Biological Assessment of

River Oaks WWTP and Northwest Regional WWTP

Hillsborough County

NPDES #FL0027821 (RO) and #FL0041670 (NW)

Sampled April 1993

October 1993

Biology Section
Division of Technical Services

Department of Environmental Protection
Results of Fifth Year Inspections

Discharger: River Oaks and Northwest Regional WWTPs
County: Hillsborough
NPDES Number: FL0027821 (RO) and FL0041670 (NW)
State Permit Expiration Date: 2-1-94 (RO) and 9-30-96 (NW)

Toxics Sampling Inspection (XSI)

Date Sampled: 19 April 1993

Results: Diazinon and atrazine were detected in the River Oaks effluent (at 0.22 µg/L and 0.38 µg/L, respectively) and also in the Northwest Regional effluent (at 0.23 µg/L and 0.38 µg/L, respectively). These concentrations of diazinon are cause for concern, since levels of 0.35 µg/L may be acutely toxic to invertebrates. The few metals detected in both effluents were within Class III water quality standards.

Compliance Biomonitoring Inspection (CBI)

Date Sampled: 19 April 1993

Results: Chlorinated effluents from the River Oaks Wastewater Treatment Plant and the Northwest Regional WWTP were both acutely toxic to the invertebrate, *Ceriodaphnia dubia,* and to the fish, *Notropis leedsi.* (Appendix). All test organisms were dead within 24 hours. This is a violation of Rules 17-302.510(5)(p) FAC, 17-302.500(1)(d) FAC, and 17-4.244(3)(a) FAC. Conversely, neither de-chlorinated effluent was toxic to the test organisms.

Impact Bioassessment Inspection (IBI)

Date Sampled: 19 April 1993

Results: Quantitative measures of benthic macroinvertebrate community health indicated improved conditions at the test site. Species richness, Shannon-Weaver diversity, and Florida Index values were better at the test site, compared to the reference site. Phytoplankton communities did not appear to be affected much by the combined discharge of the two facilities. Taxa richness, chlorophyll *a*, and the diatom to blue-green ratio were similar at both sites. While the percent contribution of the dominant taxon was higher at the test site, the presence of the dominant form at the test site (*Skeletonema* sp.), may be more related to the slightly elevated conductivity there, as well as its closer proximity to Old Tampa Bay.

Water Quality Inspection (WQI)

Date Sampled: 19 April 1993

Results: Nutrients were relatively low in the effluent samples, and were within the permit requirements at both facilities. Nutrient concentrations of the receiving waters were fairly average for Florida stream systems, except for nitrate-nitrite, which was higher than 70% and 78%, respectively, of typical Florida streams. Algal growth potential (AGP) results indicated nutrient enrichment in Rocky Creek, but not necessarily due to the WWTP discharges. The reference site and test site AGP's were both well above the "problem threshold". However, effluent AGP's were lower than those observed in both receiving water stations, suggesting that the increase in AGP seen at the test site may be related more to the nearby agricultural activities (dairy farming) than to the WWTP discharges.

Introduction

The River Oaks Wastewater Treatment Plant and the Northwest Regional WWTP are both located in Hillsborough County, Florida, near Old Tampa Bay (see maps in Appendix). The outfalls for the two facilities are located within a mile of one another in Channel A, a waterway which may reverse flow depending on hydrologic conditions. Both facilities were sampled during this study to determine their relative influences on receiving water conditions. Channel A is connected with Rocky Creek, and both channelized streams discharge over salinity barriers to Old Tampa Bay (see maps in Appendix).

The River Oaks WWTP has a design capacity of 10 MGD, while the Northwest Regional WWTP's design capacity is 5 MGD. Permit limits for both advanced wastewater treatment facilities (as annual averages) are identical: BOD (5 mg/L), TSS (5 mg/L), total nitrogen (3 mg/L), total phosphorus (1 mg/L), and fecal coliform bacteria (non-detectable) (see Facility Summary in Appendix for details). The River Oaks WWTP is currently under enforcement actions due to chronic, unacceptable odor problems. Other minor operational deficiencies have been noted for this facility, as well as a violation of the fecal coliform permit limit. The Northwest Regional WWTP has been in violation of the TKN limit, but the cause has since been corrected.

Major characteristics of community structure of control and test sites.

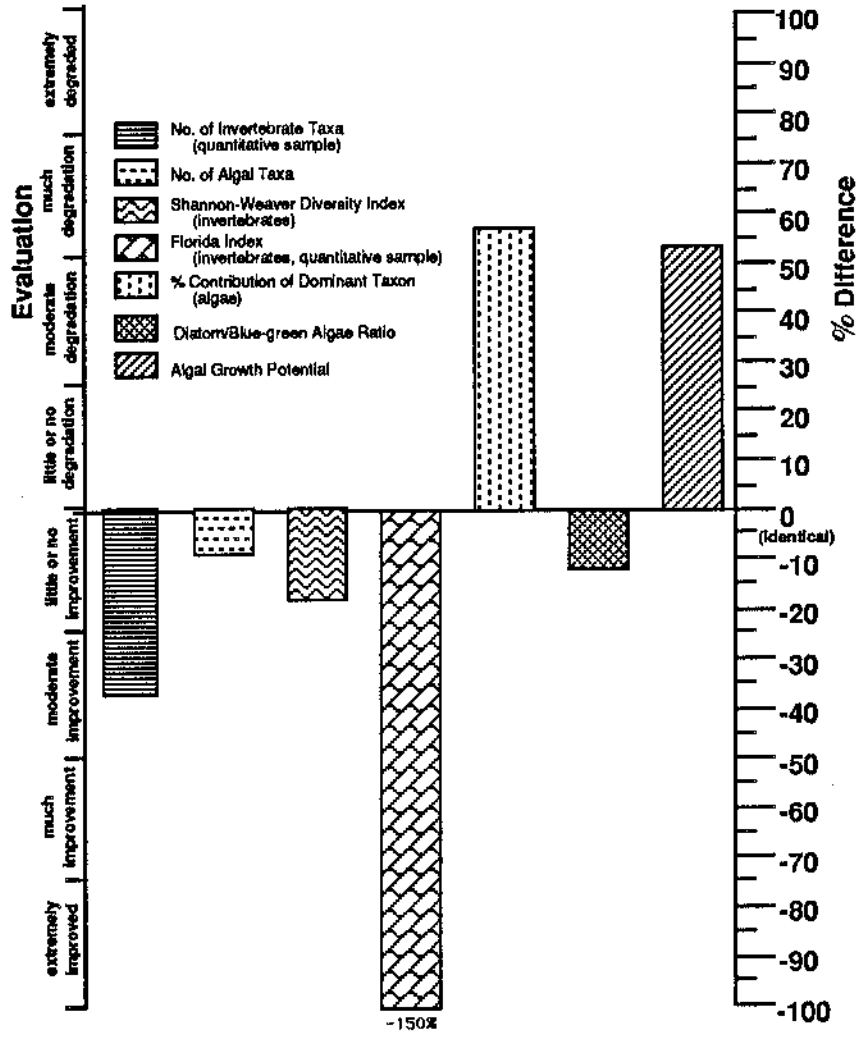
	Control Site	Test Site
Macroinvertebrate Hester-Dendy		
Number of Taxa	47	64
Florida Index	8	20
Shannon-Weaver Diversity	3.59	4.21
% Diptera	53.2	60.2
% Ephemeroptera	2.6	17.9
% Gastropoda	20.5	6.7
% Malacostraca	17.7	8.7
% Odonata	0.4	1.2
%Oligochaeta	5.0	0.8
% Other	0.6	4.6
% Predators/ Carnivores	3.1	6.5
% Deposit feeders (above surface)/ Collector-Gatherers	31.5	46.1
% Deposit feeders (below surface)	5.5	0.7
% Suspension feeders/ Collector-Filterers	22.3	20.7
% Scavengers	6.5	3.0
% Plant piercers	0	1.5
% Scrapers	23.9	15.7
% Shredders	7.2	5.7
% Parasites	0	0.1
Phytoplankton Algae		
Number of Taxa	11	12
% Contribution of Dominant Taxon	45.8	72.1
Chlorophyll a (mg/sq. m)	.88	2.34
Diatom/Diatom + B-G Abundance Ratio	0.88	0.99
% Blue-green	8.3	1.2
% Green	20.8	3.5
% Diatoms	62.5	93.0
% Other	8.3	2.4
Algal Growth Potential (mg dry wt/L)	16.8	25.8

Methods

The focus of this investigation was to determine the dischargers' effects on the receiving waters. A comparison of biological community health was made between a reference site (located in Rocky Creek about 0.25 miles upstream of its confluence with Channel A) and a test site (located in Rocky Creek about 0.25 miles downstream of its confluence with Channel A. The test site may be considered downstream of both dischargers, since Channel A usually (90% of the time) flows into Rocky Creek (see map 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 effluent samples from both facilities (Weber 1991). The effluents were analyzed for metals and for or-

ganic constituents (base neutral and acid extractables, and pesticide extractables). Additionally, nutrient analyses were performed on both effluent samples, as well as water from the reference and test sites. Methods used for all chemical analyses are on file at the Tallahassee DER Chemistry Laboratory.

