

Biological Assessment of

Lindrick Services Corp. and the City of New Port Richey Wastewater Treatment Plants

Pasco County

NPDES #FL0032603 (Lindrick)

NPDES #FL0020931 (New Port Richey)

Sampled January 1994

June 1994

Biology Section
Division of Technical Services

Department of Environmental Protection
Results of Fifth Year Inspections

Discharger: Lindrick Services Corp. and New Port Richey WWTP
County: Pasco
NPDES Number: FL0032603 (Lindrick) and FL0020931 (N. Port Richey)
State Permit Expiration Date: 3-8-95 (Lindrick) and 10-31-94 (New Port Richey)

Toxics Sampling Inspection (XSI)

Date Sampled: 10 January 1994

Results: Neither effluent was found to contain organic pollutants. The effluent metals scan detected copper (20 µg/L at Lindrick), iron (29 µg/L at New Port Richey and 21 µg/L at Lindrick), and zinc (24 µg/L at New Port Richey and 21 µg/L at Lindrick). The copper concentrations was in violation of the Class III standard for marine waters, Rule 17-302.530(24) FAC.

Compliance Biomonitoring Inspection (CBI)

Date Sampled: 10 January 1994

Results: The samples of effluent were not acutely toxic to the invertebrate, *Ceriodaphnia dubia*, or to the fish, *Cyprinella leedsi*.

Impact Bioassessment Inspection (IBI)

Date Sampled: 10 and 31 January 1994

Results: While certain macroinvertebrate parameters (taxa richness, diversity) suggested that the test site was not degraded, the loss of some sensitive groups (decapods, isopods) or taxa (*Hargeria rapax*) suggested some disturbance there. It is thought that very low salinity (which stresses marine fauna) was the factor which exerted the most perturbation at both the reference and test sites, thereby potentially masking other effects (*e.g.*, nutrient enrichment from the dischargers). Phytoplankton populations at the test site did not show signs of degradation, except for the increased % dominance. Hydrological factors (*e.g.*, short residence time) are probably responsible for the low chlorophyll *a* at the test site, since nutrients and AGP were extraordinarily elevated there. However, since far field effects were not studied in this bioassessment, it is not currently known whether eutrophication becomes a problem in other areas within the influence of the discharges.

Water Quality Inspection (WQI)

Date Sampled: 10 January 1994

Results: The elevated nutrient concentrations of both effluents (but especially the New Port Richey discharge) had an observed enrichment effect on the marine receiving waters. Extremely high nitrate-nitrite (23 mg/L) in the New Port Richey effluent led to test site concentrations (18 mg/L) that were almost two orders of magnitude higher than those found in 95% of other Florida estuaries. Ortho-phosphate and TKN concentrations were also a problem in both effluents, leading to test site levels which were higher than those found in 95% of other Florida estuaries. Algal growth potential was extraordinarily elevated in both effluents (335.7 and 186.4 mg dry wt/L at New Port Richey and Lindrick, respectively), and at the test site (387.0 mg dry wt/L), greatly surpassing the "problem threshold" of 10 mg dry wt/L for marine waters.

Introduction

The Lindrick Services Corporation Wastewater Treatment Plant and the New Port Richey Wastewater Treatment Plant, are both located in New Port Richey, Florida. The outfalls of these two facilities are within 100 meters of one another, requiring both facilities to be studied during this bioassessment (see maps in Appendix). Lindrick Services Corporation is a 1.0 MGD Type I contact stabilization sewage treatment plant. This effluent is chlorinated, dechlorinated, and then discharged to the Class III waters of Cross Bayou, a marine system which eventually flows into the Gulf of Mexico. The New Port Richey WWTP is a 7.5 MGD extended air sewage treatment plant with odor control, oxidation ditches, and sand filters. Disinfected, dechlorinated effluent is also discharged to Cross Bayou, 100 meters from the Lindrick outfall. During this survey, on 10 January 1994, Lindrick Services Corp. (discharging 0.548 MGD) and New Port Richey (discharging 3.835 MGD) were both operating below design capacity (Peter Burghardt, DEP Southwest District, personal communication).

Permit limits for Lindrick Services Corporation are as follows: TSS (15 mg/L as both an annual and monthly average), BOD_5 (10 mg/L as both an annual and monthly average), fecal coliform bacteria (200 organisms/100 mL annual and monthly average), ammonia (2.0 mg/L as both an annual and monthly average), dissolved oxygen (7.5 mg/L), pH (6.0 - 8.5 SU's), and total residual chlorine (0.01 mg/L maximum at discharge).

New Port Richey WWTP permit limits are as follows: pH (6.0-8.5 SU's), BOD_5 (10 mg/L annual and monthly average), ammonia-nitrogen (2.0 mg/L annual and monthly average), Cl_2 (1.0 mg/L minimum for disinfection, 0.01 mg/L maximum at discharge), dissolved oxygen (7.5 mg/L), TSS (15 mg/L annual and monthly average), and fecal coliform bacteria (200 organisms/100 mL annual and monthly average. Additional permit requirements for the New Port Richey facility include monthly water quality monitoring of the receiving waters and bi-monthly acute toxicity tests.

Level II WQBEL's have previously been performed at both facil-

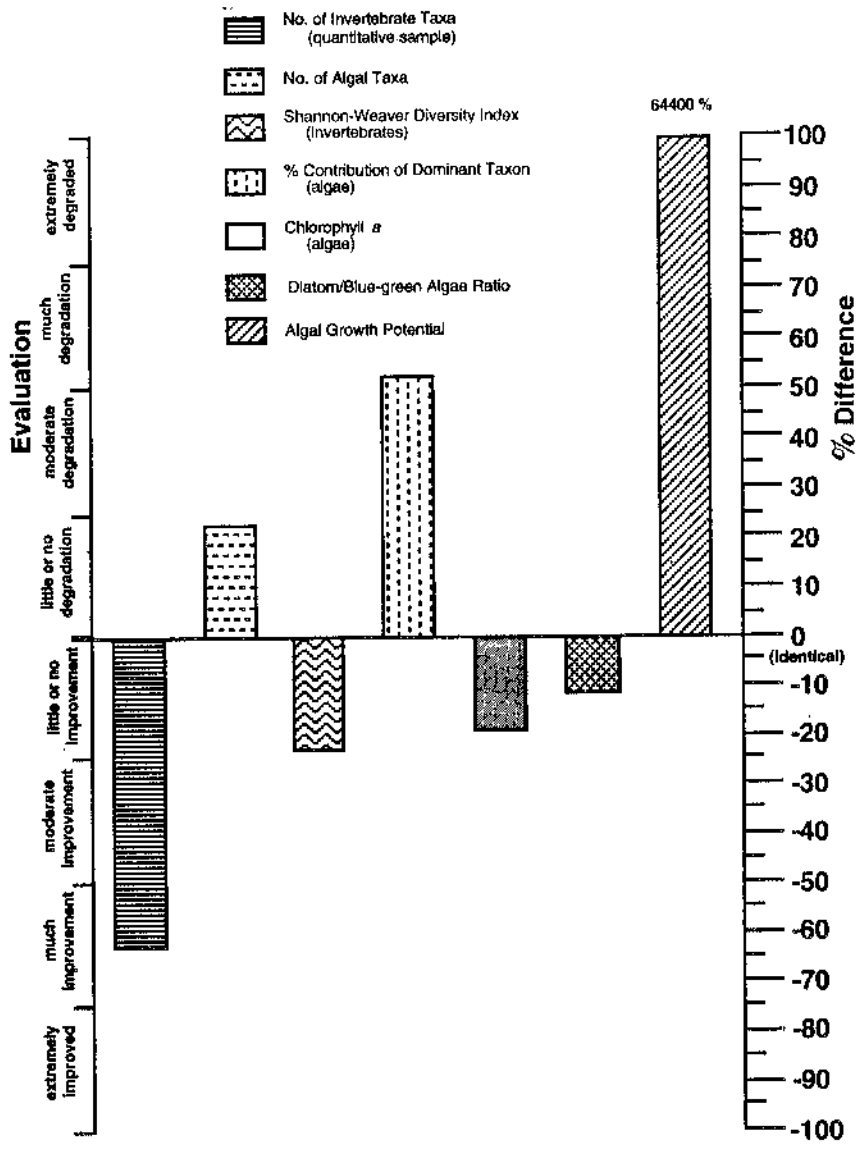
Major characteristics of community structure of control and test sites.

	Boggy Bay Site	Reference Site	Test Site
Macroinvertebrate Ponar			
Number of Taxa	53	8	13
Shannon-Weaver Diversity	4.27	1.85	2.28
% Amphipoda	11.2	4.1	21.8
% Isopoda	1.4	1.4	0.0
% Tanaidacea	0.8	9.5	0.0
% Polychaeta	52.8	83.8	73.7
% Decapoda	0.0	1.4	0.0
% Gastropoda	7.0	0.0	0.0
% Sipuncula	22.9	0.0	0.3
% Oligochaeta	0.6	0.0	3.0
% Other	2.9	0.0	0.9
% Predators/ Carnivores	11.9	11.9	41.8
% Deposit feeders (above surface)/ Collector-Gatherers	37.1	18.5	0.7
% Deposit feeders (below surface)	34.7	56.8	34.9
% Suspension feeders/ Collector-Filterers	9.2	10.7	22.2
% Scavengers	1.4	1.3	0.0
% Scrapers	2.7	0.0	0.0
% Other	3.0	0.08	0.4
Phytoplankton Algae			
Number of Taxa	12	13	10
% Contribution of Dominant Taxon	37.8	32.6	50.0
Chlorophyll a (µg/L)	1.2	4.5	0.9
Diatom/Blue-green Abundance Ratio	.90	.80	.89
% Blue-green	5.4	18.6	4.5
% Green	37.8	4.7	54.5
% Diatoms	51.4	76.7	38.6
% Other	5.4	0.0	2.3
Algal Growth Potential (mg dry wt/L)	0.6	26.6	387.0

ities by the Point Source Evaluation Section. No problems have been reported for the Lindrick Services WWTP. In August, 1991, the New Port Richey effluent was toxic to the water flea, *Ceriodaphnia dubia*, but not to the fish, *Cyprinella leedsi*. The only other problem noted for the New Port Richey WWTP was a failure to report ammonia results for a two week period in September, 1993.

Methods

The focus of this investigation was to determine the dischargers' effects on the receiving waters. A comparison of biological community health was made between a reference site (located in Bishop Creek, near SR 590 and Safety Harbor) and a test site (approximately 500 feet "downstream" of the two discharges, meaning the site receives effluent on an outgoing tide). Additional data are also provided for another reference site (located in Boggy Bay, near the Pithlachascotee River) which was deemed to be inappropriate for comparing with the test site due to differences in salinity. The Boggy Bay reference site was much higher in salinity than was the test site. 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 effluent samples (Weber 1991). The effluents were analyzed for metals and for organic constituents (base neutral and acid extractables, and pesticide extractables). Additionally, nutrient analyses were performed on effluent, reference, and test sites. Methods used for all chemical analyses are on file at the Tallahassee DEP Chemistry Laboratory.



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

Benthic macroinvertebrate communities were evaluated at reference and test sites. Invertebrates were collected via three Ponar grabs per site (Ross 1990). Phytoplankton was sampled at reference and test sites by subsurface grabs. Chlorophyll *a* was also determined for phytoplankton communities (Ross 1990). Bacterial populations were analyzed for total and fecal coliforms following the methods of APHA (1989). Algal Growth Potential tests, using *Selenastrum capricornutum* for the freshwater effluents and *Dunaliella tertiolecta* for the marine receiving water stations, followed Miller *et al.* (1978) and EPA (1974), respectively.

