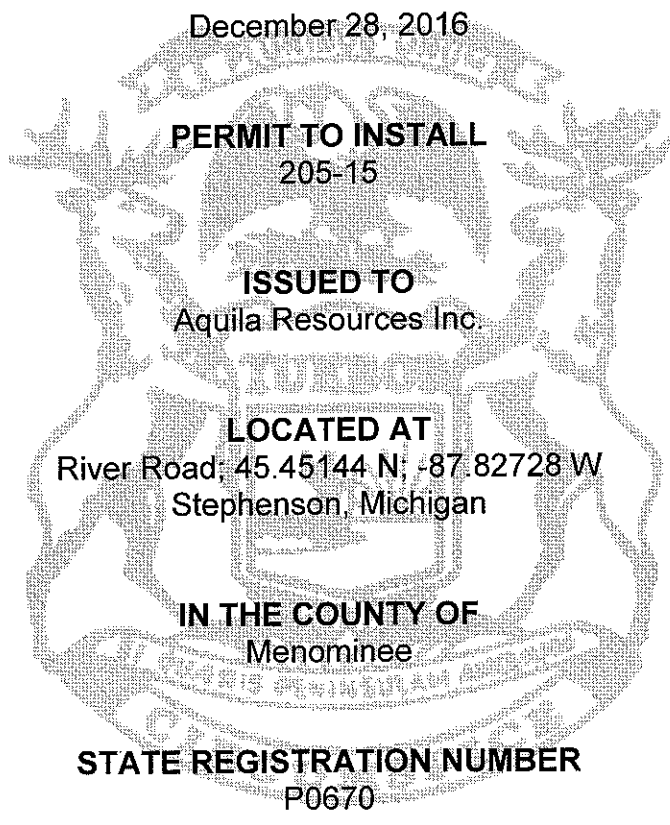


**MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION**

December 28, 2016



**PERMIT TO INSTALL
205-15**

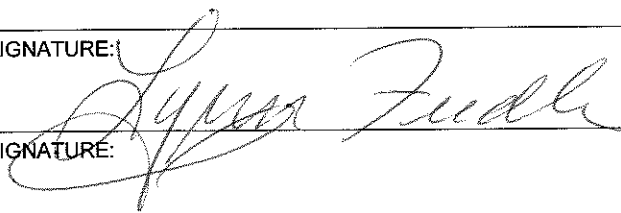
**ISSUED TO
Aquila Resources Inc.**

**LOCATED AT
River Road, 45.45144 N; -87.82728 W
Stephenson, Michigan**

**IN THE COUNTY OF
Menominee**

**STATE REGISTRATION NUMBER
P0670**

The Air Quality Division has approved this Permit to Install, pursuant to the delegation of authority from the Michigan Department of Environmental Quality. 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: June 21, 2016	
DATE PERMIT TO INSTALL APPROVED: December 28, 2016	SIGNATURE: 
DATE PERMIT VOIDED:	SIGNATURE:
DATE PERMIT REVOKED:	SIGNATURE:

PERMIT TO INSTALL

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Common Abbreviations / Acronyms

Common Acronyms		Pollutant / Measurement Abbreviations	
AQD	Air Quality Division	acfm	Actual cubic feet per minute
BACT	Best Available Control Technology	BTU	British Thermal Unit
CAA	Clean Air Act	°C	Degrees Celsius
CAM	Compliance Assurance Monitoring	CO	Carbon Monoxide
CEM	Continuous Emission Monitoring	CO ₂ e	Carbon Dioxide Equivalent
CFR	Code of Federal Regulations	dscf	Dry standard cubic foot
COM	Continuous Opacity Monitoring	dscm	Dry standard cubic meter
Department/ department	Michigan Department of Environmental Quality	°F	Degrees Fahrenheit
EU	Emission Unit	gr	Grains
FG	Flexible Group	HAP	Hazardous Air Pollutant
GACS	Gallons of Applied Coating Solids	Hg	Mercury
GC	General Condition	hr	Hour
GHGs	Greenhouse Gases	HP	Horsepower
HVLP	High Volume Low Pressure*	H ₂ S	Hydrogen Sulfide
ID	Identification	kW	Kilowatt
IRSL	Initial Risk Screening Level	lb	Pound
ITSL	Initial Threshold Screening Level	m	Meter
LAER	Lowest Achievable Emission Rate	mg	Milligram
MACT	Maximum Achievable Control Technology	mm	Millimeter
MAERS	Michigan Air Emissions Reporting System	MM	Million
MAP	Malfunction Abatement Plan	MW	Megawatts
MDEQ	Michigan Department of Environmental Quality	NMOC	Non-methane Organic Compounds
MSDS	Material Safety Data Sheet	NO _x	Oxides of Nitrogen
NA	Not Applicable	ng	Nanogram
NAAQS	National Ambient Air Quality Standards	PM	Particulate Matter
NESHAP	National Emission Standard for Hazardous Air Pollutants	PM10	Particulate Matter equal to or less than 10 microns in diameter
NSPS	New Source Performance Standards	PM2.5	Particulate Matter equal to or less than 2.5 microns in diameter
NSR	New Source Review	pph	Pounds per hour
PS	Performance Specification	ppm	Parts per million
PSD	Prevention of Significant Deterioration	ppmv	Parts per million by volume
PTE	Permanent Total Enclosure	ppmw	Parts per million by weight
PTI	Permit to Install	psia	Pounds per square inch absolute
RACT	Reasonable Available Control Technology	psig	Pounds per square inch gauge
ROP	Renewable Operating Permit	scf	Standard cubic feet
SC	Special Condition	sec	Seconds
SCR	Selective Catalytic Reduction	SO ₂	Sulfur Dioxide
SNCR	Selective Non-Catalytic Reduction	TAC	Toxic Air Contaminant
SRN	State Registration Number	Temp	Temperature
TEQ	Toxicity Equivalence Quotient	THC	Total Hydrocarbons
USEPA/EPA	United States Environmental Protection Agency	tpy	Tons per year
VE	Visible Emissions	µg	Microgram
		µm	Micrometer or Micron
		VOC	Volatile Organic Compounds
		yr	Year

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

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 Environmental Quality, 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 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 R 336.1219 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 R 336.1219 and shall be sent to the District Supervisor, Air Quality Division, Michigan Department of Environmental Quality. **(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 R 336.1301, 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 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 R 336.1370(2). **(R 336.1370)**

13. The Department may require the permittee to conduct acceptable performance tests, at the permittee's expense, in accordance with R 336.2001 and R 336.2003, under any of the conditions listed in R 336.2001. **(R 336.2001)**

SPECIAL CONDITIONS

EMISSION UNIT SUMMARY TABLE

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

Emission Unit ID	Emission Unit Description (Process Equipment & Control Devices)	Flexible Group ID
EUOPENPITMINE	Fugitive emissions from mine pit activities including drilling, blasting, material transfer to haul trucks, and haul truck travel to the mine pit entrance.	FGFUGITIVES
EUOBTTA	Fugitive emissions from handling ore in the ore blending and truck turnaround area, including unloading ore into a staging area, blending ore with a front end loader, and loading ore into the feed hopper using a front end loader.	FGFUGITIVES
EUFEEEDHOPPER	Crushing plant 80-ton feed hopper; located in the crusher building. Emissions are controlled by baghouse DC-01 (SV-01).	FG1STCRUSHER
EUVIBGRIZFEEDER	Vibrating grizzly feeder to separate undersize material from the oversize material; located in the crusher building. Oversize material goes to the primary crusher and undersize material is conveyed to the crusher discharge bin. Emissions are controlled by baghouse DC-01 (SV-01).	FG1STCRUSHER
EUROCKBREAKER	Rock breaker for oversize material; located in the crusher building. Emissions are controlled by baghouse DC-01 (SV-01).	FG1STCRUSHER
EUJAWCRUSHER	Primary jaw crusher used to crush the ore to seven inches or smaller; located in the crusher building. Crushed ore is conveyed to the crusher discharge bin. Emissions are controlled by baghouse DC-01 (SV-01).	FG1STCRUSHER
EU3DECKSCREEN	Crushed ore is conveyed from the crusher discharge bin to the horizontal 3-deck screen that separates crushed ore by size; located in the crusher building. Crushed ore is conveyed to the secondary crusher, the tertiary crusher, or the crushed ore stockpile. Emissions are controlled by baghouse DC-02 (SV-02).	FG2AND3CRUSH
EU2NDCRUSHER	Secondary cone crusher; located in the crusher building. Crushed ore is conveyed back to the crusher discharge bin. Emissions are controlled by baghouse DC-02 (SV-02).	FG2AND3CRUSH
EU3RDCRUSHER	Tertiary cone crusher; located in the crusher building. Ore is crushed to 80% passing less than 0.4 inches. Crushed ore is conveyed back to the crusher discharge bin. Emissions are controlled by baghouse DC-02 (SV-02).	FG2AND3CRUSH
EUCPTRANSFERPTS	Various conveyors, transfer points, and hoppers used to move crushed ore inside the crusher building. Emissions are controlled by baghouse DC-02 (SV-02).	FG2AND3CRUSH
EUCPFUGITIVES	Fugitive emissions inside the crusher building that are not captured by the two baghouse systems.	FGFUGITIVES
EUTRANSFERTOWER	Enclosed conveyors used to transfer crushed ore from the crusher building to one of the two crushed ore stockpiles.	FGORETRANSFER
EUFLOTSTOCKPILE	Partially covered, cone shaped flotation ore stockpile.	FGORETRANSFER
EUOXIDESTOCKPILE	Partially covered, cone shaped oxide ore stockpile.	FGORETRANSFER

