

Bioassays of

Centurion Truck Plaza

Jacksonville, Duval County, Florida

NPDES #FL0042421

Sampled 4/24/00

July 2000

Biology Section

Division of Administrative & Technical Services

Comprehensive Quality Assurance Plan #870346G

Bioassays of

Centurion Truck Plaza

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Biology Section
Bureau of Laboratories
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Introduction

Centurion Truck Plaza, 5912 New Kings Road, Jacksonville, Duval County, Florida, NPDES #FL0042421, tests performed on 25 to 27 April 2000.

This facility has an average flow of 0.02 MGD. The treatment consists of aeration, secondary clarification, chlorination for disinfection, and dechlorination using sodium biosulfate. After treatment, the effluent is discharged into a ditch that flows into the Ribault River and then into the class III waters of the Trout River. (facility summary provided by Kris Pennewell, 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 from the Centurion Truck Plaza. 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).

Prior to test initiation, the sample was filtered through a 60-µm screen to remove live organisms observed in the sample. The sample was also aerated for approximately 40 minutes to increase the dissolved oxygen (DO) concentrations from the initial reading of 3.9 mg/L (4.0 mg/L is the minimum DO concentration allowed by the test protocol). The DO concentration after aeration was 7.6mg/L.

Total residual chlorine of the effluent in the laboratory was less than the detection limit of 0.03 mg/L. Total and unionized ammonia were 5.33 mg/L and 0.144 mg/L respectively. Further chemical analyses were performed on the sample and several metals and oil and grease were identified (Table 2).

Conclusion

The sample of effluent collected from this facility of April 24, 2000, did not show toxicity.

Table1. Data recorded during the 48-hour acute screening bioassays of a sample of effluent from the Centurion Truck Plaza, 5912 New Kings Road, Jacksonville, Duval County, Florida, NPDES# FL0042421, performed on 25 to 27 April 2000.

Facility:	**Centurion Truck Plaza**			**NPDES #**	**FL0042421**	Facility Type:	**Wastewater Treatment**
Location:	5912 New Kings Road			Contact/District:	Kris Pennewell/Jacksonville		**Plant**
County:	Duval			Test type:	static acute screen		
Sample Collection Date:	4/24/00	Time:	0950	# tests:	2	Receiving Water:	Trout River
Test Beginning Date:	4/25/00	Time:	1500	Chlorination Type:	Dechlorinated		
Test Ending Date:	4/27/00	Time:	1410		Sample collected after plant dechlorination		**Page 1 of 1**

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
20% Dilute Mineral Water (cladocerans):	< 0.017	<0.017
100% Sample:	5.33	<0.017

Alk & Hardness	Alkalinity (mg/L)	Hardness (mg/L)
Control Water (fish):	128	139
20% Dilute Mineral Water (cladocerans):	80	89
100% Sample:	200	253

Salinity[C]	(ppt)
Control Water:	<1
100% Sample:	<1

[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	8.4	-	8.4	25.2	-	24.5	8.7	-	8.0	180	205
Control B	0/20	5	5	5	-	-	8.4	-	-	24.4	-	-	8.1	-	215
Control C	0/20	5	5	5	-	-	8.5	-	-	24.3	-	-	8.1	-	220
Control D	0/20	5	5	5	-	-	8.5	-	-	24.3	-	-	8.1	-	220
100% A	20/0	5	5	5	7.6	-	8.6	25.6	-	24.1	7.6	-	8.2	2620	3260
100% B	20/0	5	5	5	-	-	8.6	-	-	24.1	-	-	8.2	-	3400
100% C	20/0	5	5	5	-	-	8.7	-	-	24.0	-	-	8.2	-	3300
100% D	20/0	5	5	5	-	-	8.7	-	-	24.0	-	-	8.2	-	3450

[A] Temperatures of room and test incubator were continuously recorded on a strip chart recorder.
Room Temperature range for the test period was 24.9-27.0°C.
Incubator #2 temperature range for the test period was 25.0-25.5°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	8.0	8.3	8.5	24.7	23.9	24.0	8.4	8.3	8.0	270	270
Control B	0/500	5	5	5	8.0	8.3	8.5	24.6	24.5	23.9	8.5	8.3	8.2	255	280
Control C	0/500	5	5	5	8.0	8.4	8.5	24.6	24.4	23.9	8.6	8.2	8.2	250	260
Control D	0/500	5	5	5	8.0	8.3	8.5	24.5	23.0	24.0	8.6	8.3	8.1	255	270
100% A	500/0	5	5	5	7.6	8.1	8.3	25.2	23.7	24.9	7.6	7.4	7.0	2610	2790
100% B	500/0	5	5	5	7.6	8.1	8.3	25.2	23.9	24.0	7.6	7.3	6.9	2640	2710
100% C	500/0	5	5	5	7.6	8.1	8.3	25.0	24.2	24.0	7.8	6.6	7.3	2630	2700
100% D	500/0	5	5	5	7.6	8.1	8.3	25.0	25.0	24.0	7.8	6.6	7.0	2640	2730

B Temperatures of room and test incubator were continuously recorded on a strip chart recorder.
Room Temperature range for the test period was 24.9-27.0°C.
Incubator #3 temperature range for the test period was 24.5-25.0.0°C.