Benthic macroinvertebrate communities were evaluated at reference and test sites. Invertebrates were collected using Hester-Dendy multiplate samplers which were incubated for 28 days (Ross 1990). Phytoplankton was sampled at both reference and test sites via sub-surface grab samples. Chlorophyll *a* was also determined for phytoplankton communities (Ross 1990). Periphyton racks were not successfully recovered. Algal Growth Potential tests, using *Selenastrum capricornutum* as the test organism, followed Miller *et al.* (1978).



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

Explanation of Measurements of Community Health

Several different measurements of macroinvertebrate and algal community health have been employed. Many of these, such as the number of taxa, Shannon-Weaver Diversity Index, 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 type of organism (a high % contribution of dominant taxon) is usually associated 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 step process. First, the relative proportions of major taxonomic groups are calculated for each site. Then, the lesser of the two percentages for each discrete taxonomic group is totaled. A QSI (% composition) of 100% means that the two sites being compared are identical. This same type of procedure is used for calculating the QSI (functional feeding groups).

For graphical purposes, the percent differences between the reference and test sites involving the number of taxa, the diversity index, 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: Pat Fricano, Jim Snitgen, and Kathryn Hicks (DEP Southwest District) and Lyn Burton, Marshall Faircloth, Russel Frydenborg, Kathleen Lurding, Kim Pearce, Urania Quintana, Landon Ross, and Greg Wynn (Tallahassee Biology Laboratory). The report was reviewed by the Point Source Bioassessment Review Committee, consisting of Jan Mandrup-Poulsen, Wayne Magley, and Mike Tanski, as well as District representatives.

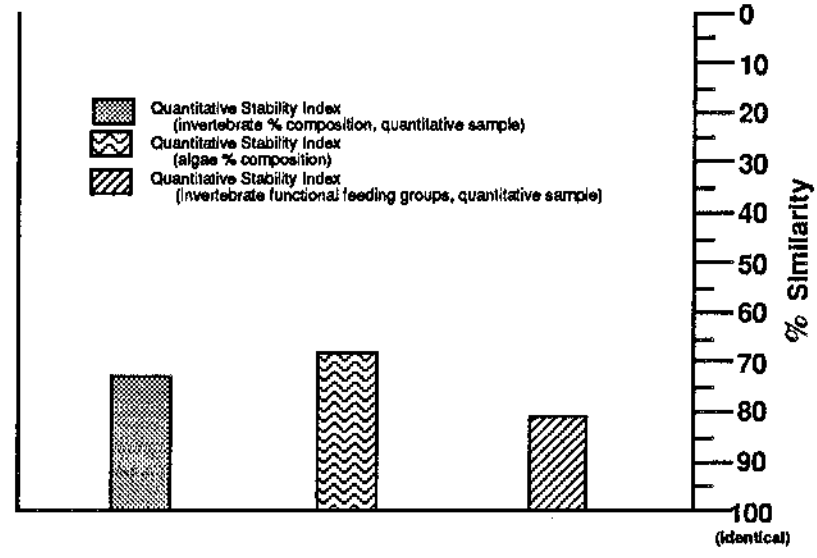
Results and Discussion

Habitat quality was similar at both sites (habitat scores were 48 and 44 for reference and test sites, respectively, Appendix). The reference site had more available substrate and somewhat better water velocity than did the test site. The latter scored higher with respect to riparian zone vegetation, bank stability, and artificial channel alterations. The fastest observed water velocity at the upstream site was 0.12 m/sec, while water velocity at the test site was only slightly less (0.1 m/s). Both areas of Rocky Creek were channelized, but the test site exhibited signs of recovery. The pH at the study sites was near neutral (6.8 at the reference; 7.4 at the test site), and conductivity was a higher at the downstream station (267 µmhos/cm and 556 µmhos/cm at reference and test sites, respectively). Dissolved oxygen was only 0.2 mg/L at the reference site. It is likely that respiration from the abundant macrophytes present at the reference site contributed to this condition. Downstream of the two dischargers, dissolved oxygen was 5.1 mg/L. The water quality standard for dissolved oxygen was violated only at the reference site.

Chlorinated effluents from the River Oaks Wastewater Treatment Plant and the Northwest Regional WWTP were both acutely toxic to the invertebrate, *Ceriodaphnia dubia*, and to the fish, *Notropis leedsi*. (Appendix). All test organisms were dead within 24 hours. This is a violation of Rules 17-302.510(5)(p) FAC, 17-302.500(1)(d) FAC, and 17-4.244(3)(a) FAC. Conversely, neither de-chlorinated effluent was toxic to the test organisms, suggesting that the toxicity problems at these facilities could be solved by adequate dechlorination.

Diazinon and atrazine were detected in the River Oaks effluent (at 0.22 µg/L and 0.38 µg/L, respectively) and also in the Northwest Regional effluent (at 0.23 µg/L and 0.38 µg/L, respectively). These concentrations of diazinon are cause for concern, since levels of 0.35 µg/L may be acutely toxic to invertebrates. In the River Oaks effluent sample, the metals aluminum (110 µg/L), iron (15 µg/L), and zinc (15 µg/L) were found. Similarly, in the Northwest Regional effluent sample, the metals aluminum (122 µg/L), iron (26 µg/L), and zinc (38 µg/L) were detected. All metals values were within Class III water quality standards.

Nutrients were relatively low in the effluent samples, and were well within the permit requirements at both facilities (see Chemistry Summary Table in Appendix). With the exception of nitrate-nitrite, nutrient concentrations of the receiving water stations were fairly average for Florida stream systems (see table of Typical Water Quality Parameters in Appendix). Nitrate-nitrite concentrations, which were 0.21 mg/L at the reference site and 0.29 mg/L downstream, were higher than 70% and 78%, respectively, of typical Florida streams. Although part of this nitrate-nitrite load is coming from upstream sources, the Northwest Regional facility, with 1.1 mg/L of ni-



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

trate-nitrite, may have contributed to the slightly higher levels seen at the test site. Other nearby agricultural activities observed during sampling (dairy farming, etc.) may have also contributed nutrients to the system.

Algal growth potential (AGP) results demonstrated that there was nutrient enrichment present in Rocky Creek, but not necessarily due to the WWTP discharges. Reference site AGP was 16.8 mg dry wt/L, and test site AGP was 25.9 mg dry wt/L. According to Raschke and Schultz (1987), at AGP levels above 5 mg dry wt/L, enrichment problems such as excessive algal growth and D.O. sags are likely to occur. Interestingly, effluent AGP's were lower than those observed in both receiving water stations, 14.4 mg dry wt/L at the River Oaks WWTP and 6.3 mg dry wt/L at the Northwest Regional WWTP. The low discharge AGP's may have been related to inhibitory substances in the effluents. Or possibly, the increase in AGP seen at the test site was caused by the nearby agricultural activities (dairy farming) rather than by the WWTP discharges.

Quantitative measures of benthic macroinvertebrate community health indicated improved conditions at the test site. The figure on p. 2 indicates the degree of difference between the reference 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 reference. The figure on p. 3 summarizes similarities between the sites. Smaller similarities (lower percentages) generally correspond with greater degradation. A complete taxa list is in the Appendix.

Species richness was improved at the test site, increasing from 47 taxa upstream to 64 taxa below the combined discharge. The Florida Index was lower than expected at the reference site (8), increasing to a normal, healthy value of 20 at the test site. The low Florida Index score at the reference site is probably related to the low dissolved oxygen concentrations observed there. Shannon-Weaver diversity also increased at the test site, from 3.6 to 4.2. The Quantitative Stability Index for percent composition showed only moderate differences between the two sites. This was related to increases in ephemeropterans, with corresponding decreases in oligochaetes and gastropods, at the test site. These changes may also be regarded as improvements at the test site. The Quantitative Stability Index for functional feeding groups showed no major differences between sites.

Phytoplankton communities did not appear to be much affected by the combined discharge of the two facilities. While 11 taxa were collected at the reference site, 12 were represented in the test site sample (see taxa list in Appendix). There were no major differences in phytoplankton biomass (chlorophyll *a*) at the test site (2.3 µg/ L), compared to the upstream control (0.9 µg/ L). Both values were below the practical quantitation limit. The percent contribution of the dominant taxon was higher at the test site (usually regarded as degradation). However, the dominant species at the test site, *Skeletonema* sp., is a ubiquitous, euryhaline diatom, whose presence at the test site may be more related to the slightly elevated conductivity there, as well as its closer proximity to Old Tampa Bay. While diatoms were most numerous at both stations (93.0% at the test site, 62.5% at the reference site), the reference site population had a higher abundance of chlorophytes and blue-greens. The QSI for percent composition indicated only a moderate similarity between the sites, mostly due to the dominance of *Skeletonema* sp. at the test site. The diatom to blue-green ratio was slightly better at the test site.

Conclusions

Chlorinated effluents from the River Oaks Wastewater Treatment Plant and the Northwest Regional WWTP were both acutely toxic to the invertebrate, *Ceriodaphnia dubia,* and to the fish, *Notropis leedsi.* (Appendix). All test organisms were dead within 24 hours. This is a violation of Rules 17-302.510(5)(p) FAC, 17-302.500(1)(d) FAC, and 17-4.244(3)(a) FAC. Conversely, neither de-chlorinated effluent was toxic to the test organisms, suggesting that the toxicity problems at these facilities could be solved by adequate dechlorination.

