Bioassays of

Sunshine Metal Processing, Inc.

Opa Locka, Dade County, Florida

NPDES #FL0040282

Sampled 8/10/92

September 1992

Biology Section
Division of Technical Services

Bioassays of

Sunshine Metal Processing, Inc.

Opa Locka, Dade County, Florida

NPDES #FL0040282

Biology Section
Bureau of Laboratories
September 1992

Introduction

Sunshine Metal Processing, Inc., Opa Locka, Dade County, Florida, NPDES #FL0040282, tests performed on 11 to 13 August, 1992.

This facility is located at 13200 Cairo Lane in Opa Locka. It is a scrap metal recycling plant which discharges less than 60 tgd of non-contact cooling water to a ditch leading to the Opa Locka Canal. Scrap metal brought to the site is separated from non-metal products. Small pieces of scrap are put through a shredder and then separated through air cyclones. Non-contact cooling water is used to cool this machine during the shredding process and another shredder used to reduce larger scrap.

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. The bioassay organisms used for these tests were the water flea, *Ceriodaphnia dubia*, and the bannerfin shiner, *Notropis leedsi*.

Based on previous test results (August 1990, FDER Biology Section), a definitive test was performed with *C. dubia* and a screening test was performed with *N. leedsi*. The test results did not indicate toxicity. Total residual chlorine was not detected in the sample. Total and unionized ammonia concentrations were 1.42 mg/L and $\leq$ 0.02 mg/L, respectively.

Conclusion

The sample of effluent from this facility collected on 10 August, 1992, did not show toxicity.

Table 1. Concentration Series and Volumes Used for the 48-hr Static Acute Screening and Definitive Bioassays of the Sunshine Metal Processing, Inc. on 11 to 13 August, 1992.

Ceriodaphnia dubia (water flea)

Concentration	Dilution Water	Sample	Total Volume
Control	20 mL	0 mL	20 mL
30 %	14 mL	6 mL	20 mL
50 %	10 mL	10 mL	20 mL
75 %	5 mL	15 mL	20 mL
90 %	2 mL	18 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 acute definitive bioassays of a sample of effluent from the Sunshine Metal Processing, Inc. Opa Locka, Dade County, Florida, NPDES #FL0040282, on 11 to 13 August, 1992.

Facility:	**Sunshine Metal Processing, Inc.**		NPDES #	FL0040282	Facility Type: **Scrap Metal Recycling Plant**
Location:	Opa Locka		Contact/District:	Tim Powell/SE	
County:	Dade		Test type:	static acute definitive	
Sample Collection Date:	**8/10/92**	Time: 1100	# tests:	2	Receiving Water: Opa Locka Canal
Test Beginning Date:	8/11/92	Time: 1300	Chlorination Type:	**Non-chlorinated**	
Test Ending Date:	8/13/92	Time: 1300			**Page 1 of 2**

Total Residual Cl2	mg/l	Method
Field:	not measured	-
Lab:	0.00	Hach

Ammonia	Total (mg/l)	Unionized (mg/l)
Control Water (fish):	0.40	0.00
Cond. Control Water (daphnids):	0.00	0.00
100% Sample:	1.42	<0.02

Alk & Hardness	Alkalinity (mg/l)	Hardness (mg/l)
Control Water (fish):	120	127
Cond. Control Water (daphnids):	70	80
100% Sample:	263	257

Organism: ***Ceriodaphnia dubia*** Life stage: < 24 Hours

LC50: **Binomial:** - Moving Average: - Probit: -

	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	8.3	-	8.1	23.8	-	24.0	8.1	-	8.1	166	174
Control	5	5	5	-	-	8.3	-	-	-	-	-	8.1	-	-
Control	5	5	5	-	-	8.4	-	-	-	-	-	8.1	-	-
Control	5	5	5	-	-	8.4	-	-	-	-	-	8.2	-	-
30%	5	5	5	7.7	-	8.6	23.7	-	24.0	8.0	-	8.2	316	268
30%	5	5	5	-	-	8.6	-	-	-	-	-	8.2	-	-
30%	5	5	5	-	-	8.5	-	-	-	-	-	8.2	-	-
30%	5	5	5	-	-	8.5	-	-	-	-	-	8.2	-	-
50%	5	5	5	7.6	-	8.7	23.7	-	24.0	7.9	-	8.2	388	363
50%	5	5	5	-	-	8.7	-	-	-	-	-	8.2	-	-
50%	5	5	5	-	-	8.6	-	-	-	-	-	8.2	-	-
50%	5	5	5	-	-	8.6	-	-	-	-	-	8.2	-	-
75%	5	5	5	7.6	-	8.7	23.7	-	23.9	7.8	-	8.2	479	457
75%	5	5	5	-	-	8.7	-	-	-	-	-	8.2	-	-
75%	5	5	5	-	-	8.7	-	-	-	-	-	8.2	-	-
75%	5	5	5	-	-	8.7	-	-	-	-	-	8.2	-	-
90%	5	5	5	7.5	-	8.6	23.6		24.0	7.7	-	8.2	535	502
90%	5	5	5	-	-	8.7	-		-	-	-	8.2	-	-
90%	5	5	5	-	-	8.7	-		-	-	-	8.2	-	-
90%	5	5	5	-	-	8.6	-		-	-	-	8.2	-	-
100%	5	5	5	7.4	-	8.6	23.8	-	24.0	7.4	-	8.0	578	511
100%	5	5	5	-	-	8.6	-	-	-	-	-	8.0	-	-
100%	5	5	5	-	-	8.6	-	-	-	-	-	8.1	-	-
100%	5	5	5	-	-	8.6	-	-	-	-	-	8.2	-	-

