

Bioassays of

Lykes Pasco, Inc.

Dade City, Pasco County, Florida

NPDES #FL0000485

Sampled 12/14/92

January 1993

Biology Section
Division of Technical Services

Bioassays of

Lykes Pasco, Inc.

Dade City, Pasco County, Florida

NPDES #FL0000485

Biology Section
Bureau of Laboratories
January 1993

Introduction

Lykes Pasco, Inc., Dade City, Pasco County, Florida, NPDES #FL0000485, tests performed on 15 to 17 December, 1992.

This citrus processing facility is located on Highway 301 North in Dade City and has a 2.5 MGD capacity. The wastewater treatment consists of an aeration lagoon, a clarifier, polishing ponds, and an aerated final mixing pond. The effluent from the wastewater treatment system is mixed with non-contact cooling water and non-contaminated stormwater. This combined effluent is discharged to Larkin Canal which flows to the Dade City Canal and then to the Withlacoochee River (DER permit files).

The toxicity tests discussed in this report were performed in accordance with methods described by Weber, 1991, *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms*, 4th Edition, EPA/600/4-90/027.

Results and Discussion

The FDER Biology Section performed two 48-hour static acute toxicity bioassays with a sample of effluent from this facility. A definitive test was performed using the water flea, *Ceriodaphnia dubia*. A screening test was performed using the bannerfin shiner, *Notropis leedsi*. The test results did not indicate toxicity to either species.

Total residual chlorine of the sample was < 0.02 mg/L in the laboratory. Total residual chlorine was not measured in the field. Total and unionized ammonia concentrations were 0.72 mg/L and < 0.01 mg/L, respectively.

Conclusion

The sample of effluent collected from this facility on 14 December, 1992, did not show toxicity.

Table 1. Concentration series and volumes used for the 48-hour static acute definitive and screening bioassays of the Lykes Pasco, Inc., effluent performed on 15 to 17 December, 1992.

Ceriodaphnia dubia (water flea)

Concentration	Dilution Water	Sample	Total Volume
Control	20 mL	0 mL	20 mL
25 %	15 mL	5 mL	20 mL
50 %	10 mL	10 mL	20 mL
75 %	5 mL	15 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. Data recorded during the 48-hour acute definitive and screening bioassays of a sample of effluent from Lykes Pasco Inc., Dade City, Pasco County, Florida, NPDES# FL0000485, performed on 15 to 17 December, 1992.

Facility:	Lykes Pasco Inc.		NPDES #	FL0000485	Facility Type: citrus processing
Location:	Dade City		Contact/District:	Jim Snitgen / SW	
County:	Pasco		Test type:	static acute definitive (1) & screen (1)	
Sample Collection Date:	12/14/92	Time: 1030	# tests:	2	Receiving Water: Larkin Canal, Dade City
Test Beginning Date:	12/15/92	Time: 1300	Chlorination Type:	not chlorinated	Canal, Withlacoochee R.
Test Ending Date:	12/17/92	Time: 1400			Page 1 of 1

Total Resldual Cl2	mg/l	Method
Field:	not measured	-
Lab:	< 0.02	DR-100

Ammonia	Total (mg/l)	Unionized (mg/l)
Control Water (fish):	< 0.02	0.00
20% Dilute Mineral Water (cladocerans):	< 0.02	0.00
100% Sample:	0.72	< 0.01

Alk & Hardness	Alkalinity (mg/l)	Hardness (mg/l)
Control Water (fish):	85	140
20% Dilute Mineral Water (cladocerans):	55	65
100% Sample:	176	172

