# MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
# AIR QUALITY DIVISION

November 26, 2018

**PERMIT TO INSTALL**
180-11A

**ISSUED TO**
Copperwood Resources Inc.

**LOCATED AT**
Ironwood T49N, R46W and Wakefield T49N, R45W

**IN THE COUNTY OF**
Gogebic

**STATE REGISTRATION NUMBER**
P0304

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:<br>**August 17, 2018** | |
| DATE PERMIT TO INSTALL APPROVED:<br>**November 26, 2018** | SIGNATURE:<br>MaryAnn Dolehanty |
| DATE PERMIT VOIDED: | SIGNATURE: |
| DATE PERMIT REVOKED: | SIGNATURE: |

# PERMIT TO INSTALL

## Table of Contents

**Section** **Page**

**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 | $CO_2e$ | 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 |
| | | gr | Grains |
| EU | Emission Unit | HAP | Hazardous Air Pollutant |
| FG | Flexible Group | Hg | Mercury |
| GACS | Gallons of Applied Coating Solids | hr | Hour |
| GC | General Condition | HP | Horsepower |
| GHGs | Greenhouse Gases | $H_2S$ | Hydrogen Sulfide |
| HVLP | High Volume Low Pressure* | kW | Kilowatt |
| ID | Identification | lb | Pound |
| IRSL | Initial Risk Screening Level | m | Meter |
| ITSL | Initial Threshold Screening Level | mg | Milligram |
| LAER | Lowest Achievable Emission Rate | mm | Millimeter |
| MACT | Maximum Achievable Control Technology | MM | Million |
| MAERS | Michigan Air Emissions Reporting System | MW | Megawatts |
| MAP | Malfunction Abatement Plan | NMOC | Non-methane Organic Compounds |
| MDEQ | Michigan Department of Environmental Quality | $NO_x$ | Oxides of Nitrogen |
| | | ng | Nanogram |
| MSDS | Material Safety Data Sheet | PM | Particulate Matter |
| NA | Not Applicable | PM10 | Particulate Matter equal to or less than 10 microns in diameter |
| NAAQS | National Ambient Air Quality Standards | | |
| NESHAP | National Emission Standard for Hazardous Air Pollutants | PM2.5 | Particulate Matter equal to or less than 2.5 microns in diameter |
| NSPS | New Source Performance Standards | pph | Pounds per hour |
| NSR | New Source Review | ppm | Parts per million |
| PS | Performance Specification | ppmv | Parts per million by volume |
| PSD | Prevention of Significant Deterioration | ppmw | Parts per million by weight |
| PTE | Permanent Total Enclosure | psia | Pounds per square inch absolute |
| PTI | Permit to Install | psig | Pounds per square inch gauge |
| RACT | Reasonable Available Control Technology | scf | Standard cubic feet |
| ROP | Renewable Operating Permit | sec | Seconds |
| SC | Special Condition | $SO_2$ | Sulfur Dioxide |
| SCR | Selective Catalytic Reduction | TAC | Toxic Air Contaminant |
| SNCR | Selective Non-Catalytic Reduction | Temp | Temperature |
| SRN | State Registration Number | THC | Total Hydrocarbons |
| TEQ | Toxicity Equivalence Quotient | tpy | Tons per year |
| USEPA/EPA | United States Environmental Protection Agency | µg | Microgram |
| | | µm | Micrometer or Micron |
| VE | Visible Emissions | 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) | Installation Date / Modification Date | Flexible Group ID |
|---|---|---|---|
| EUMINEVENT | Three mine vents (Portal Mine Exhaust Vent, West Mine Exhaust Vent, and East Mine Exhaust Vent) to exhaust emissions produced by underground activities including propane fired mine heaters, drilling, blasting, and ore handling. Particulate matter generated by blasting and ore handling operations in the mine will be controlled with dust suppression systems, such as water sprays. | | NA |
| EUOREHANDLING | Fugitive emissions from ore conveying activities, including ore transfer from the portal to transfer tower; surplus ore transfer to the ore stockpile; ore transfer within the ore bins/reclaim area including transfer of ore to the bins, transfer to ore feeders at the base of the ore bins, and transfer to the SAG mill conveyor for transfer to the process plant; and transfer points at the SAG mill prior to the material becoming a slurry. Emissions are controlled by enclosed transfer points on all equipment and water spray on the SAG mill transfer points. | | NA |
| EUCONCENTRATE | Concentrate handling operations inside the concentrate building including a storage pile, transfer of concentrate to a loadout hopper using a FEL, and conveying concentrate to haul trucks. | | NA |
| EUREAGENTMIX | Indoor reagent mixing area for mixing wet and dry reagents in reagent mixing tanks. | | NA |
| EUHAULROADS | Fugitive emissions from vehicle traffic on the facility roadways, including front end loaders and concentrate haul trucks. | | FGFUGITIVES |
| EUSTOCKPILE | Fugitive emissions from the outdoor ore stockpile. | | FGFUGITIVES |
| EUTDF | Fugitive emissions from the tailings disposal facility. | | FGFUGITIVES |
| EUGENERATOR1 | 1,500 horsepower diesel fired emergency generator (SV-004) to provide backup power for the facility, located at the mine portal. This engine is subject to NSPS IIII and NESHAP ZZZZ. | | FGGENERATORS |
| EUGENERATOR2 | 755 horsepower diesel fired emergency generator (SV-005) to provide backup power for the facility, located at the process plant area. This engine is subject to NSPS IIII and NESHAP ZZZZ. | | FGGENERATORS |

| Emission Unit ID | Emission Unit Description (Process Equipment & Control Devices) | Installation Date / Modification Date | Flexible Group ID |
|---|---|---|---|
| EUGENERATOR3 | 755 horsepower diesel fired emergency generator (SV-006) to provide backup power for the facility, located at the process plant area. This engine is subject to NSPS IIII and NESHAP ZZZZ. | | FGGENERATORS |
| EUSPACEHTRS | Propane fired heaters to provide heat for facility buildings. | | NA |
| 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 336.1290. | | | |

**The following conditions apply to: EUMINEVENT**

**DESCRIPTION:** Three mine vents (Portal Mine Exhaust Vent, West Mine Exhaust Vent, and East Mine Exhaust Vent) to exhaust emissions produced by underground activities including propane fired mine heaters, drilling, blasting, and ore handling.

