warranted.

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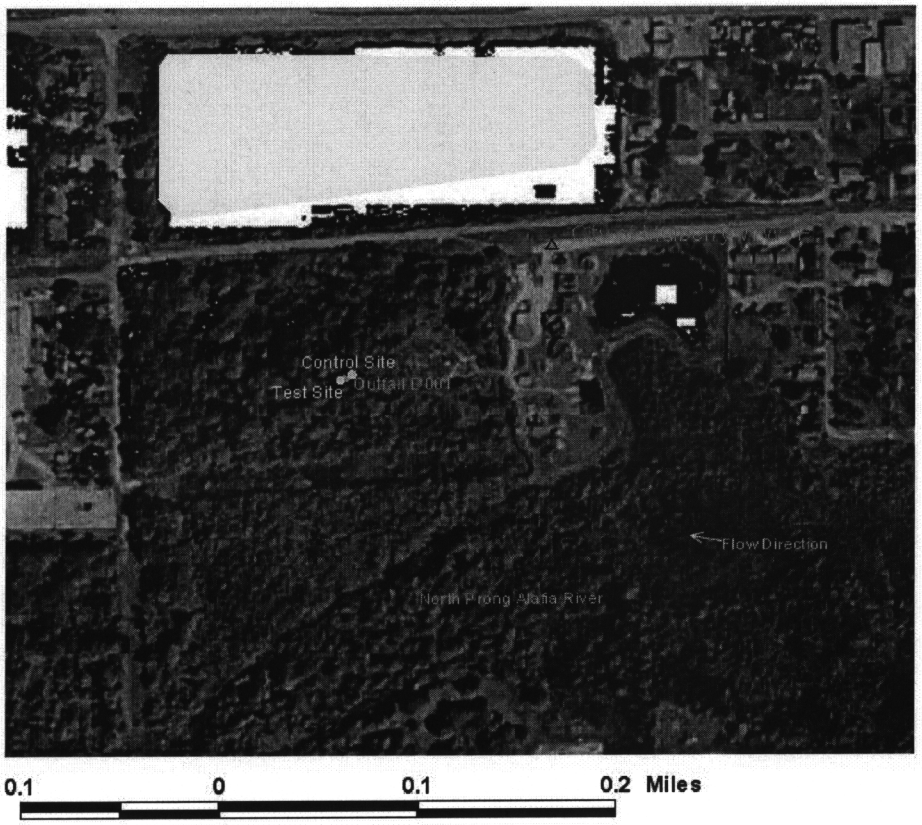
Appendices

- Appendix 1. Map of facility
- Appendix 2. Facility summary and Attachment 1
- Appendix 3. Explanation of measurements
- Appendix 4. Chemical analyses of effluent and receiving water.
- Appendix 5. Typical values for selected parameters in Florida waters
- Appendix 6. Additional physical, chemical, toxicological and microbiological results
- Appendix 7. Habitat Assessment field sheets
- Appendix 8a. Periphyton: Taxa list and density (number of individuals per cm^2)
- Appendix 8b. Periphyton: Taxa list and number of individuals counted
- Appendix 9a. Hester-Dendy multi-plate samplers: Taxa list and macroinvertebrate density (average number of individuals per m^2)
- Appendix 9b. Hester-Dendy multi-plate samplers: Taxa list and total number of macroinvertebrates counted

Appendix 1

Map of Facility

City of Mulberry WWTP
Permit No. FL0020338



0.1 0 0.1 0.2 Miles

Sites

Outfall

City of Mulberry WWTP

N
W E
S

Appendix 2

Facility Summary and Attachment 1

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENT PROECTION
FACILITY

Facility name: Mulberry WWTP Date of Summary: 2/25/03

Location (detailed ARC view map attached): County: Polk District: SWD

NPDES Permit: FL0020338 Facility Type: Domestic Waste State expiration date: 13/03/2005

Function of facility: treatment and disposal of domestic wastewater

Description of treatment process: An existing 0.75 MGD Annual Average Daily Flow (AADF) Sequencing Batch Reactor domestic wastewater treatment plant. The treatment component consists of: three batch reactors of 0.900 million total gallons,

Receiving waters: North Alafia Prong of the Alafia River Classification of water: III Freshwater

Design Flow: 0.75 MGD Mean Flow (12 month average): approx. 028 MGD

Permitted : 0.75 mgd

Discharge is: Batch sequencer (between every 2 to 4 hours)

Therefore, the best time to sample the outfall is: When the facility is discharging

If facility has a mixing zone proved details (size and parameters): No mixing zone

List effluent limits (add or remove rows and columns):

Parameter	Annual Average	Monthly Average	Weekly Average	Single Sample
Flow	0.75			
CBOD	5.0	6.25		10.0
TSS	5.0	6.25		10.0
PH				6.0 – 8.5
Fecal Coliform	*			
TRC – disinfection				1.0
TRC – dechlorination				0.01
Total Nitrogen	3.0	3.75		6.0
Dissolved Oxygen				5.5

* Over a 30 day period, 75% of the fecal coliform values (the 75th percentile) shall be below the detection limits. Any one sample shall not exceed 25 fecal coliform values per 100 mL of sample. Any one sample shall not exceed 5.0 milligrams per liter of total suspended (TSS) at a point before application of the disinfectant.

Description of permitted outfall(s):
D001 – discharges into North Alafia Prong of the Alafia River next to the Schoolkid road.

List permit violations (from DMR data or other sources) and plant upsets that occurred within past year:
The Department is a drafting a consent order for this facility as it is not meeting the monthly average and single sample permit limits of total nitrogen, total suspended solids, fecal coliforms, residual chlorine, CBOD and pH. The table below shows the permit excursions for these parameters.

CITY OF MULBERRY - SYNOPSIS OF EFFLUENT VIOLATIONS

Month/ Year	Total N An. Avg. 3 mg/L	Total N Mo. Avg. 3.75 mg/L	Total N Max. 6.0 mg/L	TSS Max. 5.0 mg/L	Fecal Coli. Mo. Avg. <1 #/100ml	Fecal Coli. Max. 25 #/100ml	Residual Cl2 Max. 0.01 mg/L	C M 1
12/02	3.05					28		
11/02	3.22							
10/02	No data							
9/02	3.49							
8/02	4.06				1			
7/02	4.13							
6/02	4.07			6.0				
5/02	4.42							
4/02	4.5							
3/02	4.6							
2/02	4.9	8.12	11.5, 7.39, 9.6					
1/02	4.57	5.1	6.48					
12/01	4.43							
11/01	No data			6.89				
10/01	4.6	4.87	7.43, 6.4		1			
9/01	4.06	8.8	13.3, 10.1, 6.6		1		0.05	
8/01	4.06			5.6	3			
7/01	4.04							
6/01	4.04	6.8	11.93, 7.48					
5/01	3.77				1	82		
4/01	3.76				7			
3/01	3.72	6.61	11.9, 8.8, 8.75					
2/01	3.44	4.14	7.31					
1/01	3.39							
12/00	3.33							
11/00	3.39							
10/00	3.52	4.53						
9/00	3.35							
8/00	3.34							
7/00	3.23	4.33	7.37, 6.58	32, 17				
6/00	3.23							
5/00	3.16						1.3	
4/00	3.15			12				
3/00	3.17							
2/00	3.17			9		112, 79		
1/00	3.15							
12/99	3.08	3.96						
11/99	3.05	5.27	9.02, 8.6					

Describe previous impact bioassessments, WQBELs, and previous or current enforcement actions:
Impact Bioassessment Inspection (IBI) was conducted 02/24/97. The XSI demonstrated that atrazine was detected at a level below chronic toxicity. Iron and zinc were present at levels that complied with surface water criteria. The CBI showed that the effluent was not acutely toxic to the freshwater organisms. The IBI indicated that the discharge was not negatively affecting the benthic community. Hester Dendy taxa richness, Florida Index, Shannon-Weaver diversity and the EPT values indicated healthy conditions at the reference and test sites. No undesirable amounts of algal biomass were observed at the test site. Flow characteristics appeared to delay the effects of the nutrient enrichment in the system. WQI indicated that the North Prong of the Alafia River was extremely enriched with ortho-phosphate. The effluent ortho-phosphate were lower than the receiving waters. The phosphoric enrichment appeared to be the results of factors other than the discharge (i.e., stormwater runoff form phosphate mining areas). Nitrate-nitrite values at the receiving water stations exceeded the values found in approximately 85% to 90% of other Florida streams. AGP exceeded that 5 mg dry wt/L "problem threshold" at all stations. The effluent AGP value was below the "problem threshold".

Discuss comparability of DMR results to past DEP sampling results and whether there are trends (improving, declining) in the data set. It is unknown at the time if the excursion of the permit limits is impacting the receiving waters.

Additional information

Staff contributing to this review:

Biologist: Andrea Grainger

Inspector: Joe Squitieri

ATTACHMENT I

CITY OF MULBERRY - SYNOPSIS OF EFFLUENT VIOLATIONS

Month/ Year	Total N An. Avg. 3 mg/L	Total N Mo. Avg. 3.75 mg/L	Total N Max. 6.0 mg/L	TSS Max. 5.0 mg/L	Fecal Coli. Mo. Avg. <1 #/100ml	Fecal Coli. Max. 25 #/100ml	Residual Cl2 Max. 0.01 mg/L	CBOD Max. 10.0 mg/L	pH Range 6.0 – 8.5 SU
12/02	3.05					28			
11/02	3.22								
10/02	No data								
9/02	3.49								
8/02	4.06				1				
7/02	4.13								
6/02	4.07			6.0					
5/02	4.42								
4/02	4.5								
3/02	4.6								
2/02	4.9	8.12	11.5, 7.39, 9.6						
1/02	4.57	5.1	6.48						
12/01	4.43								
11/01	No data			6.89					
10/01	4.6	4.87	7.43, 6.4		1				
9/01	4.06	8.8	13.3, 10.1, 6.6		1		0.05		
8/01	4.06			5.6	3				
7/01	4.04								
6/01	4.04	6.8	11.93, 7.48						
5/01	3.77				1	82			5.6, 5.9
4/01	3.76				7				
3/01	3.72	6.61	11.9, 8.8, 8.75						
2/01	3.44	4.14	7.31						
1/01	3.39								
12/00	3.33								
11/00	3.39								
10/00	3.52	4.53							
9/00	3.35								
8/00	3.34								
7/00	3.23	4.33	7.37, 6.58	32, 17					
6/00	3.23								
5/00	3.16						1.3		4.0
4/00	3.15			12				12.8	
3/00	3.17								
2/00	3.17			9		112, 79		10.3	
1/00	3.15								
12/99	3.08	3.96							
11/99	3.05	5.27	9.02, 8.6						

Appendix 3

Explanation of Measurements

(1) Quality Assurance and Quality Control

FDEP's quality assurance requirements for analytical laboratories and field activities are codified in Chapter 62-160, F.A.C., Quality Assurance (QA Rule) and in internal Standard Operating Procedures (FDEP SOPs). Methods for all analyses are on file at the FDEP Central Laboratory in Tallahassee and may be viewed on the web at http://www.floridadep.org/labs/sop/index.htm and/or http://www.floridadep.org/labs/qa/index.htm .

(2) Chemical Analyses of the Effluent

The effluent was analyzed for nutrients, metals, organic constituents (base, neutral, and acid extractables) and pesticides following FDEP SOPs. A list of the analytes tested for, results, data qualifiers, the minimum detection limit and the practical quantitation limit are given in Appendix 4. The results from these analyses were compared with Water Quality Criteria (62-302 F.A.C.) and facility permit limits (Table 1, Appendix 2). Exceedances of Water Quality Criteria may be violations of specific provisions of Chapter 62-302 (F.A.C.) and/ or facility permit limits.

(3) Toxicity Bioassays

Seven-day chronic screening toxicity bioassays were performed on the effluent sample using the water flea, *Ceriodaphnia dubia,* and the fish, *Pimepales promelas* following FDEP SOPs TA07_05 and TA07_09. Failure of toxicity testing may constitute a violation of 62-302.520(21), 62-302.530(62) and/or facility permit limits.

(4) Bacteriological Testing

The effluent and water from control and test sites were analyzed for the presence and concentration of total and fecal coliform bacteria following FDEP SOPs MB1_0 and MB1_1. High levels of fecal or total coliform bacteria may constitute violation of 62-302.530(6), 62-302.530(7) and/or facility permit limits.

(5) Habitat Assessment

Habitat assessment is used to evaluate the physical structure and extent of disturbance in a waterbody. Eight aspects are ranked, with 20 possible points for each aspect (QA Rule SOP FT 3100). 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).

(6) 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 (FDEP SOP TA08_05). The algal growth potential (AGP) value is the peak growth of the alga within that 14-day period, recorded as mg dry weight/L. 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 10:1, nitrogen limitation of algal production is likely. When the N:P ratio is 20:1 or greater, phosphorus limitation is likely (USEPA 2000). For ratios in-between, co-limitation may occur. 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..

(7) Algal Phytoplankton and Periphyton Assemblages

Methods: Periphyton were sampled at both control and test sites by incubating glass microscope slides in a standard periphytometer for 28 days (QA Rule SOP FS7210). Phytoplankton were sampled using a 1 L grab sample (QA Rule SOP FS7100). Periphyton and phytoplankton were subsampled and identified to the lowest practical level, usually species (FDEP SOPs AB03, AB03_1 and AB05).

Chlorophyll *a* Content: Chlorophyll *a* content is measured in both phytoplankton and periphyton samples to estimate algal biomass (FDEP SOP BB05). 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..

Algal Density: Algal density is estimated as number of natural units/ml for phytoplankton samples and number of natural units/cm^2 for periphyton samples. Although algal density of a single site is highly variable and depends on a number of factors, comparison of algal density at a control site to algal density at a related test site gives a partial comparison of algal biomass at the two sites (Stevenson and Smol 2003).

Taxa richness: Taxa richness is the number of distinct algal taxa present in a sample. Extreme nutrient enrichment tends to reduce the number of different types of algae present in a sample because a few tolerant taxa tend to reproduce rapidly and constitute the majority of the cells present. However, moderate nutrient enrichment of nutrient poor waters may sometimes be correlated with increased algal taxa richness (Stevenson and Bahls 1999) as the algal community begins to respond to the increased input of nutrients.

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..

(8) Benthic Macroinvertebrate Assemblages

Methods: Benthic macroinvertebrates were collected using two methods. Quantitative samples were collected from Hester-Dendy multi-plate samplers incubated for 28 days (QA Rule SOP FS7430). Qualitative collections are made using 20 dipnet sweeps (QA Rule SOP FS7420). Benthic macroinvertebrates were sorted and identified to the lowest practical taxonomic level, usually species (FDEP SOP IZ06).

Taxa richness: Taxa richness is the number of distinct macroinvertebrate taxa present in a sample. Stress, habitat destruction and pollution tend to reduce the number of different types of organisms present (Karr and Chu 1998). Decreases in taxa richness 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..

Percent Contribution of Dominant Taxon: Percent contribution of the dominant taxon is calculated by dividing the number of individuals in the most abundant taxa by the total number of individuals counted. Percent contribution of the dominant taxon tends to increase with increasing perturbation (Plafkin *et al.*, 1989). Increases in the percent contribution of the dominant taxon 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. and/or 62-302.530(48)(b) 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 in equitable abundance among taxa (Magurran 1988). A difference of 25% in Shannon-Weaver diversity between results from Hester-Dendy multiplate samplers incubated for 28 days at test and control sites constitutes a violation of 62-302.530(11) F.A.C..

The Florida Index: Some organisms become rare or absent as the intensity or duration of disturbance increases. The Florida Index assigns points to stream-dwelling macroinvertebrates based on their ranked sensitivity to pollution (Beck 1954). A site with a high Florida Index score is considered healthy (Ross 1990). Decreases in Florida Index points 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..

Ephemeroptera/Plecoptera/Trichoptera (EPT) Taxa: This value is the number of EPT taxa present. More EPT taxa are usually present in unpolluted waters (Plafkin *et al.*, 1989, Wallace *et al.*, 1996). Decreases in the number of EPT taxa 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..

Community Composition: Shifts in proportions of major groups of organisms downstream of a point source, compared to upstream, control conditions, may indicate negative effects of a discharge (Karr and Chu 1998). Shifts in community composition 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..

Functional Feeding Groups: Environmental degradation may differentially affect groups of invertebrates based on how the group feeds (e.g. predators, deposit feeders, etc.). In Florida, pollution may be responsible for reducing the numbers of filter feeders (FDEP 1994) and shredders (EA Engineering 1994). Changes in the proportions of functional feeding groups 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..

The Stream Condition Index (SCI): The SCI is a composite macroinvertebrate metric developed for Florida. Using data from qualitative dipnet samples, the SCI assigns points to seven parameters, depending on how closely each parameter approaches an expected reference condition (QA Rule SOP LT 7200). Points are summed to yield a final SCI score (range 7-33, depending on region and index period). Included in the calculation of SCI are taxa richness, number of EPT taxa, number of Chironomid taxa, percent contribution of the dominant taxon, the Florida Index, percent contribution of Diptera, and the percent contribution of suspension and filter feeders. Scores are broken into four ordinal groups: Excellent, Good, Poor and Very Poor. A decrease in ordinal SCI score from the Control to the Test site may be evidence of degradation related to a facility's effluent. An SCI score of "Poor" or "Very Poor" 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..

(9) Statistical Comparisons

Statistical comparisons of the proportions of taxa, major groups or feeding 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 analysis of effluent and receiving water

Key to Field IDs:

Field ID	Location	Date Sampled	Sample type
28429	Test Site	3/17/2003	biological
28490	Test Site (reps)	3/17/2003	biological
28430	Background	3/17/2003	biological
28489	Background (reps)	3/17/2003	biological
28425	Background	3/17/2003	water
28424	Test Site	3/17/2003	water
28423	Outfall	3/17/2003	water
28426	Field Blank	3/17/2003	water
28434	Field Blank	3/18/2003	water
28433	Outfall	3/18/2003	water
28435	Outfall	3/20/2003	water
28436	Field Blank	3/20/2003	water

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
3/17/03	28429	Bio-Chl-a	Chlorophyll-A, Monochromatic, Periphyton	23	mg/m2	A	0.38	1.1
3/17/03	28429	Bio-Chl-a	Phaeophytin-A, Monochromatic, Periphyton	0	mg/m2	A	0.38	1.1
3/17/03	28429	Bio-Peri/Phyto	Periphyton-Quantitative-# Diatom Taxa	13	#Taxa			
3/17/03	28429	Bio-Peri/Phyto	Periphyton-Quantitative-# Wet Taxa	6	#Taxa			
3/17/03	28490 REP.1	Bio-Invertebrates	Macroinvert-FW-Quan-ArtSubstr-# Taxa	17	# Taxa			
3/17/03	28490 REP.2	Bio-Invertebrates	Macroinvert-FW-Quan-ArtSubstr-# Taxa	16	# Taxa			
3/17/03	28490 REP.3	Bio-Invertebrates	Macroinvert-FW-Quan-ArtSubstr-# Taxa	19	# Taxa			
3/17/03	28490 REP.4	Bio-Invertebrates	Macroinvert-FW-Quan-ArtSubstr-# Taxa	16	# Taxa			
3/17/03	28430	Bio-Chl-a	Chlorophyll-A, Monochromatic, Periphyton	14	mg/m2		0.33	0.98
3/17/03	28430	Bio-Chl-a	Phaeophytin-A, Monochromatic, Periphyton	0	mg/m2		0.33	0.98
3/17/03	28430	Bio-Peri/Phyto	Periphyton-Quantitative-# Diatom Taxa	16	#Taxa			
3/17/03	28430	Bio-Peri/Phyto	Periphyton-Quantitative-# Wet Taxa	10	#Taxa			
3/17/03	28489 REP.1	Bio-Invertebrates	Macroinvert-FW-Quan-ArtSubstr-# Taxa	12	# Taxa			
3/17/03	28489 REP.2	Bio-Invertebrates	Macroinvert-FW-Quan-ArtSubstr-# Taxa	10	# Taxa			
3/17/03	28489 REP.3	Bio-Invertebrates	Macroinvert-FW-Quan-ArtSubstr-# Taxa	12	# Taxa			
3/17/03	28425	Bio-AGP/LimNut	Algal Growth Potential	9.87	mg DryWt/L		0.1	0.3
3/17/03	28425	Bio-Chl-a	Chlorophyll-A, Monochromatic, Water	0.85	ug/L	U	0.85	2.6
3/17/03	28425	Bio-Chl-a	Phaeophytin-A, Monochromatic, Water	0.85	ug/L	U	0.85	2.6
3/17/03	28425	Metals-Water	Aluminum	285	ug/L		10	40
3/17/03	28425	Metals-Water	Arsenic	4	ug/L	U	4	16
3/17/03	28425	Metals-Water	Cadmium	0.081	ug/L	I	0.025	0.1
3/17/03	28425	Metals-Water	Calcium	43.6	mg/L		0.05	0.2
3/17/03	28425	Metals-Water	Chromium	2.4	ug/L	I	2	8
3/17/03	28425	Metals-Water	Copper	2.1	ug/L	U	0.75	3
3/17/03	28425	Metals-Water	Iron	574	ug/L		7	28
3/17/03	28425	Metals-Water	Lead	0.41	ug/L		0.1	0.4
3/17/03	28425	Metals-Water	Magnesium	13.7	mg/L		0.01	0.04
3/17/03	28425	Metals-Water	Nickel	3.2	ug/L	I	2	8
3/17/03	28425	Metals-Water	Selenium	1	ug/L	U	1	4
3/17/03	28425	Metals-Water	Silver	0.02	ug/L	U	0.02	0.08
3/17/03	28425	Metals-Water	Zinc	4	ug/L	U	4	16
3/17/03	28425	Nutrients-Liquid	Ammonia-N	0.065	mg N/L		0.01	0.02
3/17/03	28425	Nutrients-Liquid	NO2NO3-N	0.16	mg N/L		0.004	0.01
3/17/03	28425	Nutrients-Liquid	N_KJEL_TOT	0.84	mg N/L	J	0.06	0.2
3/17/03	28425	Nutrients-Liquid	O-Phosphate-P	4	mg P/L		0.08	0.2
3/17/03	28425	Nutrients-Liquid	Total-P	4.4	mg P/L		0.3	0.8
3/17/03	28424	Bio-AGP/LimNut	Algal Growth Potential	21.8	mg DryWt/L		0.1	0.3
3/17/03	28424	Bio-Chl-a	Chlorophyll-A, Monochromatic, Water	0.85	ug/L	U	0.85	2.6
3/17/03	28424	Bio-Chl-a	Phaeophytin-A, Monochromatic, Water	0.85	ug/L	U	0.85	2.6
3/17/03	28424	Metals-Water	Aluminum	294	ug/L		10	40
3/17/03	28424	Metals-Water	Arsenic	4	ug/L	U	4	16
3/17/03	28424	Metals-Water	Cadmium	0.051	ug/L	I	0.025	0.1
3/17/03	28424	Metals-Water	Calcium	44.1	mg/L		0.05	0.2
3/17/03	28424	Metals-Water	Chromium	2.1	ug/L	I	2	8
3/17/03	28424	Metals-Water	Copper	2.1	ug/L	U	0.75	3
3/17/03	28424	Metals-Water	Iron	575	ug/L		7	28
3/17/03	28424	Metals-Water	Lead	0.48	ug/L		0.1	0.4
3/17/03	28424	Metals-Water	Magnesium	13.7	mg/L		0.01	0.04
3/17/03	28424	Metals-Water	Nickel	3.1	ug/L	I	2	8
3/17/03	28424	Metals-Water	Selenium	1	ug/L	U	1	4
3/17/03	28424	Metals-Water	Silver	0.02	ug/L	U	0.02	0.08
3/17/03	28424	Metals-Water	Zinc	6.7	ug/L	I	4	16

