H.11. General Requirements: Control Measures for Area and Point Sources, Emission Limits and Operating Practices, PM2.5 Requirements

n. Kennecott Utah Copper: Smelter and Refinery.

i. SMELTER:

A. Emissions to the atmosphere from the indicated emission points shall not exceed the following rates and concentrations:

I. Main Stack (Stack No. 11)

1. $PM_{2.5}$
   a. 85 lbs/hr (filterable)
   b. 434 lbs/hr (filterable + condensable)

2. SO_2
   a. 552 lbs/hr (3 hr. rolling average)
   b. 422 lbs/hr (daily average)

3. NO_x 35 lbs/hr (annual average)

II. Acid Plant Tail Gas

1. SO_2
   a. 1,050 ppmdv (3 hr. rolling average)
   b. 650 ppmdv (6 hr. rolling average)

III. Holman Boiler

1. NO_x
   a. 9.34 lbs/hr, 30-day average
   b. 0.05 lbs. MMBTU, 30-day average

B. Stack testing to show compliance with the emissions limitations of Condition (A) above shall be performed as specified below:

EMISSION POINT	POLLUTANT	TEST FREQUENCY
I. Main Stack (Stack No. 11)	$PM_{2.5}$	every year
	SO_2	CEM
	NO_x	CEM
II. Acid Plant Tailgas	SO_2	CEM

State of Utah

GARY R. HERBERT
Governor

SPENCER J. COX
Lieutenant Governor

Department of
Environmental Quality

Amanda Smith
Executive Director

DIVISION OF AIR QUALITY
Bryce C. Bird
Director

10346

Title V Operating Permit

PERMIT NUMBER: 3500030003
DATE OF PERMIT: February 2, 2015
Date of Last Revision: February 2, 2015

This Operating Permit is issued to, and applies to the following:

Name of Permittee:

Kennecott Utah Copper LLC
4700 Daybreak Parkway
South Jordan, UT 84095

Permitted Location:

Smelter & Refinery
12000 West 2100 South (Smelter)
11500 West 2100 South (Refinery)
Magna, UT 84044

UTM coordinates: 399,000 m Easting, 4,508,000 m Northing
SIC code: 3331 (Primary Smelting & Refining of Copper)

By:

_____
Bryce C. Bird, Director

Prepared By:

_____
Brandy Cannon

ENFORCEABLE DATES AND TIMELINES

The following dates or timeframes are referenced in
Section I: General Provisions of this permit.

Annual Certification Due:	December 15 of every calendar year that this permit is in force.
Renewal application due:	August 2, 2019
Permit expiration date:	February 2, 2020
Definition of "prompt":	written notification within 14 days.

ABSTRACT

Kennecott Utah Copper Corporation operates a copper smelter and refinery in Salt Lake County, Utah. The smelter and refinery were recently modernized with a new refinery facility completed in 1995 and smelter facility completed during 1995 and again modified in 1997. The Kennecott smelter employs flash smelting technology with flash converting technology to produce copper anodes which yields offgases including high concentration sulfur dioxide gases. The gases are treated by electrostatic precipitators (ESP), baghouses, scrubbers, and a high-efficiency double contact acid plant. The Kennecott 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. Kennecott is a major source for emissions of NO_x, SO_2, GHGs, $PM_{2.5}$, PM_{10}, and CO. Kennecott Utah Copper Corporation is subject to 40 CFR 60 Subpart A-General Provisions, 40 CFR 60 Subpart Db-Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units, 40 CFR 60 Subpart Dc-Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units, 40 CFR 60 Subpart P-Standards of Performance for Primary Copper Smelters, 40 CFR 60 Subpart IIII-Standards of Performance for Stationary Compression Ignition Internal Combustion Engines, 40 CFR 60 Subpart KKKK-Standards of Performance for Stationary Combustion Turbines, 40 CFR 63 Subpart A-General Provisions, 40 CFR 63 Subpart ZZZZ-National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines, 40 CFR 63 Subpart CCCCCC-National Emission Standards for Hazardous Air Pollutants for Source Category: Gasoline Dispensing Facilities, 40 CFR 63 Subpart EEEEEE-National Emission Standards for Hazardous Air Pollutants for Primary Copper Smelting Area Sources, 40 CFR 82 Subpart B-Servicing of Motor Vehicle Air Conditioners, and 40 CFR 82 Subpart F-Recycling and Emissions Reduction.

OPERATING PERMIT HISTORY

Permit/Activity	Date Issued	Recorded Changes
Title V renewal application (Project #OPP0103460012)	02/02/2015	Changes: Incorporate changes approved in DAQE-AN103460054-14, dated 6/10/2014, to correct PM monitoring language and include the PM2.5 limit on the main stack. The revision includes changes originally permitted in DAQE-AN103460053-14 for a crushing/screening operation, a new emergency generator and updates to the fuel sulfur content at the smelter operation. Other changes include updates to rule language, monitoring language and typographical corrections.
Title V significant modification (Project #OPP0103460011)	12/27/2010	Changes: Incorporates approval order DAQE-AN0103460045-10, dated 4/6/2010, that added a combined heat and power unit to the refinery and updated some of the refinery's emission unit descriptions. Applicable requirements from 40 CFR 60 Subpart KKKK and 40 CFR 63 Subpart ZZZZ have been incorporated in this permit revision.
Title V administrative amendment - enhanced AO (Project #OPP0103460010)	03/15/2010	Changes: To incorporate changes to the smelter approved in DAQE-AN0103460043-10, dated February 2, 2010, including scrubber design change on the slag and matte granulators with updates to the associated conditions, addition of optional co-jet lances on the anode refining furnaces, update to pressure drop on the secondary gas system, and burner replacement on the powerhouse superheater.
Title V renewal application (Project #OPP0103460007)	07/09/2007	Changes: The renewal permit incorporates new approval orders, DAQE-AN0346030-07 (dated January 8, 2007) and DAQE-AN103460029-07 (dated February 27, 2007) for the refinery and smelter respectively. One unit (Unit #REF 006) is subject to CAM.
Title V administrative amendment by DAQ (Project #OPP0103460008)	04/15/2005	Changes: To incorporate changes approved in DAQE-AN0346026-05, dated February 23, 2005, including the following: removal of the PM_{10} emission limit and stack testing requirements on the selenium crushing and packaging baghouse, and addition of a pressure drop monitoring condition for the selenium crushing and packaging baghouse.
Title V administrative amendment by DAQ (Project #OPP0103460006)	08/11/2003	Changes: due to issuance of AO DAQE-AN0346024-03, for using the existing selenium production baghouse to control dust from the filter presses; modifying the fuel limit expressed in terms of heat input rather than gas volume; adding the option to use landfill gas in the two

		boilers; deleting PM_{10} limit for Precious Metals Filter Presses Unit; and deleting RMP requirement from the permit due to de-register action on Nov 11, 2002.
Title V significant modification (Project #OPP0103460005)	10/12/2001	Changes: A request by KUCC was made on August 1, 2000 for addition and revision of operating ranges for anode area baghouses and scrubber. The pressure drop range for the new anode furnace baghouse SME011h1 will be 1- 9 inches water gauge. The pressure drop for the existing anode furnace off-gas scrubber will be revised from 33.5 - 50.5 inches water gauge to 25 - 50.5 inches water gauge, and scrubbing liquid flow rate will be revised from greater than 4000 gpm to greater than 2000 gpm. This operating condition change is due to the addition of new anode furnace baghouse in the upstream. The pressure drop for the existing anode shaft furnace baghouse SME011h2 will be revised from 3 - 5 inches water gauge to 1 - 8 inches water gauge due to the unique way the furnace operates. No change in emissions will result from this modification.
Title V administrative amendment by source (Project #OPP0103460004)	03/08/2001	Changes: A Notice Of Intent was submitted by KUCC on April 12, 2000 to: increase the annual average NO_x emissions limit on the smelter main stack from 26.6 lb/hr to 35.0 lb/hr, change from annual NO_x stack testing to continuous emissions monitoring, and delete individual NO_x emission limits on three ducts leading to the smelter main stack. An Approval Order was issued December 22, 2000 (DAQE-836-00) and EPA review was completed on February 2, 2001 with no further comments.
Title V administrative amendment by source (Project #OPP0103460003)	10/16/2000	Changes: A Notice of Intent was submitted by KUCC on September 30, 1999, to: install a spray cooler, a lime injection system, and a baghouse upstream of the existing anode furnace scrubbers (reduces emissions of particulate matter containing hazardous air pollutants); to duct emissions from the holding furnace to the existing shaft furnace baghouse; allow routing of FSF & FCF emissions to secondary baghouse/scrubber during shutdown; and to modify approval order requirements identified as being obsolete or unnecessary & add existing equipment to the approval order not previously listed.
Title V significant modification (Project #OPP0103460002)	05/16/2000	Changes: A request by KUCC was made on February 1, 2000, that the pressure drop range for unit SME-011g Matte Drying and Grinding Plant Baghouse be revised from 5 - 10 inches water gauge to 5 - 13 inches water gauge. KUCC has made adjustments to the Matte Grinding Mill to reduce the grind size resulting in an increase in pressure drop across the baghouse. The off-gases from this area are transported to the main stack which is well below its emission limits, thus no change in

		emissions will result from this modification.
Title V initial application (Project #OPP0103460001)	01/05/2000	

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Issued under authority of Utah Code Ann. Section 19-2-104 and 19-2-109.1, and in accordance with Utah Administrative Code R307-415 Operating Permit Requirements.

All definitions, terms and abbreviations used in this permit conform to those used in Utah Administrative Code R307-101 and R307-415 (Rules), and 40 Code of Federal Regulations (CFR), except as otherwise defined in this permit. Unless noted otherwise, references cited in the permit conditions refer to the Rules.

Where a permit condition in Section I, General Provisions, partially recites or summarizes an applicable rule, the full text of the applicable portion of the rule shall govern interpretations of the requirements of the rule. In the case of a conflict between the Rules and the permit terms and conditions of Section II, Special Provisions, the permit terms and conditions of Section II shall govern except as noted in Provision I.M, Permit Shield.

SECTION I: GENERAL PROVISIONS

I.A **Federal Enforcement.**

All terms and conditions in this permit, including those provisions designed to limit the potential to emit, are enforceable by the EPA and citizens under the Clean Air Act of 1990 (CAA) except those terms and conditions that are specifically designated as "State Requirements". (R307-415-6b)

I.B **Permitted Activity(ies).**

Except as provided in R307-415-7b(1), the permittee may not operate except in compliance with this permit. (See also Provision I.E, Application Shield)

I.C **Duty to Comply.**

I.C.1 The permittee must comply with all conditions of the operating permit. Any permit noncompliance constitutes a violation of the Air Conservation Act and is grounds for any of the following: enforcement action; permit termination; revocation and reissuance; modification; or denial of a permit renewal application. (R307-415-6a(6)(a))

I.C.2 It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. (R307-415-6a(6)(b))

I.C.3 The permittee shall furnish to the Director, within a reasonable time, any information that the Director may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. Upon request, the permittee shall also furnish to the Director copies of records required to be kept by this permit or, for information claimed to be confidential, the permittee may furnish such records directly to the EPA along with a claim of confidentiality. (R307-415-6a(6)(e))

I.C.4 This permit may be modified, revoked, reopened, and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or of a notification of planned changes or anticipated noncompliance shall not stay any permit condition, except as provided under R307-415-7f(1) for minor permit modifications. (R307-415-6a(6)(c))

I.D **Permit Expiration and Renewal.**

I.D.1 This permit is issued for a fixed term of five years and expires on the date shown under "Enforceable Dates and Timelines" at the front of this permit. (R307-415-6a(2))

I.D.2 Application for renewal of this permit is due on or before the date shown under "Enforceable Dates and Timelines" at the front of this permit. An application may be submitted early for any reason. (R307-415-5a(1)(c))

I.D.3 An application for renewal submitted after the due date listed in I.D.2 above shall be accepted for processing, but shall not be considered a timely application and shall not relieve the permittee of any enforcement actions resulting from submitting a late application. (R307-415-5a(5))

I.D.4 Permit expiration terminates the permittee's right to operate unless a timely and complete renewal application is submitted consistent with R307-415-7b (see also Provision I.E, Application Shield) and R307-415-5a(1)(c) (see also Provision I.D.2). (R307-415-7c(2))

I.E **Application Shield.**

If the permittee submits a timely and complete application for renewal, the permittee's failure to have an operating permit will not be a violation of R307-415, until the Director takes final action on the permit renewal application. In such case, the terms and conditions of this permit shall remain in force until permit renewal or denial. This protection shall cease to apply if, subsequent to the completeness determination required pursuant to R307-415-7a(3), and as required by R307-415-5a(2), the applicant fails to submit by the deadline specified in writing by the Director any additional information identified as being needed to process the application. (R307-415-7b(2))

I.F **Severability.**

In the event of a challenge to any portion of this permit, or if any portion of this permit is held invalid, the remaining permit conditions remain valid and in force. (R307-415-6a(5))

I.G **Permit Fee.**

I.G.1 The permittee shall pay an annual emission fee to the Director consistent with R307-415-9. (R307-415-6a(7))

I.G.2 The emission fee shall be due on October 1 of each calendar year or 45 days after the source receives notice of the amount of the fee, whichever is later. (R307-415-9(4)(a))

I.H **No Property Rights.**

This permit does not convey any property rights of any sort, or any exclusive privilege. (R307-415-6a(6)(d))

I.I **Revision Exception.**

No permit revision shall be required, under any approved economic incentives, marketable permits, emissions trading and other similar programs or processes for changes that are provided for in this permit. (R307-415-6a(8))

I.J **Inspection and Entry.**

I.J.1 Upon presentation of credentials and other documents as may be required by law, the permittee shall allow the Director or an authorized representative to perform any of the following:

I.J.1.a Enter upon the permittee's premises where the source is located or emissions related activity is conducted, or where records are kept under the conditions of this permit. (R307-415-6c(2)(a))

I.J.1.b Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit. (R307-415-6c(2)(b))

I.J.1.c Inspect at reasonable times any facilities, equipment (including monitoring and air pollution control equipment), practice, or operation regulated or required under this permit. (R307-415-6c(2)(c))

I.J.1.d Sample or monitor at reasonable times substances or parameters for the purpose of assuring compliance with this permit or applicable requirements. (R307-415-6c(2)(d))

I.J.2 Any claims of confidentiality made on the information obtained during an inspection shall be made pursuant to Utah Code Ann. Section 19-1-306. (R307-415-6c(2)(e))

I.K **Certification.**

Any application form, report, or compliance certification submitted pursuant to this permit shall contain certification as to its truth, accuracy, and completeness, by a responsible official as defined in R307-415-3. This certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete. (R307-415-5d)

I.L **Compliance Certification.**

I.L.1 Permittee shall submit to the Director an annual compliance certification, certifying compliance with the terms and conditions contained in this permit, including emission limitations, standards, or work practices. This certification shall be submitted no later than the date shown under "Enforceable Dates and Timelines" at the front of this permit, and that date each year following until this permit expires. The certification shall include all the following (permittee may cross-reference this permit or previous reports): (R307-415-6c(5))

I.L.1.a The identification of each term or condition of this permit that is the basis of the certification;

I.L.1.b The identification of the methods or other means used by the permittee for determining the compliance status with each term and condition during the certification period. Such methods and other means shall include, at a minimum, the monitoring and related recordkeeping and reporting requirements in this permit. If necessary, the permittee also shall identify any other material information that must be included in the certification to comply with section 113(c)(2) of the Act, which prohibits knowingly making a false certification or omitting material information;

I.L.1.c The status of compliance with the terms and conditions of the permit for the period covered by the certification, including whether compliance during the period was continuous or intermittent. The certification shall be based on the method or means designated in Provision I.L.1.b. The certification shall identify each deviation and take it into account in the compliance certification. The certification shall also identify as possible exceptions to compliance any periods during which compliance is required and in which an excursion or exceedance as defined under 40 CFR Part 64 occurred; and

I.L.1.d Such other facts as the Director may require to determine the compliance status.

I.L.2 The permittee shall also submit all compliance certifications to the EPA, Region VIII, at the following address or to such other address as may be required by the Director: (R307-415-6c(5)(d))

Environmental Protection Agency, Region VIII
Office of Enforcement, Compliance and Environmental Justice
(mail code 8ENF)
1595 Wynkoop Street
Denver, CO 80202-1129

I.M **Permit Shield.**

I.M.1 Compliance with the provisions of this permit shall be deemed compliance with any applicable requirements as of the date of this permit, provided that:

I.M.1.a Such applicable requirements are included and are specifically identified in this permit, or (R307-415-6f(1)(a))

I.M.1.b Those requirements not applicable to the source are specifically identified and listed in this permit. (R307-415-6f(1)(b))

I.M.2 Nothing in this permit shall alter or affect any of the following:

I.M.2.a The emergency provisions of Utah Code Ann. Section 19-1-202 and Section 19-2-112, and the provisions of the CAA Section 303. (R307-415-6f(3)(a))

I.M.2.b The liability of the owner or operator of the source for any violation of applicable requirements under Utah Code Ann. Section 19-2-107(2)(g) and Section 19-2-110 prior to or at the time of issuance of this permit. (R307-415-6f(3)(b)

I.M.2.c The applicable requirements of the Acid Rain Program, consistent with the CAA Section 408(a). (R307-415-6f(3)(c))

I.M.2.d The ability of the Director to obtain information from the source under Utah Code Ann. Section 19-2-120, and the ability of the EPA to obtain information from the source under the CAA Section 114. (R307-415-6f(3)(d))

I.N **Emergency Provision.**

I.N.1 An "emergency" is any situation arising from sudden and reasonably unforeseeable events beyond the control of the source, including acts of God, which situation requires immediate corrective action to restore normal operation, and that causes the source to exceed a technology-based emission limitation under this permit, due to unavoidable increases in emissions attributable to the emergency. An emergency shall not include noncompliance to the extent caused by improperly designed equipment, lack of preventive maintenance, careless or improper operation, or operator error. (R307-415-6g(1))

I.N.2 An emergency constitutes an affirmative defense to an action brought for noncompliance with such technology-based emission limitations if the affirmative defense is demonstrated through properly signed, contemporaneous operating logs, or other relevant evidence that:

I.N.2.a An emergency occurred and the permittee can identify the causes of the emergency. (R307-415-6g(3)(a))

I.N.2.b The permitted facility was at the time being properly operated. (R307-415-6g(3)(b))

I.N.2.c During the period of the emergency the permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards, or other requirements in this permit. (R307-415-6g(3)(c))

I.N.2.d The permittee submitted notice of the emergency to the Director within two working days of the time when emission limitations were exceeded due to the emergency. This notice must contain a description of the emergency, any steps taken to mitigate emissions, and corrective actions taken. This notice fulfills the requirement of Provision I.S.2.c below. (R307-415-6g(3)(d))

I.N.3 In any enforcement proceeding, the permittee seeking to establish the occurrence of an emergency has the burden of proof. (R307-415-6g(4))

I.N.4 This emergency provision is in addition to any emergency or upset provision contained in any other section of this permit. (R307-415-6g(5))

I.O **Operational Flexibility.**

Operational flexibility is governed by R307-415-7d(1).

I.P **Off-permit Changes.**

Off-permit changes are governed by R307-415-7d(2).

I.Q **Administrative Permit Amendments.**

Administrative permit amendments are governed by R307-415-7e.

I.R **Permit Modifications.**

Permit modifications are governed by R307-415-7f.

I.S **Records and Reporting.**

I.S.1 Records.

I.S.1.a The records of all required monitoring data and support information shall be retained by the permittee for a period of at least five years from the date of the monitoring sample, measurement, report, or application. Support information includes all calibration and maintenance records, all original strip-charts or appropriate recordings for continuous monitoring instrumentation, and copies of all reports required by this permit. (R307-415-6a(3)(b)(ii))

I.S.1.b For all monitoring requirements described in Section II, Special Provisions, the source shall record the following information, where applicable: (R307-415-6a(3)(b)(i))

I.S.1.b.1 The date, place as defined in this permit, and time of sampling or measurement.

I.S.1.b.2 The date analyses were performed.

I.S.1.b.3 The company or entity that performed the analyses.

I.S.1.b.4 The analytical techniques or methods used.

I.S.1.b.5 The results of such analyses.

I.S.1.b.6 The operating conditions as existing at the time of sampling or measurement.

I.S.1.c Additional record keeping requirements, if any, are described in Section II, Special Provisions.

I.S.2 Reports.

I.S.2.a Monitoring reports shall be submitted to the Director every six months, or more frequently if specified in Section II. All instances of deviation from permit requirements shall be clearly identified in the reports. (R307-415-6a(3)(c)(i))

I.S.2.b All reports submitted pursuant to Provision I.S.2.a shall be certified by a responsible official in accordance with Provision I.K of this permit. (R307-415-6a(3)(c)(i)

I.S.2.c The Director shall be notified promptly of any deviations from permit requirements including those attributable to upset conditions as defined in this permit, the probable cause of such deviations, and any corrective actions or preventative measures taken. Prompt, as used in this condition, shall be defined as written notification within the number of days shown under "Enforceable Dates and Timelines" at the front of this permit. Deviations from permit requirements due to breakdowns shall be reported in accordance with the provisions of R307-107. (R307-415-6a(3)(c)(ii))

I.S.3 Notification Addresses.

I.S.3.a All reports, notifications, or other submissions required by this permit to be submitted to the Director are to be sent to the following address or to such other address as may be required by the Director:

Utah Division of Air Quality
P.O. Box 144820
Salt Lake City, UT 84114-4820
Phone: 801-536-4000

I.S.3.b All reports, notifications or other submissions required by this permit to be submitted to the EPA should be sent to one of the following addresses or to such other address as may be required by the Director:

For annual compliance certifications:

Environmental Protection Agency, Region VIII
Office of Enforcement, Compliance and Environmental Justice
(mail code 8ENF)
1595 Wynkoop Street
Denver, CO 80202-1129

For reports, notifications, or other correspondence related to permit modifications,

applications, etc.:

Environmental Protection Agency, Region VIII
Office of Partnerships and Regulatory Assistance Air and Radiation Program
(mail code 8P-AR)
1595 Wynkoop Street
Denver, CO 80202-1129
Phone: 303-312-6440

I.T **Reopening for Cause.**

I.T.1 A permit shall be reopened and revised under any of the following circumstances:

I.T.1.a New applicable requirements become applicable to the permittee and there is a remaining permit term of three or more years. No such reopening is required if the effective date of the requirement is later than the date on which this permit is due to expire, unless the terms and conditions of this permit have been extended pursuant to R307-415-7c(3), application shield. (R307-415-7g(1)(a))

I.T.1.b The Director or EPA determines that this permit contains a material mistake or that inaccurate statements were made in establishing the emissions standards or other terms or conditions of this permit. (R307-415-7g(1)(c))

I.T.1.c EPA or the Director determines that this permit must be revised or revoked to assure compliance with applicable requirements. (R307-415-7g(1)(d))

I.T.1.d Additional applicable requirements are to become effective before the renewal date of this permit and are in conflict with existing permit conditions. (R307-415-7g(1)(e))

I.T.2 Additional requirements, including excess emissions requirements, become applicable to a Title IV affected source under the Acid Rain Program. Upon approval by EPA, excess emissions offset plans shall be deemed to be incorporated into this permit. (R307-415-7g(1)(b))

I.T.3 Proceedings to reopen and issue a permit shall follow the same procedures as apply to initial permit issuance and shall affect only those parts of this permit for which cause to reopen exists. (R307-415-7g(2))

I.U **Inventory Requirements.**

An emission inventory shall be submitted in accordance with the procedures of R307-150, Emission Inventories. (R307-150)

I.V **Title IV and Other, More Stringent Requirements**

Where an applicable requirement is more stringent than an applicable requirement of regulations promulgated under Title IV of the Act, Acid Deposition Control, both provisions shall be incorporated into this permit. (R307-415-6a(1)(b))

SECTION II: SPECIAL PROVISIONS

II.A **Emission Unit(s) Permitted to Discharge Air Contaminants.**
(R307-415-4(3)(a) and R307-415-4(4))

II.A.1 **Permitted Source**
Source-wide

II.A.2 **#Smelter:**
Smelter Operations

II.A.3 **#SME 001: Filter Plant Wet Feed Conveyor (Stack 1)**
Wet copper concentrate filter cake is transferred from the filter plant along an enclosed conveyor system directly to the feed storage building. The conveyor and transfer points are vented to a baghouse.

II.A.4 **#SME 002: Wet Feed Storage Building (Stack 2)**
Wet copper concentrate feed is stored in the enclosed wet feed storage building. Particulate emissions from loading materials into the feed storage building, from reclaiming materials, and from conveyor/transfer point SME 002-A are vented to a baghouse.

II.A.5 **#SME 003: Wet Feed Conveyor Transfer Point (Stack 3)**
Copper concentrate reclaimed from the storage building is delivered to a loading bin by two enclosed conveyors. Particulate emissions from the transfer point of wet feed from one belt to the other are controlled by a baghouse.

II.A.6 **#SME 002-A: Partially Enclosed Wet Feed Hopper**
Copper concentrate is loaded into a hopper located outside the wet feed storage building. The hopper is partially enclosed by a roof and 3 sides. The enclosed conveyor and transfer point are ducted to the wet feed storage building baghouse.

II.A.7 **#SME 004: Wet Feed Bins (Stack 4)**
Silica flux, concentrate, and converter slag are transferred directly to feed bins then conveyed to the dryer. Particulate emissions from the loading of wet flux & concentrate and from transfer points of the conveyor are vented to a baghouse.

II.A.8 **#SME 005: Flash Smelting Furnace Dry Feed Bin (Stack 5)**
Product leaving the concentrate rotary dryer is delivered in an enclosed pneumatic transfer to the flash smelting furnace (FSF) feed bin. Dry feed bin loading, bin discharge points, and chain conveyors are vented to a baghouse.

II.A.9 **#SME 011e: Rotary Dryer**
Feed for the flash smelting furnace is dried in a natural gas fired rotary dryer. The dryer uses low NO_x burners. Dryer off gas is vented through a baghouse, an alkaline scrubber, and then vented to the main stack.

II.A.10 **#SME 011b1: Flash Smelting Furnace (FSF)**
Copper concentrate & flux with oxygen are fed into the flash smelting furnace to produce molten products. The process gas is exhausted to a waste heat boiler, ESP, wet scrubber, then to a wet ESP & acid plant also used by FCF, & then vented to the main stack. One diesel-fired emergency generator with a maximum rating of 998 horsepower used for emergency powering of the waste heat boiler. The generator has a displacement of less than 10 liters per cylinder and is equipped with a turbo charger and after cooling. 40 CFR 60 Subpart IIII applies to the emergency generator.

II.A.11 **#SME SLAG: Slag Concentrator**

Slag from the FSF or FCF is delivered to slag pots, cooled, crushed, and transferred to the slag mill or stockpiled. Fugitive emissions from the crusher and conveyor transfer points are controlled by water sprays. Unit also includes a crushing and screening operation for slag that cannot be handled by the slag mill. This crushing and screening operation includes: crushers, screens, and conveyors with partially enclosed transfer points equipped with water sprays.

II.A.12 **#SME 011g: Matte Drying and Grinding Plant**

Grinds and dries wet granulated matte copper. Warmed air is blown through the mill to dry the matte. Ground matte is separated from the drying air by a baghouse. Cleaned air is discharged to the main stack and matte conveyed to a bin. No unit-specific applicable requirements.

II.A.13 **#SME 006: Smelter Limestone Flux Bin (Stack 6)**

Dry lime or limestone flux for use in the converting process is delivered to the smelter and pneumatically conveyed from an enclosed delivery truck to the limestone storage bin. Displaced air from the loading of the bin is vented to a baghouse.

II.A.14 **#SME 013: Dry Matte Bin (Stack 13)**

Dry ground matte is conveyed by pneumatic pipeline from the matte grinding plant to the dry matte bin. Particulate emissions from the loading of the dry matte bin are controlled by a baghouse.

II.A.15 **#SME 011b2: Flash Converting Furnace (FCF)**

Ground copper matte & flux with oxygen are fed into the flash converting furnace to produce molten product (blister). The process gas is exhausted to a waste heat boiler, ESP, wet scrubber, then to a wet ESP & acid plant also used by FSF, & then vented to the main stack.

II.A.16 **#SME FSF/FCF: Flash Smelting & Converting Combined**

Identical conditions on Flash Smelting Furnace (SME 011b1) and Flash Converting Furnace (SME 011b2).

II.A.17 **#SME 011a: Secondary Gas System**

Hoods over launders, slag pot filling stations, matte and slag granulation tanks, FSF & FCF tapholes, FSF VCS, directed to secondary gas baghouse (w/ lime injection system), secondary gas scrubbers (reverse jet scrubbers A, B), then to main stack. FSF & FCF gases may be directed to this system during shutdown.

II.A.18 **#SME 010a: Matte Granulation Exhaust Scrubbers (Stack 10a)**

Molten matte from the FSF is granulated with water in two separate granulation tanks, the North Matte Granulator and the South Matte Granulator. Each granulator is equipped with a three stage impingement plate scrubber. Emissions are either directed a) to the scrubber and then to the atmosphere through the vent stack or b) to the scrubber and then to the secondary gas system.

