

Bioassays of

Anheuser Busch–New Sod Farm

Jacksonville, Duval County, Florida

NPDES #FL0041556

Sampled 2/1/99

May 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

Anheuser Busch–New Sod Farm, 16163 Lem Turner Road, Jacksonville, Duval County, Florida, NPDES #FL0041556, tests performed on 2 to 4 February, 1999.

The Anheuser Busch–New Sod Farm covers approximately 750 acres and is a land application site for brewery liquor. Wastewater, which is treated by anaerobic digestion, is applied at an average annual rate of approximately 0.91 MGD or 0.36 inches per week. Approximately 90% of the site is underdrained. The site has five ponds that collect water from the underdrains and stormwater runoff. Effluents from the ponds are discharged through Outfalls 001, 002, 003, 004 and 005. Flows vary and are rainfall dependent. Average monthly flows for Outfall 001, 002, 003, 004 and 005 are 0.17 MGD, 0.8 MGD, no recent discharge, 0.3 MGD and 2.9 MGD, respectively. Discharge from the site goes into Thomas Creek, a tributary of the Nassau River (facility summary prepared by Heather Wehry, FDEP, Jacksonville).

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 that was collected from Outfall 004 of this facility. The test species used for these bioassays were the water flea, *Ceriodaphnia dubia*, and the bannerfin shiner, *Cyprinella leedsi*. Test results did not show toxicity (Table 1).

Total residual chlorine was <0.03 mg/L in the laboratory and was not measured in the field. The total ammonia and unionized ammonia concentrations were 0.185 mg/L and 0.011 mg/L, respectively. Further chemical analyses were performed on the sample and several metals and the pesticide ametryn were identified (Table 2).

Conclusion

The sample of effluent collected from this facility on February 1, 1999, did not show toxicity.

Table 1. Data recorded during the 48-hour acute screening bioassays of a sample of effluent from the Anheuser Busch–New Sod Farm, Jacksonville, Duval County, Florida, NPDES# FL0041556, performed on 2 to 4 February, 1999.

Facility:	**Anheuser Busch–New Sod Farm**	**NPDES #**	**FL0041530**	Facility Type:	Wastewater Treatment
Location:	16163 Lem Turner Blvd., Jacksonville	Contact/District:	Heather Wehry/Northeast		Facility
County:	Duval	Test type:	static acute screen		
Sample Collection Date:	2/1/99 Time: 1500	# tests:	2	Receiving Water:	Land application drainage to
Test Beginning Date:	2/2/99 Time: 1545	Chlorination Type:	not chlorinated		Thomas Creek
Test Ending Date:	2/4/99 Time: 1440				Page 1 of 1

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

Concentrations	Sample/Diluent Volume(mL)	SURVIVAL # Alive 0 hr	24 hr	48 hr	pH 0 hour	24 hour	48 hour	Temperature[A] 0 hour	24 hour	48 hour	Dissolved Oxygen 0 hour	24 hour	48 hour	Conductivity µmhos/cm 0 hour	48 hour
Control A	0/20	5	5	5	8.2	-	8.3	24.0	-	24.5	8.3	-	7.8	165	160
Control B	0/20	5	5	5	-	-	8.3	-	-	24.3	-	-	7.8	-	170
Control C	0/20	5	5	5	-	-	8.3	-	-	24.2	-	-	8.0	-	170
Control D	0/20	5	5	4	-	-	8.3	-	-	24.1	-	-	8.0	-	180
100% A	20/0	5	4	4	8.3	-	8.8	24.0	-	24.1	8.1	-	8.0	730	810
100% B	20/0	5	5	5	-	-	8.8	-	-	24.1	-	-	8.1	-	770
100% C	20/0	5	5	5	-	-	8.8	-	-	24.1	-	-	8.0	-	800
100% D	20/0	5	5	5	-	-	8.8	-	-	24.1	-	-	8.1	-	800

[A] Temperature of test incubator #2 and the test room were continuously recorded on strip chart recorders.
Incubator #2 temperature range for the test period was 24.5-25.5°C.
Test room temperature range for the test period was 23.5-25.0°C.