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
3/17/03	28424	Nutrients-Liquid	Ammonia-N	0.21	mg N/L		0.01	0.02
3/17/03	28424	Nutrients-Liquid	NO2NO3-N	0.29	mg N/L		0.004	0.01
3/17/03	28424	Nutrients-Liquid	N_KJEL_TOT	0.95	mg N/L	J	0.06	0.2
3/17/03	28424	Nutrients-Liquid	O-Phosphate-P	3.9	mg P/L		0.08	0.2
3/17/03	28424	Nutrients-Liquid	Total-P	4.1	mg P/L		0.3	0.8
3/17/03	28423	BNA-Water	1,2,4,5-Tetrachlorobenzene	1	ug/L	U	1	4.1
3/17/03	28423	BNA-Water	1,2,4-Trichlorobenzene	1	ug/L	U	1	4.1
3/17/03	28423	BNA-Water	1,2-Dichlorobenzene	1	ug/L	U	1	4.1
3/17/03	28423	BNA-Water	1,3,5-Trinitrobenzene	4.1	ug/L	U	4.1	16
3/17/03	28423	BNA-Water	1,3-Dichlorobenzene	1	ug/L	U	1	4.1
3/17/03	28423	BNA-Water	1,3-Dinitrobenzene	2.1	ug/L	U	2.1	8.2
3/17/03	28423	BNA-Water	1,4-Dichlorobenzene	1	ug/L	U	1	4.1
3/17/03	28423	BNA-Water	1,4-Naphthoquinone	21	ug/L	UJ	21	82
3/17/03	28423	BNA-Water	1-Naphthylamine	10	ug/L	U	10	41
3/17/03	28423	BNA-Water	2,3,4,6-Tetrachlorophenol	2.1	ug/L	U	2.1	8.2
3/17/03	28423	BNA-Water	2,4,5-Trichlorophenol	1	ug/L	U	1	4.1
3/17/03	28423	BNA-Water	2,4,6-Trichlorophenol	1	ug/L	U	1	4.1
3/17/03	28423	BNA-Water	2,4-Dichlorophenol	1	ug/L	U	1	4.1
3/17/03	28423	BNA-Water	2,4-Dimethylphenol	52	ug/L	U	52	210
3/17/03	28423	BNA-Water	2,4-Dinitrophenol	15	ug/L	UJ	15	62
3/17/03	28423	BNA-Water	2,4-Dinitrotoluene	1	ug/L	U	1	4.1
3/17/03	28423	BNA-Water	2,6-Dichlorophenol	1	ug/L	U	1	4.1
3/17/03	28423	BNA-Water	2,6-Dinitrotoluene	1	ug/L	U	1	4.1
3/17/03	28423	BNA-Water	2-Acetylaminofluorene	1	ug/L	U	1	4.1
3/17/03	28423	BNA-Water	2-Chloronaphthalene	1	ug/L	U	1	4.1
3/17/03	28423	BNA-Water	2-Chlorophenol	1	ug/L	U	1	4.1
3/17/03	28423	BNA-Water	2-Methyl-4,6-dinitrophenol	3.1	ug/L	U	3.1	12
3/17/03	28423	BNA-Water	2-Methylnaphthalene	1	ug/L	U	1	4.1
3/17/03	28423	BNA-Water	2-Naphthylamine	10	ug/L	U	10	41
3/17/03	28423	BNA-Water	2-Nitroaniline	1	ug/L	U	1	4.1
3/17/03	28423	BNA-Water	2-Nitrophenol	1	ug/L	U	1	4.1
3/17/03	28423	BNA-Water	2-Picoline	1	ug/L	U	1	4.1
3/17/03	28423	BNA-Water	3,3'-Dichlorobenzidine	41	ug/L	U	41	160
3/17/03	28423	BNA-Water	3,3'-Dimethylbenzidine	21	ug/L	UJ	21	82
3/17/03	28423	BNA-Water	3-Methylcholanthrene	1	ug/L	U	1	4.1
3/17/03	28423	BNA-Water	3-Nitroaniline	1	ug/L	U	1	4.1
3/17/03	28423	BNA-Water	4,4'-DDD	1.5	ug/L	U	1.5	6.2
3/17/03	28423	BNA-Water	4,4'-DDE	1.5	ug/L	U	1.5	6.2
3/17/03	28423	BNA-Water	4,4'-DDT	1.5	ug/L	U	1.5	6.2
3/17/03	28423	BNA-Water	4-Aminobiphenyl	4.1	ug/L	U	4.1	16
3/17/03	28423	BNA-Water	4-Bromophenyl phenyl ether	1	ug/L	U	1	4.1
3/17/03	28423	BNA-Water	4-Chloro-3-methylphenol	1	ug/L	U	1	4.1
3/17/03	28423	BNA-Water	4-Chloroaniline	1	ug/L	U	1	4.1
3/17/03	28423	BNA-Water	4-Chlorophenyl phenyl ether	2.1	ug/L	U	2.1	8.2
3/17/03	28423	BNA-Water	4-Nitroaniline	1	ug/L	U	1	4.1
3/17/03	28423	BNA-Water	4-Nitrophenol	15	ug/L	U	15	62
3/17/03	28423	BNA-Water	5-Nitro-o-toluidine	1	ug/L	U	1	4.1
3/17/03	28423	BNA-Water	7,12-Dimethylbenz(a)anthracene	1	ug/L	U	1	4.1
3/17/03	28423	BNA-Water	Acenaphthene	1	ug/L	U	1	4.1
3/17/03	28423	BNA-Water	Acenaphthylene	1	ug/L	U	1	4.1
3/17/03	28423	BNA-Water	Acetophenone	1	ug/L	U	1	4.1
3/17/03	28423	BNA-Water	Aldrin	1.5	ug/L	U	1.5	6.2
3/17/03	28423	BNA-Water	Aniline	1	ug/L	U	1	4.1
3/17/03	28423	BNA-Water	Anthracene	1	ug/L	U	1	4.1
3/17/03	28423	BNA-Water	Azobenzene/1,2-Diphenylhydrazine	1	ug/L	U	1	4.1
3/17/03	28423	BNA-Water	Benzidine	100	ug/L	U	100	410
3/17/03	28423	BNA-Water	Benzo(a)anthracene	1	ug/L	U	1	4.1
3/17/03	28423	BNA-Water	Benzo(a)pyrene	1	ug/L	U	1	4.1
3/17/03	28423	BNA-Water	Benzo(b)fluoranthene	1	ug/L	U	1	4.1
3/17/03	28423	BNA-Water	Benzo(g,h,i)perylene	1	ug/L	U	1	4.1
3/17/03	28423	BNA-Water	Benzo(k)fluoranthene	1	ug/L	U	1	4.1
3/17/03	28423	BNA-Water	Benzyl alcohol	1	ug/L	U	1	4.1
3/17/03	28423	BNA-Water	Bis(2-chloroethoxy)methane	1	ug/L	U	1	4.1
3/17/03	28423	BNA-Water	Bis(2-chloroethyl)ether	1	ug/L	U	1	4.1
3/17/03	28423	BNA-Water	Bis(2-chloroisopropyl)ether	3.1	ug/L	U	3.1	12
3/17/03	28423	BNA-Water	Bis(2-ethylhexyl)phthalate	15	ug/L	U	15	62
3/17/03	28423	BNA-Water	Butyl benzyl phthalate	5.2	ug/L	U	5.2	21
3/17/03	28423	BNA-Water	Chrysene	1	ug/L	U	1	4.1
3/17/03	28423	BNA-Water	Di-n-butyl phthalate	5.2	ug/L	U	5.2	21
3/17/03	28423	BNA-Water	Di-n-octyl phthalate	1	ug/L	U	1	4.1
3/17/03	28423	BNA-Water	Dibenzo(a,h)anthracene	1	ug/L	U	1	4.1
3/17/03	28423	BNA-Water	Dibenzofuran	1	ug/L	U	1	4.1
3/17/03	28423	BNA-Water	Dieldrin	1.5	ug/L	U	1.5	6.2
3/17/03	28423	BNA-Water	Diethyl phthalate	1	ug/L	U	1	4.1

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
3/17/03	28423	BNA-Water	Dimethyl phthalate	52	ug/L	U	52	210
3/17/03	28423	BNA-Water	Dimethylaminoazobenzene	1	ug/L	U	1	4.1
3/17/03	28423	BNA-Water	Dinoseb	4.1	ug/L	U	4.1	16
3/17/03	28423	BNA-Water	Diphenylamine	3.1	ug/L	U	3.1	12
3/17/03	28423	BNA-Water	Endosulfan I	4.1	ug/L	U	4.1	16
3/17/03	28423	BNA-Water	Endosulfan II	4.1	ug/L	U	4.1	16
3/17/03	28423	BNA-Water	Endosulfan sulfate	1.5	ug/L	U	1.5	6.2
3/17/03	28423	BNA-Water	Endrin	1.5	ug/L	U	1.5	6.2
3/17/03	28423	BNA-Water	Endrin aldehyde	4.1	ug/L	U	4.1	16
3/17/03	28423	BNA-Water	Ethyl methanesulfonate	1	ug/L	U	1	4.1
3/17/03	28423	BNA-Water	Fluoranthene	1	ug/L	U	1	4.1
3/17/03	28423	BNA-Water	Fluorene	1	ug/L	U	1	4.1
3/17/03	28423	BNA-Water	Heptachlor	1.5	ug/L	U	1.5	6.2
3/17/03	28423	BNA-Water	Heptachlor epoxide	1.5	ug/L	U	1.5	6.2
3/17/03	28423	BNA-Water	Hexachlorobenzene	1	ug/L	U	1	4.1
3/17/03	28423	BNA-Water	Hexachlorobutadiene	3.1	ug/L	U	3.1	12
3/17/03	28423	BNA-Water	Hexachlorocyclopentadiene	3.1	ug/L	UJ	3.1	12
3/17/03	28423	BNA-Water	Hexachloroethane	3.1	ug/L	U	3.1	12
3/17/03	28423	BNA-Water	Hexachloropropene	2.1	ug/L	U	2.1	8.2
3/17/03	28423	BNA-Water	Indeno(1,2,3-cd)pyrene	1	ug/L	U	1	4.1
3/17/03	28423	BNA-Water	Isophorone	1	ug/L	UJ	1	4.1
3/17/03	28423	BNA-Water	Isosafrole	1	ug/L	U	1	4.1
3/17/03	28423	BNA-Water	Methapyrilene	4.1	ug/L	UJ	4.1	16
3/17/03	28423	BNA-Water	Methyl methanesulfonate	1	ug/L	UJ	1	4.1
3/17/03	28423	BNA-Water	N-Nitrosodi-n-butylamine	1	ug/L	U	1	4.1
3/17/03	28423	BNA-Water	N-Nitrosodi-n-propylamine	2.1	ug/L	U	2.1	8.2
3/17/03	28423	BNA-Water	N-Nitrosodiethylamine	1	ug/L	U	1	4.1
3/17/03	28423	BNA-Water	N-Nitrosodimethylamine	2.1	ug/L	U	2.1	8.2
3/17/03	28423	BNA-Water	N-Nitrosodiphenylamine	3.1	ug/L	U	3.1	12
3/17/03	28423	BNA-Water	N-Nitrosomethylethylamine	2.1	ug/L	U	2.1	8.2
3/17/03	28423	BNA-Water	N-Nitrosomorpholine	1	ug/L	U	1	4.1
3/17/03	28423	BNA-Water	N-Nitrosopiperidine	1	ug/L	U	1	4.1
3/17/03	28423	BNA-Water	N-Nitrosopyrrolidine	2.1	ug/L	U	2.1	8.2
3/17/03	28423	BNA-Water	Naphthalene	1	ug/L	U	1	4.1
3/17/03	28423	BNA-Water	Nitrobenzene	2.1	ug/L	U	2.1	8.2
3/17/03	28423	BNA-Water	Nitroquinoline-1-oxide	21	ug/L	UJ	21	82
3/17/03	28423	BNA-Water	Pentachlorobenzene	1	ug/L	U	1	4.1
3/17/03	28423	BNA-Water	Pentachloroethane	52	ug/L	U	52	210
3/17/03	28423	BNA-Water	Pentachloronitrobenzene	1	ug/L	U	1	4.1
3/17/03	28423	BNA-Water	Pentachlorophenol	3.1	ug/L	U	3.1	12
3/17/03	28423	BNA-Water	Phenacetin	4.1	ug/L	U	4.1	12
3/17/03	28423	BNA-Water	Phenanthrene	1	ug/L	U	1	4.1
3/17/03	28423	BNA-Water	Phenol	1	ug/L	U	1	4.1
3/17/03	28423	BNA-Water	Pyrene	1	ug/L	U	1	4.1
3/17/03	28423	BNA-Water	Pyridine	4.1	ug/L	U	4.1	16
3/17/03	28423	BNA-Water	Safrole	1	ug/L	U	1	4.1
3/17/03	28423	BNA-Water	alpha-BHC	1.5	ug/L	U	1.5	6.2
3/17/03	28423	BNA-Water	beta-BHC	1.5	ug/L	U	1.5	6.2
3/17/03	28423	BNA-Water	delta-BHC	1.5	ug/L	U	1.5	6.2
3/17/03	28423	BNA-Water	gamma-BHC	1.5	ug/L	U	1.5	6.2
3/17/03	28423	BNA-Water	m,p-Cresols	2.1	ug/L	U	2.1	8.2
3/17/03	28423	BNA-Water	o-Cresol	2.1	ug/L	U	2.1	8.2
3/17/03	28423	BNA-Water	o-Toluidine	1	ug/L	U	1	4.1
3/17/03	28423	Bio-AGP/LimNut	Algal Growth Potential	105	mg DryWt/L	0.1	0.3	
3/17/03	28423	Bio-Chl-a	Chlorophyll-A, Monochromatic, Water	0.85	ug/L	U	0.85	2.6
3/17/03	28423	Bio-Chl-a	Phaeophytin-A, Monochromatic, Water	0.85	ug/L	U	0.85	2.6
3/17/03	28423	Bio-Toxicology	Bioassay-Chronic-Scrn-FW-C.dubia, NOEC	100	NOEC			
3/17/03	28423	Bio-Toxicology	Bioassay-Chronic-Scrn-FW-Fish, NOEC	100	NOEC	K		
3/17/03	28423	GC-Water	Alachlor	0.68	ug/L	U	0.68	2.72
3/17/03	28423	GC-Water	Ametryn	0.057	ug/L	U	0.057	0.228
3/17/03	28423	GC-Water	Atrazine	2.2	ug/L		0.057	0.228
3/17/03	28423	GC-Water	Azinphos Methyl	0.057	ug/L	U	0.057	0.228
3/17/03	28423	GC-Water	Bromacil	0.23	ug/L	U	0.23	0.92
3/17/03	28423	GC-Water	Butylate	0.23	ug/L	U	0.23	0.92
3/17/03	28423	GC-Water	Chlorpyrifos Ethyl	0.057	ug/L	U	0.057	0.228
3/17/03	28423	GC-Water	Chlorpyrifos Methyl	0.11	ug/L	U	0.11	0.44
3/17/03	28423	GC-Water	Diazinon	0.057	ug/L	U	0.057	0.228
3/17/03	28423	GC-Water	Ethion	0.057	ug/L	UJ	0.057	0.228
3/17/03	28423	GC-Water	Ethoprop	0.11	ug/L	U	0.11	0.44
3/17/03	28423	GC-Water	Fenamiphos	0.23	ug/L	U	0.23	0.92
3/17/03	28423	GC-Water	Fonofos	0.11	ug/L	UJ	0.11	0.44
3/17/03	28423	GC-Water	Hexazinone	0.11	ug/L	U	0.11	0.44
3/17/03	28423	GC-Water	Malathion	0.17	ug/L	UJ	0.17	0.68
3/17/03	28423	GC-Water	Metalaxyl	0.28	ug/L	U	0.28	1.12