Table 2. Results of chemical analyses on the effluent from the Centurion Truck Plaza sampled on April 24, 2000.

Metals

Aluminum	160	µg/L	I
Cadmium	0.11	µg/L	I
Calcium	65.7	mg/L	A
Copper	13.1	µg/L	AJ
Iron	711	µg/L	A
Lead	1.45	µg/L	A
Magnesium	24.8	mg/L	A
Nickel	2.2	µg/L	I
Silver	0.055	µg/L	I
Zinc	53.6	µg/L	A

Pesticides and Herbicides

None detected

Base, Neutral, & Acid Extractable Organics

None detected

Oils and Grease

Oil and Grease	5	mg/L	K

[J] Estimated value

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

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

[K] Actual value is known to be less than value given.

FDEP Biology Section — Acute Bioassay Bench Sheet

Sample Source: Centurion Final Effluent
County: Duval
Contact / District: Lee Banks/Jeff Martin -- NE DIST
NPDES Permit #: FL0042421
LIMS Sample #: 450336 LIMS Job #: TLH2000-04-25-14-01

Sample Collection: Date 4/24/00 Time 0950
Test Beginning: Date 4/25/00 Time 15:00
Test Ending: Date 4/27/00 Time 14:10
Organism Batch #: 20 Diluent Batch #: DMW#11
Organism Age: 24 hrs. SRT toxicant batch #: ____

sample log ____
Test Type: ~~Screening~~ / Definitive
(Static) / Static Renewal / Flow-through
Test Number: 1 of 2

Test organism: C. dubia

Remarks: 4/25/00 DPH Sample was filtered through 60µm screen filter. Sample aerated for approximately 90 minutes because of low D.O. (3.9) DO after aeration 7.6 mg/L

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) 0 hr	UNCORRECTED Cond. (µmhos/cm) 24 h	UNCORRECTED Cond. (µmhos/cm) 48 h
Control	A	5	5	5	8.4	—	8.4	25.2	—	24.5	8.7	—	8.0	180	—	205
	B	5	5	5	—	—	8.4	—	—	24.4	—	—	8.1	—	—	215
	C	5	5	5	—	—	8.5	—	—	24.3	—	—	8.1	—	—	220
	D	5	5	5	—	—	8.5	—	—	24.3	—	—	8.1	—	—	220
100%	A	5	5	5	7.6	—	8.6	25.6	—	24.1	7.6	—	8.2	2620	—	3260
	B	5	5	5	—	—	8.6	—	—	24.1	—	—	8.2	—	—	3400
	C	5	5	5	—	—	8.7	—	—	24.0	—	—	8.2	—	—	3300
	D	5	5	5	—	—	8.7	—	—	24.0	—	—	8.2	—	—	3450
measured by:		DPH	SG	MF	SG	—	MF	SG	—	MF	SG	—	MF	SG	—	MF
recorded by:		MF	SG	MF	MF	—	SG	MF	—	SG	MF	—	SG	MF	—	SG

* 4/25/00 DPH Sample was filtered to remove organisms observed in the sample.

Investigators' Signatures
Shannon Gerardi
Mirabell Sandelph
Della Parker Hansa

Temperature Range °C
Incubator # 2 25.0°-25.5°C
Room B246 24.9°-27.0°C

Water Quality Parameters	Salt Water / Well Water	20% Min Water	Sample	Method	Measured by	Verified by
Field Total Residual Cl2 (mg/L):			0.04	N/A	Pat O'Connor	SG
Lab Total Residual Cl2 (mg/L):		<0.03	<0.03	DR100	DPH/SG	SG
Alkalinity (mg/L as $CaCO_3$):		80	200	Hach	DPH/SG	SG
Hardness (mg/L as $CaCO_3$):		89	253	Hach	DPH/SG	SG
Total ammonia (mg/L as N):		<0.017	5.33	Denver	DPH	SG
Salinity:		0	<1	Ysi	DPH	SG

A J Wolfe
reviewer

form updated 3/3/99

FDEP Biology Section — Acute Bioassay Bench Sheet

Sample Source: Centurion
County: Duval
Contact / District: Lee Banks / Jeff Martin / SE-DIST
NPDES Permit #: FL0042421
LIMS Sample #: 450336 LIMS Job #: TLH2000-04-25-14-01