Table 2 (continued).

Facility:	**Sunshine Metal Processing, Inc.**		**NPDES #**	**FL0040282**	**Facility Type: Scrap Metal Recycling Plant**
Location:	Opa Locka		Contact/District:	Tim Powell/SE	
County:	Dade		Test type:	static acute definitive	
Sample Collection Date:	**8/10/92**	Time: 1100	**# tests:**	2	Receiving Water: Opa Locka Canal
Test Beginning Date:	8/11/92	Time: 1300	Chlorination Type:	**Non-chlorinated**	
Test Ending Date:	8/13/92	Time: 1300			**Page 2 of 2**

Total Residual Cl2	mg/l	Method
Field:	not measured	
Lab:	0.00	Hach

Ammonia	Total (mg/l)	Unionized (mg/l)
Control Water (fish):	0.40	0.00
Cond. Control Water (daphnids):	0.00	0.00
100% Sample:	1.42	<0.02

Organism: ***Notropis leedsi*** Age: 10 days

	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	7.9	8.3	8.5	23.9	23.6	23.0	7.7	7.1	8.2	-	-
Control	5	5	5	7.9	8.3	8.5	-	-	-	7.7	7.1	8.2	245	245
100%	5	5	5	7.3	8.1	8.5	23.0	23.6	23.0	7.4	7.2	8.1	-	-
100%	5	5	5	7.3	8.1	8.5	-	-	-	7.4	7.2	8.1	579	574

DER Biology Section — Acute Bioassay Bench Sheet

Sample Source: SUNSHINE METALS
Address/City: OPA LOCKA
County: DADE
Contact/District: TIM POWELL SE
NPDES Permit #: FL0040282 Outfall #:

Sample Collection: Date 8-10-92 Time 1100
Test Beginning: Date 8-11-92 Time 1300
Test Ending: Date 8/13/92 Time 1300
Test Organism: C. DUBIA
Life Stage/Age: < 24 HRS
92-AUG-11-04 39000

Test Number: 1 of 2 Test Type: Screening (Definitive)
(Static) Static Renewal | Flow-through

Remarks:

Instrument Calibrations:

	pH	DO	Temp	Cond
0 hr	7.0, 7.0, 10.0/10	8.4 @ 25°C	24.0°C @ 24.0	985 @ 24.2 986
24 hr	7.0, 7.0, 10.0/10	8.4 @ 25°C	24.0 @ 26.0°C	979 990 @ 24.1
48 hr	7.0, 7.0, 10.0/10	8.4 @ 25°C	24.9 @ 24.9	1000 1000 @ 24.5

		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	8.3		8.1	23.8		24.0	8.1		8.1	166		174
control	B	5	5	5			8.3						8.1			
control	C	5	5	5			8.4						8.1			
control	D	5	5	5			8.4						8.2			
30%	A	5	5	5	7.7		8.6	23.7		24.0	8.0		8.2	316		268
30%	B	5	5	5			8.6						8.2			
30%	C	5	5	5			8.5						8.2			
30%	D	5	5	5			8.5						8.2			
50%	A	5	5	5	7.6		8.7	23.7		24.0	7.9		8.2	388		363
50%	B	5	5	5			8.7						8.2			
50%	C	5	5	5			8.6						8.2			
50%	D	5	5	5			8.6						8.2			
75%	A	5	5	5	7.6		8.7	23.7		24.0	7.8		8.2	479		457
75%	B	5	5	5			8.7						8.2			
75%	C	5	5	5			8.7						8.2			
75%	D	5	5	5			8.7						8.2			
90%	A	5	5	5	7.5		8.6	23.6		24.0	7.7		8.2	535		502
90%	B	5	5	5			8.7						8.2			
90%	C	5	5	5			8.7						8.2			
90%	D	5	5	5			8.6						8.2			
100%	A	5	5	5	7.4		8.6	23.8		24.0	7.4		8.0	578		511
100%	B	5	5	5			8.6						8.0			
100%	C	5	5	5			8.6						8.1			
100%	D	5	5	5			8.6						8.2			
Measured/Loaded by:		MF	MF	MF	MF		KP	MF		KP	MF		KP	MF		KP
Recorded by:		MF	MF	MF	MF		MF	KP		MF	KP		MF	KP		MF