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
3/17/03	28423	GC-Water	Metolachlor	0.57	ug/L	U	0.57	2.28
3/17/03	28423	GC-Water	Metribuzin	0.11	ug/L	U	0.11	0.44
3/17/03	28423	GC-Water	Mevinphos	0.23	ug/L	U	0.23	0.92
3/17/03	28423	GC-Water	Naled	0.91	ug/L	U	0.91	3.64
3/17/03	28423	GC-Water	Norflurazon	0.11	ug/L	U	0.11	0.44
3/17/03	28423	GC-Water	Parathion Ethyl	0.17	ug/L	UJ	0.17	0.68
3/17/03	28423	GC-Water	Parathion Methyl	0.11	ug/L	U	0.11	0.44
3/17/03	28423	GC-Water	Phorate	0.057	ug/L	U	0.057	0.228
3/17/03	28423	GC-Water	Prometryn	0.17	ug/L	U	0.17	0.68
3/17/03	28423	GC-Water	Simazine	0.057	ug/L	U	0.057	0.228
3/17/03	28423	Metals-Water	Aluminum	10	ug/L	U	10	40
3/17/03	28423	Metals-Water	Arsenic	4	ug/L	U	4	16
3/17/03	28423	Metals-Water	Cadmium	0.1	ug/L		0.025	0.1
3/17/03	28423	Metals-Water	Calcium	46.7	mg/L		0.05	0.2
3/17/03	28423	Metals-Water	Chromium	2	ug/L	U	2	8
3/17/03	28423	Metals-Water	Copper	2.3	ug/L	I	0.75	3
3/17/03	28423	Metals-Water	Iron	64	ug/L		7	28
3/17/03	28423	Metals-Water	Lead	0.46	ug/L		0.1	0.4
3/17/03	28423	Metals-Water	Magnesium	13	mg/L		0.01	0.04
3/17/03	28423	Metals-Water	Nickel	2	ug/L	U	2	8
3/17/03	28423	Metals-Water	Selenium	1	ug/L	U	1	4
3/17/03	28423	Metals-Water	Silver	0.02	ug/L	U	0.02	0.08
3/17/03	28423	Metals-Water	Zinc	52	ug/L		4	16
3/17/03	28423	Nutrients-Liquid	Ammonia-N	3.2	mg N/L		0.2	0.4
3/17/03	28423	Nutrients-Liquid	NO2NO3-N	1.1	mg N/L		0.02	0.05
3/17/03	28423	Nutrients-Liquid	N_KJEL_TOT	3.6	mg N/L	J	0.06	0.2
3/17/03	28423	Nutrients-Liquid	O-Phosphate-P	3	mg P/L		0.08	0.2
3/17/03	28423	Nutrients-Liquid	Total-P		mg P/L			
3/17/03	28426	BNA-Water	1,2,4,5-Tetrachlorobenzene	0.96	ug/L	U	0.96	3.8
3/17/03	28426	BNA-Water	1,2,4-Trichlorobenzene	0.96	ug/L	U	0.96	3.8
3/17/03	28426	BNA-Water	1,2-Dichlorobenzene	0.96	ug/L	U	0.96	3.8
3/17/03	28426	BNA-Water	1,3,5-Trinitrobenzene	3.8	ug/L	U	3.8	15
3/17/03	28426	BNA-Water	1,3-Dichlorobenzene	0.96	ug/L	U	0.96	3.8
3/17/03	28426	BNA-Water	1,3-Dinitrobenzene	1.9	ug/L	U	1.9	7.7
3/17/03	28426	BNA-Water	1,4-Dichlorobenzene	0.96	ug/L	U	0.96	3.8
3/17/03	28426	BNA-Water	1,4-Naphthoquinone	19	ug/L	UJ	19	77
3/17/03	28426	BNA-Water	1-Naphthylamine	9.6	ug/L	U	9.6	38
3/17/03	28426	BNA-Water	2,3,4,6-Tetrachlorophenol	1.9	ug/L	U	1.9	7.7
3/17/03	28426	BNA-Water	2,4,5-Trichlorophenol	0.96	ug/L	U	0.96	3.8
3/17/03	28426	BNA-Water	2,4,6-Trichlorophenol	0.96	ug/L	U	0.96	3.8
3/17/03	28426	BNA-Water	2,4-Dichlorophenol	0.96	ug/L	U	0.96	3.8
3/17/03	28426	BNA-Water	2,4-Dimethylphenol	48	ug/L	U	48	190
3/17/03	28426	BNA-Water	2,4-Dinitrophenol	14	ug/L	UJ	14	58
3/17/03	28426	BNA-Water	2,4-Dinitrotoluene	0.96	ug/L	U	0.96	3.8
3/17/03	28426	BNA-Water	2,6-Dichlorophenol	0.96	ug/L	U	0.96	3.8
3/17/03	28426	BNA-Water	2,6-Dinitrotoluene	0.96	ug/L	U	0.96	3.8
3/17/03	28426	BNA-Water	2-Acetylaminofluorene	0.96	ug/L	U	0.96	3.8
3/17/03	28426	BNA-Water	2-Chloronaphthalene	0.96	ug/L	U	0.96	3.8
3/17/03	28426	BNA-Water	2-Chlorophenol	0.96	ug/L	U	0.96	3.8
3/17/03	28426	BNA-Water	2-Methyl-4,6-dinitrophenol	2.9	ug/L	U	2.9	12
3/17/03	28426	BNA-Water	2-Methylnaphthalene	0.96	ug/L	U	0.96	3.8
3/17/03	28426	BNA-Water	2-Naphthylamine	9.6	ug/L	U	9.6	38
3/17/03	28426	BNA-Water	2-Nitroaniline	0.96	ug/L	U	0.96	3.8
3/17/03	28426	BNA-Water	2-Nitrophenol	0.96	ug/L	U	0.96	3.8
3/17/03	28426	BNA-Water	2-Picoline	0.96	ug/L	U	0.96	3.8
3/17/03	28426	BNA-Water	3,3'-Dichlorobenzidine	38	ug/L	U	38	150
3/17/03	28426	BNA-Water	3,3'-Dimethylbenzidine	19	ug/L	UJ	19	77
3/17/03	28426	BNA-Water	3-Methylcholanthrene	0.96	ug/L	U	0.96	3.8
3/17/03	28426	BNA-Water	3-Nitroaniline	0.96	ug/L	U	0.96	3.8
3/17/03	28426	BNA-Water	4,4'-DDD	1.4	ug/L	U	1.4	5.8
3/17/03	28426	BNA-Water	4,4'-DDE	1.4	ug/L	U	1.4	5.8
3/17/03	28426	BNA-Water	4,4'-DDT	1.4	ug/L	U	1.4	5.8
3/17/03	28426	BNA-Water	4-Aminobiphenyl	3.8	ug/L	U	3.8	15
3/17/03	28426	BNA-Water	4-Bromophenyl phenyl ether	0.96	ug/L	U	0.96	3.8
3/17/03	28426	BNA-Water	4-Chloro-3-methylphenol	0.96	ug/L	U	0.96	3.8
3/17/03	28426	BNA-Water	4-Chloroaniline	0.96	ug/L	U	0.96	3.8
3/17/03	28426	BNA-Water	4-Chlorophenyl phenyl ether	1.9	ug/L	U	1.9	7.7
3/17/03	28426	BNA-Water	4-Nitroaniline	0.96	ug/L	U	0.96	3.8
3/17/03	28426	BNA-Water	4-Nitrophenol	14	ug/L	U	14	58
3/17/03	28426	BNA-Water	5-Nitro-o-toluidine	0.96	ug/L	U	0.96	3.8
3/17/03	28426	BNA-Water	7,12-Dimethylbenz(a)anthracene	0.96	ug/L	U	0.96	3.8
3/17/03	28426	BNA-Water	Acenaphthene	0.96	ug/L	U	0.96	3.8
3/17/03	28426	BNA-Water	Acenaphthylene	0.96	ug/L	U	0.96	3.8
3/17/03	28426	BNA-Water	Acetophenone	0.96	ug/L	U	0.96	3.8

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
3/17/03	28426	BNA-Water	Aldrin	1.4	ug/L	U	1.4	5.8
3/17/03	28426	BNA-Water	Aniline	0.96	ug/L	U	0.96	3.8
3/17/03	28426	BNA-Water	Anthracene	0.96	ug/L	U	0.96	3.8
3/17/03	28426	BNA-Water	Azobenzene/1,2-Diphenylhydrazine	0.96	ug/L	U	0.96	3.8
3/17/03	28426	BNA-Water	Benzidine	96	ug/L	U	96	380
3/17/03	28426	BNA-Water	Benzo(a)anthracene	0.96	ug/L	U	0.96	3.8
3/17/03	28426	BNA-Water	Benzo(a)pyrene	0.96	ug/L	U	0.96	3.8
3/17/03	28426	BNA-Water	Benzo(b)fluoranthene	0.96	ug/L	U	0.96	3.8
3/17/03	28426	BNA-Water	Benzo(g,h,i)perylene	0.96	ug/L	U	0.96	3.8
3/17/03	28426	BNA-Water	Benzo(k)fluoranthene	0.96	ug/L	U	0.96	3.8
3/17/03	28426	BNA-Water	Benzyl alcohol	0.96	ug/L	U	0.96	3.8
3/17/03	28426	BNA-Water	Bis(2-chloroethoxy)methane	0.96	ug/L	U	0.96	3.8
3/17/03	28426	BNA-Water	Bis(2-chloroethyl)ether	0.96	ug/L	U	0.96	3.8
3/17/03	28426	BNA-Water	Bis(2-chloroisopropyl)ether	2.9	ug/L	U	2.9	12
3/17/03	28426	BNA-Water	Bis(2-ethylhexyl)phthalate	14	ug/L	U	14	58
3/17/03	28426	BNA-Water	Butyl benzyl phthalate	4.8	ug/L	U	4.8	19
3/17/03	28426	BNA-Water	Chrysene	0.96	ug/L	U	0.96	3.8
3/17/03	28426	BNA-Water	Di-n-butyl phthalate	4.8	ug/L	U	4.8	19
3/17/03	28426	BNA-Water	Di-n-octyl phthalate	0.96	ug/L	U	0.96	3.8
3/17/03	28426	BNA-Water	Dibenzo(a,h)anthracene	0.96	ug/L	U	0.96	3.8
3/17/03	28426	BNA-Water	Dibenzofuran	0.96	ug/L	U	0.96	3.8
3/17/03	28426	BNA-Water	Dieldrin	1.4	ug/L	U	1.4	5.8
3/17/03	28426	BNA-Water	Diethyl phthalate	0.96	ug/L	U	0.96	3.8
3/17/03	28426	BNA-Water	Dimethyl phthalate	48	ug/L	U	48	190
3/17/03	28426	BNA-Water	Dimethylaminoazobenzene	0.96	ug/L	U	0.96	3.8
3/17/03	28426	BNA-Water	Dinoseb	3.8	ug/L	U	3.8	15
3/17/03	28426	BNA-Water	Diphenylamine	2.9	ug/L	U	2.9	12
3/17/03	28426	BNA-Water	Endosulfan I	3.8	ug/L	U	3.8	15
3/17/03	28426	BNA-Water	Endosulfan II	3.8	ug/L	U	3.8	15
3/17/03	28426	BNA-Water	Endosulfan sulfate	1.4	ug/L	U	1.4	5.8
3/17/03	28426	BNA-Water	Endrin	1.4	ug/L	U	1.4	5.8
3/17/03	28426	BNA-Water	Endrin aldehyde	3.8	ug/L	U	3.8	15
3/17/03	28426	BNA-Water	Ethyl methanesulfonate	0.96	ug/L	U	0.96	3.8
3/17/03	28426	BNA-Water	Fluoranthene	0.96	ug/L	U	0.96	3.8
3/17/03	28426	BNA-Water	Fluorene	0.96	ug/L	U	0.96	3.8
3/17/03	28426	BNA-Water	Heptachlor	1.4	ug/L	U	1.4	5.8
3/17/03	28426	BNA-Water	Heptachlor epoxide	1.4	ug/L	U	1.4	5.8
3/17/03	28426	BNA-Water	Hexachlorobenzene	0.96	ug/L	U	0.96	3.8
3/17/03	28426	BNA-Water	Hexachlorobutadiene	2.9	ug/L	U	2.9	12
3/17/03	28426	BNA-Water	Hexachlorocyclopentadiene	2.9	ug/L	UJ	2.9	12
3/17/03	28426	BNA-Water	Hexachloroethane	2.9	ug/L	U	2.9	12
3/17/03	28426	BNA-Water	Hexachloropropene	1.9	ug/L	U	1.9	7.7
3/17/03	28426	BNA-Water	Indeno(1,2,3-cd)pyrene	0.96	ug/L	U	0.96	3.8
3/17/03	28426	BNA-Water	Isophorone	0.96	ug/L	UJ	0.96	3.8
3/17/03	28426	BNA-Water	Isosafrole	0.96	ug/L	U	0.96	3.8
3/17/03	28426	BNA-Water	Methapyrilene	3.8	ug/L	UJ	3.8	15
3/17/03	28426	BNA-Water	Methyl methanesulfonate	0.96	ug/L	UJ	0.96	3.8
3/17/03	28426	BNA-Water	N-Nitrosodi-n-butylamine	0.96	ug/L	U	0.96	3.8
3/17/03	28426	BNA-Water	N-Nitrosodi-n-propylamine	1.9	ug/L	U	1.9	7.7
3/17/03	28426	BNA-Water	N-Nitrosodiethylamine	0.96	ug/L	U	0.96	3.8
3/17/03	28426	BNA-Water	N-Nitrosodimethylamine	1.9	ug/L	U	1.9	7.7
3/17/03	28426	BNA-Water	N-Nitrosodiphenylamine	2.9	ug/L	U	2.9	12
3/17/03	28426	BNA-Water	N-Nitrosomethylethylamine	1.9	ug/L	U	1.9	7.7
3/17/03	28426	BNA-Water	N-Nitrosomorpholine	0.96	ug/L	U	0.96	3.8
3/17/03	28426	BNA-Water	N-Nitrosopiperidine	0.96	ug/L	U	0.96	3.8
3/17/03	28426	BNA-Water	N-Nitrosopyrrolidine	1.9	ug/L	U	1.9	7.7
3/17/03	28426	BNA-Water	Naphthalene	0.96	ug/L	U	0.96	3.8
3/17/03	28426	BNA-Water	Nitrobenzene	1.9	ug/L	U	1.9	7.7
3/17/03	28426	BNA-Water	Nitroquinoline-1-oxide	19	ug/L	UJ	19	77
3/17/03	28426	BNA-Water	Pentachlorobenzene	0.96	ug/L	U	0.96	3.8
3/17/03	28426	BNA-Water	Pentachloroethane	48	ug/L	U	48	190
3/17/03	28426	BNA-Water	Pentachloronitrobenzene	0.96	ug/L	U	0.96	3.8
3/17/03	28426	BNA-Water	Pentachlorophenol	2.9	ug/L	U	2.9	12
3/17/03	28426	BNA-Water	Phenacetin	3.8	ug/L	U	3.8	12
3/17/03	28426	BNA-Water	Phenanthrene	0.96	ug/L	U	0.96	3.8
3/17/03	28426	BNA-Water	Phenol	0.96	ug/L	U	0.96	3.8
3/17/03	28426	BNA-Water	Pyrene	0.96	ug/L	U	0.96	3.8
3/17/03	28426	BNA-Water	Pyridine	3.8	ug/L	U	3.8	15
3/17/03	28426	BNA-Water	Safrole	0.96	ug/L	U	0.96	3.8
3/17/03	28426	BNA-Water	alpha-BHC	1.4	ug/L	U	1.4	5.8
3/17/03	28426	BNA-Water	beta-BHC	1.4	ug/L	U	1.4	5.8
3/17/03	28426	BNA-Water	delta-BHC	1.4	ug/L	U	1.4	5.8
3/17/03	28426	BNA-Water	gamma-BHC	1.4	ug/L	U	1.4	5.8
3/17/03	28426	BNA-Water	m,p-Cresols	1.9	ug/L	U	1.9	7.7

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
3/17/03	28426	BNA-Water	o-Cresol	1.9	ug/L	U	1.9	7.7
3/17/03	28426	BNA-Water	o-Toluidine	0.96	ug/L	U	0.96	3.8
3/17/03	28426	GC-Water	Alachlor	0.58	ug/L	U	0.58	2.32
3/17/03	28426	GC-Water	Ametryn	0.048	ug/L	U	0.048	0.192
3/17/03	28426	GC-Water	Atrazine	0.048	ug/L	U	0.048	0.192
3/17/03	28426	GC-Water	Azinphos Methyl	0.048	ug/L	U	0.048	0.192
3/17/03	28426	GC-Water	Bromacil	0.19	ug/L	U	0.19	0.76
3/17/03	28426	GC-Water	Butylate	0.19	ug/L	U	0.19	0.76
3/17/03	28426	GC-Water	Chlorpyrifos Ethyl	0.048	ug/L	U	0.048	0.192
3/17/03	28426	GC-Water	Chlorpyrifos Methyl	0.096	ug/L	U	0.096	0.384
3/17/03	28426	GC-Water	Diazinon	0.048	ug/L	U	0.048	0.192
3/17/03	28426	GC-Water	Ethion	0.048	ug/L	UJ	0.048	0.192
3/17/03	28426	GC-Water	Ethoprop	0.096	ug/L	U	0.096	0.384
3/17/03	28426	GC-Water	Fenamiphos	0.19	ug/L	U	0.19	0.76
3/17/03	28426	GC-Water	Fonofos	0.096	ug/L	UJ	0.096	0.384
3/17/03	28426	GC-Water	Hexazinone	0.096	ug/L	U	0.096	0.384
3/17/03	28426	GC-Water	Malathion	0.14	ug/L	UJ	0.14	0.56
3/17/03	28426	GC-Water	Metalaxyl	0.24	ug/L	U	0.24	0.96
3/17/03	28426	GC-Water	Metolachlor	0.48	ug/L	U	0.48	1.92
3/17/03	28426	GC-Water	Metribuzin	0.096	ug/L	U	0.096	0.384
3/17/03	28426	GC-Water	Mevinphos	0.19	ug/L	U	0.19	0.76
3/17/03	28426	GC-Water	Naled	0.77	ug/L	U	0.77	3.08
3/17/03	28426	GC-Water	Norflurazon	0.096	ug/L	U	0.096	0.384
3/17/03	28426	GC-Water	Parathion Ethyl	0.14	ug/L	UJ	0.14	0.56
3/17/03	28426	GC-Water	Parathion Methyl	0.096	ug/L	U	0.096	0.384
3/17/03	28426	GC-Water	Phorate	0.048	ug/L	U	0.048	0.192
3/17/03	28426	GC-Water	Prometryn	0.14	ug/L	U	0.14	0.56
3/17/03	28426	GC-Water	Simazine	0.048	ug/L	U	0.048	0.192
3/17/03	28426	Metals-Water	Aluminum	10	ug/L	U	10	40
3/17/03	28426	Metals-Water	Arsenic	4	ug/L	U	4	16
3/17/03	28426	Metals-Water	Cadmium	0.025	ug/L	U	0.025	0.1
3/17/03	28426	Metals-Water	Calcium	0.05	mg/L	U	0.05	0.2
3/17/03	28426	Metals-Water	Chromium	2	ug/L	U	2	8
3/17/03	28426	Metals-Water	Copper	0.75	ug/L	U	0.75	3
3/17/03	28426	Metals-Water	Iron	7	ug/L	U	7	28
3/17/03	28426	Metals-Water	Lead	0.1	ug/L	U	0.1	0.4
3/17/03	28426	Metals-Water	Magnesium	0.01	mg/L	U	0.01	0.04
3/17/03	28426	Metals-Water	Nickel	2	ug/L	U	2	8
3/17/03	28426	Metals-Water	Selenium	1	ug/L	U	1	4
3/17/03	28426	Metals-Water	Silver	0.02	ug/L	U	0.02	0.08
3/17/03	28426	Metals-Water	Zinc	4	ug/L	U	4	16
3/17/03	28426	Nutrients-Liquid	Ammonia-N	0.01	mg N/L	U	0.01	0.02
3/17/03	28426	Nutrients-Liquid	NO2NO3-N	0.004	mg N/L	U	0.004	0.01
3/17/03	28426	Nutrients-Liquid	N_KJEL_TOT	0.06	mg N/L	U	0.06	0.2
3/17/03	28426	Nutrients-Liquid	O-Phosphate-P	0.004	mg P/L	U	0.004	0.01
3/17/03	28426	Nutrients-Liquid	Total-P	0.015	mg P/L	U	0.015	0.04
3/18/03	28434	BNA-Water	1,2,4,5-Tetrachlorobenzene	1.1	ug/L	U	1.1	4.5
3/18/03	28434	BNA-Water	1,2,4-Trichlorobenzene	1.1	ug/L	U	1.1	4.5
3/18/03	28434	BNA-Water	1,2-Dichlorobenzene	1.1	ug/L	U	1.1	4.5
3/18/03	28434	BNA-Water	1,3,5-Trinitrobenzene	4.5	ug/L	U	4.5	18
3/18/03	28434	BNA-Water	1,3-Dichlorobenzene	1.1	ug/L	U	1.1	4.5
3/18/03	28434	BNA-Water	1,3-Dinitrobenzene	2.2	ug/L	U	2.2	9
3/18/03	28434	BNA-Water	1,4-Dichlorobenzene	1.1	ug/L	U	1.1	4.5
3/18/03	28434	BNA-Water	1,4-Naphthoquinone	22	ug/L	UJ	22	90
3/18/03	28434	BNA-Water	1-Naphthylamine	11	ug/L	U	11	45
3/18/03	28434	BNA-Water	2,3,4,6-Tetrachlorophenol	2.2	ug/L	U	2.2	9
3/18/03	28434	BNA-Water	2,4,5-Trichlorophenol	1.1	ug/L	U	1.1	4.5
3/18/03	28434	BNA-Water	2,4,6-Trichlorophenol	1.1	ug/L	U	1.1	4.5
3/18/03	28434	BNA-Water	2,4-Dichlorophenol	1.1	ug/L	U	1.1	4.5
3/18/03	28434	BNA-Water	2,4-Dimethylphenol	56	ug/L	U	56	220
3/18/03	28434	BNA-Water	2,4-Dinitrophenol	17	ug/L	U	17	67
3/18/03	28434	BNA-Water	2,4-Dinitrotoluene	1.1	ug/L	U	1.1	4.5
3/18/03	28434	BNA-Water	2,6-Dichlorophenol	1.1	ug/L	U	1.1	4.5
3/18/03	28434	BNA-Water	2,6-Dinitrotoluene	1.1	ug/L	U	1.1	4.5
3/18/03	28434	BNA-Water	2-Acetylaminofluorene	1.1	ug/L	U	1.1	4.5
3/18/03	28434	BNA-Water	2-Chloronaphthalene	1.1	ug/L	U	1.1	4.5
3/18/03	28434	BNA-Water	2-Chlorophenol	1.1	ug/L	U	1.1	4.5
3/18/03	28434	BNA-Water	2-Methyl-4,6-dinitrophenol	3.4	ug/L	U	3.4	13
3/18/03	28434	BNA-Water	2-Methylnaphthalene	1.1	ug/L	U	1.1	4.5
3/18/03	28434	BNA-Water	2-Naphthylamine	11	ug/L	U	11	45
3/18/03	28434	BNA-Water	2-Nitroaniline	1.1	ug/L	U	1.1	4.5
3/18/03	28434	BNA-Water	2-Nitrophenol	1.1	ug/L	U	1.1	4.5
3/18/03	28434	BNA-Water	2-Picoline	1.1	ug/L	U	1.1	4.5
3/18/03	28434	BNA-Water	3,3'-Dichlorobenzidine	45	ug/L	U	45	180