Emission Unit ID	Emission Unit Description (Process Equipment & Control Devices)	Flexible Group ID
EUFLOTOREFEED	Two belt feeders used to transfer flotation ore from the stockpile to the flotation plant.	FGORETRANSFER
EUOXIDOREFEED	Two belt feeders used to transfer oxide ore from the stockpile to the oxide plant.	FGORETRANSFER
EUFLOTBALLMILL	Ball mill where flotation ore is slurried and mixed with water in the flotation plant.	FGORETRANSFER
EUOXIDEBALLMILL	Ball mill where oxide ore is slurried and mixed with water in the oxide plant.	FGORETRANSFER
EUHGRETORT	Electrically heated batch mercury retort system to remove mercury from the oxide plant precipitation equipment filter cake. Emissions are controlled by a chilled water condenser and two sulfur impregnated activated carbon beds in series (SV-03).	
EUREFINEFURNACE	Filter cake processed in the mercury retort system will be processed in a batch refining furnace to produce doré. The furnace is propane fired. Emissions are controlled by a wet scrubber system.	
EUGENERATOR1	1,000 kilowatt diesel fired emergency generator (SV-06a).	FGENGINES
EUGENERATOR2	1,000 kilowatt diesel fired emergency generator (SV-06b).	FGENGINES
EUCUCONC	Transfer of copper concentrate from filter press to storage bins and loading of product haul trucks by belt conveyor.	FGCONC
EUZNCNC	Transfer of zinc concentrate from filter press to storage bins and loading of product haul trucks by belt conveyor.	FGCONC
EUFLOTTWRMF	Fugitive emissions from the flotation plant tailings and waste rock management facility, including material transfer, vehicle traffic, and wind erosion.	FGFUGITIVES
EUOXIDETWRMF	Fugitive emissions from the oxide plant tailings and waste rock management facility, including material transfer, vehicle traffic, and wind erosion.	FGFUGITIVES
EUROAD	Fugitive emissions from vehicle traffic on the facility roadways.	FGFUGITIVES

The following conditions apply to: EUHGRETORT

DESCRIPTION: Electrically heated batch mercury retort system to remove mercury from the oxide plant precipitation equipment filter cake.

Flexible Group ID: N/A

POLLUTION CONTROL EQUIPMENT: Chilled water condenser and two sulfur impregnated activated carbon beds in series (SV-03).

I. EMISSION LIMITS

N/A

II. MATERIAL LIMITS

1. The permittee shall not burn any fuel in EUHGRETORT. **(R 336.1205, R 336.1224, R 336.1225, 40 CFR 52.21(c) & (d))**

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall not operate EUHGRETORT for more than 1200 hours per 12-month rolling time period as determined at the end of each calendar month. **(R 336.1224, R 336.1225)**
2. The permittee shall maintain the air pressure within EUHGRETORT lower than the press room air pressure so that air flows into EUHGRETORT at all times when EUHGRETORT is operating. **(R 336.1224, R 336.1225, R 336.1910)**
3. The permittee shall not operate EUHGRETORT unless the chilled water condenser exhaust gas temperature is maintained in the range specified in the MAP. **(R 336.1224, R 336.1225, R 336.1910)**
4. The permittee shall not operate EUHGRETORT unless the primary (lead) sulfur impregnated activated carbon bed inlet temperature is maintained in the range specified in the MAP. **(R 336.1224, R 336.1225, R 336.1910)**

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall not operate EUHGRETORT unless the chilled water condenser is installed, maintained, and operated in a satisfactory manner. Satisfactory operation includes maintaining the condenser exhaust gas temperature in the range specified in the MAP. **(R 336.1224, R 336.1225, R 336.1910)**
2. The permittee shall not operate EUHGRETORT unless the two sulfur impregnated activated carbon beds in series are installed, maintained, and operated in a satisfactory manner. Satisfactory operation includes maintaining the inlet temperature in the range specified in the MAP and replacing the carbon when the exhaust gas stream mercury concentration is 0.01 mg/m³ or greater, determined in accordance with SC V.1 and as specified in the MAP. **(R 336.1224, R 336.1225, R 336.1910)**
3. The permittee shall equip and maintain the chilled water condenser with an exhaust gas temperature monitoring device. **(R 336.1224, R 336.1225, R 336.1910)**
4. The permittee shall equip and maintain the primary (lead) sulfur impregnated activated carbon bed with an inlet temperature monitoring device. **(R 336.1224, R 336.1225, R 336.1910)**
5. The permittee shall equip and maintain EUHGRETORT with an interlock system that will automatically shut down EUHGRETORT in the event of a control device malfunction or other malfunction, as specified in the MAP. **(R 336.1224, R 336.1225, R 336.1910)**
6. The permittee shall equip and maintain EUHGRETORT and the press room with a system to continuously monitor and record the difference between the air pressure inside EUHGRETORT and the air pressure in the press room at all times when EUHGRETORT is operating. **(R 336.1224, R 336.1225, R 336.1910)**

V. TESTING/SAMPLING

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

1. At least once each calendar month, the permittee shall measure the mercury concentration in the exhaust gas stream between the primary sulfur impregnated activated carbon bed and the secondary sulfur impregnated activated carbon bed, and after the secondary sulfur impregnated activated carbon bed. If the mercury concentration is 0.01 mg/m³ or greater, the permittee shall remove the primary (lead) carbon bed from service, and replace it with the secondary (lag) carbon bed. The permittee shall then replace the secondary carbon bed with a new one. If the mercury concentration after the secondary carbon bed is also found to be 0.01 mg/m³ or greater, both carbon beds shall be replaced. The permittee shall use a mercury vapor analyzer with a detection level of 0.01 mg/m³ or less, as approved by the AQD District Supervisor. **(R 336.1224, R 336.1225)**

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 by the last 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)**
2. The permittee shall monitor and record, in a satisfactory manner, the chilled water condenser exhaust gas temperature on a continuous basis when EUHGRETORT is operating. **(R 336.1224, R 336.1225, R 336.1910)**
3. The permittee shall monitor and record, in a satisfactory manner, the primary (lead) sulfur impregnated activated carbon bed inlet temperature on a continuous basis when EUHGRETORT is operating. **(R 336.1224, R 336.1225, R 336.1910)**

4. The permittee shall keep, in manner acceptable to the AQD District Supervisor, daily, monthly, and 12-month rolling time period records of the following: **(R 336.1224, R 336.1225)**
 - a) The hours of operation of EUHGRETORT.
 - b) The amount of material processed in EUHGRETORT.
 - c) The amount of mercury produced in EUHGRETORT.
5. The permittee shall keep, in manner acceptable to the AQD District Supervisor, records of control device or other malfunctions and corrective actions taken to correct the malfunctions, as specified in the MAP. **(R 336.1224, R 336.1225, R 336.1910)**
6. The permittee shall monitor and record, in a satisfactory manner, the difference between the air pressure inside EUHGRETORT and the air pressure in the press room on a continuous basis when EUHGRETORT is operating. **(R 336.1224, R 336.1225, R 336.1910),,**
7. The permittee shall keep, in manner acceptable to the AQD District Supervisor, records of the mercury concentrations in the exhaust gas streams from the sulfur impregnated activated carbon beds, determined in accordance with SC V.1, as well as records of activated carbon bed replacements. **(R 336.1224, R 336.1225)**
8. The permittee shall keep, in manner acceptable to the AQD District Supervisor, records of the calibration of the mercury vapor analyzer. **(R 336.1224, R 336.1225)**

VII. REPORTING

N/A

VIII. STACK/VENT RESTRICTIONS

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

Stack & Vent ID	Maximum Exhaust Diameter/Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV-03	2.4	105	R 336.1225 40 CFR 52.21 (c) and (d)

IX. OTHER REQUIREMENTS

N/A

Footnotes:

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

The following conditions apply to: EUREFINEFURNACE

DESCRIPTION: Filter cake processed in the mercury retort system will be processed in a batch refining furnace to produce doré. The furnace is propane fired.

Flexible Group ID: N/A

POLLUTION CONTROL EQUIPMENT: Wet scrubber system (SV-04).

