

Biological Assessment of

Solutia
(formerly Monsanto)

Escambia County

NPDES #FL0002488

November 29, 2005

August 2006

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:	Solutia, Inc.	County:	Escambia
Physical Address:	3000 Old Chemstrand Road	Permit Expiration:	July 1, 2006
NPDES Number:	FL0002488		

Toxics Sampling Inspection **(XSI)**

Date Sampled: November 29, 2005

Results: Samples from the North Outfall (002) were not properly preserved, and thus the results are estimated. The copper (8.07 μg/L) and zinc (94 μg/L) concentrations in the North Outfall sample potentially exceeded Class III Water Quality Criteria (2.9 μg/L and 37 μg/L, respectively; 62-302.530 (24) and (71), F.A.C.; Table 1). The copper (8.69 μg/L) concentration in the South Outfall (001) sample exceeded the Class III Water Quality Criterion (2.9 μg/L; 62-302.530(24), F.A.C.). Zinc was detected between the method detection limit (MDL) and practical quantitation limit (PQL) in the South Outfall sample. Copper was detected between the MDL and PQL in the Control Site sample. Iron concentrations in the South Outfall (1,180 μg/L), the Intake (1,050 μg/L), the Control Site (1,196 μg/L), and Test Site samples (1,290 μg/L) exceeded the Class III Water Quality Criterion (≤ 1,000 μg/L; 62-302.530(39), F.A.C.).

Compliance Biomonitoring Inspection **(CBI)**

Date Sampled: November 29. 2005

Results: The effluent sample was not acutely toxic to the fish, *Cyprinella leedsi*, or to the water flea, *Ceriodaphnia dubia*, during the 96-hour acute bioassays (Appendix 6).

Water Quality Inspection **(WQI)**

Date Sampled: November 29, 2005

Results: Dissolved oxygen, temperature, and conductivity measurements in the effluent and at the Control and Test Sites complied with Class III Water Quality Criteria and permit limits (Table 1, Appendix 6). The pH at the North Outfall (5.8 S.U.) failed to comply with the minimum permit limit of 6.0 S.U. Total coliforms in the North (3,000 counts/100 ml) and South (3,150 counts/100 ml) Outfall samples exceeded the Class Water Quality Criterion (2,400 counts/100 ml; 62-302.530(7), F.A.C.).

With the exception of nitrate+nitrite, the nutrients in the Control and Test Site samples were below the 50th percentile of typical values for Florida streams (Appendix 8). Nitrate+nitrite values in samples from both sites were higher than 70% of other typical Florida streams (0.22 and 0.21 mg/L at the Control and Test sites, respectively).

Impact Bioassessment Inspection **(IBI)**

Date Sampled: November 29, 2005

Results: The North Outfall's algal growth potential (21.4 mg dry wt/L) was above the 5.0 mg dry wt/L "problem" threshold for freshwaters; however, both the Control (0.81 mg dry wt/L) and Test (0.77 mg dry wt/L) Site levels were below this threshold. There did not appear to be any major differences in the qualitative periphyton communities at the Control and Test Sites (Table 3, Appendix 10).

In the quantitative macroinvertebrate samples, Shannon-Weaver diversity, taxa richness, the Florida Index, and the number of EPT were all lower at the Test Site relative to the Control Site. Diversity was 24% lower at the Test Site compared to the Control Site (Table 4). Similar results were indicated in the qualitative dipnet samples (Table 5). The SCI score was in the "Poor" category at the Control Site with 34 points compared to a rating of "Very Poor" at the Test Site with 16 points.

Biological assessments prepared by FDEP staff, provide information for NPDES permit renewal applications and in conjunction with other information concerning the subject facility and its receiving-water body, aid in determining appropriate permit conditions.

Introduction

Solutia, Inc. is located in Escambia County, Florida (Appendix 1). This facility manufactures chemicals and fabrics, conducts research, and is a development center for fibers and chemical intermediates (Appendix 2). It produces nylon chemical intermediates, nylon 6,6 polymers, resins, fibers and maleic anhydride. Wastewater is also received from the adjoining CEREX Advanced Fabrics, L.P., a nylon 6,6 non-woven fabric manufacturing plant. The acidic wastewater from the CEREX Advanced Fabrics, L.P. plant is neutralized before being discharged into the Solutia, Inc. wastewater collection system. CEREX wastewater treatment includes sodium bisulfite dechlorination, oil skimming, sedimentation, equalization and neutralization.

Solutia's domestic wastewater goes through secondary level treatment including primary settling, residuals digesting, and a 2.32 hectare (5.74 acre) lined facultative lagoon. The treated effluent is discharged through two outfalls: the North Outfall (002) flows into an unnamed tributary of the Escambia River, and the South Outfall (001) flows directly into the Class III freshwaters of the Escambia River. There is a combined 27.7 million gallon per day (MGD) average monthly flow limit for the North (2.7 MGD) and South (25 MGD) outfalls. The mean flow during this survey was 0.92 MGD at the North Outfall and 28 MGD at the South Outfall (Appendix 6).

Surface Water Quality Criteria and facility permit limits are listed in Table 1. According to the facility's monthly discharge monitoring reports and the Facility Summary, the plant has had two pH violations and one zinc violation since October 2004 (Appendix 2).

Methods

The purpose of this investigation was to determine the potential effects of the facility's effluent on the biota of the receiving waters. Chemical and biological comparisons were made between a Control Site (located in the Escambia River approximately 4,500 meters upstream of the South 001 discharge) and a Test Site (located in the Escambia River approximately 150 meters downstream of the South 001 discharge). See map in Appendix 1. Detailed methods and their relationship to Florida Administrative Code are given in Appendix 3.

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

The following were involved in this investigation: Glenn Butts and Laurence Donelan (FDEP Northwest District), and FDEP Central Laboratory in Tallahassee. The report was reviewed by District representatives and the Point Source Studies Review Committee (Wayne Magley, Shannan Bogdanov, 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 5. Metal and nutrient samples from the North Outfall were not preserved upon collection; therefore, the associated data for this location may not accurately reflect actual values (Table 1). Copper and zinc in the North Outfall sample (8.07 and 94 µg/L, respectively) potentially exceeded the Class III Water Quality Criteria (62-302.530(24) and (71), F.A.C.) and facility permit limits. The facility has a 30-meter mixing zone for zinc downstream of the North Outfall, samples were collected downstream of the mixing zone.
- Copper and iron in the South Outfall sample (8.69 and 1,180 µg/L, respectively) were properly preserved and therefore exceeded Class III Water Quality Criteria (62-302.530(24) and (39), F.A.C.). Zinc was found in the South Outfall sample above the method detection limit (MDL) and below the practical quantitation limit (PQL).
- Iron was detected in the Intake (1,050 µg/L), Control (1,196 µg/L), and Test Site samples (1,290 µg/L) at levels above the Class III Criterion (≤ 1,000 µg/L; 62-302.530 (39), F.A.C.). Copper was detected between the MDL and PQL at the Control Site. These results suggest that there may be sources of iron in the Escambia River other than the effluent.
- Aluminum was detected in the field blank (5.2 µg/L) at a level above the method detection limit (MDL) and below the practical quantitation limit (PQL) (Appendix 4). No other metals were detected in the blanks.

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

Solutia Inc.	Class III Stds	North and South Effluent Limits	North Outfall (002)	South Outfall (001)	Intake	Control Site	Test Site
Organic Constituents (µg/L)							
None Detected	-	-	-	-	-	-	-
Metals (µg/L unless otherwise noted)							
Aluminum **	-	-	428 Y	344	355	429	428
Arsenic	≤ 50	-	4 UY	4 U	4 U	4 U	4 U
Cadmium	≤ 0.4 b	-	0.08 UY	0.05 U	0.05 U	0.05 U	0.05 U
Calcium (mg/L)	-	-	8.8 Y	10.9	8.3	8.2	9.2
Chromium-III	≤ 27.7 b	-	2.7 IY	1 U	1 U	1 U	1 U
Copper	≤ 2.9 b	20.0 d***	8.07 Y	8.69	0.36 I	0.37 I	1.02
Iron	≤ 1000	≤ 1000 b	923 Y	1180	1050	1196	1290
Lead	≤ 0.5 b	-	2.7 Y	0.5	0.37	0.42	0.44
Magnesium (mg/L)	-	-	3.9 Y	3.9	1.4	1.1	3.9
Mercury	≤ 0.012	-	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Nickel	≤ 16.1 b	≤ 16.1b	1.4 IY	5.9	1 U	1 U	1.6 I
Selenium	≤ 5	-	1 UY	0.5 U	0.5 U	0.5 U	0.5 U
Silver	≤ 0.07	≤ 0.07	0.025 UY	0.025 U	0.025 U	0.025 U	0.025 U
Zinc	≤ 37 b	≤ 37 b	94 Y	8.5 I	3 U	3 U	3 U
Nutrients (mg/L)							
Ortho-phosphate	-	-	0.24	0.044	-	0.009 I	0.009 IQ
Total Phosphorus	-	0.58	0.41 Y	0.028 I	-	0.02 U	0.02 U
Ammonia	-	-	0.14 Y	0.025 I	-	0.027	0.037
Unionized Ammonia	≤ 0.02	-	< 0.02	< 0.02	-	< 0.02	< 0.02
Nitrate+Nitrite	-	-	0.3 Y	0.45	-	0.22	0.21
Total Kjeldahl Nitrogen **	-	-	0.37 Y	0.31	-	0.21	0.24
Organic Nitrogen	-	-	0.23 c	0.28 c	-	0.18 c	0.2 c
Total Nitrogen	-	6.49	0.67 c	0.76 c	-	0.43 c	0.45 c
General Physical and Chemical Parameters							
Habitat Assessment	-	-	-	-	-	117	98
Dissolved Oxygen (mg/L)	≥ 5	-	8.8	8.6	7.4	7.4	7.3
pH (S.U.)	6-8.5	6.0 - 8.5	5.8	6	6.2	6.2	6.2
Conductivity (umhos/cm)	≤ 1275	-	112	399	69	69	232
TSS (mg/L)	-	-	4 U	9 I	-	-	-
Turbidity (NTU) *	43 t	-	13 Q	6.6 Q	11 Q	14 Q	13 Q
Alkalinity (mg/L) *	≥ 20	-	21	29	-	-	-
Color (Pt-Co) *	-	-	-	-	50 Q	60 Q	60 Q
Temperature (C)	-	37.2 d	21.8	22.5	17.7	18.1	17.7
BOD (mg/L) *	-	12.97 d	-	0.97 I	0.5	0.6 A	0.5 U
Chlorophyll *a* (µg/L)	-	-	0.85 U	0.85 U	Report	0.85 U	1.4 U
Phaeophytin (µg/L)	-	-	0.85 U	0.85 U	-	0.85 U	1.4 U
Oil and Grease (mg/L)	≤ 5	5.0 d	1.7 U	1.7 U	1.7 U	1.7 U	1.8 I
Flow (MGD)	-	27.7	0.92	28	Report	-	-
Hardness (mg/L)	-	-	-	43.3 c	-	-	-
Microbiology (# counts/100ml)							
Fecal Coliforms-Membrane Filter *	≤ 800	-	460	445 A	166 BQ	106 Q	320 Q
Total Coliforms *	≤ 2400	-	3000	3150 A	440 Q	430 Q	882 BQ
Toxicology Bioassays (96-hr Acute Screening; % mortality in 100% effluent)							
Fish - *Cyprinella leedsi*	-	< 50%	10%	5%	-	-	-
Water flea - *Ceriodaphnia dubia*	-	< 50%	0%	0%	-	-	-

Value exceeds the Class III Water Quality Criteria or permit limit.

* Analyses conducted at the FDEP Northwest District Lab.

** Compound detected in field blank between MDL and PQL.

*** North Outfall limit.

b - Value is calculated based on hardness

c - Value is calculated

d - Daily maximum

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

B - Results based on colony counts outside the acceptable range

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

Q - Sample held beyond normal holding time

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

Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.

t - Value must not exceed 29 NTU above background.

- No organic priority pollutants were detected in the effluent (Appendix 5).
- The mean flow during this survey was 0.92 MGD at the North Outfall and 28 MGD at the South Outfall and exceeds the combined reporting limit of 27.7 MGD monthly average (Appendix 6).
- Conductivity, pH, and dissolved oxygen complied with Class III Water Quality Criteria (62-302, F.A.C.) and facility permit limits for all effluent and receiving water sites (Table 1).
- The effluent sample was not acutely toxic to the fish, *Cyprinella leedsi* or to the water flea, *Ceriodaphnia dubia* during 96-hour acute screening bioassays (see Table 1 for percent mortality, Appendix 6 for bioassay bench sheets, and Appendix 7 for supporting standard reference toxicant data).
- Total coliforms in the North Outfall (3,000 counts/100 ml) and South Outfall (3,150 counts/100 ml) samples exceeded the Class III Water Quality Criterion (2,400 counts/100 ml; 62-302.530(7), F.A.C.). Fecal coliforms were detected in the effluent at levels that complied with Class III Water Quality Criteria and facility permit limits. Although the fecal and total coliform samples from the Control and Test Sites appear to have complied with Class III Water Quality Criteria, they were held beyond normal holding times and therefore compliance cannot be confirmed (see Table 1 for results and Appendix 6 for laboratory worksheets).

Table 2. Measured and predicted algal growth potential (AGP) for total soluble nitrogen (TSIN), ortho phosphate (OP), total nitrogen (TN), and total phosphorus (TP) limitation for Pseudokirchneriella subcapitata

Solutia Inc.	AGP (measured)	Predicted AGP (TSIN) ± 20%	Predicted AGP (OP) ± 20%	Predicted AGP (TN) ± 20%	Predicted AGP (TP) ± 20%	Inorganic N:P ratio	Total N:P ratio
Control Site	0.81 I	9.4 ± 1.9	3.87 ± 0.774	16.34 ± 3.268	8.6 ±1.7	27.4	21.5
Test Site	0.771 AI	9.39 ± 1.878	3.87 ± 0.774	17.1 ± 3.42	8.6 ± 1.7	27.44	22.5
North outfall	21.4	16.72 ± 3.344	103.2 ± 20.64	25.46 ± 5.092	176.3 ± 35.26	1.83	1.63
South outfall	6.32	18.05 ± 3.61	18.92 ± 3.784	28.88 ± 5.776	12.04 ± 2.408	10.8	27.14

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

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

- Nutrient samples for the North Outfall were not preserved upon collection, so results are estimates (Table 1). The North Outfall (002) total nitrogen and phosphorus concentrations were 0.67 and 0.41 mg/L, respectively, and 0.76 and 0.028 mg/L for the South Outfall (001). These values are below the facility's permit limits (Table 1). Nutrient levels in the Control Site samples were similar to those in the Test Site samples. Nitrate+nitrite levels in the Control (0.22 mg/L) and Test (0.21 mg/L) Site samples were elevated when compared to levels typical of Florida streams (Appendix 8); concentrations at both sites ranked in the 70th percentile of typical values for Florida streams. All other nutrients in the receiving water samples were below the 50th percentile of typical values for other Florida streams.
- 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 wt/L represent a "problem" threshold for fresh receiving waters, implying nutrient enrichment. The AGP values in the North (21.4 mg dry wt/L) and South (6.32 mg dry wt/L) Outfall samples were above this threshold (Table 2). The AGP values in the Control and Test Site samples were below the threshold (0.81 and 0.77 mg dry wt/L, Table 2) and an order of magnitude lower than predicted based on the nutrients available (Table 2). This suggests algal growth inhibition at these sites. If conditions were different algal blooms and other signs of nutrient imbalance could occur.
- Chlorophyll-*a* was not detected in the effluent or in the Control and Test Site samples (Table 1). We note that nutrients in the water column may or may not fuel algal production immediately, depending upon the sum of environmental conditions that limit algal growth at the site (e.g. pH, shading, turbidity). Thus it is not necessarily contradictory for ambient nutrient levels to be high and for no chlorophyll to be detected in water samples.
- Periphyton algal community compositions of the Control and Test Sites were very similar (Table 3, Appendix 10). Communities at both sites were composed almost entirely of diatoms (> 85%; Table 3).
- There was a marked decline in several of the measures of benthic macroinvertebrate health in the Test Site quantitative Hester-Dendy samples (Table 4, Appendix 11). Shannon-Weaver Diversity was 24% lower at the Test Site compared to the Control Site. It should be noted that a 25% reduction in Shannon-Weaver Diversity Index represents a violation of the Biological Integrity Criterion 62-302.530(11)F.A.C. Additionally, there were notable reductions in the percentage of pollution-sensitive mayflies and caddisflies at the Test Site (1.5 and

Table 3. Periphyton composition

Solutia Inc.	Control Site	Test Site
Number of Taxa	48	59
Percent Dominant Taxon	13.3	12.9
Dominant Taxon (name)	*Nitzschia*	*Nitzschia*
Number of Algal Units Identified	309	311
Percentage Composition		
Blue-green algae	14.9	13.8
Diatoms	85.1	86.2
Green algae	0	0
Other	0	0

Table 4. Macroinvertebrate Hester-Dendy Samples - Quantitative

Solutia Inc.	Control Site	Test Site
Summary Statistics		
Shannon-Weaver Diversity	4.16	3.16
Number of Taxa	29	18
Florida Index	22	10
Number of EPT Taxa	9	3
Percent Dominant Taxon	15.0	32.5
Dominant Taxon (name)	*Nais communis complex*	*Nais communis complex*
Dominant Taxon (group)	Oligochaeta	Oligochaeta
Total Number of Individuals (counted)	246	138
Total Number of Individuals (#/m2)	653	366
Community Composition: Percent of total		
Amphipoda	0.4	5.8
Diptera	60.9	56.6
Ephemeroptera	16.7	1.5
Oligochaeta	15.0	34.0
Plecoptera	0.0	0.0
Trichoptera	6.5	2.2
Other	0.5	0.0
Functional Feeding Groups: Percent of total		
Burrowing Deposit Feeders	15.0	34.0
Grazers	0.0	2.2
Piercers	1.2	0.7
Predators	0.0	0.0
Surface Deposit Feeders	45.6	39.3
Scavengers	0.0	2.2
Suspension Feeders	21.2	11.0
Scrapers	7.6	0.7
Shredders	9.2	9.9
Unknown	0.0	0.0

2.2%, respectively) compared to the Control Site (16.7 and 6.5%, respectively) and over twice as many pollution-tolerant oligochaetes at the Test Site (34% contribution) compared to the Control Site (15% contribution). Copper was roughly three times the Class III Water Quality Criterion in samples from the North and South Outfalls and although the Test Site level (1.02 µg/L) did not exceed the Class III Criterion (2.9 µg/L), it was higher than the Control Site (0.37 µg/L) value. Studies have found that caddisflies are more vulnerable to predation in streams with copper concentrations in excess of 6 µg/L (Clements et. al. 1989) as was seen in samples from the North and South Outfalls. Clements et. al. (1988) also found mayflies to be the group most sensitive to elimination in streams with elevated copper concentrations.

- Habitat assessment scores were 117 at the Control Site and 98 at the Test Site, with substrate availability, water velocity, and artificial channelization contributing to the lower score at the Test Site compared to the Control Site (Table 1, data sheets in Appendix 9).
- Qualitative measures of benthic macroinvertebrate assemblages from dipnet samples are summarized in Tables 5 and 6 and in Appendix 12. The Control Site SCI score of 34 placed it in the "Poor" category and the Test Site SCI score of 16 placed it in the "Very Poor" category. The most notable difference in the macroinvertebrate community composition was a sharp decline in the percentage of suspension feeders between the Control (36%) and Test Site (14%). The suspension-feeding bivalve, *Corbicula fluminea*, was the dominant taxon at the Control Site while the dipteran, *Cricotopus* sp., a surface deposit-feeder, was dominant at the Test Site.
- It should be noted that elevated conductivities, ranging from 1,599 µmhos/cm at the surface to 18,773 µmhos/cm near the bottom, were measured at the Test Site during the reconnaissance on November 2, 2005 (Control Site values were 74-75 µmhos/cm at all depths). Values during the actual sampling ranged from 232-239 µmhos/cm at the Test Site and 67-68 µmhos/cm at the Control Site. These values suggest periodic flow reversal at the Test Site. Differences between the Control and Test Site benthic communities may, in part, be due to differences in salinity regimes and not solely attributable to the facility's outfall

Summary

FDEP data from this inspection indicate potential exceedances of the Class III criteria for copper, zinc,

Table 5. Macroinvertebrate Dipnet Samples - Qualitative

Solutia Inc.	Control Site	Test Site
Stream Condition Index (value)	34	16
Stream Condition Index (word)	Poor	Very Poor
Stream Condition Index Metrics		
Total Number of Taxa	28	22
Number of Ephemeroptera Taxa	2	1
Number of Trichoptera Taxa	2	1
Number of Clinger Taxa	2	2
Number of Long-lived Taxa	2	1
Number of Sensitive Taxa	1	0
Percent Contribution of Dominant Taxon	20	49.53
Percent Suspension Feeders and Filterers	36	14.49
Percent of Tanytarsini individuals	0	0.93
Percent of Very Tolerant individuals	33	25.23
Total Number of Individuals	100	107
Dominant Taxon (name)	*Corbicula fluminea*	*Cricotopus or orthocladius*
Dominant Taxon (group)	Bivalvia	Diptera
Community Composition: Percent of total		
Amphipoda	2.0	1.9
Coleoptera	5.0	1.9
Diptera	34.0	76.6
Ephemeroptera	4.0	0.9
Gastropoda	8.0	0.9
Oligochaeta	10.0	6.5
Pelecypoda	29.0	9.4
Plecoptera	1.0	0.0
Trichoptera	2.0	1.9
Other	5.0	0.0
Functional Feeding Groups: Percent of total		
Burrowing Deposit Feeders	10.0	6.5
Predators	1.5	7.9
Surface Deposit Feeders	26.5	40.2
Suspension Feeders and Filterers	36.0	14.5
Scavengers	1.0	0.0
Scrapers	8.5	1.4
Shredders	14.5	27.6
Unknown	1.0	1.9

and iron (62-302.530(24), (71), and (40), F.A.C.). More samples should be taken using proper preservation to confirm these findings. The pH at the North Outfall (5.8 S.U.) was below the minimum permit limit of 6.0 S.U. The AGP values for the effluent samples were elevated, but did not result in nuisance conditions at the Test Site. The SCI score went from "Poor" at the Control Site to "Very Poor" at the Test Site and the Shannon-Weaver Diversity was 24% lower at the Test Site compared to the Control Site. Additional monitoring may be warranted in order to determine the extent to which elevated copper concentrations in the Solutia, Inc. effluent are contributing to the changes in water quality and in the macroinvertebrate communities in this portion of the Escambia River.