Explanation of Measurements of Community Health

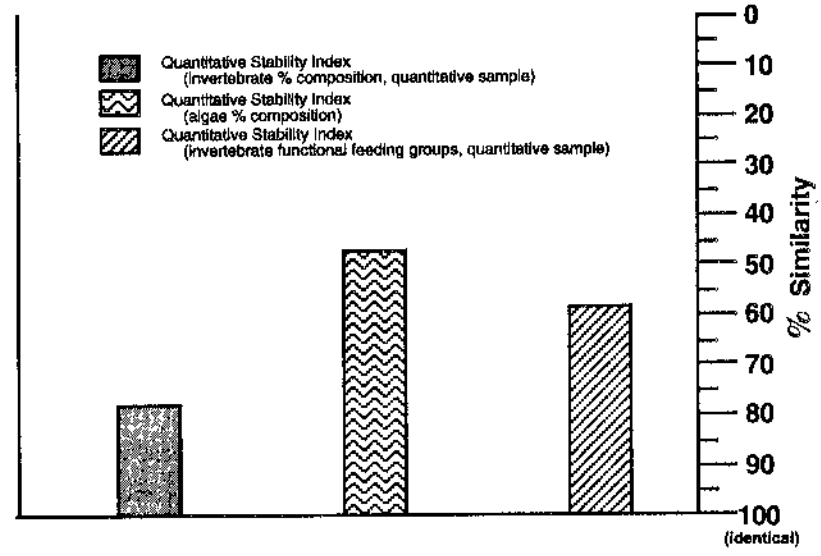
Several different measurements of macroinvertebrate and algal community health have been employed in this report. Many of these, such as the number of taxa, Shannon-Weaver Diversity Index, and chlorophyll *a* are well known. Others are briefly explained here. Excessive numerical dominance of a single type of organism (a high % contribution of dominant taxon) is usually associated with disturbance. A decreased diatom to blue-green algae ratio (calculated by dividing the number of individuals in the Bacillariophyta by the number of individuals in the Bacillariophyta + Cyanophyta) is often indicative of nutrient enriched conditions. The determination of the Quantitative Stability Index (for taxonomic % composition) is a two step process. First, the relative proportions of major taxonomic groups are calculated for each site. Then, the lesser of the two percentages for each discrete taxonomic group is totaled. A QSI (for % composition) of 100% means that the two sites being compared are identical. This same type of procedure is used for calculating the QSI (for functional feeding groups).

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

The following personnel were involved in this investigation: Pat Fricano, Peggy Morgan, Jim Snitgen, and Lisa Carter, (DEP Southwest District) and Lyn Burton, Marshall Faircloth, Russel Frydenborg, Kathleen Lurding, Tina Mikulski, Ed Miller, Liz Miller, Kim Pearce, Tobin Rader, Landon Ross, Jack Taylor, David Whiting, and David Young (Tallahassee Biology Laboratory). The report was reviewed by the Point Source Studies Review Committee, consisting of Wayne Magley, Jan Mandrup-Poulsen, and Michael Tanski, as well as District representatives.

Results and Discussion

The study sites were situated in fairly wide tidal creeks bordered by scrubby mangroves and coastal marsh. Habitat scores were similar at all stations (75 points at Boggy Bay, 70 points at the Bishop Creek reference site, and 66 points at the test site). Salinity was relatively high for a near shore estuary at Boggy Bay (18 ppt), while the Bishop Creek reference site and the test site were low in salinity (approximately 0.8 ppt and 1.6 ppt, respectively). As mentioned earlier, the Bishop Creek reference site will be used to compare with the test site. The data from the higher salinity Boggy Bay station are presented here for the sake of interest. Land use in the area was predominantly residential and commercial/industrial. The sites were similar in substrate composition (mud/sand/silt at all three sites), and secchi depth (between 0.5 m and 1.0 m). Temperature was slightly warmer at the test site (19.4°C) than at Boggy Bay (16.6 °C) or the reference site (18.5 °C). Dissolved oxygen was adequate to support life at all stations, varying from 9.7 mg/L at Boggy Bay, to 8.5 mg/L at the reference site, to 8.1 mg/L at the test site). Boggy Bay had a higher pH (8.1 SU), than did the reference



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

site (7.4 SU) or the test site (7.2 SU).

Neither effluent was found to contain organic pollutants. The effluent metals scan detected copper (20 µg/L at Lindrick), iron (29 µg/L at New Port Richey and 21 µg/L at Lindrick), and zinc (24 µg/L at New Port Richey and 21 µg/L at Lindrick). The copper concentration in the Lindrick effluent was in violation of the Class III standard for marine waters, Rule 17-302.530(24) FAC.

Neither sample of effluent was acutely toxic to the invertebrate, *Ceriodaphnia dubia*, or to the fish *Cyprinella leedsi*.

TSS measured in the effluent at both sites (1 mg/L at New Port Richey and 2 mg/L at Lindrick) was within permitted limits. Similarly, BOD_5 measured in both effluents (3 mg/L at New Port Richey and 2 mg/L at Lindrick) was also within permit limits. Total and fecal coliforms were relatively low in both effluents and at the study sites, and were within Class III standards (see Chemistry Summary Table for details).

The elevated nutrient concentrations of both effluents (but especially the New Port Richey discharge) had an observed enrichment effect on the marine receiving waters. Extremely high nitrate-nitrite (23 mg/L) in the New Port Richey effluent led to test site concentrations (18 mg/L) that were almost two orders of magnitude higher than those found in 95% of other Florida estuaries (see list of typical water quality values in Appendix). This elevated nitrate-nitrite at the test site was most directly related to the New Port Richey discharge, although nitrate-nitrite in the Lindrick effluent was also somewhat elevated (1.5 mg/L). Ortho-phosphate concentrations were also a problem in both effluents (1.6 in New Port Richey and 2.1 mg/L in Lindrick), causing the ortho-phosphate concentrations at the test site (1.6 mg/L) to be higher than those found in 95% of other Florida estuaries. Similarly, TKN (1.0 in New Port Richey and 1.5 mg/L in Lindrick) contributed to test site TKN levels (1.5 mg/L) which were higher than 95% of those found in other estuaries. Ammonia at the test site (0.14 mg/L) was higher than that found in 75% of other Florida estuaries.

Algal growth potential was extraordinarily elevated at the test site (387.0 mg dry wt/L), greatly surpassing the "problem threshold" of 10 mg dry wt/L for marine waters (Ron Raschke, USEPA, personal communication). AGP in the New Pt. Richey and Lindrick effluents were 335.7 mg dry wt/L and 186.4 mg dry wt/L, respectively. AGP measured at the Bishop Creek reference site (26.6 mg dry wt/L) suggested inputs from non-point sources, since it exceeded the "problem threshold" as well. The Bishop Creek site was located in a high density residential area of Pinellas County. AGP at the Boggy Bay site was 0.6 mg dry wt/L.

Quantitative measures of benthic macroinvertebrate community health suggested that salinity regime of the test site may have partially masked the effects of nutrient enrichment from the dischargers. The figure on page 2 indicates the degree of difference between the reference and test sites. Larger differences (that is higher percentages) correspond with greater degrees of degradation. Negative values mean that the test site is better than the reference. The figure on page 3 summarizes similarities between the sites. Smaller similarities (lower percentages) generally correspond with greater degradation.

Taxa richness was lower at the reference site (8 taxa) than at the test site (13 taxa). Similarly, Shannon-Weaver diversity was lower at the Bishop Creek reference site (1.9) than at the test site (2.3). While polychaetes comprised greater than 73% of the total population at both sites, there were some differences in community structure worth mentioning. For example, while 9.5% of the reference site consisted of tanaiids, none of these relatively sensitive organisms were found at the test site. Similarly, other sensitive groups found at the reference site, such as decapods and isopods, were completely eliminated at the test site. The dominant taxa found at the reference site included *Capitella capitata, Hargeria rapax,* and *Nereis succinea.* Of these dominants, the polychaetes are considered pollution tolerant, while *Hargeria rapax* is known to be somewhat pollution sensitive. *Capitella capitata, Streblospio benedicti, Corophium louisianum,* and *Kinberginereis* sp. were most numerous at the test site. *Capitella capitata* and *Streblospio benedicti* are known to be tolerant of organically enriched wastes, but *Corophium* is considered somewhat sensitive (Farrell 1992). In summary, while some parameters (taxa richness, diversity) suggested that the test site was not degraded, the loss of some sensitive groups or taxa suggested some disturbance there. It is thought that very low salinity (which stresses marine fauna) was the factor which exerted the most perturbation at both the reference

and test sites, thereby potentially masking other effects (*e.g.*, nutrient enrichment from the dischargers). It should be noted that the salinity at the test site would not have been as low were it not for the freshwater inputs from the dischargers

Not unexpectedly, taxa richness was substantially better at the high salinity Boggy Bay site (with 53 taxa) compared with the low salinity sites. The diversity at Boggy Bay site (4.3) was again much higher than that of the low salinity sites. This suggests that at least in this particular case, low salinity may exert a greater influence on the biota than other constituents of the effluents. Sipunculids, which made up 23% of the Boggy Bay site biota, were rare or eliminated at the low salinity sites. The most abundant taxa at the Boggy Bay reference site were an undetermined sipunculid, *Amphicteis scaphobranchiata, Capitella capitata, Glycinde solitaria, Streblospio benedicti, Grandideriella bonnieroides,* and *Cerithium* sp. Of these dominant taxa, sipunculids and *Cerithium* sp. are somewhat pollution sensitive. However, many other pollution sensitive taxa were found at the Boggy Bay site in lesser numbers, including *Ampelisca* sp., *Melita* sp., *Taphromysis bowmani, Ceratonereis mirabilis, Leitoscoloplos fragilis,* and *Prionospio heterobranchia* (Farrell 1992).

Phytoplankton taxa richness was slightly higher in the Bishop Creek reference site (with 13 taxa) than at the test site (10 taxa). The % contribution of dominant taxon at the test site (50% of the population being *Selenastrum* sp.) was slightly higher than at the reference site (32% *Nitzschia* sp.). Very little difference in the diatom/bluegreen ratio was seen between sites, varying from 0.8 at the reference site to 0.89 at the test site. Chlorophyll *a* was lower at the test site (0.94 µg/L) when compared to the reference site (4.6 µg/L). Hydrological factors (*e.g.*, short residence time) are probably responsible for the low chlorophyll *a* at the test site, since nutrients and AGP were extraordinarily elevated there. However, since far field effects were not studied in this bioassessment, it is not currently known whether eutrophication becomes a problem in other areas within the influence of the discharges.

Conclusions

The effluent samples were not acutely toxic to the invertebrate, *Ceriodaphnia dubia,* or to the fish, *Cyprinella leedsi.*

TSS and BOD_5 measured in the effluents were within permit limits. Total and fecal coliform bacteria measured in both effluents and at the test site were all within Class III standards.

Neither effluent was found to contain organic pollutants. The effluent metals scan detected copper (20 µg/L at Lindrick), iron (29 µg/L at New Port Richey and 21 µg/L at Lindrick), and zinc (24 µg/L at New Port Richey and 21 µg/L at Lindrick). The copper concentrations was in violation of the Class III standard for marine waters, Rule 17-302.530(24) FAC

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Algal growth potential was extraordinarily elevated at the test site (387.0 mg dry wt/L), greatly surpassing the "problem threshold" of 10 mg dry wt/L for marine waters. AGP in the New Pt. Richey and Lindrick effluents was 335.7 mg dry wt/L and 186.4 mg dry wt/L, respectively. AGP measured at the Bishop Creek reference site (26.6 mg dry wt/L) suggested inputs from non-point sources, since it exceeded the "problem threshold" as well. The Bishop Creek site was located in a high density residential area of Pinellas County. AGP at the Boggy Bay site was 0.6 mg dry wt/L.

