

MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY  
AIR QUALITY DIVISION

May 29, 2020

**PERMIT TO INSTALL**  
405-08B

**ISSUED TO**  
Eagle Mine, LLC, a subsidiary of Lundin Mining

**LOCATED AT**  
4547 County Road 601  
Champion, Michigan 49814

**IN THE COUNTY OF**  
Marquette

**STATE REGISTRATION NUMBER**  
N0934

The Air Quality Division has approved this Permit to Install, pursuant to the delegation of authority from the Michigan Department of Environment, Great Lakes, and Energy. This permit is hereby issued in accordance with and subject to Section 5505(1) of Article II, Chapter I, Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. Pursuant to Air Pollution Control Rule 336.1201(1), this permit constitutes the permittee's authority to install the identified emission unit(s) in accordance with all administrative rules of the Department and the attached conditions. Operation of the emission unit(s) identified in this Permit to Install is allowed pursuant to Rule 336.1201(6).

DATE OF RECEIPT OF ALL INFORMATION REQUIRED BY RULE 203: <b>September 4, 2019</b>	
DATE PERMIT TO INSTALL APPROVED: <b>May 29, 2020</b>	SIGNATURE: 
DATE PERMIT VOIDED:	SIGNATURE:
DATE PERMIT REVOKED:	SIGNATURE:

## PERMIT TO INSTALL

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### COMMON ACRONYMS

AQD	Air Quality Division
BACT	Best Available Control Technology
CAA	Clean Air Act
CAM	Compliance Assurance Monitoring
CEMS	Continuous Emission Monitoring System
CFR	Code of Federal Regulations
COMS	Continuous Opacity Monitoring System
Department/department/EGLE	Michigan Department of Environment, Great Lakes, and Energy
EU	Emission Unit
FG	Flexible Group
GACS	Gallons of Applied Coating Solids
GC	General Condition
GHGs	Greenhouse Gases
HVLP	High Volume Low Pressure*
ID	Identification
IRSL	Initial Risk Screening Level
ITSL	Initial Threshold Screening Level
LAER	Lowest Achievable Emission Rate
MACT	Maximum Achievable Control Technology
MAERS	Michigan Air Emissions Reporting System
MAP	Malfunction Abatement Plan
MSDS	Material Safety Data Sheet
NA	Not Applicable
NAAQS	National Ambient Air Quality Standards
NESHAP	National Emission Standard for Hazardous Air Pollutants
NSPS	New Source Performance Standards
NSR	New Source Review
PS	Performance Specification
PSD	Prevention of Significant Deterioration
PTE	Permanent Total Enclosure
PTI	Permit to Install
RACT	Reasonable Available Control Technology
ROP	Renewable Operating Permit
SC	Special Condition
SCR	Selective Catalytic Reduction
SNCR	Selective Non-Catalytic Reduction
SRN	State Registration Number
TBD	To Be Determined
TEQ	Toxicity Equivalence Quotient
USEPA/EPA	United States Environmental Protection Agency
VE	Visible Emissions

\*For HVLP applicators, the pressure measured at the gun air cap shall not exceed 10 psig

### POLLUTANT / MEASUREMENT ABBREVIATIONS

acfm	Actual cubic feet per minute
BTU	British Thermal Unit
°C	Degrees Celsius
CO	Carbon Monoxide
CO <sub>2</sub> e	Carbon Dioxide Equivalent
dscf	Dry standard cubic foot
dscm	Dry standard cubic meter
°F	Degrees Fahrenheit
gr	Grains
HAP	Hazardous Air Pollutant
Hg	Mercury
hr	Hour
HP	Horsepower
H <sub>2</sub> S	Hydrogen Sulfide
kW	Kilowatt
lb	Pound
m	Meter
mg	Milligram
mm	Millimeter
MM	Million
MW	Megawatts
NMOC	Non-Methane Organic Compounds
NO <sub>x</sub>	Oxides of Nitrogen
ng	Nanogram
PM	Particulate Matter
PM10	Particulate Matter equal to or less than 10 microns in diameter
PM2.5	Particulate Matter equal to or less than 2.5 microns in diameter
pph	Pounds per hour
ppm	Parts per million
ppmv	Parts per million by volume
ppmw	Parts per million by weight
psia	Pounds per square inch absolute
psig	Pounds per square inch gauge
scf	Standard cubic feet
sec	Seconds
SO <sub>2</sub>	Sulfur Dioxide
TAC	Toxic Air Contaminant
Temp	Temperature
THC	Total Hydrocarbons
tpy	Tons per year
µg	Microgram
µm	Micrometer or Micron
VOC	Volatile Organic Compounds
yr	Year

