

Biological Assessment of

Wesley Manor Retirement Village
Wastewater Treatment Facility

Duval County

NPDES #FL0022489

Sampled November 1994

April 1995

Biology Section
Division of Administrative and Technical Services

Comprehensive Quality Assurance Plan No. 870346G

Department of Environmental Protection
Results of Fifth Year Inspections

Discharger: Wesley Manor Retirement Village
County: Duval
NPDES Number: FL0022489
State Permit Expiration Date: 17 September 1995

Toxics Sampling Inspection (XSI)

Date Sampled: 7 November 1994

Results: No organic or metal constituents were found in the effluent at levels which exceeded Class III standards.

Compliance Biomonitoring Inspection (CBI)

Date Sampled: 7 November 1994

Results: Effluent residual chlorine standards (Rule 62-302.530(19) FAC) were violated, both in the field and the laboratory measurements. Permit limits for chlorine were exceeded in the field test. The dechlorinated effluent was not toxic to the invertebrate, *Ceriodaphnia dubia*, or to the fish, *Cyprinella leedsi*. However, the chlorinated sample caused 100% mortality in both test organisms within 24 hours. This is a violation of Rules 62-302.530(62) FAC, and 62-302.500(1)(d) FAC.

Impact Bioassessment Inspection (IBI)

Date Sampled: 7 November 1994

Results: Quantitative measures of benthic macroinvertebrate community health suggested no negative effects associated with the discharge. Although macroinvertebrate taxa richness and diversity were somewhat depressed at all sites, the test site values were better than those at the reference site. The discharge may have had slight negative effects on the algal community, mainly involving increased algal biomass at the test sites. The number of algal individuals almost quadrupled from the reference site (4,536 organisms/mL) to the first test site (15,963 organisms/mL), and increased by almost 50% at the second test site (6,743 organisms/mL). This is consistent with the higher AGP's found at the test sites.

Water Quality Inspection (WQI)

Date Sampled: 7 November 1994

Results: Fecal and total coliform bacteria were within acceptable levels in the effluent and at the reference and test sites. Although the Wesley Manor effluent contained elevated levels of nutrients (*e.g.*, total phosphorus was 4.4 mg/L and nitrate-nitrite was 9.0 mg/L), it did not appear to cause significant enrichment at the test sites. An exception to this was the increase in nitrate-nitrite at test site 1 (0.17 mg/L) which was almost double that found at the reference site (0.09 mg/L). The nitrate-nitrite value at test site 1 was higher than those found at approximately 70% of other Florida streams. However, based upon the values found at the reference site, most nutrients present in Julington Creek were already higher than an average stream (*e.g.*, near the 60th percentile) even without the influence of the discharge. This suggests other (probably stormwater) inputs to the creek. Algal growth potential was above the "problem threshold" of 5 mg dry wt/L at all receiving water sites. AGP at test site 1 (15.6 mg dry wt/L) and test site 2 (19.7 mg dry wt/L) were both higher than that found at the reference site (11.7 mg dry wt/L).

Introduction

The Wesley Manor Retirement Village Wastewater Treatment Facility is located at State Rd. 13, on Julington Creek in St. Johns County, Florida (see maps in Appendix). Treatment at this 0.1 MGD privately owned facility consists of extended aeration and chlorination. Effluent flows into an unnamed holding pond which is discharged into the Class III Julington Creek approximately one mile upstream of its confluence with the St. Johns River. The compliance sampling point is located at the end of the chlorine contact chamber, before the effluent enters the holding pond. At present, there is no dechlorination prior to discharge. Mean flow of the facility is 0.045 MGD.

Permit limits are as follows: BOD_5 and TSS (maximum of 60 mg/L, weekly average of 45 mg/L, monthly average of 30 mg/L, annual average of 20 mg/L), dissolved oxygen (annual average of 5.0 mg/L), pH (6.0-8.5 S.U.'s), nitrate (annual average of 12 mg/L), chlorine residual (0.5 mg/L minimum - 1.0 mg/L maximum for disinfection), fecal coliforms (annual average ≤ 200 organisms/100 mL), ultimate oxygen demand (annual average of 14 lb./day), and flow (annual average of 0.1 MGD).

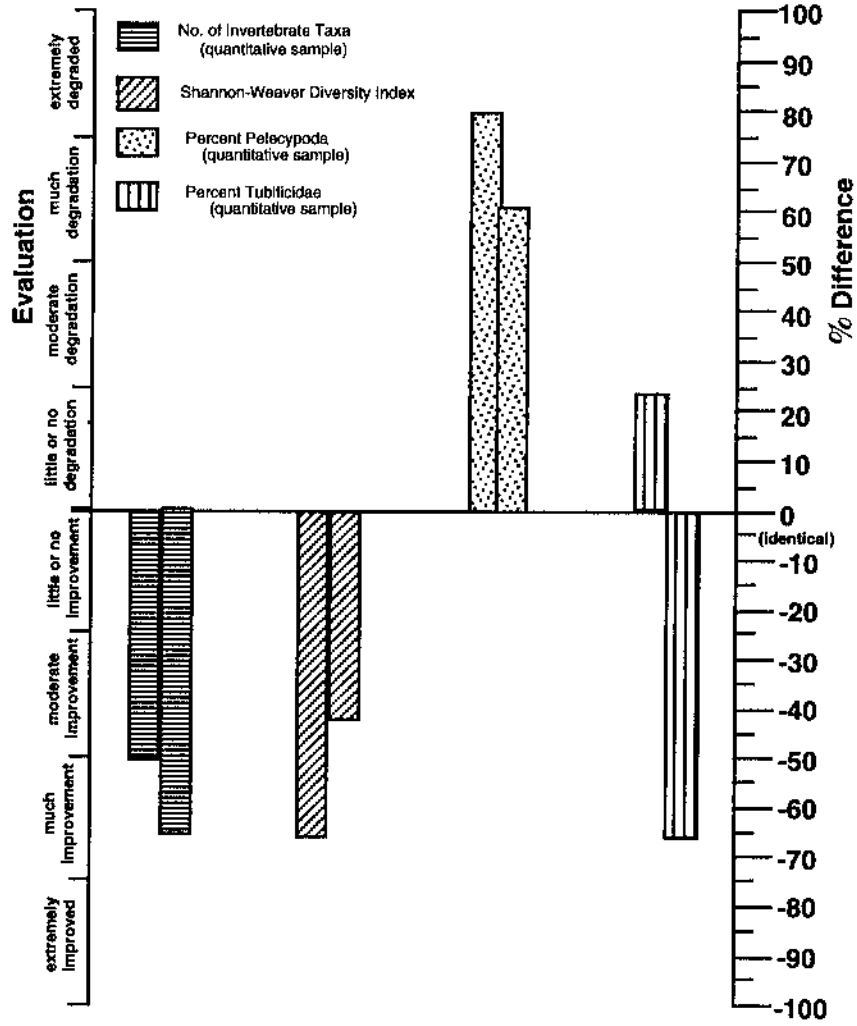
There have been no reports of facility mishaps or permit violations within the past year.

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 approximately one-half mile northeast of the outfall) and two test sites bracketing the discharge (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 *Cyprinella 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

Major characteristics of community structure of control and test sites.

	Reference Site	Test Site 1	Test Site 2
Macroinvertebrate Ponar			
Number of Taxa	6	9	10
Shannon-Weaver Diversity	1.8	2.6	2.3
% Oligochaeta	16.7	22.7	6.5
% Diptera	2.4	33.1	32.5
% Gastropoda	45.2	37	45.6
% Pelecypoda	35.7	7.2	14.2
% Other	0	0	1.2
% Tubificids	16.7	22.6	6.5
% Predator/Carnivores	2.4	33.2	33.4
% Below Surface Deposit Feeders	16.7	22.6	6.5
% Shredders	0	0	.3
% Suspension Feeders	35.7	7.2	14.2
% Scrapers	45.2	37	45.6
Phytoplankton Algae			
Number of Taxa	13	13	12
Shannon-Weaver Diversity	3.4	3.2	2.8
Chlorophyll a (µg/L)	.5 U	.84	.64
Algal Density (#/mL)	4536	15963	6743
% Blue-green	11	0	0
% Green	0	1	4.2
% Diatoms	81.5	98.9	95.8
Algal Growth Potential (mg dry wt/l)	11.7	15.6	19.7



Effect of discharge on the benthic macroinvertebrate community.

The left bar for each parameter shows differences between the reference site and test site 1. The right bar shows differences between the reference site and test site 2.

pesticide extractables). Additionally, nutrient analyses were performed on effluent, reference, and test sites. 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 three replicate petite Ponar grabs. Phytoplankton was sampled at both reference and test via subsurface grabs (Ross 1990). 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.* (1978).

Explanation of Measurements of Community Health

Several different measurements of macroinvertebrate and algal community health have been employed to determine the effects of a discharge. These are briefly discussed here.

Taxa richness: Anthropogenic stress has a tendency to reduce the number of different types of macroinvertebrates present in a system. Algal taxa richness may increase with moderate nutrient enrichment, compared to an oligotrophic natural background, but become reduced with extreme nutrient enrichment or toxicity.

Shannon-Weaver diversity: This index is specified in the Florida Administrative Code as a measure of biological integrity. Low diversity scores are undesirable, in that they represent conditions where only a few organisms are abundant, to the exclusion of other taxa. Excessive numerical dominance of a single type of organism (a high % contribution of the dominant taxon) is a related measure which is also associated with disturbance.

Numbers of pollution sensitive taxa: Unpolluted sites have characteristic types of taxa which are sensitive to anthropogenic stress. These organisms become rare or absent as the intensity or duration of the disturbance increases. For example, 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. Species sensitivity data from other sources,

such as Hulbert (1990), Hudson *et al.* (1990), Lenat (1993), Farrell (1992), Chang *et al.* (1992), and Whitmore (1989), are used as appropriate.

Ephemeroptera/Plecoptera/Trichoptera Index: To calculate the index, one simply sums the number of EPT taxa present at a stream station. Higher EPT are associated with healthier systems, while lower scores indicate stressed conditions.

