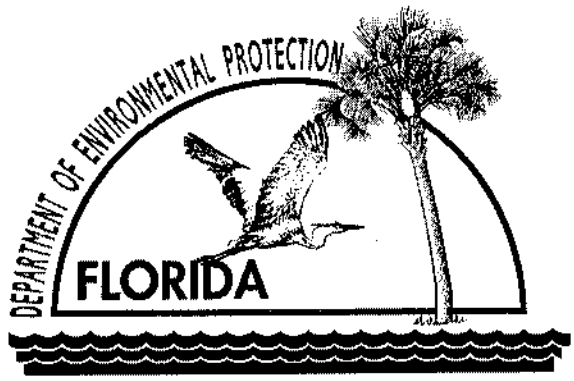
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Biological Assessment of

Alligator Mobile Home Park

Charlotte County

NPDES #FL0034673

Sampled February 1998

February 1999

Biology Section
Division of Administrative and Technical Services
Bureau of Laboratories

Comprehensive Quality Assurance Plan No. 870346G

Department of Environmental Protection

Results of Fifth Year Inspections

Discharger: Alligator Mobile Home Park WWTP
County: Charlotte
NPDES Number: FL0034673
State Permit Expiration Date: 30 September 1999

Toxics Sampling Inspection (XSI)

Date Sampled: 23 February 1998

Results: No organic pollutants were detected in the effluent. Lead was found in the effluent at a level which complied with Class III water quality standards. Copper (4.2 µg/L) exceeded the permit limit of 2.9 µg/L.

Compliance Biomonitoring Inspection (CBI)

Date Sampled: 23 February 1998

Results: The effluent sample was not acutely toxic to the fish, *Menidia beryllina*, during the 48-hour bioassay. There was 100% mortality of the invertebrate, *Americamysis bahia*, which was probably caused by the imbalance of major seawater ions from the reverse-osmosis water treatment process and not by any unidentified toxicant.

Impact Bioassessment Inspection (IBI)

Date Sampled: 23 February 1998

Results: Most of the results from the Hester-Dendy samplers indicated improved macroinvertebrate community health downstream of the discharge. Taxa richness, Florida Index, EPT Index, and % filter feeders were all higher at the test site compared to the control site. Shannon-Weaver diversity was 19% lower at the test site due to an increased contribution of the dominant taxon. The phytoplankton community was slightly altered by the discharge, taxa richness and algal diversity were lower at the test site. Chlorophyll *a* was undetected at both study sites.

Water Quality Inspection (WQI)

Date Sampled: 23 February 1998

Results: Elevated concentrations of ammonia and TKN (both 1.3 mg/L) were detected in the effluent. However, there was no substantial increase of nutrient concentrations at the test site as a result of the discharge. Algal growth potential slightly exceeded the 5 mg dry wt/L "problem threshold" at both study sites. The effluent AGP was 0.64 mg dry wt/L. The elevated copper concentration in the effluent may have inhibited algal growth in the effluent sample.

These fifth year inspections provide the necessary information to evaluate the facility's impact on its receiving waters and to provide the basis for specific condition recommendations for permit renewal.

Introduction

The Alligator Mobile Home Park is located in Punta Gorda in Charlotte County, Florida (see maps in the Appendix). This is a privately owned, 0.04 MGD reverse osmosis drinking water treatment facility that provides potable water to the mobile home/RV community. The reverse osmosis concentrate is diluted with surface waters from the Class III Alligator Creek via a baffled mixing chamber. The diluted concentrate is then passed through a degassing column to increase dissolved oxygen and strip dissolved hydrogen sulfide.

The final effluent is discharged to Alligator Creek, approximately 13 meters west of the dam near the Taylor Road bridge (see map in the Appendix). The effluent pipe is submerged and extends about 0.3 meters into the creek. State permit IC08-216807 has established a mixing zone for chlorides that extends about 17 meters downstream from the point of discharge. Water from Alligator Creek ultimately flows into Charlotte Harbor.

State permit limits for the Alligator Mobile Home Park WWTP are listed in Table 1. According to the facility's monthly operating reports, there have been numerous permit violations from January, 1997, to March, 1998. Gross alpha and radium 226 and 228 permit limits were exceeded in each quarter of 1997 and the first quarter of 1998. Dissolved oxygen was in violation of its permit limit from August, 1997, to March, 1998. Hydrogen sulfide exceeded its permit limit in August and November, 1997, and in February, 1998. The pH limit was violated on six occasions in 1997. Recent pH results seem to indicate slight improvement, however the discharge monitoring reports from 1995 and the first half of 1996 provide insufficient data. There are no current enforcement actions against Alligator Mobile Home Park.

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 control site (located approximately 300 meters upstream of the creek dam in Alligator Creek) and a test site (located about 50 meters downstream of the discharge into Alligator Creek). All field work was conducted on February 23, 1998. 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. The effluent was analyzed for nutrients, metals, and for organic constituents (base neutral and acid extractables, and pesticide extractables). Methods used for all chemical analyses are on file at the DEP Central Chemistry Laboratory in Tallahassee.

Acute toxicity bioassays, using the invertebrates, *Americamysis bahia* and the fish, *Menidia beryllina* as test organisms, were performed on an effluent sample.

Benthic macroinvertebrate communities were evaluated at control and test sites. Invertebrate collections were accomplished using Hester-Dendy multiplate samplers which were incubated for 28 days.

Phytoplankton were sampled at both control and test sites via subsurface grabs. Chlorophyll *a* was also determined for phytoplankton communities. *Selenastrum capricornutum* was used as the test organism for the algal growth potential tests.

All field and laboratory biological methods were carried out following Biology Section Standard Operating Procedures (SOP's). The latest version of the SOP's can be viewed on our web site at 'www.dep.state.fl.us/labs/sops.htm'.

Several different measurements of macroinvertebrate and algal community health have been employed to determine the effects of the discharge. These measurements include: habitat assessment, taxa richness, Shannon-Weaver Diversity Index, the Florida Index, Ephemeroptera/Plecoptera/Trichoptera (EPT) Index, community composition, functional feeding groups, and algal biomass. For a discussion of each of these measures, see *Explanation of Measurements of Community Health* in the Appendix.

For graphical purposes, the percent differences between the control and test sites involving the number of taxa, the diversity index, the Florida Index, the EPT Index, the diatom to blue-green algae ratio, and the % filter-feeders are measured as the control site minus test site divided by the control site. The percent differences between sites involving the % tubificids, algal density, chlorophyll *a*, and algal growth potential are measured as the test site minus control site divided by the control site.

The following personnel were involved in this investigation: Albert Walton (DEP South District)

and Julie Baughman, Ken Espy, Marshall Faircloth, Joy Jackson, Scott Lashbrook, Elizabeth Miller, Urania Quintana, Johnny Richardson, Lisa Tamburello, Steve Wolfe, David Whiting, and Vicki Whiting (DEP Central Biology Laboratory in Tallahassee). The report was reviewed by the Point Source Studies Review Committee, consisting of Wayne Magley, Chuck Ziegmont, Russel Frydenborg and Michael Tanski, as well as District representatives.

