



**TECHNICAL REVIEW AND EVALUATION
OF APPLICATION FOR
AIR QUALITY PERMIT NO. 64221**

Freeport Minerals Corporation – Copper Queen Branch

I. INTRODUCTION

This Class II renewal permit is issued to Freeport Minerals Corporation – Copper Queen Branch, the Permittee, for the continued operation of the Copper Queen facility located in Bisbee, Cochise County, Arizona. This permit renews and supersedes operating Permit No. 53591 which expires on December 16, 2016.

A. Company Information

1. Facility Name: Freeport Minerals Corporation – Copper Queen Branch
2. Facility Location: 36 West Highway 92
Bisbee, AZ 85603
3. Mailing Address: 36 West Highway 92
Bisbee, AZ 85603

B. Attainment Classification

The facility is located in an area designated as attainment/unclassified for all criteria pollutants.

II. FACILITY DESCRIPTION

A. Processes

The Permittee conducts care and maintenance as well as reclamation operations at the site. No active mining is currently in operation. Five screens and a rock crushing and screening operation are permitted to classify existing stockpiles and generate material for in-house use in reclamation and construction projects.

B. Air Pollution Control

Water sprays are used to control particulate emissions from the material handling and processing operations and water, or other reasonable precautions, are used to control particulate emissions from roadways, open areas and storage piles.



III. EMISSIONS

Table 1: Potential Emissions

| Pollutant | Emissions (tons per year) |
|-------------------|------------------------------|
| PM | 62.91 |
| PM ₁₀ | 25.57 |
| PM _{2.5} | 3.41 |
| NO _x | 14.83 |
| CO | 3.71 |
| SO ₂ | 1.83 |
| VOC | 0.44 |
| HAPs | 0.02 |

IV. APPLICABLE REGULATIONS

Table 2 displays the applicable requirements for each permitted piece of equipment along with an explanation of why the requirement is applicable

Table 2: Verification of Applicable Regulations

| Unit | Control Device | Rule | Discussion |
|------------------------------|----------------|---|--|
| Crushing and Screening Plant | Water sprays | 40 CFR 60 Subpart OOO A.A.C. R18-2-722 | <p>40 CFR 60 Subpart OOO is applicable to facilities in nonmetallic mineral processing plants, which commenced construction after August 31, 1983, except for dumping of material into any screening operation, feed hopper or crusher and material transfer from a belt to a storage pile.</p> <p>A.A.C. R18-2-722 is applicable to crushing and screen facilities which commenced construction on or before August 31, 1983, and dumping of material into any screening operation, feed hopper or crusher and material transfer from a belt to a storage pile.</p> |



| Unit | Control Device | Rule | Discussion |
|--|------------------|--|--|
| Static Grizzly Screens | Water sprays | A.A.C. R18-2-722 A.A.C. R18-2-702 | <p>A.A.C. R18-2-722 and 702 are applicable to any existing (any source which does not have an applicable New Source Performance Standard) screen.</p> <p>Static grizzly screens are not subject to 40 CFR 60 Subpart OOO</p> |
| Emergency Generators | NA | 40 CFR 63 Subpart ZZZZ A.A.C. R18-2-702 | <p>A.A.C. R18-2-719 is applicable to existing internal combustion engines.</p> <p>The National Emission Standard for Hazardous Air Pollutants (NESHAP) Subpart ZZZZ is applicable to reciprocating internal combustion engines located at area sources of HAPs.</p> <p>New Source Performance Standards (NSPS) Subpart IIII is not applicable to these engines as they were constructed prior to 2006.</p> |
| Natural gas-fired comfort heating units, water heater units and steam rack boiler. | Fuel restriction | A.A.C. R18-2-724 | <p>This standard is applicable to fuel burning equipment used to produce hot water or steam.</p> <p>40 CFR 60 Subpart Dc is not applicable because the maximum heat input of each water heater or boiler is less than 10 MMBtu/hr.</p> <p>40 CFR 63 Subpart JJJJJ is not applicable to gas-fired equipment.</p> |
| Portable Pressure Washer | Fuel restriction | A.A.C. R18-2-724 40 CFR 60 Subpart JJJJ | <p>The diesel fired burner is subject to A.A.C. R18-2-724 because it is fuel burning equipment used to produce hot water or steam.</p> <p>The boiler is not subject to 40 CFR 63 Subpart JJJJJ</p> |