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
3/18/03	28434	BNA-Water	3,3'-Dimethylbenzidine	22	ug/L	UJ	22	90
3/18/03	28434	BNA-Water	3-Methylcholanthrene	1.1	ug/L	U	1.1	4.5
3/18/03	28434	BNA-Water	3-Nitroaniline	1.1	ug/L	U	1.1	4.5
3/18/03	28434	BNA-Water	4,4'-DDD	1.7	ug/L	U	1.7	6.7
3/18/03	28434	BNA-Water	4,4'-DDE	1.7	ug/L	U	1.7	6.7
3/18/03	28434	BNA-Water	4,4'-DDT	1.7	ug/L	U	1.7	6.7
3/18/03	28434	BNA-Water	4-Aminobiphenyl	4.5	ug/L	U	4.5	18
3/18/03	28434	BNA-Water	4-Bromophenyl phenyl ether	1.1	ug/L	U	1.1	4.5
3/18/03	28434	BNA-Water	4-Chloro-3-methylphenol	1.1	ug/L	U	1.1	4.5
3/18/03	28434	BNA-Water	4-Chloroaniline	1.1	ug/L	U	1.1	4.5
3/18/03	28434	BNA-Water	4-Chlorophenyl phenyl ether	2.2	ug/L	U	2.2	9
3/18/03	28434	BNA-Water	4-Nitroaniline	1.1	ug/L	U	1.1	4.5
3/18/03	28434	BNA-Water	4-Nitrophenol	17	ug/L	U	17	67
3/18/03	28434	BNA-Water	5-Nitro-o-toluidine	1.1	ug/L	U	1.1	4.5
3/18/03	28434	BNA-Water	7,12-Dimethylbenz(a)anthracene	1.1	ug/L	U	1.1	4.5
3/18/03	28434	BNA-Water	Acenaphthene	1.1	ug/L	U	1.1	4.5
3/18/03	28434	BNA-Water	Acenaphthylene	1.1	ug/L	U	1.1	4.5
3/18/03	28434	BNA-Water	Acetophenone	1.1	ug/L	U	1.1	4.5
3/18/03	28434	BNA-Water	Aldrin	1.7	ug/L	U	1.7	6.7
3/18/03	28434	BNA-Water	Aniline	1.1	ug/L	U	1.1	4.5
3/18/03	28434	BNA-Water	Anthracene	1.1	ug/L	U	1.1	4.5
3/18/03	28434	BNA-Water	Azobenzene/1,2-Diphenylhydrazine	1.1	ug/L	U	1.1	4.5
3/18/03	28434	BNA-Water	Benzidine	110	ug/L	U	110	450
3/18/03	28434	BNA-Water	Benzo(a)anthracene	1.1	ug/L	U	1.1	4.5
3/18/03	28434	BNA-Water	Benzo(a)pyrene	1.1	ug/L	U	1.1	4.5
3/18/03	28434	BNA-Water	Benzo(b)fluoranthene	1.1	ug/L	U	1.1	4.5
3/18/03	28434	BNA-Water	Benzo(g,h,i)perylene	1.1	ug/L	U	1.1	4.5
3/18/03	28434	BNA-Water	Benzo(k)fluoranthene	1.1	ug/L	U	1.1	4.5
3/18/03	28434	BNA-Water	Benzyl alcohol	1.1	ug/L	U	1.1	4.5
3/18/03	28434	BNA-Water	Bis(2-chloroethoxy)methane	1.1	ug/L	U	1.1	4.5
3/18/03	28434	BNA-Water	Bis(2-chloroethyl)ether	1.1	ug/L	U	1.1	4.5
3/18/03	28434	BNA-Water	Bis(2-chloroisopropyl)ether	3.4	ug/L	U	3.4	13
3/18/03	28434	BNA-Water	Bis(2-ethylhexyl)phthalate	17	ug/L	U	17	67
3/18/03	28434	BNA-Water	Butyl benzyl phthalate	5.6	ug/L	U	5.6	22
3/18/03	28434	BNA-Water	Chrysene	1.1	ug/L	U	1.1	4.5
3/18/03	28434	BNA-Water	Di-n-butyl phthalate	5.6	ug/L	U	5.6	22
3/18/03	28434	BNA-Water	Di-n-octyl phthalate	1.1	ug/L	U	1.1	4.5
3/18/03	28434	BNA-Water	Dibenzo(a,h)anthracene	1.1	ug/L	U	1.1	4.5
3/18/03	28434	BNA-Water	Dibenzofuran	1.1	ug/L	U	1.1	4.5
3/18/03	28434	BNA-Water	Dieldrin	1.7	ug/L	U	1.7	6.7
3/18/03	28434	BNA-Water	Diethyl phthalate	1.1	ug/L	U	1.1	4.5
3/18/03	28434	BNA-Water	Dimethyl phthalate	56	ug/L	U	56	220
3/18/03	28434	BNA-Water	Dimethylaminoazobenzene	1.1	ug/L	U	1.1	4.5
3/18/03	28434	BNA-Water	Dinoseb	4.5	ug/L	U	4.5	18
3/18/03	28434	BNA-Water	Diphenylamine	3.4	ug/L	U	3.4	13
3/18/03	28434	BNA-Water	Endosulfan I	4.5	ug/L	U	4.5	18
3/18/03	28434	BNA-Water	Endosulfan II	4.5	ug/L	U	4.5	18
3/18/03	28434	BNA-Water	Endosulfan sulfate	1.7	ug/L	U	1.7	6.7
3/18/03	28434	BNA-Water	Endrin	1.7	ug/L	U	1.7	6.7
3/18/03	28434	BNA-Water	Endrin aldehyde	4.5	ug/L	U	4.5	18
3/18/03	28434	BNA-Water	Ethyl methanesulfonate	1.1	ug/L	U	1.1	4.5
3/18/03	28434	BNA-Water	Fluoranthene	1.1	ug/L	U	1.1	4.5
3/18/03	28434	BNA-Water	Fluorene	1.1	ug/L	U	1.1	4.5
3/18/03	28434	BNA-Water	Heptachlor	1.7	ug/L	U	1.7	6.7
3/18/03	28434	BNA-Water	Heptachlor epoxide	1.7	ug/L	U	1.7	6.7
3/18/03	28434	BNA-Water	Hexachlorobenzene	1.1	ug/L	U	1.1	4.5
3/18/03	28434	BNA-Water	Hexachlorobutadiene	3.4	ug/L	U	3.4	13
3/18/03	28434	BNA-Water	Hexachlorocyclopentadiene	3.4	ug/L	U	3.4	13
3/18/03	28434	BNA-Water	Hexachloroethane	3.4	ug/L	U	3.4	13
3/18/03	28434	BNA-Water	Hexachloropropene	2.2	ug/L	U	2.2	9
3/18/03	28434	BNA-Water	Indeno(1,2,3-cd)pyrene	1.1	ug/L	U	1.1	4.5
3/18/03	28434	BNA-Water	Isophorone	1.1	ug/L	UJ	1.1	4.5
3/18/03	28434	BNA-Water	Isosafrole	1.1	ug/L	U	1.1	4.5
3/18/03	28434	BNA-Water	Methapyrilene	4.5	ug/L	UJ	4.5	18
3/18/03	28434	BNA-Water	Methyl methanesulfonate	1.1	ug/L	UJ	1.1	4.5
3/18/03	28434	BNA-Water	N-Nitrosodi-n-butylamine	1.1	ug/L	U	1.1	4.5
3/18/03	28434	BNA-Water	N-Nitrosodi-n-propylamine	2.2	ug/L	U	2.2	9
3/18/03	28434	BNA-Water	N-Nitrosodiethylamine	1.1	ug/L	U	1.1	4.5
3/18/03	28434	BNA-Water	N-Nitrosodimethylamine	2.2	ug/L	U	2.2	9
3/18/03	28434	BNA-Water	N-Nitrosodiphenylamine	3.4	ug/L	U	3.4	13
3/18/03	28434	BNA-Water	N-Nitrosomethylethylamine	2.2	ug/L	U	2.2	9
3/18/03	28434	BNA-Water	N-Nitrosomorpholine	1.1	ug/L	U	1.1	4.5
3/18/03	28434	BNA-Water	N-Nitrosopiperidine	1.1	ug/L	U	1.1	4.5
3/18/03	28434	BNA-Water	N-Nitrosopyrrolidine	2.2	ug/L	U	2.2	9

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
3/18/03	28434	BNA-Water	Naphthalene	1.1	ug/L	U	1.1	4.5
3/18/03	28434	BNA-Water	Nitrobenzene	2.2	ug/L	U	2.2	9
3/18/03	28434	BNA-Water	Nitroquinoline-1-oxide	22	ug/L	UJ	22	90
3/18/03	28434	BNA-Water	Pentachlorobenzene	1.1	ug/L	U	1.1	4.5
3/18/03	28434	BNA-Water	Pentachloroethane	56	ug/L	U	56	220
3/18/03	28434	BNA-Water	Pentachloronitrobenzene	1.1	ug/L	U	1.1	4.5
3/18/03	28434	BNA-Water	Pentachlorophenol	3.4	ug/L	U	3.4	13
3/18/03	28434	BNA-Water	Phenacetin	4.5	ug/L	U	4.5	13
3/18/03	28434	BNA-Water	Phenanthrene	1.1	ug/L	U	1.1	4.5
3/18/03	28434	BNA-Water	Phenol	1.1	ug/L	U	1.1	4.5
3/18/03	28434	BNA-Water	Pyrene	1.1	ug/L	U	1.1	4.5
3/18/03	28434	BNA-Water	Pyridine	4.5	ug/L	U	4.5	18
3/18/03	28434	BNA-Water	Safrole	1.1	ug/L	U	1.1	4.5
3/18/03	28434	BNA-Water	alpha-BHC	1.7	ug/L	U	1.7	6.7
3/18/03	28434	BNA-Water	beta-BHC	1.7	ug/L	U	1.7	6.7
3/18/03	28434	BNA-Water	delta-BHC	1.7	ug/L	U	1.7	6.7
3/18/03	28434	BNA-Water	gamma-BHC	1.7	ug/L	U	1.7	6.7
3/18/03	28434	BNA-Water	m,p-Cresols	2.2	ug/L	U	2.2	9
3/18/03	28434	BNA-Water	o-Cresol	2.2	ug/L	U	2.2	9
3/18/03	28434	BNA-Water	o-Toluidine	1.1	ug/L	U	1.1	4.5
3/18/03	28434	GC-Water	Alachlor	0.64	ug/L	U	0.64	2.56
3/18/03	28434	GC-Water	Ametryn	0.054	ug/L	U	0.054	0.216
3/18/03	28434	GC-Water	Atrazine	0.054	ug/L	U	0.054	0.216
3/18/03	28434	GC-Water	Azinphos Methyl	0.054	ug/L	U	0.054	0.216
3/18/03	28434	GC-Water	Bromacil	0.22	ug/L	U	0.22	0.88
3/18/03	28434	GC-Water	Butylate	0.22	ug/L	U	0.22	0.88
3/18/03	28434	GC-Water	Chlorpyrifos Ethyl	0.054	ug/L	U	0.054	0.216
3/18/03	28434	GC-Water	Chlorpyrifos Methyl	0.11	ug/L	U	0.11	0.44
3/18/03	28434	GC-Water	Diazinon	0.054	ug/L	U	0.054	0.216
3/18/03	28434	GC-Water	Ethion	0.054	ug/L	U	0.054	0.216
3/18/03	28434	GC-Water	Ethoprop	0.11	ug/L	U	0.11	0.44
3/18/03	28434	GC-Water	Fenamiphos	0.22	ug/L	U	0.22	0.88
3/18/03	28434	GC-Water	Fonofos	0.11	ug/L	U	0.11	0.44
3/18/03	28434	GC-Water	Hexazinone	0.11	ug/L	U	0.11	0.44
3/18/03	28434	GC-Water	Malathion	0.16	ug/L	U	0.16	0.64
3/18/03	28434	GC-Water	Metalaxyl	0.27	ug/L	U	0.27	1.08
3/18/03	28434	GC-Water	Metolachlor	0.54	ug/L	U	0.54	2.16
3/18/03	28434	GC-Water	Metribuzin	0.11	ug/L	U	0.11	0.44
3/18/03	28434	GC-Water	Mevinphos	0.22	ug/L	U	0.22	0.88
3/18/03	28434	GC-Water	Naled	0.86	ug/L	U	0.86	3.44
3/18/03	28434	GC-Water	Norflurazon	0.11	ug/L	U	0.11	0.44
3/18/03	28434	GC-Water	Parathion Ethyl	0.16	ug/L	U	0.16	0.64
3/18/03	28434	GC-Water	Parathion Methyl	0.11	ug/L	U	0.11	0.44
3/18/03	28434	GC-Water	Phorate	0.054	ug/L	U	0.054	0.216
3/18/03	28434	GC-Water	Prometryn	0.16	ug/L	U	0.16	0.64
3/18/03	28434	GC-Water	Simazine	0.054	ug/L	U	0.054	0.216
3/18/03	28434	Metals-Water	Aluminum	10	ug/L	U	10	40
3/18/03	28434	Metals-Water	Arsenic	4	ug/L	U	4	16
3/18/03	28434	Metals-Water	Cadmium	0.025	ug/L	U	0.025	0.1
3/18/03	28434	Metals-Water	Calcium	0.05	mg/L	U	0.05	0.2
3/18/03	28434	Metals-Water	Chromium	2	ug/L	U	2	8
3/18/03	28434	Metals-Water	Copper	0.75	ug/L	U	0.75	3
3/18/03	28434	Metals-Water	Iron	7	ug/L	U	7	28
3/18/03	28434	Metals-Water	Lead	0.1	ug/L	U	0.1	0.4
3/18/03	28434	Metals-Water	Magnesium	0.02	mg/L	U	0.01	0.04
3/18/03	28434	Metals-Water	Nickel	2	ug/L	U	2	8
3/18/03	28434	Metals-Water	Selenium	1	ug/L	U	1	4
3/18/03	28434	Metals-Water	Silver	0.02	ug/L	U	0.02	0.08
3/18/03	28434	Metals-Water	Zinc	4	ug/L	U	4	16
3/18/03	28434	Nutrients-Liquid	Ammonia-N	0.01	mg N/L	U	0.01	0.02
3/19/03	28433	BNA-Water	1,2,4,5-Tetrachlorobenzene	1.1	ug/L	U	1.1	4.3
3/19/03	28433	BNA-Water	1,2,4-Trichlorobenzene	1.1	ug/L	U	1.1	4.3
3/19/03	28433	BNA-Water	1,2-Dichlorobenzene	1.1	ug/L	U	1.1	4.3
3/19/03	28433	BNA-Water	1,3,5-Trinitrobenzene	4.3	ug/L	U	4.3	17
3/19/03	28433	BNA-Water	1,3-Dichlorobenzene	1.1	ug/L	U	1.1	4.3
3/19/03	28433	BNA-Water	1,3-Dinitrobenzene	2.2	ug/L	U	2.2	8.6
3/19/03	28433	BNA-Water	1,4-Dichlorobenzene	1.1	ug/L	U	1.1	4.3
3/19/03	28433	BNA-Water	1,4-Naphthoquinone	22	ug/L	UJ	22	86
3/19/03	28433	BNA-Water	1-Naphthylamine	11	ug/L	U	11	43
3/19/03	28433	BNA-Water	2,3,4,6-Tetrachlorophenol	2.2	ug/L	U	2.2	8.6
3/19/03	28433	BNA-Water	2,4,5-Trichlorophenol	1.1	ug/L	U	1.1	4.3
3/19/03	28433	BNA-Water	2,4,6-Trichlorophenol	1.1	ug/L	U	1.1	4.3
3/19/03	28433	BNA-Water	2,4-Dichlorophenol	1.1	ug/L	U	1.1	4.3
3/19/03	28433	BNA-Water	2,4-Dimethylphenol	54	ug/L	U	54	220

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
3/19/03	28433	BNA-Water	2,4-Dinitrophenol	16	ug/L	U	16	65
3/19/03	28433	BNA-Water	2,4-Dinitrotoluene	1.1	ug/L	U	1.1	4.3
3/19/03	28433	BNA-Water	2,6-Dichlorophenol	1.1	ug/L	U	1.1	4.3
3/19/03	28433	BNA-Water	2,6-Dinitrotoluene	1.1	ug/L	U	1.1	4.3
3/19/03	28433	BNA-Water	2-Acetylaminofluorene	1.1	ug/L	U	1.1	4.3
3/19/03	28433	BNA-Water	2-Chloronaphthalene	1.1	ug/L	U	1.1	4.3
3/19/03	28433	BNA-Water	2-Chlorophenol	1.1	ug/L	U	1.1	4.3
3/19/03	28433	BNA-Water	2-Methyl-4,6-dinitrophenol	3.2	ug/L	U	3.2	13
3/19/03	28433	BNA-Water	2-Methylnaphthalene	1.1	ug/L	U	1.1	4.3
3/19/03	28433	BNA-Water	2-Naphthylamine	11	ug/L	U	11	43
3/19/03	28433	BNA-Water	2-Nitroaniline	1.1	ug/L	U	1.1	4.3
3/19/03	28433	BNA-Water	2-Nitrophenol	1.1	ug/L	U	1.1	4.3
3/19/03	28433	BNA-Water	2-Picoline	1.1	ug/L	U	1.1	4.3
3/19/03	28433	BNA-Water	3,3'-Dichlorobenzidine	43	ug/L	U	43	170
3/19/03	28433	BNA-Water	3,3'-Dimethylbenzidine	22	ug/L	UJ	22	86
3/19/03	28433	BNA-Water	3-Methylcholanthrene	1.1	ug/L	U	1.1	4.3
3/19/03	28433	BNA-Water	3-Nitroaniline	1.1	ug/L	U	1.1	4.3
3/19/03	28433	BNA-Water	4,4'-DDD	1.6	ug/L	U	1.6	6.5
3/19/03	28433	BNA-Water	4,4'-DDE	1.6	ug/L	U	1.6	6.5
3/19/03	28433	BNA-Water	4,4'-DDT	1.6	ug/L	U	1.6	6.5
3/19/03	28433	BNA-Water	4-Aminobiphenyl	4.3	ug/L	U	4.3	17
3/19/03	28433	BNA-Water	4-Bromophenyl phenyl ether	1.1	ug/L	U	1.1	4.3
3/19/03	28433	BNA-Water	4-Chloro-3-methylphenol	1.1	ug/L	U	1.1	4.3
3/19/03	28433	BNA-Water	4-Chloroaniline	1.1	ug/L	U	1.1	4.3
3/19/03	28433	BNA-Water	4-Chlorophenyl phenyl ether	2.2	ug/L	U	2.2	8.6
3/19/03	28433	BNA-Water	4-Nitroaniline	1.1	ug/L	U	1.1	4.3
3/19/03	28433	BNA-Water	4-Nitrophenol	16	ug/L	U	16	65
3/19/03	28433	BNA-Water	5-Nitro-o-toluidine	1.1	ug/L	U	1.1	4.3
3/19/03	28433	BNA-Water	7,12-Dimethylbenz(a)anthracene	1.1	ug/L	U	1.1	4.3
3/19/03	28433	BNA-Water	Acenaphthene	1.1	ug/L	U	1.1	4.3
3/19/03	28433	BNA-Water	Acenaphthylene	1.1	ug/L	U	1.1	4.3
3/19/03	28433	BNA-Water	Acetophenone	1.1	ug/L	U	1.1	4.3
3/19/03	28433	BNA-Water	Aldrin	1.6	ug/L	U	1.6	6.5
3/19/03	28433	BNA-Water	Aniline	1.1	ug/L	U	1.1	4.3
3/19/03	28433	BNA-Water	Anthracene	1.1	ug/L	U	1.1	4.3
3/19/03	28433	BNA-Water	Azobenzene/1,2-Diphenylhydrazine	1.1	ug/L	U	1.1	4.3
3/19/03	28433	BNA-Water	Benzidine	110	ug/L	U	110	430
3/19/03	28433	BNA-Water	Benzo(a)anthracene	1.1	ug/L	U	1.1	4.3
3/19/03	28433	BNA-Water	Benzo(a)pyrene	1.1	ug/L	U	1.1	4.3
3/19/03	28433	BNA-Water	Benzo(b)fluoranthene	1.1	ug/L	U	1.1	4.3
3/19/03	28433	BNA-Water	Benzo(g,h,i)perylene	1.1	ug/L	U	1.1	4.3
3/19/03	28433	BNA-Water	Benzo(k)fluoranthene	1.1	ug/L	U	1.1	4.3
3/19/03	28433	BNA-Water	Benzyl alcohol	1.1	ug/L	U	1.1	4.3
3/19/03	28433	BNA-Water	Bis(2-chloroethoxy)methane	1.1	ug/L	U	1.1	4.3
3/19/03	28433	BNA-Water	Bis(2-chloroethyl)ether	1.1	ug/L	U	1.1	4.3
3/19/03	28433	BNA-Water	Bis(2-chloroisopropyl)ether	3.2	ug/L	U	3.2	13
3/19/03	28433	BNA-Water	Bis(2-ethylhexyl)phthalate	16	ug/L	U	16	65
3/19/03	28433	BNA-Water	Butyl benzyl phthalate	5.4	ug/L	U	5.4	22
3/19/03	28433	BNA-Water	Chrysene	1.1	ug/L	U	1.1	4.3
3/19/03	28433	BNA-Water	Di-n-butyl phthalate	5.4	ug/L	U	5.4	22
3/19/03	28433	BNA-Water	Di-n-octyl phthalate	1.1	ug/L	U	1.1	4.3
3/19/03	28433	BNA-Water	Dibenzo(a,h)anthracene	1.1	ug/L	U	1.1	4.3
3/19/03	28433	BNA-Water	Dibenzofuran	1.1	ug/L	U	1.1	4.3
3/19/03	28433	BNA-Water	Dieldrin	1.6	ug/L	U	1.6	6.5
3/19/03	28433	BNA-Water	Diethyl phthalate	1.1	ug/L	U	1.1	4.3
3/19/03	28433	BNA-Water	Dimethyl phthalate	54	ug/L	U	54	220
3/19/03	28433	BNA-Water	Dimethylaminoazobenzene	1.1	ug/L	U	1.1	4.3
3/19/03	28433	BNA-Water	Dinoseb	4.3	ug/L	U	4.3	17
3/19/03	28433	BNA-Water	Diphenylamine	3.2	ug/L	U	3.2	13
3/19/03	28433	BNA-Water	Endosulfan I	4.3	ug/L	U	4.3	17
3/19/03	28433	BNA-Water	Endosulfan II	4.3	ug/L	U	4.3	17
3/19/03	28433	BNA-Water	Endosulfan sulfate	1.6	ug/L	U	1.6	6.5
3/19/03	28433	BNA-Water	Endrin	1.6	ug/L	U	1.6	6.5
3/19/03	28433	BNA-Water	Endrin aldehyde	4.3	ug/L	U	4.3	17
3/19/03	28433	BNA-Water	Ethyl methanesulfonate	1.1	ug/L	U	1.1	4.3
3/19/03	28433	BNA-Water	Fluoranthene	1.1	ug/L	U	1.1	4.3
3/19/03	28433	BNA-Water	Fluorene	1.1	ug/L	U	1.1	4.3
3/19/03	28433	BNA-Water	Heptachlor	1.6	ug/L	U	1.6	6.5
3/19/03	28433	BNA-Water	Heptachlor epoxide	1.6	ug/L	U	1.6	6.5
3/19/03	28433	BNA-Water	Hexachlorobenzene	1.1	ug/L	U	1.1	4.3
3/19/03	28433	BNA-Water	Hexachlorobutadiene	3.2	ug/L	U	3.2	13
3/19/03	28433	BNA-Water	Hexachlorocyclopentadiene	3.2	ug/L	U	3.2	13
3/19/03	28433	BNA-Water	Hexachloroethane	3.2	ug/L	U	3.2	13
3/19/03	28433	BNA-Water	Hexachloropropene	2.2	ug/L	U	2.2	8.6