Results and Discussion

Habitat quality was "optimal" at the control (126 points) and test (141 points) sites (see Habitat Assessment Field Data Sheets in the Appendix). Substrate at both sites consisted of woody debris, aquatic vegetation, undercut banks, and roots. The test site substrate also consisted of rock and shell rubble. The creek dam (located about 300 meters downstream of the control site) may have influenced the habitat conditions at the control site. For example, water velocity was 0.05 m/s at the control site compared to 0.20 m/s at the test site. The control site also had steep banks and a depth of 2.5 meters compared to 0.5 meters at the test site. Land-use in the watershed was residential (30%), forest/natural (30%), agricultural (25%), and field/pasture (15%). Both sites showed moderate potential for local watershed pollution due in part to the various land-use activities.

Physical/chemical measurements were comparable at the control and test sites (Table 1). Dissolved oxygen was higher at the test site (7.5 mg/L) than at the control site (5.8 mg/L). The pH was the same at both the control and test sites (7.5 SU). The effluent pH (7.2 SU) and dissolved oxygen (5.7 mg/L) complied with permit limits. Conductivity was similar at the control (182 µmhos/cm) and test sites (197 µmhos/cm). The conductivity in the effluent was 8,200 µmhos/cm.

No organic pollutants were detected in the effluent. Lead was detected in the effluent at a concentration that complied with Class III water quality standards. The copper (4.2 µg/L) concentration was in violation of the permit, exceeding the daily maximum limit of 2.9 µg/L.

The effluent sample was not toxic to the fish, *Menidia beryllina*, during the 48-hour bioassay. There was 100% mortality to the invertebrate, *Americamysis bahia*. As part of the reverse-osmosis water treatment process, the source water was stripped of its ions, and surface water from Alligator Creek and ACS-grade chemical salts were then added to the reject water to adjust the major seawater ions to the proportions present in natural seawater. It is possible that the addition of these salts may not provide a complete proportional match of all the ions found in natural seawater resulting in an imbalance of the major seawater ions. This may have caused the effluent to be toxic to the mysid shrimp, *Americamysis bahia*. The saltwater fish, *Menidia beryllina*, are not as sensitive to an imbalance of seawater ions (FDEP 1995). It does not appear likely that the elevated levels of copper would cause the effluent to be toxic to the invertebrate, *Americamysis bahia*, while being non-toxic to the fish, *Menidia beryllina*.

There was no significant increase in nutrient levels that could be associated with the discharge (Table 1). For example, effluent concentrations of ammonia and TKN were both 1.3 mg/L. Ammonia (test = 0.032 mg/L, control = 0.030 mg/L) and TKN (test = 0.70 mg/L, control = 0.69 mg/L) were

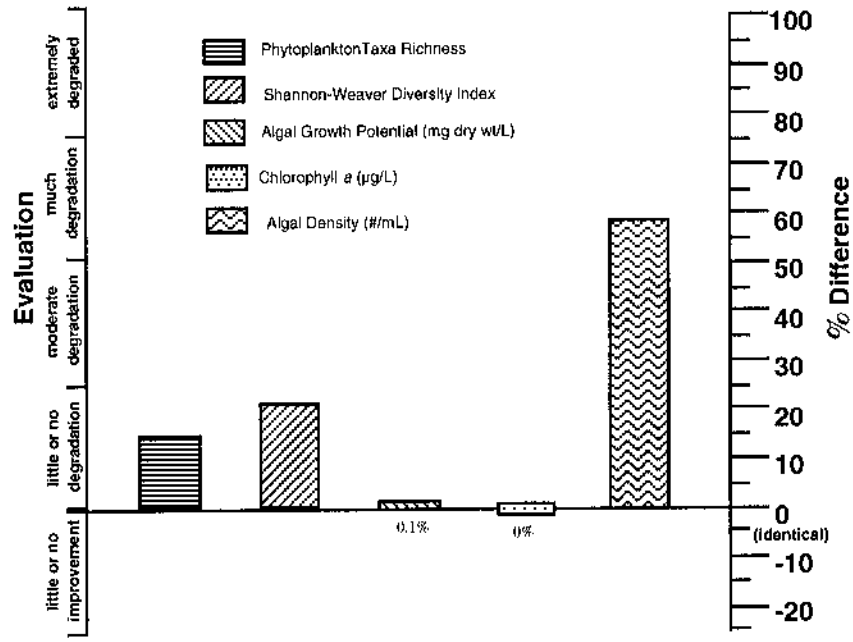


Figure 1. Effect of discharge on the phytoplankton community.

Table 1. Effluent permit limits and summary of chemistry data.

Alligator Mobile Home Park WWTP	Effluent Limits	Effluent Sample	Control Site	Test Site
Organic Constituents (µg/L)				
		None detected		
Metals (µg/L)				
Aluminum	≤ 1,500 **	30 U	-	-
Arsenic	≤ 50 **	6 U	-	-
Cadmium	≤ 93.0 *	0.04 U	-	-
Chromium	≤ 644.2 **c	2 U	-	-
Copper	≤ 2.9 *	4.2 A	-	-
Iron	≤ 1,000 **	10 U	-	-
Lead	≤ 18.58 **c	0.64 I	-	-
Mercury	≤ 0.012 **	0.10 U	-	-
Nickel	≤ 509.4 **c	7 U	-	-
Selenium	≤ 5.0 **	8 U	-	-
Silver	≤ 0.07 **	0.1 U	-	-
Zinc	≤ 86.0 *	10 U	-	-
Nutrients (mg/L)				
Ortho-phosphate	-	0.007 I	0.024 Q	0.021 Q
Total phosphorus	≤ 0.5 *	0.015 U	0.039	0.044
Ammonia	-	1.3	0.030	0.032 A
Nitrate+nitrite	-	0.004 U	0.016	0.018
TKN	-	1.3	0.69	0.70
Chloride	< 10% background	49 A	-	-
Fluoride	≤ 10.0 *	-	-	-
Hydrogen Sulfide	≤ 0.04 *	-	-	-
General Phys-Chem Parameters				
Habitat Assessment	-	-	126	141
D.O. (mg/L)	≥ 5.0 *	5.7	5.8	7.5
pH (SU)	6.0-8.5 *	7.2	7.5	7.5
Conductivity (µmhos/cm)	-	8200	182	197
Total Suspended Solids (mg/L)	≤ 50.0 *	-	-	-
Tot. Residual Chlorine (mg/L)	≤ 0.01 *	0.03 U	-	-
Gross alpha (pci/L)	≤ 15.0	1.5 U	-	-
Radium 226 & 228 (pci/L)	≤ 5.0	1.5 U	-	-
Flow (MGD)	≤ 0.04 *a	-	-	-
Hardness (mg $CaCO_3$)	-	2,002.8	-	-
AGP (mg dry wt/L)	-	0.641 I	5.557	5.563
Toxicity				
Bioassay Fish	-	Not Toxic	-	-
Bioassay Invertebrate	-	100% Mortality	-	-

* Permit limit
** Class III water quality standard
a - Annual average
c - Value is hardness based; hardness value is set at 400 mg/L if actual hardness is > 400 mg/L
A - Value reported is the mean of two or more determinations
I - Value reported is < the minimum quantitation limit, and ≥ to the minimum detection limit
Q - Sample held beyond normal holding time
U - Material analyzed for but not detected; value reported is the minimum detection limit