I. EMISSION LIMITS

N/A

II. MATERIAL LIMITS

1. The permittee shall burn only propane in EUREFINEFURNACE. (R 336.1205, R 336.1224, R 336.1225, 40 CFR 52.21(c) & (d))

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall not operate EUREFINEFURNACE for more than 1200 hours per 12-month rolling time period as determined at the end of each calendar month. (R 336.1205, R 336.1224, R 336.1225, 40 CFR 52.21(c) & (d))
2. The permittee shall not operate EUREFINEFURNACE unless the wet scrubber pressure drop and liquid flow rate are maintained in the ranges that will achieve a minimum control efficiency of 95%, as specified in the MAP. (R 336.1205, R 336.1224, R 336.1225, R 336.1910, 40 CFR 52.21(c) & (d))

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall not operate EUREFINEFURNACE unless the wet scrubber is installed, maintained, and operated in a satisfactory manner. Satisfactory operation includes maintaining the pressure drop and liquid flow rate in the ranges specified in the MAP. (R 336.1205, R 336.1224, R 336.1225, R 336.1910, 40 CFR 52.21(c) & (d))
2. The permittee shall equip and maintain the wet scrubber with a pressure drop monitoring device. (R 336.1205, R 336.1224, R 336.1225, R 336.1910, 40 CFR 52.21(c) & (d))
3. The permittee shall equip and maintain the wet scrubber with a liquid flow rate monitoring device. (R 336.1205, R 336.1224, R 336.1225, 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))

N/A

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 by the last day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition. **(R 336.1205, R 336.1224, R 336.1225, 40 CFR 52.21(c) & (d))**
2. The permittee shall monitor and record, in a satisfactory manner, the water scrubber pressure drop on a continuous basis when EUREFINEFURNACE is operating. **(R 336.1205, R 336.1224, R 336.1225, R 336.1910, 40 CFR 52.21(c) & (d))**
3. The permittee shall monitor and record, in a satisfactory manner, the water scrubber liquid flow rate on a continuous basis when EUREFINEFURNACE is operating. **(R 336.1205, R 336.1224, R 336.1225, R 336.1910, 40 CFR 52.21(c) & (d))**
4. The permittee shall keep, in manner acceptable to the AQD District Supervisor, daily, monthly, and 12-month rolling time period records of the following: **(R 336.1205, R 336.1224, R 336.1225, 40 CFR 52.21(c) & (d))**
 - a) The hours of operation of EUREFINEFURNACE.
 - b) The amount of material processed in EUREFINEFURNACE.
5. The permittee shall keep, in manner acceptable to the AQD District Supervisor, records of control device or other malfunctions and corrective actions taken to correct the malfunctions, as specified in the MAP. **(R 336.1205, R 336.1224, R 336.1225, R 336.1910, 40 CFR 52.21(c) & (d))**

VII. REPORTING

N/A

VIII. STACK/VENT RESTRICTIONS

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

Stack & Vent ID	Maximum Exhaust Diameter/Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV-04	16.1	105	R 336.1225 40 CFR 52.21 (c) and (d)

IX. OTHER REQUIREMENTS

N/A

Footnotes:

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

FLEXIBLE GROUP SUMMARY TABLE

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

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FGFUGITIVES	Fugitive emissions sources.	EUOPENPITMINE, EUOBBTA, EUCPFUGITIVES, EUFLOTTWRMF, EUOXIDETWRMF, EUROAD
FG1STCRUSHER	Primary ore crushing operations located in the crusher building. Emissions are controlled by baghouse DC-01 (SV-01).	EUFEEDHOPPER, EUVIBGRIZFEEDER, EUROCKBREAKER, EUJAWCRUSHER
FG2AND3CRUSH	Secondary and tertiary ore crushing operations located in the crusher building. Emissions are controlled by baghouse DC-02 (SV-02).	EU3DECKSCREEN, EU2NDCRUSHER, EU3RDCRUSHER, EUCPTRANSFERPTS
FGORETRANSFER	Transfer of crushed ore from the crusher building to the ore stockpiles and from the ore stockpiles to the flotation plant and the oxide plant.	EUTRANSFERTOWER, EUFLOTSTOCKPILE, EUOXIDESTOCKPILE, EUFLOTREFEED, EUOXIDOREFEED, EUFLOTBALLMILL, EUOXIDEBALLMILL
FGENGINES	Emergency diesel fuel fired generator engines (SV-06a and SV-06b).	EUGENERATOR1, EUGENERATOR2
FGCONC	Copper and zinc concentrate transfer operations.	EUCUCONC, EUZNCNC
FGFACILITY	All process equipment source-wide including equipment covered by other permits, grand-fathered equipment and exempt equipment.	

The following conditions apply to: FGFUGITIVES

DESCRIPTION: Fugitive emissions sources.

Emission Units: EUOPENPITMINE, EUOBBTA, EUCPFUGITIVES, EUFLOTTWRMF, EUOXIDETWRMF, EUROAD

POLLUTION CONTROL EQUIPMENT: N/A

I. EMISSION LIMITS

1. Visible emissions from all wheel loaders and all truck traffic shall not exceed 10 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 336.1205, R 336.1301, 40 CFR 52.21(c) & (d), 40 CFR 60 Subpart LL)**
2. Visible emissions EUFLOTTWRMF shall not exceed 10 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 336.1205, R 336.1301, R 40 CFR 52.21(c) & (d), 40 CFR 60 Subpart LL)**
3. Visible emissions EUOXIDETWRMF shall not exceed 10 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 336.1205, R 336.1301, R 40 CFR 52.21(c) & (d), 40 CFR 60 Subpart LL)**
4. Visible emissions EUOPENPITMINE shall not exceed 10 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 336.1205, R 336.1301, R 40 CFR 52.21(c) & (d), 40 CFR 60 Subpart LL)**

II. MATERIAL LIMITS

N/A

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall not exceed a maximum equivalent of 2,900 48-ton concentrate trucks entering and leaving the facility for each 12-month rolling time period, as determined at the end of each calendar month. **(R 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1371, R 336.1372, 40 CFR 52.21(c) & (d))**

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall equip and maintain all drills with particulate control filters. **(R 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1371, R 336.1372, R 336.1910, 40 CFR 52.21(c) & (d))**
2. The permittee shall install speed limit signs on the facility roadways reflecting the speed limits specified in the Fugitive Dust Control Plan. **(R 336.1301, R 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))**

N/A

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 by the last day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition. **(R 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1371, R 336.1372, 40 CFR 52.21(c) & (d))**
2. The permittee shall keep a daily record of the type, size (weight) and number of transport trucks entering and leaving the facility. Each month, in a manner acceptable to the AQD District Supervisor, the permittee shall calculate an equivalent number of 48-ton concentrate transport trucks entering and leaving the facility based on that month's daily records. The permittee shall keep all records and calculations on file at the facility and make them available to the Department upon request. **(R 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1371, R 336.1372, 40 CFR 52.21(c) & (d))**

VII. REPORTING

N/A

VIII. STACK/VENT RESTRICTIONS

N/A

IX. OTHER REQUIREMENTS

N/A

Footnotes:

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

The following conditions apply to: FG1STCRUSHER

DESCRIPTION: Primary ore crushing operations located in the crusher building.

Emission Units: EUFEEDHOPPER, EUVIBGRIZFEEDER, EUROCKBREAKER, EUJAWCR

POLLUTION CONTROL EQUIPMENT: Baghouse DC-01 (SV-01)

I. EMISSION LIMITS

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. PM	0.003 lbs/1000 lbs exhaust gas	Test Protocol*	FG1STCRUSHER	SC V.2	R 336.1205, R 336.1224, R 336.1225, R 336.1331, 40 CFR 52.21(c) & (d), 40 CFR Part 60 Subpart LL
* Test protocol shall specify averaging time					

2. Visible emissions from FG1STCRUSHER shall not exceed a six-minute average of 7 percent opacity. **(R 336.1301, R 336.1331, 40 CFR 60 Subpart LL)**

II. MATERIAL LIMITS

N/A

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall not operate any emission unit in FG1STCRUSHER unless the baghouse dust collector (DC-01) pressure drop is maintained in the range specified in the MAP. **(R 336.1205, R 336.1224, R 336.1225, R 336.1331, R 336.1910, 40 CFR 52.21(c) & (d))**

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall not operate any emission unit in FG1STCRUSHER unless the baghouse dust collector (DC-01) is installed, maintained, and operated in a satisfactory manner. Satisfactory operation includes maintaining the pressure drop in the ranges specified in the MAP. **(R 336.1205, R 336.1224, R 336.1225, R 336.1331, R 336.1910, 40 CFR 52.21(c) & (d))**
2. The permittee shall equip and maintain the baghouse dust collector (DC-01) with a pressure drop monitoring device. **(R 336.1205, R 336.1224, R 336.1225, R 336.1331, 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 initial startup of FG1STCRUSHER, the permittee shall evaluate visible emissions from FG1STCRUSHER, as required by federal Standards of Performance for New Stationary Sources, at owner's expense, in accordance 40 CFR Part 60 Subparts A and LL. Visible emission observation procedures must have prior approval by the AQD Technical Programs Unit and District Office. Verification of visible emissions includes the submittal of a complete report of opacity observations to the AQD Technical Programs Unit and District Office within 60 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 initial startup of FG1STCRUSHER, the permittee shall verify PM emission rates from FG1STCRUSHER, 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. The permittee shall notify the AQD District Supervisor in writing within 15 days of the date of commencement of trial operation in accordance with 40 CFR 60.7(a)(3). 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 30 days prior to testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and District Office. 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 Technical Programs Unit and District Office within 60 days following the last date of the test. **(R 336.1224, R 336.1225, R 336.1331, 40 CFR 52.21 (c) & (d), 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 by the last day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition. **(R 336.1205, R 336.1224, R 336.1225, R 336.1331, 40 CFR 52.21(c) & (d))**
2. The permittee shall monitor and record, in a satisfactory manner, the baghouse dust collector (DC-01) pressure drop on a continuous basis when any emission unit in FG1STCRUSHER is operating. **(R 336.1205, R 336.1224, R 336.1225, R 336.1331, R 336.1910, 40 CFR 52.21(c) & (d))**
3. The permittee shall keep, in manner acceptable to the AQD District Supervisor, records of control device or other malfunctions and corrective actions taken to correct the malfunctions, as specified in the MAP. **(R 336.1205, R 336.1224, R 336.1225, R 336.1331, R 336.1910, 40 CFR 52.21(c) & (d))**
4. The permittee shall monitor stack SV-01 to verify compliance with the opacity limit by taking 6 minute visible emission readings a minimum of once per calendar week when the equipment is operating. Either a certified or non-certified reader shall take each visible emission reading during routine operating conditions. If a certified reader observes visible emissions that exceed the opacity limit or if a non-certified reader observes visible emissions, the permittee shall take corrective action as described in the MAP and document the corrective action taken. **(R 336.1301)**
5. The permittee shall keep, in a satisfactory manner, records of all visible emission readings for stack SV-01. At a minimum, records shall include the date, time, name of observer/reader, whether the reader is certified, status of visible emissions, and any corrective action taken. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1301)**

VII. REPORTING

N/A

VIII. STACK/VENT RESTRICTIONS

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

Stack & Vent ID	Maximum Exhaust Diameter/Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV-01	35.8	55.8	R 336.1225 40 CFR 52.21 (c) and (d)

IX. OTHER REQUIREMENTS

N/A

Footnotes:

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

The following conditions apply to: FG2AND3CRUSH

DESCRIPTION: Secondary and tertiary ore crushing operations located in the crusher building.

Emission Units: EU3DECKSCREEN, EU2NDCRUSHER, EU3RDCRUSHER, EUSPTRANSFERPTS

POLLUTION CONTROL EQUIPMENT: Baghouse DC-02 (SV-02)

I. EMISSION LIMITS

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. PM	0.001 lbs/1000 lbs exhaust gas	Test Protocol*	FG2AND3CRUSH	SC V.2	R 336.1205, R 336.1224, R 336.1225, R 336.1331, 40 CFR 52.21(c) & (d), 40 CFR Part 60 Subpart LL
* Test protocol shall specify averaging time					

2. Visible emissions from FG2AND3CRUSH shall not exceed a six-minute average of 7 percent opacity. **(R 336.1301, R 336.1331, 40 CFR 60 Subpart LL)**

II. MATERIAL LIMITS

N/A

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall not operate any emission unit in FG2AND3CRUSH unless the baghouse dust collector (DC-02) pressure drop is maintained in the range specified in the MAP. **(R 336.1205, R 336.1224, R 336.1225, R 336.1331, R 336.1910, 40 CFR 52.21(c) & (d))**

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall not operate any emission unit in FG2AND3CRUSH unless the baghouse dust collector (DC-02) is installed, maintained, and operated in a satisfactory manner. Satisfactory operation includes maintaining the pressure drop in the ranges specified in the MAP. **(R 336.1205, R 336.1224, R 336.1225, R 336.1331, R 336.1910, 40 CFR 52.21(c) & (d))**
2. The permittee shall equip and maintain the baghouse dust collector (DC-02) with a pressure drop monitoring device. **(R 336.1205, R 336.1224, R 336.1225, R 336.1331, 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 initial startup of FG2AND3CRUSH, the permittee shall evaluate visible emissions from FG2AND3CRUSH, as required by federal Standards of Performance for New Stationary Sources, at owner's expense, in accordance 40 CFR Part 60 Subparts A and LL. Visible emission observation procedures must have prior approval by the AQD Technical Programs Unit and District Office. Verification of visible emissions includes the submittal of a complete report of opacity observations to the AQD Technical Programs Unit and District Office within 60 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 initial startup of FG2AND3CRUSH, the permittee shall verify PM emission rates from FG2AND3CRUSH, 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. The permittee shall notify the AQD District Supervisor in writing within 15 days of the date of commencement of trial operation in accordance with 40 CFR 60.7(a)(3). 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 30 days prior to testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and District Office. 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 Technical Programs Unit and District Office within 60 days following the last date of the test. **(R 336.1224, R 336.1225, R 336.1331, 40 CFR 52.21 (c) & (d), 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 by the last day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition. **(R 336.1205, R 336.1224, R 336.1225, R 336.1331, 40 CFR 52.21(c) & (d))**
2. The permittee shall monitor and record, in a satisfactory manner, the baghouse dust collector (DC-02) pressure drop on a continuous basis when any emission unit in FG2AND3CRUSH is operating. **(R 336.1205, R 336.1224, R 336.1225, R 336.1331, R 336.1910, 40 CFR 52.21(c) & (d))**
3. The permittee shall keep, in manner acceptable to the AQD District Supervisor, records of control device or other malfunctions and corrective actions taken to correct the malfunctions, as specified in the MAP. **(R 336.1205, R 336.1224, R 336.1225, R 336.1331, R 336.1910, 40 CFR 52.21(c) & (d))**
4. The permittee shall monitor stack SV-02 to verify compliance with the opacity limit by taking 6 minute visible emission readings a minimum of once per calendar week when the equipment is operating. Either a certified or non-certified reader shall take each visible emission reading during routine operating conditions. If a certified reader observes visible emissions that exceed the opacity limit or if a non-certified reader observes visible emissions, the permittee shall take corrective action as described in the MAP and document the corrective action taken. **(R 336.1301)**
5. The permittee shall keep, in a satisfactory manner, records of all visible emission readings for stack SV-02. At a minimum, records shall include the date, time, name of observer/reader, whether the reader is certified, status of visible emissions, and any corrective action taken. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1301)**

VII. REPORTING

N/A

VIII. STACK/VENT RESTRICTIONS

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

Stack & Vent ID	Maximum Exhaust Diameter/Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV-02	29.9	55.8	R 336.1225 40 CFR 52.21 (c) and (d)

IX. OTHER REQUIREMENTS

N/A

Footnotes:

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

The following conditions apply to: FGORETRANSFER

DESCRIPTION: Transfer of crushed ore from the crusher building to the ore stockpiles and from the ore stockpiles to the flotation plant and the oxide plant.

Emission Units: EUTRANSFERTOWER, EUFLOTSTOCKPILE, EUOXIDESTOCKPILE, EUFLOTREFEED, EUOXIDOREFEED, EUFLOTBALLMILL, EUOXIDEBALLMILL

POLLUTION CONTROL EQUIPMENT: Enclosed conveyors.

I. EMISSION LIMITS

1. Visible emissions from FGORETRANSFER shall not exceed a six-minute average of 7 percent opacity. **(R 336.1301, 40 CFR 60 Subpart LL)**

II. MATERIAL LIMITS

N/A

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall not operate any conveyor in FGORETRANSFER unless the conveyor is enclosed on all four sides. **(R 336.1205, R 336.1224, R 336.1225, R 336.1910, 40 CFR 52.21(c) & (d))**

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall not operate FGORETRANSFER unless each conveyor discharging material into an ore stockpile is equipped with an enclosed chute which discharges below the top of the stockpile cover. **(R 336.1224, R 336.1225, R 336.1301, R 336.1910, 40 CFR 52.21(c) and (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 initial startup of FGORETRANSFER, the permittee shall evaluate visible emissions from FGORETRANSFER, as required by federal Standards of Performance for New Stationary Sources, at owner's expense, in accordance 40 CFR Part 60 Subparts A and LL. Visible emission observation procedures must have prior approval by the AQD Technical Programs Unit and District Office. Verification of visible emissions includes the submittal of a complete report of opacity observations to the AQD Technical Programs Unit and District Office within 60 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))**

N/A

VII. REPORTING

N/A

VIII. STACK/VENT RESTRICTIONS

N/A

IX. OTHER REQUIREMENTS

N/A

Footnotes:

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

The following conditions apply to: FGENGINES

DESCRIPTION: Emergency diesel fuel fired generator engines (SV-06a and SV-06b).

Emission Units: EUGENERATOR1, EUGENERATOR2

POLLUTION CONTROL EQUIPMENT: N/A

I. EMISSION LIMITS

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. NMHC + NOx	6.4 g/KW-hr	Test Protocol*	Each engine in FGENGINES	SC VI.2	40 CFR 60.4205(b), 60.4202(a)(2), Table 1 of 40 CFR 89.112
2. CO	3.5 g/KW-hr	Test Protocol*	Each engine in FGENGINES	SC VI.2	40 CFR 60.4205(b), 60.4202(a)(2), Table 1 of 40 CFR 89.112
3. PM	0.20 g/KW-hr	Test Protocol*	Each engine in FGENGINES	SC VI.2	40 CFR 60.4205(b), 60.4202(a)(2), Table 1 of 40 CFR 89.112

*Test Protocol shall determine averaging time.

II. MATERIAL LIMITS

- The permittee shall burn only diesel fuel in FGENGINES with the maximum sulfur content of 15 ppm (0.0015 percent) by weight and a minimum Cetane index of 40 or a maximum aromatic content of 35 volume percent. **(R 336.1205, R 336.1402(1), 40 CFR 60.4207, 40 CFR 80.510(b))**

III. PROCESS/OPERATIONAL RESTRICTIONS

- There is no time limit on the use of emergency stationary RICE in emergency situations. **(40 CFR 60.4211(f)(1))**
- The permittee may operate each engine in FGENGINES for no more than 100 hours per calendar year for the purpose of necessary maintenance checks and readiness testing, provided that the tests are recommended by Federal, State, or local government, the manufacturer, the vendor, the regional transmission organization or equivalent balancing authority and transmission operator, or the insurance company associated with the engine. The permittee may petition the Department for approval of additional hours to be used for maintenance checks and readiness testing. A petition is not required if the owner or operator maintains records indicating that Federal, State, or local standards require maintenance and testing of emergency internal combustion engines beyond 100 hours per calendar year. **(40 CFR 60.4211(f)(2))**

3. Each engine in FGENGINES may operate up to 50 hours per calendar year in non-emergency situations, but those 50 hours are counted towards the 100 hours per calendar year provided for maintenance and testing as provided in §60.4211(f)(2). Except as provided in §60.4211(f)(3)(i), the 50 hours per calendar year for non-emergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for the permittee to supply non-emergency power as part of a financial arrangement with another entity. **(40 CFR 60.4211(f)(3))**
4. The 50 hours per year for non-emergency situations can be used to supply power as part of a financial arrangement with another entity if all of the following conditions are met:
 - a) The engine is dispatched by the local balancing authority or local transmission and distribution system operator.
 - b) The dispatch is intended to mitigate local transmission and/or distribution limitations so as to avert potential voltage collapse or line overloads that could lead to the interruption of power supply in a local area or region.
 - c) The dispatch follows reliability, emergency operation or similar protocols that follow specific NERC, regional, state, public utility commission or local standards or guidelines.
 - d) The power is provided only to the facility itself or to support the local transmission and distribution system.
 - e) The owner or operator identifies and records the entity that dispatches the engine and the specific NERC, regional, state, public utility commission or local standards or guidelines that are being followed for dispatching.**(40 CFR 60.4211(f)(3)(i))**
5. If the permittee purchased a certified engine, according to procedures specified in 40 CFR Part 60 Subpart IIII, for the same model year and maximum engine power, the permittee shall meet the following requirements for each engine in FGENGINES:
 - a) Operate and maintain the certified engine and control device according to the manufacturer's emission-related written instructions;
 - b) Change only those emission-related settings that are permitted by the manufacturer; and
 - c) Meet the requirements as specified in 40 CFR 89, 94, and/or 1068, as they apply to you.

If you do not operate and maintain the certified engine and control device according to the manufacturer's emission-related written instructions, the engine may be considered a non-certified engine.

(40 CFR 60.4211(a) and (c))

6. If the permittee purchased a non-certified engine or a certified engine operating in a non-certified manner, the permittee shall keep a maintenance plan for each engine in FGENGINES and shall, to the extent practicable, maintain and operate each engine in a manner consistent with good air pollution control practice for minimizing emissions. **(40 CFR 60.4211(g)(3))**

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall equip and maintain engine in FGENGINES with non-resettable hours meters to track the operating hours. **(R 336.1205, R 336.1225, 40 CFR 60.4209)**
2. The nameplate capacity of engine in FGENGINES shall not exceed 1000 kW, as certified by the equipment manufacturer. **(R 336.1205, R 336.1225, 40 CFR 60.4202)**

V. TESTING/SAMPLING

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

1. The permittee shall conduct an initial performance test for engine in FGENGINES within one year after startup of the engine to demonstrate compliance with the emission limits in 40 CFR 60.4205 unless the engines have been certified by the manufacturer and the permittee maintains the engine as required by 40 CFR Part 60 Subpart IIII. If a performance test is required, the performance tests shall be conducted according to 40 CFR 60.4212. No less than 30 days prior to testing, a complete test plan shall be submitted to the AQD. The final plan must be approved by the AQD prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD within 60 days following the last date of the test. Subsequent performance testing shall be conducted every 8,760 hours of engine operation or 3 years, whichever comes first. **(40 CFR 60.4211, 40 CFR 60.4212, 40 CFR Part 60 Subpart IIII)**

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 by the last day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition. **(R 336.1205, R 336.2803, R 336.2804, 40 CFR 52.21 (c) & (d))**
2. For each engine in FGENGINES, the permittee shall keep, in a satisfactory manner, records of testing required in SC V.1 or manufacturer certification documentation indicating that the engine meets the applicable requirements contained in the federal Standards of Performance for New Stationary Sources 40 CFR Part 60 Subpart IIII. If the engine becomes uncertified then the permittee must also keep records of a maintenance plan and maintenance activities. The permittee shall keep all records on file and make them available to the Department upon request. **(40 CFR 60.4211(a), (g))**
3. The permittee shall monitor and record the total hours of operation and the hours of operation during non-emergencies for each engine in FGENGINES, on a monthly and 12-month rolling time period basis, in a manner acceptable to the District Supervisor, Air Quality Division. The permittee shall document how many hours are spent for emergency operation of each engine in FGENGINES, including what classified the operation as emergency and how many hours are spent for non-emergency operation. **(R 336.1205, 40 CFR 60.4211, 40 CFR 60.4214)**
4. The permittee shall keep, in a satisfactory manner, fuel supplier certification records or fuel sample test data, for each delivery of diesel fuel oil used in FGENGINES, demonstrating that the fuel meets the requirement of 40 CFR 80.510(b). The certification or test data shall include the name of the oil supplier or laboratory, the sulfur content, and cetane index or aromatic content of the fuel oil. **(R 336.1205, R 336.1402(1), 40 CFR 80.510(b))**
5. If an engine in FGENGINES does not meet the standards applicable to non-emergency engines for the applicable model year for 2011 and newer then the permittee shall monitor and record the operation of that engine in emergency and non-emergency service that are recorded through the non-resettable hours meter, in a manner acceptable to the District Supervisor, Air Quality Division. The permittee shall document the time of operation of the engine and the reason the engine was in operation during that time. **(40 CFR 60.4214(b))**

VII. REPORTING

1. Within 30 days after completion of the installation, construction, reconstruction, relocation, or modification authorized by this Permit to Install, the permittee or the authorized agent pursuant to Rule 204, shall notify the AQD District Supervisor, in writing, of the completion of the activity. Completion of the installation, construction, reconstruction, relocation, or modification is considered to occur not later than commencement of trial operation of either engine in FGENGINES. **(R 336.1201(7)(a))**
2. The permittee shall submit a notification specifying whether each engine in FGENGINES will be operated in a certified or a non-certified manner to the AQD District Supervisor, in writing, within 30 days following the initial startup of the engine and within 30 days of switching the manner of operation. **(40 CFR Part 60 Subpart IIII)**
3. The permittee shall submit all applicable notifications specified in 40 CFR 63.7(b) and (c), 63.8 (e), (f)(4), and (f)(6), and 63.9(b) through (e), (g), and (h) by the dates specified. **(40 CFR 63.6645(a)(3) and (f))**

VIII. STACK/VENT RESTRICTIONS

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

Stack & Vent ID	Maximum Exhaust Diameter/Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV-06a	18.1	14.8	R 336.1225, 40 CFR 52.21 (c) & (d)
2. SV-06b	18.1	14.8	R 336.1225, 40 CFR 52.21 (c) & (d)

IX. OTHER REQUIREMENTS

1. The permittee shall comply with the provisions of the federal Standards of Performance for New Stationary Sources as specified in 40 CFR Part 60 Subpart A and Subpart IIII, as they apply to each engine in FGENGINES. **(40 CFR Part 60 Subparts A & IIII, 40 CFR 63.6590)**
2. The permittee shall comply with all applicable provisions of the National Emission Standards for Hazardous Air Pollutants, as specified in 40 CFR, Part 63, Subpart A and Subpart ZZZZ, for Stationary Reciprocating Internal Combustion Engines, to each engine in FGENGINES upon startup. **(40 CFR 63.6595(a)(2), 40 CFR, Part 63, Subparts A and ZZZZ)**

Footnotes:

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

The following conditions apply to: FGCONC

DESCRIPTION: Copper and zinc concentrate transfer operations.

Emission Units: EUCUCONC, EUZNCNC

POLLUTION CONTROL EQUIPMENT: N/A

I. EMISSION LIMITS

1. Visible emissions from FGCONC shall not exceed a six-minute average of 7 percent opacity. **(R 336.1301, 40 CFR 60 Subpart LL)**

II. MATERIAL LIMITS

1. The permittee shall maintain the moisture content of the concentrate at approximately 10% or higher. **(R 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1910, 40 CFR 52.21(c) and (d))**

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall not transfer concentrate to storage bins or load concentrate into trucks unless the operations are conducted inside an enclosed building. **(R 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1910, 40 CFR 52.21(c) and (d))**
2. The permittee shall wash each truck, after the truck is filled with concentrate, before the truck leaves the building. In addition, the permittee shall completely cover the concentrate in the truck before the truck leaves the building. **(R 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1910, 40 CFR 52.21(c) and (d))**

IV. DESIGN/EQUIPMENT PARAMETERS

N/A

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 initial startup of FGCONC, the permittee shall evaluate visible emissions from FGCONC, as required by federal Standards of Performance for New Stationary Sources, at owner's expense, in accordance 40 CFR Part 60 Subparts A and LL. Visible emission observation procedures must have prior approval by the AQD Technical Programs Unit and District Office. Verification of visible emissions includes the submittal of a complete report of opacity observations to the AQD Technical Programs Unit and District Office within 60 days following the last date of the evaluation. **(R 336.1301, 40 CFR Part 60 Subparts A & LL)**
2. The permittee shall determine, at least once each day that concentrate is loaded into trucks, the moisture content of the concentrate before the concentrate is loaded into trucks. The moisture content shall be determined using procedures acceptable to the AQD District Supervisor, including sampling the exposed surface of the concentrate. **(R 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1910, 40 CFR 52.21(c) and (d))**

VI. MONITORING/RECORDKEEPING

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

1. The permittee shall keep, in a satisfactory manner, a daily record of the moisture content of the concentrate loaded into trucks in FGCONC. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1205, R 336.1224, R 336.1225, R 336.1301, 40 CFR 52.21(c) and (d))**

VII. REPORTING

N/A

VIII. STACK/VENT RESTRICTIONS

N/A

IX. OTHER REQUIREMENTS

N/A

Footnotes:

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

The following conditions apply Source-Wide to: FGFACILITY

POLLUTION CONTROL EQUIPMENT: Dust suppression systems, such as water sprays, fabric filter dust collectors, enclosed conveyors, enclosed buildings, chilled water condenser, sulfur impregnated activated carbon, and wet scrubber.

I. EMISSION LIMITS

N/A

II. MATERIAL LIMITS

N/A

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall not operate the facility unless a malfunction abatement plan (MAP) as described in Rule 911(2), for all air pollution control equipment, has been submitted within 365 days of permit issuance, and is implemented and maintained. 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, including the facility baghouse dust collectors, 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, including the baghouse dust collector pressure drop ranges that ensure the dust collectors are operating in a satisfactory manner.
 - 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 AQD 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 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1331, R 336.1910, R 336.1911, 40 CFR 52.21(c) and (d))**

2. The permittee shall not operate the facility unless the program for continuous fugitive emissions control for all plant roadways, the plant yard, all material storage piles, all material handling operations, the open pit mine, and the tailings and waste rock management facilities specified in Appendix A, or an alternate plan approved by the AQD District Supervisor, has been implemented and is maintained. If at any time the fugitive dust control plan fails to address or inadequately addresses fugitive dust emissions, the permittee shall amend the fugitive dust control plan within 45 days. The permittee shall also amend the fugitive dust control plan within 45 days, if new equipment is installed or upon request from the AQD District Supervisor. The permittee shall submit any amendments to the fugitive dust control plan to the AQD District Supervisor for review and approval. If the AQD does not notify the permittee within 90 days of submittal, the amended fugitive dust control plan shall be considered approved. **(R 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1371, R 336.1372, 40 CFR 52.21(c) & (d))**

3. The permittee shall not operate the facility unless all plant roadways, parking lots, and truck staging areas routinely travelled by concentrate haul trucks and delivery trucks are paved. **(R 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1371, R 336.1372, 40 CFR 52.21(c) & (d))**

IV. DESIGN/EQUIPMENT PARAMETERS

N/A

V. TESTING/SAMPLING

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

N/A

VI. MONITORING/RECORDKEEPING

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

N/A

VII. REPORTING

1. Within 30 days after completion of the installation, construction, reconstruction, relocation, or modification authorized by this Permit to Install, the permittee or the authorized agent pursuant to Rule 204, shall notify the AQD District Supervisor, in writing, of the completion of the activity. Completion of the installation, construction, reconstruction, relocation, or modification is considered to occur not later than commencement of trial operation of underground blasting. **(R 336.1201(7)(a))**
2. 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 RESTRICTIONS

N/A

IX. OTHER REQUIREMENTS

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 the facility. **(40 CFR Part 60 Subparts A & LL)**
2. The permittee shall comply with the provisions of the federal Standards of Performance for New Stationary Sources as specified in 40 CFR Part 60 Subpart A and Subpart IIII, as they apply to the facility. **(40 CFR Part 60 Subparts A & IIII)**
3. The permittee shall comply with the provisions of the National Emission Standards for Hazardous Air Pollutants, as specified in 40 CFR, Part 63, Subpart A and Subpart ZZZZ, as they apply to the facility, upon startup. **(40 CFR Part 63 Subparts A & ZZZZ)**

Footnotes:

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

APPENDIX A: Nuisance Management Plan for Fugitive Dust

Report



Fugitive Dust Control Plan

Back Forty Project

Project I.D.: 14A021

**Aquila Resources Inc.
Stephenson, Michigan**

**October 2015
Updated August 2016**



Fugitive Dust Control Plan Back Forty Project

Project ID: 14A021

Prepared for
Aquila Resources Inc.

Stephenson, Michigan

Prepared by
Foth Infrastructure & Environment, LLC

October 2015
Updated August 2016

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Fugitive Dust Control Plan

Back Forty Project

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Appendices

- Appendix A On-Site Roadway Watering Documentation Form

List of Abbreviations, Acronyms, Symbols

%	percent
Aquila	Aquila Resources Inc.
Foth	Foth Infrastructure & Environment, LLC
mph	miles per hour
NAICS	North American Industry Classification System
OBTTA	Ore Blending and Truck Turnaround Area
Project	Back Forty Project
PTI	Permit to Install
TWRMF	Tailings and Waste Rock Management Facility

1 Introduction

Pursuant to R336.1371 of Part 3, Emission Limitations and Prohibitions – Particulate Matter, a Fugitive Dust Control Plan may be required for any fugitive dust source involved in processing, storing, transporting, and conveying bulk materials such as metal ores. The proposed Aquila Resources Inc. (Aquila) Back Forty Project (Project) will mine and process an ore body, including copper, zinc, gold, and silver. Given the complexity of the ore body, the facility will operate under several North American Industry Classification System (NAICS) codes, and therefore, may be subject to these requirements. The major requirements for dust control under this regulation are the following:

- ◆ A written Fugitive Dust Control Program.
- ◆ Maintenance of records consistent with activities to be implemented under the program.
- ◆ Identification of control technologies and methods that will be implemented as part of the program. Control methods must be selected for activities listed in R 336.1372.

This Fugitive Dust Control Plan has been prepared by Foth Infrastructure & Environment, LLC (Foth) on behalf of Aquila as part of the Air Permit to Install Application (PTI) for the proposed mining and ore processing operations at the Project site located in Menominee County, Michigan. This plan addresses information on best management practices and controls to minimize fugitive dust from the sources at this facility.

Potential sources of fugitive dust include:

- ◆ Mining activities, including drilling, blasting and ore transfer;
- ◆ Unpaved haul roads;
- ◆ Outdoor ore blending and handling;
- ◆ Outdoor stock piles, transfer tower, and conveyor transfer points;
- ◆ Tailings and Waste Rock Management Facility (TWRMF) activities; and
- ◆ Overburden stockpiles.

Figure 1-1 to this plan shows the general location of the Project site. Figure 1-2 shows the general site layout, including locations of potential fugitive dust sources.

2 Mining Activities

All mining activities will be performed in an open pit mine to be developed on-site. Activities such as drilling, blasting and ore transfer to haul trucks will take place within the open pit area. Emissions from these operations are characterized and quantified in the PTI application. Below is a description of fugitive dust control measures that will be followed to reduce the potential for generation of dust during these activities.

2.1 *Drilling Operations*

Mining operations will occur on benches developed within the open pit area. Drilling will occur on the bench areas. The purpose of drilling is to develop a battery of holes across a set area for insertion of explosives to loosen and break up ore and waste rock materials. Holes will be developed across a bench area according to an engineered design and pattern for maximum efficiency. At the Project, drilling will be performed using a Caterpillar MD6290 Rotary Drill or similar piece of equipment. This unit will be equipped with a dust collection system that includes a pre-separation system and filter control. A vacuum hose attaches directly to the drill as it cuts the hole. Dust that is collected in the system will be included with ore that is discharged to the crushing mill. In addition to the dust collection system, drilling will be performed using a set pattern to achieve maximum efficiency. In this way, the potential for dust generation from this process will be minimized.

2.2 *Blasting Operations*

The purpose of blasting is to loosen and break up ore and waste rock for transport to appropriate surface locations. Once the drill pattern is prepared, the correct amount of explosives will be inserted into each of the holes. While dust will be generated during the blasting process, it only lasts for a short period of time (seconds), and, therefore, the overall impact from this process is minimized. The generation of dust and excessive fly rock is also minimized by designing and planning the blast using good mining engineering practices. As part of explosives insertion, proper stemming techniques are employed to verify energy from the explosives is directed towards breaking up the rock. Proper stemming techniques assist in reducing the possibility of material being blown back up through the hole.

2.3 *Ore Transfer to Haul Trucks*

Once the target material is broken up in the pit, it will be loaded via backhoe or shovel into the haul truck. In an effort to minimize the potential for generation of dust during this activity, the backhoe operator will minimize the drop distance when ore is discharged from the end of the shovel to the truck. The drop distance will be no more than 6 to 10 feet from the edge of the shovel to the truck bed. Haul truck roadways within the pit area will also be included in the watering program that is described in Section 3.

The primary source of dust emissions from roadways will be from haul trucks that transfer ore from the open pit mine to the ore blending area and crushing building. The unpaved haul road for ore transfer will extend from the vicinity of the open pit through a haul truck route that extends east from the open pit and then south to the Ore Blending and Truck Turnaround Area (OBTTA) that is located adjacent to the crushing building. Once the haul truck arrives at the OBTTA, it will either off-load ore material to a temporary storage pile near the crushing building or off-load directly into the feed hopper. The temporary storage pile will be used for blending different types of ores as required by operations. Once the haul truck has transferred ore at the crushing building area, it will return to the mine in the same fashion. See a depiction of the ore haul truck route on Figure 1-2.

Besides ore transfer, mining activities will also generate waste rock. Waste rock will also be removed via haul truck and follow the same eastern haul road from the pit. However, instead of proceeding to the crushing building along the South Haul Road, waste rock will be transferred to one of two TWRMF areas for storage. One route will take waste rock to the Flotation TWRMF directly east of the open pit. A second route will take waste rock to the Oxide TWRMF immediately north of the Flotation TWRMF. Figure 1-2 shows the general haul routes to the two TWRMF facilities.