Salinity (ppt)	
Control Water:	0
100% Sample:	0

Organism: ***Ceriodaphnia dubia*** Life stage: < 24 hours old
LC50: -

	SURVIVAL			pH			Temperature			Dissolved Oxygen			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	8.4	-	7.9	22.2	-	23.8	8.2	-	6.6	130	155
Control	5	5	5	-	-	8.0	-	-	-	-	-	6.6	-	160
Control	5	5	5	-	-	8.0	-	-	-	-	-	6.6	-	160
Control	5	5	5	-	-	8.1	-	-	-	-	-	6.6	-	160
25%	5	5	5	8.3	-	8.3	22.2	-	23.9	8.2	-	6.7	190	210
25%	5	5	5	-	-	8.3	-	-	-	-	-	6.6	-	225
25%	5	5	5	-	-	8.3	-	-	-	-	-	6.7	-	220
25%	5	5	5	-	-	8.3	-	-	-	-	-	6.6	-	230
50%	5	5	5	8.2	-	8.4	22.2	-	23.9	8.2	-	6.7	255	280
50%	5	5	5	-	-	8.4	-	-	-	-	-	6.7	-	290
50%	5	5	5	-	-	8.4	-	-	-	-	-	6.6	-	285
50%	5	5	5	-	-	8.4	-	-	-	-	-	6.8	-	290
75%	5	5	5	8.2	-	8.5	22.3	-	23.9	8.2	-	7.0	325	335
75%	5	5	5	-	-	8.5	-	-	-	-	-	7.0	-	350
75%	5	5	5	-	-	8.5	-	-	-	-	-	6.9	-	355
75%	5	5	5	-	-	8.5	-	-	-	-	-	6.9	-	365
100%	5	5	5	8.2	-	8.6	22.2	-	23.8	8.2	-	6.9	380	410
100%	5	5	5	-	-	8.6	-	-	-	-	-	6.8	-	415
100%	5	5	5	-	-	8.6	-	-	-	-	-	6.9	-	440
100%	5	5	5	-	-	8.6	-	-	-	-	-	6.8	-	440

Organism: ***Notropis leedsi*** Age: 11 days
LC50: -

	SURVIVAL			pH			Temperature			Dissolved Oxygen			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	7.3	8.1	8.2	20.7	22.8	22.9	8.0	7.0	6.7	230	280
Control	5	5	5	7.5	8.1	8.2	-	-	-	7.9	6.9	6.7	230	275
100%	5	5	5	8.0	8.3	8.4	22.4	22.8	22.8	8.1	6.9	6.6	405	445
100%	5	5	5	8.1	8.3.	8.3	-	-	-	8.1	6.9	6.6	400	440

DER Biology Section — Acute Bioassay Bench Sheet

Sample Source: Tyler
Address/City:
County: Pasco
Contact/District: SW Jamael Snitgar
NPDES Permit #: FL00 00485 Outfall #: 001

Sample Collection: Date 12/14/92 Time 1030
Test Beginning: Date 12/15/92 Time 1300
Test Ending: Date 12/17/92 Time 1400
Test Organism: Ceriodaphnia dubia
Life Stage/Age: < 24 hour

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

Remarks: 46694
92-DEC-15-09
received 12/17/92 cf

Instrument Calibrations:

	pH	DO	Temp	Cond
0 hr	7.7; 10.0 & 10	8.6 @ 22.8°C	21.9 @ 21.8	964 9700 @ 22.8°
24 hr	7.7; 10.0 10	8.6 @ 22.8°C	22.5 - 23.7	930 9400 @ 23.0°C
48 hr	7.7, 10.0 10	8.2 - 24.8°C	22.8 - 22.9	940 9500 @ 23.2°C

		Number Live			pH			Temp. (°C)			DO (mg/L)			Cond. (µmhos/cm)		
Conc.	Chamber #	0	24	48	0	24	48	0	24	48	0	24	48	0	24	48
Control	A	5	5	5	8.4		7.9	22.2		23.8	8.2		6.6	130		155
Control	B	5	5	5			8.0						6.6			160
Control	C	5	5	5			8.0						6.6			160
Control	D	5	5	5			8.1						6.6			160
25%	A	5	5	5	8.3		8.3	22.2		23.9	8.2		6.7	190		210
25%	B	5	5	5			8.3						6.6			225
25%	C	5	5	5			8.3						6.7			220
25%	D	5	5	5			8.3						6.6	255		230
50%	A	5	5	5	8.2		8.4	22.2		23.9	8.2		6.7			280
50%	B	5	5	5			8.4						6.7			290
50%	C	5	5	5			8.4						6.6			285
50%	D	5	5	5			8.4						6.8			290
75%	A	5	5	5	8.2		8.5	22.3		23.9	8.2		7.0	325		335
75%	B	5	5	5			8.5						7.0			350
75%	C	5	5	5			8.5						6.9			355
75%	D	5	5	5			8.5						6.9			365
100%	A	5	5	5	8.2		8.6	22.2		23.8	8.2		6.9	380		410
100%	B	5	5	5			8.6						6.8			415
100%	C	5	5	5			8.6						6.9			440
100%	D	5	5	5			8.6						6.8			440
Measured/Loaded by:		TM	TM	TM	TR		TM	TR		TM	TR		TM	TR		TM
Recorded by:		TR	TM	TR	TM		TR	TM		TR	TM		TR	TM		TR