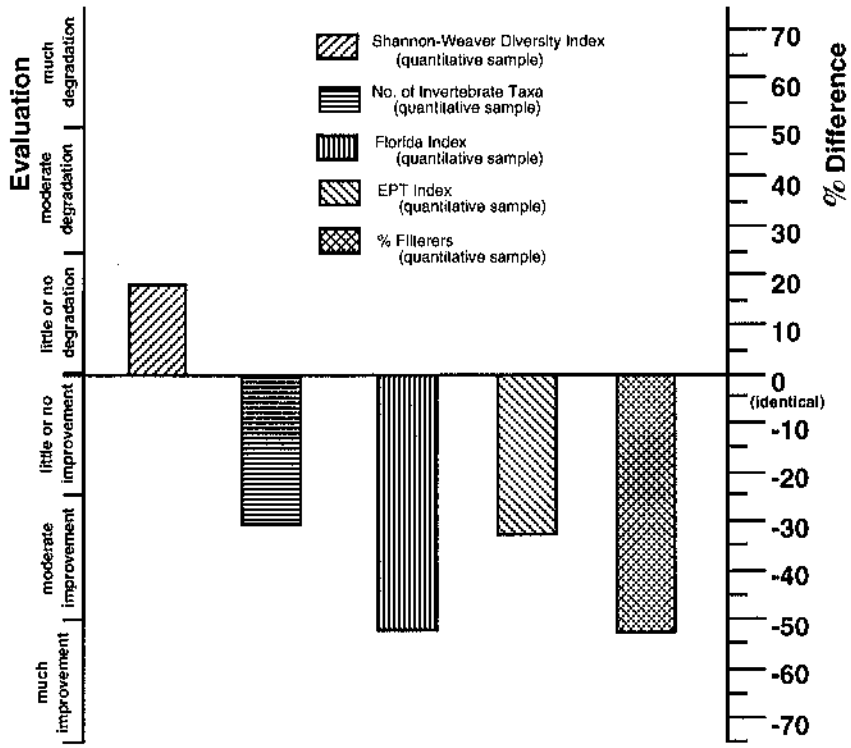


Figure 2. Effect of discharge on the macroinvertebrate community.

very similar between the two sample sites, as were other nutrients. Total phosphorus and nitrate+ nitrite were not detected in the effluent.

Algal Growth Potential (AGP) slightly exceeded the 5 mg dry wt/L "problem threshold" for the freshwater test organism at the control site (5.6 mg dry wt/L) and test site (5.6 mg dry wt/L) (Raschke and Schultz 1987). Figure 1 represents changes in the phytoplankton communities at the test site when compared to the control site. Larger differences (that is, higher percentages) correspond with greater degrees of degradation. Measures of algal community health, such as taxa richness, Shannon-Weaver diversity, chlorophyll *a*, and AGP, suggested that the test site was similar to the control site (Table 2). Shannon-Weaver diversity showed a 21% decline from 4.2 at the control site to 3.3 at the test site. Chlorophyll *a* was not detected at either site. Algal density was slightly higher at the test site (392 cells/ml), compared to the control site (246 cells/ml).

Most measures of macroinvertebrate community health calculated using Hester-Dendy samples indicated improved conditions at the test site (Table 2). Figure 2 indicates the degree of difference between the control and test sites. The quantitative results for taxa richness (test = 47, control = 36) and the Florida index (test = 32, control = 21) suggested healthier macroinvertebrate communities downstream of the discharge. The percent suspension feeders increased from 38% at the control site to 57% at the test site. The EPT index showed improvement at the test site (8 taxa) compared to the control site (6 taxa). Shannon-Weaver diversity suggested degradation with a 19% decline at the test (3.4) site compared to the control (4.2) site. This is due primarily to the higher percent contribution (40%) of the dominant taxon (*Cheumatopsyche* sp.) at the test site compared to the control site (15% contribution of *Tanytarsus* sp. C).

Conclusions

No organics pollutants were detected in the effluent. Lead was detected in the effluent at a level that complied with Class III water quality standards. Copper in the effluent (4.2 µg/L) exceeded the permit limit of 2.9 µg/L.

The effluent sample was not toxic to the fish, *Menidia beryllina*, during the 48-hour bioassay. There was 100% mortality to the invertebrate, *Americamysis bahia*. This mortality was probably caused by a sensitivity to an imbalance in the proportions of major seawater ions, common in the reverse-osmosis treatment process.

The test site showed no substantial increase in nutrients that could be associated with the discharge. Concentrations of ammonia and TKN at the test site were similar to the control site and not influenced by elevated concentrations in the effluent.

AGP at the control and test sites (5.6 mg dry wt/L at both sites) slightly exceeded the "problem threshold" of 5 mg dry wt/L. The extremely low effluent AGP (0.6 mg dry wt/L) may be a result of the elevated copper (4.2 µg/L) concentration in the discharge.

There were some changes in the phytoplankton communities below the outfall. The test site had lower

taxa richness and algal diversity when compared to the control site. Chlorophyll *a* was not detected at either sample site.

Variations in the benthic macroinvertebrate community structure between the control and test sites are probably a result of habitat differences caused by the creek dam at the control site, rather than the discharge. The test site had higher values for the Florida Index, % filter feeders, and the EPT. Shannon-Weaver diversity, on the other hand, declined by 19% at the test site (3.4) compared to the control site (4.2). This decline is due primarily to the higher percent contribution of the dominant taxon at the test site (40%) compared to the control site (15%).

Table 2. Biological community structure of control and test sites.

Alligator Mobile Home Park	Control Site	Test Site
Macroinvertebrate Hester-Dendy		
Number of Taxa	36	47
Florida Index	21	32
Shannon-Weaver Diversity Index	4.2	3.4
% Dominant Taxon	15	40
EPT Index	6	8
Community Composition		
% Diptera	83.6	44.4
% Ephemeroptera	8.5	4.8
% Gastropoda	0.7	0.5
% Oligochaeta	0	1.6
% Trichoptera	5.6	46.4
% Other	1.1	0.9
Functional Feeding Groups		
% Predators	15.9	14
% Surface Deposit Feeders	34.2	15.7
%Suspension Feeders/Filterers	37.5	57.3
% Scrapers	5.7	3
% Shredders	6.4	8.2
Phytoplankton Algae		
Number of Taxa	26	22
Shannon-Weaver Diversity Index	4.2	3.3
Chlorophyll *a* (µg/L)	1.12 U	1.12 U
Algal Density (#/mL)	246	392
% Blue-green	11.8	5.7
% Green	44.7	69.8
% Diatoms	21.2	6.6
AGP (mg dry wt/L)	5.6	5.6

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

Literature Cited

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Weber, C. I. 1993. Methods for measuring the acute toxicity of effluents to freshwater and marine organisms. 4th edition. EPA/600/4-90/027. U. S. EPA, Cincinnati, Ohio. 216 pp.

Explanation of Measurements of Community Health

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

Habitat Assessment: Seven attributes known to have potential effects on the stream biota were evaluated and scored, with 20 possible points for each factor. Based on the sum of these individual scores, overall habitat quality is assigned to one of four categories: Optimal (105-140 points); Suboptimal (70-104 points); Marginal (35-69 points); and Poor (0-34 points).