**Flexible Group ID:** NA

**POLLUTION CONTROL EQUIPMENT:** Dust suppression systems, such as water sprays.

## I. EMISSION LIMITS

| Pollutant | Limit | Time Period/ Operating Scenario | Equipment | Testing / Monitoring Method | Underlying Applicable Requirements |
|---|---|---|---|---|---|
| 1. Inorganic PM | 2.0 tpy | 12-month rolling time period as determined at the end of each calendar month | Emissions exhausted through SV-PORTALVENT | SC VI.2 | R 336.1205(3), R 336.1224, R 336.1225, R 336.1331 |
| 2. Inorganic PM10 | 1.04 tpy | 12-month rolling time period as determined at the end of each calendar month | Emissions exhausted through SV-PORTALVENT | SC VI.2 | R 336.1205(3), 40 CFR 52.21 (c) & (d) |
| 3. Inorganic PM2.5 | 0.5 tpy | 12-month rolling time period as determined at the end of each calendar month | Emissions exhausted through SV-PORTALVENT | SC VI.2 | R 336.1205(3), 40 CFR 52.21 (c) & (d) |
| 4. Inorganic PM | 2.5 pph | Hourly | Emissions exhausted through SV-WESTVENT | SC V.1 | R 336.1205(3), R 336.1224, R 336.1225, R 336.1331 |
| 5. Inorganic PM10 | 1.3 pph | Hourly | Emissions exhausted through SV-WESTVENT | SC V.1 | R 336.1205(3), 40 CFR 52.21 (c) & (d) |
| 6. Inorganic PM2.5 | 0.23 pph | Hourly | Emissions exhausted through SV-WESTVENT | SC V.1 | R 336.1205(3), 40 CFR 52.21 (c) & (d) |
| 7. Inorganic PM | 2.5 pph | Hourly | Emissions exhausted through SV-EASTVENT | SC V.2 | R 336.1205(3), R 336.1224, R 336.1225, R 336.1331 |
| 8. Inorganic PM10 | 1.3 pph | Hourly | Emissions exhausted through SV-EASTVENT | SC V.2 | R 336.1205(3), 40 CFR 52.21 (c) & (d) |
| 9. Inorganic PM2.5 | 0.26 pph | Hourly | Emissions exhausted through SV-EASTVENT | SC V.2 | R 336.1205(3), 40 CFR 52.21 (c) & (d) |

10. Visible emissions from each EUMINEVENT exhaust stack 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

1. The permittee shall burn only propane in the EUMINEVENT heaters. **(R 336.1205(3), R 336.1224, R 336.1225, R 336.1702(a), 40 CFR 52.21(c) & (d))**

2. The permittee shall not burn more than 2.36 million gallons per year of propane in the EUMINEVENT heaters per 12-month rolling time period as determined at the end of each calendar month. **(R 336.1205, 40 CFR 52.21 (d))**

## III. PROCESS/OPERATIONAL RESTRICTIONS

NA

## IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall not operate EUMINEVENT unless the dust suppression systems, including water sprays, in the mine are installed, maintained, and operated in a satisfactory manner as described in the program for continuous fugitive emissions control required by FGFACILITY Special Condition No. III.2. **(R 336.1205(3), R 336.1224, R 336.1225, R 336.1301, R 336.1331, 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 180 days after commencement of directing exhaust through SV-WESTVENT, the permittee shall verify inorganic PM, inorganic PM10, and inorganic PM2.5 emission rates from EUMINEVENT exhausted through SV-WESTVENT by testing at owner's expense, in accordance with Department requirements. Testing shall be performed using an approved EPA Method listed in:

| Pollutant | Test Method Reference |
|---|---|
| PM | 40 CFR Part 60, Appendix A; Part 10 of the Michigan Air Pollution Control Rules |
| PM10 / PM2.5 | 40 CFR Part 51, Appendix M |

The hourly emission rate during testing shall be determined by the average of the acceptable test runs performed in accordance with the method requirements. An alternate method, or a modification to the approved EPA Method, may be specified in an AQD-approved Test Protocol. 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, including any modifications to the method in the test protocol that are proposed after initial submittal. The permittee must submit 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 336.1205(3), R 336.1224, R 336.1225, R 336.1331, R 336.2001, R 336.2003, R 336.2004, 40 CFR 52.21(c) & (d))**

2. Within 180 days after commencement of directing exhaust through SV-EASTVENT, the permittee shall verify inorganic PM, inorganic PM10, and inorganic PM2.5 emission rates from EUMINEVENT exhausted through SV-EASTVENT by testing at owner's expense, in accordance with Department requirements. Testing shall be performed using an approved EPA Method listed in:

| Pollutant | Test Method Reference |
|---|---|
| PM | 40 CFR Part 60, Appendix A; Part 10 of the Michigan Air Pollution Control Rules |
| PM10 / PM2.5 | 40 CFR Part 51, Appendix M |

The hourly emission rate during testing shall be determined by the average of the acceptable test runs performed in accordance with the method requirements. An alternate method, or a modification to the approved EPA Method, may be specified in an AQD-approved Test Protocol. 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, including any modifications to the method in the test protocol that are proposed after initial submittal. The permittee must submit 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 336.1205(3), R 336.1224, R 336.1225, R 336.1331, R 336.2001, R 336.2003, R 336.2004, 40 CFR 52.21(c) & (d))**

## 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/records in a format acceptable to the AQD District Supervisor and make them available 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(3), R 336.1224, R 336.1225, R 336.1331, 40 CFR 52.21(c) and (d))**

