

~~Biological Assessment~~ of

Arlington East Sewage Treatment Plant

Duval County

NPDES #FL0026441

Sampled 10 September 1990

March 1991

Biology Section
Division of Administrative and Technical Services

Introduction

Toxicological and chemical data were collected on effluent from the Arlington East Sewage Treatment Plant in Jacksonville, Duval County, Florida, on 10 September, 1990. These data will be used to evaluate the facility's permit criteria.

This plant, located in a heavily industrialized area of Jacksonville, has a design capacity of 10 MGD with an average flow of approximately 3 MGD. Treatment involves screening, grit removal, primary clarification, aeration, secondary clarification, and chlorination. Effluent is discharged into the St. Johns River (see map in Appendix).

Over the last three years, minor violations of permit limitations have occurred for fecal coliform bacteria, residual chlorine, pH, total suspended solids, and BOD. These involved individual measurements and were infrequent, so that the weekly averages of these parameters always fell within the permit limits.

In June of 1990, the DER Biology Section performed static acute toxicity tests on effluent from this facility and found that the dechlorinated sample was not toxic to the bannerfin shiner, *Notropis leedsi*.

Methods

The focus of this investigation was to determine the quality of the discharger's effluent. An acute screening toxicity bioassay, using *Notropis leedsi* as the test organism, was performed on an effluent sample (Peltier and Weber 1985, FDER 1985). A Microtox® test, using the bacterium, *Photobacterium phosphoreum*, to evaluate toxicity, was also performed. The effluent was analyzed for organic constituents (base neutrals, acid extractables, and pesticide extractables), metals, and nutrients. Methods used for all chemical analyses are on file at the Tallahassee DER Chemistry Laboratory.

The following personnel were involved in this investigation: Scott Bulgrin (DER Northeast District) and Lyn Burton, Russel Frydenborg, Kathleen Lurding, and Sandra McClure (Tallahassee Biology Laboratory).

Results and Discussion

The chlorinated sample of effluent was acutely toxic to the fish, *Notropis leedsi*; all individuals died within 24 hours. This is a violation of 17-4.244(3)(a)FAC (toxicity requirement). The sample that was dechlorinated, however, did not produce mortality in this test organism (Appendix). The Microtox® test using the chlorinated effluent caused an adverse response to the bacterium, *Photobacterium phosphoreum*, with an EC_{50} (15 min., 15°C) of 64.07%. The dechlorinated sample was stimulatory. This is a common response, particularly when ammonia is present in the discharge (Appendix).

All effluent organic constituents determined from a single grab sample were below detection limits (Appendix). The metals barium (14 µg/l), iron (45 µg/l), silver (0.2 µg/l), and zinc (21 µg/l) were found in the effluent (Appendix). The silver concentration is in violation of its ambient water quality standard (17-302.530 FAC). The concentrations of the remaining metals are not considered a threat to aquatic organisms.

High nutrient levels were measured in the effluent (Appendix). Total and ortho-phosphorus were both 6.0 mg P/l, and the concentrations of nitrogen compounds were 4.9 mg N/l (TKN), 2.9 mg N/l (NO_2NO_3), and 2.9 mg N/l (NH_3). The detrimental consequences of extreme nutrient enrichment, including algal blooms, dissolved oxygen crashes, and fish kills, are well known.

The latest 305(b) water quality assessment gave a poor rating to the St. Johns River in the vicinity of the Arlington East STP, calling it "...the most polluted part of the river". According to the report, this area has a history of low macroinvertebrate diversities and high phosphorus. It is probable that the Arlington facility contributes to these reported problems.