| Unit | Control Device | Rule | Discussion |
|------------------------------|---|--|---|
| | | | <p>because by definition it meets the applicability exception as a “hot water heater”</p> <p>The gasoline fired engine is subject to 40 CFR 60 Subpart JJJ because it was manufactured after June 12, 2006.</p> |
| Gasoline Storage Tanks | NA | A.A.C. R18-2-710 | <p>This standard is applicable storage vessels holding petroleum liquids.</p> <p>NSPS Subpart Kb is not applicable as the capacity of each gasoline storage tank is less than 20,000 gallons</p> |
| Gasoline Dispensing Facility | NA | 40 CFR 63 Subpart CCCCCC | This NESHAP Subpart is applicable to gasoline dispensing at an area source of hazardous air pollutants (HAPs). |
| Fugitive dust sources | Water Trucks Dust Suppressants | A.A.C. R18-2 Article 6 | Except as otherwise subject under A.A.C. R18-2 Article 7 or 9, these standards are applicable to any fugitive dust sources at the facility. |
| Mobile sources | NA | A.A.C. R18-2-Article 8 | These standards are applicable to off-road mobile sources, which either move while emitting air pollutants or are frequently moved during the course of their utilization |
| Abrasive Blasting | Wet blasting; Dust collecting equipment; Other approved methods | A.A.C. R-18-2-702 A.A.C. R-18-2-726 | These standards are applicable to any abrasive blasting operation. |
| Spray Painting | Enclosures | A.A.C. R18-2-727 A.A.C. R18-2-702 | <p>A.A.C. R18-2-727 is applicable to any spray painting operation, other than architectural coating or spot painting.</p> <p>A.A.C. R18-2-702 is applicable to any existing point source.</p> |



| Unit | Control Device | Rule | Discussion |
|----------------------------------|----------------|-----------------------|--|
| Demolition/renovation operations | N/A | A.A.C. R18-2-1101.A.8 | This standard is applicable to any asbestos related demolition or renovation operations. |

V. PREVIOUS PERMIT CONDITIONS

Permit No. 53591, was issued on December 16, 2011 for the continued operation of this facility. Subsequently two Minor Permit Revisions were issued. Minor Permit Revision No. 55192 was issued on April 17, 2012, to allow a contractor operated crushing and screening operation under a general permit as an alternate operating scenario. Minor Permit Revision No. 62505 was issued on July 10, 2015, to add an aggregate crushing plant and to remove the copper sulfide concentration operation which had been shut down. Table 3 below illustrates if a section in Permit No. 53591 has been revised, kept, or deleted.

Table 3: Permit No. 53591

| Section No. | Determination | | | Comments |
|------------------|---------------|------|--------|--|
| | Revised | Keep | Delete | |
| Attachment A | | | | |
| All | X | | | General Provisions - Revised to represent most recent template language. |
| Attachment B | | | | |
| I.A. | X | | | Added ALT-082 opacity measurement option. |
| I.B and I.C | X | | | Revised to most current permit format. |
| II.A | X | | | Added Condition identifying those facilities exempt from 40 CFR 60 Subpart OOO. |
| II.B.,-C, and -D | X | | | Revised outline structure for clarity and to match most current permit format. |
| II.E | X | | | Revised outline structure for clarity and to match most current permit format. Also added additional detail to performance testing requirements. |
| II | X | | | Added a permit shield. |
| III | X | | | Retitled and renumbered Section to IV. Outline structure of entire Section revised to add clarity, match current format and reflect updates to applicable rules. |
| III.B.b.3 | X | | | Expanded detail of Condition to more closely match applicable rule language. |
| III.C | X | | | Updated applicability requirement to continuous from previous (now past) initial compliance date. |
| IV | X | | | Revised Section heading and renumbered to III. |
| IV.A | X | | | Added additional applicability detail. |
| IV.B.1.b. | X | | | Added A.A.C. R18-2-702.C to this condition. |
| IV.B.3.a. | X | | | Amended condition to be a material permit condition. |