2. The permittee shall keep, in a satisfactory manner, calculation records of the monthly and 12-month rolling time period PM, PM10, and PM2.5 emission rates for SV-PORTALVENT using a method approved by the District Supervisor. The permittee shall keep all records on file and make them available to the Department upon request. **(R 336.1205(3), R 336.1224, R 336.1225, R 336.1331, 40 CFR 52.21(c) and (d))**

3. The permittee shall keep, in a satisfactory manner, a record of the start-up and shutdown date for each EUMINEVENT exhaust stack. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1205(3), R 336.1224, R 336.1225, R 336.1301, R 336.1331, 40 CFR 52.21(c) and (d))**

4. The permittee shall keep, in a satisfactory manner, records of any visible emissions observed from EUMINEVENT and any actions taken to reduce visible emissions. **(R 336.1301)**

## VII. REPORTING

1. Within 30 days after the start-up of each mine vent, the permittee or the authorized agent pursuant to Rule 204, shall notify the AQD District Supervisor, in writing, of the completion of the activity. **(R 336.1201(7)(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-PORTALVENT[a] | NA | NA | R 336.1225, 40 CFR 52.21(c) & (d) |
| 2. SV-WESTVENT | 79.2 | 29.5 | R 336.1225, 40 CFR 52.21(c) & (d) |
| 3. SV-EASTVENT | 79.2 | 29.5 | R 336.1225, 40 CFR 52.21(c) & (d) |
| a. SV-PORTALVENT discharges through the ramp that accesses the underground mine area and is not a traditional stack. | | | |

## IX. OTHER REQUIREMENTS

NA

**Footnotes:**
[1]This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

**The following conditions apply to: EUOREHANDLING**

**DESCRIPTION:** Fugitive emissions from ore conveying activities, including ore transfer from the portal to transfer tower; surplus ore transfer to the ore stockpile; ore transfer within the ore bins/reclaim area including transfer of ore to the bins, transfer to ore feeders at the base of the ore bins, and transfer to the SAG mill conveyor for transfer to the process plant; and transfer points at the SAG mill prior to the material becoming a slurry.

**Flexible Group ID:** NA

**POLLUTION CONTROL EQUIPMENT:** Enclosed transfer points on all equipment as well as water spray on the SAG mill transfer points.

## I. EMISSION LIMITS

1. Visible emissions from EUOREHANDLING shall not exceed a six-minute average of 10 percent opacity. **(R 336.1301, R 336.1331, 40 CFR 60 Subpart LL)**

## II. MATERIAL LIMITS

NA

## III. PROCESS/OPERATIONAL RESTRICTIONS

NA

## IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall not operate EUOREHANDLING unless each conveyor transfer point is enclosed. **(R 336.1205(3), R 336.1224, R 336.1225, R 336.1301, R 336.1331, R 336.1910, 40 CFR 52.21(c) and (d))**

2. The permittee shall not operate the SAG mill unless the SAG mill transfer point water spray system is installed, maintained, and operated in a satisfactory manner as specified in the MAP required by FGFACILITY Special Condition No. III.1. **(R 336.1205(3), R 336.1224, R 336.1225, R 336.1301, R 336.1331, 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 start-up of EUOREHANDLING, the permittee shall evaluate visible emissions from EUOREHANDLING, 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. The permittee must submit 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))**

1. The permittee shall keep, in a satisfactory manner, records of any visible emissions observed from EUOREHANDLING and any actions taken to reduce visible emissions. **(R 336.1301)**

## VII. REPORTING

NA

## VIII. STACK/VENT RESTRICTIONS

NA

## IX. OTHER REQUIREMENTS

NA

**Footnotes:**
[1]This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

**The following conditions apply to: EUCONCENTRATE**

**DESCRIPTION:** Concentrate handling operations inside the concentrate building including a storage pile, transfer of concentrate to a loadout hopper using a FEL, and conveying concentrate to haul trucks.

**Flexible Group ID:** NA

**POLLUTION CONTROL EQUIPMENT:** NA

## I. EMISSION LIMITS

1. Visible emissions from EUCONCENTRATE shall not exceed a six-minute average of 10 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 9% or higher. **(R 336.1205(3), R 336.1224, R 336.1225, R 336.1301, R 336.1331, R 336.1910, 40 CFR 52.21(c) and (d))**

## III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall not load concentrate into trucks unless the doors of the concentrate building are closed. **(R 336.1205(3), R 336.1224, R 336.1225, R 336.1301, R 336.1331, 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 concentrate building. **(R 336.1205(3), R 336.1224, R 336.1225, R 336.1301, R 336.1331, R 336.1910, 40 CFR 52.21(c) and (d))**

## IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall not operate EUCONCENTRATE unless the conveyor discharge point is located within an enclosed building. **(R 336.1205(3), R 336.1224, R 336.1225, R 336.1301, R 336.1331, 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 start-up of EUCONCENTRATE, the permittee shall evaluate visible emissions from EUCONCENTRATE, 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. The permittee must submit 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))**

1. The permittee shall keep, in a satisfactory manner, a daily record of the moisture content of the concentrate loaded into trucks in EUCONCENTRATE. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1205(3), R 336.1224, R 336.1225, R 336.1301, R 336.1331, 40 CFR 52.21(c) and (d))**

2. The permittee shall keep, in a satisfactory manner, records of any visible emissions observed from EUCONCENTRATE and any actions taken to reduce visible emissions. **(R 336.1301)**

## VII. REPORTING

NA

## VIII. STACK/VENT RESTRICTIONS

NA

## IX. OTHER REQUIREMENTS

NA

**Footnotes:**

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

**The following conditions apply to: EUREAGENTMIX**

**DESCRIPTION:** Indoor reagent mixing area for mixing wet and dry reagents in reagent mixing tanks.

**Flexible Group ID:** NA

**POLLUTION CONTROL EQUIPMENT:** NA

## I. EMISSION LIMITS

NA

## II. MATERIAL LIMITS

NA

## III. PROCESS/OPERATIONAL RESTRICTIONS

NA

## IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall conduct all reagent mixing operations inside an enclosed building. **(R 336.1205(3), R 336.1224, R 336.1225, R 336.1301, R 336.1331, R 336.1702(a), 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))**

