APPENDIX A

BCM

APPENDIX A

PROCESS WASTE DESCRIPTION, VOLUMES, AND ANALYSES

2.1 TABLE 1

FAIRLESS WORKS 1987

SOLID STATE INVENTORY

AREA	MATERIAL	SOURCE	CLASSIFICATION	PHYSICAL DESCRIPTION	ANALYSIS SUMMARY	GENERATION RATE (LBS/TON)	ANNUAL GENERATION (TON/YR)	HAULER	INTERMEDIATE DISPOSITION	FINAL DISPOSITION	COMMENTS
SINTER PLANT	Sludge	Rotoclones	Industrial Waste Residue	Wet Sludge, Red-Brown	SP-1	9.6	4,910[b]	Pipeline	TIP/In Process	35 Series Pit/Recycled	SP-A
BLAST FURNACE	Slag	Blast Furnace	Industrial Waste Residue - Slag	Fused Gray Agglomerate	BF-1,2	731	701,496	Warner Co.	Processed & Stored by Warner Co.	Most Reused On and Off-site, Balance Stored On-site Area A & B	BF-A
	Flue Dust	Dust Catcher	Industrial Waste Residue	Fine Dust - Dark Gray	BF-3	57.2	54,662	Plant Forces	Railroad Car	Recycle to Sinter Plant	BF-B
	Filter Cake	Blast Furnace Water Recycling Plant	Industrial Waste Residue	Black Filter Cake	BF-4	Included with Flue Dust		Plant Forces	Stockpiled for Recycling	Recycle to Sinter Plant	BF-C
	Ore Screenings	Ore Yard	Industrial Waste	Fine Iron Ore Particles	N/A	N/A	N/A	Langenfelder	Stockpiled on Site	Recycle to Sinter Plant	BF-D
	Cast House Debris	Cast House	Residue & Demolition Waste	Refractories, Metallics, Slag, Clay, Sand, etc.	N/A	N/A	N/A	Plant Forces	Stockpiled on Site	Processed with Blast Furnace Slag and Off-site Landfill	BF-E
OPEN HEARTH	Furnace Slag	OH Process	Industrial Waste Residue - Slag	Fused Gray Agglomerate	OH-1	446	544,650	Heckett Engr. & Plant Forces	Processed & Stored by Heckett Engr.	% Recycled to OH, BF & SP, % Used Commercially, Balance Stored On-site Area A & B	OH-A
	Primary Flue Dust	Primary Precipitators	Industrial Waste Residue	Fine Red Metallic Dust	OH-2	Included with Secondary Flue Dust		Pipeline	Made into Slurry	Stored in BP-3	OH-B
	Secondary Flue Dust	Secondary Precipitator	Industrial Waste Residue	Fine Red Metallic Dust	OH-3	20.92[a]	25,519	Shantz & Pipeline	Collected & Stored in Hoppers	% Used Commercially Off-site, Balance Stored On-site in PB-3	OH-B
	Open Hearth Debris	Furnace/Ladle Relines, Operating Wastes	Residue and Demolition Waste	Refractories, Metallics, Slag, etc.	N/A	N/A	N/A	Plant Forces	Collected for Removal	Processed with Open Hearth Slag and Off-site Landfill	OH-C
ROLLING MILL	Mill Scale	Mill Scale Pits	Industrial Waste Residue	Wet Metallic Cake	RM-1	147.6	157,896	Plant Forces	Clammed into Rail Car	Recycle to Sinter Plant	RM-A
	Rolling Mill Debris	Furnaces, Pits, Mill	Residue, & Demolition Waste	Refractories, Misc. Debris	N/A	N/A	N/A	Plant Forces	Collected, Loaded into Rail Car	Off-site Landfill	RM-B
	Waste Rolling Oils	80" Rolling Mill	Industrial Waste	Oil/Water Mixture	GP-3	1.5	1319	PORI, Inc.	Collected & Stored by Rope Skimmer Unit	Processed & Recycled	RM-C
SHEET & TIN	Waste Pickle Liquor	56" & 80" Pickle Lines	Hazardous (K062)	Waste HCl Acid, Liquid, Corrosive	ST-1	153.1	40,358	Railroad & Truck Cos.	Stored On-site for Pick Up	Consumed by Pfizer/Diamond Shamrock & Fairless	ST-A
	Waste Chromic Solution	ETL, TFS & GALV. Lines	Hazardous (K062)	Waste Chromic Solution, Liquid, Corrosive	ST-2	19.7	4,379	Plant Equipment	Treated at OIP	NPDES Monitored Outfall	ST-B
	Oil Interception Plant Sludge	OIP Underflow	Industrial Waste Residue	Wet Red Precipitate	ST-3	17.9	9,125	Plant Pipeline	Bottom of Clarifiers	Stored in NT-3	ST-C
	Galvanizing Dross	Galvanizing Line	Industrial Waste Residue	Silver-Gray Metallic Fused Agglomerate	ST-4	24.8	3,432	Railroad	Stored On-site for Pick-up	Metal Reclaimer	ST-D
	Tin Skimmings	Tin Pot	Industrial Waste Residue	Gray Solidified Mass	N/A	0.2	11.6	Truck Cos.	Stored On-site for Pick-up	Metal Reclaiming Company	ST-E
	Tin Plating Sludge	Tin Plating Solution Tank	Hazardous	Granular Wet Gray Precipitate	ST-5	0.2	10	Truck Cos.	Tin Plating Solution Tank	Metal Reclaiming Company	ST-F
	Waste Oils	Sheet & Tin	Industrial Waste Residue	Oil/Water Mixture	GP-2	2.6	11,532	PORI, Inc.	Stored On-site for Pick-up	Processed & Recycled	ST-G
PIPE MILL	Galvanizing Dross	Galvanize Line	Industrial Waste Residue	Silver-Gray Metallic Fused Agglomerate	P-1	18.0	301	Truck Cos.	Stored On-site for Pick-up	Metal Reclaiming Company	P-A
	Waste Pickle Liquor	Pickle Tanks	Hazardous (K062)	Waste Sulfuric Acid Liquid, Corrosive	P-2	97.03	5,951	Waste Conversion, Inc.	Stored On-site for Pick Up	Waste Conversion, Inc. Detoxifies & Disposes	P-B
	Waste Chromic Solution	Cleaning Tanks	Hazardous (K062)	Waste Chromic Solution Liquid, Corrosive	P-3	234.3	2,296	Waste Conversion, Inc.	Stored On-site for Pick Up	Waste Conversion, Inc. Detoxifies & Disposes	P-C