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
3/19/03	28433	BNA-Water	Indeno(1,2,3-cd)pyrene	1.1	ug/L	U	1.1	4.3
3/19/03	28433	BNA-Water	Isophorone	1.1	ug/L	UJ	1.1	4.3
3/19/03	28433	BNA-Water	Isosafrole	1.1	ug/L	U	1.1	4.3
3/19/03	28433	BNA-Water	Methapyrilene	4.3	ug/L	UJ	4.3	17
3/19/03	28433	BNA-Water	Methyl methanesulfonate	1.1	ug/L	UJ	1.1	4.3
3/19/03	28433	BNA-Water	N-Nitrosodi-n-butylamine	1.1	ug/L	U	1.1	4.3
3/19/03	28433	BNA-Water	N-Nitrosodi-n-propylamine	2.2	ug/L	U	2.2	8.6
3/19/03	28433	BNA-Water	N-Nitrosodiethylamine	1.1	ug/L	U	1.1	4.3
3/19/03	28433	BNA-Water	N-Nitrosodimethylamine	2.2	ug/L	U	2.2	8.6
3/19/03	28433	BNA-Water	N-Nitrosodiphenylamine	3.2	ug/L	U	3.2	13
3/19/03	28433	BNA-Water	N-Nitrosomethylethylamine	2.2	ug/L	U	2.2	8.6
3/19/03	28433	BNA-Water	N-Nitrosomorpholine	1.1	ug/L	U	1.1	4.3
3/19/03	28433	BNA-Water	N-Nitrosopiperidine	1.1	ug/L	U	1.1	4.3
3/19/03	28433	BNA-Water	N-Nitrosopyrrolidine	2.2	ug/L	U	2.2	8.6
3/19/03	28433	BNA-Water	Naphthalene	1.1	ug/L	U	1.1	4.3
3/19/03	28433	BNA-Water	Nitrobenzene	2.2	ug/L	U	2.2	8.6
3/19/03	28433	BNA-Water	Nitroquinoline-1-oxide	22	ug/L	UJ	22	86
3/19/03	28433	BNA-Water	Pentachlorobenzene	1.1	ug/L	U	1.1	4.3
3/19/03	28433	BNA-Water	Pentachloroethane	54	ug/L	U	54	220
3/19/03	28433	BNA-Water	Pentachloronitrobenzene	1.1	ug/L	U	1.1	4.3
3/19/03	28433	BNA-Water	Pentachlorophenol	3.2	ug/L	U	3.2	13
3/19/03	28433	BNA-Water	Phenacetin	4.3	ug/L	U	4.3	13
3/19/03	28433	BNA-Water	Phenanthrene	1.1	ug/L	U	1.1	4.3
3/19/03	28433	BNA-Water	Phenol	1.1	ug/L	U	1.1	4.3
3/19/03	28433	BNA-Water	Pyrene	1.1	ug/L	U	1.1	4.3
3/19/03	28433	BNA-Water	Pyridine	4.3	ug/L	U	4.3	17
3/19/03	28433	BNA-Water	Safrole	1.1	ug/L	U	1.1	4.3
3/19/03	28433	BNA-Water	alpha-BHC	1.6	ug/L	U	1.6	6.5
3/19/03	28433	BNA-Water	beta-BHC	1.6	ug/L	U	1.6	6.5
3/19/03	28433	BNA-Water	delta-BHC	1.6	ug/L	U	1.6	6.5
3/19/03	28433	BNA-Water	gamma-BHC	1.6	ug/L	U	1.6	6.5
3/19/03	28433	BNA-Water	m,p-Cresols	2.2	ug/L	U	2.2	8.6
3/19/03	28433	BNA-Water	o-Cresol	2.2	ug/L	U	2.2	8.6
3/19/03	28433	BNA-Water	o-Toluidine	1.1	ug/L	U	1.1	4.3
3/19/03	28433	GC-Water	Alachlor	0.6	ug/L	U	0.6	2.4
3/19/03	28433	GC-Water	Ametryn	0.05	ug/L	U	0.05	0.2
3/19/03	28433	GC-Water	Atrazine	0.84	ug/L		0.05	0.2
3/19/03	28433	GC-Water	Azinphos Methyl	0.05	ug/L	U	0.05	0.2
3/19/03	28433	GC-Water	Bromacil	0.2	ug/L	U	0.2	0.8
3/19/03	28433	GC-Water	Butylate	0.2	ug/L	U	0.2	0.8
3/19/03	28433	GC-Water	Chlorpyrifos Ethyl	0.05	ug/L	U	0.05	0.2
3/19/03	28433	GC-Water	Chlorpyrifos Methyl	0.1	ug/L	U	0.1	0.4
3/19/03	28433	GC-Water	Diazinon	0.05	ug/L	U	0.05	0.2
3/19/03	28433	GC-Water	Ethion	0.05	ug/L	U	0.05	0.2
3/19/03	28433	GC-Water	Ethoprop	0.1	ug/L	U	0.1	0.4
3/19/03	28433	GC-Water	Fenamiphos	0.2	ug/L	U	0.2	0.8
3/19/03	28433	GC-Water	Fonofos	0.1	ug/L	U	0.1	0.4
3/19/03	28433	GC-Water	Hexazinone	0.1	ug/L	U	0.1	0.4
3/19/03	28433	GC-Water	Malathion	0.15	ug/L	U	0.15	0.6
3/19/03	28433	GC-Water	Metalaxyl	0.25	ug/L	U	0.25	1
3/19/03	28433	GC-Water	Metolachlor	0.5	ug/L	U	0.5	2
3/19/03	28433	GC-Water	Metribuzin	0.1	ug/L	U	0.1	0.4
3/19/03	28433	GC-Water	Mevinphos	0.2	ug/L	U	0.2	0.8
3/19/03	28433	GC-Water	Naled	0.8	ug/L	U	0.8	3.2
3/19/03	28433	GC-Water	Norflurazon	0.1	ug/L	U	0.1	0.4
3/19/03	28433	GC-Water	Parathion Ethyl	0.15	ug/L	U	0.15	0.6
3/19/03	28433	GC-Water	Parathion Methyl	0.1	ug/L	U	0.1	0.4
3/19/03	28433	GC-Water	Phorate	0.05	ug/L	U	0.05	0.2
3/19/03	28433	GC-Water	Prometryn	0.15	ug/L	U	0.15	0.6
3/19/03	28433	GC-Water	Simazine	0.05	ug/L	U	0.05	0.2
3/19/03	28433	Metals-Water	Aluminum	10	ug/L	U	10	40
3/19/03	28433	Metals-Water	Arsenic	4	ug/L	U	4	16
3/19/03	28433	Metals-Water	Cadmium	0.087	ug/L	I	0.025	0.1
3/19/03	28433	Metals-Water	Calcium	48.9	mg/L		0.05	0.2
3/19/03	28433	Metals-Water	Chromium	2	ug/L	U	2	8
3/19/03	28433	Metals-Water	Copper	3.1	ug/L	U	0.75	3
3/19/03	28433	Metals-Water	Iron	72	ug/L		7	28
3/19/03	28433	Metals-Water	Lead	0.42	ug/L		0.1	0.4
3/19/03	28433	Metals-Water	Magnesium	12.8	mg/L		0.01	0.04
3/19/03	28433	Metals-Water	Nickel	2	ug/L	U	2	8
3/19/03	28433	Metals-Water	Selenium	1	ug/L	U	1	4
3/19/03	28433	Metals-Water	Silver	0.02	ug/L	U	0.02	0.08
3/19/03	28433	Metals-Water	Zinc	57	ug/L		4	16
3/19/03	28433	Nutrients-Liquid	Ammonia-N	5.2	mg N/L		0.2	0.4

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
3/20/03	28435	BNA-Water	1,2,4,5-Tetrachlorobenzene	0.99	ug/L	U	0.99	4
3/20/03	28435	BNA-Water	1,2,4-Trichlorobenzene	0.99	ug/L	U	0.99	4
3/20/03	28435	BNA-Water	1,2-Dichlorobenzene	0.99	ug/L	U	0.99	4
3/20/03	28435	BNA-Water	1,3,5-Trinitrobenzene	4	ug/L	U	4	16
3/20/03	28435	BNA-Water	1,3-Dichlorobenzene	0.99	ug/L	U	0.99	4
3/20/03	28435	BNA-Water	1,3-Dinitrobenzene	2	ug/L	U	2	7.9
3/20/03	28435	BNA-Water	1,4-Dichlorobenzene	0.99	ug/L	U	0.99	4
3/20/03	28435	BNA-Water	1,4-Naphthoquinone	20	ug/L	UJ	20	79
3/20/03	28435	BNA-Water	1-Naphthylamine	9.9	ug/L	U	9.9	40
3/20/03	28435	BNA-Water	2,3,4,6-Tetrachlorophenol	2	ug/L	U	2	7.9
3/20/03	28435	BNA-Water	2,4,5-Trichlorophenol	0.99	ug/L	U	0.99	4
3/20/03	28435	BNA-Water	2,4,6-Trichlorophenol	0.99	ug/L	U	0.99	4
3/20/03	28435	BNA-Water	2,4-Dichlorophenol	0.99	ug/L	U	0.99	4
3/20/03	28435	BNA-Water	2,4-Dimethylphenol	50	ug/L	U	50	200
3/20/03	28435	BNA-Water	2,4-Dinitrophenol	15	ug/L	U	15	59
3/20/03	28435	BNA-Water	2,4-Dinitrotoluene	0.99	ug/L	U	0.99	4
3/20/03	28435	BNA-Water	2,6-Dichlorophenol	0.99	ug/L	U	0.99	4
3/20/03	28435	BNA-Water	2,6-Dinitrotoluene	0.99	ug/L	U	0.99	4
3/20/03	28435	BNA-Water	2-Acetylaminofluorene	0.99	ug/L	U	0.99	4
3/20/03	28435	BNA-Water	2-Chloronaphthalene	0.99	ug/L	U	0.99	4
3/20/03	28435	BNA-Water	2-Chlorophenol	0.99	ug/L	U	0.99	4
3/20/03	28435	BNA-Water	2-Methyl-4,6-dinitrophenol	3	ug/L	U	3	12
3/20/03	28435	BNA-Water	2-Methylnaphthalene	0.99	ug/L	U	0.99	4
3/20/03	28435	BNA-Water	2-Naphthylamine	9.9	ug/L	U	9.9	40
3/20/03	28435	BNA-Water	2-Nitroaniline	0.99	ug/L	U	0.99	4
3/20/03	28435	BNA-Water	2-Nitrophenol	0.99	ug/L	U	0.99	4
3/20/03	28435	BNA-Water	2-Picoline	0.99	ug/L	U	0.99	4
3/20/03	28435	BNA-Water	3,3'-Dichlorobenzidine	40	ug/L	U	40	160
3/20/03	28435	BNA-Water	3,3'-Dimethylbenzidine	20	ug/L	U	20	79
3/20/03	28435	BNA-Water	3-Methylcholanthrene	0.99	ug/L	U	0.99	4
3/20/03	28435	BNA-Water	3-Nitroaniline	0.99	ug/L	U	0.99	4
3/20/03	28435	BNA-Water	4,4'-DDD	1.5	ug/L	U	1.5	5.9
3/20/03	28435	BNA-Water	4,4'-DDE	1.5	ug/L	U	1.5	5.9
3/20/03	28435	BNA-Water	4,4'-DDT	1.5	ug/L	U	1.5	5.9
3/20/03	28435	BNA-Water	4-Aminobiphenyl	4	ug/L	U	4	16
3/20/03	28435	BNA-Water	4-Bromophenyl phenyl ether	0.99	ug/L	U	0.99	4
3/20/03	28435	BNA-Water	4-Chloro-3-methylphenol	0.99	ug/L	U	0.99	4
3/20/03	28435	BNA-Water	4-Chloroaniline	0.99	ug/L	U	0.99	4
3/20/03	28435	BNA-Water	4-Chlorophenyl phenyl ether	2	ug/L	U	2	7.9
3/20/03	28435	BNA-Water	4-Nitroaniline	0.99	ug/L	UJ	0.99	4
3/20/03	28435	BNA-Water	4-Nitrophenol	15	ug/L	U	15	59
3/20/03	28435	BNA-Water	5-Nitro-o-toluidine	0.99	ug/L	U	0.99	4
3/20/03	28435	BNA-Water	7,12-Dimethylbenz(a)anthracene	0.99	ug/L	U	0.99	4
3/20/03	28435	BNA-Water	Acenaphthene	0.99	ug/L	U	0.99	4
3/20/03	28435	BNA-Water	Acenaphthylene	0.99	ug/L	U	0.99	4
3/20/03	28435	BNA-Water	Acetophenone	0.99	ug/L	U	0.99	4
3/20/03	28435	BNA-Water	Aldrin	1.5	ug/L	U	1.5	5.9
3/20/03	28435	BNA-Water	Aniline	0.99	ug/L	U	0.99	4
3/20/03	28435	BNA-Water	Anthracene	0.99	ug/L	U	0.99	4
3/20/03	28435	BNA-Water	Azobenzene/1,2-Diphenylhydrazine	0.99	ug/L	U	0.99	4
3/20/03	28435	BNA-Water	Benzidine	99	ug/L	U	99	400
3/20/03	28435	BNA-Water	Benzo(a)anthracene	0.99	ug/L	U	0.99	4
3/20/03	28435	BNA-Water	Benzo(a)pyrene	0.99	ug/L	U	0.99	4
3/20/03	28435	BNA-Water	Benzo(b)fluoranthene	0.99	ug/L	U	0.99	4
3/20/03	28435	BNA-Water	Benzo(g,h,i)perylene	0.99	ug/L	U	0.99	4
3/20/03	28435	BNA-Water	Benzo(k)fluoranthene	0.99	ug/L	U	0.99	4
3/20/03	28435	BNA-Water	Benzyl alcohol	0.99	ug/L	U	0.99	4
3/20/03	28435	BNA-Water	Bis(2-chloroethoxy)methane	0.99	ug/L	U	0.99	4
3/20/03	28435	BNA-Water	Bis(2-chloroethyl)ether	0.99	ug/L	U	0.99	4
3/20/03	28435	BNA-Water	Bis(2-chloroisopropyl)ether	3	ug/L	U	3	12
3/20/03	28435	BNA-Water	Bis(2-ethylhexyl)phthalate	15	ug/L	U	15	59
3/20/03	28435	BNA-Water	Butyl benzyl phthalate	5	ug/L	U	5	20
3/20/03	28435	BNA-Water	Chrysene	0.99	ug/L	U	0.99	4
3/20/03	28435	BNA-Water	Di-n-butyl phthalate	5	ug/L	U	5	20
3/20/03	28435	BNA-Water	Di-n-octyl phthalate	0.99	ug/L	U	0.99	4
3/20/03	28435	BNA-Water	Dibenzo(a,h)anthracene	0.99	ug/L	U	0.99	4
3/20/03	28435	BNA-Water	Dibenzofuran	0.99	ug/L	U	0.99	4
3/20/03	28435	BNA-Water	Dieldrin	1.5	ug/L	U	1.5	5.9
3/20/03	28435	BNA-Water	Diethyl phthalate	0.99	ug/L	U	0.99	4
3/20/03	28435	BNA-Water	Dimethyl phthalate	50	ug/L	U	50	200
3/20/03	28435	BNA-Water	Dimethylaminoazobenzene	0.99	ug/L	U	0.99	4
3/20/03	28435	BNA-Water	Dinoseb	4	ug/L	U	4	16
3/20/03	28435	BNA-Water	Diphenylamine	3	ug/L	U	3	12
3/20/03	28435	BNA-Water	Endosulfan I	4	ug/L	U	4	16