NA

## VI. MONITORING/RECORDKEEPING

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

1. The permittee shall maintain a current listing from the manufacturer of the chemical composition of each reagent. The data may consist of Safety Data Sheets, manufacturer's formulation data, or both as deemed acceptable by the AQD District Supervisor. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1224, R 336.1225, R 336.1702(a))**

## VII. REPORTING

NA

## VIII. STACK/VENT RESTRICTIONS

NA

## IX. OTHER REQUIREMENTS

NA

**Footnotes:**
[1]This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

**The following conditions apply to: EUSPACEHTRS**

**DESCRIPTION:** Propane fired heaters to provide heat for facility buildings.

**Flexible Group ID:** NA

**POLLUTION CONTROL EQUIPMENT:** NA

**I. EMISSION LIMITS**

NA

**II. MATERIAL LIMITS**

1. The permittee shall burn only propane in EUSPACEHTRS. **(R 336.1205(3), R 336.1224, R 336.1225, R 336.1702(a), 40 CFR 52.21(c) & (d))**

**III. PROCESS/OPERATIONAL RESTRICTIONS**

NA

**IV. DESIGN/EQUIPMENT PARAMETERS**

NA

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

NA

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

NA

**VII. REPORTING**

NA

**VIII. STACK/VENT RESTRICTIONS**

NA

**IX. OTHER REQUIREMENTS**

NA

**Footnotes:**
[1]This 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 from vehicle traffic on the facility roads, the outdoor ore stockpile, and the tailings disposal facility. | EUHAULROADS, EUSTOCKPILE, EUTDF |
| FGGENERATORS | Three diesel fuel fired emergency generators. These engines are subject to NSPS IIII and NESHAP ZZZZ. | EUGENERATOR1, EUGENERATOR2, EUGENERATOR3 |
| 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 from vehicle traffic on the facility roads, the outdoor ore stockpile, and the tailings disposal facility.

**Emission Units:** EUHAULROADS, EUSTOCKPILE, EUTDF

**POLLUTION CONTROL EQUIPMENT:** NA

## 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(3), R 336.1301, 40 CFR 52.21(c) & (d), 40 CFR 60 Subpart LL)**

2. Visible emissions from the outdoor ore stockpile 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(3), R 336.1301, 40 CFR 52.21(c) & (d), 40 CFR 60 Subpart LL)**

3. Visible emissions from the tailings disposal facility 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(3), R 336.1301, 40 CFR 52.21(c) & (d), 40 CFR 60 Subpart LL)**

## II. MATERIAL LIMITS

1. The silt content of the ore stored in EUSTOCKPILE shall not exceed 2%. **(R 336.1205(3), R 336.1224, R 336.1225, R 336.130140 CFR 52.21(c) & (d))**

## III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall not exceed a maximum payload equivalent of 9,200 20-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(3), 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 not exceed a maximum payload equivalent of 10,220 58.5-ton water transport 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(3), 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 not discharge ore to EUSTOCKPILE unless the conveyor discharge chute is installed, maintained, and operated in a satisfactory manner. **(R 336.1205(3), 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 minimize the drop heights of the front end loader bucket used at EUSTOCKPILE. **(R 336.1205(3), R 336.1224, R 336.1225, R 336.1301, R 336.1371, R 336.1372, 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. The permittee shall verify the silt content of the ore stored in EUSTOCKPILE at least once each calendar month using a method acceptable to the AQD District Supervisor. **(R 336.1205(3), R 336.1224, R 336.1225, R 336.130140 CFR 52.21(c) & (d))**

**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(3), 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 concentrate and water transport trucks entering and leaving the facility. Each month, in a manner acceptable to the AQD District Supervisor, the permittee shall calculate the payload equivalent number of 20-ton concentrate transport trucks entering and leaving the facility based on that month's daily records. Each month, in a manner acceptable to the AQD District Supervisor, the permittee shall calculate the payload equivalent number of 58.5-ton water 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(3), 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 keep records of the ore silt content as determined in accordance with SC V.1. **(R 336.1205(3), R 336.1224, R 336.1225, R 336.130140 CFR 52.21(c) & (d))**

4. The permittee shall keep, in a satisfactory manner, records of any visible emissions observed from EUHAULROADS, EUSTOCKPILE, and EUTDF and any actions taken to reduce visible emissions. **(R 336.1301)**

