Florida
Department of Environmental Protection

Biological Assessment of

Noma Wastewater Treatment Plant

Holmes County

NPDES #FL0040207

Sampled February & April 1993

August 1993

Biology Section
Division of Technical Services

Department of Environmental Protection
Results of Fifth Year Inspections

Discharger: Noma Wastewater Treatment Plant
County: Holmes
NPDES Number: FL0040207
State Permit Expiration Date: 2 June 1993

Toxics Sampling Inspection (XSI)

Date Sampled: 16 February 1993

Results: Diazinon (0.077 µg/L) was found below the practical quantitation limit. No metals were detected in concentrations exceeding ambient standards.

Compliance Biomonitoring Inspection (CBI)

Date Sampled: 16 February 1993

Results: Chlorinated effluent was acutely toxic to *Ceriodaphnia dubia,* and *Notropis leedsi,* killing both organisms within 20 minutes. The 6.0 mg/L residual chlorine observed in this sample is in violation of Rule 17-302.560(13) FAC, as well as the facility's permit. Dechlorinated effluent was also acutely toxic, killing 100% of *C. dubia* and 90% of *N. leedsi* in the 48 hour test. This toxicity violates Rule 17-302.510(5)(p) FAC, Rule 17-302.500(1)(d) FAC, and Rule 17-4.244(3)(ad) FAC. The diazinon measured in the effluent sample could have contributed to the *C. dubia* mortality, and that of the bannerfin shiner was probably related to the unionized ammonia present.

Impact Bioassessment Inspection (IBI)

Date Sampled: 17 February and 29 April 1993

Results: Healthy and diverse benthic macroinvertebrate populations were present at both study sites. This was not unexpected, based on the stream's habitat and flow characteristics, and suggests that the acutely toxic effluent is being diluted to such an extent that problems in the receiving waters are not manifest. Taxa richness at both Wrights Creek stations was better than 90% of other Florida streams. Florida Index values were good, consistent with the expectations for an undisturbed system. Phytoplankton populations were sparse, as would be expected in a swiftly flowing system. Community composition was fairly equally spread over five major algal groups. Chlorophyll *a* levels were below practical quantitation limits, corresponding to the low algal density.

Water Quality Inspection (WQI)

Date Sampled: 16 & 17 February 1993

Results: Unionized ammonia was 0.12 mg/L, a violation of Rule 17-302.560(3) FAC. Total and fecal coliforms exceeded Class III standards at both reference and test sites, probably a result of the flood conditions. Effluent coliform samples were invalidated due to a laboratory error. Nutrient concentrations at the study sites were relatively low, probably because the low-volume, nutrient-rich effluent was sufficiently diluted at the time of sampling. Under drought conditions, nutrient inputs from the facility may contribute to enrichment problems. Algal growth potential (AGP) was very low in the effluent, due to the inhibitory effects of excess residual chlorine. Both study sites yielded AGP values well below the "problem threshold" of 5 mg dry wt/L.

Introduction

The city of Noma, located in northern Holmes County, is served by a small domestic wastewater treatment plant with a design capacity of 0.025 MGD. Treatment consists of extended aeration with a surge tank and sand filter. Effluent is discharged to Wrights Creek, which ultimately enters the Choctawhatchee River.

Permit limits are as follows: BOD_5 (20 mg/L annual average), TSS (20 mg/L annual average), pH (6.0 to 8.5 SU's), chlorine residual (0.01 mg/L maximum), and fecal coliform (200 organisms/100 mL).

During the past several years, poor effluent quality has been documented on many occasions. The Environmental Protection Agency took administrative action in December, 1991, concerning repeated permit violations of total suspended solids, TKN, BOD_5, total residual chlorine, and fecal coliform bacteria limits. Sludge in the contact tank, grease in the clarifier, and excessive chlorine, TSS, and BOD_5 have been common findings during FDEP compliance inspections (see facility summary in Appendix).

Methods

The focus of this investigation was to determine the discharger's effects on the receiving waters. A comparison of biological community health was made between a reference site (located 100 meters above the discharge in Wrights Creek) and a test site (100 meters downstream of the discharge) (see maps in Appendix). A habitat assessment was performed *in situ* to establish comparability between sites. Supplemental physical/chemical data were also collected on the effluent and study sites. Acute screening toxicity bioassays, using *Ceriodaphnia dubia* and *Notropis leedsi* as test organisms, were performed on an effluent sample (Weber 1991). The effluent was analyzed for metals and for organic constituents (base neutral and acid extractables, and pesticide extractables). Additionally, nutrient analyses were performed on effluent, reference, and test sites. Certain parameters (TSS, turbidity, and BOD_5) were measured once during flood stage and again at low flow conditions. Therefore, the values reported will represent the worst case scenario. Methods used for all chemical analyses are on file at the Tallahassee DEP Chemistry Laboratory.

Benthic macroinvertebrate communities were evaluated at reference and test sites. Invertebrates were collected from multiple substrates

Major characteristics of community structure of control and test sites.

	Reference Site	Test Site
Macroinvertebrate Qualitative		
Number of Taxa	43	43
Florida Index	18	21
% Contribution of Dominant Taxon	12.2	37.4
% Diptera	53.7	73.4
% Ephemeroptera	17.1	5.1
% Malacostraca	11.4	0.9
% Oligochaeta	0.8	6.1
% Trichoptera	4.1	7.9
% Coleoptera	4.1	2.3
% Other	8.9	4.2
% Predator/Carnivores	13.5	8.8
% Above Surface Deposit Feeders	43.0	20.9
% Suspension Feeders	17.2	54.3
% Scrapers	10.7	4.8
% Shredders	9.8	4.5
% Below Surface Deposit Feeders	1.1	6.3
% Other	4.6	0.4
Phytoplankton Algae		
Number of Taxa	15	17
% Contribution of Dominant Taxon	26.7	18.2
Chlorophyll a (µg/L)	2.25 T	1.2 T
Diatom/Diatom + B-G Abundance Ratio	0.71	0.54
% Diatoms	40.0	21.2
% Greens	10.0	33.3
% Cryptophytes	26.7	18.2
% Cyanophytes	16.7	18.2
% Other	6.7	9.1
Algal Growth Potential (mg dry wt/l)	1.1	0.5

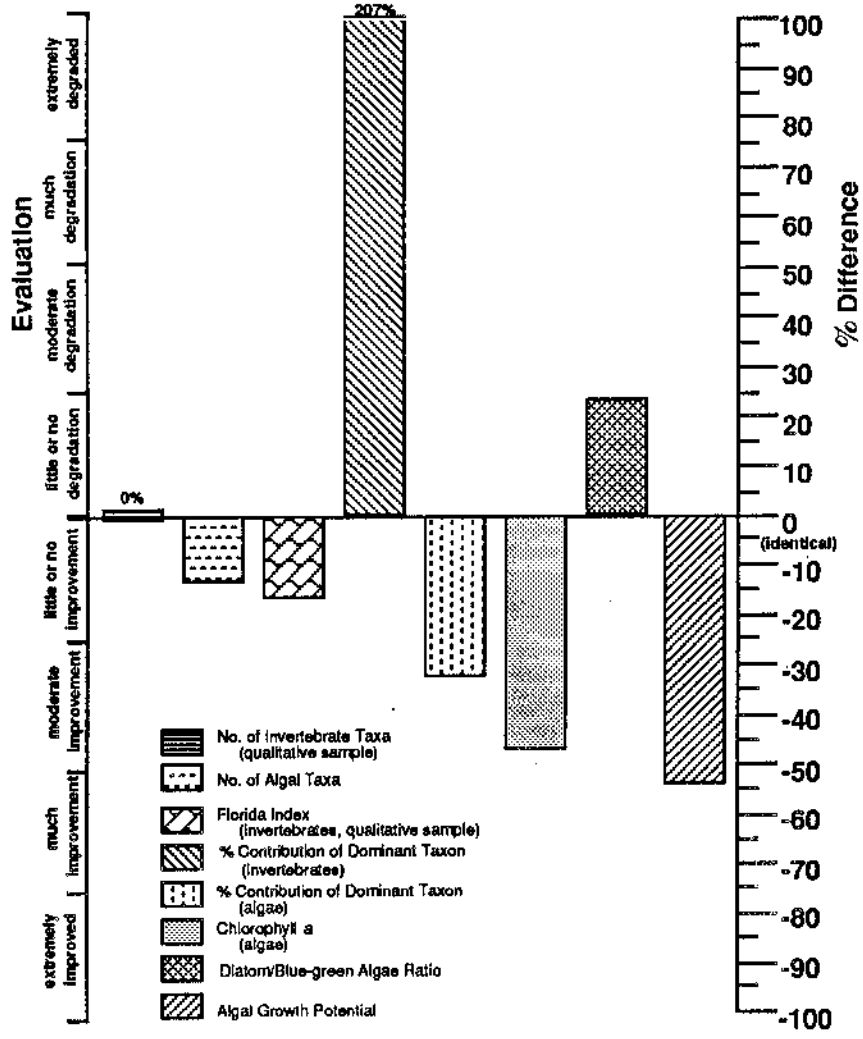
(*e.g.*, snags, leaf packs, vegetation) using discrete dip net sweeps. Phytoplankton was collected at both reference and test sites via subsurface grabs. Chlorophyll *a* was also determined for phytoplankton communities (Ross 1990). Bacterial populations were analyzed for total and fecal coliforms following the methods of APHA (1989). Algal Growth Potential tests, using *Selenastrum capricornutum* as the test organism, followed Miller *et al.* (19 '8).