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Phytoplankton populations at the test site did not show signs of degradation, except for the increased percent dominance. Hydrological factors (*e.g.*, short water residence time) are probably responsible for the low chlorophyll *a* at the test site, since nutrients and AGP were extraordinarily elevated there. However, since far field effects were not studied during this bioassessment, it is not currently known whether eutrophication becomes a problem in other areas within the influence of the discharges.

Literature Cited

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

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Chemistry summary table for Lindrick Services Co. and New Port Richey WWTP.	New Port Richey Effluent	Lindrick Effluent	Boggy Bay Site	Bishop Ck. Reference Site	Test Site
Organic Constituents (ug/L)					
None Detected					
Metals (ug/L)					
Aluminum	100 U	107 I			
Arsenic	20 U	20 U			
Antimony	0.08 U	0.34 I			
Cadmium	79.7	102			
Copper	5 U	20			
Chromium	10 U	10 U			
Iron	29	21			
Lead	15 U	15 U			
Mercury	0.10 U	0.10 U			
Nickel	5 U	5 U			
Selenium	40 U	40 U			
Silver	0.05 U	0.05 U			
Zinc	24	21			
Nutrients (mg/L)					
Ortho-phosphate	1.6 A	2.1	0.020 U	0.14 A	1.6
Total phosphate	1.6	2.3	0.020 U	0.16 A	1.5
Ammonia	0.027 I	0.36	0.034 I	0.12	0.14 A
Nitrate+Nitrite	23	1.5	0.020 U	0.24	18
TKN	1.0	1.5	0.56	0.76 A	1.5
Other Parameters					
Habitat Assessment			75	70	66
D.O. (mg/L)	8.8	7.7	9.7	8.5	8.1
pH (SU's)	7.1	7.0	8.1	7.4	7.2
Salinity /Conductivity (ppt & µmhos/cm)	1098 µmhos	419 µmhos	18 ppt	1100 µmhos	4700 µmhos
Temperature (°C)	20.1	20.8	16.6	18.5	19.4
Algal Growth Potential (mg dry wt/L)	335.7	186.4	0.60	26.6	387.0
Bioassay Invertebrate-Dechlorinated	Not toxic	Not toxic			
Bioassay Fish-Dechlorinated	Not toxic	Not toxic			
BOD5	3	2 K			
TSS	1	2			
Fecal coliform (org/100 mL)	4 K	4 J	8 J	120 K	40 J
Total coliform (org/100 mL)	44 J	12 J	12 J		112

