

Bioassays of

Ameristeel Corporation-Tampa Mill

Tampa, Hillsborough County, Florida

NPDES #FL0167002

Sampled 12/11/00

May 2001

Biology Section

Division of Resource Assessment & Management

Comprehensive Quality Assurance Plan #870346G

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Bureau of Laboratories
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Introduction

Ameristeel Corporation-Tampa Mill, Tampa, Hillsborough County, Florida, NPDES #FL0167002, tests performed from December 12 to 14, 2000.

This groundwater remediation facility has an average flow of 0.015 MGD. The system consists of seven recovery wells that pump and treat the water using air stripping, filtration, and carbon adsorption. The treated effluent is discharged into the Palm River which is a Class III water. Prior industrial practices at this site caused groundwater contamination by volatile organic compounds and petroleum (facility summary provided by Andrea Grainger, FDEP, Tampa).

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 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 by 48 hours (Table 1).

Total residual chlorine and total ammonia were not detected in the sample. Further chemical analyses were performed on the sample, and several metals were identified (Table 2).

Conclusion

The sample of effluent collected from this facility on December 11, 2000, did not show toxicity to either test organism by 48 hours.

Table 1. Data recorded during the 48-hour acute screening bioassays of a sample of effluent from the Ameristeel Corporation-Tampa Mill, 7105 Sixth Avenue,Tampa, Hillsborough County, Florida, NPDES# FL0167002, performed from 12 to 14 December 2000.

Facility:	**Ameristeel Corporation-Tampa Mill**			**NPDES #**	**FL0167002**	Facility Type:	**Groundwater**
Location:	7105 Sixth Avenue, Tampa			Contact/District:	Kovack, Grainger/SW District		**Remediation**
County:	Hillsborough			Test type:	static acute screen		
Sample Collection Date:	12/11/00	Time:	0930	# tests:	2	Receiving Water:	Palm River
Test Beginning Date:	12/12/00	Time:	1640	Chlorination Type:	Not chlorinated		
Test Ending Date:	12/14/00	Time:	1500				**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:	<0.017	<0.017

Alk & Hardness	Alkalinity (mg/L)	Hardness (mg/L)
Control Water (fish):	135	125
20% Dilute Mineral Water (cladocerans):	78	79
100% Sample:	255	297

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

[C] Salinity based on conductivity and temperature measurem

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

	Sample/Diluent	SURVIVAL # Alive			pH			Temperature[A]			Dissolved Oxygen			Conductivity Uncorrected µmhos/cm	
Concentration	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	8.3	-	8.0	25.1	-	24.7	8.0	-	8.1	170	185
Control B	0/20	5	5	5	-	-	8.1	-	-	24.6	-	-	8.1	-	185
Control C	0/20	5	5	5	-	-	8.1	-	-	24.4	-	-	8.1	-	180
Control D	0/20	5	5	5	-	-	8.2	-	-	24.3	-	-	8.3	-	195
100% A	20/0	5	5	5	8.2	-	8.8	24.9	-	24.4	7.2	-	8.4	630	645
100% B	20/0	5	5	5	-	-	8.8	-	-	24.4	-	-	8.2	-	670
100% C	20/0	5	5	5	-	-	8.8	-	-	24.3	-	-	8.2	-	675
100% D	20/0	5	5	5	-	-	8.8	-	-	24.3	-	-	8.2	-	695

[A] Temperature of test incubator and temperature of room were continously recorded on a strip chart recorder.
Incubator #2 temperature range for the test period was 23.5-24.5°C.
Room temperature range for the test period was 23.5-27.0 °C.

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

	Sample/Diluent	SURVIVAL # Alive			pH			Temperature[B]			Dissolved Oxygen			Conductivity Uncorrected µmhos/cm	
Concentration	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	8.1	8.4	25.3	25.0	24.7	7.9	7.6	7.8	255	260
Control B	0/500	5	5	5	7.9	8.2	8.4	25.2	24.8	24.3	7.7	7.7	7.9	260	255
Control C	0/500	5	5	5	7.9	8.2	8.4	25.2	24.7	24.1	7.8	7.7	7.9	260	260
Control D	0/500	5	5	5	7.9	8.2	8.4	25.2	24.6	24.3	7.7	7.8	7.8	260	270
100% A	500/0	5	5	5	8.2	8.4	8.6	25.0	24.8	24.9	7.2	7.5	7.5	640	670
100% B	500/0	5	5	5	8.3	8.5	8.6	24.8	24.6	24.5	7.3	7.5	7.6	650	650
100% C	500/0	5	5	5	8.3	8.5	8.6	24.8	24.7	24.7	7.3	7.5	7.7	650	655
100% D	500/0	5	5	5	8.3	8.5	8.6	24.7	24.6	24.6	7.2	7.4	7.7	650	655