**VII. REPORTING**

NA

**VIII. STACK/VENT RESTRICTIONS**

NA

**IX. OTHER REQUIREMENTS**

NA

**Footnotes:**

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

**The following conditions apply to: FGGENERATORS**

**DESCRIPTION:** Three diesel fuel fired emergency generators. These engines are subject to NSPS IIII and NESHAP ZZZZ.

**Emission Units:** EUGENERATOR1, EUGENERATOR2, EUGENERATOR3

**POLLUTION CONTROL EQUIPMENT:** NA

## I. EMISSION LIMITS

| Pollutant | Limit | Time Period/ Operating Scenario | Equipment | Testing / Monitoring Method | Underlying Applicable Requirements |
|---|---|---|---|---|---|
| 1. NMHC + NOx | 3.95 g/hp-hr | Hourly | EUGENERATOR1 | SC VI.2, SC VI.3 | 40 CFR 60.4205(b), 60.4202(a), Table 1 of 40 CFR 89.112, 40 CFR 52.21(c) & (d) |
| 2. HC | 0.07 g/hp-hr | Hourly | EUGENERATOR1 | SC VI.2, SC VI.3 | 40 CFR 60.4205(b), 60.4202(a), Table 1 of 40 CFR 89.112, 40 CFR 52.21(c) & (d) |
| 3. CO | 0.66 g/hp-hr | Hourly | EUGENERATOR1 | SC VI.2, SC VI.3 | 40 CFR 60.4205(b), 60.4202(a), Table 1 of 40 CFR 89.112, 40 CFR 52.21(c) & (d) |
| 4. PM | 0.11 g/hp-hr | Hourly | EUGENERATOR1 | SC VI.2, SC VI.3 | 40 CFR 60.4205(b), 60.4202(a), Table 1 of 40 CFR 89.112, 40 CFR 52.21(c) & (d) |
| 5. NMHC + NOx | 4.85 g/hp-hr | Hourly | EUGENERATOR2 | SC VI.2, SC VI.3 | 40 CFR 60.4205(b), 60.4202(a), Table 1 of 40 CFR 89.112, 40 CFR 52.21(c) & (d) |
| 6. HC | 0.11 g/hp-hr | Hourly | EUGENERATOR2 | SC VI.2, SC VI.3 | 40 CFR 60.4205(b), 60.4202(a), Table 1 of 40 CFR 89.112, 40 CFR 52.21(c) & (d) |
| 7. CO | 0.31 g/hp-hr | Hourly | EUGENERATOR2 | SC VI.2, SC VI.3 | 40 CFR 60.4205(b), 60.4202(a), Table 1 of 40 CFR 89.112, 40 CFR 52.21(c) & (d) |
| 8. PM | 0.02 g/hp-hr | Hourly | EUGENERATOR2 | SC VI.2, SC VI.3 | 40 CFR 60.4205(b), 60.4202(a), Table 1 of 40 CFR 89.112, 40 CFR 52.21(c) & (d) |
| 9. NMHC + NOx | 4.85 g/hp-hr | Hourly | EUGENERATOR3 | SC VI.2, SC VI.3 | 40 CFR 60.4205(b), 60.4202(a), Table 1 of 40 CFR 89.112, 40 CFR 52.21(c) & (d) |
| 10. HC | 0.11 g/hp-hr | Hourly | EUGENERATOR3 | SC VI.2, SC VI.3 | 40 CFR 60.4205(b), 60.4202(a), Table 1 of 40 CFR 89.112, 40 CFR 52.21(c) & (d) |

| Pollutant | Limit | Time Period/ Operating Scenario | Equipment | Testing / Monitoring Method | Underlying Applicable Requirements |
|---|---|---|---|---|---|
| 11. CO | 0.31 g/hp-hr | Hourly | EUGENERATOR3 | SC VI.2, SC VI.3 | 40 CFR 60.4205(b), 60.4202(a), Table 1 of 40 CFR 89.112, 40 CFR 52.21(c) & (d) |
| 12. PM | 0.02 g/hp-hr | Hourly | EUGENERATOR3 | SC VI.2, SC VI.3 | 40 CFR 60.4205(b), 60.4202(a), Table 1 of 40 CFR 89.112, 40 CFR 52.21(c) & (d) |

## II. MATERIAL LIMITS

1. The permittee shall burn only diesel fuel in FGGENERATORS 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(3), 40 CFR 52.21 (c) & (d), 40 CFR 80.510(b))**

## III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall not operate any engine in FGGENERATORS for more than 500 hours per year on a 12-month rolling time period basis as determined at the end of each calendar month. The 500 hours includes the hours for the purpose of necessary maintenance checks and readiness testing as described in SC III.2. **(R 336.1205(3), R 336.1225, R 336.1702(a), 40 CFR 52.21 (c) & (d))**

2. The permittee may operate each engine in FGGENERATORS 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. Each engine in FGGENERATORS 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. Except as provided in 40 CFR 60.4211(f)(3)(i), the 50 hours per calendar year for non-emergency situations cannot be used for peak shaving or 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. 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 FGGENERATORS:
   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. **(R 336.1205(3), R 336.1225, 40 CFR 52.21(c) & (d), 40 CFR 60.4211(a) and (c))**

## IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall equip and maintain each engine in FGGENERATORS with non-resettable hours meters to track the operating hours. **(R 336.1205(3), R 336.1225, 40 CFR 60.4209)**

2. The maximum rated power output of the engines in FGGENERATORS shall not exceed horsepower (hp) ratings listed below, as certified by the equipment manufacturer. **(R 336.1205(3), R 336.1225, 40 CFR 60.4202, 40 CFR 89.112(a))**

| Engine | Rated horsepower (hp) |
|---|---|
| EUGENERATOR1 | 1,500 hp |
| EUGENERATOR2 | 755 hp |
| EUGENERATOR3 | 755 hp |

## V. TESTING/SAMPLING

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

1. If any engine in FGGENERATORS is not installed, configured, operated, and maintained according to the manufacturer's emission-related written instructions, or the permittee changes emission-related settings in a way that is not permitted by the manufacturer, the permittee must demonstrate compliance as follows:
   a. Conduct an initial performance test to demonstrate compliance with the applicable emission standards within 1 year of start-up, or within 1 year after an engine and control device is no longer installed, configured, operated, and maintained in accordance with the manufacturer's emission-related written instructions, or within 1 year after you change emission-related settings in a way that is not permitted by the manufacturer.
   b. If a performance test is required, the performance tests shall be conducted according to 40 CFR 60.4212.
   c. Conduct subsequent performance testing every 8,760 hours of engine operation or every 3 years, whichever comes first, thereafter to demonstrate compliance with the applicable emission standards.

   No less than 30 days prior to testing, a complete test plan shall be submitted to the AQD. 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. **(40 CFR 60.4211(g)(3), 40 CFR 60.4212)**

## 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(3)40 CFR 52.21 (c) & (d))**

2. The permittee shall keep, in a satisfactory manner, the following records for each engine in FGGENERATORS:
   a. For each certified engine: The permittee shall keep records of the manufacturer certification documentation.
   b. For each uncertified engine: The permittee shall keep records of testing required in SC V.1.

   The permittee shall keep all records on file and make them available to the Department upon request. **(40 CFR 60.4211)**

3. The permittee shall keep, in a satisfactory manner, the following records of maintenance activity for each engine in FGGENERATORS:
   a. For each certified engine: The permittee shall keep records of the manufacturer's emission-related written instructions, and records demonstrating that the engine has been maintained according to those instructions, as specified in SC III.3.
   b. For each uncertified engine: The permittee shall keep records of a maintenance plan, as required by SC III.4, and maintenance activities.