Community structure: An aquatic community is generally considered degraded if a substantial shift in the proportions of the major taxonomic groups (*e.g.*, mayflies, riffle beetles, etc.) is observed when compared to a reference site. In marine systems, an increase in the % tubificid oligochaetes, a decrease in the % pelecypods, and a decrease in the number of polychaete taxa are all considered indicators of disturbance (Engel *et al.* 1994).

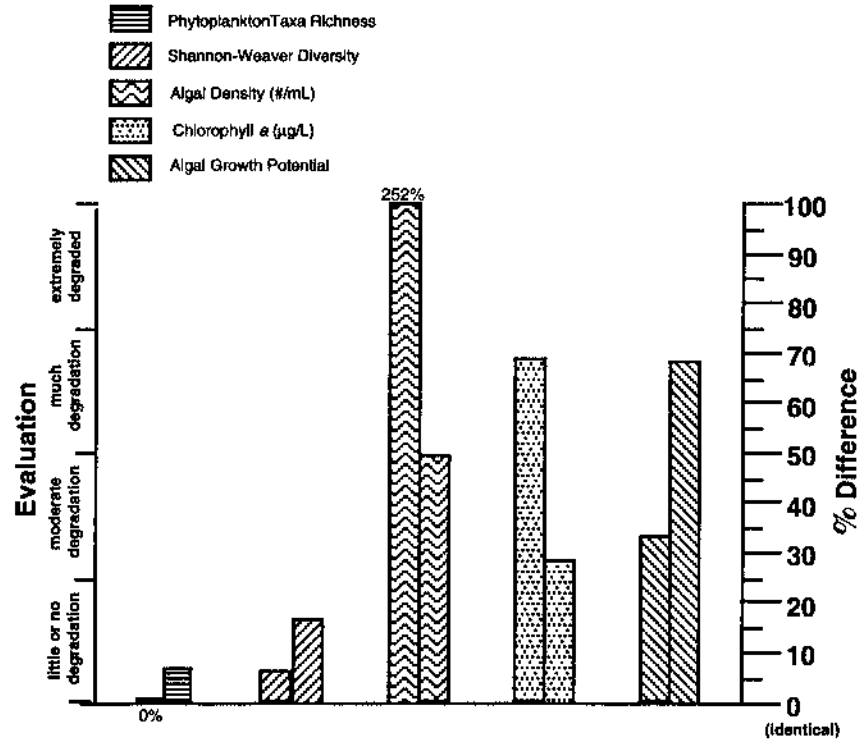
Algal biomass: A system has traditionally been considered nutrient stressed when biomass (algal density or chlorophyll *a*) exceeds problem threshold levels, often resulting in visible algal blooms and low dissolved oxygen from the decomposition of the decaying algal tissue. A decreased diatom to bluegreen 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 in flowing streams.

Trophic composition/feeding guilds: Human disturbance can shift the established feeding strategies of a system. In Florida for example, pollution appears to be responsible for reducing the numbers of filter-feeders (FDEP 1994) and shredders (EA Engineering 1994).

The Stream Invertebrate Index for Florida (SIIF) is a composite metric which is based upon the macroinvertebrate communities found at Florida Eco-regional reference sites sampled with dip net sweeps (EA Engineering 1994). The SIIF assigns points to a variety of invertebrate parameters, depending on how closely that parameter approaches the expected Eco-regional reference condition. The points are then summed and an assessment of the condition of a site is made (see SIIF calculation table in Appendix).

For graphical purposes, the percent differences between the reference and test sites involving the number of taxa, the diversity index, the number of polychaete taxa, and the % pelecypods are measured as the reference site minus test site divided by the reference site. The percent differences between sites involving the % tubificids, algal density, 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: Tim McKelvey, Mike Hollingsworth (DEP Northeast District) and Lyn Burton, Marshall Faircloth, Russel Frydenborg, Christy LeDuc, Kathleen Lurding, Tina Mikulski, Elizabeth Miller, Urania Quintana, Landon Ross, David Whiting, Vicki Whiting, Greg Wynn, and David Young (Tallahassee Biology Laboratory). The report was reviewed by the Point Source Studies Review



Effect of discharge on the algal community.

The left bar for each parameter shows differences between the reference site and test site 1. The right bar shows differences between the reference site and test site 2.

Committee, consisting of Wayne Magley, Jan Mandrup-Poulsen, and Michael Tanski, as well as District representatives.

Results and Discussion

The study area is situated in a large, tidally influenced tributary of the St. Johns River, which was predominantly fresh water at the time of sampling. Obvious pollution sources (*i.e.*, highways, construction activities, and two marinas) are present along this portion of Julington Creek, potentially impacting the reference and test sites. Habitat quality was comparable at the three study sites, with scores of 91 (reference site), 88 (test site 1), and 101 (test site 2). Land use near all the sites was approximately 80% residential and 20% forested. The study sites were similar with respect to many physical/chemical parameters, such as conductivity (ranging from 240 µmhos/cm to 427 µmhos/cm), temperature (from 22.3° C to 22.9° C), pH (from 6.6 to 6.7 S.U.), and dissolved oxygen (ranging from 4.0 mg/L at the reference site, to 5.0 mg/L and 5.1 mg/L at test sites 1 and 2, respectively). Dissolved oxygen at the reference site was below Class III standards. Effluent dissolved oxygen was 4.5 mg/L, which is less than the annual permit requirement and Class III standards. Secchi depth was the same at each site (0.3 m). Substrate at each site was composed mostly of muck, shell hash, and detritus (Appendix).

No organic priority pollutants were detected in the effluent sample. Metals found in the discharge above quantitation limits included calcium (40.4 µg/L), iron (56 µg/L), magnesium (13.5 µg/L), and zinc (45 µg/L). None of these represent a violation of Class III standards for freshwater.

Chlorine residual measured upon collection in the field was 1.5 mg/L. Effluent chlorine measured in the laboratory at the beginning of the bioassay test (approximately 23 hours later) was 0.7 mg/L. Both of these values are in violation Class III standards for freshwaters, Rule 62-302.530(19) FAC. Additionally the residual chlorine measured in the field exceeded the facility's permit limit. The sample of effluent, when dechlorinated in the laboratory, was not toxic to the invertebrate, *Ceriodaphnia dubia*, or to the fish, *Cyprinella leedsi* (Appendix). However, the chlorinated effluent produced 100% mortality in both test organisms within 24 hours. This is a violation of Rules 62-302.530(62) FAC and 62-302.500(1)(d) FAC.

Total coliform bacteria were within Class III standards at all receiving water sites (with 40 organisms/100 mL at the reference site and 230 organisms/100 mL at both test sites). Fecal coliform bacteria were also within acceptable levels at the reference and test sites (with < 20 organisms/100 mL at each station). Effluent levels of both total and fecal coliforms were within permit requirements (each with < 20 organisms/100 mL).

Although the Wesley Manor effluent contained elevated levels of nutrients (*e.g.*, total phosphorus was 4.4 mg/L and nitrate-nitrite was 9.0 mg/L), it did not appear to cause significant enrichment at the test sites. An exception to this was the increase in nitrate-nitrite at test site 1 (0.17 mg/L) which was almost double that found at the reference site (0.09 mg/L). The nitrate-nitrite value at test site 1 was higher than those found at approximately 70% of other Florida streams. However, based upon the values found at the reference site, most nutrients present in Julington Creek were already higher than an average stream (*e.g.*, near the 60th percentile) even without the influence of the discharge. This suggests other (probably stormwater) inputs to the creek.

Algal growth potential (AGP) was above the "problem threshold" of 5 mg dry wt/L at all receiving water sites (Raschke and Schultz 1987). AGP at test site 1 (15.6 mg dry wt/L) and test site 2 (19.7 mg dry wt/L) were both higher than that found at the reference site (11.7 mg dry wt/L).

Quantitative measures of benthic macroinvertebrate community health suggested no obvious negative effects associated with the discharge (see table and figures). The figure on p. 2 indicates the degree of difference between the invertebrate populations of 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.

Macroinvertebrate taxa richness was depressed at each site. Taxa richness was higher at test site 1 (with 9 taxa) than at the reference site (with 6 taxa), an increase of 55%. Taxa richness at test site 2 (with 10 taxa) improved by 67% compared to the reference site. Shannon-Weaver diversity was also low at all three stations. It was highest at test site 1 (2.6), intermediate at the test site 2 (2.3), and lowest at the reference site (1.8).

With one exception, the community structure at the two test sites was similar to the reference site. Gastropods (45%), pelecypods (36%), and tubificids (17%) were the dominant organisms at the reference site, with a small number of dipterans. Gastropods, dipterans, tubificids, and pelecypods were the most abundant groups at the test sites. In contrast to the taxa richness and diversity data, which suggested improved conditions at the test sites, fewer pelecypods were found at the test sites (decreases of 80% and 60% at test sites 1 and 2, respectively).

Pollution tolerant taxa (*e.g.*, *Limnodrilus hoffmeisteri* and *Aulodrilus pigueti*) were abundant at all three receiving water stations. Interestingly, only the test sites contained species considered to be indicators of clean water (*e.g., Oecetis* sp. and *Procladius* sp.). In all, the majority of the evidence suggests that the facility is not adversely affecting Julington Creek, which already appeared somewhat stressed.

The figure on p. 3 represents changes in the periphyton algal community. As was noted with the macroinvertebrates, larger differences (that is, higher percentages) correspond with greater degrees of degradation.

The discharge may have had a slight negative effect on the algal community. Taxa richness for the phytoplankton was identical at the reference site and test site 1 (13 taxa), and decreased only slightly to 12 taxa at test site 2. Diversity decreased from 3.4 at the reference site to 3.2 at test site 1 and 2.8 at test site 2. The phytoplankton assemblage found at all three stations was heavily dominated by diatoms (82% at the reference, 99% at test site 1, and 96% at test site 2). Chlorophytes, cyanophytes, chrysophytes, and cryptophytes were also present in small numbers at the reference site. The test sites were represented by fewer groups of algae, in that Chlorophyta was the only group (other than the diatoms) found. Chlorophyll *a* was very low at all three stations, increasing slightly from 0.5 µg/L at the reference site, to 0.8 µg/L and 0.6 µg/L at test sites 1 and 2, respectively. The largest difference seen between the reference and test sites involved algal biomass. The number of algal individuals almost quadrupled from the reference site (4,536 organisms/mL) to the first test site (15,963 organisms/mL), and increased by almost 50% at the second test site (6,743 organisms/mL). This is consistent with the higher AGP's found at the test sites.