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Nutrients were relatively low in the effluent samples, and were within the permit requirements at both facilities. With the exception of nitrate-nitrite, nutrient concentrations of the receiving water stations were fairly average for Florida stream systems. Nitrate-nitrite concentrations were higher than 70% and 78% at the reference and test sites, respective-

ly, of typical Florida streams. Although some of this nitrate-nitrite is from upstream sources, the Northwest Regional facility, as well as other nearby agricultural activities (dairy farming, etc.), may have contributed nitrate-nitrite to the system.

Algal growth potential (AGP) results demonstrated that there was nutrient enrichment present in Rocky Creek, but not necessarily due to the WWTP discharges. The reference site and test site AGP's were both well above the "problem threshold". However, effluent AGP's were lower than those observed in both receiving water stations, suggesting that the increase in AGP seen at the test site may be related more to the nearby agricultural activities (dairy farming) than to the WWTP discharges.

Quantitative measures of benthic macroinvertebrate community health indicated improved conditions at the test site. Species richness, Shannon-Weaver diversity, and Florida Index values were better at the test site, compared to the reference site. The low Florida Index score at the reference site is probably related to the low dissolved oxygen concentrations observed there.

Phytoplankton communities did not appear to be much affected by the combined discharge of the two facilities. Taxa richness, chlorophyll *a*, and the diatom to blue-green ratio were similar at both sites. While the percent contribution of the dominant taxon was higher at the test site, the presence of the dominant form at the test site (*Skeletonema* sp.), may be more related to the slightly elevated conductivity there, as well as its closer proximity to Old Tampa Bay.

Literature Cited

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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.

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Chemistry summary table for River Oaks WWTP and Northwest Regional WWTP.

	River Oaks Effluent	Northwest Regional Effluent	Control Site	Test Site
Organic Constituents (ug/L)				
Diazinon	0.22 T	0.23 T		
Atrazine	0.38	0.38		
Metals (ug/L)				
Aluminum	110 T	122 T		
Antimony	15 U	15 U		
Arsenic	20 U	20 U		
Cadmium	.08U	.08U		
Calcium	57.7	67.0A		
Chromium	10 U	10 U		
Copper	15 U	15 U		
Iron	15	26A		
Lead	15 U	15 U		
Magnesium	5.9	3.9A		
Mercury	0.1U	0.1U		
Selenium	30 U	30 U		
Silver	.08U	.08U		
Zinc	15	38A		
Nutrients (mg/L)				
Ortho-phosphate	0.17	0.027T	0.056A	0.089
Total phosphorus	0.17	0.069	0.084	0.12
Ammonia	0.044	0.046	0.059	0.072
Nitrate+Nitrite	0.36	1.1	0.21	0.29
TKN	0.55	0.70	0.59	0.69
Other Parameters				
Habitat Assessment			48	44
D.O. (mg/L)			0.2	5.1
pH (SU's)	7.8	7.6	6.8	7.4
Conductivity (µmhos/cm)	775	740	267	556
Temperature (°C)			19.7	21.7
TSS (mg/l)		2U		
Bioassay Fish-Chlorinated	toxic	toxic		
Bioassay Invertebrate-Chlorinated	toxic	toxic		
Bioassay Fish-Dechlorinated	non-toxic	non-toxic		
Bioassay Invertebrate-Dechlorinated	non-toxic	non-toxic		
Algal growth potential (mg dry wt/L)	14.39	6.31	16.84	25.85

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

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

T- Value reported is less than the practical quantitation limit

Typical Values for Selected Parameters in Florida Waters

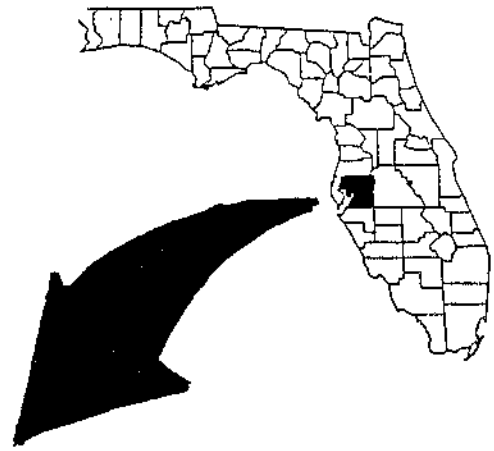
Adapted from Joe Hand, FDER, personal communication, 1991
(data was collected between 1980 and 1989)