Investigators' Signatures

Reviewer

Water-quality Parameters

	Well Water	20% Cond. Water	Sample	Method	Measured by
Field Tot. Resid. Clz:			not measured		
Lab Tot. Resid. Clz:	< .02	< .02	< .02	DR 100	TR
Alkalinity:	85	55	176	Hach	TR
Hardness:	140	65	172	Hach	TR
Total Ammonia:	~~*.45~~ < .02	~~*.72~~ < .02	*.72	~~Orion~~ Hach	TR

Ammonia *recorded wrong Ammonia Salinity

Meter Slope: _____ Blank: _____ Sample: _____ ppt

DER Biology Section — Acute Bioassay Bench Sheet

Sample Source: Lykes
Address/City:
County: Pasco
Contact/District: SW James L Snitzer
NPDES Permit #: FL00 00485 Outfall #: 001

Sample Collection: Date 12/14/92 Time 1030
Test Beginning: Date 12/15/92 Time 1300
Test Ending: Date 12/17/92 Time 1400
Test Organism: Notropis leedsi
Life Stage/Age: 11 days

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

Remarks:

46694
92-DEC-15-09
verified 12/17/92 KW

Instrument Calibrations:

	pH	DO	Temp	Cond
0 hr	7.0, 10.05 @10	8.6 @ 22.8°	21.9 @ 21.8	964 9200 @ 22.8
24 hr	7.2, 10.10	8.6 @ 22.8°	22.5 @ 22.7°	930 9400 @ 23.0°
48 hr	7.07, 10.10	8.2 @ 24.8°	22.8 @ 22.9°	940 9500 @ 23.2°

Conc.	Chamber #	Number Live 0	24	48	pH 0	24	48	Temp. (°C) 0	24	48	DO (mg/L) 0	24	48	Cond. (µmhos/cm) 0	24	48
Control	15	5	5	5	7.3	8.1	8.2	20.7	22.8	22.9	8.0	7.0	6.7	230	280	280
Control	28	5	5	5	7.5	8.1	8.2				7.9	6.9	6.7	230	275	275
100%	25	5	5	5	8.0	8.3	8.4	22.4	22.8	22.8	~~7.9~~	6.9	6.6	405	440	445
100%	65	5	5	5	8.1	8.3	8.3	22 *			8.1	6.9	6.6	400	445	440

* Nothing supposed to be here 12/15/92 TM

*8.1 12/15/92 TM

Measured/Loaded by: TM TM TM | TR MF TM | TR MF TM | TR MF TM | TR TM TM
Recorded by: TR TM TR | TM TM TR | TM TM TR | TM TM TR | TM TM TR

Investigators' Signatures
Marshall Faulkner
Tina McKendree
Tobin Rader

Reviewer

Water-quality Parameters

	Well Water	20% ~~Cond.~~ Water	Sample	Method	Measured by
Field Tot. Resid. Cl2:			not	measured	
Lab Tot. Resid. Cl2:	<.02	<.02	<.02	DR100	TR
Alkalinity:	85	55	176	Hach	TR
Hardness:	140	65	172	Hach	TR
Total Ammonia:	~~4.8~~ <.02	~~7.2~~ <.02	.72	~~Orion~~ Hach	TR

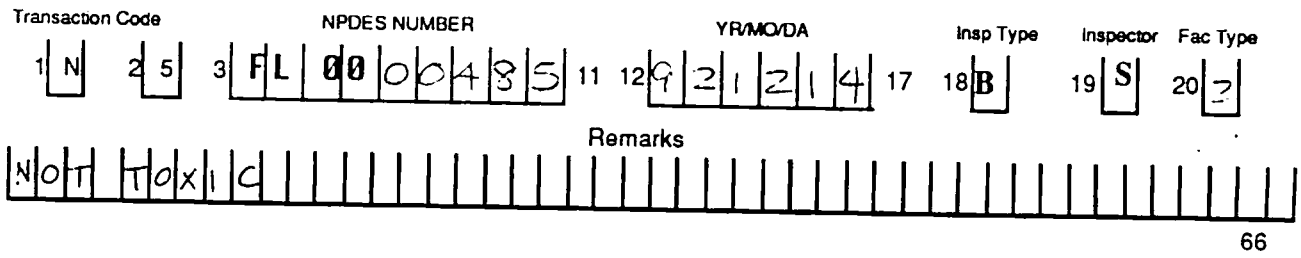
Ammonia * recorded wrong

Ammonia Blank: _____

Salinity Sample: _____ ppt

Meter Slope: _____

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



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