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

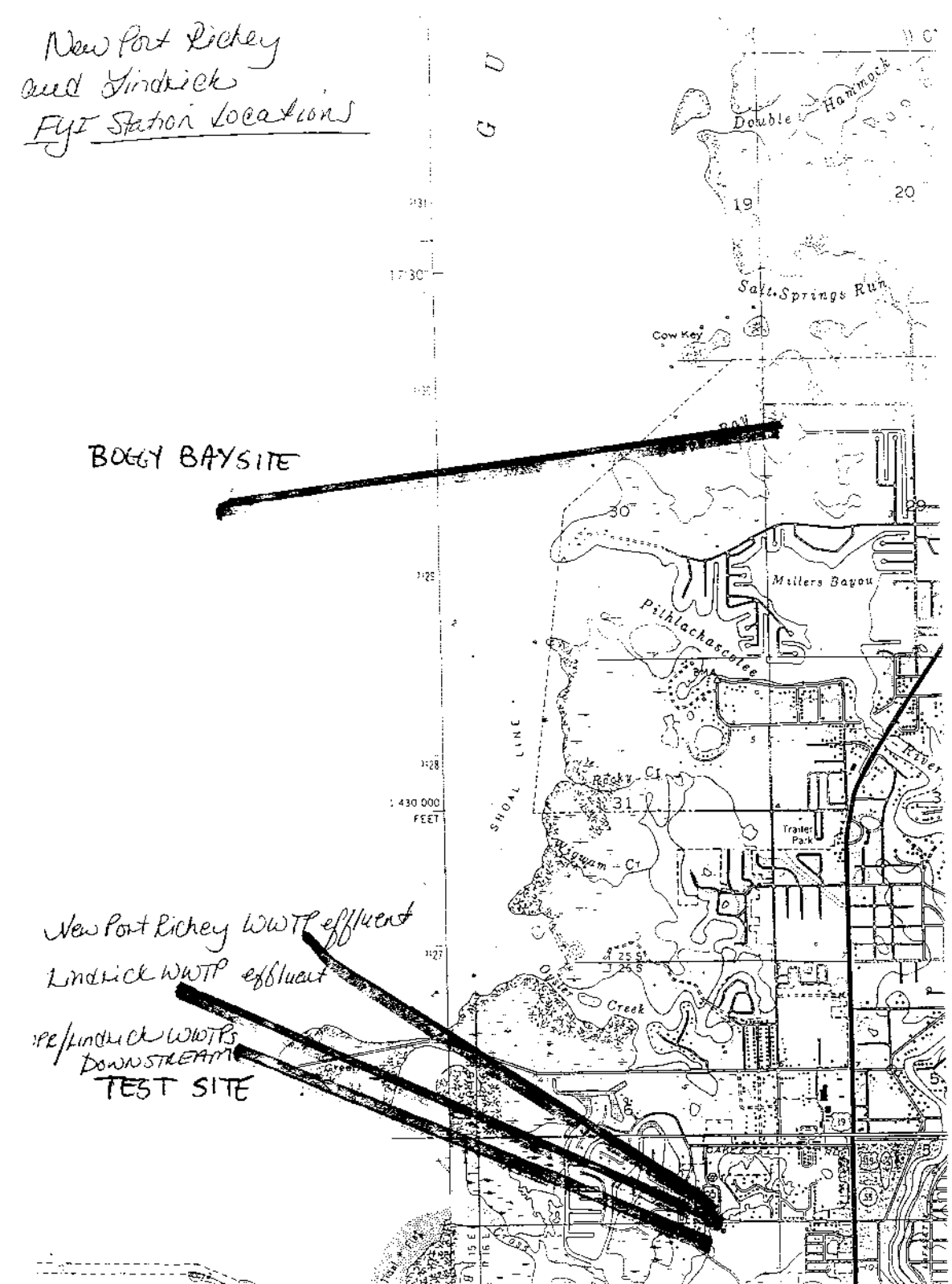
J - Estimated value

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

K - Actual value is known to be less than value given

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

New Port Richey and Lindrick FYI Station Locations

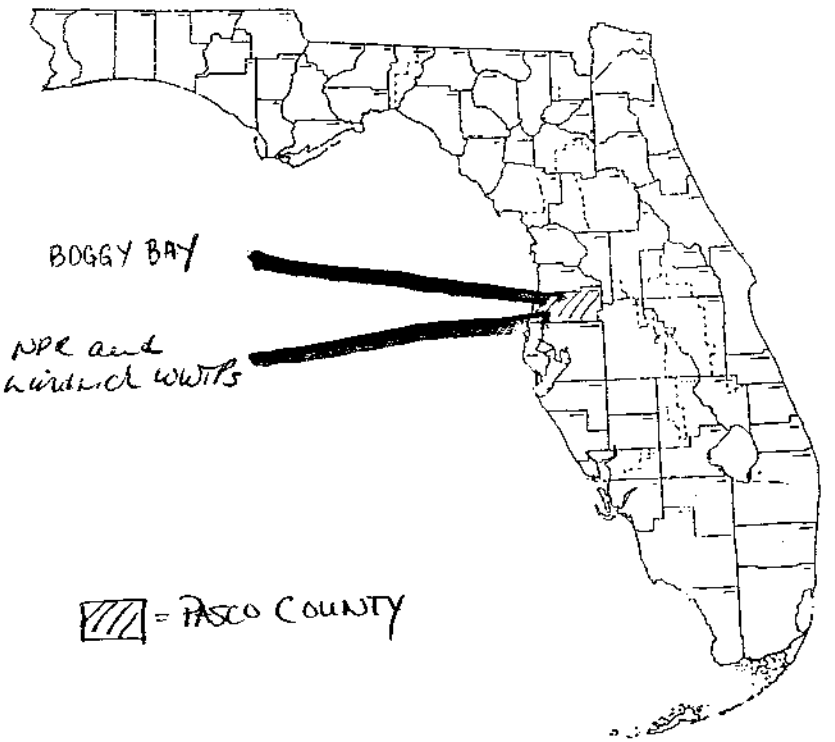


BOGGY BAYSITE

New Port Richey WWTP effluent

Lindrick WWTP effluent

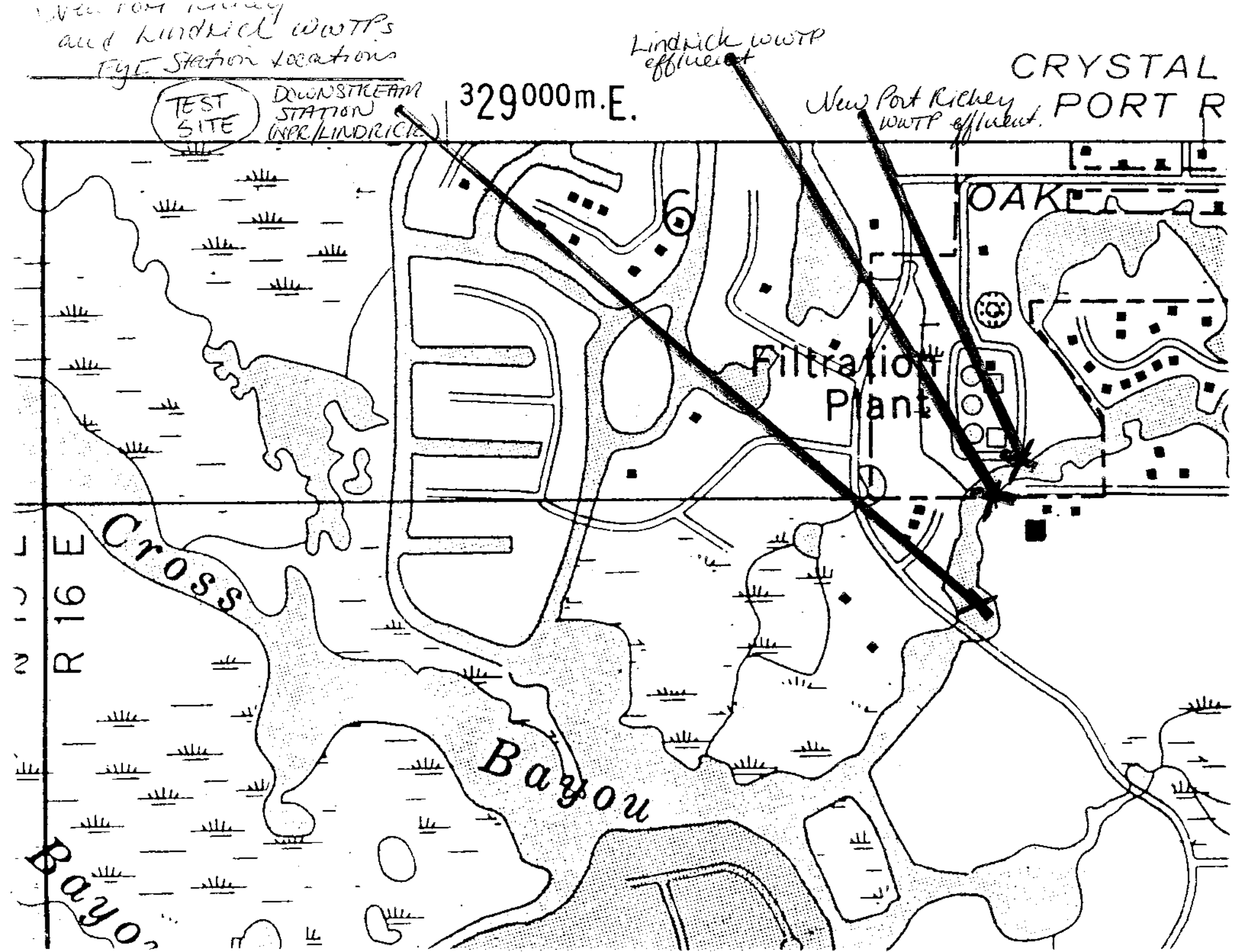
NPR/Lindrick WWTPs DOWNSTREAM TEST SITE



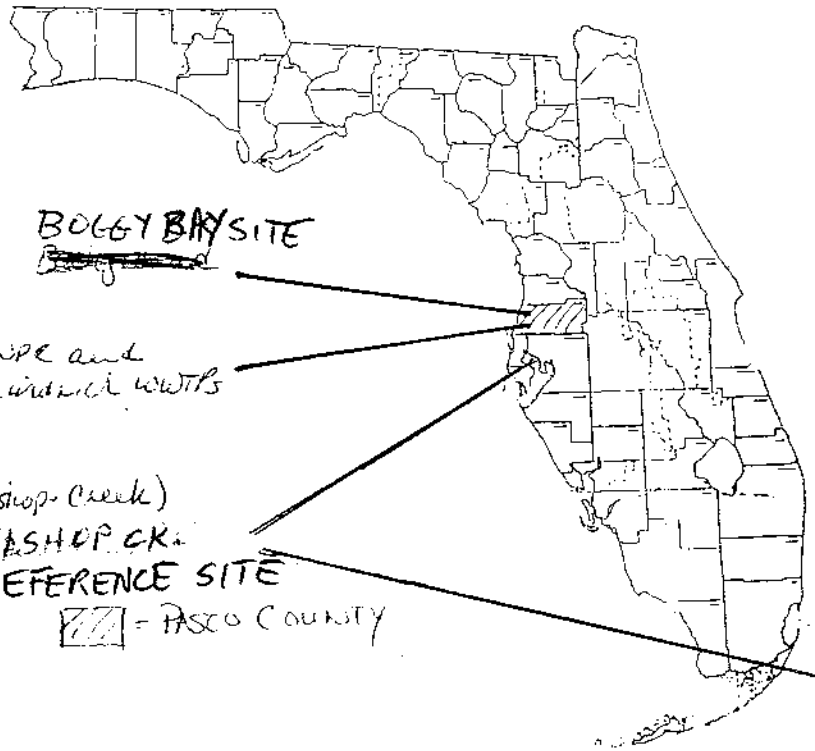
BOGGY BAY

NPR and Lindrick WWTPs

= PASCO COUNTY


and LINDRICK WWTP's
Eye Station locations
TEST SITE
DOWNSTREAM STATION (NPR/LINDRICK)
329000m.E.
Lindrick WWTP effluent
New Port Richey WWTP effluent
CRYSTAL
PORT R
OAK
Filtration Plant
R 16 E
Cross Bayou
Bayou

SITE LOCATIONS for
Newport Richey / Lindrick Units,
Background and Background II

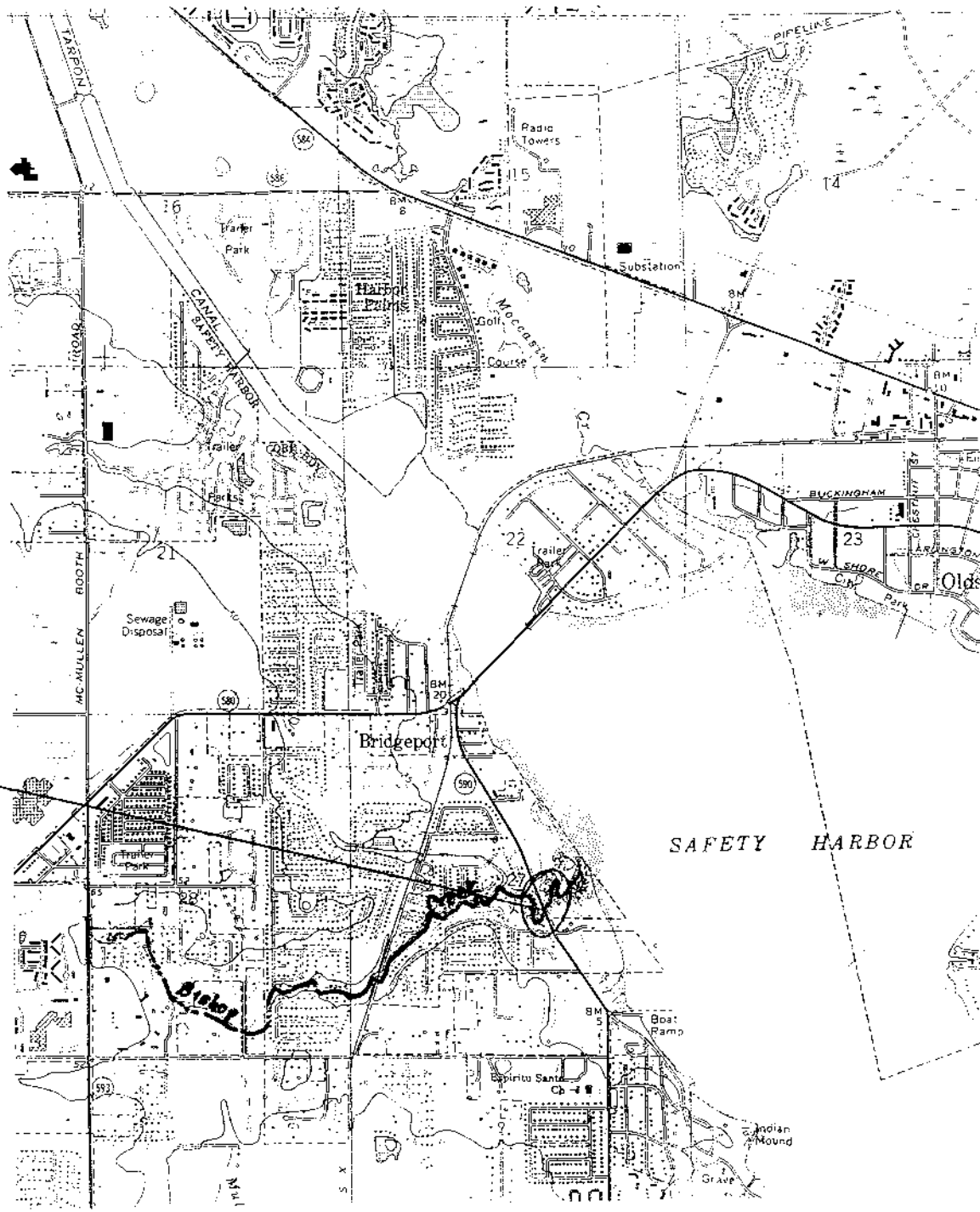


BOGGY BAY SITE

NPR and Lindrick Units

(Bishop Creek)
BASHOP CK.
REFERENCE SITE

= PASCO COUNTY



STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION
FACILITY SUMMARY

Facility Name: Lindrick Service Corp.		Date Summary Prepared: 1/7/94
Location (attach detailed map):	County: PASCO	District: Southwest
Federal Permit # and expiration date: FL00 32603 6/30/98	State GMS # and State expiration date: 51 P00348 3/8/95	Facility Type: Industrial Municipal Federal Agricultural Other (list): Private Domestic Wastewater

Function of facility:
Treat Domestic Wastewater

Description of treatment process:

Operation of a 1.0 MGD Type I contact stabilization sewage treatment plant with chlorinated effluent to a canal, then to Cross Bayou.

Receiving waters: CROSS BAYOU / Salt marsh	Classification: I II (III) Marine	
Design Flow: 1.0 MGD	Mean Flow:	Flow during survey:

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

therefore, the best time to sample is: 16 hr composite

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

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

Parameter	Limit (units)
See Attached Permit	See Attached Permit

Describe special permit conditions and permit modifications:
See Attached Permit

Lindrick
(Facility)

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION
FACILITY SUMMARY

Description of permitted outfall(s):

One submerged outfall to Cross Bayou

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

OK

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

A level II WQBEL was previously performed on both this facility and New Port Richey by the PSES (Point Source Evaluation Section)

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

Additional Information:

This permitted outfall is within throwing distance of the New Port Richey WWTP outfall.

Staff contributing to this review (signature):

	(Biologist)
	(Inspector)
	(Engineer)
	( )
	( )
	( )

Florida Department of Environmental Regulation

Southwest District • 4520 Oak Fair Boulevard • Tampa, Florida 33610-7347 • 813-623-5561

Bob Martinez, Governor Dale Twachtmann, Secretary John Shearer, Assistant Secretary
Dr. Richard Garrity, Deputy Assistant Secretary

PERMITTEE
Lindrick Service Corporation
P. O. Box 1176
New Port Richey, FL 34656-1176

Attn: Mr. Joseph R. Borda
President

PERMIT/CERTIFICATION
GMS ID No: 51P00348
Permit No: DO51-176154
Date of Issue: 6/5/90
Expiration Date: 3/8/95
County: Pasco
Lat/Long: 28°14'42"
82°44'20"
Sec/Town/Range: 07/26S/16E
Project: Lindrick WWTP

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Rule(s) 17-3, 17-4 and 17-6. 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 department and made a part hereof and specifically described as follows:

Operation of a 1.0 MGD Type I contact stabilization sewage treatment plant with chlorinated effluent to a canal, then to Cross Bayou.

Location: South Road, West of U.S. 19, New Port Richey, Florida

Replaces Permit No.: DO51-091434 Expired: 3/8/90

Recycled Paper

PERMITTEE
LINDRICK SERVICE CORPORATION
LINDRICK WWTP

GMS ID NO.: 51P00348
PERMIT NO.: DO51-176154

SPECIFIC CONDITIONS:

1. In accordance with Chapter 17-602 F.A.C., the required certified operator on site time is: a Class C or better operator for 6 hours a day, 5 days a week and a weekend visit.

2. The discharge from the chlorine contact chamber shall be sampled in accordance with Chapter 17-19 F.A.C. and shall meet the following limitations:

Parameter	Unit	Min-imum	Maximum	Type Sample	Frequency
Total Suspended Solids	mg/l	0	15 monthly avg. 15 annual avg..	16 hour composite	Weekly
BOD_5			10 monthly avg. 10 annual avg.	16 hour composite	Weekly
Fecal coliform	#/100	0	200 annual avg. 200 monthly avg.	grab	Weekly
NH_3-N	mg/l	0	2.0 monthly avg. 2.0 monthly avg.	16 hour composite	Weekly
Flow	mgd	.000	1.0		Daily/7 days/wk
pH	STD UN	6.00	8.50	grab	Daily/7 days/wk
Dissolved Oxygen	mg/l	7.5	n/a	grab	Daily/7 days/wk
Total Residual Chlorine (TRC)	mg/l	0.00	0.01*	meter	Daily/7 days/wk

* This condition shall be met by February 1, 1991.

The results shall be reported monthly on DER Form 17-1.205(7).

