

Biological Assessment of

Agrifos L. L. C., Nichols Mine

Polk County

NPDES #FL0000311

Sampled September 2002

May 2003

Biology Section

Bureau of Laboratories

Division of Resource Assessment and Management

Quality Manual No. 870346G

NELAC Certification No. E31780

Florida Department of Environmental Protection
Fifth Year Inspection Summary

Discharger:	Agrifos, L.L.C. – Nichols Mine
County:	Polk
NPDES Number:	FL0000311
Permit Expiration:	February 13, 2003

Toxics Sampling Inspection **(XSI)**

Date Sampled: September 9 and 10, 2002

Results: No organic constituents were detected in effluent samples from either Outfall 001 or 003. Aluminum and iron were detected in the effluent sample from Outfall 001 at levels that complied with Class III Water Quality Criteria. Iron was detected in the effluent from Outfall 003 at a level that violated Class III Water Quality Criteria (1360 µg/L, 62-302.530 (39) F.A.C.). Conductivity and pH in both effluents complied with Class III Water Quality Criteria, but dissolved oxygen in effluent from Outfall 003 (4.5 mg/L) was below the 5.0 mg/L Class III Water Quality Criteria (62-302.530 (31) F.A.C.) and below the daily minimum permit limit.

Compliance Biomonitoring Inspection **(CBI)**

Date Sampled: September 9 and 10, 2002

Results: The effluent sample from Outfall 001 was not toxic to the fish, *Cyprinella leedsi*, or to the water flea, *Ceriodaphnia dubia*, during the 48-hour acute screening bioassays.

Water Quality Inspection **(WQI)**

Date Sampled: September 9 and 10, 2002

Results: Fecal and total coliforms were not tested in this inspection. Conductivity, pH, dissolved oxygen and temperature at both the Test and Control Sites were within normal limits and complied with Class III Water Quality Criteria. Both phosphorus and Kjeldahl nitrogen levels in the effluent sample from Outfall 001 were elevated and contributed to nutrient enrichment of the Test Site.

Impact Bioassessment Inspection **(IBI)**

Date Sampled: September 9 and 10, 2002

Results: Chlorophyll *a* levels at the Test Site (39 µg/L) are a cause for concern, exceeding the 20 µg/L annual average threshold that is one of the criteria for listing under the Impaired Waters Rule. AGP results showed that effluent from Outfall 001 and water samples from both the Test and Control Sites exceeded the suggested 5.0 mg dry weight/L "problem" threshold. Both quantitative and qualitative measures of benthic macroinvertebrate community structure indicated degradation at the Test Site compared with the Control Site. In combination, these data indicate that nutrients from the facility's effluent have caused an imbalance of flora or fauna, a violation of 62-302.530(48)(b) F.A.C.

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

Introduction

The Agrifos, L.L.C. – Nichols Mine is located in Polk County, Florida (map in Appendix 1). This facility is a phosphate mine and beneficiation plant that is currently inactive. Mining operations ceased in August 2000. Activities at this mine are limited to managing mine recirculation and discharge (see Facility Summary in Appendix 2). Surplus water from the mine water recirculation system is discharged through up to five outfalls. During the survey, Outfall 001, into Guy Branch, and Outfall 003, into George Allen Creek, were discharging; these outfalls flow continuously. Both these streams flow into the North Prong of the Alafia River and are Class III Waters of the State. The mean flow during this survey was 6.2 MGD at Outfall 001 and 0.00346 MGD at Outfall 003 (per B. Hall, FDEP). Outfalls 001 and 003 were sampled during this inspection but receiving water sampling was restricted to Guy Branch. Outfall 001 forms the headwaters of Guy Branch.

Surface Water Quality Criteria and facility permit limits are listed in Table 1. According to the facility's monthly operating reports, the mine has exceeded the total nitrogen limit at Outfalls 001 and 003, and has failed toxicity tests at Outfall 005 (Appendix 2).

Methods

The purpose of this investigation was to determine the discharger's effects on the biota of the receiving waters. Chemical and biological comparisons were made between a Control Site (located in Mizelle Creek) and a Test Site (located in Guy Branch, downstream of the Outfall 001 discharge). Detailed methods are given in Appendix 3.

All field and laboratory methods followed FDEP 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: Bonnie Hall and George Sharrock (FDEP Southwest District), and DEP Central Laboratory in Tallahassee. The report was reviewed by District representatives and the Point Source Studies Review Committee (Wayne Magley, Chuck Ziegmont and Michael Tanski).

Results and Discussion

- Chemical results for detection of NPDES priority pollutants, nutrients and other analyses are reported in Table 1 and a complete list of chemical analyses, results, minimum detection limits and practical quantitation levels is given Appendix 4. No organic pollutants were detected in samples of effluent from either Outfall 001 or 003. Aluminum and iron were detected in effluent from Outfall 001 at levels that complied with Class III Water Quality Criteria (62-302 F.A.C.). At Outfall 003, the level of iron (1,360 mg/L) exceeded Class III Water Quality Criteria (1,000 mg/L, 62-302.530(39) F.A.C.). No other metals were detected.
- Effluent conductivity (mmhos/cm) and pH (Standard Units) were not in violation of Class III Water Quality Criteria (62-302 F.A.C.) or facility permit limits at either outfall (Table 1). However, dissolved oxygen was 4.5 mg/L at Outfall 003, a violation of the 5.0 mg/L Class III Water Quality Criteria (62-302.530(31) F.A.C.) and the permit limit for daily minimum dissolved oxygen.
- The effluent sample from Outfall 001 was not toxic to the fish, *Cyprinella leedsi,* or to the water flea, *Ceriodaphnia dubia,* during 48-hour acute screening bioassays (Table 1, data sheets in Appendix 7).
- Dissolved oxygen (DO as mg/L), water temperature (degrees Celsius), pH (Standard Units), and conductivity (mmhos) at the Test and Control Sites complied with Class III Water Quality Criteria (Table 1, 62-302.530 F.A.C.) and were within normal ranges.
- Habitat assessment scores were 109 at the Control Site and 80 at the Test Site (Table 1, field sheets in Appendix 8). The Control and Test Sites lost points in all Primary Habitat components, but the Test Site lost additional points due to Artificial Channelization.
- Fecal and total coliform bacteria were not tested during this inspection.
- Effluent total phosphorus (1.2 mg/L), ortho-phosphate (1.1 mg/L), Kjeldahl nitrogen (1.6 mg/L) and ammonia concentrations (0.059 mg/L, Table 1) from Outfall 001 contributed to elevated nutrient levels at the Test Site; Outfall 001 is the headwaters of Guy Branch. There was higher phosphate and Kjeldahl nitrogen output from Outfall 001 than from Outfall 003. Nutrient levels at the Test Site as compared with the Control Site were more than double for ortho-phosphate, total phosphorus, ammonia, and Kjeldahl nitrogen. In contrast, nitrate plus nitrite was not detected in either effluent and was three times higher at the Control Site compared with the Test Site. Test Site phosphate levels were greater than those at 90%

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

Agrifos Nichols	Class III Criteria	Effluent Limits 001	Effluent Limits 003	Effluent Samples 001	Effluent Samples 003	Control Site	Test Site
Organic Constituents (ug/L)							
None Detected						-	-
Metals (ug/L unless otherwise noted, Class III Criteria are less than or equal to the value given)							
Aluminum	1500	-	-	31	5 U	-	-
Arsenic	50	-	-	3 U	3 U	-	-
Cadmium		1.658 b	1.858 b	0.025 U	0.025 U	-	-
Calcium (mg/L)	-	-	-	35.9	37	-	-
Chromium		128.0 b	346.4 b	2 U	2 U	-	-
Copper		14.1 b	20.2 b	0.75 U	0.75 U	-	-
Iron	1000	-	-	57	**1360**	-	-
Lead		5.9 b	7.1 b	0.1 U	0.1 U	-	-
Magnesium (mg/L)	-	-	-	17.6	23.1	-	-
Nickel		78.5 b	268.4 b	1.5 U	1.5 U	-	-
Selenium	5.0	-	-	1 U	1 U	-	-
Silver	0.07	-	-	0.02 U	0.02 U	-	-
Zinc		180.4 b	180.6 b	2 U	2 U	-	-
Nutrients (mg/L)							
Ortho-phosphate	-	-	-	1.1	0.18	0.31	1.1
Total Phosphorus	-	5.0 s	5.0 s	1.2	0.21	0.61	1.2
Ammonia	-	-	-	0.059	0.1	0.022	0.098
Un-ionized Ammonia	≤ 0.02 s	-	-	<0.017	<0.017	<0.017	<0.017
Nitrate and Nitrite	-	Report	Report	0.02 UJ	0.02 UJ	0.10 J	0.030 IJ
Total Kjeldahl Nitrogen	-	-	-	1.6	0.5	0.63	1.6
Organic Nitrogen	-	-	-	1.541	0.4	0.608	1.502
Total Nitrogen	-	3.0 s	3.0 s	1.62	0.52	0.73	1.63
Flouride	10	10	10	1.2	0.62	-	-
Sulfate	-	Report	Report	50	40	-	-
General Physical and Chemical Parameters							
Habitat Assessment	-	-	-	-	-	109	80
Dissolved Oxygen (mg/L)	≥ 5.0 s	5.0 s	5.0 s	7	**4.5**	7.3	6.7
pH (SU)	6.0-8.5 s	6.0-8.5 s	6.0-8.5 s	7.6	7.1	7.9	7.6
Conductivity (µmhos/cm)	1275 s	-	-	330	477	554	356
Temperature (°C)	-	Report	Report	29.6	28.6	27.0	29.7
Total Suspended Solids (mg/L)	-	60.0 s	60.0 s	-	-	-	-
Fixed Solids (mg/L)	-	25.0 s	25.0 s	-	-	-	-
Chlorophyll *a* (ug/L)- water	-	Report	Report	-	-	0.85 U	**39 A**
Phaeophytin (ug/L)- water	-	-	-	-	-	0.85 U	0 A
Oils and Greases (mg/L)	5	5	5	-	-	-	-
Flow (MGD)	-	Report	Report	6.2	0.0035	-	-
Hardness (mg $CaCO_3$)	-	-	-	162.1	187.5	-	-
Toxicity (48-hour static, screening bioassay, percent mortality in 100% effluent)							
Bioassay - Water flea	-			0 L	-	-	-
Bioassay - Fish	-			0 L	-	-	-

Bold Face indicates violation of Class III water quality criteria

Chlorophyll a value exceeds the annual average Impaired Water Rule listing criteria

b - Value is calculated based on hardness

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

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

J - Estimated value

L - Actual value is known to be greater than value given

Q - Sample held beyond normal holding time

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

s - Single sample

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

Location	AGP (measured)	Predicted AGP (TSIN) ± 20%	N:P ratio
Control	10.2	4.6 ± 0.9	0.4
Test	12.9	4.9 ± 1.0	0.1
Effluent 001	15.6	2.2 ± 0.4	0.1
Effluent 003	5.0	3.8 ± 0.8	0.6

of typical Florida streams (Appendix 6) while Control Site levels were greater than those at 80% of typical Florida streams. Ammonia and Kjeldahl nitrogen levels at the Test Site were also greater than those at 50% and 80% of typical Florida streams, respectively. At the Control Site, values of these constituents were comparable with those values at the lowest 10% and 20% of typical Florida streams, respectively.

- Algal growth potential (AGP) is a measure of nutrients available for algal growth (Miller *et al.* 1978). Raschke and Shultz (1987) found that AGP above 5.0 mg dry weight/L represent a "problem" threshold for fresh receiving waters, implying nutrient enrichment. The AGP value at the Control Site was 10.2 mg dry weight/L, approximately twice the problem threshold (Table 2). The AGP values of the downstream Test Site (12.9 mg dry weight/L) and effluent from Outfall 001 (15.6 mg dry weight/L) were also above this threshold. This indicates there is nutrient enrichment related to the 001 discharge at the Test Site, but the Control Site was nutrient enriched from other sources. The effluent from Outfall 003 had an AGP value of 5.0 mg dry weight/L. There was no evidence of growth inhibition in AGP data (Table 2).

- AGP results were twice as high as expected based on nutrient chemistry at the Test and Control Sites and seven times higher than expected in the effluent from Outfall 001 (Table 2). The higher than expected AGP values suggest the presence of additional nutrients in the water column in the form of phyto- and zooplankton. These nutrients are released when the water samples are autoclaved prior to inoculation with the unicellular algae, *Pseudokirchneriella subcapitata* (formerly *Selenastrum capricornutum*, Appendix 4). This process lyses the plankton in the sample and releases the nutrients they contain. This is the most likely explanation for the higher than expected production. This may have been important in AGP results from the Test Site, where a high chlorophyll *a* concentration was found in samples of the receiving water (see below) and no nitrate plus nitrite was detected in the water sample.