2.1 TABLE 1

FAIRLESS WORKS 1987

SOLID STATE INVENTORY

AREA	MATERIAL	SOURCE	CLASSIFICATION	PHYSICAL DESCRIPTION	ANALYSIS SUMMARY	GENERATION RATE (LBS/TON)	ANNUAL GENERATION (TON/YR)	HAULER	INTERMEDIATE DISPOSITION	FINAL DISPOSITION	COMMENTS
PLANT SLUDGES	Terminal Treatment Plant Sludge	TTP Clamming & Dredging	Industrial Waste Residue	Wet Sludge, Brown	PS-1	29.9	41,176	Plant & Contractor Equipment	Bottom of Settling Basins	Stored in BP-35	PS-A
	Sanitary Sludge	Sanitary Treatment Plant	Sewage Sludge	Wet Sludge, Black-Gray	PS-2	0.3	323	Profession Products Co.	Lower Bucks Co. Authority or Drying Beds On-site	Treated & Disposed	PS-B
	Power House Sludge	Power House Water Treatment Plant	Residue	Wet Brown Precipitate	PS-3	Included with TTP Sludge		Plant Equipment	TTP for Solids Removal	Stored in BP-35	PS-C
	Service Water Sludge	Service Water Setting Basins	Residue	River Silt, Brown	PS-4	4.6	5,660	Pipeline	Bottom of Settling Basins	Stored On-site	PS-D
	River Dredgings	Dock Channel	Residue	River Silt, Brown	N/A	N/A	N/A	Pipeline	Dredged by Contractor	Stored On-site	PS-E
	Waste Oil Filter Cake	PORI Waste Oil Reclaiming Plant	Industrial Waste Residue	Black Filter Cake	PS-5	0.037 lb/G	88.6	Waste Conversion, Inc.	Stored by PORI for Pick Up	Landfill	PS-F
	Potable Plant Sludge	Potable Water Treatment Plant	Residue	Wet Brown Precipitate	N/A	21.1	25,741[b]	Plant Equipment	TTP for Solids Removal	Stored in BP-35	PS-G
GENERAL PLANT WASTES	Used Solvents	Plant-wide	Hazardous (D001) Hazardous (F002)	Waste Petroleum Naptha Waste Compound Cleaning Corrosive Liquid	GP-1	0.02	21	Safety Kleen	Stored for Pick Up	Reused	GP-A
	General Refuse	Plant-wide	Solid Waste Refuse	Paper, Wood, Debris, etc.	N/A	21.3	26,000	Waste Automation Corp.	Stored in Various Containers	Grows Landfill	GP-B
	General Waste Oil	Plant-wide	Industrial Waste	Used Oil, Lubricants, etc.	GP-2	4.3	5,248	PORI & Contractors	Collected by Various Oil Skimmers & Contractors	Processed & Recycled	GP-C
	Used Tires	Plant-wide	Solid Waste	Assorted Scrap Tires	N/A	N/A	360 Tires/Yr	Jerry Powell Tire	Stored On-site for Pick Up	Recycled or Landfill	GP-D
	Natural Gas Condensate	Gas Mixing Station	Industrial Waste	Clear Liquid	GP-3	N/A	2.1	Plant Equipment	Collected & Stored On-site	Consumed On-site	GP-E
	Used RR Ties	Plant-wide	Industrial Waste	Used Treated RR Ties	N/A	N/A	N/A	Contractor	Collected & Stored On-site	Reused & Distributed for Various Off-plant Functions	GP-F
	Asbestos	Plant-wide Insulation	Industrial Waste, Construction & Demolition Waste	Miscellaneous Insulation	N/A	N/A	50 Yd^3/Yr	Contractor	Packaged & Stored for Pick Up	Approved Landfill	GP-G
	Road Dust	Plant-wide Road Sweepings	Solid Waste	Fine Brown Dirt	N/A	N/A	149 Yd^3/Yr	Professional. Products Co.	Stored On-site	Reused and/or Landfill	GP-H
	PCB	Plant-wide	Toxic	Liquid, Contaminated Equipment & Solids	N/A	N/A	1 55-Gallon Drum 3 Transformers 13 Capacitors 3 Drums (Debris)	Ensco, Inc.	Approved Storage Area	Incineration & Approved Landfill	GP-I
	Empty Plastic Drums	Plant-wide	Industrial Waste	Plastic Drums	N/A	N/A	600 Drums/Yr	Plant Forces	Dumpster Boxes	Drum Reclaimer	GP-J
	Empty Metal Drums	Plant-wide	Industrial Waste	Metal Drums	N/A	N/A	3,500 Drums/Yr	Plant Forces, Vendors	Stored On-site	% to Vendor, Contractor, and Open Hearth	GP-K
	Scrap Metal	Plant-wide	Residue	Gray, Silver and/or Rust Colored Metallics	GP-4	703	857,657	Plant Forces	Stored, Processed in Scrap Yard	Recycled into Open Hearth	GP-L

[a] EPA particulate emission factors applicable to the iron and steel industry
[b] Quantity becomes part [illegible] TP sludge total generation

SP-1

SINTER PLANT SLUDGE
ANALYSIS SUMMARY

Parameter	Unit	11/81
Ammonia Nitrogen (NH_3-N)	mg/l	0.8
Fluoride (F)	mg/l	0.7
Phosphorus (P)	mg/l	4.9
Sodium (Na)	mg/l	11.0
Sulfate (SO_4)	mg/l	74
Zinc (Zn)	mg/l	0.0
Chlorides	mg/l	36
P. Alkalinity	mg/l	234
T. Alkalinity	mg/l	255
Total Hardness	mg/l	206
pH	Std Units	11.0

BF-1

BLAST FURNACE SLAG
ANALYSIS SUMMARY

Parameter	Unit	Average	Range	3/84	8/81	5/81	12/80
Aluminum Oxide (Al_2O_3)	%	12.60	---	---	---	---	12.60
Calcium Oxide (CaO)	%	31.49	---	---	---	---	31.49
Iron Oxide (FeO)	%	0.68	---	---	---	---	0.68
Magnesium Oxide (MgO)	%	15.96	---	---	---	---	15.96
Manganese Oxide (MnO)	%	0.52	---	---	---	---	0.52
Silicon dioxide (SiO_2)	%	34.72	---	---	---	---	34.72
Sulfur (S)	%	1.35	1.01-1.65	1.01	1.08	1.65	1.65

BF-2

BLAST FURNACE EXPANDED SLAG
ANALYSIS SUMMARY

Parameter	Unit	Average	Range	3/84	8/81	5/81	2/80
Sulfur (S)	ppm	1.09	0.91-1.42	0.91	0.94	1.42	---
Hydrogen sulfide (H_2S)	%	10.4	---	---	---	---	10.4
S.G.	g/ml	1.67	---	---	---	---	1.67

BF-3

BLAST FURNACE FLUE DUST
ANALYSIS SUMMARY

Parameter	Unit	Average	Range	3/82	1/82	8/81	3/73
Aluminum Oxide (Al_2O_3)	%	2.10	1.84-2.57	1.84	2.57	---	1.90
Calcium Oxide (CaO)	%	2.85	2.20-3.22	3.22	3.13	---	2.20
Carbon (C)	%	12.02	9.0-17.01	10.04	17.01	---	9.00
Iron (Fe)	%	39.65	36.37-46.0	36.59	36.37	---	46.00
Magnesium Oxide (MgO)	%	1.43	1.39-1.90	1.90	1.39	---	1.40
Manganese (Mn)	%	0.39	0.28-0.50	0.40	0.28	---	0.50
Phosphorus (P)	%	0.092	0.07-0.108	0.108	0.097	---	0.07
Silicon dioxide (SiO_2)	%	5.6	4.0-6.52	6.3	6.52	---	4.0
Sulfur (S)	%	0.217	0.15-0.313	0.189	0.313	---	0.15
Zinc (Zn)	%	0.21	---	---	---	0.21	---
Zinc Oxide (ZnO)	%	0.88	---	---	0.88	---	---
Moisture	%	14.0	12.7-15.4	15.4	12.7	---	---

BF-4

BLAST FURNACE FILTER CAKE - WQC
ANALYSIS SUMMARY

Parameter	Unit	Average	Range	6/82	8/81
Aluminum Oxide (Al_2O_3)	%	1.5	1-2	1	2
Calcium Oxide (CaO)	%	4.5	4-5	5	4
Carbon Dioxide (CO_2)	%	2	---	---	2
Ferrous Oxide (Fe_3O_4)	%	77.5	73-82	82	73
Magnesium Oxide (MgO)	%	2	1-3	1	3
Phosphorous Pentoxide (P_2O_5)	%	1	---	1	---
Silicon dioxide (SiO_2)	%	7	7	7	7
Sulfur Trioxide (SO_3)	%	1	---	1	---
Lost on Ignition (LOI)	%	5.5	2-9	2	9

OH-1

OPEN HEARTH SLAG
ANALYSIS SUMMARY

Parameter	Unit	12/80
Aluminum Oxide (Al_2O_3)	%	5.0
Calcium Oxide (CaO)	%	25.0
Iron Oxide (FeO)	%	38.54*
Magnesium Oxide (MgO)	%	9.0
Manganese Oxide (MnO)	%	5.17
Phosphoric anhydride (P_2O_5)	%	2.29
Silicon Dioxide (SiO_2)	%	15.0
Sulfur (S)	%	0.07

