

US EPA ARCHIVE DOCUMENT

**EXHIBIT 3-2
QUANTITIES OF WASTES POTENTIALLY IMPACTED**

Commodity	Waste Stream	Disposed Nonwastewater Quantity (metric tons/yr)		Disposed Wastewater Quantity (metric tons/yr)		Total Waste Quantity (metric tons/yr)	
		Lower Bound	Upper Bound	Lower Bound	Upper Bound	Lower Bound	Upper Bound
Alumina and Aluminum	Cast house dust	0	9,545	0	0	0	9,545
	Electrolysis waste	0	28,750	0	0	0	28,750
Antimony	Autoclave filtrate*	0	0	0	50,960	0	50,960
	Stripped anolyte solids*	0	0	0	0	0	0
	Slag and furnace residue	0	32,400	0	0	0	32,400
Beryllium	Spent barren filtrate streams	0	0	17,600	70,400	17,600	70,400
	Bertrandite thickener slurry	0	8,325	0	361,675	0	370,000
	Beryl thickener slurry	68	68	2,933	2,933	3,000	3,000
	Chip treatment wastewater	0	0	0	1,600,000	0	1,600,000
	Filtration discard	0	90,000	0	0	0	90,000
	Spent raffinate	1,710	6,840	74,290	297,160	76,000	304,000Bismuth Alloy residues06,0000006,000
	Spent caustic soda	0	135	0	5,865	0	6,000
	Electrolytic slimes	0	100	0	0	0	100
	Lead and zinc chlorides	0	6,000	0	0	0	6,000
	Metal chloride residues	0	3,000	0	0	0	3,000
	Slag	0	10,000	0	0	0	10,000
	Spent electrolyte	0	270	0	11,730	0	12,000

EXHIBIT 3-2 (Continued)

Commodity	Waste Stream	Disposed Nonwastewater Quantity (metric tons/yr)		Disposed Wastewater Quantity (metric tons/yr)		Total Waste Quantity (metric tons/yr)	
		Lower Bound	Upper Bound	Lower Bound	Upper Bound	Lower Bound	Upper Bound
Boron	Spent soda solution	0	0	0	6,000	0	6,000
	Waste acid solutions	0	0	0	12,000	0	12,000
	Waste acids	0	0	0	160	0	160
	Waste liquor*	0	0	0	0	0	0
Cadmium	Caustic washwater	0	0	0	9,500	0	9,500
	Copper and lead sulfate filter cakes	0	9,500	0	0	0	9,500
	Copper removal filter cake	0	9,500	0	0	0	9,500 Cadmium (Cont'd) Iron containing impurities 019,000 00019,000
Calcium	Spent leach solution*	0	214	0	9,286	0	9,500
	Lead sulfate waste	0	9,500	0	0	0	9,500
	Post-leach filter cake	0	19,000	0	0	0	19,000
	Spent purification solution	0	0	0	19,000	0	19,000
	Scrubber wastewater	0	0	0	9,500	0	9,500
	Spent electrolyte	0	428	0	18,573	0	19,000
	Zinc precipitates	0	9,500	0	0	0	9,500
	Dust with quicklime	0	0			0	0

EXHIBIT 3-2 (Continued)

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		Lower Bound	Upper Bound	Lower Bound	Upper Bound	Lower Bound	Upper Bound
Coal Gas	Multiple effects evaporator concentrate*	0	1,170	0	50,830	0	52,000
Copper	Acid plant blowdown*	21,465	85,860	932,535	3,730,140	954,000	3,816,000
	APC dust/sludge*	0	0	0	0	0	0Copper (Cont'd)Spent bleed electrolyte*1,404 5,616 60,996 243,984 62,400249,600
Elemental Phosphorus	Waste contact cooling water*	0	0	0	0	0	0
	Process wastewaters*	0	0	0	0	0	0
	Scrubber blowdown*	221	88,200	9,580	3,831,800	9,800	3,920,000
	Surface impoundment waste liquids*	2,790	11,160	121,210	484,840	124,000	496,000
	Tankhouse slimes*	0	3,248	0	0	0	3,248
	WWTP sludge	0	4,800	0	0	0	4,800
	Dust	0	2,200	0	0	0	2,200
	AFM rinsate	45	45	1,955	1,955	2,000	2,000
	Furnace offgas solids	0	12,000	0	0	0	12,000
	Furnace scrubber blowdown	0	0	0	280,000	0	280,000
	Slag quenchwater	0	0	0	500,000	0	500,000Fluorspar and Hydrofluoric AcidOff-spec fluosilicic acid00036,000 036,000