### GENERAL CONDITIONS

1. The process or process equipment covered by this permit shall not be reconstructed, relocated, or modified, unless a Permit to Install authorizing such action is issued by the Department, except to the extent such action is exempt from the Permit to Install requirements by any applicable rule. **(R 336.1201(1))**
2. If the installation, construction, reconstruction, relocation, or modification of the equipment for which this permit has been approved has not commenced within 18 months, or has been interrupted for 18 months, this permit shall become void unless otherwise authorized by the Department. Furthermore, the permittee or the designated authorized agent shall notify the Department via the Supervisor, Permit Section, Air Quality Division, Michigan Department of Environment, Great Lakes, and Energy, P.O. Box 30260, Lansing, Michigan 48909-7760, if it is decided not to pursue the installation, construction, reconstruction, relocation, or modification of the equipment allowed by this Permit to Install. **(R 336.1201(4))**
3. If this Permit to Install is issued for a process or process equipment located at a stationary source that is not subject to the Renewable Operating Permit program requirements pursuant to Rule 210 (R 336.1210), operation of the process or process equipment is allowed by this permit if the equipment performs in accordance with the terms and conditions of this Permit to Install. **(R 336.1201(6)(b))**
4. The Department may, after notice and opportunity for a hearing, revoke this Permit to Install if evidence indicates the process or process equipment is not performing in accordance with the terms and conditions of this permit or is violating the Department's rules or the Clean Air Act. **(R 336.1201(8), Section 5510 of Act 451, PA 1994)**
5. The terms and conditions of this Permit to Install shall apply to any person or legal entity that now or hereafter owns or operates the process or process equipment at the location authorized by this Permit to Install. If the new owner or operator submits a written request to the Department pursuant to Rule 219 and the Department approves the request, this permit will be amended to reflect the change of ownership or operational control. The request must include all of the information required by subrules (1)(a), (b), and (c) of Rule 219 and shall be sent to the District Supervisor, Air Quality Division, Michigan Department of Environment, Great Lakes, and Energy. **(R 336.1219)**
6. Operation of this equipment shall not result in the emission of an air contaminant which causes injurious effects to human health or safety, animal life, plant life of significant economic value, or property, or which causes unreasonable interference with the comfortable enjoyment of life and property. **(R 336.1901)**
7. The permittee shall provide notice of an abnormal condition, start-up, shutdown, or malfunction that results in emissions of a hazardous or toxic air pollutant which continue for more than one hour in excess of any applicable standard or limitation, or emissions of any air contaminant continuing for more than two hours in excess of an applicable standard or limitation, as required in Rule 912, to the Department. The notice shall be provided not later than two business days after start-up, shutdown, or discovery of the abnormal condition or malfunction. Written reports, if required, must be filed with the Department within 10 days after the start-up or shutdown occurred, within 10 days after the abnormal conditions or malfunction has been corrected, or within 30 days of discovery of the abnormal condition or malfunction, whichever is first. The written reports shall include all of the information required in Rule 912(5). **(R 336.1912)**
8. Approval of this permit does not exempt the permittee from complying with any future applicable requirements which may be promulgated under Part 55 of 1994 PA 451, as amended or the Federal Clean Air Act.
9. Approval of this permit does not obviate the necessity of obtaining such permits or approvals from other units of government as required by law.
10. Operation of this equipment may be subject to other requirements of Part 55 of 1994 PA 451, as amended and the rules promulgated thereunder.

11. Except as provided in subrules (2) and (3) or unless the special conditions of the Permit to Install include an alternate opacity limit established pursuant to subrule (4) of Rule 301, the permittee shall not cause or permit to be discharged into the outer air from a process or process equipment a visible emission of density greater than the most stringent of the following. The grading of visible emissions shall be determined in accordance with Rule 303 (R 336.1303). **(R 336.1301)**
  - a) A six-minute average of 20 percent opacity, except for one six-minute average per hour of not more than 27 percent opacity.
  - b) A visible emission limit specified by an applicable federal new source performance standard.
  - c) A visible emission limit specified as a condition of this Permit to Install.
12. Collected air contaminants shall be removed as necessary to maintain the equipment at the required operating efficiency. The collection and disposal of air contaminants shall be performed in a manner so as to minimize the introduction of contaminants to the outer air. Transport of collected air contaminants in Priority I and II areas requires the use of material handling methods specified in Rule 370(2). **(R 336.1370)**
13. The Department may require the permittee to conduct acceptable performance tests, at the permittee's expense, in accordance with Rule 1001 and Rule 1003, under any of the conditions listed in Rule 1001. **(R 336.2001)**

**EMISSION UNIT SPECIAL CONDITIONS**

**EMISSION UNIT SUMMARY TABLE**

The descriptions provided below are for informational purposes and do not constitute enforceable conditions.

<b>Emission Unit ID</b>	<b>Emission Unit Description (Including Process Equipment &amp; Control Device(s))</b>	<b>Flexible Group ID</b>
EUDUMPHOPPER	A dump hopper into which the ore is placed by front end loaders. The hopper is equipped with water sprays. This is the first step in the ore processing. The hopper is located within the enclosed coarse ore storage area (COSA).	FGCOSA FGCONPLANT
EUGRIZZLYFEED	A vibratory feeder/grizzly system used to route ore into the primary crusher. This unit is equipped with water sprays. The grizzly is located within the enclosed coarse ore storage area (COSA).	FGCOSA FGCONPLANT
EUPRIMECRUSHER	A 407 ton per hour jaw crusher equipped with water sprays. This crusher used to reduce the ore to minus 100 mm in size. The crusher is located within the enclosed coarse ore storage area (COSA).	FGCOSA FGCONPLANT
EUROCKBREAKER	A Tamrock or equivalent rock breaker mounted adjacent to the primary crusher is used to reduce oversized rocks entering the system. The rock breaker is equipped with water sprays. The rock breaker is located within the enclosed coarse ore storage area (COSA).	FGCOSA FGCONPLANT
EUFELCOSA	A front-end loader is used within the enclosed coarse ore storage area (COSA) to take the ore from storage piles and deposit it into the dump hopper (EUDUMPHOPPER).	FGCOSA FGCONPLANT
EU2NDFEEDCONVY	A covered conveyor used to transport the ore from the enclosed coarse ore storage area (COSA) to the Secondary Crusher Building.	FGTRANSFERCONVYS FGCONPLANT
EU2NDSCREEN	A screen used to sort the ore into pieces above and below approximately 12 mm in size. The oversized material is sent to the secondary crusher, while the remainder of the material is placed on Transfer Conveyor No. 1. The screen is located within the Secondary Crusher Building. Particulate collected from the EU2NDSCREEN is vented through a baghouse dust collector.	FGSECONDCRUSH FGCONPLANT
EU2NDCRUSHER	A cone crusher used to reduce the size of the ore. The unit is located within the Secondary Crusher Building. Particulate collected from EU2NDCRUSHER is vented through a baghouse dust collector.	FGSECONDCRUSH FGCONPLANT
EUTRANSCONVY1	A covered conveyor used to transport the ore from the Secondary Crusher Building to the enclosed transfer station.	FGTRANSFERCONVYS FGCONPLANT