[B] Temperature of test incubator and temperature of room were continously recorded on a strip chart recorder.
Incubator #3 temperature range for the test period was 24.5-25.5 °C.
Room temperature range for the test period was 23.5-27.0 °C.

Table 2. Results of chemical analyses on the effluent from Ameristeel Corporation-Tampa Mill sampled on December 11, 2000.

Metals

Arsenic	5.4 µg/L	I
Cadmium	0.034 µg/L	I
Calcium	110 mg/L	
Chromium	1 µg/L	I
Iron	545 µg/L	
Lead	0.31 µg/L	I
Magnesium	7.7 mg/L	
Nickel	2.2 µg/L	I

Pesticides and Herbicides

None detected

Base, Neutral, & Acid Extractable Organics

None detected

Volatile Organics

Tetrachloroethene	0.98 µg/L	I
Trichloroethene	0.23 µg/L	I

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: Ameristeel Corp--Tampa
County: Hillsborough
Contact / District: Kovach | Gerlinger | SW-DIST
NPDES Permit #: FL0016700 2
LIMS Sample #: 499519 LIMS Job #: TLH-2000-12-13-13
sample log 12-15-00 mf
Test Type: (Screening) | Definitive
(Static) | Static Renewal | Flow-through
Test Number: 1 of 2

Remarks:

Sample Collection: Date 12/11/00 Time 0930
Test Beginning: Date 12/12/00 Time 1030
Test Ending: Date 12/14/00 Time 1500
Organism Batch #: 63 Diluent Batch #: DMW #40
Organism Age: 24 hrs SRT toxicant batch #: NA
Test organism: C. dubia

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
CNTL. A	A	5	5	5	8.3	—	8.0	25.1	—	24.7	8.0	—	8.1	170	—	185
B	B	5	5	5	—	—	8.1	—	—	24.6	—	—	8.1	/	-	185
C	C	5	5	5	—	—	8.1	—	—	24.4	—	—	8.1	—	—	180
D	D	5	5	5	—	—	8.2	—	—	24.3	—	—	8.3	—	—	195
100% A	A	5	5	5	8.2	—	8.8	24.9	—	24.4	7.2	—	8.4	630	—	645
B	B	5	5	5	—	—	8.8	—	—	24.1	—	—	8.2	—	—	670
C	C	5	5	5	—	—	8.8	—	—	24.3	—	—	8.2	—	—	675
D	D	5	5	5	—	—	8.8	—	-	24.3	—	—	8.2	—	—	695
measured by:		SG	JA	JG	SG	—	SG	SG	—	DG	[illegible]	—	SG	SG	—	SG
recorded by:		[illegible]	JA	JG	[illegible]	—	[illegible]	[illegible]	—	[illegible]	[illegible]	—	[illegible]	[illegible]	—	[illegible]

Investigators' Signatures
Stephanie Girardi
Joshua Lyes
Marshall Faircloth
Della Parker-Hall
AH Wolfe
reviewer

form updated 3/3/99

Temperature Range °C
Incubator # 2 23.5°-24.5°C
Room B246 23.5°-27.0°C

Water Quality Parameters	Well Water	20% Min Water	Sample	Method	Measured by	Verified by
Salt Water						
Field Total Residual Cl2 (mg/L):			NA	NA	NA	SG
Lab Total Residual Cl2 (mg/L):	/	<0.03	<0.03	DR100	SG	SG
Alkalinity (mg/L as $CaCO_3$):	/	78	255	Hach	JA	SG
Hardness (mg/L as $CaCO_3$):	/	79	397	Hach	JA	SG
Total ammonia (mg/L as N):	/	<0.017	<0.017	Denver	DPH	SG
Salinity:	/	≈0	≈0	Vsi	SG	SG