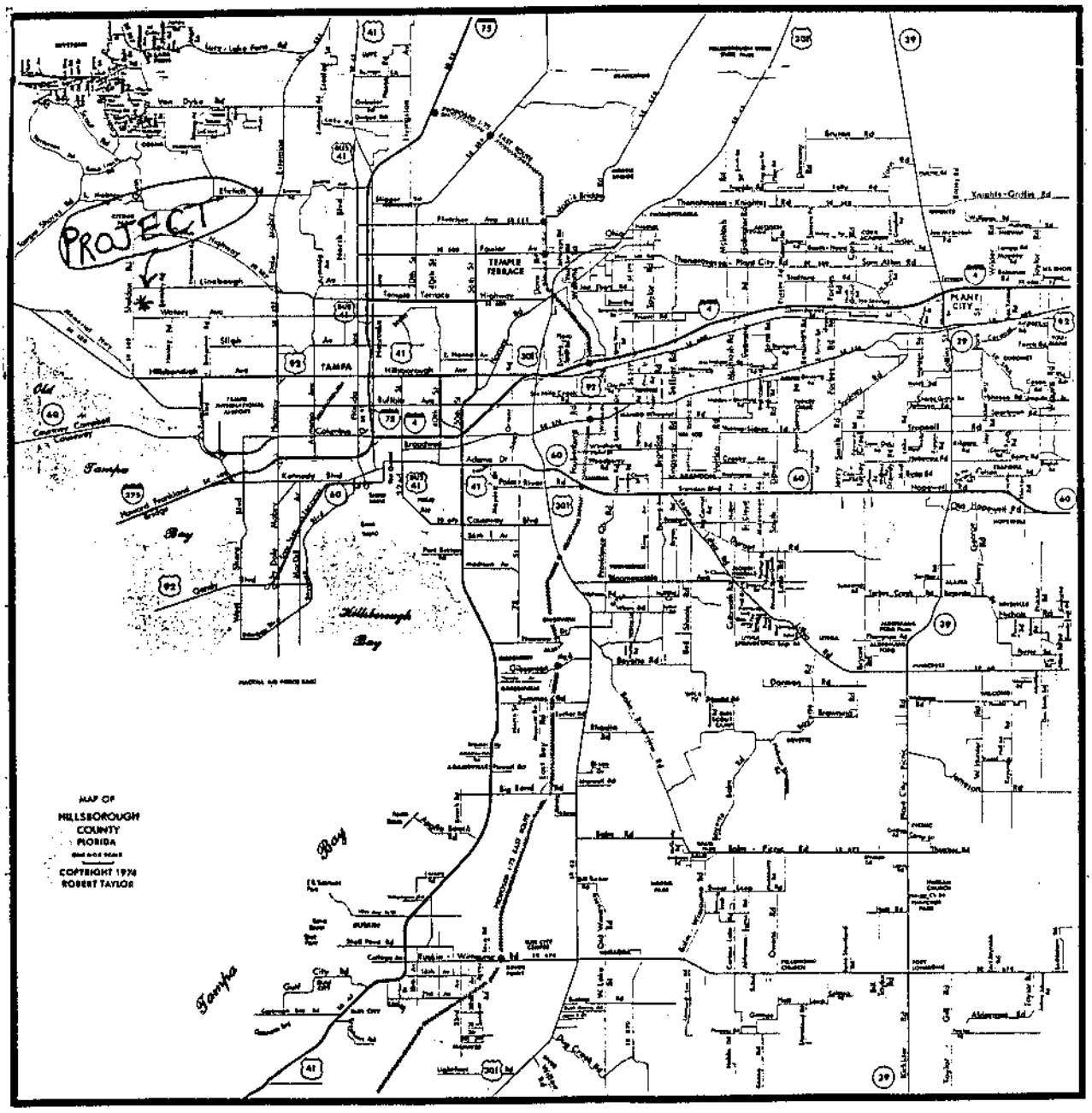
Percentile Distribution

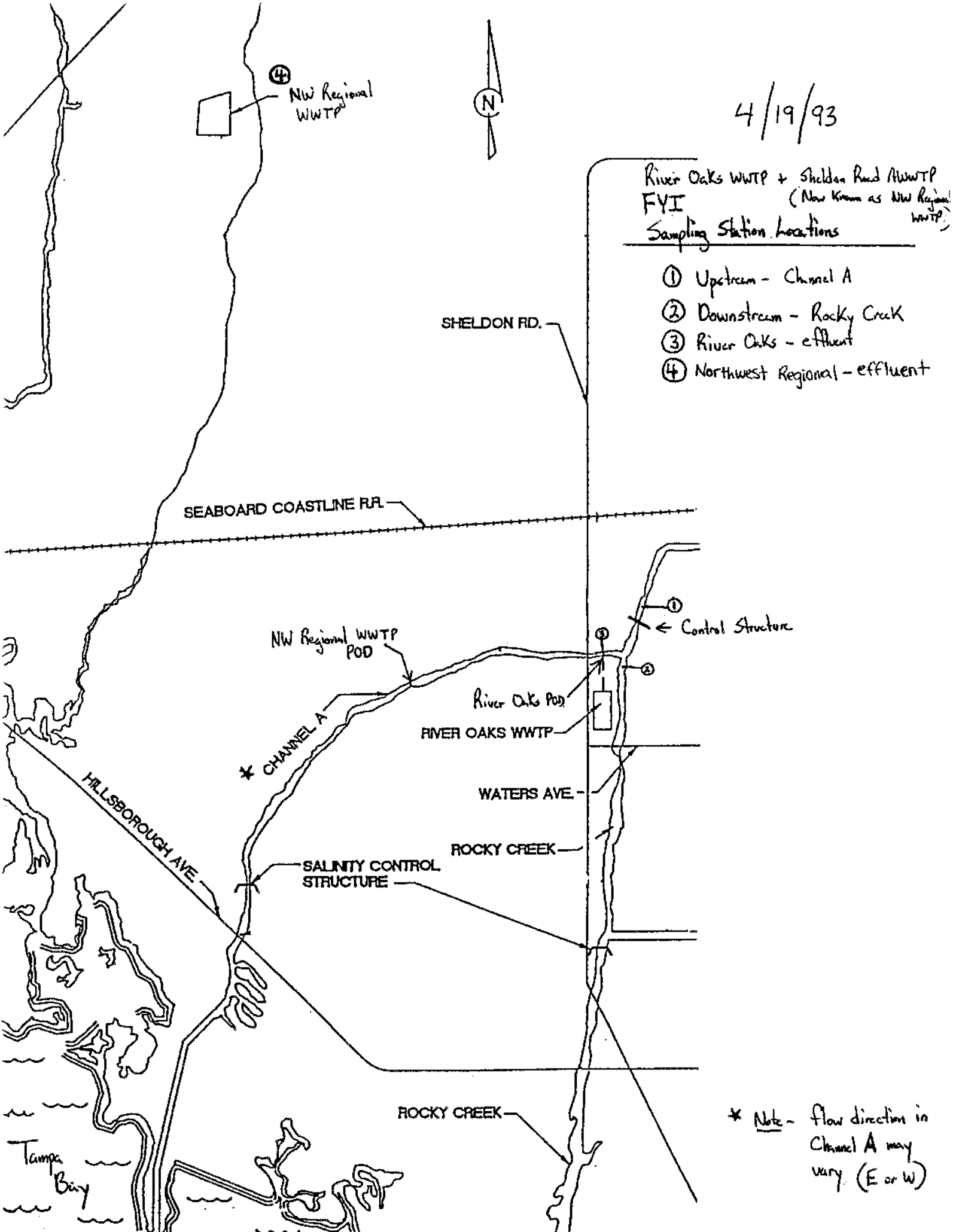
Parameter	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	95%
STREAMS (1617 stations)											
Phytoplankton Chlorophyll *a*	0.22	0.52	0.94	1.60	3.02	4.63	6.72	9.87	14.68	27.35	48.70
Periphyton Chlorophyll *a*	0.31	0.43	0.77	1.04	2.16	2.94	6.45	10.51	17.00	39.51	60.85
H-D Diversity	0.84	2.12	2.48	2.74	2.88	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	4.49	5.13	6.00	6.93	7.94	9.60	12.40	17.60	22.20
Dredge Diversity	1.34	1.53	1.91	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




PROJECT
TAMPA
TEMPLE TERRACE
PLANT CITY
Tampa Bay
Hillsborough Bay
MAP OF
HILLSBOROUGH
COUNTY
FLORIDA
COPYRIGHT 1976
ROBERT TAYLOR


④ NW Regional WWTP
N
4/19/93
River Oaks WWTP + Sheldon Road AWWTP (Now known as NW Regional WWTP)
FYI
Sampling Station Locations
① Upstream - Channel A
② Downstream - Rocky Creek
③ River Oaks - effluent
④ Northwest Regional - effluent
SHELDON RD.
SEABOARD COASTLINE R.R.
① ← Control Structure
NW Regional WWTP POD
③
②
River Oaks POD
RIVER OAKS WWTP
CHANNEL A
HILLSBOROUGH AVE.
WATERS AVE.
ROCKY CREEK
SALINITY CONTROL STRUCTURE
ROCKY CREEK
Tampa Bay
* Note - flow direction in Channel A may vary (E or W)

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

FACILITY SUMMARY

Facility Name: River Oaks AWT		Date Summary Prepared
Location (attach detailed map): Northwest Corner of Waters Av. and Shelton Rd	County: Hillsborough	District: SW
Federal Permit # FL0027821 and expiration date: 10-31-93	State GMS # and State expiration date: 4029CO 296.3, 2-1-94	Facility Type: Industrial (Municipal) Federal Agricultural Other (list):

Function of facility:

Domestic wastewater treatment

Description of treatment process: The facility employs automatic bar screens, primary clarifiers and degritters at the headworks. After secondary treatment (aeration and clarification) methanol is added at the head of the denitrification process. Tertiary clarification is followed by deep bed filtration, post aeration if necessary, disinfection with chlorine and dechlorination prior to discharge. The facility has an odor control scrubber at the headworks that is so far not adequately removing odors.

Receiving waters: Channel A to Rocky Creek to Old Tampa Bay	Classification: I (II) III	
Design Flow: 10 MGD	Mean Flow: 7.75 MGD	Flow during survey:

Discharge is: (Continuous) Intermittent Seasonal Rainfall dependent
Other (describe)

therefore, the best time to sample is: 24 hour composite

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

N/A

List effluent limits (if necessary, attach relevant paperwork):

Parameter	Limit (units)
CBOD5 5 mg/l	
TSS 5 mg/l	
Total Nitrogen 3 mg/l	
Total Phosphorous 1 mg/l	
Above parameters are based on annual average	
Fecal coliforms Non-detectable	

Describe special permit conditions and permit modifications:

The permit was issued with flow restriction at 8 MGD. Specific condition 9 allowed for an increase to 10 MGD upon construction and CEC on flow

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION
FACILITY SUMMARY

(Facility)

Description of permitted outfall(s): There is one permitted outfall to channel "A". It is located on the northside of the site near the northwest corner, Channel "A"'s downstream end is blocked by a salinity barrier that is opened by SWFWMD, only under extremely high storm water flows. Normal conditions force flows from Channel "A" to Rocky Creek to Old Tampa Bay.

List permit violations (from MOR data or other source) and plant upsets that occurred within past year:

October 28, 1992 – Fecal Coliform value = 42

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

EIC of HC has an open Administrative enforcement case due to chronic unacceptable odor production. As of this date no consent order or other binding document has been signed. An odor containment system has been installed but is not performing adequately to control odors. Additional sources of odors may be the primary clarifiers.

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

There do not appear to be any trends, with the exception of the fecal col. form excursion noted above, the data is consistantly well within permit limits.

Additional information:

Staff contributing to this review (signature):

(Biologist)

(Inspector)

(Engineer)

( )

( )

( )

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION
FACILITY SUMMARY

Facility Name: Northwest Regional Water Reclamation Fac		**Date Summary Prepared :** 5-25-93
Location (attach detailed map): 10858 S. Mobley RD	**County** Hillsborough	**District** SW
Federal Permit # FL0041670 **and expiration date:** Sept 30, 1994	**State GMS # and** 4029C 10857 **State expiration date:** Sept 30, 1996	**Facility Type:** Industrial (Municipal) Federal Agricultural **Other (list):**

Function of facility:

Domestic Wastewater Treatment

Description of treatment process:

Facility is a 5.0 MGD plant providing advanced treatment employing the Bardenpho process. Filtration is followed by chlorination at the plant site. An effluent pump station pumps to channel A 5 miles south. Prior to discharge effluent is dechlorinated and reaerated. A salinity barrier prevents discharge directly to Old Tampa Bay. Normal discharge is to Channel A, then Rocky creek then to Channel A

Receiving waters: Old Tampa Bay	**Classification:** I (II) III	
Design Flow: 5.0 MGD	**Mean Flow:** 3.802 MGD	**Flow during survey:** Not Measured

Discharge is: (Continuous) Intermittent Seasonal Rainfall dependent
Other (describe)

therefore, the best time to sample is: Time or flow proportional composite

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

N/A

List effluent limits (if necessary, attach relevant paperwork):

Parameter	Limit (units)
CBOD5	5.0 mg/l Annual Avg
TSS	5.0 mg/l " "
Total Nitrogen	3.0 mg/l " "
Total Phosphorous	1.0 mg/l " "
Fecal coliform	Non-detectable

Describe special permit conditions and permit modifications:

On November 13, 1992 the permit was modified by increasing the permitted flow from 3.76 MGD to 5.0 MGD. Specific condition 30 allowed the increase upon demonstration of adequate capacity to process and stabilize sludge. Surface water monitoring summary is due August 31, 1993.

Northwood Regional
(Facility)

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION
FACILITY SUMMARY

Description of permitted outfall(s): The only permitted outfall is at a structure on channel A, between the channel and watts Ave extension. Dechlorination and re-aeration both occur at this location some 5 miles from the plant.

List permit violations (from MOR data or other source) and plant upsets that occurred within past year:
An inspection with EPA on January 13, 1993 found Influent samples included several side streams. This has since been corrected.

The January MOR revealed violations of the TN limit. Values of 7.29 mg/l, 6.77, 5.64, 5.68, and 5.46 mg/l constitute violations of the 3 mg/l annual average pursuant to rule 17-600.740(1)(b) 2.b. The problem was addressed by EPC in a letter to HCPW. HCPW responded saying supernatant from the sludge facility was the cause. It has been corrected

Describe previous impact bioassessments, WQBEL's, and previous or current enforcement actions:
No current enforcement action is underway.

