

Bioassays of

Silver Dolphin Trailer Park Wastewater Treatment Plant

Jacksonville, Duval County, Florida

NPDES #FL0023001

Sampled 12/13/99

July 2000

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

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Silver Dolphin Trailer Park Wastewater Treatment Plant

Jacksonville, Duval County, Florida

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Bureau of Laboratories
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Introduction

S: :r Dolphin Trailer Park WWTP, Jacksonville, Duval County, Florida, NPDES #F L0023001, tests performed from 14 to 16 December 1999.

This facility has both a design flow and an annual mean flow of 0.006 MGD. The flow was 0.0065 MGD during the survey. The facility consists of an extended aeration plant with a grit chamber, aeration chamber, secondary clarifier, chlorination system, and a sodium sulfite dechlorination system. After treatment, the effluent is discharged into the class III waters of the Trout River. Residuals are stabilized by aerobic digestion and discarded at a regional WWTP (facility summary provided by Kathleen Gerard, FDEP, Jacksonville).

The toxi ty tests discussed in this report were performed in accordance with methods escribed 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 bi assays on a sample of effluent from this facility. The test species used for these bioassays were the water flea, *Ceriodaphnia dubia*, and the bannerfin shiner, *Cyprinella leedsi*. The test results did not indicate toxicity (Table 1).

Total residual chlorine was not detected in the sample. Total and unionized ammoni concentrations were 3.84 mg/L and 0.21 mg/L, respectively. Further chemica alyses were performed on the sample, and several metals were identified (Table 2).

Conclusion

The sample of effluent collected from this facility on December 13, 1999, did not show toxicity.

Table1. Data recorded during the 48-hour acute screening bioassays of a sample of effluent from the Silver Dolphin Trailer Park WWTP, Jacksonville, Duval County, Florida, NPDES# FL0023001, performed on 14 to 16 December 1999.

Facility:	**Silver Dolphin Trailer Park WWTP**			**NPDES #**	**FL0023001**	Facility Type:	**Wastewater**
Location:	11134 New Kings Road			Contact/District:	RJ Perez/NE-Dist		**Treatment Plant**
County:	Duval			Test type:	static acute screen		
Sample Collection Date:	12/13/99	Time:	1120	# tests:	2	Receiving Water:	Trout River
Test Beginning Date:	12/14/99	Time:	1345	Chlorination Type:	Dechlorinated		
Test Ending Date:	12/16/99	Time:	1315		sample collected after plant dechlorination		**Page 1 of 1**

Total Residual CL2	mg/L	Method
Field:	<0.04	-
Lab:	<0.03	DR-100

Ammonia	Total (mg/L)	Unionized (mg/L)
Control Water (fish):	< 0.017	<0.017
20% Dilute Mineral Water (cladocerans):	< 0.017	<0.017
100% Sample:	3.84	0.21

Alk & Hardness	Alkalinity (mg/L)	Hardness (mg/L)
Control Water (fish):	250	256
20% Dilute Mineral Water (cladocerans):	86	85
100% Sample:	250	256

Salinity[C]	(ppt)
Control Water:	0
100% Sample:	0

[C] Salinity based on conductivity and temperature measurements.

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

	Sample/Diluent	SURVIVAL # Alive			pH			Temperature[A]			Dissolved Oxygen			Conductivity Uncorrected 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	0/20	5	5	5	6.8	-	8.5	24.5	-	23.6	8.0	-	7.9	190	260
Control B	0/20	5	5	5	-	-	8.4	-	-	23.6	-	-	7.6	-	225
Control C	0/20	5	5	5	-	-	8.4	-	-	23.6	-	-	7.5	-	210
Control D	0/20	5	5	5	-	-	8.4	-	-	23.6	-	-	7.6	-	215
100% A	20/0	5	5	5	7.8	-	8.8	25.5	-	23.4	6.5	-	7.6	710	880
100% B	20/0	5	5	5	-	-	8.8	-	-	23.3	-	-	7.7	-	880
100% C	20/0	5	5	5	-	-	8.8	-	-	23.3	-	-	7.7	-	900
100% D	20/0	5	5	5	-	-	8.8	-	-	23.3	-	-	7.8	-	920

[A] Temperatures of room and test incubator were continously recorded on a strip chart recorder.
Room Temperature range for the test period was 24.5-25.5°C.
Incubator #2 temperature range for the test period was 25.5-26.5°C.