EXHIBIT 3-2 (Continued)

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		Lower Bound	Upper Bound	Lower Bound	Upper Bound	Lower Bound	Upper Bound
Germanium	Waste acid wash and rinse water*	0	0	0	3,200	0	3,200
	Chlorinator wet air pollution control sludge*	0	320	0	0	0	320
	Hydrolysis filtrate*	0	400	0	0	0	400
	Leach residues	0	10	0	0	0	10
	Spent acid/leachate*	0	0	0	3,200	0	3,200
	Waste still liquor*	0	400	0	0	0	400
Gold and Silver	Refining wastes	0	720,000	0	0	0	720,000
	Slag	0	576,000	0	0	0	576,000
	Spent Furnace Dust	0	0	0	0	0	0
	Wastewater treatment sludge	0	576,000	0	0	0	576,000
	Wastewater*	0	0	0	880,000	0	880,000Lead Acid plant blowdown*000000
	Acid plant sludge	0	7,050	0	0	0	7,050
	Baghouse dust	0	0	0	0	0	0
	Baghouse incinerator ash	300	30,000	0	0	300	30,000
	Process wastewater*	0	0	800,000	3,200,000	800,000	3,200,000
	Slurried APC Dust	0	0	0	0	0	0
	Solid residues	0	195	0	0	0	195

EXHIBIT 3-2 (Continued)

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		Lower Bound	Upper Bound	Lower Bound	Upper Bound	Lower Bound	Upper Bound
Magnesium and Magnesia from Brines	Spent furnace brick	0	0	0	0	0	0
	Stockpiled miscellaneous plant waste	80	144,000	0	0	80	144,000
	Surface impoundment waste liquids*	0	0	0	880,000	0	880,000
	WWTP liquid effluent	0	0	0	0	0	0
	WWTP sludges/solids	0	0	0	0	0	0
	Cast house dust	0	3,800	0	0	0	3,800
	Smut	0	13,000	0	0	0	13,000 Mercury Dust 0.8 0008
Molybdenum, Ferromolybdenum, and Ammonium Molybdate	Quench water	0	0	0	270,000	0	270,000
	Furnace residue	0	99	0	0	0	99
	Flue dust/gases	0	540,000	0	0	0	540,000
	Liquid residues*	0	0	0	1,000	0	1,000
	Molybdic oxide refining wastes	0	2,000	0	0	0	2,000
Platinum Group Metals	Slag	0	225	0	0	0	225
	Spent acids	0	0	0	3,000	0	3,000
	Spent solvents	0	0	0	3,000	0	3,000
Pyrobitumens, Mineral Waxes, and Natural Asphalts	Still bottoms	0	90,000	0	0	0	90,000
	Waste catalysts	0	0	0	10,000	0	10,000
Rare Earths	Spent ammonium nitrate processing solution	0	0	14,000	14,000	14,000	14,000

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		Lower Bound	Upper Bound	Lower Bound	Upper Bound	Lower Bound	Upper Bound
	Spent lead filter cake	0	5,000	0	0	0	5,000
	Electrolytic cell caustic wet APC sludge	0	0	0	0	0	0
	Process wastewater	0	0	1,400	5,600	1,400	5,600Rare Earths (Cont'd)Spent scrubber liquor0020800,000 20800,000
Rhenium	Solvent extraction crud	0	72,000	0	0	0	72,000
	Waste solvent	0	0	0	1,000,000	0	1,000,000
	Wastewater from caustic wet APC	0	0	0	800,000	0	800,000
	Waste zinc contaminated with mercury	0	72,000	0	0	0	72,000
	Spent barren scrubber liquor	0	0	0	100	0	100
	Spent rhenium raffinate	0	88,000	0	0	0	88,000
Scandium	Spent acids	0	0	0	7,000	0	7,000
	Spent solvents from solvent extraction	0	0	0	3,500	0	3,500
Selenium	Spent filter cake	0	2,550	0	0	0	2,550
	Plant process wastewater	0	0	13,200	52,800	13,200	52,800
	Slag	0	4,080	0	0	0	4,080
	Tellurium slime wastes	0	4,080	0	0	0	4,080
	Waste solids	0	5,100	0	0	0	5,100

