

Bioassays of

Deer Tree Hills Mobile Home Park Wastewater Treatment Plant

Tallahassee, Leon County, Florida

NPDES #FL0038199

Sampled 12/1/98

March 1999

Biology Section
Division of Administrative & Technical Services
Comprehensive Quality Assurance Plan #870346G

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Bureau of Laboratories
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Introduction

Deer Tree Hills Mobile Home Park WWTP, West Highway 20, Tallahassee, Leon County, Florida, NPDES #FL0038199, tests performed on 1 to 3 December, 1998.

This mobile home park's wastewater treatment plant has a design flow of 0.015 MGD and a mean flow of 0.015 MGD. At the time of a survey performed at the site in November, 1998, the flow was 0.028 MGD. The wastewater treatment system consists of a 1,000-gallon grease trap/grit tank, four aeration tanks, a clarifier, a 1,000-gallon sludge tank, a 500-gallon chlorine contact chamber, and a dechlorination unit. Residuals are aerobically digested and transported to the T. P. Smith Water Reclamation Facility for disposal. Effluent is discharged to an unnamed tributary of Gum Swamp.

A warning letter was sent to this facility on November 23, 1998, due to numerous permit violations. Violations included but were not limited to: exceeding design flow, failure to perform or complete corrective actions, submittal of inaccurate information, improper discharge pipe location, a broken discharge pipe and a malfunctioning effluent filtration system (facility summary information provided by Glenn Butts, Kenny Ferguson, and Barbara Ruth, FDEP, Pensacola).

The toxicity tests discussed in this report were performed in accordance with methods described by Weber, 1993, *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms*, 4th Edition, EPA/600/4-90/027F.

Results and Discussion

The FDEP Biology Section performed two 48-hour static acute screening toxicity bioassays on a sample of effluent from this facility. The species used for these tests were the waterflea, *Ceriodaphnia dubia*, and the bannerfin shiner, *Cyprinella leedsi*. The test results did not show toxicity (Table 1).

Total residual chlorine was not detected in the sample. Total ammonia and unionized ammonia concentrations were 0.105 mg/L and 0.001 mg/L, respectively. Further chemical analyses were performed on the sample and several metals were identified (Table 2).

Conclusion

The sample of effluent collected from this facility on December 1, 1998, did not show toxicity.

Table 1. Data recorded during the 48-hour acute toxicity screening bioassays of a sample of effluent from the Deer Tree Hills Mobile Home Park WWTP, Tallahassee, Leon County, Florida, NPDES# FL0038199, performed on 1 to 3 December, 1998.

Facility:	**Deer Tree Hills Mobile Home Park WWTP**		NPDES #	FL0038199	Facility Type: Wastewater
Location:	State Road 20, West of Tallahassee		Contact/District:	Gleen Butts/Northwest	Treatment Plant
County:	Leon		Test type:	static acute screen	Receiving Water: Unnamed Tributary
Sample Collection Date:	12/1/98	Time: 0944	# tests:	2	of Gum Swamp
Test Beginning Date:	12/1/98	Time: 1430	Chlorination Type:	Chlorinated*	
Test Ending Date:	12/3/98	Time: 1415			Page 1 of 1

*Sample collected after Plant Dechlorination unit

Total Residual CL2	mg/L	Method
Field:	not measured	
Lab:	<0.03	DR-100

Ammonia	Total (mg/L)	Unionized (mg/L)
Control Water (fish):	< 0.017	< 0.017
Control Water (20% DMW) (cladocerans):	< 0.017	< 0.017
100% Sample:	0.105	0.001

Alk & Hardness	Alkalinity (mg/L)	Hardness (mg/L)
Control Water (fish):	140	130
Control Water (20% DMW) (cladocerans):	85	86
100% Sample:	110	148

Salinity	(ppt)
Control Water (fish):	0
Control Water (20% DMW) (cladocerans):	0
100% Sample:	0

Organism: ***Ceriodaphnia dubia*** Life stage: < 24 hours old

	Sample/Diluent	SURVIVAL # Alive			pH			Temperature[A]			Dissolved Oxygen			Conductivity µmhos/cm	
Concentrations	Volume(mL)	0 hr	24 hr	48 hr	0 hour	24 hour	48 hour	0 hour	24 hour	48 hour	0 hour	24 hour	48 hour	0 hour	24 hour
Control A	0/20	5	5	5	7.7	-	7.7	24.2	-	24.9	7.6	-	7.5	180	170
Control B	0/20	5	5	5	-	-	7.8	-	-	24.8	-	-	7.4	-	180
Control C	0/20	5	5	5	-	-	7.8	-	-	24.7	-	-	7.8	-	185
Control D	0/20	5	5	5	-	-	7.8	-	-	24.6	-	-	7.8	-	190
100% A	20/0	5	5	5	7.2	-	8.0	24.1	-	24.8	7.7	-	7.8	390	420
100% B	20/0	5	5	5	-	-	8.0	-	-	24.8	-	-	7.8	-	440
100% C	20/0	5	5	5	-	-	8.0	-	-	24.7	-	-	7.9	-	450
100% D	20/0	5	5	5	-	-	8.1	-	-	24.7	-	-	7.9	-	455

[A] Temperature of test incubator # 2 and test room were continuously recorded on strip chart recorders.
Incubator #2 temperature range for the test period was 25.8-26.8°C.
Test room temperature range for the test period was 23.0-25.0°C.

Organism: ***Cyprinella leedsi*** Age: 10 days

	Sample/Diluent	SURVIVAL # Alive			pH			Temperature[B]			Dissolved Oxygen			Conductivity µmhos/cm	
Concentrations	Volume(mL)	0 hr	24 hr	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 A	0/500	5	5	5	7.4	8.0	8.0	25.3	24.3	25.1	7.5	7.5	7.4	225	250
Control B	0/500	5	5	5	7.4	8.0	8.0	25.1	24.0	24.8	8.0	7.5	7.5	250	260
Control C	0/500	5	5	5	7.5	8.0	8.0	25.1	23.9	24.9	8.1	7.6	7.6	250	260
Control D	0/500	5	5	5	7.5	8.0	8.0	25.0	23.7	25.0	8.2	7.4	7.6	250	260
100% A	500/0	5	5	5	7.2	7.7	7.9	24.8	24.0	24.5	8.0	7.2	7.5	430	450
100% B	500/0	5	5	5	7.2	7.7	7.8	24.6	23.9	24.7	7.8	7.2	7.4	440	460
100% C	500/0	5	5	5	7.2	7.7	7.9	24.6	23.8	24.8	7.6	7.1	7.5	445	460
100% D	500/0	5	5	5	7.2	7.7	7.9	24.7	23.7	24.9	7.6	7.2	7.5	445	465

[B] Temperature of test incubator # 3 and test room were continuously recorded on strip chart recorders.
Incubator #3 temperature range for the test period was 24.8-25.5°C.
Test room temperature range for the test period was 23.0-25.0°C.

Table 2. Results of chemical analyses on the effluent from the Deer Tree Hills MHP WWTP sampled on December 1, 1998.

Metals

Aluminum	1350	µg/L
Cadmium	0.05	µg/L[I]
Calcium	40.3	mg/L
Copper	3.6	µg/L
Iron	748	µg/L
Lead	2.41	µg/L
Magnesium	12.4	mg/L
Zinc	34	µg/L

Base, Neutral, & Acid Extractable Organics

None Detected

Pesticides

None Detected

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

FDEP Biology Section — Acute Bioassay Bench Sheet

Sample Source: Deertree Hills MHP
County: LEON
Contact / District: LAB / Ken Espy
NPDES Permit #: FL0038199
LIMS Sample #: 358494 LIMS Job #: TLH-1998-12-02-03
sample log 12/4/98 ow

Sample Collection: Date 12-1-98 Time 0944
Test Beginning: Date 12/1/98 Time 1430
Test Ending: Date 12/5/98 Time 1330
Organism Batch #: 93 Diluent Batch #: well
Organism Age: 10 days SRT toxicant batch #: NA

Test organism: Cyprinella leedsi

Test Type: (Screening) / Definitive
(Static) / Static Renewal / Flow-through
Test Number: 2 of 2
Incubator # 3 Temperature Range: 24.8-25.5°C
Room temperature Range 23.0-25.0°C

Remarks:

Conc.	Chamber #	Number Live			pH			Temperature (°C)			D.O. (mg/L)			UNCORRECTED Cond. (mmhos/cm) (Cond. (µmhos/cm))		
		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
Ctr A	01	5	5	5	7.4	8.0	8.0	25.3	24.3	25.1	7.5	7.5	7.4	225	230	250
Ctr B	02	5	5	5	7.4	8.0	8.0	25.1	24.0	24.8	8.0	7.5	7.5	250	240	260
Ctr C	03	5	5	5	7.5	8.0	8.0	25.1	23.9	24.9	8.1	7.6	7.6	250	245	260
Ctr D	04	5	5	5	7.5	8.0	8.0	25.0	23.7	25.0	8.2	7.4	7.6	250	250	260
100% A	05	5	5	5	7.2	7.7	7.9	24.8	24.0	24.5	8.0	7.2	7.5	430	420	450
100% B	06	5	5	5	7.2	7.7	7.8	24.6	23.9	24.7	7.8	7.2	7.4	440	435	460
100% C	07	5	5	5	7.2	7.7	7.9	24.6	23.8	24.8	7.6	7.1	7.5	445	435	460
100% D	08	5	5	5	7.2	7.7	7.9	24.7	23.7	24.9	7.6	7.2	7.8	445	435	465
measured by:		DAW	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH
recorded by:		DAW	CH	CH	DAW	CH	CH	DAW	CH	CH	DAW	CH	CH	DAW	CH	CH

Investigators' Signatures

Daniel A. Wainright
Courtney Hood
Marshall Faircloth
Tamara Mendoza

reviewer

form updated 5/22/98

Water Quality Parameters	Salt Water / (Well Water)	20% Min Water	Sample	Method	Measured by	Verified by
Field Total Residual Cl2 (mg/L):			not measured			MF
Lab Total Residual Cl2 (mg/L):	<0.03		<0.03	DR-100	CH	MF
Alkalinity (mg/L as $CaCO_3$):	140		110	HACH	CH	MF
Hardness (mg/L as $CaCO_3$):	130		148	Hach	CH	MF
Total ammonia (mg/L as N):	<0.017		0.105	Orion	MF	MF
Salinity:	0		0	YCT	DAW/MF	MF

FDEP Biology Section — Acute Bioassay Bench Sheet

Sample Source: Deertree Hills MHP
County: LEON
Contact / District: LAB / Ken Espy
NPDES Permit #: FL0038199
LIMS Sample #: 358494 LIMS Job #: TLH-1998-12-02-03
sample log 12/4/98 DW
Test Type: (Screening) | Definitive
(Static) | Static Renewal | Flow-through
Test Number: 1 of 2

Sample Collection: Date 12-1-98 Time 0944
Test Beginning: Date 12/1/98 Time 1430
Test Ending: Date 12/3/98 Time 1415
Organism Batch #: 52 Diluent Batch #: 60
Organism Age: < 24 hours SRT toxicant batch #: NA
Test organism: Ceriodaphnia dubia

Remarks:

Incubator #2 Temperature Range 25.8°C-26.8°C
Room Temperature Range 23.0-25.0°C

Conc.	Chamber #	Number Live 0 hr	24 h	48 h	pH 0 hr	24 h	48 h	Temperature (°C) 0 hr	24 h	48 h	D.O. (mg/L) 0 hr	24 h	48 h	UNCORRECTED Cond. (mmhos/cm) (Cond. (µmhos/cm)) 0 hr	24 h	48 h
Ctl	A	5	5	5	7.7		7.7	24.2		24.9	7.6		7.5	180		170
Ctl	B	5	5	5	~~7.8~~		7.8			24.8			7.4			180
Ctl	C	5	5	5	7.8		7.8			24.7			7.8			185
Ctl	D	5	5	5			7.8			24.6			7.9			190
100%	A	5	5	5	7.2		8.0	24.1		24.8	7.7		7.8	390		420
100%	B	5	5	5			8.0			24.8			7.8			440
100%	C	5	5	5			8.0			24.7			7.9			450
100%	D	5	5	5			8.1			24.7			7.9			455
measured by:		FW	FW	FW	CH		CH	CH		CH	CH		CH	CH		CH
recorded by:		DAW	FW	FW	DAW		DAW	DAW		DAW	DAW		DAW	DAW		DAW

@ Readings taken by mistake. Vials rinsed and filled with new control water. DAW/CH/FW 12/1/98

Investigators' Signatures

Courtney Hall

Marshall Faircloth

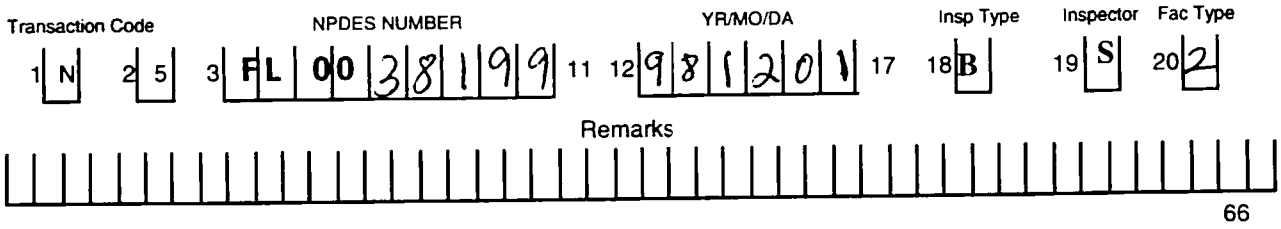
reviewer

form updated 5/22/98

Water Quality Parameters	Salt Water We Water	20% Min Water	Sample	Method	Measured by	Verified by
Field Total Residual Cl2 (mg/L):			Not Measured			MF
Lab Total Residual Cl2 (mg/L):		<0.03.	<0.03	DR-100	CH	MF
Alkalinity (mg/L as $CaCO_3$):		85	110	Hach	CH	MF
Hardness (mg/L as $CaCO_3$):		86	148	Hach	CH	MF
Total ammonia (mg/L as N):		<0.017	0.105	Orion	MF	MF
Salinity:		0	0	YCT	DAW/MF	MF

The Bioassay of the Deer Tree Hills Mobile Home Park WWTP effluent sampled on December 1, 1998, NPDES #FL0038199.

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



The Priority Pollutants Analysis for the Bioassay of the Deer Tree Hills Mobile Home Park WWTP effluent sampled on December 1, 1998, NPDES #FL0038199.

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