Conclusions

No organic priority pollutants were detected in the effluent sample. No metals were found in the discharge which exceeded Class III standards.

Class III standards for residual chlorine (Rule 62-302.530(19) FAC) were violated in the discharge, both in field (1.5 mg/L) and in laboratory measurements (0.7 mg/L). The field determined concentration also exceeded the facility's permit limit. When dechlorinated in the laboratory, the effluent was not toxic to the invertebrate, *Ceriodaphnia dubia*, or to the fish, *Cyprinella leedsi*. However, the chlorinated sample caused 100% mortality in both test organisms within 24 hours. This is a violation of Rules 62-302.530(62) FAC, and 62-302.500(1)(d) FAC.

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Quantitative measures of benthic macroinvertebrate community health suggest no obvious negative effects associated with the discharge. Although macroinvertebrate taxa richness and diversity were somewhat depressed at all sites, the test site values were better than those at the reference site. Although pollution tolerant taxa

(*e.g.*, *Limnodrilus hoffmeisteri* and *Aulodrilus pigueti*) were abundant at all three receiving water stations, only the test sites contained species considered to be indicators of clean water (*e.g., Oecetis* sp. and *Procladius* sp.). In all, the majority of the evidence suggests that the facility is not adversely affecting Julington Creek, which already appeared somewhat stressed.

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Chemistry summary table for

Wesley Manor Retirement Village	Effluent	Reference Site	Test Site 1	Test Site 2
Organic Constituents (ug/L)				
None Detected				
Metals (ug/L)				
Aluminum	100 U			
Arsenic	10 U			
Cadmium	0.08 U			
Copper	7 I			
Chromium	10 U			
Iron	56 A			
Lead	10 U			
Mercury	0.10 U			
Nickel	8 I			
Selenium	30 U			
Silver	0.05 U			
Zinc	45 A			
Nutrients (mg/L)				
Ortho-phosphate	4.3	0.06	0.1	0.04 I
Total phosphorus	4.4 A	0.1	0.1	0.11
Ammonia	0.04 A	0.09 A	0.08 A	0.12 A
Nitrate+Nitrite	9.0	0.09 A	0.17	0.08
TKN	0.7	1.2	1.2	1.3
General Phys-Chem Parameters				
Habitat Assessment		91	88	101
D. O. (mg/L)	4.5	4.0	5.0	5.1
pH (SU's)	7.1	6.6	6.6	6.7
Specific Conductance/ (µmhos/cm)	653	252	427	240
Temperature (°C)	22.9	22.3	22.8	22.9
Total Suspended Solids (mg/L)	1	4	11	6
Biological Oxygen Demand, 5 day (mg/L)	< 2	0.7	1.0	0.8
Turbidity (NTU's)	1.1	2.5	6.9	4.1
Color (PCU's)	5	400	400	400
Hardness (mg CaCO3)	156.5			
Residual Chlorine, field (mg/L)	1.5			
Residual Chlorine, lab (mg/L)	0.7			
Algal Growth Potential (mg dry wt/L)		11.7	15.6	19.7
Toxicity				
Bioassay Fish-Dechlorinated	Not Toxic			
Bioassay Invertebrate-Dechlorinated	Not Toxic			
Bioassay Fish-Chlorinated	100% Mortality			
Bioassay Invertebrate-Chlorinated	100% Mortality			
Microbiological Communities (org/100 mL)				
Total Coliform	< 20	40	230	230
Fecal Coliform	< 20	< 20	< 20	< 20

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

I - Value reported is less than the minimum quantitation limit, and greater than or equal to the minimum detection limit

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

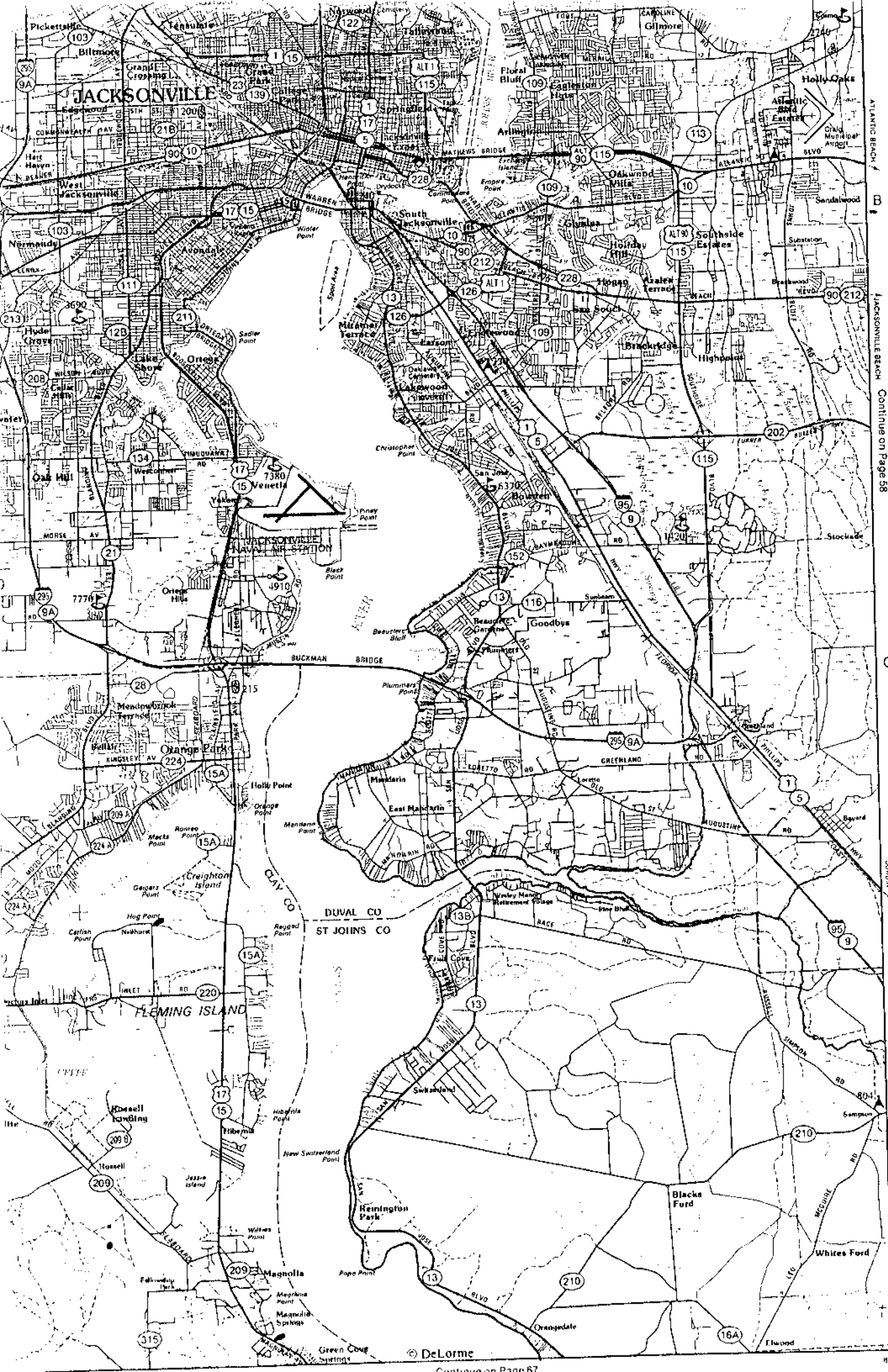
Typical Values for Selected Parameters in Florida Waters

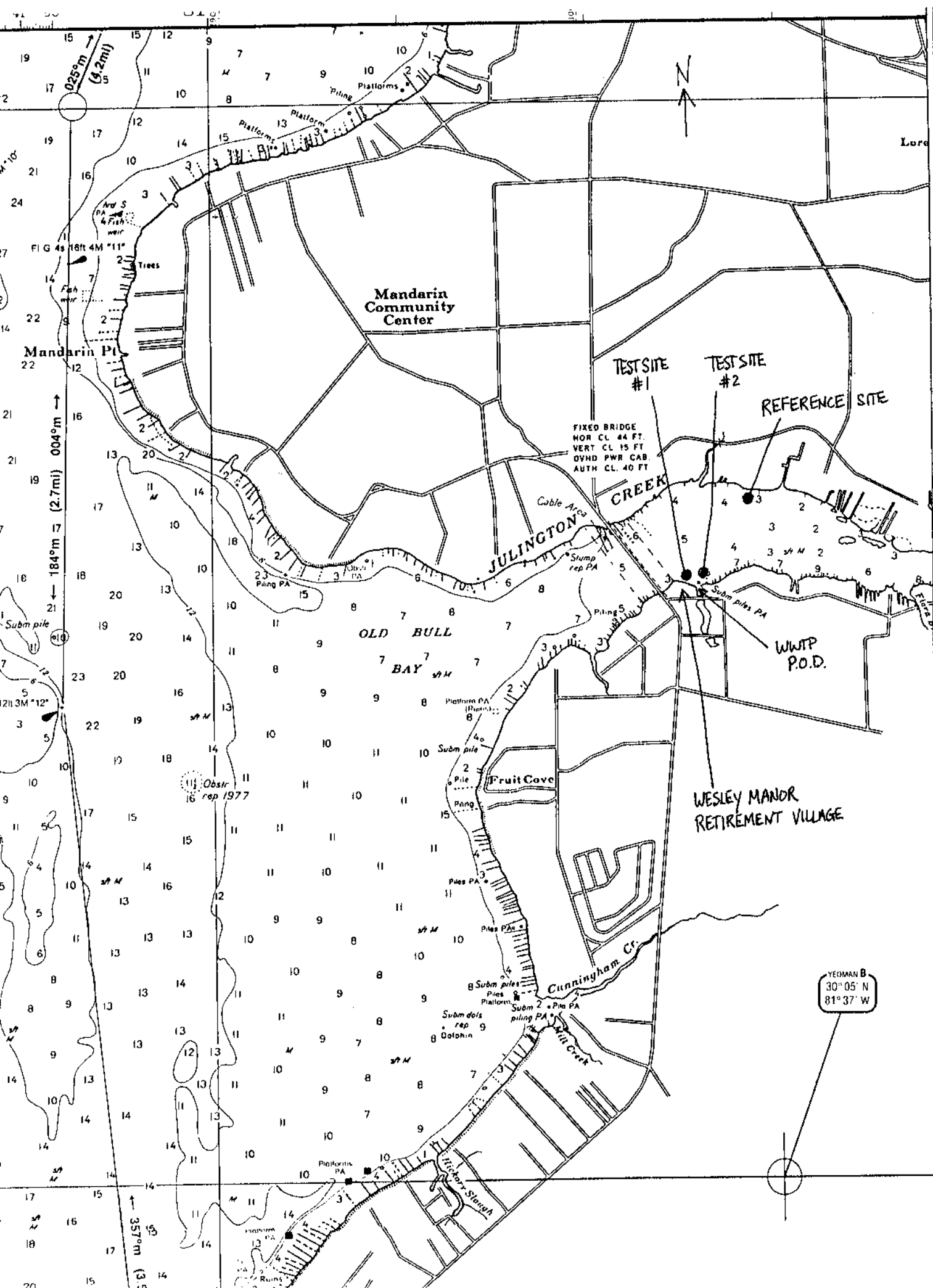
Adapted from Joe Hand, FDER, personal communication, 1991
(data was collected between 1980 and 1989)