Investigators' Signatures

Kim Pearce

Marshall Faircloth

Reviewer

Water-quality Parameters

	Well Water	Cond. Water	Sample	Method	Measured by
Field Tot. Resid. Cl2:					
Lab Tot. Resid. Cl2:			0.0	HACH DR100	KP
Alkalinity:	120	70	263	HACH	KP
Hardness:	127	80	257	HACH	KP
Total Ammonia:	0.4	0	1.42	Orion	MF

Ammonia Meter Slope: -56.6

Ammonia Blank: 0.0

Salinity Sample: _____ ppt

DER Biology Section — Acute Bioassay Bench Sheet

Sample Source: SUNSHINE METAL
Address/City: OPA LOCKA
County: DADE
Contact/District: TIM POWELL SE
NPDES Permit #: FL00 40282 Outfall #: _____

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

Sample Collection: Date 8-10-92 Time 1100
Test Beginning: Date 8-11-92 Time 1300
Test Ending: Date 8/13/92 Time 1300
Test Organism: N. LEEDSI
Life Stage/Age: 10 days

92-AUG-11-04 39000
entered 3/13/92

Remarks:
TOTAL AMMONIA OF SAMPLE MEASURED = 1.42 mg/L
UNIONIZED AMMONIA CALCULATED = 0.017

Instrument Calibrations:

	pH	DO	Temp	Cond
0 hr	7.0 7.1/10.10	8.4@25°C	24.0@24.0	985 9860 @24.2°C
24 hr	7.07/10.10	8.4@25°C	26.0 @26.0	999 9950 @24.1°C
48 hr	7.07/10.10	8.4@25°C	24.9@24.9	1000 10000 @24.5

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	65	5	5	5	7.9	8.3	8.5	23.9	23.6	23.0	7.7	7.1	8.2			
control	14-9	5	5	5	7.9	8.3	8.5				7.7	7.1	8.2	245	244	245
100%	21	5	5	5	7.3	8.1	8.5	23.0	23.6	23.0	7.4	7.2	8.1			
100%	8	5	5	5	7.3	8.1	8.5				7.4	7.2	8.1	579	583	574
Measured/Loaded by:		MF	KP	MA	MF	MF	KP	MF	MF	KP	MF	MF	KP	MF	MF	KP
Recorded by:		MF	KP	MA	KP	KP	MF	KP	KP	MF	KP	KP	MF	KP	KP	MF

Investigators' Signatures
Kim Pearce
Marshall Faircloth

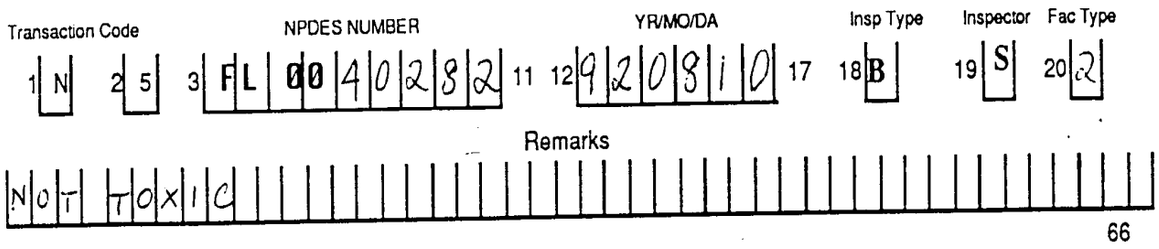
Reviewer

Water-quality Parameters

	Well Water	Cond. Water	Sample	Method	Measured by
Field Tot. Resid. Cl2:					
Lab Tot. Resid. Cl2:			0.0	HACH DR100	KP
Alkalinity:	120	70	263	HACH	KP
Hardness:	127	80	257	HACH	KP
Total Ammonia:	0.4	0	1.42	Orion	MF

Ammonia Meter Slope: -56.6
Ammonia Blank: 0.0
Salinity Sample: _____ ppt

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)