Discuss comparability of MOR results to past DER results and whether there are trends (improving, declining) in the data set:
Data is fairly consistant for all parameters. There are no obvious trends indicating an increase or decrease in the level of treatment provided.

Additional information:

Staff contributing to this review (signature):

(Biologist)

Byron W Bartlett EPC (Inspector)

(Engineer)

( )

( )

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

PHYSICAL/CHEMICAL CHARACTERIZATION FIELD DATA SHEET (Version 4)

SUBMITTING AGENCY CODE: / SUBMITTING AGENCY NAME: SW - TAM - WTF	STORET STATION NUMBER:	DATE (M/D/Y): 4-22-93	TIME: 11:[illegible]	RECEIVING BODY OF WATER: [illegible]

REMARKS: Chara, Gambusia, Salvinia, Alternanthera, Myriophyllum, Cabomba, [illegible] – entire width of stream is vegetated	LOCATION: River Oaks WWTP Upstream	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)
	70%	10%	20%			

Local Watershed Erosion (check box): None ☐ Moderate ☑ (more than [illegible]) Heavy ☐

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

Point-Source Pollution (list location and describe): Dairy Farm (also has pigs and chickens) [illegible] channel & Upstream of this Station.

Estimated System Width (range, m): 10-15 Estimated System Depth (range, m): [illegible]

High Water Mark (m above bed): [illegible] Velocity (range, m/s): [illegible]

Impounded ☐ yes 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: ☑ [illegible]

Substrate Types	% coverage	# times sampled	method	Substrate Types	% coverage	# times sampled	method
Woody Debris (Snags)				Riffles			
Leaf Packs				Sand	10%	[illegible]	
Aquatic Vegetation	75%	10		Mud/Muck/Silt	15%	[illegible]	
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	0.1	19.7	6.82	5.15	[illegible]			
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:
Sunny 65° F
Breeze from the NW

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

SAMPLING TEAM:	SIGNATURE:	DATE:
JIM SNITGEN KATHRYN HICKS	Kathryn A. Hicks	4-22-93

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:
[illegible]		4-22-93	[illegible]	[illegible]

REMARKS:	LOCATION:	FIELD ID/NAME:
[illegible], Tilapia, Lemna, Ludwigia, Sagittaria, Eichornia, [illegible], Alternanthera, Pithophora or Spirogyra	RiverOaks WWTP Downstream	[illegible]

RIPARIAN ZONE/INSTREAM FEATURES

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

Forest	Field/Pasture	Agricultural	Residential	Commercial	Industrial	Other (Specify)
	20%	[illegible]	[illegible]		[illegible]	

Local Watershed Erosion (check box): None [ ] Moderate [x] Heavy [ ]

Local Watershed NPS Pollution (check box): No evidence [ ] Some potential sources [ ] Obvious sources [ ]

Point-Source Pollution (list location and describe): Dairy Farm (includes pigs and chickens [illegible]) one mile upstream. It Discharges during rainstorms to Channel 4.

Estimated System Width (range, m): 5 - 10m

Estimated System Depth (range, m): [illegible]

High Water Mark (m above bed): 1.0 m

Velocity (range, m/s): [illegible]

Impounded yes [ ]
Channelized yes [x]

Canopy Cover % : Open : [x] Lightly Shaded (11-45%): [ ] Moderately Shaded (46-80%): [ ] Heavily Shaded: [ ]

SEDIMENT/SUBSTRATE

Sediment Odors: Normal: [ ] Sewage: [ ] Petroleum: [ ] Chemical: [ ] Anaerobic: [x] Other: [ ] ______

Sediment Oils: Absent: [x] Slight: [ ] Moderate: [ ] Profuse: [ ]

Sediment Deposits: Sludge: [ ] Paper Fiber: [ ] Mud: [x] Sand: [ ] Shell: [ ] Other: [ ]

Substrate Types	% coverage	# times sampled	method	Substrate Types	% coverage	# times sampled	method
Woody Debris (Snags)	[illegible]%	7		Riffles			
Leaf Packs				Sand	[illegible]%		
Aquatic Vegetation	[illegible]%	[illegible]		Mud/Muck/Silt	[illegible]%		
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	0.26	21.7	7.35	5.07	[illegible]			
Bottom								

System Type : Stream: [x] (Sand Bottomed, Swamp & Bog, Alluvial, Sand Bot w/ Spring, Calcareous, Misc.) Lake: [ ] Wetland: [ ] Estuary: [ ] Other: [ ] ______

Water Odors (check box): Normal: [x] Sewage: [ ] Petroleum: [ ] Chemical: [ ] Other: [ ] ______

Water Surface Oils (check box): None: [x] Sheen: [ ] Globs: [ ] Slick: [ ]

Clarity (check box): Clear: [x] Slightly turbid: [ ] Turbid: [ ] Opaque: [ ]

Color (check box): Tannic: [x] Green (algae): [ ] Clear: [ ] Other: [ ] ______

Weather Conditions:
Sunny
65°F
Breeze from NE

Abundance:	Absent	Rare	Common	Abundant
Periphyton	[ ]	[ ]	[ ]	[x]
Fish	[ ]	[ ]	[ ]	[ ]
Aquatic Macrophytes	[ ]	[ ]	[ ]	[ ]
Iron/sulfur Bacteria	[ ]	[ ]	[ ]	[ ]

SAMPLING TEAM:	SIGNATURE:	DATE:
Jim Snitgen Kathryn Hicks	Kathryn A. Hicks	4-22-93

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

SUBMITTING AGENCY CODE: ______ SUBMITTING AGENCY NAME: SW-TAM-WTF	STORET STATION NUMBER:	DATE (M/D/Y): 4-22-93	RECEIVING BODY OF WATER: Channel A [illegible]

REMARKS: Tilapia, Gambusia, Lemna, Salvinia, Hydrilla, Alternanthera, Pithophora, Cabomba, myriophyllum, hydrocotyle	LOCATION: River Oaks WWTP Upstream	FIELD ID/NAME: [illegible]

Habitat Parameter (score)	Excellent	Good	Fair	Poor
Bottom Substrate/ Available Cover (23)	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 (15)	Max. observed: >0.3 m/sec. but < 1 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, or spate occurring; > 2 m/sec **0-7 points**
Artificial Channel/ Flow Alteration (0)	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 (2)	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 (2)	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** (47)

COMMENTS: Channel is completely covered with filamentous green algae.

ANALYSIS DATE: 4-22-93	ANALYST: Kathryn Hicks Jim Sniltgen	SIGNATURE: Kathryn A. Hicks

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:
SUBMITTING AGENCY CODE: SUBMITTING AGENCY NAME: SW - ITM - DFE		4-22-93	Rocky Creek

REMARKS:	LOCATION:	FIELD ID/NAME:
Gambusia, Tilapia, Ludwigia, Sagittaria, Lemna, Salvinia, Eichornia, Alternanthera, Pithophora or Spyrogyra	River Oaks Downstream	[illegible]

Habitat Parameter score	Excellent	Good	Fair	Poor
Bottom Substrate/ Available Cover 10	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 12	Max. observed: >0.3 m/sec. but < 1 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, or spate occurring; > 2 m/sec **0-7 points**
Artificial Channel/ Flow Alteration 7	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 4	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 6	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
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** 44

COMMENTS:

ANALYSIS DATE:	ANALYST:	SIGNATURE:
4-22-93	Kathryn Hicks, Jim Snitgen	[illegible]

DER Biology Section — Acute Bioassay Bench Sheet

Sample Source: River Oaks
Location: River Oaks WWTP Effluent
County: Hillsborough
Contact/District: Pat Fricano / SW
NPDES Permit #: FL00 Outfall #:
93 APR 20 34 54190

Sample Collection: Date 4-19-93 Time 10:00
Test Beginning: Date 4/20/93 Time 14:30
Test Ending: Date 4/21/93 Time 14:00
Organism Batch #: Diluent Batch #: 7
Organism Age: <24 hrs.
Test Organism: Ceriodaphnia dubia

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

Test Number: 3 of 4

Remarks:

CO-

Test Terminated @ 24 hrs.

Instrument Calibrations:

	pH	Temperature °C	D.O. mg/L	Conductivity µmhos/cm
0 hr	7.0 @ 7.0 9.0 @ 9.0	23.6 @ 23.7	8.4 @ 23.5	980 @ 1,000 9870 @ 10,000 @ 23.6
24 hr	7.0 @ 7.0 9.0 @ 9.0	23.2 @ 23.3 21.7 TR 21.8 TR	8.4 @ 23.6 8.7 22.0	980 @ 1,000 9890 @ 10,000 @ 23.6
48 hr	7.0 @ 7.0 9.0 @ 9.0	~~23.4~~ @ ~~22.6~~	~~8.6~~ @ ~~23.0~~	980 @ 1,000 9870 @ 10,000 @ 23.