II.A.19 **#SME 010b: Slag Granulation Exhaust Scrubber (Stack 10b)**

Converter slag from the FCF is granulated with water in a separate granulation tank. The granulator is equipped with a three stage impingement plate scrubber. Emissions are either directed a) to the scrubber and then to the atmosphere through the vent stack or b) to the scrubber and then to the secondary gas system.

II.A.20 **#SME 011a2: Slag Pot Filling Stations**

Slag from the FSF and FCF is laundered into slag pots. Emissions are captured by hoods and directed to the secondary gas system. No unit-specific applicable requirements.

II.A.21 **#SME 011h1: Anode Refining Furnaces (2)**

Blister copper produced in the FCF is laundered to one of two anode furnaces. The anode

furnaces are natural gas fired with oxyfuel burners. Optional co-jet lances used for material heating and melting on a non-continuous basis. Off-gas is vented (in series) to quench tower, lime injection, baghouse, & two scrubbers, then to the main stack.

II.A.22 **#SME 029: Secondary Gas System Lime Silo (Stack 29)**

Secondary gas system lime silo with bin vent baghouse.

II.A.23 **#SME 011h4: Anode Casting Wheels**

Anode copper is cast in one of two circular casting wheels. Casting wheel cooling is hooded to collect steam. Casting wheel emissions are vented to a quench tower then to the main stack. No unit-specific applicable requirements.

II.A.24 **#SME 028: Anode Area Lime Silo (Stack 28)**

Lime silo with bin vent baghouse.

II.A.25 **#SME MOLD: Mold Casting Furnace**

A small natural gas fired mold casting furnace was permitted but its installation has been deferred. Any emissions from this furnace would be fugitive. No unit-specific applicable requirements.

II.A.26 **#SME 011h2: Anode Shaft Furnace**

The shaft furnace melts rejected copper anodes and anode scrap from the refinery. The melted copper is then recast into new anodes. Exhaust gases from the shaft furnace are quenched then cleaned in a baghouse then discharged to the main stack. No unit-specific applicable requirements.

II.A.27 **#SME 011h3: Anode Holding Furnace**

Molten copper from the shaft furnace is transferred to a holding furnace. Ventilation gases from the holding furnace join the other anode gases before being ducted to the main stack. No unit-specific applicable requirements.

II.A.28 **#SME 011h: Anode Area**

The anode area consists of the two anode refining furnaces (SME 011h1), the shaft furnace (SME 011h2), the anode holding furnace (SME 011h3), and the casting wheels (SME 011h4). Gases from these units are ducted together then ducted to the main stack. No unit-specific applicable requirements.

II.A.29 **#SME ROOF: Hot Metals Building Roof Vents**

Emissions not captured by the primary or secondary gas systems in the hot metals building, including the dryer area, FSF & FCF area, and the anode area, are ventilated to the atmosphere through roof vents. No unit-specific applicable requirements.

II.A.30 **#SME 015: Mold Coating (Barite) Bin (Stack 15)**

Barium sulfate (Barite) is delivered to the smelter in enclosed delivery trucks and pneumatically conveyed to a storage bin. Displaced air from bin loading is vented to a baghouse.

II.A.31 **#SME 008: Acid Plant Preheater (Stack 8)**

The acid plant is brought up to proper temperature with a preheater. The preheater is natural gas fired and equipped with a low NO_x burner. Exhaust from the preheater discharges to atmosphere through its own stack.

II.A.32 **#SME 011b: Acid Plant**

Double contact acid plant for removal of sulfur dioxide from the off-gases of the FSF and FCF. Produced sulfuric acid is sold. The system is equipped with tubular candle fiber mist eliminators and the tail gas discharges to the main stack.

II.A.33 **#SME GLCS: Acid Plant Process Gas Leak Collection System**

Leaks of SO_2, SO_3, or other process gas emissions that do not pass through a stack at the acid plant, shall be controlled using best operational practices to minimize emissions. Best operational practices may include, but are not limited to: placement or adjustment of negative pressure ductwork and collection hoses, welding or containment of process gas leaks.

II.A.34 **#SME 019: Hydrometallurgical Plant Limestone Bin (Stack 19)**

Limestone used in the hydrometallurgical plant is pneumatically conveyed from delivery trucks to a storage bin. Displaced air from bin loading is vented to a baghouse.

II.A.35 **#SME 020: Hydrometallurgical Plant Lime Bin (Stack 20)**

Lime used in the hydrometallurgical plant is pneumatically conveyed from delivery trucks to a storage bin. Displaced air from bin loading is vented to a baghouse.

II.A.36 **#SME 011d: Hydrometallurgical Plant**

ESP dust from FSF & FCF, discharge from wet scrubbers, and decopperized refinery solutions are slurried to the hydromet plant for processing metals. The hydromet plant has 2 dedicated alkaline scrubbers that discharge to the main stack.

II.A.37 **#SME 011f: Powerhouse Superheater & Foster Wheeler Boiler**

Superheater is equipped with ultra low NO_x burners and heats steam from FSF & FCF waste heat boilers. The boiler (ranging from 10-100 MMBtu/Hr.) produces superheated steam to start the smelter, drive acid plant compressors, and standby power. Gases from these units are ducted to the main stack.

II.A.38 **#SME 026: Powerhouse Holman Boiler (Stack 26)**

Approximately 187 MMBtu/Hr. boiler producing process steam for the smelter. The boiler is equipped with low NO_x burners and flue gas recirculation. Combustion emissions are discharged to the boiler stack.

II.A.39 **#SME 011: Main Stack (Stack 11)**

Gases from the acid plant, secondary gas system, rotary dryer, powerhouse superheater and Foster Wheeler boiler, matte grinding plant, anode area, and hydrometallurgical plant are vented to the smelter main stack.

II.A.40 **#SME 027: Recycle Crushing and Storage Building (Stack 27)**

Waste heat boiler & electrostatic precipitator dust, dry pond sediment, and other materials are crushed and agglomerated in a pelletizer, then stored in a building for reprocessing through the smelter. The building and processes are vented to a baghouse.

II.A.41 **#SME NG1: Natural Gas Consumption Group 1**

Natural gas consumption is limited for total consumption in the smelter powerhouse. The powerhouse consists of the powerhouse superheater and Foster Wheeler boiler (SME 011f), and the Holman boiler (SME 026).

II.A.42 **#SME NG2: Natural Gas Consumption Group 2**

Natural gas consumption is limited for total consumption in the following units: anode area (SME 011h), mold casting furnace (SME MOLD), launder heaters, matte grinding plant (SME 011g), and rotary concentrate dryer (SME 011e).

II.A.43 **#SME 022: Smelter Laboratory Sample Preparation (Stack 22)**

Samples of concentrate, matte, slag, etc. are crushed in preparation for laboratory analysis. The Laboratory crushers are vented through a baghouse.

II.A.44 **#SME 017a, c: Vacuum Cleaning Systems (Stacks 17a, 17c)**

3 vacuum cleaning systems (VCS) with remote pickups are used to vacuum up spilled

concentrate, feed mix, ground matte, etc. 17a & 17c vent through separate baghouses & discharge through separate stacks. The FSF VCS ducts to the secondary gas system (SME 011a).

II.A.45 **#SME SA-1: Smelter Unleaded Gasoline Storage Tank**

10,000-gallon capacity above ground unleaded gasoline storage tank. The gasoline is delivered to the tank by bulk truck and is dispensed to light duty vehicles as needed. Throughput is less than 10,000 gallons per month.

II.A.46 **#SMEi210: Smelter Cold Solvent Degreasers**

Organic solvent is used in degreasing tanks for small parts washing. The cold solvent degreasers have a total throughput of approximately 300 gallons solvent per year.

II.A.47 **#SME gen: Smelter Powerhouse Emergency Generators**

Two #2 diesel fired emergency generators, approximately 2847 hp each, capable of operating essential equipment (such as pumps and fans) for preventing damage in the event of a power outage. 40 CFR 63 Subpart ZZZZ applies to these units.

II.A.48 **#SME CT311, 316, 321: Smelter Cooling Towers**

Three cooling towers serve the acid plant, powerhouse, and granulators, respectively. No unit-specific applicable requirements.

II.A.49 **#SME SH, WH: Space Heaters and Water Heaters**

Numerous small natural gas fired space heaters and water heaters. No unit-specific applicable requirements.

II.A.50 **#SME STRG: Storage Piles**

Concentrate, granulated matte, slag, and other materials are stored in outdoor storage piles on pads.

II.A.51 **#SME COM GEN: Emergency Generator - Communications**

One liquid propane fired emergency generator with a maximum rating of 75 brake horsepower used for emergency powering of the smelter communication systems during primary power supply outages.

II.A.52 **#Refinery:**

Refinery Operations

II.A.53 **#REF TH: Electrolytic Refining Tanks**

Copper anodes produced at the smelter are immersed in heated electrolyte, a solution of sulfuric acid and copper sulfate, in polymer concrete tanks in the tankhouse building. Copper cathodes are produced by an electrolytic refining process. No unit-specific applicable requirements.

II.A.54 **#REF 001: Liberator**

A small amount of electrolyte is circulated from the electrolytic tanks to the liberator electrowinning process, used to control concentration of copper in solution. The electrolyte purification demister pad collects mist emitted from the liberator.

II.A.55 **#REF 002/003: Refinery Boilers**

Two boilers (capable of burning natural gas, landfill gas, or fuel oil; approx. 82 MMBtu/Hr. output each; and equipped with low excess air, low NO_x burner and flue gas recirculation technologies) are used to generate steam to heat electrolyte solution.

II.A.56 **#REF 004: Cathode Washing**

Cathodes are transported from the tankhouse by transfer cars to the machine and product control building (MPC) where they are washed. Acid mist produced is collected through local hooding and passed through demister pads.

II.A.57 **#REF 005: Anode Scrap Washing**

Spent anodes are transported from the tankhouse by transfer cars to the machine and product control building (MPC) where they are washed. Acid mist produced is collected through local hooding and passed through demister pads.

II.A.58 **#REF 006: Hydrometallurgical Precious Metals Recovery**

Gold, silver, selenium, copper telluride, and lead salts are recovered in a series of hydrometallurgical processes. Acidic gases from the processes are collected, scrubbed with a soda ash solution, and exhausted through the sodium based scrubber.

II.A.59 **#REF 011: Soda Ash Silo**

Soda ash for feeding sodium based scrubber is stored in a silo. Air displaced in the silo during soda ash loading is passed through a baghouse.

II.A.60 **#REF 007: Hydrometallurgical Silver Production**

Ammonium hydroxide is used to leach silver from a solid mixture. Ammonia is recovered and regenerated in a closed loop system. H_2SO_4 is used to precipitate the silver chloride salt. Ammonia vapor from this process is ducted to an acidic scrubber.

II.A.61 **#REF 008: Precious Metals Filter Presses**

Product lead carbonate and crude selenium are dewatered in filter presses, which are vented during emptying and cleaning through the precious metals filter press baghouse.

II.A.62 **#REF 009: Selenium Crushing and Packaging**

Either Purified (retorted and condensed) selenium is crushed, sized, and packaged for shipment or filtered crude selenium is packaged for shipment. This system vents to a baghouse.

II.A.63 **#REF 010: Gold/Silver Recovery**

Following leaching and solvent extraction processes, gold and silver are melted in furnaces to produce bullion. Emissions from drying of precious metals sands and from metals volatilized during melting processes are vented to a baghouse.

II.A.64 **#REFi 210: Emergency Generator - Precious Metals**

One #2 diesel fired emergency generator, rated at no greater than 487.5 hp, used for emergency powering of the refinery precious metals plant. 40 CFR 63 Subpart ZZZZ applies to this unit.

II.A.65 **#REF PREP: Refinery Laboratory Sample Preparation**

A laboratory induction furnace is hooded and vented inside the Machine and Product Control (MPC) building. No unit-specific applicable requirements.

II.A.66 **#REF SA-1: Refinery Unleaded Gasoline Storage Tank**

2,500-gallon capacity above ground unleaded gasoline storage tank with approximately 12,800 gallons throughput per year. The gasoline is delivered to the storage tank by bulk truck and is dispensed to light duty vehicles as required. Throughput is less than 10,000 gallons per month.

II.A.67 **#REF VOL: Refinery Volatile Organic Liquid Storage Tanks**

Two 37,000 gallon and one 500 gallon fuel oil storage tanks located in the refinery area. No unit-specific applicable requirements.

II.A.68 **#REFi 201: Refinery Cold Solvent Degreasers**

Organic solvent is used in degreasing tanks for small parts washing. The cold solvent degreasers have a total throughput of approximately 25 gallons solvent per year.

II.A.69 **#REFi 202: Refinery Paint Shop**

Paint shop surface coating with organic solvent evaporation from stripping. Annual usage equals

approximately 23 gallons per year of paint primer & 106 gallons per year of paint. No unit-specific applicable requirements.

II.A.70 **#REFi204, 205, 206, 207, 208: Refinery Comfort Heaters**

Various natural gas supplied space heaters used for comfort heating are located throughout the refinery. No unit-specific applicable requirements.

II.A.71 **#REF CT 001, 002: Refinery Cooling Towers**

Two water cooling towers are in operation at the refinery. No unit-specific applicable requirements.

II.A.72 **#REF COM GEN: Emergency Generator - Communications**

One liquified petroleum gas (LPG) fired emergency generator with a maximum rating of 75 brake horsepower used for emergency powering of the refinery communication systems during primary power supply outages.

II.A.73 **#REF CHP: Refinery Combined Heat and Power Unit**

One natural gas fired axial turbine, rated at 9.0 ppm NO_x (15 percent oxygen) and 25.0 ppm CO (15 percent oxygen), with a turbine electric generator (TEG); one natural gas fired duct burner with a maximum rating of 120.6 MMBtu/hr (0 degrees F and 50 percent relative humidity), and one heat recovery steam generator. The natural gas firing the turbine and duct burner shall meet the definition in 40 CFR 60.4420.

II.B **Requirements and Limitations**

The following emission limitations, standards, and operational limitations apply to the permitted facility as indicated:

II.B.1 **Conditions on #Smelter: Smelter Operations.**

II.B.1.a **Condition:**

At all times, including periods of startup, shutdown, and malfunction, the permittee shall, to the extent practicable, maintain and operate any permitted plant equipment, 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 installations and facilities authorized by this permit shall be adequately and properly maintained. Maintenance records shall be maintained while the plant is in operation. All pollution control equipment shall be installed, maintained, and operated properly. Instructions from the vendor or established maintenance practices that maximize pollution control shall be followed. All necessary equipment control and operating devices, such as pressure gauges, amp meters, volt meters, flow rate indicators, temperature gauges, continuous emissions monitoring systems, etc., shall be installed, operated properly and easily accessible to compliance inspectors. A copy of all manufacturers' operating instructions for pollution control equipment and pollution emitting equipment shall be kept on site. These instructions shall be available to all employees who operate the equipment and shall be made available to compliance inspectors upon request. Maintenance records shall be made available to the Director or Director's representative upon request. [Origin: DAQE-AN103460054-14]. [40 CFR 63 Subpart EEEEEE, R307-401-8(1)(a)(BACT), R307-401-8(2)]

II.B.1.a.1 **Monitoring:**

Records required for this permit condition will serve as monitoring.

II.B.1.a.2 **Recordkeeping:**

Permittee shall document activities performed to assure proper operation and maintenance of the air pollution control equipment and monitoring systems or devices. Records shall be maintained in accordance with Provision I.S.1 of this permit.

II.B.1.a.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.1.b **Condition:**

The permittee shall comply with the applicable requirements for servicing of motor vehicle air conditioners pursuant to 40 CFR 82, Subpart B - Servicing of Motor Vehicle Air Conditioners. [Origin: 40 CFR 82]. [40 CFR 82.30(b)]

II.B.1.b.1 **Monitoring:**

The permittee shall certify, in the annual compliance statement required in Section I of this permit, its compliance status with the requirements of 40 CFR 82, Subpart B.

II.B.1.b.2 **Recordkeeping:**

All records required in 40 CFR 82, Subpart B shall be maintained consistent with the requirements of Provision S.1 in Section I of this permit.

II.B.1.b.3 **Reporting:**

All reports required in 40 CFR 82, Subpart B shall be submitted as required. There are no additional reporting requirements except as outlined in Section I of this permit.

II.B.1.c **Condition:**

The permittee shall comply with the applicable requirements for recycling and emission reduction for class I and class II refrigerants pursuant to 40 CFR 82, Subpart F - Recycling and Emissions Reduction. [Origin: 40 CFR 82]. [40 CFR 82.150(b)]

II.B.1.c.1 **Monitoring:**

The permittee shall certify, in the annual compliance statement required in Section I of this permit, its compliance status with the requirements of 40 CFR 82, Subpart F.

II.B.1.c.2 **Recordkeeping:**

All records required in 40 CFR 82, Subpart F shall be maintained consistent with the requirements of Provision S.1 in Section I of this permit.

II.B.1.c.3 **Reporting:**

All reports required in 40 CFR 82, Subpart F shall be submitted as required. There are no additional reporting requirements except as outlined in Section I of this permit.

II.B.1.d **Condition:**

Visible emissions shall be no greater than 20 percent opacity unless otherwise specified in this permit. [Origin: R307-305-3]. [R307-305-3]

II.B.1.d.1 **Monitoring:**

A visual opacity survey of each affected emission unit shall be performed on a weekly basis by an individual trained on the observation procedures of 40 CFR 60, Appendix A, Method 9. The individual is not required to be a certified visible emissions observer. If any visible emissions other than steam are observed, an opacity determination of that emission unit shall be performed by a certified visible emissions observer in accordance with 40 CFR 60, Appendix A, Method 9, or other EPA-approved testing method, as acceptable to the Director, within 24 hours of the initial observation. For each affected emission unit, if no visible emissions are observed for eight consecutive weeks the observation frequency shall be reduced to a monthly basis. If visible emissions are observed during any monthly observation the frequency shall revert back to a weekly basis.

Minor natural gas combustion sources (<5 MMBtu/hr), cold solvent degreasers, organic liquid storage tanks (<19,812 gallons), cooling towers, and units equipped with a continuous opacity monitor are not affected emission units subject to this condition.

II.B.1.d.2 **Recordkeeping:**

A log of the visual opacity survey(s) shall be maintained in accordance with Provision I.S.1 of this permit. If an opacity determination is indicated, a notation of the determination shall be made in the log. All data required by 40 CFR 60, Appendix A, Method 9, or other EPA-approved testing method, as acceptable to the Director, shall also be maintained in accordance with Provision I.S.1 of this permit.

II.B.1.d.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.1.e **Condition:**

Sulfur content of diesel fuel consumed shall be no greater than 0.0015 percent by weight (15 ppm). [Origin: DAQE-AN103460054-14]. [R307-203-1, R307-401-8(1)(a)(BACT)]

II.B.1.e.1 **Monitoring:**

Compliance with this limitation shall be demonstrated either by testing each fuel delivery for the sulfur content or by inspection of the fuel sulfur-content specifications provided by the vendor in purchase records. Sulfur content in either instance shall be determined in accordance with ASTM-4294, or equivalent.

II.B.1.e.2 **Recordkeeping:**

Compliance with the above limitation shall be demonstrated by maintaining fuel receipt records showing sulfur content of the delivered fuel or maintaining records of all sulfur content testing performed on the delivered fuel. Records shall be maintained in accordance with Provision I.S.1 of this permit.

II.B.1.e.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.1.f **Condition:**

The permittee shall use natural gas as a primary fuel and propane as back-up fuel in the following smelter operations: acid plant preheater, powerhouse superheater, Foster-Wheeler boiler, anode plant (including shaft furnace, anode furnaces, holding furnaces, and mold furnace), launder heaters, matte grinding and concentrate drying. The propane shall only be used during periods of natural gas curtailment. Natural gas curtailment is defined as any period when the natural gas provider/supplier imposes an interruption of service, and the curtailment is involuntary and beyond the control of the permittee. [Origin: DAQE-AN103460054-14]. [R307-401-8(1)(a)(BACT)]

II.B.1.f.1 **Monitoring:**

The backup fuel shall be monitored by use of level sensors in the tanks, which shall be observed following each use of backup fuel.

II.B.1.f.2 **Recordkeeping:**

The permittee shall maintain records that document the reason for backup fuel usage (i.e. natural gas curtailment, maintenance, etc.), date, and duration. All readings required to be taken shall be documented and maintained consistent with the requirements of Provision S.1 in Section I of this permit.

II.B.1.f.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.1.g **Condition:**

The permittee shall implement a fugitive dust control plan that has been approved by the Director. Compliance shall be based on the permittee adhering to the most recently approved fugitive dust control plan. If site modifications result in emission changes, the permittee shall submit an updated fugitive dust control plan. Natural sources of dust and fugitive emissions are not fugitive dust within the meaning of this condition. [Origin: DAQE-AN103460054-14]. [R307-309-6, R307-401-8(1)(a)(BACT)]

II.B.1.g.1 **Monitoring:**

Adherence to the most recently approved fugitive dust control plan shall be monitored to demonstrate that appropriate measures are being implemented to control fugitive dust.

II.B.1.g.2 **Recordkeeping:**

Records required by the most recently approved fugitive dust control plan shall be maintained in accordance with the plan and section I.S.1 of this permit.

II.B.1.g.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.1.h **Condition:**

All roads, permanent parking lots, and service yards directly servicing the permittee's approved constructed installations listed as emission units II.A.3 through II.A.49 shall be paved. Fugitive dust generated from these areas shall be limited to 20 percent opacity. Methods of control shall include, but not be limited to, sweeping, chemical stabilization, and water flushing of the affected areas. [Origin: DAQE-AN103460054-14, Utah SIP IX.H]. [R307-401-8(1)(a)(BACT)]

II.B.1.h.1 **Monitoring:**

Adherence to the most recently approved fugitive dust control plan shall be monitored to demonstrate that appropriate measures are being implemented to control fugitive dust.

II.B.1.h.2 **Recordkeeping:**

Records required by the most recently approved fugitive dust control plan shall be maintained in accordance with the plan and section I.S.1 of this permit.

II.B.1.h.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.1.i **Condition:**

Records shall be maintained of the material (salt or abrasives such as crushed slag or sand) applied to the roads. Any salt applied shall be no less than 92 percent NaCl, $MgCl_2$, $CaCl_2$, and/or KCl except as permitted in R307-307. [Origin: R307-307]. [R307-307]

II.B.1.i.1 **Monitoring:**

Records required for this permit condition will serve as monitoring.

II.B.1.i.2 **Recordkeeping:**

The following records shall be maintained as outlined in Provision I.S.1 of this permit:

For Salt - the quantity applied, the percent by weight of insoluble solids in the salt, and the percentage of the material that is sodium chloride (NaCl), magnesium chloride ($MgCl_2$), calcium chloride ($CaCl_2$), or potassium chloride (KCl).

For abrasives such as sand or crushed slag - the quantity applied and the percent by weight of fine material which passes the number 200 sieve in a standard gradation analysis.

II.B.1.i.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.1.j **Condition:**

Pressure drops and liquid flow rates for each scrubber listed below shall be maintained within the given ranges. (All pressure drop readings in inches Water Gauge)

SME 011d - Hydrometallurgical Plant Scrubber:
Model # 480 - Pressure Drop = 5" - 10" Liquid Flow Rate = greater than 50 gpm

Model # 575 - Pressure Drop = 6" - 12" Liquid Flow Rate = greater than 40 gpm

SME 011a - Secondary Gas System (2 scrubbers):
Pressure Drop = 3.5" minimum (across both scrubbers combined) Liquid Flow Rate = greater than 4800 gpm (each)

SME 011e - Rotary Dryer Scrubber:
Pressure Drop = 5" - 19.25" Liquid Flow Rate = greater than 7360 gpm

SME 011h1 - Anode Refining Furnaces Scrubber:
Pressure Drop = 25" - 50.5" Liquid Flow Rate = greater than 2000 gpm. [Origin: DAQE-AN103460054-14]. [R307-401-8(1)(a)(BACT)]

II.B.1.j.1 **Monitoring:**

The permittee shall make at least one pressure drop and one liquid flow observation each week for each scrubber listed above that has operated during the week. The pressure drop reading shall be made to the nearest 1/4 inch W.G. and the liquid flow reading shall be made to within +/- 10 percent of maximum scrubber flow rate. The observation shall be made during typical operating conditions. The instrument(s) shall be calibrated in accordance with manufacturer's instructions. Additionally, the pressure drop and liquid flow rate for each scrubber shall be observed and recorded at the time of any compliance stack testing. If the pressure drop or liquid flow rate is outside of the listed ranges, the permittee shall initiate corrective action and perform daily pressure drop and/or liquid flow observations until the scrubber is operating within the listed ranges. If the pressure drop or the liquid flow rate remains outside of the listed ranges for greater than 48 operating hours from the initial out of range reading it shall be considered a deviation from this permit term.

II.B.1.j.2 **Recordkeeping:**

The permittee shall record at least one pressure drop and one liquid flow observation each week for each scrubber listed above that has operated during the week. If the pressure drop or liquid flow rate is outside of the listed ranges, the permittee shall record the pressure drop and/or liquid flow observations daily until the scrubber is operating within the listed ranges. Records shall be maintained in accordance with Provision I.S.1 of this permit.

II.B.1.j.3 **Reporting:**

The permittee shall report the following on a quarterly basis:
a) Periods when the weekly pressure drop and/or liquid flow observations trigger daily observations, and
b) Periods when the pressure drop and/or liquid flow observations are outside the listed ranges for greater than 48 operating hours from the initial deviation reading.

There are no additional reporting requirements for this provision except those specified in Section I of this permit.

The quarterly reports are considered prompt notification of permit deviations required in Provision I.S.2.c of this permit if all information required by Provision I.S.2.c is included in the report.

II.B.1.k **Condition:**

Pressure drops for each baghouse listed below shall be maintained within the given ranges. (All pressure drop readings in inches Water Gauge)
SME 001 -Filter Plant Wet Feed Conveyor Baghouse:
Pressure Drop = 0.5 – 4

SME 002 - Wet Feed Storage Building Baghouse:
Pressure Drop = 1.5 – 5
SME 003 - Wet Feed Conveyor Belt Transfer Point Baghouse:
Pressure Drop = 0.5 - 5.25
SME 004 - Wet Feed Bin(s) Baghouse:
Pressure Drop = 2.75 – 5
SME 005 - Flash Smelting Furnace Dry Feed Bin Baghouse:
Pressure Drop = 0.25 – 11
SME 006 - Limestone Flux Bin Baghouse:
Pressure Drop = 0.5 – 4
SME 011a - Secondary Gas Handling System Baghouse:
Pressure Drop = 6 – 15
SME 011g - Matte Drying and Grinding Plant Baghouse:
Pressure Drop = 5 – 15
SME 013 - Dry Matte Bin Baghouse:
Pressure Drop = 0.5 – 13
SME 011h1 - Anode Refining Furnace Baghouse:
Pressure Drop = 1 - 9
SME 011h2 - Anode Shaft Furnace Baghouse:
Pressure Drop = 1 - 10
SME 015 - Mold Coating (Barite) Bin Baghouse:
Pressure Drop = 0.25 – 4
SME 017a, c - Vacuum Cleaning Systems (2 Baghouses):
Pressure Drop = 0.25 - 6 (each)
SME 019 - Hydrometallurgical Plant Limestone Storage Bin Baghouse:
Pressure Drop = 0.5 – 4
SME 020 - Hydrometallurgical Plant Lime Storage Bin Baghouse:
Pressure Drop = 0.25 – 4
SME 027 - Recycle Materials Crushing and Storage Building Baghouse:
Pressure Drop = 1 - 5. [Origin: DAQE-AN103460054-14]. [R307-401-8(1)(a)(BACT)]

II.B.1.k.1 **Monitoring:**

The permittee shall make at least one pressure drop observation each week for each baghouse listed above that has operated during the week. The pressure drop reading shall be made to the nearest 1/4 inch W.G. The observation shall be made during typical operating conditions. The instrument(s) shall be calibrated in accordance with manufacturer's instructions. Additionally, the pressure drop for each baghouse shall be observed and recorded at the time of any compliance stack testing. If the pressure drop is outside of the listed ranges, the permittee shall initiate corrective action and perform daily pressure drop observations until the baghouse is operating within the listed ranges. If the pressure drop remains outside of the listed ranges for greater than 48 operating hours from the initial out of range reading it shall be considered a deviation from this permit term.

II.B.1.k.2 **Recordkeeping:**

The permittee shall record at least one pressure drop observation each week for each baghouse listed above that has operated during the week. If the pressure drop is outside of the listed ranges, the permittee shall record the pressure drop observations daily until the baghouse is operating within the listed ranges. Records shall be maintained in accordance with Provision I.S.1 of this permit.

II.B.1.k.3 **Reporting:**

The permittee shall report the following on a quarterly basis:
a) Periods when the weekly pressure drop observations trigger daily observations, and

b) Periods when the pressure drop observations are outside the listed ranges for greater than 48 operating hours from the initial deviation reading.

There are no additional reporting requirements for this provision except those specified in Section I of this permit.

The quarterly reports are considered prompt notification of permit deviations required in Provision I.S.2.c of this permit if all information required by Provision I.S.2.c is included in the report.

II.B.1.l **Condition:**

The permittee shall maintain an Emergency Episode Plan outlining the procedures that will be taken in the event of an emergency episode as outlined in R307-105-2. The plan shall identify what control/production measures shall be implemented when an emergency episode is declared. Specific control/production measures shall be outlined for all three levels (Alert, Warning, Emergency). The plan shall be submitted and approved by the Director within 60 days of the issue date of this permit, unless a previously submitted and approved plan is available. [Origin: Utah SIP VII.F]. [R307-105-2, R307-110-8]

II.B.1.l.1 **Monitoring:**

Records required for this permit condition will serve as monitoring.

II.B.1.l.2 **Recordkeeping:**

A copy of the approved Emergency Episode Plan shall be made available to the Director upon request.

II.B.1.l.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.1.m **Condition:**

Any open storage pile(s) shall be watered, covered, or chemically treated to minimize generation of fugitive dusts, as dry conditions warrant or as determined necessary by the Director. [Origin: DAQE-AN103460054-14]. [R307-401-8(1)(a)(BACT)]

II.B.1.m.1 **Monitoring:**

Visual inspections of any open storage pile(s) shall be made on a daily basis to ensure minimization of fugitive dust generation. If visual inspection results for eight consecutive weeks confirm the minimization of fugitive dust generation, the inspection frequency shall be reduced to a weekly basis. If minimization of fugitive dust generation is not confirmed during any weekly inspection, the frequency shall revert back to a daily basis for the storage pile(s) generating fugitive dust.

Any storage pile that has been covered, undisturbed, or chemically treated to minimize fugitive dust generation shall be visually inspected on a monthly basis to ensure covers are properly in place and/or chemical treatments are working properly.

II.B.1.m.2 **Recordkeeping:**

During each visual inspection, the permittee shall record in a log the specific piles determined to be undisturbed. Records of inspections and determinations shall be maintained as described in

Provision I.S.1 of this permit.

II.B.1.m.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.1.n **Condition:**

The permittee shall operate and maintain an upwind/downwind fugitive SO_2 monitoring system. [Origin: DAQE-AN103460054-14]. [R307-401-8(1)(a)(BACT)]

II.B.1.n.1 **Monitoring:**

The permittee shall monitor the output of the fugitive upwind/downwind SO_2 monitoring system on a daily basis to ensure that no high levels of SO_2 have passed over the monitors. The daily monitoring will not be required if the system is equipped with an alarm system to notify personnel when high levels of SO_2 have passed over the monitors. The monitoring system shall be calibrated in accordance with the manufacturer's recommendations.

II.B.1.n.2 **Recordkeeping:**

Continuous recording of the monitoring device(s) is not required for systems equipped with an alarm. Records of all alarm events and the corrective action taken shall be maintained as described in Provision I.S.1 of this permit.

II.B.1.n.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.1.o **Condition:**

Fugitive emissions shall be no greater than 15 percent opacity unless otherwise specified in this permit. [Origin: R307-309-4]. [R307-309-4]

II.B.1.o.1 **Monitoring:**

A visual opacity survey of each affected emission unit shall be performed on a weekly basis by an individual trained on the observation procedures of 40 CFR 60, Appendix A, Method 9. If visible emissions other than steam are observed from an emission unit, an opacity determination of that emission unit 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, or other EPA-approved testing method, as acceptable to the Director, for point sources, and in accordance with 58 FR 61640 Method 203C, or other EPA-approved testing method, as acceptable to the Director, for intermittent sources. Fugitive dust is not a fugitive emission within the meaning of this condition.

For each affected emission unit, if no visible emissions are observed for eight consecutive weeks the observation frequency shall be reduced to a monthly basis. If visible emissions are observed during any monthly observation the frequency shall revert back to a weekly basis.

II.B.1.o.2 **Recordkeeping:**

A log of the visual opacity survey(s) shall be maintained in accordance with Provision I.S.1 of this permit. If an opacity determination is indicated, a notation of the determination will be made

in the log. All data required by 40 CFR 60, Appendix A, Method 9, 58 FR 61640, Method 203C, or other EPA-approved testing method, as acceptable to the Director, shall also be maintained in accordance with Provision I.S.1 of this permit.

II.B.1.o.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.1.p **Condition: [State-only Requirement]**

Visible emissions caused by fugitive dust shall not exceed 10 percent at the property boundary. This opacity shall not apply when the wind speed exceeds 25 miles per hour if the permittee has implemented, and continues to implement, the most recently approved fugitive dust control plan and administers at least one of the following contingency measures:
(1) Pre-event watering;
(2) Hourly watering;
(3) Additional chemical stabilization;
(4) Cease or reduce fugitive dust producing operations;
(5) Other contingency measure approved by the director.
[Origin: R307-309]. [R307-309-5, R307-309-6]

II.B.1.p.1 **Monitoring:**

In lieu of monitoring via visible emissions observations, adherence to the most recently approved fugitive dust control plan shall be monitored to demonstrate that appropriate measures are being implemented to control fugitive dust.

II.B.1.p.2 **Recordkeeping:**

Records of measures taken to control fugitive dust shall be maintained to demonstrate adherence to the most recently approved fugitive dust control plan. If wind speeds are measured to establish an exception from the above visible emissions limit, records of the administered contingency measures and the wind speed measurements shall be maintained. Records shall be maintained as described in Provision I.S.1 of this permit.

II.B.1.p.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.1.q **Condition:**

Visible emissions caused by fugitive dust shall not exceed 20 percent unless otherwise specified in this permit. [Origin: Utah SIP IX.H, DAQE-AN103460054-14]. [R307-110]

II.B.1.q.1 **Monitoring:**

In lieu of monitoring via visible emissions observations, adherence to the most recently approved fugitive dust control plan shall be monitored to demonstrate that appropriate measures are being implemented to control fugitive dust.

II.B.1.q.2 **Recordkeeping:**

Records of measures taken to control fugitive dust shall be maintained to demonstrate adherence to the most recently approved fugitive dust control plan. Records shall be maintained as

described in Provision I.S.1 of this permit.

II.B.1.q.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.2 **<u>Conditions on #SME 001: Filter Plant Wet Feed Conveyor (Stack 1).</u>**

II.B.2.a **Condition:**

Emissions of PM_{10} shall be no greater than 0.7 lbs/hour (filterable) and 0.016 grains/dscfm (68 degrees F, 29.92" Hg), and stack testing shall be conducted at no less than 4,500 dscfm (90 percent of 5,000 dscfm) exhaust volume. [Origin: DAQE-AN103460054-14]. [R307-401-8(1)(a)(BACT)]

II.B.2.a.1 **Monitoring:**

Stack testing shall be performed as specified below:

(a) Frequency. Emissions shall be tested every five years based on the date of the most recent stack test. The source may also be tested at any time if directed by the Director.

(b) Notification. At least 30 days before the test, the source shall notify the Director of the date, time, and place of testing and provide a copy of the test protocol. The source shall attend a pretest conference if determined necessary by the Director.

(c) Methods.

(1) Sample Location - the emission point shall conform to the requirements of 40 CFR 60, Appendix A, Method 1, or other EPA-approved testing method, as acceptable to the Director, and Occupational Safety and Health Administration (OSHA)-approved and/or Mine Safety and Health Administration (MSHA)-approved access shall be provided to the test location.

(2) The following methods shall be used to measure particulate emissions: 40 CFR 51, Appendix M, Method 201A and 202, or other EPA-approved testing methods, as acceptable to the Director. If a method other than 201A is used, the portion of the front half of the catch considered PM_{10} shall be based on information in Appendix B of the fifth edition of the EPA document, AP-42, or other data acceptable to the Director.

(3) The condensable particulate emissions shall not be used for compliance demonstration, but shall be used for inventory purposes.

(d) Calculations. 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.

(e) Conditions During Testing: Stack testing shall be performed during representative operations to include testing at no less than the exhaust volume listed within the condition above. If these conditions cannot be met, the permittee shall propose in the test protocol, stack test conditions and retest thresholds to assure that stack testing is representative of actual operations.

II.B.2.a.2 **Recordkeeping:**

Results of all stack testing shall be recorded and maintained in accordance with the associated test method and Provision S.1 in Section I of this permit.

II.B.2.a.3 **Reporting:**

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. There are no additional reporting requirements for this provision except those

specified in Section I of this permit.

II.B.2.b **Condition:**

Visible emissions shall be no greater than 7 percent opacity. [Origin: DAQE-AN103460054-14]. [R307-401-8(1)(a)(BACT)]

II.B.2.b.1 **Monitoring:**

A visual observation of each affected emission unit shall be performed on a weekly basis by an individual trained on the observation procedures of 40 CFR 60, Appendix A, Method 9. The individual is not required to be a certified visible emissions observer. If any visible emissions other than steam are observed, an opacity determination of that emission unit shall be performed by a certified visible emissions observer in accordance with 40 CFR 60, Appendix A, Method 9, or other EPA-approved testing method, as acceptable to the Director, within 24 hours of the initial observation. For each affected emission unit, if no visible emissions are observed for eight consecutive weeks the observation frequency shall be reduced to a monthly basis. If visible emissions are observed during any monthly observation the frequency shall revert back to a weekly basis.

II.B.2.b.2 **Recordkeeping:**

Records of visual observations performed and data required by 40 CFR 60, Appendix A, Method 9, or other EPA-approved testing method, as acceptable to the Director, for each determination shall be maintained in accordance with Provision I.S.1 of this permit.

II.B.2.b.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.3 **Conditions on #SME 002: Wet Feed Storage Building (Stack 2).**

II.B.3.a **Condition:**

Emissions of PM_{10} shall be no greater than 7.8 lbs/hour (filterable) and 0.016 grains/dscfm (68 degrees F, 29.92" Hg), and stack testing shall be conducted at no less than 27,450 dscfm (90 percent of 30,500 dscfm) exhaust volume. [Origin: DAQE-AN103460054-14]. [R307-401-8(1)(a)(BACT)]

II.B.3.a.1 **Monitoring:**

Stack testing shall be performed as specified below:

(a) Frequency. Emissions shall be tested every five years based on the date of the most recent stack test. The source may also be tested at any time if directed by the Director.

(b) Notification. At least 30 days before the test, the source shall notify the Director of the date, time, and place of testing and provide a copy of the test protocol. The source shall attend a pretest conference if determined necessary by the Director.

(c) Methods.

(1) Sample Location - the emission point shall conform to the requirements of 40 CFR 60, Appendix A, Method 1, or other EPA-approved testing method, as acceptable to the Director, and Occupational Safety and Health Administration (OSHA)-approved and/or Mine Safety and Health Administration (MSHA)-approved access shall be provided to the test location.

(2) The following methods shall be used to measure particulate emissions: 40 CFR 51, Appendix M, Method 201A and 202, or other EPA-approved testing methods, as acceptable to the Director. If a method other than 201A is used, the portion of the front

half of the catch considered PM_{10} shall be based on information in Appendix B of the fifth edition of the EPA document, AP-42, or other data acceptable to the Director.

(3) The condensable particulate emissions shall not be used for compliance demonstration, but shall be used for inventory purposes.

(d) Calculations. 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.

(e) Conditions During Testing: Stack testing shall be performed during representative operations to include testing at no less than the exhaust volume listed within the condition above. If these conditions cannot be met, the permittee shall propose in the test protocol, stack test conditions and retest thresholds to assure that stack testing is representative of actual operations.

II.B.3.a.2 **Recordkeeping:**

Results of all stack testing shall be recorded and maintained in accordance with the associated test method and Provision S.1 in Section I of this permit.

II.B.3.a.3 **Reporting:**

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. There are no additional reporting requirements for this provision except those specified in Section I of this permit.

II.B.3.b **Condition:**

Visible emissions shall be no greater than 7 percent opacity. [Origin: DAQE-AN103460054-14]. [R307-401-8(1)(a)(BACT)]

II.B.3.b.1 **Monitoring:**

A visual observation of each affected emission unit shall be performed on a weekly basis by an individual trained on the observation procedures of 40 CFR 60, Appendix A, Method 9. The individual is not required to be a certified visible emissions observer. If any visible emissions other than steam are observed, an opacity determination of that emission unit shall be performed by a certified visible emissions observer in accordance with 40 CFR 60, Appendix A, Method 9, or other EPA-approved testing method, as acceptable to the Director, within 24 hours of the initial observation. For each affected emission unit, if no visible emissions are observed for eight consecutive weeks the observation frequency shall be reduced to a monthly basis. If visible emissions are observed during any monthly observation the frequency shall revert back to a weekly basis.

II.B.3.b.2 **Recordkeeping:**

Records of visual observations performed and data required by 40 CFR 60, Appendix A, Method 9, or other EPA-approved testing method, as acceptable to the Director, for each determination shall be maintained in accordance with Provision I.S.1 of this permit.

II.B.3.b.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.4 **Conditions on #SME 003: Wet Feed Conveyor Transfer Point (Stack 3).**

II.B.4.a **Condition:**

Emissions of PM_{10} shall be no greater than 0.4 lbs/hour (filterable) and 0.016 grains/dscfm (68 degrees F, 29.92" Hg), and stack testing shall be conducted at no less than 1,080 dscfm (90 percent of 1,200 dscfm) exhaust volume. [Origin: DAQE-AN103460054-14]. [R307-401-8(1)(a)(BACT)]

II.B.4.a.1 **Monitoring:**

Stack testing shall be performed as specified below:

(a) Frequency. Emissions shall be tested every five years based on the date of the most recent stack test. The source may also be tested at any time if directed by the Director.

(b) Notification. At least 30 days before the test, the source shall notify the Director of the date, time, and place of testing and provide a copy of the test protocol. The source shall attend a pretest conference if determined necessary by the Director.

(c) Methods.

(1) Sample Location - the emission point shall conform to the requirements of 40 CFR 60, Appendix A, Method 1, or other EPA-approved testing method, as acceptable to the Director, and Occupational Safety and Health Administration (OSHA)-approved and/or Mine Safety and Health Administration (MSHA)-approved access shall be provided to the test location.

(2) The following methods shall be used to measure particulate emissions: 40 CFR 51, Appendix M, Method 201A and 202, or other EPA-approved testing methods, as acceptable to the Director. If a method other than 201A is used, the portion of the front half of the catch considered PM_{10} shall be based on information in Appendix B of the fifth edition of the EPA document, AP-42, or other data acceptable to the Director.

(3) The condensable particulate emissions shall not be used for compliance demonstration, but shall be used for inventory purposes.

(d) Calculations. 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.

(e) Conditions During Testing: Stack testing shall be performed during representative operations to include testing at no less than the exhaust volume listed within the condition above. If these conditions cannot be met, the permittee shall propose in the test protocol, stack test conditions and retest thresholds to assure that stack testing is representative of actual operations.

II.B.4.a.2 **Recordkeeping:**

Results of all stack testing shall be recorded and maintained in accordance with the associated test method and Provision S.1 in Section I of this permit.

II.B.4.a.3 **Reporting:**

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. There are no additional reporting requirements for this provision except those specified in Section I of this permit.

II.B.4.b **Condition:**

Visible emissions shall be no greater than 7 percent opacity. [Origin: DAQE-AN103460054-14]. [R307-401-8(1)(a)(BACT)]

II.B.4.b.1 **Monitoring:**

A visual observation of each affected emission unit shall be performed on a weekly basis by an individual trained on the observation procedures of 40 CFR 60, Appendix A, Method 9. The individual is not required to be a certified visible emissions observer. If any visible emissions other than steam are observed, an opacity determination of that emission unit shall be performed by a certified visible emissions observer in accordance with 40 CFR 60, Appendix A, Method 9, or other EPA-approved testing method, as acceptable to the Director, within 24 hours of the initial observation. For each affected emission unit, if no visible emissions are observed for eight consecutive weeks the observation frequency shall be reduced to a monthly basis. If visible emissions are observed during any monthly observation the frequency shall revert back to a weekly basis.

II.B.4.b.2 **Recordkeeping:**

Records of visual observations performed and data required by 40 CFR 60, Appendix A, Method 9, or other EPA-approved testing method, as acceptable to the Director, for each determination shall be maintained in accordance with Provision I.S.1 of this permit.

II.B.4.b.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.5 **Conditions on #SME 004: Wet Feed Bins (Stack 4).**

II.B.5.a **Condition:**

Emissions of PM_{10} shall be no greater than 3.4 lbs/hour (filterable) and 0.016 grains/dscfm (68 degrees F, 29.92" Hg), and stack testing shall be conducted at no less than 13,410 dscfm (90 percent of 14,900 dscfm) exhaust volume. [Origin: DAQE-AN103460054-14]. [R307-401-8(1)(a)(BACT)]

II.B.5.a.1 **Monitoring:**

Stack testing shall be performed as specified below:

(a) Frequency. Emissions shall be tested every five years based on the date of the most recent stack test. The source may also be tested at any time if directed by the Director.

(b) Notification. At least 30 days before the test, the source shall notify the Director of the date, time, and place of testing and provide a copy of the test protocol. The source shall attend a pretest conference if determined necessary by the Director.

(c) Methods.

(1) Sample Location - the emission point shall conform to the requirements of 40 CFR 60, Appendix A, Method 1, or other EPA-approved testing method, as acceptable to the Director, and Occupational Safety and Health Administration (OSHA)-approved and/or Mine Safety and Health Administration (MSHA)-approved access shall be provided to the test location.

(2) The following methods shall be used to measure particulate emissions: 40 CFR 51, Appendix M, Method 201A and 202, or other EPA-approved testing methods, as acceptable to the Director. If a method other than 201A is used, the portion of the front half of the catch considered PM_{10} shall be based on information in Appendix B of the fifth edition of the EPA document, AP-42, or other data acceptable to the Director.

(3) The condensable particulate emissions shall not be used for compliance demonstration, but shall be used for inventory purposes.

(d) Calculations. 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.

(e) Conditions During Testing: Stack testing shall be performed during representative operations to include testing at no less than the exhaust volume listed within the condition above. If these conditions cannot be met, the permittee shall propose in the test protocol, stack test conditions and retest thresholds to assure that stack testing is representative of actual operations.

II.B.5.a.2 **Recordkeeping:**

Results of all stack testing shall be recorded and maintained in accordance with the associated test method and Provision S.1 in Section I of this permit.

II.B.5.a.3 **Reporting:**

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. There are no additional reporting requirements for this provision except those specified in Section I of this permit.

II.B.5.b **Condition:**

Visible emissions shall be no greater than 7 percent opacity. [Origin: DAQE-AN103460054-14]. [R307-401-8(1)(a)(BACT)]

II.B.5.b.1 **Monitoring:**

A visual observation of each affected emission unit shall be performed on a weekly basis by an individual trained on the observation procedures of 40 CFR 60, Appendix A, Method 9. The individual is not required to be a certified visible emissions observer. If any visible emissions other than steam are observed, an opacity determination of that emission unit shall be performed by a certified visible emissions observer in accordance with 40 CFR 60, Appendix A, Method 9, or other EPA-approved testing method, as acceptable to the Director, within 24 hours of the initial observation. For each affected emission unit, if no visible emissions are observed for eight consecutive weeks the observation frequency shall be reduced to a monthly basis. If visible emissions are observed during any monthly observation the frequency shall revert back to a weekly basis.

II.B.5.b.2 **Recordkeeping:**

Records of visual observations performed and data required by 40 CFR 60, Appendix A, Method 9, or other EPA-approved testing method, as acceptable to the Director, for each determination shall be maintained in accordance with Provision I.S.1 of this permit.

II.B.5.b.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.6 **<u>Conditions on #SME 005: Flash Smelting Furnace Dry Feed Bin (Stack 5).</u>**

II.B.6.a **Condition:**

Emissions of PM_{10} shall be no greater than 1.2 lbs/hour (filterable) and 0.016 grains/dscfm (68 degrees F, 29.92" Hg). [Origin: DAQE-AN103460054-14]. [R307-401-8(1)(a)(BACT)]

II.B.6.a.1 **Monitoring:**

Stack testing shall be performed as specified below:

(a) Frequency. Emissions shall be tested every five years based on the date of the most recent stack test. The source may also be tested at any time if directed by the Director.

(b) Notification. At least 30 days before the test, the source shall notify the Director of the date, time, and place of testing and provide a copy of the test protocol. The source shall attend a pretest conference if determined necessary by the Director.

(c) Methods.

(1) Sample Location - the emission point shall conform to the requirements of 40 CFR 60, Appendix A, Method 1, or other EPA-approved testing method, as acceptable to the Director, and Occupational Safety and Health Administration (OSHA)-approved and/or Mine Safety and Health Administration (MSHA)-approved access shall be provided to the test location.

(2) The following methods shall be used to measure particulate emissions: 40 CFR 51, Appendix M, Method 201A and 202, or other EPA-approved testing methods, as acceptable to the Director. If a method other than 201A is used, the portion of the front half of the catch considered PM_{10} shall be based on information in Appendix B of the fifth edition of the EPA document, AP-42, or other data acceptable to the Director.

(3) The condensable particulate emissions shall not be used for compliance demonstration, but shall be used for inventory purposes.

(d) Calculations. 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.

(e) Conditions During Testing: Stack testing shall be performed during representative operations to include testing at a production rate no less than 90 percent of the maximum rotary dryer feed rate achieved during the previous three years. If these conditions cannot be met, the permittee shall propose in the test protocol, stack test conditions and retest thresholds to assure that stack testing is representative of actual operations.

II.B.6.a.2 **Recordkeeping:**

Results of all stack testing shall be recorded and maintained in accordance with the associated test method and Provision S.1 in Section I of this permit.

II.B.6.a.3 **Reporting:**

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. There are no additional reporting requirements for this provision except those specified in Section I of this permit.

II.B.6.b **Condition:**

Visible emissions shall be no greater than 7 percent opacity. [Origin: DAQE-AN103460054-14]. [R307-401-8(1)(a)(BACT)]

II.B.6.b.1 **Monitoring:**

A visual observation of each affected emission unit shall be performed on a weekly basis by an individual trained on the observation procedures of 40 CFR 60, Appendix A, Method 9. The individual is not required to be a certified visible emissions observer. If any visible emissions other than steam are observed, an opacity determination of that emission unit shall be performed by a certified visible emissions observer in accordance with 40 CFR 60, Appendix A, Method 9, or other EPA-approved testing method, as acceptable to the Director, within 24 hours of the

initial observation. For each affected emission unit, if no visible emissions are observed for eight consecutive weeks the observation frequency shall be reduced to a monthly basis. If visible emissions are observed during any monthly observation the frequency shall revert back to a weekly basis.

II.B.6.b.2 **Recordkeeping:**

Records of visual observations performed and data required by 40 CFR 60, Appendix A, Method 9, or other EPA-approved testing method, as acceptable to the Director, for each determination shall be maintained in accordance with Provision I.S.1 of this permit.

II.B.6.b.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.7 **Conditions on #SME 011e: Rotary Dryer.**

II.B.7.a **Condition:**

Particulate emissions (TSP) shall be no greater than 0.022 grains/dscf (68 degrees F, 29.92" Hg) (filterable). [Origin: DAQE-AN103460054-14]. [40 CFR 60 Subpart P, R307-401-8(1)(a)(BACT)]

II.B.7.a.1 **Monitoring:**

Stack testing shall be performed as specified below:

(a) Frequency. Emissions shall be tested every five years based on the date of the most recent stack test. The source may also be tested at any time if directed by the Director.

(b) Notification. At least 30 days before the test, the source shall notify the Director of the date, time, and place of testing and provide a copy of the test protocol. The source shall attend a pretest conference if determined necessary by the Director.

(c) Methods.

(1) Sample Location - the emission point shall conform to the requirements of 40 CFR 60, Appendix A, Method 1, or other EPA-approved testing method, as acceptable to the Director, and Occupational Safety and Health Administration (OSHA)-approved and/or Mine Safety and Health Administration (MSHA)-approved access shall be provided to the test location.

(2) Sample Method - 40 CFR 60. Appendix A, Method 5, or other EPA-approved testing method, as acceptable to the Director, shall be used to determine the particulate matter concentration and the volumetric flow rate of the effluent gas. The minimum sample time and sample volume shall be 60 minutes and 0.85 dscm (30.0 dscf).

(d) Calculations: 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.

(e) Production Rate During Testing. The production rate during all compliance testing shall be no less than 90 percent of the maximum average hourly production rate achieved in any 24-hour period during the previous three (3) years.

II.B.7.a.2 **Recordkeeping:**

Results of all stack testing shall be recorded and maintained in accordance with the associated test method and Provision S.1 in Section I of this permit.

II.B.7.a.3 **Reporting:**

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. There are no additional reporting requirements for this provision except those specified in Section I of this permit.

II.B.7.b **Condition:**

Opacity shall be no greater than 15 percent. [Origin: DAQE-AN103460054-14]. [40 CFR 60 Subpart P, R307-401-8(1)(a)(BACT)]

II.B.7.b.1 **Monitoring:**

The permittee shall calibrate, maintain and operate a continuous monitoring system for measuring the opacity of emissions in accordance with R307-170, UAC and 40 CFR 60, Appendix B, Specification 1 - Opacity, and shall record the output of the system. The output shall be reviewed at least monthly for compliance with the opacity limit. Compliance is to be based on the percent opacity averaged over six consecutive minutes.

II.B.7.b.2 **Recordkeeping:**

Results of opacity measurements shall be recorded and maintained as required in R307-170 and as described in Provision I.S.1 of this permit.

II.B.7.b.3 **Reporting:**

The permittee shall comply with the reporting provisions in R307-170-9 and any additional reporting provisions contained in Section I of this permit.

The quarterly reports required in R307-170-9 are considered prompt notification of permit deviations required in Provision I.S.2.c of this permit if all information required by Provision I.S.2.c is included in the report.

II.B.8 **<u>Conditions on #SME 011b1: Flash Smelting Furnace (FSF)</u>**

II.B.8.a **Condition:**

Visible emissions shall be no greater than 20 percent opacity from the emergency generator. [Origin: DAQE-AN103460054-14, R307-305-3(3)]. [R307-305-3(3), R307-401-8(1)(a)(BACT)]

II.B.8.a.1 **Monitoring:**

During any period that an emergency generator is operated for longer than 12 hours consecutively, a visual observation of that generator's exhaust shall be made by an individual trained on the observation procedures of 40 CFR 60, Appendix A, Method 9. The individual is not required to be a certified visual emissions observer. If any visible emissions other than steam are observed, then an opacity determination shall be performed in accordance with 40 CFR 60, Appendix A, Method 9, or other EPA-approved testing method, as acceptable to the Director, by a certified visible emissions observer. If a generator continues to operate on consecutive days following the initial observation, an opacity determination shall be performed on a daily basis.

II.B.8.a.2 **Recordkeeping:**

Records of visual observations performed and data required by 40 CFR 60, Appendix A, Method 9, or other EPA-approved testing method, as acceptable to the Director, for each determination

shall be maintained in accordance with Provision I.S.1 of this permit.

II.B.8.a.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.8.b **Condition:**

The emergency generator shall comply with the emission standards for new nonroad compression ignition (CI) engines in 40 CFR 60.4202(a) and (a)(2), for all pollutants, for the same model year and maximum engine power for 2007 model year and later emergency stationary CI internal combustion engines (ICE). [Origin: 40 CFR 60 Subpart IIII]. [40 CFR 60.4205(b), 40 CFR 63 Subpart ZZZZ]

II.B.8.b.1 **Monitoring:**

The permittee shall comply by purchasing an engine certified to the emission standards in 40 CFR 60.4205(b) for the same model year and maximum engine power. The engine shall be installed and configured according to the manufacturer's emission-related specifications, except as permitted in 40 CFR 60.4211(g). [40 CFR 60.4211(c)]

II.B.8.b.2 **Recordkeeping:**

The permittee shall keep records of engine certifications indicating compliance with the standards. The permittee shall keep records demonstrating compliance with the manufacturer's specifications for engine installation and configuration. Results of monitoring shall be maintained in accordance with Provision I.S.1 of this permit.

II.B.8.b.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.8.c **Condition:**

The permittee shall operate and maintain the emergency generator according to the manufacturer's emission-related written instructions, over the entire life of the engine. In addition, the permittee may only change those settings that are permitted by the manufacturer. The permittee shall also meet the requirements of 40 CFR parts 89, 94 and/or 1068, as applicable. [Origin: 40 CFR 60 Subpart IIII]. [40 CFR 60.4206, 40 CFR 60.4211(a), 40 CFR 63 Subpart ZZZZ]

II.B.8.c.1 **Monitoring:**

Records required for this permit condition will serve as monitoring.

II.B.8.c.2 **Recordkeeping:**

Permittee shall document activities performed to assure proper operation and maintenance. Records shall be maintained in accordance with Provision I.S.1 of this permit.

II.B.8.c.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.8.d **Condition:**

Any diesel fuel combusted in the emergency generator shall meet the requirements of 40 CFR 60.4207(b) for nonroad diesel fuel. [Origin: 40 CFR 60 Subpart IIII]. [40 CFR 60.4207(b), 40 CFR 63 Subpart ZZZZ]

II.B.8.d.1 **Monitoring:**

For all diesel fuel combusted, the permittee shall:

(1) Determine the fuel sulfur content expressed as weight percent in accordance with the methods of the American Society for Testing Materials (ASTM); or
(2) Inspect the fuel sulfur content expressed as weight percent determined by the vendor using methods of the ASTM; and
(3) Inspect documentation provided by the vendor that directly or indirectly demonstrates compliance with this provision.

II.B.8.d.2 **Recordkeeping:**

For all diesel fuel combusted, the permittee shall maintain fuel receipt records and documentation demonstrating compliance with this provision. These records shall be maintained in accordance with Provision I.S.1. of this permit.

II.B.8.d.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.8.e **Condition:**

The emergency generator shall be operated according to the requirements in paragraphs (1) through (3). In order for the engine to be considered an emergency stationary ICE, any operation other than emergency operation, maintenance and testing, emergency demand response, and operation in non-emergency situations for 50 hours per year, as described in paragraphs (1) through (3), is prohibited. If the engine is not operated according to the requirements in paragraphs (1) through (3), the engine will not be considered an emergency engine and shall meet all requirements for non-emergency engines.

(1) There is no time limit on the use of emergency stationary ICE in emergency situations.
(2) The permittee may operate the emergency stationary ICE for any combination of the purposes specified in paragraphs (2)(i) through (iii) for a maximum of 100 hours per calendar year. Any operation for non-emergency situations as allowed by paragraph (3) counts as part of the 100 hours per calendar year allowed by this paragraph.
    (i) Emergency stationary ICE may be operated for maintenance checks and readiness testing, provided that the tests are recommended by federal, state or local government, the manufacturer, the vendor, the regional transmission organization or equivalent balancing authority and transmission operator, or the insurance company associated with the engine. The permittee may petition for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the permittee maintains records indicating that federal, state, or local standards require maintenance and testing of emergency ICE beyond 100 hours per calendar year.
    (ii) Emergency stationary ICE may be operated for emergency demand response as specified in 40 CFR 60.4211(f)(2)(ii).
    (iii) Emergency stationary ICE may be operated for periods where there is a deviation of voltage or frequency of 5 percent or greater below standard voltage or frequency.
(3) Emergency stationary ICE may be operated for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing and emergency demand response provided in paragraph (2). Except as provided in 40 CFR 60.4211(f)(3)(i), the 50 hours per calendar year for

non-emergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for a facility to an electric grid or otherwise supply power as part of a financial arrangement with another entity.

[Origin: 40 CFR 60 Subpart IIII]. [40 CFR 60.4211(f), 40 CFR 63 Subpart ZZZZ]

II.B.8.e.1 **Monitoring:**

Records required for this permit condition will serve as monitoring. Additionally, if the emergency stationary CI internal combustion engine does not meet the standards applicable to non-emergency engines, the permittee shall install a non-resettable hour meter prior to startup of the engine. [40 CFR 60.4209(a)]

II.B.8.e.2 **Recordkeeping:**

Documentation shall be kept that demonstrates compliance with this provision. Records shall be kept in accordance with 40 CFR 60.4211(f), as applicable.

Starting with the model years in Table 5 of 40 CFR 60 Subpart IIII, if an emergency affected emission unit does not meet the standards applicable to non-emergency engines in the applicable model year, the permittee shall keep records of the operation of the engine in emergency and non-emergency service that are recorded through the non-resettable hour meter. The permittee shall record the time of operation of the engine and the reason the engine was in operation during that time. [40 CFR 60.4214(b)]

Records shall be maintained as described in Provision I.S.1 of this permit.

II.B.8.e.3 **Reporting:**

The permittee shall submit an annual report in accordance with 40 CFR 60.4214(d), as applicable. There are no additional reporting requirements for this provision except those specified in Section I of this permit.

II.B.9 **<u>Conditions on #SME SLAG: Slag Concentrator.</u>**

II.B.9.a **Condition:**

Visible emissions shall be no greater than 10 percent opacity from the slag concentrator bin, slag crushing & grinding transfer points, and the crushing and screening operation. [Origin: DAQE-AN103460054-14]. [R307-401-8(1)(a)(BACT)]

II.B.9.a.1 **Monitoring:**

A visual observation of each affected emission unit shall be performed on a weekly basis by an individual trained on the observation procedures of 40 CFR 60, Appendix A, Method 9. The individual is not required to be a certified visible emissions observer. If any visible emissions other than steam are observed, an opacity determination of that emission unit shall be performed by a certified visible emissions observer in accordance with 40 CFR 60, Appendix A, Method 9, or other EPA-approved testing method, as acceptable to the Director, within 24 hours of the initial observation. For each affected emission unit, if no visible emissions are observed for eight consecutive weeks the observation frequency shall be reduced to a monthly basis. If visible emissions are observed during any monthly observation the frequency shall revert back to a weekly basis.

II.B.9.a.2 **Recordkeeping:**

Records of visual observations performed and data required by 40 CFR 60, Appendix A, Method 9, or other EPA-approved testing method, as acceptable to the Director, for each determination shall be maintained in accordance with Provision I.S.1 of this permit.

II.B.9.a.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.9.b **Condition:**

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. The degree of control is a minimum of that required to meet the opacity limitation in Condition II.B.9.a of this permit. Sprays shall not be required during periods of freezing temperatures. [Origin: DAQE-AN103460054-14]. [R307-401-8(1)(a)(BACT)]

II.B.9.b.1 **Monitoring:**

Visual inspections of the water spray system(s) shall be made weekly to ensure proper operating condition.

II.B.9.b.2 **Recordkeeping:**

A record of required inspections shall be maintained in accordance with Provision S.1 in Section I of this permit.

II.B.9.b.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.9.c **Condition:**

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. [Origin: DAQE-AN103460054-14]. [R307-401-8(1)(a)(BACT)]

II.B.9.c.1 **Monitoring:**

Records required for this permit condition will serve as monitoring.

II.B.9.c.2 **Recordkeeping:**

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. The permittee shall calculate a new 12-month total by the 25th day of each month using data from the previous 12 months. Records shall be maintained in accordance with Provision I.S.1 of this permit.

II.B.9.c.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.9.d **Condition:**

Water sprays or chemical dust suppression sprays shall be installed at the following points if they are not enclosed or do not have baghouses to control fugitive emissions:

i. All crushers
ii. All stationary conveyor transfer points
iii. The crusher and screening units shall have water sprays at the input to the crusher and at the discharge points from the crusher.

The sprays shall operate whenever dry conditions warrant or as determined necessary by the Director. [Origin: DAQE-AN103460054-14]. [R307-401-8(1)(a)(BACT)]

II.B.9.d.1 **Monitoring:**

Visual inspections of the water spray system(s) shall be made weekly to ensure proper operating condition.

II.B.9.d.2 **Recordkeeping:**

A log of the visual inspections containing all applicable information required by Provision I.S.1 of this permit shall be kept for all periods of operation. Records shall be maintained in accordance with Provision I.S.1 of this permit.

II.B.9.d.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.10 **<u>Conditions on #SME 006: Smelter Limestone Flux Bin (Stack 6).</u>**

II.B.10.a **Condition:**

Emissions of PM_{10} shall be no greater than 0.3 lbs/hour (filterable) and 0.016 grains/dscfm (68 degrees F, 29.92" Hg), and stack testing shall be conducted at no less than 1,800 dscfm (90 percent of 2,000 dscfm) exhaust volume. [Origin: DAQE-AN103460054-14]. [R307-401-8(1)(a)(BACT)]

II.B.10.a.1 **Monitoring:**

Stack testing shall be performed as specified below:

(a) Frequency. Emissions shall be tested every five years based on the date of the most recent stack test. The source may also be tested at any time if directed by the Director. If the unit is not operational when a stack test is due, it shall be tested within six months of resumed operation.
(b) Notification. At least 30 days before the test, the source shall notify the Director of the date, time, and place of testing and provide a copy of the test protocol. The source shall attend a pretest conference if determined necessary by the Director.
(c) Methods.
    (1) Sample Location - the emission point shall conform to the requirements of 40 CFR 60, Appendix A, Method 1, or other EPA-approved testing method, as acceptable to the Director, and Occupational Safety and Health Administration (OSHA)-approved and/or Mine Safety and Health Administration (MSHA)-approved access shall be provided to the test location.
    (2) The following methods shall be used to measure particulate emissions: 40 CFR 51, Appendix M, Method 201A and 202, or other EPA-approved testing methods, as acceptable to the Director. If a method other than 201A is used, the portion of the front half of the catch considered PM_{10} shall be based on information in Appendix B of the fifth edition of the EPA document, AP-42, or other data acceptable to the Director.

(3) The condensable particulate emissions shall not be used for compliance demonstration, but shall be used for inventory purposes.

(d) Calculations. 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.

(e) Conditions During Testing: Stack testing shall be performed during representative operations to include testing at no less than the exhaust volume listed within the condition above. If these conditions cannot be met, the permittee shall propose in the test protocol, stack test conditions and retest thresholds to assure that stack testing is representative of actual conditions.

II.B.10.a.2 **Recordkeeping:**

Results of all stack testing shall be recorded and maintained in accordance with the associated test method and Provision S.1 in Section I of this permit.

II.B.10.a.3 **Reporting:**

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. There are no additional reporting requirements for this provision except those specified in Section I of this permit.

II.B.10.b **Condition:**

Visible emissions shall be no greater than 10 percent opacity. [Origin: DAQE-AN103460054-14]. [R307-401-8(1)(a)(BACT)]

II.B.10.b.1 **Monitoring:**

In lieu of monitoring via visible emissions observations, the permittee shall inspect the baghouse during typical operating conditions to verify proper operation and maintenance according to the manufacturer's recommendations. The permittee shall perform at least one inspection each month for each baghouse that has operated during the month. At a minimum, the inspection shall include the following.

a) Verify exhaust is properly ducted to the baghouse
b) Monitor cleaning cycle
c) Monitor discharge system to ensure dust is removed as needed
d) Check baghouse for normal or abnormal visual and audible conditions
e) Check drive components on fan
f) Spot check bag-seating condition
g) Check all hoses and clamps
h) Spot check for bag leaks and holes
i) Check duct for dust buildup

II.B.10.b.2 **Recordkeeping:**

In addition to recording the results of the monthly inspections, the permittee shall document all maintenance performed on the baghouse, including bag replacement. Records shall be maintained in accordance with Provision I.S.1 of this permit.

II.B.10.b.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.11 **Conditions on #SME 013: Dry Matte Bin (Stack 13).**

II.B.11.a **Condition:**

Emissions of PM_{10} shall be no greater than 0.3 lbs/hour (filterable) and 0.016 grains/dscfm (68 degrees F, 29.92" Hg). [Origin: DAQE-AN103460054-14]. [R307-401-8(1)(a)(BACT)]

II.B.11.a.1 **Monitoring:**

Stack testing shall be performed as specified below:

(a) Frequency. Emissions shall be tested every five years based on the date of the most recent stack test. The source may also be tested at any time if directed by the Director.

(b) Notification. At least 30 days before the test, the source shall notify the Director of the date, time, and place of testing and provide a copy of the test protocol. The source shall attend a pretest conference if determined necessary by the Director.

(c) Methods.

(1) Sample Location - the emission point shall conform to the requirements of 40 CFR 60, Appendix A, Method 1, or other EPA-approved testing method, as acceptable to the Director, and Occupational Safety and Health Administration (OSHA)-approved and/or Mine Safety and Health Administration (MSHA)-approved access shall be provided to the test location.

(2) The following methods shall be used to measure particulate emissions: 40 CFR 51, Appendix M, Method 201A and 202, or other EPA-approved testing methods, as acceptable to the Director. If a method other than 201A is used, the portion of the front half of the catch considered PM_{10} shall be based on information in Appendix B of the fifth edition of the EPA document, AP-42, or other data acceptable to the Director.

(3) The condensable particulate emissions shall not be used for compliance demonstration, but shall be used for inventory purposes.

(d) Calculations. 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.

(e) Conditions During Testing: Stack testing shall be performed during representative operations to include testing at a production rate no less than 90 percent of the maximum matte grinding mill feed rate achieved during the previous three years. If these conditions cannot be met, the permittee shall propose in the test protocol, stack test conditions and retest thresholds to assure that stack testing is representative of actual operations.

II.B.11.a.2 **Recordkeeping:**

Results of all stack testing shall be recorded and maintained in accordance with the associated test method and Provision S.1 in Section I of this permit.

II.B.11.a.3 **Reporting:**

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. There are no additional reporting requirements for this provision except those specified in Section I of this permit.

II.B.11.b **Condition:**

Visible emissions shall be no greater than 10 percent opacity from the baghouse. [Origin: DAQE-AN103460054-14]. [R307-401-8(1)(a)(BACT)]

II.B.11.b.1 **Monitoring:**

A visual observation of each affected emission unit shall be performed on a weekly basis by an individual trained on the observation procedures of 40 CFR 60, Appendix A, Method 9. The individual is not required to be a certified visible emissions observer. If any visible emissions other than steam are observed, an opacity determination of that emission unit shall be performed by a certified visible emissions observer in accordance with 40 CFR 60, Appendix A, Method 9, or other EPA-approved testing method, as acceptable to the Director, within 24 hours of the initial observation. For each affected emission unit, if no visible emissions are observed for eight consecutive weeks the observation frequency shall be reduced to a monthly basis. If visible emissions are observed during any monthly observation the frequency shall revert back to a weekly basis.

II.B.11.b.2 **Recordkeeping:**

Records of visual observations performed and data required by 40 CFR 60, Appendix A, Method 9, or other EPA-approved testing method, as acceptable to the Director, for each determination shall be maintained in accordance with Provision I.S.1 of this permit.

II.B.11.b.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.12 **Conditions on #SME FSF/FCF: Flash Smelting & Converting Combined.**

II.B.12.a **Condition:**

All gases produced during smelting and/or converting which enter the primary gas handling system shall pass through an online sulfuric acid plant, except that during the startup and/or shutdown process of any equipment, the gas emissions shall be ducted as necessary, either to the acid plant or to the secondary gas system for control. [Origin: DAQE-AN103460054-14]. [R307-401-8(1)(a)(BACT)]

II.B.12.a.1 **Monitoring:**

Records required for this permit condition will serve as monitoring.

II.B.12.a.2 **Recordkeeping:**

A log shall be kept of any time the gases produced during smelting and/or converting are not passed through an online sulfuric acid plant. An additional log shall be kept and include the dates, times and durations of all times any gases from smelting and/or converting bypass both the acid plant and the secondary gas system. Records shall be maintained in accordance with Provision I.S.1 of this permit.

II.B.12.a.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.13 **Conditions on #SME 010a: Matte Granulation Exhaust Scrubbers (Stack 10a).**

II.B.13.a **Condition:**

Combined emissions of PM_{10} shall be no greater than 4.6 lbs/hour (24 hour average - calendar day) (filterable) from the North and South Matte Granulation scrubbers. [Origin: DAQE-AN103460054-14].

[R307-401-8(1)(a)(BACT)]

II.B.13.a.1 **Monitoring:**

Stack testing shall be performed as specified below:

(a) Frequency. Initial testing shall be performed as soon as possible and in no case later than 180 days after the emissions are vented to the atmosphere through the vent stack. Thereafter, emissions shall be tested every five years based on the date of the most recent stack test. The source may also be tested at any time if directed by the Director.

(b) Notification. At least 30 days before the test, the source shall notify the Director of the date, time, and place of testing and provide a copy of the test protocol. The source shall attend a pretest conference if determined necessary by the Director.

(c) Methods.

(1) Sample Location - the emission point shall conform to the requirements of 40 CFR 60, Appendix A, Method 1, or other EPA-approved testing method, as acceptable to the Director, and Occupational Safety and Health Administration (OSHA)-approved and/or Mine Safety and Health Administration (MSHA)-approved access shall be provided to the test location.

(2) The following methods shall be used to measure particulate emissions: 40 CFR 51, Appendix M, Method 201A and 202, or other EPA-approved testing methods, as acceptable to the Director. If a method other than 201A is used, the portion of the front half of the catch considered PM_{10} shall be based on information in Appendix B of the fifth edition of the EPA document, AP-42, or other data acceptable to the Director.

(3) The condensable particulate emissions shall not be used for compliance demonstration, but shall be used for inventory purposes.

(d) Calculations. 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.

(e) Conditions During Testing: Stack testing shall be performed during representative operations. The production rate during all compliance testing shall be no less than 90 percent of the maximum average hourly production rate achieved in any 24-hour period during the previous three (3) years. If these conditions cannot be met, the permittee shall propose in the test protocol, stack test conditions and retest thresholds to assure that stack testing is representative of actual operations.

II.B.13.a.2 **Recordkeeping:**

Results of all stack testing shall be recorded and maintained in accordance with the associated test method and Provision S.1 in Section I of this permit.

II.B.13.a.3 **Reporting:**

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. There are no additional reporting requirements for this provision except those specified in Section I of this permit.

II.B.13.b **Condition:**

Combined emissions of SO_2 shall be no greater than 2.0 lbs/hour (24 hour average - calendar day) from the North and South Matte Granulation scrubbers. [Origin: DAQE-AN103460054-14]. [R307-401-8(1)(a)(BACT)]

II.B.13.b.1 **Monitoring:**

Stack testing shall be performed as specified below:

(a) Frequency. Initial testing shall be performed as soon as possible and in no case later than 180 days after the emissions are vented to the atmosphere through the vent stack. Thereafter, emissions shall be tested every five years based on the date of the most recent stack test. The source may also be tested at any time if directed by the Director.

(b) Notification. At least 30 days before the test, the source shall notify the Director of the date, time, and place of testing and provide a copy of the test protocol. The source shall attend a pretest conference if determined necessary by the Director.

(c) Methods.

(1) Sample Location - the emission point shall conform to the requirements of 40 CFR 60, Appendix A, Method 1, or other EPA-approved testing method, as acceptable to the Director, and Occupational Safety and Health Administration (OSHA)-approved and/or Mine Safety and Health Administration (MSHA)-approved access shall be provided to the test location.

(2) 40 CFR 60, Appendix A, Method 6, 6A, 6B, or 6C, or other EPA-approved testing method, as acceptable to the Director, shall be used to determine the pollutant emission rate.

(3) 40 CFR 60, Appendix A, Method 2, or other EPA-approved testing method, as acceptable to the Director, shall be used to determine the volumetric flow rate.

(d) Calculations. 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.

(e) Conditions During Testing: Stack testing shall be performed during representative operations. The production rate during all compliance testing shall be no less than 90 percent of the maximum average hourly production rate achieved in any 24-hour period during the previous three (3) years. If these conditions cannot be met, the permittee shall propose in the test protocol, stack test conditions and retest thresholds to assure that stack testing is representative of actual operations.

II.B.13.b.2 **Recordkeeping:**

Results of all stack testing shall be recorded and maintained in accordance with the associated test method and Provision S.1 in Section I of this permit.

II.B.13.b.3 **Reporting:**

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. There are no additional reporting requirements for this provision except those specified in Section I of this permit.

II.B.13.c **Condition:**

Combined hours of operation for the North and South Matte Granulation scrubbers shall be no greater than 4,380 hours per rolling 12-month period. [Origin: DAQE-AN103460054-14]. [R307-401-8(1)(a)(BACT)]

II.B.13.c.1 **Monitoring:**

Compliance with the limitation shall be demonstrated through a rolling 12-month total. The permittee shall calculate a new 12-month total by the first day of each month using data from the previous 12 months.

II.B.13.c.2 **Recordkeeping:**

An operator's log shall be maintained which shall include the results of the monitoring required. All records shall be maintained in accordance with Provision I.S.1 of this permit.

II.B.13.c.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.13.d **Condition:**

Visible emissions shall be no greater than 15 percent opacity. [Origin: DAQE-AN103460054-14]. [R307-401-8(1)(a)(BACT)]

II.B.13.d.1 **Monitoring:**

A visual observation of each affected emission unit shall be performed on a weekly basis by an individual trained on the observation procedures of 40 CFR 60, Appendix A, Method 9. The individual is not required to be a certified visible emissions observer. If any visible emissions other than steam are observed, an opacity determination of that emission unit shall be performed by a certified visible emissions observer in accordance with 40 CFR 60, Appendix A, Method 9, or other EPA-approved testing method, as acceptable to the Director, within 24 hours of the initial observation.

II.B.13.d.2 **Recordkeeping:**

Records of visual observations performed and data required by 40 CFR 60, Appendix A, Method 9, or other EPA-approved testing method, as acceptable to the Director, for each determination shall be maintained in accordance with Provision I.S.1 of this permit.

II.B.13.d.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.14 **<u>Conditions on #SME 010b: Slag Granulation Exhaust Scrubber (Stack 10b).</u>**

II.B.14.a **Condition:**

Emissions of PM_{10} shall be no greater than 1.9 lbs/hour (24 hour average - calendar day) (filterable). [Origin: DAQE-AN103460054-14]. [R307-401-8(1)(a)(BACT)]

II.B.14.a.1 **Monitoring:**

Stack testing shall be performed as specified below:

(a) Frequency. Emissions shall be tested every five years based on the date of the most recent stack test. The source may also be tested at any time if directed by the Director.

(b) Notification. At least 30 days before the test, the source shall notify the Director of the date, time, and place of testing and provide a copy of the test protocol. The source shall attend a pretest conference if determined necessary by the Director.

(c) Methods.

(1) Sample Location - the emission point shall conform to the requirements of 40 CFR 60, Appendix A, Method 1, or other EPA-approved testing method, as acceptable to the Director, and Occupational Safety and Health Administration (OSHA)-approved and/or Mine Safety and Health Administration (MSHA)-approved access shall be provided to

the test location.

(2) The following methods shall be used to measure particulate emissions: 40 CFR 51, Appendix M, Method 201A and 202, or other EPA-approved testing methods, as acceptable to the Director. If a method other than 201A is used, the portion of the front half of the catch considered PM_{10} shall be based on information in Appendix B of the fifth edition of the EPA document, AP-42, or other data acceptable to the Director.

(3) The condensable particulate emissions shall not be used for compliance demonstration, but shall be used for inventory purposes.

(d) Calculations. 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.

(e) Conditions During Testing: Stack testing shall be performed during representative operations. The production rate during all compliance testing shall be no less than 90 percent of the maximum average hourly production rate achieved in any 24-hour period during the previous three (3) years. If these conditions cannot be met, the permittee shall propose in the test protocol, stack test conditions and retest thresholds to assure that stack testing is representative of actual operations.

II.B.14.a.2 **Recordkeeping:**

Results of all stack testing shall be recorded and maintained in accordance with the associated test method and Provision S.1 in Section I of this permit.

II.B.14.a.3 **Reporting:**

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. There are no additional reporting requirements for this provision except those specified in Section I of this permit.

II.B.14.b **Condition:**

Emissions of SO_2 shall be no greater than 2.0 lbs/hour (24 hour average - calendar day). [Origin: DAQE-AN103460054-14]. [R307-401-8(1)(a)(BACT)]

II.B.14.b.1 **Monitoring:**

Stack testing shall be performed as specified below:

(a) Frequency. Emissions shall be tested every five years based on the date of the most recent stack test. The source may also be tested at any time if directed by the Director.

(b) Notification. At least 30 days before the test, the source shall notify the Director of the date, time, and place of testing and provide a copy of the test protocol. The source shall attend a pretest conference if determined necessary by the Director.

(c) Methods.

(1) Sample Location - the emission point shall conform to the requirements of 40 CFR 60, Appendix A, Method 1, or other EPA-approved testing method, as acceptable to the Director, and Occupational Safety and Health Administration (OSHA)-approved and/or Mine Safety and Health Administration (MSHA)-approved access shall be provided to the test location.

(2) 40 CFR 60, Appendix A, Method 6, 6A, 6B, or 6C, or other EPA-approved testing method, as acceptable to the Director, shall be used to determine the pollutant emission rate.

(3) 40 CFR 60, Appendix A, Method 2, or other EPA-approved testing method, as acceptable to the Director, shall be used to determine the volumetric flow rate.

(d) Calculations. 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.

(e) Conditions During Testing: Stack testing shall be performed during representative operations. The production rate during all compliance testing shall be no less than 90 percent of the maximum average hourly production rate achieved in any 24-hour period during the previous three (3) years. If these conditions cannot be met, the permittee shall propose in the test protocol, stack test conditions and retest thresholds to assure that stack testing is representative of actual operations.

II.B.14.b.2 **Recordkeeping:**

Results of all stack testing shall be recorded and maintained in accordance with the associated test method and Provision S.1 in Section I of this permit.

II.B.14.b.3 **Reporting:**

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. There are no additional reporting requirements for this provision except those specified in Section I of this permit.

II.B.14.c **Condition:**

Hours of operation shall be no greater than 3,504 hours per rolling 12-month period. [Origin: DAQE-AN103460054-14]. [R307-401-8(1)(a)(BACT)]

II.B.14.c.1 **Monitoring:**

Compliance with the limitation shall be demonstrated through a rolling 12-month total. The permittee shall calculate a new 12-month total by the first day of each month using data from the previous 12 months.

II.B.14.c.2 **Recordkeeping:**

An operator's log shall be maintained which shall include the results of the monitoring required. All records shall be maintained in accordance with Provision I.S.1 of this permit.

II.B.14.c.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.14.d **Condition:**

Visible emissions shall be no greater than 15 percent opacity. [Origin: DAQE-AN103460054-14]. [R307-401-8(1)(a)(BACT)]

II.B.14.d.1 **Monitoring:**

A visual observation of each affected emission unit shall be performed on a weekly basis by an individual trained on the observation procedures of 40 CFR 60, Appendix A, Method 9. The individual is not required to be a certified visible emissions observer. If any visible emissions other than steam are observed, an opacity determination of that emission unit shall be performed by a certified visible emissions observer in accordance with 40 CFR 60, Appendix A, Method 9, or other EPA-approved testing method, as acceptable to the Director, within 24 hours of the

initial observation.

II.B.14.d.2 **Recordkeeping:**

Records of visual observations performed and data required by 40 CFR 60, Appendix A, Method 9, or other EPA-approved testing method, as acceptable to the Director, for each determination shall be maintained in accordance with Provision I.S.1 of this permit.

II.B.14.d.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.15 **Conditions on #SME 029: Secondary Gas System Lime Silo (Stack 29).**

II.B.15.a **Condition:**

Visible emissions shall be no greater than 10 percent opacity. [Origin: DAQE-AN103460054-14]. [R307-401-8(1)(a)(BACT)]

II.B.15.a.1 **Monitoring:**

In lieu of monitoring via visible emissions observations, the permittee shall inspect the baghouse during typical operating conditions to verify proper operation and maintenance according to the manufacturer's recommendations. The permittee shall perform at least one inspection each quarter for each baghouse that has operated during the quarter. At a minimum, the inspection shall include the following.

a) Verify exhaust is properly ducted to the baghouse
b) Monitor discharge system to ensure dust is removed as needed
c) Check baghouse for normal or abnormal visual and audible conditions
d) Spot check bag-seating condition
e) Check all hoses and clamps
f) Spot check from top of tube sheet for bag leaks and holes
g) Check discharge area for dust buildup

II.B.15.a.2 **Recordkeeping:**

In addition to recording the results of the quarterly inspections, the permittee shall document all maintenance performed on the baghouse, including bag replacement. Records shall be maintained in accordance with Provision I.S.1 of this permit.

II.B.15.a.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.16 **Conditions on #SME 028: Anode Area Lime Silo (Stack 28).**

II.B.16.a **Condition:**

Visible emissions shall be no greater than 10 percent opacity. [Origin: DAQE-AN103460054-14]. [R307-401-8(1)(a)(BACT)]

II.B.16.a.1 **Monitoring:**

In lieu of monitoring via visible emissions observations, the permittee shall inspect the baghouse

during typical operating conditions to verify proper operation and maintenance according to the manufacturer's recommendations. The permittee shall perform at least one inspection each quarter for each baghouse that has operated during the quarter. At a minimum, the inspection shall include the following.

a) Verify exhaust is properly ducted to the baghouse
b) Monitor discharge system to ensure dust is removed as needed
c) Check baghouse for normal or abnormal visual and audible conditions
d) Spot check bag-seating condition
e) Check all hoses and clamps
f) Spot check from top of tube sheet for bag leaks and holes
g) Check discharge area for dust buildup

II.B.16.a.2 **Recordkeeping:**

In addition to recording the results of the quarterly inspections, the permittee shall document all maintenance performed on the baghouse, including bag replacement. Records shall be maintained in accordance with Provision I.S.1 of this permit.

II.B.16.a.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.17 **Conditions on #SME 015: Mold Coating (Barite) Bin (Stack 15).**

II.B.17.a **Condition:**

Visible emissions shall be no greater than 10 percent opacity. [Origin: DAQE-AN103460054-14]. [R307-401-8(1)(a)(BACT)]

II.B.17.a.1 **Monitoring:**

In lieu of monitoring via visible emissions observations, the permittee shall inspect the baghouse during typical operating conditions to verify proper operation and maintenance according to the manufacturer's recommendations. The permittee shall perform at least one inspection each month for each baghouse that has operated during the month. At a minimum, the inspection shall include the following.

a) Verify exhaust is properly ducted to the baghouse
b) Monitor cleaning cycle
c) Monitor discharge system to ensure dust is removed as needed
d) Check baghouse for normal or abnormal visual and audible conditions
e) Check drive components on fan
f) Spot check bag-seating condition
g) Check all hoses and clamps
h) Spot check for bag leaks and holes
i) Check duct for dust buildup

II.B.17.a.2 **Recordkeeping:**

In addition to recording the results of the monthly inspections, the permittee shall document all maintenance performed on the baghouse, including bag replacement. Records shall be maintained in accordance with Provision I.S.1 of this permit.

II.B.17.a.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this

permit.

II.B.18 **Conditions on #SME 008: Acid Plant Preheater (Stack 8).**

II.B.18.a **Condition:**

Visible emissions shall be no greater than 10 percent opacity. [Origin: DAQE-AN103460054-14]. [R307-401-8(1)(a)(BACT)]

II.B.18.a.1 **Monitoring:**

In lieu of monitoring via visible emission observations, the type of fuel used shall be monitored to demonstrate that only natural gas or propane is being combusted.

II.B.18.a.2 **Recordkeeping:**

The permittee shall maintain records of the types of fuel combusted. Records shall be maintained in accordance with Provision I.S.1 of this permit.

II.B.18.a.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.18.b **Condition:**

Consumption of natural gas shall be no greater than 74,476 MMBtu per rolling 12 month period. [Origin: DAQE-AN103460054-14]. [R307-401-8(1)(a)(BACT)]

II.B.18.b.1 **Monitoring:**

Consumption shall be determined within the first 25 calendar days of each month, for the previous month, by reconciling gas meter readings against monthly billing statements. The total shall then be added to the previous 11 months total for a 12 month rolling total.

II.B.18.b.2 **Recordkeeping:**

Gas meter readings and billing statement reconciliations shall be recorded on a monthly basis for the previous month. Records of consumption shall be kept for all periods when the plant is in operation. Results of monitoring shall be maintained in accordance with Provision I.S.1 of this permit.

II.B.18.b.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.19 **Conditions on #SME 011b: Acid Plant.**

II.B.19.a **Condition:**

Emissions of SO_2 shall be no greater than 250 ppmdv based on a 6 hour block average, 170 ppmdv based on a 24 hour average - calendar day, and 100 ppmdv based on an annual average. [Origin: DAQE-AN103460054-14]. [40 CFR 60 Subpart P, R307-401-8(1)(a)(BACT)]

II.B.19.a.1 **Monitoring:**

The permittee shall calibrate, maintain and operate a continuous monitoring system for measuring the emissions of sulfur dioxide (SO_2) concentration in accordance with UAC R307-170 and 40 CFR 60, Appendix B, Specification 2 - SO_2.

II.B.19.a.2 **Recordkeeping:**

Results of SO_2 monitoring shall be recorded and maintained as required in R307-170 and as described in Provision I.S.1 of this permit.

II.B.19.a.3 **Reporting:**

The permittee shall comply with the reporting provisions in R307-170-9 and any additional reporting provisions contained in Section I of this permit.

The quarterly reports required in R307-170-9 are considered prompt notification of permit deviations required in Provision I.S.2.c of this permit if all information required by Provision I.S.2.c is included in the report.

II.B.19.b **Condition:**

Emissions of Sulfuric Acid shall be no greater than 0.67 mg/scf (68 degrees F, 29.92" Hg). [Origin: DAQE-AN103460054-14]. [R307-401-8(1)(a)(BACT)]

II.B.19.b.1 **Monitoring:**

Stack testing shall be performed as specified below:

(a) Frequency. Emissions shall be tested every three years. Every three years means the test must be performed every third year and in the same calendar quarter in which the most recent test was performed. The source may also be tested at any time if directed by the Director.

(b) Notification. At least 30 days before the test, the source shall notify the Director of the date, time, and place of testing and provide a copy of the test protocol. The source shall attend a pretest conference if determined necessary by the Director.

(c) Methods.

(1) Sample Location - the emission point shall conform to the requirements of 40 CFR 60, Appendix A, Method 1, or other EPA-approved testing method, as acceptable to the Director, and Occupational Safety and Health Administration (OSHA)-approved and/or Mine Safety and Health Administration (MSHA)-approved access shall be provided to the test location.

(2) 40 CFR 60, Appendix A, Method 8, or other EPA-approved testing method, as acceptable to the Director, shall be used to determine the pollutant emission rate.

(3) 40 CFR 60, Appendix A, Method 2, or other EPA-approved testing method, as acceptable to the Director, shall be used to determine the volumetric flow rate.

(d) Calculations. 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.

(e) Production Rate During Testing. The production rate during all compliance testing shall be no less than 90 percent of the maximum average hourly production rate achieved in any 24-hour period during the previous three (3) years.

II.B.19.b.2 **Recordkeeping:**

Results of all stack testing shall be recorded and maintained in accordance with the associated test

method and Provision S.1 in Section I of this permit.

II.B.19.b.3 **Reporting:**

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. There are no additional reporting requirements for this provision except those specified in Section I of this permit.

II.B.19.c **Condition:**

Visible emissions from the acid plant tail gas shall be no greater than 15 percent opacity. [Origin: DAQE-AN103460054-14]. [40 CFR 60 Subpart P, R307-401-8(1)(a)(BACT)]

II.B.19.c.1 **Monitoring:**

The permittee shall calibrate, maintain and operate a continuous monitoring system for measuring the opacity of emissions in accordance with R307-170, UAC and 40 CFR 60, Appendix B, Specification 1 - Opacity, and shall record the output of the system. The output shall be reviewed at least monthly for compliance with the opacity limit. Compliance is to be based on the percent opacity averaged over six consecutive minutes.

II.B.19.c.2 **Recordkeeping:**

Results of opacity measurements shall be recorded and maintained as required in R307-170 and as described in Provision I.S.1 of this permit.

II.B.19.c.3 **Reporting:**

The permittee shall comply with the reporting provisions in R307-170-9 and any additional reporting provisions contained in Section I of this permit.

The quarterly reports required in R307-170-9 are considered prompt notification of permit deviations required in Provision I.S.2.c of this permit if all information required by Provision I.S.2.c is included in the report.

II.B.20 **<u>Conditions on #SME GLCS: Acid Plant Process Gas Leak Collection System.</u>**

II.B.20.a **Condition:**

Visible emissions from acid plant process gas leaks shall be no greater than 20 percent opacity. [Origin: DAQE-AN103460054-14]. [R307-401-8(1)(a)(BACT)]

II.B.20.a.1 **Monitoring:**

a) A visual observation of each affected emission unit shall be performed on a weekly basis by an individual trained on the observation procedures of 40 CFR 60, Appendix A, Method 9. The individual is not required to be a certified visible emissions observer. If any visible emissions other than steam are observed, an opacity determination of that emission unit shall be performed by a certified visible emissions observer in accordance with 40 CFR 60, Appendix A, Method 9, or other EPA-approved testing method, as acceptable to the Director, within 24 hours of the initial observation.
b) If visible emissions greater than 15 percent opacity are observed, best operational practices to minimize the emissions by repair, correction, or control shall be initiated within 24 hours of the observation. Best operational practices may include, but are not limited to, placement or adjustment of negative pressure ductwork and collection hoses, welding or containment of

process gas leaks.

II.B.20.a.2 **Recordkeeping:**

A log of visual observations performed and data required by 40 CFR 60, Appendix A, Method 9, or other EPA-approved testing method, as acceptable to the Director, for each determination shall be maintained in accordance with Provision I.S.1 of this permit.

II.B.20.a.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.21 **Conditions on #SME 019: Hydrometallurgical Plant Limestone Bin (Stack 19).**

II.B.21.a **Condition:**

Visible emissions shall be no greater than 10 percent opacity. [Origin: DAQE-AN103460054-14]. [R307-401-8(1)(a)(BACT)]

II.B.21.a.1 **Monitoring:**

In lieu of monitoring via visible emissions observations, the permittee shall inspect the baghouse during typical operating conditions to verify proper operation and maintenance according to the manufacturer's recommendations. The permittee shall perform at least one inspection each month for each baghouse that has operated during the month. At a minimum, the inspection shall include the following.

a) Verify exhaust is properly ducted to the baghouse
b) Monitor cleaning cycle
c) Monitor discharge system to ensure dust is removed as needed
d) Check baghouse for normal or abnormal visual and audible conditions
e) Check drive components on fan
f) Spot check bag-seating condition
g) Check all hoses and clamps
h) Spot check for bag leaks and holes
i) Check duct for dust buildup

II.B.21.a.2 **Recordkeeping:**

In addition to recording the results of the monthly inspections, the permittee shall document all maintenance performed on the baghouse, including bag replacement. Records shall be maintained in accordance with Provision I.S.1 of this permit.

II.B.21.a.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.22 **Conditions on #SME 020: Hydrometallurgical Plant Lime Bin (Stack 20).**

II.B.22.a **Condition:**

Visible emissions shall be no greater than 10 percent opacity. [Origin: DAQE-AN103460054-14]. [R307-401-8(1)(a)(BACT)]

II.B.22.a.1 **Monitoring:**

In lieu of monitoring via visible emissions observations, the permittee shall inspect the baghouse during typical operating conditions to verify proper operation and maintenance according to the manufacturer's recommendations. The permittee shall perform at least one inspection each month for each baghouse that has operated during the month. At a minimum, the inspection shall include the following.

a) Verify exhaust is properly ducted to the baghouse
b) Monitor cleaning cycle
c) Monitor discharge system to ensure dust is removed as needed
d) Check baghouse for normal or abnormal visual and audible conditions
e) Check drive components on fan
f) Spot check bag-seating condition
g) Check all hoses and clamps
h) Spot check for bag leaks and holes
i) Check duct for dust buildup

II.B.22.a.2 **Recordkeeping:**

In addition to recording the results of the monthly inspections, the permittee shall document all maintenance performed on the baghouse, including bag replacement. Records shall be maintained in accordance with Provision I.S.1 of this permit.

II.B.22.a.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.23 **Conditions on #SME 011f: Powerhouse Superheater & Foster Wheeler Boiler.**

II.B.23.a **Condition:**

The permittee shall maintain records of the amount of each fuel combusted during each calendar month for each affected emission unit. [Origin: DAQE-AN103460054-14, 40 CFR 60 Subpart Dc]. [40 CFR 60.48c(g), R307-401-8(1)(a)(BACT)]

II.B.23.a.1 **Monitoring:**

Records required for this permit condition will serve as monitoring.

II.B.23.a.2 **Recordkeeping:**

Gas meter readings shall be recorded on a monthly basis for the previous month, and shall be maintained as described in Provision I.S of this permit.

II.B.23.a.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.24 **Conditions on #SME 026: Powerhouse Holman Boiler (Stack 26).**

II.B.24.a **Condition:**

Visible emissions shall be no greater than 10 percent opacity. [Origin: DAQE-AN103460054-14]. [R307-401-8(1)(a)(BACT)]

II.B.24.a.1 **Monitoring:**

A visual observation of each affected emission unit shall be performed on a weekly basis by an individual trained on the observation procedures of 40 CFR 60, Appendix A, Method 9. The individual is not required to be a certified visible emissions observer. If any visible emissions other than steam are observed, an opacity determination of that emission unit shall be performed by a certified visible emissions observer in accordance with 40 CFR 60, Appendix A, Method 9, or other EPA-approved testing method, as acceptable to the Director, within 24 hours of the initial observation. For each affected emission unit, if no visible emissions are observed for eight consecutive weeks the observation frequency shall be reduced to a monthly basis. If visible emissions are observed during any monthly observation the frequency shall revert back to a weekly basis.

II.B.24.a.2 **Recordkeeping:**

Records of visual observations performed and data required by 40 CFR 60, Appendix A, Method 9, or other EPA-approved testing method, as acceptable to the Director, for each determination shall be maintained in accordance with Provision I.S.1 of this permit.

II.B.24.a.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.24.b **Condition:**

Emissions of NO_x shall be no greater than 9.34 lbs/hour (30-day average), and no greater than 0.05 lbs/MMBtu heat input (30-day average). [Origin: DAQE-AN103460054-14]. [40 CFR 60 Subpart Db, R307-401-8(1)(a)(BACT)]

II.B.24.b.1 **Monitoring:**

For monitoring the Holman boiler NO_x limit, either a CEM or the alternate monitoring plan as submitted to the Director on December 4, 1998 shall be used.
CEM:
The permittee shall calibrate, maintain, and operate a continuous monitoring system for measuring the emissions of nitrogen oxides (NO_x) discharged to the atmosphere in accordance with the monitoring provisions of 40 CFR 60.46b. The CEM shall be maintained and operated in accordance with UAC R307-170.
Alternate Monitoring Plan:
The permittee shall continuously monitor the Holman boiler fuel use, Holman boiler exhaust gas oxygen concentration, and Holman boiler steam output (used to estimate heat input if fuel use is unavailable) to predict NO_x emissions from the Holman boiler. In addition, the position of the flue gas recirculation damper shall not be closed any further than four (4) ticks or notches from the bottom (the position used during the 30-day CEM test) without prior approval and an additional 30-day CEM test. (30 day test via certified NO_x CEM as per 40 CFR 60.46b(e) NSPS Subpart Db) If the 30-day average exhaust gas oxygen concentration exceeds 3.3 percent (the maximum value during the initial 30-day CEM test), an additional 30-day CEM test (30 day test via certified NO_x CEM as per 40 CFR 60.46b(e) NSPS Subpart Db) shall be performed. The permittee shall calculate the 30-day average NO_x emissions from the Holman boiler on a daily basis using hourly data using the following predictive equations, or new predictive equations based upon data from any additional 30-day CEM test and approved by the Director:

A. For heat input values equal to or greater than 45 MMBtu per hour:

$y = 0.0002x^2 + 0.0101x + 0.8985$

$z = y/x$

Where:

z = NO_x emissions (lbs. per MMBtu)
y = NO_x emissions (lbs. per hour)
x = one hour average heat input (MMBtu per hour)

B. For heat input values less than 45 MMBtu per hour:

$y = 0.0379x$

$z = y/x$

Where:

z = NO_x emissions (lbs. per MMBtu)
y = NO_x emissions (lbs. per hour)
x = one hour average heat input (MMBtu per hour)

The permittee shall maintain a rolling 30-day average for calculated NO_x emissions using 30 consecutive days of hourly data and a rolling 30-day average for exhaust gas oxygen concentrations. (origin: Dec. 4, 1998 Correspondence - DAQC-1919-98 (1)).

II.B.24.b.2 **Recordkeeping:**

For records concerning the Holman boiler NO_x limit, either a CEM or the alternate monitoring plan as submitted to the Director on December 4, 1998 shall be used.
CEM:
Results of NO_x monitoring shall be recorded and maintained as required in R307-170, 40 CFR 60.49b, and as described in Provision I.S.1. of this permit.
Alternate Monitoring Plan:
The permittee shall maintain records of the following information for the Holman boiler for each operating day:

1) Calendar Date.
2) Quantity of each type of fuel used.
3) Steam output.
4) Exhaust gas oxygen concentration.
5) Average hourly nitrogen oxides emission rates (lbs/hour and lb/MMBtu heat input) as calculated.
6) The 30-day average nitrogen oxides emission rates (lbs/hour and lb/MMBtu heat input) calculated at the end of each Holman boiler operating day from the predicted hourly nitrogen oxides emission rates for the preceding 30 Holman boiler operating days.
7) Identification of the Holman boiler operating days when the calculated 30-day average nitrogen oxides emission rates are in excess of the nitrogen oxides emission standards, with the reasons for such excess emissions as well as a description of corrective actions taken.
8) Identification of the Holman boiler operating days for which pollutant data have not been obtained, including reasons for not obtaining sufficient data and a description of corrective actions taken.
9) Identification of the times when emission data have been excluded from the calculations of average emission rates and the reasons for excluding data. (origin: December 4, 1998 Correspondence - DAQC-1919-98 (2.))

Permittee shall document all boiler tests and their results. Records shall be maintained in accordance with Provision I.S.1 of this permit.

II.B.24.b.3 **Reporting:**

For reporting concerning the Holman boiler NO_x limit, either a CEM or the alternate monitoring plan as submitted to the Director on December 4, 1998 shall be used.
CEM:
NO_x monitoring reports shall be submitted as required in R307-170 and as described in Provision I.S.2. Of this permit. The quarterly reports required in R307-170-9 are considered prompt notification of permit deviations required in Provision I.S.2.c of this permit if all information required by Provision I.S.2.c is included in the report.
Alternate Monitoring Plan:
In conjunction with monthly smelter emissions reporting required under unit SME-011(b) of this permit, the permittee shall submit a report of each day in which the 30-day average NO_x emissions limit of 9.34 lbs/hr was exceeded at the Holman boiler. Additionally, a statement shall be included to indicate if data recovery met a minimum of 75 percent of the operating hours in each Holman boiler operating day, in at least 22 of 30 successive Holman boiler operating days. The monthly report shall also include information on the number of days in which the 30-day average exhaust gas oxygen concentration exceeded 3.3 percent during the month, and whether the flue gas recirculation damper was moved. (origin: December 4, 1998 Correspondence - DAQC-1919-98 (3.)) The monthly reports are considered prompt notification of permit deviations required in Provision I.S.2.c of this permit if all information required by Provision I.S.2.c is included in the report.

Results of additional 30 day CEM tests (30 day test via certified NO_x CEM as per 40 CFR 60.46b(e) NSPS Subpart Db) shall be submitted to DAQ within 60 days of the completion of the test.

II.B.25 **<u>Conditions on #SME 011: Main Stack (Stack 11).</u>**

II.B.25.a **Condition:**

Emissions of PM_{10} shall be no greater than 89.5 lbs/hour (24 hour average - calendar day) (filterable). [Origin: DAQE-AN103460054-14]. [40 CFR 63 Subpart EEEEEE, R307-401-8(1)(a)(BACT)]

II.B.25.a.1 **Monitoring:**

A) The permittee shall calibrate, maintain and operate a system to continuously measure emissions of particulate matter from the main stack in accordance with 40 CFR 63.8(b), (c), (f), (g). For purposes of determining compliance with the emission limit, all particulate matter collected shall be reported as PM_{10}. Compliance with the main stack emission limit for PM_{10} shall be demonstrated using the smelter main stack continuous particulate sampling system to provide a 24-hour value.
B) Stack testing shall be performed as specified below:
   (a) Frequency. Emissions shall be tested once per calendar year. The source may also be tested at any time if directed by the Director.
   (b) Notification. At least 30 days before the test, the source shall notify the Director of the date, time, and place of testing and provide a copy of the test protocol. The source shall attend a pretest conference if determined necessary by the Director.
   (c) Methods.
      (1) Sample Location - the emission point shall conform to the requirements of 40 CFR 60, Appendix A, Method 1, or other EPA-approved testing method, as acceptable to the Director, and Occupational Safety and Health Administration (OSHA)-approved and/or Mine Safety and Health Administration (MSHA)-approved access shall be provided to the test location.
      (2) The following methods shall be used to measure particulate emissions: 40 CFR 51, Appendix M, Method 201A and 202, or other EPA-approved testing methods,

as acceptable to the Director. If a method other than 201A is used, the portion of the front half of the catch considered PM_{10} shall be based on information in Appendix B of the fifth edition of the EPA document, AP-42, or other data acceptable to the Director.

(3) The condensable particulate emissions shall not be used for compliance demonstration, but shall be used for inventory purposes.

(d) Calculations. 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.

(e) Production Rate During Testing. The production rate during all compliance testing shall be no less than 90 percent of the maximum average hourly production rate achieved in any 24-hour period during the previous three (3) years.

II.B.25.a.2 **Recordkeeping:**

A) Results of PM_{10} monitoring shall provide a 24-hour value. The results shall be recorded and maintained as required in R307-170 and as described in Provision I.S.1 of this permit. Collected data shall be made available for inspection on a daily basis.

B) Results of all stack testing shall be recorded and maintained in accordance with the associated test method and Provision S.1. In Section I of this permit.

II.B.25.a.3 **Reporting:**

A) A summary of the 24-hour averages shall be submitted to the Director by the 20th day of each month for the previous month.

B) 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. There are no additional reporting requirements for this provision except those specified in Section I of this permit.

II.B.25.b **Condition:**

Emissions of SO_2 shall be no greater than 552 lbs/hour based on a 3 hour average, 422 lbs/hour based on a 24 hour average - calendar day, and 211 lbs/hour based on an annual average. [Origin: DAQE-AN103460054-14]. [R307-401-8(1)(a)(BACT)]

II.B.25.b.1 **Monitoring:**

The permittee shall calibrate, maintain and operate a continuous monitoring system for measuring the emissions of sulfur dioxide (SO_2) discharged to the atmosphere and stack gas volumetric flow rates in accordance with UAC R307-170 including the requirements for annual Relative Accuracy Test Audits and quarterly Relative Accuracy Audits or Cylinder Gas Audits. The required Relative Accuracy Test Audits, Relative Accuracy Audits, and Cylinder Gas Audits shall be conducted following procedures contained in Appendix B, Specification 2, Part 60, Title 40, CFR and Appendix F, Part 60, Title 40, CFR. Acceptable methods for the annual Relative Accuracy Test Audits include 40 CFR 60, Appendix A, reference methods 6 or 6c. The permittee shall perform Appendix E, Part 52, Title 40, CFR 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 above demonstrate that the SO_2 monitoring system is not performing properly. The permittee shall measure at least 95 percent of the hours during which emissions occurred in any month. Failure to measure any 18 consecutive hours of emissions data shall constitute a violation. Any hour for which the measurements comply with R307-170 UAC shall be considered as measured. Calibration shall be performed once per day and the hours during which calibration is performed shall be considered as measured if at least 40 minutes of data are measured for each of those hours. Any hours for which the emissions data are

greater than 20 percent in error will be considered to have not been measured. During periods of malfunction or maintenance of the stack gas temperature and velocity measurement instrumentation, the permittee may estimate stack gas flow rate. These estimates will be considered as measurements. No more than 10 percent of the flow rates in any one month shall be estimated.

II.B.25.b.2 **Recordkeeping:**

Results of SO_2 measurements shall be recorded and maintained as required in R307-170 and as described in Provision I.S.1 of this permit. The permittee shall express the measurements as pounds of SO_2 emitted per hour calculated at the end of each day for the preceding 24 hours, and calculated at the end of each hour for the preceding 3-hour period. Additionally, the following data shall also be recorded: The total number of hourly periods during the month in which measurements were not taken; the reason for measurement loss in each period greater than three continuous hours of loss; the dates and number of exceedances on which the 3 and 24 hour emissions averages exceeded the applicable emission level; and all conversion values used to derive the 3 and 24 hour average emissions for SO_2, including temperature and differential pressure of stack gases.

II.B.25.b.3 **Reporting:**

Results of each measurement or monitoring system and reports evaluating the performance of such systems shall be summarized and shall be submitted to the Director within 20 days after the end of each month. All audit and accuracy test results shall be submitted to the Director within 60 days after the audit or accuracy test is completed. Calculations used to derive the estimated flow rates and a list of the periods where stack gas flow rate was estimated in each month shall be submitted with the monthly data reports. Data, reports, or results required to be submitted to the Director shall be deemed to be verified and accepted as valid and not subject to challenge and shall be used by the Director and the Utah Air Quality Board in determining compliance with the main smelter stack SO_2 emission limits, unless, within 30 days of the time of submittal the permittee or the Director provides evidence that the data, results, or reports or any part thereof, are greater than 20 percent in error. Any additional reporting required by R307-170 and Provision I.S.1 of this permit shall also be met. The quarterly reports required in R307-170-9 are considered prompt notification of permit deviations required in Provision I.S.2.c of this permit if all information required by Provision I.S.2.c is included in the report.

II.B.25.c **Condition:**

Visible emissions shall be no greater than 20 percent opacity. [Origin: DAQE-AN103460054-14]. [R307-401-8(1)(a)(BACT)]

II.B.25.c.1 **Monitoring:**

The permittee shall calibrate, maintain and operate a continuous monitoring system for measuring the opacity of emissions in accordance with R307-170, UAC and 40 CFR 60, Appendix B, Specification 1 - Opacity, and shall record the output of the system. The output shall be reviewed at least monthly for compliance with the opacity limit. Compliance is to be based on the percent opacity averaged over six consecutive minutes.

II.B.25.c.2 **Recordkeeping:**

Results of opacity measurements shall be recorded and maintained as required in R307-170 and as described in Provision I.S.1 of this permit.

II.B.25.c.3 **Reporting:**

The permittee shall comply with the reporting provisions in R307-170-9 and any additional reporting provisions contained in Section I of this permit.

The quarterly reports required in R307-170-9 are considered prompt notification of permit deviations required in Provision I.S.2.c of this permit if all information required by Provision I.S.2.c is included in the report.

II.B.25.d **Condition:**

Emissions of Lead shall be no greater than 1.3 lbs/hour (annual average). [Origin: DAQE-AN103460054-14]. [R307-401-8(1)(a)(BACT)]

II.B.25.d.1 **Monitoring:**

The permittee shall determine the 12-month average lead emissions from the main stack on a monthly basis, using the main stack particulate data and laboratory analysis of the material collected by the continuous stack particulate sampler. If the permittee cannot monitor the lead emissions using the continuous particulate sampler, then the permittee shall monitor lead emissions in accordance with the most recent monitoring plan approved by the Director.

II.B.25.d.2 **Recordkeeping:**

The permittee shall keep appropriate records of the particulate sampling at the main stack and laboratory analysis of the lead in the particulate, as outlined in the monitoring plan. Records shall be maintained in accordance with Provision I.S.1 of this permit.

II.B.25.d.3 **Reporting:**

The permittee shall report as specified in the monitoring plan and as specified in Section I of this permit.

II.B.25.e **Condition:**

Emissions of NO_x shall be no greater than 35 lbs/hour (annual average). [Origin: DAQE-AN103460054-14]. [R307-401-8(1)(a)(BACT)]

II.B.25.e.1 **Monitoring:**

The permittee shall calibrate, maintain and operate a continuous monitoring system for measuring the emissions of NO_x discharged to the atmosphere and stack gas volumetric flow rates in accordance with UAC R307-170 including the requirements for annual Relative Accuracy Test Audits and quarterly Relative Accuracy Audits or Cylinder Gas Audits. The monitoring system shall comply with all applicable sections of R307-170, UAC and 40 CFR 60, Appendix B, Specification 2 - Oxides of Nitrogen. The required Relative Accuracy Test Audits, Relative Accuracy Audits, and Cylinder Gas Audits shall be conducted following procedures contained in Appendix B, Specification 2, Part 60, Title 40, CFR and Appendix F, Part 60, Title 40, CFR. Acceptable methods for the annual Relative Accuracy Test Audits include 40 CFR 60, Appendix A, reference method 7 or 7E. The permittee shall perform Appendix E, Part 52, Title 40, CFR 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 above demonstrate that the NO_x monitoring system is not performing properly. During periods of malfunction or maintenance of the stack gas temperature and velocity measurement instrumentation, the permittee may estimate stack gas flow rate. These estimates will be considered as measurements. No more than 10 percent of the flow rates in any one month shall

be estimated.

II.B.25.e.2 **Recordkeeping:**

Results of NO_x measurements shall be recorded and maintained as required in R307-170 and as described in Provision I.S.1 of this permit. The permittee shall record the output of the systems, for measuring the NO_x emissions on the main stack. Measurement results shall be expressed as pounds of NO_x emitted per hour calculated at the end of each calendar day for the preceding 24 hours. Each month the annual average shall be calculated from the daily averages from the preceding 12-month period. Additionally, the following data shall also be recorded: The total number of hourly periods during the month in which measurements were not taken; the reason for measurement loss in each period greater than three continuous hours of loss; the date on which the annual emissions average based on hourly emissions exceeded the applicable emissions level for the month being reported, and all conversion values used to derive the 24 hour average and annual average for NO_x including temperature and differential pressure of stack gases.

II.B.25.e.3 **Reporting:**

Results of each measurement or monitoring system and reports evaluating the performance of such systems shall be summarized and shall be submitted to the Director within 20 days after the end of each month. Every month the owner/operator shall calculate the emissions in lbs/hr averaged over the previous 12 calendar months and shall submit the emissions to the Director by the twentieth day of each month using data from the previous 12 months. All audit and accuracy test results shall be submitted to the Director within 60 days after the audit or accuracy test is completed. Calculations used to derive the estimated flow rates and a list of the periods where stack gas flow rate was estimated in each month shall be submitted with the monthly data reports. Data, reports, or results required to be submitted to the Director 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 the main smelter stack NO_x emission limits, unless, within 30 days of the time of submittal the permittee or the Director provides evidence that the data, results, or reports or any part thereof, are greater than 20 percent in error. Any additional reporting required by R307-170 and Provision I.S.1 of this permit shall also be met.

The quarterly reports required in R307-170-9 are considered prompt notification of permit deviations required in Provision I.S.2.c of this permit if all information required by Provision I.S.2.c is included in the report.

II.B.25.f **Condition:**

Emissions of $PM_{2.5}$ shall be no greater than 85 lbs/hour (filterable) and 434 lbs/hr (filterable + condensable). [Origin: DAQE-AN103460054-14]. [R307-401-8(1)(a)(BACT)]

II.B.25.f.1 **Monitoring:**

Stack testing shall be performed as specified below:

(a) Frequency. Emissions shall be tested once per calendar year. The source may also be tested at any time if directed by the Director.

(b) Notification. At least 30 days before the test, the source shall notify the Director of the date, time, and place of testing and provide a copy of the test protocol. The source shall attend a pretest conference if determined necessary by the Director.

(c) Methods.

(1) Sample Location - the emission point shall conform to the requirements of 40 CFR 60, Appendix A, Method 1, or other EPA-approved testing method, as acceptable to the Director, and Occupational Safety and Health Administration (OSHA)-approved and/or Mine Safety and Health Administration (MSHA)-approved access shall be provided to the test location.

(2) The following methods shall be used to measure particulate emissions: 40 CFR 51, Appendix M, Method 201A and 202, or other EPA-approved testing methods, as acceptable to the Director. If a method other than 201A is used, the portion of the front half of the catch considered $PM_{2.5}$ shall be based on information in Appendix B of the fifth edition of the EPA document, AP-42, or other data acceptable to the Director.

(3) For the filterable emission limit, the condensable particulate emissions shall not be used for compliance demonstration, but shall be used for inventory purposes. For the filterable + condensable emission limit, the back half condensables shall be used for compliance demonstration as well as for inventory purposes.

(d) Calculations. 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.

(e) Production Rate During Testing. The production rate during all compliance testing shall be no less than 90 percent of the maximum average hourly production rate achieved in any 24-hour period during the previous three (3) years.

II.B.25.f.2 **Recordkeeping:**

Results of all stack testing shall be recorded and maintained in accordance with the associated test method and Provision S.1 in Section I of this permit.

II.B.25.f.3 **Reporting:**

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. There are no additional reporting requirements for this provision except those specified in Section I of this permit.

II.B.26 **<u>Conditions on #SME 027: Recycle Crushing and Storage Building (Stack 27).</u>**

II.B.26.a **Condition:**

Visible emissions shall be no greater than 10 percent opacity. [Origin: DAQE-AN103460054-14]. [R307-401-8(1)(a)(BACT)]

II.B.26.a.1 **Monitoring:**

A visual observation of each affected emission unit shall be performed on a monthly basis by an individual trained on the observation procedures of 40 CFR 60, Appendix A, Method 9. The individual is not required to be a certified visible emissions observer. If any visible emissions other than steam are observed, an opacity determination of that emission unit shall be performed by a certified visible emissions observer in accordance with 40 CFR 60, Appendix A, Method 9, or other EPA-approved testing method, as acceptable to the Director, within 24 hours of the initial observation.

II.B.26.a.2 **Recordkeeping:**

Records of visual observations performed and data required by 40 CFR 60, Appendix A, Method 9, or other EPA-approved testing method, as acceptable to the Director, for each determination shall be maintained in accordance with Provision I.S.1 of this permit.

II.B.26.a.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.27 **Conditions on #SME NG1: Natural Gas Consumption Group 1.**

II.B.27.a **Condition:**

Consumption of natural gas shall be no greater than 2,288,148 MMBtu per rolling 12 month period. [Origin: DAQE-AN103460054-14]. [R307-401-8(1)(a)(BACT)]

II.B.27.a.1 **Monitoring:**

Consumption shall be determined within the first 25 calendar days of each month, for the previous month, by reconciling gas meter readings against monthly billing statements. The total shall then be added to the previous 11 months total for a 12 month rolling total.

II.B.27.a.2 **Recordkeeping:**

Gas meter readings and billing statement reconciliations shall be recorded on a monthly basis for the previous month. Records of consumption shall be kept for all periods when the plant is in operation. Results of monitoring shall be maintained in accordance with Provision I.S.1 of this permit.

II.B.27.a.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.28 **Conditions on #SME NG2: Natural Gas Consumption Group 2.**

II.B.28.a **Condition:**

Consumption of natural gas shall be no greater than 1,947,847 MMBtu per rolling 12 month period. [Origin: DAQE-AN103460054-14]. [R307-401-8(1)(a)(BACT)]

II.B.28.a.1 **Monitoring:**

Consumption shall be determined within the first 25 calendar days of each month, for the previous month, by reconciling gas meter readings against monthly billing statements. The total shall then be added to the previous 11 months total for a 12 month rolling total.

II.B.28.a.2 **Recordkeeping:**

Gas meter readings and billing statement reconciliations shall be recorded on a monthly basis for the previous month. Records of consumption shall be kept for all periods when the plant is in operation. Results of monitoring shall be maintained in accordance with Provision I.S.1 of this permit.

II.B.28.a.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.29 **Conditions on #SME 022: Smelter Laboratory Sample Preparation (Stack 22).**

II.B.29.a **Condition:**

Visible emissions shall be no greater than 10 percent opacity. [Origin: DAQE-AN103460054-14].

[R307-401-8(1)(a)(BACT)]

II.B.29.a.1 **Monitoring:**

A visual observation of each affected emission unit shall be performed on a monthly basis by an individual trained on the observation procedures of 40 CFR 60, Appendix A, Method 9. The individual is not required to be a certified visible emissions observer. If any visible emissions other than steam are observed, an opacity determination of that emission unit shall be performed by a certified visible emissions observer in accordance with 40 CFR 60, Appendix A, Method 9, or other EPA-approved testing method, as acceptable to the Director, within 24 hours of the initial observation.

II.B.29.a.2 **Recordkeeping:**

Records of visual observations performed and data required by 40 CFR 60, Appendix A, Method 9, or other EPA-approved testing method, as acceptable to the Director, for each determination shall be maintained in accordance with Provision I.S.1 of this permit.

II.B.29.a.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.30 **Conditions on #SME 017a, c: Vacuum Cleaning Systems (Stacks 17a, 17c).**

II.B.30.a **Condition:**

Emissions of PM_{10} shall be no greater than 0.7 lbs/hour combined (filterable) and 0.016 grains/dscfm (68 degrees F, 29.92" Hg), and stack testing shall be conducted at no less than 4,500 dscfm (90 percent of 5,000 dscfm) exhaust volume combined. [Origin: DAQE-AN103460054-14]. [R307-401-8(1)(a)(BACT)]

II.B.30.a.1 **Monitoring:**

Stack testing shall be performed as specified below:

(a) Frequency. Emissions shall be tested every five years based on the date of the most recent stack test. The source may also be tested at any time if directed by the Director. If the unit is not operational when a stack test is due, it shall be tested within six months of resumed operation.

(b) Notification. At least 30 days before the test, the source shall notify the Director of the date, time, and place of testing and provide a copy of the test protocol. The source shall attend a pretest conference if determined necessary by the Director.

(c) Methods.

(1) Sample Location - the emission point shall conform to the requirements of 40 CFR 60, Appendix A, Method 1, or other EPA-approved testing method, as acceptable to the Director, and Occupational Safety and Health Administration (OSHA)-approved and/or Mine Safety and Health Administration (MSHA)-approved access shall be provided to the test location.

(2) The following methods shall be used to measure particulate emissions: 40 CFR 51, Appendix M, Method 201A and 202, or other EPA-approved testing methods, as acceptable to the Director. If a method other than 201A is used, the portion of the front half of the catch considered PM_{10} shall be based on information in Appendix B of the fifth edition of the EPA document, AP-42, or other data acceptable to the Director.

(3) The condensable particulate emissions shall not be used for compliance demonstration, but shall be used for inventory purposes.

(d) Calculations. 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.

(e) Conditions During Testing: Stack testing shall be performed during representative operations to include testing at no less than the exhaust volume listed within the condition above. If these conditions cannot be met, the permittee shall propose in the test protocol, stack test conditions and retest thresholds to assure that stack testing is representative of actual conditions.

II.B.30.a.2 **Recordkeeping:**

Results of all stack testing shall be recorded and maintained in accordance with the associated test method and Provision S.1 in Section I of this permit.

II.B.30.a.3 **Reporting:**

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. There are no additional reporting requirements for this provision except those specified in Section I of this permit.

II.B.30.b **Condition:**

Visible emissions shall be no greater than 10 percent opacity. [Origin: DAQE-AN103460054-14]. [R307-401-8(1)(a)(BACT)]

II.B.30.b.1 **Monitoring:**

In lieu of monitoring via visible emissions observations, the permittee shall inspect the baghouse during typical operating conditions to verify proper operation and maintenance according to the manufacturer's recommendations. The permittee shall perform at least one inspection each month for each baghouse that has operated during the month. At a minimum, the inspection shall include the following.

a) Verify exhaust is properly ducted to the baghouse
b) Monitor cleaning cycle
c) Monitor discharge system to ensure dust is removed as needed
d) Check baghouse for normal or abnormal visual and audible conditions
e) Check drive components on fan
f) Spot check bag-seating condition
g) Check all hoses and clamps
h) Spot check for bag leaks and holes
i) Check duct for dust buildup

II.B.30.b.2 **Recordkeeping:**

In addition to recording the results of the monthly inspections, the permittee shall document all maintenance performed on the baghouse, including bag replacement. Records shall be maintained in accordance with Provision I.S.1 of this permit.

II.B.30.b.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.31 **Conditions on #SME SA-1: Smelter Unleaded Gasoline Storage Tank.**

II.B.31.a **Condition:**

The permittee shall maintain records of the average monthly storage temperature, the type of liquid, throughput quantities, and the maximum true vapor pressure. [Origin: R307-327-4(2)]. [R307-327-4(2)]

II.B.31.a.1 **Monitoring:**

Records required for this permit condition will serve as monitoring.

II.B.31.a.2 **Recordkeeping:**

The parameters listed above shall be recorded on a monthly basis and maintained as specified in Provision I.S.1 of this permit. The permittee shall maintain fuel specification records from the fuel supplier to demonstrate the maximum true vapor pressure.

II.B.31.a.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.31.b **Condition:**

At least 90 percent of the gasoline vapor, by weight, displaced during the filling of the stationary storage container shall be prevented from being released to the atmosphere. [Origin: R307-328-5]. [R307-328-5]

II.B.31.b.1 **Monitoring:**

The 90 percent performance standard of the vapor control system shall be based on approved operating procedures and equipment specifications.

II.B.31.b.2 **Recordkeeping:**

Records of the approved operating procedures and equipment specifications shall be maintained in accordance with Provision I.S.1. of this permit.

II.B.31.b.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.31.c **Condition:**

The permittee shall not allow gasoline to be handled in a manner that would result in vapor releases to the atmosphere for extended periods of time. Measures to be taken include, but are not limited to, the following:

(1) Minimize gasoline spills;
(2) Clean up spills as expeditiously as practicable;
(3) Cover all open gasoline containers and all gasoline storage tank fill-pipes with a gasketed seal when not in use;
(4) Minimize gasoline sent to open waste collection systems that collect and transport gasoline to reclamation and recycling devices, such as oil/water separators.

At all times, the permittee shall operate and maintain any affected emission unit, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air

pollution control practices for minimizing emissions. Determination of whether such operation and maintenance procedures are being used will be based on information available which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source.

The permittee shall comply with the applicable general provisions in 40 CFR 63.1-15 as identified in Table 3 of 40 CFR 63 Subpart CCCCCC.

[Origin: 40 CFR 63 Subpart CCCCCC]. [40 CFR 63.11111(b), 40 CFR 63.11115, 40 CFR 63.11116, 40 CFR 63.11130]

II.B.31.c.1 **Monitoring:**

Records required for this permit condition will serve as monitoring. Additionally, the permittee shall comply with the applicable general provisions in 40 CFR 63.1-15 as identified in Table 3 of 40 CFR 63 Subpart CCCCCC. [40 CFR 63.11130]

II.B.31.c.2 **Recordkeeping:**

The permittee shall keep records demonstrating monthly throughput is less than the 10,000-gallon threshold level. Records shall be available within 24 hours of a request by the Director to document gasoline throughput in the affected emission unit. [40 CFR 63.11111(e), 40 CFR 63.11116(b)]

The permittee shall keep records of the occurrence and duration of each malfunction of operation (i.e., process equipment) or the air pollution control and monitoring equipment. Records shall be kept of actions taken during periods of malfunction to minimize emissions, including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation. [40 CFR 63.11115(b), 40 CFR 63.11125(d)]

The permittee shall comply with the applicable general provisions in 40 CFR 63.1-15 as identified in Table 3 of 40 CFR 63 Subpart CCCCCC. [40 CFR 63.11130]

Documentation shall be kept that demonstrates compliance with this provision. Records shall be maintained in accordance with Provision I.S.1. of this permit.

II.B.31.c.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.32 **<u>Conditions on #SMEi210: Smelter Cold Solvent Degreasers.</u>**

II.B.32.a **Condition:**

The permittee shall ensure that the following conditions are met:

(1) Each solvent degreaser is equipped with a cover which shall remain closed except during actual loading, unloading or handling of parts in cleaner. The cover shall be designed so that it can be easily operated with one hand if
   (a) the volatility of the solvent is greater than 2 kPa (15 mm Hg or 0.3 psi) measured at 38 degrees C (100 degrees F),
   (b) the solvent is agitated, or
   (c) the solvent is heated.

(2) An internal draining rack for cleaned parts shall be installed on which parts shall be drained until all dripping ceases. If the volatility of the solvent is greater than 4.3 kPa (32 mm Hg at 38 degrees C (100 degrees F)), the drainage facility must be internal, so that parts are enclosed under the cover

while draining. The drainage facility may be external for applications where an internal type cannot fit into the cleaning system.

(3) Waste or used solvent shall be stored in covered containers.

(4) Tanks, containers and all associated equipment shall be maintained in good operating condition and leaks shall be repaired immediately or the degreaser shall be shutdown.

(5) Written procedures for the operation and maintenance of the degreasing or solvent cleaning equipment shall be permanently posted in an accessible and conspicuous location near the equipment.

(6) If the solvent volatility is greater than 4.3 kPa (33 mm Hg or 0.6 psi) measured at 38 degrees C (100 degrees F), or if solvent is heated above 50 degrees C (120 degrees F), then one of the following control devices shall be used:

(a) freeboard that gives a freeboard ratio greater than 0.7;

(b) water cover if the solvent is insoluble in and heavier than water;

(c) other systems of equivalent control, such as a refrigerated chiller or carbon adsorption.

(7) If used, the solvent spray shall be a solid fluid stream at a pressure which does not cause excessive splashing and may not be a fine, atomized or shower type spray.

[Origin: R307-335-4]. [R307-335-4]

II.B.32.a.1 **Monitoring:**

Visual inspections shall be made monthly to demonstrate compliance with this condition.

II.B.32.a.2 **Recordkeeping:**

Results of monthly inspections, the solvent VOC content applied, and the physical characteristics that demonstrate compliance with R307-335 shall be recorded and maintained as described in Provision I.S.1 of this permit.

II.B.32.a.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.33 **Conditions on #SME gen: Smelter Powerhouse Emergency Generators.**

II.B.33.a **Condition:**

Visible emissions shall be no greater than 20 percent opacity. [Origin: R307-305-3(3)]. [R307-305-3(3)]

II.B.33.a.1 **Monitoring:**

During any period that an emergency generator is operated for longer than 12 hours consecutively, a visual observation of that generator's exhaust shall be made by an individual trained on the observation procedures of 40 CFR 60, Appendix A, Method 9. The individual is not required to be a certified visual emissions observer. If any visible emissions other than steam are observed, then an opacity determination shall be performed in accordance with 40 CFR 60, Appendix A, Method 9, or other EPA-approved testing method, as acceptable to the Director, by a certified visible emissions observer. If a generator continues to operate on consecutive days following the initial observation, an opacity determination shall be performed on a daily basis.

II.B.33.a.2 **Recordkeeping:**

Records of visual observations performed and data required by 40 CFR 60, Appendix A, Method 9, or other EPA-approved testing method, as acceptable to the Director, for each determination shall be maintained in accordance with Provision I.S.1 of this permit.

II.B.33.a.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.33.b **Condition:**

The permittee shall comply with the following at all times for each emergency affected emission unit:

1. The permittee shall operate the emergency stationary RICE according to the requirements in paragraphs a. through c. In order for the engine to be considered an emergency stationary RICE, any operation other than emergency operation, maintenance and testing, emergency demand response, and operation in non-emergency situations for 50 hours per year, as described in paragraphs a. through c., is prohibited. If the engine is not operated according to the requirements in paragraphs a. through c., the engine will not be considered an emergency engine under this subpart and shall meet all requirements for non-emergency engines.
   a. There is no time limit on the use of emergency stationary RICE in emergency situations.
   b. The permittee may operate the emergency stationary RICE for any combination of the purposes specified in paragraph (i) for a maximum of 100 hours per calendar year. Any operation for non-emergency situations as allowed by paragraph c. counts as part of the 100 hours per calendar year allowed by this paragraph.
      (i) Emergency stationary RICE may be operated for maintenance checks and readiness testing, provided that the tests are recommended by federal, state or local government, the manufacturer, the vendor, the regional transmission organization or equivalent balancing authority and transmission operator, or the insurance company associated with the engine. The permittee may petition for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the permittee maintains records indicating that federal, state, or local standards require maintenance and testing of emergency RICE beyond 100 hours per calendar year.
   c. Emergency stationary RICE located at area sources of HAP may be operated for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing and emergency demand response provided in paragraph b. The 50 hours per year for non-emergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for a facility to an electric grid or otherwise supply power as part of a financial arrangement with another entity.
2. The permittee shall meet the following requirements at all times, except during periods of startup:
   a. Change oil and filter every 500 hours of operation or annually, whichever comes first;
   b. Inspect air cleaner every 1,000 hours of operation or annually, whichever comes first, and replace as necessary;
   c. Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.

   During periods of startup the permittee shall minimize the engine's time spent at idle and minimize the engine's startup time to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the non-startup emission limitations apply.
3. The permittee shall comply with the applicable general provisions in 40 CFR 63.1-15 as identified in Table 8 of 40 CFR 63 Subpart ZZZZ.

[Origin: 40 CFR 63 Subpart ZZZZ]. [40 CFR 63.6595(a)(1), 40 CFR 63.6603(a), 40 CFR 63.6605(a), 40 CFR 63.6625(h), 40 CFR 63.6640(f), 40 CFR 63.6665, 40 CFR 63 Subpart ZZZZ Table 2d, 40 CFR 63 Subpart ZZZZ Table 8]

II.B.33.b.1 **Monitoring:**

The permittee shall install a non-resettable hour meter if one is not already installed. [40 CFR 63.6625(f)]

If an emergency engine is operating during an emergency and it is not possible to shut down the

engine in order to perform the management practice requirements on the required schedule or if performing the management practice on the required schedule would otherwise pose an unacceptable risk under Federal, State, or local law, the management practice can be delayed until the emergency is over or the unacceptable risk under Federal, State, or local law has abated. The management practice shall be performed as soon as practicable after the emergency has ended or the unacceptable risk under Federal, State, or local law has abated. [40 CFR 63 Subpart ZZZZ Table 2d Footnote 2]

The permittee shall demonstrate continuous compliance by operating and maintaining the stationary RICE and after-treatment control device (if any) according to the manufacturer's emission-related written operation and maintenance instructions or develop and follow their own maintenance plan which must provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions. [40 CFR 63.6625(e), 40 CFR 63.6640(a), 40 CFR 63 Subpart ZZZZ Table 6]

The permittee has the option of utilizing an oil analysis program in order to extend the specified oil change requirement in accordance with 40 CFR 63.6625(i).

The permittee shall comply with the applicable general provisions in 40 CFR 63.1-15 as identified in Table 8 of 40 CFR 63 Subpart ZZZZ. [40 CFR 63.6665].

II.B.33.b.2 **Recordkeeping:**

The permittee shall keep the records described in 40 CFR 63.6655(a)(1)-(5) as applicable. [40 CFR 63.6655(a)]

For each affected emission unit that does not meet the standards applicable to non-emergency engines, the permittee shall keep records of the hours of operation of the engine that are recorded through the non-resettable hour meter. The permittee shall document how many hours are spent for emergency operation, including what classified the operation as emergency and how many hours are spent for non-emergency operation. [40 CFR 63.6655(f)]

If additional hours are to be used for maintenance checks and readiness testing, the permittee shall maintain records indicating that Federal, State, or local standards require maintenance and testing of emergency RICE beyond 100 hours per calendar year. [40 CFR 63.6640(f)]

The permittee shall keep records that demonstrate continuous compliance with each applicable operating limitation including, but not limited to, the manufacturer's emission-related operation and maintenance instructions or the permittee-developed maintenance plan. [40 CFR 63.6655(d), 40 CFR 63 Subpart ZZZZ Table 6]

Records of the maintenance conducted shall be kept in order to demonstrate that the permittee operated and maintained the affected emission unit and after-treatment control device (if any) according to their own maintenance plan. [40 CFR 63.6655(e)]

The permittee shall comply with the applicable general provisions in 40 CFR 63.1-15 as identified in Table 8 of 40 CFR 63 Subpart ZZZZ. [40 CFR 63.6665]

Records shall be maintained in accordance with 40 CFR 63.6660 and Provision I.S.1 of this permit.

II.B.33.b.3 **Reporting:**

The permittee shall report any failure to perform the management practice on the schedule required and the Federal, State or local law under which the risk was deemed unacceptable. [40 CFR 63 Subpart ZZZZ Table 2d Footnote 2]

The permittee shall comply with the applicable general provisions in 40 CFR 63.1-15 as identified in Table 8 of 40 CFR 63 Subpart ZZZZ. [40 CFR 63.6665] The permittee shall also report each instance in which it did not meet the applicable requirements in Table 8. [40 CFR 63.6640(e)]

There are no additional reporting requirements for this provision except those specified in Section I of this permit.

II.B.33.c **Condition:**

At all times the permittee shall operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. The general duty to minimize emissions does not require the permittee to make any further efforts to reduce emissions if levels required by this standard have been achieved. Determination of whether such operation 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, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source. [Origin: 40 CFR 63 Subpart ZZZZ]. [40 CFR 63.6595(a)(1), 40 CFR 63.6605(b)]

II.B.33.c.1 **Monitoring:**

Records required for this permit condition will serve as monitoring.

II.B.33.c.2 **Recordkeeping:**

The permittee shall keep the records described in 40 CFR 63.6655(a)(1)-(5) as applicable. [40 CFR 63.6655(a)] The permittee shall document activities performed to assure proper operation and maintenance. Records shall be maintained in accordance with 40 CFR 63.6660 and Provision I.S.1 of this permit.

II.B.33.c.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.34 **<u>Conditions on #Refinery: Refinery Operations.</u>**

II.B.34.a **Condition:**

Unless otherwise specified in this permit, at all times, including periods of startup, shutdown, and malfunction, the permittee shall, to the extent practicable, maintain and operate any permitted plant equipment, 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. [Origin: DAQE-AN0103460045-10]. [R307-401-8(2)]

II.B.34.a.1 **Monitoring:**

Records required for this permit condition will serve as monitoring.

II.B.34.a.2 **Recordkeeping:**

Permittee shall document activities performed to assure proper operation and maintenance. Records shall be maintained in accordance with Provision I.S.1 of this permit.

II.B.34.a.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.34.b **Condition:**

The permittee shall comply with the applicable requirements for recycling and emission reduction for class I and class II refrigerants pursuant to 40 CFR 82, Subpart F - Recycling and Emissions Reduction. [Origin: 40 CFR 82]. [40 CFR 82.150(b)]

II.B.34.b.1 **Monitoring:**

The permittee shall certify, in the annual compliance statement required in Section I of this permit, its compliance status with the requirements of 40 CFR 82, Subpart F.

II.B.34.b.2 **Recordkeeping:**

All records required in 40 CFR 82, Subpart F shall be maintained consistent with the requirements of Provision S.1 in Section I of this permit.

II.B.34.b.3 **Reporting:**

All reports required in 40 CFR 82, Subpart F shall be submitted as required. There are no additional reporting requirements except as outlined in Section I of this permit.

II.B.34.c **Condition:**

Visible emissions shall be no greater than 20 percent opacity unless otherwise specified in this permit. [Origin: R307-305-3]. [R307-305-3]

II.B.34.c.1 **Monitoring:**

A visual opacity survey of each affected emission unit shall be performed on a weekly basis by an individual trained on the observation procedures of 40 CFR 60, Appendix A, Method 9. The individual is not required to be a certified visible emissions observer. If any visible emissions other than steam are observed, an opacity determination of that emission unit shall be performed by a certified visible emissions observer in accordance with 40 CFR 60, Appendix A, Method 9, or other EPA-approved testing method, as acceptable to the Director, within 24 hours of the initial observation. For each affected emission unit, if no visible emissions are observed for eight consecutive weeks the observation frequency shall be reduced to a monthly basis. If visible emissions are observed during any monthly observation the frequency shall revert back to a weekly basis.

Minor natural gas combustion sources (<5 MMBtu/hr), cold solvent degreasers, organic liquid storage tanks (<19,812 gallons), cooling towers, and units equipped with a continuous opacity monitor are not affected emission units subject to this condition.

II.B.34.c.2 **Recordkeeping:**

A log of the visual opacity survey(s) shall be maintained in accordance with Provision I.S.1 of

this permit. If an opacity determination is indicated, a notation of the determination shall be made in the log. All data required by 40 CFR 60, Appendix A, Method 9, or other EPA-approved testing method, as acceptable to the Director, shall also be maintained in accordance with Provision I.S.1 of this permit.

II.B.34.c.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.34.d **Condition:**

Sulfur content of diesel fuel consumed shall be no greater than 0.85 pounds sulfur per MM gross Btu heat input. [Origin: R307-203-1]. [R307-203-1]

II.B.34.d.1 **Monitoring:**

Compliance with this limitation shall be demonstrated either by testing each fuel delivery for the sulfur content or by inspection of the fuel sulfur-content specifications provided by the vendor in purchase records. Sulfur content in either instance shall be determined in accordance with ASTM-4294, or equivalent.

II.B.34.d.2 **Recordkeeping:**

Fuel receipt records showing sulfur content of the delivered fuel, gross heating value, and density; or records of all sulfur content testing performed on the delivered fuel shall be maintained in accordance with Provision I.S.1. of this permit.

II.B.34.d.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.34.e **Condition:**

Prior to the Refinery Combined Heat and Power Unit becoming operational, consumption of gaseous fuel shall be no greater than 1,664,400 dekatherms per rolling 12-month period for the total refinery combined. [Origin: DAQE-AN0103460045-10]. [R307-401-8(1)(a)(BACT)]

II.B.34.e.1 **Monitoring:**

Consumption shall be determined within the first 25 calendar days of each month, for the previous month, using heat input records and/or monthly vendor billing statements. Heat input records shall be determined by the BTU value of the gaseous fuel. The method used to determine the BTU value shall be approved by the Director. The total shall then be added to the previous 11 months total for a 12-month rolling total.

II.B.34.e.2 **Recordkeeping:**

Records such as gas bills, gas meter readings and calculations, used to demonstrate compliance with the gaseous fuel consumption limit shall be maintained as described in Provision I.S of this permit. If natural gas is not used, daily records of the BTU value of the gaseous fuel used shall be kept.

II.B.34.e.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.34.f **Condition:**

All roads, permanent parking lots, and service yards directly servicing the permittee's approved constructed installations listed as emission units II.A.53 through II.A.73 shall be paved. Fugitive dust generated from these areas shall be limited to 20 percent opacity. Methods of control shall include, but not be limited to, sweeping and water flushing of the affected areas. [Origin: DAQE-AN0103460045-10]. [R307-401-8(1)(a)(BACT)]

II.B.34.f.1 **Monitoring:**

A visual opacity survey of each affected emission unit shall be performed on a weekly basis by an individual trained on the observation procedures of 40 CFR 60, Appendix A, Method 9. If visible emissions other than steam are observed from an emission unit, an opacity determination of that emission unit shall be performed by a certified observer within 24 hours of the initial survey. The opacity determination shall be performed in accordance with 58 FR 61640 Method 203C. For each affected emission unit, if no visible emissions are observed for eight consecutive weeks the observation frequency shall be reduced to a monthly basis. If visible emissions are observed during any monthly observation the frequency shall revert back to a weekly basis.

II.B.34.f.2 **Recordkeeping:**

A log of the visual opacity survey(s) shall be maintained in accordance with Provision I.S.1 of this permit. If an opacity determination is indicated, a notation of the determination will be made in the log. All data required by 40 CFR 60, Appendix A, Method 9 or 58 FR 61640, Method 203C shall also be maintained in accordance with Provision I.S.1 of this permit.

II.B.34.f.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.34.g **Condition:**

Records shall be maintained of the material (salt or abrasives such as crushed slag or sand) applied to the roads. Any salt applied shall be no less than 92 percent NaCl, $MgCl_2$, $CaCl_2$, and/or KCl except as permitted in R307-307. [Origin: R307-307]. [R307-307]

II.B.34.g.1 **Monitoring:**

Records required for this permit condition will serve as monitoring.

II.B.34.g.2 **Recordkeeping:**

The following records shall be maintained as outlined in Provision I.S.1 of this permit:

For Salt - the quantity applied, the percent by weight of insoluble solids in the salt, and the percentage of the material that is sodium chloride (NaCl), magnesium chloride ($MgCl_2$), calcium chloride ($CaCl_2$), or potassium chloride (KCl).

For abrasives such as sand or crushed slag - the quantity applied and the percent by weight of fine material which passes the number 200 sieve in a standard gradation analysis.

II.B.34.g.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.34.h **Condition:**

Pressure drops and liquid flow rates for each scrubber listed below shall be maintained within the given ranges. (All pressure drop readings in inches Water Gauge)
REF 006 - Hydrometallurgical Precious Metals Recovery Scrubber:
Pressure Drop = 5 - 15 Liquid Flow Rate = greater than 100 gpm
REF 007 - Hydrometallurgical Silver Production Scrubber:
Pressure Drop = 0.75 - 4 Liquid Flow Rate = greater than 60 gpm.
[Origin: DAQE-AN0103460045-10]. [R307-401-8(1)(a)(BACT)]

II.B.34.h.1 **Monitoring:**

The permittee shall make at least one pressure drop and one liquid flow observation per calendar day for each scrubber listed above that operated during that day. If the pressure drop or liquid flow rate deviates from the listed ranges the permittee shall immediately investigate the cause and initiate corrective action to return the scrubber to proper operating parameters. If the pressure drop or the liquid flow rate remains out of range for greater than 48 operating hours from the initial out of range reading it shall be considered a deviation from this permit term.

The gas stream pressure drop reading shall be accurate to one inch W.G. and the scrubbing liquid flow rate shall be accurate to five (5) gallons per minute. The observation shall be made during typical operating conditions. The instrument(s) shall be calibrated according to the manufacturer's instruction at least semi-annually (every six months), except for those instruments that are sealed by the manufacturer and cannot be calibrated. Additionally, the pressure drop and liquid flow rate for each scrubber shall be observed and recorded at the time of any compliance stack testing.

For each affected emission unit, if pressure drop and liquid flow rate observations are within range for eight consecutive weeks, the observation frequency shall be reduced to a weekly basis. If pressure drop or liquid flow rate observations are not within range during any weekly observation, the frequency shall revert back to once per calendar day for the emission unit that was out of range.

II.B.34.h.2 **Recordkeeping:**

An operator's log or computer recording shall be maintained of all monitoring provisions listed above. The records shall contain all applicable information as required by section I.S.1 of this permit.

II.B.34.h.3 **Reporting:**

Deviations from this condition shall be considered to be promptly reported if reported on a calendar quarter basis and in accordance with Provision I.S.2 of this permit. There are no additional reporting requirements for this provision except those specified in Section I of this permit.

II.B.34.i **Condition:**

The permittee shall maintain an Emergency Episode Plan outlining the procedures that will be taken in the event of an emergency episode as outlined in R307-105-2. The plan shall identify what control/production measures shall be implemented when an emergency episode is declared. Specific

control/production measures shall be outlined for all three levels (Alert, Warning, Emergency). The plan shall be submitted and approved by the Director within 60 days of the issue date of this permit, unless a previously submitted and approved plan is available. [Origin: Utah SIP VII.F]. [R307-105-2, R307-110-8]

II.B.34.i.1 **Monitoring:**

Records required for this permit condition will serve as monitoring.

II.B.34.i.2 **Recordkeeping:**

A copy of the approved Emergency Episode Plan shall be made available to the Director upon request.

II.B.34.i.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.34.j **Condition:**

Fugitive emissions shall be no greater than 15 percent opacity unless otherwise specified in this permit. [Origin: DAQE-AN0103460045-10]. [R307-401-8(1)(a)(BACT), R307-309-4]

II.B.34.j.1 **Monitoring:**

A visual opacity survey of each affected emission unit shall be performed on a weekly basis by an individual trained on the observation procedures of 40 CFR 60, Appendix A, Method 9. If visible emissions other than steam are observed from an emission unit, an opacity determination of that emission unit 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, or other EPA-approved testing method, as acceptable to the Director, for point sources, and in accordance with 58 FR 61640 Method 203C, or other EPA-approved testing method, as acceptable to the Director, for intermittent sources. Fugitive dust is not a fugitive emission within the meaning of this condition.

For each affected emission unit, if no visible emissions are observed for eight consecutive weeks the observation frequency shall be reduced to a monthly basis. If visible emissions are observed during any monthly observation the frequency shall revert back to a weekly basis.

II.B.34.j.2 **Recordkeeping:**

A log of the visual opacity survey(s) shall be maintained in accordance with Provision I.S.1 of this permit. If an opacity determination is indicated, a notation of the determination will be made in the log. All data required by 40 CFR 60, Appendix A, Method 9, 58 FR 61640, Method 203C, or other EPA-approved testing method, as acceptable to the Director, shall also be maintained in accordance with Provision I.S.1 of this permit.

II.B.34.j.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.34.k **Condition:**

The permittee shall implement a fugitive dust control plan that has been approved by the Director.

Compliance shall be based on the permittee adhering to the most recently approved fugitive dust control plan. If site modifications result in emission changes, the permittee shall submit an updated fugitive dust control plan. Natural sources of dust and fugitive emissions are not fugitive dust within the meaning of this condition. [Origin: R307-309-6]. [R307-309-6]

II.B.34.k.1 **Monitoring:**

Adherence to the most recently approved fugitive dust control plan shall be monitored to demonstrate that appropriate measures are being implemented to control fugitive dust.

II.B.34.k.2 **Recordkeeping:**

Records required by the most recently approved fugitive dust control plan shall be maintained in accordance with the plan and section I.S.1 of this permit.

II.B.34.k.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.34.l **Condition: [State-only Requirement]**

Visible emissions caused by fugitive dust shall not exceed 10 percent at the property boundary. This opacity shall not apply when the wind speed exceeds 25 miles per hour if the permittee has implemented, and continues to implement, the most recently approved fugitive dust control plan and administers at least one of the following contingency measures:
(1) Pre-event watering;
(2) Hourly watering;
(3) Additional chemical stabilization;
(4) Cease or reduce fugitive dust producing operations;
(5) Other contingency measure approved by the director.
[Origin: R307-309]. [R307-309-5, R307-309-6]

II.B.34.l.1 **Monitoring:**

In lieu of monitoring via visible emissions observations, adherence to the most recently approved fugitive dust control plan shall be monitored to demonstrate that appropriate measures are being implemented to control fugitive dust.

II.B.34.l.2 **Recordkeeping:**

Records of measures taken to control fugitive dust shall be maintained to demonstrate adherence to the most recently approved fugitive dust control plan. If wind speeds are measured to establish an exception from the above visible emissions limit, records of the administered contingency measures and the wind speed measurements shall be maintained. Records shall be maintained as described in Provision I.S.1 of this permit.

II.B.34.l.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.34.m **Condition:**

After the Refinery Combined Heat and Power Unit becomes operational, consumption of gaseous fuel shall be no greater than 1,562,777 dekatherms (MMBtu) per rolling 12-month period for the total refinery

combined. [Origin: DAQE-AN0103460045-10]. [R307-401-8(1)(a)(BACT)]

II.B.34.m.1 **Monitoring:**

Consumption shall be determined within the first 25 calendar days of each month, for the previous month, using heat input records and/or monthly vendor billing statements. Heat input records shall be determined by the BTU value of the gaseous fuel. The method used to determine the BTU value shall be approved by the Director. The total shall then be added to the previous 11 months total for a 12-month rolling total.

II.B.34.m.2 **Recordkeeping:**

Records such as gas bills, gas meter readings and calculations, used to demonstrate compliance with the gaseous fuel consumption limit shall be maintained as described in Provision I.S of this permit. If natural gas is not used, daily records of the BTU value of the gaseous fuel used shall be kept.

II.B.34.m.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.34.n **Condition:**

Visible emissions caused by fugitive dust shall not exceed 20 percent unless otherwise specified in this permit. [Origin: DAQE-AN0103460045-10]. [R307-401-8(1)(a)(BACT)]

II.B.34.n.1 **Monitoring:**

In lieu of monitoring via visible emissions observations, adherence to the most recently approved fugitive dust control plan shall be monitored to demonstrate that appropriate measures are being implemented to control fugitive dust.

II.B.34.n.2 **Recordkeeping:**

Records of measures taken to control fugitive dust shall be maintained to demonstrate adherence to the most recently approved fugitive dust control plan. Records shall be maintained as described in Provision I.S.1 of this permit.

II.B.34.n.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.35 **<u>Conditions on #REF 001: Liberator.</u>**

II.B.35.a **Condition:**

Emissions of Sulfuric Acid shall be no greater than 0.004 grains/dscf and 0.46 lbs/hour. [Origin: DAQE-AN0103460045-10]. [R307-401-8(1)(a)(BACT)]

II.B.35.a.1 **Monitoring:**

Stack testing shall be performed as specified below:

(a) Frequency. Emissions shall be tested every three years. Every three years means the test must be performed every third year and in the same calendar quarter in which the most

recent test was performed. The source may also be tested at any time if directed by the Director.

(b) Notification. At least 30 days before the test, the source shall notify the Director of the date, time, and place of testing and provide a copy of the test protocol. The source shall attend a pretest conference if determined necessary by the Director.

(c) Methods.

(1) Sample Location - the emission point shall conform to the requirements of 40 CFR 60, Appendix A, Method 1, or other EPA-approved testing method, as acceptable to the Director, and Occupational Safety and Health Administration (OSHA)-approved and/or Mine Safety and Health Administration (MSHA)-approved access shall be provided to the test location.

(2) 40 CFR 60, Appendix A, Method 8, or other EPA-approved testing method, as acceptable to the Director, shall be used to determine the pollutant emission rate.

(3) 40 CFR 60, Appendix A, Method 2, or other EPA-approved testing method, as acceptable to the Director, shall be used to determine the volumetric flow rate.

(d) Calculations. 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.

(e) Production Rate During Testing. The production rate during all compliance testing shall be no less than 90 percent of the maximum production achieved in the previous three (3) years.

II.B.35.a.2 **Recordkeeping:**

Results of all stack testing shall be recorded and maintained in accordance with the associated test method and Provision S.1 in Section I of this permit.

II.B.35.a.3 **Reporting:**

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. There are no additional reporting requirements for this provision except those specified in Section I of this permit.

II.B.35.b **Condition:**

Visible emissions shall be no greater than 15 percent opacity from the demisters. [Origin: DAQE-AN0103460045-10]. [R307-401-8(1)(a)(BACT)]

II.B.35.b.1 **Monitoring:**

A visual observation of each affected emission unit shall be performed on a weekly basis by an individual trained on the observation procedures of 40 CFR 60, Appendix A, Method 9. The individual is not required to be a certified visible emissions observer. If any visible emissions other than steam are observed, an opacity determination of that emission unit shall be performed by a certified visible emissions observer in accordance with 40 CFR 60, Appendix A, Method 9, or other EPA-approved testing method, as acceptable to the Director, within 24 hours of the initial observation. For each affected emission unit, if no visible emissions are observed for eight consecutive weeks the observation frequency shall be reduced to a monthly basis. If visible emissions are observed during any monthly observation the frequency shall revert back to a weekly basis.

II.B.35.b.2 **Recordkeeping:**

Records of visual observations performed and data required by 40 CFR 60, Appendix A, Method 9, or other EPA-approved testing method, as acceptable to the Director, for each determination

shall be maintained in accordance with Provision I.S.1 of this permit.

II.B.35.b.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.36 **Conditions on #REF 002/003: Refinery Boilers.**

II.B.36.a **Condition:**

The permittee shall maintain records of the amount of each fuel combusted during each calendar month for each affected emission unit. [Origin: 40 CFR 60 Subpart Dc]. [40 CFR 60.48c(g)]

II.B.36.a.1 **Monitoring:**

Records required for this permit condition will serve as monitoring.

II.B.36.a.2 **Recordkeeping:**

Records of gas meter readings and, on days when oil is burned, the oil tank sensor levels shall be kept on a monthly basis and shall be maintained as described in Provision I.S.1 of this permit.

II.B.36.a.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.36.b **Condition:**

The permittee shall use natural gas and/or landfill gas as a primary fuel and #2 fuel oil as back-up fuel. The #2 fuel oil shall only be used during periods of natural gas curtailment and during testing and maintenance periods. Natural gas curtailment is defined as any period when the natural gas provider/supplier imposes an interruption of service, and the curtailment is involuntary and beyond the control of the permittee. [Origin: DAQE-AN0103460045-10]. [R307-401-8(1)(a)(BACT)]

II.B.36.b.1 **Monitoring:**

The backup fuel shall be monitored by use of level sensors in the tanks, which shall be observed following each use of backup fuel.

II.B.36.b.2 **Recordkeeping:**

The permittee shall maintain records that document the reason for backup fuel usage (i.e. natural gas curtailment, testing, maintenance) date, and duration. All readings required to be taken shall be documented and maintained consistent with the requirements of Provision S.1 in Section I of this permit.

II.B.36.b.3 **Reporting:**

The permittee shall report operation of the boilers on backup fuel during periods of natural gas curtailment to the Director within one working day of start-up. Emissions resulting from operation of the boilers on backup fuel during periods of natural gas curtailment shall be reported to the Director within 30 days following the start of use of the backup fuel. Operation of the boilers on backup fuel during testing and maintenance periods lasting less than 24 hours in duration shall not require reporting to the Director. There are no additional reporting

requirements for this provision except those specified in Section I of this permit.

II.B.36.c **Condition:**

Visible emissions shall be no greater than 10 percent opacity. [Origin: DAQE-AN0103460045-10, 40 CFR 60 Subpart Dc]. [40 CFR 60.43c(c), R307-401-8(1)(a)(BACT)]

II.B.36.c.1 **Monitoring:**

A visual observation of each affected emission unit shall be performed on a weekly basis by an individual trained on the observation procedures of 40 CFR 60, Appendix A, Method 9. The individual is not required to be a certified visible emissions observer. If any visible emissions other than steam are observed, an opacity determination of that emission unit shall be performed by a certified visible emissions observer in accordance with 40 CFR 60, Appendix A, Method 9, or other EPA-approved testing method, as acceptable to the Director, within 24 hours of the initial observation.

II.B.36.c.2 **Recordkeeping:**

Records of visual observations performed and data required by 40 CFR 60, Appendix A, Method 9, or other EPA-approved testing method, as acceptable to the Director, for each determination shall be maintained in accordance with Provision I.S.1 of this permit.

II.B.36.c.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.36.d **Condition:**

Emissions of NO_x shall be no greater than 4.75 lbs/hour from each stack. [Origin: DAQE-AN0103460045-10]. [R307-401-8(1)(a)(BACT)]

II.B.36.d.1 **Monitoring:**

Stack testing shall be performed as specified below:

(a) Frequency. Emissions shall be tested every three years. Every three years means the test must performed every third year and in the same calendar quarter in which the most recent stack test was performed. The source may also be tested at any time if directed by the Director. If the two boilers are identical in make, model, and pollution control technology, compliance with the emission limitation by the second boiler shall be demonstrated by the stack test of the first boiler. Additionally, if the permittee uses landfill gas as a fuel in firing the boilers for a combined total greater than 60 days, the boilers shall be tested on landfill gas as a fuel within 180 days after the landfill gas has been initially used as a fuel. If landfill gas has been used to fire the boilers for a combined total of 60 days or less, use of landfill gas shall not trigger stack testing under this requirement.

(b) Notification. At least 30 days before the test, the source shall notify the Director of the date, time, and place of testing and provide a copy of the test protocol. The source shall attend a pretest conference if determined necessary by the Director.

(c) Methods.

(1) Sample Location - the emission point shall conform to the requirements of 40 CFR 60, Appendix A, Method 1, or other EPA-approved testing method, as acceptable to the Director, and Occupational Safety and Health Administration (OSHA)-approved and/or Mine Safety and Health Administration (MSHA)-approved access shall be provided to the test location.

(2) 40 CFR 60, Appendix A, Method 7, 7A, 7B, 7C, 7D, or 7E, or other EPA-approved

testing method, as acceptable to the Director, shall be used to determine the pollutant emission rate.

(3) 40 CFR 60, Appendix A, Method 2, or other EPA-approved testing method, as acceptable to the Director, shall be used to determine the volumetric flow rate.

(d) Calculations. 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.

(e) Conditions During Testing. Stack testing shall be performed during representative operations, defined as 90 percent of the maximum firing rate for the burners. Boiler tests shall be conducted using the fuel(s) or fuel mixture representative of normal operations. The permittee shall submit for approval in the pretest protocol the fuel(s) to be used during the test.

II.B.36.d.2 **Recordkeeping:**

Results of all stack testing shall be recorded and maintained in accordance with the associated test method and Provision S.1 in Section I of this permit.

II.B.36.d.3 **Reporting:**

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. There are no additional reporting requirements for this provision except those specified in Section I of this permit.

II.B.36.e **Condition:**

Emissions of CO shall be no greater than 3.00 lbs/hour from each stack. [Origin: DAQE-AN0103460045-10]. [R307-401-8(1)(a)(BACT)]

II.B.36.e.1 **Monitoring:**

Stack testing shall be performed as specified below:

(a) Frequency. Emissions shall be tested every three years. Every three years means the test must performed every third year and in the same calendar quarter in which the most recent stack test was performed. Additionally, if the permittee starts to use landfill gas as a fuel in firing the boilers, the boilers shall be tested on landfill gas as a fuel within 180 days after the landfill gas has been initially used as a fuel. The source may also be tested at any time if directed by the Director.

(b) Notification. At least 30 days before the test, the source shall notify the Director of the date, time, and place of testing and provide a copy of the test protocol. The source shall attend a pretest conference if determined necessary by the Director.

(c) Sample Point. The emission sample point shall conform to the requirements of 40 CFR 60, Appendix A, Method 1, or other EPA-approved testing method, as acceptable to the Director. In addition, Occupational Safety and Health Administration (OSHA) approved access shall be provided to the test location.

(d) Methods.

(1) 40 CFR 60, Appendix A, Method 10, or other EPA-approved testing method, as acceptable to the Director, shall be used to determine CO emissions;

(2) 40 CFR 60, Appendix A, Method 2, or other EPA-approved testing method, as acceptable to the Director, shall be used to determine stack gas velocity and volumetric flow rate.

(e) Calculations. 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.

(f) Conditions During Testing. Stack testing shall be performed during representative operations, defined as 90 percent of the maximum firing rate for the burner(s). Boiler tests shall be conducted using the fuel(s) or fuel mixture representative of normal operations. The permittee shall submit for approval in the pretest protocol the fuel(s) to be used during the test.

II.B.36.e.2 **Recordkeeping:**

Results of all stack testing shall be recorded and maintained in accordance with the associated test method and Provision S.1 in Section I of this permit.

II.B.36.e.3 **Reporting:**

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. There are no additional reporting requirements for this provision except those specified in Section I of this permit.

II.B.36.f **Condition:**

Sulfur content of fuel oil burned shall be no greater than 0.50 percent by weight. [Origin: DAQE-AN0103460045-10]. [R307-401-8(1)(a)(BACT), 40 CFR 60.42c(d)]

II.B.36.f.1 **Monitoring:**

Compliance with this limitation shall be demonstrated either by testing each fuel delivery for the sulfur content or by inspection of the fuel sulfur-content specifications provided by the vendor in purchase records. Sulfur content in either instance shall be determined in accordance with ASTM-4294, or equivalent.

II.B.36.f.2 **Recordkeeping:**

Compliance with the above limitation shall be demonstrated by maintaining fuel receipt records showing sulfur content of the delivered fuel or maintaining records of all sulfur content testing performed on the delivered fuel. Records shall be maintained in accordance with Provision I.S.1 of this permit.

II.B.36.f.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.37 **<u>Conditions on #REF 004: Cathode Washing.</u>**

II.B.37.a **Condition:**

Emissions of Sulfuric Acid shall be no greater than 0.0008 grains/dscf and 0.12 lbs/hour. [Origin: DAQE-AN0103460045-10]. [R307-401-8(1)(a)(BACT)]

II.B.37.a.1 **Monitoring:**

Stack testing shall be performed as specified below:

(a) Frequency. Emissions shall be tested every three years. Every three years means the test must be performed every third year and in the same calendar quarter in which the most recent test was performed. The source may also be tested at any time if directed by the

Director.

(b) Notification. At least 30 days before the test, the source shall notify the Director of the date, time, and place of testing and provide a copy of the test protocol. The source shall attend a pretest conference if determined necessary by the Director.

(c) Methods.

(1) Sample Location - the emission point shall conform to the requirements of 40 CFR 60, Appendix A, Method 1, or other EPA-approved testing method, as acceptable to the Director, and Occupational Safety and Health Administration (OSHA)-approved and/or Mine Safety and Health Administration (MSHA)-approved access shall be provided to the test location.

(2) 40 CFR 60, Appendix A, Method 8, or other EPA-approved testing method, as acceptable to the Director, shall be used to determine the pollutant emission rate.

(3) 40 CFR 60, Appendix A, Method 2, or other EPA-approved testing method, as acceptable to the Director, shall be used to determine the volumetric flow rate.

(d) Calculations. 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.

(e) Production Rate During Testing. The production rate during all compliance testing shall be no less than 90 percent of the maximum production achieved in the previous three (3) years.

II.B.37.a.2 **Recordkeeping:**

Results of all stack testing shall be recorded and maintained in accordance with the associated test method and Provision S.1 in Section I of this permit.

II.B.37.a.3 **Reporting:**

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. There are no additional reporting requirements for this provision except those specified in Section I of this permit.

II.B.37.b **Condition:**

Visible emissions shall be no greater than 15 percent opacity. [Origin: DAQE-AN0103460045-10]. [R307-401-8(1)(a)(BACT)]

II.B.37.b.1 **Monitoring:**

A visual observation of each affected emission unit shall be performed on a weekly basis by an individual trained on the observation procedures of 40 CFR 60, Appendix A, Method 9. The individual is not required to be a certified visible emissions observer. If any visible emissions other than steam are observed, an opacity determination of that emission unit shall be performed by a certified visible emissions observer in accordance with 40 CFR 60, Appendix A, Method 9, or other EPA-approved testing method, as acceptable to the Director, within 24 hours of the initial observation. For each affected emission unit, if no visible emissions are observed for eight consecutive weeks the observation frequency shall be reduced to a monthly basis. If visible emissions are observed during any monthly observation the frequency shall revert back to a weekly basis.

II.B.37.b.2 **Recordkeeping:**

Records of visual observations performed and data required by 40 CFR 60, Appendix A, Method 9, or other EPA-approved testing method, as acceptable to the Director, for each determination shall be maintained in accordance with Provision I.S.1 of this permit.

II.B.37.b.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.38 **<u>Conditions on #REF 005: Anode Scrap Washing.</u>**

II.B.38.a **Condition:**

Emissions of Sulfuric Acid shall be no greater than 0.0008 grains/dscf and 0.02 lbs/hour. [Origin: DAQE-AN0103460045-10]. [R307-401-8(1)(a)(BACT)]

II.B.38.a.1 **Monitoring:**

Stack testing shall be performed as specified below:

(a) Frequency. Emissions shall be tested every three years. Every three years means the test must be performed every third year and in the same calendar quarter in which the most recent test was performed. The source may also be tested at any time if directed by the Director.

(b) Notification. At least 30 days before the test, the source shall notify the Director of the date, time, and place of testing and provide a copy of the test protocol. The source shall attend a pretest conference if determined necessary by the Director.

(c) Methods.

(1) Sample Location - the emission point shall conform to the requirements of 40 CFR 60, Appendix A, Method 1, or other EPA-approved testing method, as acceptable to the Director, and Occupational Safety and Health Administration (OSHA)-approved and/or Mine Safety and Health Administration (MSHA)-approved access shall be provided to the test location.

(2) 40 CFR 60, Appendix A, Method 8, or other EPA-approved testing method, as acceptable to the Director, shall be used to determine the pollutant emission rate.

(3) 40 CFR 60, Appendix A, Method 2, or other EPA-approved testing method, as acceptable to the Director, shall be used to determine the volumetric flow rate.

(d) Calculations. 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.

(e) Production Rate During Testing. The production rate during all compliance testing shall be no less than 90 percent of the maximum production achieved in the previous three (3) years.

II.B.38.a.2 **Recordkeeping:**

Results of all stack testing shall be recorded and maintained in accordance with the associated test method and Provision S.1 in Section I of this permit.

II.B.38.a.3 **Reporting:**

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. There are no additional reporting requirements for this provision except those specified in Section I of this permit.

II.B.38.b **Condition:**

Visible emissions shall be no greater than 15 percent opacity. [Origin: DAQE-AN0103460045-10]. [R307-401-8(1)(a)(BACT)]

II.B.38.b.1 **Monitoring:**

A visual observation of each affected emission unit shall be performed on a weekly basis by an individual trained on the observation procedures of 40 CFR 60, Appendix A, Method 9. The individual is not required to be a certified visible emissions observer. If any visible emissions other than steam are observed, an opacity determination of that emission unit shall be performed by a certified visible emissions observer in accordance with 40 CFR 60, Appendix A, Method 9, or other EPA-approved testing method, as acceptable to the Director, within 24 hours of the initial observation. For each affected emission unit, if no visible emissions are observed for eight consecutive weeks the observation frequency shall be reduced to a monthly basis. If visible emissions are observed during any monthly observation the frequency shall revert back to a weekly basis.

II.B.38.b.2 **Recordkeeping:**

Records of visual observations performed and data required by 40 CFR 60, Appendix A, Method 9, or other EPA-approved testing method, as acceptable to the Director, for each determination shall be maintained in accordance with Provision I.S.1 of this permit.

II.B.38.b.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.39 **<u>Conditions on #REF 006: Hydrometallurgical Precious Metals Recovery.</u>**

II.B.39.a **Condition:**

Emissions of SO_2 shall be no greater than 1.7 lbs/hour. [Origin: DAQE-AN0103460045-10]. [R307-401-8(1)(a)(BACT)]

II.B.39.a.1 **Monitoring:**

Stack testing shall be performed as specified below:

(a) Frequency. Emissions shall be tested every three years. Every three years means the test must be performed every third year and in the same calendar quarter in which the most recent test was performed. The source may also be tested at any time if directed by the Director.

(b) Notification. At least 30 days before the test, the source shall notify the Director of the date, time, and place of testing and provide a copy of the test protocol. The source shall attend a pretest conference if determined necessary by the Director.

(c) Methods.

(1) Sample Location - the emission point shall conform to the requirements of 40 CFR 60, Appendix A, Method 1, or other EPA-approved testing method, as acceptable to the Director, and Occupational Safety and Health Administration (OSHA)-approved and/or Mine Safety and Health Administration (MSHA)-approved access shall be provided to the test location.

(2) 40 CFR 60, Appendix A, Method 6, 6A, 6B, or 6C, or other EPA-approved testing method, as acceptable to the Director, shall be used to determine the pollutant emission rate.

(3) 40 CFR 60, Appendix A, Method 2, or other EPA-approved testing method, as acceptable to the Director, shall be used to determine the volumetric flow rate.

(d) Calculations. 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.

(e) Production Rate During Testing. The production rate during all compliance testing shall be no less than 90 percent of the maximum production achieved in the previous three (3) years.

II.B.39.a.2 **Recordkeeping:**

Results of all stack testing shall be recorded and maintained in accordance with the associated test method and Provision S.1 in Section I of this permit.

II.B.39.a.3 **Reporting:**

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. There are no additional reporting requirements for this provision except those specified in Section I of this permit.

II.B.39.b **Condition:**

Emissions of Lead shall be no greater than 0.02 lbs/hour. [Origin: DAQE-AN0103460045-10]. [R307-401-8(1)(a)(BACT)]

II.B.39.b.1 **Monitoring:**

Stack testing shall be performed as specified below:

(a) Frequency. Emissions shall be tested every three years. Every three years means the test must be performed every third year and in the same calendar quarter in which the most recent test was performed. The source may also be tested at any time if directed by the Director.

(b) Notification. At least 30 days before the test, the source shall notify the Director of the date, time, and place of testing and provide a copy of the test protocol. The source shall attend a pretest conference if determined necessary by the Director.

(c) Methods.

(1) Sample Location - the emission point shall conform to the requirements of 40 CFR 60, Appendix A, Method 1, or other EPA-approved testing method, as acceptable to the Director, and Occupational Safety and Health Administration (OSHA)-approved and/or Mine Safety and Health Administration (MSHA)-approved access shall be provided to the test location.

(2) 40 CFR 60, Appendix A, Method 12, or other EPA-approved testing method, as acceptable to the Director, shall be used to determine the pollutant emission rate.

(3) 40 CFR 60, Appendix A, Method 2, or other EPA-approved testing method, as acceptable to the Director, shall be used to determine the volumetric flow rate.

(d) Calculations. 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.

(e) Production Rate During Testing. The production rate during all compliance testing shall be no less than 90 percent of the maximum production achieved in the previous three (3) years.

II.B.39.b.2 **Recordkeeping:**

Results of all stack testing shall be recorded and maintained in accordance with the associated test method and Provision S.1 in Section I of this permit.

II.B.39.b.3 **Reporting:**

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. There are no additional reporting requirements for this provision except those specified in Section I of this permit.

II.B.39.c **Condition:**

Emissions of Sulfuric Acid shall be no greater than 0.005 grains/dscf and 0.36 lbs/hour. [Origin: DAQE-AN0103460045-10]. [R307-401-8(1)(a)(BACT)]

II.B.39.c.1 **Monitoring:**

Stack testing shall be performed as specified below:

(a) Frequency. Emissions shall be tested every three years. Every three years means the test must be performed every third year and in the same calendar quarter in which the most recent test was performed. The source may also be tested at any time if directed by the Director.

(b) Notification. At least 30 days before the test, the source shall notify the Director of the date, time, and place of testing and provide a copy of the test protocol. The source shall attend a pretest conference if determined necessary by the Director.

(c) Methods.

(1) Sample Location - the emission point shall conform to the requirements of 40 CFR 60, Appendix A, Method 1, or other EPA-approved testing method, as acceptable to the Director, and Occupational Safety and Health Administration (OSHA)-approved and/or Mine Safety and Health Administration (MSHA)-approved access shall be provided to the test location.

(2) 40 CFR 60, Appendix A, Method 8, or other EPA-approved testing method, as acceptable to the Director, shall be used to determine the pollutant emission rate.

