

FILE COPY
DO NOT REMOVE

Bioassays of

Julington Creek Elementary School
Sewage Treatment Plant

St. Johns County, Florida

NPDES #FL0038202

Sampled 1/21/92

February 11, 1992

Biology Section
Division of Technical Services

Bioassays of

Julington Creek Elementary School Sewage Treatment Plant

St. Johns County, Florida

NPDES #FL0038202

Biology Section
Bureau of Laboratories
February 11, 1992

Introduction

Julington Creek Elementary School STP, St. Johns County, Florida, NPDES #FL0038202, on 22 to 24 January, 1992.

This facility, a 7,500 GPD extended aeration sewage treatment plant, is located at 2316 Race Track Road in St. Johns County. The effluent is disinfected by chlorination and dechlorinated prior to discharge. Effluent is discharged to Floral Branch, thence to Julington Creek, which flows into the St. Johns River.

The toxicity tests discussed in this report were performed in accordance with methods described by Weber, 1991, *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms*, 4th Edition.

Results and Discussion

The Biology Section performed two static acute screening bioassays on a sample of effluent from this facility. The bioassay test organisms used for these tests were the water flea, *Ceriodaphnia dubia*, and the fish, *Notropis leedsi*. The results of these tests indicated that the sample was not toxic to the test organisms.

Total residual chlorine was not detected in the sample. The total ammonia and the unionized ammonia concentrations were 15.6 mg/L and 0.42 mg/L (Hach), respectively. No further chemical analyses were performed on the sample.

Conclusion

The sample of effluent from this facility was not toxic on 21 January, 1992.

Table 1. Concentration Series and Volumes Used for The Static Acute Screening Bioassays of the Julington Creek Elementary School STP on 22 to 24 January, 1992.

Ceriodaphnia dubia (water flea)

Concentration	Dilution Water	Sample	Total Volume
Control	20 mL	0 mL	20 mL
100%	0 mL	20 mL	20 mL

Notropis leedsi (bannerfin shiner)

Concentration	Dilution Water	Sample	Total Volume
Control	500 mL	0 mL	500 mL
100%	0 mL	500 mL	500 mL

Table 2. Data recorded during the static acute screening bioassay of a sample of effluent from the Julington Creek Elementary School STP St. Johns County, Florida, NPDES# FL0038202, on 22 to 24 January, 1992.

Facility:	**Julington Creek Elementary School STP**	**NPDES #**	**FL0038202**	Facility Type:	**Wastewater Treatment**
Location:	2316 Racetrack Road	Contact/District:	J. Wright / Northeast		
County:	St. Johns	Test type:	static screening		
Sample Collection Date:	**1/21/92** Time: 1710	# tests:	2	Receiving Water:	Floral Branch to Julington
Test Beginning Date:	1/22/92 Time: 1300	Chlorination Type:	**chlorinated**		Creek to St. Johns River
Test Ending Date:	1/24/92 Time: 1300	Dechlor Method:	plant dechlorination		**Page 1 of 1**

Total Residual Cl2	mg/l	Method
Field:	not	measured
Lab:	0.0	Hach

Ammonia	Total (mg/l)	Unionized (mg/l)
Control Water (fish):	0.00	0.00
Cond. Control Water (daphnids):	0.00	0.00
100% Sample:	15.60	0.42

Alk & Hardness	Alkalinity (mg/l)	Hardness (mg/l)
Control Water (fish):	123	135
Cond. Control Water (daphnids):	77	100
100% Sample:	170	360

Organism: ***Ceriodaphnia dubia*** Life stage: < 24 hours
LC50: -

	SURVIVAL			pH			Temperature			Dissolved Oxygen			Conductivity	
Concentrations	# at 0 hr	Live at 24 hr	Live at 48 hr	0 hour	24 hour	48 hour	0 hour	24 hour	48 hour	0 hour	24 hour	48 hour	0 hour	48 hour
Control	5	5	5	8.1	-	8.0	23.0	-	23.0	8.1	-	8.7	169	177
Control	5	5	5	-	-	8.0	-	-	-	-	-	8.7	-	-
Control	5	5	5	-	-	8.0	-	-	-	-	-	8.7	-	-
Control	5	5	5	-	-	8.0	-	-	-	-	-	8.7	-	-
100%	5	5	5	7.7	-	8.2	24.5	-	23.0	8.1	-	8.2	1103	1117
100%	5	5	5	-	-	8.2	-	-	-	-	-	8.2	-	-
100%	5	5	5	-	-	8.2	-	-	-	-	-	8.2	-	-
100%	5	5	5	-	-	8.2	-	-	-	-	-	8.2	-	-

Organism: ***Notropis leedsi*** Age: 17 days
LC50: -

	SURVIVAL			pH			Temperature			Dissolved Oxygen			Conductivity	
Concentrations	# at 0 hr	Live at 24 hr	Live at 48 hr	0 hour	24 hour	48 hour	0 hour	24 hour	48 hour	0 hour	24 hour	48 hour	0 hour	48 hour
Control	5	5	5	7.9	8.2	8.1	21.0	22.9	21.9	8.7	7.9	8.3	234	237
Control	5	5	5	7.9	8.2	8.1	-	-	-	8.7	7.9	8.3	-	-
100%	5	5	5	7.6	7.9	7.9	25.2	22.8	21.9	8.8	6.3	7.0	1184	1105
100%	5	5	5	7.6	7.9	7.9	-	-	-	8.8	6.3	7.0	-	-

DER Biology Section — Acute Bioassay Bench Sheet

Sample Source: Julington Creek Elementary School
Address/City:
County: St. Johns
Contact/District: Jim Wright / NE
NPDES Permit #: FL00 Outfall #:

Sample Collection: Date 1/21/92 Time 1710
Test Beginning: Date 1/22/92 Time 1300
Test Ending: Date 1/24/92 Time 1300
Test Organism: C. dubia
Life Stage/Age: <24 hours

Test Number: 1 of 2 Test Type: Screening | Definitive
Static | Static Renewal | Flow-through

27768

Remarks:

Instrument Calibrations:

	pH	DO	Temp	Cond
0 hr	7@7 9@9	8.7@23.0	22.3@22.5	1333@22.9@ 1350
24 hr	7@7.9@9	8.6@23.5c	22.6@22.6	1358@23.5c / 3
48 hr	7@7.9@9	8.7@23c	22.3@22.3°c	1332@22.8°c /

Conc.	Chamber #	Number Live 0	24	48	pH 0	24	48	Temp. (°C) 0	24	48	DO (mg/L) 0	24	48	Cond. (µmhos/cm) 0	24	48
Control		5	5	5	8.1		8.0	23.0		23.0	8.1		8.7	109		127
Control		5	5	5			8.0						8.7			
Control		5	5	5			8.0						8.7			
Control		5	5	5			8.0						8.7			
100%		5	5	5	7.7		8.2	24.5		23.0	8.1		8.2	1103		1117
100%		5	5	5			8.2						8.2			
100%		5	5	5			8.2						8.2			
100%		5	5	5			8.2						8.2			
Measured/Loaded by:		MF	MF	MF	MF		MF	MF		MF	MF		MF	MF		MF
Recorded by:		MF	MF	MF	AJ		MF	AJ		MF	AJ		MF	AJ		MF

Investigators' Signatures

Alison Jocelyn
Marshall Faircloth

Reviewer

Water-quality Parameters

	Well Water	Cond. Water	Sample	Method	Measured by
Field Tot. Resid. Clz:	Blank = 0.0		not	measured	
Lab Tot. Resid. Clz:	0.0	0.0	0.0	Hach	MF
Alkalinity:	123	77	170	Hach	AJ
Hardness:	135	100	360	Hach	AJ
Total Ammonia:	0.0	0.0	15.6	Hach	AJ

Ammonia Meter Slope:
Ammonia Blank: 0.0
Salinity Sample: ppt

DER Biology Section — Acute Bioassay Bench Sheet

Sample Source: Julington Creek Elementary School
Address/City:
County: St. Johns
Contact/District: Tim Wright / NE
NPDES Permit #: FL00 Outfall #:

Sample Collection: Date 1/21/92 Time 1710
Test Beginning: Date 1/22/92 Time 1300
Test Ending: Date 1/24/92 Time 1300
Test Organism: N Cedral
Life Stage/Age: 17 day

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

Remarks:

27768

Instrument Calibrations:

	pH	DO	Temp	Cond
0 hr	7.0, 7.09	8.7@23.0	22.3@22.5	1333@1350
24 hr	7.0, 7.09	8.6@23.5°C	22.6@22.6°C	1359@1356
48 hr	7.0, 7.09	8.7@23.0°C	22.3@22.3°C	1332@1347

Conc.	Chamber #	Number Live 0	24	48	pH 0	24	48	Temp. (°C) 0	24	48	DO (mg/L) 0	24	48	Cond. (µmhos/cm) 0	24	48
Control	38	5	5	5	7.9	8.2	8.1	21.0	22.9	21.9	8.7	7.9	8.3	234	239	231
Control	73	5	5	5	7.9	8.2	8.1				8.7	7.9	8.3			
100%	92	5	5	5	7.6	7.9	7.9	25.2	22.8	21.9	8.8	6.3	7.0	1184	1122	1105
100%	48	5	5	5	7.6	7.9	7.9				8.8	6.3	7.0			
Measured/Loaded by:		MF	MF	MF	MF	MF	MF	MF	MF	MF	MF	MF	MF	MF	MF	MF
Recorded by:		MF	MF	MF	AJ	AJ	AJ	AJ	AJ	AJ	AJ	AJ	AJ	AJ	AJ	AJ

Investigators' Signatures

Reviewer

Water-quality Parameters

	Well Water	Cond. Water	Sample	Method	Measured by
Field Tot. Resid. Cl2:	2d blank = 0.0		not	measured	
Lab Tot. Resid. Cl2:	0.0	0.0	0.0	Hach	MF
Alkalinity:	123	77	170	Hach	AJ
Hardness:	135	100	360	Hach	AJ
Total Ammonia:	0.0	0.0	15.6	Hach	AJ

Ammonia Meter Slope: _____ Ammonia Blank: 0.0 Salinity Sample: _____ ppt

The Bioassay of the Julington Creek Elementary School STP sampled on January 22, 1992, NPDES# FL0038202.