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		8.2	8.1		23.0	23.5		7.2	7.3		165	160	
Control	B	5	5			8.1						7.3			170	
Control	C	5	5			8.1						7.3			170	
Control	D	5	5			8.2						7.4			175	
100%	A	5	0		7.8	8.6		23.1	23.6		7.2	7.3		775	780	
100%	B	5	0			8.6						7.3			810	
100%	C	5	0			8.6						7.3			820	
100%	D	5	0			8.6						7.3			855	
Measured/Loaded by:		MF	TM		TR	TM		TR	TM		TR	TM		TR	TM	
Recorded by:		TR	TM		TM	TR		TM	TR		TM	TR		TM	TR	

Investigators' Signatures

Tina Mikulski
Tobin Rader
Marshall Faircloth

Reviewer

	Salt Water/ (Well Water)	20% Min Water	Sample	Method	Measured by
Field Total Residual Cl2:					
Lab Total Residual Cl2:	<0.03	<0.03	1.60	DR-100	TM
Alkalinity:	125	70	175	Hach	TR
Hardness:	125	80	185	Hach	TR
Total Ammonia:	<0.017	<0.017	<0.017	Orion	MF

Cl_2 Blank: <0.03 Ammonia Meter Slope: -54.8 Ammonia Blank: <0.017 Sample Salinity: 0 ppt

form updated 10/20/92

DER Biology Section — Acute Bioassay Bench Sheet

Sample Source: River Oaks
Location: River Oaks WWTP Effluent
County: Hillsborough
Contact/District: Pat Friano / SW
NPDES Permit #: FL00 93 APR 20 34 54190 Outfall #:

Sample Collection: Date 4-19-93 Time 10:00
Test Beginning: Date 4/20/93 Time 14:30
Test Ending: Date 4/21/93 Time 14:00
Organism Batch #: 17 Diluent Batch #: Well
Organism Age: 11 days
Test Organism: Notropis leedsi

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

Test Number: 4 of 4
Remarks:

Instrument Calibrations: pH | Temperature °C | D.O. mg/L | Conductivity µmhos/cm

0 hr 7.0 @ 7.0 / 9.0 @ 9.0 | 23.6 @ 23.7 | 8.4 @ 23.5 | 980 @ 1,000 / 9870 @ 10,000 @ 23.6
24 hr 7.0 @ 7.0 / 9.0 @ 9.0 | 23.2 @ 23.3 | 8.4 @ 23.6 | 980 @ 1,000 / 9890 @ 10,000 @ 23.6
48 hr 7.0 @ 7.0 / 9.0 @ 9.0 | ~~22.4~~ 21.7 TR @ ~~22.6~~ 21.8 TR | ~~8.6~~ 8.7 @ ~~23.0~~ 22.0 | 980 @ 1,000 / 9870 @ 10,000 @ 23.7

Test Terminated @ 24 hrs.

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	19	5	5		7.8	8.2		22.2	22.8		7.2	7.3		240	240	
Control	23	5	5		7.8	8.2					7.2	7.3		240	240	
100%	26	5	0		7.6	8.1		22.8	22.8		7.2	7.3		825	815	
100%	22	5	0		7.6	8.1					7.2	7.3		825	830	
Measured/Loaded by:		TM	TM		TR	TM		TR	TM		TR	TM		TR	TM	
Recorded by:		TR	TR		TM	TR		TM	TR		TM	TR		TM	TR	

Investigators' Signatures
Tina Mikulski
Tobin Rader
Marshall Faircloth

Reviewer

	Salt Water/ (Well Water)	Water Quality Parameters 20% Mln Water	Sample	Method	Measured by
Field Total Residual Cl2:					
Lab Total Residual Cl2:	<0.03	<0.03	1.6	DR-100	TM
Alkalinity:	125	70	175	Hach	TR
Hardness:	125	80	185	Hach	TR
Total Ammonia:	<0.017	<0.017	<0.017	Orion	MF

Cl_2 Blank: <0.03 Ammonia Meter Slope: -54.8 Ammonia Blank: <0.017 Sample Salinity: 0 ppt

form updated 10/20/92

DER Biology Section — Acute Bioassay Bench Sheet

Sample Source: River Oaks
Location: River Oaks WWTP Effluent
County: Hillsborough
Contact/District: Pat Fricano / SW
NPDES Permit #: FL00 93 APR 20 34 54190 **Outfall #:**

Sample Collection: Date 4-19-93 Time 10:00
Test Beginning: Date 4/20/93 Time 14:30
Test Ending: Date 4/22/93 Time 15:15
Organism Batch #: 17 **Diluent Batch #:** 7
Organism Age: <24hrs
Test Organism: Ceriodaphnia dubia

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

Test Number: 1 of 4

Remarks:
deCl-

Instrument Calibrations:

	pH	Temperature °C	D.O. mg/L	Conductivity µmhos/cm
0 hr	7.0 @ 7.0 9.0 @ 9.0	23.6 @ 23.7	8.4 @ 23.5	980 @ 1,000 @ 23 9870 @ 10,000
24 hr	7.0 @ 7.0 9.0 @ 9.0	23.2 @ 23.3 21.7 TR 21.8 TR	8.4 @ 23.6 8.7 22.0	980 @ 1,000 @ 25 5820 @ 10,000
48 hr	7.0 @ 7.0 9.0 @ 9.0	~~22.4~~ @ ~~22.6~~	~~8.6~~ @ ~~23.0~~	980 @ 1,000 @ 25 9870 @ 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		8.3	23.0		22.0	7.2		8.4	160		180
Control	B	5	5	5			8.3						8.4			190
Control	C	5	5	5			8.3						8.4			185
Control	D	5	5	5			8.3						8.4			180
100%	A	5	5	5	7.8		8.6	23.0		22.0	7.2		8.3	785		780
100%	B	5	5	5			8.6						8.3			850
100%	C	5	5	5			8.6						8.4			860
100%	D	5	5	5			8.6						8.4			865
Measured/Loaded by:		MF	MF	TM	TR		TM	TR		TM	TR		TM	TR		TM
Recorded by:		TR	TR	TM	TM		TR	TM		TR	TM		TR	TM		TR

Investigators' Signatures

Tina M. Kulahi
Robin Rader
Marshall Faircloth

Reviewer

form updated 10/20/92

	Salt Water/ Well Water	20% Min Water	Sample	Method	Measured by
Field Total Residual Cl2:					
Lab Total Residual Cl2:	<0.03	<0.03	<0.03	~~Hach~~ DR-100	TM
Alkalinity:	125	70	180	Hach	TR
Hardness:	125	80	180	Hach	TR
Total Ammonia:	<0.017	<0.017	<0.017	orion	MF

Cl_2 Blank: <0.03 Ammonia Meter Slope: -54.8 Ammonia Blank: <0.017 Sample Salinity: 0 ppt

Sample Source: River Oaks
Location: River Oaks WWTP Effluent
County: Hillsborough
Contact/District: Pat Fricano / SW
NPDES Permit #: FL00 Outfall #:
93 APR 20 34 54190

Sample Collection: Date 4-19-93 Time 10:00
Test Beginning: Date 4/20/93 Time 14:30
Test Ending: Date 4/22/93 Time 15:15
Organism Batch #: 17 Diluent Batch #: Well
Organism Age: 11 days
Test Organism: Notropis Leedsi

Test Type: (Screening) Definitive
(Static) Static Renewal | Flow-through
Test Number: 2 of 4
Remarks:

deCl⁻

Instrument Calibrations:

	pH	Temperature °C	D.O. mg/L	Conductivity µmhos/cm
0 hr	7.0 @ 7.0; 9.0 @ 9.0	23.6 @ 23.7	8.4 @ 23.5	980 @ 1,000 @ 23.6; 9870 @ 10,000
24 hr	7.0 @ 7.0; 9.0 @ 9.0	23.2 @ 23.3; 21.7 TR	8.4 @ 23.6; 21.8 TR 8.7	980 @ 1,000 @ 23.6; 9890 @ 10,000
48 hr	7.0 @ 7.0; 9.0 @ 9.0	~~22.4~~ @ ~~22.6~~	~~8.6~~ @ ~~23.0~~ 22.0	980 @ 1,000 @ 23.7; 9870 @ 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	3	5	5	5	7.6	8.1	8.2	22.3	22.8	21.8	7.2	7.3	8.5	240	245	240
Control	48	5	5	5	7.8	8.1	8.2				7.2	7.3	8.5	240	240	240
100%	79	5	5	5	7.7	8.2	8.4	23.0	22.8	21.8	7.2	7.3	8.4	835	825	820
100%	4	5	5	5	7.7	8.2	8.4				7.2	7.3	8.4	835	830	825
Measured/Loaded by:		TM	TM	TM	TR	TM	TM	TR	TM	TM	TR	TM	TM	TR	TM	TM
Recorded by:		TR	TM	TM	TM	TR	TR	TM	TR	TR	TM	TR	TR	TM	TR	TR

Investigators' Signatures
Tina Mikulski
Tobin Raden
Marshall Fairchild
[signature]
Reviewer

	Salt Water/ (Well Water)	20% Min Water	Sample	Method	Measured by
Field Total Residual Cl2:				DR-100	
Lab Total Residual Cl2:	<0.03	<0.03	<0.03	~~Hach~~	TM
Alkalinity:	125	70	180	Hach	TR
Hardness:	125	80	180	Hach	TR
Total Ammonia:	<0.017	<0.017	<0.017	Orion	MF

Ammonia Ammonia Sample
Cl₂ Blank: <0.03 ... 548 <0.017 0 ppt

DER Biology Section — Acute Bioassay Bench Sheet

Sample Source: Northwest Regional
Location: Northwest Regional WWTP Effluent
County: Hillsborough
Contact/District: Pat Fricano / SW
NPDES Permit #: FL0041670 93 APR 20 25 54174 Outfall #:

Sample Collection: Date 4-19-93 Time 12:20
Test Beginning: Date 4/20/93 Time 14:30
Test Ending: Date 4/21/93 Time 14:00
Organism Batch #: Diluent Batch #: 7
Organism Age: <24 hrs.
Test Organism: Ceriodaphnia dubia

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

Test Number: 3 of 4

Remarks:

Cl⁻

Test Terminated @ 24 hrs.

Instrument Calibrations:

	pH	Temperature °C	D.O. mg/L	Conductivity µmhos/cm
0 hr	7.0 @ 7.0 9.0 @ 9.0	23.6 @ 23.7	8.4 @ 23.5	980 @ 1,000 (2) 9870 @ 10,000
24 hr	7.0 @ 7.0 9.0 @ 9.0	23.2 @ 23.3 21.7 TR	8.4 @ 23.6 21.3 TR 8.7	980 @ 1,000 9890 @ 10,000 (2)
48 hr	7.0 @ 7.0 9.0 @ 9.0	~~22.4~~ @ ~~22.6~~	~~8.6~~ @ ~~23.0~~	980 @ 1,000 (2) 9870 @ 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	8.3		23.0	23.5		7.2	7.4		160	170	
Control	B	5	5			8.3						7.4			165	
Control	C	5	5			8.3						7.4			170	
Control	D	5	5			8.3						7.4			190	
100%	A	5	0		7.5	8.6		23.0	23.5		7.2	7.3		730	700	
100%	B	5	0			8.6						7.3			745	
100%	C	5	0			8.6						7.4			770	
100%	D	5	0			8.6						7.4			840	
Measured/Loaded by:		MF	TM		TR	TM		TR	TM		TR	TM		TR	TM	
Recorded by:		TR	TM		TM	TR		TM	TR		TM	TR		TM	TR	

Investigators' Signatures

Tina Mikulski
Robin Rader
Marshall Faircloth

Reviewer

form updated 10/20/92

	Salt Water/ Well Water	Water Quality Parameters: 20% Min Water	Sample	Method	Measured by
Field Total Residual Cl2:					
Lab Total Residual Cl2:	<0.03	<0.03	1.8	DR-700	TM
Alkalinity:	125	70	200	Hach	TR
Hardness:	125	80	185	Hach	TR
Total Ammonia:	<0.017	<0.017	<0.017	Orion	mf

Cl_2 Blank: <0.03 Ammonia Meter Slope: -54.8 Ammonia Blank: <0.017 Sample Salinity: ____ ppt

DER Biology Section — Acute Bioassay Bench Sheet

Sample Source: Northwest Regional
Location: Northwest Regional WWTP effluent
County: Hillsborough
Contact/District: Pat Fricano / SW
NPDES Permit #: FL00 Outfall #:
93 APR 20 25 54174

Sample Collection: Date 4-19-93 Time 1210
Test Beginning: Date 4/20/93 Time 14:30
Test Ending: Date 4/21/93 Time 14:00
Organism Batch #: 17 Diluent Batch #: well
Organism Age: 11 days
Test Organism: Notropis leedsi

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

Test Number: 4 of 4

Remarks:

Instrument Calibrations:

	pH	Temperature °C	D.O. mg/L	Conductivity µmhos/cm
0 hr	2.0 @ 7.0 9.0 @ 9.0	23.6 @ 23.7	8.4 @ 23.5	980 @ 1,000 9870 @ 10,000 @ 23.6
24 hr	7.0 @ 7.0 9.0 @ 9.0	23.2 @ 23.3 21.7 TR	8.4 @ 23.6 21.5 TR 8.7 22.0	980 @ 1,000 9890 @ 10,000 @ 23.6
48 hr	7.0 @ 7.0 9.0 @ 8.0	~~22.4~~ @ ~~23.6~~	~~8.6~~ @ ~~23.0~~	980 @ 1,000 9870 @ 10,000 @ 23.7

Test Terminated @ 24 hrs.

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	28	5	5		7.7	8.2		22.2	23.0		7.1	7.2		240	250	~~240~~ * Wrong test TR
Control	65	5	4		7.7	8.2					7.1	7.2		240	240	~~240~~
100%	63	5	0		7.3	8.0		22.8	22.7		6.9	7.3		775	770	~~770~~
100%	10	5	0		7.3	8.0		22.8			6.9	7.3		780	775	~~780~~
Measured/Loaded by:		TM	TM		TR	TM		TR	TM		TR	TM		TR	TM	~~TM~~
Recorded by:		TR	TR		TM	TR		TM	TR		TM	TR		TM	TR	

Investigators' Signatures

Tina Mikulski
Tobin Rader
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:					
Lab Total Residual Cl2:	<0.03	<0.03	1.8	DR-100	TM
Alkalinity:	125	70	200	Hach	TR
Hardness:	125	80	185	Hach	TR
Total Ammonia:	<0.017	<0.017	<0.017	Orion	MF

Cl_2 Blank: <0.03 Ammonia Meter Slope: -54.8 Ammonia Blank: <0.017 Sample Salinity: 0 ppt

DER Biology Section — Acute Bioassay Bench Sheet

Sample Source: Northwest Regional
Location: Northwest Regional WWTP Effluent
County: Hillsborough
Contact/District: Pat Fricano / SW
NPDES Permit #: FL00 93 APR 20 25 **Outfall #:** 54174

Sample Collection: Date 4-19-93 Time 12:20
Test Beginning: Date 4/20/93 Time 14:30
Test Ending: Date 4/22/93 Time 15:15
Organism Batch #: _____ **Diluent Batch #:** 7
Organism Age: <24 hrs
Test Organism: Ceriodaphnia dubia

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

Test Number: 1 of 4

Remarks:

deCl

Instrument Calibrations:

	pH	Temperature °C	D.O. mg/L	Conductivity µmhos/cm
0 hr	7.0 @ 7.0 9.0 @ 9.0	23.6 @ 23.7	8.4 @ 23.5	980 @ 1,000 @23 9870 @ 10,000
24 hr	7.0 @ 7.0 9.0 @ 9.0	23.2 @ 23.3 21.7 TR 21.8 TR	8.4 @ 23.6 8.7 23.0	980 @ 1,000 @2 9850 @ 10,000
48 hr	7.0 @ 7.0 9.0 @ 9.0	~~22.4~~ @ ~~22.6~~	~~8.6~~ @ ~~23.0~~	980 @ 1,000 @2 9870 @ 10,000

		Number Live			pH			Temperature (°C)			D.O. (mg/L)			Cond. (mmhos/cm) Cond. (µmhos/cm)		
Conc.	Chamber #	0	24	48	0	24	48	0	24	48	0	24	48	0	24	48
Control	A	5	5	5	8.2		8.4	23.0		22.2	7.2		8.2	165		175
control	B	5	5	5			8.4						8.2			170
Control	C	5	5	5			8.4						8.2			165
Control	D	5	5	5			8.4						8.2			170
100%	A	5	5	5	7.6		8.6	23.1		22.1	7.2		8.2	740		695
100%	B	5	5	5			8.7						8.2			735
100%	C	5	5	5			8.7						8.2			720
100%	D	5	5	5			8.7						8.2			715
Measured/Loaded by:		MF	MF	TM	TR		TM	TR		TM	TR		TM	TR		TM
Recorded by:		TR	TR	TM	TM		TR	TM		TR	TM		TR	TM		TR

Investigators' Signatures

Tina Mikulski
Tobin Rader
Marshall Faircloth

Reviewer

form updated 10/20/92

	Salt Water/ (Well Water)	20% Min Water	Sample	Method	Measured by
	Water Quality Parameters				
Field Total Residual Cl2:					
Lab Total Residual Cl2:	<0.03	<0.03	<0.03	DR400	TM
Alkalinity:	125	70	190	Hach	TR
Hardness:	125	80	180	Hach	TR
Total Ammonia:	<0.017	<0.017	<0.017	Orion	mf

Cl_2 Blank: <0.03 Ammonia Meter Slope: -54.8 Ammonia Blank: <0.017 Sample Salinity: 0 ppt

DER Biology Section — Acute Bioassay Bench Sheet

Sample Source: Northwest Regional
Location: Northwest Regional WWTP Effluent
County: Hillsborough
Contact/District: Pat Fricano (SW)
NPDES Permit #: FL00 93APR 2025 54174 Outfall #:

Sample Collection: Date 4-14-93 Time 12:20
Test Beginning: Date 4/20/93 Time 14:30
Test Ending: Date 4/22/93 Time 15:15
Organism Batch #: 17 Diluent Batch #: well
Organism Age: 11 days
Test Organism: Notropis Lutrensis