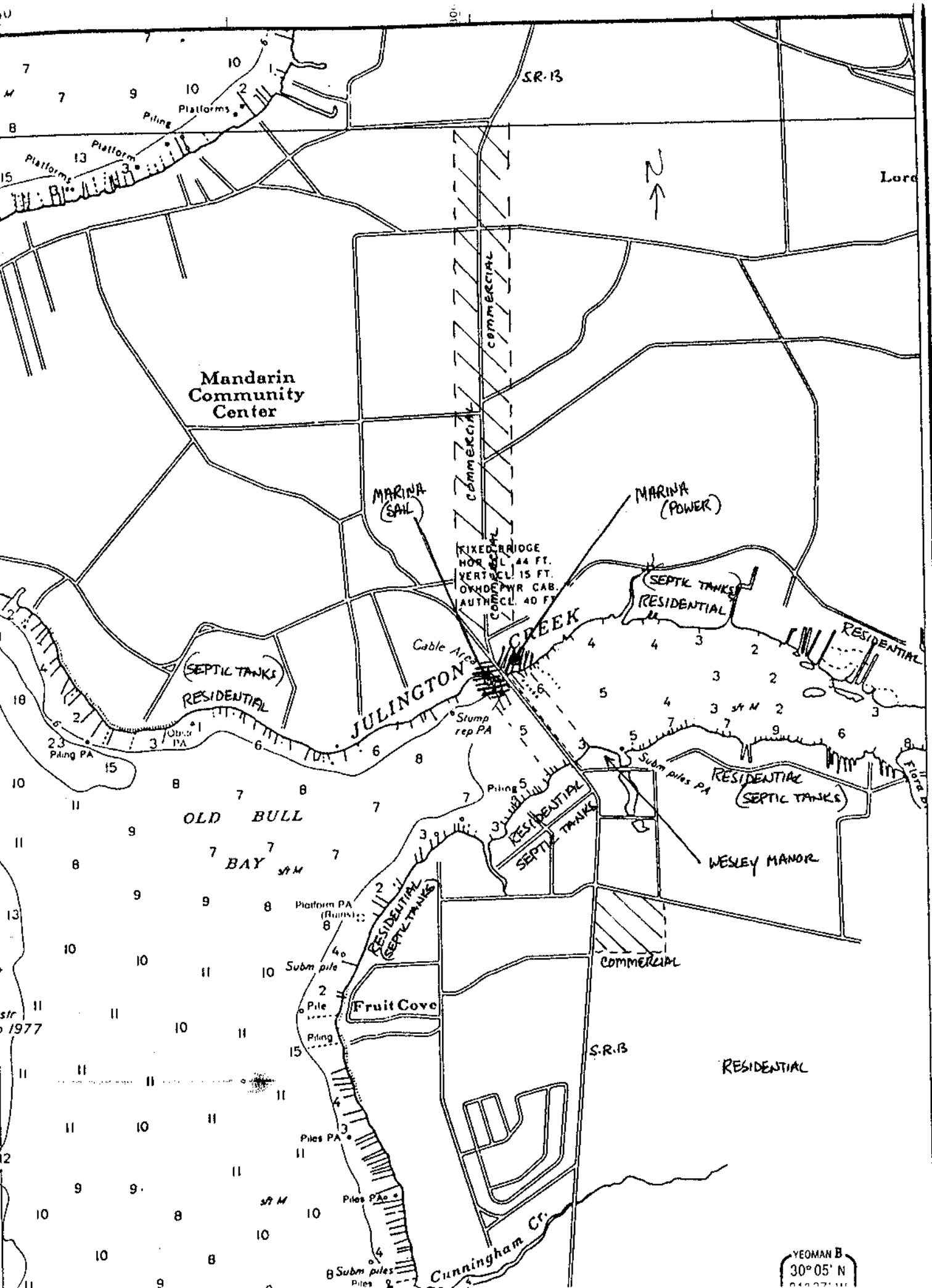
Percentile Distribution

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


JACKSONVILLE
JACKSONVILLE NAVAL AIR STATION
FLEMING ISLAND
DUVAL CO
ST JOHNS CO
CLAY CO
Continue on Page 58
Continue on Page 67
© DeLorme


Mandarin Community Center
Mandarin Pt
TEST SITE #1
TEST SITE #2
REFERENCE SITE
FIXED BRIDGE
HOR CL 44 FT.
VERT CL 15 FT.
OVHD PWR CAB.
AUTH CL. 40 FT
JULINGTON CREEK
OLD BULL BAY
WWTP P.O.D.
WESLEY MANOR RETIREMENT VILLAGE
Fruit Cove
Cunningham Cr
Mill Creek
Hickory Slough
YEOMAN B
30° 05' N
81° 37' W
025°m (4.2mil)
184°m (2.7mil) 004°m
357°m (3.
Platforms
Piling
Trees
Fish weir
Cable Area
Stump rep PA
Piling PA
Subm pile
Subm piles PA
Obstr rep 1977
Platform PA (Ruins)
Piles PA
Subm piles
Subm 2 Pile PA
Subm piling PA
Subm dols rep
Dolphin
Platforms PA
Ruins
FI G 4s 16ft 4M "11"
12ft 3M "12"


S.R. 13
Platforms
Piling
Platform
Platforms
Mandarin Community Center
COMMERCIAL
COMMERCIAL
MARINA (SAIL)
MARINA (POWER)
FIXED BRIDGE
HOR. CL. 44 FT.
VERT. CL. 15 FT.
OVHD PWR CAB.
AUTH'D CL. 40 FT.
SEPTIC TANKS
RESIDENTIAL
CREEK
Cable Area
JULINGTON
Stump rep PA
Piling PA
Obstr PA
SEPTIC TANKS
RESIDENTIAL
OLD BULL
BAY
Piling
RESIDENTIAL
SEPTIC TANKS
Subm piles PA
RESIDENTIAL
SEPTIC TANKS
WESLEY MANOR
Platform PA (Ruins)
Subm pile
RESIDENTIAL
SEPTIC TANKS
COMMERCIAL
Pile
Fruit Cove
Piling
S.R. 13
RESIDENTIAL
Piles PA
Piles PA
Subm piles
Piles
Cunningham Cr.
YEOMAN B
30° 05' N

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

FACILITY SUMMARY

Facility Name: Wesley Manor		Prepared by: KRISTEN SMELTZER Date: 11-7-94
Location (attach detailed map): State Rd 13, Julington Creek, St Johns Cty, FL	County St Johns	District Northeast
Federal Permit # and expiration date:	State GMS # and 3155PC04C6 State expiration date: DO55-183702 9-17-95	Facility Type: 2 Industrial Municipal Federal Agricultural Other (list):

Function of facility: Serves the Wesley Manor Retirement Village.

Description of treatment process:

0.100 mgd extended aeration wastewater treatment plant (WWTP) with chlorinated effluent discharge to Julington Creek.

Receiving waters: Julington Creek.	Classification: Class III
Design Flow: 0.100 mgd	Actual Mean Flow: 0.0462 mgd

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

therefore, the best time to sample is:

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

List effluent limits: See Attached Sheet

Parameter	Limit (units)

Describe special permit conditions and permit modifications:

none

FL 0022489

3155X10920

PERMITTEE:

Mr. Grandy R. Snowdon, Jr., Administrator
Jacksonville Methodist Homes, Inc.
dba Wesley Manor Retirement Village
25 State Road 13
Jacksonville, FL 32259

I.D. Number: 3155P00406
Permit/Cert Number: DO55-183704
Date of Issue: September 17, 1990
Expiration Date: September 17, 1995
County: St. Johns
Lat/Long: 30°06'50"/81°36'22"
Section/Township/Range: 16/3N/24E
Project: Wesley Manor Retirement Village WWTP

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Rule(s) 17-3, 17-4, 17-19, 17-600, 17-602, 17-7. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawing(s), plans, and other documents attached hereto or on file with the department and made a part hereof and specifically described as follows:

To operate a 0.100 mgd extended aeration wastewater treatment plant (WWTP) with chlorinated effluent discharge to Julington Creek. The WWTP serves the Wesley Manor Retirement Village and is located at State Route 13, Julington Creek, St. Johns County, Florida.

In accordance with application received July 19, 1990.

Recycled Paper

ADDITIONAL NOTES:

- CURRENTLY THE TWO LANE BRIDGE ACROSS JULINGTON CREEK IS BEING WIDENED TO ACCOMODATE THE 4-LANING OF S.R. 13. CONSTRUCTION TO LAST APPROXIMATELY 1 YEAR.

- TWO MARINAS ACROSS CREEK FROM WESLEY MANOR. BOTH MARINAS HAVE DOCKS FOR BOAT STORAGE, BOTH DO HAUL OUTS FOR BOTTOM WORK, AND BOTH HAVE GASOLINE AND DIESEL PUMPS.

- THE MAJORITY OF RESIDENTIAL AREAS ON BOTH SIDE OF THE CREEK ARE SERVED BY SEPTIC TANKS AND DRAINFIELDS.

- JULINGTON AND DURBIN CREEKS HAVE TRIBUTARIES THAT REACH TO INDUSTRIALIZED AREAS OF U.S. 1, APPROXIMATELY 6-7 MILES UPSTREAM OF WESLEY MANOR.

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

PHYSICAL/CHEMICAL CHARACTERIZATION FIELD DATA SHEET (Version 5)

SUBMITTING AGENCY CODE: 6031 / SUBMITTING AGENCY NAME: FDEP/N.E.D. JAX	STORET STATION NUMBER: 20030532	DATE (M/D/Y): 11/7/94	TIME: 1430	RECEIVING BODY OF WATER: JULINGTON CREEK

REMARKS: REFERENCE SITE FOR WESLEY MANOR 5th YEAR INSPECTION	LOCATION: JULINGTON CREEK NORTH SHORE, ½ MILE EAST OF S.R. 13	FIELD ID/NAME: REFERENCE SITE

PLEASE NOTE: BENTHIC SAMPLE IS 6 REPLICATES, PLEASE ASSIGN 6 DIFFERENT LAB ID #'s.

HOUSING DEVELOPMENT CONSTRUCTION

HYDROLAB

RIPARIAN ZONE/INSTREAM FEATURES

Predominant Surrounding Land-Use (specify relative percent in each category): RESIDENTIAL, HEAVILY WOODED

Forest/Natural	Silviculture	Field/Pasture	Agricultural	Residential	Commercial	Industrial	Other (Specify)
20				80			

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

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

Width of riparian vegetation (m) on least buffered side:	*List & map dominant vegetation on back*	Typical Width (m)/Depth (m) /Velocity (m/sec) Transect (draw cross-section & provide at least 3 velocity & depth values)
Artificially Channelized ☑ no ☐ yes (recent, severe / some recovery / mostly recovered, more sinuous)		½ mile wide tidally influenced depth 5-6 ft.
Artificially Impounded ☐ yes		
High Water Mark (m above ~~bed~~ SURFACE): 0.3 m		

Canopy Cover % : Open : ☑ Lightly Shaded (11-45%): ☐ Moderately Shaded (46-80%): ☐ Heavily Shaded: ☐

SEDIMENT/SUBSTRATE

Sediment Odors: Normal: ☑ Sewage: ☐ Petroleum: ☐ Chemical: ☐ Anaerobic: ☐ Other: ☐

Sediment Oils: Absent: ☑ Slight: ☐ Moderate: ☐ Profuse: ☐

Sediment Deposition: Sludge: ☐ Sand smothering: (none) slight moderate severe Silt smothering: none slight (moderate) severe Other:

Substrate Types	% coverage	# times sampled	method	Substrate Types	% coverage	# times sampled	method
Woody Debris (Snags)				Riffles			
Leaf Packs or Mats				(Sand)	10	2	ECKMAN
Aquatic Vegetation				Mud/(Muck)/Silt	75	2	ECKMAN
Rock or Shell Rubble				Other: shell, detritus	15	2	ECKMAN
Undercut Banks/Roots				*Draw aerial view sketch of habitats found in 100 m section*			

WATER QUALITY	Depth (m):	Temp. (°C):	pH (SU):	D.O. (mg/l):	Cond. (µmho/cm) or Salinity (ppt):	TURBIDITY (NTU)		Secchi (m):
Top	0.0							
Mid-depth	0.8	22.3	6.58	4.00	252			0.3m
Bottom	1.6							

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

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

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

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

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

Weather Conditions/Notes: Overcast, BREEZY, WARM 70°F+, N.E. 10-15 knots

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

SAMPLING TEAM:	SIGNATURE:	DATE:
McKELVEY / HOLLINGSWORTH	Mike Hollingsworth	11/7/94

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
FRESHWATER BENTHIC HABITAT ASSESSMENT FIELD DATA SHEET (v2)

SUBMITTING AGENCY CODE: 8031 / SUBMITTING AGENCY NAME: FDEP/N.E.D JAX	STORET STATION NUMBER: 20030532	DATE (M/D/Y): 11/7/94	RECEIVING BODY OF WATER: JULINGTON CREEK

REMARKS: REFERENCE SITE FOR WESLEY MANOR 5th yr. insp.	LOCATION: JULINGTON CREEK N. SHORE, 1/2 MILE EAST OF S.R. 13	FIELD ID/NAME: REFERENCE SITE

Habitat Parameter	Optimal	Suboptimal	Marginal	Poor
MUCK, SHELL, DETRITUS Bottom Substrate/ Available Cover **12**	Greater than 40% snags, logs, tree roots, emergent vegetation, leaf packs (partially decayed), undercut banks, rubble, or other stable habitat. 20 19 18 17 16	20% to 40% snags, logs, tree roots, emergent vegetation, leaf packs, etc. Adequate habitat. Some substrates may be new fall (fresh leaves or snags). 15 14 13 12 11	5% to 20% snags, logs, tree roots, emergent vegetation, leaf packs, etc. Less than desirable habitat, frequently disturbed or removed. 10 9 8 7 6	Less than 5% snags, logs, tree roots, emergent vegetation, leaf packs, etc. Lack of habitat is obvious, substrates unstable. 5 4 3 2 1
TIDAL Water Velocity **17**	Max. observed: >0.25 m/sec. but < 2 m/sec 20 19 18 17 16	Max. observed; 0.1 to 0.25 m/sec 15 14 13 12 11	Max. observed; 0.05 to 0.1 m/sec 10 9 8 7 6	Max. observed; <0.05 m/sec, or spate occurring; > 2 m/sec 5 4 3 2 1
Artificial Channelization **19**	No artificial channelization or dredging. Stream with normal, sinuous pattern 20 19 18 17 16	May have been channelized in the past (>20 yrs), but mostly recovered, fairly good sinuous pattern 15 14 13 12 11	Channelized, somewhat recovered, but > 80% of area affected 10 9 8 7 6	Artificially channelized, box-cut banks, straight, instream habitat highly altered 5 4 3 2 1
ALLUVIAL Deposition **9**	Less than 20% of habitats affected by sand or silt accumulation 20 19 18 17 16	20%-50% of habitats affected by sand or silt accumulation 15 14 13 12 11	Smothering of 50%-80% of habitats with sand or silt, pools shallow, frequent sediment movement 10 9 8 7 6	Smothering of >80% of habitats with sand or silt, a severe problem, pools absent 5 4 3 2 1
Bank Stability **13**	Stable. No evidence of erosion or bank failure. Little potential for future problems. 20 19 18 17 16	Moderately stable. Infrequent or small areas of erosion, mostly healed over. 15 14 13 12 11	Moderately unstable. Moderate areas of erosion, high erosion potential during floods. 10 9 8 7 6	Unstable. Many (60%-80%) raw, eroded areas. Obvious bank sloughing. 5 4 3 2 1
Riparian Buffer Zone Width **6**	Width of native vegetation (least buffered side) greater than 18 m 20 19 18 17 16	Width of native vegetation (least buffered side) 12 m to 18 m 15 14 13 12 11	Width of native vegetation 6 to 12 m, human activities still close to system 10 9 8 7 6	Less than 6 m of native buffer zone due to intensive human activities 5 4 3 2 1
Riparian Zone Vegetation Quality **10**	Over 80% of streambank surfaces consist of native plants, including trees understory shrubs, or non-woody macrophytes. Plants growing naturally. 20 19 18 17 16	50% to 80% of riparian zone is vegetated, but one class of plants is not represented. Some disruption in community evident. 15 14 13 12 11	25% to 50% of riparian zone is vegetated, but one or two classes of plants are not represented. Patches of bare soil or closely cropped vegetation, disruption obvious. 10 9 8 7 6	Less than 25% of streambank surfaces are vegetated. Poor plant community (e.g. grass monoculture or exotics) present. Vegetation removed to stubble height of 2 inches or less. 5 4 3 2 1

5 Add 5 points if cross-sectional area of flow is estimated to be > one square meter during periods of normal flow.

91 TOTAL SCORE (62.8%)

Comments

ANALYSIS DATE: 11/7/94	ANALYST: McKEWEY / HOLLINGSWORTH	SIGNATURE: Mike H.

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

PHYSICAL/CHEMICAL CHARACTERIZATION FIELD DATA SHEET (Version 5)

SUBMITTING AGENCY CODE: 8051 / SUBMITTING AGENCY NAME: FDEP/N.E.D. JAX	STORET STATION NUMBER: 20030530	DATE (M/D/Y): 11/7/94	TIME: 1622	RECEIVING BODY OF WATER: JULINGTON CREEK

REMARKS: TEST SITE #1: CONSTRUCTION ON BRIDGE; TWO MARINAS ACROSS CREEK.	LOCATION: JULINGTON CREEK WEST OF WESLEY MANOR STP P.O.D.	FIELD ID/NAME: TEST SITE 1

PLEASE NOTE: BENTHIC SAMPLE IS 6 REPLICATES, PLEASE ASSIGN 6 DIFFERENT LAB ID #'s.

RIPARIAN ZONE/INSTREAM FEATURES

Predominant Surrounding Land-Use (specify relative percent in each category): RETIREMENT VILLAGE, HEAVILY WOODED

Forest/Natural	Silviculture	Field/Pasture	Agricultural	Residential	Commercial	Industrial	Other (Specify)
10				90			

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

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

Width of riparian vegetation (m) on least buffered side: ***List & map dominant vegetation on back***

Typical Width (m)/Depth (m) /Velocity (m/sec) Transect (draw cross-section & provide at least 3 velocity & depth values)

½ mile wide tidally influenced depth 5-6ft.