3. The sludge shall be sampled after final treatment in accordance with 17-7.540(2)(e) F.A.C. but prior to land application for the parameters listed below every 3 months. A copy of the analyses shall be submitted with the monthly operation report for the following parameters:

Total Nitrogen - % dry weight
Total Phosphorus - % dry weight
Total Potassium - % dry weight
Cadmium - mg/kg dry weight
Copper - mg/kg dry weight
Lead - mg/kg dry weight
Nickel- mg/kg dry weight
Zinc - mg/kg dry weight
pH - standard units
Total Solids - %

SPECIFIC CONDITIONS (con't):

4. If historical or archaeological artifacts, such as Indian canoes, are discovered at any time within the project site the permittee shall immediately notify the district office and the Bureau of Historic Preservation, Division of Archives, History and Records Management, R. A. Gray Building, Tallahassee, Florida 32301, Telephone number (904) 487-2073.

5. The permittee shall maintain an on/site log book to monitor the daily activities of the certified operator. This log book shall record sign in/out times of the certified operator, list any maintenance performed and contain the signature and certification number of the operator.

6. The permittee shall maintain all audible and visual alarm systems on the lift station(s) in operating condition at all times.

7. Back flow preventers shall be installed on all potable water supplies at the treatment facility.

8. Prior to sixty days before the expiration of this permit, the permittee shall apply for a renewal of the permit on forms and in a manner prescribed by the Department of Environmental Regulation.

9. Daily checks of the plant shall be performed by the permittee, or supplier, or his representative or agent five (5) days per week for all Class C and D plants pursuant to Chapter 17-602.375(1), F.A.C.

10. The mixing zone shall extend 0.23 mile upstream and 0.27 mile downstream of the point of discharge into Cross Bayou.

11. The results of all tests and correspondence required by the NPDES permit, such as toxicity testing, shall be submitted to the FDER.

12. The permittee shall be aware of and operate under the attached "General Permit Conditions #1 thru #15". General Permit Conditions are binding upon the permittee and enforceable pursuant to Chapter 403 of the Florida Statutes.

STATE OF FLORIDA DEPARTMENT OF
ENVIRONMENTAL REGULATION

Richard D. Garrity, Ph.D.
Deputy Assistant Secretary

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION
FACILITY SUMMARY

Facility Name: City of New Port Richey	Date Summary Prepared: 1/7/94	
Location (attach detailed map):	County: PASCO	District: Southwest
Federal Permit # and expiration date: FL0020931	State GMS # and 4057M01276 State expiration date: Permit # D057-215119 exp. 10/31/94	Facility Type: Industrial (Municipal) Federal Agricultural Other (list): Domestic Wastewater

Function of facility: Sewage Treatment Plant

Description of treatment process: Operation of a 7.5 MGD Type I extended Air Sewage treatment plant with odor control at the Headworks, oxidation Ditches and Sand Filters. High Level disinfection dechlorinated effluent discharge to Cross Bayou, then to Gulf of Mexico

Receiving waters: Cross Bayou / Gulf of Mexico	Classification: I II (III) Marine	
Design Flow: 7.5 MGD	Mean Flow:	Flow during survey:

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

therefore, the best time to sample is: 24 hr. Flow Proportioned Composite

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

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

Parameter	Limit (units)
See attached Permit	See Attached Permit

Describe special permit conditions and permit modifications:
See Attached Permit

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION
FACILITY SUMMARY

(Facility)

Description of permitted outfall(s):

1 Outfall to Cross Bayou

List permit violations (from MOR data or other source) and plant upsets that occurred within past year:
Sept 1993 No Daily NH_3 Reports for 14 Days During Lab. Change + Turnover.

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

A level II WQBEL was previously performed for this facility and the Lindrick WWTP, by the Point Source Evaluation Section.

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

Additional information:

Staff contributing to this review (signature):

(Biologist)

(Inspector)

(Engineer)

( )

( )

( )

Facility Information Sheet

to provide information in writing bioassay reports

Facility Name: New Port Richey WWTP

(as found on the permit)

NPDES permit #: FL00 20931

Facility Location: (road) 1123 W. Main Street

(city) New Port Richey, FL

(county) Pasco

Receiving Water: Cross Bayou - then Gulf of Mexico

Chlorination Type of Sample: ___ Chlorinated
___ Sample collected after dechlorination
___ Non-chlorinated

Design Flow and/or Average Flow: (CIRCLE ONE) 7.5 MGD

Type of Facility: Type I Domestic Wastewater Treatment Plant

Type of Treatment that Wastewater Receives Prior to Discharge:

Extended air sewage treatment plant with odor control at the headworks, oxidation ditches and sand filters, with high-level disinfected, dechlorinated effluent.

Additional Comments:

prepared by Pat Fricano

Florida Department of Environmental Regulation

Southwest District 3804 Coconut Palm Tampa, Florida 33619

Lawton Chiles, Governor 813-744-6100 Carol M. Browner, Secretary

PERMITTEE:
Mr. Thomas P. O'Neill
Public Works Director
City of New Port Richey
4730 Main Street
New Port Richey, FL 34652
and
Mr. Douglas S. Bramlett
Assistant County Administrator
Utilities
Pasco County Utilities Department
7536 State Street
New Port Richey, FL 34654

PERMIT/CERTIFICATION
GMS ID No: 4051M01276
Permit No: DO51-215119
Date of Issue: 02-25-93
Expiration Date: 10-31-94
County: Pasco
Lat/Long: 28°14'50"
82°44'11"
Sec/Town/Range: 6/28S/16E
Project: New Port Richey WWTP,
City of
NPDES Permit No. FL0020931
Processor: J.A. Amato, P.E.

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Rule(s) 17-3, 17-4 and 17-600 Series. 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:

Operation of a 7.5 MGD Type I extended air sewage treatment plant with odor control at the headworks, oxidation ditches and sand filters, with high-level disinfected dechlorinated effluent discharge to Cross Bayou, then to the Gulf of Mexico.

Location: 1123 W. Main Street, New Port Richey, Florida

Replaces Permit No. DC51-174925B Expired: 10-31-92

Recycled Paper
Printed with Soy Based Ink

PERMITTEE: City of New Port Richey
PERMIT NO: DO51-215119

SPECIFIC CONDITIONS:

1. Drawings, plans, documents or specifications submitted by the permittee, not attached hereto, but retained on file at the Southwest District Office, are made a part hereof.

2. The zone of discharge boundary shall extend horizontally 100 feet from the site boundary or to the installation's property boundary, whichever is less, and vertically to the base of the shallow water table aquifer. (Rule 17-522.600, F.A.C.)

3. The water quality standards for Class G-II ground water shall not be exceeded at the boundary of the zone of discharge. (Rule 17-3.402, Rule 17-3.404, F.A.C.)

4. In accordance with Chapter 17-699, F.A.C., the required certified operator on site time is: Staffing by a Class C or higher operator: 24 hours/day for 7 days/week. The lead/chief operator must be Class A.

5. The discharge from the chlorine contact chamber shall be sampled in accordance with Chapter 17-601, F.A.C. and shall meet the following limitations:

Parameter	Unit	Minimum	Maximum	Type Sample	Frequency
Permitted Capacity (flow)	mgd	.000	7.5	rfm&t*	Continuous
pH	STD UN	6.00	8.50	meter***	Continuous
BOD5	mg/L	0	10 ann./mon.avg.	fpc**	Daily 7/wk
NH_3-N	mg/L	0	2.0 " "	fpc**	Daily 7/wk
CL_2 (before dechlor)	mg/L	1.0	-	meter***	Continuous
CL_2 (before discharge)	mg/L	-	0.01	grab	Hourly; 24 hrs/day
DO	mg/L	7.5	-	meter***	Continuous
Total Suspended Solids	mg/L	-	15 ann./mon.avg.	fpc**	Daily 7/wk
Fecal coliform	#/100	non-detectable	200 " "	grab	Daily 7/wk

Influent shall be monitored and reported weekly [Rule 17-601.300(1) F.A.C.]

The results shall be reported monthly on DER Form 17-601.900(1).

*rfm&t - recording flow meter & totalizer

**fpc - flow-proportioned composite (24hours)

***meter - hourly measurements for each of 24 hours may be substituted for continuous measurement

SPECIFIC CONDITIONS: (cont'd)

6. The sludge shall be sampled after final treatment in accordance with Rule 17-640.700(1)(b) F.A.C. but prior to land application for the parameters listed below every 3 months. A copy of the analyses shall be submitted with the monthly operation report for the following parameters:

Total Nitrogen -	% dry weight
Total Phosphorus -	% dry weight
Total Potassium -	% dry weight
Cadmium - mg/kg	dry weight
Copper - mg/kg	dry weight
Lead - mg/kg	dry weight
Nickel- mg/kg	dry weight
Zinc - mg/kg	dry weight
pH -	standard units
Total Solids -	%

7. If historical or archaeological artifacts, such as Indian canoes, are discovered at any time within the project site, the permittee shall notify the DER Southwest District office and the Bureau of Historic Preservation, Division of Archives, History and Records Management, R.A. Gray Building, Tallahassee, Florida 32301, telephone number (904) 487-2073.

8. The domestic wastewater residuals for this facility are classified as stabilization Class B.

a. The domestic wastewater residuals shall be land applied only at Milo Thomas Property #1 & 2, Lat-28°22'30", Long-82°30'30" and Lat-28°12'30", Long-82°29'30" respectively, STR=21,27,28/24S/18E, (as identified in the agricultural site plan or dedicated site plan submitted with the application). Applied acreage is on 177 of 687 totals acres.

b. Annual update reports, summaries, and revised agricultural site plans are due not later than one year from the issuance of the permit. The reports shall be submitted annually thereafter, and not later than this anniversary date to the Department and the Local Program (if applicable).

c. The permittee shall comply with all provisions of Chapter 17-640, F.A.C. and shall report any non-compliance or changes from the approved site plan to the Department and Local Program (if applicable).

SPECIFIC CONDITIONS: (cont'd)

9. The permittee shall provide an approved flow measurement device on the sewage treatment plant to monitor the influent (ahead of any return flows) and/or effluent flow, as appropriate. Flow measurement shall be with a flow meter equipped with a recorder and an integrator or totalizer. The flow measurement device shall be calibrated at least annually, with evidence of calibration kept at the site of flow measurement, and submitted to the Department upon request.

10. The permittee shall provide a weatherproof location for an on/site log book to monitor the daily activities of the certified operator. This log book shall record sign in/out times of the certified operator, list any maintenance performed and contain the signature and certification number of the operator.

11. The permittee shall maintain all audible and visual alarm systems on the lift station(s) in operating condition at all times.

12. A reduced pressure zone backflow preventer shall be installed on any potable water supply to the treatment facility. No potable water outlet intended for human contact shall be located down-line of the backflow preventer.

13. The disinfection system shall be operated to maintain a minimum chlorine residual of 1.0 mg/L at the outfall from the chlorine contact chamber and prior to dechlorination. A metering device for dosing chlorine to the effluent shall be utilized and the chlorine supply tank shall be inspected regularly to ensure proper operation.

14. Prior to sixty days before the expiration of this permit, the permittee shall apply for an extension of the permit on forms and in a manner prescribed by the Department of Environmental Regulation.

15. The permittee shall ensure that the operation of this facility shall be as described in the application and supporting documents. Any change to this permit, shall be submitted in writing to the Domestic Wastewater Program Manager for review and clearance prior to implementation. Changes of negligible impact to the environment and staff time will be reviewed by the Program Manager, cleared when appropriate and incorporated into this permit. Changes or modifications other than those described above will require submission of a completed application and appropriate processing fee as per Section 17-4.050, F.A.C.

SPECIFIC CONDITIONS: (cont'd)

16. a. Within thirty (30) days of the date of issuance of this permit, the permittee shall submit a draft plan of study for a monthly ambient monitoring program to the Department. The study shall include a QA/QC plan in accordance with Chapter 17-160, F.A.C. Upon approval by FDER, the program shall be implemented by the permittee; this date of commencement shall be within ninety (90) days of the date of permit issuance. The plan shall be subject to modification by the Department.

b. The permittee shall then perform this ambient monthly monitoring program in the receiving waters (Cross Bayou) on a monthly basis for a period of time terminating not less than sixty (60) days prior to the expiration date of this permit.

c. A report containing the sampled data shall be submitted to FDER, Southwest District on a monthly schedule, outlining the results of the monitoring program. A summary report containing conclusions and recommendations shall be submitted with the request for extension or renewal of the operation permit. This permit may be extended for a period of up to three (3) additional years provided the permittee complies with all the conditions and requirements of this permit, and satisfactorily demonstrates minimal negative impact to the quality of the receiving waters.

18. a. The permittee shall initiate a series of bioassay tests, as described below, within sixty (60) days of the effective date of this permit, to evaluate whole effluent toxicity of the discharge. All test species, procedures, and quality assurance criteria used shall be in accordance with Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms, EPA/600/4-90/27. The permittee shall conduct 96 hour static renewal acute toxicity screening tests on the test species, Ceriodaphnia dubia and Notropis Leedsi, once every two months (bi-monthly) on samples of 100% whole effluent. Such Static renewal screening tests will be conducted on four separate grab samples of 100% final effluent collected at evenly spaced (6-hour) intervals over a 24-hour period and used in four separate tests in order to account for daily variations in effluent quality. A standard reference toxicant test shall be conducted concurrently with each species used in the toxicity test and all the test reports shall be submitted along with the concomitant monthly operation report.

Once the permittee has demonstrated to the satisfaction of the Department that there are no effluent toxicity peaks and no diurnal toxicity variations resulting in violations, the frequency of the above described requirement for bi-monthly testing may be changed to become once every 6 months thereafter for the duration of the permit (upon approval by the Department).

SPECIFIC CONDITIONS: (cont'd)

18. (cont'd)
b. If control mortality exceeds 10% of either species in any test, the test(s) for the species (including the control) shall be repeated. A test will be considered valid only if control mortality does not exceed 10% for either species. If, in any separate grab sample test, 100% mortality occurs prior to the end of the test, and control mortality is less than 10% at that time, that test (including the control) shall be terminated with the conclusion that the sample demonstrates unacceptable acute toxicity.

c. If any such bi-monthly acute toxicity screening test indicates that unacceptable toxicity (less than 80% survival of test organisms in 100% effluent) is found in any sample of effluent, additional (definitive) acute static renewal toxicity testing involving the determination of 96-hour LC50 values with 95% confidence limits will be required. A minimum of three (3) such 96-hour additional tests are required to be conducted within thirty (30) days from the date that any screening test indicates the presence of toxicity. Preferably, the first of these additional tests shall be initiated within seven (7) days of a failed screening test. The second test shall be initiated at least seven (7) days after completion of the first additional test. Such tests shall be conducted using that test species which exhibited the most toxic response in the screening tests above, and shall be taken at the same time of day and day of the week during which the greatest toxicity was exhibited.

19. The permittee shall operate this wastewater treatment plant in such manner as to not cause odor, noise, aerosol drift or lighting in such amounts or at such levels that they adversely affect neighboring residents, in commercial or residential areas, so as to be potentially harmful or injurious to human health or welfare or unreasonably interfere with the enjoyment of life or property, including outdoor recreation.

20. The permittee shall be aware of and operate under the attached "General Permit Conditions #1 thru #15". General Permit Conditions are binding upon the permittee and enforceable pursuant to Chapter 403 of the Florida Statutes.

STATE OF FLORIDA DEPARTMENT OF
ENVIRONMENTAL REGULATION

Richard D. Garrity, Ph.D.
Director of District Management

Receiving Samples For Request: RQ-94-JAN-10-04
CITY OF NEW PORT RICHEY
Arriving On The Week Of: 10-JAN-1994

Customer: SW-TAM-WTF Requestor: P. FRICANO/TANSKI

Phone Number: 813-744-6100 Suncom 552-7612
3804 Coconut Palm Drive
Tampa, Florida 33619

Comments: IBI,CBI FOR THE CITY OF NEW PORT RICHEY

Comms(2): NONE

Requested Analyses:

# samples	Analysis	Analysis Description
1	BSY-SN-FCD	Acute screening frshwtr bioassay-C. dubia (water flea)
1	BSY-SN-FFS	Acute screening frshwtr bioassay-C. leedsi (fish)
3	PPK-QN-C	Phytoplankton-Quantitative, Number of Taxa
3	CHL-PPTN-W	Water Chlorophyll/Phaeophytin
4	AGP	Algal Growth Potential, Mg/L
9	MI-MN-QNNC	Macroinvertebrates-Marine-Quantitative, Natural Substr

DEP COOLER TEMP. 2°C

Bottle Type	# Bottles	Preservative
BG-4L	1	ICE
BG-50ML	3	Lugols
BP-1L	3	ICE
BP-500ML	4	ICE
PJ-2L	9	Formalin

Cooler Received By: S. Mirault Date: 1/11/94

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

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

REMARKS:	LOCATION: Lendrych WWTP / New Port Richey WWTP	FIELD ID/NAME: TEST SITE Downstream

Habitat Parameter / score	Excellent	Good	Fair	Poor
Littoral Alterations 5	None—Unaltered shoreline. **9-10 points** 50%	Mostly natural shoreline, but with occasional riprap. **6-8 points**	Shoreline consisting mostly of riprap and vertical seawalls. **3-5 points**	Shoreline consisting almost entirely of vertical seawalls. **0-2 points** 50%
Community Types Observed 38	At least four communities observed from the following list: mangrove swamp, marsh, oyster bar, ~~grass bed~~, reef, saltern, natural beach, or tidal creek. 50% mudflat **38-50 points**	Two or three communities observed from those listed. **26-37 points**	One community observed from those listed. **13-25 points**	No communities observed from those listed. **0-12 points**
Tidal Fluctuation 5	>0.75 m. **4-5 points** 1.0m	0.5 - 0.75 m. **3 points**	0.25 - 0.5 m. **2 points**	<0.25 m. **0-1 point**
Freshwater Discharges/ Alterations 3	Only natural runoff.. **9-10 points**	Mostly natural runoff, but with a few, small stormwater sources. **6-8 points**	Considerable stormwater discharge from local roads, parking lots, etc. **3-5 points**	Extensive manmade discharges, especially from canals draining ~~large tracts of~~ land. **0-2 points**
Flow and Wave Action 9	Light to moderate wave action present except under the harshest weather conditions. Flow unrestricted by ~~manmade structures~~. **9-10 points**	—	—	Heavy wave action sometimes present even during average weather conditions, or flow restricted by manmade structures so that velocities are very high. **0-2 points**
Sediment Type 6	Combination of sand, gravel, and shell. **12-15 points**	Primarily sand, with small areas of mud. **8-11 points**	Mixture of sand and mud, or well-aerated ~~mud only~~. **4-7 points**	Anaerobic mud. **0-3 points**

TOTAL SCORE 61

COMMENTS: 1/2 was mudflat 1/2 seawall

ANALYSIS DATE:	ANALYST:	SIGNATURE:
1/10/94	Carter/Morgan	Carter / Peggy Morg

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

PHYSICAL/CHEMICAL CHARACTERIZATION FIELD DATA SHEET (Version 4)

SUBMITTING AGENCY CODE: / SUBMITTING AGENCY NAME: Tampa SWD	STORET STATION NUMBER:	DATE (M/D/Y): 1/10/94	TIME 1115AM	RECEIVING BODY OF WATER: Cross Bayou

REMARKS: algae, green	LOCATION: Ludwick / New Port Richey	FIELD ID/NAME: TEST SITE Downstream

RIPARIAN ZONE/INSTREAM FEATURES

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

Forest	Field/Pasture	Agricultural	Residential	Commercial	Industrial	Other (Specify)
			40		60	

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

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

Point-Source Pollution (list location and describe): waste water treatment Plants upstream

Estimated System Width (range, m): 35	Estimated System Depth (range, m): 0.5	yes
High Water Mark (m above bed): 2m	Velocity (range, m/s): not measured	Impounded ☐ Channelized ☑

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

SEDIMENT/SUBSTRATE

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

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

Sediment Deposits: Sludge: ☐ Paper Fiber: ☐ Mud: ☑ Sand: ☑ Shell: ☐ Other: ☐

Substrate Types	% coverage	# times sampled	method	Substrate Types	% coverage	# times sampled	method
Woody Debris (Snags)				Riffles			
Leaf Packs				Sand	20		
Aquatic Vegetation				Mud/Muck/Silt	90		
Rock or Shell Rubble				Benthic leaf mats			
Undercut Banks/Roots				Other:			

WATER QUALITY

	Depth (m):	Temp. (°C):	pH (SU):	D.O. (mg/l):	Cond. (µmho/cm):	TIME		Secchi (m):
Top	0.5	19.43	7.16	8.05	4700	1115AM		0.5
~~Mid-depth~~ Surface	Surface	20.18	7.3	9.3	10,080	1555P		
Bottom								

(low Tide) (high tide)

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

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

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

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

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

Weather Conditions: Clear & breezy 63°F

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

SAMPLING TEAM: Carter / Morgan	SIGNATURE: Dan M. Carter / Peggy Morgan	DATE: 1/10/94

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

PHYSICAL/CHEMICAL CHARACTERIZATION FIELD DATA SHEET (Version 4)

SUBMITTING AGENCY CODE: / SUBMITTING AGENCY NAME: Tampa SWD	STORET STATION NUMBER:	DATE (M/D/Y): 1/10/94	TIME ~~1145~~	RECEIVING BODY OF WATER: Salt Springs / Gulf of Mexico
REMARKS: Salt Springs Run @ Brasher Park	LOCATION: LINDRICK / New Port Richey	FIELD ID/NAME: ~~Salt Springs Run~~ BOGGY BAY SITE		

RIPARIAN ZONE/INSTREAM FEATURES

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

Forest	Field/Pasture	Agricultural	Residential	Commercial	Industrial	Other (Specify)
			30 %	40 %		Park 30 %

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

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

Point-Source Pollution (list location and describe): Residential Canals, Parking Lot

Estimated System Width (range, m): 50	Estimated System Depth (range, m): 1		yes
High Water Mark (m above bed): 1m	Velocity (range, m/s):	Impounded ☐	Channelized ✓

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

SEDIMENT/SUBSTRATE

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

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

Sediment Deposits: Sludge: ☐ Paper Fiber: ☐ Mud: ✓ Sand: ☐ Shell: ☐ Other: ☐

Substrate Types	% coverage	# times sampled	method	Substrate Types	% coverage	# times sampled	method
Woody Debris (Snags)				Riffles			
Leaf Packs				Sand			
Aquatic Vegetation				Mud/Muck/Silt	100		
Rock or Shell Rubble				Benthic leaf mats			
Undercut Banks/Roots				Other:			

WATER QUALITY

	Depth (m):	Temp. (°C):	pH (SU):	D.O. (mg/l):	Cond. (µmho/cm):			Secchi (m):
Top	0.5	16.64	8.07	9.68	23,400			1m
Mid-depth								
Bottom								

System Type : Stream: ☐ (Sand Bottomed / Sand Bot w/ Spring / Swamp & Bog / Calcareous / Alluvial / Misc.) Lake: ☐ Wetland: ☐ Estuary: ✓ Other: ☐

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

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

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

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

Weather Conditions: Sunny Windy & cool ~70°

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

SAMPLING TEAM:	SIGNATURE:	DATE:
Pat Duncan + Liz Carter	Pat Duncan	1/10/94

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

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

REMARKS:	LOCATION:	FIELD ID/NAME:
At Brasler Park	Lindrick / Mud Port Rickey	BOGGY BAY SITE ~~3~~