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
3/20/03	28435	BNA-Water	Endosulfan II	4	ug/L	U	4	16
3/20/03	28435	BNA-Water	Endosulfan sulfate	1.5	ug/L	U	1.5	5.9
3/20/03	28435	BNA-Water	Endrin	1.5	ug/L	UJ	1.5	5.9
3/20/03	28435	BNA-Water	Endrin aldehyde	4	ug/L	U	4	16
3/20/03	28435	BNA-Water	Ethyl methanesulfonate	0.99	ug/L	U	0.99	4
3/20/03	28435	BNA-Water	Fluoranthene	0.99	ug/L	U	0.99	4
3/20/03	28435	BNA-Water	Fluorene	0.99	ug/L	U	0.99	4
3/20/03	28435	BNA-Water	Heptachlor	1.5	ug/L	U	1.5	5.9
3/20/03	28435	BNA-Water	Heptachlor epoxide	1.5	ug/L	U	1.5	5.9
3/20/03	28435	BNA-Water	Hexachlorobenzene	0.99	ug/L	U	0.99	4
3/20/03	28435	BNA-Water	Hexachlorobutadiene	3	ug/L	U	3	12
3/20/03	28435	BNA-Water	Hexachlorocyclopentadiene	3	ug/L	U	3	12
3/20/03	28435	BNA-Water	Hexachloroethane	3	ug/L	U	3	12
3/20/03	28435	BNA-Water	Hexachloropropene	2	ug/L	U	2	7.9
3/20/03	28435	BNA-Water	Indeno(1,2,3-cd)pyrene	0.99	ug/L	U	0.99	4
3/20/03	28435	BNA-Water	Isophorone	0.99	ug/L	U	0.99	4
3/20/03	28435	BNA-Water	Isosafrole	0.99	ug/L	U	0.99	4
3/20/03	28435	BNA-Water	Methapyrilene	4	ug/L	UJ	4	16
3/20/03	28435	BNA-Water	Methyl methanesulfonate	0.99	ug/L	UJ	0.99	4
3/20/03	28435	BNA-Water	N-Nitrosodi-n-butylamine	0.99	ug/L	U	0.99	4
3/20/03	28435	BNA-Water	N-Nitrosodi-n-propylamine	2	ug/L	U	2	7.9
3/20/03	28435	BNA-Water	N-Nitrosodiethylamine	0.99	ug/L	U	0.99	4
3/20/03	28435	BNA-Water	N-Nitrosodimethylamine	2	ug/L	U	2	7.9
3/20/03	28435	BNA-Water	N-Nitrosodiphenylamine	3	ug/L	U	3	12
3/20/03	28435	BNA-Water	N-Nitrosomethylethylamine	2	ug/L	U	2	7.9
3/20/03	28435	BNA-Water	N-Nitrosomorpholine	0.99	ug/L	U	0.99	4
3/20/03	28435	BNA-Water	N-Nitrosopiperidine	0.99	ug/L	U	0.99	4
3/20/03	28435	BNA-Water	N-Nitrosopyrrolidine	2	ug/L	U	2	7.9
3/20/03	28435	BNA-Water	Naphthalene	0.99	ug/L	U	0.99	4
3/20/03	28435	BNA-Water	Nitrobenzene	2	ug/L	U	2	7.9
3/20/03	28435	BNA-Water	Nitroquinoline-1-oxide	20	ug/L	UJ	20	79
3/20/03	28435	BNA-Water	Pentachlorobenzene	0.99	ug/L	U	0.99	4
3/20/03	28435	BNA-Water	Pentachloroethane	50	ug/L	U	50	200
3/20/03	28435	BNA-Water	Pentachloronitrobenzene	0.99	ug/L	U	0.99	4
3/20/03	28435	BNA-Water	Pentachlorophenol	3	ug/L	U	3	12
3/20/03	28435	BNA-Water	Phenacetin	4	ug/L	U	4	12
3/20/03	28435	BNA-Water	Phenanthrene	0.99	ug/L	U	0.99	4
3/20/03	28435	BNA-Water	Phenol	0.99	ug/L	U	0.99	4
3/20/03	28435	BNA-Water	Pyrene	0.99	ug/L	U	0.99	4
3/20/03	28435	BNA-Water	Pyridine	4	ug/L	U	4	16
3/20/03	28435	BNA-Water	Safrole	0.99	ug/L	U	0.99	4
3/20/03	28435	BNA-Water	alpha-BHC	1.5	ug/L	U	1.5	5.9
3/20/03	28435	BNA-Water	beta-BHC	1.5	ug/L	U	1.5	5.9
3/20/03	28435	BNA-Water	delta-BHC	1.5	ug/L	U	1.5	5.9
3/20/03	28435	BNA-Water	gamma-BHC	1.5	ug/L	U	1.5	5.9
3/20/03	28435	BNA-Water	m,p-Cresols	2	ug/L	U	2	7.9
3/20/03	28435	BNA-Water	o-Cresol	2	ug/L	U	2	7.9
3/20/03	28435	BNA-Water	o-Toluidine	0.99	ug/L	U	0.99	4
3/20/03	28435	GC-Water	Alachlor	0.59	ug/L	U	0.59	2.36
3/20/03	28435	GC-Water	Ametryn	0.05	ug/L	U	0.05	0.2
3/20/03	28435	GC-Water	Atrazine	0.42	ug/L		0.05	0.2
3/20/03	28435	GC-Water	Azinphos Methyl	0.05	ug/L	U	0.05	0.2
3/20/03	28435	GC-Water	Bromacil	0.2	ug/L	U	0.2	0.8
3/20/03	28435	GC-Water	Butylate	0.2	ug/L	U	0.2	0.8
3/20/03	28435	GC-Water	Chlorpyrifos Ethyl	0.05	ug/L	U	0.05	0.2
3/20/03	28435	GC-Water	Chlorpyrifos Methyl	0.099	ug/L	U	0.099	0.396
3/20/03	28435	GC-Water	Diazinon	0.05	ug/L	U	0.05	0.2
3/20/03	28435	GC-Water	Ethion	0.05	ug/L	U	0.05	0.2
3/20/03	28435	GC-Water	Ethoprop	0.099	ug/L	U	0.099	0.396
3/20/03	28435	GC-Water	Fenamiphos	0.2	ug/L	U	0.2	0.8
3/20/03	28435	GC-Water	Fonofos	0.099	ug/L	U	0.099	0.396
3/20/03	28435	GC-Water	Hexazinone	0.099	ug/L	U	0.099	0.396
3/20/03	28435	GC-Water	Malathion	0.15	ug/L	U	0.15	0.6
3/20/03	28435	GC-Water	Metalaxyl	0.25	ug/L	U	0.25	1
3/20/03	28435	GC-Water	Metolachlor	0.5	ug/L	U	0.5	2
3/20/03	28435	GC-Water	Metribuzin	0.099	ug/L	U	0.099	0.396
3/20/03	28435	GC-Water	Mevinphos	0.2	ug/L	U	0.2	0.8
3/20/03	28435	GC-Water	Naled	0.79	ug/L	U	0.79	3.16
3/20/03	28435	GC-Water	Norflurazon	0.099	ug/L	U	0.099	0.396
3/20/03	28435	GC-Water	Parathion Ethyl	0.15	ug/L	U	0.15	0.6
3/20/03	28435	GC-Water	Parathion Methyl	0.099	ug/L	U	0.099	0.396
3/20/03	28435	GC-Water	Phorate	0.05	ug/L	U	0.05	0.2
3/20/03	28435	GC-Water	Prometryn	0.15	ug/L	U	0.15	0.6
3/20/03	28435	GC-Water	Simazine	0.05	ug/L	U	0.05	0.2

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
3/20/03	28435	Metals-Water	Aluminum	10	ug/L	U	10	40
3/20/03	28435	Metals-Water	Arsenic	5	ug/L	U	5	20
3/20/03	28435	Metals-Water	Cadmium	0.087	ug/L	I	0.025	0.1
3/20/03	28435	Metals-Water	Calcium	48.7	mg/L		0.05	0.2
3/20/03	28435	Metals-Water	Chromium	8.8	ug/L	U	2	8
3/20/03	28435	Metals-Water	Copper	2.2	ug/L	U	0.75	3
3/20/03	28435	Metals-Water	Iron	110	ug/L	I	7	28
3/20/03	28435	Metals-Water	Lead	0.51	ug/L		0.1	0.4
3/20/03	28435	Metals-Water	Magnesium	12.9	mg/L		0.01	0.04
3/20/03	28435	Metals-Water	Nickel	2	ug/L	U	2	8
3/20/03	28435	Metals-Water	Selenium	1	ug/L	U	1	4
3/20/03	28435	Metals-Water	Silver	0.02	ug/L	U	0.02	0.08
3/20/03	28435	Metals-Water	Zinc	66	ug/L		4	16
3/20/03	28435	Nutrients-Liquid	Ammonia-N	2.7	mg N/L		0.2	0.4
3/20/03	FIELD BLK	BNA-Water	1,2,4,5-Tetrachlorobenzene	1	ug/L	U	1	4.2
3/20/03	FIELD BLK	BNA-Water	1,2,4-Trichlorobenzene	1	ug/L	U	1	4.2
3/20/03	FIELD BLK	BNA-Water	1,2-Dichlorobenzene	1	ug/L	U	1	4.2
3/20/03	FIELD BLK	BNA-Water	1,3,5-Trinitrobenzene	4.2	ug/L	U	4.2	17
3/20/03	FIELD BLK	BNA-Water	1,3-Dichlorobenzene	1	ug/L	U	1	4.2
3/20/03	FIELD BLK	BNA-Water	1,3-Dinitrobenzene	2.1	ug/L	U	2.1	8.3
3/20/03	FIELD BLK	BNA-Water	1,4-Dichlorobenzene	1	ug/L	U	1	4.2
3/20/03	FIELD BLK	BNA-Water	1,4-Naphthoquinone	21	ug/L	UJ	21	83
3/20/03	FIELD BLK	BNA-Water	1-Naphthylamine	10	ug/L	U	10	42
3/20/03	FIELD BLK	BNA-Water	2,3,4,6-Tetrachlorophenol	2.1	ug/L	U	2.1	8.3
3/20/03	FIELD BLK	BNA-Water	2,4,5-Trichlorophenol	1	ug/L	U	1	4.2
3/20/03	FIELD BLK	BNA-Water	2,4,6-Trichlorophenol	1	ug/L	U	1	4.2
3/20/03	FIELD BLK	BNA-Water	2,4-Dichlorophenol	1	ug/L	U	1	4.2
3/20/03	FIELD BLK	BNA-Water	2,4-Dimethylphenol	52	ug/L	U	52	210
3/20/03	FIELD BLK	BNA-Water	2,4-Dinitrophenol	16	ug/L	U	16	63
3/20/03	FIELD BLK	BNA-Water	2,4-Dinitrotoluene	1	ug/L	U	1	4.2
3/20/03	FIELD BLK	BNA-Water	2,6-Dichlorophenol	1	ug/L	U	1	4.2
3/20/03	FIELD BLK	BNA-Water	2,6-Dinitrotoluene	1	ug/L	U	1	4.2
3/20/03	FIELD BLK	BNA-Water	2-Acetylaminofluorene	1	ug/L	U	1	4.2
3/20/03	FIELD BLK	BNA-Water	2-Chloronaphthalene	1	ug/L	U	1	4.2
3/20/03	FIELD BLK	BNA-Water	2-Chlorophenol	1	ug/L	U	1	4.2
3/20/03	FIELD BLK	BNA-Water	2-Methyl-4,6-dinitrophenol	3.1	ug/L	U	3.1	13
3/20/03	FIELD BLK	BNA-Water	2-Methylnaphthalene	1	ug/L	U	1	4.2
3/20/03	FIELD BLK	BNA-Water	2-Naphthylamine	10	ug/L	U	10	42
3/20/03	FIELD BLK	BNA-Water	2-Nitroaniline	1	ug/L	U	1	4.2
3/20/03	FIELD BLK	BNA-Water	2-Nitrophenol	1	ug/L	U	1	4.2
3/20/03	FIELD BLK	BNA-Water	2-Picoline	1	ug/L	U	1	4.2
3/20/03	FIELD BLK	BNA-Water	3,3'-Dichlorobenzidine	42	ug/L	U	42	170
3/20/03	FIELD BLK	BNA-Water	3,3'-Dimethylbenzidine	21	ug/L	U	21	83
3/20/03	FIELD BLK	BNA-Water	3-Methylcholanthrene	1	ug/L	U	1	4.2
3/20/03	FIELD BLK	BNA-Water	3-Nitroaniline	1	ug/L	U	1	4.2
3/20/03	FIELD BLK	BNA-Water	4,4'-DDD	1.6	ug/L	U	1.6	6.3
3/20/03	FIELD BLK	BNA-Water	4,4'-DDE	1.6	ug/L	U	1.6	6.3
3/20/03	FIELD BLK	BNA-Water	4,4'-DDT	1.6	ug/L	U	1.6	6.3
3/20/03	FIELD BLK	BNA-Water	4-Aminobiphenyl	4.2	ug/L	U	4.2	17
3/20/03	FIELD BLK	BNA-Water	4-Bromophenyl phenyl ether	1	ug/L	U	1	4.2
3/20/03	FIELD BLK	BNA-Water	4-Chloro-3-methylphenol	1	ug/L	U	1	4.2
3/20/03	FIELD BLK	BNA-Water	4-Chloroaniline	1	ug/L	U	1	4.2
3/20/03	FIELD BLK	BNA-Water	4-Chlorophenyl phenyl ether	2.1	ug/L	U	2.1	8.3
3/20/03	FIELD BLK	BNA-Water	4-Nitroaniline	1	ug/L	UJ	1	4.2
3/20/03	FIELD BLK	BNA-Water	4-Nitrophenol	16	ug/L	U	16	63
3/20/03	FIELD BLK	BNA-Water	5-Nitro-o-toluidine	1	ug/L	U	1	4.2
3/20/03	FIELD BLK	BNA-Water	7,12-Dimethylbenz(a)anthracene	1	ug/L	U	1	4.2
3/20/03	FIELD BLK	BNA-Water	Acenaphthene	1	ug/L	U	1	4.2
3/20/03	FIELD BLK	BNA-Water	Acenaphthylene	1	ug/L	U	1	4.2
3/20/03	FIELD BLK	BNA-Water	Acetophenone	1	ug/L	U	1	4.2
3/20/03	FIELD BLK	BNA-Water	Aldrin	1.6	ug/L	U	1.6	6.3
3/20/03	FIELD BLK	BNA-Water	Aniline	1	ug/L	U	1	4.2
3/20/03	FIELD BLK	BNA-Water	Anthracene	1	ug/L	U	1	4.2
3/20/03	FIELD BLK	BNA-Water	Azobenzene/1,2-Diphenylhydrazine	1	ug/L	U	1	4.2
3/20/03	FIELD BLK	BNA-Water	Benzidine	100	ug/L	U	100	420
3/20/03	FIELD BLK	BNA-Water	Benzo(a)anthracene	1	ug/L	U	1	4.2
3/20/03	FIELD BLK	BNA-Water	Benzo(a)pyrene	1	ug/L	U	1	4.2
3/20/03	FIELD BLK	BNA-Water	Benzo(b)fluoranthene	1	ug/L	U	1	4.2
3/20/03	FIELD BLK	BNA-Water	Benzo(g,h,i)perylene	1	ug/L	U	1	4.2
3/20/03	FIELD BLK	BNA-Water	Benzo(k)fluoranthene	1	ug/L	U	1	4.2
3/20/03	FIELD BLK	BNA-Water	Benzyl alcohol	1	ug/L	U	1	4.2
3/20/03	FIELD BLK	BNA-Water	Bis(2-chloroethoxy)methane	1	ug/L	U	1	4.2
3/20/03	FIELD BLK	BNA-Water	Bis(2-chloroethyl)ether	1	ug/L	U	1	4.2
3/20/03	FIELD BLK	BNA-Water	Bis(2-chloroisopropyl)ether	3.1	ug/L	U	3.1	13

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
3/20/03	FIELD BLK	BNA-Water	Bis(2-ethylhexyl)phthalate	16	ug/L	U	16	63
3/20/03	FIELD BLK	BNA-Water	Butyl benzyl phthalate	5.2	ug/L	U	5.2	21
3/20/03	FIELD BLK	BNA-Water	Chrysene	1	ug/L	U	1	4.2
3/20/03	FIELD BLK	BNA-Water	Di-n-butyl phthalate	5.2	ug/L	U	5.2	21
3/20/03	FIELD BLK	BNA-Water	Di-n-octyl phthalate	1	ug/L	U	1	4.2
3/20/03	FIELD BLK	BNA-Water	Dibenzo(a,h)anthracene	1	ug/L	U	1	4.2
3/20/03	FIELD BLK	BNA-Water	Dibenzofuran	1	ug/L	U	1	4.2
3/20/03	FIELD BLK	BNA-Water	Dieldrin	1.6	ug/L	U	1.6	6.3
3/20/03	FIELD BLK	BNA-Water	Diethyl phthalate	1	ug/L	U	1	4.2
3/20/03	FIELD BLK	BNA-Water	Dimethyl phthalate	52	ug/L	U	52	210
3/20/03	FIELD BLK	BNA-Water	Dimethylaminoazobenzene	1	ug/L	U	1	4.2
3/20/03	FIELD BLK	BNA-Water	Dinoseb	4.2	ug/L	U	4.2	17
3/20/03	FIELD BLK	BNA-Water	Diphenylamine	3.1	ug/L	U	3.1	13
3/20/03	FIELD BLK	BNA-Water	Endosulfan I	4.2	ug/L	U	4.2	17
3/20/03	FIELD BLK	BNA-Water	Endosulfan II	4.2	ug/L	U	4.2	17
3/20/03	FIELD BLK	BNA-Water	Endosulfan sulfate	1.6	ug/L	U	1.6	6.3
3/20/03	FIELD BLK	BNA-Water	Endrin	1.6	ug/L	UJ	1.6	6.3
3/20/03	FIELD BLK	BNA-Water	Endrin aldehyde	4.2	ug/L	U	4.2	17
3/20/03	FIELD BLK	BNA-Water	Ethyl methanesulfonate	1	ug/L	U	1	4.2
3/20/03	FIELD BLK	BNA-Water	Fluoranthene	1	ug/L	U	1	4.2
3/20/03	FIELD BLK	BNA-Water	Fluorene	1	ug/L	U	1	4.2
3/20/03	FIELD BLK	BNA-Water	Heptachlor	1.6	ug/L	U	1.6	6.3
3/20/03	FIELD BLK	BNA-Water	Heptachlor epoxide	1.6	ug/L	U	1.6	6.3
3/20/03	FIELD BLK	BNA-Water	Hexachlorobenzene	1	ug/L	U	1	4.2
3/20/03	FIELD BLK	BNA-Water	Hexachlorobutadiene	3.1	ug/L	U	3.1	13
3/20/03	FIELD BLK	BNA-Water	Hexachlorocyclopentadiene	3.1	ug/L	U	3.1	13
3/20/03	FIELD BLK	BNA-Water	Hexachloroethane	3.1	ug/L	U	3.1	13
3/20/03	FIELD BLK	BNA-Water	Hexachloropropene	2.1	ug/L	U	2.1	8.3
3/20/03	FIELD BLK	BNA-Water	Indeno(1,2,3-cd)pyrene	1	ug/L	U	1	4.2
3/20/03	FIELD BLK	BNA-Water	Isophorone	1	ug/L	U	1	4.2
3/20/03	FIELD BLK	BNA-Water	Isosafrole	1	ug/L	U	1	4.2
3/20/03	FIELD BLK	BNA-Water	Methapyrilene	4.2	ug/L	UJ	4.2	17
3/20/03	FIELD BLK	BNA-Water	Methyl methanesulfonate	1	ug/L	UJ	1	4.2
3/20/03	FIELD BLK	BNA-Water	N-Nitrosodi-n-butylamine	1	ug/L	U	1	4.2
3/20/03	FIELD BLK	BNA-Water	N-Nitrosodi-n-propylamine	2.1	ug/L	U	2.1	8.3
3/20/03	FIELD BLK	BNA-Water	N-Nitrosodiethylamine	1	ug/L	U	1	4.2
3/20/03	FIELD BLK	BNA-Water	N-Nitrosodimethylamine	2.1	ug/L	U	2.1	8.3
3/20/03	FIELD BLK	BNA-Water	N-Nitrosodiphenylamine	3.1	ug/L	U	3.1	13
3/20/03	FIELD BLK	BNA-Water	N-Nitrosomethylethylamine	2.1	ug/L	U	2.1	8.3
3/20/03	FIELD BLK	BNA-Water	N-Nitrosomorpholine	1	ug/L	U	1	4.2
3/20/03	FIELD BLK	BNA-Water	N-Nitrosopiperidine	1	ug/L	U	1	4.2
3/20/03	FIELD BLK	BNA-Water	N-Nitrosopyrrolidine	2.1	ug/L	U	2.1	8.3
3/20/03	FIELD BLK	BNA-Water	Naphthalene	1	ug/L	U	1	4.2
3/20/03	FIELD BLK	BNA-Water	Nitrobenzene	2.1	ug/L	U	2.1	8.3
3/20/03	FIELD BLK	BNA-Water	Nitroquinoline-1-oxide	21	ug/L	UJ	21	83
3/20/03	FIELD BLK	BNA-Water	Pentachlorobenzene	1	ug/L	U	1	4.2
3/20/03	FIELD BLK	BNA-Water	Pentachloroethane	52	ug/L	U	52	210
3/20/03	FIELD BLK	BNA-Water	Pentachloronitrobenzene	1	ug/L	U	1	4.2
3/20/03	FIELD BLK	BNA-Water	Pentachlorophenol	3.1	ug/L	U	3.1	13
3/20/03	FIELD BLK	BNA-Water	Phenacetin	4.2	ug/L	U	4.2	13
3/20/03	FIELD BLK	BNA-Water	Phenanthrene	1	ug/L	U	1	4.2
3/20/03	FIELD BLK	BNA-Water	Phenol	1	ug/L	U	1	4.2
3/20/03	FIELD BLK	BNA-Water	Pyrene	1	ug/L	U	1	4.2
3/20/03	FIELD BLK	BNA-Water	Pyridine	4.2	ug/L	U	4.2	17
3/20/03	FIELD BLK	BNA-Water	Safrole	1	ug/L	U	1	4.2
3/20/03	FIELD BLK	BNA-Water	alpha-BHC	1.6	ug/L	U	1.6	6.3
3/20/03	FIELD BLK	BNA-Water	beta-BHC	1.6	ug/L	U	1.6	6.3
3/20/03	FIELD BLK	BNA-Water	delta-BHC	1.6	ug/L	U	1.6	6.3
3/20/03	FIELD BLK	BNA-Water	gamma-BHC	1.6	ug/L	U	1.6	6.3
3/20/03	FIELD BLK	BNA-Water	m,p-Cresols	2.1	ug/L	U	2.1	8.3
3/20/03	FIELD BLK	BNA-Water	o-Cresol	2.1	ug/L	U	2.1	8.3
3/20/03	FIELD BLK	BNA-Water	o-Toluidine	1	ug/L	U	1	4.2
3/20/03	FIELD BLK	GC-Water	Alachlor	0.6	ug/L	U	0.6	2.4
3/20/03	FIELD BLK	GC-Water	Ametryn	0.05	ug/L	U	0.05	0.2
3/20/03	FIELD BLK	GC-Water	Atrazine	0.05	ug/L	U	0.05	0.2
3/20/03	FIELD BLK	GC-Water	Azinphos Methyl	0.05	ug/L	U	0.05	0.2
3/20/03	FIELD BLK	GC-Water	Bromacil	0.2	ug/L	U	0.2	0.8
3/20/03	FIELD BLK	GC-Water	Butylate	0.2	ug/L	U	0.2	0.8
3/20/03	FIELD BLK	GC-Water	Chlorpyrifos Ethyl	0.05	ug/L	U	0.05	0.2
3/20/03	FIELD BLK	GC-Water	Chlorpyrifos Methyl	0.1	ug/L	U	0.1	0.4
3/20/03	FIELD BLK	GC-Water	Diazinon	0.05	ug/L	U	0.05	0.2
3/20/03	FIELD BLK	GC-Water	Ethion	0.05	ug/L	U	0.05	0.2
3/20/03	FIELD BLK	GC-Water	Ethoprop	0.1	ug/L	U	0.1	0.4
3/20/03	FIELD BLK	GC-Water	Fenamiphos	0.2	ug/L	U	0.2	0.8