| | | | | |
|--------------|---|--|--|---|
| IV.B.3.c. | X | | | Added additional detail to monthly visual survey procedures. |
| IV | X | | | Added a permit shield. |
| V | X | | | Renumbered as Section VII and revised outline structure. |
| VI | X | | | Renumbered as Section VIII and revised outline structure. |
| VII | X | | | Renumbered as Section IX and revised to represent most recent template language. |
| VIII | X | | | Renumbered as Section X and revised to represent most recent template language. |
| IX | X | | | Renumbered as Section XI and revised to represent most recent template language. |
| Attachment C | X | | | Updated to include addition of one new grizzly screen and fuel burning equipment not previously included in permit. |

VI. MONITORING REQUIREMENTS

A. Crushing Plant Subject to NSPS Subpart OOO

1. A certified EPA Reference Method 9 observer is required conduct a monthly survey of visible emissions emanating from the affected operations. If the opacity of the emissions observed appears to exceed the standard, the observer must conduct a certified EPA Reference Method 9 observation. The Permittee is required keep records of the initial survey and any EPA Reference Method 9 observations performed. If the observation results in an exceedance of the opacity limit, the Permittee is required to take corrective action and log all such actions. All such exceedances must be reported as excess emissions
2. For affected facilities that commenced construction, modification, or reconstruction on or after April 22, 2008, the Permittee shall perform monthly periodic inspections to check that water is flowing to discharge spray nozzles in the wet suppression system. The Permittee shall initiate corrective action within 24 hours and complete corrective action as expediently.as practical if the Permittee finds that water is not flowing properly during an inspection of the water spray nozzles

B. Crushing and Screening Facilities Not Subject to NSPS Subpart OOO

1. The Permittee is required to monitor and record daily the weight of gravel or crushed stone produced.
2. A certified EPA Reference Method 9 observer is required conduct a monthly survey of visible emissions emanating from the affected operations. If the opacity of the emissions observed appears to exceed the standard, the observer must conduct a certified EPA Reference Method 9 observation. The Permittee is required keep records of the initial survey and any EPA Reference Method 9 observations performed. If the observation results in an exceedance of the opacity limit, the Permittee is required to take corrective action and log all such actions. All such exceedances must be reported as excess emissions.

C. Compression Ignition Internal Combustion Engines



1. The Permittee is required to conduct a quarterly survey of visible emissions emanating from each engine stack. If the opacity of the emissions observed appears to exceed the standard, the observer must conduct a certified EPA Reference Method 9 observation. The Permittee is required keep records of the initial survey and any EPA Reference Method 9 observations performed. If the observation results in an exceedance of the opacity limit, the Permittee is required to take corrective action and log all such actions. All such exceedances must be reported as excess emissions.
2. The Permittee is required to obtain and keep records of fuel supplier certifications listing the lower heating value and sulfur content of the fuel
3. The Permittee is required to document how many hours are spent for emergency operation, including what classified the operation as emergency and how many hours are spent for non-emergency operation.
4. The Permittee is required to document the maintenance conducted on the emergency generator engine that demonstrates operation and maintenance in accordance with the maintenance plan.

D. Natural Gas-Fired Equipment

The Permittee is required to conduct a quarterly survey of visible emissions emanating from each stack associated with the natural gas-fired equipment. If the opacity of the emissions observed appears to exceed the standard, the observer must conduct a certified EPA Reference Method 9 observation. The Permittee is required keep records of the initial survey and any EPA Reference Method 9 observations performed. If the observation results in an exceedance of the opacity limit, the Permittee is required to take corrective action and log all such actions. All such exceedances must be reported as excess emissions

E. Portable Pressure Washer

1. The Permittee is required to conduct a quarterly survey of visible emissions emanating from the oil burner. If the opacity of the emissions observed appears to exceed the standard, the observer must conduct a certified EPA Reference Method 9 observation. The Permittee is required keep records of the initial survey and any EPA Reference Method 9 observations performed. If the observation results in an exceedance of the opacity limit, the Permittee is required to take corrective action and log all such actions. All such exceedances must be reported as excess emissions.
2. The Permittee is required to obtain and keep records of diesel fuel supplier certifications listing the lower heating value and sulfur content of the fuel.
3. The Permittee is required to operate the and maintain the engine according to the manufacturer's emission-related written instructions, or keep a maintenance plan and, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions.
4. The Permittee is required to keep records of maintenance conducted on the engine.