Artificially Channelized [✓] no [ ] recent, severe [ ] some recovery [ ] mostly recovered, more sinuous

Artificially Impounded [ ] yes

High Water Mark (m above ~~bed~~ SURFACE): 0.3m

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

SEDIMENT/SUBSTRATE

Sediment Odors: Normal: [✓] Sewage: [ ] Petroleum: [ ] Chemical: [ ] Anaerobic: [ ] Other: [ ]

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

Sediment Deposition: Sludge: [ ] Sand smothering: (none) slight moderate severe Silt smothering: none slight (moderate) severe Other:

Substrate Types	% coverage	# times sampled	method	Substrate Types	% coverage	# times sampled	method
Woody Debris (Snags)				Riffles			
Leaf Packs or Mats				Sand	5	2	ECKMAN
Aquatic Vegetation				Mud/Muck/Silt	85	2	ECKMAN
Rock or Shell Rubble				Other: SHELL, DETRITUS	10	2	ECKMAN
Undercut Banks/Roots				*Draw aerial view sketch of habitats found in 100 m section*			

WATER QUALITY	Depth (m):	Temp. (°C):	pH (SU):	D.O. (mg/l):	Cond. (µmho/cm) or Salinity (ppt):	TURBIDITY (NTU)		Secchi (m):
Top	0.0							
Mid-depth	1.1	22.81	6.64	4.95	427			0.3m
Bottom	2.2							

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

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

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

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

Color (check box): Very Tannic: [✓] Green (algae): [ ] Clear: [ ] Other: [ ]

Weather Conditions/Notes:
OVERCAST, BREEZY, WARM 70°F+, N.E. 10-15 knots
TIDE HIGH

Abundance:	Absent	Rare	Common	Abundant
Periphyton	[ ]	[✓]	[ ]	[ ]
Fish (Littoral)	[ ]	[ ]	[ ]	[✓]
Aquatic Macrophytes	[ ]	[ ]	[✓]	[ ]
Iron/sulfur Bacteria	[✓]	[ ]	[ ]	[ ]

SAMPLING TEAM:	SIGNATURE:	DATE:
McKELVEY / HOLLINGSWORTH	Mike Hollingsworth	11/7/94

ALL WATER QUALITY MEASUREMENTS TAKEN WITH HYDROLAB.

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
FRESHWATER BENTHIC HABITAT ASSESSMENT FIELD DATA SHEET (v2)

SUBMITTING AGENCY CODE: 8031 / SUBMITTING AGENCY NAME: FDEP / N.E.D. JAX	STORET STATION NUMBER: 20030530	DATE (M/D/Y): 11/7/94	RECEIVING BODY OF WATER: JULINGTON CREEK

REMARKS: TEST SITE #1.	LOCATION: JULINGTON CREEK WEST OF WESLEY MANOR	FIELD ID/NAME: TEST SITE 1

Habitat Parameter	Optimal	Suboptimal	Marginal	Poor
Bottom Substrate/ Available Cover (Muck, Shell, Little Detritus) **9**	Greater than 40% snags, logs, tree roots, emergent vegetation, leaf packs (partially decayed), undercut banks, rubble, or other stable habitat. 20 19 18 17 16	20% to 40% snags, logs, tree roots, emergent vegetation, leaf packs, etc. Adequate habitat. Some substrates may be new fall (fresh leaves or snags). 15 14 13 12 11	5% to 20% snags, logs, tree roots, emergent vegetation, leaf packs, etc. Less than desirable habitat, frequently disturbed or removed. 10 9 8 7 6	Less than 5% snags, logs, tree roots, emergent vegetation, leaf packs, etc. Lack of habitat is obvious, substrates unstable. 5 4 3 2 1
Water Velocity (tidal) **17**	Max. observed: >0.25 m/sec. but < 2 m/sec 20 19 18 17 16	Max. observed; 0.1 to 0.25 m/sec 15 14 13 12 11	Max. observed; 0.05 to 0.1 m/sec 10 9 8 7 6	Max. observed; <0.05 m/sec, or spate occurring; > 2 m/sec 5 4 3 2 1
Artificial Channelization **19**	No artificial channelization or dredging. Stream with normal, sinuous pattern 20 19 18 17 16	May have been channelized in the past (>20 yrs), but mostly recovered, fairly good sinuous pattern 15 14 13 12 11	Channelized, somewhat recovered, but > 80% of area affected 10 9 8 7 6	Artificially channelized, box-cut banks, straight, instream habitat highly altered 5 4 3 2 1
Deposition **9**	Less than 20% of habitats affected by sand or silt accumulation 20 19 18 17 16	20%-50% of habitats affected by sand or silt accumulation 15 14 13 12 11	Smothering of 50%-80% of habitats with sand or silt, pools shallow, frequent sediment movement 10 9 8 7 6	Smothering of >80% of habitats with sand or silt, a severe problem, pools absent 5 4 3 2 1
Bank Stability **13**	Stable. No evidence of erosion or bank failure. Little potential for future problems. 20 19 18 17 16	Moderately stable. Infrequent or small areas of erosion, mostly healed over. 15 14 13 12 11	Moderately unstable. Moderate areas of erosion, high erosion potential during floods. 10 9 8 7 6	Unstable. Many (60%-80%) raw, eroded areas. Obvious bank sloughing. 5 4 3 2 1
Riparian Buffer Zone Width **6**	Width of native vegetation (least buffered side) greater than 18 m 20 19 18 17 16	Width of native vegetation (least buffered side) 12 m to 18 m 15 14 13 12 11	Width of native vegetation 6 to 12 m, human activities still close to system 10 9 8 7 6	Less than 6 m of native buffer zone due to intensive human activities 5 4 3 2 1
Riparian Zone Vegetation Quality **10**	Over 80% of streambank surfaces consist of native plants, including trees understory shrubs, or non-woody macrophytes. Plants growing naturally. 20 19 18 17 16	50% to 80% of riparian zone is vegetated, but one class of plants is not represented. Some disruption in community evident. 15 14 13 12 11	25% to 50% of riparian zone is vegetated, but one or two classes of plants are not represented. Patches of bare soil or closely cropped vegetation, disruption obvious. 10 9 8 7 6	Less than 25% of streambank surfaces are vegetated. Poor plant community (*e.g.* grass monoculture or exotics) present. Vegetation removed to stubble height of 2 inches or less. 5 4 3 2 1

5 Add 5 points if cross-sectional area of flow is estimated to be > one square meter during periods of normal flow.

Comments

88 TOTAL SCORE (60.7%)

ANALYSIS DATE: 11/7/94	ANALYST: McKelvey / Hollingsworth	SIGNATURE:

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

PHYSICAL/CHEMICAL CHARACTERIZATION FIELD DATA SHEET (Version 5)

SUBMITTING AGENCY CODE: 6031 / SUBMITTING AGENCY NAME: FDEP/N.E.D. JAX	STORET STATION NUMBER: 20030531	DATE (M/D/Y): 11/7/94	TIME: 1650	RECEIVING BODY OF WATER: JULINGTON CREEK

REMARKS: TEST SITE #2: CONSTRUCTION ON BRIDGE, TWO MARINAS ACROSS CREEK.	LOCATION: JULINGTON CREEK EAST OF WESLEY MANOR STP POD	FIELD ID/NAME: TEST SITE 2

PLEASE ASSIGN 6 DIFFERENT LAB ID #'S.

RIPARIAN ZONE/INSTREAM FEATURES

Predominant Surrounding Land-Use (specify relative percent in each category): RESIDENTIAL, HEAVILY WOODED

Forest/Natural	Silviculture	Field/Pasture	Agricultural	Residential	Commercial	Industrial	Other (Specify)
20				80			

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

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

Width of riparian vegetation (m) on least buffered side: —0— *List & map dominant vegetation on back*

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

Artificially Impounded ☐ yes

High Water Mark (m above ~~bed~~ SURFACE): 0.3m

Typical Width (m)/Depth (m) /Velocity (m/sec) Transect (draw cross-section & provide at least 3 velocity & depth values)

½ mile wide tidally influenced
depth 5-6 ft.

Canopy Cover % : Open : ☑ Lightly Shaded (11-45%): ☐ Moderately Shaded (46-80%): ☐ Heavily Shaded: ☐

SEDIMENT/SUBSTRATE

Sediment Odors: Normal: ☑ Sewage: ☐ Petroleum: ☐ Chemical: ☐ Anaerobic: ☐ Other: ☐

Sediment Oils: Absent: ☑ Slight: ☐ Moderate: ☐ Profuse: ☐

Sediment Deposition: Sludge: ☐ Sand smothering: (none) slight moderate severe Silt smothering: none slight (moderate) severe Other:

Substrate Types	% coverage	# times sampled	method	Substrate Types	% coverage	# times sampled	method
Woody Debris (Snags)				Riffles			
Leaf Packs or Mats				(Sand)	5	2	ECKMAN
Aquatic Vegetation				Mud/(Muck)/Silt	85	2	ECKMAN
Rock or Shell Rubble				Other: SHELL, DETRITUS	10	2	ECKMAN
Undercut Banks/Roots				*Draw aerial view sketch of habitats found in 100 m section*			

WATER QUALITY	Depth (m):	Temp. (°C):	pH (SU):	D.O. (mg/l):	Cond. (µmho/cm) or Salinity (ppt):	TURBIDITY (NTU)		Secchi (m):
Top	0.0							
Mid-depth	1.1	22.85	6.65	5.14	240	13.3		0.3m
Bottom	2.2							

HYDROLAB

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

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

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

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

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

Weather Conditions/Notes: 70°+F, N.E. 10-15 knots
CLOUDY, BREEZY, WARM
TIDE OUTGOING

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

PLEASE NOTE: BENTHIC SAMPLE IS 6 REPLICATES

SAMPLING TEAM:	SIGNATURE:	DATE:
McKELVEY / HOLLINGSWORTH	Mike Holl	11/7/94

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
FRESHWATER BENTHIC HABITAT ASSESSMENT FIELD DATA SHEET (v2)

SUBMITTING AGENCY CODE: 8031 / SUBMITTING AGENCY NAME: FDEP/N.E.D. JAX	STORET STATION NUMBER: 20030531	DATE (M/D/Y): 11/7/94	RECEIVING BODY OF WATER: JULINGTON CREEK

REMARKS: TEST SITE #2: APPROX 200 YRDS EAST OF TEST SITE #1	LOCATION: JULINGTON CREEK EAST OF WESLEY MANOR STP P.O.D.	FIELD ID/NAME: TEST SITE 2