Date Sampled	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
3/20/03	FIELD BLK	GC-Water	Fonofos	0.1	ug/L	U	0.1	0.4
3/20/03	FIELD BLK	GC-Water	Hexazinone	0.1	ug/L	U	0.1	0.4
3/20/03	FIELD BLK	GC-Water	Malathion	0.15	ug/L	U	0.15	0.6
3/20/03	FIELD BLK	GC-Water	Metalaxyl	0.25	ug/L	U	0.25	1
3/20/03	FIELD BLK	GC-Water	Metolachlor	0.5	ug/L	U	0.5	2
3/20/03	FIELD BLK	GC-Water	Metribuzin	0.1	ug/L	U	0.1	0.4
3/20/03	FIELD BLK	GC-Water	Mevinphos	0.2	ug/L	U	0.2	0.8
3/20/03	FIELD BLK	GC-Water	Naled	0.8	ug/L	U	0.8	3.2
3/20/03	FIELD BLK	GC-Water	Norflurazon	0.1	ug/L	U	0.1	0.4
3/20/03	FIELD BLK	GC-Water	Parathion Ethyl	0.15	ug/L	U	0.15	0.6
3/20/03	FIELD BLK	GC-Water	Parathion Methyl	0.1	ug/L	U	0.1	0.4
3/20/03	FIELD BLK	GC-Water	Phorate	0.05	ug/L	U	0.05	0.2
3/20/03	FIELD BLK	GC-Water	Prometryn	0.15	ug/L	U	0.15	0.6
3/20/03	FIELD BLK	GC-Water	Simazine	0.05	ug/L	U	0.05	0.2
3/20/03	FIELD BLK	Metals-Water	Aluminum	10	ug/L	U	10	40
3/20/03	FIELD BLK	Metals-Water	Arsenic	5	ug/L	U	5	20
3/20/03	FIELD BLK	Metals-Water	Cadmium	0.025	ug/L	U	0.025	0.1
3/20/03	FIELD BLK	Metals-Water	Calcium	0.05	mg/L	U	0.05	0.2
3/20/03	FIELD BLK	Metals-Water	Chromium	2	ug/L	U	2	8
3/20/03	FIELD BLK	Metals-Water	Copper	2.2	ug/L	U	0.75	3
3/20/03	FIELD BLK	Metals-Water	Iron	7	ug/L	U	7	28
3/20/03	FIELD BLK	Metals-Water	Lead	0.1	ug/L	U	0.1	0.4
3/20/03	FIELD BLK	Metals-Water	Magnesium	0.01	mg/L	U	0.01	0.04
3/20/03	FIELD BLK	Metals-Water	Nickel	2	ug/L	U	2	8
3/20/03	FIELD BLK	Metals-Water	Selenium	1	ug/L	U	1	4
3/20/03	FIELD BLK	Metals-Water	Silver	0.02	ug/L	U	0.02	0.08
3/20/03	FIELD BLK	Metals-Water	Zinc	4	ug/L	U	4	16
3/20/03	FIELD BLK	Nutrients-Liquid	Ammonia-N	0.01	mg N/L	U	0.01	0.02

Appendix 5

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	**14**
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	**2.44**
Hester-Dendy Taxa Richness	6	6.5	9	11.5	13	15	**17**	21.5	26	29	32	**18**
Dipnet Taxa Richness	9	12	17	20	22	24.5	26	28	31	37	53	
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	**0.84**
Total Ammonia	0.02	0.02	0.04	0.05	**0.06**	0.08	0.11	0.14	0.20	0.34	0.60	**0.065**
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	**0.16**
Total Phosphorus	0.02	0.03	0.05	0.06	0.10	0.13	0.18	0.25	0.39	0.74	**1.51**	**4.4**
Orthophosphate	0.01	0.01	0.03	0.04	0.05	0.08	0.11	0.17	0.27	0.59	**1.37**	**4**
Turbidity (NTU)	0.60	0.90	1.20	1.45	2.10	2.80	3.60	**4.50**	6.65	10.45	16.30	**6.3**

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	**23**
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	**1.68**
Hester-Dendy Taxa Richness	6	6.5	9	11.5	13	15	17	21.5	26	29	**32**	**34**
Dipnet Taxa Richness	9	12	17	20	22	24.5	26	28	31	37	53	
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	**0.95**
Total Ammonia	0.02	0.02	0.04	0.05	0.06	0.08	0.11	0.14	**0.20**	0.34	0.60	**0.21**
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	**0.29**
Total Phosphorus	0.02	0.03	0.05	0.06	0.10	0.13	0.18	0.25	0.39	0.74	**1.51**	**4.1**
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	**7.9**

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 6

Additional physical, chemical, toxicological and microbiological results

Table 1. Data recorded during the chronic screening bioassays of a sample of effluent from Mulberry WWTP, 500 Southwest Second Street, Mulberry, Polk County, Florida, NPDES# FL0020338, performed from 18 to 25 March 2003.

Facility:	Mulberry WWTP		NPDES #:	FL0020338	Facility Type:	Domestic Waste	Analysts: Marshall Faircloth
Location:	500 Southwest Second Street, Mulberry		Contact/District:	Granger / SW			Joshua Ayres
County:	Polk		Test type:	chronic renewal screen			James Daniels
Sample #1 Collection Date:	3/17/2003	Time: 1345	# tests:	2	Receiving Water:	North Alafia Prong of the Alafia River	Daisys Tamayo
Sample #2 Collection Date:	3/19/2003	Time: 1305	Chlorination Type:	chlorinated			Christa Pierini
Sample #3 Collection Date:	3/21/2003	Time: 1335		sample dechlorinated by facility			
Test Beginning Date:	3/18/2003	Time: 1500				Page 1 of 3	
Test Ending Date:	3/25/2003	Time: 0930	FDEP SOP#:	TA07 05			Reviewer: Rob Buda

Organism:	*Ceriodaphnia dubia*		Life stage: <24 hrs		[A]Feeding: YCT/Algae				
			Chamber size: 30mL		Food Batch #: 1 / 12				
	Sample/Diluent	# Young							
Concentrations	Volume(mL)	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	5	11	14	0	30
Control B	0/20	0	0	0	4	0	10	13	0	27
Control C	0/20	0	0	0	0	4	9	0	13	26
Control D	0/20	0	0	0	0	4	9	1	11	25
Control E	0/20	0	0	0	0	6	7	0	16	29
Control F	0/20	0	0	0	0	5	8	0	12	25
Control G	0/20	0	0	0	0	3	6	2	7	18
Control H	0/20	0	0	0	0	7	11	0	9	27
Control I	0/20	0	0	0	4	0	10	9	0	23
Control J	0/20	0	0	0	4	0	8	10	0	22
100% A	20/0	0	0	0	6	0	11	12	0	29
100% B	20/0	0	0	0	0	8	11	9	0	28
100% C	20/0	0	0	0	0	5	11	12	0	28
100% D	20/0	0	0	0	0	7	6	0	11	24
100% E	20/0	0	0	0	0	7	8	0	14	29
100% F	20/0	0	0	0	0	1	0	0	0	1
100% G	20/0	0	0	0	0	6	0	12	0	18
100% H	20/0	0	0	0	0	5	8	0	13	26
100% I	20/0	0	0	0	4	-	-	-	-	4
100% J	20/0	0	0	0	4	0	9	7	0	20

Test Statistics	Method	NOEC
Survival	t test	100%
Reproduction	t test	100%

Test statistics	t value	Probability
Survival	1.00000	>0.05
Reproduction	1.30528	>0.05

Adult Mortality	Percent
Control	0
100%	10

Total Young	# Young	Young per Adult
Control	252	25.2
100%	207	20.7

LIMS	
Job number 1:	TLH-2003-03-18-14-01
sample number 1:	660300
Job number 2:	TLH-2003-03-20-01
sample number 2:	661062
Job number 3:	TLH-2003-03-24-03
sample number 3:	661672

Data Transcription Verification	
date:	8/1/2003
by:	Cathy Oaks
	Brad Richardson

Total Residual CL2	mg/L	Method
Field:	<0.02	-
Lab Sample 1:	<0.03	Hach
Lab Sample 2:	<0.03	Hach
Lab Sample 3:	<0.03	Hach

Ammonia	Total (mg/L)	Unionized (mg/L)
Control water :	<0.017	<0.017
100% Sample 1:	2.93	0.236
100% Sample 2:	3.88	0.217
100% Sample 3:	2.76	0.226

Alk & Hardness	Alkalinity (mg/L)	Hardness (mg/L)
Control water:	80	80
100% Sample 1:	200	165
100% Sample 2:	200	170
100% Sample 3:	105	168

Organism:	*Ceriodaphnia dubia*		After Renewal "new sample"				Before Renewal "old sample"	
Concentration	Surrogate	Hour	pH	Temp. (°C)	DO (mg/L)	Conductivity	pH	DO (mg/L)
Control	A	0	8.2	24.5	7.9	175	-	-
100%			8.1	24.9	7.9	855	-	-
Control	B	24	8.0	26.1	7.4	170	7.9	7.5
100%			7.9	25.5	8.0	860	8.4	7.5
Control	C	48	8.3	26.0	7.4	175	8.1	7.8
100%			7.9	26.0	8.9	895	8.5	7.7
Control	D	72	8.2	26.2	7.4	180	8.2	8.0
100%			8.1	26.6	7.5	960	8.5	7.9
Control	E	96	8.2	25.3	7.4	170	8.0	7.5
100%			8.1	25.2	8.1	1035	8.4	7.5
Control	F	120	8.2	25.7	7.5	175	8.0	7.5
100%			8.1	27.0	7.6	1090	8.5	7.2
Control	G	144	8.2	25.7	7.3	185	8.1	7.5
100%			8.2	25.8	7.5	1010	8.5	7.4
Control	H	168	-	-	-	-	8.0	6.9
100%			-	-	-	-	8.4	6.9

[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 24.5-26.0°C.
Incubator #3 temperature range for the test period was 25-27.5°C.
Light Intensity during the test was 50-100 foot candles.
Photoperiod during the test was 16 hours of light : 8 hours of dark.
Conductivity value is uncorrected umhos/cm.
DO = dissolved oxygen.

Table 1. continued — Data recorded during the chronic screening bioassays of a sample of effluent from Mulberry WWTP, 500 Southwest Second Street, Mulberry, Polk County, Florida, NPDES# FL0020338, performed from 18 to 25 March, 2003.

Facility:	Mulberry WWTP		NPDES #:	FL0020338	Facility Type:	Domestic Waste	Analysts: Marshall Faircloth
Location:	500 Southwest Second Street, Mulberry		Contact/District:	Granger / SW			Joshua Ayres
County:	Polk		Test type:	chronic renewal screen			James Daniels
Sample #1 Collection Date:	3/17/2003	Time: 1345	# tests:	2	Receiving Water:	North Alafia Prong of the Alafia River	Christa Pierini
Sample #2 Collection Date:	3/19/2003	Time: 1305	Chlorination Type:	chlorinated			Daisys Tamayo
Sample #3 Collection Date:	3/21/2003	Time: 1335		sample dechlorinated by facility			
Test Beginning Date:	3/18/2003	Time: 1500				Page 2 of 3	
Test Ending Date:	3/25/2003	Time: 0930	FDEP SOP#:	TA07_09			Reviewer: Rob Buda

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

Concentration	Sample/Diluent Volume(mL)	Survival: Number alive 0 hr	24 hr	48 hr	72 hr	96 hr	120 hr	144 hr	168 hr
Control A	0/500	10	10	9	9	8	7	7	7
Control B	0/500	10	10	10	9	9	9	9	9
Control C	0/500	10	10	10	10	9	9	9	9
Control D	0/500	10	10	10	10	10	10	9	9
100% A	500/0	10	10	10	10	6	6	6	6
100% B	500/0	10	10	10	10	10	10	10	10
100% C	500/0	10	10	10	10	9	9	9	9
100% D	500/0	10	10	10	10	10	10	10	10

Test statistic	Method	NOEC
Survival	t test	100%

Test statistic	t test value	Probability
Survival	-0.52519	>0.05

Mortality	Percent
Control	15%
100%	13%

LIMS	
Job number 1:	TLH-2003-03-18-14-01
sample number 1:	660300
Job number 2:	TLH-2003-03-20-01
sample number 2:	661062
Job number 3:	TLH-2003-03-24-03
sample number 3:	661672

Data Transcription Verification	
date:	8/1/2003
by:	Cathy Oaks
	Brad Richardson

[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 24.5-26.0°C. Light Intensity during the test was 50-100 foot candles.

Incubator #3 temperature range for the test period was 25-27.5°C. Photoperiod during the test was 16 hours of light : 8 hours of dark.

Conductivity value is uncorrected umhos/cm. DO = dissolved oxygen.

			Before Renewal				After Renewal			
Concentration	Replicate	Hour	pH	Temp. (°C)	DO (mg/L)	Conductivity	pH	Temp. (°C)	DO (mg/L)	Conductivity
Control	A	0	8.0	25.3	7.9	275	-	-	-	-
100%			8.2	25.0	8.0	240	-	-	-	-
Control	B	24	7.9	23.8	7.0	305	8.0	25.8	7.3	305
100%			8.3	24.2	7.2	840	7.9	25.6	7.8	845
Control	C	48	7.8	24.9	7.2	275	7.8	26.1	7.6	260
100%			8.1	25.0	6.2	785	8.0	26.1	8.0	885
Control	D	72	7.6	24.0	6.2	300	8.0	25.6	7.3	300
100%			8.1	24.4	6.1	930	8.1	26.3	7.3	960
Control	A	96	7.7	24.1	6.9	295	7.8	26.1	7.5	270
100%			8.2	24.6	6.9	890	8.1	25.3	7.7	990
Control	B	120	7.6	24.0	6.7	300	7.8	25.6	7.2	300
100%			8.0	24.6	5.1	1036	8.0	26.6	7.3	1080
Control	C	144	7.4	24.7	5.3	305	7.7	25.7	6.9	290
100%			7.9	24.8	4.0	1050	8.1	25.7	6.8	1020
Control	D	168	7.6	24.7	5.5	295	-	-	-	-
100%			7.9	24.3	3.8	985	-	-	-	-

Total Resid. Chlorine	mg/L	Method
Field:	<0.02	-
Lab Sample 1:	<0.03	Hach
Lab Sample 2:	<0.03	Hach
Lab Sample 3:	<0.03	Hach

Ammonia	Total (mg/L)	Unionized (mg/L)
Control water :	<0.017	<0.017
100% Sample 1:	2.93	0.293
100% Sample 2:	3.88	0.314
100% Sample 3:	2.76	0.269

Alk & Hardness	Alkalinity (mg/L)	Hardness (mg/L)
Control water:	75	82
100% Sample 1:	200	165
100% Sample 2:	200	170
100% Sample 3:	105	168

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

[C] Salinity based on conductivity and temperature.

Table 1. concluded Data recorded during the chronic screening bioassays of a sample of effluent from Mulberry WWTP, 500 Southwest Second Street, Mulberry, Polk County, Florida, NPDES# FL0020338, performed from 18 to 25 March 2003.

Facility:	**Mulberry WWTP**		NPDES #:	**FL0020338**	Facility Type:	**Domestic Waste**	**Analysts:** Marshall Faircloth
Location:	500 Southwest Second Street, Mulberry		Contact/District:	Granger / SW			Joshua Ayres
County:	Polk		Test type:	chronic renewal screen			James Daniels
Sample #1 Collection Date:	3/17/2003	Time: 1345	# tests:	2	Receiving Water:	North Alafia Prong of the Alafia River	Christa Pierini
Sample #2 Collection Date:	3/19/2003	Time: 1305	Chlorination Type:	chlorinated			Daisys Tamayo
Sample #3 Collection Date:	3/21/2003	Time: 1335		sample dechlorinated by facility			
Test Beginning Date:	3/18/2003	Time: 1500				**Page 3 of 3**	
Test Ending Date:	3/25/2003	Time: 0930	FDEP SOP#:	TA07_09			**Reviewer:** Rob Buda
Tare weighing Date:	3/20/2003						
Final weighing Date:	3/26/2003						

Test Species		A	B	B-A	C	(B-A)/10^A
Pimepales promelas		Wgt.of Pan (g)	Dry Wgt. of Pan and larve	Total Dry Wgt. of larve (g)	Initial number of larve	Mean Dry Wgt. Of 10 larve/rep. (mg)
Concentration	Rep #					
Control A	E1	0.01793	0.02241	0.00448	10	0.448
Control B	E2	0.01695	0.02349	0.00654	10	0.654
Control C	E3	0.01794	0.02338	0.00544	10	0.544
Control D	E4	0.01711	0.02437	0.00726	10	0.726
100% A	E5	0.01820	0.01986	0.00166	10	0.166
100% B	E6	0.01767	0.02268	0.00501	10	0.501
100% C	E7	0.01696	0.02115	0.00419	10	0.419
100% D	E8	0.01677	0.02129	0.00452	10	0.452

Test statistic	Method	NOEC
Biomass	t test	<100%

Test statistic	t test value	Probability
Biomass	2.16694	<0.05

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

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

Project: CITY OF MULBERRY Type: OTH Requested By: GRAINGER

Site	Date	Time	Depth	Log	Samplers
OUTFALL	03/17/03	1345		28423	GRAINGER,CORNWELL
NOTE: RQ#2003-03-17-17					
TEST SITE	03/17/03	1315		28424	GRAINGER,CORNWELL
BACKGROUND	03/17/03	1030		28425	GRAINGER,CORNWELL
FIELD BLANK	03/17/03	1350		28426	GRAINGER,CORNWELL

Code	Parameter	Units	Site ID OUTFALL	Site ID TEST SITE	Site ID BACKGROUND	Site ID FIELD BLANK
00029	Log Number	LOG	28423	28424	28425	28426
10	WATER TEMP	deg C	25.52D	25.52D	23.55D	22.54
94	CONDUCTIVITY (FIELD)	umho/cm	892	892	0.35	694
299	DISS. OXYGEN (PROBE)	mg/l	7.92D	7.92D	4.81D	5.26D
310	BOD5	mg/l	2U	2U	2U	2U
314	CBOD5	mg/l	2U	2U	2U	2U
406	pH (FIELD)	units	7.14	7.14	6.99	6.94
480	SALINITY	0/00	0.44D	0.44D	708D	0.34D
530	RESIDUE, NONFILT.	mg/l	1U	8	8	1U
4192	SAMPLE DEPTH	METERS	0.1	0.1	0.1	0.1
31501	TOTAL COLIFORM	#/100ml	40K	490	570	1K
31616	FECAL COLIFORM	#/100ml	1K	210	250	1K
82079	TURBIDITY	NTU	0.7	7.9	6.3	0.1U

Note errors corrected in attached email 12/1/03

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

Levings, Sally

From: Cornwell, Nahir
Sent: Thursday, June 12, 2003 11:04 AM
To: Levings, Sally
Cc: Gunter, Melissa
Subject: RE: Mulberry WWTP

Hi Sally. OK, here are the answers to your questions:
1. I can make you a map. No problem
2. Here is the corrected data for all sites and parameters:
   outfall:conductivity-892; salinity-.44; DO-7.92; ph-7.14
   test site: comductivity-708;p salinity-.35; DO-4.81; ph-6.99
   backgroud: conductivity-694; salinity-.34; DO-5.26; ph-6.94
   field blank-none.