Conclusions

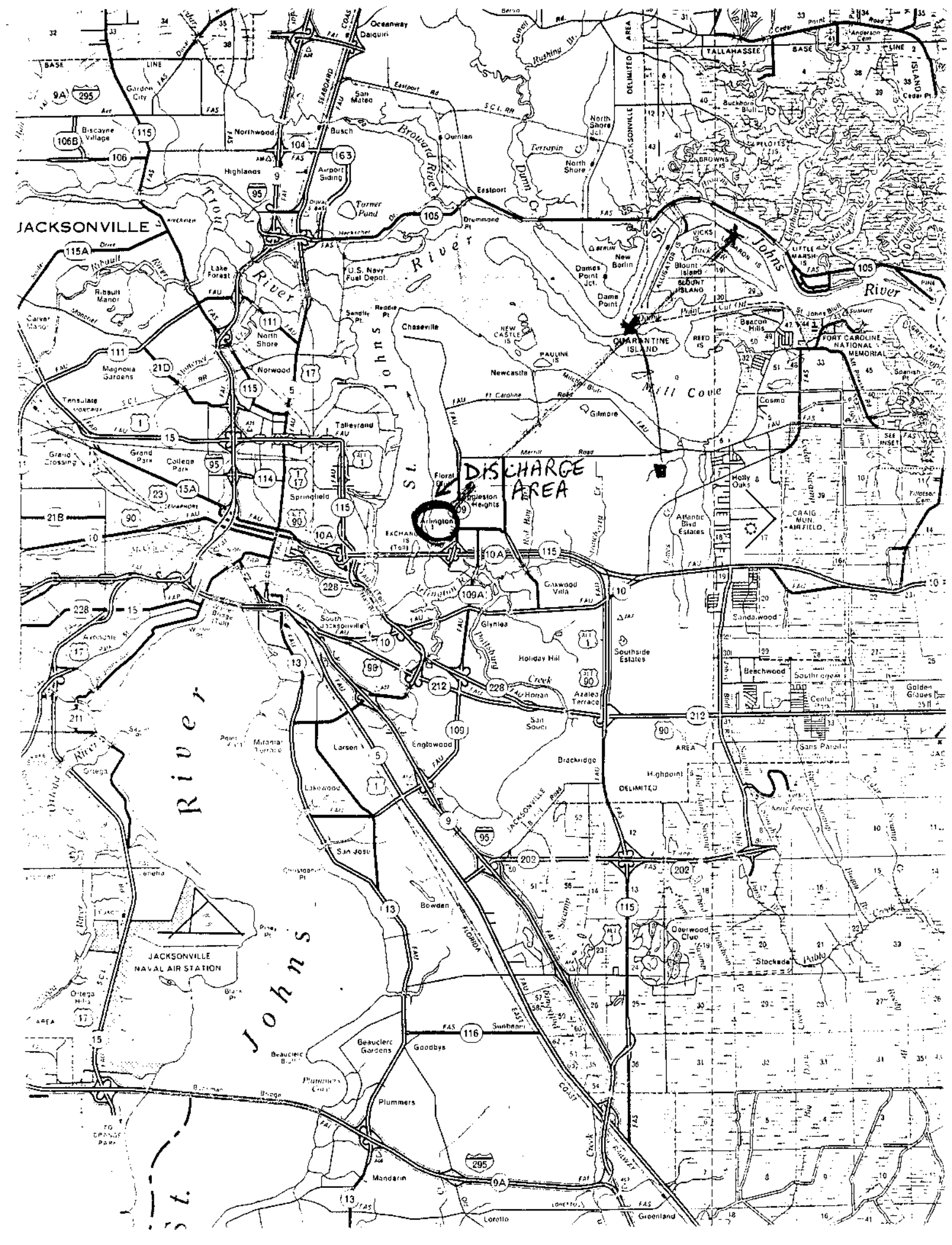
The chlorinated wastewater from the Arlington East Sewage Treatment Plant was acutely toxic to the bannerfin shiner, *Notropis leedsi*, in a 48 hour static bioassay (a violation of the toxicity requirement). The concentration of silver in the wastewater was in violation of its ambient water quality standard. Low levels of barium, iron, and zinc were found in the effluent, but no priority pol-

lutants were present. Elevated nutrient concentrations (especially ortho-phosphorus) were detected in the effluent. Because this facility's discharge is commonly high in phosphorus (District Biologist's review of Monthly Operating Reports), a limit on the permittable amount seems appropriate. Possible guidelines might follow those established by the Grizzle Bill (403.086 F.S.) for portions of southwest Florida: a maximum total phosphorus of 1.0 mg/l and a maximum total nitrogen of 3.0 mg/l.

Literature Cited

Florida Department of Environmental Regulation. 1985. Quality assurance manual for performing acute toxicity tests. 2nd edition. Fla. Dept. Environmental Regulation, Biology Section, Tallahassee. 53 pp.

Peltier, W. H. and C. I. Weber. 1985. Methods for measuring the acute toxicity of effluents to freshwater and marine organisms. 3rd edition. EPA/600/4-85/013. U. S. EPA, Cincinnati, Ohio. 216 pp.