Taxa richness: Stress tends to reduce the number of different types of organisms present in a system, although moderate nutrient enrichment may sometimes be correlated with increased algal taxa richness.

Shannon-Weaver diversity: This index is specified in the Florida Administrative Code as a measure of biological integrity. Low diversity scores are undesirable. They represent conditions where only a few organisms are abundant, to the exclusion of other taxa.

The Florida Index: Some organisms become rare or absent as the intensity or duration of disturbance increases. The Florida Index, assigns points to stream-dwelling macroinvertebrates based on their sensitivity to pollution (see Ross 1990). A site with a high Florida Index score is considered healthy.

Ephemeroptera/Plecoptera/Trichoptera (EPT) Index: This index is the sum of the number of EPT taxa present. Higher EPT values are associated with healthier systems.

Community structure: Substantial shifts in proportions of major groups of organisms, compared to control conditions, may indicate degradation.

Algal biomass: High algal biomass (algal density or chlorophyll *a*) implies nutrient stress. 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 in flowing streams.

Functional Feeding Groups: Disturbance can shift the feeding strategies of invertebrates. In Florida, for example, pollution may be responsible for reducing the numbers of filter-feeders (FDEP 1994) and shredders (EA Engineering 1994).

The Stream Condition Index (SCI): The SCI is a composite macroinvertebrate metric (Barbour *et al.* 1996) developed for Florida. The SCI assigns points to a variety of parameters, depending on how closely each parameter approaches an expected control condition (see SCI calculation table in Appendix).

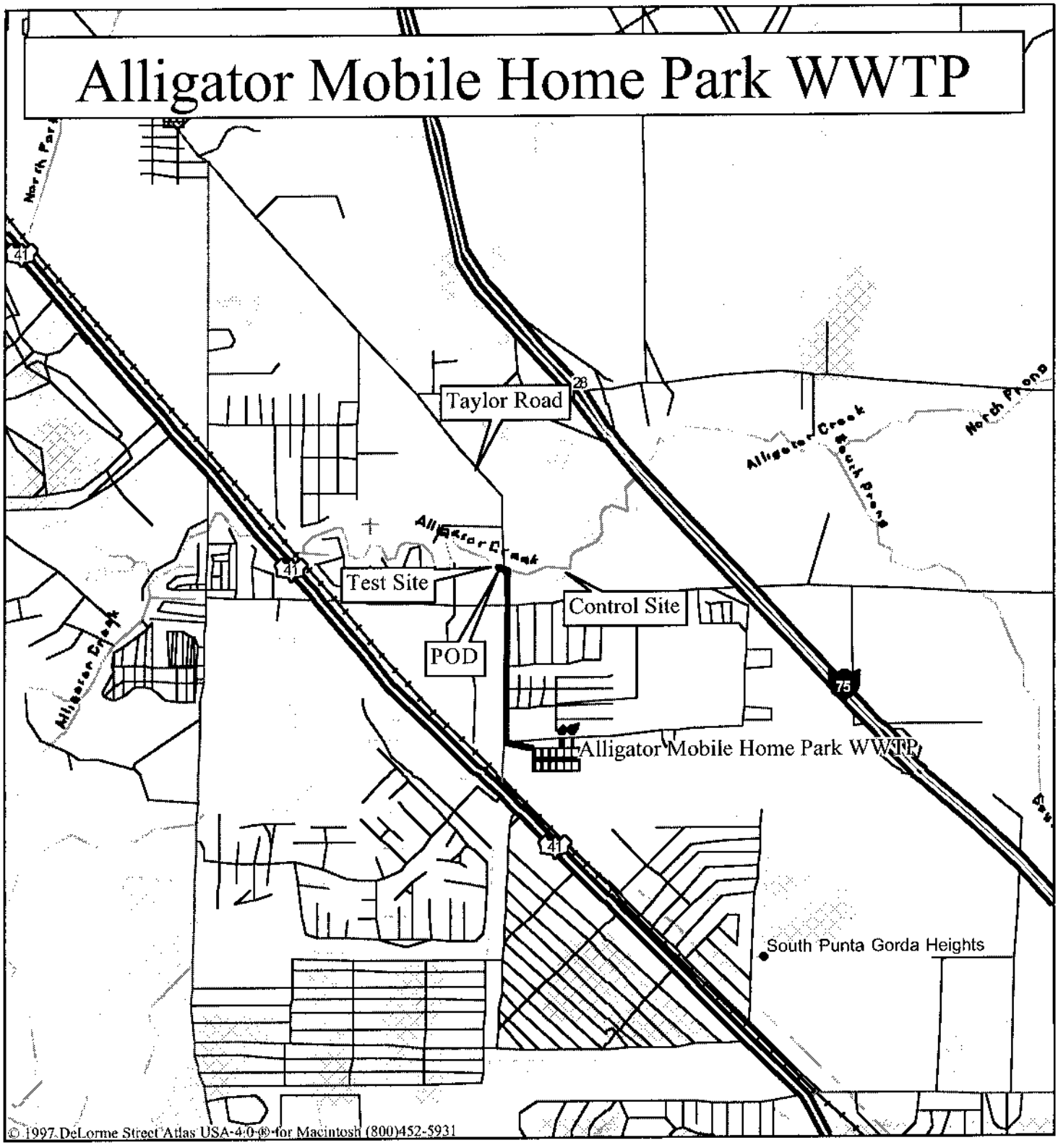
Typical Values for Selected Parameters in Florida Waters

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 Phosphate	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-Phosphate	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-Phosphate	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

Alligator Mobile Home Park WWTP



Mag 14.00
Thu Feb 04 13:26 1999
Scale 1:31,250 (at center)
2000 Feet
1000 Meters

- Local Road
- Major Connector
- Interstate/Limited Access
- US Highway
- Rest Area with facilities
- Utility/Pipe
- Railroad
- Small Town
- Airfield
- Exit
- Cemetery
- Water

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

FACILITY SUMMARY

Facility Name: ALLIGATOR MOBILE HOME PARK		Date Summary Prepared: 05/27/98
Location (attach detailed map): 6400 TAYLOR ROAD PUNTA GORDA, FL 33950	County: CHARLOTTE	District: SOUTH-FT. MYERS
Federal Permit # and expiration date: FL0034673 09/30/99	State GMS # and State expiration date: 5208P00624	Facility Type: (Industrial) Municipal Federal Agricultural Other (list):

Function of facility: THIS IS A REVERSE OSMOSIS WATER TREATMENT PLANT THAT PROVIDES POTABLE WATER TO ALLIGATOR MOBILE HOME PARK, A MOBILE HOME/RV COMMUNITY.

Description of treatment process:
THE REVERSE OSMOSIS CONCENTRATE IS DILUTED WITH SURFACE WATER FROM ALLIGATOR CREEK VIA A BAFFLED MIXING CHAMBER. THE DILUTED CONCENTRATE THEN PASSES THROUGH A DEGASSIFYING COLUMN. THIS PROCESS INCREASES DISSOLVED OXYGEN AND STRIPS DISSOLVED HYDROGEN SULFIDE.

Receiving waters: ALLIGATOR CREEK		Classification: I II (III)
Design Flow: 0.04 MGD	Mean Flow:	Flow during survey:

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.):
STATE PERMIT IC08-216807 HAS ESTABLISHED A MIXING ZONE FOR CHLORIDES THAT EXTENDS 50 FEET DOWNSTREAM FROM THE POINT OF DISCHARGE.

