State of Utah

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Department of
Environmental Quality

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DIVISION OF AIR QUALITY
Bryce C. Bird
*Director*

DAQE-IN103460062-23

November 16, 2023

Jerome Dozol
Rio Tinto Kennecott Utah Copper, LLC
4700 Daybreak Parkway
South Jordan, UT 84009
jenny.esker@riotinto.com

Dear Mr. Dozol:

Re: Intent to Approve: Modification to Approval Order DAQE-AN103460061-22 to Update Smelter Operations
Project Number: N103460062

The attached document is the Intent to Approve (ITA) for the above-referenced project. The ITA is subject to public review. Any comments received shall be considered before an Approval Order (AO) is issued. The Division of Air Quality is authorized to charge a fee for reimbursement of the actual costs incurred in the issuance of an AO. An invoice will follow upon issuance of the final AO.

Future correspondence on this ITA should include the engineer's name, **Sarah Foran,** as well as the DAQE number as shown on the upper right-hand corner of this letter. Sarah Foran, can be reached at (385) 306-6724 or sforan@utah.gov, if you have any questions.

Sincerely,

Jon L. Black
Jon Black (Nov 15, 2023 09:15 MST)

Jon L. Black, Manager
New Source Review Section

JLB:SF:jg

cc: Salt Lake County Health Department
DJ Law, EPA Region 8

# STATE OF UTAH
# Department of Environmental Quality
# Division of Air Quality

# INTENT TO APPROVE
# DAQE-IN103460062-23
# Modification to Approval Order DAQE-AN103460061-22
# to Update Smelter Operations

**Prepared By**
**Sarah Foran, Engineer**
**(385) 306-6724**
**sforan@utah.gov**

**Issued to**
**Rio Tinto Kennecott Utah Copper, LLC - Smelter & Refinery**

**Issued On**
**November 16, 2023**

Jon Black (Nov 15, 2023 09:15 MST)

**New Source Review Section Manager**
**Jon L. Black**

# TABLE OF CONTENTS

# GENERAL INFORMATION

## CONTACT/LOCATION INFORMATION

**Owner Name**
Rio Tinto Kennecott Utah Copper, LLC

**Source Name**
Rio Tinto Kennecott Utah Copper, LLC - Smelter & Refinery

**Mailing Address**
4700 Daybreak Parkway
South Jordan, UT 84009

**Physical Address**
12000 West 2100 South
Magna, UT 84044

**Source Contact**
Name Jenny Esker
Phone (801) 569-6494
Email jenny.esker@riotinto.com

**UTM Coordinates**
398,678 m Easting
4,508,860 m Northing
Datum NAD83
UTM Zone 12

**SIC code** 3331 (Primary Smelting & Refining of Copper)

## SOURCE INFORMATION

General Description
Rio Tinto Kennecott Utah Copper, LLC (KUC) operates a copper smelter and refinery in Salt Lake County, Utah. The Smelter employs flash smelting technology with flash converting technology to produce copper anodes and high concentration sulfur dioxide gases. The gases are treated by electrostatic precipitators (ESP), baghouses, scrubbers, and a high-efficiency double contact acid plant. The Refinery uses an electrolytic refining process to convert the Smelter-produced anode copper to cathode copper and also recovers precious metals from the electrolytic refining slimes in a precious metals circuit.

The copper ore concentrates received at the Smelter are first dewatered and then dried to reduce the moisture content. The dried concentrate is then blended with fluxes and secondary copper-bearing materials. This mixture is fed to a flash smelting furnace where the ore is melted and reacts to produce copper matte, a molten solution of copper sulfide mixed with iron sulfide. The Outokumpu flash smelting process used at the Smelter is a closed process that captures the $SO_2$-rich off-gases from the furnace for the production of sulfuric acid. The copper matte from the smelting furnace is next converted to blister copper (approximately 98% pure copper) by oxidization to remove the remaining sulfur as $SO_2$ gas and the iron as a ferrous oxide slag. The Smelter uses a continuous copper converting process in which solid matte granules are fed to a flash smelting furnace-like vessel. The molten slag from converting is cooled, processed in slag concentrators to remove residual copper, and ultimately disposed in on-site waste piles. The $SO_2$ gases from smelting and converting are vented to a sulfuric acid plant. Molten blister copper is transferred from the converting vessel to an anode furnace for fire-refining to further remove residual impurities and oxygen. The blister copper is reduced in the anode furnace to remove oxygen by injecting natural gas, producing a high purity copper. The molten copper from the anode furnace is poured in molds to cast solid copper ingots called anodes.

The anode copper produced at the Smelter is moved to the copper Refinery co-located near the Smelter, where it is further purified using an electrolytic process to obtain the high-purity cathode copper sold.

NSR Classification
Minor Modification at Major Source

Source Classification
Located in Northern Wasatch Front O3 NAA, Salt Lake City UT $PM_{2.5}$ NAA, Salt Lake County $SO_2$ NAA
Salt Lake County
Airs Source Size: A

Applicable Federal Standards
NSPS (Part 60), A: General Provisions
NSPS (Part 60), Db: Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units
NSPS (Part 60), Dc: Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units
NSPS (Part 60), P: Standards of Performance for Primary Copper Smelters
NSPS (Part 60), OOO: Standards of Performance for Nonmetallic Mineral Processing Plants
NSPS (Part 60), IIII: Standards of Performance for Stationary Compression Ignition Internal Combustion Engines
NSPS (Part 60), JJJJ: Standards of Performance for Stationary Spark Ignition Internal Combustion Engines
NSPS (Part 60), KKKK: Standards of Performance for Stationary Combustion Turbines
MACT (Part 63), A: General Provisions
MACT (Part 63), ZZZZ: National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines
MACT (Part 63), EEEEEE: National Emission Standards for Hazardous Air Pollutants for Primary Copper Smelting Area Sources
Title V (Part 70) Major Source

Project Description
KUC requested a modification to AO DAQE-AN103460061-22, dated June 23,2022, to reconfigure the material handling process under the Filter Plant (II.A.2). The proposal allows for more of the process to be controlled through a baghouse (#SME 001) and new bin vent (#SME 001-A).

The modification will reconfigure the emissions controls for the material handling conveyors. The conveyors previously permitted with water sprays will be updated to be controlled with a baghouse and one additional bin vent. The bin vent will replace the previous baghouse location in the filter plant and move the existing baghouse further down the line. Additionally, SME-001 will decrease the maximum grain loading rate from 0.016 grain/dscf to 0.008 grains/dscf (updated in condition II.B.1.a). This change increases the potential to emit emissions due to the increase from one vent point to two vent points, though both new sources have a higher filter efficiency. SME-001 (Stack No. 1) will be subject to a requirement for testing within 180-days (II.B.1.a.2.1a)

## SUMMARY OF EMISSIONS

The emissions listed below are an estimate of the total potential emissions from the source. Some rounding of emissions is possible.

| Criteria Pollutant | Change (TPY) | Total (TPY) |
|---|---|---|
| Ammonia | 0 | 9.11 |
| $CO_2$ Equivalent | 0 | 235522.00 |
| Carbon Monoxide | 0 | 168.97 |
| Lead Compounds | 0 | 6.00 |
| Nitrogen Oxides | 0 | 161.25 |
| Particulate Matter - $PM_{10}$ | 0.12 | 2016.07 |
| Particulate Matter - $PM_{2.5}$ | 0.07 | 1946.11 |
| Sulfur Dioxide | 0 | 1081.32 |
| Volatile Organic Compounds | 0 | 14.86 |

| Hazardous Air Pollutant | Change (lbs/yr) | Total (lbs/yr) |
|---|---|---|
| Generic HAPs (CAS #GHAPS) | 0 | 14960 |
| Lead Compounds (CAS #LCT000) | 0 | 12000 |
| | **Change (TPY)** | **Total (TPY)** |
| Total HAPs | 0 | 13.48 |

# PUBLIC NOTICE STATEMENT

The NOI for the above-referenced project has been evaluated and has been found to be consistent with the requirements of UAC R307. Air pollution producing sources and/or their air control facilities may not be constructed, installed, established, or modified prior to the issuance of an AO by the Director.