DISCHARGE AREA
JACKSONVILLE
St. Johns River
Ortega River
Julington Creek
Arlington
Arlington Heights
Floral City
Springfield
Grand Park
College Park
Lake Forest
Ribault Manor
Magnolia Gardens
Tensulate
Grand Crossing
Carver Manor
Northwood
North Shore
Norwood
Talleyrand
Chaseville
Newcastle
Pauline
New Castle
Reddie Pt.
Sandfly Pt.
Dames Point
Dames Point Jct.
New Berlin
Blount Island
Quarantine Island
Reed Is.
Beacon Hills
Fort Caroline National Memorial
Cosmo
Gilmore
Holly Oaks
Atlantic Blvd Estates
Craig Mun. Airfield
Oceanway
Daiquiri
Garden City
Biscayne Village
Busch
Eastport
San Mateo
Highlands
Airport Siding
Turner Pond
Drummond Pt
Broward River
Terrapin Cr.
Pottsburg Creek
Crawford Creek
Deerwood Creek
Cedar Creek
Ortega
Lakewood
Larson
Englewood
San Jose
San Souci
Glynlea
Holiday Hill
Azalea Terrace
Southside Estates
Beechwood
Sandalwood
Golden Grove
Brackridge
Highpoint
Oakwood Club
Stockade
Pablo
Bowden
Beauclerc
Beauclerc Gardens
Goodbys
Plummers
Plummers Cut
Mandarin
Loretto
Greenland
Sunbeam
Jacksonville Naval Air Station
Jacksonville Beach Road
Florida East Coast
Seaboard
Tallahassee Base Line
Delimited Area
Pelotes
Browns
Vicks
Little Marsh Is.
Pine Is.
Cedar Pt.
Buckhorn Bluff
Mud Bluff
Ft. Caroline Road
Merrill Road
Atlantic Blvd
Beach Blvd
Baymeadows
Southpoint
Center
Sans Parel
Spanish Pt.
Chicopit Pt.
Summit
Cut Off
Point
Creek
Swamp
Bridge
Ferry
Cemetery
Church
Hospital
Park
Airport
Golf Course
Tennis
Pool
Library
Post Office
Fire Station
Police
Shopping Center
Mall
Industrial
Residential
Commercial
Recreation
Boat Ramp
Marina
Campground
Picnic
Trail
Bridge
Tunnel
Ferry
Railroad
Interstate
U.S. Highway
State Road
County Road
Local Road
Toll
Exchange
Entrance
Exit
Ramp
Overpass
Underpass
Median
Shoulder
Lane
Turn
Stop
Yield
Signal
Light
Sign
Mile Post
Milepost
Kilometer
Speed Limit
Weight Limit
Height Limit
Width Limit
Hazard
Construction
Detour
Closed
Open
Seasonal
Year Round
Private
Public
Restricted
Unrestricted
One Way
Two Way
Divided
Undivided
Paved
Unpaved
Gravel
Dirt
Concrete
Asphalt
Bridge
Culvert
Drainage
Ditch
Canal
Levee
Dam
Reservoir
Lake
Pond
River
Creek
Stream
Swamp
Marsh
Wetland
Island
Peninsula
Point
Bluff
Cliff
Hill
Mountain
Valley
Plain
Forest
Woods
Trees
Vegetation
Crop
Pasture
Orchard
Vineyard
Nursery
Greenhouse
Farm
Ranch
Barn
Silo
Shed
Garage
House
Building
Factory
Warehouse
Office
Store
Restaurant
Hotel
Motel
Church
School
Hospital
Cemetery
Park
Airport
Golf Course
Tennis
Pool
Library
Post Office
Fire Station
Police
Shopping Center
Mall
Industrial
Residential
Commercial
Recreation
Boat Ramp
Marina
Campground
Picnic
Trail
Bridge
Tunnel
Ferry
Railroad
Interstate
U.S. Highway
State Road
County Road
Local Road
Toll
Exchange
Entrance
Exit
Ramp
Overpass
Underpass
Median
Shoulder
Lane
Turn
Stop
Yield
Signal
Light
Sign
Mile Post
Milepost
Kilometer
Speed Limit
Weight Limit
Height Limit
Width Limit
Hazard
Construction
Detour
Closed
Open
Seasonal
Year Round
Private
Public
Restricted
Unrestricted
One Way
Two Way
Divided
Undivided
Paved
Unpaved
Gravel
Dirt
Concrete
Asphalt
Bridge
Culvert
Drainage
Ditch
Canal
Levee
Dam
Reservoir
Lake
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Woods
Trees
Vegetation
Crop
Pasture
Orchard
Vineyard
Nursery
Greenhouse
Farm
Ranch
Barn
Silo
Shed
Garage
House
Building
Factory
Warehouse
Office
Store
Restaurant
Hotel
Motel
Church
School
Hospital
Cemetery