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

Parameter	Limit (units)
FLOW	REPORT DAILY AVG. & DAILY MAX. (MGD)
pH	>6.5 & <8.5 (S.U.)
TOTAL SUSPENDED SOLIDS	DAILY AVG.-30.0 & DAILY MAX.-50.0 (mg/L)
DISSOLVED OXYGEN	NOT LESS THAN 5.0 (mg/L)
TOTAL PHOSPHORUS	DAILY MAX. - 0.5 (mg/L)
FLUORIDES	DAILY MAX. - 10.0 (mg/L)
ZINC	DAILY MAX. - 86.0 (ug/L)
CADMIUM	DAILY MAX. - 93.0 (ug/L)
COPPER	DAILY MAX. - 2.9 (ug/L)
CHLORIDES	<10% ABOVE BACKGROUND (mg/L)
HYDROGEN SULFIDE	DAILY MAX. - 0.04 (mg/L)
NITRATE	REPORT DAILY MAX. (mg/L)
GROSS ALPHA	DAILY MAX. - 15.0 (pCi/L)
RADIUM 226 & 228	DAILY MAX. - 5.0 (pCi/L)

Describe special permit conditions and permit modifications:

Alligator MHP
(Facility)

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION
FACILITY SUMMARY

Description of permitted outfall(s):

THE OUTFALL IS LOCATED AT ALLIGATOR CREEK, APPROXIMATELY 40 FEET WEST OF THE CREEK DAM NEAR THE TAYLOR ROAD BRIDGE. THE EFFLUENT PIPE IS SUBMERGED AND EXTENDS APPROXIMATELY ONE FOOT INTO THE CREEK.

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

pH VIOLATIONS: JANUARY, APRIL, MAY, JUNE, JULY & NOVEMBER 1997

DO VIOLATIONS: AUGUST, SEPTEMBER, OCTOBER, NOVEMBER AND DECEMBER 1997. JANUARY, FEBRUARY AND MARCH 1998.

H_2S VIOLATIONS: AUGUST AND NOVEMBER 1997. FEBRUARY 1998.

GROSS ALPHA VIOLATIONS: JANUARY- MARCH, APRIL- JUNE, JULY- SEPTEMBER & OCTOBER- DECEMBER 1997. JANUARY - MARCH 1998.

COMBINED RADIUM VIOLATIONS: JANUARY- MARCH, APRIL- JUNE, JULY- SEPTEMBER & OCTOBER- DECEMBER 1997. JANUARY- MARCH 1998.

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

THERE ARE NO CURRENT ENFORCEMENT ACTIONS AGAINST ALLIGATOR MOBILE HOME PARK.

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

DISCHARGE MONITORING REPORTS FROM 1995 AND THE FIRST SIX MONTHS OF 1996 PROVIDE INSUFFICIENT DATA. THE pH MINIMUM WAS EXCEEDED FOR EACH DMR SUBMITTED IN 1996 AND 1995. HYDROGEN SULFIDE WAS EXCEEDED FOUR MONTHS IN 1996. THE COMBINED RADIUM AND GROSS ALPHA PARAMETERS WERE EXCEED EACH QUARTER IN 1996.

THERE APPEARS TO BE A SLIGHT IMPROVEMENT WITH THE pH MINIMUM RESULTS.

Additional information:

Staff contributing to this review (signature):

(Biologist)

(Inspector)

(Engineer)

( )

( )

( )

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

PHYSICAL/CHEMICAL CHARACTERIZATION FIELD DATA SHEET (5-10-96)

SUBMITTING AGENCY CODE: / SUBMITTING AGENCY NAME:	STORET STATION NUMBER:	DATE (M/D/Y):	TIME	RECEIVING BODY OF WATER:
	25-01-2	9-15-98		CHARLOTTE HARBOR

REMARKS:	COUNTY:	LOCATION:	FIELD ID/NAME:
	CHARLOTTE	ALLIGATOR CR. ABOVE DAM	CONTROL SITE

RIPARIAN ZONE/INSTREAM FEATURES

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

Forest/Natural	Silviculture	Field/Pasture	Agricultural	Residential	Commercial	Industrial	Other (Specify)
30		15	25	30			

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

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

Width of riparian vegetation (m) on least buffered side: 20+

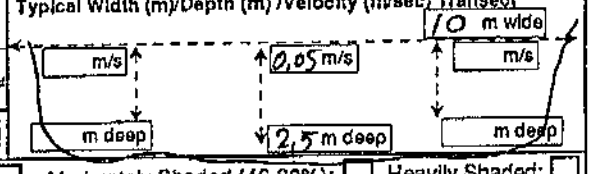
List & map dominant vegetation on back

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

Artificially Impounded ☑ yes

High Water Mark: 0.1 (m above present water level) + 2.5 (present depth in m) = 2.6 (m above bed)

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



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)	1			Sand			
Leaf Packs or Mats	1			Mud/Muck/Silt			
Aquatic Vegetation	3			Other:			
Rock or Shell Rubble				Other:			
Undercut banks/Roots	10			*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):			Secchi (m):
Top								
Mid-depth								
Bottom								

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

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

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

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

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

Weather Conditions/Notes:

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

SAMPLING TEAM:	SIGNATURE:	DATE:
WALTON	afWalton	9-18-98

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
FRESHWATER BENTHIC HABITAT ASSESSMENT FIELD DATA SHEET (experimental 10-15-97)

SUBMITTING AGENCY CODE / SUBMITTING AGENCY NAME	SYSTEM STATION NUMBER	DATE (MM/DD/YY)	RECEIVING BODY OF WATER
	25-01-7	9-18-98	CHARLOTTE HARBOR