A 30-day public comment period will be held in accordance with UAC R307-401-7. A notification of the intent to approve will be published in the Salt Lake Tribune and Deseret News on November 19, 2023. During the public comment period the proposal and the evaluation of its impact on air quality will be available for the public to review and provide comment. If anyone so requests a public hearing within 15 days of publication, it will be held in accordance with UAC R307-401-7. The hearing will be held as close as practicable to the location of the source. Any comments received during the public comment period and the hearing will be evaluated. The proposed conditions of the AO may be changed as a result of the comments received.

# SECTION I: GENERAL PROVISIONS

The intent is to issue an air quality AO authorizing the project with the following recommended conditions and that failure to comply with any of the conditions may constitute a violation of the AO.

| | |
|---|---|
| I.1 | All definitions, terms, abbreviations, and references used in this AO conform to those used in the UAC R307 and 40 CFR. Unless noted otherwise, references cited in these AO conditions refer to those rules. [R307-101] |
| I.2 | The limits set forth in this AO shall not be exceeded without prior approval. [R307-401] |

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| I.3 | Modifications to the equipment or processes approved by this AO that could affect the emissions covered by this AO must be reviewed and approved. [R307-401-1] |
| I.4 | All records referenced in this AO or in other applicable rules, which are required to be kept by the owner/operator, shall be made available to the Director or Director's representative upon request, and the records shall include the five-year period prior to the date of the request. Unless otherwise specified in this AO or in other applicable state and federal rules, records shall be kept for a minimum of five (5) years. [R307-401-8] |
| I.5 | At all times, including periods of startup, shutdown, and malfunction, owners and operators shall, to the extent practicable, maintain and operate any equipment approved under this AO, including associated air pollution control equipment, in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Director which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source. All maintenance performed on equipment authorized by this AO shall be recorded. [R307-401-4] |
| I.6 | The owner/operator shall comply with UAC R307-107. General Requirements: Breakdowns. [R307-107] |
| I.7 | The owner/operator shall comply with UAC R307-150 Series. Emission Inventories. [R307-150] |
| I.8 | The owner/operator shall submit documentation of the status of construction or modification to the Director within 18 months from the date of this AO. This AO may become invalid if construction is not commenced within 18 months from the date of this AO or if construction is discontinued for 18 months or more. To ensure proper credit when notifying the Director, send the documentation to the Director, attn.: NSR Section. [R307-401-18] |

# SECTION II: PERMITTED EQUIPMENT

The intent is to issue an air quality AO authorizing the project with the following recommended conditions and that failure to comply with any of the conditions may constitute a violation of the AO.

## II.A THE APPROVED EQUIPMENT

| | |
|---|---|
| II.A.1 | **Rio Tinto Kennecott Utah Copper LLC**<br>Copper Smelter |
| II.A.2 | **Filter Plant**<br>Filter Plant Wet Feed Conveyor with baghouse (#SME 001, Stack No. 1) (Relocated and resized)<br><br>Filter Plant Wet Feed Conveyor Bin Vent (#SME 001-A) (NEW) |

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| II.A.3 | **Feed and Reagent Storage**<br>Feed and reagent storage and transfer consisting of:<br>1) Wet Feed Storage building with baghouse (#SME 002)<br>2) Wet Feed Conveyor transfer point with baghouse (#SME 003)<br>3) Outside Wet Feed Hopper with partial enclosure (#SME 002-A)<br>4) Wet Feed Bins with baghouse (#SME 004)<br>5) Flash Smelting Furnace Dry Feed Bin with baghouse (#SME 005)<br>6) Smelter Limestone Flux Bin with bin vent baghouse (#SME 006). |
| II.A.4 | **Feed and Reagent Storage (Continued)**<br>7) Matte, dust, flux, feed bins with baghouse (#SME 013)<br>8) Mold Coating Silo with bin vent baghouse (#SME 015)<br>9) Hydrometallurgical Plant Limestone Silo with bin vent baghouse (#SME 019)<br>10) Hydrometallurgical Plant Lime Silo with bin vent baghouse (#SME 020)<br>11) Anode Area Lime Silo with bin vent baghouse (#SME 028)<br>12) Secondary Gas System Lime Silo with bin vent baghouse (#SME 029). |
| II.A.5 | **Feed and Reagent Storage (continued)**<br>13) One Hopper<br>14) Two Storage Bins<br>Control: Bin Vent (each)<br>(vents inside the building)<br>15) Conveyers with water sprays. |
| II.A.6 | **Pyrometallurgical Processes - Flash Smelting**<br>1) Rotary Feed Dryer with baghouse followed by a scrubber (#SME 011e)<br>2) Flash Smelting Furnace (FSF) with (in series) (#SME 011b1)<br>a) Waste heat boiler<br>b) Electrostatic precipitator (ESP)<br>c) Scrubber served by wet ESP and acid plant<br>d) Emergency generator with turbocharger and aftercooling<br>Maximum Rating: 998 hp. |

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| II.A.7 | **Pyrometallurgical Processes - FS (Continued)**<br><br>3) Matte Granulation process, North and South Matte Granulators (#SME 010a) each have a three-stage impingement scrubber equipped with demister pads that vent to the secondary gas system (vents to the main stack). |
| II.A.8 | **Pyrometallurgical Processes - Flash Converting**<br><br>1) Matte Drying and Grinding Plant with baghouse (#SME 011g)<br><br>2) Flash Converting Furnace (FCF) with (in series) (#SME 011b2)<br><br>a) Waste heat boiler<br><br>b) ESP<br><br>c) Scrubber served by wet ESP and acid plant.<br><br>3) Slag Granulation with three stage impingement scrubber, emissions are either directed<br><br>a) to the scrubber and then to the atmosphere through the vent stack; or<br><br>b) to the scrubber and then to the secondary gas system (#SME 010b). |
| II.A.9 | **Pyrometallurgical Processes - FCF/FSF**<br>1) Co-Jet Technology Burner System (#SME 011b3)<br>Quantity: 3 co-jet injectors<br>Rating: 13 MMBtu/hr each<br>Fuel: Natural gas/oxy-fuel |
| II.A.10 | **Pyrometallurgical Processes - Anodes Area**<br><br>1) Anode furnace system consisting of:<br><br>a) Anode Furnaces and optional coherent jet lances* with (in series) (#SME 011h1)<br><br>(1) Quench tower<br>(2) Lime injection<br>(3) Baghouse<br>(4) Two scrubbers in series<br><br>*The lances are used for material heating and melting on a non-continuous basis<br><br>b) Wenmec twin casting wheel and quench tower (#SME 011h4)<br><br>c) Shaft furnace (#SME 011h2) and holding furnace (#SME 011h3) with baghouse<br><br>d) Mold casting furnace (#SME MOLD). |