DER Biology Section ... Bio... h Sheet

Sample Source: Arlington STP
Address/City: _____
County: _____
Contact/District: _____
NPDES Permit #: _____ **Outfall #:** _____

Sample Collection: Date 9-10-90 Time 1110
Test Beginning: Date 9-11-90 Time 1200
Test Ending: Date 9-13-90 Time 1200
Test Organism: M. bahia
Life Stage/Age: 23days

Test Number: 3,4 of 4 **Test Type:** (Screening) | Definitive
Static | (Static Renewal) | Flow-through

Remarks: CeCl2 + Cl2

Instrument Calibrations:

	pH	DO	Cond	Temp
0 hr				
24 hr				
48 hr				

Conc	Chamber #	Number Live 0	24	48	DO (mg/l) 0	24	48	pH 0	24	48	Temp. (°C) 0	24	48	Cond. (µmhos/cm) 0	24	48
Control	113	5	5	5	7.1	7.0	8.1	7.7	8.1	8.2	23.0	22.5	23.0	235		240
"	119	5	5	5	7.3	7.0	8.0	7.7	8.1	8.2				237		240
100% CeCl2	39	5	5	5	8.1	7.0	7.7	7.7	8.1	8.2	23.0	22.3	23.9	1083		1074
"	118	5	5	5	8.6	7.1	8.1	7.7	8.1	8.2				1096		1076
100% Cl2	94	5	ø	ø	9.3	6.5	—	7.6	8.0	~~8.0~~	23.6	22.5	—	1093	1073	—
"	98	5	ø	ø	9.3	6.9	—	7.6	8.1	~~8.1~~				1084	1072	—
Measured/Loaded by:		MF	MCC	MF	JK		AWM			AWM			AWM			AWM
Recorded by:		MF	MCC	MF			LB			LB			LB			LB

Investigators' Signatures

Russell Lydenberg
Mandel Kandell
K. Harding

Reviewer

Water-quality Parameters

	Well Water	Cond. Water	Sample	Method	Measured by
Field Tot. Resid. Cl2:					
Lab Tot. Resid. Cl2:			0.6	HACH/DPD	RBF
Alkalinity:	115	108	147	HACH	AWM
Hardness:	123	133	263	HACH	AWM
Total Ammonia:					

Ammonia meter slope:

MICROTOX™ Data Reduction Sheet

SOURCE: Arlington

GRAPH CALC EC 50 (15 MIN, 15 °C) = 64.07 %SAMPLE mg/L

SAMPLE DATA: Chlorinated

SAMPLE TYPE (EFFLUENT, LEACHATE, ETC.):

DATE ASSAYED: 9/11/90 TIME: 9:00 AM

VISUAL COLOR: CORRECTION REQUIRED: YES NO

VISUAL TURBIDITY: SEPARATION REQUIRED: YES NO

INITIAL pH: pH ADJUSTED TO: WITH:

OSMOTICALLY ADJUSTED WITH: MOAS DRY NaCl OTHER

PRIMARY DILUTION OF SAMPLE:

OPERATOR: [signature] REAGENT VIAL LOT NO. M-

REMARKS:

MICROTOX™ TEST

SAMPLE CUVETTE	% SAMPLE	READINGS 5 MIN	READINGS 15 MIN	Γ5	Γ15	NOTES
A1	0	31	27			49
B1		27	23			42
C1		32	26			44
A2	12.38	27	24		.83	40
B2		25	21			39
C2		29	22			41
A3	24.75	23	20		.28	37
B3		24	21			38
C3		24	21			38
A4	49.5	20	18		.62	36
B4		17	16			30
C4		19	13			35
A5	99	07	07		2.04	18
B5		10	09			23
C5		09	09			19
EC_{50} (MIN, °C)					64.07	

REVIEWED BY: [signature]
DATE: 3/1/91

MICROTOX™ Data Reduction Sheet

SOURCE: Arlington

GRAPH
CALC EC ~~_____~~ (_____ MIN, _____ ° C) = _____ %SAMPLE mg/L

SAMPLE DATA: Decl

SAMPLE TYPE (EFFLUENT, LEACHATE, ETC.):