REMARKS	COUNTY	LOCATION	FIELD DESIGNATION
	CHARLOTTE	ALLIGATOR CR [redacted] ABOVE DAM	CONTROL SITE

Habitat Parameter	Optimal	Suboptimal	Marginal	Poor
Primary Habitat Components Substrate Diversity [13]	Four or more productive habitats present (snags, tree roots, aquatic vegetation, leaf packs (partially decayed), undercut banks, rock). 20 19 18 17 16	Three productive habitats present. Adequate habitat. Some substrates may be new fall (fresh leaves or snags). 15 14 (13) 12 11	Two productive habitats present. Less than desirable habitat, frequently disturbed or removed. 10 9 8 7 6	One or less productive habitat. Lack of habitat is obvious, substrates unstable or smothered. 5 4 3 2 1
Substrate Availability [8]	Greater than 50% productive habitat present at site. 20 19 18 17 16	16% to 50% productive habitat, by aerial extent. 15 14 13 12 11	6% to 15 % productive habitat. 10 9 (8) 7 6	Less than 5% productive habitat. 5 4 3 2 1
Water Velocity [5]	Max. observed at typical transects >0.25 m/sec. but < 1 m/sec 20 19 18 17 16	Max. observed at typical transects 0.1 to 0.25 m/sec 15 14 13 12 11	Max. observed at typical transect: 0.05 to 0.1 m/sec 10 9 8 7 6	Max. observed at typical transect <0.05 m/sec, or zone occurring > 1 m/sec (5) 4 3 2 1
Habitat Smothering [20]	Less than 20% of habitats affected by sand or silt accumulation 20 19 18 17 16	20%-50% of habitats affected by sand or silt accumulation 15 14 13 12 11	Smothering of 50%-80% of habitats with sand or silt, pools shallow, frequent sediment movement 10 9 8 7 6	Smothering of >80% of habitats with sand or silt, a severe problem, pools absent. 5 4 3 2 1
Primary Score [46]				
Secondary Habitat Components Artificial Channelization [20]	No artificial channelization or dredging. Stream with normal, sinuous pattern (25) 19 18 17 16	May have been channelized in the past (>20 yrs), but mostly recovered, fairly good sinuous pattern 15 14 13 12 11	Channelized, somewhat recovered, but > 80% of area affected 10 9 8 7 6	Artificially channelized, box-cut banks, straight, instream habitat highly altered 5 4 3 2 1
Bank Stability [20]	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 [20]	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 [20]	Over 80% of riparian surfaces consist of native plants, including trees, understory shrubs, or non-woody macrophytes. Normal, expected plant community for given sunlight & habitat conditions. 20 19 18 17 16	50% to 80% of riparian zone is vegetated, and/or one class of plants normally expected for the sunlight & habitat conditions is not represented. Some disruption in community evident. 15 14 13 12 11	25% to 50% of riparian zone is vegetated, and/or one or two expected classes of plants are not represented. Patches of bare soil or closely cropped vegetation, disruption obvious. 10 9 8 7 6	Less than 25% of streambank surfaces are vegetated and/or poor plant community (e.g. grass monoculture or exotics) present. Vegetation removed to stubble height of 2 inches or less. 5 4 3 2 1
Secondary Score [80]				

[126] TOTAL SCORE

ANALYSIS DATE	ANALYST	SIGNATURE
9-18-98	WALTON	A S Walton

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

PHYSICAL/CHEMICAL CHARACTERIZATION FIELD DATA SHEET (5-10-96)

SUBMITTING AGENCY CODE: / SUBMITTING AGENCY NAME:	STORET STATION NUMBER:	DATE (M/D/Y):	TIME	RECEIVING BODY OF WATER:
	25-01-0008	9-18-98	9/5	CHARLOTTE HARBOR

REMARKS:	COUNTY:	LOCATION:	FIELD ID/NAME:
		ALLIGATOR CR BELOW DAM @ CR	TEST SITE

RIPARIAN ZONE/INSTREAM FEATURES

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

Forest/Natural	Silviculture	Field/Pasture	Agricultural	Residential	Commercial	Industrial	Other (Specify)
30		15	25	30			

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

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

Width of riparian vegetation (m) on least buffered side: 20

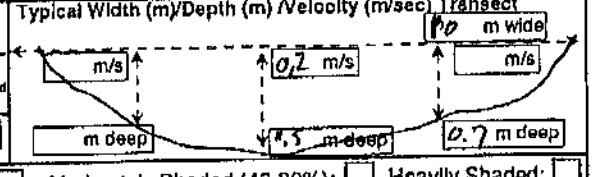
List & map dominant vegetation on back

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

Artificially Impounded [✓] yes JUST ABOVE SITE

High Water Mark: 0.2 (m above present water level) + 1.5 (present depth in m) = 1.7 (m above bed)

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



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 Silt smothering: (none) slight moderate severe Other:

Substrate Types	% coverage	# times sampled	method	Substrate Types	% coverage	# times sampled	method
Woody Debris (Snags)	3			Sand	84		
Leaf Packs or Mats				Mud/Muck/Silt			
Aquatic Vegetation	7			Other:			
Rock or Shell Rubble	3			Other:			
Undercut banks/Roots	3						

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):			Secchi (m):
Top								
Mid-depth								
Bottom								

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

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

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

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

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

Weather Conditions/Notes:

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

SAMPLING TEAM:	SIGNATURE:	DATE:
WALTON	Ash Walton	9-18

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
FRESHWATER BENTHIC HABITAT ASSESSMENT FIELD DATA SHEET (experimental 10-15-97)

SUBMITTING AGENCY CODE: / SUBMITTING AGENCY NAME:	STORET STATION NUMBER: 25-01-0008	DATE (M/D/Y): 9-18-98	ALTERNATE BODY OF WATER: CHARLOTTE HARBOR
REMARKS:	COUNTY: CHARLOTTE	LOCATION: ALLIGATOR CR BELOW DAM @ CR765A	FIELD REPLICATE: TEST SITE

Habitat Parameter	Optimal	Suboptimal	Marginal	Poor
Primary Habitat Components Substrate Diversity [18]	Four or more productive habitats pr[esent] (trees, roots, vegetation, [g]arbage) u[nder]cut b[anks] 20 19 1[8]	Three productive	...	e or less productive itat. Lack of itat is obvious, deration unstable or ltered. 5 4 3 2 1
Substrate Availability [12]	Greater th[an] productive present at 20 19 1[8]			ss than 50% ductive habitat. 5 4 3 2 1
Water Velocity [13]	Max. observed at typical transects >0.25 m/sec, but < 1 m/sec 20 19 18 17 16	Max. observed at typical transect 0.1 to 0.25 m/sec 15 14 13 12 11	Max. observed at typical transect 0.05 to 0.1 m/sec 10 9 8 7 6	Max. observed at typical transect <0.05 m/sec, or strata occurring > 1 m/sec 5 4 3 2 1
Habitat Smothering [20]	Less than 20% of habitats affected by sand or silt accumulation 20 19 18 17 16	20%-50% of habitats affected by sand or silt accumulation 15 14 13 12 11	Smothering of 50%-80% of habitats with sand or silt, pools shallow, frequent sediment movement 10 9 8 7 6	Smothering of >80% of habitats with sand or silt, a severe problem, pools absent 5 4 3 2 1
Primary Score [63]				
Secondary Habitat Components Artificial Channelization [20]	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 > 50% of area affected 10 9 8 7 6	Artificially channelized, box-cut banks, straight, instream habitat highly altered 5 4 3 2 1
Bank Stability [18]	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 [20]	Width of native vegetation (least buffered side) greater than 18 m 20 19 18 17 16	Width of native vegetation (least buffered side) 12 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 [20]	Over 80% of riparian surfaces consist of native plants, including trees, understory shrubs, or non-woody macrophytes. Normal, expected plant community for given sunlight & habitat conditions. 20 19 18 17 16	50% to 80% of riparian zone is vegetated, and/or one class of plants normally expected for the sunlight & habitat conditions is not represented. Some disruption in community evident. 15 14 13 12 11	25% to 50% of riparian zone is vegetated, and/or one or two expected classes of plants are not represented. Patches of bare soil or closely cropped vegetation, disruption obvious. 10 9 8 7 6	Less than 25% of streambank surfaces are vegetated and/or poor plant community (e.g. grass monoculture or exotics) present. Vegetation removed to stubble height of 2 inches or less. 5 4 3 2 1
Secondary Score [78]				

Post-it® Fax Note 7671 | Date 9-18 | # of pages ▶ 6
To VICKI WHITING | From FORD WALTON
Co./Dept. 216 LAB ANNEX | Co. PUNTA GORDA
Phone # BIOLOGY | Phone # SC 765-5810
Fax # 850-922-5386 | Fax # SC 765-5812