I noticed when the data was entered, the data for the outfall location was duplicated and entered also as test site data. If you need the hard copy, I can fax it to you.
3. When Maria comes in tomorrow (she is sick), I will ask her about the D qualifier.

I will include more information as I acquire it to answer all your questions. If you dont understand, feel free to give me a call.
Nahir

Nahir Cornwell
Environmental Specialist-Watershed Mgmt.
FDEP Southwest District
3804 Coconut Palm Drive
Tampa, Fl. 33619
(813) 744-6100 ext. 465

-----Original Message-----
From: Levings, Sally
Sent: Thursday, June 12, 2003 8:24 AM
To: Gunter, Melissa; Cornwell, Nahir
Cc: Riley, Julie; Jackson, Joy
Subject: Mulberry WWTP

Hi guys: A few details for the Mulberry report-- no rush, but I wanted to try to catch up on the little things that I wind up forgetting until the last minute.

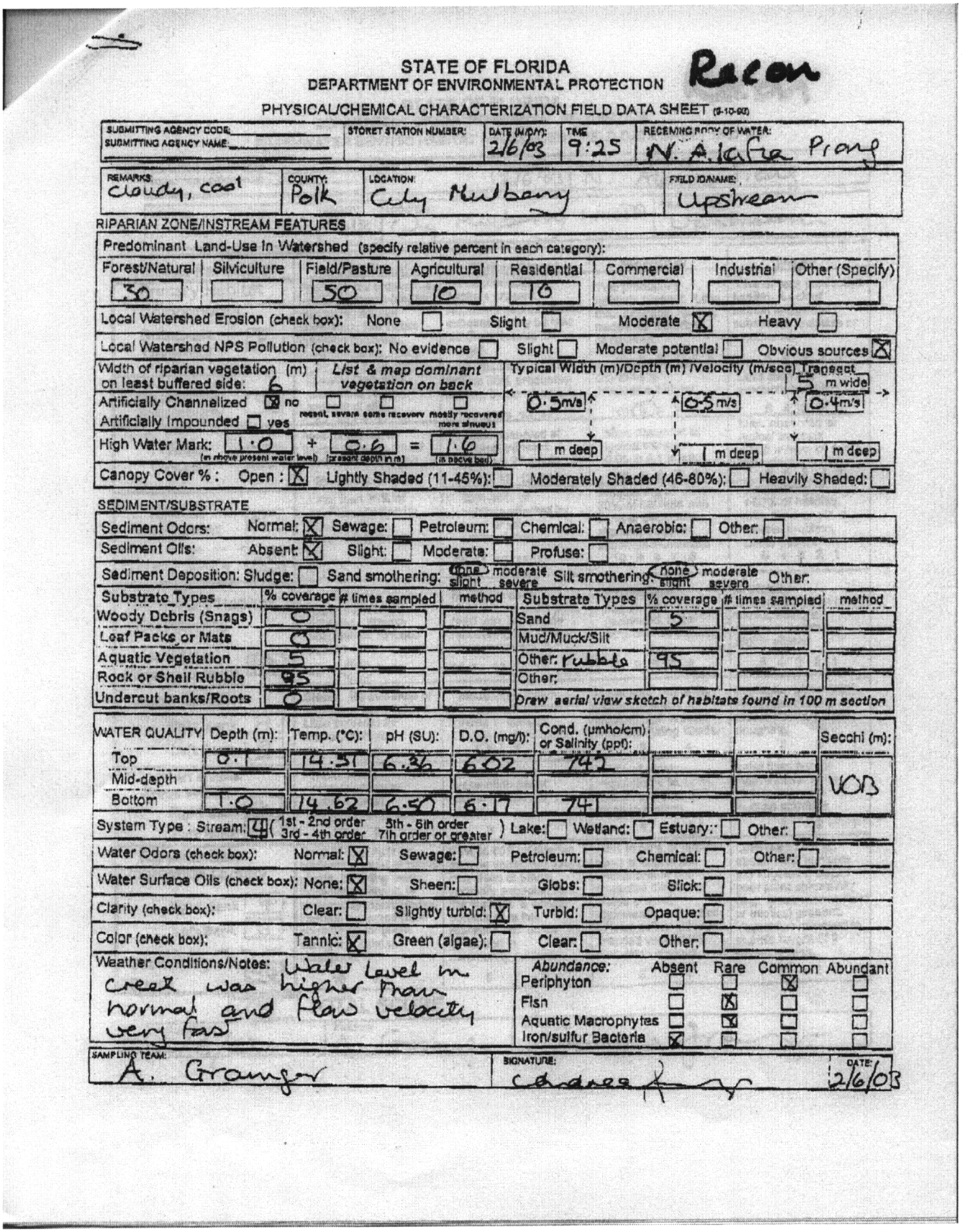
(1) Andrea got side-tracked and never sent us a map. Might you make one for us?
(2) In the data from your lab, I think there is a transcription error for field conductivity for the control site. It looks like a salinity value (0.35) instead of a conductivity value (742 was the control value in the recon). Would you check and let me know how to report it?
(3) There is a D qualifier in the data, but it's not explained on the sheet and I don't seem to have a reference to it. Would one of you explain please?

Thanks a million. The HDs for this one are the last thing we need, so this one should be up to be written in the next few weeks. Sally

Sally C. Levings, PhD
Environmental Manager
Biology Section
Bureau of Laboratories
Department of Environmental Protection
2600 Blair Stone Road MS 6515
Tallahassee FL 32399-2400
850-245-8175 FAX 245-8199

Appendix 7

Habitat Assessment Field Sheets.



STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Recon

PHYSICAL/CHEMICAL CHARACTERIZATION FIELD DATA SHEET (9-10-90)

SUBMITTING AGENCY CODE: / SUBMITTING AGENCY NAME:	STORET STATION NUMBER:	DATE (M/D/Y):	TIME	RECEIVING BODY OF WATER:
		2/6/03	9:25	N. Alafia Prong

REMARKS:	COUNTY:	LOCATION:	FIELD ID/NAME:
cloudy, cool	Polk	City Mulberry	Upstream

RIPARIAN ZONE/INSTREAM FEATURES

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

Forest/Natural	Silviculture	Field/Pasture	Agricultural	Residential	Commercial	Industrial	Other (Specify)
30		50	10	10			

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: 6

List & map dominant vegetation on back

Artificially Channelized ☒ no ☐ ☐ ☐ (recent, severe, some recovery, mostly recovered, more stream)

Artificially Impounded ☐ yes

High Water Mark: 1.0 (m above present water level) + 0.6 (present depth in m) = 1.6 (m above bed)

Typical Width (m)/Depth (m) /Velocity (m/sec) Transect: 5 m wide

0.5 m/s | 0.5 m/s | 0.4 m/s

m deep | m deep | m deep

Canopy Cover %: Open: ☒ Lightly Shaded (11-45%): ☐ 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) slight moderate severe Silt smothering: (none) slight moderate severe Other:

Substrate Types	% coverage	# times sampled	method	Substrate Types	% coverage	# times sampled	method
Woody Debris (Snags)	0			Sand	5		
Leaf Packs or Mats	0			Mud/Muck/Silt			
Aquatic Vegetation	5			Other: rubble	95		
Rock or Shell Rubble	95			Other:			
Undercut banks/Roots	0			Draw aerial view sketch of habitats found in 100 m section			

WATER QUALITY	Depth (m):	Temp. (°C):	pH (SU):	D.O. (mg/l):	Cond. (µmho/cm) or Salinity (ppt):			Secchi (m):
Top	0.1	14.31	6.36	6.02	742			VOB
Mid-depth								
Bottom	1.0	14.62	6.50	6.17	741			

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: ☐

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

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

Weather Conditions/Notes: Water level in creek was higher than normal and flow velocity very fast

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

SAMPLING TEAM: A. Granger

SIGNATURE: [signature]

DATE: 2/6/03

Recon

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
FRESHWATER BENTHIC HABITAT ASSESSMENT FIELD DATA SHEET (5-27-98)

SUBMITTING AGENCY CODE: / SUBMITTING AGENCY NAME:	STORET STATION NUMBER:	DATE (M/D/Y): 2/6/03	RECEIVING BODY OF WATER: N. Alafia Prong

REMARKS:	COUNTY: Polk	LOCATION: City Mulberry WWTP	FIELD ID/NAME: Upstream

Habitat Parameter	Optimal	Suboptimal	Marginal	Poor
Primary Habitat Components				
Substrate Diversity [6]	Four or more productive habitats present (snags, tree roots, aquatic vegetation, leaf packs (partially decayed), undercut banks, 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 [9]	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 (5) 8 7 6	Less than 5% productive habitat. 5 4 3 2 1
Water Velocity [20]	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 [20]	Less than 20% of habitats affected by sand or silt accumulation	20%-50% of habitats affected by sand or silt accumulation	Smothering of 50%-80% of habitats with sand or silt, pools shallow, frequent sediment movement	Smothering of >80% of habitats with sand or silt, a severe problem, pools absent
Primary Score [55]	(20) 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
Secondary Habitat Components				
Artificial Channelization [18]	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 [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 [4] Left Bank [6]	Width of native vegetation (least buffered side) greater than 18 m 10 9	Width of native vegetation (least buffered side) 12 m 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 [6]	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 zone 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 [54]				

109 TOTAL SCORE

ANALYSIS DATE: 2/6/03	ANALYST: A. Gramp	SIGNATURE: Candace Gramp

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Recon

PHYSICAL/CHEMICAL CHARACTERIZATION FIELD DATA SHEET (5-10-96)

SUBMITTING AGENCY CODE: / SUBMITTING AGENCY NAME:	STORET STATION NUMBER:	DATE (M/D/Y):	TIME	RECEIVING BODY OF WATER:
		2/6/03	9:00	N. Alafia Prong

REMARKS:	COUNTY:	LOCATION:	FIELD ID/NAME:
cloudy, cool	Polk	City Mulberry WWTP	Down Stream

RIPARIAN ZONE/INSTREAM FEATURES

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

Forest/Natural	Silviculture	Field/Pasture	Agricultural	Residential	Commercial	Industrial	Other (Specify)
30		50	10	10			

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: 4

List & map dominant vegetation on back

Typical Width (m)/Depth (m) /Velocity (m/sec) Transect 3 m wide

0.2 m/s — 0.2 m deep; 0.5 m/s — 1 m deep; 0.3 m/s — 1 m deep

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

Artificially Impounded ☐ yes

High Water Mark: 1.0 (m above present water level) + 0.6 (present depth in m) = 1.6 (m above bed)

Canopy Cover %: Open: ☒ Lightly Shaded (11-45%): ☐ 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 slight moderate severe Silt smothering: none slight moderate severe Other:

Substrate Types	% coverage	# times sampled	method	Substrate Types	% coverage	# times sampled	method
Woody Debris (Snags)	0			Sand	10		
Leaf Packs or Mats	0			Mud/Muck/Silt			
Aquatic Vegetation	10			Other: rubble	90		
Rock or Shell Rubble	90			Other:			
Undercut banks/Roots	0			Draw aerial view sketch of habitats found in 100 m section			

WATER QUALITY	Depth (m):	Temp. (°C):	pH (SU):	D.O. (mg/l):	Cond. (µmho/cm) or Salinity (ppt):			Secchi (m):
Top	0.1	14.53	6.34	5.99	742			VOB
Mid-depth	"							
Bottom	1.0	14.65	6.39	6.21	741			

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: ☐

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

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

Weather Conditions/Notes: The water level was higher than usual and flow was faster than usual.

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

SAMPLING TEAM:	SIGNATURE:	DATE:
Cindrea Granger	Cindrea Granger	2/6/03

Recon

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
FRESHWATER BENTHIC HABITAT ASSESSMENT FIELD DATA SHEET (5-27-98)

SUBMITTING AGENCY CODE / SUBMITTING AGENCY NAME	STORET STATION NUMBER	DATE (M/D/Y):	RECEIVING BODY OF WATER:
		2/6/03	N Alafia Prong

REMARKS:	COUNTY:	LOCATION:	FIELD ID/NAME:
	Polk	City Mulberry WWTP	Down Stream

Habitat Parameter	Optimal	Suboptimal	Marginal	Poor
Primary Habitat Components Substrate Diversity [8]	Four or more productive habitats present (snags, tree roots, aquatic vegetation, leaf packs (partially decayed), undercut banks, 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 [10]	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	5% 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 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 [18]	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 habitats with sand or silt, pools shallow, frequent sediment movement 10 9 8 7 6	Smothering of >80% of habitats with sand or silt, a severe problem, pools absent 5 4 3 2 1
Primary Score [55]				
Secondary Habitat Components Artificial Channelization [10]	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 > 50% 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 [7] Left Bank [7]	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) 12 m 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 [5] Left Bank [5]	Over 90% 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 90% 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 zone 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 [44]				

99 TOTAL SCORE

ANALYSIS DATE:	ANALYST:	SIGNATURE:
2/6/03	A. Granger	Andrea Granger

Appendix 8a

Taxa list and density (number of natural units/cm^2) for periphyton collected from glass microscope slides incubated for 28 days upstream and downstream of Mulberry WWTP discharge, 3/17/03.

	Control Site	Test Site
Bacillariophyta		
Achnanthes sp.	4,084	-
Achnanthes exigua	1,361	-
Achnanthes hungarica	35,395	26,660
Achnanthes lanceolata	17,697	5,332
Aulacoseira sp.	-	1,777
Bacillaria paxillifer	1,361	-
Cocconeis placentula	219,176	335,910
Cyclotella pseudostelligera	-	1,777
Cymbellaceae	-	1,777
Encyonema neomesianum	-	1,777
Encyonema silesiacum	4,084	1,777
Eunotia sp.	1,361	1,777
Fragilariaceae	4,084	-
Gomphonema sp.	1,361	-
Gomphonema parvulum	8,168	1,777
Melosira sp.	19,059	15,996
Navicula sp.	2,723	3,555
Navicula cryptocephala	1,361	-
Navicula minima	1,361	-
Nitzschia sp.	-	1,777
Nitzschia palea	1,361	-
Chlorophycota		
Characium sp.	1,361	-
Chlamydomonas sp.	1,361	-
Chlorella sp.	-	5,332
Oocystis sp.	1,361	-
Selenastrum sp.	5,445	-
Cyanophycota		
Chamaesiphon sp.	31,311	7,109
Cyanobium parvum	32,672	71,092
Cyanobium plancticum	4,084	33,769
Jaaginema sp.	2,723	1,777
Microcystis sp.	10,891	26,660
Synechocystis sp.	4,084	-

Appendix 8b

Taxa list and number of natural units counted for periphyton collected from glass microscope slides incubated for 28 days upstream and downstream of Mulberry WWTP discharge, 3/17/03.

	Control Site	Test Site
Bacillariophyta		
Achnanthes sp.	3	-
Achnanthes exigua	1	-
Achnanthes hungarica	26	15
Achnanthes lanceolata	13	3
Aulacoseira sp.	-	1
Bacillaria paxillifer	1	-
Cocconeis placentula	161	189
Cyclotella pseudostelligera	-	1
Cymbellaceae	-	1
Encyonema neomesianum	-	1
Encyonema silesiacum	3	1
Eunotia sp.	1	1
Fragilariaceae	3	-
Gomphonema sp.	1	-
Gomphonema parvulum	6	1
Melosira sp.	14	9
Navicula sp.	2	2
Navicula cryptocephala	1	-
Navicula minima	1	-
Nitzschia sp.	-	1
Nitzschia palea	1	-
Chlorophycota		
Characium sp.	1	-
Chlamydomonas sp.	1	-
Chlorella sp.	-	3
Oocystis sp.	1	-
Selenastrum sp.	4	-
Cyanophycota		
Chamaesiphon sp.	23	4
Cyanobium parvum	24	40
Cyanobium plancticum	3	19
Jaaginema sp.	2	1
Microcystis sp.	8	15
Synechocystis sp.	3	-

Appendix 9a

Benthic macroinvertebrates collected from Hester-Dendy artificial substrates incubated upstream and downstream of the Mulberry WWTP for 28 days (3/17/03). Taxa collected and density (average number of individuals/m^2) rounded to the nearest individual (n = 3 samples). See SOP LT 7100 sect. 4.2.1 for method on collapsing taxa.

	Control Site	Test Site
Annelida		
Desserobdella phalera	-	2
Arthropoda		
Arachnida		
Hygrobates sp.	-	8
Crustacea		
Hyalella azteca	-	12
Insecta		
Coleoptera		
Dineutus sp.	-	4
Dryopidae	-	2
Microcylloepus pusillus	-	2
Stenelmis sp.	325	60
Collembola		
Isotomidae	-	2
Diptera		
Ablabesmyia mallochi	-	2
Cricotopus bicinctus	-	8
Cryptochironomus sp.	3	-
Hemerodromia sp.	3	2
Pentaneura inconspicua	3	8
Polypedilum fallax	-	2
Polypedilum flavum	463	733
Polypedilum halterale grp.	6	-
Polypedilum scalaenum grp.	-	4
Rheocricotopus robacki	3	2
Rheotanytarsus exiguus grp.	42	61
Rheotanytarsus pellucidus	55	13
Stenochironomus sp.	-	10
Thienemanniella sp.	-	2
Ephemeroptera		
Baetis intercalaris	93	300
Caenis sp.	3	2
Tricorythodes albilineatus	0	36
Megaloptera		
Corydalus cornutus	8	10
Trichoptera		
Cheumatopsyche sp.	394	2,637
Cyrnellus fraternus	-	2
Hydropsyche sp.	-	6
Hydroptila sp.	3	-
Neotrichia sp.	5	4
Oecetis persimilis	-	2
Odonata		
Enallagma sp.	-	2
Hetaerina sp.	-	2
Cnidaria		
Undetermined Cnidaria	3	-
Mollusca		
Ancylidae	5	-
Laevapex sp.	-	14
Hydrobiidae	-	2
Pyrgophorus platyrachis	19	-
Tritonia sp.	-	2

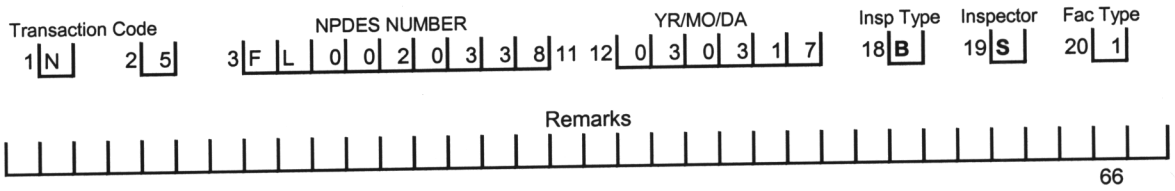
Appendix 9b

Benthic macroinvertebrates collected from Hester-Dendy artificial substrates incubated upstream and downstream of the Mulberry WWTP for 28 days (3/17/03). Taxa collected and total number of individuals counted (n = 3 samples). Uncollapsed.

	Control Site	Test Site
Annelida		
Desserobdella phalera	-	1
Arthropoda		
Arachnida		
Hygrobates sp.	-	4
Crustacea		
Hyalella azteca	-	6
Insecta		
Coleoptera		
Dineutus sp.	-	2
Dryopidae	-	1
Microcylloepus pusillus	-	1
Stenelmis sp.	123	30
Collembola		
Isotomidae	-	1
Diptera		
Ablabesmyia mallochi	-	1
Chironomidae	10	21
Cricotopus bicinctus	-	4
Cryptochironomus sp.	1	-
Hemerodromia sp.	1	1
Pentaneura inconspicua	1	4
Polypedilum fallax	-	1
Polypedilum flavum	167	351
Polypedilum halterale grp.	2	-
Polypedilum scalaenum grp.	-	2
Rheocricotopus robacki	1	1
Rheotanytarsus exiguus grp.	15	29
Rheotanytarsus pellucidus	20	6
Stenochironomus sp.	-	5
Thienemanniella sp.	-	1
Ephemeroptera		
Baetidae	8	16
Baetis intercalaris	27	135
Caenis sp.	1	1
Tricorythodes sp.	-	4
Tricorythodes albilineatus	-	14
Megaloptera		
Corydalus cornutus	3	5
Trichoptera		
Cheumatopsyche sp.	149	1322
Cyrnellus fraternus	-	1
Hydropsyche sp.	-	3
Hydropsychidae	-	6
Hydroptila sp.	1	-
Neotrichia sp.	2	2
Oecetis persimilis	-	1
Undetermined Trichoptera	-	1
Odonata		
Enallagma sp.	-	1
Hetaerina sp.	-	1
Cnidaria		
Undetermined Cnidaria	1	-
Mollusca		
Ancylidae	2	6
Laevapex sp.	-	1
Hydrobiidae	4	1
Pyrgophorus platyrachis	3	-
Tritonia sp.	-	1

The Bioassay of City of Mulberry WWTP effluent sampled on March 17, 2003, NPDES #FL0020338.

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



The Priority Pollutants Analysis for Bioassay of City of Mulberry WWTP effluent sampled on March 17, 2003, NPDES #FL0020338.

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