Organism: *Cyprinella leedsi* Age: 11 days

	Sample/Diluent	SURVIVAL # Alive			pH			Temperature[B]			Dissolved Oxygen			Conductivity Uncorrected 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	7.8	8.2	8.4	24.4	24.8	24.4	7.2	6.7	7.7	260	295
Control B	0/500	5	5	5	7.8	8.3	8.4	24.3	25.1	25.3	7.3	7.0	7.2	245	280
Control C	0/500	5	5	5	7.8	8.3	8.4	24.3	24.8	25.0	7.4	7.0	6.9	245	285
Control D	0/500	5	5	5	7.8	8.3	8.4	24.4	24.7	23.9	7.4	7.0	7.7	245	275
100% A	500/0	5	5	5	7.9	8.3	8.4	25.4	24.8	24.4	6.6	6.4	6.3	680	760
100% B	500/0	5	5	5	7.9	8.3	8.4	25.8	24.6	24.3	6.5	6.4	6.5	720	765
100% C	500/0	5	5	5	7.9	8.3	8.4	25.9	24.7	24.2	6.2	6.0	6.4	740	750
100% D	500/0	5	5	5	7.9	8.3	8.4	25.9	24.9	24.1	6.4	6.1	6.4	735	760

[B] Temperatures of room and test incubator were continously recorded on a strip chart recorder.
Room Temperature range for the test period was 24.5-25.5°C.
Incubator #3 temperature range for the test period was 23.5-25.0°C.

Table 2. Results of chemical analyses on the effluent from the Silver Dolphin Trailer Park Wastewater Treatment Plant sampled on December 13, 1999.

Metals

Aluminum	130	µg/L[I]
Calcium	58.1	mg/L[A]
Copper	12.3	µg/L[A]
Iron	83	µg/L[A]
Lead	0.58	µg/L[I]
Magnesium	22.8	mg/L[A]
Nickel	6	µg/L[J]
Zinc	21	µg/L[I]

Pesticides and Herbicides

none detected

Base, Neutral, & Acid Extractable Organics

none detected

[A] Value reported is the mean of two or more determinations.

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

[J] Estimated value

FDEP Biology Section — Acute Bioassay Bench Sheet

Sample Source: Silver Dolphin Mobile ~~Mobile~~ Home Park WWTP
County: Duval
Contact / District: RJ Perez | Stuart Norton | NE-DIST.
NPDES Permit #: FL0023001
LIMS Sample #: 422469 LIMS Job #: TLH-1999-12-14-52
sample log 12-13-99 MF
Test Type: (Screening) Definitive
Static / Static Renewal / Flow-through
Test Number: 2 of 2

Remarks:

Sample Collection: Date 12/13/99 Time 1120
Test Beginning: Date 12/14/99 Time 13:45
Test Ending: Date 12/14/99 Time 13:15
Organism Batch #: 96 Diluent Batch #: WR11
Organism Age: 14 DAYS SRT toxicant batch #: N/A
Test organism: C. leedsi

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	C9	5	5	5	7.8	8.2	8.4	24.4	24.8	24.4	7.2	6.7	7.7	260	300	295
B	C10	5	5	5	7.8	8.3	8.4	24.3	25.1	25.3	7.3	7.0	7.2	245	275	280
C	C11	5	5	5	7.8	8.3	8.4	24.3	24.8	25.0	7.4	7.0	6.9	245	280	285
D	C12	5	5	5	7.8	8.3	8.4	24.4	24.7	23.9	7.4	7.0	7.7	245	270	275
100% A	C13	5	5	5	7.9	8.3	8.4	25.4	24.8	24.4	6.6	6.4	6.3	680	755	760
B	C14	5	5	5	7.9	8.3	8.4	25.8	24.6	24.3	6.5	6.4	6.5	720	765	765
C	C15	5	5	5	7.9	8.3	8.4	25.9	24.7	24.2	6.2	6.0	6.4	740	760	750
D	C16	5	5	5	7.9	8.3	8.4	25.9	24.9	24.1	6.4	6.1	6.4	735	770	760
measured by:		MF	CH	SG	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH
recorded by:		CH	CH	SG	SG	CH	SG	SG	CH	SG	SG	CH	SG	SG	CH	SG

Investigators' Signatures
Shannon Gerardi
Marshall Faircloth
Courtney Head

Temperature Range °C
Incubator # 3 23.5° - 25.0°C
Room B24e 24.5° - 25.5°C

Water Quality Parameters	Salt Water (Well Water)	20% Min Water	Sample	Method	Measured by	Verified by
Field Total Residual Cl2 (mg/L):			0.0	-	RJ Perez	SG
Lab Total Residual Cl2 (mg/L):	<0.03		<0.03	DR-100	CH	SG
Alkalinity (mg/L as $CaCO_3$):	133		250	Hach	CH/SG	SG
Hardness (mg/L as $CaCO_3$):	130		254	Hach	CH/SG	SG
Total ammonia (mg/L as N):	<0.017		3.84	Denver	~~CH/SG~~ NF	SG
Salinity:	0		0	0	NF	SG