- Chlorophyll *a* concentration in the water sample collected at the Test Site (39 mg/L) was elevated, exceeding the 20 mg/L annual average threshold that is one criterion for placing a stream on the planning list under the Impaired Waters Rule (62-303 F.A.C.)(Table 1). Chlorophyll *a* levels at the Control Site were below detection limits. These data suggest high phytoplankton production at the Test Site is related to nutrient inputs from the Outfall 001 effluent (the headwaters of Guy Branch). High chlorophyll *a* concentration at the Test Site as compared with the Control Site indicates the facility's effluent may

Table 3. Macroinvertebrate Hester-Dendy Samples

Agrifos Nichols	Control Site	Test Site
Summary Statistics		
Shannon-Weaver Diversity	2.2	N.D.
Number of Taxa	20	31
Florida Index	13	6
Number of EPT Taxa	5	4
Percent Dominant Taxon	63.7	56.6
Dominant Taxon (name)	*Polypedilum flavum*	*Goeldichironomus amazonicus*
Density/m^2	1,799	131,111
Total Number of Individuals	680	33,040
Community Composition: Percent of total		
Coleoptera	5.9	0.0
Diptera	83.4	97.4
Gastropoda	0.0	1.5
Ephemeroptera	5.6	<0.01
Trichoptera	4.1	<0.02
Other	1.0	1.1
Functional Feeding Groups: Percent of total		
Predators	7.0	1.4
Surface Deposit Feeders	45.1	77.3
Suspension Feeders	4.0	0.1
Scrapers	5.9	1.5
Shredders	37.9	19.6
Unknown	0.2	0.0

Table 4. Macroinvertebrate Dipnet Samples

Agrifos Nichols	Control Site	Test Site
Stream Condition Index (value)	25	13
Stream Condition Index (word)	Good	Poor
Stream Condition Index Metrics		
Florida Index	9	0
Number of EPT Taxa	2	0
Number of Taxa	16	8
Number of Chironomid Taxa	7	4
Percent Dominant Taxon	34.7	57.6
Percent Dipterans	35.8	35.9
Percent Suspension Feeders and Filterers	20.0	0.0
Total Number of Individuals	95	106
Community Composition: Percent of total		
Dominant Taxon (name)	*Microcylloepus pusillus*	*Hyalella azteca*
Amphipoda	1.1	57.6
Coleoptera	34.7	0.9
Diptera	35.8	35.9
Gastropoda	0.0	5.7
Ephemeroptera	4.2	0.0
Trichoptera	17.9	0.0
Other	5.3	0.0
Functional Feeding Groups: Percent of total		
Predators	6.3	0.5
Surface Deposit Feeders	35.8	43.4
Suspension Feeders and Filterers	20.0	0.0
Scrapers	19.5	5.7
Shredders	16.3	36.8
Unknown	2.1	13.7

be contributing to an imbalance of flora or fauna, a violation of 62-302.530(48)(b) F.A.C. Further monitoring is suggested.

- Periphyton samples for chlorophyll *a* and taxonomic analysis were not collected because one sampler was lost during the 28-day exposure period.
- One Hester-Dendy multi-plate sampler of the three deployed at the Test Site detached from the block and was found on the bottom a few feet away. The remaining two samplers were collected and analyzed. All three samplers were collected at the Control Site. Because only two samplers were recovered of the three that are required by 62-302.530(11) F.A.C., the Biological Integrity Criterion could not be assessed.
- Number of individuals recovered per unit area on Hester-Dendy samplers differed between the Control and Test Site. At the Control Site, ~1800 macroinvertebrates/m^2 were collected, while more than 70 times as many macroinvertebrates (>130,000 macroinvertebrates/m^2) were collected at the Test Site (Table 3). Almost all of the macroinvertebrates at the Test Site were Dipterans (97.4%), with more than 70,000/m^2 of the dominant taxon *Goeldichironomus amazonicus*. *G. amazonicus* feeds on algae, detritus and particulate matter (M. Heyn, personal communication). Another chironomid, *Polypedilum flavum*, was the dominant taxon at the Control Site with ~1,150/m^2 collected. Despite the 70-fold difference in number of individuals collected, the Control site had more than twice as many Florida Index points as the Test Site and one additional EPT taxa. Ephemeroptera and Trichoptera comprised ~10% of the individuals at the Control Site, but were <0.1% of the total at the Test Site. These results are probably related to high primary and secondary production at the Test Site related to the facility's discharge. Degradation at the Test Site as compared with the Control Site indicates the facility's effluent has caused an imbalance of flora or fauna, a violation of 62-302.530(48)(b) F.A.C.
- Qualitative measures of benthic macroinvertebrate assemblages from dipnet samples are summarized in Tables 4 and 5 and taxa lists are given in Appendix 10. The Control Site SCI score of 25 placed it in the "Good" category while the Test Site SCI score of 13 placed it in the "Poor" category. The Test Site had eight total taxa, no EPT taxa, and no Florida Index points, while the Control Site had 16 total taxa, two EPT taxa and nine Florida Index points. Members of EPT taxa constituted more than 20% of the sample from the Control Site, but were absent from the Test Site. Degradation at the Test Site as compared with the Control Site indicates the facility's effluent has caused an imbalance of flora or fauna, a violation of 62-302.530(48)(b) F.A.C.

Summary

Effluent from Outfall 003 exceeded the Class III Water Quality Criterion for iron, a violation of 62-302.530(39) F.A.C. Also, DO levels did not meet the Class III Water Quality Criterion, a violation of 62-302.530(31) F.A.C. and facility permit limits. Nutrient levels in effluent from Outfall 001 were elevated and contributed to nutrient enrichment at the Test Site. Levels of chlorophyll *a* at the Test Site exceeded the 20 ug/L annual average threshold, which is one cri-

Agrifos-Nichols: Control Site

Table 5a. Stream Condition Index Metrics: Peninsula, Summer Index					
Metric:	Value	5	3	1	Score
Total Number of Taxa	16	≥26	25-14	<14	3
Number of EPT Taxa	2	≥4	3-2	<2	3
Number of Chironomid Taxa	7	≥7	6-4	<4	5
Percent Contribution of Dominant Taxon	34.7	≤29	30-64	>64	3
Percent Diptera	35.8	-	≤37	>37	3
Florida Index	9	≥7	6-4	<4	5
Percent Suspension Feeders and Filterers	20	-	>7	<7	3
Total Score		Agrifos-Nichols: Control Site			**25**
Interpretation of Scores		Excellent			26-31
		Good			20-25
		Poor			13-19
		Very Poor			7-12

Agrifos-Nichols: Test Site

Table 5b. Stream Condition Index Metrics: Peninsula, Summer Index					
Metric:	Value	5	3	1	Score
Total Number of Taxa	8	≥26	25-14	<14	1
Number of EPT Taxa	0	≥4	3-2	<2	1
Number of Chironomid Taxa	4	≥7	6-4	<4	3
Percent Contribution of Dominant Taxon	57.6	≤29	30-64	>64	3
Percent Diptera	35.9	-	≤37	>37	3
Florida Index	0	≥7	6-4	<4	1
Percent Suspension Feeders and Filterers	0	-	>7	<7	1
Total Score		Agrifos-Nichols: Test Site			**13**
Interpretation of Scores		Excellent			26-31
		Good			20-25
		Poor			13-19
		Very Poor			7-12

terion for placing a stream on the planning list under the Impaired Waters Rule (62-303 F.A.C.). Chlorophyll *a* was not detected in water from the Control Site. AGP results indicated that the effluent from Outfall 001 and water samples from both the Control and Test Sites exceeded the suggested problem threshold by a factor of more than two.

Results from Hester-Dendy and dipnet samples indicate degradation of the biological community related to the effluent from Outfall 001. Although one Hester-Dendy block was missing, over 33,000 macroinvertebrates were collected at the Test Site (>130,000/m^2). Because only two samplers were recovered of the three that are required by 62-302.530(11) F.A.C., the difference in diversity between the Control and Test Sites could not be calculated. The extremely high macroinvertebrate density at the Test Site is attributed to high algal production at the Test Site related to the facility's discharge. The Control Site SCI score of 25 placed it in the "Good" category while the Test Site SCI score of 13 placed it in the "Poor" category. Degradation at the Test Site as compared with the Control Site suggests the facility's effluent has caused an imbalance of flora or fauna, a violation of 62-302.530(48)(b) F.A.C. Further sampling of Outfall 001 and the receiving water is warranted to determine the status of Guy Branch under the Impaired Waters Rule.

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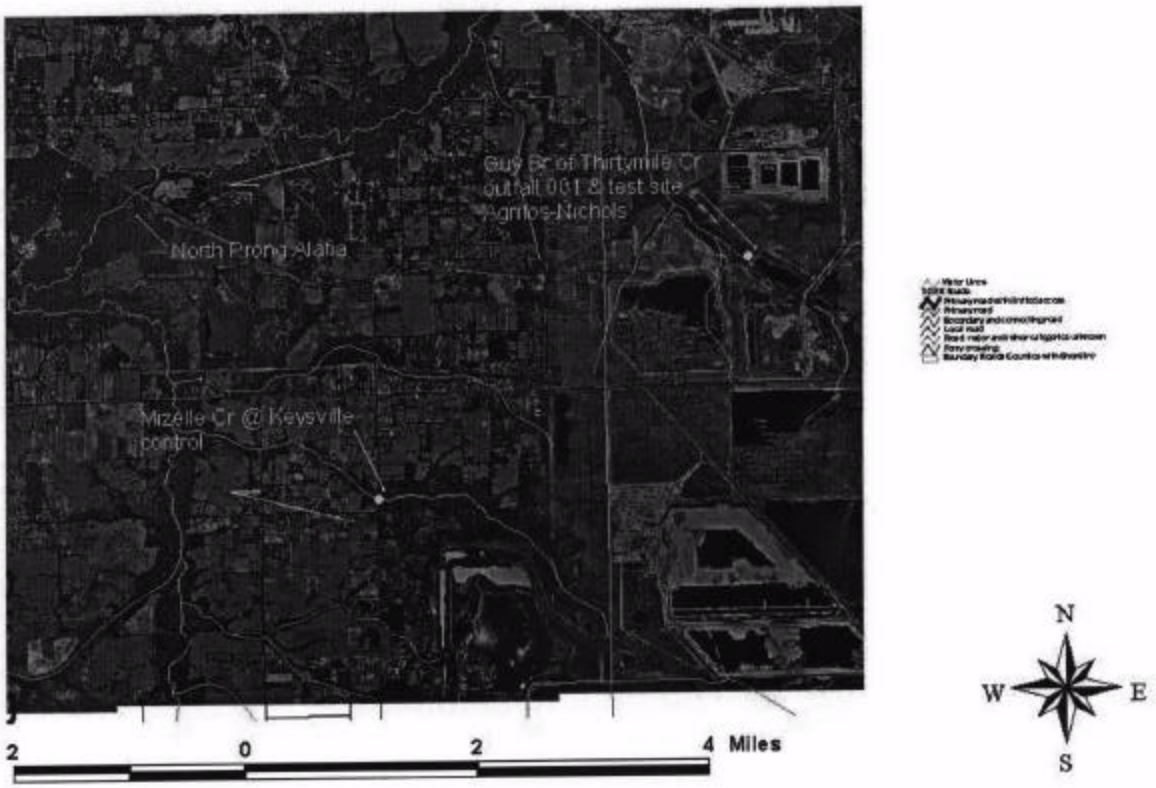
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Appendices

- Appendix 1. Map of facility
- Appendix 2. Facility summary
- Appendix 3. Methods
- Appendix 4. Chemical analyses of effluent and receiving water.
- Appendix 5. Explanation of biological measurements
- Appendix 6. Typical values for selected parameters in Florida waters
- Appendix 7. Additional physical, chemical, toxicological and microbiological results
- Appendix 8. Habitat Assessment field sheets
- Appendix 9. Hester-Dendy multi-plate samplers: macroinvertebrate density and taxa lists
- Appendix 10. Dipnet samples: macroinvertebrate counts and taxa lists

Appendix 1

Agrifos-Nichols FYI5 2002



Appendix 2

State of Florida
Department of Environmental Protection
Facility Summary

Facility Name:Agrifos, L.L.C. Nichols Mine		**Prepared By: Bonnie Hall**
Location: **P.O. Box 315** **Nichols FL, 33863-0315**	**County: Polk**	**District: Southwest**
Federal Permit No.:FL0000311-002 **Expiration Date:2/12/2003**	**State Permit No.:FL0000311-002** **Expiration Date:2/12/2003**	**Facility Type: Phosphate Mine**
Function of Facility: The Nichols Mine facility consists of a phosphate mining operation and a beneficiation plant.		
Description of treatment process: The Nichols Mine facility consists of a phosphate mining operation and a beneficiation plant. Waste clay slurry generated as a result of the phosphate rock washing process is pumped to clay settling areas. After settling, the clarified liquid is pumped back into the plant for reuse. Excess water in the settling areas due to excessive rainfall events is discharged to Waters of the State through five permitted outfalls.		
Receiving Waters: Outfall 001 - excess water from settling areas to Guy Branch, thence to the North Prong of the Alafia River; **Outfall 002 - emergency overflow from settling area to Bird Branch, thence to the North Prong of the Alafia River;** **Outfall 003 - emergency discharge point to George Allen Creek, thence to Thirty Mile Creek, thence to the North Prong of the Alafia River;** ***Outfall 004 - excess stormwater and recirculation system water from "twin lakes" into the North Prong of the Alafia River;** **Outfall 005 - emergency overflow from settling areas, discharging only during chronic or catastrophic events to Bird Branch, thence to the North Prong of the Alafia River.**		**Classification: all are Class III freshwaters**
Design Flow: n/a	**Mean Flow: 6.2 MGD**	**Flow During Survey: 6.2 MGD**
Discharge is: Continuous Intermittent Seasonal Rainfall Dependent Other		
Facility Mixing Zone Details: n/a		

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List Effluent Limits:

Parameters (units)	Discharge Limitations			Monitoring Requirements	
	Daily Minimum	Monthly Average	Daily Maximum	Frequency	Sample Type
Flow (MGD) [see Part I.A.7.]	N/A	Report	Report	Continuous	Recorder
Total Non-filterable Residue [TSS] (mg/l)	N/A	30.0	60.0	1/Week	Grab
Total Non-volatile, Non-filterable Residue [FS] (mg/l)	N/A	12.0	25.0	1/Week	Grab
Total Phosphorus [as P] * (mg/l)	N/A	3.0	5.0	1/Week	Grab
pH (standard units)	6.0	Report	8.5	1/Week	Grab
Total Nitrogen [as N] ** (mg/l)	N/A	N/A	3.0	1/Month	Grab
Specific Conductance (μmhos/centimeter)	N/A	N/A	See I.A.3	1/Month	Grab
Dissolved Oxygen (mg/l)	5.0	N/A	N/A	1/Month	Grab
Oil and Grease (mg/l)	N/A	N/A	5.0	1/Month	Grab
Temperature (°F)	N/A	N/A	Report	1/Month	Grab
NO_2 & NO_3 (mg/l)	N/A	N/A	Report	1/Month	Grab
Fluorides (mg/l)	N/A	N/A	10.0	1/Quarter	Grab
Total Sulfates (mg/l)	N/A	N/A	Report	1/Quarter	Grab
Chlorophyll-a (μg/l)	N/A	N/A	Report	1/Quarter	Grab
Toxicity	See Specific Condition I.A.2				

* Total phosphorus shall be for monitoring and reporting only, except: if monitoring data shows total phosphorus levels exceed 3 mg/l monthly average for more than one 30-day period per calendar year, the permittee, upon written notification by the Department, shall prepare and file within 120 days (unless the time is extended by the Department) a study consisting of the following: (1) a chronology of at least one year's discharge data; (2) an assessment of the cause and origin of the phosphorus constituent of the discharge; (3) description of the discharger's current maintenance operation and management practices directly related to the control of phosphorus; (4) an evaluation of the environmental significance of the phosphorus levels; and (5) an identity of reasonable methods to abate, to the extent practicable, the influx of phosphorus into the discharge. Upon receipt of the report, the Department shall require the applicant to publish a public notice in a newspaper of general circulation in the affected area which states that the report was received and where it is available for public inspection. The Department shall evaluate the report and may amend the discharger's permit to reflect additional requirements (subject to administrative and judicial review), including the implementation of cost-effective management practices or technological advances which reduce or eliminate the phosphorus in the discharge to the maximum extent practicable.

Parameter and Units	Limit	Describe special permit conditions and permit modifications
Description of permitted outfall: This wastewater permit also includes the construction of a spillway structure on the west side of Clay Settling Area (CSA) N-2. The construction involves the excavation of a portion of the dam to provide a location for the spillway structure within the inside slope of the dam. The new spillway structure will allow further drainage and clay consolidation for eventual dam abandonment of Clay Settling Area N-2.		
List permit violations (DMR data) and plant upsets that occurred at the plant within the last year: 001 and 003 Nitrogen exceedence, 005 toxicity failure		
Describe previous impact bioassessments, WQBEL's, and previous or current enforcement action:n/a		
Discuss MOR trends to prior data; is trend improving or declining:		
Additional Information:		

Appendix 3

Methods

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

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

Acute screening toxicity bioassays were performed on the effluent sample from Outfall 001 using the water flea, *Ceriodaphnia dubia,* and the fish, *Cyprinella leedsi* (Weber 1993). Two effluent samples (Outfalls 001, 003) and water samples from the control and test sites were autoclaved, filtered (0.45 μm), inoculated with the unicellular green alga, *Pseudokirchneriella subcapitata* (formerly *Selenastrum capricornutum,* USEPA 2002), and incubated for 14 days (Miller et al. 1978). The algal growth potential (AGP) value is the peak growth of the alga within that 14-day period, recorded as mg dry weight/L (Miller et al. 1978). To measure possible inhibition of algal growth based on possible toxicants in effluent or site water, AGP results were compared to expected levels of dry weight production based on the nutrient content of the water (Miller et al. 1978, Appendix 5).

Periphyton were sampled at both control and test sites by incubating glass microscope slides in a standard periphytometer for 28 days (APHA 1992, Method 1033). However, samplers from the test site were lost during the incubation period; no data are reported.

Benthic macroinvertebrates were collected from multiple substrates (*e.g.* snags, leaf packs, vegetation) using discrete dipnet sweeps (qualitative samples, method modified from Plafkin *et al.* 1989). Collections were also made with Hester-Dendy multi-plate samplers incubated for 28 days (quantitative samples, method modified from APHA 1992, method 10500.5). Benthic macroinvertebrates were sorted and identified to the lowest practical taxonomic level, usually species. Eight measures were calculated from benthic macroinvertebrate data to determine the effects of the discharge on receiving waters. These measures included: (1) taxa richness, (2) community composition, (3) functional feeding groups, (4) percent dominant taxon, (5) Shannon-Weaver Diversity Index, (6) the Florida Index, (7) the number of Ephemeroptera, Plecoptera and Trichoptera (EPT) taxa, and (8) the Stream Condition Index (SCI). For a discussion of each biological measure and its potential relationship to Florida Administrative Code, see Appendix 5.

Appendix 4

Chemical analysis of effluent and receiving water

Agrifos Nichols Date Sampled	Site Location	Field ID	Analysis Group	Component	Result	Units	Remark	MDL	PQL
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	1,2,4,5-Tetrachlorobenzene	0.94	ug/L	U	0.94	3.8
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	1,2,4-Trichlorobenzene	0.94	ug/L	U	0.94	3.8
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	1,2-Dichlorobenzene	0.94	ug/L	U	0.94	3.8
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	1,3,5-Trinitrobenzene	3.8	ug/L	U	3.8	15
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	1,3-Dichlorobenzene	0.94	ug/L	U	0.94	3.8
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	1,3-Dinitrobenzene	1.9	ug/L	U	1.9	7.5
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	1,4-Dichlorobenzene	0.94	ug/L	U	0.94	3.8
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	1,4-Naphthoquinone	19	ug/L	U	19	75
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	1-Naphthylamine	9.4	ug/L	U	9.4	38
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	2,3,4,6-Tetrachlorophenol	1.9	ug/L	U	1.9	7.5
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	2,4,5-Trichlorophenol	0.94	ug/L	U	0.94	3.8
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	2,4,6-Trichlorophenol	0.94	ug/L	U	0.94	3.8
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	2,4-Dichlorophenol	0.94	ug/L	U	0.94	3.8
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	2,4-Dimethylphenol	47	ug/L	U	47	190
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	2,4-Dinitrophenol	14	ug/L	U	14	57
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	2,4-Dinitrotoluene	0.94	ug/L	U	0.94	3.8
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	2,6-Dichlorophenol	0.94	ug/L	U	0.94	3.8
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	2,6-Dinitrotoluene	0.94	ug/L	U	0.94	3.8
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	2-Acetylaminofluorene	0.94	ug/L	U	0.94	3.8
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	2-Chloronaphthalene	0.94	ug/L	U	0.94	3.8
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	2-Chlorophenol	0.94	ug/L	U	0.94	3.8
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	2-Methyl-4,6-dinitrophenol	2.8	ug/L	U	2.8	11
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	2-Methylnaphthalene	0.94	ug/L	U	0.94	3.8
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	2-Naphthylamine	9.4	ug/L	U	9.4	38
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	2-Nitroaniline	0.94	ug/L	U	0.94	3.8
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	2-Nitrophenol	0.94	ug/L	U	0.94	3.8
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	2-Picoline	0.94	ug/L	U	0.94	3.8
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	3,3'-Dichlorobenzidine	38	ug/L	U	38	150
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	3,3'-Dimethylbenzidine	19	ug/L	U	19	75
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	3-Methylcholanthrene	0.94	ug/L	U	0.94	3.8
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	3-Nitroaniline	0.94	ug/L	U	0.94	3.8
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	4,4'-DDD	1.4	ug/L	U	1.4	5.7
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	4,4'-DDE	1.4	ug/L	U	1.4	5.7
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	4,4'-DDT	1.4	ug/L	U	1.4	5.7
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	4-Aminobiphenyl	3.8	ug/L	U	3.8	15
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	4-Bromophenyl phenyl ether	0.94	ug/L	U	0.94	3.8
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	4-Chloro-3-methylphenol	0.94	ug/L	U	0.94	3.8
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	4-Chloroaniline	0.94	ug/L	U	0.94	3.8
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	4-Chlorophenyl phenyl ether	1.9	ug/L	U	1.9	7.5
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	4-Nitroaniline	0.94	ug/L	U	0.94	3.8
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	4-Nitrophenol	14	ug/L	U	14	57
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	5-Nitro-o-toluidine	0.94	ug/L	U	0.94	3.8
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	7,12-Dimethylbenz(a)anthracene	0.94	ug/L	U	0.94	3.8
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	Acenaphthene	0.94	ug/L	U	0.94	3.8
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	Acenaphthylene	0.94	ug/L	U	0.94	3.8
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	Acetophenone	0.94	ug/L	U	0.94	3.8
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	Aldrin	1.4	ug/L	U	1.4	5.7
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	Aniline	0.94	ug/L	U	0.94	3.8
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	Anthracene	0.94	ug/L	U	0.94	3.8
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	Azobenzene/1,2-Diphenylhydrazine	0.94	ug/L	U	0.94	3.8
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	Benzidine	94	ug/L	U	94	380
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	Benzo(a)anthracene	0.94	ug/L	U	0.94	3.8
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	Benzo(a)pyrene	0.94	ug/L	U	0.94	3.8
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	Benzo(b)fluoranthene	0.94	ug/L	U	0.94	3.8
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	Benzo(g,h,i)perylene	0.94	ug/L	U	0.94	3.8
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	Benzo(k)fluoranthene	0.94	ug/L	U	0.94	3.8
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	Benzyl alcohol	0.94	ug/L	U	0.94	3.8
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	Bis(2-chloroethoxy)methane	0.94	ug/L	U	0.94	3.8
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	Bis(2-chloroethyl)ether	0.94	ug/L	U	0.94	3.8
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	Bis(2-chloroisopropyl)ether	2.8	ug/L	U	2.8	11
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	Bis(2-ethylhexyl)phthalate	14	ug/L	U	14	57
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	Butyl benzyl phthalate	4.7	ug/L	U	4.7	19
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	Chrysene	0.94	ug/L	U	0.94	3.8
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	Di-n-butyl phthalate	4.7	ug/L	U	4.7	19
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	Di-n-octyl phthalate	0.94	ug/L	U	0.94	3.8
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	Dibenzo(a,h)anthracene	0.94	ug/L	U	0.94	3.8
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	Dibenzofuran	0.94	ug/L	U	0.94	3.8
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	Dieldrin	1.4	ug/L	U	1.4	5.7
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	Diethyl phthalate	0.94	ug/L	U	0.94	3.8
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	Dimethyl phthalate	47	ug/L	U	47	190
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	Dimethylaminoazobenzene	0.94	ug/L	U	0.94	3.8
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	Dinoseb	3.8	ug/L	U	3.8	15
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	Diphenylamine	2.8	ug/L	U	2.8	11

09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	Fluorene	0.94	ug/L	U	0.94	3.8
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	Heptachlor	1.4	ug/L	U	1.4	5.7
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	Heptachlor epoxide	1.4	ug/L	U	1.4	5.7
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	Hexachlorobenzene	0.94	ug/L	U	0.94	3.8
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	Hexachlorobutadiene	2.8	ug/L	U	2.8	11
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	Hexachlorocyclopentadiene	2.8	ug/L	U	2.8	11
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	Hexachloroethane	2.8	ug/L	U	2.8	11
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	Hexachloropropene	1.9	ug/L	U	1.9	7.5
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	Indeno(1,2,3-cd)pyrene	0.94	ug/L	U	0.94	3.8
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	Isophorone	0.94	ug/L	U	0.94	3.8
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	Isosafrole	0.94	ug/L	U	0.94	3.8
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	Methapyrilene	3.8	ug/L	U	3.8	15
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	Methyl methanesulfonate	0.94	ug/L	U	0.94	3.8
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	N-Nitrosodi-n-butylamine	0.94	ug/L	U	0.94	3.8
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	N-Nitrosodi-n-propylamine	1.9	ug/L	U	1.9	7.5
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	N-Nitrosodiethylamine	0.94	ug/L	U	0.94	3.8
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	N-Nitrosodimethylamine	1.9	ug/L	U	1.9	7.5
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	N-Nitrosodiphenylamine	2.8	ug/L	U	2.8	11
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	N-Nitrosomethylethylamine	1.9	ug/L	U	1.9	7.5
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	N-Nitrosomorpholine	0.94	ug/L	U	0.94	3.8
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	N-Nitrosopiperidine	0.94	ug/L	U	0.94	3.8
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	N-Nitrosopyrrolidine	1.9	ug/L	U	1.9	7.5
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	Naphthalene	0.94	ug/L	U	0.94	3.8
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	Nitrobenzene	1.9	ug/L	U	1.9	7.5
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	Nitroquinoline-1-oxide	19	ug/L	U	19	75
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	Pentachlorobenzene	0.94	ug/L	U	0.94	3.8
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	Pentachloroethane	47	ug/L	U	47	190
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	Pentachloronitrobenzene	0.94	ug/L	U	0.94	3.8
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	Pentachlorophenol	2.8	ug/L	U	2.8	11
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	Phenacetin	3.8	ug/L	U	3.8	11
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	Phenanthrene	0.94	ug/L	U	0.94	3.8
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	Phenol	0.94	ug/L	U	0.94	3.8
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	Pyrene	0.94	ug/L	U	0.94	3.8
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	Pyridine	3.8	ug/L	U	3.8	15
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	Safrole	0.94	ug/L	U	0.94	3.8
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	alpha-BHC	1.4	ug/L	U	1.4	5.7
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	beta-BHC	1.4	ug/L	U	1.4	5.7
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	delta-BHC	1.4	ug/L	U	1.4	5.7
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	gamma-BHC	1.4	ug/L	U	1.4	5.7
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	m,p-Cresols	1.9	ug/L	U	1.9	7.5
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	o-Cresol	1.9	ug/L	U	1.9	7.5
09/09/02	AGRIFOS-NICHOLS POD	1	BNA-Water	o-Toluidine	0.94	ug/L	U	0.94	3.8
09/09/02	AGRIFOS-NICHOLS POD	1	Bio-AGP/LimNut	Algal Growth Potential	15.6	mg DryWt/L		0.1	0.3
09/09/02	AGRIFOS-NICHOLS POD	1	Bio-Toxicology	Bioassay-Acute-Screen-FW-C.dubia, L	100	LC50	L		
09/09/02	AGRIFOS-NICHOLS POD	1	Bio-Toxicology	Bioassay-Acute-Screen-FW-Fish, LC50	100	LC50	L		
09/09/02	AGRIFOS-NICHOLS POD	1	GC-Water	Alachlor	0.57	ug/L	U	0.57	2.28
09/09/02	AGRIFOS-NICHOLS POD	1	GC-Water	Ametryn	0.048	ug/L	U	0.048	0.19
09/09/02	AGRIFOS-NICHOLS POD	1	GC-Water	Atrazine	0.048	ug/L	U	0.048	0.19
09/09/02	AGRIFOS-NICHOLS POD	1	GC-Water	Azinphos Methyl	0.048	ug/L	U	0.048	0.19
09/09/02	AGRIFOS-NICHOLS POD	1	GC-Water	Bromacil	0.19	ug/L	U	0.19	0.76
09/09/02	AGRIFOS-NICHOLS POD	1	GC-Water	Butylate	0.19	ug/L	U	0.19	0.76
09/09/02	AGRIFOS-NICHOLS POD	1	GC-Water	Chlorpyrifos Ethyl	0.048	ug/L	U	0.048	0.19
09/09/02	AGRIFOS-NICHOLS POD	1	GC-Water	Chlorpyrifos Methyl	0.095	ug/L	U	0.095	0.38
09/09/02	AGRIFOS-NICHOLS POD	1	GC-Water	Diazinon	0.048	ug/L	U	0.048	0.19
09/09/02	AGRIFOS-NICHOLS POD	1	GC-Water	Ethion	0.048	ug/L	U	0.048	0.19
09/09/02	AGRIFOS-NICHOLS POD	1	GC-Water	Ethoprop	0.095	ug/L	U	0.095	0.38
09/09/02	AGRIFOS-NICHOLS POD	1	GC-Water	Fenamiphos	0.19	ug/L	U	0.19	0.76
09/09/02	AGRIFOS-NICHOLS POD	1	GC-Water	Fonofos	0.095	ug/L	U	0.095	0.38
09/09/02	AGRIFOS-NICHOLS POD	1	GC-Water	Hexazinone	0.095	ug/L	U	0.095	0.38
09/09/02	AGRIFOS-NICHOLS POD	1	GC-Water	Malathion	0.14	ug/L	U	0.14	0.56
09/09/02	AGRIFOS-NICHOLS POD	1	GC-Water	Metalaxyl	0.24	ug/L	U	0.24	0.96
09/09/02	AGRIFOS-NICHOLS POD	1	GC-Water	Metolachlor	0.48	ug/L	U	0.48	1.92
09/09/02	AGRIFOS-NICHOLS POD	1	GC-Water	Metribuzin	0.095	ug/L	U	0.095	0.38
09/09/02	AGRIFOS-NICHOLS POD	1	GC-Water	Mevinphos	0.19	ug/L	U	0.19	0.76
09/09/02	AGRIFOS-NICHOLS POD	1	GC-Water	Naled	0.76	ug/L	U	0.76	3.04
09/09/02	AGRIFOS-NICHOLS POD	1	GC-Water	Norflurazon	0.095	ug/L	U	0.095	0.38
09/09/02	AGRIFOS-NICHOLS POD	1	GC-Water	Parathion Ethyl	0.14	ug/L	U	0.14	0.56
09/09/02	AGRIFOS-NICHOLS POD	1	GC-Water	Parathion Methyl	0.095	ug/L	U	0.095	0.38
09/09/02	AGRIFOS-NICHOLS POD	1	GC-Water	Phorate	0.048	ug/L	U	0.048	0.19
09/09/02	AGRIFOS-NICHOLS POD	1	GC-Water	Prometryn	0.14	ug/L	U	0.14	0.56
09/09/02	AGRIFOS-NICHOLS POD	1	GC-Water	Simazine	0.048	ug/L	U	0.048	0.19
09/09/02	AGRIFOS-NICHOLS POD	1	Metals-Water	Aluminum	31	ug/L		5	20
09/09/02	AGRIFOS-NICHOLS POD	1	Metals-Water	Arsenic	3	ug/L	U	3	12
09/09/02	AGRIFOS-NICHOLS POD	1	Metals-Water	Cadmium	0.025	ug/L	U	0.025	0.1
09/09/02	AGRIFOS-NICHOLS POD	1	Metals-Water	Calcium	35.9	mg/L		0.02	0.08

09/09/02	AGRIFOS-NICHOLS POD	1	Metals-Water	Silver	0.02	ug/L	U	0.02	0.08
09/09/02	AGRIFOS-NICHOLS POD	1	Metals-Water	Zinc	2	ug/L	U	2	8
09/09/02	AGRIFOS-NICHOLS POD	1	Nutrients-Liquid	Ammonia-N	0.059	mg N/L		0.01	0.02
09/09/02	AGRIFOS-NICHOLS POD	1	Nutrients-Liquid	Fluoride	1.2	mg F/L		0.05	0.1
09/09/02	AGRIFOS-NICHOLS POD	1	Nutrients-Liquid	NO2NO3-N	0.02	mg N/L	UJ	0.02	0.05
09/09/02	AGRIFOS-NICHOLS POD	1	Nutrients-Liquid	N_KJEL_TOT	1.6	mg N/L		0.12	0.4
09/09/02	AGRIFOS-NICHOLS POD	1	Nutrients-Liquid	O-Phosphate-P	1.1	mg P/L		0.04	0.1
09/09/02	AGRIFOS-NICHOLS POD	1	Nutrients-Liquid	Sulfate	50	mg SO4/L		0.2	0.5
09/09/02	AGRIFOS-NICHOLS POD	1	Nutrients-Liquid	Total-P	1.2	mg P/L		0.03	0.08
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	1,2,4,5-Tetrachlorobenzene	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	1,2,4-Trichlorobenzene	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	1,2-Dichlorobenzene	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	1,3,5-Trinitrobenzene	3.8	ug/L	U	3.8	15
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	1,3-Dichlorobenzene	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	1,3-Dinitrobenzene	1.9	ug/L	U	1.9	7.6
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	1,4-Dichlorobenzene	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	1,4-Naphthoquinone	19	ug/L	U	19	76
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	1-Naphthylamine	9.5	ug/L	U	9.5	38
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	2,3,4,6-Tetrachlorophenol	1.9	ug/L	U	1.9	7.6
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	2,4,5-Trichlorophenol	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	2,4,6-Trichlorophenol	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	2,4-Dichlorophenol	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	2,4-Dimethylphenol	48	ug/L	U	48	190
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	2,4-Dinitrophenol	14	ug/L	U	14	57
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	2,4-Dinitrotoluene	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	2,6-Dichlorophenol	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	2,6-Dinitrotoluene	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	2-Acetylaminofluorene	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	2-Chloronaphthalene	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	2-Chlorophenol	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	2-Methyl-4,6-dinitrophenol	2.9	ug/L	U	2.9	11
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	2-Methylnaphthalene	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	2-Naphthylamine	9.5	ug/L	U	9.5	38
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	2-Nitroaniline	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	2-Nitrophenol	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	2-Picoline	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	3,3'-Dichlorobenzidine	38	ug/L	U	38	150
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	3,3'-Dimethylbenzidine	19	ug/L	U	19	76
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	3-Methylcholanthrene	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	3-Nitroaniline	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	4,4'-DDD	1.4	ug/L	U	1.4	5.7
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	4,4'-DDE	1.4	ug/L	U	1.4	5.7
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	4,4'-DDT	1.4	ug/L	U	1.4	5.7
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	4-Aminobiphenyl	3.8	ug/L	U	3.8	15
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	4-Bromophenyl phenyl ether	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	4-Chloro-3-methylphenol	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	4-Chloroaniline	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	4-Chlorophenyl phenyl ether	1.9	ug/L	U	1.9	7.6
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	4-Nitroaniline	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	4-Nitrophenol	14	ug/L	U	14	57
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	5-Nitro-o-toluidine	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	7,12-Dimethylbenz(a)anthracene	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	Acenaphthene	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	Acenaphthylene	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	Acetophenone	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	Aldrin	1.4	ug/L	U	1.4	5.7
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	Aniline	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	Anthracene	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	Azobenzene/1,2-Diphenylhydrazine	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	Benzidine	95	ug/L	U	95	380
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	Benzo(a)anthracene	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	Benzo(a)pyrene	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	Benzo(b)fluoranthene	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	Benzo(g,h,i)perylene	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	Benzo(k)fluoranthene	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	Benzyl alcohol	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	Bis(2-chloroethoxy)methane	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	Bis(2-chloroethyl)ether	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	Bis(2-chloroisopropyl)ether	2.9	ug/L	U	2.9	11
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	Bis(2-ethylhexyl)phthalate	14	ug/L	U	14	57
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	Butyl benzyl phthalate	4.8	ug/L	U	4.8	19
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	Chrysene	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	Di-n-butyl phthalate	4.8	ug/L	U	4.8	19
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	Di-n-octyl phthalate	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	Dibenzo(a,h)anthracene	0.95	ug/L	U	0.95	3.8

09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	Endosulfan I	3.8	ug/L	U	3.8	15
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	Endosulfan II	3.8	ug/L	U	3.8	15
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	Endosulfan sulfate	1.4	ug/L	U	1.4	5.7
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	Endrin	1.4	ug/L	U	1.4	5.7
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	Endrin aldehyde	3.8	ug/L	U	3.8	15
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	Ethyl methanesulfonate	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	Fluoranthene	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	Fluorene	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	Heptachlor	1.4	ug/L	U	1.4	5.7
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	Heptachlor epoxide	1.4	ug/L	U	1.4	5.7
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	Hexachlorobenzene	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	Hexachlorobutadiene	2.9	ug/L	U	2.9	11
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	Hexachlorocyclopentadiene	2.9	ug/L	U	2.9	11
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	Hexachloroethane	2.9	ug/L	U	2.9	11
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	Hexachloropropene	1.9	ug/L	U	1.9	7.6
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	Indeno(1,2,3-cd)pyrene	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	Isophorone	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	Isosafrole	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	Methapyrilene	3.8	ug/L	U	3.8	15
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	Methyl methanesulfonate	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	N-Nitrosodi-n-butylamine	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	N-Nitrosodi-n-propylamine	1.9	ug/L	U	1.9	7.6
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	N-Nitrosodiethylamine	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	N-Nitrosodimethylamine	1.9	ug/L	U	1.9	7.6
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	N-Nitrosodiphenylamine	2.9	ug/L	U	2.9	11
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	N-Nitrosomethylethylamine	1.9	ug/L	U	1.9	7.6
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	N-Nitrosomorpholine	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	N-Nitrosopiperidine	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	N-Nitrosopyrrolidine	1.9	ug/L	U	1.9	7.6
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	Naphthalene	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	Nitrobenzene	1.9	ug/L	U	1.9	7.6
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	Nitroquinoline-1-oxide	19	ug/L	U	19	76
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	Pentachlorobenzene	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	Pentachloroethane	48	ug/L	U	48	190
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	Pentachloronitrobenzene	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	Pentachlorophenol	2.9	ug/L	U	2.9	11
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	Phenacetin	3.8	ug/L	U	3.8	11
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	Phenanthrene	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	Phenol	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	Pyrene	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	Pyridine	3.8	ug/L	U	3.8	15
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	Safrole	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	alpha-BHC	1.4	ug/L	U	1.4	5.7
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	beta-BHC	1.4	ug/L	U	1.4	5.7
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	delta-BHC	1.4	ug/L	U	1.4	5.7
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	gamma-BHC	1.4	ug/L	U	1.4	5.7
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	m,p-Cresols	1.9	ug/L	U	1.9	7.6
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	o-Cresol	1.9	ug/L	U	1.9	7.6
09/09/02	AGRIFOS-NICHOLS POD	3	BNA-Water	o-Toluidine	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS POD	3	Bio-AGP/LimNut	Algal Growth Potential	4.95	mg DryWt/L		0.1	0.3
09/09/02	AGRIFOS-NICHOLS POD	3	GC-Water	Alachlor	0.57	ug/L	U	0.57	2.28
09/09/02	AGRIFOS-NICHOLS POD	3	GC-Water	Ametryn	0.048	ug/L	U	0.048	0.19
09/09/02	AGRIFOS-NICHOLS POD	3	GC-Water	Atrazine	0.048	ug/L	U	0.048	0.19
09/09/02	AGRIFOS-NICHOLS POD	3	GC-Water	Azinphos Methyl	0.048	ug/L	U	0.048	0.19
09/09/02	AGRIFOS-NICHOLS POD	3	GC-Water	Bromacil	0.19	ug/L	U	0.19	0.76
09/09/02	AGRIFOS-NICHOLS POD	3	GC-Water	Butylate	0.19	ug/L	U	0.19	0.76
09/09/02	AGRIFOS-NICHOLS POD	3	GC-Water	Chlorpyrifos Ethyl	0.048	ug/L	U	0.048	0.19
09/09/02	AGRIFOS-NICHOLS POD	3	GC-Water	Chlorpyrifos Methyl	0.095	ug/L	U	0.095	0.38
09/09/02	AGRIFOS-NICHOLS POD	3	GC-Water	Diazinon	0.048	ug/L	U	0.048	0.19
09/09/02	AGRIFOS-NICHOLS POD	3	GC-Water	Ethion	0.048	ug/L	U	0.048	0.19
09/09/02	AGRIFOS-NICHOLS POD	3	GC-Water	Ethoprop	0.095	ug/L	U	0.095	0.38
09/09/02	AGRIFOS-NICHOLS POD	3	GC-Water	Fenamiphos	0.19	ug/L	U	0.19	0.76
09/09/02	AGRIFOS-NICHOLS POD	3	GC-Water	Fonofos	0.095	ug/L	U	0.095	0.38
09/09/02	AGRIFOS-NICHOLS POD	3	GC-Water	Hexazinone	0.095	ug/L	U	0.095	0.38
09/09/02	AGRIFOS-NICHOLS POD	3	GC-Water	Malathion	0.14	ug/L	U	0.14	0.56
09/09/02	AGRIFOS-NICHOLS POD	3	GC-Water	Metalaxyl	0.24	ug/L	U	0.24	0.96
09/09/02	AGRIFOS-NICHOLS POD	3	GC-Water	Metolachlor	0.48	ug/L	U	0.48	1.92
09/09/02	AGRIFOS-NICHOLS POD	3	GC-Water	Metribuzin	0.095	ug/L	U	0.095	0.38
09/09/02	AGRIFOS-NICHOLS POD	3	GC-Water	Mevinphos	0.19	ug/L	U	0.19	0.76
09/09/02	AGRIFOS-NICHOLS POD	3	GC-Water	Naled	0.76	ug/L	U	0.76	3.04
09/09/02	AGRIFOS-NICHOLS POD	3	GC-Water	Norflurazon	0.095	ug/L	U	0.095	0.38
09/09/02	AGRIFOS-NICHOLS POD	3	GC-Water	Parathion Ethyl	0.14	ug/L	U	0.14	0.56
09/09/02	AGRIFOS-NICHOLS POD	3	GC-Water	Parathion Methyl	0.095	ug/L	U	0.095	0.38
09/09/02	AGRIFOS-NICHOLS POD	3	GC-Water	Phorate	0.048	ug/L	U	0.048	0.19
09/09/02	AGRIFOS-NICHOLS POD	3	GC-Water	Prometryn	0.14	ug/L	U	0.14	0.56

09/09/02	AGRIFOS-NICHOLS POD	3	Metals-Water	Iron	1360.0	ug/L		7	28
09/09/02	AGRIFOS-NICHOLS POD	3	Metals-Water	Lead	0.1	ug/L	U	0.1	0.4
09/09/02	AGRIFOS-NICHOLS POD	3	Metals-Water	Magnesium	23.1	mg/L		0.01	0.04
09/09/02	AGRIFOS-NICHOLS POD	3	Metals-Water	Nickel	1.5	ug/L	U	1.5	6
09/09/02	AGRIFOS-NICHOLS POD	3	Metals-Water	Selenium	1	ug/L	U	1	4
09/09/02	AGRIFOS-NICHOLS POD	3	Metals-Water	Silver	0.02	ug/L	U	0.02	0.08
09/09/02	AGRIFOS-NICHOLS POD	3	Metals-Water	Zinc	2	ug/L	U	2	8
09/09/02	AGRIFOS-NICHOLS POD	3	Nutrients-Liquid	Ammonia-N	0.1	mg N/L		0.01	0.02
09/09/02	AGRIFOS-NICHOLS POD	3	Nutrients-Liquid	Fluoride	0.62	mg F/L		0.05	0.1
09/09/02	AGRIFOS-NICHOLS POD	3	Nutrients-Liquid	NO2NO3-N	0.02	mg N/L	UJ	0.02	0.05
09/09/02	AGRIFOS-NICHOLS POD	3	Nutrients-Liquid	N_KJEL_TOT	0.5	mg N/L		0.12	0.4
09/09/02	AGRIFOS-NICHOLS POD	3	Nutrients-Liquid	O-Phosphate-P	0.18	mg P/L		0.016	0.04
09/09/02	AGRIFOS-NICHOLS POD	3	Nutrients-Liquid	Sulfate	40	mg SO4/L		0.2	0.5
09/09/02	AGRIFOS-NICHOLS POD	3	Nutrients-Liquid	Total-P	0.21	mg P/L		0.015	0.04
09/09/02	MIZELLE CR @ KEYSVILLE I	CONTROL SITE RI	Bio-Invertebrates	Macroinvert-FW-Quan-ArtSubstr-# Taxa	15	# Taxa			
09/09/02	MIZELLE CR @ KEYSVILLE I	CONTROL SITE RI	Bio-Invertebrates	Macroinvert-FW-Quan-ArtSubstr-# Taxa	13	# Taxa			
09/09/02	MIZELLE CR @ KEYSVILLE I	CONTROL SITE RI	Bio-Invertebrates	Macroinvert-FW-Quan-ArtSubstr-# Taxa	12	# Taxa			
09/09/02	GUY BR BELOW 001	GUY 001	Bio-AGP/LimNut	Algal Growth Potential	12.9	mg DryWt/L	A	0.1	0.3
09/09/02	GUY BR BELOW 001	GUY 001	Bio-Chl-a	Chlorophyll-A, Monochromatic, Water	39	ug/L	A	0.85	2.6
09/09/02	GUY BR BELOW 001	GUY 001	Bio-Chl-a	Phaeophytin-A, Monochromatic, Water	0	ug/L	A	0.85	2.6
09/09/02	GUY BR BELOW 001	GUY 001	Bio-Invertebrates	Macroinvert-FW-Qual-Dipnetx20-# Taxa	8	# Taxa			
09/09/02	GUY BR BELOW 001	GUY 001	Nutrients-Liquid	Ammonia-N	0.098	mg N/L		0.01	0.02
09/09/02	GUY BR BELOW 001	GUY 001	Nutrients-Liquid	NO2NO3-N	0.03	mg N/L	IJ	0.02	0.05
09/09/02	GUY BR BELOW 001	GUY 001	Nutrients-Liquid	N_KJEL_TOT	1.6	mg N/L		0.12	0.4
09/09/02	GUY BR BELOW 001	GUY 001	Nutrients-Liquid	O-Phosphate-P	1.1	mg P/L		0.04	0.1
09/09/02	GUY BR BELOW 001	GUY 001	Nutrients-Liquid	Total-P	1.2	mg P/L		0.03	0.08
09/09/02	MIZELLE CR @ KEYSVILLE I	MIZELLE CR	Bio-AGP/LimNut	Algal Growth Potential	10.2	mg DryWt/L		0.1	0.3
09/09/02	MIZELLE CR @ KEYSVILLE I	MIZELLE CR	Bio-Chl-a	Chlorophyll-A, Monochromatic, Periphy	0.088	mg/m2	UQ	0.088	0.26
09/09/02	MIZELLE CR @ KEYSVILLE I	MIZELLE CR	Bio-Chl-a	Chlorophyll-A, Monochromatic, Water	0.85	ug/L	U	0.85	2.6
09/09/02	MIZELLE CR @ KEYSVILLE I	MIZELLE CR	Bio-Chl-a	Phaeophytin-A, Monochromatic, Periph	0.088	mg/m2	UQ	0.088	0.26
09/09/02	MIZELLE CR @ KEYSVILLE I	MIZELLE CR	Bio-Chl-a	Phaeophytin-A, Monochromatic, Water	0.85	ug/L	U	0.85	2.6
09/09/02	MIZELLE CR @ KEYSVILLE I	MIZELLE CR	Bio-Invertebrates	Macroinvert-FW-Qual-Dipnetx20-# Taxa	17	# Taxa			
09/09/02	MIZELLE CR @ KEYSVILLE I	MIZELLE CR	Nutrients-Liquid	Ammonia-N	0.022	mg N/L		0.01	0.02
09/09/02	MIZELLE CR @ KEYSVILLE I	MIZELLE CR	Nutrients-Liquid	NO2NO3-N	0.1	mg N/L	J	0.02	0.05
09/09/02	MIZELLE CR @ KEYSVILLE I	MIZELLE CR	Nutrients-Liquid	N_KJEL_TOT	0.63	mg N/L		0.12	0.4
09/09/02	MIZELLE CR @ KEYSVILLE I	MIZELLE CR	Nutrients-Liquid	O-Phosphate-P	0.31	mg P/L		0.016	0.04
09/09/02	MIZELLE CR @ KEYSVILLE I	MIZELLE CR	Nutrients-Liquid	Total-P	0.61	mg P/L		0.015	0.04
09/09/02	GUY BRANCH BELLOW 001	TEST SITE REP.1	Bio-Invertebrates	Macroinvert-FW-Quan-ArtSubstr-# Taxa	22	# Taxa			
09/09/02	GUY BRANCH BELLOW 001	TEST SITE REP.2	Bio-Invertebrates	Macroinvert-FW-Quan-ArtSubstr-# Taxa	20	# Taxa			
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	1,2,4,5-Tetrachlorobenzene	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	1,2,4-Trichlorobenzene	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	1,2-Dichlorobenzene	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	1,3,5-Trinitrobenzene	3.8	ug/L	U	3.8	15
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	1,3-Dichlorobenzene	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	1,3-Dinitrobenzene	1.9	ug/L	U	1.9	7.6
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	1,4-Dichlorobenzene	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	1,4-Naphthoquinone	19	ug/L	U	19	76
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	1-Naphthylamine	9.5	ug/L	U	9.5	38
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	2,3,4,6-Tetrachlorophenol	1.9	ug/L	U	1.9	7.6
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	2,4,5-Trichlorophenol	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	2,4,6-Trichlorophenol	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	2,4-Dichlorophenol	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	2,4-Dimethylphenol	48	ug/L	U	48	190
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	2,4-Dinitrophenol	14	ug/L	U	14	57
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	2,4-Dinitrotoluene	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	2,6-Dichlorophenol	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	2,6-Dinitrotoluene	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	2-Acetylaminofluorene	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	2-Chloronaphthalene	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	2-Chlorophenol	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	2-Methyl-4,6-dinitrophenol	2.9	ug/L	U	2.9	11
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	2-Methylnaphthalene	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	2-Naphthylamine	9.5	ug/L	U	9.5	38
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	2-Nitroaniline	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	2-Nitrophenol	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	2-Picoline	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	3,3'-Dichlorobenzidine	38	ug/L	U	38	150
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	3,3'-Dimethylbenzidine	19	ug/L	U	19	76
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	3-Methylcholanthrene	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	3-Nitroaniline	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	4,4'-DDD	1.4	ug/L	U	1.4	5.7
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	4,4'-DDE	1.4	ug/L	U	1.4	5.7
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	4,4'-DDT	1.4	ug/L	U	1.4	5.7
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	4-Aminobiphenyl	3.8	ug/L	U	3.8	15
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	4-Bromophenyl phenyl ether	0.95	ug/L	U	0.95	3.8

09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	Acenaphthene	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	Acenaphthylene	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	Acetophenone	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	Aldrin	1.4	ug/L	U	1.4	5.7
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	Aniline	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	Anthracene	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	Azobenzene/1,2-Diphenylhydrazine	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	Benzidine	95	ug/L	U	95	380
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	Benzo(a)anthracene	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	Benzo(a)pyrene	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	Benzo(b)fluoranthene	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	Benzo(g,h,i)perylene	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	Benzo(k)fluoranthene	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	Benzyl alcohol	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	Bis(2-chloroethoxy)methane	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	Bis(2-chloroethyl)ether	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	Bis(2-chloroisopropyl)ether	2.9	ug/L	U	2.9	11
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	Bis(2-ethylhexyl)phthalate	14	ug/L	U	14	57
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	Butyl benzyl phthalate	4.8	ug/L	U	4.8	19
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	Chrysene	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	Di-n-butyl phthalate	4.8	ug/L	U	4.8	19
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	Di-n-octyl phthalate	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	Dibenzo(a,h)anthracene	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	Dibenzofuran	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	Dieldrin	1.4	ug/L	U	1.4	5.7
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	Diethyl phthalate	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	Dimethyl phthalate	48	ug/L	U	48	190
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	Dimethylaminoazobenzene	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	Dinoseb	3.8	ug/L	U	3.8	15
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	Diphenylamine	2.9	ug/L	U	2.9	11
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	Endosulfan I	3.8	ug/L	U	3.8	15
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	Endosulfan II	3.8	ug/L	U	3.8	15
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	Endosulfan sulfate	1.4	ug/L	U	1.4	5.7
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	Endrin	1.4	ug/L	U	1.4	5.7
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	Endrin aldehyde	3.8	ug/L	U	3.8	15
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	Ethyl methanesulfonate	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	Fluoranthene	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	Fluorene	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	Heptachlor	1.4	ug/L	U	1.4	5.7
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	Heptachlor epoxide	1.4	ug/L	U	1.4	5.7
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	Hexachlorobenzene	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	Hexachlorobutadiene	2.9	ug/L	U	2.9	11
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	Hexachlorocyclopentadiene	2.9	ug/L	U	2.9	11
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	Hexachloroethane	2.9	ug/L	U	2.9	11
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	Hexachloropropene	1.9	ug/L	U	1.9	7.6
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	Indeno(1,2,3-cd)pyrene	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	Isophorone	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	Isosafrole	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	Methapyrilene	3.8	ug/L	U	3.8	15
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	Methyl methanesulfonate	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	N-Nitrosodi-n-butylamine	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	N-Nitrosodi-n-propylamine	1.9	ug/L	U	1.9	7.6
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	N-Nitrosodiethylamine	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	N-Nitrosodimethylamine	1.9	ug/L	U	1.9	7.6
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	N-Nitrosodiphenylamine	2.9	ug/L	U	2.9	11
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	N-Nitrosomethylethylamine	1.9	ug/L	U	1.9	7.6
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	N-Nitrosomorpholine	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	N-Nitrosopiperidine	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	N-Nitrosopyrrolidine	1.9	ug/L	U	1.9	7.6
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	Naphthalene	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	Nitrobenzene	1.9	ug/L	U	1.9	7.6
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	Nitroquinoline-1-oxide	19	ug/L	U	19	76
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	Pentachlorobenzene	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	Pentachloroethane	48	ug/L	U	48	190
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	Pentachloronitrobenzene	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	Pentachlorophenol	2.9	ug/L	U	2.9	11
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	Phenacetin	3.8	ug/L	U	3.8	11
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	Phenanthrene	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	Phenol	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	Pyrene	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	Pyridine	3.8	ug/L	U	3.8	15
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	Safrole	0.95	ug/L	U	0.95	3.8
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	alpha-BHC	1.4	ug/L	U	1.4	5.7
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	beta-BHC	1.4	ug/L	U	1.4	5.7
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	BNA-Water	delta-BHC	1.4	ug/L	U	1.4	5.7

09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	GC-Water	Azinphos Methyl	0.048	ug/L	U	0.048	0.19
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	GC-Water	Bromacil	0.19	ug/L	U	0.19	0.76
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	GC-Water	Butylate	0.19	ug/L	U	0.19	0.76
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	GC-Water	Chlorpyrifos Ethyl	0.048	ug/L	U	0.048	0.19
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	GC-Water	Chlorpyrifos Methyl	0.095	ug/L	U	0.095	0.38
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	GC-Water	Diazinon	0.048	ug/L	U	0.048	0.19
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	GC-Water	Ethion	0.048	ug/L	U	0.048	0.19
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	GC-Water	Ethoprop	0.095	ug/L	U	0.095	0.38
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	GC-Water	Fenamiphos	0.19	ug/L	U	0.19	0.76
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	GC-Water	Fonofos	0.095	ug/L	U	0.095	0.38
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	GC-Water	Hexazinone	0.095	ug/L	U	0.095	0.38
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	GC-Water	Malathion	0.14	ug/L	U	0.14	0.56
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	GC-Water	Metalaxyl	0.24	ug/L	U	0.24	0.96
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	GC-Water	Metolachlor	0.48	ug/L	U	0.48	1.92
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	GC-Water	Metribuzin	0.095	ug/L	U	0.095	0.38
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	GC-Water	Mevinphos	0.19	ug/L	U	0.19	0.76
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	GC-Water	Naled	0.76	ug/L	U	0.76	3.04
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	GC-Water	Norflurazon	0.095	ug/L	U	0.095	0.38
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	GC-Water	Parathion Ethyl	0.14	ug/L	U	0.14	0.56
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	GC-Water	Parathion Methyl	0.095	ug/L	U	0.095	0.38
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	GC-Water	Phorate	0.048	ug/L	U	0.048	0.19
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	GC-Water	Prometryn	0.14	ug/L	U	0.14	0.56
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	GC-Water	Simazine	0.048	ug/L	U	0.048	0.19
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	Nutrients-Liquid	Ammonia-N	0.01	mg N/L	U	0.01	0.02
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	Nutrients-Liquid	Fluoride	0.05	mg F/L	U	0.05	0.1
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	Nutrients-Liquid	NO2NO3-N	0.004	mg N/L	UJ	0.004	0.01
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	Nutrients-Liquid	N_KJEL_TOT	0.06	mg N/L	U	0.06	0.2
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	Nutrients-Liquid	O-Phosphate-P	0.004	mg P/L	U	0.004	0.01
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	Nutrients-Liquid	Sulfate	0.2	mg SO4/L	U	0.2	0.5
09/09/02	AGRIFOS-NICHOLS BLK	FIELD BLANK	Nutrients-Liquid	Total-P	0.015	mg P/L	U	0.015	0.04

Appendix 5

Explanation of Biological Measures

(1) Habitat Assessment:

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

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

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

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

(3) Algal Phytoplankton and Periphyton Assemblages

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

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

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

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

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

(4) Benthic Macroinvertebrate Assemblages

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

Decreases in taxa richness related to a facility's effluent may constitute violations of 62-302.530(47) F.A.C., 62-302.530(48)(a) F.A.C., 62-302.530(48)(b) F.A.C. and/or 62-302.530(62) F.A.C..

Percent Contribution of Dominant Taxon: Percent contribution of the dominant taxon is calculated by dividing the number of individuals in the most abundant taxa by the total number of individuals counted. Percent contribution of the dominant taxon tends to increase with increasing perturbation (Plafkin *et al.*, 1989). Increases in the percent contribution of the dominant taxon related to a facility's effluent may constitute violations of 62-302.530(47) F.A.C., 62-302.530(48)(a) F.A.C. and/or 62-302.530(48)(b) F.A.C..

Shannon-Weaver Diversity Index: This index is specified in the Florida Administrative Code 62-302 as a measure of biological integrity. Low diversity scores are undesirable. Where diversity is low, only a few taxa are abundant as compared to an area where many taxa are present in equitable abundance among taxa (Magurran 1988). A difference of 25% in Shannon-Weaver diversity between results from Hester-Dendy multiplate samplers incubated for 28 days at test and control sites constitutes a violation of 62-302.530(11) F.A.C..

The Florida Index: Some organisms become rare or absent as the intensity or duration of disturbance increases. The Florida Index assigns points to stream-dwelling macroinvertebrates based on their ranked sensitivity to pollution (Beck 1954). A site with a high Florida Index score is considered healthy (Ross 1990). Decreases in Florida Index points related to a facility's effluent may constitute violations of 62-302.530(47) F.A.C., 62-302.530(48)(a) F.A.C., 62-302.530(48)(b) F.A.C. and/or 62-302.530(62) F.A.C..

Ephemeroptera/Plecoptera/Trichoptera (EPT) Taxa: This value is the number of EPT taxa present. More EPT taxa are usually present in unpolluted waters (Plafkin *et al.*, 1989, Wallace *et al.*, 1996). Decreases in the number of EPT taxa related to a facility's effluent may constitute violations of 62-302.530(47) F.A.C., 62-302.530(48)(a) F.A.C., 62-302.530(48)(b) F.A.C. and/or 62-302.530(62) F.A.C..

Community Composition: Shifts in proportions of major groups of organisms downstream of a point source, compared to upstream, control conditions, may indicate negative effects of a discharge (Karr and Chu 1998). Shifts in community composition related to a facility's effluent may constitute violations of 62-302.530(47) F.A.C., 62-302.530(48)(a) F.A.C., 62-302.530(48)(b) F.A.C. and/or 62-302.530(62) F.A.C..

Functional Feeding Groups: Environmental degradation may differentially affect groups of invertebrates based on how the group feeds (e.g. predators, deposit feeders, etc.). In Florida, pollution may be responsible for reducing the numbers of filter feeders (FDEP 1994) and shredders (EA Engineering 1994). Changes in the proportions of functional feeding groups related to a facility's effluent may constitute violations of 62-302.530(47) F.A.C., 62-302.530(48)(a) F.A.C., 62-302.530(48)(b) F.A.C. and/or 62-302.530(62) F.A.C..

The Stream Condition Index (SCI): The SCI is a composite macroinvertebrate metric (Barbour *et al.* 1996a, b) developed for Florida. Using data from qualitative dipnet samples, the SCI assigns points to seven parameters, depending on how closely each parameter approaches an expected reference condition (Barbour *et al.* 1996a, b and FDEP SOP FS 7420, LT 7200). Points are summed to yield a final SCI score (range 7-33, depending on region and index period). Included in the calculation of SCI are taxa richness, number of EPT taxa, number of Chironomid taxa, percent contribution of the dominant taxon, the Florida Index, percent contribution of Diptera, and the percent contribution of suspension and filter feeders. Scores are broken into four ordinal groups: Excellent, Good, Poor and Very Poor. A decrease in ordinal SCI score from the Control to the Test site may be evidence of degradation related to a facility's effluent. An SCI score of "Poor" or "Very Poor" related to a facility's effluent may constitute violations of 62-302.530(47) F.A.C., 62-302.530(48)(a) F.A.C., 62-302.530(48)(b) F.A.C. and/or 62-302.530(62) F.A.C..

Appendix 6

Typical Values for Selected Parameters in Florida Waters

Percentile Distribution (1617 stations)

CONTROL SITE

Parameter	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	95%	Measured
Periphyton Chlorophyll *a* (mg/m^2)	**0.31**	0.43	0.77	1.04	2.16	2.94	6.45	10.51	17.00	39.51	60.85	**N. D.**
Hester-Dendy Diversity	0.84	**2.12**	2.48	2.74	2.88	3.09	3.25	3.40	3.52	3.76	3.90	**2.2**
Hester-Dendy Taxa Richness	6	6.5	9	11.5	13	15	**17**	21.5	26	29	32	**20**
Dipnet Taxa Richness	9	**12**	17	20	22	24.5	26	28	31	37	53	**16**
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	**0.63**
Ammonia	0.02	**0.02**	0.04	0.05	0.06	0.08	0.11	0.14	0.20	0.34	0.60	**0.022**
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	**0.10**
Total Phosphorus	0.02	0.03	0.05	0.06	0.10	0.13	0.18	0.25	**0.39**	0.74	1.51	**0.61**
Orthophosphate	0.01	0.01	0.03	0.04	0.05	0.08	0.11	0.17	**0.27**	0.59	1.37	**0.31**
Turbidity (NTU)	0.60	0.90	1.20	1.45	2.10	2.80	3.60	4.50	6.65	10.45	16.30	**N.D.**

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	**N. D.**
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	**N. D.**
Hester-Dendy Taxa Richness	6	6.5	9	11.5	13	15	17	21.5	26	**29**	32	**31**
Dipnet Taxa Richness	**9**	12	17	20	22	24.5	26	28	31	37	53	**8**
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	**1.6**
Ammonia	0.02	0.02	0.04	0.05	0.06	**0.08**	0.11	0.14	0.20	0.34	0.60	**0.098**
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	**0.03**
Total Phosphorus	0.02	0.03	0.05	0.06	0.10	0.13	0.18	0.25	0.39	**0.74**	1.51	**1.2**
Orthophosphate	0.01	0.01	0.03	0.04	0.05	0.08	0.11	0.17	0.27	**0.59**	1.37	**1.1**
Turbidity (NTU)	0.60	0.90	1.20	1.45	2.10	2.80	3.60	4.50	6.65	10.45	16.30	**N.D.**

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

Appendix 7

Additional physical, chemical, toxicological and microbiological results

Table 1. Data recorded during the 48-hour acute screening bioassays of a sample of effluent from the Agrifos, L.L.C.-Nichols Mine, County Road 640, Nichols, Polk County, Florida, NPDES# FL0000311, performed from 10 to 12 September 2002.

Facility:	**Agrifos, L.L.C.-Nichols Mine**		**NPDES #:**	**FL0000311**	Facility Type:	**phosphate mine/ beneficiation plant**	**Analysts:** Jacquelyn Brynda, Joshua Ayres, James Daniels, Marshall Faircloth
Location:	County Road 640, Nichols		Contact/District:	Sathe/SW			
County:	Polk		Test type:	static acute screen			
Sample Collection Date:	9/9/2002	Time: 1010	# tests:	2	Receiving Water:	Guy Branch/ George Allen Creek	
Test Beginning Date:	9/10/2002	Time: 1530	Chlorination Type:	non-chlorinated			
Test Ending Date:	9/12/2002	Time: 1330	FDEP SOP#:	TA07_01/TA07_02		**Page 1 of 1**	**Reviewer:** David Whiting

Organism: ***Ceriodaphnia dubia*** Life stage: <24 hours

	Sample/Diluent	SURVIVAL # Alive			pH			Temperature[A]			Dissolved Oxygen			Conductivity Uncorrected µmhos/cm	
Concentrations	Volume(mL)	0 hr	24 hr	48 hr	0 hour	24 hour	48 hour	0 hour	24 hour	48 hour	0 hour	24 hour	48 hour	0 hour	48 hour
Control A	0/20	5	5	5	8.2	-	8.4	23.6	-	24.4	7.2	-	7.7	165	210
Control B	0/20	5	5	5	-	-	8.4	-	-	24.4	-	-	7.7	-	215
Control C	0/20	5	5	5	-	-	8.4	-	-	24.4	-	-	7.8	-	200
Control D	0/20	5	5	5	-	-	8.4	-	-	24.5	-	-	7.8	-	195
100% A	20/0	5	5	5	8.0	-	8.6	23.5	-	24.6	7.5	-	7.8	325	420
100% B	20/0	5	5	5	-	-	8.6	-	-	24.6	-	-	7.7	-	440
100% C	20/0	5	5	5	-	-	8.6	-	-	24.6	-	-	7.7	-	430
100% D	20/0	5	5	5	-	-	8.6	-	-	24.6	-	-	7.7	-	405

[A] Temperatures of room and test incubator were continuously recorded on a strip chart recorder.
Room Temperature range for the test period was 23.0-25.0°C.
Incubator #3 temperature range for the test period was 24.0-25.5°C.

LIMS	
Job number:	TLH-2002-09-10-38
sample number:	620860

Data Transcription Verification	
date:	1/24/2003
by:	James Daniels, Josh Ayres

Total Residual CL2	mg/L	Method
Field:	-	-
Lab:	0.04	Hach

Ammonia	Total (mg/L)	Unionized (mg/L)
Control water (fish):	<0.017	<0.017
Control water (water flea):	<0.017	<0.017
100% Sample:	<0.017	<0.017

Alk & Hardness	Alkalinity (mg/L)	Hardness (mg/L)
Control water (fish):	135	138
Control water (water flea):	75	85
100% Sample:	120	165

Organism: ***Cyprinella leedsi*** Life stage: 9 days

	Sample/Diluent	SURVIVAL # Alive			pH			Temperature[B]			Dissolved Oxygen			Conductivity Uncorrected µmhos/cm	
Concentrations	Volume(mL)	0 hr	24 hr	48 hr	0 hour	24 hour	48 hour	0 hour	24 hour	48 hour	0 hour	24 hour	48 hour	0 hour	48 hour
Control A	0/500	5	5	5	8.0	8.4	8.5	23.4	25.1	24.1	7.1	7.2	7.7	290	280
Control B	0/500	5	5	5	8.0	8.4	8.5	23.5	24.6	24.4	7.2	7.3	7.7	270	275
Control C	0/500	5	5	5	8.0	8.4	8.5	23.4	24.7	24.4	7.5	7.5	7.7	270	270
Control D	0/500	5	5	5	8.0	8.4	8.5	23.2	24.8	24.2	7.6	7.5	7.7	260	270
100% A	500/0	5	5	5	7.9	8.2	8.3	23.3	24.7	24.4	7.2	7.6	7.6	340	360
100% B	500/0	5	5	5	7.9	8.2	8.3	23.4	24.4	24.5	7.2	7.5	7.5	340	360
100 % C	500/0	5	5	5	7.9	8.2	8.3	23.4	24.7	24.3	7.2	7.3	7.4	335	360
100% D	500/0	5	5	5	7.9	8.2	8.3	23.4	25.3	24.2	7.2	7.2	7.4	335	360

[B] Temperatures of room and test incubator were continuously recorded on a strip chart recorder.
Room Temperature range for the test period was 23.0-25.0°C.
Incubator #3 temperature range for the test period was 24.0-25.5°C.

Appendix 8

Habitat Assessment Field Sheets.

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

PHYSICAL/CHEMICAL CHARACTERIZATION FIELD SHEET

SUBMITTING AGENCY CODE: / SUBMITTING AGENCY NAME:	STORET STATION NUMBER:	DATE (M/D/Y):	TIME	RECEIVING BODY OF WATER:
		9-9-02	11:00	N Prong Alafia R.

REMARKS:	COUNTY:	LOCATION:	FIELD ID/NAME:
Over for lat/long	Polk	Guy Br. below 001	Test Site for Agrifos Nichols FYI

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)
	5	5		10			80 mining

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

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

Width of riparian vegetation (m) On least buffered side: 18

List & map dominant Vegetation on back

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

Artificially Impounded ☐ yes

High Water Mark: 0.4 (m above present water level) + 0.2 (present depth in m) = 0.6 (m above bed)

Typical Width (m) Depth (m)/Velocity (m/sec) Transect: 4 m wide

0.05 m/s | 0.1 m/s | 0.15 m/s

0.2 m deep | 0.1 m deep | 0.1 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 moderate slight severe Silt smothering: none moderate slight severe Other: Shiny Sand Covering

Substrate Type	% coverage	# times sampled	method	Substrate Types	% coverage	# times sampled	method
Woody Debris (Snags)	1.5	4	DipNet	Sand	88	6	DipNet
Leaf Packs of Mats	0.5	3		Mud/Muck/Silt			
Aquatic Vegetation				Other:			
Rock or Shell Rubble				Other:			
Undercut banks/Roots	10	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):			Secchi (m):
Top								0.2L
Mid-depth	0.05	29.65	7.40	6.67	356			
Bottom								

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

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

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

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

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

Weather Conditions/Notes: Mine is closed / globs of bright green goo/algae inactive in water – green on the filter

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

SAMPLING TEAM: BH

SIGNATURE: [signature]

DATE: 9-9-02

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

STREAM/RIVER HABITAT ASSESSMENT FIELD SHEET

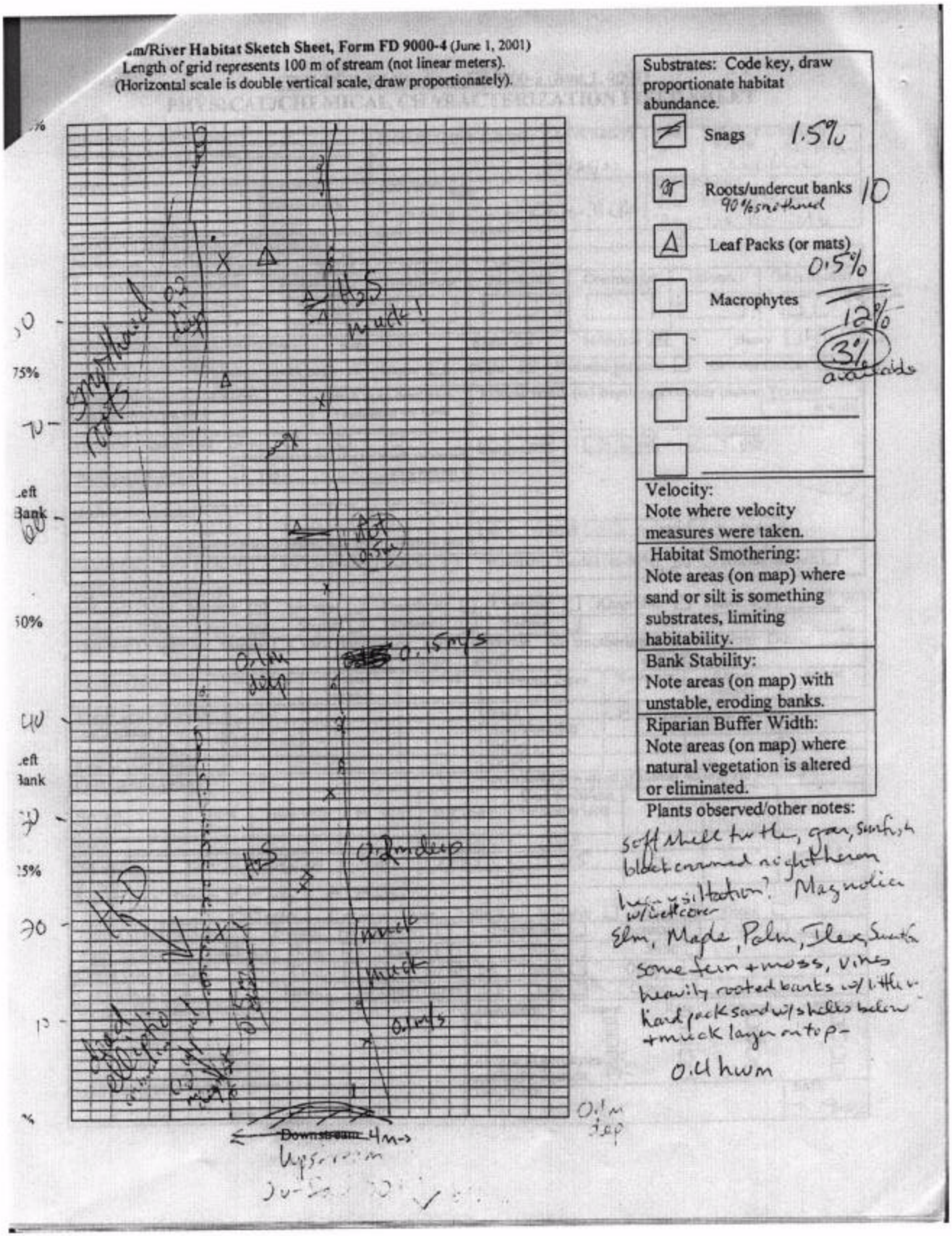
SUBMITTING AGENCY CODE: / SUBMITTING AGENCY NAME:	STORET STATION NUMBER:	DATE (M/D/Y):	RECEIVING BODY OF WATER:
		7-23-02	Thirtymile Cr / Alafia

REMARKS:	COUNTY:	LOCATION:	FIELD ID/NAME:
	Polk	Guy Bond 100m dwnst outfall 001	Agrifos Nichols Test site

Habitat Parameter	Optimal	Suboptimal	Marginal	Poor
Primary Habitat Components **Substrate Diversity** 11	Four or more productive habitats present (snags, tree roots/undercut banks, aquatic vegetation, leaf packs (partially decayed), rock). 20 19 18 17 16	Three productive habitats present. Adequate habitat. Some substrates may be new fall (fresh leaves or snags). 15 14 13 12 11	Two productive habitats present. Less than desirable habitat, frequently disturbed or removed. 10 9 8 7 6	One or less productive habitat. Lack of habitat is obvious, substrates unstable or smothered. 5 4 3 2 1
Substrate Availability 4	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 17 16	Max. observed at typical transect: 0.1 to 0.25 m/sec 0.15 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 Primary Score 29	Less than 20% of habitats affected by sand or silt accumulation 20 19 18 17 16	20%-50% of habitats affected by sand or silt accumulation 15 14 13 12 11	Smothering of 50%-80% of the habitats with sand or silt, pools shallow, frequent sediment movement 10 9 8 7 6	Smothering of >80% of habitats with sand or silt, as severe problem, pools absent 95 5 4 3 2 1
Secondary Habitat Components **Artificial Channelization** 1	No artificial channelization or dredging. Stream with normal, sinuous pattern 20 19 18 17 16	Many have been channelized in the past (>20 yrs), but mostly recovered, fairly good sinuous pattern 15 14 13 12 11	Channelized, somewhat recovered, but > 80% of area affected 10 9 8 7 6	Artificially channelized, box-cut banks, straight, instream habitat highly altered 5 4 3 2 1
Bank Stability Right Bank 7 Left Bank 7	Stable. No evidence of erosion or bank failure. Little potential for future problems. 10 9	Moderately stable. Infrequent or small areas of erosion, mostly healed over. 8 7 6	Moderately unstable. Moderate areas of erosion, high erosion potential during floods. 5 4	Unstable. Many (60%-80%) raw, eroded areas. Obvious bank sloughing. 3 2 1
Riparian Buffer Zone Width Right Bank 10 Left Bank 10	Width of native vegetation (least buffered side) greater than 18 m 10 9	Width of native vegetation (least buffered side) 12m to 18 m 8 7 6	Width of native vegetation 6 to 12 m. human activities still close to system 5 4	Less than 6 m of native buffer zone due to intensive human activities 3 2 1
Riparian Zone Vegetation Quality Right Bank 8 Left Bank 8 Secondary Score 54	Over 80% of riparian surfaces consist of native plants, including trees, understory shrubs, or non-woody macrophytes. Normal, expected plant community for given sunlight & habitat conditions. 10 9	50% to 80% of riparian zone is vegetated, and/or one class of plants normally expected for the sunlight & habitat conditions is not represented. Some disruption in community evident. 8 7 6	25% to 50% of riparian ozone is vegetated, and/or one or two expected classes of plants are not represented. Patches of bare soil or closely cropped vegetation, disruption obvious. 5 4	Less than 25% of streambank surfaces are vegetated and/or poor plant community (e.g. grass monoculture or exotics) present. Vegetation removed to stubble height of 2 inches or less. 3 2 1

(83) **TOTAL SCORE**

ANALYSIS DATE:	ANALYST:	SIGNATURE:
7-23-02	B Hall	


m/River Habitat Sketch Sheet, Form FD 9000-4 (June 1, 2001)
Length of grid represents 100 m of stream (not linear meters).
(Horizontal scale is double vertical scale, draw proportionately).
Substrates: Code key, draw proportionate habitat abundance.
Snags 1.5%
Roots/undercut banks 10
90% smothered
Leaf Packs (or mats) 0.5%
Macrophytes 12%
3% available
Velocity:
Note where velocity measures were taken.
Habitat Smothering:
Note areas (on map) where sand or silt is something substrates, limiting habitability.
Bank Stability:
Note areas (on map) with unstable, eroding banks.
Riparian Buffer Width:
Note areas (on map) where natural vegetation is altered or eliminated.
Plants observed/other notes:
soft shell turtle, gar, sunfish
black crowned night heron
Magnolia
Elm, Maple, Palm, Ilex, Smilax
some fern + moss, vines
heavily rooted banks w/ little
hard pack sand w/ shells below
+ muck layer on top -
0.4 hwm
0.1m deep
0.15m/s
0.2m deep
muck
0.1m/s
Downstream 4m->
Upstream

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

PHYSICAL/CHEMICAL CHARACTERIZATION FIELD SHEET

SUBMITTING AGENCY CODE: / SUBMITTING AGENCY NAME:	STORET STATION NUMBER:	DATE (M/D/Y):	TIME	RECEIVING BODY OF WATER:
		9-9-02	13:30	N Prong Alafia

REMARKS:	COUNTY:	LOCATION:	FIELD ID/NAME:
over for lat/long	Hillsborough	Mizelle Cr & Keysville Rd	Control Site for Agrifos-Nichols FM

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)
5	5	30		10			50 mining

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

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

Width of riparian vegetation (m) On least buffered side: 18

List & map dominant Vegetation on back

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

Artificially Impounded ☐ yes

Typical Width (m) Depth (m)/Velocity (m/sec) Transect 2 m wide

0.1 m/s 0.2 m/s 0.15 m/s

0.1 m deep 0.2 m deep 0.4 m deep

High Water Mark: 1.9 (m above present water level) + 0.1 (present depth in m) = 2.0 (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 moderate severe Silt smothering: none moderate slight severe Other: _____

Substrate Type	% coverage	# times sampled	method	Substrate Types	% coverage	# times sampled	method
Woody Debris (Snags)	5	5	Dipnet	Sand	80	6	Dipnet
Leaf Packs of Mats	1	5		Mud/Muck/Silt			
Aquatic Vegetation				Other:			
Rock or Shell Rubble				Other:			
Undercut banks/Roots	8	5		*Draw aerial view sketch of habitats found in 100 m section*			

WATER QUALITY	Depth (m):	Temp. (°C):	pH (SU):	D.O. (mg/l):	Cond. (umho/cm) Or Salinity (ppt):			Secchi (m):
Top								0.4L
Mid-depth	0.1	27.04	7.90	7.26	554			
Bottom								

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

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

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

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

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

Weather Conditions/Notes:

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

SAMPLING TEAM: BH

SIGNATURE: Bonnie Hale

DATE: 9-9-02

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

STREAM/RIVER HABITAT ASSESSMENT FIELD SHEET

SUBMITTING AGENCY CODE: / SUBMITTING AGENCY NAME:	STORET STATION NUMBER:	DATE (M/D/Y):	RECEIVING BODY OF WATER:
		7-29-02	N. Prong Alafia R.