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		Lower Bound	Upper Bound	Lower Bound	Upper Bound	Lower Bound	Upper Bound
Synthetic Rutile	Spent iron oxide slurry	0	36,000	0	0	0	36,000
	APC dust/sludges	0	0	0	0	0	0
	Spent acid solution	0	0	0	0	0	0
Tantalum, Columbium, and Ferrocolumbium	Digester sludge	1,000	1,000	0	0	1,000	1,000
	Process wastewater*	0	1,688	0	73,313	0	75,000
	Spent raffinate solids	2,000	2,000	0	0	2,000	2,000
Tellurium	Slag	0	3,600	0	0	0	3,600
	Solid waste residues	0	4,500	0	0	0	4,500
	Waste electrolyte	0	0	0	10,000	0	10,000
	Wastewater	0	0	0	0	0	0
Titanium and Titanium Dioxide	Pickle liquor and wash water	0	0	0	2,640	0	2,640
	Scrap milling scrubber water	0	0	0	4,800	0	4,800
	Scrap detergent wash water	0	0	72,000	432,000	72,000	432,000 Titanium and Titanium Dioxide (cont.) Smut from Mg recovery 023,000 00023,000
	Leach liquor and sponge wash water	0	0	76,000	464,000	76,000	464,000
	Spent surface impoundment liquids	0	3,360	0	0	0	3,360

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		Lower Bound	Upper Bound	Lower Bound	Upper Bound	Lower Bound	Upper Bound
Tungsten	Spent surface impoundments solids	0	35,700	0	0	0	35,700
	Waste acids (Chloride process)	0	0	9,800	39,200	9,800	39,200
	Waste acids (Sulfate process)*	0	0	200	78,000	200	78,000
	Waste ferric chloride	0	0	0	0	0	0
	WWTP sludge/solids	420,000	420,000	0	0	420,000	420,000
	Spent acid and rinse water	0	0	0	16,800	0	16,800
	Process wastewater	0	0	0	6,000	0	6,000 Uranium Waste nitric acid from UO2 production 0002,720 02,720
Zinc	Vaporizer condensate	0	0	0	17,000	0	17,000
	Superheater condensate	0	0	0	17,000	0	17,000
	Slag	0	0	0	0	0	0
	Uranium chips from ingot production	0	1,700	0	0	0	1,700
	Acid plant blowdown*	0	0	0	0	0	0
	Waste ferrosilicon	0	8,500	0	0	0	8,500
	Process wastewater*	0	0	0	3,400,000	0	3,400,000

EXHIBIT 3-2 (Continued)

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		Lower Bound	Upper Bound	Lower Bound	Upper Bound	Lower Bound	Upper Bound
	Discarded refractory brick	0	1,000	0	0	0	1,000
	Spent cloths, bags, and filters	0	0	0	0	0	0
	Spent goethite and leach cake residues*	0	0	0	0	0	0
	Spent surface impoundment liquids	0	0	504,000	2,016,000	504,000	2,016,000 Zinc (cont.)Spent surface impoundment solids01,0000001,000
Zirconium and Hafnium	Spent synthetic gypsum*	21,200	21,200	0	0	21,200	21,200
	TCA tower blowdown	0	0	0	200	0	200
	Wastewater treatment plant liquid effluent	0	0	0	2,816,000	0	2,816,000
	Zinc-lean slag	0	8,500	0	0	0	8,500
	Spent acid leachate from Zr alloy prod.	0	0	0	860,000	0	860,000
	Spent acid leachate from Zr metal prod.	0	0	0	1,600,000	0	1,600,000
	Leaching rinse water from Zr alloy prod.	0	0	0	41,600	0	41,600
	Leaching rinse water from Zr metal prod.	0	0	0	1,600,000	0	1,600,000
Total		472,283	4,021,439	2,711,719	33,077,964	3,184,000	37,099,400

* Likely to be an arsenic characteristic wastestream.