FDEP Biology Section — Acute Bioassay Bench Sheet

Sample Source: Ameristeel Corp -- Tampa
County: Hillsborough
Contact / District: Kovach | Granger | SW-DIST
NPDES Permit #: FL00[illegible]1007002
LIMS Sample #: 499519 LIMS Job #: TLH-2000-12-13-13
sample log 12-1800 MF
Test Type: ~~Screening~~ | Definitive
~~Static~~ | Static Renewal | Flow-through
Test Number: 2 of 2

Remarks:

Sample Collection: Date 12/11/00 Time 0930
Test Beginning: Date 12/12/00 Time 1640
Test Ending: Date 12/14/00 Time 1500
Organism Batch #: 97 Diluent Batch #: Well
Organism Age: 10 days SRT toxicant batch #: NA
Test organism: C. reeds

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
CNTL	A1	5	5	5	7.8	8.1	8.4	25.3	25.0	24.7	7.9	7.6	7.8	255	260	260
B	A2	5	5	5	7.9	8.2	8.4	25.2	24.7	24.3	7.7	7.7	7.9	260	260	255
C	A3	5	5	5	7.9	8.2	8.4	25.2	24.7	24.3	7.8	7.7	7.9	260	260	260
D	A4	5	5	5	7.9	8.2	8.4	25.2	24.6	24.3	7.7	7.8	7.8	260	265	270
100%	A5	5	5	5	8.2	8.4	8.6	25.0	24.3	24.9	7.2	7.5	7.5	640	645	670
B	A6	5	5	5	8.3	8.5	8.6	24.8	24.6	24.5	7.3	7.5	7.6	650	650	650
C	A7	5	5	5	8.3	8.5	8.6	24.8	24.7	24.7	7.3	7.5	7.7	650	650	655
D	A8	5	5	5	8.3	8.5	8.6	24.7	24.6	24.6	7.2	7.4	7.7	650	655	655
measured by: NF		~~SG~~	JA	SG	SG	SG	SG	SG	SG	SG	SG	SG	SG	SG	SG	SG
recorded by:		JA	JA	JA	JA	DPH	JA	JA	DPH	JA	JA	DPH	JA	JA	DPH	JA

@ DPH 12/13/00

Investigators' Signatures
Shannon Gerard
John Lyon
Marshall Faircloth
Della Fisher-Howze
Art Wolfe
reviewer

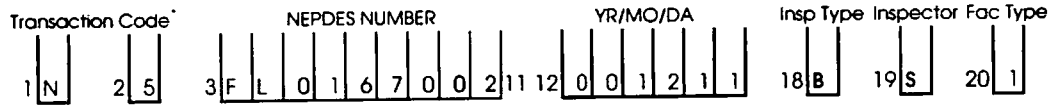
form updated 3/3/99

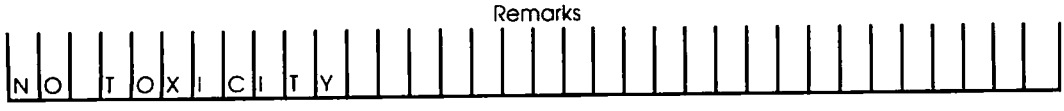
Temperature Range °C
Incubator # 3 24.5° - 25.5°C
Room B246 23.5° - 27.0°C

	Salt Water Well Water	20% Min Water	Water Quality Parameters Sample	Method	Measured by	Verified by
Field Total Residual Cl2 (mg/L):			NA	NA	NA	JG
Lab Total Residual Cl2 (mg/L):	<0.03		<0.03	DR100	SG	JG
Alkalinity (mg/L as $CaCO_3$):	135		255	Hach	JA	SG
Hardness (mg/L as $CaCO_3$):	125		297	Hach	JA	SG
Total ammonia (mg/L as N):	<0.017		<0.017	Denver	DPH	JG
Salinity:	≈0		≈0	YSI	JG	SG

The Bioassay of the Ameristeel Corporation-Tampa Mill effluent sampled on December 11, 2000, NPDES #FL0167002.

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





The Priority Pollutants Analysis for Bioassay of the Ameristeel Corporation-Tampa Mill effluent sampled on December 11, 2000, NPDES #FL0167002.

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