REMARKS:	COUNTY:	LOCATION:	FIELD ID/NAME:
	Hillsborough	Mizelle Cr @ Keysville Rd	Alafia-Mitchell control site

Habitat Parameter	Optimal	Suboptimal	Marginal	Poor
Primary Habitat Components **Substrate Diversity** 11	Four or more productive habitats present (snags, tree roots/undercut banks, aquatic vegetation, leaf packs (partially decayed), rock). 20 19 18 17 16	Three productive habitats present. Adequate habitat. Some substrates may be new fall (fresh leaves or snags). 15 14 13 12 (11)	Two productive habitats present. Less than desirable habitat, frequently disturbed or removed. 10 9 8 7 6	One or less productive habitat. Lack of habitat is obvious, substrates unstable or smothered. 5 4 3 2 1
Substrate Availability 9	Greater than 30% productive habitat present at site. 20 19 18 17 16	16% to 30% productive habitat, by aerial extent. 15 14 13 12 11	6% to 15% productive habitat 10 9 8 7 6	Less than 5% productive habitat. 5 4 3 2 1
Water Velocity 14	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 0.2 15 (14) 13 12 11	Max. observed at typical transect: 0.05 to 0.1 m/sec 10 9 8 7 6	Max. observed at typical transect: <0.05 m/sec. Or spate occurring: > 1 m/sec 5 4 3 2 1
Habitat Smothering 12 Primary Score 46	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% 15 14 13 12 11	Smothering of 50%-80% of the habitats with sand or silt, pools shallow, frequent sediment movement 10 9 8 7 6	Smothering of >80% of habitats with sand or silt, as severe problem, pools absent 5 4 3 2 1
Secondary Habitat Components **Artificial Channelization** 20	No artificial channelization or dredging. Stream with normal, sinuous pattern 20 19 18 17 16	Many have been channelized in the past (>20 yrs), but mostly recovered, fairly good sinuous pattern 15 14 13 12 11	Channelized, somewhat recovered, but > 80% of area affected 10 9 8 7 6	Artificially channelized, box-cut banks, straight, instream habitat highly altered 5 4 3 2 1
Bank Stability Right Bank 5 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 8 Left Bank 10	Width of native vegetation (least buffered side) greater than 18 m 10 9	Width of native vegetation (least buffered side) 12m to 18 m 8 7 6	Width of native vegetation 6 to 12 m, human activities still close to system 5 4	Less than 6 m of native buffer zone due to intensive human activities 3 2 1
Riparian Zone Vegetation Quality Right Bank 8 Left Bank 7 Secondary Score 63	Over 80% of riparian surfaces consist of native plants, including trees, understory shrubs, or non-woody machrophytes. Normal, expected plant community for given sunlight & habitat conditions. 10 9	50% to 80% of riparian zone is vegetated, and/or one class of plants normally expected for the sunlight & habitat conditions is not represented. Some disruption in community evident. 8 7 6	25% to 50% of riparian ozone is vegetated, and/or one or two expected classes of plants are not represented. Patches of bare soil or closely cropped vegetation, disruption obvious. 5 4	Less than 25% of streambank surfaces are vegetated and/or poor plant community (e.g. grass monoculture or exotics) present. Vegetation removed to stubble height of 2 inches or less. 3 2 1

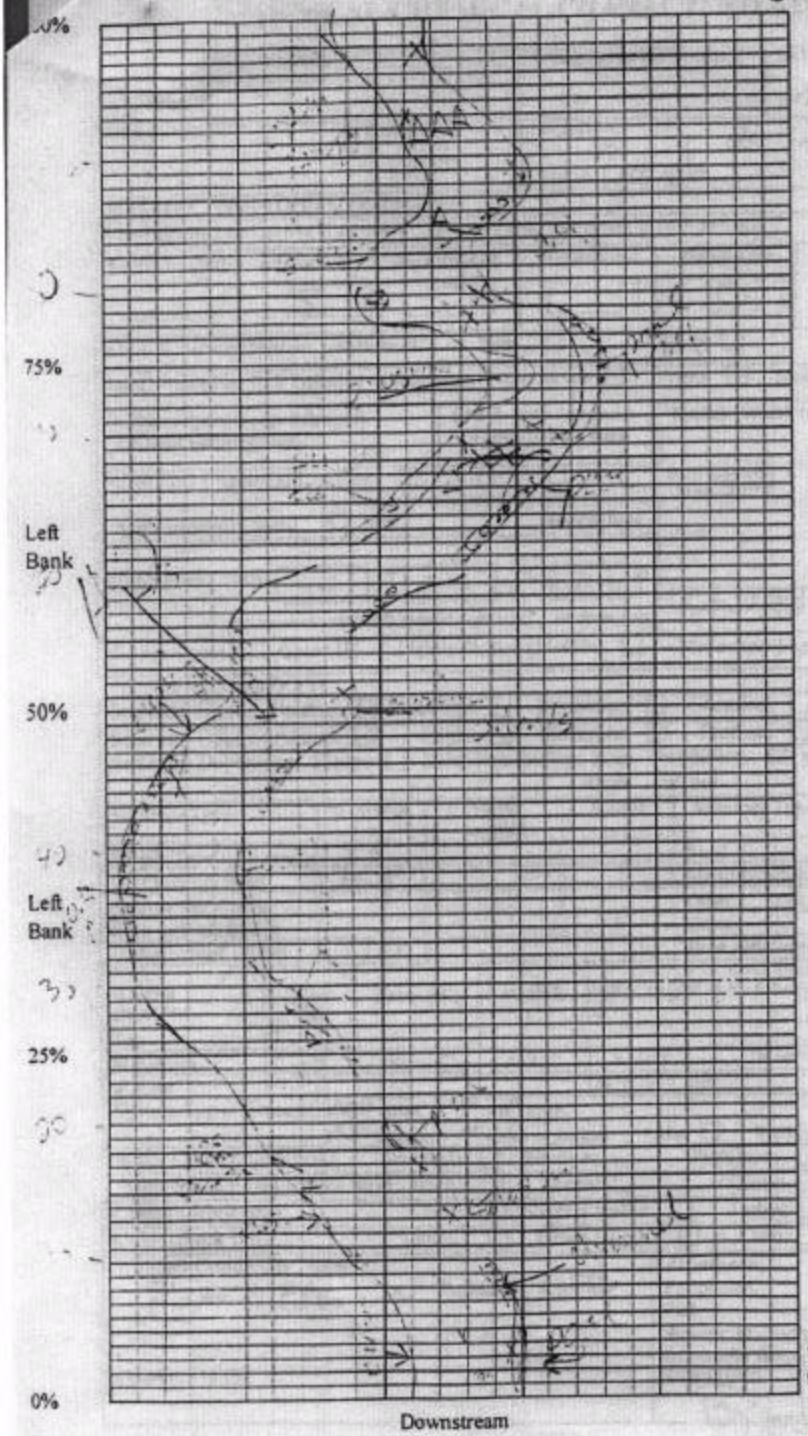
(109) **TOTAL SCORE**

ANALYSIS DATE:	ANALYST:	SIGNATURE:
7-29-02		BHall

Mizelle Cr @ Keysville Rd

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

Nichols
control site



Substrates: Code key, draw proportionate habitat abundance.

- [X] Snags 5%
- [ ] Roots/undercut banks 8%
- [ ] Leaf Packs (or mats) 1%
- [ ] Macrophytes 14%
- [ ] _____
- [ ] _____
- [ ] _____

Velocity: 0.2 m/s
Note where velocity measures were taken.

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

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

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

Plants observed/other notes:

Appendix 9.

Benthic macroinvertebrates collected from Hester-Dendy artificial substrates incubated at a Control Site and a Test Site downstream of the Agrifos Nichols Mine for 28 days. Taxa collected and density (individuals/m^2) rounded to the nearest individual (n = 3 samples from the control site and 2 samples from the test site).

	Control Site	Test Site
Amphipoda:		
Undetermined Amphipoda	-	24
Hyalella azteca	3	1,238
Coleoptera:		
Dineutus sp.	-	8
Dubiraphia sp.	3	-
Elmidae	5	-
Microcylloepus sp.	50	-
Microcylloepus pusillus	48	-
Diptera:		
Ablabesmyia rhamphe grp.	-	294
Chironomidae	66	1,567
Dicrotendipes simpsoni	-	313
Glyptotendipes sp.	-	50,139
Goeldichironomus amazonicus	-	74,171
Goeldichironomus carus	-	353
Hemerodromia sp.	3	-
Palpomyia/bezzia grp.	-	4
Parachironomus sp.	-	60
Paralauterborniella nigrohalterale	5	-
Pentaneura inconspicua	42	-
Polypedilum beckae	-	722
Polypedilum fallax	74	-
Polypedilum flavum	1,146	-
Polypedilum halterale grp.	-	60
Polypedilum scalaenum grp.	132	-
Rheocricotopus robacki	11	-
Rheotanytarsus pellucidus	3	-
Thienemanniella sp.	3	-
Tribelos fuscicornis	16	-
Ephemeroptera:		
Baetidae	8	-
Baetis sp.	3	-
Caenis sp.	-	24
Heptageniidae	13	-
Pseudocloeon sp.	11	-
Stenonema sp.	45	-
Stenonema exiguum	21	-
Gastropoda:		
Ancylidae	-	4
Physella sp.	-	79
Planorbella sp.	-	4
Undetermined Gastropoda	-	28
Amnicola sp.	-	250
Hydrobiidae	-	56
Melanoides sp.	-	4
Pomacea sp.	-	4
Pyrogophorus platyrachis	-	1,548
Viviparus georgianus	-	4
Hirudinea:		
Erpobdellidae	-	4
Gloiobdella elongata	-	111
Helobdella stagnalis	-	4
Placobdella sp.	-	4
Megaloptera:		
Corydalus cornutus	16	12
Odonata:		
Ischnura sp.	-	4
Pelecypoda:		
Sphaeriidae(mollusca)	-	4
Trichoptera:		
Cheumatopsyche sp.	69	4
Hydropsychidae	3	-
Neotrichia sp.	3	-
Oecetis sp.	-	4
Orthotrichia sp.	-	4

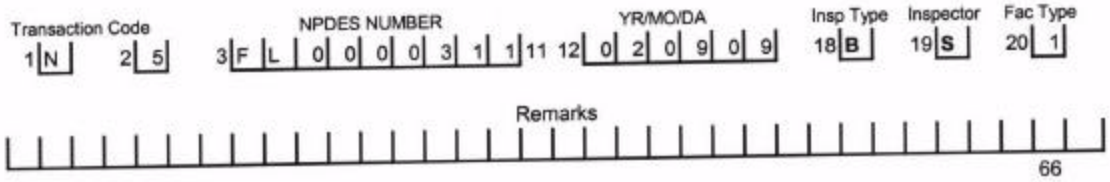
Appendix 10

Qualitative benthic macroinvertebrate collections (n = 20 discrete dipnet sweeps) from a Control Site and a Test Site downstream of the Agrifos Nichols Mine. Taxa lists and number of individuals counted.

	Control Site	Test Site
Amphipoda:		
Hyalella azteca	1	61
Coleoptera:		
Dineutus sp.	-	1
Microcylloepus pusillus	33	-
Diptera:		
Chironomidae	1	-
Glyptotendipes sp.	3	17
Goeldichironomus sp.	1	-
Goeldichironomus amazonicus	-	14
Goeldichironomus carus	-	1
Pentaneura inconspicua	1	-
Polypedilum beckae	-	6
Polypedilum flavum	24	-
Rheotanytarsus exiguus grp.	1	-
Rheotanytarsus pellucidus	2	-
Stenochironomus sp.	1	-
Ephemeroptera:		
Baetidae	1	-
Pseudocloeon sp.	3	-
Gastropoda:		
Amnicola sp.	-	1
Pyrogophorus platyrachis	-	5
Lepidoptera:		
Pyralidae	1	-
Megaloptera:		
Corydalus cornutus	3	-
Nemertea:		
Prostoma sp.	1	-
Pelecypoda:		
Undetermined Pelecypoda	1	-
Trichoptera:		
Cheumatopsyche sp.	17	-

The Bioassay of Agrifos L. L. C., Nichols Mine effluent sampled on September 9, 2002, NPDES #FL0000311.

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



The Priority Pollutants Analysis for Bioassay of Agrifos L. L. C., Nichols Mine effluent sampled on September 9, 2002, NPDES #FL0000311.

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