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

Test Number: 2 of 4
Remarks:

deCl –

Instrument Calibrations:

	pH	Temperature °C	D.O. mg/L	Conductivity µmhos/cm
0 hr	7.0 @ 7.0 9.0 @ 9.0	23.6 @ 23.7	8.4 @ 23.5	980 @ 1,000 @23.6 9870 @ 10,000
24 hr	7.0 @ 7.0 9.0 @ 9.0	23.2 @ 23.3 21.7 TR 21.8 TR	8.4 @ 23.6 8.7 22.0	980 @ 1,000 @23.6 9890 @ 10,000
48 hr	7.0 @ 7.0 9.0 @ 9.0	~~22.4~~ @ ~~22.6~~	~~8.6~~ @ ~~23.0~~	980 @ 1,000 @23.7 9870 @ 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	630	5	5	5	7.7	8.2	8.3	22.3	22.9	21.8	7.2	7.2	8.5	240	240	240
Control	219	5	4	4	7.7	8.2	8.3				7.2	7.2	8.5	240	240	240
100%	8	5	5	5	7.4	8.1	8.3	22.9	22.8	21.7	6.9	7.2	8.3	790	780	770
100%	29	5	5	5	7.4	8.1	8.3				6.9	7.2	8.3	790	780	780
Measured/Loaded by:		TM	TM	TM	TR	TM	TM	TR	TM	TM	TR	TM	TM	TR	TM	TM
Recorded by:		TR	TM	TM	TM	TR	TR	TM	TR	TR	TM	TR	TR	TM	TR	TR

Investigators' Signatures

Tina Mikulski
Tobin Rader
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:					
Lab Total Residual Cl2:	<0.03	<0.03	<003	DR-100	TM
Alkalinity:	125	70	190	Hach	TR
Hardness:	125	80	180	Hach	TR
Total Ammonia:	<0.017	<0.017	<0.017	orion	MF

Cl_2 Blank: <0.03 Ammonia Meter Slope: -54.8 Ammonia Blank: ~~-58~~ -60 Sample Salinity: 0 ppt

Benthic macroinvertebrate taxa list for River Oaks WWTP, collected via Hester-Dendy artificial substrates in Rocky Creek, on 22 April, 1993. Densities are in number/m^2.

	Reference Site	Test Site
Acarina		
Sperchon sp.	–	1.0
Diptera		
Ablabesmyia mallochi	3.0	2.0
A. rhamphe grp.	10.1	58.6
Asheum beckae	–	30.3
Chironomus sp.	2.0	–
Cladotanytarsus sp.	–	17.2
Cricotopus bicinctus	–	14.1
Cryptochironomus sp.	–	3.0
Cryptotendipes sp.	–	6.1
Dicrotendipes modestus	1.0	–
D. neomodestus	1.0	339.4
D. simpsoni	7.1	141.4
Endochironomus nigricans	–	3.0
E. subtendens	–	52.5
Glyptotendipes sp.	–	48.5
Labrundinia neopilosella	–	3
L. pilosella	1.0	3
Nanocladius sp.	–	3
Nilothauma sp.	7.1	–
Palpomyia grp. sp.	1.0	3
Parachironomus directus	–	3
Parametriocnemus sp.	1.0	–
Polypedilum convictum grp.	1.0	–
P. halterale grp.	–	11.1
P. illinoense	2.0	–
P. scalaenum grp.	1.0	–
Polypedilum tritum	6.1	–
Pseudochironomus sp.	3.0	187.9
Rheotanytarsus distinctissimus grp.	6.1	–
R. exiguus grp.	1.0	–
Tanytarsus sp. A Epler	5.1	3.0
T. sp. C Epler	1.0	31.3
T. sp. E Epler	3.0	–
T. sp. F Epler	3.0	–
T. sp. G Epler	1.0	9.1
T. sp. K Epler	–	21.2
T. sp. L Epler	239.4	31.3
T. sp. T Epler	19.2	13.1

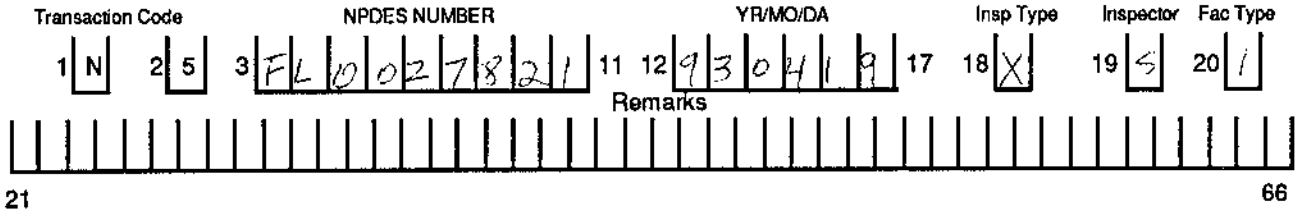
Xenochironomus xenolabis	–	2.0
Undetermined dipteran pupa	68.7	37.4
Ephemeroptera		
Caenis sp.	16.2	292.9
Callibaetis floridanus	–	25.3
C. pretiosus	3.0	–
Stenonema exiguum	–	1.0
Stenacron sp.	–	1.0
S. interpunctatum	–	1.0
Gastropoda		
Amnicola dalli johnsoni	52.5	2.0
Hebetancyclus excentricus	25.3	38.4
Micromenetus dilatus	7.1	5.1
M. floridensis	30.3	8.1
Physella sp.	2.0	39.4
Planorbella duryi	1.0	25.3
Pseudosuccinea columella	–	1.0
Pyrogophorus platyrachis	30.0	–
Undetermined hydrobiid	4.0	–
Hirudinea		
Helobdella elongata	1.0	–
H. triserialis	1.0	1.0
Malacostraca		
Hyalella azteca	131.3	155.6
Odonata		
Enallagma cardenium	–	2.0
E. pollutum	–	12.1
Epitheca princeps	–	1.0
Ischnura hastata	2.0	3.0
I. posita	–	1.0
I. ramburii	–	2.0
Pachydiplax longipennis	1.0	1.0
Oligochaeta		
Aulodrilus pigueti	–	5.1
Chaetogaster limnaei	–	1.0
Dero nivea	12.1	–
D. pectinata	–	1.0
Nais communis	1.0	1.0
N. pardalis	–	5.1
N. pseudobtusa	3.0	–
Slavina appendiculata	1.0	–
Stylaria lacustrus	20.2	1.0
Pelecypoda		
Musculium sp.	1.0	–
Sphaerium or *Musculium* sp.	1.0	15.2
Platyhelminthes		
Dugesia sp.	–	7.1
Rhynchocoela		
Prostoma rubra	–	1.0

Trichoptera		
Cyrnellus sp.	–	5.1
C. fraternus	–	5.1
Hydropsyche sp.	–	17.2
Oecetis sp.	–	5.1
Orthotrichia sp.	–	17.2
Oxyethira sp.	–	5.1
Total	741.9	1791.0

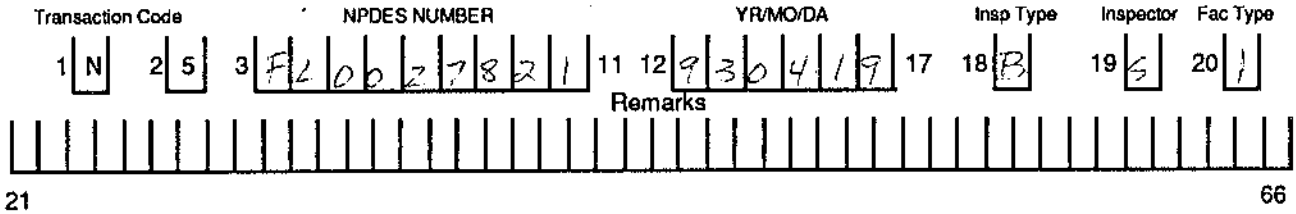
Phytoplankton taxa list and densities (#/mL) for River Oaks Wastewater Treatment Plant, collected via subsurface grabs in Channel A (reference site) and Rocky Creek (test site), on 19 April, 1993.

	Reference Site	Test Site
Diatoms		
Achnanthes sp.	25	51
Amphora sp.	–	25
Cocconeis sp.	280	–
Melosira sp.	–	25
Navicula sp.	25	25
Nitzschia sp.	51	25
Skeletonema sp.	–	1567
Unidentified pennate diatom	–	303
Chlorophyta		
Ankistrodesmus sp.	25	–
Chlamydomonas sp.	–	25
Gloeocystis sp.	25	–
Scenedesmus sp.	51	–
Unknown chlorophyte flagellate	25	51
Chrysophyta		
Synura sp.	–	25
Cryptophyta		
Cryptomonas sp.	51	–
Cyanophyta		
Microcystis sp.	25	–
Oscillatoria sp.	25	25
Euglenophyta		
Phacus sp.	–	25
Total density	**608**	**2172**

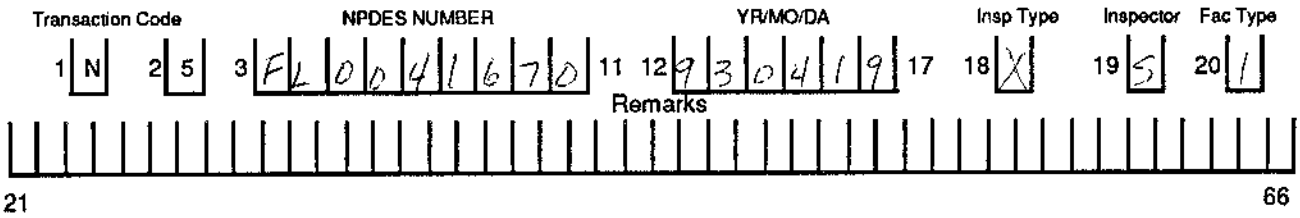
Fill Out This Section For All Surface Water Discharger Inspections (CEI, CSI, CBI, PAI, XSI - RI Optional)



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



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



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