DATE ASSAYED: 9/11/90 TIME: 1:00 PM

VISUAL COLOR: CORRECTION REQUIRED: YES NO

VISUAL TURBIDITY: SEPARATION REQUIRED: YES NO

INITIAL pH: pH ADJUSTED TO: WITH:

OSMOTICALLY ADJUSTED WITH: MOAS DRY NaCl OTHER

PRIMARY DILUTION OF SAMPLE:

OPERATOR: MBCampos REAGENT VIAL LOT NO. M-

REMARKS:

MICROTOX™ TEST

SAMPLE CUVETTE	% SAMPLE	READINGS 5 MIN	READINGS 15 MIN	Γ5	Γ15	NOTES 0
A1	C	55	38	X	X	75
B1		57	42			78
C1		59	43			77
A2	12.35	72	54		-.18	90
B2		65	49			83
C2		61	47			79
A3	24.75	78	60		-.19	102
B3		62	48			80
C3		58	44			75
A4	49.5	77	57		-.27	100
B4		71	54			89
C4		73	57			92
A5	99	80	62		-.36	100
B5		85	67			104
C5		81	63			94
EC_{50} (MIN, ° C)				Stimulatory		

REVIEWED BY:
DATE: 3/1/91

Sample Number: 90-SEP-11-06-01 Sample Status: Authorized by Liang T. Lin
Sample Location: Arlington East STP-1555 Millcoa Jax.Fla. Matrix: Effluent
Field ID: #1 & 2 Storet Station Number:
Date/Time Collected: 10-SEP-1990 11:50:35.75
Comments:

Sample Number: 90-SEP-11-06-01 Test status: Authorized by Laura Harrison
Analysis Id: W-BNA Analysis Description: base-neutral-acid water analysis

Storet Number	Analyte	Result	Units
34205	Acenaphthene	10 U	ug/L
34200	Acenaphthylene	10 U	ug/L
39330	Aldrin	10 U	ug/L
34220	Anthracene	10 U	ug/L
34526	Benzo(a)anthracene	10 U	ug/L
34230	Benzo(b)fluoranthene	10 U	ug/L
34242	Benzo(k)fluoranthene	10 U	ug/L
34247	Benzo(a)pyrene	10 U	ug/L
34521	Benzo(g,h,i)perylene	15 U	ug/L
34292	Benzyl butyl phthalate	10 U	ug/L
	a-BHC	10 U	ug/L
39337	b-BHC	10 U	ug/L
39340	d-BHC	10 U	ug/L
	g-BHC	10 U	ug/L
39120	Benzidine	10 U	ug/L
34273	Bis(2-chloroethyl)ether	10 U	ug/L
34278	Bis(2-chloroethoxy)methane	15 U	ug/L
34283	Bis(2-chloroisopropyl)ether	15 U	ug/L
39100	Bis(2-ethylhexyl)phthalate	10 U	ug/L
34636	4-Bromophenyl phenyl ether	10 U	ug/L
34581	2-Chloronaphthalene	10 U	ug/L
34641	4-Chlorophenyl phenyl ether	10 U	ug/L
34320	Chrysene	10 U	ug/L
39310	4,4'-DDD	10 U	ug/L
39320	4,4'-DDE	10 U	ug/L
39300	4,4'-DDT	10 U	ug/L
34556	Dibenzo(a,h)anthracene	15 U	ug/L
39110	Di-n-butyl phthalate	10 U	ug/L
34536	1,2-Dichlorobenzene	10 U	ug/L
34566	1,3-Dichlorobenzene	10 U	ug/L
34571	1,4-Dichlorobenzene	10 K	ug/L
34631	3,3'-Dichlorobenzidine	10 U	ug/L
39380	Dieldrin	10 U	ug/L
34336	Diethylphthalate	10 U	ug/L
34341	Dimethylphthalate	10 U	ug/L
34611	2,4-Dinitrotoluene	10 U	ug/L
34626	2,6-Dinitrotoluene	10 K	ug/L
34596	Di-n-octyl phthalate	10 U	ug/L
34361	Endosulfan-I	10 U	ug/L

---------- Continued ----------

A - Value reported is the mean of two or more determinations
E - Scientific notation
J - Estimated value
K - Actual value is known to be less than value given
L - Actual value is known to be greater than value given
N - Not analyzed for this compound
T - Value reported is less than the practice quantiation limit
U - Material was analyzed for but not detected; The value reported is the mimimum detection limit
N/A - Not applicable NR - Not requested