* Some FeO is present as Fe_2O_3

OH-2

OPEN HEARTH FLUE DUST - PRIMARY
ANALYSIS SUMMARY

Parameter	Unit	Average	Range	2/86	9/81	6/81	3/76
Aluminum Oxide (Al_2O_3)	%	0.38	0.20-0.57	---	---	0.20	0.57
Arsenic (As)	mg/kg	0.81	---	0.81	---	---	---
Ash	mg/kg	995,000	---	995,000	---	---	---
Barium (Ba)	mg/kg	4.58	---	4.58	---	---	---
Cadmium (Cd)	mg/kg	4.23	---	4.23	---	---	---
Calcium Oxide (CaO) 0.83	%	0.83	---	---	---	---	---
Carbon (C)	%	0.12	---	---	---	---	0.12
Chemical Oxygen Demand (COD)	mg/kg	991,680	---	991,680	---	---	---
Chromium (Cr)	mg/kg	30.1	---	30.1	---	---	---
Copper (Cu)	mg/kg	216.7	33.4-400	33.4	400	---	---
Cyanide (Cn)	mg/kg	<0.005	---	<0.005	---	---	---
Total Iron (Fe)	%	62.35	60.09-63.51	---	60.09	63.45	63.51
Lead (Pb)	mg/kg	4,936	286-5,600	286	3,000	1,000	5,600
Magnesium Oxide (MgO)	%	0.53	---	---	---	---	0.53
Manganese (Mn)	%	0.36	0.27-0.41	---	0.41	0.41	0.27
Mercury (Hg)	mg/kg	0.1	---	0.1	---	---	---
Nickel (Ni)	%	0.03	---	---	0.03	---	---

Table OH-2 (Cont.)

Parameter	Unit	Average	Range	2/86	12/85	5/82,9/81	9/81	6/81	2/76
Oil & Grease	mg/kg	219	---	219	---	---	---	---	---
Phenol	mg/kg	<0.04	---	<0.04	---	---	---	---	---
Phosphorus (P)	%	0.124	0.11-0.138	---	---	---	---	0.11	0.138
Potassium (K)	%	0.33	---	---	---	---	---	--	0.33
Potassium Oxide (K_2O)	%	0.375	0.35-0.4	---	---	---	0.35	0.4	---
Selenium (Se)	mg/kg	<0.2	---	<0.2	---	---	---	---	---
Silicon dioxide (SiO_2)	%	0.885	0.78-0.99	---	---	---	---	0.99	0.78
Silver (Ag)	mg/kg	0.6	---	0.6	---	---	---	---	--
Sodium (Na)	%	0.23	---	--	---	---	---	---	0.23
Sulfur (S)	mg/kg	3,004	13-5,100	13	---	---	---	3,900	5,100
Thallium (Tl)	mg/kg	<3.0	---	<3.0	---	---	---	---	---
Zinc (Z)	mg/kg	20,189	9,250-31,000	9,250	---	---	2.25%	1.5%	3.1%
Flash Point	°C	>212	---	>212	---	---	---	---	---
Moisture	%	0.5	0-1.0	---	---	0.0,1.0	---	0	1.0
pH	Std. Unit	7.0	---	7.0	---	---	---	---	---
Total Solids	mg/kg	997,000	---	997,000	---	---	--	---	---
Pounds per Cubic Foot		75.0	62.00-88.0	---	---	88.0,62.0	---	---	---
Resistivity	ohm-cm								
	@350°C	1.23×10^{10}	---	---	1.23×10^{10}	---	---	---	---
	@600°C	4.14×10^{7}	---	---	4.14×10^{7}	---	---	---	---

Table OH-2 (Cont.)

Parameter	Unit	2/86
PCB A-1016 thru PCB A-1260	ug/kg	<5.0
Aldrin	ug/kg	<1.0
a-,b-,d-,g-BHC	ug/kg	<1.0
Chlordane	ug/kg	<1.0
4,4-DDD	ug/kg	<1.0
4,4-DDE	ug/kg	<1.0
4,4-DDT	ug/kg	<1.0
Dieldrin	ug/kg	<1.0
Endosulfan I	ug/kg	<1.0
Endosulfan II	ug/kg	<1.0
Endosulfan Sulfate	ug/kg	<1.0
Endrin	ug/kg	<1.0
Endrin Aldehyde	ug/kg	<1.0
Heptachlor	ug/kg	<1.0
Heptachlor Epoxide	ug/kg	<1.0
Toxaphene	ug/kg	<1.0
2,4-D	ug/kg	<10.0
2,4,5-TP	ug/kg	<10.0

OPEN HEARTH FLUE DUST - SECONDARY
ANALYSIS SUMMARY

Parameter	Unit	Average	Range	2/86	9/81	6/81	2/76
Aluminum Oxide (Al_2O_3)	%	0.32	0.15-0.5	---	---	0.15	0.50
Arsenic (As)	mg/kg	0.225	---	0.225	---	---	---
Ash	mg/kg	996,000	---	996,000	---	---	---
Barium (Ba)	mg/kg	3.82	---	3.82	--	---	--
Cadmium (Cd)	mg/kg	3.31	---	3.31	---	---	---
Calcium Oxide (CaO)	%	0.59	---	---	---	---	0.59
Carbon (C)	%	0.23	---	---	---	---	0.23
Chemical Oxygen Demand (COD)	mg/kg	1,081,600	---	1,081,600	---	---	---
Chromium (Cr)	mg/kg	18.9	---	18.9	---	---	---
Copper (Cu)	mg/kg	211	21.6-400	21.6	400	---	---
Cyanide (Cn)	mg/kg	<0.16	---	<0.16	---	---	---
Total Iron (Fe)	%	61.26	60.07-62.26	---	61.46	62.26	60.07
Lead (Pb)	mg/kg	3,967	470-11,400	470	3,000	1,000	11,400
Magnesium Oxide (MgO)	%	0.47	---	---	---	---	0.47
Manganese (Mn)	%	0.37	0.29-0.41	---	0.40	0.41	0.29
Mercury (Hg)	mg/kg	0.1	---	0.1	---	---	---
Nickel (Ni)	%	0.03	---	---	0.03	---	---

Table OH-3 (Cont.)

Parameter	Unit	Average	Range	2/86	12/85	5/82,9/81	9/81	6/81	2/76
Oil & Grease	mg/kg	117	---	117	---	---	---	---	---
Phenol	mg/kg	<0.4	---	<0.4	---	--	---	---	---
Phosphorus (P)	%	0.115	0.11-0.12	---	---	---	---	0.11	0.12
Potassium (K)	%	0.68	---	---	---	---	---	---	0.68
Potassium Oxide (K_2O)	%	0.43	0.36-0.5	---	---	---	0.36	0.5	---
Selenium (Se)	mg/kg	<0.2	---	<0.2	---	---	---	---	---
Silicon dioxide (SiO_2)	%	0.68	0.57-0.8	---	---	---	---	0.80	0.57
Silver (Ag)	mg/kg	0.5	---	0.5	---	---	---	---	---
Sodium (Na)	%	0.34	---	---	---	---	---	---	0.34
Sulfur (S)	mg/kg	4,440	19-8,800	19	---	---	---	4,500	8,800
Thallium (Tl)	mg/kg	<3.0	---	<3.0	---	---	---	---	---
Zinc (Z)	mg/kg	19,600	10,400-48,000	10,400	---	---	20,000	20,000	48,000
Flash Point	°C	>212	---	>212	---	---	---	---	---
Moisture	%	0.37	0-1.0	---	--	0.0,0.5	---	0	1.0
pH	Std. Unit	6.2	---	6.2	---	---	---	---	---
Total Solids	mg/kg	998,000	---	998,000	---	--	---	---	---
Pounds per cubic foot		41.2	35.0-47.33	---	---	47.33-35.0	---	---	---
Resistivity ohm-cm	@350°F	3.43×10^9	---	---	3.43×10^9	---	---	---	---
	@650°F	1.94×10^7	---	---	1.94×10^7	---	---	---	---

Table OH-3 (Cont.)