Sample Collection: Date 4/24/00 Time 0950
Test Beginning: Date 4/25/00 Time 16:00
Test Ending: Date 4/27/00 Time 14:10
Organism Batch #: 31 Diluent Batch #: Well
Organism Age: 11 days SRT toxicant batch #: —

sample log —
Test Type: Screening / Definitive
Static / Static Renewal / Flow-through
Test Number: 2 of 2

Test organism: C. leedsi

Remarks: 4/25/00 DPH Sample filtered through 60µm screen filter. Sample aerated for approximately 40 minutes because of low D.O. (3.9mg/L). DO after aeration was 7.6 mg/L

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
Control A	C9	5	5	5	8.0	8.3	8.5	24.7	23.9	24.0	8.4	8.3	8.0	270	255	270
B	C10	5	5	5	8.0	8.3	8.5	24.6	24.5	23.9	8.5	8.3	8.2	255	270	280
C	C11	5	5	5	8.0	8.4	8.5	24.6	24.4	23.9	8.6	8.2	8.2	250	260	260
D	C12	5	5	5	8.0	8.3	8.5	24.5	23.0	24.0	8.6	8.3	8.1	255	255	270
100% A	C13	5	5	5	8.0	8.1	8.3	25.2	23.7	24.9	7.6	7.4	7.0	2610	2570	2790
B	C14	5	5	5	8.0	8.1	8.3	25.2	23.9	24.0	7.6	7.3	6.9	2640	2614	2710
C	C15	5	5	5	8.0	8.1	8.3	25.0	24.2	24.0	7.8	6.6	7.3	2630	2620	2700
D	C16	5	5	5	8.0	8.1	8.3	25.0	25.0	24.0	7.8	6.6	7.0	2640	2650	2730
					wrote in wrong space MF 4/25/00											
measured by:	KL	KL	SG	SG	SG	SG	MF	SG	SG	MF	SG	SG	MF	SG	SG	MF
recorded by:	SG	DMF	SG	SG	MF	KL	SG	MF	KL	SG	MF	KL	SG	MF	KL	SG

wrong initials MF * 4/25/00 DPH Sample filtered to remove organisms observed in the sample.

Investigators' Signatures
Shannon Gerard
Marshall Goodlett
Della Parker-Lewis
K. P. Lewis

Temperature Range °C
Incubator # 3 24.5°-25.0°C
Room B246 24.9°-27.0°C

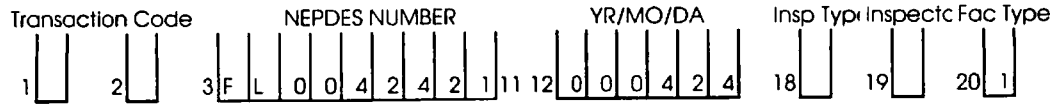
Water Quality Parameters	Salt Water: Well Water / 20% Min Water	Sample	Method	Measured by	Verified by
Field Total Residual Cl2 (mg/L):		0.04	N/A	Pat O'Connor	SG
Lab Total Residual Cl2 (mg/L):	<0.03	<0.03	DR100	DPH/SG	SG
Alkalinity (mg/L as $CaCO_3$):	128	200	Hach	DPH/SG	SG
Hardness (mg/L as $CaCO_3$):	139	253	Hach	DPH/SG	SG
Total ammonia (mg/L as N):	<0.017	5.33	Denver	DPH	SG
Salinity:	0	<1	Ysi	DPH	SG

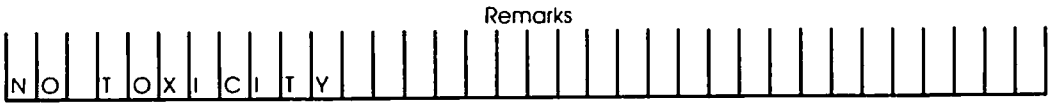
S. H. Wolfe
reviewer

form updated 3/3/99

The Bioassay of the Centurion Truck Plaza effluent sampled on April 24, 2000, NPDES #FL0042421

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

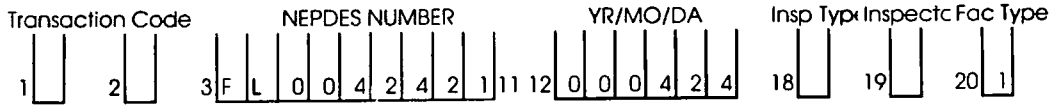


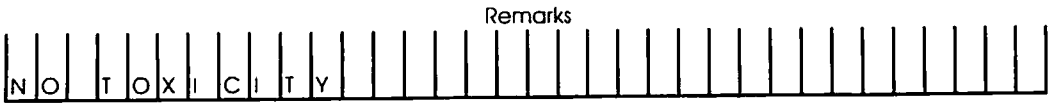


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The Priority Pollutants Analysis for Bioassay of theCenturion Truck Plaza effluent sampled on April 24, 2000, NPDES #FL0042421

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