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| II.A.11 | **Product Recovery/Gas Cleaning Facilities**<br>Product Recovery/Gas Cleaning Facilities that serve FSF and FCF<br>1) Wet ESP<br>2) Acid Plant (#SME 011b) with<br>a) Acid Plant Cooling Tower (#SME CT311)<br>b) Acid Plant Collection System (#SME GLCS) with adjustable negative pressure ductwork and collection hoses placed as needed for opacity control<br>c) Acid Plant Preheater (#SME 008). |
| II.A.12 | **Product Recovery/Gas Cleaning (Continued)**<br>Product Recovery/Gas Cleaning Facilities that serve emission sources in the Hot Metals Building, Matte Granulators, or Slag Granulators as needed<br>3) Secondary Gas Cleaning System (#SME 011a) with<br>a) Lime injection system<br>b) Baghouse<br>c) Reverse Jet scrubber A and Reverse Jet scrubber B. |
| II.A.13 | **Intermediate Product Storage**<br>Intermediate Product Storage, Crushing, and Grinding Operations<br>1) Slag Concentrator (#SME SLAG)<br>2) Recycle Materials Crushing and Storage building with baghouse (#SME 027)<br>a) Furnace dust crusher system 12 ton/hour capacity. |
| II.A.14 | **Intermediate Product Storage (cont'd)**<br>3) Crushing and Screening Operation (#SME SLAG)<br>a) Jaw crusher Maximum 600 ton/hour capacity<br>b) Cone crusher Maximum 600 ton/hour capacity<br>c) Fines crusher Maximum 600 ton/hour capacity<br>d) Conveyors Partially enclosed transfer points with water sprays<br>e) Triple deck screen<br>f) High frequency screens. |

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| II.A.15 | **Miscellaneous Support Equipment**<br><br>1) Miscellaneous mobile diesel equipment<br><br>2) Small natural gas-fired space heaters and water heaters (#SME SH, WH)<br><br>3) Outdoor storage piles where concentrate, granulated matte, slag, and other process materials are stored on pads (#SME STRG). |
| II.A.16 | **Smelter Powerhouse**<br><br>1) Superheater with ultra-low $NO_x$ burners (#SME 011f)<br>Rating: 45 MMBtu/hr<br>Fuel: Natural gas<br>Vents to main stack<br><br>2) Holman Boiler (#SME 026)<br>Rating: 187 MMBtu/hr<br>Fuel: Natural gas<br><br>3) Rentech Boiler (#SME 030)<br>Rating: 183 MMBtu/hr<br>Fuel: Natural gas<br><br>4) Powerhouse Cooling Tower (#SME CT316)<br><br>5) Two (2) Diesel-Fired Emergency Generators (#SME GEN)<br>Rating: 2,847 hp each |
| II.A.17 | **Hydrometallurgical Plant (#SME 011d)**<br>Controls: Two scrubbers |
| II.A.18 | **Vacuum Cleaning Systems (#SME 017)**<br><br>1) Matte handling vacuum cleaning system with baghouse<br><br>2) FSF vacuum cleaning system ducted to the secondary gas collection system<br><br>3) FCF vacuum cleaning system with baghouse. |
| II.A.19 | **Support Facilities**<br><br>1) Laboratories, with baghouse (#SME 022)<br><br>2) Various degreasing parts washers (#SMEi210)<br><br>3) Gasoline fueling station (#SME SA-1). |

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| II.A.20 | **Support Facilities* (Continued)**<br>4) Wash rooms<br>5) Change house<br>6) Engineering shops<br>7) Warehouses<br>8) Administrative buildings.<br>*These are listed for informational purposes only |
| II.A.21 | **Communication Emergency Generator (#SME COM GEN)**<br>Maximum Rating: 75 hp<br>Fuel: Liquid propane |

# SECTION II: SPECIAL PROVISIONS

The intent is to issue an air quality AO authorizing the project with the following recommended conditions and that failure to comply with any of the conditions may constitute a violation of the AO.

## II.B REQUIREMENTS AND LIMITATIONS

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| II.B.1 | **Limitations and Test Procedures** |

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| II.B.1.a | Emissions to the atmosphere from the indicated emission points* shall not exceed the following rates and concentrations:<br><br>A. #SME 001 - Wet Feed Conveyor Baghouse (Stack No. 1)<br>$PM_{10}$ 0.7 lbs/hr (filterable)<br>0.008 grains/dscf (68 degrees F, 29.92" Hg)<br><br>B. #SME 002 - Wet Feed Storage Building Baghouse (Stack No. 2)<br>$PM_{10}$ 3.91 lbs/hr (filterable)<br>0.008 grains/dscf (68 degrees F, 29.92" Hg)<br><br>C. #SME 003 - Wet Feed Conveyor Transfer Point Baghouse (Stack No. 3)<br>$PM_{10}$ 0.4 lbs/hr (filterable)<br>0.016 grains/dscf (68 degrees F, 29.92" Hg)<br><br>D. #SME 004 - Wet Feed Bin Baghouse (Stack No. 4)<br>$PM_{10}$ 3.4 lbs/hr (filterable)<br>0.016 grains/dscf (68 degrees F, 29.92" Hg)<br><br>E. #SME 005 - Flash Smelting Furnace Dry Feed Bin Baghouse (Stack No. 5)<br>$PM_{10}$ 1.2 lbs/hr (filterable)<br>0.016 grains/dscf (68 degrees F, 29.92" Hg)<br><br>F. #SME 006 - Smelter Limestone Flux Bin Baghouse (Stack No. 6)<br>$PM_{10}$ 0.3 lbs/hr (filterable)<br>0.016 grains/dscf (68 degrees F, 29.92" Hg)<br><br>G. #SME 010b - Slag Granulation Exhaust Scrubber (Stack No. 10b)<br>$PM_{10}$ 1.9 lbs/hr (24 hr. average - calendar day) (filterable)<br>$SO_2$ 2.0 lbs/hr (24 hr. average - calendar day)<br>Operating Hours 504 hrs per rolling 12-month period<br><br>H. #SME 011 - Main Stack (Stack No. 11)<br>$PM_{10}$ 89.5 lbs/hr (24 hr. average - calendar day) (filterable)<br>439 lbs/hr (filterable + condensable)<br><br>$PM_{2.5}$ 85 lbs/hr (filterable)<br>434 lbs/hr (filterable + condensable)<br><br>$SO_2$ 552 lbs/hr (three-hr. rolling average)<br>422 lbs/hr (24 hr. average - calendar day)<br>211 lbs/hr (annual average)<br><br>$NO_x$ 35.0 lb/hr (annual average)<br>146.5 lb/hr (daily average)<br><br>Lead 1.3 lb/hr (annual average)<br><br>I. #SME 013 - Dry Matte Bin Baghouse (Stack No. 13)<br>$PM_{10}$ 0.3 lbs/hr (filterable)<br>0.016 grains/dscf (68degrees F, 29.92" Hg)<br><br>J. #SME 017 - Vacuum Cleaning Systems (Stacks No. 17a & 17c combined)<br>$PM_{10}$ 0.7 lbs/hr (filterable)<br>0.016 grains/dscf (68degrees F, 29.92" Hg)<br><br>K. #SME 026 - Holman Boiler (Stack No. 26)<br>$NO_x$ 9.34 lbs/hr, 30-day rolling average<br>14 lbs/hr, calendar-day average<br><br>L. #SME 030 - Rentech Boiler (Stack No. 30)<br>$NO_x$ 3.29 lbs/hr, 30-day rolling average<br>4.94 lb/hr, calendar-day average |

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| | M. #SME 011b - Acid Plant Tail Gas<br>SO2 250 ppmdv (six- hr. block average)<br>170 ppmdv (24 hr. average - calendar day)<br>100 ppmdv (annual average)<br><br>Sulfuric Acid Mist 0.67 mg/scf (68degrees F, 29.92" Hg)<br><br>N. #SME 011e - Dedicated Rotary Dryer Baghouse<br>Particulate Emissions (PM) 0.022 grains/dscf (68 degrees F, 29.92" Hg) (filterable).<br><br>* Reference to stack numbers above and in Conditions II.B.1.a.2 and II.B.1.a.3 below do not necessarily refer to an exhaust point to the atmosphere. Many emission sources are commingled with emissions from other sources and exit to the atmosphere from a common emission point. "Stack" in these conditions refer to the point prior to mixing with emissions from other sources.<br><br>[R307-401-8] |
| II.B.1.a.1 | To determine compliance with an annual average emission limitation, the owner/operator shall calculate a new annual average by the 20th day of each month using data from the previous 12 months. All annual average emission limits shall be based on a rolling 12-month average using the daily averages from the previous 12 months. [R307-401-8] |

II.B.1.a.2 Stack testing to show compliance with the emissions limitations of Condition II.B.1.a shall be performed as specified below:

| A. Emission Point | Pollutant | Testing Status | Test Frequency |
|---|---|---|---|
| 1) Stack Nos. 2, 3, 4, 5,6, 13,17a & 17 c | $PM_{10}$ | ** | every five (5) years |
| 1a.) Stack No 1 | $PM_{10}$ | * | every five (5) years |
| 2) Stack Nos. 10b | $PM_{10}$ | ** | every three (3) years |
| | $SO_2$ | ** | every three (3) years |
| 3) Main Stack | $PM_{10}$ | ** | every year and continuous particulate monitor |
| Stack No. 11 | $PM_{2.5}$ | ** | every year |
| | $SO_2$ | ** | CEM |
| | $NO_x$ | ** | CEM |
| | Lead | ** | continuous particulate monitor |
| 4) Holman Boiler Stack No. 26 | $NO_x$ calendar-day average | ** | every three (3) years |
| | $NO_x$ , 30-day average | ** | CEM or alternate method determined according to Condition II.B.2.b |
| 5) Rentech Boiler Stack No. 30 | $NO_x$ calendar-day average | ** | every three (3) years |
| | $NO_x$ 30-day average | ** | CEM or alternate method determined according to Condition 11.B.2.c |
| 6) Acid Plant Tail gas Sulfuric Acid Mist** | $SO_2$ | ** | CEM (concentration) every three (3) years |
| 7) Dedicated Rotary Dryer Baghouse/Scrubber PM | | ** | every five (5) years |

B. Testing Status (To be applied above)

* Initial testing shall be performed as soon as possible and in no case later than 180 days after start up.

** The initial test has been performed on these sources.

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| | C. | The owner/operator may petition the Director to reduce the stack testing frequency of an emission point in a given year after the following: if, after two (2) stack tests for an emission point in Condition II.B.1.a.2 conducted in accordance with Condition II.B.1.a.3, the owner/operator can show, either because of reliability of pollution control equipment, constant emissions, or other appropriate reasons, the stack testing frequency in Condition II.B.1.a.2 is more frequent than necessary to determine the quantity of emissions.<br><br>[R307-401-8] |

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| II.B.1.a.3 | Stack testing to show compliance with the emission limitations of Condition II.B.1.a shall be performed as specified below (continued):<br><br>A. Notification<br>Notification of the date, time, place of test and a copy of the test protocol shall be provided at least 30 days prior to the test. A pretest conference shall be held if directed by the Director.<br><br>B. Sample Location<br>The emission point shall be designed to conform to the requirements of 40 CFR 60, Appendix A, Method 1 or other EPA-approved methods acceptable to the Director. Occupational Safety and Health Administration (OSHA)-approved and/or Mine Safety and Health Administration (MSHA)-approved access shall be provided to the test location.<br><br>C. Volumetric Flow Rate<br>40 CFR 60, Appendix A, Method 2, Method 19 or other EPA-approved testing methods acceptable to the Director<br><br>D. PM<br>40 CFR 60, Appendix A, Method 5 or other EPA-approved testing methods acceptable to the Director<br><br>E. $PM_{10}/PM_{2.5}$<br>For stacks in which no liquid drops are present, the following methods shall be used: 40 CFR 51, Appendix M, Methods 201 or 201a or other EPA-approved testing method acceptable to the Director. The back half condensable particulate emissions shall also be tested (where applicable) using 40 CFR 51, Appendix M Method 202, or other EPA- approved testing method acceptable to the Director. All particulate captured using Method 202 shall be considered $PM_{2.5}$ and/or $PM_{10}$.<br><br>For stacks in which liquid drops are present, methods to eliminate the liquid drops shall be explored. If no reasonable method to eliminate the drops exists, then the following methods shall be used: 40 CFR 60, Appendix A, Method 5, 5a, 5d, 5i or other as appropriate. If using Method 5 or any variation of Method 5, a scanning electron microscopy analysis or other equivalent method shall be used to determine the fraction of $PM_{10}$ and/or $PM_{2.5}$, as approved by the Director. The back half condensable particulate emissions shall also be tested using 40 CFR 51, Appendix M Method 202 or other EPA- approved testing method acceptable to the Director. All particulate captured using Method 202 shall be considered $PM_{2.5}$ and/or $PM_{10}$.<br>For filterable emission limits, condensable emissions shall not be used for compliance demonstrations. For filterable + condensable emission limits, both filterable and condensable emissions shall be used for compliance demonstrations.<br><br>F. $SO_2$<br>40 CFR 60 Appendix A, Method 6, 6A, 6B, 6C or other EPA-approved testing methods acceptable to the Director<br><br>G. Lead<br>The test method shall be submitted for approval or may be assigned by the Director. A monitoring plan was submitted to the Director on October 10, 2000 and amended in 2007. The owner/operator shall monitor in accordance with the most recent monitoring plan approved by the Director.<br><br>H. Sulfuric Acid Mist<br>40 CFR 60, Appendix A, Method 8<br><br>I. $NO_x$<br>40 CFR 60 Appendix A, Method 7, 7A, 7B, 7C, 7D, 7E or other EPA-approved testing methods acceptable to the Director |

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| | J. Source Operation<br>For stack testing purposes, stack tests shall be done during representative operations. The production rate during all compliance tests shall be no less than 90% of the maximum average hourly production rate achieved in a 24-hour period during the previous three (3) years.<br><br>K. Calculations<br>To determine mass emission rates (lb/hr, etc.) the pollutant concentration as determined by the appropriate methods above shall be multiplied by the volumetric flow rate and any necessary conversion factors determined by the Director, to give the results in the specified units of the emission limitation.<br><br>L. Results<br>The results of stack testing shall be submitted to the Director within 60 days of completion of the testing. Reports shall clearly identify results as compared to permit limits and indicate compliance status.<br><br>[R307-401-8] |
| II.B.2 | **Holman Boiler and Rentech Boiler $NO_x$ Requirements** |
| II.B.2.a | The owner/operator shall not exceed 23.3 tons of $NO_x$ emissions per rolling 12-month period from the Holman boiler and Rentech boiler combined. [R307-401-8] |
| II.B.2.a.1 | To determine compliance with a rolling 12-month total, the owner/operator shall calculate a new 12-month total by the 20th day of each month using data from the previous 12 months. Records of emissions shall be kept for all periods when the plant is in operation. Monthly totals of $NO_x$ emissions from each boiler shall be based on the following:<br><br>A. The 30-day average $NO_x$ emissions rate (lb/hr) of the Holman boiler for the calendar month, determined according to Condition II.B.2.b<br><br>B. The hours of operation of the Holman boiler for the calendar month<br><br>C. The 30-day average $NO_x$ emissions rate (lb/hr) of the Rentech boiler for the calendar month, determined according to Condition II.B.2.c<br><br>D. The hours of operation of the Rentech boiler for the calendar month.<br><br>[R307-401-8] |
| II.B.2.b | Initial compliance with the Holman boiler 30-day average $NO_x$ limit was demonstrated with the CEM in accordance with 40 CFR 60.46b(e)(1). The owner/operator shall continue to use the CEM, or propose to the Director an alternative method for demonstrating compliance with the limit in accordance with 40 CFR 60.46b(e)(1) and (4), 60.48b(g) (1) and (2), and 60.49b(c). Either a CEM or the most recently approved alternate plan approved by the Director shall be used. [R307-401-8] |
| II.B.2.c | The owner/operator shall demonstrate compliance with the Rentech boiler 30-day average $NO_x$ in accordance with 40 CFR 60.46b(e) and either 40 CFR 60.48b(g)(1) or 40 CFR 60.48b(g)(2). For subsequent compliance, either a CEM or the most recently approved alternate plan to monitor boiler operating conditions and predict $NO_x$ emission rates shall be used. *Initial compliance was using a CEM in accordance with 40 CFR 60.46b(e) and (e)(1). [R307-401-8] |
| II.B.2.c.1 | The owner/operator shall maintain and operate the CEM in accordance with UAC R307-170. The records and results of monitoring shall be maintained in accordance with 40 CFR 60.49b and UAC R307-170. [R307-170, R307-401-8] |

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| II.B.2.c.2 | If the owner/operator chooses to comply with the monitoring provisions of 40 CFR 60.48b(g)(2) to demonstrate compliance with the Rentech boiler 30-day average $NO_x$ limit, the owner/operator shall submit an alternate plan to the Director in accordance with 40 CFR 60.49b(c) that identifies the operating conditions to be monitored and the records to be maintained. This plan shall be submitted to the Director for approval within 360 days of the initial startup of the Rentech boiler. [40 CFR 60 Subpart Db, R307-401-8] |
| II.B.2.c.3 | The owner/operator shall submit notifications and reports as required in 40 CFR 60.49b and R307-170. Results of the additional certified $NO_x$ CEM 30-day CEM tests as required in 40 CFR 60.46b(e) shall be submitted within 60 days of the completion of the test. [40 CFR 60 Subpart Db, R307-170] |
| II.B.3 | **Main Stack Continuous Monitoring Requirements** |
| II.B.3.a | To demonstrate compliance with the main stack mass emissions limits for $SO_2$ and $NO_x$ of Condition II.B.1.a.H, the owner/operator shall calibrate, maintain and operate the measurement systems for continuously monitoring $SO_2$ and $NO_x$ concentrations and stack gas volumetric flow rates in the main smelter stack. [R307-401-8] |
| II.B.3.a.1 | The owner/operator shall comply with all applicable parts of UAC R307-170 "Continuous Emission Monitoring Systems Program", including the requirements for annual Relative Accuracy Test Audits (RATA) and quarterly Relative Accuracy Audits (RAA) or Cylinder Gas Audits (CGA).<br><br>A. The required RATA, RAA, and CGA shall be conducted following procedures in 40 CFR 60 Appendix B, Specification 2 and 40 CFR 60 Appendix F<br><br>B. Acceptable methods for the annual RATA include 40 CFR 60, Appendix A, Method 6 or 6C for $SO_2$ and Method 7 or 7E for $NO_x$<br><br>C. All audit and test results shall be submitted to the Director within 60 days after the audit or test is completed.<br><br>[R307-401-8] |
| II.B.3.a.2 | The owner/operator shall perform 40 CFR 52 Appendix E - Performance Specification procedures on the stack gas flow rate measurement system, if directed by the Director, in the event that the results of the quarterly and annual tests required by Condition II.B.3.a.1 demonstrate that the $SO_2$ and $NO_x$ monitoring systems are not performing properly. [R307-401-8] |
| II.B.3.a.3 | Failure to measure $SO_2$ at least ninety-five percent (95%) of the hours during which emissions occurred in any quarter in accordance with the requirements of this subsection, or failure to measure, in accordance with the requirements of this subsection, any 18 consecutive hours of emissions data shall constitute a violation of Condition II.B.3.a.<br><br>A. Any hour for which the measurements comply with UAC R307-170 shall be considered as measured<br><br>B. Any hours for which the emissions data are greater than 20% in error will be considered to have not been measured for the purposes of Condition II.B.3.a<br><br>C. The Director may grant exemptions to the requirements of Condition II.B.3.a if unusual circumstances, not to include malfunction of any of the monitoring instrumentation, arise which prevent the owner/operator from obtaining hourly measurements of emissions in accordance with Condition II.B.3.a.<br><br>[40 CFR 60 Subpart P, R307-401-8] |

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| II.B.3.a.4 | The owner/operator shall maintain a record of all measurements required by Condition II.B.3.a. Measurement results shall be expressed as pounds of $SO_2$ and $NO_x$ emitted per hour calculated at the end of each day for the preceding 24 hours for $SO_2$ and $NO_x$ and calculated at the end of each hour for the preceding three-hour period for $SO_2$. Records shall include:<br><br>A. The total number of hourly periods during the month in which measurements were not taken<br><br>B. For any periods where loss of measurement is greater than three continuous hours, the reason for loss of measurement in each period<br><br>C. The date(s) on which three and 24-hour emissions averages for $SO_2$ exceeded the applicable emission level in Condition II.B.1.a.H and the number of exceedances<br><br>D. The date(s) on which the annual emissions average based on hourly emissions exceeded the applicable emission level in Condition II.B.1.a.H for $NO_x$ for the month being reported and the number of such exceedances, and the daily $NO_x$ averages<br><br>E. All conversion values used to derive the three and 24-hour average and annual average emissions for $SO_2$, and the 24-hour average and annual average for $NO_x$, including temperature and differential pressure of stack gases.<br><br>[R307-401-8] |
| II.B.3.a.5 | Data, reports, or results required to be submitted pursuant to Condition II.B.3.a, shall be deemed to be verified and accepted as valid and not subject to challenge and shall be used by the Director in determining compliance with Condition II.B.1.a.H, unless, within 30 days of the time such data, reports, or results are submitted, the owner/operator or the Director provides evidence that the data, results, or reports or any part thereof, are greater than 20% in error. [R307-401-8] |
| II.B.3.a.6 | During periods of malfunctioning or maintenance of the stack gas temperature and velocity measurement instrumentation, the owner/operator may estimate stack gas flow rate. Such estimates will be considered as measurements for the purpose of Condition II.B.3.a. Records of calculations used to derive the estimated flow rate and a list of the periods where stack gas flow rate was estimated in each month shall be maintained. No more than 10% of the flow rates in any one month may be estimated. [R307-401-8] |
| II.B.3.b | The owner/operator shall continuously measure emissions of particulate matter from the main stack. For the purposes of determining compliance with Condition II.B.1.a.H, all particulate matter collected shall be reported as $PM_{10}$. Compliance with the main stack emission limit for $PM_{10}$ of Condition II.B.1.a.H shall be demonstrated using the smelter main stack continuous particulate sampling system to provide a 24-hour value. Collected data shall be available for inspection, and a summary of 24-hour averages shall be submitted to the Director monthly within 20 days of the end of the month. [R307-401-8] |
| II.B.3.c | The owner/operator shall determine the lead emissions from the main stack using the main stack particulate data and laboratory analysis of the material collected by the continuous stack particulate sampler. The owner/operator shall monitor in accordance with the most recent monitoring plan approved by the Director. If the owner/operator cannot monitor the lead emissions using the continuous particulate sampler, then the owner/operator shall monitor the lead emissions using a monitoring plan approved by the Director. [R307-401-8] |

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| II.B.4 | **Scrubber and Baghouse Monitoring Requirements** |
| II.B.4.a | The owner/operator shall install, calibrate, maintain, and operate the following monitoring devices for the measurement of the indicated parameters. Continuous recording instruments are optional but are not required. The gauges/devices shall be located such that an inspector can safely read them at any time. The monitoring devices shall be calibrated in accordance with the manufacturer's instructions.<br><br>A. A monitoring device for the continuous measurement of the change in pressure of the gas stream across the secondary ventilation scrubber, rotary dryer scrubber, anode furnace scrubber, and hydrometallurgical plant scrubber(s). A "U" tube manometer is recommended<br><br>B. A monitoring device for the continuous measurement of the scrubbing liquid flow rate to the secondary ventilation scrubber, rotary dryer scrubber, anode furnace scrubber, and hydrometallurgical plant scrubber(s)<br><br>C. A monitoring device for the continuous measurement of the change in pressure of the gas stream across each baghouse.<br><br>The operating range and accuracy of the monitoring devices shall be submitted to the Director.<br><br>[R307-401-8] |
| II.B.4.b | The owner/operator shall maintain a monitoring record or log with monitoring data to demonstrate compliance with the operating ranges listed below. [R307-401-8] |
| II.B.4.b.1 | The operating pressure drop across the following equipment shall be maintained within the following operating ranges:<br><br>A. Secondary Ventilation Scrubbers: 3.5" Water Gauge (W.G.) (minimum, across both scrubbers combined)<br><br>B. Rotary Dryer Scrubber: 5" to 19.25" W.G.<br><br>C. Anode Furnace Scrubber: 18" to 50.5" W.G.<br><br>D. Hydrometallurgical Plant Scrubber Model #480: 5" to 10" W.G.<br><br>E. Hydrometallurgical Plant Scrubber Model #575: 6" to 12" W.G.<br><br>[R307-401-8] |
| II.B.4.b.2 | The operating scrubbing liquid flow rate for the following equipment shall be maintained within the following operating ranges:<br><br>A. Secondary Ventilation Scrubber: greater than 4800 gpm (each)<br><br>B. Rotary Dryer Scrubber: greater than 7360 gpm<br><br>C. Anode Furnace Scrubber: greater than 2000 gpm (each)<br><br>D. Hydrometallurgical Plant Scrubber Model #480: greater than 50 gpm<br><br>E. Hydrometallurgical Plant Scrubber Model #575: greater than 40 gpm.<br><br>[R307-401-8] |

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| II.B.4.b.3 | Pressure drops for the following baghouses shall be maintained within the following operating ranges:<br>A. Filter Plant Wet Feed Conveyor Baghouse: 0.5" to 4" W.G.<br>B. Wet Feed Storage Building Baghouse: 1.5" to 5" W.G.<br>C. Wet Feed Conveyor Belt Transfer Point Baghouse: 0.5" to 5.25" W.G.<br>D. Wet Feed Bin(s) Baghouse: 2.75" to 5" W.G.<br>E. Flash Smelting Furnace Dry Feed Bin Baghouse: 0.25" to 11" W.G.<br>F. Limestone Flux Bin Baghouse: 0.5" to 4" W.G.<br>G. Secondary Gas Handling System Baghouse: 6" to 15" W.G.<br>H. Matte Drying and Grinding Plant Baghouse: 5" to 15" W.G.<br>I. Dry Matte Bin Baghouse: 0.5" to 13" W.G.<br>J. Anode Refining Furnace Baghouse: 1" to 9" W.G.<br>K. Anode Shaft Furnace Baghouse: 1" to 10" W.G.<br>L. Mold Coating (Barite) Bin Baghouse: 0.25" to 4" W.G.<br>M. Vacuum Cleaning Systems (2 Baghouses): 0.25" to 6" (each) W.G.<br>N. Hydrometallurgical Plant Limestone Storage Bin Baghouse: 0.5" to 4" W.G.<br>O. Hydrometallurgical Plant Lime Storage Bin Baghouse: 0.25" to 4" W.G.<br>P. Recycle Materials Crushing and Storage Building Baghouse: 1" to 5" W.G.<br>[R307-401-8] |
| II.B.5 | **Natural Gas Consumption Requirements** |

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| II.B.5.a | The natural gas consumption per rolling 12-month period shall not exceed the following limitations for the equipment listed:<br><br>A. Acid Plant Preheater - 74,476 MMBTU<br><br>B. Pyrometallurgical Process Group - 1,947,847 MMBTU The Pyrometallurgical Process Group includes the following units:<br><br>A) Anode Area:<br>i. SME 011h1 - Anode Furnaces<br>ii. SME 011h2 - Shaft Furnace<br>iii. SME 011h3 - Holding Furnaces<br>iv. SME MOLD - Mold Casting Furnace<br><br>B) Launder Heaters<br>i. SME 011b1 - FSF<br>ii. SME 011b2 - FCF<br>iii. SME 011b3 - Co-Jet Burner<br><br>C. SME 011g - Matte Grinding Plant<br><br>D. SME 011e - Rotary Concentrate Dryer.<br><br>[R307-401-8] |
| II.B.5.a.1 | To determine compliance with a rolling 12-month total, the owner/operator shall calculate a new 12-month total by the 20th day of each month using data from the previous 12 months. Records of consumption shall be kept for all periods when the plant is in operation. Natural gas consumption shall be determined by individual gas meters readings reconciled against monthly billing statements. [R307-401-8] |
| II.B.5.a.2 | The natural gas allocations in Condition II.B.5.a may be reapportioned upon demonstration to the Director that no increase in potential $NO_x$ emissions would result. [R307-401-8] |
| II.B.5.a.3 | Propane may be used as an alternate fuel supply during natural gas curtailment. [R307-401-8] |
| II.B.6 | **Fugitive Emissions and Material Handling Requirements** |
| II.B.6.a | The emissions from the transfer point between the outside hopper/feeder and the wet feed conveyor on the wet feed conveyor transfer point with baghouse from the Outside Feed Hopper shall be ducted to the wet feed storage building baghouse. [R307-401-8] |
| II.B.6.b | All roads, parking lots, and service yards directly servicing the approved constructed installations listed above in Section II.A, with the exception of II.A.13, of this AO shall be paved. [R307-401-8] |
| II.B.6.c | The owner/operator shall carry out the current Fugitive Dust Control Plan approved by the Director. [R307-401-8] |
| II.B.6.d | Any open storage piles shall be watered, covered, or chemically treated to minimize generation of fugitive dusts as dry conditions warrant or as determined necessary by the Director. [R307-401-8] |
| II.B.6.e | Emissions from the slag concentrator bin shall be controlled with water sprays. Treatment shall be of sufficient frequency and quantity to maintain the surface material in a damp/moist condition unless it is below freezing. The degree of control is a minimum of that required to meet the opacity limitations of Condition II.B.7.a. [R307-401-8] |

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| II.B.6.e.1 | A visual inspection of the water spray system on the slag concentrator bin shall be performed on a weekly basis to ensure proper operating condition. Records of each inspection shall be maintained in accordance with Condition I.4. [R307-401-8] |
| II.B.6.f | The crushing and screening operation shall not process more than 5,000 tons of material per calendar day and 750,000 tons of material per rolling 12-month period. [R307-401-8] |
| II.B.6.f.1 | To determine compliance with a rolling 12-month total, the owner/operator shall calculate a new 12-month total by the 20th day of each month using data from the previous 12 months. Records of daily material processing shall be kept for all periods when the smelter is in operation. Daily total material processing shall be determined by daily reports. [R307-401-8] |
| II.B.6.g | Water sprays or chemical dust suppression sprays shall be installed at the following points that are not enclosed or have baghouses to control fugitive emissions:<br><br>A. All crushers<br><br>B. All stationary conveyor transfer points<br><br>C. The crusher and screening units shall have water spray at the input to the crusher and at the discharge points from the crusher.<br><br>The sprays shall operate whenever dry conditions warrant or as determined necessary by the Director.<br><br>[R307-309] |
| II.B.7 | **Site-Wide Requirements** |

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| II.B.7.a | Visible emissions from the following emission points shall not exceed the following values: | | |
| | Emission Point | | Opacity Limit |
| | A. | #SME 001 - Wet Feed Conveyor Baghouse (Stack No. 1) | 7% |
| | B. | #SME 002 - Wet Feed Storage Building Baghouse (Stack No. 2) | 7% |
| | C. | #SME 003 - Wet Feed Conveyor Transfer Point Baghouse (Stack No. 3) | 7% |
| | D. | #SME 004 - Wet Feed Bin Baghouse (Stack No. 4) | 7% |
| | E. | #SME 005 - Flash Smelting Furnace Dry Feed Bin Baghouse (Stack No. 5) | 7% |
| | F. | #SME 006 - Smelter Limestone Flux Bin Baghouse (Stack No. 6) | 10% |
| | G. | #SME 008 - Acid Plant Preheater (Stack No. 8) | 10% |
| | H. | #SME 010b - Slag Granulator Scrubber Stack (Stack No. 10b) | 15% |
| | I. | #SME 011 - Smelter Main Stack (Stack No. 11) | 20% |
| | J. | #SME 013 - Dry Matte Bin Baghouse (Stack No. 13) | 10% |
| | K. | #SME 015 - Mold Coating Silo Baghouse (Stack No. 15) | 10% |
| | L. | #SME 017 - Vacuum Cleaning System (Stacks No. 17a & 17c combined) | 10% |
| | M. | #SME 019 - Hydrometallurgical Plant Limestone Silo Baghouse (Stack No. 19) | 10% |
| | N. | #SME 020 - Hydrometallurgical Lime Silo Baghouse (Stack No. 20) | 10% |
| | O. | #SME 022 - Laboratory Baghouse (Stack No. 22) | 10% |
| | P. | #SME SLAG - Slag Concentrator Bin | 10% |
| | Q. | #SME SLAG - Slag Crushing and Grinding Transfer Points | 10% |
| | R. | #SME 026 - Holman Boiler (stack 26) | 10% |
| | S. | #SME 027 - Recycle Materials Crushing & Storage Building Baghouse (Stack No. 27) | 10% |
| | T. | #SME 028 - Anode Area Lime Silo Baghouse (Stack No. 28) | 10% |
| | U. | #SME 029 - Secondary Gas System Lime Silo Baghouse (Stack No. 29) | 10% |
| | V. | #SME 030- Rentech Boiler (Stack No. 30) | 10% |
| | W. | #SME SLAG - Crushing and Screening Plant | 10% |
| | X. | SME 001a - Filter Plant Wet Feed Bin Vent | 10% |
| | Y. | #SME 011b - Acid Plant Tail Gas | 15% |
| | Z. | #SME 011e - Rotary Dryer Baghouse/Scrubber Outlet | 15% |

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| | AA. Hot Metals Building Roof Vents 20%<br>BB. Acid Plant Process Gas Leaks 20%<br>CC. All other points 20%<br>[R307-305-3] |
| II.B.7.a.1 | Opacity observations of emissions from stationary sources shall be conducted in accordance with 40 CFR 60, Appendix A, Method 9. [R307-401-8] |
| II.B.7.a.2 | For sources that are subject to NSPS, opacity shall be determined by conducting observations in accordance with 40 CFR 60.11(b) and 40 CFR 60, Appendix A, Method 9.<br>A. For purposes of determining initial compliance, observations shall be conducted according to 40 CFR 60.11(b) unless otherwise specified under the applicable NSPS subpart<br>B. It is the responsibility of the owner/operator of the source to supply these observations to the Director<br>C. A currently certified observer must be used for these observations.<br>[40 CFR 60 Subpart A] |
| II.B.7.a.3 | The owner/operator shall install, calibrate, maintain, and operate continuous opacity monitoring systems on the rotary dryer baghouse/scrubber, the main stack, and the acid plant tail gas. [R307-401-8] |
| II.B.7.a.4 | The owner/operator shall record the output of the systems for measuring the opacity of emissions on the rotary dryer baghouse/scrubber outlet, main stack, and acid plant tail gas. The monitoring systems shall comply with all applicable sections of UAC R307-170 and 40 CFR 60, Appendix B, Specification 1 - Opacity. [R307-401-8] |
| II.B.7.a.5 | Sources equipped with continuous opacity monitors (rotary dryer baghouse/scrubber, acid plant tail gas and main stack) shall use the compliance methods contained in 40 CFR 60.11. [R307-305-3] |

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| II.B.7.a.6 | The owner/operator shall perform a visual opacity survey of the acid plant process gas leaks emission unit on a weekly basis to minimize emissions from leaks of sulfur dioxide, sulfur trioxide, and other process emissions.<br><br>A. Surveys shall be conducted by an individual trained on the observation procedures of 40 CFR 60, Appendix A, Method 9<br><br>B. If visible emissions other than steam are observed from the acid plant process gas leaks emission unit, an opacity determination shall be performed by a certified observer within 24 hours of the initial survey. The opacity determination shall be performed in accordance with 40 CFR 60, Appendix A, Method 9.<br><br>C. If visible emissions greater than 15% opacity are observed, then best operational practices shall be initiated within 24 operating hours of the observation to ensure leakage of gases to the ambient air are being controlled to 20% opacity or less. Best operational practices may include, but are not limited to:<br><br>1) Placement or adjustment of negative pressure ductwork and collection hoses;<br><br>2) Welding of process gas leaks; or<br><br>3) Containment of process gas leaks.<br><br>D. A log of the visual opacity survey(s) shall be maintained. If an opacity determination is indicated, a notation of the determination will be made in the log.<br><br>[R307-401-8] |
| II.B.7.b | The owner/operator shall install, calibrate, maintain, and operate continuous monitoring systems on the acid plant tail gas. [R307-401-8] |
| II.B.7.b.1 | The owner/operator shall record the output of the system for measuring the $SO_2$ concentration of the acid plant tail gas. The monitoring system shall comply with all applicable sections of UAC R307-170, 40 CFR 60, Appendix B, Specification 2 - $SO_2$. [R307-401-8] |
| II.B.7.c | The owner/operator shall only combust diesel fuel ((e.g. fuel oil #1, #2, or diesel fuel oil additives) that meets the definition of ultra-low sulfur diesel (ULSD), which has a sulfur content of 15 ppm or less. [R307-401-8] |
| II.B.7.c.1 | To demonstrate compliance with the ULSD fuel requirement, the owner/operator shall maintain records of diesel fuel purchase invoices or obtain certification of sulfur content from the diesel fuel supplier. The diesel fuel purchase invoices shall indicate that the diesel fuel meets the ULSD requirements. [R307-401-8] |
| II.B.7.d | All gases produced during smelting and/or converting which enter the primary gas handling system shall pass through an online sulfuric acid plant. During the start-up/shutdown process of any equipment, the gas emissions shall be ducted, as necessary, either to the acid plant or to the secondary scrubber for control. [R307-401-8] |

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| II.B.7.e | The owner/operator shall employ the following measures for reducing escape of pollutants to the atmosphere and to capture emissions and vent them through a stack or stacks:<br><br>A. Maintenance of all ducts, flues, and stacks in such a fashion that leakage of gases to the ambient air will be prevented to the maximum extent practicable<br><br>B. Operation and maintenance of gas collection systems in good working order<br><br>C. Making available the preventive/routine maintenance records for the hooding systems; dust collection mechanism of waste heat boilers; furnace wet scrubbing systems; and dry electrostatic precipitators<br><br>D. Weekly observation of process units<br><br>E. Monthly inspection of gas handling systems<br><br>F. Maintenance of gas handling systems, available on call on a 24-hour basis<br><br>G. Operation and maintenance of an upwind/downwind fugitive $SO_2$ monitoring system. The owner/operator may petition the Director to discontinue the operation of this system<br><br>H. Contained conveyance of acid plant effluent solutions.<br><br>[R307-401-8] |
| II.B.7.f | Secondary hoods and ventilation systems shall be installed on the following points to capture fugitive emissions into the secondary ventilation system or other approved pollution control devices:<br><br>A. Concentrate Dryer Feed Chute<br><br>B. Slag and Matte Granulators<br><br>C. Smelting and Converting Furnaces<br><br>D. Slag Pot Filling Stations.<br><br>[R307-401-8] |

# PERMIT HISTORY

This Approval Order shall supersede (if a modification) or will be based on the following documents:

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| Supersedes | AO DAQE-AN103460061-22 dated June 23, 2022 |
| Is Derived From | NOI dated March 1, 2023 |
| Incorporates | Additional Information dated June 27, 2023 |

# ACRONYMS

The following lists commonly used acronyms and associated translations as they apply to this document:

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| 40 CFR | Title 40 of the Code of Federal Regulations |
| AO | Approval Order |
| BACT | Best Available Control Technology |
| CAA | Clean Air Act |
| CAAA | Clean Air Act Amendments |
| CDS | Classification Data System (used by Environmental Protection Agency to classify sources by size/type) |
| CEM | Continuous emissions monitor |
| CEMS | Continuous emissions monitoring system |
| CFR | Code of Federal Regulations |
| CMS | Continuous monitoring system |
| CO | Carbon monoxide |
| $CO_2$ | Carbon Dioxide |
| $CO_2e$ | Carbon Dioxide Equivalent - Title 40 of the Code of Federal Regulations Part 98, Subpart A, Table A-1 |
| COM | Continuous opacity monitor |
| DAQ/UDAQ | Division of Air Quality |
| DAQE | This is a document tracking code for internal Division of Air Quality use |
| EPA | Environmental Protection Agency |
| FDCP | Fugitive dust control plan |
| GHG | Greenhouse Gas(es) - Title 40 of the Code of Federal Regulations 52.21 (b)(49)(i) |
| GWP | Global Warming Potential - Title 40 of the Code of Federal Regulations Part 86.1818-12(a) |
| HAP or HAPs | Hazardous air pollutant(s) |
| ITA | Intent to Approve |
| LB/YR | Pounds per year |
| MACT | Maximum Achievable Control Technology |
| MMBTU | Million British Thermal Units |
| NAA | Nonattainment Area |
| NAAQS | National Ambient Air Quality Standards |
| NESHAP | National Emission Standards for Hazardous Air Pollutants |
| NOI | Notice of Intent |
| $NO_x$ | Oxides of nitrogen |
| NSPS | New Source Performance Standard |
| NSR | New Source Review |
| $PM_{10}$ | Particulate matter less than 10 microns in size |
| $PM_{2.5}$ | Particulate matter less than 2.5 microns in size |
| PSD | Prevention of Significant Deterioration |
| PTE | Potential to Emit |
| R307 | Rules Series 307 |
| R307-401 | Rules Series 307 - Section 401 |
| $SO_2$ | Sulfur dioxide |
| Title IV | Title IV of the Clean Air Act |
| Title V | Title V of the Clean Air Act |
| TPY | Tons per year |
| UAC | Utah Administrative Code |
| VOC | Volatile organic compounds |