Parameter	Unit	2/86
PCB A-1016 thru PCB A-1260	ug/kg	<5.0
Aldrin	ug/kg	<1.0
a-,b-,d-,g-BHC	ug/kg	<1.0
Chlordane	ug/kg	<1.0
4,4-DDD	ug/kg	<1.0
4,4-DDE	ug/kg	<1.0
4,4-DDT	ug/kg	<1.0
Dieldrin	ug/kg	<1.0
Endosulfan I	ug/kg	<1.0
Endosulfan II	ug/kg	<1.0
Endosulfan Sulfate	ug/kg	<1.0
Endrin	ug/kg	<1.0
Endrin Aldehyde	ug/kg	<1.0
Heptachlor	ug/kg	<1.0
Heptachlor Epoxide	ug/kg	<1.0
Toxaphene	ug/kg	<1.0
2,4-D	ug/kg	<10.0
2,4,5-TP	ug/kg	<10.0

RM-1

ROLLING MILL SCALE
ANALYSIS SUMMARY

Parameter	Unit	Average	Range	3/85 (No.2)	3/85 (No.3)	2/73
Aluminum Oxide (Al_2O_3)	%	0.09	---	0.09	0.09	---
Calcium Oxide (CaO)	%	0.39	0.07-0.83	0.07	0.26	0.83
Carbon (C)	%	4.89	---	---	---	4.89
Iron (Fe)	%	70.4	63.5-74.3	74.3	73.39	63.5
Magnesium Oxide (MgO)	%	0.33	0.17-0.56	0.17	0.26	0.56
Manganese (Mn)	%	0.21	0.19-0.26	0.19	0.19	0.26
Phosphorous (P)	%	0.02	0.2-0.3	0.02	0.03	---
Potassium Oxide (K_2O)	%	0.01	---	0.01	0.01	---
Silicon Dioxide (SiO_2)	%	0.33	0.19-0.48	0.19	0.48	---
Sulfur (S)	%	0.09	0.01-0.25	0.02	0.01	0.25
Moisture	%	15	10-20	---	---	10-20

ST-1

HCl WASTE PICKLE LIQUOR - 56" & 80" PICKLE LINES
ANALYSIS SUMMARY

Parameter	Unit	Average	Range	4/26/85-7/25/85	1/25/85-4/25/85	8/24/84-11/20/84	4/27/84-8/24/84	1/1/84-3/30/84	8/26/83-12/31/83
Aluminum (Al)	%	0.010	0.008-0.012	0.01	0.008	0.012	0.008	0.008	0.01
Calcium (Ca)	%	0.010	0.007-0.012	0.007	0.010	0.012	0.011	0.011	0.010
Chromium (Cr)	%	0.016	0.014-0.018	0.016	0.016	0.018	0.014	0.014	0.017
Copper (Cu)	%	0.004	0.003-0.005	0.003	0.003	0.005	0.003	0.004	0.004
Ferric Chloride ($FeCl_2$)	%	20.46	18.50-22.15	22.15	18.50	19.36	20.24	20.50	22.03
Magnesium (Mg)	%	0.004	0.002-0.007	0.003	0.003	0.004	0.007	0.002	0.003
Manganese (Mn)	%	0.170	0.162-0.177	0.168	0.176	0.177	0.162	0.163	0.172
Nickel (Ni)	%	0.009	0.008-0.011	0.008	0.009	0.011	0.009	0.008	0.010
Silicon (Si)	%	0.012	0.009-0.019	0.010	0.012	0.019	0.012	0.009	0.010
Sodium (Na)	%	0.004	0.003-0.006	0.003	0.006	0.005	0.004	0.003	0.003
Zinc (Zn)	%	0.001	0.001-0.002	0.001	0.001	0.001	0.001	0.002	0.001
Hydrochloric Acid (HCl)	%	0.86	0.49-1.40	0.77	0.49	0.75	0.83	0.93	1.40
mg P/gm Fe		0.86	0.080-0.095	0.093	0.095	0.086	0.080	0.082	0.081
Be Baume Gravity		25.26	23.32-27.23	26.84	23.32	23.93	24.94	25.28	27.23
Specific Gravity	gm/ml	1.2096	1.1820-1.2320	1.2272	1.1820	1.1977	1.2079	1.2111	1.2320

ST-2

WASTE CHROMIC SOLUTION - SHEET & TIN
ANALYSIS SUMMARY

Parameter	Unit	Average	Range	4/85	3/85
Hexavalent Chrome (Cr^{+6})	ppm	335	287-383	383	287
Total Chrome (Cr)	ppm	391.5	350-433	433	350
Zinc (Zn)	ppm	3.0	---	---	3.0
pH	Std units	3.15	3.1-3.2	3.1	3.2
Total Organic Carbon (TOC)	ppm	140	99-181	99	181

ST-3

OIL INTERCEPTION PLANT SLUDGE
ANALYSIS SUMMARY

Parameter	Unit	Average	Range	6-9/82	3/73
Aluminum Oxide (Al_2O_3)	mg/l	0.64	---	---	0.64
Arsenic (As)	mg/l	0.0042	---	0.0042	---
Barium (Ba)	mg/l	0.65	---	0.65	---
Cadmium (Cd)	mg/l	<0.01	---	<0.01	---
Calcium Oxide (CaO)	mg/l	24.97	---	---	24.97
Chromium (Cr)	mg/l	1.0	0.15-1.86	1.86	0.15
Iron (Fe)	mg/l	17.54	---	---	17.54
Lead (Pb)	mg/l	<0.01	---	<0.01	---
Magnesium Oxide (MgO)	mg/l	2.83	---	---	2.83
Manganese (Mn)	mg/l	0.06	---	---	0.06
Mercury (Hg)	mg/l	<0.001	---	<0.001	---
Phosphorus (P)	mg/l	0.021	---	---	0.021
Selenium (Se)	mg/l	<0.001	---	<0.001	---
Silicon dioxide (SiO_2)	mg/l	1.48	---	---	1.48
Silver (Ag)	mg/l	0.02	---	0.02	---
Sulfur (S)	mg/l	20.0	---	---	20.0
Total Solids	mg/l	8,922	6,000-11,845	0.6%	---

ST-4

GALVANIZING DROSS - GALVANIZING LINES
ANALYSIS SUMMARY

Parameter	Unit	MSDS Range
Aluminum (Al)	%	0.03-1,8
Copper (Cu)	%	<0.01-1.2
Iron (Fe)	%	0.4-4.2
Lead (Pb)	%	<0.01-0.1
Silicon (Si)	%	0.03-3.1
Zinc (Zn)	%	95.0-98.0

ST-5

TIN PLATING SLUDGE
ANALYSIS SUMMARY

Parameter	MSDS Range %	2/87	2/87 (Leachate of) mg/l
Antimony (Sb)	<0.1-1.2	---	---
Arsenic (As)	<0.1-2.4	---	2.08
Barium (Ba)	---	---	0.052
Cadmium (Cd)	---	---	0.06
Chromium (Cr)	---	---	0.609
Copper (Cu)	0.3-2.8	---	---
Cyanide (Cn)	---	<0.3 ppm/gm	---
Iron (Fe)	0.05-0.9	---	---
Lead (Pb)	<0.01-0.4	---	3.06
Mercury (Hg)	---	---	0.0003
Nickel (Ni)	<0.04-0.7	---	---
Selenium (Se)	---	---	<0.002
Silver (Ag)	---	---	<0.02
Stannous Sulfate	0.2-40.2	---	---
Sulfide	---	<0.3 ppm/gm	---
Tin (Sn)	45.0-68.0	---	---
pH (std. units)	---	1.4	---

GALVANIZING DROSS - GALVANIZING LINES
ANALYSIS SUMMARY

Parameter	Unit	1/85	MSDS Range
Aluminum (Al)	%	---	0.03-1.8
Copper (Cu)	%	---	<0.01-1.2
Iron (Fe)	%	---	0.4-4.2
Lead (Pb)	%	---	<0.01-0.1
Silicon (Si)	%	---	0.03-3.1
Zinc (Zn)	%	87.7[1]	95.0-98.0