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form updated 3/3/99

FDEP Biology Section — Acute Bioassay Bench Sheet

Sample Source: Silver Dolphin Mobile Home WWTP
County: Duval
Contact / District: RJ Perez/STUART NORTON / NE-DOT
NPDES Permit #: FL0023001
LIMS Sample #: 422469 LIMS Job #: TLH-1999-12-14-52
sample log 12-10-99 MF
Test Type: (Screening) Definitive
(Static) Static Renewal I Flow-through
Test Number: 1 of 2

Sample Collection: Date 12/13/99 Time 1120
Test Beginning: Date 12/14/99 Time 1345
Test Ending: Date 12/16/99 Time 1315
Organism Batch #: 62 Diluent Batch #: 52
Organism Age: 24hrs SRT toxicant batch #: N/A
Test organism: C. dubia

Remarks:

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	5	5	5	6.8	–	8.5	24.5	–	23.6	8.0	–	7.9	190	–	260
	B	5	5	5	–	–	8.4	–	–	23.6	–	–	7.6	–	–	225
	C	5	5	5	–	–	8.4	–	–	23.6	–	–	7.5	–	–	210
	D	5	5	5	–	–	8.4	–	–	23.6	–	–	7.6	–	–	215
100%	A	5	5	5	7.8	–	8.8	25.5	–	23.4	6.5	–	7.6	710	–	880
	B	5	5	5	–	–	8.8	–	–	23.3	–	–	7.7	–	–	880
	C	5	5	5	–	–	8.8	–	–	23.3	–	–	7.7	–	–	900
	D	5	5	5	–	–	8.8	–	–	23.3	–	–	7.8	–	–	920
measured by:		MF	SG	SG	CH	–	CH	CH	–	CH	CH	–	CH	CH	–	CH
recorded by:		SG	SG	SG	SG	–	SG	SG	–	SG	SG	–	SG	SG	–	SG

Investigators' Signatures
Shannon Gerard
Marshall Faircloth
Cynthia Heid

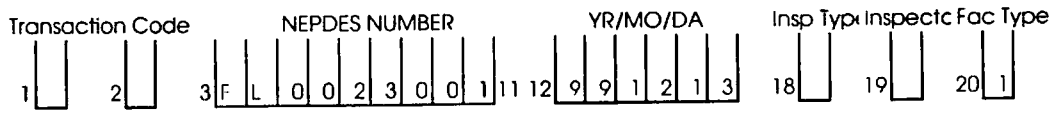
Temperature Range °C
Incubator # 2 25.5°-26.5°C
Room B246 24.5°-25.5°C

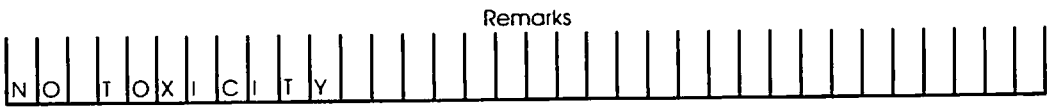
Water Quality Parameters	Salt Water / Well Water	20% Min Water	Sample	Method	Measured by	Verified by
Field Total Residual Cl2 (mg/L):			0.0	–	RJ Perez	SG
Lab Total Residual Cl2 (mg/L):		<0.03	~~DR 700~~ 2403	DR-100	CH	SG
Alkalinity (mg/L as $CaCO_3$):		86	250	Hach	CH/SG	SG
Hardness (mg/L as $CaCO_3$):		85	256	Hach	CH/SG	SG
Total ammonia (mg/L as N):		<0.017	3.84	Denver	MF	SG
Salinity:		0	0	YSI	MF	SG

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The Bioassay of the Silver Dolphin Trailer Park WWTP effluent sampled on December 13, 1999, NPDES #FL0023001

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

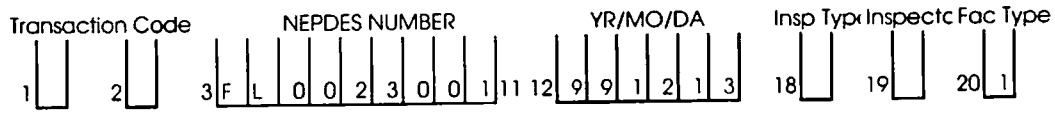


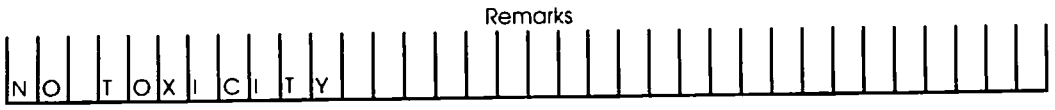


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The Priority Pollutants Analysis for Bioassay of Silver Dolphin Trailer Park WWTP effluent sampled on December 13, 1999, NPDES #FL0023001

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





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