Organism: ***Cyprinella leedsi*** Age: 11 days

Concentrations	Sample/Diluent Volume(mL)	SURVIVAL # Alive 0 hr	24 hr	48 hr	pH 0 hour	24 hour	48 hour	Temperature[B] 0 hour	24 hour	48 hour	Dissolved Oxygen 0 hour	24 hour	48 hour	Conductivity µmhos/cm 0 hour	48 hour
Control A	0/500	5	5	5	7.9	8.3	8.5	24.1	24.9	25.4	7.9	7.6	7.6	240	270
Control B	0/500	5	5	5	7.9	8.3	8.5	24.2	24.5	25.2	7.9	7.5	7.7	245	260
Control C	0/500	5	5	5	7.9	8.3	8.5	24.2	24.1	24.9	7.9	7.5	7.8	245	265
Control D	0/500	5	5	5	7.9	8.3	8.5	24.2	24.1	24.9	7.9	7.6	7.9	245	260
100% A	500/0	5	5	5	8.0	8.4	8.5	24.1	24.6	25.0	7.9	8.0	7.8	735	765
100% B	500/0	5	5	5	8.0	8.5	8.6	24.1	24.2	24.9	7.8	7.9	7.7	745	790
100% C	500/0	5	5	5	8.0	8.5	8.7	24.0	24.0	24.9	7.8	7.9	7.9	750	820
100% D	500/0	5	5	5	8.0	8.5	8.6	24.0	24.4	24.8	7.9	8.0	8.1	750	800

[B] Temperature of test incubator #3 and the test room were continuously recorded on strip chart recorders.
Incubator #3 temperature range for the test period was 25.0-26.5°C.
Test room temperature range for the test period was 23.5-25.0°C.

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:	0.185	0.011

Alk & Hardness	Alkalinity (mg/L)	Hardness (mg/L)
Control Water (fish):	130	135
Control Water (20% DMW) (cladocerans):	79	75
100% Sample:	181	160

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

Table 2. Results of chemical analyses on the sample of effluent from the Anheuser Busch–New Sod Farm sampled on February 1, 1999.

Metals

Calcium	24.3	mg/L[A]
Copper	1	µg/L[I]
Iron	100	µg/L[A]
Magnesium	29.3	mg/L[A]

Base, Neutral, & Acid Extractable Organics

None Detected

Pesticides

Ametryn	0.055 µg/L[I]

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.

FDEP Biology Section — Acute Bioassay Bench Sheet

Sample Source: Anheuser Busch New Sod Farm
County: Duval
Contact / District: H. Wehry / Northeast
NPDES Permit #: FL0041556
LIMS Sample #: 368320 LIMS Job #: TLH-1999-02-02-25
sample log 2/5/99 ow
Test Type: (Screening) / Definitive
(Static) / Static Renewal / Flow-through
Test Number: 1 of 2
Incubator #2 Temperature Range 24.5-25.5°C
Room Temp. Range 23.5-25.0°C

Sample Collection: Date 2/1/99 Time 15:00
Test Beginning: Date 2/2/99 Time 15:45
Test Ending: Date 2/4/99 Time 14:40
Organism Batch #: 6 S (A) C Diluent Batch #: 3
Organism Age: ~24hrs SRT toxicant batch #: N/A
Test organism: Ceriodaphnia 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 (B)	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) 0 hr	UNCORRECTED Cond. (mmhos/cm) 24 h	UNCORRECTED Cond. (mmhos/cm) 48 h
CTL A	A	5	5	5	8.2	8.3	~~7.9~~	24.0		24.5	8.3		7.8	165		160
CTL B	B	5	5	5		8.3	~~7.7~~			24.3			7.8			170
CTL C	C	5	5	5		8.3	~~8.0~~			24.2			8.0			170
CTL D	D	5	5	4 10		8.3	~~8.0~~			24.1			8.0			180
100 %	A	5	4 10	4	8.3		8.8	24.0		24.1	8.1		8.0	730		810
100 %	B	5	5	5			8.8			24.1			8.1			770
100 %	C	5	5	5			8.8			24.1			8.0			800
100 %	D	5	5	5			8.8			24.1			8.1			800
measured by:		CH	FW	MF	CH		CH	CH		CH	CH		CH	CH		CH
recorded by:		FW	FW	MF	FW		FW	FW		FW	FW		FW	FW		FW

Investigators' Signatures

Marshall Faircloth

reviewer

form updated 5/22/98

(A) wrote Dilutent Batch # in space for Organism Batch # by mistake. (FW) 2/2/99.