Explanatio· of Measurements of Community Health

Several different measurements of macroinvertebrat and algal community health have been employed in this report. Mar y of these, such as the number of taxa and chlorophyll *a* are well known. Others are briefly explained here. The Florida Index assigns points to stream-dwelling macroinvertebrates based on their sensitivity to pollution (see Ross 1990). A site with a high Florida Index score is considered healthy (*i.e.*, many clean-water organisms are present). Excessive numerical dominance of a single typ· of organism (a high % contribution o· dominant taxon) is usually associat ·d with disturbance. A decreased diatom to blue-green algae ratio (calculated by dividing the number of individuals in the Bacillariophyta by the number of individuals in the Bacillariophyta + Cyanophyta) is often indicative of nutrient enriched conditions. The determination of the Quantitative Stability Index (for taxonomic % composition) is a two ste· process. First, the relative proporti·ns of major taxonomic groups are cal ·ulated for each site. Then, the lesser of the two percentages for each discrete taxonomic group is totaled. A QSI (for % composition) of 100% means that the two sites being compared are identical. This same type of procedure is used for calculating the QSI (for functional feeding groups).

For graphical purposes, the percent differences between the reference and test sites involving the number of taxa, Florida Index and the diatom to blue-green algae ratio are measured as the reference site minus test site divided by the reference site. The percent differences between sites involving the percent contribution of dominant taxon, chlorophyll *a*, and algal growth potential are measured as the test site minus reference site divided by the reference site.

The following personnel were involved in this investigation: Glenn Butts (DEP Northwest District) and Lyn Burton, Marshall Faircloth, Russel Frydenborg, Kathleen Lurding, Elizabeth Miller, Kim Pearce, Urania Quintana, and Greg Wynn (Tallahassee Biology Laboratory). The report was reviewed by the Point Source Studies Review Committee, consisting of Wayne Magley, Jan Mandrup-Poulsen, and Michael Tanski, as well as District representatives.



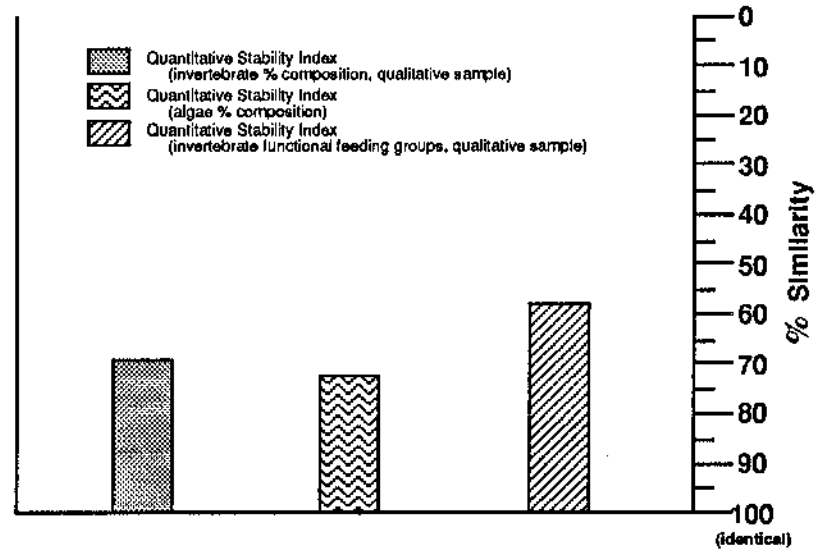
Effect of discharge on receiving stream
(measured as difference between control and test sites).

Results and Discussion

Habitat quality was good at both study sites, with sufficient in-stream substrate and water velocity to favor macroinvertebrate colonization and success. Native plants dominated the stream bank surfaces, and neither area was artificially channelized. Although the test site lost a few points for factors affecting erosion potential, habitat scores at both sites were similar, at 76 and 72 for reference and test sites, respectively (Appendix). Note that habitat assessments were performed along with dip net sampling on 29 April, when water levels were normal (low). Physical/chemical characteristics (measured on 17 February, during flood conditions) indicated little difference between the two sites. Both areas of Wrights Creek were somewhat acidic (reference site = 6.1, test site = 6.2 SU's), with high dissolved oxygen levels (≥ 9.0 mg/L). Specific conductance, total suspended solids, and turbidity were essentially unchanged between the upstream and downstream stations (Appendix).

The pesticide diazinon was detected in the effluent at a concentration of 0.077 µg/L. Although this was below the practical quantitation limit, the diazinon present in the discharge was at least 0.05 µg/L, which is the minimum detection limit. This may be cause for concern, as diazinon is acutely toxic to macroinvertebrates (*Ceriodaphnia dubia*) at 0.35 µg/L (Teresa Norberg-King, USEPA, pers. comm.). The following metals were found in the effluent: aluminum (112 µg/L), iron (94 µg/L), and zinc (12 µg/L). None of these concentrations were in excess of Class III standards.

The effluent sample was extremely toxic to both test organisms.



Effect of discharge on receiving stream
(measured as similarity between control and test sites).

Bioassays performed with the chlorinated discharge (residual Cl_2 of 6.0 mg/L) killed the cladoceran, *Ceriodaphnia dubia*, and the fish, *Notropis leedsi*, within 20 minutes. The level of residual chlorine observed in this sample is in violation of Rule 17-302.560(13) FAC, as well as the facility's permit. Dechlorinated effluent was also acutely toxic, killing 100% of *C. dubia* and 90% of *N. leedsi* in the 48 hour bioassay. This toxicity violates water quality standards for Class III freshwaters, Rule 17-302.510(5)(p) FAC, Rule 17-302.500(1)(d) FAC, and Rule 17-4.244(3)(ad) FAC. The diazinon found in the effluent may have contributed to the *C. dubia* mortality. Mortality of the bannerfin shiner was probably related to ammonia levels found in the discharge. Unionized ammonia, calculated from the temperature and pH measured in the field, was 0.12 mg/L, a level that can be toxic to fish. The Class III standard for unionized ammonia was exceeded, violating Rule 17-302.560(3) FAC.

Nutrients were high in the effluent, with ortho-phosphate and total phosphorus values of 1.0 and 1.2 mg/L, respectively, and concentrations of ammonia and TKN at 16 mg/L. No values for nitrate-nitrite are available for the effluent or study sites, since the blank was contaminated. Nutrient concentrations at the study sites were below average for a Florida stream (see table of typical values in Appendix). Because Wrights Creek is a wide (9 m), swiftly flowing (0.5 m/s) stream, and the discharge from Noma WWTP averages only 0.013 MGD, the nutrient-rich effluent was apparently diluted to non-problem levels at the test site.

Algal growth potential (AGP) was very low in the effluent, and at both study sites. Although the effluent contained ample nutrients for algal growth, the residual chlorine content was obviously inhibitory. On the figure on p. 2, the 55% decrease in AGP at the test site compared to the reference appears to indicate an improvement below the discharge. In reality, both measurements were well below the "problem threshold" of 5 mg dry wt/l used to predict the likelihood of nutrient enrichment problems, such as nuisance algal or

macrophyte growth, D.O. sags, and fish kills (Raschke and Schultz 1987).

Total coliform (reference site = 4100 organisms/100 mL, test site = 4200 organisms/100 mL) and fecal coliform bacteria (reference site = 2400 organisms/100 mL, test site = 3900 organisms/100 mL) exceeded Class III standards. These elevated bacterial populations may have been related to the flood conditions (= increased non-point source runoff and turbidity) present at the time of sampling.

Healthy and diverse benthic macroinvertebrate populations were present at both study sites. This was not unexpected based on the habitat and flow characteristics, and suggests that the acutely toxic effluent is being diluted to such an extent that problems in the receiving waters are not manifest. The figure on p. 2 indicates the degree of difference between the control and test sites. Larger differences (that is, higher percentages) correspond with greater degrees of degradation. Negative values mean that the test site is better than the control. The figure on p. 3 summarizes similarities between the sites. Smaller similarities (lower percentages) generally correspond with greater degradation, unless the test site is better than the reference site. The relative abundance of each individual taxon appears in the Appendix.

Forty-three taxa were collected from both the reference site and the test site. This demonstrates that healthy conditions prevailed at both Wrights Creek stations, since this taxa richness is better than 90% of other Florida streams. The reference site received 18 Florida Index points, while the downstream site received 21. These findings are consistent with the Florida Index value (20 points) expected from an undisturbed north Florida stream. The only measurement indicating degradation was the percent contribution of dominant taxon, which was 207% higher at the test site. Larvae of the fairly pollution sensitive chironomid, *Rheotanytarsus exiguus* grp., made up 37.4% of the downstream population, contributing to the increased percentage of dipterans. This group of chironomid midges is commonly found in high numbers during certain times of the year in natural systems, and their presence does not indicate anthropogenic disturbance.

The Quantitative Stability Index for functional feeding groups demonstrated a reduced similarity between the reference and test sites. This is directly related to the decrease in the above surface deposit feeders with a corresponding increase in the proportion of suspension feeders at the test site, a result of the moderately abundant population of *R. exiguus* group found there.

Phytoplankton was sparse in Wrights Creek, as would be expected in a swiftly flowing system. Periphyton racks were not deployed, so the attached algal community could not be evaluated. While only 15 and 17 taxa were collected from reference and test sites, respectively, community composition was fairly equally spread over five major algal groups (see taxa list in Appendix). Chlorophyll *a* levels corresponded to the low algal density, and were below the practical quantitation limit.

Conclusions

The sample of effluent collected from the Noma WWTP was acutely toxic to the water flea, *Ceriodaphnia dubia*, and the bannerfin shiner, *Notropis leedsi*, in 48 hour static bioassays. Chlorinated effluent (6.0 mg/L) killed test organisms in both tests within 20 minutes of exposure. The level of residual chlorine observed in this sample is in violation of Rule 17-302.560(13) FAC, as well as the facility's permit. Dechlorinated effluent was also acutely toxic, killing 100% of *C. dubia* and 90% of *N. leedsi* in the 48 hour test. This toxicity violates water quality standards for Class III freshwaters, Rule 17-302.510(5)(p) FAC, Rule 17-302.500(1)(d) FAC, and Rule 17-4.244(3)(ad) FAC. The diazinon measured in the effluent sample could have contributed to the *C. dubia* mortality. Death of the bannerfin shiner was probably related to the unionized ammonia level present in the discharge sample.

The pesticide diazinon (0.077 µg/L) was found in the effluent at a level below the practical quantitation limit. The actual diazinon concentration is at least 0.05 µg/L, which is the minimum detection limit. Diazinon is acutely toxic to invertebrates at 0.35 µg/L. The following metals were found in the effluent: aluminum (112 ug/L), iron (94 µg/L), and zinc (12 µg/L). None of these concentrations were in excess of ambient standards.

Nutrients were high in the effluent, with phosphorus-containing compounds at greater than or equal to 1.0 mg/L. Concentrations of ammonia and TKN were both 16 mg/L. Unionized ammonia, calculated using pH and temperature measured in the field, was 0.12 mg/L, a violation of the Class III standard of 0.02 mg/L, Rule 17-302.560(3) FAC. Nutrient concentrations at the study sites were relatively low. Because Wrights Creek is a wide, swiftly flow-

ing system, the low-volume, nutrient-rich effluent appeared to be sufficiently diluted during this sampling. Under drought conditions, the observed level of nutrient input may contribute to enrichment problems.

Algal growth potential (AGP) was very low in the effluent, obviously due to the inhibitory effects of excess residual chlorine. Both study sites yielded AGP values well below the "problem threshold" of 5 mg dry wt/L used to predict the likelihood detrimental consequences of surplus nutrients.

Coliform bacterial populations exceeded ambient standards at both reference and test sites, probably a result of the flood conditions present at the time of sampling.

Healthy and diverse benthic macroinvertebrate populations were present at both study sites. This was not unexpected, based on the stream's habitat and flow characteristics, and suggests that the acutely toxic effluent is being diluted to such an extent that problems in the receiving waters are not manifest. Taxa richness at both Wrights Creek stations was better than 90% of other Florida streams. Florida Index values were good, consistent with the expectations for an undisturbed system. Although *Rheotanytarsus exiguus* grp., was moderately abundant at the test site, the presence of this fairly pollution sensitive organism was not thought to indicate anthropogenic disturbance.

Phytoplankton populations were sparse in Wrights Creek, as would be expected in a swiftly flowing system. While only 15 and 17 taxa were collected from reference and test sites, respectively, community composition was fairly equally spread over five major algal groups. Chlorophyll *a* levels were below practical quantitation limits, corresponding to the low algal density.

Literature Cited

American Public Health Assoc., American Water Works Assoc., and Water Pollution Control Federation. 1989. Standard Methods for the Examination of Water and Wastewater, 17th ed. New York, N.Y. 1268 p.

Miller, W. E., T. E. Maloney, and J. C. Greene. 1978. The *Selenastrum capricornutum* Printz algal assay bottle test. U. S. Environ. Prot. Agency, EPA-600/9-78-018. 126 p.

Raschke, R. L. and D. A. Schultz. 1987. The use of the algal growth potential test for data assessment. J. Wat. Poll. Cont. Fed. 59(4): 222-227.

Ross, L. T. 1990. Methods for aquatic biology. Fla. Dept. Environ. Reg. Tech. Ser. 10(1): 1-47.

Weber, C. I. 1991. Methods for measuring the acute toxicity of effluents to freshwater and marine organisms. 4th edition. EPA/600/4-90/027. U. S. EPA, Cincinnati, Ohio. 216 pp.

Chemistry summary table for

Noma WWTP	Effluent	Reference Site	Test Site
Organic Constituents (ug/L)			
Diazinon	0.077 T (MDL = 0.05)		
Metals (ug/L)			
Aluminum	112 A		
Antimony	15 U		
Arsenic	20 U		
Cadmium	0.16 U		
Copper	5 U		
Chromium	10.U		
Iron	94 A		
Lead	15 U		
Mercury	0.1 0 U		
Nickel	5 U		
Selenium	30 U		
Silver	0.10 U		
Zinc	12 A		
Nutrients (mg/L)			
Ortho-phosphate	1.0 A	0.055	0.055
Total phosphorus	1.2	0.046 T	0.06
Ammonia	16	0.050 A	0.06
Nitrate+Nitrite	Blank Contaminated		
TKN	16	0.55	0.46
Other Parameters			
Habitat Assessment		76	72
D. O. (mg/L)	6.7	9.8	9.0
pH (SU's)	7.3	6.2	6.1
Specific Conductance (µmhos/cm)	645	40	40
Temperature (°C)	16.6	12.0	13.8
Hardness (mg CaCO3)	85.3		
Algal Growth Potential (mg dry wt/L)	0.04	1.1	0.5
BOD5 (mg/L)	38.0	1.4	1.1
TSS (mg/L)	35	13	14
Turbidity (NTU's)	20	35	35
Bioassay Fish-Dechlorinated	LC50 < 100%		
Bioassay Invertebrate-Dechlorinated	LC50 < 100%		
Bioassay Fish-Chlorinated	100% mortality in 20 minutes		
Bioassay Invertebrate-Chlorinated	100% mortality in 20 minutes		
Fecal Coliform (org/100 mL)	Suspect results not valid	2400	3900
Total Coliform (org/100 mL)		4100	4200

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

Q - Sample held beyond normal holding time

T - Value reported is less than the practical quantitation limit

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

Typical Values for Selected Parameters in Florida Waters

Adapted from Joe Hand, FDER, personal communication, 1991
(data was collected between 1980 and 1989)

Parameter	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	95%
	Percentile Distribution										
STREAMS (1617 stations)											
Phytoplankton Chlorophyll *a*	0.22	0.52	0.94	1.60	3.02	4.63	6.72	9.87	14.68	27.35	48.70
Periphyton Chlorophyll *a*	0.31	0.43	0.77	1.04	2.16	2.94	6.45	10.51	17.00	39.51	60.85
H-D Diversity	0.84	2.12	2.48	2.74	2.88	3.09	3.25	3.40	3.52	3.76	3.90
Qualitative Taxa Richness	9.00	12.00	17.00	20.00	22.00	24.50	26.00	28.00	31.00	37.00	53.00
H-D Taxa Richness	6.00	6.50	9.00	11.50	13.00	15.00	17.00	21.50	26.00	29.00	32.00
TKN	0.30	0.39	0.56	0.73	0.87	1.00	1.11	1.26	1.49	1.93	2.80
Ammonia	0.02	0.02	0.04	0.05	0.06	0.08	0.11	0.14	0.20	0.34	0.60
NO2-NO3	0.01	0.01	0.03	0.05	0.07	0.10	0.14	0.20	0.32	0.64	1.05
Total Phosphorus	0.02	0.03	0.05	0.06	0.10	0.13	0.18	0.25	0.39	0.74	1.51
Ortho Phosphorus	0.01	0.01	0.03	0.04	0.05	0.08	0.11	0.17	0.27	0.59	1.37
Turbidity	0.60	0.90	1.20	1.45	2.10	2.80	3.60	4.50	6.65	10.45	16.30
LAKES (477 stations)											
Phytoplankton Chlorophyll *a*	0.80	1.71	2.88	4.28	10.06	13.40	20.00	30.10	47.20	65.44	113.90
Dredge Diversity	0.71	0.97	1.43	1.74	1.98	2.12	2.21	2.59	2.85	3.15	3.17
Dredge Taxa Richness	3.00	5.00	6.50	7.00	9.00	10.00	11.00	13.00	15.00	17.00	21.00
TKN	0.36	0.49	0.67	0.83	1.08	1.26	1.40	1.51	1.68	2.11	3.46
NH3+NH4	0.01	0.02	0.02	0.03	0.04	0.06	0.08	0.12	0.15	0.21	0.28
NO2-NO3	0.00	0.00	0.01	0.01	0.01	0.02	0.04	0.05	0.10	0.14	0.23
Total Phosphorus	0.01	0.02	0.02	0.03	0.05	0.07	0.09	0.11	0.14	0.23	0.42
Ortho-Phosphorus	0.00	0.01	0.01	0.02	0.03	0.04	0.05	0.06	0.08	0.21	0.32
Turbidity	1.00	1.25	1.55	2.05	2.75	4.50	6.45	9.60	14.10	26.00	40.00
ESTUARIES (690 stations)											
Phytoplankton Chlorophyll *a*	2.14	3.28	[illegible]49	5.13	6.00	6.93	7.94	9.60	12.40	17.60	22.20
Dredge Diversity	1.34	1.53	[illegible]91	2.28	2.56	2.90	3.15	3.59	4.01	4.53	4.98
Dredge Taxa Richness	4.00	6.00	9.00	11.00	15.00	18.50	25.00	35.00	41.00	62.00	90.00
TKN	0.26	0.34	0.42	0.50	0.59	0.69	0.76	0.82	0.95	1.30	1.49
NH3+NH4	0.01	0.02	0.03	0.04	0.05	0.06	0.08	0.09	0.13	0.22	0.28
NO2-NO3	0.00	0.00	0.01	0.01	0.01	0.02	0.03	0.05	0.08	0.17	0.23
Total Phosphorus	0.01	0.02	0.06	0.07	0.10	0.11	0.14	0.17	0.23	0.43	0.59
Ortho-Phosphorus	0.01	0.02	0.03	0.04	0.04	0.05	0.07	0.09	0.12	0.21	0.44
Turbidity	3.50	4.00	4.50	5.05	5.40	5.60	6.30	6.80	8.00	11.40	11.75

Units:
Phytoplankton Chlorophyll *a* (ug/L), Periphyton Chlorophyll *a* (mg/m^2), Nutrients (mg/L), Turbidity (NTU), Taxa richness and diversity values are for macroinvertebrates

Facility Summary

Facility Name:
Noma WWTP

Date Summary Prepared:
May 12, 1993

Location map: County: Holmes — District: FDER NW

NPDES Permit # expiration date FL0040207

State GMS # expiration date 1030M01113

Facility Type: Ind. Dom. Fed. Agric.

Function of facility: This is a small domestic wastewater plant serving 300 people.

Description of treatment process: This is a 0.025 mg/d extended aeration WWTP with surge tank, sand filter and final discharge to Wright Creek.

Receiving waters: Wright Creek 150 m below SR 2 Classification: I II III

Design Flow: 0.025 mg/d Mean Flow: 0.013 mg/d Flow during survey:

Discharge is: (Continuous) Intermittent Seasonal Rainfall dependent
Other (describe)
best time to sample is: Low Flow Period

If facility has a mixing zone, give details (size, parameters, etc.)

No Mixing Zone

List effluent limits (attach relevant paperwork):

Parameter	Limit (units)
pH	6.0-8.5 SU
Chlorine Res	0.01 mg/l Max
BOD	20 mg/l Max annual ave
TSS	20 mg/l Max annual ave
Fecal Coliform	200/100 ml Max

List permit violations (from MOR data or other source) and plant upsets within past year:
Usual findings from CSI are excessive chlorine, sludge in the contact tank, grease in clarifier, high TSS, BOD

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

EPA Administrative Penalties Dec 5, 1991. NOV notifications from DER following CSI Reports 02/18/93, 10/15/92, and 05/06/92

Discuss comparability of MOR results to past FDER results and whether there are trends (improving, declining) in the data set:

Trends indicate a history of poor performance from this facility

Additional information:

Staff contributing to this review (signature)

Glenn Butts	Biologist
Charley Reyes	Inspector
	Engineer
	Other
	Other

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET, N.E.
ATLANTA, GEORGIA 30365

DEC 05 1991

Tom - F47
Fish

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

REF: 4WP-EB

Honorable Robert L. Skipper, Mayor
[redacted]
Town Hall, Main Street
County Road 175
Noma, Florida 32452

RE: Tentative Consent Agreement and Order Assessing Administrative Penalties; Docket No. CWA-IV 91-528

Dear Mayor Skipper:

Pursuant to the informal telephone conference between the Town's representatives and the United States Environmental Protection Agency ("EPA") on October 31, 1991, enclosed please find a tentative Consent Agreement and Order Assessing Administrative Penalties. If after review, you find that this document accurately reflects the tentative agreement reached at the above-mentioned informal conference, please sign and return it to Mr. Peter T. McGarry, Chief Florida/Mississippi Unit, Enforcement Section, Facilities Performance Branch, Water Management Division, U.S. EPA, 345 Courtland Street, Atlanta, GA 30365.

Once the Consent Agreement is formalized with both your signature and the signature of the appropriate EPA official, an executed copy will be sent to you The issuance of this Consent Agreement shall constitute a waiver by you of your right to a hearing on, and to a Judicial appeal of, the agreed upon civil penalty.

If you have any questions, please contact Mr. McGarry of my staff at (404) 347-7428.

Sincerely yours,

Original Signed By

W. Ray Cunningham, Director
Water Management Division

RECEIVED
DEC - 9 1991
Northwest Florida
DER

Enclosure

cc: Florida Department of ✓
Environmental Regulation

Regional Hearing Clerk

Office of Regional Counsel

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and notified the public of an Administrative Complaint, Docket No. CWA-IV 91-528 which included formal findings of violation, notice of a proposed assessment of a civil penalty against Respondent, and notice of Respondent's opportunity to request a hearing on the proposed administrative penalty assessment. EPA Region IV has taken into consideration any public comments timely received.

3. On September 10, 1991, the State of Florida was given an opportunity to consult with EPA regarding the assessment of an administrative penalty against Respondent. EPA Region IV has taken into consideration any comments received from the State.

4. Respondent has [redacted] Section 301(a) of the Act, 33 U.S.C. Section 1311(a), by violating Part I.A.1. of its NPDES Permit No. FL0040207, which Permit has been issued to Respondent pursuant to Section 402 of the Act, 33 U.S.C. Section 1342, by exceeding the [redacted] monthly average influent quantity limitation in November 1990.

Respondent has [redacted] 301(a) of the Act, 33 U.S.C. Section 1311(a), by violating Part I.A.1. of its NPDES Permit No. FL0040207, which Permit has been issued to Respondent pursuant to Section 402 of the Act, 33 U.S.C. Section 1342, by exceeding the [redacted] weekly average quantity limitation in November and December 1990.

Respondent has [redacted] Section 301(a) of the Act, 33 U.S.C. Section 1311(a), by violating Part I.A.1. of its NPDES Permit No. FL0040207, which Permit has been issued to Respondent pursuant to Section 402 of the Act, 33 U.S.C. Section 1342, by exceeding the [redacted] monthly average concentration limitation in September 1989 and December 1990.

Respondent has [redacted] 01(a) of the Act, 33 U.S.C.

Section 1311(a), by violating Part I.A.1. of its NPDES Permit No. FL0040207, which Permit has been issued to Respondent pursuant to Section 402 of the Act, 33 U.S.C. Section 1342, by exceeding the [redacted] weekly average concentration limitation in December 1990.

Respondent has [redacted]) of the Act, 33 U.S.C. Section 1311(a), by violating Part I.A.1. of its NPDES Permit No. FL0040207, which Permit has been issued to Respondent pursuant to Section 402 of the Act, 33 U.S.C. Section 1342, by exceeding the [redacted] monthly average influent quantity limitation in December 1987, February 1988 and May and June 1989.

Respondent has [redacted] 301(a) of the Act, 33 U.S.C. Section 1311(a), by violating Part I.A.1. of its NPDES Permit No. FL0040207, which Permit has been issued to Respondent pursuant to Section 402 of the Act, 33 U.S.C. Section 1342, by exceeding the [redacted] weekly average influent quantity limitation in December 1987, February and October 1988, March, April and June 1989, and February and November 1990.

Respondent has [redacted] of the Act, 33 U.S.C. Section 1311(a), by violating Part I.A.1. of its NPDES Permit No. FL0040207, which Permit has been issued to Respondent pursuant to Section 402 of the Act, 33 U.S.C. Section 1342, by exceeding the [redacted] monthly average concentration limitation in November and December 1987, January through May and December 1988, and January through September 1989.

Respondent has [redacted]) of the Act, 33 U.S.C. Section 1311(a), by violating Part I.A.1. of its NPDES Permit No. FL0040207, which Permit has been issued to Respondent pursuant to Section 402 of the Act, 33 U.S.C. Section 1342, by exceeding the

[redacted]eekly average concentration limitation in December 1987, January through May, October and December 1988, January through September 1989, February, November and December 1990.

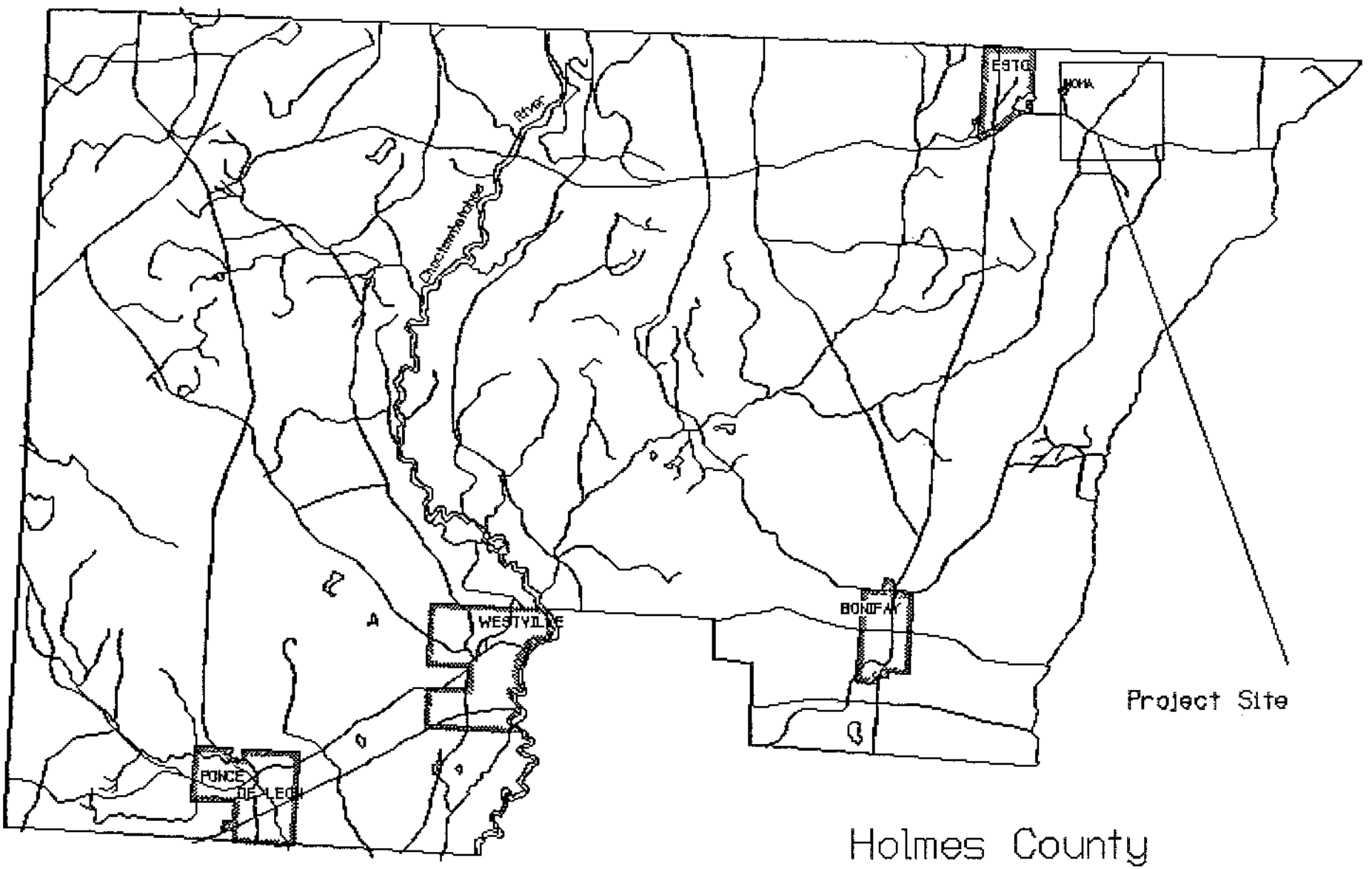
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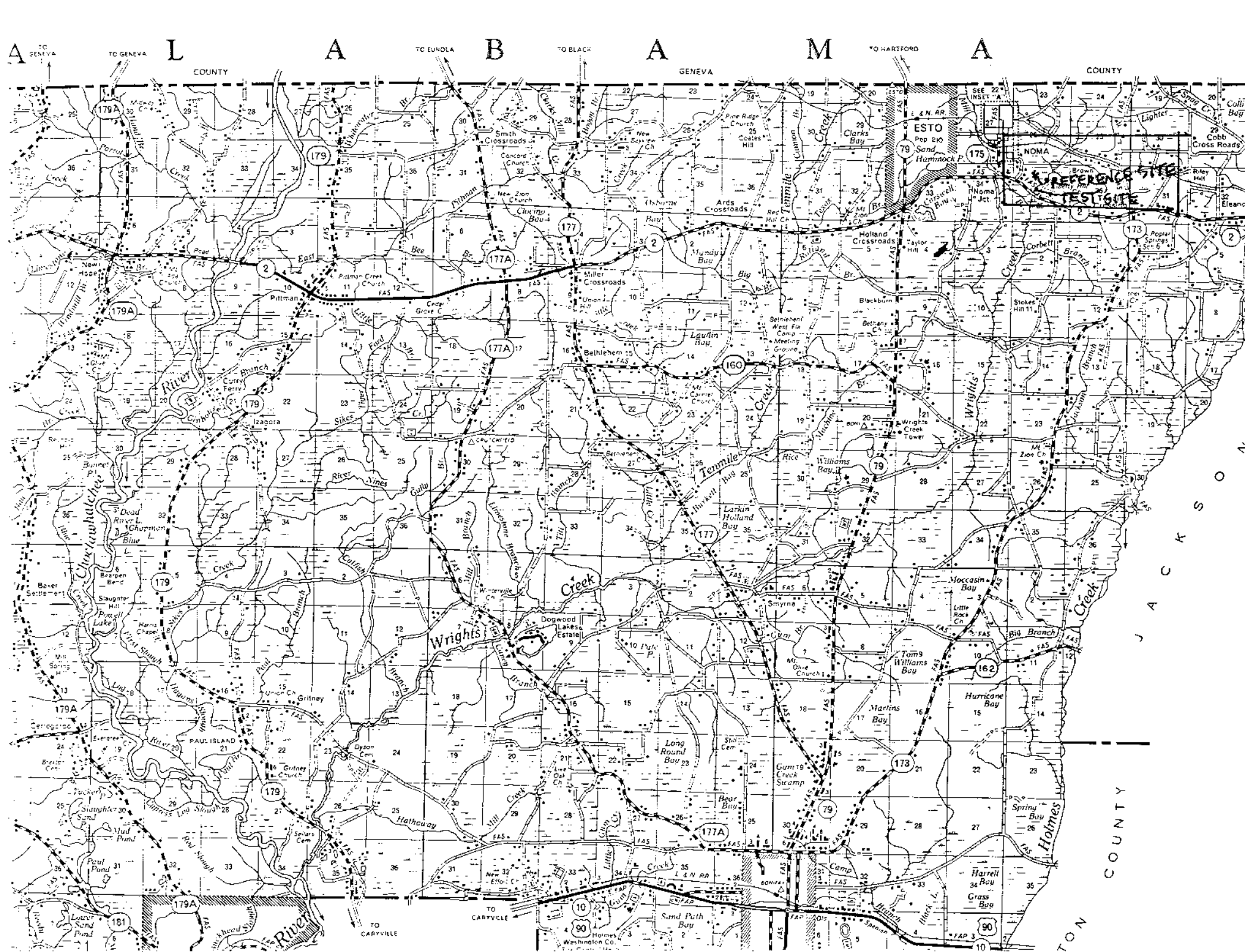
Respondent has [redacted]301(a) of the Act, 33 U.S.C. Section 1311(a), by violating Part I.A.1. of its NPDES Permit No. FL0040207, which Permit has been issued to Respondent pursuant to Section 402 of the Act, 33 U.S.C. Section 1342, by exceeding the [redacted]weekly average concentration limitation in May 1989.

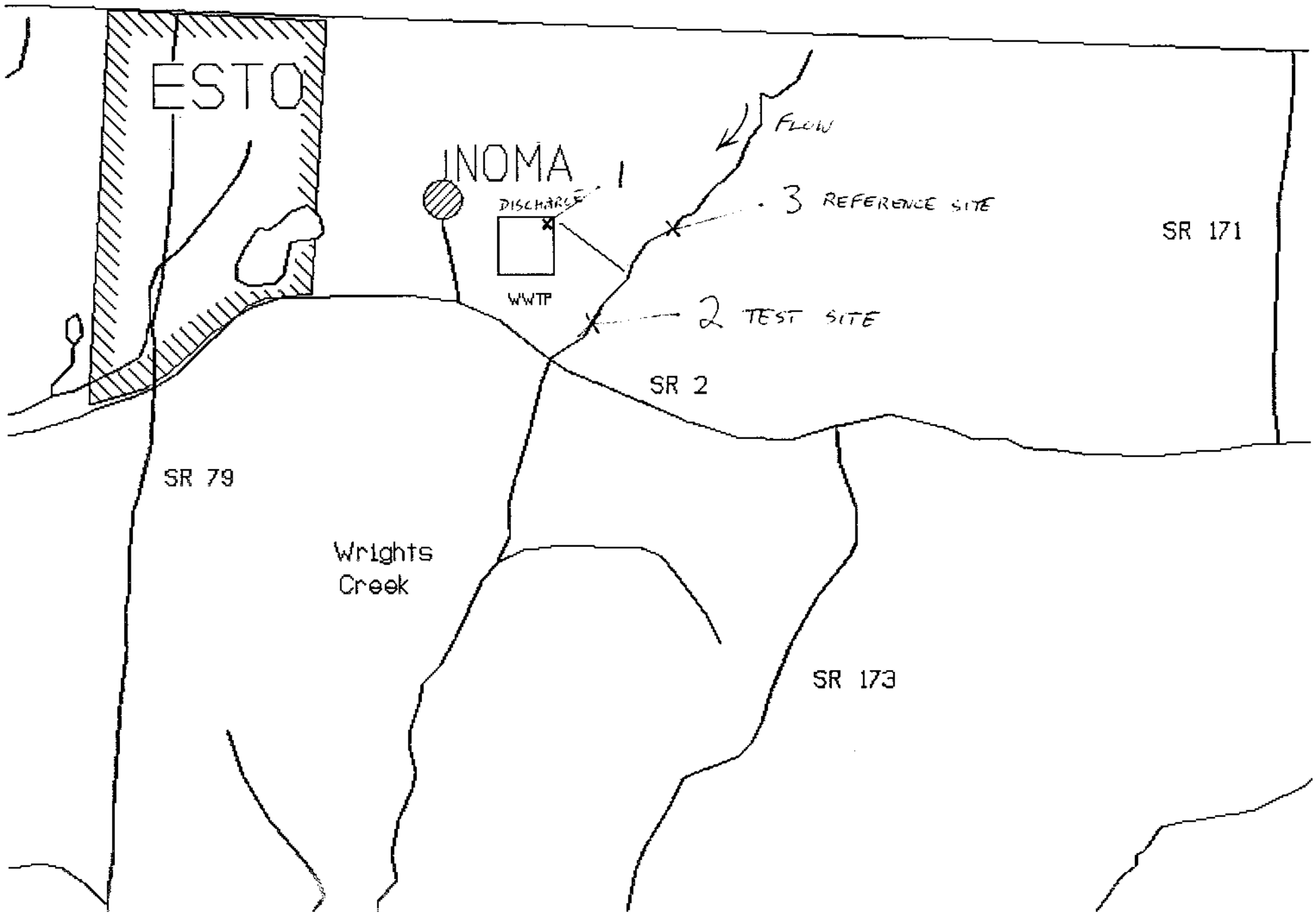
Respondent has [redacted] 301(a) of the Act, 33 U.S.C. Section 1311(a), by violating Part I.A.2. of its NPDES Permit No. FL0040207, which Permit has been issued to Respondent pursuant to Section 402 of the Act, 33 U.S.C. Section 1342, by exceeding the [redacted]maximum concentration limitation in December 1990.

Respondent has[redacted]n 301(a) of the Act, 33 U.S.C. Section 1311(a), by violating Part I.A.4. of its NPDES Permit No. FL0040207, which Permit has been issued to Respondent pursuant to Section 402 of the Act, 33 U.S.C. Section 1342, by exceeding the [redacted] limitation in February 1991.

Respondent has [redacted]301(a) of the Act, 33 U.S.C. Section 1311(a), by violating Part I.B.2. of its NPDES Permit No.


Project Site
Holmes County


ALABAMA
GENEVA COUNTY
TO GENEVA
TO EUNOLA
TO BLACK
TO HARTFORD
JACKSON COUNTY
ESTO
Pop 210
NOMA
REFERENCE SITE
TEST SITE
SEE INSET "A"
Pittman
Izagora
Bethlehem
Miller Crossroads
Smith Crossroads
Ards Crossroads
Holland Crossroads
Blackburn
Dogwood Lakes Estate
Smyrna
Grittney
PAUL ISLAND
TO CARYVILLE
Holmes Co.
Washington Co.
Chipley
Chattahoochee River
Choctawhatchee River
Wrights Creek
Tennile Creek
Holmes Creek
Pittman Creek
Bee Branch
Sikes Branch
Cutfish Creek
Hathaway Mill Creek
Paul Island
Long Round Bay
Gum Tree Creek Swamp
Bear Bay
Spring Bay
Harrell Bay
Grass Bay
Sand Path Bay
Hurricane Bay
Martins Bay
Moccasin Bay
Tom9 Williams Bay
Williams Bay
Larkin Holland Bay
Laurin Bay
Mundy Bay
Clarks Bay
Sand Hammock P.
Powell Lake
Slaughter Sand
Mud Pond
Paul Pond
Leaver Sand Pond
Dead River L.
Churchton L.
Beaver Settlement
Bearpen Bend
Slaughter Hill
Cerrogordo
Dyson Cem.
Grittney Church
Still Cem.
Live Oak Ch.
Mt. Olive Church
Mt. Carmel Church
Mt. Zion Ch.
Little Rock Ch.
Wrights Creek Tower
Bethlehem West Fla. Camp Meeting Ground
Holland Crossroads
Taylor Hill
Stokes Hill
Riley Hill
Cobb Cross Roads
Poplar Springs Sch. 6
Eleano
L & N. RR
SEABOARD
FAP 3
FAP 10
FAS
179A
179
177
177A
175
173
162
160
181
90
10
2
79


ESTO
INOMA
DISCHARGE 1
WWTP
FLOW
3 REFERENCE SITE
2 TEST SITE
SR 171
SR 2
SR 79
Wrights
Creek
SR 173

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION
FRESHWATER BENTHIC HABITAT ASSESSMENT FIELD DATA SHEET

SUBMITTING AGENCY CODE: / SUBMITTING AGENCY NAME:	STORET STATION NUMBER:	DATE (M/D/Y):	RECEIVING BODY OF WATER:

REMARKS:	LOCATION:	FIELD ID/NAME:

Habitat Parameter / score	Excellent	Good	Fair	Poor
Bottom Substrate/ Available Cover 20	Greater than 40% snags, logs, tree roots, emergent vegetation, leaf packs, undercut banks, rubble, or other stable habitat. **23-30 points**	20% to 40% snags, logs, tree roots, emergent vegetation, leaf packs, etc. Adequate habitat. **16-22 points**	5% to 20% snags, logs, tree roots, emergent vegetation, leaf packs, etc. Less than desirable habitat. **8-15 points**	Less than 5% snags, logs, tree roots, emergent vegetation, leaf packs, etc. Lack of habitat is obvious. **0-7 points**
Water Velocity 17	Max. observed; >0.3 m/sec. **23-30 points**	Max. observed; 0.1 to 0.3 m/sec **16-22 points**	Max. observed; 0.05 to 0.1 m/sec **8-15 points**	Max. observed; <0.05 m/sec **0-7 points**
Artificial Channel/ Flow Alteration 17	No artificial channelization. Little activity (impervious surface) in watershed which would cause scouring during spates. **12-15 points**	—	—	Artificially channelized, or scouring present during spates because of excess impervious surface in watershed. **0-3 points**
Bank Stability 10	Stable. No evidence of erosion or bank failure. Little potential for future problems. **9-10 points**	Moderately stable. Infrequent or small areas of erosion, mostly healed over. **6-8 points**	Moderately unstable. Moderate areas of erosion, high erosion potential during floods. **3-5 points**	Unstable. Many raw, eroded areas. Obvious bank sloughing. **0-2 points**
Riparian Zone Vegetation Quality 9	Over 80% of streambank surfaces consist of native plants, classified as: bottomland hardwoods, understory shrubs, or non-woody macrophytes. **9-10 points**	50% to 80% of riparian zone is vegetated, but one class of plants is not represented. **6-8 points**	25% to 50% of riparian zone is vegetated, but one or two classes of plants are not represented. **3-5 points**	Less than 25% of streambank surfaces are vegetated. Poor plant community (e.g. grass monoculture) present. **0-2 points**

Adjustments		TOTAL SCORE
5	Add **5 points** if cross-sectional area of flow is estimated to be greater than one square meter during periods of normal flow.	

COMMENTS:

ANALYSIS DATE:	ANALYST:	SIGNATURE:
04-29-93	G.L. BUTTS	

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION
FRESHWATER BENTHIC HABITAT ASSESSMENT FIELD DATA SHEET

SUBMITTING AGENCY CODE: 8010 / SUBMITTING AGENCY NAME: FDER NW	STORET STATION NUMBER: 32.02.0002	DATE (M/D/Y): 04-29-93	RECEIVING BODY OF WATER: WRIGHT CREEK

REMARKS:	LOCATION: 100 M BELOW NOMA NEAR SR 2	FIELD ID/NAME: # 2

Habitat Parameter / score	Excellent	Good	Fair	Poor
Bottom Substrate/ Available Cover 20	Greater than 40% snags, logs, tree roots, emergent vegetation, leaf packs, undercut banks, rubble, or other stable habitat. **23-30 points**	20% to 40% snags, logs, tree roots, emergent vegetation, leaf packs, etc. Adequate habitat. **16-22 points**	5% to 20% snags, logs, tree roots, emergent vegetation leaf packs, etc. Less than desirable habitat. **8-15 points**	Less than 5% snags, logs, tree roots, emergent vegetation, leaf packs, etc. Lack of habitat is obvious. **0-7 points**
Water Velocity 17	Max. observed; >0.3 m/sec. **23-30 points**	Max. observed; 0.1 to 0.3 m/sec **16-22 points**	Max. observed; 0.05 to 0.1 m/sec **8-15 points**	Max. observed; <0.05 m/sec **0-7 points**
Artificial Channel/ Flow Alteration 13	No artificial channelization. Little activity (impervious surface) in watershed which would cause scouring during spates. **12-15 points**	—	—	Artificially channelized, or scouring present during spates because of excess impervious surface in watershed. **0-3 points**
Bank Stability 8	Stable. No evidence of erosion or bank failure. Little potential for future problems. **9-10 points**	Moderately stable. Infrequent or small areas of erosion, mostly healed over. **6-8 points**	Moderately unstable. Moderate areas of erosion, high erosion potential during floods. **3-5 points**	Unstable. Many raw, eroded areas. Obvious bank sloughing. **0-2 points**
Riparian Zone Vegetation Quality 9	Over 80% of streambank surfaces consist of native plants, classified as: bottomland hardwoods, understory shrubs, or non-woody macrophytes. **9-10 points**	50% to 80% of riparian zone is vegetated, but one class of plants is not represented. **6-8 points**	25% to 50% of riparian zone is vegetated, but one or two classes of plants are not represented. **3-5 points**	Less than 25% of streambank surfaces are vegetated. Poor plant community (e.g. grass monoculture) present. **0-2 points**

Adjustments 5	Add **5 points** if cross-sectional area of flow is estimated to be greater than one square meter during periods of normal flow.	**TOTAL SCORE** 72

COMMENTS: No Leaf Packs found on vertical snags. Low flow conditions, good sampling period now with easy access to stream.

ANALYSIS DATE: 04-29-93	ANALYST: G.L. Butts	SIGNATURE: Glenn L. Butts

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

PHYSICAL/CHEMICAL CHARACTERIZATION FIELD DATA SHEET (Version 4)

SUBMITTING AGENCY CODE: / SUBMITTING AGENCY NAME:	STORET STATION NUMBER:	DATE (M/D/Y):	TIME	RECEIVING BODY OF WATER:

REMARKS:	LOCATION:	FIELD ID/NAME:

RIPARIAN ZONE/INSTREAM FEATURES

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

Forest	Field/Pasture	Agricultural	Residential	Commercial	Industrial	Other (Specify)
60	15	20	5			

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

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

Point-Source Pollution (list location and describe): NONE NOTICED

Estimated System Width (range, m): 8-15	Estimated System Depth (range, m):	yes
High Water Mark (m above bed):	Velocity (range, m/s):	Impounded ☐ Channelized ☐

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 Deposits: Sludge: ☐ Paper Fiber: ☐ Mud: ☒ Sand: ☐ Shell: ☐ Other: ☐

Substrate Types	% coverage	# times sampled	method	Substrate Types	% coverage	# times sampled	method
Woody Debris (Snags)				Riffles			
Leaf Packs				Sand			
Aquatic Vegetation				Mud/Muck/Silt			
Rock or Shell Rubble				Benthic leaf mats			
Undercut Banks/Roots				Other:			

WATER QUALITY

	Depth (m):	Temp. (°C):	pH (SU):	D.O. (mg/l):	Cond. (µmho/cm):			Secchi (m):
Top								
Mid-depth								
Bottom								

System Type : Stream: ☒ (Sand Bottomed ☐ Swamp & Bog ☐ Alluvial ☐ Sand Bot w/ Spring ☐ Calcareous ☐ Misc. ☐) 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:

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

SAMPLING TEAM: G.L. Butts	SIGNATURE:	DATE:

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

PHYSICAL/CHEMICAL CHARACTERIZATION FIELD DATA SHEET (Version 4)

SUBMITTING AGENCY CODE: 5010 / SUBMITTING AGENCY NAME: EDER NW	STORET STATION NUMBER: 32.02.	DATE (M/D/Y):	TIME	RECEIVING BODY OF WATER:
REMARKS:	LOCATION:	FIELD ID/NAME:		

RIPARIAN ZONE/INSTREAM FEATURES

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

Forest	Field/Pasture	Agricultural	Residential	Commercial	Industrial	Other (Specify)
60	15	20	5			

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

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

Point-Source Pollution (list location and describe): NONE

Estimated System Width (range, m): 9.0	Estimated System Depth (range, m):		yes
High Water Mark (m above bed): .5	Velocity (range, m/s):	Impounded ☐	Channelized ☐

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 Deposits: Sludge: ☐ Paper Fiber: ☐ Mud: ☒ Sand: ☒ Shell: ☐ Other: ☐

Substrate Types	% coverage	# times sampled	method	Substrate Types	% coverage	# times sampled	method
Woody Debris (Snags)	5	1		Riffles			
Leaf Packs				Sand	10		
Aquatic Vegetation		1		Mud/Muck/Silt		1	
Rock or Shell Rubble		1		Benthic leaf mats		1	
Undercut Banks/Roots		1		Other:			

WATER QUALITY

	Depth (m):	Temp. (°C):	pH (SU):	D.O. (mg/l):	Cond. (µmho/cm):			Secchi (m):
Top								
Mid-depth								
Bottom								

System Type : Stream: ☒ (Sand Bottomed ☐ Sand Bot w/ Spring ☐ Swamp & Bog ☐ Calcareous ☐ Alluvial ☐ Misc. ☐) 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:

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

SAMPLING TEAM: G. [illegible]	SIGNATURE:	DATE:

DER Biology Section — Acute Bioassay Bench Sheet

Sample Source: Norma WWTP
Location:
County: Holmes
Contact/District: Glenn Beth's / NW
NPDES Permit #: FL0040207 Outfall #:
IIMS 49334 93 Feb 1209

Sample Collection: Date 2-16-93 Time 0945
Test Beginning: Date 2-17-93 Time 13:30
Test Ending: Date 2-17-93 Time 13:50
Organism Batch #: 3 Diluent Batch #: 3
Organism Age: < 24 hrs
Test Organism: Ceriodaphnia Dubia

Test Type: (Screening) | Definitive
(Static) | Static Renewal | Flow-through

Test Number: 1 of 2

Remarks:-

Cl⁻

all organisms dead 20 minutes after loading in 100% effluent.

Instrument Calibrations:

	pH	Temperature °C	D.O. mg/L	Conductivity µmhos/cm
0 hr	7.0 @ 7.0	21.2 @ 21.4	8.7 @ 22.0	950 @ 1,000
	10.0 @			9560 @ 10,000 @ 23.0°C
24 hr	7.0 @ 7.0	22.0 @ 22.1	8.7 @ 22.5	950 @ 1,000
	10.0 @ 10.0			9490 @ 10,000 @ 22.5°C
48 hr	@ 7.0	@	@	@ 1,000
	@			@ 10,000

Conc.	Chamber #	Number Live 0	Number Live 24	Number Live 48	pH 0	pH 24	pH 48	Temperature (°C) 0	Temperature (°C) 24	Temperature (°C) 48	D.O. (mg/L) 0	D.O. (mg/L) 24	D.O. (mg/L) 48	Cond. (mmhos/cm) / Cond. (µmhos/cm) 0	24	48
Control	A	5	5		8.2			21.5			7.1			155		
Control	B	5	5													
Control	C	5	5													
Control	D	5	5													
100%	A	5	0		7.8			21.3			7.2			470		
100%	B	5	0													
100%	C	5	0													
100%	D	5	0													
Measured/Loaded by:		MF	MF		TM			TM			TM			TM		
Recorded by:		TR	MF		TR			TR			TR			TR		

Investigators' Signatures

Tobin Radden
Tom Mikulski
Marbell Finchett

Reviewer

form updated 10/20/92

Water Quality Parameters	Salt Water/ Well Water	20% Min Water	Sample	Method	Measured by
Field Total Residual Cl 2:			8.0	–	G-B
Lab Total Residual Cl 2:	.02	02	6.0	DR-100	TM
Alkalinity:	120	70	125	Hach	TM
Hardness:	120	75	90	Hach	TM
Total Ammonia:					

Cl_2 Blank: _____ Ammonia Meter Slope: _____ Ammonia Blank: _____ Sample Salinity: _____ ppt

DER Biology Section — Acute Bioassay Bench Sheet

Sample Source: Noma WWTP
Location:
County: Holmes
Contact/District: Glenn Botts / NW
NPDES Permit #: FL0040207 **Outfall #:**
49834 93Feb1709

Sample Collection: Date 2-16-93 Time 0945
Test Beginning: Date 2-17-93 Time 13:35
Test Ending: Date 2-17-93 Time 13:50
Organism Batch #: 6 **Diluent Batch #:** well
Organism Age: 12 days
Test Organism: Notropis leedsi

Test Type: Screening | Definitive
Static | Static Renewal | Flow-through

Test Number: 2 of 2

Remarks:
Cl^-
all fish dead 20 minutes after loading in 100% effluent

Instrument Calibrations:

	pH	Temperature °C	D.O. mg/L	Conductivity µmhos/cm
0 hr	7.0 @ 7.0 10.0 @ 10.0	21.2 @ 21.4	8.7 @ 22.0	950 @ 1,000 @ 22°C 9560 @ 10,000
24 hr	7.0 @ 7.0 10.0 @ 10.0	22.0 @ 22.1	8.7 @ 22.5	950 @ 1,000 @ 22.5° 9490 @ 10,000
48 hr	___ @ 7.0 ___ @ ___	___ @ ___	___ @ ___	___ @ 1,000 ___ @ 10,000

Conc.	Chamber #	Number Live 0	24	48	pH 0	24	48	Temperature (°C) 0	24	48	D.O. (mg/L) 0	24	48	Cond. (mmhos/cm) Cond. (µmhos/cm) 0	24	48
Control	190	5	5		7.8			22.7			7.0			240		
Control	413	5	5		7.8						7.0			240		
100%	37	5	0		7.6			22.3			6.9			515		
100%	86	5	0		7.6						6.9			515		
Measured/Loaded by:		TM	MF		TM			TM			TM			TM		
Recorded by:		TM	MS		TR			TR			TR			TR		

Investigators' Signatures
Glenn Rader
Tony Mikulski
Marbell Faircloth
Reviewer

	Salt Water/ Well Water	Water Quality Parameters: 20% Min Water	Sample	Method	Measured by
Field Total Residual Cl2:			8.0	—	GR
Lab Total Residual Cl2:	.02	.02	6.0	DR-100	TM
Alkalinity:	120	20	175	Hach	TM
Hardness:	120	20	90	Hach	TM
Total Ammonia:	<0.017	<0.017	14.3	Orion	MF

Cl_2 Blank: ___ Ammonia Meter Slope: -57.7 Ammonia Blank: <0.017 Sample Salinity: ___ ppt

form updated 10/20/92

DER Biology Section — Acute Bioassay Bench Sheet

Sample Source: Noma WWTP
Location:
County: Holmes
Contact/District: Penn Butts/NW
NPDES Permit #: FL00 40207 (mm) Outfall #: 49834 93Feb17 cg

Sample Collection: Date 2-16-93 Time 0945
Test Beginning: Date 2-17-93 Time 13:30
Test Ending: Date 2/19/93 Time 1330
Organism Batch #: 8 Diluent Batch #: 3
Organism Age: < 24hrs
Test Organism: Ceriodaphnia Dubia

Test Type: (Screening) | Definitive
(Static) | Static Renewal | Flow-through

Test Number: 1 of 2

Remarks:

DeCl⁻

Instrument Calibrations:

	pH	Temperature °C	D.O. mg/L	Conductivity µmhos/cm
0 hr	7.0 @ 7.0 10.0 @ 10.0	21.2 @ 21.4	8.7 @ 22.0	950 @ 1,000 @ 23.0°C 9560 @ 10,000
24 hr	7.0 @ 7.0 10.0 @ 10.0	22.0 @ 22.1	8.7 @ 22.5	950 @ 1,000 @ 22.5°C 9490 @ 10,000
48 hr	7.0 @ 7.0 10.0 @ 10.0	22.0 @ 22.1	8.7 @ 22.5	950 @ 1,000 @ 22.5°C 9490 @ 10,000

Conc.	Chamber #	Number Live 0	24	48	pH 0	24	48	Temperature (°C) 0	24	48	D.O. (mg/L) 0	24	48	Cond. (mmhos/cm) Cond. (µmhos/cm) 0	24	48
Control	A	5	5	5	8.2		8.0	21.2		22.5	7.2		8.4	140		160
Control	B	5	5	5			8.0						8.4			160
Control	C	5	5	5			8.0						8.4			160
Control	D	5	5	5			8.0						8.4			160
100%	A	5	5	0	7.8		8.3	22.1		20.3	7.0		8.5	510		530
100%	B	5	4	0			8.3						8.5			530
100%	C	5	5	0			8.3						8.5			525
100%	D	5	5	0			8.3						8.5			530
Measured/Loaded by:		MF	MF	MF	TM		MF	TM		MF	TM		MF	TM		MF
Recorded by:		TR	MF	MF	TR		MF	TR		TR	TR		TR	TR		MF

Investigators' Signatures

Tobin Rader

Tina Mikulasek

Marshall Faircloth

Reviewer

	Salt Water/ Well Water	20% Min Water	Sample	Method	Measured by
Field Total Residual Cl2:			8.0	—	CB
Lab Total Residual Cl2:	.02	.02	~~.03~~ *	DR-100	TM
Alkalinity:	120	70	175	Hach	TM
Hardness:	120	75	90	Hach	TM
Total Ammonia:	<0.017	<0.017	14.3	Orion	MF

* <0.01

Cl2 Blank: Ammonia Meter Slope: -57 Ammonia Blank: <0.017 Sample Salinity: ppt

DER Biology Section — Acute Bioassay Bench Sheet

Sample Source: Nona WWTP
Location:
County: Hamer
Contact/District: Glenn Batts / NW
NPDES Permit #: FL0040207 Outfall #:

Sample Collection: Date 2-16-93 Time 0945
Test Beginning: Date 2-17-93 Time 13:30
Test Ending: Date 2/19/93 Time 13:30
Organism Batch #: 6 Diluent Batch #: well
Organism Age: 12 days
Test Organism: Notropis leedsi

Test Type: (Screening) | Definitive
Static | Static Renewal | Flow-through

Test Number: 2 of 2

Remarks:

DeCl⁻

48 hour ammonia (total) was 12.0 mg/L
orion MF 2/19/93

Instrument Calibrations: lims 49334 93Feb1709

	pH	Temperature °C	D.O. mg/L	Conductivity µmhos/cm
0 hr	7.0 @ 7.0 10.0 @ ____	21.2 @ 21.4	8.7 @ 22.0	950 @ 1,000 9560 @ 10,000 @ 23°C
24 hr	7.0 @ 7.0 10.0 @ 10.0	22.0 @ 22.1	8.7 @ 22.5	950 @ 1,000 9490 @ 10,000 @ 22.5°C
48 hr	7.0 @ 7.0 10.0 @ 10.0	22.0 @ 22.1	8.7 @ 22.5	950 @ 1,000 9490 @ 10,000 @ 22.5°C

Conc.	Chamber #	Number Live 0	Number Live 24	Number Live 48	pH 0	pH 24	pH 48	Temperature (°C) 0	Temperature (°C) 24	Temperature (°C) 48	D.O. (mg/L) 0	D.O. (mg/L) 24	D.O. (mg/L) 48	Cond. (mmhos/cm) Cond. (µmhos/cm) 0	Cond. 24	Cond. 48
Control	19	5	5	5	7.8	8.1	8.2	22.7	21.0	~~21.0~~	7.0	7.9	~~7.9~~	240	245	245
Control	20	5	5	5	7.8	8.1	8.2			20.7	6.9	8.0	~~8.0~~	240	245	245
100%	63	5	3	0	7.7	8.0	8.1	22.6	21.1	~~21.1~~	6.9	7.2	~~7.2~~	570	560	570
100%	414	5	3	1	7.7	8.0	8.1			20.7	6.9	7.2	~~7.2~~	575	560	560
										OK			OK			
									recorded			recording				
											control		8.5			
											control		8.5			
											100%		8.0			
											100%		8.0			
Measured/Loaded by:		TM	TM	MF	TM	MF	MF	TM	MF	MF	TM	MF	MF	TM	MF	
Recorded by:		TM	TM	MF	TR	TM	MF	TR	TM	TR	TR	TR	TR	TR	TM	

Investigators' Signatures

Robin Rader
Tina Mikyska
Marshall Faircloth

Reviewer

form updated 10/20/92

Water Quality Parameters	Salt Water/ Well Water	20% Min Water	Sample	Method	Measured by
Field Total Residual Cl2:			8.0		CJ
Lab Total Residual Cl2:	.02	.02	<0.01	DR 100	TM
Alkalinity:	120	70	125	Hach	TM
Hardness:	120	75	90	Hach	TM
Total Ammonia:	<0.017	<0.017	14.3	Orion	MF

Cl_2 Blank: ____ Ammonia Meter Slope: -52.7 Ammonia Blank: <0.017 Sample Salinity: ____ ppt

Benthic macroinvertebrate taxa list for Noma WWTP, collected via 20 discrete dip net sweeps in Wrights Creek, on 29 April, 1993.

	Reference Site	Test Site
Coleoptera		
Dubiraphia sp.	12	–
Ectopria nervosa	6	–
Hydroporus sp.	–	6
Scirtes sp.	6	–
Stenelmis sp.	–	24
S. sinuata	6	–
Diptera		
Ablabesmyia mallochi	36	6
A. rhamphe grp.	6	–
Brillia flavifrons	–	6
Chironomus sp.	24	36
Cricotopus/Orthocladius grp.	6	–
Cricotopus bicinctus	–	36
Cryptochironomus sp.	–	18
Helopelopia sp.	18	6
Krenopelopia hudsoni	–	24
Meropelopia sp.	6	–
Microtendipes pedellus grp.	18	12
M. rydalensis grp.	24	78
Palpomyia grp.	6	–
Phaenopsectra punctipes	–	12
Paralauterborniella nigrohalteralis	36	–
Polypedilum aviceps	6	18
P. convictum grp.	30	24
P. fallax grp.	6	–
Psychoda alternata	–	30
Rheocricotopus robacki	6	–
Rheotanytarsus distinctissimus grp.	–	36
R. exiguus grp.	48	480
Simulium sp.	–	6
Stictochironomus sp.	–	6
Tanytarsus sp. E Epler	–	6
T. sp. A Epler	6	6
T. sp. L Epler	12	6
Tribelos jucundum	90	72
Xestochironomus sp.	6	–
Undetermined dipteran pupa	–	18
Undetermined dipteran species	6	–
Ephemeroptera		
Baetis propinquus	36	6
Caenis diminuta	–	6

Hexagenia limbata	12	–
Isonychia sp.	–	6
Leptophlebia intermedia	6	–
Paraleptophlebia volitans	18	12
Pseudocloeon parvulum	–	12
Serratella deficiens	6	–
Stenonema smithae	48	–
Stenacron interpunctatum	–	24
Gastropoda		
Amnicola dalli johnsoni	12	–
Campeloma floridense	–	6
Ferrissia hendersoni	–	6
Hebetancyclus excentricus	6	–
Physella sp.	–	6
Malacostraca		
Amphipoda		
Hyalella azteca	60	–
Decapoda		
Palaemonetes paludosus	6	6
Procambarus sp.	18	6
Odonata		
Argia sp.	6	–
A. moesta	–	12
Boyeria vinosa	–	6
Calopteryx maculata	–	6
Didymops transversa	6	–
Macromia georgiana	–	12
Oligochaeta		
Eclipidrilus sp.	6	–
E. palustris	–	36
Limnodrilus hoffmeisteri	–	42
Pelecypoda		
Sphaerium/Musculium sp.	24	–
Platyhelminthes		
Dugesia tigrina	6	–
Plecoptera		
Neoperla clymene	6	–
Trichoptera		
Cheumatopsyche sp.	18	78
Hydropsyche sp.	–	18
Nyctiophalax sp.	6	–
Phylocentropus sp.	6	6
Total density	738	1284

Phytoplankton taxa list and densities (#/mL) for Noma WWTP, collected via subsurface grabs in Wrights Creek, on 17 February, 1993.

	Reference Site	Test Site
Diatoms		
Achnanthes sp.	52	–
Eunotia sp.	26	–
Gomphonema sp.	–	29
Navicula sp.	52	29
Nitzschia sp.	–	29
N. filiformis	26	–
N. palea	52	–
Synedra sp.	104	115
Chlorophyta		
Ankistrodesmus sp.	26	29
Chlamydomonas sp.	26	115
Chlorococcum sp.	–	29
Crucigenia sp.	–	29
Scenedesmus sp.	26	86
Unknown chlorophyte flagellate	–	29
Chrysophyta		
Dinobryon sp.	26	–
Mallomonas sp.	26	57
Cryptophyta		
Cryptomonas sp.	208	172
Cyanophyta		
Chroococcus sp.	26	29
Oscillatoria sp.	26	57
Phormidium sp.	–	29
Unknown cyanophyte filament	78	57
Euglenophyta		
Euglena sp.	–	29
Total density	780	949

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

Transaction Code	NPDES NUMBER	YR/MO/DA	Insp Type	Inspector	Fac Type
1 N 2 5	3 FL0042[illegible]7	11 12 [illegible] 17	18 B	19 [illegible]	20 1

Remarks

21 66

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

Transaction Code	NPDES NUMBER	YR/MO/DA	Insp Type	Inspector	Fac Type
1 N 2 5	3 FL0042[illegible]7	11 12 [illegible] 17	18 X	19 -	20 1

Remarks

21 66