Habitat Parameter	Optimal	Suboptimal	Marginal	Poor
MUCK, SHELL, (little) DETRITUS **Bottom Substrate/ Available Cover** 9	Greater than 40% snags, logs, tree roots, emergent vegetation, leaf packs (partially decayed), undercut banks, rubble, or other stable habitat. 20 19 18 17 16	20% to 40% snags, logs, tree roots, emergent vegetation, leaf packs, etc. Adequate habitat. Some substrates may be new fall (fresh leaves or snags). 15 14 13 12 11	5% to 20% snags, logs, tree roots, emergent vegetation, leaf packs, etc. Less than desirable habitat, frequently disturbed or removed. 10 (9) 8 7 6	Less than 5% snags, logs, tree roots, emergent vegetation, leaf packs, etc. Lack of habitat is obvious, substrates unstable. 5 4 3 2 1
TIDAL **Water Velocity** 17	Max. observed: >0.25 m/sec. but < 2 m/sec 20 19 18 (17) 16	Max. observed; 0.1 to 0.25 m/sec 15 14 13 12 11	Max. observed; 0.05 to 0.1 m/sec 10 9 8 7 6	Max. observed; <0.05 m/sec, or spate occurring; > 2 m/sec 5 4 3 2 1
Artificial Channelization 19	No artificial channelization or dredging. Stream with normal, sinuous pattern 20 (19) 18 17 16	May have been channelized in the past (>20 yrs), but mostly recovered, fairly good sinuous pattern 15 14 13 12 11	Channelized, somewhat recovered, but > 80% of area affected 10 9 8 7 6	Artificially channelized, box-cut banks, straight, instream habitat highly altered 5 4 3 2 1
Deposition 9	Less than 20% of habitats affected by sand or silt accumulation 20 19 18 17 16	20%-50% of habitats affected by sand or silt accumulation 15 14 13 12 11	Smothering of 50%-80% of habitats with sand or silt, pools shallow, frequent sediment movement 10 (9) 8 7 6	Smothering of >80% of habitats with sand or silt, a severe problem, pools absent 5 4 3 2 1
Bank Stability 15	Stable. No evidence of erosion or bank failure. Little potential for future problems. 20 19 18 17 16	Moderately stable. Infrequent or small areas of erosion, mostly healed over. (15) 14 13 12 11	Moderately unstable. Moderate areas of erosion, high erosion potential during floods 10 9 8 7 6	Unstable. Many (60%-80%) raw, eroded areas. Obvious bank sloughing. 5 4 3 2 1
Riparian Buffer Zone Width 13	Width of native vegetation (least buffered side) greater than 18 m 20 19 18 17 16	Width of native vegetation (least buffered side) 12 m to 18 m 15 14 (13) 12 11	Width of native vegetation 6 to 12 m, human activities still close to system 10 9 8 7 6	Less than 6 m of native buffer zone due to intensive human activities 5 4 3 2 1
Riparian Zone Vegetation Quality 14	Over 80% of streambank surfaces consist of native plants, including trees understory shrubs, or non-woody macrophytes. Plants growing naturally. 20 19 18 17 16	50% to 80% of riparian zone is vegetated, but one class of plants is not represented. Some disruption in community evident. 15 (14) 13 12 11	25% to 50% of riparian zone is vegetated, but one or two classes of plants are not represented. Patches of bare soil or closely cropped vegetation, disruption obvious. 10 9 8 7 6	Less than 25% of streambank surfaces are vegetated. Poor plant community (*e.g.* grass monoculture or exotics) present. Vegetation removed to stubble height of 2 inches or less. 5 4 3 2 1

5 Add 5 points if cross-sectional area of flow is estimated to be > one square meter during periods of normal flow.

101 **TOTAL SCORE** (69.7%)

Comments: Shore less altered than shore at test site # 1.

ANALYSIS DATE:	ANALYST:	SIGNATURE:
11/7/94	McKELVEY / HOLLINGSWORTH	

FDEP Biology Section — Acute Bioassay Bench Sheet

Sample Source: Wesley Manor Retirement village
County:
Contact / District: Tim McKelvey / Northeast
NPDES Permit #: FL00
LIMS Sample #: 93056 LIMS Job #: 94NOV08-12

Sample Collection: Date 11-07-94 Time 1550
Test Beginning: Date 11/08/94 Time 1500
Test Ending: Date 11/10/94 Time 1500
Organism Batch #: 45 Diluent Batch #: well
Organism Age: 11 days
Test Organism: Cyprinella leedsi

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

Test Number: 2 of 4

Remarks: dechlorinated tost
2mLs of 0.025 N Sodium thiosulfate into 2.5 liters of sample. (0.8 mL/L)

Instrument Calibrations:	pH	Temperature °C	D.O. mg/L	Conductivity µmhos/cm
meter #	7851	90H018262	90H018262	G9005749
0 hr	7.0 @ 7.0 9.0 @ 9.0	22.5 @ 22.6	8.4 @ 23.9 °C	1096 @ 1026 1028 @ 1047 @ 24.0 °C
24 hr	7.0 @ 7.0 9.0 @ 9.0	23.3 @ 23.3	8.3 @ 24.7 °C	1121 @ 1026 1044 @ 1047 @ 24.0 °C
48 hr	___ @ 7.0 ___ @ ___	___ @ ___	___ @ ___ °C	___ @ ___ ___ @ ___ @ ___ °C

Conc.	Chamber #	Number Live 0 hr	Number Live 24 h	Number Live 48 h	pH 0 hr	pH 24 h	pH 48 h	Temperature (°C) 0 hr	Temperature (°C) 24 h	Temperature (°C) 48 h	D.O. (mg/L) 0 hr	D.O. (mg/L) 24 h	D.O. (mg/L) 48 h	UNCORRECTED Cond. (mmhos/cm) Cond. (µmhos/cm) 0 hr	24 hr	48 h
Control	87	5	5	5	7.8	8.2	8.3	23.3	23.2	23.4	8.4	8.5	8.1	245	250	255
Control	209	5	5	5	7.8	8.2	8.3			23.3	8.4	8.5	8.3	245	250	250
Control	28	5	5	5	7.8	8.2	8.3			23.2	8.5	8.7	8.4	245	255	260
Control	198	5	5	5	7.8	8.2	8.3			23.2	8.6	8.7	8.3	245	265	270
100%	38	5	5	5	7.6	8.1	8.1	23.5	23.2	23.3	8.8	8.6	8.4	1025	625	630
100%	333	5	5	5	7.6	8.1	8.1			23.3	8.8	8.6	8.1	1025	625	635
100%	114	5	5	5	7.6	8.0	8.1			23.3	8.8	8.7	8.1	1030	635	640
100%	380	5	5	5	7.6	8.0	8.1			23.3	8.9	8.7	8.0	1030	645	650
Recorded by:		TM	MF	JR	JRS	MF	JR	JRS	MF	JR	JRS		TR	JRS	MF	JR
Measured/Loaded by:		TM	MF	JCS	TM	MF	JCS	TM	MF	JCS	TM		JCS	TM	MF	JCS

Investigators' Signatures

Marshall Faircloth
Jennifer Sparagana
Julie C. Feiler
Tim McKelvey
Reviewer

Water Quality Parameters	Salt Water (Well Water)	20% Min Water	Sample	Method	Measured by
Field Total Residual Cl2 (mg/L):			1.5	-	TM
Lab Total Residual Cl2 (mg/L):	0.03	—	0.04	DR-100	TM
Alkalinity (mg/L as $CaCO_3$) :	120	110		Hach	JR
Hardness (mg/L as $CaCO_3$) :	125	210		Hach	JR
Total ammonia (mg/L as N) :	0.017	-	0.017	orion	MF

Ammonia Meter #98136 Ammonia Meter Slope: -59.6 Ammonia Blank: 0.017 Control Salinity: 0 ppt Sample Salinity: 0 ppt

form updated 10/05/94

FDEP Biology Section — Acute Bioassay Bench Sheet

Sample Source: Wesley Manor Retirement Village
County:
Contact &District: Tim McKelvey / Northeast
NPDES Permit #: FL00
LIMS Sample #: 93056 LIMS Job #: 94-NOV-08-12

Sample Collection: Date 11-07-94 Time 1550
Test Beginning: Date 11-08-94 Time 1500
Test Ending: Date 11-10-94 Time 1500
Organism Batch #: 43 Diluent Batch #: 43
Organism Age: <24hr
Test Organism: Ceriodaphnia dubia

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

Test Number: 1 of 4

Remarks: dechlorinated test.
2 mL of 0.025 of Sodium thiosulfate into 2.5 liters of sample (0.8 mg/L)

Instrument Calibrations:	pH	Temperature °C	D.O. mg/L	Conductivity µmhos/cm
meter #	7851	90H018262	90H018262	G9005749
0 hr	7.0 @ 7.0 9.0 @ 9.0	22.5 @ 22.6	8.4 @ 23.9 °C	109.6 @ 102.6 1028 @ 1047 @ 24.0 °C
24 hr	7.0 @ 7.0 9.0 @ 9.0	23.3 @ 23.3	8.3 @ 24.7 °C	112.1 @ 102.6 1044 @ 1047 @ 24.0 °C
48 hr	___ @ 7.0 ___ @ ___	___ @ ___	___ @ ___ °C	___ @ ___ ___ @ ___ @ ___ °C

Conc.	Chamber #	Number Live 0 hr	Number Live 24 h	Number Live 48 h	pH 0 hr	pH 24 h	pH 48 h	Temperature (°C) 0 hr	Temperature (°C) 24 h	Temperature (°C) 48 h	D.O. (mg/L) 0 hr	D.O. (mg/L) 24 h	D.O. (mg/L) 48 h	UNCORRECTED Cond. (mmhos/cm) Cond. (µmhos/cm) 0 hr	24 h	48 h
Control	A	5	5	5	8.2		8.2	24.2		23.6	8.3		8.3	180		175
Control	B	5	5	5			8.3			23.6			8.1			180
Control	C	5	5	5			8.3			23.5			8.1			185
Control	D	5	5	5			8.3			23.6			8.1			195
100%	A	5	5	5	7.7		8.4	24.2		23.5	8.3		8.1	610		590
100%	B	5	5	5			8.4			23.7			8.1			615
100%	C	5	5	5			8.4			23.7			8.1			630
100%	D	5	5	5			8.4			23.7			8.1			665
Recorded by:		TM	MF	TR	JBS		TR	JBS		TR	JBS		TR	JBS		TR
Measured/Loaded by:		TR	MF	JLS	TM		JLS	TM		JLS	TM		JLS	TM		JLS

Investigators' Signatures

Reviewer

Water Quality Parameters	Salt Water / Well Water	20% Min Water	Sample	Method	Measured by
Field Total Residual Cl2 (mg/L):			1.5	—	TM
Lab Total Residual Cl2 (mg/L):	—	<0.03	0.04	DR.100	TM
Alkalinity (mg/L as $CaCO_3$):		75	110	Hach	TR
Hardness (mg/L as $CaCO_3$):		80	210	Hach	TR
Total ammonia (mg/L as N):	—	<0.017	<0.017	Orion	MF

Ammonia Meter #98136 Ammonia Meter Slope: -59.6
Ammonia Blank: <0.017
Control Salinity: 0 ppt
Sample Salinity: 0 ppt

FDEP Biology Section — Acute Bioassay Bench Sheet

Sample Source: Wesley Manor Retirement Village
County:
Contact / District: Tim McCluney / Northeast
NPDES Permit #: FL00
LIMS Sample #: 93056 LIMS Job #: 94-NOV-08-12

Sample Collection: Date 11-07-94 Time 1550
Test Beginning: Date 11/08/94 Time 1550
Test Ending: Date 11/09/94 Time 1500
Organism Batch #: 43 Diluent Batch #: 43
Organism Age: < 24 hrs
Test Organism: Ceriodaphnia dubia

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

Test Number: 3 of 4

Remarks: Chlorinated test. Terminated @ 24hrs.