[1] Weighted Average

SULFURIC WASTE PICKLE LIQUOR - PIPE MILL
ANALYSIS SUMMARY

Parameter	Unit	Average	Range	8/85	7/85
Acid	%	8.22	8.07-8.37	8.37	8.07
Copper (Cu)	ppm	45.0	---	45.0	---
Iron (Fe)	ppm	44,000	---	44,000	---
Zinc (Zn)	ppm	2,000	---	2,000	2,000
pH	std. units	1.1	---	1.1	---
Specific Gravity	gm/ml	1.16	1.15-1.17	1.17	1.15

WASTE CHROMIC SOLUTION - PIPE MILL
ANALYSIS SUMMARY

Parameter	Unit	Average	Range	7/85	5/85	5/85	4/85.	4/85
Chromic Acid (H_2CrO_4)	%	0.68	0.30-1.13	---	0.48	1.08	0.30	1.13
Chromium (Cr)	mg/l	703	---	703	---	---	--	---
Hexavalent Chromium (Cr^{+6})	mg/l	342	123-660	660	319	247	574	132
Total Organic Carbon (TOC)	ppm	122	54-223	---	223	54	81	169
Zinc (Zn)	mg/l	85.5	---	85.5	--	---	---	---
pH	Std units		2.6	2.3-3.5	---	2.5	2.25	3.5
2.5								
Specific Gravity	gm/ml	1.01	1.0-1.04	---	1.0	1.0	1.01	1.04

PS-1

TERMINAL TREATMENT PLANT SLUDGE
ANALYSIS SUMMARY

Parameter	7/83[a] EP Toxicity Test mg/l	12/80 wt %	4/74[b] %
Ammonia (N)	0.6	0.116	---
Antimony (Sb)	0.6	---	---
Arsenic (As)	<0.001	0.00067	---
Barium (Ba)	0.6	<0.004	---
Cadmium (Cd)	0.03	0.004	---
Chromium (Cr)	0.31	0.059	---
Hexavalent Chromium (Cr^{+6})	<0.02	---	---
Copper (Cu)	0..39	0.0112	---
Cyanide (Cn)	---	<0.00001	---
Iron (Fe)	---	---	39.35
Lead (Pb)	0.23	0.015	---
Mercury (Hg)	<0.001	<0.0001	---
Molybdenum (Mo)	0.10	<0.004	---
Nickel (Ni)	6.6	0.014	---
Phenols (PhOH)	0.34	0.0074	---
Selenium (Se)	<0.001	<0.00008	---
Silver (Ag)	0.01	0.003	---
Sulfur (S)	---	---	0.176
Zinc (Zn)	2.2	---	---

a With 10% lime addition
b Naturally Dewatered (3 yrs.)

Table PS-1 (Cont.)

Parameter	Unit	Average	Range	7/83[a] EP Toxicity Test	12/80	4/74[b]
Chemical Oxygen Demand (COD)	%	9.74	---	---	9.74	---
Freon Extractables (Oil)	%	7.9	0.153-15.73	<0.5 mg/l	0.153	15.73
Moisture	%	7.36	---	---	---	7.36
pH	std.units	7.4	7.2-7.7	7.2*	7.7	---
Solids	%	73.8	36.8-92.64	36.8*	91.94	92.64
Mineral solids	%	89.95	---	---	89.95	---
Volatile solids	%	1.99	---	---	1.99	---

* Before Lime
a With 10% lime addition
b Naturally dewatered (3 years)

PS-2

SANITARY SLUDGE
ANALYSIS SUMMARY

Parameter	Unit	7/83 EP Toxicity Test
Ammonia (N)	mg/l	0.4
Antimony (Sb)	mg/l	0.5
Arsenic (As)	mg/l	0.001
Barium (Ba)	mg/l	0.6
Cadmium (Cd)	mg/l	0.06
Chromium (Cr)	mg/l	0.005
Hexavalent Chrome (Cr^{+6})	mg/l	<0.02
Copper (Cu)	mg/l	0.32
Lead (Pb)	mg/l	0.12
Mercury (Hg)	mg/l	0.002
Molybdenum (Mo)	mg/l	0.05
Nickel (Ni)	mg/l	0.46
Phenols (PhOH)	mg/l	0.010
Selenium (Se)	mg/l	0.002
Silver (Ag)	mg/l	0.01
Zinc (Zn)	mg/l	9.2
Freon Extractables (Oil)	mg/l	0.5
pH	Std. units	6.6
Total Solids	wt. %	68.1

PS-3

POWER HOUSE SLUDGE
ANALYSIS SUMMARY

Parameter	Units	12/80
Ammonia (N)	wt %	0.0014
Arsenic (As)	wt %	0.00024
Barium (Ba)	wt %	<0.004
Cadmium (Cd)	wt %	0.002
Chromium (Cr)	wt %	0.0056
Copper (Cu)	wt %	0.0016
Cyanide (Cn)	mg/l	<0.01
Lead (Pb)	wt %	0.0016
Mercury (Hg)	wt %	<0.0001
Molybdenum (Mo)	wt %	<0.004
Nickel (Ni)	wt %	0.0036
Phenols (PhOH)	wt %	0.0156
Selenium (Se)	wt %	<0.00005
Silver (Ag)	wt %	<0.001
Chemical Oxygen Demand (COD)	wt %	13.8
Freon Extractables (Oil)	wt %	2.75
pH	Std. units	6.1
Total Solids	mg/l	163,620
Total Mineral Solids	mg/l	108,060
Total Volatile Solids	mg/l	55,560
Dissolved Solids	mg/l	540
Dissolved Mineral Solids	mg/l	244
Dissolved Volatile Solids	mg/l	296

PS-4

SERVICE WATER SLUDGE
ANALYSIS SUMMARY

Parameter	Unit	7/83* EP Toxicity Test
Ammonia (N)	mg/l	4.0
Antimony (Sb)	mg/l	0.5
Arsenic (As)	mg/l	0.015
Barium (Ba)	mg/l	2.0
Cadmium (Cd)	mg/l	0.15
Chromium (Cr)	mg/l	0.010
Hexavalent Chromium (Cr^{+6})	mg/l	<0.02
Copper (Cu)	mg/l	0.04
Lead (Pb)	mg/l	0.17
Mercury (Hg)	mg/l	<0.0001
Molybdenum (Mo)	mg/l	0.05
Nickel (Ni)	mg/l	0.25
Phenols (PhOH)	mg/l	0.051
Selenium (Se)	mg/l	<0.001
Silver (Ag)	mg/l	0.01
Zinc (Zn)	mg/l	2.5
Freon Extractables (Oil)	mg/l	<0.5
pH	Std. units	7.2**
Total solids	wt %	36.8**

* After 5% lime added and dewatered.
** Before 5% lime addition.

PS-5

WASTE OIL FILTER CAKE
ANALYSIS SUMMARY

Parameter	2/86 Total (mg/kg)[a]	2/86 (mg/l) EP Toxicity Leachate
Arsenic (As)	7.8	0.012
Barium (Ba)	69.6	<0.5
Cadmium (Cd)	0.1	0.007
Chromium (Cr)	116	0.38
Copper (Cu)	712	6.8
Lead (Pb)	492	0.38
Mercury (Hg)	<0.05	<0.0002
Nickel (Ni)	33.7	0.05
Phenols (PhOH)	3.5	---
Selenium (Se)	0.4	0.002
Silver (Ag)	0.6	<0.001
Thallium (Tl)	<0.06	<0.005
Zinc (Zn)	37.8	0.71
pH	2.88 std. units	4.4 std. units
PCB	<0.26	---
Sulfides	0.32	---
Total Solids	772,000[b]	---
Oil & Grease	158,000	---

a Dry weight
b Wet weight

Table PS-5 (Cont.)