In addition to haul truck traffic, service trucks will arrive at the facility periodically to deliver supplies, including reagents. Service trucks will also pick up product, including copper or zinc concentrate and gold/silver dore'. Service trucks will arrive on the paved entrance road to the facility and proceed to designated buildings at the site. Buildings may be the flotation and/or oxide plants, the reagent building, water treatment plant, fuel station, and truck shop. Figure 1-2 shows the location of the bituminous (paved) road at the facility.

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 whenever visible emissions are observed. The goal is to prevent visible dust emissions from roadways.

3.1 *Dust Suppression Techniques*

During drier and warmer times of the year and when freezing conditions are not occurring, all haul roads will be watered periodically throughout the day to maintain them in a relatively wet condition. As needed, an on-site water truck will be used to distribute water evenly across roadway segments to maintain surfaces in a moist state during operational periods when truck traffic may occur. The watering program will be in effect along the haul truck routes shown on Figure 1-2. In addition to haul truck routes, the watering program will be extended to the paved roadway that runs from the mine entrance to the mill buildings.

During winter months and colder times of the year (October to April), roadways may be under snow cover. However, it is not uncommon for "freeze-dry" conditions to occur during this period of time. Freeze-drying occurs when there is no snow cover and a very thin layer becomes desiccated. It is not practical to use water to prevent freeze-drying. Rather than relying on snow cover, approved chemical dust suppressants will be applied to unpaved roadways on an as-needed basis. Water trucks will resume during warmer months.

In addition to watering and use of chemical dust suppressants, unpaved haul roads will be dressed with coarse aggregate materials to minimize the silt content and fugitive dust potential of the roadway surfaces. As aggregate materials are broken down, they will be replaced with new coarse aggregate materials.

Besides use of the above measures, the facility will also establish a speed limit for haul roads in the pit and roadways leading to the ore blending area and TWRMF. The speed limit will be no more than 15 miles per hour (mph). This low speed will also reduce the potential for dust generation from unpaved roadway surfaces. The same speed limit will be used on the paved roadway leading from

the mill to the main gate. Service road areas outside of the haul road area will be subject to a 20 mph speed limit. Service road areas will include roadways extending from the water treatment plant and administration building area to the fuel station and truck shop near the ore blending and truck turnaround area. These roadways are used sporadically by mine site and off-site service vehicles.

3.2 *Haul Road Segments*

Documentation of roadway dust suppression activities for haul roads will be done using a form similar to the On-Site Haul Road Watering Documentation Form in Appendix A. The form will be used by field supervision to assess the effectiveness of roadway dust suppression techniques and document corrective actions taken to minimize generation of fugitive dust. The form will be completed each day operations occur at the facility. For ease in identifying potential problem areas, roadways within the facility have been assigned roadway segment identification numbers. These identification numbers can be used when filling out the Watering Documentation Form each day. Identification numbers will be as follows:

Haul Road Segment Description	Identification Number
Open Pit Area	Segment 1
Open Pit to South Haul Road	Segment 2
South Haul Road to OBTTA	Segment 3
South Haul Road to Flotation TWRMF	Segment 4
South Haul Road to Oxide TWRMF	Segment 5
Mill Building to Main Gate	Segment 6

Records of the haul road dust suppression program will be maintained over the life of the mine operations. The form or a similar type form provided in Appendix A will be completed on a daily basis regarding the status of water used for dust suppression on identified haul road segments. Information on chemical dust suppressants that are used can also be added to the form.

4 Outdoor Ore Blending and Handling

During operations, it is estimated that approximately 85 percent (%) of the ore will be transferred directly to the feed hopper at the crushing building. The feed hopper will be ventilated and controlled using the ventilation system at the crushing plant. However, due to varying ore grades, it is expected that approximately 15% of the ore will need to be stored on the surface immediately outside the north end of the building in the OBTTA. Ore will be stored in one of three or four intermediate storage piles for blending and preparation before it is transferred to the feed hopper for processing. To control the potential for fugitive dust generation in this area, several measures will be employed. They will include the following:

- ◆ Use of concrete barriers around storage piles to contain the material and prevent migration into traffic areas. Concrete barriers will also minimize wind dispersion.
- ◆ Situating ore storage areas in defined areas of the Ore Blending area. This will enable easy cleanup of materials by use of loaders.
- ◆ Use of water sprays as needed to wet ore storage piles to reduce the potential for wind dispersion.
- ◆ Minimizing the drop distance when ore is discharged from the truck to the pile. The drop distance will be 6 to 10 feet from the edge of the truck to the surface of the pile.
- ◆ When blending ore grades, front end loaders will also minimize the drop distances to reduce the potential for dust generation. The drop distance will also be 6 to 10 feet from the edge of the shovel to the surface of the pile.

Once ore has been transferred to the feed hopper, all ore will be processed inside the fully enclosed crushing building. All major pieces of equipment, screens, and conveyor transfer points will be enclosed and ventilated to one of two filter fabric emission control devices.

5 Outdoor Transfer Tower, Feed Conveyors and Transfer Points

Once ore has been processed inside the crushing building, the crushed material will be conveyed from the building through a transfer tower before it is transferred via feed conveyor to one of two ore storage piles (flotation ore and oxide ore). The stockpiles are located immediately south of the crushing building. Upon arriving at the stockpiles, the material will discharge through an enclosed chute that will direct the material to the stockpile. Both stockpiles will be covered with a conical-shaped roof that will extend to approximately 10 feet above the ground surface. The roof-like structure will be supported by posts located around the perimeter of the stockpile. As material is added to either stockpile, two feeders located at the base and underneath both the flotation and oxide stockpiles will convey materials from the stockpiles to the appropriate ore processing plant. Once crushed materials arrive at the appropriate plant, the material will drop from the conveyor and be mixed immediately into slurry at the ball mill located at the north end of each process line. To control fugitive dust from these activities, the facility will use the following techniques:

- ◆ All transfer conveyors will have covers such that the transfer process is entirely enclosed. This will include the transfer conveyor from the crushing building to the transfer tower, feed conveyors to the ore stockpiles, and the feeder conveyors from each ore stockpile to the corresponding mill.
- ◆ At each ore stockpile, the feed conveyor will discharge material through an enclosed chute that will discharge material through the opening of the conical-shaped roof cover over each stockpile.
- ◆ Each ore stockpile will have a conical-shaped roof that will protect the material from the effects of wind and weather. Each conical-shaped roof will completely cover the stockpile and extend to approximately 10 feet above the ground.
- ◆ Weekly removal of spilled materials that may occur underneath transfer conveyors. Materials that are removed from underneath conveyors will be placed back into the crushing mill circuit.

6 Tailings and Waste Rock Management Facility

The TWRMF will be used to store tailings generated from the ore processing operations and waste rock that is generated from the mining operation. The Flotation TWRMF will comprise approximately 180 acres and will be located east of the open pit. The Oxide TWRMF will include approximately 40 acres and will be located immediately north of the Flotation TWRMF. Figure 1-2 shows the location of each facility.

Tailings Storage Area

In general, tailings will be slurried from the ore processing area through a pipeline leading to each TWRMF. Tailings will be approximately 80% solids with the remainder being water. The tailings portion of the structure will be constructed in lifts with waste rock materials mixed within each designated cell. At the Flotation TWRMF, Phase 1 will include initial lifts in the northern portion of the facility, with Phase 2 gradually expanding to the southern portion. Over the lifetime of the facility, the Flotation TWRMF will be at maximum approximately 70 meters high above existing grade. The Oxide TWRMF will be approximately 38 meters above existing grade. The general design of the TWRMF will allow tailings to flow from the center of the current lift at an elevation higher than deposited materials such that tailings will flow over existing materials. This will assist in maintaining the deposited materials in a relatively wet state. Although drying will take place over time, the deposited material will form a crust that is anticipated to reduce the potential for generation of fugitive dust from this area. The formation of a crust layer in combination with deposition of the material in a wet state is anticipated to significantly reduce the fugitive dust potential from this area.

In addition to the above, during colder times of the year, there may also be snow cover over each TWRMF that will also assist in reducing fugitive dust potential from this area.

Waste Rock Transport

Waste rock from the mine will be transported via haul truck to each TWRMF for use in construction of the tailings facility and for storage. Waste rock will be transported via haul truck and deposited and moved into place at the time of generation. As the material is removed from the open pit area, the waste rock will be transported as boulder-size pieces, with a small amount of fines mixed within each load. Given the relatively large particle size of the waste rock as it is transported to the storage facility, it is anticipated that the potential for fugitive dust from this activity should be relatively low. The operation will also be sporadic and will depend on the nature of the ore body being mined, the location mining is occurring within the pit, and the quantity of waste rock in the area being mined. During off-loading of the material, trucks will also follow guidelines described previously in Section 4 for minimizing the drop point of each load. This will include maintaining the drop distance such that it will be no more than 6 to 10 feet from the edge of the truck to the surface of the pile. Trucks will also observe the 15 mph speed limit during transport of the waste rock to this area. A water truck will also keep haul roads leading to each TWRMF in a relatively wet state during operations.

On site staff will continually monitor each TWRMF. Corrective measures will be taken if visible emissions are observed. The goal is to prevent visible dust emissions from the TWRMFS.