Instrument Calibrations:	pH	Temperature °C	D.O. mg/L	Conductivity µmhos/cm
meter #	7851	90H018262	90H018262	G9005749
0 hr	7.0 @ 7.0 9.0 @ 9.0	22.5 @ 22.6	8.4 @ 23.9 °C	109.6 @ 102.6 1028 @ 1047 @ 24.0 °C
24 hr	7.0 @ 7.0 9.0 @ 9.0	23.3 @ 23.3	8.3 @ 24.7 °C	112.1 @ 102.6 1044 @ 1047 @ 24.0 °C
48 hr	____ @ 7.0 ____ @ ____	____ @ ____	____ @ ____ °C	____ @ ____ ____ @ ____ @ ____ °C

Conc.	Chamber #	Number Live 0 hr	Number Live 24 h	Number Live 48 h	pH 0 hr	pH 24 h	pH 48 h	Temperature (°C) 0 hr	Temperature (°C) 24 h	Temperature (°C) 48 h	D.O. (mg/L) 0 hr	D.O. (mg/L) 24 h	D.O. (mg/L) 48 h	UNCORRECTED ~~Cond. (mmhos/cm)~~ Cond. (µmhos/cm) 0 hr	UNCORRECTED Cond. (µmhos/cm) 24 h	UNCORRECTED Cond. (µmhos/cm) 48 h
Control	A	5	5		8.2	8.3		24.1	24.0		8.2	8.4		175	195	
Control	B	5	5			8.3			23.8			8.4			180	
Control	C	5	5			8.3			23.6			8.4			180	
Control	D	5	5			8.3			23.4			8.4			190	
100%	A	5	0		7.5	8.4		23.8	24.0		8.6	8.5		605	580	
100%	B	5	0			8.4			23.8			8.4			595	
100%	C	5	0			8.4			23.3			8.4			610	
100%	D	5	0			8.4			23.2			8.4			625	
Recorded by:		TM	MF		JBS	MF		JBS	MF		JBS	MF		JBS	MF	
Measured/Loaded by:		TR	MF		TM	MF		TM	MF		TM	MF		TM	MF	

Investigators' Signatures

Marshall Faircloth
Jennifer Sarapani
Robin C. Rider
Tim McCluney
Reviewer

Water Quality Parameters	Salt Water / Well Water	20% Min Water	Sample	Method	Measured by
Field Total Residual Cl2 (mg/L):			1.5	—	TM
Lab Total Residual Cl2 (mg/L):	—	0.03	0.7	DR-100	TM
Alkalinity (mg/L as $CaCO_3$):		75	110	Hach	TR
Hardness (mg/L as $CaCO_3$):		80	210	Hach	TR
Total ammonia (mg/L as N):					

Ammonia Meter #98136 Ammonia Meter Slope: _____ Ammonia Blank: _____ Control Salinity: _____ ppt Sample Salinity: _____ ppt

form updated 10/05/94

FDEP Biology Section — Acute Bioassay Bench Sheet

Sample Source: Wesley Manor Retirement village
County:
Contact / District: Tim McKelvey
NPDES Permit #: FL00
LIMS Sample #: 93056 LIMS Job #: 94-NOV-08-12

Sample Collection: Date 11-07-94 Time 1550
Test Beginning: Date 11/08/94 Time 1500
Test Ending: Date 11/09/94 Time 1500
Organism Batch #: 45 Diluent Batch #: well
Organism Age: 11 days
Test Organism: Cyprinella leedsi

Test Type: Screening | Definitive
Static | Static Renewal | Flow-through
Test Number: 4 of 4
Remarks: Chlorinated test
Terminated @ 24 hrs.

Instrument Calibrations:

	pH	Temperature °C	D.O. mg/L	Conductivity µmhos/cm
meter #	7851	90H018262	90H018262	G9005749
0 hr	7.0 @ 7.0 90 @ 90	22.5 @ 22.6	8.4 @ 23.9 °C	109.6 @ 102.6 1028 @ 1047 @ 24.0 °C
24 hr	7.0 @ 7.0 90 @ 90	23.3 @ 23.3	8.3 @ 24.7 °C	112.1 @ 102.6 1044 @ 1047 @ 24.0 °C
48 hr	___ @ 7.0 ___ @ ___	___ @ ___	___ @ ___ °C	___ @ ___ ___ @ ___ @ ___ °C

Conc.	Chamber #	Number Live 0 hr	Number Live 24 h	Number Live 48 h	pH 0 hr	pH 24 h	pH 48 h	Temperature (°C) 0 hr	Temperature (°C) 24 h	Temperature (°C) 48 h	D.O. (mg/L) 0 hr	D.O. (mg/L) 24 h	D.O. (mg/L) 48 h	UNCORRECTED Cond. (mmhos/cm) Cond. (µmhos/cm) 0 hr	24 h	48 h
control	77	5	5		7.8	8.2		23.0	23.4		8.4	8.7		245	255	
Control	45	5	5		7.8	8.2					8.7	8.7		245	260	
Control	413	5	5		7.8	8.2					8.8	8.7		245	265	
Control	79	5	5		7.8	8.2					8.7	8.7		245	245	
100%	438	5	0		7.5	8.0		23.0	23.3		9.2	8.4		625	630	
100%	76	5	0		7.5	8.0					9.2	8.6		625	620	
100%	19	5	0		7.5	8.0					9.3	8.7		625	620	
100%	62	5	0		7.5	8.0					9.3	8.7		625	620	
Recorded by:		TM	MF		JAS	MF		JAS	MF		JAS	MF		JAS	MF	
Measured/Loaded by:		TM	MF		TM	MF		TM	MF		TM	MF		TM	MF	

Investigators' Signatures

Marshall Swindoll
Jennifer Sparkman
Tim McKelvey
Tina Kendall
Reviewer

Water Quality Parameters	Salt Water Well Water	20% Min Water	Sample	Method	Measured by
Field Total Residual Cl2 (mg/L):			1.5	—	TM
Lab Total Residual Cl2 (mg/L):	<0.03	—	0.7	DR 100	TM
Alkalinity (mg/L as $CaCO_3$):	120		110	Hach	TR
Hardness (mg/L as $CaCO_3$):	125		210	Hach	TR
Total ammonia (mg/L as N):					

Ammonia Meter #98136 Ammonia Meter Slope: ___ Ammonia Blank: ___ Control Salinity: ___ ppt Sample Salinity: ___ ppt

form updated 10/05/94

Benthic macroinvertebrate taxa list for Wesley Manor Retirement Village, collected via Ponar grab samples in Julington Creek, on 7 November, 1994. Densities, in number/m^2, represent the mean of three replicates.

	Reference Site	**Test site 1**	**Test site 2**
Diptera			
Chaoborus sp.	225	561	–
Coelotanypus concinnus	–	674	–
Coelotanypus sp.	225	225	1422
Coelotanypus tricolor	–	636	524
Procladius sp.	–	150	112
Gastropoda			
Littoridinops monroensis	8533	2507	2882
Odonata			
Aphylla williamsoni	–	–	37
Oligochaeta			
Aulodrilus pigueti	–	37	–
Limnodrilus hoffmeisteri	3144	1497	412
Pelecypoda			
Mytilopsis leucophaeta	6063	–	37
Rangia cuneata	674	487	487
Sphaerium or *Musculium* sp.	–	–	374
Trichoptera			
Oecetis sp.	–	–	37

Phytoplankton taxa list and densities (#/mL) for Wesley Manor Retirement Village, collected via subsurface grabs in Julington Creek, on 7 November, 1994.

	Reference Site	Test site 1	Test site 2
Bacillariophyceae			
Achnanthes sp.	–	–	281
Amphora sp.	–	336	–
Bacillaria sp.	504	168	–
Cocconeis sp.	168	1848	281
Coscinodiscus sp.	336	1344	–
Cyclotella sp.	1008	2857	2107
Diploneis sp.	–	336	281
Fragilaria sp.	–	–	140
Frustulia sp.	–	168	140
Hantzschia sp.	–	–	140
Melosira sp.	168	3361	1826
Navicula sp.	336	1512	140
Nitzschia constricta	–	672	–
Nitzschia sp.	168	1176	562
Unidentified pennate diatom	168	504	140
Rhizosolenia sp.	168	–	–
Skeletonema sp.	504	1512	421
Surirella sp.	168	–	–
Chlorophyceae			
Dunaliella sp.	–	168	281
Chrysophyceae			
Mallomonas sp.	168	–	–
Cryptophyceae			
Cryptomonas sp.	168	–	–
Cyanophyceae			
Oscillatoria sp.	504	–	–

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 FL0022489	11 12 941107	17 18 X	19 S	20 2

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 FL0022489	11 12 941107	17 18 B	19 S	20 2

Remarks

21 66