   The permittee shall keep all records on file and make them available to the Department upon request. **(40 CFR 60.4211)**

4. The permittee shall monitor and record the total hours of operation and the hours of operation during non-emergencies for each engine in FGGENERATORS, 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 FGGENERATORS, including what classified the operation as emergency. **(R 336.1205(3), R 336.1225, R 336.1702(a), 40 CFR 60.4211, 40 CFR 60.4214)**

5. 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 FGGENERATORS, 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(3), 40 CFR 60.4207, 40 CFR 80.510(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 FGGENERATORS. **(R 336.1201(7)(a))**

2. The permittee shall submit a notification specifying whether each engine in FGGENERATORS will be operated in a certified or a non-certified manner to the AQD District Supervisor, in writing, within 30 days following the initial start-up of the engine and within 30 days of switching the manner of operation. **(40 CFR Part 60 Subpart IIII)**

## 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-004 | 7.9 | 14.8 | R 336.1225, 40 CFR 52.21 (c) & (d) |
| 2. SV-005 | 7.9 | 14.8 | R 336.1225, 40 CFR 52.21 (c) & (d) |
| 3. SV-006 | 7.9 | 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 FGGENERATORS. **(40 CFR Part 60 Subparts A & IIII)**

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 FGGENERATORS upon startup. **(40 CFR 63.6595(a)(2), 40 CFR, Part 63, Subparts A and ZZZZ)**

**Footnotes:**
[1]This 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, enclosed transfer points, enclosed buildings, and an enclosed truck wash.

## I. EMISSION LIMITS

| Pollutant | Limit | Time Period/ Operating Scenario | Equipment | Testing / Monitoring Method | Underlying Applicable Requirements |
|---|---|---|---|---|---|
| 1. CO | 98.4 tpy | 12-month rolling time period as determined at the end of each calendar month | FGFACILITY | SC VI.2 | R 336.1205<br>40 CFR 52.21(d) |

## II. MATERIAL LIMITS

1. The permittee shall not use more than 2,650 tons of emulsion per 12-month rolling time period as determined at the end of each calendar month. **(R 336.1205, 40 CFR 52.21(d))**

## 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, 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 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(3), 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, and the underground mine 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(3), 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 operate all plant roadways, parking lots, and truck staging areas routinely travelled by concentrate haul trucks and delivery trucks in accordance with the program for continuous fugitive emissions control specified in Appendix A, or an alternate plan approved by the AQD District Supervisor. **(R 336.1205(3), 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

NA

## V. TESTING/SAMPLING

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

NA

## 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/records in a format acceptable to the AQD District Supervisor and make them available 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, 40 CFR 52.21(d))**

2. The permittee shall keep, in a satisfactory manner, calculation records of the monthly and 12-month rolling time period CO emission rates for FGFACILITY using a method approved by the District Supervisor. The permittee shall keep all records on file and make them available to the Department upon request. **(R 336.1205)**

3. The permittee shall keep, in a satisfactory manner, monthly and 12-month rolling time period records of the amount of emulsion used. The permittee shall keep all records on file and make them available to the Department upon request. **(R 336.1205, 40 CFR 52.21(d))**

## 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

NA

## 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 FGNSPSLL. **(40 CFR Part 60 Subparts A & LL)**

**Footnotes:**
[1]This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

**APPENDIX A**

**Plan**

# Fugitive Dust Control Plan

**Project I.D.: 17C050**

**Copperwood Resources, Inc.**
**Gogebic County, Michigan**

**March 2018**
**Revised August 2018**

HIGHLAND
Copper Company Inc.

Foth

# Fugitive Dust Control Plan

Project ID: 17C050

Prepared for
**Copperwood Resources, Inc.**
Gogebic County, Michigan

Prepared by
**Foth Infrastructure & Environment, LLC**

August 2018


2121 Innovation Court, Ste. 300 • PO Box 5126 • De Pere, WI 54115-5126 • (920) 497-2500 • Fax: (920) 497-8516 • www.foth.com

# Fugitive Dust Control Plan

## Contents



## Figure

(Figure located after Figures tab)



## Appendices

## List of Abbreviations, Acronyms, Symbols

| | |
|---|---|
| Copperwood | Copperwood Resources, Inc. |
| Foth | Foth Infrastructure & Environment, LLC |
| NAICS | North American Industry Classification System |
| Project | Copperwood Project |
| PTI | Permit to Install Application |
| SAG | Semi-Autogenous Grinding |
| TDF | Tailings Disposal Facility |

# 1 Introduction

This Fugitive Dust Control Plan has been prepared by Foth Infrastructure & Environment, LLC (Foth) on behalf of Copperwood Resources, Inc. (Copperwood) as part of the Air Permit to Install Application (PTI) for the proposed mining and ore processing operations. The Copperwood Project (Project) site is located in Ironwood and Wakefield Townships, Gogebic County, Michigan. The deposit and site are located approximately 10 miles north of Wakefield, Michigan and 1 to 2 miles south east of Lake Superior. Figure 1-1 shows the mining area plan, including locations of potential fugitive dust sources. This plan addresses information on best management practices and controls to minimize fugitive dust from the sources at this facility.

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 Project will mine and process a copper bearing ore body. The facility will operate under North American Industry Classification System (NAICS) code 212234. 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.

Ore will be excavated underground through use of conventional drill, blast, and mechanized room and pillar methods. Once blasted, ore will be placed onto belt conveyors for transport to the main mine conveyor. The main transfer belt conveyor will bring ore to the surface to the Transfer Tower. The ore will either be transported on belt conveyors to the Bins/Reclaim Area or stored in the Ore Stockpile. Milling and processing will be completed in the processing plant. The Process Plant will generate a tailings slurry that will be pumped to the Tailing Disposal Facility (TDF). All roads at the facility will be unpaved.