Parameter	Unit (Dry wt)	1/87	2/86 (total)
2,4,-D	ug/kg	---	<1290
2,4,5-TP	ug/kg	---	<1290
Endrin	ug/kg	---	<26
Lindane	ug/kg	---	<13
Methoxychlor	ug/kg	---	<39
Toxaphene	ug/kg	---	<518
Reactivity	---	---	Not reactive
Corrosivity	---	---	Not Corrosive
Ignitability	---	---	Not Ignitible
Weight	lbs/cf	36.46	---

GP-1

SOLVENTS
ANALYSIS SUMMARY

Parameter	Unit	MSDS Organic 3/83	MSDS 105 Solvent
Anti-Static Agent	ppm	---	1.0
Boiling Point	°F	102-395	310-400
Complex Amines	%	0.4	---
Cresylic Acids	ppm	11.9	---
Dye	%	---	0.003
Flash Point	°F	Non-flammable	105
Methyl Chloride	ppm	31.9	---
Mineral Spirits	%	---	99.9
Ortho-di-chlorobenzene	ppm	31.6	---
Sodium Soap of Tall Oil	%	7.5	---
Specific Gravity	%	1.19	0.775-0.795
Volatiles	%	80	---
Water	%	16.7	---

GP-2

WASTE OIL - OIP HOLDING TANKS
ANALYSIS SUMMARY

Parameter	Unit	Average	Range	5/86-N	5/86-S
Arsenic (As)	mg/kg	0.53	0.235-0.825	0.235	0.825
Cadmium (Cd)	mg/kg	0.36	0.235-0.485	0.235	0.485
Chromium (Cr)	mg/kg	16.9	3.41-30.4	3.41	30.4
Cobalt (Co)	mg/kg	9.15	5.3-13.0	5.3	13.0
Lead (Pb)	mg/kg	21.2	17.2-25.2	25.2	17.2
Sulfur (S)	mg/kg	1385.5	1290-1480	1,480	1,290
Flash Point	°C	40.5	35-46	46	35
Total Organic Halides	ug/l	84.5	84-85	85	84
Heat Value	BTU/lb	8715.5	7,648-9,783	9,783	7,648
Moisture	%	29.3	23.7-35.0	23.7	35.0
pH	Std. Units	5.9	5.6-6.2	6.2	5.6
Specific Gravity	g/ml	0.962	0.958-0.967	0.958	0.967

GP-3

NATURAL GAS CONDENSATE
ANALYSIS SUMMARY

Parameter	Unit	1/86 (Total)
Arsenic (As)	mg/l	<0.002
Cadmium (Cd)	mg/l	0.98
Chromium (Cr)	mg/l	0.88
Lead (Pb)	mg/l	1.81
Sulfur (S)	mg/kg	390
Flash Point	°F	65
Heat Value	BTU/lb	19,400
Specific Gravity	g/ml	0.62

GP-4

SCRAP STEEL
ANALYSIS SUMMARY

Parameter	Unit	MSDS Range
Base Metal		
Iron (Fe)	%	82-99
Alloying Elements		
Aluminum (Al)	%	0.0-0.12
Bismuth (Bi)	%	0.0-0.15
Boron (B)	%	0.0-0.005
Carbon (C)	%	0.01-1.25
Chromium (Cr)	%	0.0-13.5
Columbium (Cb)	%	0.0-0.25
Copper (Cu)	%	0.0-2.0
Lead (Pb)	%	0.0-0.35
Manganese (Mn)	%	0.25-2.0
Molybdenum (Mo)	%	0.0-1.13
Nickel (Ni)	%	0.0-9.5
Phosphorus (P)	%	0.001-0.15
Silicon (Si)	%	0.0-3.0
Sulfur (S)	%	0.001-0.35
Titanium (Ti)	%	0.0-0.3
Vanadium (Va)	%	0.0-0.5

Table GP-4 (Cont.)

Parameter	Unit	MSDS Range
Metallic Coating		
Aluminum (Al)	%	0.0-6.0
Antimony (Sb)	%	0.0-0.2
Chromium (Cr)	%	0.0-1.3
Iron (Fe)	%	0.0-1.5
Lead (Pb)	%	0.0-10.0
Nickel (Ni)	%	0.0-0.1
Silicon (Si)	%	0.0-0.2
Tin (Sn)	%	0.0-2.5
Zinc (Zn)	%	0.0-9.9

BCM

GOLDER ASSOCIATES

United States Steel Corporation
Fairless Works

TABLE VI-2

Slags Analyses, Percent

Constituent	Open Hearth Slag	Electric Furnace Slag	Blast Furnace Slag
CaO	25.0	44.00	31.49
SiO_2	15.00	8.50	34.72
FeO	38.45*	28.95	0.68
Al_2O_3	5.00	8.50	12.60
MgO	9.0	8.00	15.96
MnO	5.17	1.50	0.52
P_2O_5	2.29	0.50	--
S	0.07	0.09	1.65

*Some FeO is present as Fe_2O_3.

3122-01
12-9-60

United States Steel Corporation
Fairless Works

TABLE VI-3

Slags Water Leachates*

Source	Open Hearth Slag	Electric Furnace Slag	Blast Furnace Slag
Log No. 80-	6663	6664	6665
Date Collected	10/17/80	10/17/80	10/17/80
pH	10.6	11.4	10.6
Total Dissolved Solids, mg/l	363	643	473
Arsenic, mg/l As	<0.0005	<0.0005	<0.0005
Barium, mg/l Ba	0.1	<0.1	0.1
Cadmium, mg/l Cd	<0.01	<0.01	<0.01
Chromium, mg/l Cr	<0.01	<0.01	<0.01
Lead, mg/l Pb	<0.02	<0.02	<0.02
Mercury, mg/l Hg	<0.0002	<0.0002	<0.0002
Selenium, mg/l Se	<0.0005	0.0015	0.0008
Silver, mg/l Ag	<0.01	<0.01	<0.01

*Made in accordance with ASTM Method A

NOTE: The above referenced slags contain none or insignificantly small amount of the following constituents: oil and grease, Ammonia-Nitrogen, Phenol, Cyanide, Copper, Molybdenum and Nickel.

3122-01
12-9-80

UNITED STATES STEEL CORPORATION
FAIRLESS WORKS

TABLE VI-5

ANALYSES OF NONHAZARDOUS SLUDGE

Source	Open Hearth	Terminal Treatment Sludges
Log No. 80-	7347	7341
Date Collected	12/4/80	12/4/80
pH	7.8	7.7
Solids, wt %	77.58	91.94
Mineral Solids, wt %	51.54	89.95
Volatile Solids, wt %	26.04	1.99
COD, wt %	0.21	9.74
Freon Extractables, wt %	0.0103	0.153
Ammonia, wt % N	0.0017	0.0116
Phenols, wt % PhOH	0.0003	0.0074
Total Cyanide, wt % CN	<0.00001	<0.00001
Arsenic, wt % As	0.00155	0.00067
Barium, wt % Ba	0.004	<0.004
Cadmium, wt % Cd	0.0048	0.0004
Copper, wt % Cu	0.026	0.0112
Chromium, wt % Cr	0.0536	0.059
Lead, wt % Pb	0.228	0.015
Mercury, wt % Hg	<0.0001	<0.0001
Molybdenum, wt % Mo	0.004	<0.004
Nickel, wt % Ni	0.0088	0.014
Selenium, wt % Se	0.00007	0.00008
Silver, wt % Ag	0.005	0.003

UNITED STATES STEEL CORPORATION
FAIRLESS WORKS

TABLE VI-5
(CONTINUED)

ANALYSES OF NONHAZARDOUS SLUDGE

Source	Electric Furnace Caster Sludge	Power House Water Treatment Sludge
Log No. 80-	7348	7339
Date Collected	12/4/80	12/4/80
pH	6.1	7.0
Total Solids, mg/l	163,620	4,130
Total Mineral Solids, mg/l	108,060	3,100
Total Volatile Solids, mg/l	55,560	1,030
Dissolved Solids, mg/l	540	352
Dissolved Mineral Solids, mg/l	244	212
Dissolved Volatile Solids, mg/l	296	140
COD	13.81 wt %	704 mg/l
Freon Extractables	2.75 wt %	10.0 mg/l
Total Organic Carbon, mg/l C	—	260 mg/l
Ammonia, N	0.0014 wt %	1.04 mg/l
Phenols, PhOH	0.0156 wt %	0.240 mg/l
Total Cyanide, CN	<0.01 mg/l	<0.01 mg/l
Arsenic, As	0.00024 wt %	0.094 mg/l
Barium, Ba	<0.004 wt %	<1 mg/l
Cadmium, Cd	0.002 wt %	<0.05 mg/l
Copper, Cu	0.0016 wt %	0.8 mg/l
Chromium, Cr	0.0056 wt %	0.80 mg/l
Lead, Pb	0.0016 wt %	2.4 mg/l
Mercury, Hg	<0.0001 wt %	0.0011 mg/l
Molybdenum, Mo	<0.004 wt %	<0.5 mg/l
Nickel, Ni	0.0036 wt %	1.1 mg/l
Selenium, Se	<0.00005 wt %	0.0374 mg/l
Silver, Ag	<0.001 wt %	<10 mg/l

3122-01
12-23-80

UNITED STATES STEEL CORPORATION
FAIRLESS WORKS

TABLE VI-6

NONHAZARDOUS SLUDGES WATER LEACHATE*

Source	Electric Furnace Caster Sludge	Power House Water Treatment Sludge
Log No. 80-	7348	7339
Date Collected	12/4/80	12/4/80
pH	6.1	7.0
Dissolved Solids, mg/l	159	112
Dissolved Mineral Solids, mg/l	84	52
Dissolved Volatile Solids, mg/l	75	60
COD, mg/l	144	16
Freon Extractables, mg/l	4.7	<0.05
Total Organic Carbon, mg/l C	43	3
Specific Conductance, µmhos/cm	180	130
Ammonia, mg/l N	1.12	0.050
Phenols, mg/l PhOH	1.30	0.058
Total Cyanide, mg/l CN	<0.002	<0.002
Arsenic, mg/l As	0.0061	0.0029
Barium, mg/l Ba	<0.1	<0.1
Cadmium, mg/l Cd	<0.01	0.01
Copper, mg/l Cu	0.01	<0.01
Chromium, mg/l Cr	0.03	0.02
Lead, mg/l Pb	0.04	0.02
Mercury, mg/l Hg	0.0005	0.0004
Molybdenum, mg/l Mo	<0.1	0.1
Nickel, mg/l Ni	0.04	0.02
Selenium, mg/l Se	0.0013	0.0047
Silver, mg/l Ag	<0.01	<0.01

*Made in accordance with ASTM Method A

3122-01
12-23-80

UNITED STATES STEEL CORPORATION
FAIRLESS WORKS

TABLE VI-6
(CONTINUED)

NONHAZARDOUS SLUDGES WATER LEACHATE*

Source	Open Hearth	Terminal Treatment Sludges
Log No. 80-	7347	7341
Date Collected	12/4/80	12/4/80
pH	7.8	7.7
Dissolved Solids, mg/l	172	112
Dissolved Mineral Solids, mg/l	108	76
Dissolved Volatile Solids, mg/l	64	36
COD, mg/l	8	24
Freon Extractables, mg/l	5.3	1.3
Total Organic Carbon, mg/l C	1	3
Specific Conductance, µmhos/cm	230	170
Ammonia, mg/l N	0.282	0.112
Phenols, mg/l PhOH	0.008	0.013
Total Cyanide, mg/l CN	<0.002	<0.002
Arsenic, mg/l As	0.0550	0.0039
Barium, mg/l Ba	<0.1	<0.1
Cadmium, mg/l Cd	0.01	0.01
Copper, mg/l Cu	0.01	<0.01
Chromium, mg/l Cr	0.04	0.04
Lead, mg/l Pb	0.04	0.05
Mercury, mg/l Hg	<0.0002	0.0012
Molybdenum, mg/l Mo	0.4	<0.1
Nickel, mg/l Ni	0.06	0.01
Selenium, mg/l Se	0.0663	0.0070
Silver, mg/l Ag	<0.01	<0.01

*Made in accordance with ASTM Method A

3122-01
12-23-80

UNITED STATES STEEL CORPORATION
FAIRLESS WORKS

TABLE VI-8

ANALYSES OF HAZARDOUS SLUDGE

Source	Coke Plant Decant Tar	Coke Plant Ammonia Still Lime Sludge
Log No. 80-	7351	7349
Date Collected	12/4/80	12/4/80
pH	7.3	11.8
Total Solids, mg/l	—	97,680
Total Mineral Solids, mg/l	—	90,400
Total Volatile Solids, mg/l	—	7,280
Dissolved Solids, mg/l	—	18,452
Dissolved Mineral Solids, mg/l	—	14,008
Dissolved Volatile Solids, mg/l	—	4,954
Total Solids, wt %	68.13	—
Mineral Solids, wt %	23.47	—
Volatile Solids, wt %	44.66	—
COD, wt %	179	1.37
Freon Extractables, wt %	46.5	0.0207
Total Organic Carbon, mg/l C	—	1,900
Ammonia, wt % N	0.0136	0.080
Phenols, wt % PhOH	0.157	0.00219
Total Cyanide, CN	0.0003 wt %	107 mg/l
Arsenic, wt % As	0.00008	0.00041
Barium, wt % Ba	<0.004	<0.004
Cadmium, wt % Cd	<0.0004	<0.0004
Copper, wt % Cu	0.0008	0.0008
Chromium, wt % Cr	0.0008	<0.0004
Lead, wt % Pb	0.0032	0.012
Mercury, wt % Hg	<0.0001	<0.0001
Molybdenum, wt % Mo	<0.004	0.004
Nickel, wt % Ni	0.0004	0.0008
Selenium, wt % Se	0.00014	0.00030
Silver, wt % Ag	<0.001	<0.001

3122-01
12-22-80

UNITED STATES STEEL CORPORATION
FAIRLESS WORKS

TABLE VI-8
(CONTINUED)

ANALYSES OF HAZARDOUS SLUDGE

Source	Electric Furnace Sludge	Oil Interception Plant Sludges
Log No. 80-	7350	7346
Date Collected	12/4/80	12/4/80
pH	10.7	10.5
Total Solids, mg/l	—	17,690
Total Mineral Solids, mg/l	—	13,710
Total Volatile Solids, mg/l	—	3,980
Dissolved Solids, mg/l	—	1,180
Dissolved Mineral Solids, mg/l	—	896
Dissolved Volatile Solids, mg/l	—	284
Total Solids, wt %	67.16	—
Mineral Solids, wt %	61.27	—
Volatile Solids, wt %	5.89	—
COD	0.32 wt %	5,520 mg/l
Freon Extractables	0.017 wt %	5.5 mg/l
Total Organic Carbon, mg/l C	—	1,225
Ammonia, N	0.0043 wt %	0.60 mg/l
Phenols, PhOH	<0.0001 wt %	3.24 mg/l
Total Cyanide, mg/l	<0.002	<0.01
Arsenic, As	0.00156 wt %	0.094 mg/l
Barium, Ba	0.012 wt %	3.0 mg/l
Cadmium, Cd	0.0016 wt %	<0.05 mg/l
Copper, Cu	0.0428 wt %	1.7 mg/l
Chromium, Cr	0.0552 wt %	14.6 mg/l
Lead, Pb	0.156 wt %	5.8 mg/l
Mercury, Hg	<0.0001 wt %	<0.0002 mg/l
Molybdenum, Mo	<0.004 wt %	<0.5 mg/l
Nickel, Ni	0.0052 wt %	2.0 mg/l
Selenium, Se	0.00015 wt %	0.0037 mg/l
Silver, wt % Ag	0.004	0.001

UNITED STATES STEEL CORPORATION
FAIRLESS WORKS

TABLE VI-9

HAZARDOUS SLUDGES WATER LEACHATES*

Source	Electric Furnace Sludge	Oil Interception Plant Sludges
Log No. 80-	7350	7346
Date Collected	12/4/80	12/4/80
pH	10.7	10.5
Dissolved Solids, mg/l	208	452
Dissolved Mineral Solids, mg/l	128	328
Dissolved Volatile Solids, mg/l	80	124
COD, mg/l	8	172
Freon Extractables, mg/l	1.3	2.0
Total Organic Carbon, mg/l C	3	14
Specific Conductance, µmhos/cm	410	740
Ammonia, mg/l N	0.164	0.104
Phenols, mg/l PhOH	<0.002	0.172
Total Cyanide, mg/l CN	<0.002	0.006
Arsenic, mg/l As	<0.0005	<0.0005
Barium, mg/l Ba	<0.1	<0.1
Cadmium, mg/l Cd	0.01	0.01
Copper, mg/l Cu	<0.01	<0.01
Chromium, mg/l Cr	0.88	0.02
Lead, mg/l Pb	0.03	0.04
Mercury, mg/l Hg	0.0003	<0.0002
Molybdenum, mg/l Mo	<0.1	<0.1
Nickel, mg/l Ni	0.04	0.06
Selenium, mg/l Se	0.0056	0.0010
Silver, mg/l Ag	<0.01	<0.01

*Made in accordance with ASTM Method A

UNITED STATES STEEL CORPORATION
FAIRLESS WORKS

TABLE VI-9
(CONTINUED)

HAZARDOUS SLUDGES WATER LEACHATES*

Source	Coke Plant Decant Tar	Coke Plant Ammonia Still Lime Sludge
Log No. 80-	7351	7349
Date Collected	12/4/80	12/4/80
pH	7.3	11.8
Dissolved Solids, mg/l	388	5,096
Dissolved Mineral Solids, mg/l	44	3,460
Dissolved Volatile Solids, mg/l	344	1,636
COD, mg/l	280	560
Freon Extractables, mg/l	7.3	1.3
Total Organic Carbon, mg/l C	85	74
Specific Conductance, µmhos/cm	600	9,400
Ammonia, mg/l N	42.4	34.6
Phenols, mg/l PhOH	102	4.25
Total Cyanide, mg/l CN	0.080	0.475
Arsenic, mg/l As	0.0112	0.0039
Barium, mg/l Ba	<0.1	0.8
Cadmium, mg/l Cd	0.01	0.02
Copper, mg/l Cu	<0.01	<0.01
Chromium, mg/l Cr	<0.01	<0.01
Lead, mg/l Pb	<0.02	0.24
Mercury, mg/l Hg	0.0007	0.0004
Molybdenum, mg/l Mo	<0.1	<0.1
Nickel, mg/l Ni	0.04	0.09
Selenium, mg/l Se	0.0105	0.0759
Silver, mg/l Ag	<0.01	0.03

*Made in accordance with ASTM Method A

UNITED STATES STEEL CORPORATION
FAIRLESS WORKS

TABLE VI-10

NONHAZARDOUS SLUDGES WATER LEACHATES QUALITY[1]

Source	Open Hearth[2]	Terminal Treatment Sludges[2]	Electric Furnace Caster Sludge[2]	Power House Water Treatment Sludge[2]	Sanitary[3]	Landfill Sludge Composite[4]
Log No. 80- Date Collected	7347 12/4/80	7341 12/4/80	7348 12/4/80	7339 12/4/80		
pH	7.8	7.7	6.1	7.0		7.7
Dissolved Solids, mg/l	172	112	159	112		145
Dissolved Mineral Solids, mg/l	108	76	84	52		95
Dissolved Volatile Solids, mg/l	64	36	75	60		50
COD, mg/l	8	24	144	16		25
Freon Extractables, mg/l	5.3	1.3	4.7	<0.05		4.5
Total Organic Carbon, mg/l C	1	3	43	3		5.0
Specific Conductance, µmhos/cm	230	170	180	130		205
Ammonia, mg/l N	0.282	0.112	1.12	0.050		0.25
Phenols, mg/l PhOH	0.008	0.013	1.30	0.058		0.04
Total Cyanide, mg/l CN	<0.002	<0.002	<0.002	<0.002		<0.002
Arsenic, mg/l As	0.0550	0.0039	0.0061	0.0029		0.03
Barium, mg/l Ba	<0.1	<0.1	<0.1	<0.1		<0.1
Cadmium, mg/l Cd	0.01	0.01	<0.01	0.01		0.01
Copper, mg/l Cu	0.01	<0.01	0.01	<0.01		0.01
Chromium, mg/l Cr	0.04	0.04	0.03	0.02		0.04
Lead, mg/l Pb	0.04	0.05	0.04	0.02		0.04
Mercury, mg/l Hg	<0.0002	0.0012	0.0005	0.0004		0.0005
Molybdenum, mg/l Mo	0.4	<0.1	<0.1	0.1		0.3
Nickel, mg/l Ni	0.06	0.01	0.04	0.02		0.04
Selenium, mg/l Se	0.0663	0.0070	0.0013	0.0047		0.04
Silver, mg/l Ag	<0.01	<0.01	<0.01	<0.01		<0.01
wt % Going in Landfill	57.1	38.1	2.2	2.4	0.03	100

[1]Made in accordance with ASTM Method A
[2]Analyzed
[3]Not analyzed. Assumed not to be significantly affecting the leachate of the composite.
[4]Results predicted.

UNITED STATES STEEL CORPORATION
FAIRLESS WORKS

TABLE VI-11

HAZARDOUS SLUDGES WATER LEACHATE QUALITY*

Source	Oil Interception Plant Clarifier	Electric Furnace Sludge	Decanter Tank Sludge	Ammonia Still Lime Sludge	Landfill Sludge Composite
Log No.	80-7436	80-7350	80-7351	80-7349	81-1615
Date Collected	12/4/80	12/4/80	12/4/80	12/4/80	
pH	10.5	10.7	7.3	11.8	11.6
Dissolved Solids, mg/l	452	208	388	5,096	837
Dissolved Mineral Solids, mg/l	328	128	44	3,460	--
Dissolved Volatile Solids, mg/l	124	80	344	1,636	--
COD, mg/l	172	8	280	560	388
Freon Extractables, mg/l	2.0	1.3	7.3	1.3	--
Total Carbon, mg/l C	16	5	95	80	132
Inorganic Carbon, mg/l C	2	2	10	6	6
Total Organic Carbon, mg/l C	14	3	85	74	126
Specific Conductance, μmhos/cm	740	410	600	9,400	--
Ammonia, mg/l N	0.104	0.164	42.4	34.6	20.5
Phenols, mg/l PhOH	0.172	<0.002	102	4.25	49
Total Cyanide, mg/l CN	0.006	<0.002	0.080	0.475	0.012
Arsenic, mg/l As	<0.0005	<0.0005	0.0112	0.0039	0.0045
Barium, mg/l Ba	<0.1	<0.1	<0.1	0.8	--
Cadmium, mg/l Cd	0.01	0.01	0.01	0.02	--
Copper, mg/l Cu	<0.01	<0.01	<0.01	<0.01	--
Chromium, mg/l Cr	0.02	0.88	<0.01	<0.01	0.80
Lead, mg/l Pb	0.04	0.03	<0.02	0.24	--
Mercury, mg/l Hg	<0.0002	0.0003	0.0007	0.0004	--
Molybdenum, mg/l Mo	<0.1	<0.1	<0.1	<0.1	--
Nickel, mg/l Ni	0.06	0.04	0.04	0.09	--
Selenium, mg/l Se	0.0010	0.0056	0.0105	0.0759	0.0021
Silver, mg/l Ag	<0.01	<0.01	<0.01	0.03	--
Wt % Going in Landfill	56	28	11.5	4.5	100

*Analyzed