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Flexible Group ID
EU3RDSCREEN	A screen used to sort the ore into pieces above and below approximately 12 mm in size. The oversized material is sent to the tertiary crusher, while the remainder of the material is placed on Transfer Conveyor No. 1. The screen is located within the Secondary Crusher Building. Particulate collected from EU3RDSCREEN is vented through a baghouse dust collector.	FGSECONDCRUSH FGCONPLANT
EU3RDCRUSHER	A cone crusher used to reduce the ore to minus approximately 12 mm in size. The unit is located within the Secondary Crusher Building. Particulate collected from EU3RDCRUSHER is vented through a baghouse dust collector.	FGSECONDCRUSH FGCONPLANT
EURECIRCONVYS	A covered conveyor used to transport the ore from the secondary and tertiary crushers to the enclosed transfer station and a covered conveyor used to recirculate the ore back to the tertiary crusher screen (EU3RDSCREEN).	FGTRANSFERCONVYS FGCONPLANT
EUTRANSCONVY2	A covered conveyor used to transport the ore from the enclosed transfer station into the Mill Building.	FGTRANSFERCONVYS FGCONPLANT
EUFINEORESTORAGE	Three 2000 tonne (metric ton) capacity fine ore storage bins. The bins are located within the Mill Building. Particulate emissions from the bins and the drop points will be controlled by a baghouse dust collector.	FGCONPLANT
EUCONDROP	Nickel concentrate will drop onto a short shuttle conveyor that will distribute concentrate evenly across the loadout pile. Copper concentrate will discharge from the filter directly to the loadout pile via chute.	FGCONPLANT
EULOAD	Rail car loading of copper and nickel bearing concentrate using front end loaders. This activity will take place within the Concentrate Loadout Building.	FGCONPLANT
EUFELCON	Front end loader traffic within the Concentrate Loadout Building.	FGCONPLANT
EUTRANSFERPTS	Process fugitive emissions regulated under 40 CFR Part 60 Subpart LL, and located within the enclosed coarse ore storage area (COSA), the Secondary Crusher Building, the enclosed transfer station, the Mill Building, and the Concentrate Loadout Building.	FGCONPLANT
EUROADWAY	Fugitive emissions are produced by vehicle traffic entering and exiting the facility.	FGCONPLANT

Changes to the equipment described in this table are subject to the requirements of R 336.1201, except as allowed by R 336.1278 to R 336.1291.

**EUFINEORESTORAGE  
 EMISSION UNIT CONDITIONS**

**DESCRIPTION**

Three 2000 tonne (metric ton) capacity fine ore storage bins. The bins are located within the Mill Building.

**Flexible Group ID:** FGCONPLANT

**POLLUTION CONTROL EQUIPMENT**

Particulate emissions from the bins and the drop points will be controlled by a baghouse dust collector.

**I. EMISSION LIMIT(S)**

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. PM	0.0035 lbs per 1000 lbs of exhaust gases <sup>A</sup>	Test Protocol*	EUFINEORESTORAGE	General Condition No. 13	R 336.1331, 40 CFR Part 60 Subpart LL
2. PM10	0.1 pph	Test Protocol*	EUFINEORESTORAGE	General Condition No. 13	40 CFR 52.21 Subparts (c) & (d)

<sup>A</sup> Calculated on a dry gas basis  
 \* Test protocol shall determine averaging time

3. Visible emissions from EUFINEORESTORAGE shall not exceed a six-minute average of 5 percent opacity. (R 336.1301, R 336.1331, 40 CFR Part 60 Subpart LL)

**II. MATERIAL LIMIT(S)**

NA

**III. PROCESS/OPERATIONAL RESTRICTION(S)**

1. The permittee shall not operate EUFINEORESTORAGE unless a malfunction abatement plan (MAP) as described in Rule 911(2), for the baghouse dust collector is implemented and maintained. The MAP shall be submitted to the AQD District Supervisor a minimum of 120 days prior to commencement of operation of EUFINEORESTORAGE. The MAP shall, at a minimum, specify the following:
  - a) A complete preventative maintenance program including identification of the supervisory personnel responsible for overseeing the inspection, maintenance, and repair of air-cleaning devices, a description of the items or conditions that shall be inspected, the frequency of the inspections or repairs, and an identification of the major replacement parts that shall be maintained in inventory for quick replacement.
  - b) An identification of the source and air-cleaning device operating variables that shall be monitored to detect a malfunction or failure, the normal operating range of these variables, and a description of the method of monitoring or surveillance procedures.
  - c) A description of the corrective procedures or operational changes that shall be taken in the event of a malfunction or failure to achieve compliance with the applicable emission limits.

If at any time the MAP fails to address or inadequately addresses an event that meets the characteristics of a malfunction, the permittee shall amend the MAP within 45 days after such an event occurs. The permittee shall also amend the MAP within 45 days, if new equipment is installed or upon request from the District Supervisor. The permittee shall submit the MAP and any amendments to the MAP to the AQD District Supervisor for review and approval. If the AQD does not notify the permittee within 90 days of submittal, the

MAP or amended MAP shall be considered approved. Until an amended plan is approved, the permittee shall implement corrective procedures or operational changes to achieve compliance with all applicable emission limits. (R 336.1224, R 336.1225, R 336.1331, R 336.1910, R 336.1911, 40 CFR 52.21(c) & (d), 40 CFR Part 60 Subpart LL)

#### **IV. DESIGN/EQUIPMENT PARAMETER(S)**

1. The permittee shall not operate any storage bin and/or diverter gate in EUFINEORESTORAGE unless the baghouse dust collector is installed, maintained, and operated in a satisfactory manner. (R 336.1224, R 336.1225, R 336.1331, R 336.1910, 40 CFR 52.21(c) & (d), 40 CFR Part 60 Subpart LL)
2. Each storage bin, diverter gate, and drop point portion of EUFINEORESTORAGE shall be located within an enclosed building. (R 336.1224, R 336.1225, 40 CFR 52.21(c) & (d))
3. The permittee shall not operate EUFINEORESTORAGE unless a gauge, which measures the pressure drop across the fabric filter collector and sounds an alarm when the pressure drop is outside the range recommended by the manufacturer, is installed, maintained and operated in a satisfactory manner. (R 336.1224, R 336.1225, R 336.1301, R 336.1331, R 336.1910, 40 CFR 52.21(c) & (d), 40 CFR Part 60 Subpart LL)