Emissions from these operations are characterized and quantified in the air permit 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. Potential sources of fugitive dust include:

- Underground mining operations
- Outdoor transfer tower, feed conveyors, and conveyor transfer points
- Ore stockpiles
- TDF
- Topsoil stockpile
- Unpaved haul roads

## 2 Underground Mining Operations

The mine will be ventilated by drawing in air through a mine ventilation intake, located northwest of the mine site. Exhaust exits through three ventilation raises labeled on Figure 1-1: the Mine Vent Exhaust – West, Mine Vent Exhaust – East, and Portal Exhaust Vent. Mining will be accomplished using conventional drill and blast methods in a room and pillar layout. Mining activities with the potential to generate dust emissions include drilling and blasting, ore transfer activities, feed hoppers and rolls/rock breakers, and conveyor transfer from the ore management areas to the surface. Control of fugitive dust emissions from these processes will be implemented as mine development advances into full production.

Fugitive emission controls in the underground mine will be a combination of dust suppression and prevention activity. Fresh water will be used for dust control in the active mining and haulage areas. Water sprays be used to dampen dust generated from transfer points or activities.

Work procedures will be developed as mine construction advances to production that will address specific fugitive emission control activities required for the different mining job tasks.

# 3 Surface Material Storage and Handling

## 3.1 Outdoor Transfer Tower, Feed Conveyors and Transfer Points

Particulate fugitive emissions will be generated by movement of ore to various surface locations on the site. These fugitive emission sources include the following ore transfer emission sources:

- Ore transfer from underground mine Portal to Transfer Tower.
- Ore transfer from the Transfer Tower to the Ore Bins/Reclaim Area.
- Surplus ore transfer from the Transfer Tower to the Ore Stockpile.
- Ore transfer points at the SAG Mill prior to the material becoming a slurry.

Each of these locations will be potential sources of fugitive dust that comprise multiple transfer points. Throughout the ore transfer systems, emissions will be controlled through use of belt conveyors with enclosures at the transfer points.

## 3.2 Ore Stockpile

Ore not directed to the Ore Bins/Reclaim Area will be transferred to the Ore Stockpile on a stacker belt conveyor. The feed conveyor will discharge material through an enclosed chute to the stockpile. Fugitive emissions may occur during management and handling of ore, including movement from the discharge conveyor drop point, and moving ore from the stockpile into transfer hoppers using a front end loader and due to wind erosion.

Particulate emissions will be controlled through enclosure of the discharge chute, and through work practices such as minimizing drop heights of the front end loader bucket. In addition, the particle size distribution for material in the stockpile shows the silt content to be only 2%, which should aid in minimizing particulate emissions.

## 3.3 Tailings Disposal Facility

The TDF footprint will cover approximately 316 acres (over the 13-year life of the mine). This will include the tailings area as well as the embankments that support the structure. A decant pond will cover a majority of the top tailings surface (approximately 230 acres). Of the "beach" area not covered by the pond, approximately 75% remain wet beach area and approximately 25% will become exposed dry tailings. The dry beach area has been addressed for potential fugitive dust generation.

Tailings slurry from the mill will be pumped to the TDF and distributed through a tailings distribution system. The slurry will be approximately 32% solids. Once deposited, drying will take place over time in non-submerged areas. The deposited material will form a crust that is anticipated to reduce the potential for generation of fugitive dust. The formation of a crust layer in combination with deposition of the material in a wet state are anticipated to significantly reduce the fugitive dust potential. The preferred method of tailings emission control will be to keep as much of the tailings deposit submerged in the operational water pond of the impoundment as practical. During the winter months, snow cover and freezing conditions will naturally dampen dust generation. If additional dust control is necessary, either water spraying or chemical sealants may be applied to beach areas that are not moist.

### 3.4 Topsoil Storage Area

Any long-term topsoil storage area accumulated during site construction will have vegetative covers established to control erosion from precipitation and wind-blown fugitive dust emissions. Temporary control measures will include water or dust suppressant application until vegetation is established. Once vegetation is established, minimal fugitive dust is expected from topsoil storage.

# 4 Unpaved Haul Roads

Haul roads at the facility will include the main access road from the front gate to the Process Plant, the explosives storage area, and the Water Truck Offload Area; and haulage roads at the Ore Stockpile. Location of the access roads and Ore Stockpile are shown on Figure 1-1. All haul roads will be unpaved.

A front end loader will be utilized at the Ore Stockpile. A concentrate product truck will transport product along the access road within the facility from the concentrate loadout area at the Process Plant to the main gate. A haulage truck may also transport water for use in the process to the offload area on the west side of the TDF. In addition, water trucks and various other service vehicles will transport reagents and supplies to the Process Plant. Other service vehicles will include reagent transport trucks and trucks hauling emulsion products to the explosives magazine.

## 4.1 Dust Suppression Techniques

During drier and warmer times of the year and when freezing conditions are not occurring, the access road will be watered periodically throughout the day to maintain it 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 access road segments shown on Figure 1-1 (HR-02, HR-03, HR-04, and HR-05).

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 may be applied to unpaved roadways on an as-needed basis.

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 on-site roads. The speed limit will be no more than 15 miles per hour. This low speed will reduce the potential for dust generation from unpaved roadway surfaces.