F. Gasoline Storage Tanks



The Permittee is required to maintain a file of the typical Reid vapor pressure of gasoline stored and the dates of storage.

G. Gasoline Dispensing Facility

The Permittee is required to monitor monthly throughput of gasoline.

H. Fugitive Dust

1. The Permittee is required to keep record of the dates and types of dust control measures employed.
2. The Permittee is required to conduct a monthly survey of visible emissions emanating from the fugitive dust sources. If the opacity of the emissions observed appears to exceed the standard, the observer must conduct a certified EPA Reference Method 9 observation. The Permittee is required keep records of the initial survey and any EPA Reference Method 9 observations performed. If the observation results in an exceedance of the opacity limit, the Permittee is required to take corrective action and log all such actions. All such exceedances must be reported as excess emissions

I. Periodic Activities

1. The Permittee is required to record the date, duration and pollution control measures of any abrasive blasting project.
2. The Permittee is required to record the date, duration, quantity of paint used, any applicable MSDS, and pollution control measures of any spray painting project.
3. The Permittee is required to maintain records of all asbestos related demolition or renovation projects. The required records include the "NESHAP Notification for Renovation and Demolition Activities" form and all supporting documents.

VII. TESTING REQUIREMENTS

Crushing Plant Subject to NSPS Subpart OOO

- A.** The Permittee shall conduct initial EPA Method 9 performance tests for each affected facility, within 180 days of startup, to demonstrate compliance with the applicable opacity standards. The duration of the Method 9 observations must be 30 minutes (five 6-minute averages). Compliance with the opacity standards must be based on the average of the five 6-minute averages.
- B.** For affected facilities that commenced construction, modification, or reconstruction on or after April 22, 2008, the Permittee shall conduct a repeat performance test within five years from the previous test. If an affected facility relies on water carryover from upstream water sprays (per specific permit conditions) that facility is exempt from the five-year repeat test.

VIII. COMPLIANCE HISTORY

There have been eight report/file reviews and two site inspections conducted during the term of the previous permit.



One report was that of excess emissions due to deficiencies in operation, calibration and maintenance of the hydrogen sulfide monitoring system associated with the copper sulfide precipitation process. The Permittee ceased operation of the copper sulfide precipitation process following the August 15, 2013 excess emissions release, with subsequent decommission/removal of the process equipment. No enforcement action was taken.

No other cases or alleged violations appear to be associated with this facility or place identification number at this time.

IX. LIST OF ABBREVIATIONS

| | |
|-------------------|--|
| A.A.C. | Arizona Administrative Code |
| ADEQ | Arizona Department of Environmental Quality |
| ARS | Arizona Revised Statutes |
| CFR | Code of Federal Regulations |
| CO | carbon monoxide |
| EPA | Environmental Protection Agency |
| ft | feet |
| g | grams |
| GDF | Gasoline Dispensing Facility |
| HAP(s) | Hazardous Air Pollutant(s) |
| hp | horsepower |
| hr(s) | hour(s) |
| lb | pound |
| MMBtu | Million British thermal units |
| MMBtu/hr | Million British thermal units per hour |
| mm Hg | millimeters of mercury |
| NAAQS | National Ambient Air Quality Standard |
| NESHAP | National Emission Standards for Hazardous Air Pollutants |
| NO _x | nitrogen oxides |
| NSPS | New Source Performance Standards |
| NSR | New Source Review |
| PM | particulate matter |
| PM ₁₀ | particulate matter nominally less than 10 micrometers |
| PM _{2.5} | particulate matter nominally less than 2.5 micrometers |
| PSD | Prevention of Significant Deterioration |
| Psia | pounds per square inch (absolute) |
| PTE | Potential-to-Emit |
| SO ₂ | sulfur dioxide |
| tph | tons per hour |
| tpy | tons per year |
| USEPA | United States Environmental Protection Agency |
| VOC(s) | volatile organic compound(s) |
| yr | year |