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New SCI Tables, following LT7000 as revised January 2005

Table 6a. Stream Condition Index Metrics - Panhandle Bioregion

Solutia Inc. -- Control Site			
Metric:	Value	Raw Metric Score	Fixed Score 0 -10
Total Number of Taxa	28	3.6	3.6
Number of Ephemeroptera Taxa	2	3.3	3.3
Number of Trichoptera Taxa	2	2.9	2.9
Number of Clinger Taxa	2	1.3	1.3
Number of Long-lived Taxa	2	4.0	4.0
Number of Sensitive Taxa	1	0.5	0.5
Percent Contribution of Dominant Taxon	20	7.0	7.0
Percent Suspension Feeders and Filterers	36	8.0	8.0
Percent of Tanytarsini individuals	0	0.0	0.0
Percent of Very Tolerant individuals	33	0.2	0.2
Total Score			**34**
Interpretation of Scores		Good	73-100
		Fair	46-72
		Poor	19-45
		Very Poor	0-18

Table 6b. Stream Condition Index Metrics - Panhandle bioregion

Solutia Inc. -- Test Site			
Metric:	Value	Raw Metric Score	Fixed Score 0 -10
Total Number of Taxa	22	1.8	1.8
Number of Ephemeroptera Taxa	1	1.7	1.7
Number of Trichoptera Taxa	1	1.4	1.4
Number of Clinger Taxa	2	1.3	1.3
Number of Long-lived Taxa	1	2.0	2.0
Number of Sensitive Taxa	0	0.0	0.0
Percent Contribution of Dominant Taxon	49.53	-2.0	0.0
Percent Suspension Feeders and Filterers	14.49	3.1	3.1
Percent of Tanytarsini individuals	0.93	2.0	2.0
Percent of Very Tolerant individuals	25.23	0.9	0.9
Total Score			**16**
Interpretation of Scores		Good	73-100
		Fair	46-72
		Poor	19-45
		Very Poor	0-18

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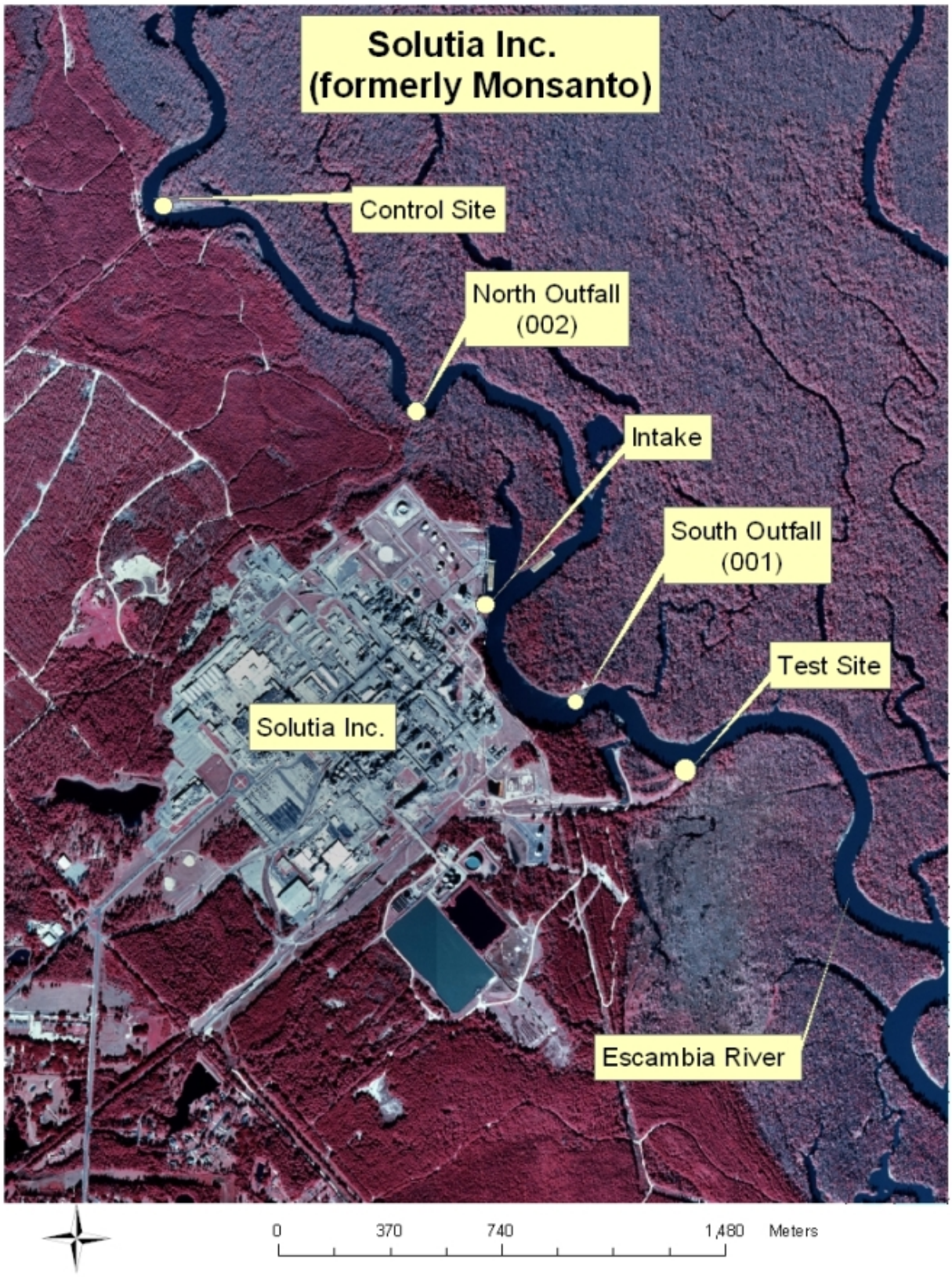
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Appendices

- Appendix 1. Map of facility
- Appendix 2. Facility summary and DMR data
- Appendix 3. Explanation of measurements
- Appendix 4. Chain of Custody form
- Appendix 5. Chemical analyses of effluent and receiving water
- Appendix 6. Additional physical, chemical, toxicological, and microbiological results
- Appendix 7. Standard Reference Toxicant test data and test organism receipts
- Appendix 8. Typical values for selected parameters in Florida waters
- Appendix 9. Habitat Assessment field sheets
- Appendix 10. Periphyton: Taxa list and number of individuals counted
- Appendix 11a. Hester-Dendy multi-plate samplers: Taxa list and macroinvertebrate density (average number of individuals per m^2)
- Appendix 11b. Hester-Dendy multi-plate samplers: Taxa list and total number of macroinvertebrates counted
- Appendix 12a. Dipnet samples: Taxa list and number of macroinvertebrates counted (collapsed)
- Appendix 12b. Dipnet samples: Taxa list and number of macroinvertebrates counted

Appendix 1

Map of Facility



Appendix 2

Facility Summary and DMR data

Facility Name (as it appears on permit): Solutia, Inc		**Former Names:** Monsanto
Physical Address: 3000 Old Chemstrand Rd P.O. Box 97 Gonzalez, FL 32560	**NPDES Permit #.:**FL0002488 **Expiration Date:** 07-01-2006	**Prepared By:** Glenn Butts
County: Escambia	**District:** NW District	**Facility Type:** Industrial

Function of Facility: To provide Industrial wastewater treatment for Solitia, Inc

Sampling Location (specify lat/longs of NPDES point): Two surface water outfalls, North 002 and South 001

Description of treatment process: To discharge once through cooling water, cooling tower blow-down, chilled water blow-down, steam condensate, neutralized ion exchange backwash, potable water, firewater, neutralized process discharge from fiber web Holzoff nonwovens plant, and stormwater through two outfalls into the Escambia River. North 002 (N30 36. 135; W87 14. 980) South 002 (N30 35. 46.10; W87 14. 32.51) Domestic wastewater is disinfected with chlorine dioxide and dechlorination is by sodium bisulfite and used as a portion of the make-up water to cooling tower #2.

Receiving Waters: Escambia River	**Classification:** Class III Fresh

Temperature (C): On field submittal sheets	**Design Flow:**
pH (SU): As above	**Mean Flow:**
Conductivity (umhos/cm): As above	**Flow During Survey:**
Dissolved Oxygen (mg/L): As above	**Total Residual Chlorine (mg/L):**

Discharge is: **Continuous** **Intermittent** **Seasonal** **Rainfall Dependent** **Other**

Facility Mixing Zone Details: Mixing zone for zinc at the north outfall. The mixing zone will extend 100 feet downstream in the Escambia River. If the zinc limitation is exceeded in the discharge, then a grab sample for zinc shall be taken at the edge of the mixing zone and analyzed for zinc.

List Effluent Limits:See attached permit

Parameter and Units	Limit	Describe special permit conditions and permit modifications:

Description of permitted outfall:

List permit violations (DMR data) and plant upsets that occurred at the plant within the last year:
They have had 2 pH violations and 1 zinc violation since 10-04-04.

Describe previous impact bioassessments, WQBEL's, and previous or current enforcement actions:
Bioassessment in 1996 found copper, iron exceeded Class 111 Standards in the North 002 outfall. Iron was also in excess at the South 001 outfall. The effluents (001 & 002) were not toxic the the test organisms. The impact bioassessment using Hester-Dendy artificial substrates and SCI net sweeps found no impact from the outfalls on the indigenous macroinvertebrate assemblages. Fecal coliform exceeded permit standards in both outfalls. Nutrients and algal growth potential were not elevated in the river.

Discuss MOR trends to prior data: No declining water quality trends are revealed by MOR data.

Additional Information:

Facility Summary continued

D001 - South Outfall	Discharge Limitations			Monitoring Requirements		
Parameters (units)	**Monthly Avg.**	**Daily Max.**	**Other -specify**	**Frequency**	**Sample Type**	**Sample Point**
Flow, (MGD)	NA	NA	Report	Continuous	Recorder	EFF-1
pH, (standard units)	(See Part I.A.10.)		NA	Continuous	Recorder	EFF-1
Temperature, (°F)	NA	99	NA	3/week	Instantaneous	EFF-1
Net Total Nitrogen, as N, (lbs/day)						
* see Item I.A.13 on page 5	150	1,500.00	Report (mg/l)	3/week	24 hour comp	EFF-1
Net Total Phosphorus, as P, (lbs/day)						
* see Item I.A.13 on page 5	45	135	Report (mg/l)	3/week	24 hour comp	EFF-1
Net BOD_5, (lbs/day)						
* see Item I.A.13 on page 5	650	3000	Report (mg/l)	3/week	24 hour comp	EFF-1
Total Residual Chlorine, mg/l						
see Item I.A.16 on page 5	NA	0.01 mg/l	NA	7/week	Grab	EFF-1
Oil & Grease, mg/l	NA	5.0 mg/l	NA	1/week	Grab	EFF-1
Hardness, mg/l of $CaCO_3$	NA	NA	Report (mg/l)	1/month	24 hour comp	EFF-1
Total Recoverable Copper, (µg/l) ** see Item VI.A on page 10	NA	$e^{(0.8545[lnH]-1.465)}$	NA	1/month	24 hour comp	EFF-1
Total Recoverable Nickel, (µg/l)	NA	$e^{(0.846[lnH]+1.1645)}$	NA	1/month	24 hour comp	EFF-1
Total Recoverable Zinc, (µg/l)	NA	$e^{(0.8473[lnH]+0.7614)}$	NA	1/month	24 hour comp	EFF-1
Whole Effluent Toxicity	(See Item I.F, page 7)					EFF-1

D002 - North Outfall	Discharge Limitations			Monitoring Requirements		
Parameters (units)	**Monthly Avg.**	**Daily Max.**	**Other -specify**	**Frequency**	**Sample Type**	**Sample Point**
Flow, (MGD)	NA	NA	Report	Continuous	Recorder	EFF-2
pH, (standard units)	(See Part	I.A.10.)	NA	Continuous	Recorder	EFF-2
Temperature, (°F)	NA	99.0	NA	3/week	Instantaneous	EFF-2
Net Total Nitrogen, as N, (lbs/day) * see Item I.A.13. on page 5	150.0	1,500.0	Report (mg/l)	3/week	24 hour composite	EFF-2
Net Total Phosphorus, as P, (lbs/day) * see Item I.A.13. on page 5	45.0	135.0	Report (mg/l)	3/week	24 hour composite	EFF-2
Net BOD_5, (lbs/day) * see Item I.A.13. on page 5	650.0	3000.0	Report (mg/l)	3/week	24 hour composite	EFF-2
Total Residual Chlorine, mg/l see Item I.A.16 on page 5	NA	0.01 mg/l	NA	7/week	Grab	EFF-2
Hardness, mg/l of $CaCO_3$	NA	NA	Report (mg/l)	1/month	24 hour composite	EFF-2
Total Recoverable Copper, (µg/l) ** see Item VI.A	NA	$e^{(0.8545[lnH]-1.465)}$	NA	1/month	24 hour composite	EFF-2
Total Recoverable Nickel, (µg/l)	NA	$e^{(0.846[lnH]+1.1645)}$	NA	1/month	24 hour composite	EFF-2
Total Recoverable Zinc, (µg/l)	NA	$e^{(0.8473[lnH]+0.7614)}$	NA	1/month	24 hour composite	EFF-2
Whole Effluent Toxicity see Item VI.A. on page 10	(See Item	I.F, page 7)				EFF-2

Facility Summary continued

Monthly Operating Report data for Solutia Inc. from November 2004 through November 2005.

Facility ID	Facility Name	Outfall Type	Monitoring Date	Outfall Indicator	Parameter Description	Value	Limit	Statistical Base	Value	Limit	Statistical Base	Units
FL0002488	SOLUTIA INC.	EFFLUENT	4/30/2005	001-1	PH	5.8	4.9	MINIMUM	9.4	8.5	MAXIMUM	SU
FL0002488	SOLUTIA INC.	EFFLUENT	6/30/2005	001-1	PH	6.6	4.9	MINIMUM	8.6	8.5	MAXIMUM	SU

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

Acute screening toxicity bioassays were performed on the effluent sample using the water flea, *Ceriodaphnia dubia,* and the fish, *Cyprinella leedsi* following FDEP SOPs TA07_01 and TA07_02. 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..

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. This Index was revised in 2004 using data from qualitative dipnet samples. The SCI now assigns points to ten parameters; depending on how closely each parameter approaches an expected value (QA Rule SOP LT 7200). Points are assigned depending on

which bioregion (Panhandle, Northeast, or Peninsula) the sampling location exists in and summed to yield a final SCI score (range 0-100). Included in the calculation of SCI are taxa richness, number of Ephemeroptera taxa, number of Trichoptera taxa, percent contribution of the dominant taxon, number of sensitive taxa, number of clinger taxa, number of long-lived taxa, percent contribution of Tanytarsini, percent contribution of very tolerant, and the percent contribution of suspension and filter feeders. Scores are broken into four ordinal groups: Good, Fair, 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..

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Request Number: RQ-2005-08-29-31
Solutia, Inc.

Event ID *

Requester: Julie K. Espy
Field Report Prepared By: G. BUTTS
Collected By: G. BUTTS C. STOLL
Send Final Report To Bill Chandler
Sampling Agency: FDEP NW DISTRICT

Customer: NW-DIST
Project ID: FYI5
PMAS: 1163

Glenn Butts 11-28-05 0930

Lab ID *	Location	Collection (begin) Eastern Central	Collection (end) Eastern Central	Bottle Group(s)**
	SOLUTIA 001 SOUTH OUTFALL	☒ Comp ☐ Grab Date 11-27-05 Time 11-27-05 0930	Date 11-28-05 Time 11-28-05 0930	
	Field ID # 4	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L) 8.59	Storet Station Number GMS 1017P00580
	Matrix (Include type e.g. Salt, Fresh, etc) FRESH	Temp (C) 22.5 pH 5.96	Sample Depth ☐ m ☐ ft 399	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm) NPDES Number FL0002488
	Latitude o ' "	Longitude o ' "	Comments STORET # 33.02.0030	

Lab ID *	Location	Collection (begin) Eastern Central	Collection (end) Eastern Central	Bottle Group(s)**
	NW DISTRICT CHEM LAB	☐ Comp ☒ Grab Date Time	Date 11-28-05 Time 0715	
	Field ID BLANKS	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number
	Matrix (Include type e.g. Salt, Fresh, etc) FRESH	Temp (C) pH	Sample Depth ☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm) NPDES Number
	Latitude o ' "	Longitude o ' "	Comments 11-27-05 0930 11-28-05 0930	

Lab ID *	Location	Collection (begin) Eastern Central	Collection (end) Eastern Central	Bottle Group(s)**
	SOLUTIA 002 NORTH OUTFALL	☐ Comp ☐ Grab Date 11-27-05 Time	Date 11-28-05 Time	
	Field ID #2	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L) 8.83	Storet Station Number 33.02.0028
	Matrix (Include type e.g. Salt, Fresh, etc) FRESH	Temp (C) 21.78 pH 5.79	Sample Depth ☐ m ☐ ft 112	☐ Salinity (PPTh) ☒ Sp Conductance (umho/cm) NPDES Number
	Latitude o ' "	Longitude o ' "	Comments	

Lab ID *	Location	Collection (begin) Eastern Central	Collection (end) Eastern Central	Bottle Group(s)**
		☐ Comp ☐ Grab Date Time	Date Time	
	Field ID	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number
	Matrix (Include type e.g. Salt, Fresh, etc)	Temp (C) pH	Sample Depth ☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm) NPDES Number
	Latitude o ' "	Longitude o ' "	Comments Yellow Jars Found 1230 11.29.05	

Relinquished By:	Date/Time	Shipping Method:	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
Glenn Butts	11-28-05 1430	DHL	ZKW	11-29-05 1100A				

* Shaded Areas for Lab use only.

** Please see reverse side for Bottle Group information.

last revised October 1, 2003

Page 1 of 4

EW 1600pm 11.29.05 { 2 CH/W, 2 BOD-LWIN } 4 pH @ 15:16 pm 11/29/05 R. Jackson

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Request Number: RQ-2005-08-29-31
Solutia, Inc.

Event ID *

Requester: Julie K. Espy

Field Report Prepared By: Donelan

Customer: NW-DIST

Collected By: Alexander Donelan

Send Final Report To Bill Chandler

Project ID: FYI5

Sampling Agency: FDEP NW DISTRICT

PMAS: 1163

Glenn Butts

Lab ID *	Location: ESCAMBIA RIVER UPPER BLUFFS			☐ Comp ☒ Grab	Collection (begin) Date 11-29-05 Time 1305 Eastern Central	Collection (end) Date 11-29-05 Time Eastern Central			Bottle Group(s)** A
	Field ID #1				Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L) 7.4	Storet Station Number 33.02.0009		
	Matrix (Include type e.g. Salt, Fresh, etc): FRESH	Temp (C) 18.12	pH 6.18	Sample Depth ☐ m ☐ ft	0.2	☐ Salinity (PPTh) 69 ☐ Sp Conductance (umho/cm)	NPDES Number		
	Latitude o ' "	Longitude o ' "		Comments: HD's OUT CONTROL SITE NET SWEEPS					
Lab ID *	Location: ESCAMBIA RIVER AT SOLUTIA INTAKE			☐ Comp ☒ Grab	Collection (begin) Date 11-29-05 Time 0907 Eastern Central	Collection (end) Date 11-29-05 Time Eastern Central			Bottle Group(s)** A
	Field ID #3				Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L) 7.4	Storet Station Number 33.02.0029		
	Matrix (Include type e.g. Salt, Fresh, etc): FRESH	Temp (C) 17.71	pH 6.18	Sample Depth ☐ m ☐ ft 0.2	LWD 232 69	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number		
	Latitude o ' "	Longitude o ' "		Comments: WATER ONLY					
Lab ID *	Location: ESCAMBIA RIVER 150 M BELOW SOLUTIA			☐ Comp ☒ Grab	Collection (begin) Date Time Eastern Central	Collection (end) Date 11-28-05 Time Eastern Central			Bottle Group(s)** A
	Field ID #5				Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number 33.02.0031		
	Matrix (Include type e.g. Salt, Fresh, etc): FRESH	Temp (C) 17.71	pH 6.15	Sample Depth ☐ m ☐ ft .02	232	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number		
	Latitude o ' "	Longitude o ' "		Comments: HD's OUT TEST SITE NET SWEEPS					
Lab ID *	Location: NW DISTRICT CHEM LAB			☐ Comp ☒ Grab	Collection (begin) Date Time Eastern Central	Collection (end) Date 11-28-05 Time Eastern Central			Bottle Group(s)**
	Field ID BLANK				Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number		
	Matrix (Include type e.g. Salt, Fresh, etc): FRESH	Temp (C)	pH	Sample Depth ☐ m ☐ ft		☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)	NPDES Number		
	Latitude o ' "	Longitude o ' "		Comments					

Relinquished By:	Date/Time	Shipping Method:	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
[illegible]	11-29-05	DHL	[illegible]	11-30-05 10:30				

* Shaded Areas for Lab use only.

