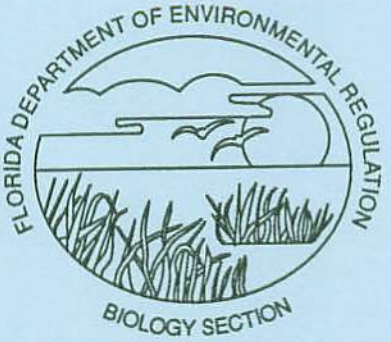


Bioassays of

New Port Richey Wastewater Treatment Plant

New Port Richey, Pasco County, Florida

NPDES #FL0020931

Sampled 8/12/91

September 6, 1991

Biology Section
Division of Technical Services

Bioassays of

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New Port Richey, Pasco County, Florida

NPDES #FL0020931

Biology Section
Bureau of Laboratories
September 6, 1991

Introduction

New Port Richey Wastewater Treatment Plant, New Port Richey, Pasco County, Florida, NPDES #FL0020931, on 13 to 15 August, 1991.

This facility is located at 1123 West Main Street and is being expanded from a 4.5 mgd to 7.5 mgd design capacity facility. The facility currently includes: two 1.5 mgd oxidation ditches, each with its own clarifier; one 1.5 mgd Schreiber extended aeration unit with clarifier; return activated sludge-waste activated sludge basin; sand filtration; chlorine contact basin; and dechlorination prior to discharge. The expansion, currently under construction, will add two more 1.5 mgd oxidation ditches with clarifiers. The average flow from this facility for the last twelve months was 3.8 mgd. Treated wastewater is discharged into Cross Bayou, which flows into the Gulf of Mexico.

The toxicity tests discussed in this report were performed in accordance with methods described by Peltier and Weber, 1985, *Methods for Measuring the Acute Toxicity of Effluents to Aquatic Organisms*, 3rd Edition, and by the FDER Biology Section, 1985, *Quality Assurance Manual for Performing Acute Toxicity Tests*, 2nd 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 test results indicated that the sample was not toxic to the fish, but was toxic to the water fleas, producing an $LC_{50} < 100\%$.

Total residual chlorine and total ammonia were not detected in the sample. Further chemical analyses were performed on the sample, but organics and pesticides were undetected. The cause of toxicity was not determined.

Conclusion

The sample of effluent from this facility was toxic to *C. dubia* on 12 August, 1991. The cause of toxicity was not determined.

Table 1. Concentration Series and Volumes Used for the Static Screening Bioassays of the New Port Richey WWTP, NPDES# FL0020931 on 13 to 15 August, 1991.

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. Date recorded during the static screening bioassay of a dechlorinated sample of effluent from the New Port Richey WasteWater Treatment Plant, NPDES# FL0020931, New Port Richey, Pasco County, Florida, on 13 to 15 August, 1991.

Facility:	New Port Richey WWTP	NPDES #	FL0020931	Facility Type:	WWTP
Location:	1123 W. Main St., New Port Richey	Contact/District:	Pete Burghardt		
County:	Pasco	Test type:	Static Screen		
Sample Collection Date:	8/12/91 Time: 1300	# tests:	2	Receiving Water:	Cross Bayou to the
Test Beginning Date:	8/13/91 Time: 1330	Chlorination Type:	dechlorinated		Gulf of Mexico
Test Ending Date:	8/15/91 Time: 1200		plant dechlorination unit	Page 1 of 1	

Total Residual Cl2	mg/l	Method
Field:	0.0	Hach
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:	0.00	0.00

Alk & Hardness	Alkalinity (mg/l)	Hardness (mg/l)
Control Water (fish):	115	120
Cond. Control Water (daphnids):	63	80
100% Sample:	145	253

Organism: ***Ceriodaphnia dubia*** Life stage: <24 hours
LC50: <100%

	SURVIVAL			Dissolved Oxygen			pH			Temperature			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	*	9.2	9.4	-	8.2	8.2	-	21.0	21.0	-	190	181
Control	5	5	*	-	9.4	-	-	8.2	-	-	-	-	-	-
Control	5	4	*	-	9.4	-	-	8.2	-	-	-	-	-	-
Control	5	4	*	-	9.4	-	-	8.2	-	-	-	-	-	-
100%	5	0	*	9.6	9.3	-	7.6	8.4	-	20.1	21.1	-	1028	1062
100%	5	0	*	-	9.3	-	-	8.4	-	-	-	-	-	-
100%	5	0	*	-	9.3	-	-	8.4	-	-	-	-	-	-
100%	5	0	*	-	9.3	-	-	8.4	-	-	-	-	-	-

* test terminated at 24 hours

Organism: ***Notropis leedsi*** Age: 18 days
LC50: -

	SURVIVAL			Dissolved Oxygen			pH			Temperature			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	9.2	9.3	9.3	7.8	8.2	8.4	21.3	20.4	20.4	-	-
Control	5	5	5	9.1	9.3	9.3	7.8	8.2	8.4	-	-	-	244	244
100%	5	5	5	9.8	9.1	9.2	7.6	8.1	8.3	19.2	20.5	20.6	-	-
100%	5	5	5	9.8	9.1	9.2	7.6	8.1	8.3	-	-	-	1044	1087

Table 3. LC_{50} Data for the Bioassay of the New Port Richey WWTP, NPDES# FL0020931, on 13 to 15 August, 1991.

Organism	Method of Data Analysis	48 Hour LC_{50}
Dechlorinated discharge		
Ceriodaphnia dubia	not calculated	<100%[a]

a The LC_{50} is < 100% since all the organisms died in the lowest test concentration (100%).

Sample Source: Newport Run WWTP
Address/City:
County: PASCO
Contact/District: PAT FRICANO / SW
NPDES Permit #: FL0020931 Outfall #:

Sample Collection: Date 8/12/91 Time 1300
Test Beginning: Date 8-13-91 Time 1330
Test Ending: Date 8-14-91 Time 1200
Test Organism: C. dubia Ceriodaphnia
Life Stage/Age: <24 hours

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

Remarks: test terminated at 24 hours

Instrument Calibrations:

	pH	DO	Cond	Temp
0 hr	7.0 7.07	20.2 @ 25°	1372 @ 24.5°	21.4 @ 25°
24 hr	7.07 7.05	5.6 @ 22°	1377 @ 24.5° 1358	21.5 @ 24.2
48 hr	7.07 7.05	5.9 @ 21.5	1372 @ 24.0° 1354	21.5 @ 24.3

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	A	5	5		9.2	9.4		8.2	8.2		21.1	21.0		190	181	
control	B	5	5			9.4			8.2							
control	C	5	4			9.4			8.2							
control	D	5	4			9.4			8.2							
100%	A	5	0		9.6	9.3		7.6	8.4		20.1	21.1		1028	1064	
100%	B	5	0			9.3			8.4							
100%	C	5	0			9.3			8.4							
100%	D	5	0			9.3			8.4							

Measured/Loaded by: KP KP MF MF MF MF MF MF MF MF MF MF
Recorded by: KP KP KP AJ KP KP KP KP KP KP KP KP

21614 91-AUG-13-08-01
BIOLOGY Matrix: W-EFFLUENT
Date Collected: 12-AUG-1991 13:00:00.
New Port Richey
BSY-SN-CLD BSY-SN-FSH

Investigators' Signatures
Kim Pearce
Mandell Faulkner
Alvaro Jaramillo

Water-quality Parameters

	Well Water	Cond. Water	Sample	Method	Measured by
Field Tot. Resid. Cl2	[illegible]		0.0	Hach	PF
Lab Tot. Resid. Cl2	[illegible]		0.0	Hach	MF
Alkalinity:	115	63	145	Hach	KP
Hardness:	120	50	253	Hach	KP
Total Ammonia	0.15	0.10	0.0	Orion	MF

Ammonia meter slope: -56.0 0.0 mg/l Hach K.T
0.0 mg/l N.

DER Biology Section — Acute Bioassay Bench Sheet

Sample Source: New Port Richey
Address/City:
County: PASCO
Contact/District: PAT FRICANO / SW
NPDES Permit #: FL0020931 Outfall #:

Sample Collection: Date 8/12/91 Time 1300
Test Beginning: Date 8-13-91 Time 1330
Test Ending: Date 8-15-91 Time 1200
Test Organism: Mysidopsis bahia
Life Stage/Age: 1-8 days

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

Remarks:

Instrument Calibrations:

	pH	DO	Cond	Temp
0 hr	7@7.9@9	8.9@21.5	1372@24.2	21.1@23.9
24 hr	7@7.9@9	8.9@21.5	1377@24.5 @1351	21.5@24.2
48 hr	7@7.9@9	8.9@21.5	1372@24.0 @1351	21.5@24.3

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	42	5	5	5	9.2	9.3	9.3	7.8	8.2	8.4	21.3	20.9	20.4			
control	3	5	5	5	9.1	9.3	9.3	7.8	8.2	8.4				244	241	244
100%	4	5	5	5	9.8	9.1	9.2	7.6	8.1	8.3	19.2	20.5	20.6			
100%	37	5	5	5	9.8	9.1	9.2	7.6	8.1	8.3				1044	1075	1087
Measured/Loaded by:		MF	AJ	AJ	MF	MF	MF	MF	MF	MF	MF	MF	MF	MF	MF	MF
Recorded by:		KP	AJ	AJ	KP	AJ	AJ	KP	AJ	AJ	KP	AJ	AJ	KP	AJ	AJ

Investigators' Signatures

Kim Pearce
Marshall Faircloth
Alison Jones

Reviewer

Water-quality Parameters

	Well Water	Cond. Water	Sample	Method	Measured by
Field Tot. Resid. Clz:	[redacted]		0.0	Hach	PF
Lab Tot. Resid. Clz:	[redacted]		0.0	Hach	MF
Alkalinity:	115	63	145	Hach	KP
Hardness:	120	80	253	Hach	KP
Total Ammonia:	0.0	0.0	0.0	Hach	MF

Ammonia meter slope: -51.0 * Meter broken - Set here by instructor