## 4.2 Haul Road Segments

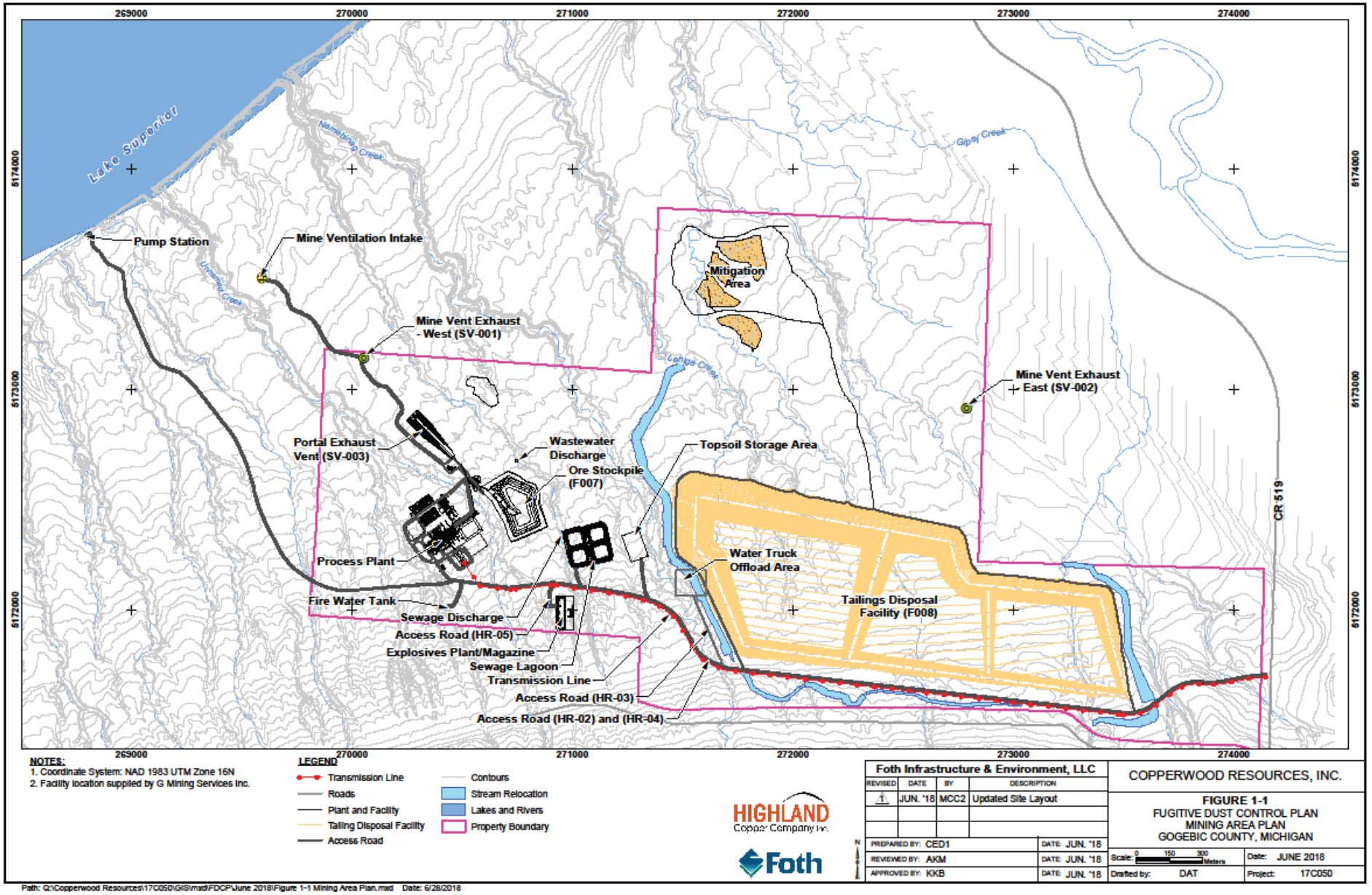
Documentation of roadway dust suppression activities for haul roads will be done using a form similar to the On-Site Haul Road Watering Documentation Form in Appendix A. The form will be used by field supervision to assess the effectiveness of roadway dust suppression techniques and document corrective actions taken to minimize generation of fugitive dust. The form will be completed each day of operations. For ease in identifying potential problem areas, roadways

within the facility have been assigned roadway segment identification numbers, marked on the Watering Documentation Forms. Identification numbers will be as follows:

| Haul Road Segment Description | Identification Number |
|---|---|
| Process Plant to Main Gate | Segment 1 |
| Access Road to Water Truck Offload Area | Segment 2 |
| Ore Stockpile Haulage Route | Segment 3 |
| Main Gate to Explosives Magazine | Segment 4 |

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 daily to document the status of water used for dust suppression on identified haul road segments. Information on chemical dust suppressants used can also be added to the form.

**Figure**


269000
270000
271000
272000
273000
274000
6174000
6173000
6172000
Lake Superior
Nameless Creek
Gipsy Creek
Lehigh Creek
Pump Station
Mine Ventilation Intake
Mine Vent Exhaust - West (SV-001)
Mitigation Area
Mine Vent Exhaust East (SV-002)
Portal Exhaust Vent (SV-003)
Wastewater Discharge
Ore Stockpile (F007)
Topsoil Storage Area
CR 519
Process Plant
Water Truck Offload Area
Fire Water Tank
Tailings Disposal Facility (F008)
Sewage Discharge
Access Road (HR-05)
Explosives Plant/Magazine
Sewage Lagoon
Transmission Line
Access Road (HR-03)
Access Road (HR-02) and (HR-04)
NOTES:
1. Coordinate System: NAD 1983 UTM Zone 16N
2. Facility location supplied by G Mining Services Inc.
LEGEND
Transmission Line
Roads
Plant and Facility
Tailing Disposal Facility
Access Road
Contours
Stream Relocation
Lakes and Rivers
Property Boundary
HIGHLAND Copper Company Inc.
Foth
Foth Infrastructure & Environment, LLC
REVISED 1 DATE JUN. '18 BY MCC2 DESCRIPTION Updated Site Layout
PREPARED BY: CED1 DATE: JUN. '18
REVIEWED BY: AKM DATE: JUN. '18
APPROVED BY: KKB DATE: JUN. '18
COPPERWOOD RESOURCES, INC.
FIGURE 1-1
FUGITIVE DUST CONTROL PLAN
MINING AREA PLAN
GOGEBIC COUNTY, MICHIGAN
Scale: 0 150 300 Meters
Date: JUNE 2018
Drafted by: DAT
Project: 17C050
Path: Q:\Copperwood Resources\17C050\GIS\mxd\FDCP\June 2018\Figure 1-1 Mining Area Plan.mxd Date: 6/28/2018

# 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 – Process Plant to Main Gate | Gallons | _____ |
| Segment 2 – Access Road to Water Truck Offload Area | Gallons | _____ |
| Segment 3 – Ore Stockpile Haulage Route | Gallons | _____ |
| Segment 4 – Main Gate to Explosives Magazine | 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: