TECHNICAL REVIEW AND EVALUATION FOR
FREEPORT-MCMORAN SIERRITA, INC.
AIR QUALITY PERMIT #6067

I. COMPANY INFORMATION

Freeport- McMoRan Sierrita, Inc. (FMSI) operates an open-pit mine and mineral concentration facility in Pima County, Arizona. The facility is located at 6200 West Duval Mine Road in Green Valley. FMSI is a Class I major source as defined in Arizona Administrative Code (A.A.C.) Title 18, Chapter 2, Section 101.64 (R18-2-101.64) and Pima County Code 17.12.140.B.1. The facility-wide potential emissions of particulate matter (PM), particulate matter less than 10 microns in diameter (PM_{10}), sulfur dioxide (SO_2), and nitrogen oxides (NO_X) are below the Title V program major source threshold of 100 tons per year. However, FMSI will continue and has accepted the requirements of the Title V program.

A. Company Information

Facility Name: Freeport- McMoRan Sierrita, Inc.
Mailing Address: P.O. Box 527, Green Valley, AZ 85622-0527

B. Attainment Classification

This source is located in an attainment area for all pollutants.

II. PROCESS DESCRIPTION

FMSI produces copper concentrate, copper cathode, copper sulfate, molybdenum trioxide, molybdenum disulfide, and rhenium. The process operations (described in more detail below) include the following:

Mining operations
Fine ore storage and handling
Molybdenum processing
Natural gas heaters and boilers
Miscellaneous and fugitive emission source process
Copper sulfate plant
Decant solids handling process

A. Mining operations

1. Ore Excavation Operations

Open pit mining operations occur at the Sierrita pit where ore material is mined from a number of active pit areas using drilling, blasting, haul truck loading, and dumping of blast materials. These activities result in fugitive emissions of PM and PM_{10}.

Fugitive PM and PM_{10} emissions from haul roads are controlled by applying water and/or other dust suppressants. PM and PM_{10} emissions from ore excavation operations are minimized by similar means. FMSI also uses controlled blasting techniques and topographical containment to minimize impact to the ambient air.

Low-grade oxide ore from the mining operation is hauled by truck and placed onto leach fields where a solution of dilute sulfuric acid is applied to the field. The resulting leachate is collected and processed by a solution extraction/electrowinning (SXEW) recovery operation to produce copper cathode. In the solution extraction process, a solution is used to extract the copper from the solid ore and transfer it in the 'pregnant leach solution' to the electrolyte. Recovery of copper is accomplished using the electrowinning process at the Twin Buttes tankhouse.

2. Primary Crushing

Sulfide ore from the ore excavation operation is transferred to one of two primary crushers where the size of the ore is reduced to six inches or less. Each primary crusher (6A and 6B) is capable of processing 5,000 tons of ore material per hour.

The primary crushing operation emits both fugitive and non-fugitive PM and PM_{10}. Non-fugitive PM and PM_{10} emissions are vented to two cartridge dust collectors, one for each primary crusher. Fugitive PM and PM_{10} emissions are controlled using spray bars and other similar means.

3. Overland Ore Conveying System

The crushed ore from the primary crushers (6A and 6B) is transported using an overland conveyor system to the Sierrita coarse ore stockpile. The conveyor system is a source of fugitive PM and PM_{10} emissions which are minimized using water spray systems.

4. Secondary and Tertiary Crushing (Fine Crushing Plant)

Coarse ore is then transferred from the stockpile using a reclaim conveyor system to the secondary and tertiary crushing systems where the material is further reduced in size. Crushed material from each step is screened to remove material that is 5/8 inch and smaller. This small-sized material is then transferred to the fine ore bin where it is stored as feed for the ball mill operation. Larger material is sent back for further crushing.

Cartridge dust collectors are used to control emissions from the secondary and tertiary crusher operations as well as the fine or bin. Seven of the cartridge dust collectors will be vented inside the building, further reducing PM and PM_{10} emissions to the atmosphere.

B. Fine Ore Storage and Handling

1. Milling/Grinding and Flotation

Crushed ore from the fine ore bin is transferred to the milling/grinding circuit using a mill feed belt system located inside the mill building. At the milling/grinding circuit, the size of the crushed material is further reduced to that of sand using 16 single-stage ball mills. Ore and water are mixed together in each ball mill where the ore is pulverized as it passes through the mill.

Final grind material is then advanced for primary flotation which uses a mixture of liquid reagents to recover copper and molybdenum from the milled ore. The remaining material (which has had copper and molybdenum removed) is referred to as “tailing”. The tailing slurry is then thickened and deposited in the tailing dam.

Following primary flotation, the copper and molybdenum-containing material is then processed in a second flotation circuit where the molybdenum disulfide is separated from the final copper concentrate. The molybdenum disulfide is upgraded and filtered before being sent to the Molybdenum Processing Plant. The copper-containing fraction is thickened and filtered to produce the final copper concentrate. The final copper concentrate is shipped by rail to an off-site smelter or is stored on site.

2. Tailing

Tailing slurry flows from the concentrator for permanent disposal at the Sierrita tailing dam (Fugitive emissions from the tailing dam are controlled according to the Title V permit and the Tailing Dam Dust Control Management Plan).

3. Concentrate Storage

Copper concentrates are stored in covered and uncovered outdoor storage areas for loading and shipment off site. Fugitive emissions from movement of copper concentrate are minimized by the high material moisture content.

4. Lime Handling

Bulk lime is used as pH control for various processes. In addition to enclosures, a wet scrubber is used to control PM and PM_{10} emissions from lime handling.

C. Molybdenum Processing Plant

1. Unleached Molybdenum Sulfide Storage, Screening, and Handling

Molybdenum disulfide from the flotation process is filtered and transferred to the Molybdenum Processing Plant for drying and storage prior to further refining or shipment as necessary. Material is transferred within the Molybdenum Processing Plant via enclosed screw conveyors. A fabric filter is used to control emissions from storage bins and material handling activities. A wet scrubber controls emissions from dryers.

2. Leached Molybdenum Plant

Unleached molybdenum disulfide contains copper and lead sulfide as impurities which are removed using a hot ferric chloride leach. The impurity-containing liquid is then separated from the molybdenum-containing solids. The solid material (containing molybdenum disulfide) is then dried and stored. The copper is recovered from the liquid phase. The leach liquor is regenerated through chlorination.

A fabric filter controls particulate emissions from the storage bins and material handling. Particulate emissions from the dryers are controlled by one of two wet scrubbers. Chlorine and hydrochloric acid emissions from the ferric chloride leach processing area are controlled by a fume scrubber.

3. Molybdenum Roasting and Rhenium Recovery

Leached molybdenum disulfide is roasted to yield molybdenum trioxide (MO_3). Pollutants generated from roasting include SO_2, PM, and PM_{10}. PM and PM_{10} are first removed using an electrostatic precipitator. SO_2 is then removed using a lime slurry scrubber with an associated mist eliminator. SO_2 emissions from this process are monitored using a continuous emission monitoring system (CEMS).

MO_3 is placed in storage bins. Most of MO_3 is packaged in the cannery for shipment off-site. Some is pressed into solid briquettes. PM and PM_{10} emissions from material handling, storage, and packaging are controlled using fabric filters.

Rhenium oxide is recovered from the off gas of the molybdenum roasting process described above. Rhenium is condensed, collected, concentrated, and pumped to an ion exchange process for refining and shipment.

D. Natural Gas Heaters and Boilers

FMSI operates numerous process boilers and heaters that range from 1.2 to 25 million British thermal units per hour (MMBtu/hr). The units primarily use natural gas but are capable of burning propane. Additional fuel-burning equipment rated at less than 1 MMBtu/hr is used on site for building and water heating purposes.

E. Miscellaneous and Fugitive Emission Source Processes

1. Electrowinning Tankhouse

   The Twin Buttes electrowinning tankhouse receives "pregnant" (copper-containing) electrolyte solution from the solution extraction (SX) plant. In each electrowinning tank, metallic copper is plated on cathode plates by applying electric current to the "pregnant" solution. Barren electrolyte solution is recycled back to the SX plant. Fugitive volatile organic compound (VOC) emissions are controlled by the use of balls or foam blankets or a surfactant.

2. Gasoline Storage Tanks

   Three unleaded gasoline storage tanks equipped with submerged filling devices are located on site.

3. Road Rock Crushing and Screening Plant

   Rock used for road base material and fill material is crushed in the portable rock crushing plant. The plant consists of a grizzly feeder, conveyors, a triple deck screen, a cone crusher, and a radial stacker. PM and PM_{10} emissions from this operation are controlled by water sprays.

4. Miscellaneous Screens and Grizzlies

   Miscellaneous portable dump hoppers, screens, and grizzly feeders are used to facilitate cleanup or classify trench bedding and other fine soil materials. These operations result in fugitive PM and PM_{10} emissions.

5. Portable Screen Plant

   FMSI operates a portable screen plant powered by a 160 horsepower (HP) diesel engine. The plant is used to separate spent steel grinding balls from undersize ore.

6. Magnetic Steel Recovery Plant

   FMSI operates a magnetic steel recovery system consisting of six conveyor belts and two magnets that works in conjunction with the portable screen plant described above.

7. Electric Generators

   FMSI also operates numerous small gasoline and diesel-fired internal combustion engines for emergency or standby service or for use with welders, compressors, light plants, water pumps, etc. All of these engines which were previously determined to be "insignificant" have been accounted for in the emission calculations. Inclusion of even these small emission sources is required for a synthetic minor permit approval. In estimating the emission rates of these sources, FMSI assumed no more than 1,000 hours of operation per year for all generators, except the portable screen plant generator (Source ID 124), the magnetic steel recovery plant generator (Source ID 125), the primary crusher basement generator (Source ID 126) and the Hydromet #3 headwall generator (Source ID 126). For the Hydromet #3 headwall generator, FMSI assumed 1500 hours per year of operation. Associated limits on the number of operating hours are included in the permit. These further support the annual limits.

F. Decant Solids Handling Process

Decant solution from the flotation process is delivered to two cement decant ponds where the solution is allowed to dry. Stockpiled solids are converted to liquid slurry and recycled back to the flotation process for additional molybdenum recovery.

The facility-wide potential-to-emit is summarized in Tables III-1 below.

Table III-1

Emission Source	Regulated Pollutant (in tons per year)							
	PM	PM_{10}	$PM_{2.5}$	NO_X	SO_2	CO	VOC	HAP_S (Total)
Facility Wide Potential to Emit	97.93	72.27	20.56	81.04	81.05	49.77	72.73	4.13

IV. COMPLIANCE HISTORY

The last Full Compliance Evaluation (FCE) was conducted in October 2013 with no deficiencies noted with respect to permit conditions. Since the last FCE was conducted, several minor permit revisions were requested for the installation of emergency generators (6067-24P, 6067-25P), and the installation of an additional dust pick-up point for #15 Mill Wet Scrubber (Source ID 033).

Since the last FCE, PDEQ has received 28 permit deviation and/or excess emissions reports from FMSI. Twelve of these consisted of excess emissions reports for the tailings impoundment. Currently, there are no permit deviations or excess emission reports open or unresolved.

Eleven complaints have been received by PDEQ for the facility since the last FCE. Two of these complaints pertained to odor, and the remainder concerned fugitive dust from the tailings impoundment. Since the last FCE, PDEQ has issued two Opportunity to Correct (OC) actions for the facility: 6067-67D, failure to route molybdenum roaster off-gas through pollution control devices until the roaster ceased operating for at least 24 consecutive hours, as required by permit condition Attachment B, Section IX.B.2.c.ii. and 6067-76D, failure to maintain and operate the facility including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions [A.A.C. R18-2-331.A.3.d, -901(1) and 40 CFR 60.11(d)]. No Notice of Violation (NOV) have been issued by PDEQ to the facility since the previous FCE was conducted.

V. APPLICABLE REGULATIONS

As part of the Title V permit renewal application submittal, the Permittee performed a regulatory review and identified air quality regulations applicable to the existing and proposed new emission units at FMSI. Section 3.0 of the permit application presented a summary of the applicable requirements.

VI. EXPLANATIONS OF APPLICABILITY AND NON- APPLICABILITY DETERMINATIONS

Establishment of voluntarily accepted facility-wide emission limits for non-fugitive emissions of PM, PM_{10}, and SO_2 in accordance with PCC 17.12.190.C.

By accepting limits FMSI will be classified as a minor source under the PSD permit program. FMSI will still be classified as a major source under the Tile V permitting program.

In order to support the requested facility-wide limitations, FMSI has proposed a maximum allowable material throughput rate of 43,800,000 tons of material processed per year before the wet scrubbers are replaced with more efficient cartridge dust collectors and 55,845,000 tons per year after replacement. Rolling 12-month total material throughput limits with associated tracking have been included in the permit to address both pre- and post-replacement scenarios.

In addition to the annual material throughput limits, FMSI's permit includes a limitation on the number of pounds of PM and PM_{10} that may be emitted from point sources. Also, FMSI is not permitted to begin operation of the new high pressure grinding roll operation until more efficient dust collectors replace the designated wet scrubbers.

The Permittee is also required to calculate monthly and 12-month rolling total PM, PM_{10} and SO_2 emission rates in order to show compliance with the limits. In conducting these calculations, the Permittee must assume that PM and PM_{10} emission factors (and therefore emission rates) are equal unless otherwise demonstrated. For future equipment changes, the Permittee may propose in the application and the PDEQ may approve PM and PM10 emission factors that differ from each other.

In order to demonstrate compliance with the proposed limits, FMSI provided emission test data for each existing wet scrubber. FMSI accounted for emissions for the proposed cartridge dust collectors, using the vendor emission guarantee of 0.002 grains per dry standard cubic foot for each collector.

VII. PERIODIC MONITORING

A. Mines, Material Transfer, and Concentrators

1. Equipment Subject to Non-NSPS- PM and Opacity Standards

These units are subject to the 20 percent opacity standard under Pima County Code 17.16.360 and 17.16.050. The Permittee is required to establish a baseline opacity level at the exit of air pollution control equipment under normal representative operating conditions. The Permittee is required to conduct periodic surveys of the visible emissions from the emission units including fugitive and non-fugitive emissions in accordance with the permit and including the elements of the Source Opacity Observation Plan Outline shown in Attachment 1. The Permittee is required to create a record of the date on which the survey was taken, the name of the observer, and the results of the survey. If the visible emissions do not appear to exceed the baseline opacity level, the Permittee would note in the record that the visible emissions were below the baseline opacity, and it did not require a Method 9 to be performed.

If the Permittee finds that on an instantaneous basis the visible emissions appear to be in excess of the baseline opacity level but appear to be below the opacity standard, then the Permittee is required to make a six-minute Method 9 observation. If this observation indicates opacity in excess of the baseline opacity level but below the opacity standard then the Permittee is required to adjust or repair the controls or the equipment to bring the opacity below baseline level.

If the six-minute reading indicates that the opacity is above both the baseline level and the opacity standard then the Permittee is required to adjust the process equipment or process control equipment to bring the opacity below the baseline level. In addition, the Permittee must report the event as excess emission.

If the Permittee finds that the visible emissions are less than the baseline opacity, then the Permittee is required to record the source of emission, date, time, and result of the test. The Permittee is required to adopt a similar approach with fugitive dust emissions at the mine. However, rather than establishing baseline opacity level for fugitive emissions the Permittee is required to conduct a visual survey of visible emissions against the 40 percent opacity standard.

The bi-weekly visual survey approach identified in the preceding paragraphs will reasonably assure compliance with the opacity and particulate matter standards. The permit requires a representative stack test every year plus periodically monitoring of stack opacity to fulfill the periodic monitoring requirements for particulate matter emissions.

Although no data is available to directly correlate opacity to particulate matter emissions, opacity observation will indicate potential problems with the air pollution control equipment. If corrective actions are taken to rectify the problems associated with the pollution control device, then compliance can be inferred on the basis that the source operates its pollution control equipment in a manner consistent with good air pollution control practices. Opacity above the baseline level but less than the standard does not hold the source in violation of the particulate matter standard, but merely requires the source to identify and alleviate the problem by taking corrective actions to reduce the opacity to less than the baseline level. However, not taking corrective action could potentially hold the source in violation of the permit terms.

Also, it shall be noted that all references to a Method 9 observation shall be construed as meaning a six-minute observation and not a 3-hour performance test.

2. Equipment Subject to NSPS PM and Opacity Standards

These units are subject to the stack opacity standard of 7 percent (unless controlled by a wet scrubbing emission control device) under 40 CFR 60.382(a)(2), the fugitive opacity standard of 10 percent under 40 CFR 60.382(b), and the particulate matter standard of 0.05 grams per dry standard cubic meter under 40 CFR 60.382(a)(1).

For the purposes of periodic monitoring of particulate matter emissions, the Permittee is required to install, calibrate, maintain, and operate monitoring devices for continuous measurement of the change in pressure of the gas stream through the scrubber and the scrubbing liquid flow rate to the scrubber. For the purposes of periodic monitoring of opacity of fugitive emissions, the Permittee is required to adopt the weekly visual survey of visible emissions approach identified above against the applicable fugitive opacity standard of 10 percent in accordance with the permit and including the elements described in the Source Opacity Observation Plan Outline shown in Attachment 1.

B. Natural Gas Fired Heaters and Boilers

1. Opacity

The boilers are subject to the opacity standard of 20 percent under the general visible emissions rule in PCC 17.16.165. These units burn only natural gas. Natural gas is a clean burning fuel and inspections indicate that there have been no opacity problems. Hence, reduced opacity monitoring is required.

2. PM

The units are also subject to the particulate matter emissions standard in PCC 17.16.165. This unit burns only natural gas. Natural gas is a clean burning fuel and results in negligible particulate matter emissions. Hence, no monitoring is required when burning natural gas.

C. Generators

1. Stationary Internal Combustion Engines subject to State Rules

a. Opacity

The internal combustion engines are subject to the opacity standard of 40 percent under the general visible emissions rule in PCC 17.16.340. The Permittee shall keep records of fuel supplier specifications.

b. Sulfur

The internal combustion engines are subject to the fuel limitation to burn low sulfur oil in rule PCC 17.16.340. The Permittee shall keep records of fuel supplier specifications.

2. Stationary Internal Combustion Engines subject to New Source Performance Standards

   a. For particulate matter, the Permittee shall, for the internal combustion engines equipped with diesel particulate filter, keep records of any corrective action taken after the high back pressure limit of the engine has been reached.

   b. For nitrogen oxide emission limitations, the Permittee shall maintain records, including manufacturer specifications, demonstrating that the internal combustion engine meets the horsepower and RPM specifications.

D. Fugitive Sources Monitoring

Fugitive sources are subject to a 20 percent opacity limit and other Article 6 requirements. Periodic monitoring for opacity standard entails visible emissions surveys conducted by a certified Method 9 observer, in accordance with the permit and the PDEQ-approved Observation Plan. Elements of the Source Opacity Observation Plan are described in Attachment 1. If the visible emissions survey indicates that a Method 9 reading may be required, the observer shall do so, and maintain records of the results. Any observed exceedance of the opacity standard should be reported appropriately.

Article 6 regulations also contain applicable requirements for non-point source emissions. These regulations require the Permittee to employ various control methods to suppress particulate emissions. The permit lists the various methods of dust suppression that may be used. By not restricting the Permittee to use only one of the methods, the permit provides the flexibility required to facilitate employment of effective control measures. Periodic monitoring data for these applicable requirements is collected in accordance with the permit and includes the elements described in the Source Opacity Observation Plan Outline shown in Attachment 1 of this document.

The Permittee shall maintain a Tailing Dam Dust Control Management Plan containing elements like description of the reasonable precautions used to control fugitive dust emissions from the tailing impoundment, including but not limited to the use of the "wet dam" construction method, berm construction techniques to minimize dust emissions, new tailing dam roads shall be capped with native soil and routinely watered as soon as practicable, heavily traveled perimeter roads shall be treated with dust suppressant (e.g., magnesium chloride), and re-vegetation techniques to be used for surface stabilization where practical. If after events like heavy rainfall (sufficient to cause surface runoff and flushing of natural dust suppressing surface salts) the upper most layer becomes susceptible to wind erosion, the Permittee shall implement and document additional control measures.

VIII. PERFORMANCE TESTING

A. Performance Testing

FMSI is required to conduct performance testing on various emission points in order to determine whether the facility is in compliance with permit limits and remains below the PSD major source thresholds.

B. Proposed Testing Frequency

PDEQ has incorporated appropriate testing frequencies into the permit. See page 43 of the Permit.

IX. COMPLIANCE ASSURANCE MONITORING (CAM)

CAM is applicable to emission units at major sources with uncontrolled potential emissions equal to or greater than 100 tons per year (10 & 25 tons per year for HAP) that are subject to a non-exempted emission limitation or standard and that are equipped with a control device to achieve compliance with the subject limitation or standard. The molybdenum roaster meets the CAM criteria for SO_2 but is exempt from CAM because the permit requires the use of a continuous emission monitoring system to continuously monitor for compliance with SO_2 limits.

The emission units listed in Table VIII-1 are subject to CAM for particulate matter emissions. Table VIII-1 also summarizes the monitoring approach for each type of control system. FMSI submitted CAM plans with the application for the different types of control systems used to control PM and PM_{10} emissions. These plans have been carefully reviewed, modified, and the approved version included in the permit.

Table VIII-1: SUMMARY OF CAM REQUIREMENTS

Control Device	Emission Units	Monitoring Approach
Wet Scrubbers	053, 054, Molybdenum leach dryers	Scrubber liquid flow rate and pressure differential are measured at least every hour. Three-hour block averages are computed from the measurements. Any three-hour block average that deviates from the average obtained during the most recent successful performance test by more than 30 percent is an excursion.
Dust collectors	009-017, Fine ore storage and handling 201-204, Secondary crushing 301-312, Tertiary crushing	Pressure differential across the dust collector/copper sulfate product recovery collector is required to be read daily. Any pressure differential reading that is outside the range included in the permit is an excursion. In addition, visible emissions observations must be conducted on a daily basis. An excursion occurs when visible emissions are observed.
Electrostatic precipitators	058, Molybdenum roasting	Primary current and voltage must be monitored continuously. One-hour averages must be computed from the continuous data. Any one-hour average that is outside the range included in the permit is an excursion.

X. INSIGNIFICANT ACTIVITIES

The following activities were proposed as insignificant by the Applicant and are approved as such by the Department.

1. Diesel and fuel oil storage tanks with a capacity of 40,000 gallons or less.
2. Batch mixers with rated capacity of five cubic feet or less
3. Equipment using water, water and soap or detergent, or a suspension of abrasives in water for purposes of cleaning or finishing
4. Aerosol can usage
5. Acetylene, butane, and propane torches
6. Blast-cleaning equipment using a suspension of abrasive in water and any exhaust system or collector serving them exclusively
7. Lubricating system reservoirs
8. Hydraulic system reservoirs
9. Adhesive use which is not related to production
10. Production of hot/chilled water for onsite use not related to an industrial process
11. General vehicle maintenance and servicing activities
12. Storage cabinet for flammable materials
13. Housekeeping activities and associated products used for cleaning purposes, including collected, spilled, and accumulated materials at the source, including operation of fixed vacuum cleaning systems for such purposes
14. General office activities such as paper shredding and copying, photographic activities, and blueprinting
15. Vacuum cleaning systems where the system is used exclusively for industrial or commercial use
16. Chemical storage associated with water and wastewater treatment where the water is treated for consumption and/or use within the permitted facility (limited to chemicals not listed in 40 CFR 68.13, chemicals listed in 40 CFR 68.13 but stored in quantities less than threshold levels, and not subject to any applicable regulation under the Act or the Arizona Revised Statutes)
17. The collection, transmission, liquid treatment and solids treatment process and domestic type wastewater and sewage treatment, or treatment facilities, including septic tank systems which treat only domestic type wastewater and sewage
18. Chemical storage and process holding tanks (limited to chemicals not listed in 40 CFR 68.13, chemicals listed in 40 CFR 68.13 but stored in quantities less than threshold levels, and not subject to any applicable regulation under the Act or the Arizona Revised Statutes)
19. Storage and piping of natural gas or liquefied petroleum gas
20. Petroleum product storage tanks less than 40,000 gallons containing lubricating oil, transformer oil, or used oil
21. Distribution and piping of diesel fuel, lubricating oil, used oil, and transformer oil
22. Storage and handling of drums or other transportable containers where the containers are sealed during storage, and covered during loading and unloading (includes containers of Resource Conservation and Recovery Act waste and used oil)
23. Used oil collection and storage
24. Use of pesticides, fumigants, and herbicides
25. Air lance operations
26. Railroad maintenance
27. Cleanup of railcars
28. Cleanup of clogged chutes
29. Street and parking lot striping
30. Maintenance, repair or dismantlement of buildings, utility lines, pipelines, wells, and other structures that do not constitute an emissions unit
31. Surface impoundments such as ash ponds, cooling ponds, evaporation ponds, settling ponds, and storm water ponds
32. Pump/motor oil reservoirs, such as gearbox lubrication.
33. Transformer vents
34. Caulking operations that are not part of a production process.
35. Electric motors

36. Cathodic protection systems
37. Soil gas sampling
38. Filter draining
39. General vehicle maintenance and servicing activities at the source.
40. Station transformers
41. Circuit breakers
42. Generation unit gas vents
43. Wet cyclones and the ball mill circuits operated at the concentrators.
44. Copper and molybdenite flotation
45. General research activities such as testing water mist/spray controls for dust abatement
46. Filter press vacuum manifolds

XI. LIST OF ABBREVIATIONS

A.A.C.	Arizona Administrative Code
PDEQ	Pima County Department of Environmental Quality
CAM	Compliance Assurance Monitoring
CEMS	Continuous Emission Monitoring System
CFR	Code of Federal Regulations
CO	Carbon Monoxide
CO_2	Carbon Dioxide
FFDC	Fabric Filter Dust Collector
FMSI	Freeport-McMoRan Sierrita Incorporated
hr	Hour
HP	High Pressure
HPGR	High Pressure Grinding Roll
lb	Pound
MMBtu	Million British Thermal Units
MW	Megawatts
MO_3	Molybdenum trioxide
NOV	Notice of Violation
NO_x	Nitrogen Oxide
NSPS	New Source Performance Standards
PCC	Pima County Code
PM	Particulate Matter
PM_{10}	Particulate Matter Nominally less than 10 Micrometers
PSD	Prevention of Significant Deterioration
PSEU	Pollutant Specific Emission Unit
PTE	Potential-to-Emit
SO_2	Sulfur Dioxide
SX/EW	Solvent Extraction & Electrowinning Plant
TPY	Tons per Year
EPA	Environmental Protection Agency
VOC	Volatile Organic Compound

Attachment 1
Source Opacity Observation Plan Outline

ID	Source Description	Fugitive Source	Non-Fugitive Source	Point Source	Non-point Source	NSPS	Opacity Standard	Baseline Opacity Required
	NSPS Building emissions	x			x	x	10%	
	Non NSPS Building Emissions	x			x		20%	
Mine Operations								
88	Drilling Operations	X			X		20%	
89	Ammonium Nitrate Storage	X			X		20%	
66	Blasting Operations	X			X		20%	
97	Haul Truck Loading and Dumping	X			X		20%	
77	Unpaved Roads	X			X		20%	
Primary Crushing								
	Primary Crusher 6A and associated feed belts		X	X		X	7%	X
	Primary Crusher 6B and associated feed belts		X	X		X	7%	X
113 A	Cartridge Collector		X	X		X	7%	X
113 B	Cartridge Collector		X	X		X	7%	X

ID	Source Description	Fugitive Source	Non-Fugitive Source	Point Source	Non-point Source	NSPS	Opacity Standard	Baseline Opacity Required
Overland Conveying								
95	Sierrita A2 to A3 Conveyor Transfer		X	X			20	X
72	A3 Stacker to Sierrita Coarse Ore Stockpile	X			X		20	
69	Sierrita B2 to B3 Conveyor Transfer		X	X			20	X
96	Sierrita B3 Conveyor to B4 Stacker Transfer		X	X			20	X
102	B4 Stacker to Sierrita Coarse Ore Stockpile	X			X		20	

ID	Source Description	Fugitive Source	Non-Fugitive Source	Point Source	Non-point Source	NSPS	Opacity Standard	Baseline Opacity Required
Fine Ore Crushing -Secondary and Tertiary Crushing Plant								
201	#1 Coarse Ore Reclaim Belt (Apron Feeder)		X	X		X		
	#1 Coarse Ore Reclaim Feeders (2 Feeders – North and South)		X	X		X		
	#1 Scalping Screen		X	X		X		
	8A Conveyor Belt (fugitives pick up on conveyor)		X	X		X		
	#1 Secondary Crusher (emissions pick-up from discharge screen)		X	X		X		
	#1 Secondary Discharge Screen		X	X		X		
	7B Conveyor Belt (emissions pick-up on belt from #1 Secondary Discharge Screen)		X	X		X		

ID	Source Description	Fugitive Source	Non-Fugitive Source	Point Source	Non-point Source	NSPS	Opacity Standard	Baseline Opacity Required
201	RB-1 Conveyor Belt (emissions pick-up on belt from #1 Secondary Discharge Screen)		X	X		X	7%	X
	#1 Secondary Dust Collector		X	X		X		
202	#2 Coarse Ore Reclaim Belt (Apron Feeder)		X	X		X	10% from bldg	
	#2 Coarse Ore Reclaim Feeders (2 Feeders – North and South)		X	X		X		
	#2 Scalping Screen		X	X		X		
	8A Conveyor Belt (fugitive emissions pick-up on conveyor belt)		X	X		X		
	#2 Secondary Crusher (emissions pick-up from discharge screen)		X	X		X		
	#2 Secondary Discharge Screen		X	X		X		
	7B Conveyor Belt (emissions pick-up on belt from #2 Secondary Discharge Screen)		X	X		X		
	RB-1 Conveyor Belt (emissions pick-up on belt from #2 Secondary Discharge Screen)		X	X		X		
	#2 Secondary Dust Collector – VENTED INDOORS		X	X		X		
203	#3 Coarse Ore Reclaim Belt (Apron Feeder)		X	X		X		
	#3 Coarse Ore Reclaim Feeders (2 Feeders – North and South)		X	X		X		
	#3 Scalping Screen		X	X		X		

ID	Source Description	Fugitive Source	Non-Fugitive Source	Point Source	Non-point Source	NSPS	Opacity Standard	Baseline Opacity Required
	8A Conveyor Belt (fugitive emissions pick-up on conveyor belt)		X	X		X		
	#3 Secondary Crusher (emissions pick-up from discharge screen)		X	X		X		
	#3 Secondary Discharge Screen		X	X		X		
	7B Conveyor (emissions P.U. on belt from #3 Sec. Disch. Screen)		X	X		X		
	RB-1 Conveyor (emissions P.U. on belt from #3 Sec. Disch. Screen)		X	X		X		
203	#3 Secondary Dust Collector		X	X			7%	X
	#4 Coarse Ore Reclaim Belt (Apron Feeder)		X	X		X		
	#4 Coarse Ore Reclaim Feeders (2 Feeders – North and South)		X	X		X		
	#4 Scalping Screen		X	X		X		
	8A Conveyor (fugitive emissions pick-up on conveyor belt)		X	X		X		
	#4 Secondary Crusher (emissions pick-up from discharge screen)		X	X		X		
	#4 Secondary Discharge Screen		X	X		X		
	7B Conveyor (emissions pick-up on belt from #4 Sec. Disch. Screen)		X	X		X		
	RB-1 Conveyor (emissions pick-up on belt from #4 Sec. Disch. Screen)		X	X		X		
204	#4 Secondary Dust Collector - VENTED INDOORS		X	X		X	10% from bldg	

ID	Source Description	Fugitive Source	Non-Fugitive Source	Point Source	Non-point Source	NSPS	Opacity Standard	Baseline Opacity Required
	Coarse Ore Bin		X			X		
	#1 Tertiary Crusher Feeder Belt		X	X		X		
	No. 1 Tertiary Crusher (emissions pick-up at feed chute)		X	X		X		
	No. 1 Tertiary Discharge Screen		X	X		X		
	7B Conveyor (emissions pick-up on belt from #1 Tertiary Disch. Screen)		X	X		X		
	RB-1 Conveyor (emissions pick-up on belt from #1 Tert. Disch. Screen)		X	X		X		
301	#1 Tertiary Dust Collector		X	X		X	7%	X
	Coarse Ore Bin		X			X		
	#2 Tertiary Crusher Feeder Belt		X	X		X		
	#2 Tertiary Crusher		X	X		X		
	#2 Tertiary Discharge Screen		X	X		X		
	7B Conveyor (emissions pick-up on belt from #2 Tert. Disch. Screen)		X	X		X		
	RB-1 Conveyor (emissions pick-up on belt from #2 Tert. Disch. Screen)		X	X		X		
302	#2 Tertiary Dust Collector		X	X		X	7%	X

ID	Source Description	Fugitive Source	Non-Fugitive Source	Point Source	Non-point Source	NSPS	Opacity Standard	Baseline Opacity Required
	Coarse Ore Bin		X			X		
	#3 Tertiary Crusher Feeder Belt		X	X		X		
	No. 3 Tertiary Crusher (emissions pick-up at feed chute)		X	X		X		
	#3 Tertiary Discharge Screen		X	X		X		
	7B Conveyor (emissions pick-up on belt from #3 Tert. Disc. Screen)		X	X		X		
	RB-1 Conveyor (emissions pick-up on belt from #3 Tert. DiscH. Screen)		X	X		X		
303	#3 Tertiary Dust Collector		X	X		X	7%	X
	Coarse Ore Bin		X			X		
	#4 Tertiary Crusher Feeder Belt		X	X		X		
	#4 Tertiary Crusher (emissions pick-up at feed chute)		X	X		X		
	#4 Tertiary Discharge Screen		X	X		X		
	7B Conveyor Belt (emissions pick-up from #4 Tertiary Discharge Screen)		X	X		X		
	RB-1 Conveyor (emissions pick-up on belt from #4 Tert. Disch. Screen)		X	X		X		
304	#4 Tertiary Dust Collector		X	X		X	7%	X

ID	Source Description	Fugitive Source	Non-Fugitive Source	Point Source	Non-point Source	NSPS	Opacity Standard	Baseline Opacity Required
	Coarse Ore Bin		X			X		
	#5 Tertiary Crusher Feeder Belt		X	X		X		
	No. 5 Tertiary Crusher		X	X		X		
	No. 5 Tertiary Discharge Screen		X	X		X		
	7B Conveyor Belt (emissions pick-up from #5 Tertiary Discharge Screen)		X	X		X		
	RB-1 Conveyor (emissions pick-up on belt from #5 Tert. Disch. Screen)		X	X		X		
305	#5 Tertiary Dust Collector		X	X			7%	X
	Coarse Ore Bin		X			X		
	#6 Tertiary Crusher Feeder Belt		X	X		X		
	#6 Tertiary Crusher (emissions pick-up at feed chute)		X	X		X		
	#6 Tertiary Discharge Screen		X	X		X		
	7B Conveyor (emissions pick-up on belt from #6 Tert Disch. Screen)		X	X		X		
	RB-1 Conveyor (emissions pick-up on belt from #6 Tert. Disch. Screen)		X	X		X		
306	#6 Tertiary Dust Collector		X	X		X	7%	X

ID	Source Description	Fugitive Source	Non-Fugitive Source	Point Source	Non-point Source	NSPS	Opacity Standard	Baseline Opacity Required
	Coarse Ore Bin		X			X		
	#7 Tertiary Crusher Feeder Belt		X	X		X		
	No. 7 Tertiary Crusher (emissions pick-up at feed chute)		X	X		X		
	No. 7 Tertiary Discharge Screen		X	X		X		
	7B Conveyor (emissions pick-up on belt from #7 Tert. Disch. Screen)		X	X		X		
	RB-1 Conveyor (emissions pick-up on belt from #7 Tert. Disch. Screen)		X	X		X		
307	#7 Tertiary Dust Collector		X	X		X	7%	X
	Coarse Ore Bin		X	X		X		
	#8 Tertiary Crusher Feeder Belt		X	X		X		
	#8 Tertiary Crusher		X	X		X		
	#8 Tertiary Discharge Screen		X	X		X		
	7B Conveyor Belt (emissions pick-up from #8 Tertiary Discharge Screen)		X	X		X		
	RB-1 Conveyor (emissions pick-up on belt from #8 Tert. Disch. Screen)		X	X		X		
308	#8 Tertiary Dust Collector		X	X		X	7%	X

ID	Source Description	Fugitive Source	Non-Fugitive Source	Point Source	Non-point Source	NSPS	Opacity Standard	Baseline Opacity Required
	Coarse Ore Bin		X			X		
	#9 Tertiary Crusher Feeder Belt		X	X		X		
	No. 9 Tertiary Crusher (emissions pick-up at feed chute)		X	X		X		
	No. 9 Tertiary Discharge Screen		X	X		X		
	7B Conveyor (emissions pick-up on belt from #9 Tert. Disch. Screen)		X	X		X		
	RB-1 Conveyor (emissions pick-up on belt from #9 Tert. Disch. Screen)		X	X		X		
309	#9 Tertiary Dust Collector		X	X		X	7%	X
	Coarse Ore Bin		X			X		
	#10 Tertiary Crusher Feeder Belt		X	X		X		
	No. 10 Tertiary Crusher		X	X		X		
	No. 10 Tertiary Discharge Screen		X	X		X		
	7B Conveyor Belt (emissions pick-up from #10 Tertiary Discharge Screen)		X	X		X		
	RB-1 Conveyor (emissions pick-up on belt from #10 Tert. Disch. Screen)		X	X		X		
310	#10 Tertiary Dust Collector		X	X		X	7%	X

ID	Source Description	Fugitive Source	Non-Fugitive Source	Point Source	Non-point Source	NSPS	Opacity Standard	Baseline Opacity Required
	7A/7B Conveyor Transfer Point		X	X		X		
	7C Head Pulley		X	X				
	8D/RB-1 (RB-1 was formerly 8B) Conveyor Transfer Point		X	X		X		
	RB-4 to RB-5 Conveyor Transfer Pt		X	X		X		
	RB-5 to 8B Conveyor Transfer Point		X	X		X		
311	CTP Dust Collector (Existing No. 12)		X	X		X	7%	X
	7B to 7C Conveyor Transfer Point		X	X		X		
	7C Conveyor Belt		X	X				
312	Transfer House Dust Collector		X	X		X	7%	X
	#1 HPGR Crusher		X	X		X		
	HPGR Product Conveyor RB-4		X	X				
	(Discharge of Crusher to Conveyor)		X	X				
	#1 HPGR Belt Feeder RFB-1		X	X				
	HPGR Fine Ore Bin		X	X		X		
401	#1 HPGR Dust Collector		X	X			7%	X

ID	Source Description	Fugitive Source	Non-Fugitive Source	Point Source	Non-point Source	NSPS	Opacity Standard	Baseline Opacity Required
Fine Ore Storage and Handling and Sierrita Mills								
009-017	Fine Ore Bin and Tripper Conveyor		X	X				
009	#1 Baghouse - Sierrita Fine Ore Bin		X	X			20%	X
010	#2 Baghouse - Sierrita Fine Ore Bin		X	X			20%	X
011	#3 Baghouse - Sierrita Fine Ore Bin		X	X			20%	X
012	#4 Baghouse - Sierrita Fine Ore Bin		X	X			20%	X

ID	Source Description	Fugitive Source	Non-Fugitive Source	Point Source	Non-point Source	NSPS	Opacity Standard	Baseline Opacity Required
013	#5 Baghouse - Sierrita Fine Ore Bin		X	X			20%	X
014	#6 Baghouse - Sierrita Fine Ore Bin		X	X			20%	X
015	#7 Baghouse - Sierrita Fine Ore Bin		X	X			20%	X
016	#8 Baghouse - Sierrita Fine Ore Bin		X	X			20%	X
017	#9 Baghouse - Sierrita Fine Ore Bin		X	X			20%	X
018	#0 Fine Ore Feeder Belts (3ea.)		X	X				
	# 0 Mill Collector Belt		X	X				
	# 0 Mill Feed Conveyor		X	X				
	# 0 Wet Scrubber - Sieritta Mill		X	X			20%	X
019	# 1 Fine Ore Feeder Belts (3 ea.)		X	X				
	#1 Mill Collector Belt		X	X				
	# 1 Mill Feed Conveyor		X	X				
	# 1 Wet Scrubber - Sierrita Mill		X	X			20%	X
020	# 2 Fine Ore Feeder Belts (4 ea.)		X	X				
	# 2 Mill Collector Belt		X	X				
	# 2 Mill Feed Conveyor		X	X				
	# 2 Wet Scrubber - Sierrita Mill		X	X			20%	X

ID	Source Description	Fugitive Source	Non-Fugitive Source	Point Source	Non-point Source	NSPS	Opacity Standard	Baseline Opacity Required
021	# 3 Fine Ore Feeder Belts (4 ea.)		X	X				
	# 3 Mill Collector Belt		X	X				
	# 3 Mill Feed Conveyor		X	X				
	# 3 Wet Scrubber - Sierrita Mill		X	X			20%	X
022	# 4 Fine Ore Feeder Belts (4 ea.)		X	X				
	# 4 Mill Collector Belt		X	X				
	# 4 Mill Feed Conveyor		X	X				
	# 4 Wet Scrubber - Sierrita Mill		X	X			20%	X
	# 5 Fine Ore Feeder Belts (4 ea.)		X	X				
	# 5 Mill Collector Belt		X	X				
	# 5 Mill Feed Conveyor		X	X				
023	# 5 Wet Scrubber - Sierrita Mill		X	X			20%	X
	# 6 Fine Ore Feeder Belts (4 ea.)		X	X				
	# 6 Mill Collector Belt		X	X				
	# 6 Mill Feed Conveyor		X	X				
024	# 6 Wet Scrubber - Sierrita Mill		X	X			20%	X

ID	Source Description	Fugitive Source	Non-Fugitive Source	Point Source	Non-point Source	NSPS	Opacity Standard	Baseline Opacity Required
	# 7 Fine Ore Feeder Belts (4 ea.)		X	X				
	# 7 Mill Collector Belt		X	X				
	# 7 Mill Feed Conveyor		X	X				
025	# 7 Wet Scrubber - Sierrita Mill		X	X			20%	X
	# 8 Fine Ore Feeder Belts (4 ea.)		X	X				
	# 8 Mill Collector Belt		X	X				
	# 8 Mill Feed Conveyor		X	X				
026	# 8 Wet Scrubber - Sierrita Mill		X	X			20%	X
	# 9 Fine Ore Feeder Belts (4 ea.)		X	X				
	# 9 Mill Collector Belt		X	X				
	# 9 Mill Feed Conveyor		X	X				
027	# 9 Wet Scrubber - Sierrita Mill		X	X			20%	X
	# 10 Fine Ore Feeder Belts (4 ea.)		X	X				
	# 10 Mill Collector Belt		X	X				
	# 10 Mill Feed Conveyor		X	X				
028	# 10 Wet Scrubber - Sierrita Mill		X	X			20%	X

ID	Source Description	Fugitive Source	Non-Fugitive Source	Point Source	Non-point Source	NSPS	Opacity Standard	Baseline Opacity Required
	# 11 Fine Ore Feeder Belts (4 ea.)		X	X				
	# 11 Mill Collector Belt		X	X				
	# 11 Mill Feed Conveyor		X	X				
029	# 11 Wet Scrubber - Sierrita Mill		X	X			20%	X
	# 12 Fine Ore Feeder Belts (4 ea.)		X	X				
	# 12 Mill Collector Belt		X	X				
	# 12 Mill Feed Conveyor		X	X				
030	# 12 Wet Scrubber - Sierrita Mill		X	X			20%	X
	# 13 Fine Ore Feeder Belts (3 ea.)		X	X				
	# 13 Mill Collector Belt		X	X				
	# 13 Mill Feed Conveyor		X	X				
031	# 13 Wet Scrubber - Sierrita Mill		X	X			20%	X
	# 14 Fine Ore Feeder Belts (3 ea.)		X	X				
	# 14 Mill Collector Belt		X	X				
	# 14 Mill Feed Conveyor		X	X				
032	# 14 Wet Scrubber - Sierrita Mill		X	X			20%	X

ID	Source Description	Fugitive Source	Non-Fugitive Source	Point Source	Non-point Source	NSPS	Opacity Standard	Baseline Opacity Required
	# 15 Fine Ore Feeder Belts (3 ea.)		X	X				
	# 15 Mill Collector Belt		X	X				
	# 15 Mill Feed Conveyor		X	X				
033	#15 Wet Scrubber - Sierrita Mill		X	X			20%	X
	Lime Unloading & Handling Processes		X	X			20%	X
	Wet Scrubber		X	X			20%	X
063	Alternate Wet Scrubber		X	X			20%	X
073	Copper/Moly Concentrate Storage Areas	X			X		20%	
Molybdenum Processing								
	Unleached MoS Dryers - Three (3) Dryers		X	X				
041	Wet Scrubber - Unleached MoS Dryers		X	X			20%	x
	Leach & Unleach Moly Sulfide Storage, Screening and Handling		X	X				
	Moly Sulfide Baghouse		X	X			20%	X
042	Alternate Moly Sulfide Baghouse		X	X			20%	X
044	Moly Sulfide Dump Hopper (includes 3 dump hoppers)		X	X			20%	X
044 A	Moly Sulfide Dump Hopper Baghouse on 1 Dump Hopper		X	X			20%	X

ID	Source Description	Fugitive Source	Non-Fugitive Source	Point Source	Non-point Source	NSPS	Opacity Standard	Baseline Opacity Required
045	Moly Sulfide Screw Conveyor Loadout		X	X			20%	X
117	Moly Sulfide Screw Conveyor Loadout #2		X	X			20%	X
048	Moly Oxide Storage, Screening and Handling		X	X				
	Moly Oxide Baghouse		X	X			20%	X
053/ 054	Leached MoS Dryers - Three (3) Sets of Dryers		X	X				
053	#1 Wet Scrubber - Moly Leach Dryers		X	X			20%	X
054	#2 Wet Scrubber - Moly Leach Dryers		X	X			20%	X
	Moly Packaging Processes		X	X			20%	
059	Cannery Baghouse		X	X			20%	X
	Two (2) #1 and #2 Molybdenum Roasters controlled by 2 cyclones, 2 ESP, 2 lime slurry scrubbers, 2 Brinks mist eliminators		X	X				
058	Main Roaster Stack		X	X				X
	Molybdenum Leach Plant	X			X		20%	
	Solar Drying Screw Conveyor		X	X			20%	X
	Solar Drying Pad	X			X		20%	
118	Fume Scrubber		X	X			20%	X

ID	Source Description	Fugitive Source	Non-Fugitive Source	Point Source	Non-point Source	NSPS	Opacity Standard	Baseline Opacity Required
119	Rhenium Recovery Operation	X			X		20%	
Natural Gas Heaters and Boilers								
	Boiler - Moly Leach Heating (Primary)		X	X			15%	
	NG Heater- Moly Dryer Oil Heating System 2		X	X			15%	
	NG Heater- Moly Dryer Oil Heating System 1		X	X			15%	
	Rhenium Plant Water Heater		X	X			15%	
	Change Room Boiler		X	X			15%	
	SX Electrolyte Heater		X	X			15%	
	Moly Leach Heating (Standby)		X	X			15%	
	EW Electrolyte Heater		X	X			15%	
	Moly Autoclave Boiler		X	X			15%	
	EW Cathode Wash Heater		X	X			15%	
	Moly Briquette Heater		X	X			15%	
	Mine Truck Shop Wash Heater		X	X			15%	
	Copper Sulfate Boiler		X	X			15%	
062	Miscellaneous fuel-burning equipment fired at a sustained rate of less than 1 million BTU/hr		X	X			15%	X

ID	Source Description	Fugitive Source	Non-Fugitive Source	Point Source	Non-point Source	NSPS	Opacity Standard	Baseline Opacity Required
Miscellaneous Crushing and Screening Plants								
93	Road Rock Crushing & Screening Plant		X	X			20%	X
120	Miscellaneous Screens and Grizzlies		X	X			20%	
124	Portable Screen Plant - Hopper		X	X			20%	
	Portable Screen Plant - Screen		X	X			20%	
125	Magnetic Steel Recovery Plant		X	X		X	7%	X
	Coarse Conveyor No. 1		X	X		X	7%	X
	Magnet No. 1		X	X				X
	Metal Ball Scrap Conveyor No. 1		X	X		X	7%	X
	Fines Conveyor No. 1		X	X		X	7%	X
	Fines Conveyor No. 2		X	X		X	7%	X
	Magnet No. 2		X	X				X
	Metal Chips Conveyor No. 2		X	X		X	7%	X
	Radial Stacker		X	X			20%	
	125 KW (168 hp) Diesel Generator		X	X			20%	X

ID	Source Description	Fugitive Source	Non-Fugitive Source	Point Source	Non-point Source	NSPS	Opacity Standard	Baseline Opacity Required
Decant Solids and Handling								
	Feed Hopper	X						
	Screw Conveyor		X					
123	Loader	X						
Stationary Engines								
126	Tailing Thickener Diesel Generator		X	X			20%	Survey only required when in operation. Baseline will be difficult to obtain.
	Mill Reservoir Fire Water Pump		X	X			20%	
	CEMS Emergency Generator		X	X			20%	
	Hydromet #3 Headwall Generator to be replaced with 1600 hp engine		X	X		X	20%	
	Hydromet 07 Pond Pump		X	X			20%	Survey only required when in operation. Baseline will be difficult to obtain.
	Hydromet Twin Buttes Emergency Fire Water Back-Up		X	X			20%	
	Radio Hill Generator		X	X			20%	
	West Robo Shack Generator		X	X			20%	
	Truck Shop Generator		X	X			20%	
	Love Shack Generator		X	X			20%	
126								

ID	Source Description	Fugitive Source	Non-Fugitive Source	Point Source	Non-point Source	NSPS	Opacity Standard	Baseline Opacity Required
	Dispatch Tower Generator		X	X			20%	Survey only required when in operation. Baseline will be difficult to obtain.
	Mine Engineering Generator		X	X			20%	
	Administration Bldg. Generator		X	X			20%	
126	Primary Crusher Basement Generator		X	X			20%	
Miscellaneous and Fugitive Emission Sources								
76	Organic Storage Tanks - SX #1, #2, #3	X			X		20%	
78	Gasoline Storage Tanks	X			X		20%	
87	Sierrita Tailing Impoundment	X			X		20%	
105	Twin Buttes Electrowinning Tankhouse	X			X		20%	
	Material Handling (not specified above)	X			X		20%	
	Cooling towers	X		X			20%	
	Street Sweeping	X			X		20%	