Habitat Parameter (score)	Excellent	Good	Fair	Poor
Littoral Alterations (7)	None—Unaltered shoreline. **9-10 points**	Mostly natural shoreline, but with occasional riprap. **6-8 points**	Shoreline consisting mostly of riprap and vertical seawalls. **3-5 points**	Shoreline consisting almost entirely of vertical seawalls. **0-2 points**
Community Types Observed (45)	At least four communities observed from the following list: mangrove swamp, marsh, oyster bar, grass bed, reef, saltern, natural beach, or tidal creek. **38-50 points**	Two or three communities observed from those listed. **26-37 points**	One community observed from those listed. **13-25 points**	No communities observed from those listed. **0-12 points**
Tidal Fluctuation (5)	>0.75 m. **4-5 points**	0.5 - 0.75 m. **3 points**	0.25 - 0.5 m. **2 points**	<0.25 m. **0-1 point**
Freshwater Discharges/ Alterations (5)	Only natural runoff.. **9-10 points**	Mostly natural runoff, but with a few, small stormwater sources. **6-8 points**	Considerable stormwater discharge from local roads, parking lots, etc. **3-5 points**	Extensive manmade discharges, especially from canals draining large tracts of land. **0-2 points**
Flow and Wave Action (4)	Light to moderate wave action present except under the harshest weather conditions. Flow unrestricted by manmade structures. **9-10 points**	—	—	Heavy wave action sometimes present even during average weather conditions, or flow restricted by manmade structures so that velocities are very high. **0-2 points**
Sediment Type (5)	Combination of sand, gravel, and shell. **12-15 points**	Primarily sand, with small areas of mud. **8-11 points**	Mixture of sand and mud, or well-aerated mud only. **4-7 points**	Anaerobic mud. **0-3 points**

TOTAL SCORE 75

COMMENTS: Very Windy

ANALYSIS DATE:	ANALYST:	SIGNATURE:
1/10/96	Fuciano	Pat Fuciano

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

PHYSICAL/CHEMICAL CHARACTERIZATION FIELD DATA SHEET (Version 4)

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

REMARKS:	LOCATION:	FIELD ID/NAME:
Background Station #II for New Port Richey/Lindrick WWTP	Bishop Creek	REFERENCE SITE ~~BACKGROUND II~~

RIPARIAN ZONE/INSTREAM FEATURES

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

Forest	Field/Pasture	Agricultural	Residential	Commercial	Industrial	Other (Specify)
			100%			

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

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

Point-Source Pollution (list location and describe): Road – SR 590
Construction nearby in subdivision on banks of creek

Estimated System Width (range, m): 7	Estimated System Depth (range, m): 1		yes
High Water Mark (m above bed): 1	Velocity (range, m/s): 0.25	Impounded ☐	Channelized ☐

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

SEDIMENT/SUBSTRATE

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

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

Sediment Deposits: Sludge: ☐ Paper Fiber: ☐ Mud: ☑ Sand: ☑ Shell: ☐ Other: ☐

Substrate Types	% coverage	# times sampled	method	Substrate Types	% coverage	# times sampled	method
Woody Debris (Snags)				Riffles			
Leaf Packs				Sand			
Aquatic Vegetation				Mud/Muck/Silt	100%	3	Penn
Rock or Shell Rubble				Benthic leaf mats			
Undercut Banks/Roots				Other:			

WATER QUALITY

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

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

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

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

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

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

Weather Conditions:
Cloudy, Breezy
Cool – 60°

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

SAMPLING TEAM:	SIGNATURE:	DATE:
Pat Fricano & Lisa Carter	Pat Fricano & Lisa Carter	1/31/95

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

SUBMITTING AGENCY CODE: / SUBMITTING AGENCY NAME:	STORET STATION NUMBER:	DATE (M/D/Y):	RECEIVING BODY OF WATER:
		1/31/94	Safety Harbor

REMARKS:	LOCATION:	FIELD ID/NAME:
Background Station II for New Port Richey/Lindrick WWTP	Bishop Creek	REFERENCE SITE ~~BACKGROUND~~ II

Habitat Parameter (score)	Excellent	Good	Fair	Poor
Littoral Alterations (9)	None—Unaltered shoreline. **9-10 points**	Mostly natural shoreline, but with occasional riprap. **6-8 points**	Shoreline consisting mostly of riprap and vertical seawalls. **3-5 points**	Shoreline consisting almost entirely of vertical seawalls. **0-2 points**
Community Types Observed (37)	At least four communities observed from the following list: mangrove swamp, marsh, oyster bar, grass bed, reef, saltern, natural beach, or tidal creek. **38-50 points**	Two or three communities observed from those listed. **26-37 points**	One community observed from those listed. **13-25 points**	No communities observed from those listed. **0-12 points**
Tidal Fluctuation (5)	>0.75 m. **4-5 points**	0.5 - 0.75 m. **3 points**	0.25 - 0.5 m. **2 points**	<0.25 m. **0-1 point**
Freshwater Discharges/ Alterations (4)	Only natural runoff.. **9-10 points**	Mostly natural runoff, but with a few, small stormwater sources. **6-8 points**	Considerable stormwater discharge from local roads, parking lots, etc. **3-5 points**	Extensive manmade discharges, especially from canals draining large tracts of land. **0-2 points**
Flow and Wave Action (10)	Light to moderate wave action present except under the harshest weather conditions. Flow unrestricted by manmade structures. **9-10 points**	—	—	Heavy wave action sometimes present even during average weather conditions, or flow restricted by manmade structures so that velocities are very high. **0-2 points**
Sediment Type (15)	Combination of sand, gravel, and shell. **12-15 points**	Primarily sand, with small areas of mud. **8-11 points**	Mixture of sand and mud, or well-aerated mud only. **4-7 points**	Anaerobic mud. **0-3 points**

TOTAL SCORE 70

COMMENTS: While Bishop Creek looks real natural at this location, the watershed is entirely urbanized consisting of the suburban areas of Northern Pinellas County (East Side).

ANALYSIS DATE:	ANALYST:	SIGNATURE:
1-31-94	Fiscaro / Barker	Pat Fiscaro / J. Barker

FDEP Biology Section — Acute Bioassay Bench Sheet

Sample Source: Lindrick Service Corp
Location: Lindrick WwTP
County: Pasco TR
Contact/District: Pat Fricano / ~~Carmichael~~ SW
NPDES Permit #: FL00 32603 Outfall #:
94 JAN -11-27 68242

Sample Collection: Date 1/10/94 Time 12:45
Test Beginning: Date 1/11/94 Time 14:30
Test Ending: Date 1/13/94 Time 14:30
Organism Batch #: 56 Diluent Batch #: Well
Organism Age: 10 days
Test Organism: Cyprinella leedsi

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

Test Number: 1 of 2

Remarks: Parameters when warmed to test temp
pH 7.1
Temp. 23.1°C
D.O. 7.6
Cond. 3920 µMHO's
Control Water adjusted to 2‰

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	20.4 @ 20.5	8.6 @ 22.4	950 @ 1,000 9110 @ 10,000 @ 22.0 °C
24 hr	7.0 @ 7.0 9.0 @ 9.0	22.1 @ 22.2	8.6 @ 22.5	970 @ 1,000 9320 @ 10,000 @ 23.7 °C
48 hr	7.0 @ 7.0 9.0 @ 9.0	21.6 @ 21.7	8.5 @ 22.8	960 @ 1,000 9240 @ 10,000 @ 22.9 °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
Control A	120	5	5	5	8.0	8.1	8.2	23.2	22.5	21.8	7.8	8.6	8.3	3.71	3.64	3.62
Control B	37	5	5	5	8.0	8.1	8.2	23.1	22.5	21.8	7.9	8.6	8.3	3.68	3.58	3.56
100% A	263	5	5	5	7.3	7.8	8.2	22.8	22.6	22.0	7.8	7.8	8.2	3.95	3.85	3.80
100% B	149	5	5	5	7.3	7.8	8.2	22.8	22.6	21.9	7.7	7.8	8.2	3.95	3.87	3.87
Measured/Loaded by:		MF	TM	MF	TR	TM	MF	TR	TM	MF	TR	TM	MF	TR	TM	MF
Recorded by:		TR	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW

Investigators' Signatures
Robin A. Rader Kim Pearce
Marshall Faulkner
David Whitney
Tony Mikulski
Reviewer

	Salt Water/ (Well Water) 2‰	20% Min Water	Sample	Method	Measured by
Field Total Residual Cl2:			not measured		
Lab Total Residual Cl2:	<0.03	<0.03	<0.03	DR-100	TR
Alkalinity:	120	70	240	Hach	TR
Hardness:	125	80	555	Hach	TR
Total Ammonia:	<0.017	—	0.377	Orion	MF

Ammonia Meter #98136 Ammonia Meter Slope: -57.4 Ammonia Blank: <0.017 Control Salinity: 2 ppt Sample Salinity: 2 ppt

form updated 7/8/93

FDEP Biology Section — Acute Bioassay Bench Sheet

Sample Source: Lindrick Service Corp
Location: Lindrick WWTP
County: Pasco
Contact/District: Pat Fricano / ~~Central~~ SW
NPDES Permit #: FL00 32603 Outfall #:
94-JAN-11-27 68242

Sample Collection: Date 1/10/94 Time 12:45
Test Beginning: Date 1/11/94 Time 14:30
Test Ending: Date 1/13/94 Time 14:30
Organism Batch #: 1 Diluent Batch #: 1
Organism Age: 5 days
Test Organism: Mysidopsis bahia

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

Test Number: 2 of 2

Remarks: Parameters when warmed to test temp.
pH 7.1
Temp 23.1°C
D.O. 7.6
Cond. 3920 mMHO's
Sample salinity adjusted to 5‰
Control water adjusted to 5.0‰

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	20.4 @ 20.5	8.6 @ 22.4	950 @ 1,000 9110 @ 10,000 @ 22.0 °C
24 hr	7.0 @ 7.0 9.0 @ 9.0	22.1 @ 22.2	8.6 @ 22.5	970 @ 1,000 9320 @ 10,000 @ 23.2 °C
48 hr	7.0 @ 7.0 9.0 @ 9.0	21.6 @ 21.7	8.5 @ 22.8	960 @ 1,000 9240 @ 10,000 @ 22.9 °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	183	5	5	5	8.1	8.1	8.1	22.8	22.6	22.1	7.9	7.4	7.8	8.72	9.00	8.93
Control B	366	5	5	5	8.1	8.1	8.1	22.8	22.6	22.2	7.9	7.4	7.7	8.75	9.04	8.97
100% A	1	5	4	4	7.4	7.8	8.2	22.7	22.6	22.2	7.8	6.1	7.4	8.46	8.78	8.73
100% B	888	5	5	4	7.4	7.8	8.2	22.7	22.6	22.3	7.8	6.1	7.6	8.46	8.67	8.66
Measured/Loaded by:		MF	TM	MF	TR	TM	MF	TR	TM	MF	TR	TM	MF	TR	TM	MF
Recorded by:		TR	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW

Investigators' Signatures
Robin A. Rader
Marshall Faircloth
David Whitty
Tina Mikulasik
Reviewer

5‰ (Salt Water)

Water Quality Parameters	Well Water	20% Min Water	Sample	Method	Measured by
Field Total Residual Cl2:			not	measured	
Lab Total Residual Cl2:	<0.03	<0.03	<0.03	DR-100	TR
Alkalinity:	145	70	240	Hach	TR
Hardness:	—	80	—	Hach	TR
Total Ammonia:	<0.017	—	0.377	Orion	MF

Ammonia Meter #98136 Ammonia Meter Slope: -57.4 Ammonia Blank: <0.017 Control Salinity: 5 ppt Sample Salinity: 5 ppt

form updated 7/8/93

FDEP Biology Section — Acute Bioassay Bench Sheet

Sample Source: New Port Richie WWTP
Location: New Port Richie WWTP
County: Pasco
Contact/District: Pat Fricano / ~~Central~~ SW
NPDES Permit #: FL00 20931 Outfall #:
94 JAN -11-22 68228

Sample Collection: Date 1/10/94 Time 11:30
Test Beginning: Date 1/11/94 Time 14:30
Test Ending: Date 1/13/94 Time 14:30
Organism Batch #: 1 Diluent Batch #: 1
Organism Age: < 24 hrs
Test Organism: Ceriodaphnia dubia

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

Test Number: 1 of 2

Remarks: Parameters when warmed to test temp.
pH 7.1
Temp. 22.0°C
D.O. 8.7
Cond. 975 µMHO's

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	20.4 @ 20.5	8.6 @ 22.4	950 @ 1,000 9110 @ 10,000 @ 22.0 °C
24 hr	7.0 @ 7.0 9.0 @ 9.0	22.1 @ 22.2	8.6 @ 22.5	970 @ 1,000 9320 @ 10,000 @ 23.7 °C
48 hr	7.0 @ 7.0 9.0 @ 9.0	21.6 @ 21.7	8.5 @ 22.8	960 @ 1,000 9240 @ 10,000 @ 22.9 °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. (mmhos/cm) Cond. (µmhos/cm) 24 h	UNCORRECTED Cond. (mmhos/cm) Cond. (µmhos/cm) 48 h
Control	A	5	5	5	8.1		8.1	21.0		23.8	8.4		8.1	155		185
Control	B	5	5	5			8.1			23.9			8.1			185
Control	C	5	5	5			8.1			24.0			8.1			185
Control	D	5	5	5			8.1			23.9			8.1			~~185~~ 185 KP
100%	A	5	5	5	7.5		8.4	20.7		24.0	8.4		8.1	920		975
100%	B	5	5	5			8.4			24.0			8.1			1015
100%	C	5	5	5			8.4			23.9			8.0			1030
100%	D	5	5	5			8.4			23.8			8.1			1020
Measured/Loaded by:		MF	TR	MF	TR		MF	TR		MF	TR		MF	TR		MF
Recorded by:		MF	DW	DW	DW		DW	DW		DW	DW		DW	DW		DW

Investigators' Signatures
Kim Pearce
Tobin C. Rader
Marshall Faircloth
Daniel Slater
Tim Middlebrooks
Reviewer

Water Quality Parameters	Salt Water/ Well Water	20% Min Water	Sample	Method	Measured by
Field Total Residual Cl2:			new	measured	
Lab Total Residual Cl2:	<0.03	<0.03	<0.03	DR-100	TR
Alkalinity:	120	70	135	Hach	TR
Hardness:	125	80	250	Hach	TR
Total Ammonia:	<0.017	—	<0.017	Orion	MF

Ammonia Meter #98136 Meter Slope: -57.4 Ammonia Blank: <0.017 Control Salinity: 0 ppt Sample Salinity: 0 ppt

FDEP Biology Section — Acute Bioassay Bench Sheet

Sample Source: New Port Richie WWTP
Location: New Port Richie WWTP
County: Pasco
Contact/District: Pat Fricano / ~~Central~~ TR SW
NPDES Permit #: FL0020931 Outfall #: 001
94-JAN-11-12 68228

Sample Collection: Date 1/10/94 Time 11:30
Test Beginning: Date 1/11/94 Time 14:30
Test Ending: Date 1/13/94 Time 14:30
Organism Batch #: 56 Diluent Batch #: Well
Organism Age: 10 days
Test Organism: Cyprinella leedsi

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

Test Number: 2 of 2

Remarks: Parameters when warmed to test temp.
pH 7.1
Temp. 22.0°C
D.O. 8.7
Cond. 975 µMHO's

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	20.4 @ 20.5	8.6 @ 22.4	950 @ 1,000 9110 @ 10,000 @ 22.0 °C
24 hr	7.0 @ 7.0 9.0 @ 9.0	22.1 @ 22.2	8.6 @ 22.5	970 @ 1,000 9320 @ 10,000 @ 23.7 °C
48 hr	7.0 @ 7.0 9.0 @ 9.0	21.6 @ 21.7	8.5 @ 22.8	960 @ 1,000 9240 @ 10,000 @ 22.9 °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. (mmhos/cm) (Cond. (µmhos/cm)) 24 h	UNCORRECTED Cond. (mmhos/cm) (Cond. (µmhos/cm)) 48 h
Control A	70	5	5	4	7.8	8.1	8.2	23.2	22.4	21.8	7.9	8.7	8.7	245	240	240
Control B	87	5	5	5	7.8	8.1	8.2	23.2	22.5	21.8	7.9	8.6	8.7	240	240	240
100% A	65	5	5	5	7.3	7.8	8.1	22.2	22.4	21.8	8.5	8.4	8.6	995	1000	~~990~~ DW 990
100% B	57	5	5	5	7.3	7.8	8.1	22.2	22.4	21.8	8.5	8.5	8.6	995	1000	995
Measured/Loaded by:		MF	TM	MF	TR	TM	MF	TR	TM	MF	TR	TM	MF	TR	TM	MF
Recorded by:		TR	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW

Investigators' Signatures
Tobin C. Rader
Marshall Faircloth
Tina Mikulski
Reviewer

	Salt Water/ Well Water	Water Quality Parameters: 20% Min Water	Sample	Method	Measured by
Field Total Residual Cl2:			not measured		
Lab Total Residual Cl2:	<0.03	<0.03	<0.03	DR-100	TR
Alkalinity:	120	70	135	Hach	TR
Hardness:	125	80	250	Hach	TR
Total Ammonia:	-	<0.017	<0.017	Orion	MF

Ammonia Meter #98136 Ammonia Meter Slope: -57.4 Ammonia Blank: <0.017 Control Salinity: 0 ppt Sample Salinity: 0 ppt

form updated 7/8/93

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

Benthic macroinvertebrate taxa list for Lindrick Services Corporation/New Port Richey WWTP, collected via Ponar grab samples in Boggy Bay and the Test Site on 10 January, 1994, and Bishop Creek (Reference Site) on 31 January 1994. Densities, in number/m^2, represent the mean of three replicates.

	Boggy Bay Site	Reference Site	Test Site
Amphipoda			
Ampelisca sp.	75	–	–
Corophium louisianum	–	12	299
Gammarus mucronatus	12	–	–
Grandidierella bonnieroides	133	12	–
Melita sp.	12	–	12
Cumacea			
Almyracuma sp.	12	–	–
Decapoda			
Palaemonetes pugio	–	12	–
Diptera			
Tanytarsus sp.	–	–	12
Thalassomya bureni	12	–	–
Undetermined dipteran pupa	12	–	–
Echinodermata			
Amphipholis thrombodes	31	–	–
Gastropoda			
Cerithium sp.	94	–	–
Epitonium sp.	12	–	–
Prunum sp.	31	–	–
Retusa sp.	62	–	–
Rissoina sp.	25	–	–
Triphora sp.	12	–	–
Truncatella sp.	12	–	–
Turbonilla sp.	25	–	–
Undetermined gastropod	12	–	–
Isopoda			
Erichsonella attenuata	19	12	–
Idotea metallica ?	12	–	–
Sphaeroma terebrans	12	–	–
Mysidacea			
Mysidopsis bahia	–	–	12
Taphromysis bowmani	19	–	–
Nemertina			
Unknown nemertean	–	–	12
Oligochaeta			
Limnodrilus hoffmeisteri	–	–	125
Undetermined Tubificidae	37	–	–
Pelecypoda			
Tellina sp.	37	–	–

Undetermined pelecypod	12	–	–
Polychaeta			
Amphicteis scaphobranchiata	270	19	12
Aricidea fragilis	37	–	–
Capitella capitata	200	131	428
Ceratonereis mirabilis	12	–	–
Cirriformia sp.	31	–	–
Cistern gouldii	12	–	–
Eteone heteropoda	37	–	–
Exogone verugera	62	–	–
Glycinde solitaria	150	–	–
Gyptis brevipalpa	25	–	–
Hesiospina sp. A (Vittor)	25	–	–
Kinberginereis sp.	–	–	171
Leitoscoloplos fragilis	12	–	–
Mediomastus ambiseta	–	–	37
Melinna maculata	37	–	–
Neanthes acuminata	12	–	–
Nereis succinea	62	71	–
Petaloproctus sp.	12	–	–
Prionospio cirrifera	50	–	–
Prionospio heterobranchia	91	–	–
Sclerobregma stenocerum	69	–	–
Scoloplos texana	25	–	–
Streblospio benedicti	121	–	412
Travisia hobsonae	25	–	–
Undetermined Hesionidae	12	–	–
Undetermined Maldanidae	12	–	–
Undetermined Nereidae	12	–	–
Porifera			
Undetermined Subclass Keratosa	–	–	12
Sipuncula			
Phascolion strombi	62	–	–
Undetermined sipunculid	428	–	12
Tanaidacea			
Halmyrapseudes bahamensis	12	–	–
Hargeria rapax	19	87	–
Total	2666	356	1556

Phytoplankton taxa list and densities (#/mL) for Lindrick Services Corporation/New Port Richey WWTP, collected via subsurface grabs in Boggy Bay and the Test Site on 10 January, 1994, and Bishop Creek (Reference Site) on 31 January 1994.

	Boggy Bay Site	Reference Site	Test Site
Diatoms			
Achnanthes sp.	–	74	–
Achnanthes sp. 1	–	–	219
Achnanthes sp. 2	–	–	73
Amphora sp.	–	368	–
Cocconeis sp.	214	74	–
Diploneis sp.	–	–	146
Entomoneis sp.	71	–	–
Gomphonema sp.	71	74	–
Gyrosigma sp.	71	74	–
Navicula sp.	357	441	511
Nitzschia sp.	500	1030	146
Surirella sp.	–	74	–
Unidentified centric diatom	71	–	–
Unidentified pennate diatom	–	221	–
Chlorophyta			
Ankistrodesmus sp.	–	74	–
Selenastrum sp.	–	–	1607
Unknown chlorophyte flagellate	1000	74	146
Chrysophyta			
Mallomonas sp.	–	–	73
Cyanophyta			
Chroococcus sp.	–	221	73
Gloeothece sp.	–	–	73
Lyngbya sp.	71	221	–
Oscillatoria sp.	71	147	–
Euglenophyta			
Euglena sp.	71	–	–
Pyrrhophyta			
Peridinium sp.	71	–	–
Total	2639	3167	3067

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

1	2	3	11	12	17	18	19	20
Transaction Code		NPDES NUMBER		YR/MO/DA		Insp Type	Inspector	Fac Type
N	5	FL0032603		940110		X	S	2

Remarks

21 66

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

1	2	3	11	12	17	18	19	20
Transaction Code		NPDES NUMBER		YR/MO/DA		Insp Type	Inspector	Fac Type
N	5	FL0032603		940110		B	S	2

Remarks

21 66

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

1	2	3	11	12	17	18	19	20
Transaction Code		NPDES NUMBER		YR/MO/DA		Insp Type	Inspector	Fac Type
N	5	FL0026931		940110		X	S	1

Remarks

21 66

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

1	2	3	11	12	17	18	19	20
Transaction Code		NPDES NUMBER		YR/MO/DA		Insp Type	Inspector	Fac Type
N	5	FL0026931		940110		B	S	1

Remarks

21 66