Cont. from previous page for Sample Number: 90-SEP-11-06-01 Analysis_id: W-BNA

34356	Endosulfan-II	10 U	ug/L
34351	Endosulfan-sulfate	10 U	ug/L
39390	Endrin	10 U	ug/L
34366	Endrin-aldehyde	10 U	ug/L
34376	Fluoranthene	10 U	ug/L
34381	Fluorene	10 U	ug/L
39410	Heptachlor	10 U	ug/L
39420	Heptachlor-epoxide	10 U	ug/L
39700	Hexachlorobenzene	15 U	ug/L
34391	Hexachlorobutadiene	10 U	ug/L
34396	Hexachloroethane	60 U	ug/L
34386	Hexachlorocyclypentadiene	10 U	ug/L
34403	Indeno(1,2,3-cd)pyrene	10 U	ug/L
34408	Isophorone	10 U	ug/L
34696	Naphthalene	10 U	ug/L
34447	Nitrobenzene	10 U	ug/L
34438	N-Nitrosodimethylamine	50 U	ug/L
34428	N-Nitrosodi-n-propylamine	10 U	ug/L
34433	N-Nitrosodiphenylamine	15 U	ug/L
34671	PCB-1016	10 U	ug/L
39488	PCB-1221	10 U	ug/L
39492	PCB-1232	10 U	ug/L
39496	PCB-1242	10 U	ug/L
39500	PCB-1248	10 U	ug/L
39504	PCB-1254	10 U	ug/L
39508	PCB-1260	10 U	ug/L
	PCB-1262	10 U	ug/L
34461	Phenanthrene	10 U	ug/L
34469	Pyrene	10 U	ug/L
39400	Toxaphene	10 U	ug/L
34551	1,2,4-Trichlorobenzene	10 U	ug/L
34462	4-Chloro-3-methyl phenol	15 U	ug/L
34586	2-Chlorophenol	15 K	ug/L
34601	2,4-Dichlorophenol	15 U	ug/L
34606	2,4-Dimethylphenol	15 U	ug/L
34616	2,4-Dinitrophenol	30 U	ug/L
34657	2-Methyl-4,6-dinitrophenol	30 U	ug/L
34591	2-Nitrophenol	15 U	ug/L
34646	4-Nitrophenol	50 U	ug/L
39032	Pentachlorophenol	15 U	ug/L
34694	Phenol	15 U	ug/L
34621	2,4,6-Trichlorophenol	15 U	ug/L
	Comments (1):	C14-17 aliphatic acids & alcohols;	
	(2):	est. conc. <10 ug/L	
	(3):		
	(4):		
	(5):		
	(6):		

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N/A - Not applicable NR - Not requested

Sample Number: 90-SEP-11-07-01
Sample Location: Arlington East STP
Field ID: FL0026441
Date/Time Collected: 10-SEP-1990 12:03:08.05
Comments:

Sample Status: Authorized by Tim Fitzpatrick
Matrix: Effluent
Storet Station Number:

Sample Number: 90-SEP-11-07-01
Analysis Id: W-ICP-23

Test status: Authorized by Tim Fitzpatrick
Analysis Description: ICP multielement analysis for water samples

Storet Number	Analyte	Result	Units
01106	Aluminum	NR	ug/L
01002	Arsenic	20 U	ug/L
01097	Antimony	NR	ug/L
01007	Barium	14 A	ug/L
01012	Beryllium	NR	ug/L
01027	Cadmium	NR	ug/L
00916	Calcium	NR	mg/L
01034	Chromium	10 U	ug/L
01037	Cobalt	NR	ug/L
01042	Copper	6 T	ug/L
01045	Iron	45 A	ug/L
01051	Lead	NR	ug/L
00927	Magnesium	NR	mg/L
01055	Manganese	NR	ug/L
01067	Nickel	5 U	ug/L
00937	Potassium	NR	mg/L
01147	Selenium	NR	ug/L
01077	Silver	NR	ug/L
00929	Sodium	NR	mg/L
01082	Strontium	NR	ug/L
01059	Thallium	NR	ug/L
01087	Vanadium	NR	ug/L
01092	Zinc	21	ug/L

Sample Number: 90-SEP-11-07-01
Analysis Id: AG-G-W

Test status: Authorized by Jack Merritt
Analysis Description: Silver in water by furnace AA

Storet Number	Analyte	Result	Units
01077	Silver	0.2	ug/L

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N/A - Not applicable NR - Not requested

Sample Number: 90-SEP-11-07-01 Test status: Authorized by Jack Merritt
Analysis Id: HG-H-W Analysis Description: Mercury by cold vapor using hydride sys.-water

Storet Number	Analyte	Result	Units
71900	Mercury	0.2 U	ug/L

Sample Number: 90-SEP-11-07-01 Test status: Authorized by Jack Merritt
Analysis Id: PB-G-W Analysis Description: Lead by furnace AA in water

Storet Number	Analyte	Result	Units
01051	Lead	2 U	ug/L

Sample Number: 90-SEP-11-07-01 Test status: Authorized by Jack Merritt
Analysis Id: CD-G-W Analysis Description: Cadmium by graphite furnace for water saple

Storet Number	Analyte	Result	Units
01027	Cadmium	0.3 K	ug/L

Sample Number: 90-SEP-11-07-01 Test status: Authorized by Jack Merritt
Analysis Id: SE-G-W Analysis Description: Selenium in water by furnace AA

Storet Number	Analyte	Result	Units
01147	Selenium	5 U	ug/L

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U - Material was analyzed for but not detected; The value reported is the mimimum detection limit
N/A - Not applicable NR - Not requested

Sample Number: 90-SEP-11-09-01
Sample Location: Arlington East STP
Field ID:
Date/Time Collected: 10-SEP-1990 11:00:33.75
Comments:

Sample Status: Authorized by Yuh-Hsu Pan
Matrix: Effluent
Storet Station Number:

Sample Number: 90-SEP-11-09-01 Test status: Authorized by Yuh-Hsu Pan
Analysis Id: W-TP Analysis Description: Analysis for total phosphorus in water

Storet Number	Analyte	Result	Units
00665	Total Phosphorus	6.0	mg P/L

Sample Number: 90-SEP-11-09-01 Test status: Authorized by Yuh-Hsu Pan
Analysis Id: W-TKN Analysis Description: TKN for water sample

Storet Number	Analyte	Result	Units
00625	N KJEL TOT	4.9	mg N/L

Sample Number: 90-SEP-11-09-01 Test status: Authorized by Yuh-Hsu Pan
Analysis Id: W-NO2NO3 Analysis Description: Analysis for nitrite+nitrate in water

Storet Number	Analyte	Result	Units
00630	NO2NO3-N	2.9 A	mg N/L

Sample Number: 90-SEP-11-09-01 Test status: Authorized by Yuh-Hsu Pan
Analysis Id: W-NH3 Analysis Description: Analysis for ammonia in water

Storet Number	Analyte	Result	Units
00610	Ammonia-N	2.9 A	mg N/L

End of Report

A - Value reported is the mean of two or more determinations
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U - Material was analyzed for but not detected; The value reported is the mimimum detection limit
N/A - Not applicable NR - Not requested

Sample Number: 90-SEP-11-08-01
Sample Location: Arlington East STP
Field ID: FL0026441
Date/Time Collected: 10-SEP-1990 13:18:06.55
Comments:

Sample Status: Authorized by Yuh-Hsu Pan
Matrix: Effluent
Storet Station Number:

Sample Number: 90-SEP-11-08-01
Analysis Id: TURBIDITY

Test status: Authorized by Yuh-Hsu Pan
Analysis Description: Turbidity test for water samples

Storet Number	Analyte	Result	Units
00076	Turbidity	1.7	NTU

Sample Number: 90-SEP-11-08-01
Analysis Id: W-TSS

Test status: Authorized by Yuh-Hsu Pan
Analysis Description: Total suspended solids

Storet Number	Analyte	Result	Units
00530	TSS	3	mg/L

Sample Number: 90-SEP-11-08-01
Analysis Id: W-F

Test status: Authorized by Yuh-Hsu Pan
Analysis Description: Analysis for fluoride in water

Storet Number	Analyte	Result	Units
00950	Fluoride	0.48	mg F/L

Sample Number: 90-SEP-11-08-01
Analysis Id: W-CL

Test status: Authorized by Yuh-Hsu Pan
Analysis Description: Analysis for chloride in water

Storet Number	Analyte	Result	Units
00940	Chloride	150	mg Cl/L

Sample Number: 90-SEP-11-08-01
Analysis Id: W-SO4

Test status: Authorized by Yuh-Hsu Pan
Analysis Description: Analysis for sulfate in water

Storet Number	Analyte	Result	Units
00945	Sulfate	150	mg SO4/L

A - Value reported is the mean of two or more determinations
E - Scientific notation
J - Estimated value
K - Actual value is known to be less than value given
L - Actual value is known to be greater than value given
N - Not analyzed for this compound
T - Value reported is less than the practice quantiation limit
U - Material was analyzed for but not detected; The value reported is the minimum detection limit
N/A - Not applicable NR - Not requested

Sample Number: 90-SEP-11-08-01 Test status: Authorized by Yuh-Hsu Pan
Analysis Id: W-PO4 Analysis Description: Orthophosphate analysis for water samples

Storet Number	Analyte	Result	Units
70507	Orthophosphate-P	6.0	mg P/L

Sample Number: 90-SEP-11-08-02 Sample Status: Authorized by Yuh-Hsu Pan
Sample Location: Arlington East STP Matrix: Field Blank
Field ID: Field Blank Storet Station Number:
Date/Time Collected: 10-SEP-1990 13:18:06.55
Comments:

Sample Number: 90-SEP-11-08-02 Test status: Authorized by Yuh-Hsu Pan
Analysis Id: TURBIDITY Analysis Description: Turbidity test for water samples

Storet Number	Analyte	Result	Units
00076	Turbidity	0.16	NTU

Sample Number: 90-SEP-11-08-02 Test status: Authorized by Yuh-Hsu Pan
Analysis Id: W-TSS Analysis Description: Total suspended solids

Storet Number	Analyte	Result	Units
00530	TSS	1 U	mg/L

Sample Number: 90-SEP-11-08-02 Test status: Authorized by Yuh-Hsu Pan
Analysis Id: W-F Analysis Description: Analysis for fluoride in water

Storet Number	Analyte	Result	Units
00950	Fluoride	0.10 U	mg F/L

Sample Number: 90-SEP-11-08-02 Test status: Authorized by Yuh-Hsu Pan
Analysis Id: W-CL Analysis Description: Analysis for chloride in water

Storet Number	Analyte	Result	Units
00940	Chloride	2.0 U	mg Cl/L

A - Value reported is the mean of two or more determinations
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K - Actual value is known to be less than value given
L - Actual value is known to be greater than value given
N - Not analyzed for this compound
T - Value reported is less than the practice quantiation limit
U - Material was analyzed for but not detected; The value reported is the mimimum detection limit
N/A - Not applicable NR - Not requested

Sample Number: 90-SEP-11-08-02 Test status: Authorized by Yuh-Hsu Pan
Analysis Id: W-SO4 Analysis Description: Analysis for sulfate in water

Storet Number	Analyte	Result	Units
00945	Sulfate	5.0 U	mg SO4/L

Sample Number: 90-SEP-11-08-02 Test status: Authorized by Yuh-Hsu Pan
Analysis Id: W-PO4 Analysis Description: Orthophosphate analysis for water samples

Storet Number	Analyte	Result	Units
70507	Orthophosphate-P	0.050 U	mg P/L

End of Report

A - Value reported is the mean of two or more determinations
E - Scientific notation
J - Estimated value
K - Actual value is known to be less than value given
L - Actual value is known to be greater than value given
N - Not analyzed for this compound
T - Value reported is less than the practice quantiation limit
U - Material was analyzed for but not detected; The value reported is the mimimum detection limit
N/A - Not applicable NR - Not requested

Department of Environmental Regulation

Results of Fifth Year Inspections

Discharger: **Arlington East Sewage Treatment Plant**
County: **Duval**
NPDES Number: **FL0026441**
State Permit Expiration Date:

Toxics Sampling Inspection (XSI)	
Date Sampled:	9-10-90
Results:	Ambient water quality standard for silver exceeded (0.2 µg/l detected in effluent). Non-toxic concentrations of barium (14 µg/l), iron (45 µg/l), and zinc (21 µg/l) present. No organic priority pollutants found.

Compliance Biomonitoring Inspection (CBI)	
Date Sampled:	9-10-90
Results:	Chlorinated sample was acutely toxic to *Notropis leedsi*, a violation of 17-4.244(3)(a) (toxicity requirement).

Impact Bioassessment Inspection (IBI)	
Date Sampled:	9-10-90
Results:	Elevated nutrient concentrations (especially ortho-phosphorus) were detected in the effluent. It is probable that this facility contributes to nutrient induced imbalances of aquatic flora or fauna (17-302.560(19) FAC) in the St. Johns River.

Water Quality Inspection (WQI)	
Date Sampled:	
Results:	

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