(B) Re-did readings after writing readings from wrong test in 3 places. (FW) 2/4/99

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	FW
Alkalinity (mg/L as $CaCO_3$):	—	71	191	Hach	CH	FW
Hardness (mg/L as $CaCO_3$):	—	75	160	Hach	CH	FW
Total ammonia (mg/L as N):	—	<0.017	0.185	Denver	MF	FW
Salinity:	—		0	YSI	FW	FW

FDEP Biology Section — Acute Bioassay Bench Sheet

Sample Source: Anheuser Busch New Sod Farm
County: Duval
Contact / District: H. Wehry / Northeast
NPDES Permit #: FL00 41556
LIMS Sample #: 368320 LIMS Job #: TLH-1999-02-02-25
sample log 4/8/99 DW
Test Type: (Screening) | Definitive
(Static) | Static Renewal | Flow-through
Test Number: 2 of 2

Remarks:

Sample Collection: Date 2/1/99 Time 15:00
Test Beginning: Date 2/2/99 Time 15:00
Test Ending: Date 2/4/99 Time 15:00
Organism Batch #: 6 Diluent Batch #: WE11
Organism Age: 11 days SRT toxicant batch #: N/A
Test organism: Cyprinella 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
CTL A	D17	5	5	5	7.9	8.3	8.5	24.1	24.9	25.4	7.9	7.6	7.6	240	250	270
CTL B	D18	5	5	5	7.9	8.3	8.5	24.2	24.5	25.2	7.9	7.5	7.7	245	250	260
CTL C	D19	5	5	5	7.9	8.3	8.5	24.2	24.1	24.9	7.9	7.5	7.8	245	250	265
CTL D	D20	5	5	5	7.9	8.3	8.5	24.2	24.1	24.9	7.9	7.6	7.9	245	250	260
100% A	D21	5	5	5	8.0	8.4	8.5	24.1	24.6	25.0	7.9	8.0	7.8	735	750	765
100% B	D22	5	5	5	8.0	8.5	8.6	24.1	24.2	24.9	7.8	7.9	7.7	745	745	790
100% C	D23	5	5	5	8.0	8.5	8.7	24.0	24.0	24.9	7.8	7.9	7.9	750	755	820
100% D	D24	5	5	5	8.0	8.5	8.6	24.0	24.4	24.8	7.9	8.0	8.1	750	735	800
measured by:		FW	FW	FW	FW	FW	CH	FW	FW	CH	FW	FW	CH	FW	FW	CH
recorded by:		CH	FW	FW	FW	FW/DW	FW	FW	FW	FW	FW	FW	FW	FW	FW	FW

Investigators' Signatures

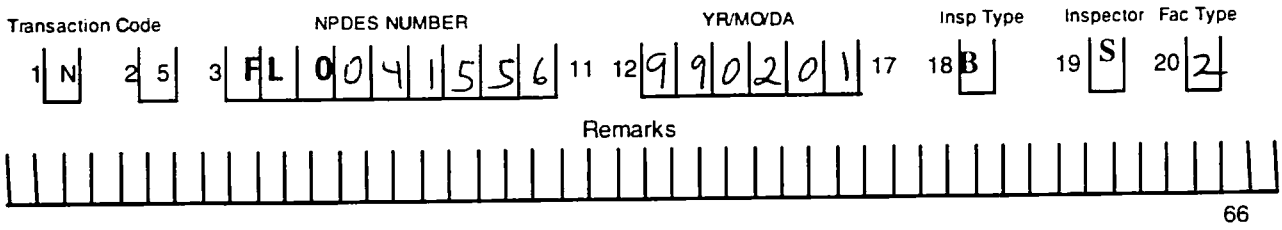
Temperature Ranges
Incubator #3 - 25.0-26.5°C
Room 23.5-25.0°C

	Salt Water: Well Water	Water Quality Parameters: 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-700	CH	FW
Alkalinity (mg/L as $CaCO_3$):	130	—	151	Hach	CH	FW
Hardness (mg/L as $CaCO_3$):	135	—	160	Hach	CH	FW
Total ammonia (mg/L as N):	<0.017	—	0.165	Denver	MF	FW
Salinity:		—	0	YSI	FW	FW

reviewer form updated 5/22/98

The Bioassay of the Anheuser Busch-New Sod Farm effluent sampled on February 1, 1999, NPDES #FL0041556.

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 Anheuser Busch-New Sod Farm effluent sampled on February 1, 1999, NPDES #FL0041556.

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