#### **V. TESTING/SAMPLING**

Records shall be maintained on file for a period of five years. (R 336.1201(3))

1. Within 60 days after achieving the maximum production rate, but not later than 180 days after commencement of trial operation of EUFINEORESTORAGE, the permittee shall evaluate visible emissions from EUFINEORESTORAGE, as required by federal Standards of Performance for New Stationary Sources, at owner's expense, in accordance with 40 CFR Part 60 Subparts A and LL. Verification of visible emissions includes the submittal of a complete report of opacity observations to the AQD within 45 days following the last date of the evaluation. (R 336.1301, 40 CFR Part 60 Subparts A & LL)
2. Within 60 days after achieving the maximum production rate, but not later than 180 days after commencement of trial operation of EUFINEORESTORAGE, the permittee shall verify PM emission rates from EUFINEORESTORAGE, as required by federal Standards of Performance for New Stationary Sources, by testing at owner's expense, in accordance with 40 CFR Part 60 Subparts A and LL. Stack testing procedures and the location of stack testing ports shall be in accordance with the applicable federal Reference Methods, 40 CFR Part 60 Appendix A. No less than 60 days prior to testing, the permittee shall submit a complete test plan to the AQD. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD within 45 days following the last date of the test. (R 336.1331, 40 CFR Part 60 Subparts A & LL)

#### **VI. MONITORING/RECORDKEEPING**

Records shall be maintained on file for a period of five years. (R 336.1201(3))

1. The permittee shall complete all required calculations in a format acceptable to the AQD District Supervisor and make them available by the 15th day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition. (R 336.1224, R 336.1225, 40 CFR 52.21(c) & (d))
2. The permittee shall keep the following information on a monthly basis for EUFINEORESTORAGE:
  - a) PM10 emission calculations determining the monthly emission rate in tons per calendar month.
  - b) PM10 emission calculations determining the annual emission rate in tons per 12-month rolling time period as determined at the end of each calendar month.

The permittee shall keep the records on file, in a format acceptable to the AQD District Supervisor, and make them available to the Department upon request. (R 336.1224, R 336.1225, 40 CFR 52.21(c) & (d))

**VII. REPORTING**

1. The permittee shall provide written notification of construction and operation to comply with the federal Standards of Performance for New Stationary Sources, 40 CFR 60.7. The permittee shall submit this notification to the AQD District Supervisor within the time frames specified in 40 CFR 60.7. **(40 CFR 60.7)**

**VIII. STACK/VENT RESTRICTION(S)**

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

<b>Stack &amp; Vent ID</b>	<b>Maximum Exhaust Diameter / Dimensions (inches)</b>	<b>Minimum Height Above Ground (feet)</b>	<b>Underlying Applicable Requirements</b>
1. SVFINEORESTORAGE	14.0	125.0	R 336.1225, 40 CFR 52.21(c) & (d)

**IX. OTHER REQUIREMENT(S)**

1. The permittee shall comply with all provisions of the federal Standards of Performance for New Stationary Sources as specified in 40 CFR Part 60 Subparts A and LL, as they apply to EUFINEORESTORAGE. **(40 CFR Part 60 Subparts A & LL)**

**Footnotes:**

<sup>1</sup> This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

<b>EULOAD EMISSION UNIT CONDITIONS</b>
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**DESCRIPTION**

Rail car loading of copper and nickel bearing concentrate using front end loaders. This activity will take place within the Concentrate Loadout Building.

**Flexible Group ID:** FGCONPLANT

**POLLUTION CONTROL EQUIPMENT**

NA

**I. EMISSION LIMIT(S)**

1. Visible emissions from EULOAD shall not exceed a six-minute average of 10 percent opacity. **(R 336.1301, R 336.1303, 40 CFR 52.21 (c) & (d), 40 CFR Part 60 Subpart LL)**

**II. MATERIAL LIMIT(S)**

NA

**III. PROCESS/OPERATIONAL RESTRICTION(S)**

NA

**IV. DESIGN/EQUIPMENT PARAMETER(S)**

1. All copper and nickel bearing concentrate loading via front end loaders shall take place within an enclosed building. **(R 336.1224, R 336.1225, 40 CFR 52.21(c) & (d))**

**V. TESTING/SAMPLING**

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. Within 60 days after achieving the maximum production rate, but not later than 180 days after commencement of trial operation of EULOAD, the permittee shall evaluate visible emissions from EULOAD, as required by federal Standards of Performance for New Stationary Sources, at owner's expense, in accordance with 40 CFR Part 60 Subparts A and LL. Verification of visible emissions includes the submittal of a complete report of opacity observations to the AQD within 45 days following the last date of the evaluation. **(R 336.1301, 40 CFR Part 60 Subparts A & LL)**

**VI. MONITORING/RECORDKEEPING**

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

NA

**VII. REPORTING**

1. The permittee shall provide written notification of construction and operation to comply with the federal Standards of Performance for New Stationary Sources, 40 CFR 60.7. The permittee shall submit this notification to the AQD District Supervisor within the time frames specified in 40 CFR 60.7. **(40 CFR 60.7)**

**VIII. STACK/VENT RESTRICTION(S)**

1. The exhaust gases from EULOAD shall not be captured and discharged through a dedicated stack to the ambient air at any time. **(R 336.1224, R 336.1225, 40 CFR 52.21(c) & (d))**

**IX. OTHER REQUIREMENT(S)**

1. The permittee shall comply with all provisions of the federal Standards of Performance for New Stationary Sources as specified in 40 CFR Part 60 Subparts A and LL, as they apply to EULOAD.  
**(40 CFR Part 60 Subparts A & LL)**

**Footnotes:**

- <sup>1</sup> This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

**FLEXIBLE GROUP SPECIAL CONDITIONS**

**FLEXIBLE GROUP SUMMARY TABLE**

The descriptions provided below are for informational purposes and do not constitute enforceable conditions.

<b>Flexible Group ID</b>	<b>Flexible Group Description</b>	<b>Associated Emission Unit IDs</b>
FGCOSA	All receiving and crushing activities located within the enclosed coarse ore storage area (COSA). Particulate emissions from these activities are controlled by water sprays.	EUDUMPHOPPER EUGRIZZLYFEED EUPRIMECRUSHER EUROCKBREAKER EUFELCOSA
FGTRANSFERCONVYS	Covered conveyors used to transport ore, copper bearing concentrate, and nickel bearing concentrate between the various buildings at the facility.	EU2NDFEEDCONVY EUTRANSCONVY1 EURECIRCCONVYS EUTRANSCONVY2
FGSECONDCRUSH	All crushing and screening activities located within the Secondary Crusher Building. Particulate emissions from these activities are controlled by a baghouse dust collector.	EU2NDSCREEN EU2NDCRUSHER EU3RDSCREEN EU3RDSCRUSHER
FGCONPLANT	All permitted process equipment and activities associated with the copper and nickel ore concentration facility.	EUDUMPHOPPER EUGRIZZLYFEED EUPRIMECRUSHER EUROCKBREAKER EUFELCOSA EU2NDFEEDCONVY EU2NDSCREEN EU2NDCRUSHER EUTRANSCONVY1 EURECIRCCONVYS EU3RDSCREEN EU3RDSCRUSHER EUTRANSCONVY2 EUFINEORESTORAGE EUCONDROP EULOAD EUFELCON EUTRANSFERPTS EUROADWAY

<b>FGCOSA FLEXIBLE GROUP CONDITIONS</b>
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**DESCRIPTION**

All receiving and crushing activities located within the enclosed coarse ore storage area (COSA).

**Emission Unit:** EUDUMPHOPPER, EUGRIZZLYFEED, EUPRIMECRUSHER, EUROCKBREAKER, EUFELCOSA

**POLLUTION CONTROL EQUIPMENT**

Particulate emissions from these activities are controlled by water sprays.

**I. EMISSION LIMIT(S)**

1. Visible emissions from EUDUMPHOPPER shall not exceed a six-minute average of 10 percent opacity. (R 336.1301, R 336.1303, 40 CFR Part 60 Subpart LL)
2. Visible emissions from EUGRIZZLYFEED shall not exceed a six-minute average of 10 percent opacity. (R 336.1301, R 336.1303, 40 CFR Part 60 Subpart LL)
3. Visible emissions from EUPRIMECRUSHER shall not exceed a six-minute average of 10 percent opacity. (R 336.1301, R 336.1303, 40 CFR Part 60 Subpart LL)
4. Visible emissions from EUROCKBREAKER shall not exceed a six-minute average of 10 percent opacity. (R 336.1301, R 336.1303, 40 CFR Part 60 Subpart LL)

**II. MATERIAL LIMIT(S)**

1. The permittee shall not process more than 407 tons of ore through EUDUMPHOPPER per hour. (R 336.1224, R 336.1225, 40 CFR 52.21(c) & (d))

**III. PROCESS/OPERATIONAL RESTRICTION(S)**

NA

**IV. DESIGN/EQUIPMENT PARAMETER(S)**

1. The permittee shall not operate EUDUMPHOPPER unless the water sprays are installed, maintained, and operated in a satisfactory manner. (R336.1224, R 336.1910, 40 CFR 52.21(c) & (d), 40 CFR Part 60 Subpart LL)
2. The permittee shall not operate EUGRIZZLYFEED unless the water sprays are installed, maintained, and operated in a satisfactory manner. (R 336.1224, R 336.1910, 40 CFR 52.21(c) & (d), 40 CFR Part 60 Subpart LL)
3. The permittee shall not operate EUPRIMECRUSHER unless the water sprays are installed, maintained, and operated in a satisfactory manner. (R 336.1224, R 336.1910, 40 CFR 52.21(c) & (d), 40 CFR Part 60 Subpart LL)
4. The permittee shall not operate EUROCKBREAKER unless the water sprays are installed, maintained, and operated in a satisfactory manner. (R 336.1224, R 336.1910, 40 CFR 52.21(c) & (d), 40 CFR Part 60 Subpart LL)

5. The permittee shall maintain water sprays within the enclosed coarse ore storage area, including in the enclosed truck unloading area, as needed to ensure compliance with the opacity requirements of 40 CFR Part 60 Subpart LL. **(R 336.1224, R 336.1910, 40 CFR 52.21(c) & (d), 40 CFR Part 60 Subpart LL)**

#### **V. TESTING/SAMPLING**

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. Within 60 days after achieving the maximum production rate, but not later than 180 days after commencement of trial operation of FGCOSA, the permittee shall evaluate visible emissions from EUDUMPHOPPER, EUGRIZZLYFEED, EUPRIMECRUSHER, EUROCKBREAKER, as required by federal Standards of Performance for New Stationary Sources, at owner's expense, in accordance with 40 CFR Part 60 Subparts A and LL. Verification of visible emissions includes the submittal of a complete report of opacity observations to the AQD within 45 days following the last date of the evaluation. **(R 336.1301, 40 CFR Part 60 Subparts A & LL)**

#### **VI. MONITORING/RECORDKEEPING**

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. The permittee shall complete all required calculations in a format acceptable to the AQD District Supervisor and make them available by the 15th day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition. **(R 336.1224, R 336.1225, 40 CFR 52.21(c) & (d))**
2. The permittee shall monitor and record, in a method acceptable to the AQD District Supervisor, the ore feed rate to EUDUMPHOPPER on an hourly and 12-month rolling time period basis, as determined at the end of each calendar month. The permittee shall keep the records on file, in a format acceptable to the AQD District Supervisor, and make them available to the Department upon request. **(R 336.1224, R 336.1225, 40 CFR 52.21(c) & (d))**

#### **VII. REPORTING**

1. The permittee shall provide written notification of construction and operation to comply with the federal Standards of Performance for New Stationary Sources, 40 CFR 60.7. The permittee shall submit this notification to the AQD District Supervisor within the time frames specified in 40 CFR 60.7. **(40 CFR 60.7)**

#### **VIII. STACK/VENT RESTRICTION(S)**

1. The exhaust gases from any portion of FGCOSA shall not be captured and discharged through a dedicated stack to the ambient air at any time. **(R 336.1224, R 336.1225, 40 CFR 52.21(c) & (d))**

#### **IX. OTHER REQUIREMENT(S)**

1. The permittee shall comply with all provisions of the federal Standards of Performance for New Stationary Sources as specified in 40 CFR Part 60 Subparts A and LL, as they apply to FGCOSA. **(40 CFR Part 60 Subparts A & LL)**

#### **Footnotes:**

- <sup>1</sup>This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

**FGSECONDCRUSH  
 FLEXIBLE GROUP CONDITIONS**

**DESCRIPTION**

All crushing and screening activities located within the Secondary Crusher Building.

**Emission Unit:** EU2NDSCREEN, EU2NDCRUSHER, EU3RDSCREEN, EU3RDCRUSHER

**POLLUTION CONTROL EQUIPMENT**

Particulate emissions from these activities are controlled by a baghouse dust collector.

**I. EMISSION LIMIT(S)**

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. PM	0.009 lbs per 1000 lbs of exhaust gases <sup>A</sup>	Test Protocol*	FGSECONDCRUSH	SC V. 2.	R 336.1331, 40 CFR Part 60 Subpart LL
2. PM10	0.5 pph	Test Protocol*	FGSECONDCRUSH	SC V. 2.	40 CFR 52.21 Subparts (c) & (d)

<sup>A</sup> Calculated on a dry gas basis  
 \* Test protocol shall determine averaging time

3. Visible emissions from FGSECONDCRUSH shall not exceed a six-minute average of 5 percent opacity. (R 336.1301, R 336.1303, R 336.1331, 40 CFR Part 60 Subpart LL)

**II. MATERIAL LIMIT(S)**

NA

**III. PROCESS/OPERATIONAL RESTRICTION(S)**

1. The permittee shall not operate any portion of FGSECONDCRUSH unless a malfunction abatement plan (MAP) as described in Rule 911(2), for the baghouse dust collector is implemented and maintained. The MAP shall be submitted to the AQD District Supervisor a minimum of 120 days prior to commencement of operation of FGSECONDCRUSH. The MAP shall, at a minimum, specify the following:
  - a) A complete preventative maintenance program including identification of the supervisory personnel responsible for overseeing the inspection, maintenance, and repair of air-cleaning devices, a description of the items or conditions that shall be inspected, the frequency of the inspections or repairs, and an identification of the major replacement parts that shall be maintained in inventory for quick replacement.
  - b) An identification of the source and air-cleaning device operating variables that shall be monitored to detect a malfunction or failure, the normal operating range of these variables, and a description of the method of monitoring or surveillance procedures.
  - c) A description of the corrective procedures or operational changes that shall be taken in the event of a malfunction or failure to achieve compliance with the applicable emission limits.

If at any time the MAP fails to address or inadequately addresses an event that meets the characteristics of a malfunction, the permittee shall amend the MAP within 45 days after such an event occurs. The permittee shall also amend the MAP within 45 days, if new equipment is installed or upon request from the District Supervisor. The permittee shall submit the MAP and any amendments to the MAP to the AQD District Supervisor for review and approval. If the AQD does not notify the permittee within 90 days of submittal, the MAP or amended MAP shall be considered approved. Until an amended plan is approved, the permittee shall

implement corrective procedures or operational changes to achieve compliance with all applicable emission limits. (R 336.1224, R 336.1225, R 336.1331, R 336.1910, R 336.1911, 40 CFR 52.21(c) & (d), 40 CFR Part 60 Subpart LL)

#### **IV. DESIGN/EQUIPMENT PARAMETER(S)**

1. The permittee shall not operate any screen and/or crusher portion of FGSECONDCRUSH unless the baghouse dust collector is installed, maintained, and operated in a satisfactory manner. (R 336.1224, R 336.1225, R 336.1331, R 336.1910, 40 CFR 52.21(c) & (d), 40 CFR Part 60 Subpart LL)
2. Each screen and crusher portion of FGSECONDCRUSH shall be located within an enclosed building. (R 336.1224, R 336.1225, 40 CFR 52.21(c) & (d))
3. The permittee shall not operate FGSECONDCRUSH unless a gauge, which measures the pressure drop across the fabric filter collector and sounds an alarm when the pressure drop is outside the range recommended by the manufacturer, is installed, maintained, and operated in a satisfactory manner. (R 336.1224, R 336.1225, R 336.1301, R 336.1331, R 336.1910, 40 CFR 52.21(c) & (d), 40 CFR Part 60 Subpart LL)

#### **V. TESTING/SAMPLING**

Records shall be maintained on file for a period of five years. (R 336.1201(3))

1. Within 60 days after achieving the maximum production rate, but not later than 180 days after commencement of trial operation of FGSECONDCRUSH, the permittee shall evaluate visible emissions from FGSECONDCRUSH, as required by federal Standards of Performance for New Stationary Sources, at owner's expense, in accordance with 40 CFR Part 60 Subparts A and LL. Verification of visible emissions includes the submittal of a complete report of opacity observations to the AQD within 45 days following the last date of the evaluation. (R 336.1301, 40 CFR Part 60 Subparts A & LL)
2. Within 60 days after achieving the maximum production rate, but not later than 180 days after commencement of trial operation of FGSECONDCRUSH, the permittee shall verify PM emission rates from FGSECONDCRUSH, as required by federal Standards of Performance for New Stationary Sources, by testing at owner's expense, in accordance with 40 CFR Part 60 Subparts A and LL. Stack testing procedures and the location of stack testing ports shall be in accordance with the applicable federal Reference Methods, 40 CFR Part 60 Appendix A. No less than 60 days prior to testing, the permittee shall submit a complete test plan to the AQD. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD within 45 days following the last date of the test. (R 336.1331, 40 CFR Part 60 Subpart LL)

#### **VI. MONITORING/RECORDKEEPING**

Records shall be maintained on file for a period of five years. (R 336.1201(3))

1. The permittee shall complete all required calculations in a format acceptable to the AQD District Supervisor and make them available by the 15th day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition. (R 336.1224, R 336.1225, 40 CFR 52.21(c) & (d))
2. The permittee shall keep the following information on a monthly basis for FGSECONDCRUSH:
  - a) PM10 emission calculations determining the monthly emission rate in tons per calendar month.
  - b) PM10 emission calculations determining the annual emission rate in tons per 12-month rolling time period as determined at the end of each calendar month.

The permittee shall keep the records on file, in a format acceptable to the AQD District Supervisor, and make them available to the Department upon request. (R 336.1224, R 336.1225, 40 CFR 52.21(c) & (d))

**VII. REPORTING**

1. The permittee shall provide written notification of construction and operation to comply with the federal Standards of Performance for New Stationary Sources, 40 CFR 60.7. The permittee shall submit this notification to the AQD District Supervisor within the time frames specified in 40 CFR 60.7. **(40 CFR 60.7)**

**VIII. STACK/VENT RESTRICTION(S)**

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

<b>Stack &amp; Vent ID</b>	<b>Maximum Exhaust Diameter / Dimensions (inches)</b>	<b>Minimum Height Above Ground (feet)</b>	<b>Underlying Applicable Requirements</b>
1. SV2NDCRUSHER	30.0	65.5	R 336.1225, 40 CFR 52.21(c) & (d)

**IX. OTHER REQUIREMENT(S)**

1. The permittee shall comply with all provisions of the federal Standards of Performance for New Stationary Sources as specified in 40 CFR Part 60 Subparts A and LL, as they apply to FGSECONDCRUSH. **(40 CFR Part 60 Subparts A & LL)**

**Footnotes:**

<sup>1</sup>This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

## **FGCONPLANT FLEXIBLE GROUP CONDITIONS**

### **DESCRIPTION**

All permitted process equipment and activities associated with the copper and nickel ore concentration facility.

**Emission Unit:** EUDUMPHOPPER, EUGRIZZLYFEED, EUPRIMECRUSHER, EUROCKBREAKER, EUFELCOSA, EU2NDFEEDCONVY, EU2NDScreen, EU2NDCRUSHER, EUTRANSCONVY1, EU3RDScreen, EU3RDCRUSHER, EURECIRCCONVYS, EUTRANSCONVY2, EUFINEORESTORAGE, EUCONDROP, EULOAD, EUFELCON, EUTRANSFERPTS, EUROADWAY

### **POLLUTION CONTROL EQUIPMENT**

Two baghouse dust collectors, water sprays, and conveyor covers.

### **I. EMISSION LIMIT(S)**

1. Visible emissions from all wheel loaders and all truck traffic shall not exceed five (5) percent opacity. Compliance shall be demonstrated using Test Method 9D as defined in Section 324.5525(j) of Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451). **(R 336.1301, 40 CFR 52.21(c) & (d))**
2. Process fugitive emissions from each crusher, screen, conveyor belt transfer point, storage bin, enclosed storage area, and truck unloading station in FGCONPLANT shall not exceed a six-minute average of 10 percent opacity. **(R 336.1301, R 336.1303, 40 CFR 52.21 (c) & (d), 40 CFR Part 60 Subpart LL)**

### **II. MATERIAL LIMIT(S)**

NA

### **III. PROCESS/OPERATIONAL RESTRICTION(S)**

1. The permittee shall not maintain any outside storage piles of any material at the facility. **(R 336.1224, R 336.1225, 40 CFR 52.21(c) & (d))**
2. The permittee shall not operate any portion of FGCONPLANT unless the program for continuous fugitive emissions control for all plant roadways, the plant yard, and all material handling operations specified in Appendix A, or an alternate plan approved by the AQD District Supervisor, has been implemented and is maintained. **(R 336.1224, R 336.1225, 40 CFR 52.21(c) & (d))**
3. The permittee shall not exceed a maximum equivalent of 17,140 50-ton ore trucks entering the facility for each calendar year. **(R 336.1224, R 336.1225)**
4. The permittee shall cover all product haul trucks travelling on site, in accordance with the fugitive dust control plan, to reduce fugitive dust emissions. **(R 336.1224, R 336.1225, R 336.1301, 40 CFR 52.21 (c) & (d))**

### **IV. DESIGN/EQUIPMENT PARAMETER(S)**

1. The permittee shall pave the plant roadways routinely travelled by product haul trucks. Routinely travelled roadways include the facility access road (beginning at the facility gate), the road to the COSA, and the road returning from the COSA to the facility gate. This condition does not require paving of roadways that will not routinely be travelled by product haul trucks, such as the road to the office/maintenance building and mill building. **(R 336.1224, R 336.1225, R 336.1301, 40 CFR 52.21(c) & (d))**

2. All material handling operations in FGCONPLANT shall be located within an enclosed building. **(R 336.1910, 40 CFR 52.21(c) & (d))**
3. The permittee shall not load material onto EUTRANCONVY2 unless the transfer station dust collectors are installed, maintained, and operated in a satisfactory manner. **(R 336.1910, 40 CFR 52.21(c) & (d), 40 CFR Part 60 Subpart LL)**
4. The permittee shall equip and maintain any portion of any conveyor that is not located inside an enclosed building with a cover. **(R 336.1910, 40 CFR 52.21(c) & (d))**

#### **V. TESTING/SAMPLING**

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. Within 60 days after achieving the maximum production rate, but not later than 180 days after commencement of trial operation of FGCONPLANT, the permittee shall evaluate visible emissions from each crusher, screen, conveyor belt transfer point, storage bin, enclosed storage area, and truck unloading station in FGCONPLANT, as required by federal Standards of Performance for New Stationary Sources, at owner's expense, in accordance with 40 CFR Part 60 Subparts A and LL. Verification of visible emissions includes the submittal of a complete report of opacity observations to the AQD within 45 days following the last date of the evaluation. **(R 336.1301, 40 CFR Part 60 Subparts A & LL)**

#### **VI. MONITORING/RECORDKEEPING**

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. The permittee shall complete all required calculations in a format acceptable to the AQD District Supervisor and make them available by the 15th day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition. **(R 336.1224, R 336.1225, 40 CFR 52.21(c) & (d))**
2. The permittee shall keep a daily record of the type, size (weight) and number of ore transport trucks entering the facility. Each month, in a manner acceptable to the AQD District Supervisor, the permittee shall calculate an equivalent number of 50-ton ore transport trucks entering the facility based on that month's daily records. Each calendar year, in a manner acceptable to the AQD District Supervisor, the permittee shall calculate an equivalent number of 50-ton ore transport trucks entering the facility based on that year's monthly records. The permittee shall keep all records and calculations on file and make them available to the Department upon request. **(R 336.1224, R 336.1225, 40 CFR 52.21(c) & (d))**

#### **VII. REPORTING**

1. The permittee shall provide written notification of construction and operation to comply with the federal Standards of Performance for New Stationary Sources, 40 CFR 60.7. The permittee shall submit this notification to the AQD District Supervisor within the time frames specified in 40 CFR 60.7. **(40 CFR 60.7)**

#### **VIII. STACK/VENT RESTRICTION(S)**

NA

#### **IX. OTHER REQUIREMENT(S)**

1. The permittee shall comply with all provisions of the federal Standards of Performance for New Stationary Sources as specified in 40 CFR Part 60 Subparts A and LL, as they apply to FGCONPLANT. **(40 CFR Part 60 Subparts A & LL)**

#### **Footnotes:**

<sup>1</sup> This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

**APPENDIX A**

**Humboldt Mill**  
**Nuisance Minimization Plan**  
Fugitive Dust Control Plan

Prepared for  
**Kennecott Eagle Minerals Company**

Updated by  
**Consulting Services, LLC**

September 2013

## Introduction

Pursuant to the conditions of Permit to Install 405-08B, a Fugitive Dust Control Plan is required for the Humboldt Mill. The major requirements for dust control are the following:

- ◆ A written Fugitive Dust Control Program;
- ◆ Maintenance of records consistent with activities to be implemented under the program; and
- ◆ Identification of control technologies and methods that will be implemented as part of the program.

This Fugitive Dust Control Plan describes best management practices and controls to minimize fugitive dust from the facility.

Potential sources of fugitive dust include:

- ◆ Haul truck traffic;
- ◆ Ore storage and handling; and
- ◆ Concentrate storage, handling, and load-out.

## Haul Truck Activities

The mill access road entering the facility from County Road (CR) 601 will be used for haul trucks delivering ore. The haul truck route is paved.

On site staff will continually monitor roadways. Corrective measures will be taken if visible emissions from roadways are observed. Paved areas will be swept or flushed as needed. The goal is to prevent visible dust emissions from roadways and insure opacity is 5% or less. Attached is the Roadway Dust Suppression Form.

## Unloading Operations

Trailers on haul trucks will be covered to reduce fugitive dust during transport. The ore is expected to have a silt content of less than 1%. Haul trucks will enter the coarse ore storage area (COSA) through a roll-up door on the south side of the building and stop at the unloading area. The trailer covers will automatically lift out of the way for dumping and ore will be side discharged. Once the ore has been unloaded, the trailers will be covered and trucks will exit through another roll-up door. It is anticipated that the coarse ore will normally be moist and unloading will generate very little dust. Water sprays will be available to control fugitive dust in the unloading area as needed. The enclosed building is expected to provide 95%+ control of fugitive dust from the unloading of ore in the COSA.

## Ore Storage and Handling

After unloading, a front-end loader will move the ore to a stockpile within the COSA or place it directly into the dump hopper. As needed, the concrete floor in the COSA will be swept or flushed with water to reduce fugitive emissions from operation of the loader.

Visible emissions from the COSA will comply with the permitted opacity limit of 10%.

## Concentrate Storage, Handling, and Load-Out

Concentrate handling and loading will be performed in the enclosed concentrate load-out building. The enclosed building is expected to provide a 95%+ reduction in emissions of fugitive dust. The concentrate will be moist (approximately 8% moisture) and will not be a dusty material.

Rail car loading will take place within the enclosed building. Roll-up doors will be opened only to allow rail cars to enter or exit. Prior to a loaded rail car exiting the building, the wheels and body will be checked for material clinging to the exterior. If present, loose material will be brushed off.

During load-out, a front-end loader will transfer concentrate from the stockpile to rail cars. Similar to the COSA, the concrete floor in the load-out area will be swept or flushed with water to reduce fugitive emissions from operation of the loader. Sweepings will be added to the stockpiles.

Visible emissions from the concentrate load-out building will meet the permitted opacity limit of 10%.

## Recordkeeping

Roadway dust suppression forms will be kept on file for five years.

**Humboldt Mill - Roadway Dust Suppression Form**

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Date: \_\_\_\_ / \_\_\_\_ / \_\_\_\_      Shift: \_\_\_\_\_

Employee: \_\_\_\_\_

Temperature: \_\_\_\_\_

Weather Conditions: \_\_\_\_\_

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Dust from roadways observed? Yes: \_\_\_\_ Road segment(s): \_\_\_\_\_

No: \_\_\_\_

If yes to above, actions taken: Sweeping: \_\_\_\_ Road segment(s): \_\_\_\_\_

Dust suppressant: \_\_\_\_ Road segment(s): \_\_\_\_\_

Water applied: \_\_\_\_ Road segment(s): \_\_\_\_\_

Comments: \_\_\_\_\_

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