141 TOTAL SCORE

ANALYSIS DATE: 9-18-98	ANALYST: WALTON	SIGNATURE: A.R. Walton

FDEP Biology Section — Acute Bioassay Bench Sheet

Sample Source: Alligator MHP R/O
County: Charlotte
Contact / District: A.S. Walton / South
NPDES Permit #: FL00 ~~388~~ 34673
LIMS Sample #: 309293 LIMS Job #: T/H 1998-02-24-19
sample log: 3/6/98 DW

Sample Collection: Date 2/23/98 Time 11:15
Test Beginning: Date 2/24/98 Time 14:30
Test Ending: Date 2/26/98 Time 13:45
Organism Batch #: 51 Diluent Batch #: 5
Organism Age: 3 days
Test Organism: Americamysis bahia

Test Type: (Screening) | Definitive
Static | Static Renewal | Flow-through
Temperature range: room 24.5-25.5 °C
incubator 25.0-26.0°C
Test Number: 1 of 1
Remarks: D = dead, M = missing

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	21.1 @ 21.2	8.2 @ 24.9 °C	95.6 @ 96.3 978/9870 @ 1005/1005 @ 24.2 °C
24 hr	7.0 @ 7.0 9.0 @ 9.0	22.0 @ 22.0	8.2 @ 25.1 °C	96.7 @ 96.3 944/9760 @ 1005/1005 @ 24.5 °C
48 hr	7.0 @ 7.0 9.0 @ 9.0	22.4 @ 22.4	8.2 @ 25.3 °C	98.3 @ 96.3 982 @ 1005 @ 24.6 °C

		Number Live			pH			Temperature (°C)			D.O. (mg/L)			UNCORRECTED Cond. (mmhos/cm) Cond. (µmhos/cm)		
Conc.	Chamber #	0 hr	24 h	48 h	0 hr	24 h	48 h	0 hr	24 h	48 h	0 hr	24 h	48 h	0 hr	24 h	48 h
Ctl A	C1	5	5	5	8.5	7.8	7.6	24.4	24.7	24.7	7.0	6.4	7.1	10.25	10.37	10.42
Ctl B	C2	5	5	5	8.5	7.9	7.7	24.4	24.7	24.8	7.0	6.4	7.1	10.29	10.54	10.61
Ctl C	C3	5	5	5	8.5	7.9	7.7	24.4	24.8	24.7	7.1	6.6	7.3	10.30	10.53	10.51
Ctl D	C4	5	5	5	8.5	7.9	7.7	24.5	24.9	24.8	7.1	6.8	7.3	10.31	10.46	10.43
6% NSW A	C5	5	5	5	8.1	7.5	7.5	24.4	24.7	24.8	7.1	6.9	7.5	10.37	10.64	10.81
6% NSW B	C6	5	5	5	8.1	7.4	7.5	24.3	24.7	24.8	7.0	6.9	7.5	10.41	10.71	10.74
6% NSW C	C7	5	5	5	8.1	7.4	7.5	24.3	24.7	24.5	7.0	6.8	7.5	10.39	10.63	10.68
6% NSW D	C8	5	5	5	8.1	7.4	7.4	24.3	24.7	24.8	7.0	6.9	7.4	10.38	10.59	10.61
100% A	C9	5	0 SD	—	7.8	8.2	—	25.0	25.3	—	7.0	6.7	—	10.44	10.75	—
100% B	C10	5	0 SD	—	7.8	8.2	—	25.1	24.8	—	6.9	6.7	—	10.51	10.45	—
100% C	C11	5	1 40	0	7.8	8.2	8.3	25.1	24.6	24.9	7.1	6.8	7.4	10.51	10.41	10.59
100% D	C12	5	0 SD	—	7.8	8.1	—	25.1	24.7	—	7.0	7.0	—	10.50	10.50	—
Measured/Loaded by:		DW	MF	MF	MF	MF	MF	MF	MF	MF	MF	MF	MF	MF	MF	MF
Recorded by:		MF	MF	MF	FW	FW	FW	FW	FW	FW	FW	FW	FW	FW	FW	FW

Investigators' Signatures

reviewer

form updated 4/01/96

Salt Water

Water Quality Parameters verified by MF

	Well Water	20% Min Water	Sample	Method	Measured by
Field Total Residual Cl2 (mg/L):			not measured		
Lab Total Residual Cl2 (mg/L):			<0.03	DR-100	DW
Alkalinity (mg/L as $CaCO_3$):		CTL→63 6%→34	254	Hach	DAW
Hardness (mg/L as $CaCO_3$):		←	Not measured		→
Total ammonia (mg/L as N):		CTL→<0.017 6%→<0.017	0.68	ORION	MF

Ammonia Meter #98136 Ammonia Meter Slope: -56.5 Ammonia Blank: <0.017

Control Salinity: 6 ppt

Sample Salinity: 5.5 ppt (Adjusted to 6.0)

FDEP Biology Section — Acute Bioassay Bench Sheet

Sample Source: Alligator MHP R/O
County: Charlotte
Contact / District: A.S. Walton / South
NPDES Permit #: FL00 34673
LIMS Sample #: 309293 **LIMS Job #:** 1998-02-24-19 TAH
sample log: 3/6/98 pw

Sample Collection: Date 2/23/98 Time 11:15
Test Beginning: Date 2/24/98 Time 14:30
Test Ending: Date 2/26/98 Time 13:45
Organism Batch #: 6 **Diluent Batch #:** 5
Organism Age: 14 days
Test Organism: Menidia beryllina

Test Type: Screening | Definitive
(Static) | Static Renewal | Flow-through
Temperature range: room 24.5-25.5°C
incubator 25.0-26.0°C
Test Number: 2 of 2
Remarks: D = dead, M = missing

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	21.1 @ 21.2	8.2 @ 24.9°C	98.6 @ 96.3 978/981 @ 1005/1008 @ 24.2°C
24 hr	7.0 @ 7.0 9.0 @ 9.0	22.0 @ 22.0	8.7 @ 25.1°C	96.7 @ 96.3 984/976 @ 1005/1005 @ 24.5°C
48 hr	7.0 @ 7.0 9.0 @ 9.0	22.4 @ 22.4	8.2 @ 25.3 °C	98.3 @ 96.3 987 @ 1005 @ 24.6 °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
Ctl A	C17	5	5	5	8.5	8.0	~~8.3~~	24.5	24.6	24.5	6.5	7.0	7.5	9.56	9.68	9.73
Ctl B	C18	5	5	5	8.5	8.0	~~8.3~~	24.5	24.6	24.6	6.9	7.1	7.3	9.60	9.69	9.75
Ctl C	C19	5	5	5	8.5	8.0	~~8.3~~	24.5	24.5	24.6	7.0	7.5	7.4	9.61	9.73	9.83
Ctl D	C20	5	5	5	8.5	8.1	~~8.3~~	24.5	24.5	24.6	6.9	7.3	7.4	9.61	9.71	9.82
100% A	C21	5	5	5	7.8	8.1	~~7.8~~	24.9	24.6	24.7	6.7	7.4	7.5	9.65	9.66	9.69
100% B	C22	5	5	5	7.8	8.1	~~7.8~~	25.0	24.9	24.8	6.7	7.4	7.6	9.65	9.74	9.76
100% C	C23	5	5	5	7.8	8.2	~~7.8~~	25.0	24.7	24.8	6.8	7.3	7.5	9.65	9.67	9.73
100% D	C24	5	5	5	7.8	8.2	~~7.8~~	25.0	24.6	24.6	6.8	7.4	7.6	9.65	9.72	9.89
							7.8									
							7.8									
							7.8									
							7.8									
							8.3									
							8.3									
							8.3									
							8.3									
							M=Final Reading 2/26/98 Page									
Measured/Loaded by:		ON	MF	MF	MF	MF	MF	MF	MF	MF	MF	MF	MF	MF	MF	MF
Recorded by:		MF	MF	MF	FW	FW	FW	FW	FW	FW	FW	FW	FW	FW	FW	FW

Investigators' Signatures

Frances Mc
Dan Cuthbert
Marshall Faircloth
Dan Dilhanian Jr

Water Quality Parameters (Salt Water)

	Well Water	20% Min Water	Sample	Method	Measured by
Field Total Residual Cl2 (mg/L):			not measured verified by MF		
Lab Total Residual Cl2 (mg/L):			<0.03	DR-100	DW
Alkalinity (mg/L as $CaCO_3$):	CH→56		254	Hach	DAW
Hardness (mg/L as $CaCO_3$):	←		Not measured	-----	-----
Total ammonia (mg/L as N):	CH→<0.017		0.68	Orion	MF

Ammonia Meter #98136 Meter Slope: -56.5 Ammonia Blank: <0.017 Control Salinity: 5.5 ppt Sample Salinity: 5.5 ppt

reviewer

Phytoplankton taxa list and densities (#/mL) for Alligator Creek WWTP, collected via subsurface grabs in Alligator Creek, on 23 February, 1998.

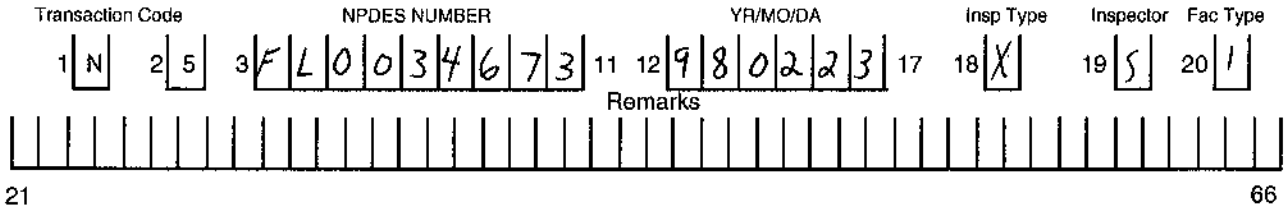
	Control Site	Test Site
Bacillariophyceae		
Achnanthes sp.	1	-
Cyclotella sp.	8	1
Cymbella sp.	3	-
Eunotia sp.	1	-
Navicula sp.	1	2
Nitzschia sp.	3	-
Pennales sp.	-	2
Undetermined Diatomaceae	1	2
Chlorophyceae		
Chlamydomonas sp.	3	-
Coelastrum sp.	-	2
Cosmarium sp.	1	1
Crucigenia sp.	2	41
Desmidium sp.	-	2
Franceia sp.	1	-
Gloeocystis sp.	-	3
Mougeotia sp.	2	-
Oocystis sp.	4	3
Pediastrum sp.	-	1
Scenedesmus sp.	6	4
Selenastrum sp.	3	3
Staurastrum sp.	1	-
Tetraedron sp.	8	5
Treubaria sp.	-	1
Undetermined Chlorophyceae	5	4
Chrysophyceae		
Mallomonas sp.	1	-
Synura sp.	1	-
Cryptophyceae		
Chroomonas sp.	2	5
Cryptomonas sp.	11	12
Cyanophyceae		
Anabaena sp.	1	1
Dactylococcopsis sp.	8	5
Oscillatoria sp.	1	-
Euglenophyceae		
Euglena sp.	-	1
Lepocinclis sp.	-	1
Trachelomonas sp.	2	2
Pyrrophyceae		
Peridinium sp.	4	2

Benthic macroinvertebrate taxa list for Alligator Creek mobile home park, collected via Hester-Dendy artificial substrates in receiving water, on 23 February, 1998. Densities, in number/m^2, represent the mean of three replicates.

	Control Site	Test Site
Amphipoda		
Hyalella azteca	3	8
Coleoptera		
Dineutus sp.	8	–
Stenelmis sp.	–	3
Diptera		
Ablabesmyia mallochi	16	5
Ablabesmyia rhamphe grp.	3	–
Beardius truncatus	5	–
Chironomidae	156	407
Corynoneura sp.	–	3
Corynoneura sp. C Epler	–	3
Corynoneura taris	13	3
Cricotopus bicinctus	–	11
Cricotopus or orthocladius sp.	–	3
Dicrotendipes modestus	13	24
Dicrotendipes neomodestus	13	5
Dicrotendipes simpsoni	3	–
Dicrotendipes sp.	3	–
Nilotanypus sp.	–	3
Nilothauma sp.	3	–
Orthocladiinae	–	5
Pentaneura inconspicua	45	24
Polypedilum convictum	–	175
Polypedilum convictum grp.	132	249
Polypedilum illinoense	–	11
Polypedilum illinoense grp.	13	3
Polypedilum scalaenum grp.	3	–
Polypedilum sp.	–	3
Rheotanytarsus distinctissimus grp.	71	29
Rheotanytarsus exiguus grp.	79	201
Rheotanytarsus sp.	32	8
Simulium sp.	11	63
Tanytarsus sp.	21	3
Tanytarsus sp. A Epler	45	8
Tanytarsus sp. C Epler	161	37
Tanytarsus sp. G Epler	3	–
Tanytarsus sp. J Epler	3	–
Tanytarsus sp. L Epler	50	3
Tanytarsus sp. T Epler	45	5
Thienemanniella similis	5	11
Thienemanniella sp.	8	5
Thienemanniella sp. A Epler	16	3

Thienemanniella xena	11	34
Tribelos sp.	3	–
Ephemeroptera		
Baetidae	3	–
Baetis sp.	–	48
Caenis sp.	21	61
Labiobaetis sp.	5	16
Stenacron floridense	69	16
Stenacron sp.	3	5
Gastropoda		
Ancylidae	8	3
Micromenetus floridensis	–	5
Physella sp.	–	3
Undetermined Gastropoda	–	5
Isopoda		
Anopsilana sp.	–	3
Odonata		
Argia sp.	–	3
Enallagma sp.	–	3
Ischnura sp.	–	3
Oligochaeta		
Nais communis	–	48
Pelecypoda		
Sphaeriidae	3	3
Trichoptera		
Cheumatopsyche sp.	50	1204
Chimarra sp.	–	3
Cyrnellus fraternus	3	–
Hydropsyche sp.	13	164
Hydroptila sp.	–	3
Oxyethira sp.	–	16
Polycentropodidae	–	3
Undetermined Trichoptera	–	13
Trombidiformes		
Atractides sp.	–	8
Hygrobates sp.	5	24
Oribatei sp.	–	11
Undetermined Trombidiformes	–	3

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)