7 **Overburden Stockpiles**

The facility will use an area to the south of the open pit to store overburden material that is stripped from the mining area to gain access to the ore body. The overburden storage area is shown on Figure 1-2. Most overburden material will be encountered during development of the mine area and prior to commencement of operations. Overburden will be primarily native soil that is barren of mineral content. As the overburden material is removed from the surface of the open pit area, it will be stored and then re-vegetated. The vegetation cover will be maintained over the course of mining and ore processing activities. By maintaining the vegetative cover, the potential for generation of fugitive dust from the overburden storage area will be minimized.

Figure 1-1 Project Location

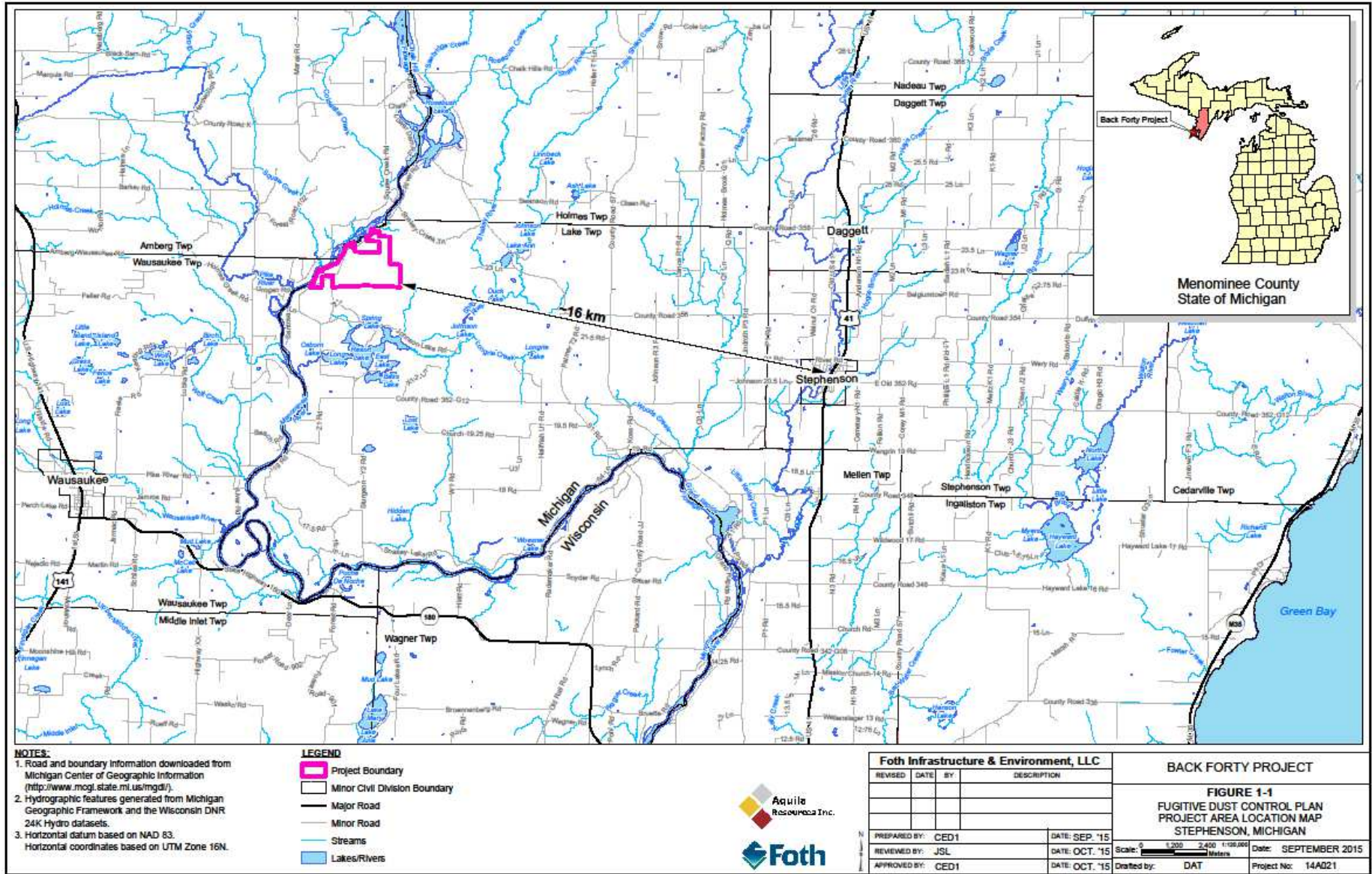
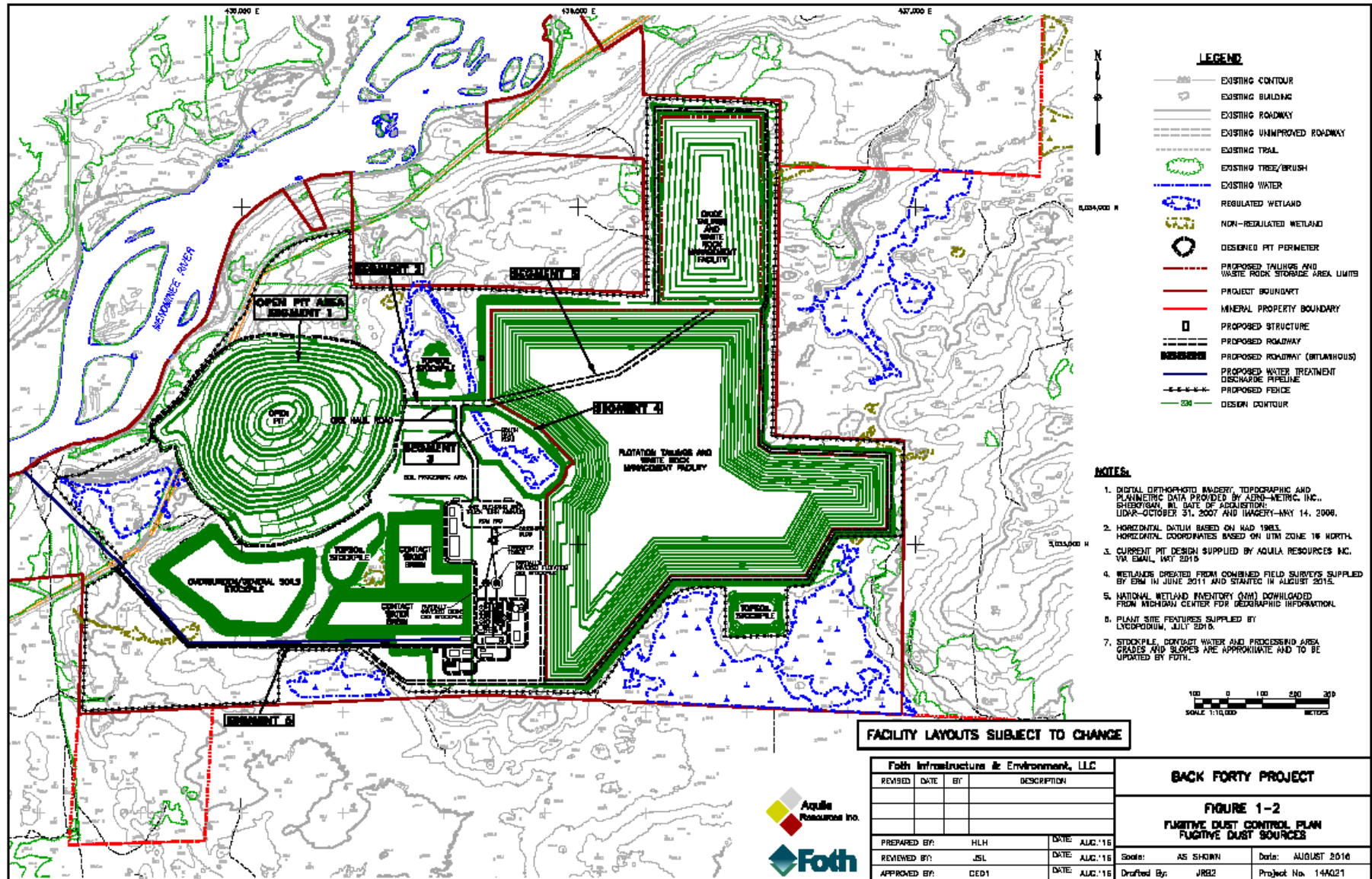


Figure 1-2 Fugitive Dust Sources



Appendix A
On-Site Haul Road Watering Documentation Form

On-Site Haul Road Watering Documentation Form
Segment Haul Truck Routes

Date: _____

Name of Employee: _____

1. Was watering applied to haul roads on this day? Yes ___ No ___

2. If yes to the above, what was the watering schedule?

First Shift _____

Second Shift _____

3. What was the approximate volume of water used?

Segment 1 – Open Pit	Gallons	_____
Segment 2 – Open Pit to South Haul Road	Gallons	_____
Segment 3 – South Haul Road to OBTTA	Gallons	_____
Segment 4 – South Haul Road to Flotation TWRMF	Gallons	_____
Segment 5 – South Haul Road to Oxide TWRMF	Gallons	_____
Segment 6 – Mill Building to Main Gate	Gallons	_____

4. If water was not used, identify the reason:

Precipitation

Snow Pack or Freezing Conditions

No traffic during the entire period

5. Identify Chemical Dust Suppressants Used and Segment Numbers:

Comments:
