

Tables

Table 3-1
Reagents

Reagent	Alternate Name	Chemical Symbol	Usage Rate (kg/day) (undiluted)	Soln %	Storage Quantity
Sodium Sulfite (granular)	N/A	Na ₂ SO ₃	594	10	Super sacs (2200 lbs)
MIBC (liquid)	Methyl Isobutyl Carbinol	C ₆ H ₁₄ O	127	100	Totes (1773 lbs)
SIPX (granular)	Sodium Isopropyl Xanthate	C ₄ H ₇ NaOS ₂	225	10	Drums (243 lbs)
Hydrated Lime (granular)	Calcium hydroxide	Ca(OH) ₂	3,485	15	Tonnes (bulk)
Soda Ash (granular)	Sodium carbonate	Na ₂ CO ₃	5,227	15	Tonnes (bulk)
Magnafloc 155 (granular)	Polyacrylamide	--	4.54	0.1	Bags (551 lbs)

Adapted from M3 Engineering
Soln - solution

Prepared by: AKM
Checked by: SVD1

Table 3-2
Emission Units and Controls

Emission Unit	Equipment or Activity	Stack	Description of Controls
EU DUMPHOPPER	Dump Hopper 23 ft by 15 ft structure	fugitive	Water spray, building enclosure
EU ROCKBREAKER	Rockbreaker Tamrock XM500HD/E68 boom and hammer.	fugitive	Water spray, building enclosure
EU PRIMCRUSHER	Primary Crusher Metso Minerals Nordberg C-100 Jaw Crusher	fugitive	Water spray, building enclosure
EU FELCOSA	Front End loader Vehicle travel – COSA building	fugitive	Floor cleaning program, building enclosure
EU 2NDSCREEN	Secondary Crusher Screen Metso Minerals SVXH Svedala Heavy Duty RIPL-Flo Incline Screen, 8 ft by 20 ft.	SV2NDCRUSHER	Ventilation to secondary crusher building dust collector, building enclosure.
EU 3RDSCREEN	Tertiary Crusher Screen Metso Minerals 10 ft by 24 ft SD Banana Mining Screen	SV2NDCRUSHER	Ventilation to secondary crusher building dust collector, building enclosure
EU 2NDCRUSHER, EU 3RDCRUSHER	Secondary and Tertiary Crushers Metso Minerals Nordberg HP-400 Cone Crusher	SV2NDCRUSHER	Ventilation to secondary crusher building dust collector, building enclosure
EU FINEORESTORAGE	Fine Ore Storage Bins and Transfer Points Existing bins with ventilated dust pick-up points.	SVFINEORESTORAGE	Water sprays, ventilation to mill building dust collector no. 1, building enclosure

Table 3-2 (con't)

Emission Unit	Equipment or Activity	Stack	Description of Controls
EUCONVLOAD	Conveyor Load-Out of Concentrate Concentrate load-out	SVCONVLOAD	Ventilation to conveyor load-out dust collector, building enclosure
EUAUXLOAD	Auxiliary Load-Out of Concentrate Concentrate load-out	SVAUXLOAD	Ventilation to auxiliary load-out dust collector, building enclosure
EUFELCONC	Front end loader Vehicle travel in Concentrate Load-Out Building	fugitive	Floor cleaning program, building enclosure
EUTRANSFERPTS	Transfer Points Various conveyor transfer points	fugitive	Water sprays, ventilation to various dust collectors, building enclosure.
EUROADWAY	Roadway Emissions Paved and unpaved roadway emissions from ore truck travel	fugitive	Roadway dust control practices as described in Appendix D.

N/A = Not Applicable

Prepared by: AKM
Checked by: CED1

Table 3-3
Stack Data

Stack	Emission Unit	Exhaust Temp & Flow Rate	Stack Height	Stack Diameter	Moisture Content	Stack Orientation	Rainhat Y/N
SV2NDCRUSHER	EU2NDCRUSHER, EU2NDSCREEN, EU3RDCRUSHER EU3RDSCREEN EUTRANSFERPTS	Ambient, 12,000 cfm	65.6 ft (20 m)	2.5 ft (0.76 m)	Ambient	Vertical	N
SVFINEORESTORAGE ¹	EUFINEORESTORAGE EUTRANSFERPTS	Ambient, 6,200 cfm	125 ft (38 m)	1.14 ft (0.35 m)	Ambient	Vertical	N
SVCONVLOAD ¹	EUCONVLOAD EUTRANSFERPTS	Ambient, 4,000 cfm	72 ft (22 m)	1.33 ft (0.41 m)	Ambient	Vertical	N
SVAUXLOAD ¹	EUAUXLOAD EUTRANSFERPTS	Ambient, 4,000 cfm	72 ft (22 m)	1.33 ft (0.41 m)	Ambient	Vertical	N

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Notes:

1. Exhaust outlets from three of the baghouse units will be rectangular. For purposes of air dispersion modeling, the outlet is converted to a circular outlet through the formula $1.124 * \text{SQRT}(\text{Area of Exhaust Outlet})$.
2. Stack testing port locations and configuration to be specified in final engineering plans and specifications.

Table 3-4
Maintenance Intervals for
Emitting Equipment and Controls

Emitting Equipment	Maintenance Interval
Dump Hopper (EUDUMPHOPPER) Rock Breaker (EUROCKBREAKER) Primary Crusher (EUPRIMCRUSHER)	The primary crusher and associated equipment operates year round during the day shift only. This provides servicing opportunity during scheduled downtime or as needed.
Secondary Crusher Screen (EU2NDSCREEN) Secondary Crusher (EU2NDCRUSHER) Tertiary Crusher Screen (EU3RDSCREEN) Tertiary Crusher (EU3RDCRUSHER)	The crushers and associated equipment operate during the day shift only. This provides servicing opportunity during scheduled downtime or as needed.
Fine Ore Storage (EUFINEORESTORAGE)	The bins will be inspected for corrosion and leakage on a regular basis.
Transfer Points (EUTRANSFERPTS)	The transfer points will operate on various schedules allowing opportunity to service equipment, including making necessary adjustments and lubrication.
Conveyor Load-Out System (EUCONVLOAD) Auxiliary Load-Out System (EUAUXLOAD)	Conveyors discharging to the rail cars will be inspected, lubricated and adjusted in accordance with a regular maintenance schedule.
Font End Loaders (EUFELCOSA, EUFELCONC)	These vehicles will be maintained within the facility vehicle fleet maintenance program.
Control Equipment Secondary Crusher Building Dust Collector Mill Building Dust Collector No. 1 Conveyor Load-Out Dust Collector Auxiliary Load-Out Dust Collector	Maintenance of dust collectors will be performed according to manufacturer's instructions and industry practice. Enclosure hoods for ventilation pick-ups and wet sprays will be inspected, adjusted, cleaned, and repaired as needed. Further detail is provided in Appendix D – <i>Fugitive Dust Control Plan</i> .

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Checked by: CED1

Table 5-1
Technical Information for Dust Collectors

Dust Collector	Unit Type	Filter Area (ft²)	Air Flow (acfm)	Air to Cloth Ratio	Pressure Drop (operational)⁽¹⁾	Manufacturer's Filter Efficiency	Maximum Temperature
Secondary Crusher Building	Donaldson Torit Model 124 RFW-10	1,613	12,000	7.4:1	2-4"	99.97%	300° F
Mill Building No. 1	Donaldson Torit Model 72 RFW-10	937	6,200	6.6:1	2-4"	99.97%	300° F
Conveyor Load-Out	Donaldson Torit Model 54 MBT-6	518	4,000	7.7:1	2-4"	99.9%	150° F
Auxiliary Load-Out	Donaldson Torit Model 54 MBT-6	518	4,000	7.7:1	2-4"	99.9%	150° F

⁽¹⁾ In inches of water column, based on information provided verbally by the manufacturer.

⁽²⁾ All bags are proposed as polyester, all dust collectors will be pulse jet cleaned.

Prepared by: CED1

Checked by: AKM

Table 5-2
List of Metal TACs and
Facility-Wide Emission Rates

Metal	Proposed Maximum Emission Rate (lb/hr)	Metal	Proposed Maximum Emission Rate (lb/hr)
Antimony	2.96E-06	Mercury	6.42E-08
Arsenic	1.78E-05	MIBC	4.6E-04
Barium	3.83E-05	Nickel	3.96E-02
Beryllium	3.75E-07	Palladium	8.16E-08
Cadmium	4.81E-06	Phosphorus	2.12E-05
Chromium	1.16E-03	Selenium	5.03E-05
Cobalt	9.58E-04	Silver	1.21E-05
Copper	4.04E-02	Sodium Sulfite	2.0E-04
Magnesium	9.02E-02	Tin	6.02E-06
Manganese	1.39E-03		

Prepared by: AKM
Checked by: CED1

Table 5-3
Emission Units with TACs

Process	Emission Unit Identification
Primary Crushing	EUDUMPHOPPER, EUROCKBREAKER, EUPRIMCRUSHER, EUFELCOSA
Secondary and Tertiary Crushing	EU2NDCRUSHER, EU2NDScreen, EU3RDCRUSHER, EU3RDSCREEN
Fine Ore Storage and Conveying	EUFINEORESTORAGE
Concentrate Load-Out	EUCONVLOAD, EUAUXLOAD, EUFELCONC
Conveying and Transfer	EUTRANSFERPTS
Roadways	EUROADWAY

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