** Please see reverse side for Bottle Group information.

last revised October 1, 2003

Appendix 5

Chemical analysis of effluent and receiving water

DATE	SITE LOCATION	FIELD ID	ANALYSIS GROUP	COMPONENT	RESULT	UNITS	REMARK	MDL	PQL
11/29/05	ESC RIV UPPER BLY FFS	# 1	Bio-AGP/LimNut	Algal Growth Potential	0.81	mg DryWt/L	I	0.3	0.9
11/28/05	SOL 002 N OUTFALL	# 2	Bio-AGP/LimNut	Algal Growth Potential	21.4	mg DryWt/L		0.3	0.9
11/28/05	SOL 001 S OUTFALL	# 4	Bio-AGP/LimNut	Algal Growth Potential	6.32	mg DryWt/L		0.3	0.9
11/28/05	ESC RIV 150 M BLW SOL	# 5	Bio-AGP/LimNut	Algal Growth Potential	0.771	mg DryWt/L	AI	0.3	0.9
11/28/05	SOL 002 N OUTFALL	# 2	Bio-BOD	BOD-5 Day		mg/L			
11/28/05	SOL 001 S OUTFALL	# 4	Bio-BOD	BOD-5 Day	0.97	mg/L	I		
11/28/05	NW DISTRICT CHEM LAB	BLANKS	Bio-BOD	BOD-5 Day	0.2	mg/L	U		
11/29/05	ESC RIV UPPER BLY FFS	# 1	Bio-Chl-a	Chl-A, Monochromatic, Water	0.85	ug/L	U	0.85	2.6
11/29/05	ESC RIV UPPER BLY FFS	# 1	Bio-Chl-a	Phaeophytin-A, Monochromatic	0.85	ug/L	U	0.85	2.6
11/28/05	SOL 002 N OUTFALL	# 2	Bio-Chl-a	Chl-A, Monochromatic, Water	0.85	ug/L	U	0.85	2.6
11/28/05	SOL 002 N OUTFALL	# 2	Bio-Chl-a	Phaeophytin-A, Monochromatic	0.85	ug/L	U	0.85	2.6
11/28/05	SOL 001 S OUTFALL	# 4	Bio-Chl-a	Chl-A, Monochromatic, Water	0.85	ug/L	U	0.85	2.6
11/28/05	SOL 001 S OUTFALL	# 4	Bio-Chl-a	Phaeophytin-A, Monochromatic	0.85	ug/L	U	0.85	2.6
11/28/05	ESC RIV 150 M BLW SOL	# 5	Bio-Chl-a	Chl-A, Monochromatic, Water	1.4	ug/L	U	1.4	4.3
11/28/05	ESC RIV 150 M BLW SOL	# 5	Bio-Chl-a	Phaeophytin-A, Monochromatic	1.4	ug/L	U	1.4	4.3
11/29/05	ESC RIV UPEER BLY FFS	# 1	Bio-Invertebrates	FW-Qual-Dipnetx20-# Taxa	29	# Taxa			
11/28/05	ESC RIV 150 M BLW SOL	# 5	Bio-Invertebrates	FW-Qual-Dipnetx20-# Taxa	24	# Taxa			
11/28/05	ESC RIV 150 M BLW SOL	# 5	Bio-Invertebrates	FW-Quan-ArtSubstr-# Taxa	8	# Taxa			
11/29/05	ESC RIV UPPER BLY FFS	#1-REF-1	Bio-Invertebrates	FW-Quan-ArtSubstr-# Taxa	14	# Taxa			
11/29/05	ESC RIV 150 M BLW SOL	REF-2	Bio-Invertebrates	FW-Quan-ArtSubstr-# Taxa	14	# Taxa			
11/29/05	ESC RIV UPPER BLY FFS	REF-2	Bio-Invertebrates	FW-Quan-ArtSubstr-# Taxa	22	# Taxa			
11/29/05	ESC RIV 150 M BLW SOL	REF-3	Bio-Invertebrates	FW-Quan-ArtSubstr-# Taxa	11	# Taxa			
11/29/05	ESC RIV UPPER BLY FFS	REF-3	Bio-Invertebrates	FW-Quan-ArtSubstr-# Taxa	21	# Taxa			
11/29/05	ESC RIV UPPER BLY FFS	# 1	Bio-Peri/Phyto	Periphyton-Qual-# Diatom Taxa	40	# Taxa			
11/29/05	ESC RIV UPPER BLY FFS	# 1	Bio-Peri/Phyto	Periphyton-Qual-# Wet Taxa	8	#Taxa			
11/28/05	ESC RIV 150 M BLW SOL	# 5	Bio-Peri/Phyto	Periphyton-Qual-# Diatom Taxa	51	# Taxa			
11/28/05	ESC RIV 150 M BLW SOL	# 5	Bio-Peri/Phyto	Periphyton-Qual-# Wet Taxa	8	#Taxa			
11/28/05	SOL 002 N OUTFALL	# 2	Bio-Toxicology	Acute-Screen-C.dubia, LC50	100	LC50	L		
11/28/05	SOL 002 N OUTFALL	# 2	Bio-Toxicology	Acute-Screen-FW-Fish, LC50	100	LC50	L		
11/28/05	SOL 001 S OUTFALL	# 4	Bio-Toxicology	Acute-Screen-C.dubia, LC50	100	LC50	L		
11/28/05	SOL 001 S OUTFALL	# 4	Bio-Toxicology	Acute-Screen-FW-Fish, LC50	100	LC50	L		
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	1,2,4-Trichlorobenzene	0.95	ug/L	U	0.95	3.8
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	1,2-Dichlorobenzene	0.95	ug/L	U	0.95	3.8
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	1,3-Dichlorobenzene	0.95	ug/L	U	0.95	3.8
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	1,4-Dichlorobenzene	0.95	ug/L	U	0.95	3.8
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	2,4,6-Trichlorophenol	0.95	ug/L	U	0.95	3.8
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	2,4-Dichlorophenol	0.95	ug/L	U	0.95	3.8
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	2,4-Dimethylphenol	48	ug/L	U	48	190
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	2,4-Dinitrophenol	14	ug/L	U	14	57
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	2,4-Dinitrotoluene	0.95	ug/L	U	0.95	3.8
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	2,6-Dinitrotoluene	0.95	ug/L	U	0.95	3.8
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	2-Chloronaphthalene	0.95	ug/L	U	0.95	3.8
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	2-Chlorophenol	0.95	ug/L	U	0.95	3.8
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	2-Methyl-4,6-dinitrophenol	2.9	ug/L	U	2.9	11
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	2-Nitrophenol	0.95	ug/L	UJ	0.95	3.8
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	3,3'-Dichlorobenzidine	38	ug/L	UJ	38	150
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	4,4'-DDD	1.4	ug/L	U	1.4	5.7

DATE	SITE LOCATION	FIELD ID	ANALYSIS GROUP	COMPONENT	RESULT	UNITS	REMARK	MDL	PQL
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	4,4'-DDE	1.4	ug/L	U	1.4	5.7
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	4,4'-DDT	1.4	ug/L	U	1.4	5.7
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	4-Bromophenyl phenyl ether	0.95	ug/L	U	0.95	3.8
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	4-Chloro-3-methylphenol	0.95	ug/L	U	0.95	3.8
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	4-Chlorophenyl phenyl ether	1.9	ug/L	U	1.9	7.6
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	4-Nitrophenol	14	ug/L	U	14	57
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	Acenaphthene	0.95	ug/L	U	0.95	3.8
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	Acenaphthylene	0.95	ug/L	U	0.95	3.8
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	Aldrin	1.4	ug/L	U	1.4	5.7
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	Anthracene	0.95	ug/L	U	0.95	3.8
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	Benzidine	95	ug/L	U	95	380
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	Benzo(a)anthracene	0.95	ug/L	U	0.95	3.8
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	Benzo(a)pyrene	0.95	ug/L	U	0.95	3.8
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	Benzo(b)fluoranthene	0.95	ug/L	U	0.95	3.8
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	Benzo(g,h,i)perylene	0.95	ug/L	U	0.95	3.8
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	Benzo(k)fluoranthene	0.95	ug/L	U	0.95	3.8
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	Bis(2-chloroethoxy)methane	0.95	ug/L	U	0.95	3.8
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	Bis(2-chloroethyl)ether	0.95	ug/L	U	0.95	3.8
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	Bis(2-chloroisopropyl)ether	2.9	ug/L	U	2.9	11
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	Bis(2-ethylhexyl)phthalate	14	ug/L	U	14	57
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	Butyl benzyl phthalate	4.8	ug/L	U	4.8	19
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	Chrysene	0.95	ug/L	U	0.95	3.8
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	Di-n-butyl phthalate	4.8	ug/L	U	4.8	19
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	Di-n-octyl phthalate	0.95	ug/L	U	0.95	3.8
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	Dibenzo(a,h)anthracene	0.95	ug/L	U	0.95	3.8
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	Dieldrin	1.4	ug/L	U	1.4	5.7
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	Diethyl phthalate	0.95	ug/L	U	0.95	3.8
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	Dimethyl phthalate	48	ug/L	U	48	190
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	Endosulfan I	3.8	ug/L	U	3.8	15
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	Endosulfan II	3.8	ug/L	U	3.8	15
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	Endosulfan sulfate	1.4	ug/L	U	1.4	5.7
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	Endrin	1.4	ug/L	U	1.4	5.7
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	Endrin aldehyde	3.8	ug/L	U	3.8	15
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	Fluoranthene	0.95	ug/L	U	0.95	3.8
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	Fluorene	0.95	ug/L	U	0.95	3.8
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	Heptachlor	1.4	ug/L	U	1.4	5.7
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	Heptachlor epoxide	1.4	ug/L	U	1.4	5.7
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	Hexachlorobenzene	0.95	ug/L	U	0.95	3.8
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	Hexachlorobutadiene	2.9	ug/L	U	2.9	11
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	Hexachlorocyclopentadiene	2.9	ug/L	UJ	2.9	11
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	Hexachloroethane	2.9	ug/L	U	2.9	11
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	Indeno(1,2,3-cd)pyrene	0.95	ug/L	U	0.95	3.8
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	Isophorone	0.95	ug/L	U	0.95	3.8
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	N-Nitrosodi-n-propylamine	1.9	ug/L	U	1.9	7.6
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	N-Nitrosodimethylamine	1.9	ug/L	U	1.9	7.6
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	N-Nitrosodiphenylamine	2.9	ug/L	U	2.9	11
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	Naphthalene	0.95	ug/L	U	0.95	3.8
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	Nitrobenzene	1.9	ug/L	U	1.9	7.6
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	Pentachlorophenol	2.9	ug/L	U	2.9	11
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	Phenanthrene	0.95	ug/L	U	0.95	3.8

DATE	SITE LOCATION	FIELD ID	ANALYSIS GROUP	COMPONENT	RESULT	UNITS	REMARK	MDL	PQL
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	Phenol	0.95	ug/L	U	0.95	3.8
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	Pyrene	0.95	ug/L	U	0.95	3.8
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	alpha-BHC	1.4	ug/L	U	1.4	5.7
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	beta-BHC	1.4	ug/L	U	1.4	5.7
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	delta-BHC	1.4	ug/L	U	1.4	5.7
11/28/05	SOL 002 N OUTFALL	# 2	BNA-Water	gamma-BHC	1.4	ug/L	U	1.4	5.7
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	1,2,4-Trichlorobenzene	1.1	ug/L	U	1.1	4.4
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	1,2-Dichlorobenzene	1.1	ug/L	U	1.1	4.4
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	1,3-Dichlorobenzene	1.1	ug/L	U	1.1	4.4
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	1,4-Dichlorobenzene	1.1	ug/L	U	1.1	4.4
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	2,4,6-Trichlorophenol	1.1	ug/L	U	1.1	4.4
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	2,4-Dichlorophenol	1.1	ug/L	U	1.1	4.4
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	2,4-Dimethylphenol	55	ug/L	U	55	220
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	2,4-Dinitrophenol	16	ug/L	U	16	66
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	2,4-Dinitrotoluene	1.1	ug/L	U	1.1	4.4
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	2,6-Dinitrotoluene	1.1	ug/L	U	1.1	4.4
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	2-Chloronaphthalene	1.1	ug/L	U	1.1	4.4
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	2-Chlorophenol	1.1	ug/L	U	1.1	4.4
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	2-Methyl-4,6-dinitrophenol	3.3	ug/L	U	3.3	13
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	2-Nitrophenol	1.1	ug/L	UJ	1.1	4.4
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	3,3'-Dichlorobenzidine	44	ug/L	UJ	44	180
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	4,4'-DDD	1.6	ug/L	U	1.6	6.6
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	4,4'-DDE	1.6	ug/L	U	1.6	6.6
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	4,4'-DDT	1.6	ug/L	U	1.6	6.6
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	4-Bromophenyl phenyl ether	1.1	ug/L	U	1.1	4.4
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	4-Chloro-3-methylphenol	1.1	ug/L	U	1.1	4.4
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	4-Chlorophenyl phenyl ether	2.2	ug/L	U	2.2	8.8
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	4-Nitrophenol	16	ug/L	U	16	66
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	Acenaphthene	1.1	ug/L	U	1.1	4.4
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	Acenaphthylene	1.1	ug/L	U	1.1	4.4
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	Aldrin	1.6	ug/L	U	1.6	6.6
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	Anthracene	1.1	ug/L	U	1.1	4.4
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	Benzidine	110	ug/L	U	110	440
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	Benzo(a)anthracene	1.1	ug/L	U	1.1	4.4
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	Benzo(a)pyrene	1.1	ug/L	U	1.1	4.4
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	Benzo(b)fluoranthene	1.1	ug/L	U	1.1	4.4
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	Benzo(g,h,i)perylene	1.1	ug/L	U	1.1	4.4
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	Benzo(k)fluoranthene	1.1	ug/L	U	1.1	4.4
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	Bis(2-chloroethoxy)methane	1.1	ug/L	U	1.1	4.4
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	Bis(2-chloroethyl)ether	1.1	ug/L	U	1.1	4.4
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	Bis(2-chloroisopropyl)ether	3.3	ug/L	U	3.3	13
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	Bis(2-ethylhexyl)phthalate	16	ug/L	U	16	66
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	Butyl benzyl phthalate	5.5	ug/L	U	5.5	22
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	Chrysene	1.1	ug/L	U	1.1	4.4
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	Di-n-butyl phthalate	5.5	ug/L	U	5.5	22
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	Di-n-octyl phthalate	1.1	ug/L	U	1.1	4.4
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	Dibenzo(a,h)anthracene	1.1	ug/L	U	1.1	4.4
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	Dieldrin	1.6	ug/L	U	1.6	6.6
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	Diethyl phthalate	1.1	ug/L	U	1.1	4.4
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	Dimethyl phthalate	55	ug/L	U	55	220

DATE	SITE LOCATION	FIELD ID	ANALYSIS GROUP	COMPONENT	RESULT	UNITS	REMARK	MDL	PQL
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	Endosulfan I	4.4	ug/L	U	4.4	18
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	Endosulfan II	4.4	ug/L	U	4.4	18
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	Endosulfan sulfate	1.6	ug/L	U	1.6	6.6
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	Endrin	1.6	ug/L	U	1.6	6.6
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	Endrin aldehyde	4.4	ug/L	U	4.4	18
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	Fluoranthene	1.1	ug/L	U	1.1	4.4
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	Fluorene	1.1	ug/L	U	1.1	4.4
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	Heptachlor	1.6	ug/L	U	1.6	6.6
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	Heptachlor epoxide	1.6	ug/L	U	1.6	6.6
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	Hexachlorobenzene	1.1	ug/L	U	1.1	4.4
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	Hexachlorobutadiene	3.3	ug/L	U	3.3	13
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	Hexachlorocyclopentadiene	3.3	ug/L	UJ	3.3	13
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	Hexachloroethane	3.3	ug/L	U	3.3	13
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	Indeno(1,2,3-cd)pyrene	1.1	ug/L	U	1.1	4.4
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	Isophorone	1.1	ug/L	U	1.1	4.4
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	N-Nitrosodi-n-propylamine	2.2	ug/L	U	2.2	8.8
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	N-Nitrosodimethylamine	2.2	ug/L	U	2.2	8.8
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	N-Nitrosodiphenylamine	3.3	ug/L	U	3.3	13
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	Naphthalene	1.1	ug/L	U	1.1	4.4
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	Nitrobenzene	2.2	ug/L	U	2.2	8.8
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	Pentachlorophenol	3.3	ug/L	U	3.3	13
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	Phenanthrene	1.1	ug/L	U	1.1	4.4
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	Phenol	1.1	ug/L	U	1.1	4.4
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	Pyrene	1.1	ug/L	U	1.1	4.4
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	alpha-BHC	1.6	ug/L	U	1.6	6.6
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	beta-BHC	1.6	ug/L	U	1.6	6.6
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	delta-BHC	1.6	ug/L	U	1.6	6.6
11/28/05	SOL 001 S OUTFALL	# 4	BNA-Water	gamma-BHC	1.6	ug/L	U	1.6	6.6
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	1,2,4-Trichlorobenzene	0.98	ug/L	U	0.98	3.9
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	1,2-Dichlorobenzene	0.98	ug/L	U	0.98	3.9
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	1,3-Dichlorobenzene	0.98	ug/L	U	0.98	3.9
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	1,4-Dichlorobenzene	0.98	ug/L	U	0.98	3.9
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	2,4,6-Trichlorophenol	0.98	ug/L	U	0.98	3.9
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	2,4-Dichlorophenol	0.98	ug/L	U	0.98	3.9
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	2,4-Dimethylphenol	49	ug/L	U	49	200
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	2,4-Dinitrophenol	15	ug/L	U	15	59
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	2,4-Dinitrotoluene	0.98	ug/L	U	0.98	3.9
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	2,6-Dinitrotoluene	0.98	ug/L	U	0.98	3.9
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	2-Chloronaphthalene	0.98	ug/L	U	0.98	3.9
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	2-Chlorophenol	0.98	ug/L	U	0.98	3.9
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	2-Methyl-4,6-dinitrophenol	2.9	ug/L	U	2.9	12
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	2-Nitrophenol	0.98	ug/L	UJ	0.98	3.9
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	3,3'-Dichlorobenzidine	39	ug/L	UJ	39	160
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	4,4'-DDD	1.5	ug/L	U	1.5	5.9
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	4,4'-DDE	1.5	ug/L	U	1.5	5.9
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	4,4'-DDT	1.5	ug/L	U	1.5	5.9
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	4-Bromophenyl phenyl ether	0.98	ug/L	U	0.98	3.9
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	4-Chloro-3-methylphenol	0.98	ug/L	U	0.98	3.9
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	4-Chlorophenyl phenyl ether	2	ug/L	U	2	7.8
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	4-Nitrophenol	15	ug/L	U	15	59

DATE	SITE LOCATION	FIELD ID	ANALYSIS GROUP	COMPONENT	RESULT	UNITS	REMARK	MDL	PQL
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	Acenaphthene	0.98	ug/L	U	0.98	3.9
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	Acenaphthylene	0.98	ug/L	U	0.98	3.9
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	Aldrin	1.5	ug/L	U	1.5	5.9
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	Anthracene	0.98	ug/L	U	0.98	3.9
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	Benzidine	98	ug/L	U	98	390
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	Benzo(a)anthracene	0.98	ug/L	U	0.98	3.9
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	Benzo(a)pyrene	0.98	ug/L	U	0.98	3.9
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	Benzo(b)fluoranthene	0.98	ug/L	U	0.98	3.9
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	Benzo(g,h,i)perylene	0.98	ug/L	U	0.98	3.9
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	Benzo(k)fluoranthene	0.98	ug/L	U	0.98	3.9
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	Bis(2-chloroethoxy)methane	0.98	ug/L	U	0.98	3.9
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	Bis(2-chloroethyl)ether	0.98	ug/L	U	0.98	3.9
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	Bis(2-chloroisopropyl)ether	2.9	ug/L	U	2.9	12
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	Bis(2-ethylhexyl)phthalate	15	ug/L	U	15	59
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	Butyl benzyl phthalate	4.9	ug/L	U	4.9	20
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	Chrysene	0.98	ug/L	U	0.98	3.9
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	Di-n-butyl phthalate	4.9	ug/L	U	4.9	20
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	Di-n-octyl phthalate	0.98	ug/L	U	0.98	3.9
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	Dibenzo(a,h)anthracene	0.98	ug/L	U	0.98	3.9
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	Dieldrin	1.5	ug/L	U	1.5	5.9
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	Diethyl phthalate	0.98	ug/L	U	0.98	3.9
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	Dimethyl phthalate	49	ug/L	U	49	200
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	Endosulfan I	3.9	ug/L	U	3.9	16
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	Endosulfan II	3.9	ug/L	U	3.9	16
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	Endosulfan sulfate	1.5	ug/L	U	1.5	5.9
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	Endrin	1.5	ug/L	U	1.5	5.9
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	Endrin aldehyde	3.9	ug/L	U	3.9	16
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	Fluoranthene	0.98	ug/L	U	0.98	3.9
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	Fluorene	0.98	ug/L	U	0.98	3.9
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	Heptachlor	1.5	ug/L	U	1.5	5.9
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	Heptachlor epoxide	1.5	ug/L	U	1.5	5.9
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	Hexachlorobenzene	0.98	ug/L	U	0.98	3.9
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	Hexachlorobutadiene	2.9	ug/L	U	2.9	12
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	Hexachlorocyclopentadiene	2.9	ug/L	UJ	2.9	12
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	Hexachloroethane	2.9	ug/L	U	2.9	12
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	Indeno(1,2,3-cd)pyrene	0.98	ug/L	U	0.98	3.9
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	Isophorone	0.98	ug/L	U	0.98	3.9
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	N-Nitrosodi-n-propylamine	2	ug/L	U	2	7.8
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	N-Nitrosodimethylamine	2	ug/L	U	2	7.8
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	N-Nitrosodiphenylamine	2.9	ug/L	U	2.9	12
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	Naphthalene	0.98	ug/L	U	0.98	3.9
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	Nitrobenzene	2	ug/L	U	2	7.8
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	Pentachlorophenol	2.9	ug/L	U	2.9	12
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	Phenanthrene	0.98	ug/L	U	0.98	3.9
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	Phenol	0.98	ug/L	U	0.98	3.9
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	Pyrene	0.98	ug/L	U	0.98	3.9
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	alpha-BHC	1.5	ug/L	U	1.5	5.9
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	beta-BHC	1.5	ug/L	U	1.5	5.9
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	delta-BHC	1.5	ug/L	U	1.5	5.9
11/28/05	NW DISTRICT CHEM LAB	BLANKS	BNA-Water	gamma-BHC	1.5	ug/L	U	1.5	5.9

DATE	SITE LOCATION	FIELD ID	ANALYSIS GROUP	COMPONENT	RESULT	UNITS	REMARK	MDL	PQL
11/28/05	SOL 002 N OUTFALL	# 2	GC-Water	Alachlor	0.58	ug/L	U	0.58	2.3
11/28/05	SOL 002 N OUTFALL	# 2	GC-Water	Ametryn	0.048	ug/L	U	0.048	0.19
11/28/05	SOL 002 N OUTFALL	# 2	GC-Water	Atrazine	0.048	ug/L	U	0.048	0.19
11/28/05	SOL 002 N OUTFALL	# 2	GC-Water	Azinphos Methyl	0.19	ug/L	U	0.19	0.76
11/28/05	SOL 002 N OUTFALL	# 2	GC-Water	Bromacil	0.19	ug/L	U	0.19	0.76
11/28/05	SOL 002 N OUTFALL	# 2	GC-Water	Butylate	0.19	ug/L	UJ	0.19	0.76
11/28/05	SOL 002 N OUTFALL	# 2	GC-Water	Chlorpyrifos Ethyl	0.048	ug/L	U	0.048	0.19
11/28/05	SOL 002 N OUTFALL	# 2	GC-Water	Chlorpyrifos Methyl	0.096	ug/L	U	0.096	0.38
11/28/05	SOL 002 N OUTFALL	# 2	GC-Water	Diazinon	0.048	ug/L	UJ	0.048	0.19
11/28/05	SOL 002 N OUTFALL	# 2	GC-Water	Ethion	0.048	ug/L	U	0.048	0.19
11/28/05	SOL 002 N OUTFALL	# 2	GC-Water	Ethoprop	0.096	ug/L	U	0.096	0.38
11/28/05	SOL 002 N OUTFALL	# 2	GC-Water	Fenamiphos	0.19	ug/L	U	0.19	0.76
11/28/05	SOL 002 N OUTFALL	# 2	GC-Water	Fonofos	0.096	ug/L	U	0.096	0.38
11/28/05	SOL 002 N OUTFALL	# 2	GC-Water	Hexazinone	0.096	ug/L	U	0.096	0.38
11/28/05	SOL 002 N OUTFALL	# 2	GC-Water	Malathion	0.14	ug/L	UJ	0.14	0.56
11/28/05	SOL 002 N OUTFALL	# 2	GC-Water	Metalaxyl	0.24	ug/L	U	0.24	0.96
11/28/05	SOL 002 N OUTFALL	# 2	GC-Water	Metolachlor	0.48	ug/L	U	0.48	1.9
11/28/05	SOL 002 N OUTFALL	# 2	GC-Water	Metribuzin	0.096	ug/L	U	0.096	0.38
11/28/05	SOL 002 N OUTFALL	# 2	GC-Water	Mevinphos	0.19	ug/L	U	0.19	0.76
11/28/05	SOL 002 N OUTFALL	# 2	GC-Water	Naled	0.77	ug/L	U	0.77	3.1
11/28/05	SOL 002 N OUTFALL	# 2	GC-Water	Norflurazon	0.14	ug/L	U	0.14	0.56
11/28/05	SOL 002 N OUTFALL	# 2	GC-Water	Parathion Ethyl	0.14	ug/L	U	0.14	0.56
11/28/05	SOL 002 N OUTFALL	# 2	GC-Water	Parathion Methyl	0.096	ug/L	U	0.096	0.38
11/28/05	SOL 002 N OUTFALL	# 2	GC-Water	Phorate	0.048	ug/L	U	0.048	0.19
11/28/05	SOL 002 N OUTFALL	# 2	GC-Water	Prometryn	0.14	ug/L	U	0.14	0.56
11/28/05	SOL 002 N OUTFALL	# 2	GC-Water	Simazine	0.048	ug/L	U	0.048	0.19
11/28/05	SOL 001 S OUTFALL	# 4	GC-Water	Alachlor	0.72	ug/L	U	0.72	2.9
11/28/05	SOL 001 S OUTFALL	# 4	GC-Water	Ametryn	0.06	ug/L	U	0.06	0.24
11/28/05	SOL 001 S OUTFALL	# 4	GC-Water	Atrazine	0.06	ug/L	U	0.06	0.24
11/28/05	SOL 001 S OUTFALL	# 4	GC-Water	Azinphos Methyl	0.24	ug/L	U	0.24	0.96
11/28/05	SOL 001 S OUTFALL	# 4	GC-Water	Bromacil	0.24	ug/L	U	0.24	0.96
11/28/05	SOL 001 S OUTFALL	# 4	GC-Water	Butylate	0.24	ug/L	UJ	0.24	0.96
11/28/05	SOL 001 S OUTFALL	# 4	GC-Water	Chlorpyrifos Ethyl	0.06	ug/L	U	0.06	0.24
11/28/05	SOL 001 S OUTFALL	# 4	GC-Water	Chlorpyrifos Methyl	0.12	ug/L	U	0.12	0.48
11/28/05	SOL 001 S OUTFALL	# 4	GC-Water	Diazinon	0.06	ug/L	UJ	0.06	0.24
11/28/05	SOL 001 S OUTFALL	# 4	GC-Water	Ethion	0.06	ug/L	U	0.06	0.24
11/28/05	SOL 001 S OUTFALL	# 4	GC-Water	Ethoprop	0.12	ug/L	U	0.12	0.48
11/28/05	SOL 001 S OUTFALL	# 4	GC-Water	Fenamiphos	0.24	ug/L	U	0.24	0.96
11/28/05	SOL 001 S OUTFALL	# 4	GC-Water	Fonofos	0.12	ug/L	U	0.12	0.48
11/28/05	SOL 001 S OUTFALL	# 4	GC-Water	Hexazinone	0.12	ug/L	U	0.12	0.48
11/28/05	SOL 001 S OUTFALL	# 4	GC-Water	Malathion	0.18	ug/L	UJ	0.18	0.72
11/28/05	SOL 001 S OUTFALL	# 4	GC-Water	Metalaxyl	0.3	ug/L	U	0.3	1.2
11/28/05	SOL 001 S OUTFALL	# 4	GC-Water	Metolachlor	0.6	ug/L	U	0.6	2.4
11/28/05	SOL 001 S OUTFALL	# 4	GC-Water	Metribuzin	0.12	ug/L	U	0.12	0.48
11/28/05	SOL 001 S OUTFALL	# 4	GC-Water	Mevinphos	0.24	ug/L	U	0.24	0.96
11/28/05	SOL 001 S OUTFALL	# 4	GC-Water	Naled	0.96	ug/L	U	0.96	3.8
11/28/05	SOL 001 S OUTFALL	# 4	GC-Water	Norflurazon	0.18	ug/L	U	0.18	0.72
11/28/05	SOL 001 S OUTFALL	# 4	GC-Water	Parathion Ethyl	0.18	ug/L	U	0.18	0.72
11/28/05	SOL 001 S OUTFALL	# 4	GC-Water	Parathion Methyl	0.12	ug/L	U	0.12	0.48
11/28/05	SOL 001 S OUTFALL	# 4	GC-Water	Phorate	0.06	ug/L	U	0.06	0.24

DATE	SITE LOCATION	FIELD ID	ANALYSIS GROUP	COMPONENT	RESULT	UNITS	REMARK	MDL	PQL
11/28/05	SOL 001 S OUTFALL	# 4	GC-Water	Prometryn	0.18	ug/L	U	0.18	0.72
11/28/05	SOL 001 S OUTFALL	# 4	GC-Water	Simazine	0.06	ug/L	U	0.06	0.24
11/28/05	NW DISTRICT CHEM LAB	BLANKS	GC-Water	Alachlor	0.59	ug/L	U	0.59	2.4
11/28/05	NW DISTRICT CHEM LAB	BLANKS	GC-Water	Ametryn	0.05	ug/L	U	0.05	0.2
11/28/05	NW DISTRICT CHEM LAB	BLANKS	GC-Water	Atrazine	0.05	ug/L	U	0.05	0.2
11/28/05	NW DISTRICT CHEM LAB	BLANKS	GC-Water	Azinphos Methyl	0.2	ug/L	U	0.2	0.8
11/28/05	NW DISTRICT CHEM LAB	BLANKS	GC-Water	Bromacil	0.2	ug/L	U	0.2	0.8
11/28/05	NW DISTRICT CHEM LAB	BLANKS	GC-Water	Butylate	0.2	ug/L	UJ	0.2	0.8
11/28/05	NW DISTRICT CHEM LAB	BLANKS	GC-Water	Chlorpyrifos Ethyl	0.05	ug/L	U	0.05	0.2
11/28/05	NW DISTRICT CHEM LAB	BLANKS	GC-Water	Chlorpyrifos Methyl	0.099	ug/L	U	0.099	0.4
11/28/05	NW DISTRICT CHEM LAB	BLANKS	GC-Water	Diazinon	0.05	ug/L	UJ	0.05	0.2
11/28/05	NW DISTRICT CHEM LAB	BLANKS	GC-Water	Ethion	0.05	ug/L	U	0.05	0.2
11/28/05	NW DISTRICT CHEM LAB	BLANKS	GC-Water	Ethoprop	0.099	ug/L	U	0.099	0.4
11/28/05	NW DISTRICT CHEM LAB	BLANKS	GC-Water	Fenamiphos	0.2	ug/L	U	0.2	0.8
11/28/05	NW DISTRICT CHEM LAB	BLANKS	GC-Water	Fonofos	0.099	ug/L	U	0.099	0.4
11/28/05	NW DISTRICT CHEM LAB	BLANKS	GC-Water	Hexazinone	0.099	ug/L	U	0.099	0.4
11/28/05	NW DISTRICT CHEM LAB	BLANKS	GC-Water	Malathion	0.15	ug/L	UJ	0.15	0.6
11/28/05	NW DISTRICT CHEM LAB	BLANKS	GC-Water	Metalaxyl	0.25	ug/L	U	0.25	1
11/28/05	NW DISTRICT CHEM LAB	BLANKS	GC-Water	Metolachlor	0.5	ug/L	U	0.5	2
11/28/05	NW DISTRICT CHEM LAB	BLANKS	GC-Water	Metribuzin	0.099	ug/L	U	0.099	0.4
11/28/05	NW DISTRICT CHEM LAB	BLANKS	GC-Water	Mevinphos	0.2	ug/L	U	0.2	0.8
11/28/05	NW DISTRICT CHEM LAB	BLANKS	GC-Water	Naled	0.79	ug/L	U	0.79	3.2
11/28/05	NW DISTRICT CHEM LAB	BLANKS	GC-Water	Norflurazon	0.15	ug/L	U	0.15	0.6
11/28/05	NW DISTRICT CHEM LAB	BLANKS	GC-Water	Parathion Ethyl	0.15	ug/L	U	0.15	0.6
11/28/05	NW DISTRICT CHEM LAB	BLANKS	GC-Water	Parathion Methyl	0.099	ug/L	U	0.099	0.4
11/28/05	NW DISTRICT CHEM LAB	BLANKS	GC-Water	Phorate	0.05	ug/L	U	0.05	0.2
11/28/05	NW DISTRICT CHEM LAB	BLANKS	GC-Water	Prometryn	0.15	ug/L	U	0.15	0.6
11/28/05	NW DISTRICT CHEM LAB	BLANKS	GC-Water	Simazine	0.05	ug/L	U	0.05	0.2
11/29/05	ESC RIV UPPER BLY FFS	# 1	Mercury-Water	Mercury	0.12	ug/L	U	0.12	0.5
11/28/05	SOL 002 N OUTFALL	# 2	Mercury-Water	Mercury	0.12	ug/L	U	0.12	0.5
11/29/05	ESC RIV AT SOL INTAKE	# 3	Mercury-Water	Mercury	0.12	ug/L	U	0.12	0.5
11/28/05	SOL 001 S OUTFALL	# 4	Mercury-Water	Mercury	0.12	ug/L	U	0.12	0.5
11/28/05	ESC RIV 150 M BLW SOL	# 5	Mercury-Water	Mercury	0.12	ug/L	U	0.12	0.5
11/28/05	NW DIST CHEM LAB	BLANK	Mercury-Water	Mercury	0.12	ug/L	U	0.12	0.5
11/28/05	NW DISTRICT CHEM LAB	BLANKS	Mercury-Water	Mercury	0.12	ug/L	U	0.12	0.5
11/29/05	ESC RIV UPPER BLY FFS	# 1	Metals-Water	Aluminum	429	ug/L		5	20
11/29/05	ESC RIV UPPER BLY FFS	# 1	Metals-Water	Arsenic	4	ug/L	U	4	16
11/29/05	ESC RIV UPPER BLY FFS	# 1	Metals-Water	Cadmium	0.05	ug/L	U	0.05	0.2
11/29/05	ESC RIV UPPER BLY FFS	# 1	Metals-Water	Calcium	8.2	mg/L		0.05	0.2
11/29/05	ESC RIV UPPER BLY FFS	# 1	Metals-Water	Chromium	1	ug/L	U	1	4
11/29/05	ESC RIV UPPER BLY FFS	# 1	Metals-Water	Copper	0.37	ug/L	I	0.25	1
11/29/05	ESC RIV UPPER BLY FFS	# 1	Metals-Water	Iron	1.19E+03	ug/L		10	40
11/29/05	ESC RIV UPPER BLY FFS	# 1	Metals-Water	Lead	0.42	ug/L		0.075	0.3
11/29/05	ESC RIV UPPER BLY FFS	# 1	Metals-Water	Magnesium	1.1	mg/L		0.01	0.04
11/29/05	ESC RIV UPPER BLY FFS	# 1	Metals-Water	Nickel	1	ug/L	U	1	4
11/29/05	ESC RIV UPPER BLY FFS	# 1	Metals-Water	Selenium	0.5	ug/L	U	0.5	2
11/29/05	ESC RIV UPPER BLY FFS	# 1	Metals-Water	Silver	0.025	ug/L	U	0.025	0.1
11/29/05	ESC RIV UPPER BLY FFS	# 1	Metals-Water	Zinc	3	ug/L	U	3	12
11/28/05	SOL 002 N OUTFALL	# 2	Metals-Water	Aluminum	428	ug/L	Y	5	20
11/28/05	SOL 002 N OUTFALL	# 2	Metals-Water	Arsenic	4	ug/L	UY	4	16

DATE	SITE LOCATION	FIELD ID	ANALYSIS GROUP	COMPONENT	RESULT	UNITS	REMARK	MDL	PQL
11/28/05	SOL 002 N OUTFALL	# 2	Metals-Water	Cadmium	0.08	ug/L	UY	0.08	0.32
11/28/05	SOL 002 N OUTFALL	# 2	Metals-Water	Calcium	8.8	mg/L	Y	0.05	0.2
11/28/05	SOL 002 N OUTFALL	# 2	Metals-Water	Chromium	2.7	ug/L	IY	1	4
11/28/05	SOL 002 N OUTFALL	# 2	Metals-Water	Copper	8.07	ug/L	Y	0.25	1
11/28/05	SOL 002 N OUTFALL	# 2	Metals-Water	Iron	923	ug/L	Y	10	40
11/28/05	SOL 002 N OUTFALL	# 2	Metals-Water	Lead	2.7	ug/L	Y	0.075	0.3
11/28/05	SOL 002 N OUTFALL	# 2	Metals-Water	Magnesium	3.9	mg/L	Y	0.01	0.04
11/28/05	SOL 002 N OUTFALL	# 2	Metals-Water	Nickel	1.4	ug/L	IY	1	4
11/28/05	SOL 002 N OUTFALL	# 2	Metals-Water	Selenium	1	ug/L	UY	1	4
11/28/05	SOL 002 N OUTFALL	# 2	Metals-Water	Silver	0.025	ug/L	UY	0.025	0.1
11/28/05	SOL 002 N OUTFALL	# 2	Metals-Water	Zinc	94	ug/L	Y	3	12
11/29/05	ESC RIV AT SOL INTAKE	# 3	Metals-Water	Aluminum	355	ug/L		5	20
11/29/05	ESC RIV AT SOL INTAKE	# 3	Metals-Water	Arsenic	4	ug/L	U	4	16
11/29/05	ESC RIV AT SOL INTAKE	# 3	Metals-Water	Cadmium	0.05	ug/L	U	0.05	0.2
11/29/05	ESC RIV AT SOL INTAKE	# 3	Metals-Water	Calcium	8.3	mg/L		0.05	0.2
11/29/05	ESC RIV AT SOL INTAKE	# 3	Metals-Water	Chromium	1	ug/L	U	1	4
11/29/05	ESC RIV AT SOL INTAKE	# 3	Metals-Water	Copper	0.36	ug/L	I	0.25	1
11/29/05	ESC RIV AT SOL INTAKE	# 3	Metals-Water	Iron	1.05E+03	ug/L		10	40
11/29/05	ESC RIV AT SOL INTAKE	# 3	Metals-Water	Lead	0.37	ug/L		0.075	0.3
11/29/05	ESC RIV AT SOL INTAKE	# 3	Metals-Water	Magnesium	1.4	mg/L		0.01	0.04
11/29/05	ESC RIV AT SOL INTAKE	# 3	Metals-Water	Nickel	1	ug/L	U	1	4
11/29/05	ESC RIV AT SOL INTAKE	# 3	Metals-Water	Selenium	0.5	ug/L	U	0.5	2
11/29/05	ESC RIV AT SOL INTAKE	# 3	Metals-Water	Silver	0.025	ug/L	U	0.025	0.1
11/29/05	ESC RIV AT SOL INTAKE	# 3	Metals-Water	Zinc	3	ug/L	U	3	12
11/28/05	SOL 001 S OUTFALL	# 4	Metals-Water	Aluminum	344	ug/L		5	20
11/28/05	SOL 001 S OUTFALL	# 4	Metals-Water	Arsenic	4	ug/L	U	4	16
11/28/05	SOL 001 S OUTFALL	# 4	Metals-Water	Cadmium	0.05	ug/L	U	0.05	0.2
11/28/05	SOL 001 S OUTFALL	# 4	Metals-Water	Calcium	10.9	mg/L		0.05	0.2
11/28/05	SOL 001 S OUTFALL	# 4	Metals-Water	Chromium	1	ug/L	U	1	4
11/28/05	SOL 001 S OUTFALL	# 4	Metals-Water	Copper	8.69	ug/L		0.25	1
11/28/05	SOL 001 S OUTFALL	# 4	Metals-Water	Iron	1.18E+03	ug/L		10	40
11/28/05	SOL 001 S OUTFALL	# 4	Metals-Water	Lead	0.5	ug/L		0.075	0.3
11/28/05	SOL 001 S OUTFALL	# 4	Metals-Water	Magnesium	3.9	mg/L		0.01	0.04
11/28/05	SOL 001 S OUTFALL	# 4	Metals-Water	Nickel	5.9	ug/L		1	4
11/28/05	SOL 001 S OUTFALL	# 4	Metals-Water	Selenium	0.5	ug/L	U	0.5	2
11/28/05	SOL 001 S OUTFALL	# 4	Metals-Water	Silver	0.025	ug/L	U	0.025	0.1
11/28/05	SOL 001 S OUTFALL	# 4	Metals-Water	Zinc	8.5	ug/L	I	3	12
11/28/05	ESC RIV 150 M BLW SOL	# 5	Metals-Water	Aluminum	428	ug/L		5	20
11/28/05	ESC RIV 150 M BLW SOL	# 5	Metals-Water	Arsenic	4	ug/L	U	4	16
11/28/05	ESC RIV 150 M BLW SOL	# 5	Metals-Water	Cadmium	0.05	ug/L	U	0.05	0.2
11/28/05	ESC RIV 150 M BLW SOL	# 5	Metals-Water	Calcium	9.2	mg/L		0.05	0.2
11/28/05	ESC RIV 150 M BLW SOL	# 5	Metals-Water	Chromium	1	ug/L	U	1	4
11/28/05	ESC RIV 150 M BLW SOL	# 5	Metals-Water	Copper	1.02	ug/L		0.25	1
11/28/05	ESC RIV 150 M BLW SOL	# 5	Metals-Water	Iron	1.29E+03	ug/L		10	40
11/28/05	ESC RIV 150 M BLW SOL	# 5	Metals-Water	Lead	0.44	ug/L		0.075	0.3
11/28/05	ESC RIV 150 M BLW SOL	# 5	Metals-Water	Magnesium	3.9	mg/L		0.01	0.04
11/28/05	ESC RIV 150 M BLW SOL	# 5	Metals-Water	Nickel	1.6	ug/L	I	1	4
11/28/05	ESC RIV 150 M BLW SOL	# 5	Metals-Water	Selenium	0.5	ug/L	U	0.5	2
11/28/05	ESC RIV 150 M BLW SOL	# 5	Metals-Water	Silver	0.025	ug/L	U	0.025	0.1
11/28/05	ESC RIV 150 M BLW SOL	# 5	Metals-Water	Zinc	3	ug/L	U	3	12

DATE	SITE LOCATION	FIELD ID	ANALYSIS GROUP	COMPONENT	RESULT	UNITS	REMARK	MDL	PQL
11/28/05	NW DIST CHEM LAB	BLANK	Metals-Water	Aluminum	5.2	ug/L	I	5	20
11/28/05	NW DIST CHEM LAB	BLANK	Metals-Water	Arsenic	4	ug/L	U	4	16
11/28/05	NW DIST CHEM LAB	BLANK	Metals-Water	Cadmium	0.05	ug/L	U	0.05	0.2
11/28/05	NW DIST CHEM LAB	BLANK	Metals-Water	Calcium	0.05	mg/L	U	0.05	0.2
11/28/05	NW DIST CHEM LAB	BLANK	Metals-Water	Chromium	1	ug/L	U	1	4
11/28/05	NW DIST CHEM LAB	BLANK	Metals-Water	Copper	0.25	ug/L	U	0.25	1
11/28/05	NW DIST CHEM LAB	BLANK	Metals-Water	Iron	10	ug/L	U	10	40
11/28/05	NW DIST CHEM LAB	BLANK	Metals-Water	Lead	0.075	ug/L	U	0.075	0.3
11/28/05	NW DIST CHEM LAB	BLANK	Metals-Water	Magnesium	0.01	mg/L	U	0.01	0.04
11/28/05	NW DIST CHEM LAB	BLANK	Metals-Water	Nickel	1	ug/L	U	1	4
11/28/05	NW DIST CHEM LAB	BLANK	Metals-Water	Selenium	0.5	ug/L	U	0.5	2
11/28/05	NW DIST CHEM LAB	BLANK	Metals-Water	Silver	0.025	ug/L	U	0.025	0.1
11/28/05	NW DIST CHEM LAB	BLANK	Metals-Water	Zinc	3	ug/L	U	3	12
11/28/05	NW DISTRICT CHEM LAB	BLANKS	Metals-Water	Aluminum	5	ug/L	U	5	20
11/28/05	NW DISTRICT CHEM LAB	BLANKS	Metals-Water	Arsenic	4	ug/L	U	4	16
11/28/05	NW DISTRICT CHEM LAB	BLANKS	Metals-Water	Cadmium	0.05	ug/L	U	0.05	0.2
11/28/05	NW DISTRICT CHEM LAB	BLANKS	Metals-Water	Calcium	0.05	mg/L	U	0.05	0.2
11/28/05	NW DISTRICT CHEM LAB	BLANKS	Metals-Water	Chromium	1	ug/L	U	1	4
11/28/05	NW DISTRICT CHEM LAB	BLANKS	Metals-Water	Copper	0.25	ug/L	U	0.25	1
11/28/05	NW DISTRICT CHEM LAB	BLANKS	Metals-Water	Iron	10	ug/L	U	10	40
11/28/05	NW DISTRICT CHEM LAB	BLANKS	Metals-Water	Lead	0.075	ug/L	U	0.075	0.3
11/28/05	NW DISTRICT CHEM LAB	BLANKS	Metals-Water	Magnesium	0.01	mg/L	U	0.01	0.04
11/28/05	NW DISTRICT CHEM LAB	BLANKS	Metals-Water	Nickel	1	ug/L	U	1	4
11/28/05	NW DISTRICT CHEM LAB	BLANKS	Metals-Water	Selenium	0.5	ug/L	U	0.5	2
11/28/05	NW DISTRICT CHEM LAB	BLANKS	Metals-Water	Silver	0.025	ug/L	U	0.025	0.1
11/28/05	NW DISTRICT CHEM LAB	BLANKS	Metals-Water	Zinc	3	ug/L	U	3	12
11/29/05	ESC RIV UPPER BLY FFS	# 1	Nutrients-Liquid	Ammonia-N	0.027	mg N/L		0.01	0.02
11/29/05	ESC RIV UPPER BLY FFS	# 1	Nutrients-Liquid	Kjeldahl Nitrogen	0.21	mg N/L		0.08	0.2
11/29/05	ESC RIV UPPER BLY FFS	# 1	Nutrients-Liquid	NO2NO3-N	0.22	mg N/L		0.004	0.01
11/29/05	ESC RIV UPPER BLY FFS	# 1	Nutrients-Liquid	O-Phosphate-P	0.009	mg P/L	I	0.004	0.01
11/29/05	ESC RIV UPPER BLY FFS	# 1	Nutrients-Liquid	Total-P	0.02	mg P/L	U	0.02	0.06
11/28/05	SOL 002 N OUTFALL	# 2	Nutrients-Liquid	Alkalinity	21	mg CaCO3/L		0.65	2.5
11/28/05	SOL 002 N OUTFALL	# 2	Nutrients-Liquid	Ammonia-N	0.14	mg N/L	Y	0.02	0.04
11/28/05	SOL 002 N OUTFALL	# 2	Nutrients-Liquid	Kjeldahl Nitrogen	0.37	mg N/L	Y	0.08	0.2
11/28/05	SOL 002 N OUTFALL	# 2	Nutrients-Liquid	NO2NO3-N	0.3	mg N/L	Y	0.004	0.01
11/28/05	SOL 002 N OUTFALL	# 2	Nutrients-Liquid	O-Phosphate-P	0.24	mg P/L		0.02	0.05
11/28/05	SOL 002 N OUTFALL	# 2	Nutrients-Liquid	TSS	4	mg/L	U	4	16
11/28/05	SOL 002 N OUTFALL	# 2	Nutrients-Liquid	Total-P	0.41	mg P/L	Y	0.02	0.06
11/28/05	SOL 002 N OUTFALL	# 2	Nutrients-Liquid	Turbidity	13	NTU	Q	0.05	0.05
11/28/05	SOL 001 S OUTFALL	# 4	Nutrients-Liquid	Alkalinity	29	mg CaCO3/L		0.65	2.5
11/28/05	SOL 001 S OUTFALL	# 4	Nutrients-Liquid	Ammonia-N	0.025	mg N/L	I	0.02	0.04
11/28/05	SOL 001 S OUTFALL	# 4	Nutrients-Liquid	Kjeldahl Nitrogen	0.31	mg N/L		0.08	0.2
11/28/05	SOL 001 S OUTFALL	# 4	Nutrients-Liquid	NO2NO3-N	0.45	mg N/L		0.004	0.01
11/28/05	SOL 001 S OUTFALL	# 4	Nutrients-Liquid	O-Phosphate-P	0.044	mg P/L		0.016	0.04
11/28/05	SOL 001 S OUTFALL	# 4	Nutrients-Liquid	TSS	9	mg/L	I	4	16
11/28/05	SOL 001 S OUTFALL	# 4	Nutrients-Liquid	Total-P	0.028	mg P/L	I	0.02	0.06
11/28/05	SOL 001 S OUTFALL	# 4	Nutrients-Liquid	Turbidity	6.6	NTU	Q	0.05	0.05
11/28/05	ESC RIV 150 M BLW SOL	# 5	Nutrients-Liquid	Ammonia-N	0.037	mg N/L		0.01	0.02
11/28/05	ESC RIV 150 M BLW SOL	# 5	Nutrients-Liquid	Kjeldahl Nitrogen	0.24	mg N/L		0.08	0.2
11/28/05	ESC RIV 150 M BLW SOL	# 5	Nutrients-Liquid	NO2NO3-N	0.21	mg N/L		0.004	0.01

DATE	SITE LOCATION	FIELD ID	ANALYSIS GROUP	COMPONENT	RESULT	UNITS	REMARK	MDL	PQL
11/28/05	ESC RIV 150 M BLW SOL	# 5	Nutrients-Liquid	O-Phosphate-P	0.009	mg P/L	IQ	0.004	0.01
11/28/05	ESC RIV 150 M BLW SOL	# 5	Nutrients-Liquid	Total-P	0.02	mg P/L	U	0.02	0.06
11/28/05	NW DISTRICT CHEM LAB	BLANKS	Nutrients-Liquid	Alkalinity	0.65	mg CaCO3/L	U	0.65	2.5
11/28/05	NW DISTRICT CHEM LAB	BLANKS	Nutrients-Liquid	Ammonia-N	0.07	mg N/L		0.01	0.02
11/28/05	NW DISTRICT CHEM LAB	BLANKS	Nutrients-Liquid	Kjeldahl Nitrogen	0.1	mg N/L	I	0.08	0.2
11/28/05	NW DISTRICT CHEM LAB	BLANKS	Nutrients-Liquid	NO2NO3-N	0.004	mg N/L	I	0.004	0.01
11/28/05	NW DISTRICT CHEM LAB	BLANKS	Nutrients-Liquid	O-Phosphate-P	0.004	mg P/L	U	0.004	0.01
11/28/05	NW DISTRICT CHEM LAB	BLANKS	Nutrients-Liquid	Total-P	0.02	mg P/L	U	0.02	0.06
11/29/05	ESC RIV UPPER BLY FFS	# 1	Overflow	Oil and Grease	1.7	mg/L	U		
11/28/05	SOL 002 N OUTFALL	# 2	Overflow	Oil and Grease	1.7	mg/L	U		
11/29/05	ESC RIV AT SOL INTAKE	# 3	Overflow	Oil and Grease	1.7	mg/L	U		
11/28/05	SOL 001 S OUTFALL	# 4	Overflow	Oil and Grease	1.7	mg/L	U		
11/28/05	ESC RIV 150 M BLW SOL	# 5	Overflow	Oil and Grease	1.8	mg/L	I		
11/28/05	NW DIST CHEM LAB	BLANK	Overflow	Oil and Grease	1.7	mg/L	U		
11/28/05	NW DISTRICT CHEM LAB	BLANKS	Overflow	Oil and Grease	1.7	mg/L	U		

Florida Department of Environmental Protection
Northwest District Chemistry Laboratory
160 Governmental Center
Pensacola, FL 32502
DOH Accreditation E31887
Chemical Analysis Report

Project ID:Escambia River
Sample Date:11/29/05
Report Date:12/06/05
Pages:7
Log Number:17718-17720

Certified by:

SOLUTIA RIVER DATA

Abbreviations and data remark codes

A- Value reported is the mean of two or more determinations.
B- Results based on colony counts outside the acceptable range. Applies to membrane filter colony counts generated from a plate in which total number of colonies is outside the method indicated ideal range.
H- Value based on field kit determination.
I- The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
J- Estimated value.
K- Actual value is known to be less than value given.
L- Actual value is known to be greater than value given.
N- Presumptive evidence of presence of material.
O- Sampled, but analysis lost or not performed.
Q- Sample held beyond normal holding time.
T- Value reported is less than the criterion of detection.
U- Material was analyzed for but not detected. The reported value is the method detection limit for the sample analyzed.
V- Analyte was detected in both sample and method blank.
Y- The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
Z- Colonies were too numerous to count (TNTC).

RECOVERED HD'S 11-29-05

HD'S OUT 11-01-05

Results for NELAP accredited tests contained in this report meet the requirements specified for the National Environmental Laboratory Accreditation Program.
Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published test performance acceptance criteria.

Comments:

Florida Department of Environmental Protection
Northwest District Chemistry Laboratory
160 Governmental Center
• Pensacola, FL 32502
DOH Accreditation E31887
Chemical Analysis Report

Qualifier explanation from FAC 62-160.700:

B- Results based upon colony counts outside the acceptable range. This code applies to microbiological tests and specifically to membrane filter colony counts. The code is to be used if the colony count is generated from a plate in which the total number of coliform colonies is outside the method-indicated ideal range. The code is not to be used if a 100 mL sample has been filtered and the colony count is less than the lower value of the ideal range.

These ideal ranges are defined in the method as:
Fecal coliform bacteria: 20-60 colonies
Total coliform bacteria: 20-80- colonies

Please note: qualifier does NOT indicate that the data is unacceptable, only that the precision of the number is not as statistically robust as a number generated from an ideal plate range.

The same principle and qualifiers apply to Enterococci tests, even though they are not part of the Florida Water Quality Standards.

For additional information please contact
William Chandler
Jeanne Williams
Suncom 9695-8300 Phone (850) 595-8300

NORTHWEST DISTRICT LABORATORY
160 GOVERNMENTAL CENTER
PENSACOLA, FL 32502

Project: ESCAMBIA RIVER
SITE: 1 - CONTROL / ABOVE
DATE: 11/29/05
SAMPLED BY: DONELAN

TYPE: SMP
STORET#: N/A
TIME: 1305
REQUESTED BY: DONELAN

CODE	PARAMETER	UNITS	VALUE(S) BY SAMPLE DEPTH 0.15m
00029	Log Number	CODE	17718
00078	Secchi depth	meters	0.6
00299	Diss. oxygen (probe)	mg/l	7.4
00010	Water temperature	°C	18.12
00094	Conductivity	µmho/cm	69
00400	pH	units	6.18
31501	Total coliform	#/100ml	430Q
31616	Fecal coliform	#/100ml	106Q
00080	Color	Pt-Co	60Q
00076	Turbidity	NTU	14Q
00530	Residue, nonfilt.	mg/l	11A
00310	BOD, 5 day, total	mg/l	0.6A

Results for NELAP accredited tests contained in this report meet the requirements specified for the National Environmental Laboratory Accreditation Program. Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published test performance acceptance criteria. NELAP Cert. E31887

Department of Environmental Protection

Water Quality Report Form

Agency	Station	Date	TIME A-GRAB	Sample depth
FDEP	33.02.0009	11-28-05	1305	0.5' or 0.15m
			TIME B COMPOSITE SAMPLE	
			COMP BEGIN	
			END	

17.8

Remarks: Module number: 1306

CONTROL 17.8

LOCATION ESCAMBIA RIVER AT UPPER BLUFFS

Parameter	Unit	Code	Value	Parameter	Unit	Code	Value
Field Indent	Number	29	1	pH Lab	Std. Unit	403	
Temp. Water	°C	10	18.12	Alkalinity	mg/L	410	
Temp. Air	°C	20		Salinity	PPTH	480	
Precipitation (24hhr)	Inches	45		TOC	mg/L	680	
Water Level	Meters	82903		NFLT Residue ✓	mg/L	530	
Cloud Cover	Percent	32		N-NH3, Total	mg/L	610	
Wind Velocity	MPH	35		Un-Ionized NH3	mg/L	619	
Wind Dir. From	Degrees	36		N-TKN	mg/L	625	
Tide Stage	Code	67		N-NO2 +NO3	mg/L	630	
Wave Height	Code	70222		Phos-Total	mg/L	665	
Turbidity, HACH ✓	NTU	76		~~Chloride~~ HARDNESS ✓	mg/L	940	
Secchi	Meters	78	0.6	Enterococcus	#/100mL	31649	
Color ✓	PT-CO	80		Total Coliform ✓	#/100mL	31501	
ORP	Milivolt	90		Fecal Coliform ✓	#/100mL	31616	
Cond. Field	UMHO	94	69	Chlorophyll A	UG/L	32210	
Cond. Lab	UMHO	95		Chlorophyll A	Corrected	32211	
DO Probe	mg/L	299	7.4	Calcium	mg/L	00916	
DO	mg/L	300		Magnesium	mg/L	00927	
BOD ✓	mg/L	310		Potassium	mg/L	00937	
pH Field	Std. Unit	400	6.18	Sodium	mg/L	00929	

Sample Taken By: Dave Ing / Butcher

Report Verified By:

Report Prepared By:

( ) CHANGE Date Submitted

DEP Form PERM 21-10 (Sept 95) Modified by JRA 1/22/2003

NORTHWEST DISTRICT LABORATORY
160 GOVERNMENTAL CENTER
PENSACOLA, FL 32502

Project: ESCAMBIA RIVER
SITE: 3 INTAKE
DATE: 11/29/05
SAMPLED BY: DONELAN

TYPE: SMP
STORET#: N/A
TIME: 1238
REQUESTED BY: DONELAN

CODE	PARAMETER	UNITS	VALUE(S) BY SAMPLE DEPTH 0.15m
00029	Log Number	CODE	17719
00299	Diss. oxygen (probe)	mg/l	7.4
00010	Water temperature	°C	18.12
00094	Conductivity	µmho/cm	69
00400	pH	units	6.18
31501	Total coliform	#/100ml	440Q
31616	Fecal coliform	#/100ml	166BQ
00080	Color	Pt-Co	50Q
00076	Turbidity	NTU	11Q
00530	Residue, nonfilt.	mg/l	6
00310	BOD, 5 day, total	mg/l	0.5

Results for NELAP accredited tests contained in this report meet the requirements specified for the National Environmental Laboratory Accreditation Program. Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published test performance acceptance criteria. NELAP Cert. E31887

Department of Environmental Protection

Water Quality Report Form

			TIME A-GRAB 1238	
Agency FDEP	Station 33.02.0029	Date 11-28-05	TIME B COMPOSITE SAMPLE	Sample depth 0.5' or 0.15m 0.2m
			COMP BEGIN	
			END	

77.9

Remarks: Module number: 1306

Water Only

%DO = 77.3

[redacted]

LOCATION ESCAMBIA RIVER AT SOLUTIA INTAKE STRUCTURE

Parameter	Unit	Code	Value	Parameter	Unit	Code	Value
Field Indent	Number	29	3	pH Lab	Std. Unit	403	
Temp. Water	°C	10	18.12	Alkalinity	mg/L	410	
Temp. Air	°C	20		Salinity	PPTH	480	0.02
Precipitation (24hhr)	Inches	45		TOC	mg/L	680	
Water Level	Meters	82903		NFLT Residue ✓	mg/L	530	
Cloud Cover	Percent	32		N-NH3, Total	mg/L	610	
Wind Velocity	MPH	35		Un-Ionized NH3	mg/L	619	
Wind Dir. From	Degrees	36		N-TKN	mg/L	625	
Tide Stage	Code	67		N-NO2 +NO3	mg/L	630	
Wave Height	Code	70222		Phos-Total	mg/L	665	
Turbidity, HACH ✓	NTU	76		Chloride	mg/L	940	
Secchi	Meters	78		Enterococcus	#/100mL	31649	
Color ✓	PT-CO	80		Total Coliform ✓	#/100mL	31501	
ORP	Milivolt	90		Fecal Coliform ✓	#/100mL	31616	
Cond. Field	UMHO	94	69	Chlorophyll A	UG/L	32210	
Cond. Lab	UMHO	95		Chlorophyll A	Corrected	32211	
DO Probe	mg/L	299	7.4	Calcium	mg/L	OO916	
DO	mg/L	300		Magnesium	mg/L	OO927	
BOD ✓	mg/L	310		Potassium	mg/L	OO937	
pH Field	Std. Unit	400	6.18	Sodium	mg/L	OO929	

Sample Taken By: Dowlan / Buteau

Report Verified By:

Report Prepared By:

( ) CHANGE Date Submitted

Depth 11.93ft	Temp	pH	DO	%DO	Sal	Cond
	18.09	6.12	~~7.61~~ ~~7.99~~	83.4	.02	69

DEP Form PERM 21-10 (Sept 95) Modified by JRA 1/22/2003

Depth 5.8	18.1	6.17	~~7.89~~ 7.76	81.6	.02	68

NORTHWEST DISTRICT LABORATORY
160 GOVERNMENTAL CENTER
PENSACOLA, FL 32502

Project: ESCAMBIA RIVER
SITE: 5
DATE: 11/29/05
SAMPLED BY: DONELAN

TYPE: SMP
STORET#: N/A
TIME: 0907
REQUESTED BY: DONELAN

CODE	PARAMETER	UNITS	VALUE(S) BY SAMPLE DEPTH 0.15m
00029	Log Number	CODE	17720
00078	Secchi depth	meters	0.7
00299	Diss. oxygen (probe)	mg/l	7.65
00010	Water temperature	°C	17.71
00094	Conductivity	µmho/cm	232
00400	pH	units	6.15
31501	Total coliform	#/100ml	882BQ
31616	Fecal coliform	#/100ml	320Q
00080	Color	Pt-Co	60Q
00076	Turbidity	NTU	13Q
00530	Residue, nonfilt.	mg/l	9
00310	BOD, 5 day, total	mg/l	0.5U

Results for NELAP accredited tests contained in this report meet the requirements specified for the National Environmental Laboratory Accreditation Program. Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published test performance acceptance criteria. NELAP Cert. E31887

Department of Environmental Protection

Water Quality Report Form

Agency	Station	Date	TIME A-GRAB	TIME B COMPOSITE SAMPLE	Sample depth
FDEP	33.02.0031	11-28-05	0907	COMP BEGIN / END	0.5' or 0.15m

Remarks: Module number: 1306

TEST

LOCATION ESCAMBIA RIVER 150 M BELOW SOLUTIA 001 OUTFALL

Parameter	Unit	Code	Value	Parameter	Unit	Code	Value
Field Indent	Number	29	5	pH Lab	Std. Unit	403	
Temp. Water	°C	10	17.71	Alkalinity	mg/L	410	
Temp. Air	°C	20		Salinity	PPTH	480	
Precipitation (24hhr)	Inches	45		TOC	mg/L	680	
Water Level	Meters	82903		NFLT Residue ✓	mg/L	530	
Cloud Cover	Percent	32	0	N-NH3, Total	mg/L	610	
Wind Velocity	MPH	35		Un-Ionized NH3	mg/L	619	
Wind Dir. From	Degrees	36		N-TKN	mg/L	625	
Tide Stage	Code	67		N-NO2 +NO3	mg/L	630	
Wave Height	Code	70222		Phos-Total	mg/L	665	
Turbidity, HACH ✓	NTU	76		Chloride	mg/L	940	
Secchi	Meters	78	0.7	Enterococcus	#/100mL	31649	
Color ✓	PT-CO	80		Total Coliform ✓	#/100mL	31501	
ORP	Milivolt	90		Fecal Coliform ✓	#/100mL	31616	
Cond. Field	UMHO	94	232	Chlorophyll A	UG/L	32210	
Cond. Lab	UMHO	95		Chlorophyll A	Corrected	32211	
DO Probe	mg/L	299	7.65	Calcium	mg/L	00916	
DO	mg/L	300		Magnesium	mg/L	00927	
BOD ✓	mg/L	310		Potassium	mg/L	00937	
pH Field	Std. Unit	400	6.15	Sodium	mg/L	00929	

Sample Taken By: Dave Lmw Bytheway

Report Verified By:

Report Prepared By:

( ) CHANGE Date Submitted

DEP Form PERM 21-10 (Sept 95) Modified by JRA 1/22/2003

Florida Department of Environmental Protection
Northwest District Chemistry Laboratory
160 Governmental Center
Pensacola, FL 32502
DOH Accreditation E31887
Chemical Analysis Report

Project ID:Solutia
Sample Date:11/28/05
Report Date:12/01/05
Pages:5
Log Number:17702-17703

Certified by: [signature]

SOLUTIA EFFLUENT'S
001 + 002 11-28-05

Abbreviations and data remark codes

- A- Value reported is the mean of two or more determinations.
- B- Results based on colony counts outside the acceptable range. Applies to membrane filter colony counts generated from a plate in which total number of colonies is outside the method indicated ideal range.
- H- Value based on field kit determination.
- I- The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
- J- Estimated value.
- K- Actual value is known to be less than value given.
- L- Actual value is known to be greater than value given.
- N- Presumptive evidence of presence of material.
- O- Sampled, but analysis lost or not performed.
- Q- Sample held beyond normal holding time.
- T- Value reported is less than the criterion of detection.
- U- Material was analyzed for but not detected. The reported value is the method detection limit for the sample analyzed.
- V- Analyte was detected in both sample and method blank.
- Y- The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
- Z- Colonies were too numerous to count (TNTC).

Results for NELAP accredited tests contained in this report meet the requirements specified for the National Environmental Laboratory Accreditation Program.
Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published test performance acceptance criteria.

Comments:

Florida Department of Environmental Protection
Northwest District Chemistry Laboratory
160 Governmental Center
Pensacola, FL 32502
DOH Accreditation E31887
Chemical Analysis Report

Qualifier explanation from FAC 62-160.700:

B- **Results based upon colony counts outside the acceptable range. This code applies to microbiological tests and specifically to membrane filter colony counts. The code is to be used if the colony count is generated from a plate in which the total number of coliform colonies is outside the method-indicated ideal range. The code is not to be used if a 100 mL sample has been filtered and the colony count is less than the lower value of the ideal range.**

These ideal ranges are defined in the method as:
Fecal coliform bacteria: 20-60 colonies
Total coliform bacteria: 20-80- colonies

Please note: qualifier does NOT indicate that the data is unacceptable, only that the precision of the number is not as statistically robust as a number generated from an ideal plate range.

The same principle and qualifiers apply to Enterococci tests, even though they are not part of the Florida Water Quality Standards.

For additional information please contact
William Chandler
Jeanne Williams
Suncom 9695-8300 Phone (850) 595-8300

NORTHWEST DISTRICT LABORATORY
160 GOVERNMENTAL CENTER
PENSACOLA, FL 32502

Project: SOLUTIA
SITE: NORTH OUTFALL
DATE: 11/28/05
SAMPLED BY: BUTTS

TYPE: IW
STORET#: N/A
TIME: 1000
REQUESTED BY: BUTTS

CODE	PARAMETER	UNITS	VALUE(S) BY SAMPLE DEPTH 0.15m
00029	Log Number	CODE	17702
00010	Water temperature	°C	21.78
00094	Conductivity	µmho/cm	112
00299	Diss. oxygen (probe)	mg/l	8.83
00400	pH	units	5.79
31501	Total coliform	#/100ml	3000
31616	Fecal coliform	#/100ml	460

Results for NELAP accredited tests contained in this report meet the requirements specified for the National Environmental Laboratory Accreditation Program. Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published test performance acceptance criteria. NELAP Cert. E31887

NORTHWEST DISTRICT LABORATORY
160 GOVERNMENTAL CENTER
PENSACOLA, FL 32502

Project: SOLUTIA
SITE: SOUTH
DATE: 11/28/05
SAMPLED BY: BUTTS

TYPE: IW
STORET#: N/A
TIME: 1045
REQUESTED BY: BUTTS

CODE	PARAMETER	UNITS	VALUE(S) BY SAMPLE DEPTH 0.15m
00029	Log Number	CODE	17703
00010	Water temperature	°C	22.5
00094	Conductivity	µmho/cm	399
00299	Diss. oxygen (probe)	mg/l	8.59
00400	pH	units	5.96
31501	Total coliform	#/100ml	3150A
31616	Fecal coliform	#/100ml	445A

Results for NELAP accredited tests contained in this report meet the requirements specified for the National Environmental Laboratory Accreditation Program. Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published test performance acceptance criteria. NELAP Cert. E31887

1703

Department of Environmental Protection
Water Quality Report Form

TIME A-GRAB	1045

Agency	Station	Date	TIME B COMPOSITE SAMPLE		Sample depth
FDEP	1017P00580	11-28-05			0.5' or 0.15m
			COMP	BEGIN	
				END	

Remarks: Module number: 1306

28 MGD Flow

LOCATION SOLUTIA 001 SOUTH OUTFALL

Parameter	Unit	Code	Value	Parameter	Unit	Code	Value
Field Indent	Number	29	4	pH Lab	Std. Unit	403	
Temp. Water	°C	10	22.5°	Alkalinity	mg/L	410	
Temp. Air	°C	20		Salinity	PPTH	480	
Precipitation (24hhr)	Inches	45		TOC	mg/L	680	
Water Level	Meters	82903		NFLT Residue ✓	mg/L	530	
Cloud Cover	Percent	32		N-NH3, Total	mg/L	610	
Wind Velocity	MPH	35		Un-Ionized NH3	mg/L	619	
Wind Dir. From	Degrees	36		N-TKN	mg/L	625	
Tide Stage	Code	67		N-NO2 +NO3	mg/L	630	
Wave Height	Code	70222		Phos-Total	mg/L	665	
Turbidity. HACH ✓	NTU	76		~~Chloride~~ HARDNESS ✓	mg/L	940	
Secchi	Meters	78		Enterococcus	#/100mL	31649	
Color ✓	PT-CO	80		Total Coliform ✓	#/100mL	31501	
ORP	Milivolt	90		Fecal Coliform ✓	#/100mL	31616	
Cond. Field	UMHO	94	399	Chlorophyll A	UG/L	32210	
Cond. Lab	UMHO	95		Chlorophyll A	Corrected	32211	
DO Probe	mg/L	299	8.59	Calcium	mg/L	00916	
DO	mg/L	300		Magnesium	mg/L	00927	
BOD ✓	mg/L	310		Potassium	mg/L	00937	
pH Field	Std. Unit	400	5.96	Sodium	mg/L	00929	

Sample Taken By: BUTTS, STOLL

Report Verified By:

Report Prepared By:

( ) CHANGE Date Submitted

DEP Form PERM 21-10 (Sept 95) Modified by JRA 1/22/2003

Department of Environmental Protection

Water Quality Report Form

TIME A-GRAB 10:00	
TIME B COMPOSITE SAMPLE	
COMP BEGIN	
END	

Agency	Station	Date	Sample depth
FDEP	33.02.0028	11-28-05	0.5' or 0.15m

Remarks: Module number: 1306

0.9501 MGD

639 GPM FLOW

LOCATION SOLUTIA 002

NORTH OUTFALL

Parameter	Unit	Code	Value	Parameter	Unit	Code	Value
Field Indent	Number	29	2	pH Lab	Std. Unit	403	
Temp. Water	°C	10	21.78°	Alkalinity	mg/L	410	
Temp. Air	°C	20		Salinity	PPTH	480	
Precipitation (24hhr)	Inches	45		TOC	mg/L	680	
Water Level	Meters	82903		NFLT Residue ✓	mg/L	530	
Cloud Cover	Percent	32		N-NH3, Total	mg/L	610	
Wind Velocity	MPH	35		Un-Ionized NH3	mg/L	619	
Wind Dir. From	Degrees	36		N-TKN	mg/L	625	
Tide Stage	Code	67		N-NO2 +NO3	mg/L	630	
Wave Height	Code	70222		Phos-Total	mg/L	665	
Turbidity, HACH ✓	NTU	76		HARDNESS ✓	mg/L	940	
Secchi	Meters	78		Enterococcus	#/100mL	31649	
Color ✓	PT-CO	80		Total Coliform ✓	#/100mL	31501	
ORP	Milivolt	90		Fecal Coliform ✓	#/100mL	31616	
Cond. Field	UMHO	94	1.12	Chlorophyll A	UG/L	32210	
Cond. Lab	UMHO	95		Chlorophyll A	Corrected	32211	
DO Probe	mg/L	299	8.83	Calcium	mg/L	00916	
DO	mg/L	300		Magnesium	mg/L	00927	
BOD ✓	mg/L	310		Potassium	mg/L	00937	
pH Field	Std. Unit	400	5.79	Sodium	mg/L	00929	

Sample Taken By:

BUTTS, STOCK

Report Verified By:

Report Prepared By:

Received 11.25.05

( ) CHANGE Date Submitted

DEP Form PERM 21-10 (Sept 95) Modified by JRA 1/22/2003

FDEP Biology Section - Acute Screen Bioassay Bench Sheets

Facility: Solutia South Outfall 001

Address: 3000 Old Chemstrand Rd.

City: Cantonment County: Escambia

Contact/District: Glenn Butts / Northwest

NPDES Permit #: FL 0002488

LIMS Job # TLH2005-11-29-47 LIMS Sample #: 882022

Lims Data Entry: 12-05-05 MF Data Entry Verification: 12-8-05 SW

Sample Collection: Date: 11-28-05 Time: 0930

Hold Time Start: Date: 11-28-05 Time: 0930

Comments:

Instructions (for below): Circle appropriate wording. If yes is circled, complete blanks.

Test Type: (Screen)

Static / Static Renewal / Flow-through

Test Duration: 48 (96) Hours.

Light Intensity : 50 - 100 ft. candles.

Photoperiod : 16 hours light 8 hours dark.

Initial sample handling:

Test 1 validation:

Control survival ≥90%: (Yes) No

Temperature Range ≤3°C: (Yes) No

Test 1: SOP TA 07 01

Test 2 validation:

Control survival ≥90%: (Yes) No

Temperature Range ≤3°C: (Yes) No

Test 2: SOP TA 07 02

PH adjustment : yes (no) Initial pH: ____ NaOH N HCl N ____ Drops mL Final pH ____

Aeration : yes (no) Initial DO: ____mg/L Final DO: ____mg/L Duration: ____minutes Rate: ~ ____ bubbles/min

Salinity adjusted (Test 1): yes (no) Initial Salinity: ____ Final Salinity: ____ Salts Hypersaline brine

Salinity adjusted (Test 2): yes (no) Initial Salinity: ____ Final Salinity: ____ Salts Hypersaline brine

Dechlorination: yes (no) ____mL of 0.025N Sodium Thiosulfate per liter of sample Final TRC: ____

Temperature Range °C

Incubator # 3 Range 248-264

Room 0246 233-244's

Waterbath: N/A

Sample Validation:

Temperature: Shipped ≤6°C (Yes) No Hand Delivered: Cooling (received °C - collected °C) Yes No

Holding Time: ≤36 Hours (Yes) No (Composite-end of collection; grab-when collected; 4 in 24 - time last sample collected)

Investigators' Signatures

Sarah Pritchard

Marshall Faircloth

Jason Boyd

Fred Dickey

Nicole Wellendiff

REVIEWER

Water Quality Parameters	20% DMW	Moderately Hard Water/ Well Water	Salt Water ASW NSW Test 1	Salt Water ASW NSW Test 2	Other:	Original Sample	Method	Measured by	Verified by
Field Total Residual Cl2 (mg/L)	N/A	N/A	N/A	N/A		not measured			
Lab Total Residual Cl2 (mg/L):	<0.03	<0.03				<0.03	HACH	SW/FW	MF
Alkalinity (mg/l as $CaCO_3$)	39	142				45	HACH	FW	SW
Hardness (mg/l as $CaCO_3$)	99	138.5				66	HACH	SW	SW
Total Ammonia (mg/L as N):	<0.017	<0.017				<0.017	DENVER	MF	SW
Salinity (ppth)	<1	<1				<1	YSI / Mettler	SW	MF

V 1.4 9/12/05

Page 000001

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FDEP Biology Section - Bioassay Survival Sheet

LIMS Sample #: 882022 Test #: 1 Test Started: Date 11-29-05 Time: 1415
Organism: C. dubia SOP #: TA 07_ 01 Test Ended: Date 12-3-05 Time: 1045
Organism Batch: 43-05 Diluent/ Batch: DMW / 35-05
Organism Age: <24 hrs Food: YCT P. subcapitata Artemia
Chamber Size: 30 mL Batch: 04-05 06-05 —
Test Volume: 20 mL Feeding: (Prior to test) - (Prior to renewal) - Daily

Concentration	Replicate	Chamber #	Test Hour 0 hr	24 hr	48 hr BR	48 hr AR	72 hr	96 hr
CTRL	A	A	5	5	5	5	5	5
	B	B	5	5	5	5	5	5
	C	C	5	5	4[1,0]	4	4	4
	D	D	5	5	5	5	5	5
100%	A	A	5	5	5	5	5	5
	B	B	5	5	5	5	5	5
	C	C	5	5	5	5	5	5
	D	D	5	5	5	5	5	5
Organisms loaded by: JJ	Checked by: [redacted]		JJ	JJ	DF	mf	mf	
Loading Verified by: JJ								

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

Comments:

Test Results:
% mortality in 100% sample: 0
LC_{50}: >100 If Calculated: 95% CI — Method: —

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

V 2.1 11/01/2005

Page 000002

FDEP Biology Section - Bioassay Survival Sheet

LIMS Sample #: 882022 Test #: 2 Test Started: Date 11-29-05 Time: 1430
Organism: C. tentans SOP #: TA 07_ 02 Test Ended: Date 12-3-05 Time: 1030
Organism Batch: 34-05 Diluent/ Batch: UWI H2O 11-29-05
Organism Age: 11 days Food: YCT P. subcapitata Artemia
Chamber Size: 1000 mL Batch: – – GSL 5360-90
Test Volume: 500 mL Feeding: ~~Prior to test~~ - Prior to renewal - Daily

Concentration	Replicate	Chamber #	Test Hour 0 hr	24 hr	48 hr BR	48 hr AR	72 hr	96 hr
CTRL	A	C1	5	5	5	5	5	5
	B	C2	5	5	5	5	5	5
	C	C3	5	4 D	3 D	3	3	3
	D	C4	5	5	5	5	5	5
100%	A	C5	5	5	5	5	5	5
	B	C6	5	4 D	4	4	4	4
	C	C7	5	5	5	5	5	5
	D	C8	5	5	5	5	5	5
Organisms loaded by: JD		Checked by: [redacted]		JD	JD	SP	SP	MA
Loading Verified by: SP								

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

Comments:

Test Results:
% mortality in 100% sample: 5
LC_{50}: >100 If Calculated: 95% CI – Method: –

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

V 2.1 11/01/2005

Page 000003

FDEP Biology Section - Bioassay Parameter Sheet

LIMS Sample # : 862072 Test #: 1 of 2

TEST SOP #: TA07_ 01 Test Species: (Ceriodaphnia dubia) Cyprinella leedsi Pimephales promelas
Americamysis bahia Menidia beryllina Other:_____

Concentration CTRL	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A		B	B		C
pH (S.U.)	6.7		8.2	7.8		7.7 8.1 (A)
Temperature °C	25.3		24.5	24.7	~~24.2~~ 24.0 SP	24.1
Dissolved Oxygen mg/L	7.5		7.2	7.2		7.7
Conductivity (µmhos) mmhos	170		245	183		210
(initials) Measured by:	[illegible]		[illegible]	[illegible]		MF
(initials) Recorded by:	[illegible]		[illegible]	[illegible]		MF

Comments:

(A) recorded pH in wrong slot MF 11/7/03

Concentration 100%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A		B	B		C
pH (S.U.)	7.0		7.8	7.7		8.0
Temperature °C	25.1		24.4	24.9	~~24.0~~ SP	24.2
Dissolved Oxygen mg/L	8.2		7.1	7.8		8.2
Conductivity (µmhos) mmhos	368		456	383		428
(initials) Measured by:	[illegible]		[illegible]	[illegible]		MF
(initials) Recorded by:	[illegible]		[illegible]	[illegible]		MF

Comments:

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

Comments:

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

Comments:

V 2.0 2/24/04

0000044

FDEP Biology Section - Bioassay Parameter Sheet

LIMS Sample # : 882022 Test #: 2 of 2

TEST SOP #: TA07_ 02 **Test Species:** *Ceriodaphnia dubia* (*Cyprinella leedsi*) *Pimephales promelas*
Americamysis bahia *Menidia beryllina* Other:_____

Concentration CTRL	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C	C	D	A
pH (S.U.)	8.2	8.1	8.2	8.1	8.1	8.4
Temperature °C	25.4	25.0	24.7	24.1	24.2	24.6
Dissolved Oxygen mg/L	7.4	7.4	6.6	7.2	7.5	7.9
Conductivity ~~µmhos~~ mmhos	281	283	350	275	265	371
(initials) Measured by:	JD	JD	[illegible]	[illegible]	JD	MF
(initials) Recorded by:	JD	JD	[illegible]	[illegible]	JD	MF

Comments:

Concentration 100%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C	C	D	A
pH (S.U.)	8.1	8.1	7.6	7.6	8.0	8.0
Temperature °C	25.4	25.0	24.2	24.0	24.1	25.8
Dissolved Oxygen mg/L	~~25.4~~ 22	~~25.0~~ 6.7	6.7	7.2	7.4	7.6
Conductivity ~~µmhos~~ mmhos	405	402	~~361~~ 427	384	390	451
(initials) Measured by:	JD	JD	[illegible]	[illegible]	JD	MF
(initials) Recorded by:	JD	JD	[illegible]	[illegible]	JD	MF

Comments:

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

Comments:

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

Comments:

V 2.0 2/24/04

FDEP Biology Section - Acute Screen Bioassay Bench Sheets

Facility: Solutia North outfall 002
Address: 3000 Old Chemstrand Rd.
City: Cantonment County: Escambia
Contact/District: Glenn Butts / Northwest
NPDES Permit #: FL 0002488
LIMS Job #: TLH-2005-11-29-47 LIMS Sample #: 882021
Lims Data Entry: 12-8-05 MF Data Entry Verification: 12-8-05 SF

Sample Collection: Date: 11-28-05 Time: 0930
Hold Time Start: Date: 11-28-05 Time: 0930

Comments:

Instructions (for below): Circle appropriate wording. If yes is circled, complete blanks

Test Type: (Screen)
Static & (Static Renewal) / Flow-through
Test Duration: 48 (96) Hours.
Light Intensity : 50 - 100 ft. candles.
Photoperiod : 16 hours light 8 hours dark.

Test 1 validation: Test 1: SOP TA 07_01
Control survival ≥90%: (Yes) No
Temperature Range ≤3°C: (Yes) No

Test 2 validation: Test 2: SOP TA 07_02
Control survival ≥90%: (Yes) No
Temperature Range ≤3°C: (Yes) No

Initial sample handling:
PH adjustment : yes (no) Initial pH: ____ NaOH N HCl N ____ Drops mL Final pH: ____
Aeration : yes (no) Initial DO: ____mg/L Final DO: ____mg/L Duration: ____minutes Rate: ~ ____ bubbles/min
Salinity adjusted (Test 1): yes (no) Initial Salinity: ____ Final Salinity: ____ Salts Hypersaline brine
Salinity adjusted (Test 2): yes (no) Initial Salinity: ____ Final Salinity: ____ Salts Hypersaline brine
Dechlorination: yes (no) ____mL of 0.025N Sodium Thiosulfate per liter of sample. Final TRC: ____

Temperature Range °C
Incubator # 3 Range 24.8-26.4
Room B246 23.2-24°C
Waterbath: n/a

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

Investigators' Signatures
Sarah Pickard
Mandi Wandstedt
Erin Lubsen
Mary Hunt
Wade Wellendorff
REVIEWER

Water Quality Parameters	20% DMW	Moderately Hard Water/ Well Water	Salt Water ASW NSW Test 1	Salt Water ASW NSW Test 2	Other	Original Sample	Method	Measured by	Verified by
Field Total Residual Cl2 (mg/L)	N/A	N/A	N/A	N/A		not measured		—	SP
Lab Total Residual Cl2 (mg/L)	<0.03	<0.03				<0.03	HACH	SP/EW	MF
Alkalinity (mg/L as $CaCO_3$)	89	142				42	HACH	EW	SP
Hardness (mg/L as $CaCO_3$)	99	138.5				75	HACH	EW	SP
Total Ammonia (mg/L as N)	<0.017	<0.017				0.0341	DENVER	MF	SP
Salinity (ppth)	<1	<1				<1	YSI / Mettler	SP	MF

V 1.4 9/12/05

2

FDEP Biology Section - Bioassay Survival Sheet

LIMS Sample #: 882021 Test #: 1 Test Started: Date 11-29-05 Time: 1425
Organism: C. dubia SOP #: TA 07_ C1 Test Ended: Date 12-3-05 Time: 1100
Organism Batch: 43-05 Diluent/ Batch: DMW 135-05
Organism Age: <24 hrs Food: YCT P. subcapitata Artemia
Chamber Size: 30 mL Batch: 04-05 06-05 —
Test Volume: 20 mL Feeding: Prior to test Prior to renewal Daily

Concentration	Replicate	Chamber #	Test Hour 0 hr	24 hr	48 hr BR	48 hr AR	72 hr	96 hr
CTRL	A	A	5	5	5	5	5	5
	B	B	5	5	5	5	5	5
	C	C	5	5	@ 4 yst	5	5	5
	D	D	5	5	5	5	5	5
100%	A	A	5	5	5	5	5	5
	B	B	5	5	5	5	5	5
	C	C	5	5	5	5	5	5
	D	D	5	5	5	5	5	5
Organisms loaded by: JO Checked by: [redacted]			JJ	JO	MF	MF	MF	
Loading Verified by: JO								

Comments: @ ctrl c 4@3R - 5 ED

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

Test Results:
% mortality in 100% sample: Ø
LC_{50}: > 100 If Calculated: 95% CI — Method: —

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

V 2.1 11/01/2005

FDEP Biology Section - Bioassay Survival Sheet

LIMS Sample #: 882021 Test #: 2 Test Started: Date 11-29-05 Time: 1445
Organism: C. leedsi SOP #: TA 07_ 02 Test Ended: Date 12-3-05 Time: 1100
Organism Batch: 34-05 Diluent/ Batch: Well H_2O / 11-29-05
Organism Age: 11 days Food: YCT P. subcapitata Artemia
Chamber Size: 1000 mL Batch: - - GSL 536-90
Test Volume: 500 mL Feeding: (Prior to test) - (Prior to renewal) - Daily

Concentration	Replicate	Chamber #	Test Hour 0 hr	24 hr	48 hr BR	48 hr AR	72 hr	96 hr
CTRL	A	C9	5	5	5	5	5	5
	B	C10	5	5	5	5	5	5
	C	C11	5	5	5	5	~~4~~ 5	5
	D	C12	5	4[1]	4	4	4	4
100%	A	C13	5	5	5	5	5	5
	B	C14	5	4[1]	4	4	3[1]	3
	C	C~~14~~15	5	5	5	5	5	5
	D	C16	5	5	5	5	5	5
Organisms loaded by: JD	Checked by: [redacted]		JD	JD	BP	BP	MF	
Loading Verified by: BP								

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

Comments:

Test Results:
% mortality in 100% sample: 10
LC_{50}: >100 If Calculated: 95% CI - Method: -

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

V 2.1 11/01/2005

000008

Page

FDEP Biology Section - Bioassay Parameter Sheet

LIMS Sample # : 882021 Test #: 1 of 2

TEST SOP #: TA07_01 Test Species: (*Ceriodaphnia dubia*) *Cyprinella leedsi* *Pimephales promelas* *Americamysis bahia* *Menidia beryllina* Other:_____

Concentration CTRL	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A		B	B		C
pH (S.U.)	6.7		8.1	7.8		8.0
Temperature °C	24.8		24.1	24.4		24.3
Dissolved Oxygen mg/L	7.6		7.1	7.1		8.0
Conductivity ~~µmhos~~ mmhos	185		214	179		194
(initials) Measured by:	[illegible]		[illegible]	[illegible]		MF
(initials) Recorded by:	[illegible]		[illegible]	[illegible]		MF

Comments:

Concentration 100%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A		B	B		C
pH (S.U.)	7.1		7.8	7.5		7.9
Temperature °C	24.7		24.1	24.8		24.2
Dissolved Oxygen mg/L	8.3		6.8	7.8		8.3
Conductivity ~~µmhos~~ mmhos	320		381	378		379
(initials) Measured by:	[illegible]		[illegible]	[illegible]		MF
(initials) Recorded by:	[illegible]		[illegible]	[illegible]		MF

Comments:

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

Comments:

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

Comments:

V 2.0 2/24/04

FDEP Biology Section - Bioassay Parameter Sheet

LIMS Sample # : 882021 **Test #:** 2 of 2

TEST SOP #: TA07_ 02 **Test Species:** *Ceriodaphnia dubia* (*Cyprinella leedsi*) *Pimephales promelas* *Americamysis bahia* *Menidia beryllina* Other:_____

Concentration CTRL	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C	C	D	A
pH (S.U.)	8.2	8.2	8.2	8.1	8.1	8.3
Temperature °C	25.3	24.0	24.0	24.0	24.2	25.2
Dissolved Oxygen mg/L	8.0	7.9	6.7	7.2	7.2	7.9
Conductivity ~~µmhos~~ mmhos	296	297	302	277	280	285
(initials) Measured by:	JD	JD	CS	CS	JD	MF
(initials) Recorded by:	JD	JD	CS	CS	JD	MF

Comments:

Concentration 100%	0 Hr.	24 Hr.	48 Hr. before renewal	48 Hr. after renewal	72 Hr.	96 Hr.
Replicate	A	B	C	D	D	A
pH (S.U.)	8.1	8.0	7.9	7.8	7.9	7.9
Temperature °C	25.2	24.1	24.0	24.1	24.0	25.1
Dissolved Oxygen mg/L	~~7.9~~ 7.9 JD	~~8.0~~ 8.0 JD	6.9	7.5	7.4	7.3
Conductivity ~~µmhos~~ mmhos	340	342	359	332	336	355
(initials) Measured by:	JD	JD	CS	CS	JD	MF
(initials) Recorded by:	JD	JD	CS	CS	JD	MF

Comments:

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

Comments:

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

Comments:

V 2.0 2/24/04

Appendix 7

Standard Reference Toxicant test data and test organism receipts

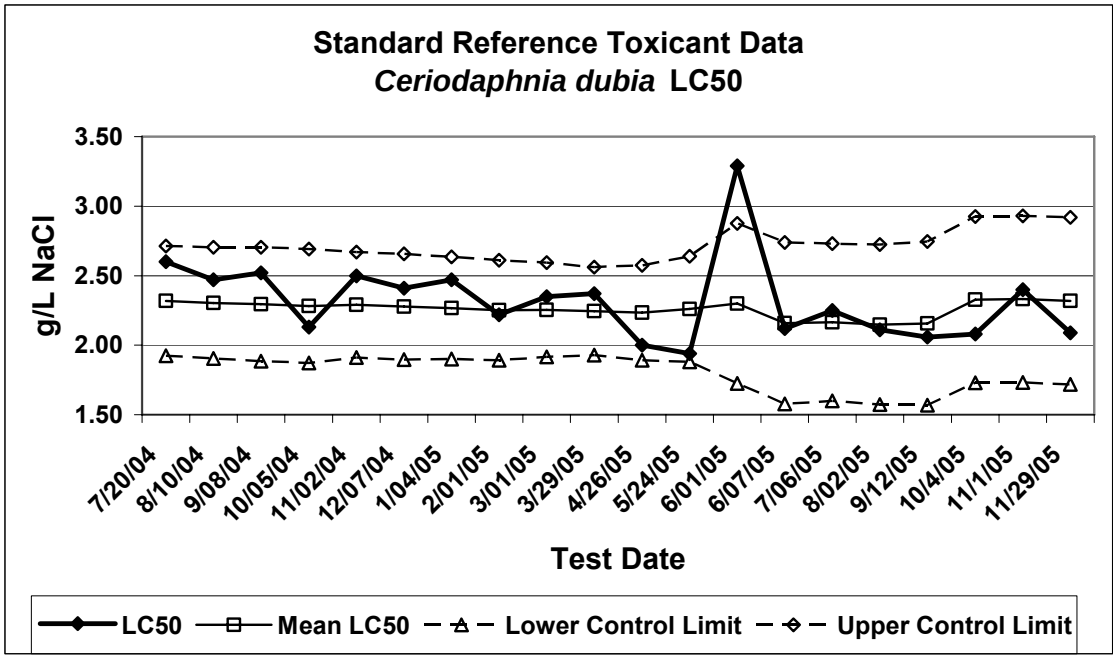
Florida Department of Environmental Protection
Bureau of Laboratories

Standard Reference Toxicant (SRT) Test Data - Acute Toxicity
Ceriodaphnia dubia (water flea) - Sodium Chloride (NaCl)

Date	LC50	Mean LC50	Std Dev	Lower Control Limit	Upper Control Limit
7/20/04	2.60	2.32	0.20	1.92	2.71
8/10/04	2.47	2.30	0.20	1.90	2.70
9/08/04	2.52	2.30	0.21	1.88	2.71
10/05/04	2.13	2.28	0.20	1.87	2.69
11/02/04	2.50	2.29	0.19	1.91	2.67
12/07/04	2.41	2.28	0.19	1.90	2.66
1/04/05	2.47	2.27	0.18	1.90	2.63
2/01/05	2.22	2.25	0.18	1.89	2.61
3/01/05	2.35	2.26	0.17	1.92	2.59
3/29/05	2.37	2.25	0.16	1.93	2.56
4/26/05	2.00	2.23	0.17	1.89	2.58
5/24/05	1.94	2.26	0.19	1.88	2.64
6/01/05	3.29	2.30	0.29	1.73	2.87
6/07/05	2.12	2.16	0.29	1.58	2.74
7/06/05	2.25	2.17	0.28	1.60	2.73
8/02/05	2.11	2.15	0.29	1.57	2.72
9/12/05	2.06	2.16	0.29	1.57	2.75
10/4/05	2.08	2.33	0.30	1.73	2.93
11/1/05	2.40	2.33	0.30	1.73	2.93
11/29/05	2.09	2.32	0.30	1.72	2.92

Means are of the last 20 SRT tests.
Lower Confidence Limit = mean - 2 * Std Dev
Upper Confidence Limit = mean + 2 * Std Dev

CV = 12.95
EPA reference 75th quartile CV = 29%



FDEP Biology Section -- Acute SRT Bench Sheet

Test Organism: (*Ceriodaphnia dubia*) *Cyprinella leedsi* *Pimephales promelas*
Americamysis bahia *Menidia beryllina* *Hyalella azteca* Other:_____

Test Type: Screening / (Definitive)
(Static) / Static Renewal

Toxicant/ Batch# NaCl 111-05
Diluent/ Batch #: DMW 135-05
Diluent Salinity: <1 ppth

Test Beginning: Date: 11-29-05 Time: 1330
Test Ending: Date: 12-1-05 Time: 1330
Organism Batch #: 43-05
Organism Age: <24hrs

Chamber size: 30 mL
Sample volume: 20 mL

Food: YCT/*P.subcapitata* Artemia
Food Batch: 04-05 / 06-05 —

Feeding: Prior to test / Prior to renewal / Daily

Conc. (‰)	Chamber#	Number Live 0 hr / 24 hr / 48 hr			pH 0 hr / 24 hr / 48 hr			Temperature (° C) 0 hr / 24 hr / 48 hr			D.O. (mg/l) 0 hr / 24 hr / 48 hr			UNCORRECTED Cond. (mmhos/cm) Cond. (µmhos/cm) 0 hr / 24 hr / 48 hr		
		48 hr	72 hr	96 hr	48 hr	72 hr	96 hr	48 hr	72 hr	96 hr	48 hr	72 hr	96 hr	48 hr	72 hr	96 hr
CTPL	A	5	5	5	6.8			25.1			7.5			2.73		
	B	5	5	5			7.9			23.9		(A) 6.5				0.224
	C	5	5	5								7.4				
	D	5	5	5												
1.5	A	5	5	4[10]	6.7			25.5			7.4			2.94		
	B	5	5	5			7.9			23.9		(A) ~~6.4~~				3.51
	C	5	5	5								7.3				
	D	5	5	5												
2.0	A	5	5	4[10]	6.8			25.4			7.3			3.78		
	B	5	5	3[20]			8.0			23.9			7.2			~~3.7~~ 4.32 SP
	C	5	4[10]	3[10]												
	D	5	5	3[20]												
2.5	A	5	4[10]	2[20]	6.8			25.4			7.2			4.71		
	B	5	5	0[50]			8.0			23.9			7.3			5.55
	C	5	3[20]	1[20]												
	D	5	4[10]	0[40]												
3.0	A	5	3[20]	0[30]	6.9			25.5			7.3			5.58		
	B	5	3[20]	0[30]			8.0			23.9			7.3			6.68
	C	5	3[20]	0[30]												
	D	5	2[30]	0[20]												
4.0	A	5	0[50]	-	6.9			25.3			7.0			7.23		
	B	5	0[50]	-		8.0	-		24.2	2[NM]		8.4	-		7.92	-
	C	5	0[50]	-			-			-			-			-
	D	5	0[50]	-												
Loaded / measured by:		MF	SP	SP	MF	JJ	SP	MF	JJ	SP	MF	JJ	AF	MF	JJ	SP
Recorded by:		SP	SP	SP	MF	JJ	SP	MF	JJ	SP	MF	JJ	AF	MF	JJ	SP

SP/SP

Investigators' Signatures
Sarah Pinkard
Marshall Faircloth
Jess Dash
Nicole Wellendorf
REVIEWER

Concentrations prepared by: MF
Loading verified by: SP
Temperature Range °C:
Incubator # 3 24.8-26.4°C
Incubator # ____
Room B246 23.3-25.4°C
Light Intensity:
50-100 Ft. candles (yes) no)
Photoperiod:
16 hours Light / 8 hours dark (yes) no)

Remarks:
(A) DO meter set on wrong Salinity 1st value
SP

LC50: 2.09
95% CI: lower 1.95 upper 2.25

Revised 9/12/2005

Ceriodaphnia dubia Acute Standard Reference Toxicant Test

START DATE: 11/29/05 END DATE: 12/01/05

DURATION: 48 H

TOXICANT : NaCl

RAW DATA:

Concentration (g/L)	Number Exposed	Mortalities
0.00	20	0
1.50	20	1
2.00	20	7
2.50	20	17
3.00	20	20
4.00	20	20

SPEARMAN-KARBER TRIM: 5.00%

SPEARMAN-KARBER ESTIMATES: LC50: 2.09

95% LOWER CONFIDENCE: 1.95

95% UPPER CONFIDENCE: 2.25

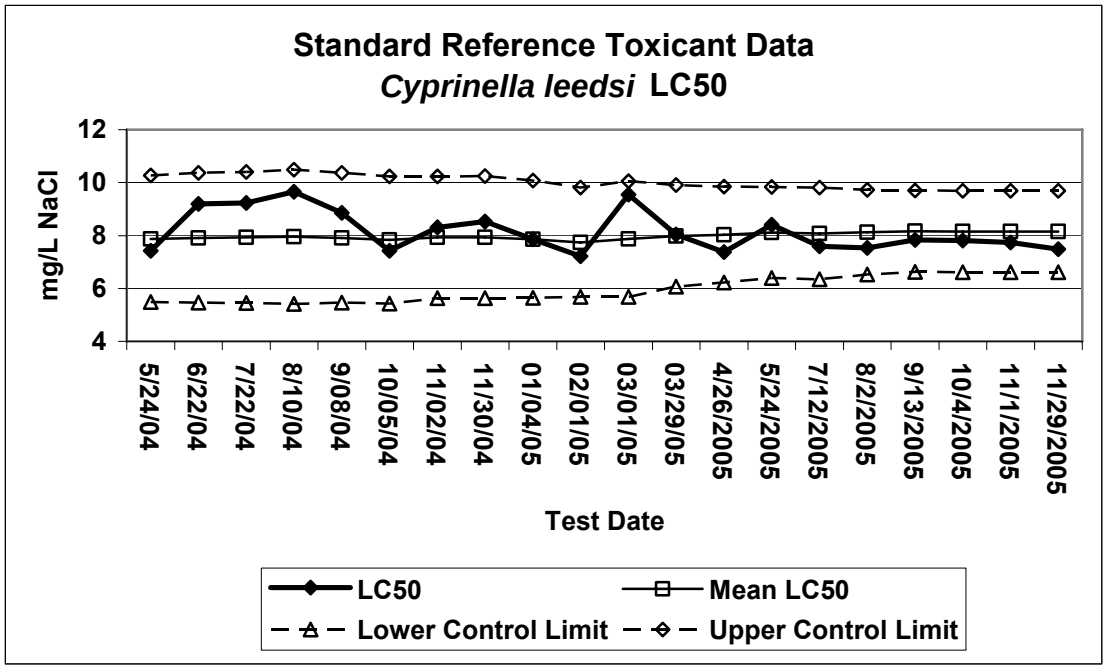
Florida Department of Environmental Protection
Bureau of Laboratories

Standard Reference Toxicant (SRT) Test Data - Acute Toxicity
Cyprinella leedsi (bannerfin shiner) - Sodium Chloride (NaCl)

Date	LC50	Mean LC50	Std Dev	Lower Control Limit	Upper Control Limit
5/24/04	7.42	7.88	1.20	5.49	10.27
6/22/04	9.19	7.91	1.23	5.46	10.36
7/22/04	9.23	7.93	1.24	5.45	10.41
8/10/04	9.65	7.95	1.27	5.41	10.49
9/08/04	8.85	7.91	1.22	5.46	10.36
10/05/04	7.43	7.83	1.20	5.43	10.24
11/02/04	8.31	7.93	1.15	5.63	10.24
11/30/04	8.53	7.94	1.15	5.63	10.24
01/04/05	7.86	7.87	1.11	5.65	10.08
02/01/05	7.22	7.74	1.03	5.68	9.80
03/01/05	9.54	7.87	1.09	5.68	10.05
03/29/05	8.04	7.99	0.96	6.07	9.91
4/26/2005	7.38	8.03	0.90	6.22	9.84
5/24/2005	8.41	8.11	0.86	6.40	9.83
7/12/2005	7.59	8.08	0.86	6.35	9.81
8/2/2005	7.53	8.13	0.80	6.53	9.72
9/13/2005	7.84	8.16	0.77	6.63	9.70
10/4/2005	7.81	8.16	0.77	6.62	9.69
11/1/2005	7.74	8.15	0.77	6.61	9.69
11/29/2005	7.49	8.15	0.77	6.61	9.69

Means are of the last 20 SRT tests.
Lower Confidence Limit = mean - 2 * Std Dev
Upper Confidence Limit = mean + 2 * Std Dev

CV = 9.45
EPA reference 75th quartile CV = 19%



[redacted]

FDEP Biology Section -- Acute SRT Bench Sheet

Test Organism: *Ceriodaphnia dubia* (*Cyprinella leedsi*) *Pimephales promelas* *Americamysis bahia* *Menidia beryllina* *Hyalella azteca* Other:

Test Type: Screening / Definitive (Static) Static Renewal

Toxicant/ Batch# NaCl / 9-05

Diluent/ Batch #: well / 11-29-05

Diluent Salinity: <1 ppth

Test Beginning: Date: 11-29-05 Time: 1220

Test Ending: Date: 12-1-05 Time: 1300

Organism Batch #: 34-05

Organism Age: 11 days

Chamber size: 1000 mL

Sample volume: 500 mL

Food: YCT/*P.subcapitata* Artemia

Food Batch: - / - GSL 536-70

Feeding: (Prior to test) Prior to renewal / Daily

Conc. (%)	Chamber#	Number Live 0 hr / 48 hr	Number Live 24 hr / 72 hr	Number Live 48 hr / 96 hr	PH 0 hr / 48 hr	PH 24 hr / 72 hr	PH 48 hr / 96 hr	Temperature (° C) 0 hr / 48 hr	Temperature (° C) 24 hr / 72 hr	Temperature (° C) 48 hr / 96 hr	D.O. (mg/l) 0 hr / 48 hr	D.O. (mg/l) 24 hr / 72 hr	D.O. (mg/l) 48 hr / 96 hr	UNCORRECTED Cond. (mmhos/cm) 0 hr / 48 hr	UNCORRECTED Cond. (mmhos/cm) 24 hr / 72 hr	UNCORRECTED Cond. (mmhos/cm) 48 hr / 96 hr
CTRL A	B13	10	10	10	8.0		8.1	24.6		24.4	7.9		6.4	0.341		0.290
B	B14	10	10	9D		8.2			24.3			6.8			0.422	
6.0 A	B15	10	10	8 2D	7.8		8.0	24.9		24.3	7.8		6.5	10.8		1.11
B	B16	10	9 1D	9		7.9			24.0			7.0			9.57	
7.0 A	B17	10	7 3D	7	7.8		8.1	25.0		24.3	7.7		6.5	12.5		12.8
B	B18	10	9 1D	8 1D		8.0			24.0			6.7			11.2	
8.0 A	B19	10	2 3D	2	7.8		8.1	25.1		24.3	7.7		6.4	14.0		14.3
B	B20	10	4 6D	3 1D		7.9			24.6			6.4			13.2	
9.0 A	B21	10	0 1D	-	7.8		-	25.2		-	7.6		-	15.5		-
B	B22	10	0 1D	-		7.9			24.3			7.2			15.1	
10.0 A	B23	10	0 1D	-	7.8		-	24.9		-	7.6		-	16.9		-
B	B24	10	0 1D	-		7.9			24.0			7.6			16.7	
Loaded / measured by:		JD	SR	JD	SR	JD	JD	SR	SR	JD	SR	JD	JD	SR	JD	JD
Recorded by:		SR	SR	JD	SR	JD	JD	SR	SR	JD	SR	JD	JD	SR	JD	JD

Investigators' Signatures

Sarah Pickard

James Dinsmore

Irmarie Pacheco

Nigel Willoughby

REVIEWER

Concentrations prepared by: JE

Loading verified by: SR

Temperature Range °C:

Incubator # 3 24.8-26.4°C

Incubator # ___

Room B246 23.3-25.4°

Light Intensity:

50-100 Ft. candles (yes) no)

Photoperiod:

16 hours Light / 8 hours dark (yes) no)

Remarks:

LC50: 7.49

95% CI: lower 7.16 upper 7.85

Revised 9/12/2005

Cyprinella leedsi Acute Standard Reference Toxicant Test

START DATE: 11/29/05 END DATE: 12/01/05

DURATION: 48 H

TOXICANT : NaCl

RAW DATA:

Concentration (mg/L)	Number Exposed	Mortalities
0.00	20	1
6.00	20	3
7.00	20	5
8.00	20	15
9.00	20	20
10.00	20	20

SPEARMAN-KARBER TRIM: 10.53%

SPEARMAN-KARBER ESTIMATES: LC50: 7.49

95% LOWER CONFIDENCE: 7.16

95% UPPER CONFIDENCE: 7.85

11842 Research Circle
Alachua, FL 32615
T: (386) 462-7889
F: (386) 462-7264
www.hydrosphere.net

HYDROSPHERE
research

Packaging List

Date	Customer Number	Order Shipped Via
11/29/2005	NA	Hydrosphere Research
Customer		**Order Prepared By**
FDEP Marshall Faircloth Biology Mail Stop 6515 2600 Blair Stone Road Tallahassee, Fl 32399-2400		Dustin Onash

Quantity	Description
100	C. leedsi #937, Hatched on 11/17/2005

4569 Samuel Street
Sarasota, Florida
34233

NELAC Accredited

MBL
MARINCO
BIOASSAY
LABORATORY

TEL: (941) 925-3594
TEL: (800) 889-0384
FAX: (941) 922-3874
Email: lab@biologylab.com
Internet: biologylab.com

Organism Shipment Record

State of Florida Aquaculture Certificate Number AQ0668007

Date: 12/05/05

Shipped to: FDEP

P.O. No: Verbal

Species	Quantity	Age	Brood Number	Temperature	Salinity
Mysidopsis bahia					
Menidia beryllina					
Cyprinella leedsi	360+	8days	CLO[illegible]27	25°C	
Pimephales promelas					

Packed by: Diane Thornton

Shipped Via: Fed Ex

Notes: Peter (Hydrosphere)

Thank you for your order.

Diane

11842 Research Circle
Alachua, FL 32615
T: (386) 462-7889
F: (386) 462-7264
www.hydrosphere.net

HYDROSPHERE
research

Packaging List

Date	Customer Number	Order Shipped Via
11/29/2005	NA	Hydrosphere Research
Customer		**Order Prepared By**
FDEP Marshall Faircloth Biology Mail Stop 6515 2600 Blair Stone Road Tallahassee, Fl 32399-2400		Dustin Onash

Quantity	Description
100	C. leedsi #937, Hatched on 11/17/2005

4569 Samuel Street
Sarasota, Florida
34233

NELAC Accredited

MBL
MARINCO
BIOASSAY
LABORATORY

TEL: (941) 925-3594
TEL: (800) 889-0384
FAX: (941) 922-3874
Email: lab@biologylab.com
Internet: biologylab.com

Organism Shipment Record

State of Florida Aquaculture Certificate Number AQ0668007

Date: 12/05/05

Shipped to: FDEP

P.O. No: Verbal

Species	Quantity	Age	Brood Number	Temperature	Salinity
Mysidopsis bahia					
Menidia beryllina					
Cyprinella leedsi	360+	8days	CLO 27	25°C	
Pimephales promelas					

Packed by: Diane Thornton

Shipped Via: Fed Ex

Notes: Peter (Hydrosphere)

Thank you for your order.

Diane

Appendix 8

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	-
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**	**4.16**
Hester-Dendy Taxa Richness	6	6.5	9	11.5	13	15	17	21.5	26	**29**	32	**29**
Dipnet Taxa Richness	9	12	17	20	22	24.5	26	**28**	31	37	53	**28**
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	**0.21**
Total Ammonia	0.02	**0.02**	0.04	0.05	0.06	0.08	0.11	0.14	0.20	0.34	0.60	**0.027**
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	**0.22**
Total Phosphorus	**0.02**	0.03	0.05	0.06	0.10	0.13	0.18	0.25	0.39	0.74	1.51	**0.02**
Orthophosphate	**0.01**	0.01	0.03	0.04	0.05	0.08	0.11	0.17	0.27	0.59	1.37	**0.009**
Turbidity (NTU)	0.60	0.90	1.20	1.45	2.10	2.80	3.60	4.50	6.65	10.45	16.30	-

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	-
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	**3.16**
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	**22**
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	**0.24**
Total Ammonia	0.02	**0.02**	0.04	0.05	0.06	0.08	0.11	0.14	0.20	0.34	0.60	**0.037**
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	**0.21**
Total Phosphorus	**0.02**	0.03	0.05	0.06	0.10	0.13	0.18	0.25	0.39	0.74	1.51	**0.02**
Orthophosphate	**0.01**	0.01	0.03	0.04	0.05	0.08	0.11	0.17	0.27	0.59	1.37	**0.009**
Turbidity (NTU)	0.60	0.90	1.20	1.45	2.10	2.80	3.60	4.50	6.65	10.45	16.30	-

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 9

Habitat Assessment Field Sheets

03/20/2006 01:11 8505958417 FL DEP NWD PAGE 04

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

PHYSICAL/CHEMICAL CHARACTERIZATION FIELD SHEET

SUBMITTING AGENCY CODE: / SUBMITTING AGENCY NAME: BJ Hunt	STORET STATION NUMBER: 13020009	DATE (M/D/Y): 11-29-05	TIME: 1305	RECEIVING BODY OF WATER: Esc. Bay	
REMARKS: SCI + H2S Packet HDS Algae	COUNTY: Esc.	LOCATION: Esc. River Upper Blw SRs	FIELD ID NAME: 1		

RIPARIAN ZONE/STREAM FEATURES

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

Forest/Natural	Silviculture	Field/Pasture	Agriculture	Residential	Commercial	Industrial	Other (Specify)
✓	✓		✓	✓			

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 east buffered side: 7 16

List & map dominant Vegetation on back

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

Artificially Channelized ☐ no ☐ recent, severe ☐ some recovery ☐ mostly recovered

Artificially Impounded ☐ yes more sinuous

.15 m/s	.15 m/s	.15 m/s
7.4 m deep	3. m deep	2.5 m deep

High Water Mark: 2 (m above present water level) + [ ] (present depth in m) = [ ] (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 Type	% coverage	# times sampled	method	Substrate Types	% coverage	# times sampled	method
Woody Debris (Snags) ✓		5		Sand ✓		5	
Leaf Packs of Mats				Mud/Muck/Silt ✓			
Aquatic Vegetation ✓		5		Other:			
Rock or Shell Rubble				Other:			
Undercut banks/Roots ✓		5		*Draw aerial view sketch of habitats found in 100 m section*			

WATER QUALITY	Depth (m):	Temp (°C):	pH (SU)	D.O. (mg/l):	Conc. (umho/cm) Or Salinity (ppt):			Secchi (m):
Top	6.2	18.12	6.18	7.4	67			2.6
Mid-depth								
Bottom	10.8	18.1	6.17	7.76	65			

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: Clear Cool Rain Past few Days

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

SAMPLING TEAM: Donelan / Buffaloe

SIGNATURE: DATE:

HD's OUT

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

SUBMITTING AGENCY CODE: 8010 / SUBMITTING AGENCY NAME: NWFWMD DISTRICT	STORET STATION NUMBER: 33.02.0009	DATE (M/D/Y): 11-02-05	RECEIVING BODY OF WATER: ESCAMBIA RIVER
REMARKS: CONTROL	COUNTY: ESCAMBIA	LOCATION: AT UPPER BLUFFS	FIELD ID/NAME: #1

Habitat Parameter	Optimal	Suboptimal	Marginal	Poor
Primary Habitat Components Substrate Diversity [13]	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 [16]	Greater than 30% productive habitat present at site. 20 19 18 17 (16)	16% to 30% productive habitat, by aerial extent. 15 14 13 12 11	6% to 15 % productive habitat 10 9 8 7 6	Less than 5% productive habitat. 5 4 3 2 1
Water Velocity [16]	Max. observed at typical transect: >0.25 m/sec. but < 1 m/sec 20 19 18 17 (16)	Max. observed at typical transect: 0.1 to 0.25 m/sec 15 14 13 12 11	Max. observed at typical transect: 0.05 to 0.1 m/sec 10 9 8 7 6	Max. observed at typical transect <0.05 m/sec, or scale occurring: > 1 m/sec 5 4 3 2 1
Habitat Smothering [7]	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 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 [52]	20 19 18 17 16	15 14 13 12 11		
Secondary Habitat Components Artificial Channelization [15]	No artificial channelization or dredging. Stream with normal, sinuous pattern 20 19 18 17 16	May have been channelized in the past (>20 yrs), but mostly recovered, fairly good sinuous pattern (15) 14 13 12 11	Channelized, somewhat recovered, but > 80% of area affected 10 9 8 7 6	Artificially channelized, box-cut banks, straight, instream habitat highly altered 5 4 3 2 1
Bank Stability Right Bank [10] Left Bank [5]	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 [10] Left Bank [8]	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 Road 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 [9] Left Bank [8]	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 [75]				

[125] TOTAL SCORE

ANALYSIS DATE: 11-01-05 (117)	ANALYST: G. BUTTS / L. DONELAN	SIGNATURE: Glenn Butts

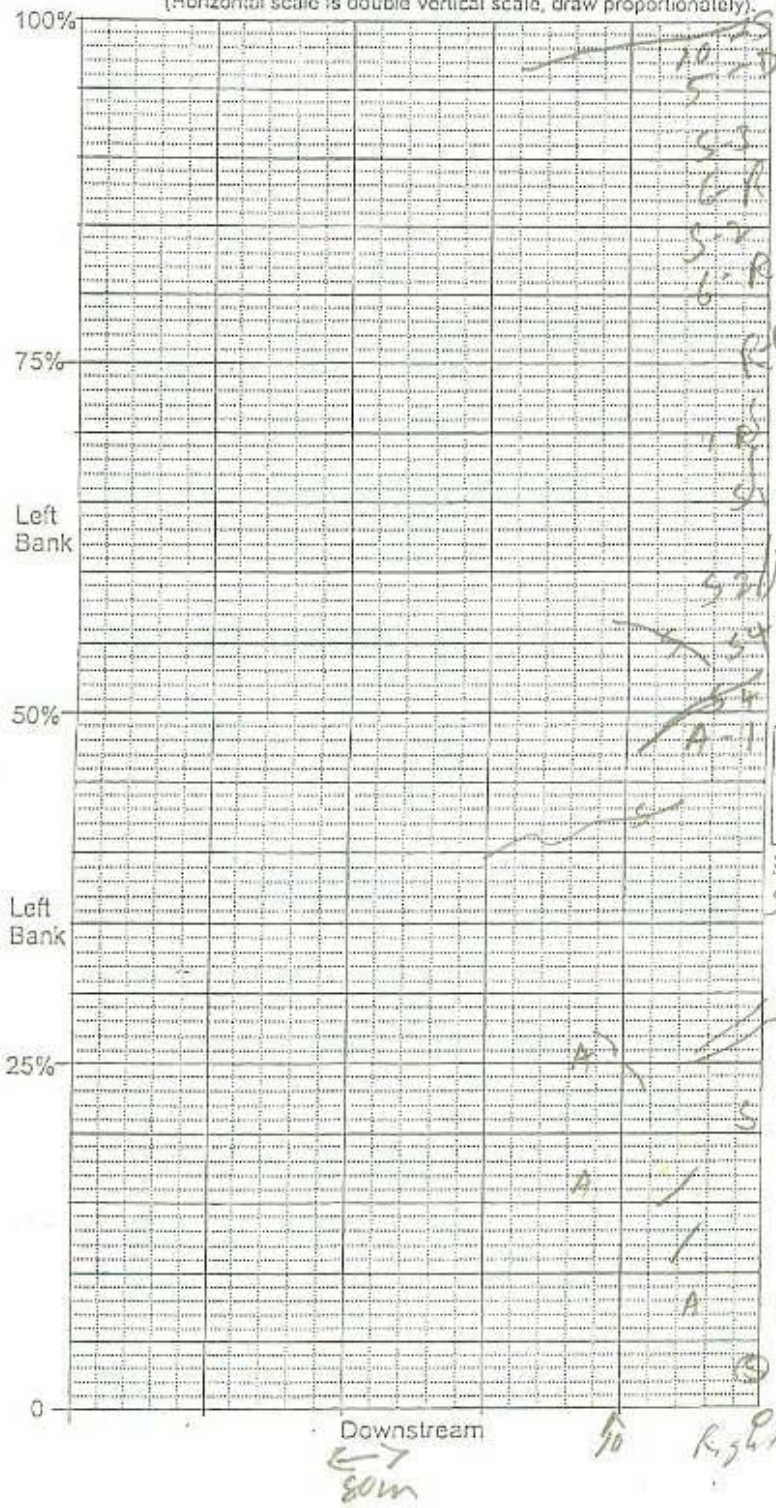
ESCAMBIA RIVER AT
UPPER BLUFF
CONTROL

33020009

Site Map / Habitat Sketch

Length of grid represents 100m of stream (not linear meters).
(Horizontal scale is double vertical scale, draw proportionately).

Field ID: 1



Substrates: Code key, draw proportionate habitat abundance.

- S Snags
- R Roots/undercut banks
- Leaf Packs (or mats)
- Macrophytes
- A Aquatic Veg
- D Sand
-

Velocity:
Note where velocity measures were taken.

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

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

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

Plants observed/other notes:

S3
S2
A1
1
S1
A1
S 35
R 19
A 4
D 5

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

PHYSICAL/CHEMICAL CHARACTERIZATION FIELD SHEET

Coast, Bird, Sam Beet.

SUBMITTING AGENCY CODE: / SUBMITTING AGENCY NAME:	STORET STATION NUMBER: 33626031	DATE (M/D/Y): 11-29-05	TIME: 0907	RECEIVING BODY OF WATER: Esc Bay
REMARKS: SCT & H2O Pickup ADS Algae	COUNTY: Esc.	LOCATION: Escambia River below Solutia outfall		FIELD ID/NAME: 5

RIPARIAN ZONE/STREAM FEATURES

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

Forest/Natural	Silviculture	Field/Pasture	Agricultural	Residential	Commercial	Industrial	Other (Specify)
✓	✓					✓	

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: 2m

List & map dominant Vegetation on back

Typical Width (m) Depth (m)/Velocity (m/sec) Transect: 100 m wide

Artificially Channelized ☐ no ☐ ☐ ☑ recent, severe some recovery mostly recovered more obvious

Artificially Impounded ☐ yes

.5 m/s .3 m/s .3 m/s

5.5
2.5

High Water Mark: 1.5 (m above present water level) + 5.0 (present depth in m) = 6.5 (m above bed)

4.5 m deep 5 m deep 4.5 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 (severe) Other: ____

Substrate Type	% coverage	# times sampled	method	Substrate Types	% coverage	# times sampled	method
Woody Debris (Snags) ✓		7		Sand ✓		3	
Leaf Packs or Mats				Mud/Muck/Silt ✓		3	
Aquatic Vegetation				Other:			
Rock or Shell Rubble				Other:			
Undercut banks/Roots ✓		7		*Draw aerial view sketch of habitats found in 100 m section*			

WATER QUALITY	Depth (m)	Temp. (°C):	pH (SU):	D.O. (mg/l):	Cond. (umho/cm) Or Salinity (ppt):	DO %	S.t	Secch: (m):
Top	.2	17.71	6.15	7.65	233	79.7	0.12	0.7
Mid-depth 2.6	2.1	17.75	6.11	7.6	239	79.6	0.11	
Bottom 4.5	4.3	17.72	6.08	7.46	239	78.6	0.11	

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: Clear Cool - .23" Rain past 3 Days

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

SAMPLING TEAM: Donelan, Barker

SIGNATURE: DATE:

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

SUBMITTING AGENCY CODE: DEP / SUBMITTING AGENCY NAME: FDEP NWD	STORET STATION NUMBER: 330202	DATE (MO/YR): 11-29-05	RECEIVING BODY OF WATER: Escambia Bay
REMARKS: TEST	COUNTY: ESC	LOCATION: Esc. River below Solutia outfall	FIELD ID NAME: 5

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 [3]	Greater than 30% productive habitat present at site. 20 19 18 17 16	16% to 30% productive habitat, by aerial extent. 15 14 13 12 11	6% to 15 % productive habitat 10 9 8 7 6	Less than 5% productive habitat. 5 4 (3) 2 1
Water Velocity [12]	Max. observed at typical transect: >0.25 m/sec. but < 1 m/sec 20 19 18 (12) 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 [2]	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 [28]				
Secondary Habitat Components **Artificial Channelization** [15]	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 [9] Left Bank [10]	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 [10] Left Bank [10]	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 [70]				

98 **TOTAL SCORE** 6.37

ANALYSIS DATE: 11-29-05	ANALYST: Dan G. Bedford	SIGNATURE:

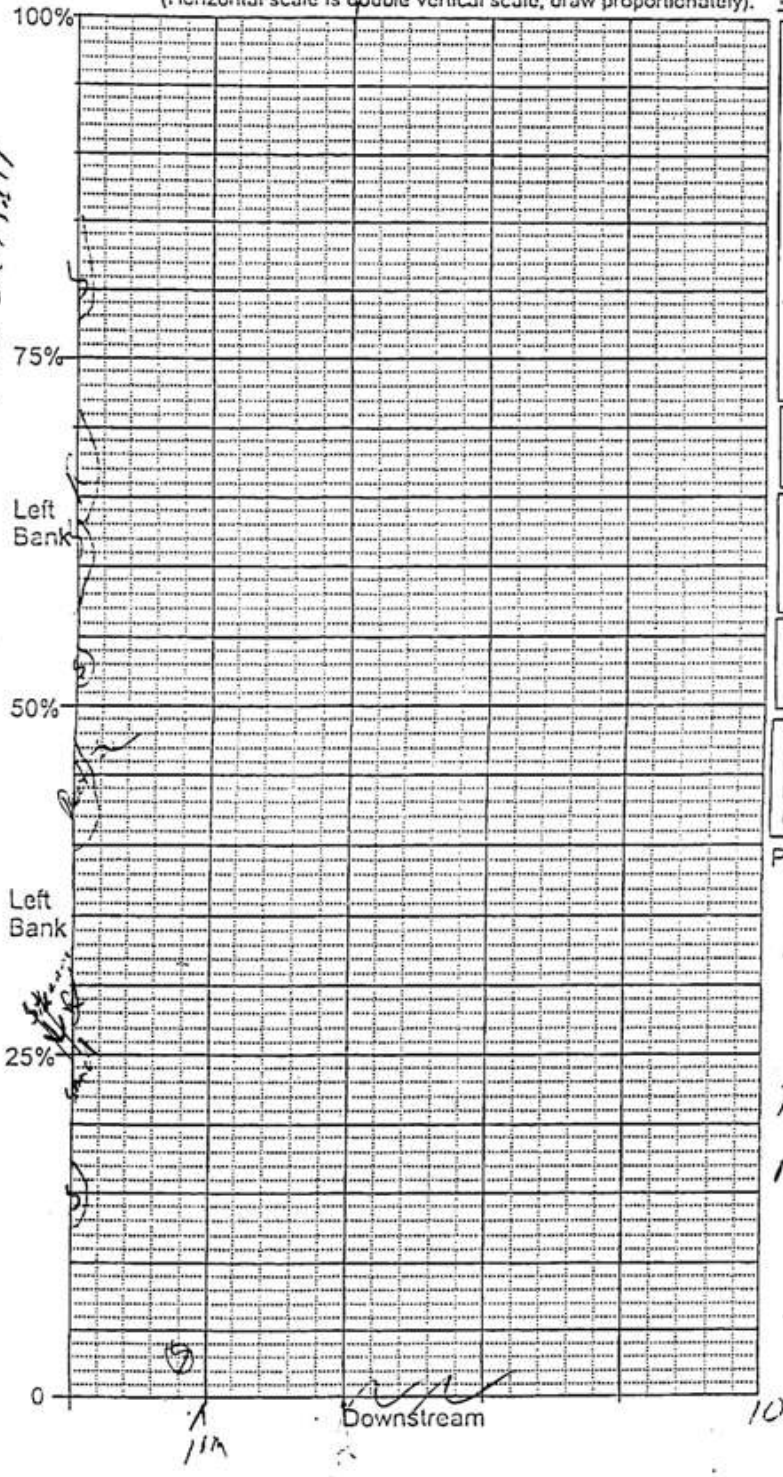
ESCAMBIA RIVER TEST SITE
150 M BELOW SOLUTIA
001 OUTFALL

33c2cc31
~~33c2003~~1 11-29-05

Site Map / Habitat Sketch

Length of grid represents 100m of stream (not linear meters).
(Horizontal scale is double vertical scale, draw proportionately).

Field ID: 5



Substrates: Code key, draw proportionate habitat abundance.

- [S] Snags
- [R] Roots/undercut banks
- [ ] Leaf Packs (or mats)
- [ ] Macrophytes
- [ ] _____
- [ ] _____
- [ ] _____

Velocity:
Note where velocity measures were taken.

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

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

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

Plants observed/other notes:

10 S = < 1%
12 R. = < 1%

Total

Pycnanthemum

Appendix 10

Taxa list for periphyton collected from natural substrates upstream and downstream of Solutia Inc. facility discharge, November 29, 2005.

	Test Site	Control Site
Bacillariophyta		
Achnanthes sp.	5	5
Achnanthes exigua	-	1
Achnanthes lanceolata	-	1
Achnanthes lanceolata rostrata	-	2
Achnanthes minutissima	23	15
Amphora sp.	4	2
Bacillaria paxillifer	1	27
Bacillariophyceae	-	1
Brachysira sp.	1	-
Brachysira brebissonii	-	1
Brachysira vitrea	1	5
Caloneis sp.	1	-
Capartogramma crucicula	5	1
Cocconeis fluviatilis	-	2
Cyclotella meneghiniana	41	40
Cymbella tumida	1	-
Cymbellaceae	-	1
Diploneis pseudovalis	10	20
Encyonema minutum	3	1
Encyonema neomesianum	20	2
Encyonema silesiacum	2	3
Encyonopsis microcephala	33	3
Eunotia sp.	1	2
Eunotia bilunaris	1	-
Eunotia pectinalis	1	15
Fragilaria sp.	1	-
Fragilaria capucina	-	8
Fragilaria pinnata	2	3
Fragilariaceae	3	4
Frustulia sp.	-	1
Frustulia rhomboides	-	1
Gomphonema sp.	-	1
Gomphonema affine	2	1
Gomphonema grovei lingulatum	-	3
Gomphonema parvulum	8	2
Gyrosigma sp.	5	4
Hippodonta sp.	1	4
Hippodonta capitata	1	2
Hydrosera whampoensis	1	-
Luticola mutica	1	-
Navicula sp.	-	1
Navicula cryptocephala	7	3
Navicula rhynchocephala amphiceros	1	2
Navicula minima	11	12
Navicula rostellata	6	-
Navicula schroeteri	15	10
Navicula viridulacalcis	5	3
Naviculaceae	-	3
Neidium sp.	-	3
Nitzschia sp.	8	9
Nitzschia amphibia	1	-
Nitzschia filiformis	-	2

Nitzschia lorenziana	9	-
Nitzschia nana	1	-
Nitzschia obtusa	2	4
Pinnularia sp.	1	4
Sellaphora pupula	37	10
Surirella sp.	-	1
Synedra fasciculata	-	1
Synedra ulna	-	3
Cyanophycota		
Cyanothece sp.	3	1
Jaaginema sp.	-	1
Lyngbya sp.	1	2
Microcystis sp.	-	9
Oscillatoria tenuis	1	-
Planktolyngbya sp.	1	1
Planktothrix sp.	-	1
Pleurocapsa sp.	1	4
Pseudanabaena sp.	3	1
Schizothrix sp.	-	24
Synechocystis sp.	16	12

Appendix 11a

Benthic macroinvertebrates collapsed taxa list and density (average number of individuals/m^2 rounded to the nearest individual, n = 3 samples) from Hester-Dendy artificial substrates incubated for 28 days upstream and downstream of the Solutia Inc. facility discharge, November 29, 2005. See SOP LT 7100 sect. 4.2.1 for method on collapsing taxa.

		Test Site	Control Site
Annelida			
Oligochaeta			
Haplotaxida			
	Dero digitata complex	5	-
	Nais communis complex	119	98
Arthropoda			
Crustacea			
Amphipoda			
	Gammarus sp.	16	-
	Hyalella azteca	5	3
Insecta			
Coleoptera			
	Microcylloepus pusillus	-	3
Diptera			
	Cricotopus bicinctus	44	79
	Cricotopus / orthocladius	13	4
	Cryptotendipes sp.	-	4
	Dicrotendipes neomodestus	60	79
	Nanocladius sp.	10	-
	Orthocladius sp.	-	11
	Parakiefferiella sp. E Epler	41	43
	Polypedilum fallax	6	18
	Polypedilum illinoense grp.	3	11
	Potthastia longimana	-	7
	Rheocricotopus robacki	-	4
	Rheotanytarsus exiguus grp.	-	4
	Simulium sp.	-	35
	Tanytarsus sp. A Epler	5	19
	Tanytarsus sp. G Epler	5	-
	Tanytarsus sp. L Epler	-	31
	Tanytarsus sp. M Epler	-	8
	Thienemanniella lobapodema	6	33
	Thienemanniella xena	-	11
	Tribelos fuscicornis	13	-
Ephemeroptera			
	Baetis sp.	-	8
	Caenis sp.	5	16
	Maccaffertium exiguum	-	33
	Maccaffertium mexicanum integrum	-	33
	Tricorythodes albilineatus	-	19
Trichoptera			
	Cyrnellus fraternus	5	16
	Hydropsychidae	-	16
	Hydroptila sp.	3	8
	Nectopsyche sp.	-	3

Appendix 11b

Benthic macroinvertebrates taxa list and counts (number of individuals counted) collected from Hester-Dendy artificial substrates (n= 3 samples) incubated upstream and downstream of the Solutia Inc. facility for 28 days and collected November 29, 2005.

	Test Site	Control Site
Annelida		
Dero digitata complex	2	-
Nais communis complex	45	37
Arthropoda		
Crustacea		
Amphipoda		
Gammarus sp.	6	-
Hyalella azteca	2	1
Insecta		
Coleoptera		
Microcylloepus pusillus	-	1
Diptera		
Chironomidae	13	36
Cricotopus bicinctus	14	22
Cricotopus / orthocladius sp.	4	1
Cryptotendipes sp.	-	1
Dicrotendipes sp.	3	-
Dicrotendipes neomodestus	16	22
Nanocladius sp.	3	-
Orthocladius sp.	-	3
Parakiefferiella sp.	1	10
Parakiefferiella sp. E Epler	12	2
Polypedilum fallax	2	5
Polypedilum illinoense grp.	1	3
Potthastia longimana	-	2
Rheocricotopus robacki	-	1
Rheotanytarsus exiguus grp.	-	1
Simulium sp.	-	13
Tanytarsus sp.	1	1
Tanytarsus sp. A Epler	1	5
Tanytarsus sp. G Epler	1	-
Tanytarsus sp. L Epler	-	8
Tanytarsus sp. M Epler	-	2
Thienemanniella sp.	1	-
Thienemanniella lobapodema	1	9
Thienemanniella xena	-	3
Tribelos fuscicornis	4	-
Ephemeroptera		
Baetidae	-	1
Baetis sp.	-	2
Caenis sp.	2	6
Heptageniidae	-	16
Maccaffertium sp.	-	6
Maccaffertium exiguum	-	1
Maccaffertium mexicanum integrum	-	1
Tricorythodes albilineatus	-	7
Undetermined Ephemeroptera	-	1

Trichoptera		
Cyrnellus fraternus	2	5
Hydropsychidae	-	6
Hydroptila sp.	1	3
Nectopsyche sp.	-	1
Polycentropodidae	-	1

Appendix 12a

Qualitative benthic macroinvertebrate collapsed taxa list and number of individuals counted from 20-discrete-dipnet sweeps upstream and downstream of Solutia Inc. facility (November 29, 2005). See SOP LT 7100 sect. 4.2.1 for method on collapsing taxa.

	Test Site	Control Site
Annelida		
Oligochaeta		
Haplotaxida		
Aulodrilus pigueti	2	-
Limnodrilus hoffmeisteri	2	-
Nais communis complex	2	1
Pristinella jenkinae	1	-
Tubificidae	-	9
Arthropoda		
Crustacea		
Amphipoda		
Gammarus sp.	-	2
Hyalella azteca	2	-
Mysidacea		
Mysidacea	-	1
Insecta		
Coleoptera		
Dubiraphia vittata	-	3
Prionocyphon sp.	1	1
Stenelmis sp.	1	1
Collembola		
Collembola	-	1
Diptera		
Ceratopogonidae	1	1
Chironomini genus IV	-	1
Coelotanypus	-	1
Cricotopus bicinctus	-	1
Cricotopus / Orthocladius sp.	53	-
Cryptochironomus sp.	6	-
Dicrotendipes neomodestus	14	10
Parakiefferiella sp. E Epler	2	-
Polypedilum halterale grp.	1	3
Polypedilum illinoense grp.	3	14
Polypedilum tritum	-	1
Stictochironomus devinctus	-	2
Tanytarsus sp. G Epler	1	-
Tribelos fuscicornis	1	-
Ephemeroptera		
Baetis intercalaris	-	3
Caenis sp.	1	1
Lepidoptera		
Parapoynx sp.	-	3
Plecoptera		
Taeniopteryx sp.	-	1
Trichoptera		
Cernotina sp.	2	-
Macrostemum carolina	-	1
Nectopsyche sp.	-	1

Mollusca		
Bivalvia		
Arcoida		
Mytilidae(mollusca)	2	-
Veneroida		
Corbicula fluminea	4	20
Eupera cubensis	4	-
Sphaeriidae(mollusca)	-	9
Gastropoda		
Basommatophora		
Ferrissia sp.	-	1
Micromenetus sp.	-	3
Mesogastropoda		
Hydrobiidae	1	4

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Appendix 12b

Qualitative benthic macroinvertebrate taxa list and number of individuals counted from 20-discrete-dipnet sweeps upstream and downstream of Solutia Inc. (November 29, 2005).

	Test Site	Control Site
Annelida		
Oligochaeta		
Haplotaxida		
Aulodrilus pigueti	1	-
Limnodrilus hoffmeisteri	1	-
Nais communis complex	2	1
Pristinella jenkinae	1	-
Tubificidae	2	9
Arthropoda		
Crustacea		
Amphipoda		
Gammarus sp.	-	2
Hyalella azteca	2	-
Mysidacea		
Mysidacea	-	1
Insecta		
Coleoptera		
Dubiraphia vittata	-	3
Prionocyphon sp.	1	1
Stenelmis sp.	1	1
Collembola		
Collembola	-	1
Diptera		
Ceratopogonidae	1	1
Chironomidae	2	2
Chironomini genus IV	-	1
Coelotanypus sp.	-	1
Cricotopus bicinctus	-	1
Cricotopus / Orthocladius sp.	51	-
Cryptochironomus sp.	6	-
Dicrotendipes sp.	2	1
Dicrotendipes neomodestus	12	8
Parakiefferiella sp. E Epler	2	-
Polypedilum halterale grp.	1	3
Polypedilum illinoense grp.	3	13
Polypedilum tritum	-	1
Stictochironomus devinctus	-	2
Tanytarsus sp. G Epler	1	-
Tribelos fuscicornis	1	-
Ephemeroptera		
Baetis intercalaris	-	3
Caenis sp.	1	1
Lepidoptera		
Parapoynx sp.	-	1
Pyralidae	-	2
Plecoptera		
Taeniopteryx sp.	-	1
Trichoptera		
Cernotina sp.	2	-
Macrostemum carolina	-	1
Nectopsyche sp.	-	1
Mollusca		

Bivalvia		
Arcoida		
Mytilidae(mollusca)	2	-
Veneroida		
Corbicula fluminea	4	20
Eupera cubensis	1	-
Sphaeriidae(mollusca)	3	9
Gastropoda		
Basommatophora		
Ferrissia sp.	-	1
Micromenetus sp.	-	3
Mesogastropoda		
Hydrobiidae	1	4

The Bioassay of Solutia, Inc. effluent sampled on 11/29/2005, NPDES #FL0002488.

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

Transaction Code	NPDES NUMBER	YR/MO/DA	Insp Type	Inspector	Fac Type
1 N 2 5	3 F L 0 0 0 2 4 8 8 11	12 0 5 1 1 2 9	18 **B**	19 **S**	20 2

Remarks

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The Priority Pollutants Analysis for Bioassay of Solutia, Inc. effluent sampled on 11/29/2005, NPDES #FL0002488.

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

Transaction Code	NPDES NUMBER	YR/MO/DA	Insp Type	Inspector	Fac Type
1 N 2 5	3 F L 0 0 0 2 4 8 8 11	12 0 5 1 1 2 9	18 **X**	19 **S**	20 2

Remarks

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Biological Analyses of the Solutia, Inc effluent sampled on 11/29/2005, NPDES #FL0002488.

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

Transaction Code	NPDES NUMBER	YR/MO/DA	Insp Type	Inspector	Fac Type
1 N 2 5	3 F L 0 0 0 2 4 8 8 11	12 0 5 1 1 2 9	18 **S**	19 **S**	20 2

Remarks

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