(3) 40 CFR 60, Appendix A, Method 2, or other EPA-approved testing method, as acceptable to the Director, shall be used to determine the volumetric flow rate.

(d) Calculations. 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.

(e) Production Rate During Testing. The production rate during all compliance testing shall be no less than 90 percent of the maximum production achieved in the previous three (3) years.

II.B.39.c.2 **Recordkeeping:**

Results of all stack testing shall be recorded and maintained in accordance with the associated test method and Provision S.1 in Section I of this permit.

II.B.39.c.3 **Reporting:**

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. There are no additional reporting requirements for this provision except those specified in Section I of this permit.

II.B.39.d **Condition:**

Visible emissions shall be no greater than 15 percent opacity. [Origin: DAQE-AN0103460045-10]. [R307-401-8(1)(a)(BACT)]

II.B.39.d.1 **Monitoring:**

A visual observation of each affected emission unit shall be performed on a weekly basis by an individual trained on the observation procedures of 40 CFR 60, Appendix A, Method 9. The individual is not required to be a certified visible emissions observer. If any visible emissions other than steam are observed, an opacity determination of that emission unit shall be performed by a certified visible emissions observer in accordance with 40 CFR 60, Appendix A, Method 9, or other EPA-approved testing method, as acceptable to the Director, within 24 hours of the initial observation. For each affected emission unit, if no visible emissions are observed for eight consecutive weeks the observation frequency shall be reduced to a monthly basis. If visible emissions are observed during any monthly observation the frequency shall revert back to a weekly basis.

II.B.39.d.2 **Recordkeeping:**

Records of visual observations performed and data required by 40 CFR 60, Appendix A, Method 9, or other EPA-approved testing method, as acceptable to the Director, for each determination shall be maintained in accordance with Provision I.S.1 of this permit.

II.B.39.d.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.39.e **Condition:**

Emissions of Hydrochloric acid (Hydrogen chloride) shall be no greater than 0.003 grains/dscf and 0.22 lbs/hour. [Origin: DAQE-AN0103460045-10]. [R307-401-8(1)(a)(BACT)]

II.B.39.e.1 **Monitoring:**

a) Stack testing shall be performed as specified below:
   (1) Frequency. Emissions shall be tested every three years. Every three years means the test must be performed every third year and in the same calendar quarter in which the most recent test was performed. The source may also be tested at any time if directed by the Director.
   (2) Notification. At least 30 days before the test, the source shall notify the Director of the date, time, and place of testing and provide a copy of the test protocol. The source shall attend a pretest conference if determined necessary by the Director.
   (3) Methods.
      (i) Sample Location - the emission point shall conform to the requirements of 40 CFR 60, Appendix A, Method 1, or other EPA-approved testing method, as acceptable to the Director, and Occupational Safety and Health Administration (OSHA)-approved and/or Mine Safety and Health Administration (MSHA)-approved access shall be provided to the test location.
      (ii) 40 CFR 60, Appendix A, Method 26 or 26A, or other EPA-approved testing method, as acceptable to the Director, shall be used to determine the pollutant emission rate.
      (iii) 40 CFR 60, Appendix A, Method 2, or other EPA-approved testing method, as acceptable to the Director, shall be used to determine the volumetric flow rate.
   (4) Calculations. 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.
   (5) Production Rate During Testing. The production rate during all compliance testing shall be no less than 90 percent of the maximum production achieved in the previous three (3) years.

b) Scrubber liquid pH shall be used as a primary indicator and scrubber liquid flow rate shall be used as a secondary indicator to provide reasonable assurance of compliance with the HCL emission limitation as specified below.
   1) Primary Indicator - Scrubber Liquid pH
      (I) Measurement Approach: The permittee shall continuously measure the scrubber liquid pH using a pH probe.
      (II) Indicator Range: An excursion is defined as scrubber liquid pH below 6.0 for a 24-hour block average under typical operating conditions. Excursions trigger an inspection, corrective action, and a reporting requirement.
      (III) Performance Criteria:
         a. Data Representativeness: The scrubber liquid pH shall be measured using a pH probe located in the scrubber liquid.
         b. QA/QC Practices and Criteria: The pH sensor shall be calibrated by comparison to laboratory buffer solutions. The pH meter shall be checked for accuracy and calibrated according to the manufacturer's recommendations at least every three months. All operating equipment and process downtime shall be monitored.
         c. Monitoring Frequency: Scrubber liquid pH shall be measured continuously.
         d. Data Collection Procedure: Scrubber liquid pH readings shall be recorded electronically. During periods when electronic readings are not available or functional, manual readings shall be used until electronic readings are restored. If manual readings are used, the permittee shall collect and record at least four or more scrubber liquid pH values equally spaced over each hour. Hourly average pH values shall be used to compute the 24-hour block average for comparison to the indicator range.
         e. Averaging Period: 24-hour block.
   2) Secondary Indicator - Scrubber Liquid Flow Rate
      (I) Measurement Approach: The permittee shall continuously measure the scrubber liquid flow rate using a flow meter.
      (II) Indicator Range: An excursion is defined as a scrubber liquid flow rate below 135 gallons per minute (gpm) for a 24-hour block average under typical operating conditions. Excursions trigger an inspection, corrective action, and a reporting requirement.
      (III) Performance Criteria:
         a. Data Representativeness: The scrubber liquid flow rate shall be measured using a flow meter located on the scrubber liquid recirculation line. The scrubber liquid flow rate shall be accurate to five (5) gpm.
         b. QA/QC Practices and Criteria: The flow meter shall be calibrated according to the manufacturer's recommendations at least every six months. All operating equipment and process downtime shall be monitored.
         c. Monitoring Frequency: Scrubber liquid flow rate shall be measured continuously.
         d. Data Collection Procedure: Scrubber liquid flow rates shall be recorded electronically. During periods when electronic readings are not available or functional, manual readings shall be used until electronic readings are restored. If manual readings are used, the permittee shall collect and record at least four or more scrubber liquid flow values equally spaced over each hour. Hourly average flow rates shall be used to compute the 24-hour block average for comparison to the indicator range.
         e. Averaging Period: 24-hour block.

II.B.39.e.2 **Recordkeeping:**

Results of all stack testing shall be recorded and maintained in accordance with the associated test method and Provision I.S.1 of this permit.

In addition to the recordkeeping requirement described in Provision I.S.1 of this permit, the

permittee shall maintain a file of the occurrence and duration of any excursion, corrective actions taken, and any other supporting information required to be maintained under 40 CFR 64 (such as data used to document the adequacy of monitoring, or records of monitoring maintenance or corrective actions). Instead of paper records, the permittee may maintain records on alternative media, such as microfilm, computer files, magnetic tape disks, or microfiche, provided that the use of such alternative media allows for expeditious inspection and review, and does not conflict with other applicable recordkeeping requirements. (40 CFR 64.9(b))

II.B.39.e.3 **Reporting:**

In addition to the reporting requirements in Provision I.S.2 of this permit,

(a) Monitoring reports shall include, at a minimum, the following information, as applicable:
   (i) Summary information on the number, duration and cause (including unknown cause, if applicable) of excursions or exceedances, as applicable, and the corrective actions taken; (40 CFR 64.9(a)(2)(i))
   (ii) Summary information on the number, duration and cause (including unknown cause, if applicable) for monitor downtime incidents (other than downtime associated with zero and span or other daily calibration checks, if applicable). (40 CFR 64.9(a)(2)(ii))

(b) 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.

II.B.40 **<u>Conditions on #REF 011: Soda Ash Silo.</u>**

II.B.40.a **Condition:**

Visible emissions shall be no greater than 10 percent opacity during silo loading operations. [Origin: DAQE-AN0103460045-10]. [R307-401-8(1)(a)(BACT)]

II.B.40.a.1 **Monitoring:**

A visual observation of each affected emission unit shall be performed on a monthly basis by an individual trained on the observation procedures of 40 CFR 60, Appendix A, Method 9. The individual is not required to be a certified visible emissions observer. If any visible emissions other than steam are observed, an opacity determination of that emission unit shall be performed by a certified visible emissions observer in accordance with 40 CFR 60, Appendix A, Method 9, or other EPA-approved testing method, as acceptable to the Director, within 24 hours of the initial observation.

II.B.40.a.2 **Recordkeeping:**

Records of visual observations performed and data required by 40 CFR 60, Appendix A, Method 9, or other EPA-approved testing method, as acceptable to the Director, for each determination shall be maintained in accordance with Provision I.S.1 of this permit.

II.B.40.a.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.41 **<u>Conditions on #REF 007: Hydrometallurgical Silver Production.</u>**

II.B.41.a **Condition:**

Visible emissions shall be no greater than 15 percent opacity. [Origin: DAQE-AN0103460045-10]. [R307-401-8(1)(a)(BACT)]

II.B.41.a.1 **Monitoring:**

A visual observation of each affected emission unit shall be performed on a weekly basis by an individual trained on the observation procedures of 40 CFR 60, Appendix A, Method 9. The individual is not required to be a certified visible emissions observer. If any visible emissions other than steam are observed, an opacity determination of that emission unit shall be performed by a certified visible emissions observer in accordance with 40 CFR 60, Appendix A, Method 9, or other EPA-approved testing method, as acceptable to the Director, within 24 hours of the initial observation. For each affected emission unit, if no visible emissions are observed for eight consecutive weeks the observation frequency shall be reduced to a monthly basis. If visible emissions are observed during any monthly observation the frequency shall revert back to a weekly basis.

II.B.41.a.2 **Recordkeeping:**

Records of visual observations performed and data required by 40 CFR 60, Appendix A, Method 9, or other EPA-approved testing method, as acceptable to the Director, for each determination shall be maintained in accordance with Provision I.S.1 of this permit.

II.B.41.a.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.41.b **Condition:**

Emissions of Sulfuric Acid shall be no greater than 0.009 grains/dscf and 0.22 lbs/hour. [Origin: DAQE-AN0103460045-10]. [R307-401-8(1)(a)(BACT)]

II.B.41.b.1 **Monitoring:**

Stack testing shall be performed as specified below:

(a) Frequency. Emissions shall be tested every three years. Every three years means the test must be performed every third year and in the same calendar quarter in which the most recent test was performed. The source may also be tested at any time if directed by the Director.

(b) Notification. At least 30 days before the test, the source shall notify the Director of the date, time, and place of testing and provide a copy of the test protocol. The source shall attend a pretest conference if determined necessary by the Director.

(c) Methods.

(1) Sample Location - the emission point shall conform to the requirements of 40 CFR 60, Appendix A, Method 1, or other EPA-approved testing method, as acceptable to the Director, and Occupational Safety and Health Administration (OSHA)-approved and/or Mine Safety and Health Administration (MSHA)-approved access shall be provided to the test location.

(2) 40 CFR 60, Appendix A, Method 8, or other EPA-approved testing method, as acceptable to the Director, shall be used to determine the pollutant emission rate.

(3) 40 CFR 60, Appendix A, Method 2, or other EPA-approved testing method, as acceptable to the Director, shall be used to determine the volumetric flow rate.

(d) Calculations. 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.

(e) Production Rate During Testing. The production rate during all compliance testing shall be no less than 90 percent of the maximum production achieved in the previous three (3) years.

II.B.41.b.2 **Recordkeeping:**

Results of all stack testing shall be recorded and maintained in accordance with the associated test method and Provision S.1 in Section I of this permit.

II.B.41.b.3 **Reporting:**

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. There are no additional reporting requirements for this provision except those specified in Section I of this permit.

II.B.41.c **Condition:**

Emissions of Ammonia shall be no greater than 0.14 lbs/hour. [Origin: DAQE-AN0103460045-10]. [R307-401-8(1)(a)(BACT)]

II.B.41.c.1 **Monitoring:**

Stack testing shall be performed as specified below:

(a) Frequency. Emissions shall be tested every three years. Every three years means the test must be performed every third year and in the same calendar quarter in which the most recent test was performed. The source may also be tested at any time if directed by the Director.

(b) Notification. At least 30 days before the test, the source shall notify the Director of the date, time, and place of testing and provide a copy of the test protocol. The source shall attend a pretest conference if determined necessary by the Director.

(c) Methods.

(1) Sample Location - the emission point shall conform to the requirements of 40 CFR 60, Appendix A, Method 1, or other EPA-approved testing method, as acceptable to the Director, and Occupational Safety and Health Administration (OSHA)-approved and/or Mine Safety and Health Administration (MSHA)-approved access shall be provided to the test location.

(2) An appropriate test method shall be used to determine the pollutant emission rate. The test method shall be submitted for approval prior to testing or may be assigned by the Director.

(3) 40 CFR 60, Appendix A, Method 2, or other EPA-approved testing method, as acceptable to the Director, shall be used to determine the volumetric flow rate.

(d) Calculations. 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.

(e) Production Rate During Testing. The production rate during all compliance testing shall be no less than 90 percent of the maximum production achieved in the previous three (3) years.

II.B.41.c.2 **Recordkeeping:**

Results of all stack testing shall be recorded and maintained in accordance with the associated test method and Provision S.1 in Section I of this permit.

II.B.41.c.3 **Reporting:**

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. There are no additional reporting requirements for this provision except those

specified in Section I of this permit.

II.B.42 **Conditions on #REF 008: Precious Metals Filter Presses.**

II.B.42.a **Condition:**

Visible emissions shall be no greater than 10 percent opacity. [Origin: DAQE-AN0103460045-10]. [R307-401-8(1)(a)(BACT)]

II.B.42.a.1 **Monitoring:**

A visual observation of each affected emission unit shall be performed once each week that the unit operates by an individual trained on the observation procedures of 40 CFR 60, Appendix A, Method 9. The individual is not required to be a certified visible emissions observer. If any visible emissions other than steam are observed, an opacity determination of that emission unit shall be performed by a certified visible emissions observer in accordance with 40 CFR 60, Appendix A, Method 9, or other EPA-approved testing method, as acceptable to the Director, within 24 hours of the initial observation. For each affected emission unit, if no visible emissions are observed for eight consecutive weeks the observation frequency shall be reduced to a monthly basis. If visible emissions are observed during any monthly observation the frequency shall revert back to a weekly basis.

II.B.42.a.2 **Recordkeeping:**

Records of visual observations performed and data required by 40 CFR 60, Appendix A, Method 9, or other EPA-approved testing method, as acceptable to the Director, for each determination shall be maintained in accordance with Provision I.S.1 of this permit.

II.B.42.a.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.43 **Conditions on #REF 009: Selenium Crushing and Packaging.**

II.B.43.a **Condition:**

Visible emissions shall be no greater than 10 percent opacity. [Origin: DAQE-AN0103460045-10]. [R307-401-8(1)(a)(BACT)]

II.B.43.a.1 **Monitoring:**

A visual observation of each affected emission unit shall be performed once each week that the unit operates by an individual trained on the observation procedures of 40 CFR 60, Appendix A, Method 9. The individual is not required to be a certified visible emissions observer. If any visible emissions other than steam are observed, an opacity determination of that emission unit shall be performed by a certified visible emissions observer in accordance with 40 CFR 60, Appendix A, Method 9, or other EPA-approved testing method, as acceptable to the Director, within 24 hours of the initial observation. For each affected emission unit, if no visible emissions are observed for eight consecutive weeks the observation frequency shall be reduced to a monthly basis. If visible emissions are observed during any monthly observation the frequency shall revert back to a weekly basis.

II.B.43.a.2 **Recordkeeping:**

Records of visual observations performed and data required by 40 CFR 60, Appendix A, Method

9, or other EPA-approved testing method, as acceptable to the Director, for each determination shall be maintained in accordance with Provision I.S.1 of this permit.

II.B.43.a.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.43.b **Condition:**

The baghouse pressure drop shall not be less than 1.0 inch of water gauge or greater than 6.0 inches of water gauge. [Origin: DAQE-AN0103460045-10]. [R307-401-8(1)(a)(BACT)]

II.B.43.b.1 **Monitoring:**

The permittee shall make at least one pressure drop observation per month. The observation shall be made during typical operating conditions. The pressure drop shall be monitored with instruments located such that an inspector/operator can safely read the output at any time. The instrument(s) shall be calibrated in accordance with the manufacturer's instructions at least once each year. If the pressure drop remains out of range for greater than 48 operating hours from the initial out of range reading, it shall be considered a deviation from this permit term.

II.B.43.b.2 **Recordkeeping:**

The permittee shall record the results of the pressure drop observation once each month. These records along with the annual calibration records shall be maintained in accordance with Provision I.S.1 of this permit.

II.B.43.b.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.44 **<u>Conditions on #REF 010: Gold/Silver Recovery.</u>**

II.B.44.a **Condition:**

Emissions of PM_{10} shall be no greater than 0.010 grains/dscf and 0.43 lbs/hour. [Origin: DAQE-AN0103460045-10]. [R307-401-8(1)(a)(BACT)]

II.B.44.a.1 **Monitoring:**

Stack testing shall be performed as specified below:

(a) Frequency. Emissions shall be tested every three years. Every three years means the test must be performed every third year and in the same calendar quarter in which the most recent test was performed. The source may also be tested at any time if directed by the Director.

(b) Notification. At least 30 days before the test, the source shall notify the Director of the date, time, and place of testing and provide a copy of the test protocol. The source shall attend a pretest conference if determined necessary by the Director.

(c) Methods.

(1) Sample Location - the emission point shall conform to the requirements of 40 CFR 60, Appendix A, Method 1, or other EPA-approved testing method, as acceptable to the Director, and Occupational Safety and Health Administration (OSHA)-approved and/or Mine Safety and Health Administration (MSHA)-approved access shall be provided to the test location.

(2) The following methods shall be used to measure filterable particulate emissions: 40 CFR 51, Appendix M, Method 201 or 201A, or other EPA-approved testing method, as acceptable to the Director. If other approved testing methods are used which cannot measure the PM_{10} fraction of the filterable particulate emissions, all of the filterable particulate emissions shall be considered PM_{10}. The filterable particulate emissions shall be used for compliance demonstration.

(3) The following methods shall be used to measure condensable particulate emissions: 40 CFR 51, Appendix M, Method 202, or other EPA-approved testing method, as acceptable to the Director.

(4) The condensable particulate emissions shall not be used for compliance demonstration, but shall be used for inventory purposes.

(d) Calculations. 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.

(e) Production Rate During Testing. The production rate during all compliance testing shall be no less than 90 percent of the maximum production achieved in the previous three (3) years.

II.B.44.a.2 **Recordkeeping:**

Results of all stack testing shall be recorded and maintained in accordance with the associated test method and Provision S.1 in Section I of this permit.

II.B.44.a.3 **Reporting:**

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. There are no additional reporting requirements for this provision except those specified in Section I of this permit.

II.B.44.b **Condition:**

Visible emissions shall be no greater than 10 percent opacity. [Origin: DAQE-AN0103460045-10]. [R307-401-8(1)(a)(BACT)]

II.B.44.b.1 **Monitoring:**

A visual observation of each affected emission unit shall be performed on a weekly basis by an individual trained on the observation procedures of 40 CFR 60, Appendix A, Method 9. The individual is not required to be a certified visible emissions observer. If any visible emissions other than steam are observed, an opacity determination of that emission unit shall be performed by a certified visible emissions observer in accordance with 40 CFR 60, Appendix A, Method 9, or other EPA-approved testing method, as acceptable to the Director, within 24 hours of the initial observation. For each affected emission unit, if no visible emissions are observed for eight consecutive weeks the observation frequency shall be reduced to a monthly basis. If visible emissions are observed during any monthly observation the frequency shall revert back to a weekly basis.

II.B.44.b.2 **Recordkeeping:**

Records of visual observations performed and data required by 40 CFR 60, Appendix A, Method 9, or other EPA-approved testing method, as acceptable to the Director, for each determination shall be maintained in accordance with Provision I.S.1 of this permit.

II.B.44.b.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.45 **Conditions on #REFi 210: Emergency Generator - Precious Metals.**

II.B.45.a **Condition:**

Visible emissions shall be no greater than 20 percent opacity. [Origin: R307-305-3(3)]. [R307-305-3(3)]

II.B.45.a.1 **Monitoring:**

During any period that an emergency generator is operated for longer than 12 hours consecutively, a visual observation of that generator's exhaust shall be made by an individual trained on the observation procedures of 40 CFR 60, Appendix A, Method 9. The individual is not required to be a certified visual emissions observer. If any visible emissions other than steam are observed, then an opacity determination shall be performed in accordance with 40 CFR 60, Appendix A, Method 9, or other EPA-approved testing method, as acceptable to the Director, by a certified visible emissions observer. If a generator continues to operate on consecutive days following the initial observation, an opacity determination shall be performed on a daily basis.

II.B.45.a.2 **Recordkeeping:**

Records of visual observations performed and data required by 40 CFR 60, Appendix A, Method 9, or other EPA-approved testing method, as acceptable to the Director, for each determination shall be maintained in accordance with Provision I.S.1 of this permit.

II.B.45.a.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.45.b **Condition:**

The permittee shall comply with the following at all times for each emergency affected emission unit:

1. The permittee shall operate the emergency stationary RICE according to the requirements in paragraphs a. through c. In order for the engine to be considered an emergency stationary RICE, any operation other than emergency operation, maintenance and testing, emergency demand response, and operation in non-emergency situations for 50 hours per year, as described in paragraphs a. through c., is prohibited. If the engine is not operated according to the requirements in paragraphs a. through c., the engine will not be considered an emergency engine under this subpart and shall meet all requirements for non-emergency engines.
   a. There is no time limit on the use of emergency stationary RICE in emergency situations.
   b. The permittee may operate the emergency stationary RICE for any combination of the purposes specified in paragraph (i) for a maximum of 100 hours per calendar year. Any operation for non-emergency situations as allowed by paragraph c. counts as part of the 100 hours per calendar year allowed by this paragraph.
      (i) Emergency stationary RICE may be operated for maintenance checks and readiness testing, provided that the tests are recommended by federal, state or local government, the manufacturer, the vendor, the regional transmission organization or equivalent balancing authority and transmission operator, or the insurance company associated with the engine. The permittee may petition for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the permittee maintains records indicating that federal, state, or local standards require maintenance and testing of emergency RICE beyond 100 hours per calendar year.

c. Emergency stationary RICE located at area sources of HAP may be operated for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing and emergency demand response provided in paragraph b. The 50 hours per year for non-emergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for a facility to an electric grid or otherwise supply power as part of a financial arrangement with another entity.

2. The permittee shall meet the following requirements at all times, except during periods of startup:
   a. Change oil and filter every 500 hours of operation or annually, whichever comes first;
   b. Inspect air cleaner every 1,000 hours of operation or annually, whichever comes first, and replace as necessary;
   c. Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.

   During periods of startup the permittee shall minimize the engine's time spent at idle and minimize the engine's startup time to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the non-startup emission limitations apply.
3. The permittee shall comply with the applicable general provisions in 40 CFR 63.1-15 as identified in Table 8 of 40 CFR 63 Subpart ZZZZ.

[Origin: 40 CFR 63 Subpart ZZZZ]. [40 CFR 63.6595(a)(1), 40 CFR 63.6603(a), 40 CFR 63.6605(a), 40 CFR 63.6625(h), 40 CFR 63.6640(f), 40 CFR 63.6665, 40 CFR 63 Subpart ZZZZ Table 2d, 40 CFR 63 Subpart ZZZZ Table 8]

II.B.45.b.1 **Monitoring:**

The permittee shall install a non-resettable hour meter if one is not already installed. [40 CFR 63.6625(f)]

If an emergency engine is operating during an emergency and it is not possible to shut down the engine in order to perform the management practice requirements on the required schedule or if performing the management practice on the required schedule would otherwise pose an unacceptable risk under Federal, State, or local law, the management practice can be delayed until the emergency is over or the unacceptable risk under Federal, State, or local law has abated. The management practice shall be performed as soon as practicable after the emergency has ended or the unacceptable risk under Federal, State, or local law has abated. [40 CFR 63 Subpart ZZZZ Table 2d Footnote 2]

The permittee shall demonstrate continuous compliance by operating and maintaining the stationary RICE and after-treatment control device (if any) according to the manufacturer's emission-related written operation and maintenance instructions or develop and follow their own maintenance plan which must provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions. [40 CFR 63.6625(e), 40 CFR 63.6640(a), 40 CFR 63 Subpart ZZZZ Table 6]

The permittee has the option of utilizing an oil analysis program in order to extend the specified oil change requirement in accordance with 40 CFR 63.6625(i).

The permittee shall comply with the applicable general provisions in 40 CFR 63.1-15 as identified in Table 8 of 40 CFR 63 Subpart ZZZZ. [40 CFR 63.6665].

II.B.45.b.2 **Recordkeeping:**

The permittee shall keep the records described in 40 CFR 63.6655(a)(1)-(5) as applicable. [40 CFR 63.6655(a)]

For each affected emission unit that does not meet the standards applicable to non-emergency engines, the permittee shall keep records of the hours of operation of the engine that are recorded

through the non-resettable hour meter. The permittee shall document how many hours are spent for emergency operation, including what classified the operation as emergency and how many hours are spent for non-emergency operation. [40 CFR 63.6655(f)]

If additional hours are to be used for maintenance checks and readiness testing, the permittee shall maintain records indicating that Federal, State, or local standards require maintenance and testing of emergency RICE beyond 100 hours per calendar year. [40 CFR 63.6640(f)]

The permittee shall keep records that demonstrate continuous compliance with each applicable operating limitation including, but not limited to, the manufacturer's emission-related operation and maintenance instructions or the permittee-developed maintenance plan. [40 CFR 63.6655(d), 40 CFR 63 Subpart ZZZZ Table 6]

Records of the maintenance conducted shall be kept in order to demonstrate that the permittee operated and maintained the affected emission unit and after-treatment control device (if any) according to their own maintenance plan. [40 CFR 63.6655(e)]

The permittee shall comply with the applicable general provisions in 40 CFR 63.1-15 as identified in Table 8 of 40 CFR 63 Subpart ZZZZ. [40 CFR 63.6665]

Records shall be maintained in accordance with 40 CFR 63.6660 and Provision I.S.1 of this permit.

II.B.45.b.3 **Reporting:**

The permittee shall report any failure to perform the management practice on the schedule required and the Federal, State or local law under which the risk was deemed unacceptable. [40 CFR 63 Subpart ZZZZ Table 2d Footnote 2]

The permittee shall comply with the applicable general provisions in 40 CFR 63.1-15 as identified in Table 8 of 40 CFR 63 Subpart ZZZZ. [40 CFR 63.6665] The permittee shall also report each instance in which it did not meet the applicable requirements in Table 8. [40 CFR 63.6640(e)]

There are no additional reporting requirements for this provision except those specified in Section I of this permit.

II.B.45.c **Condition:**

At all times the permittee shall operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. The general duty to minimize emissions does not require the permittee to make any further efforts to reduce emissions if levels required by this standard have been achieved. Determination of whether such operation 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, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source. [Origin: 40 CFR 63 Subpart ZZZZ]. [40 CFR 63.6595(a)(1), 40 CFR 63.6605(b)]

II.B.45.c.1 **Monitoring:**

Records required for this permit condition will serve as monitoring.

II.B.45.c.2 **Recordkeeping:**

The permittee shall keep the records described in 40 CFR 63.6655(a)(1)-(5) as applicable. [40 CFR 63.6655(a)] The permittee shall document activities performed to assure proper operation and maintenance. Records shall be maintained in accordance with 40 CFR 63.6660 and Provision I.S.1 of this permit.

II.B.45.c.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.46 **Conditions on #REF SA-1: Refinery Unleaded Gasoline Storage Tank.**

II.B.46.a **Condition:**

The permittee shall maintain records of the average monthly storage temperature, the type of liquid, throughput quantities, and the maximum true vapor pressure. [Origin: R307-327-4(2)]. [R307-327-4(2)]

II.B.46.a.1 **Monitoring:**

Records required for this permit condition will serve as monitoring.

II.B.46.a.2 **Recordkeeping:**

The parameters listed above shall be recorded on a monthly basis and maintained as specified in Provision I.S.1 of this permit. The permittee shall maintain fuel specification records from the fuel supplier to demonstrate the maximum true vapor pressure.

II.B.46.a.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.46.b **Condition:**

At least 90 percent of the gasoline vapor, by weight, displaced during the filling of the stationary storage container shall be prevented from being released to the atmosphere. [Origin: R307-328-5]. [R307-328-5]

II.B.46.b.1 **Monitoring:**

The 90 percent performance standard of the vapor control system shall be based on approved operating procedures and equipment specifications.

II.B.46.b.2 **Recordkeeping:**

Records of the approved operating procedures and equipment specifications shall be maintained in accordance with provision I.S.1. of this permit.

II.B.46.b.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.46.c **Condition:**

The permittee shall not allow gasoline to be handled in a manner that would result in vapor releases to the atmosphere for extended periods of time. Measures to be taken include, but are not limited to, the following:

(1) Minimize gasoline spills;
(2) Clean up spills as expeditiously as practicable;
(3) Cover all open gasoline containers and all gasoline storage tank fill-pipes with a gasketed seal when not in use;
(4) Minimize gasoline sent to open waste collection systems that collect and transport gasoline to reclamation and recycling devices, such as oil/water separators.

At all times, the permittee shall operate and maintain any affected emission unit, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether such operation and maintenance procedures are being used will be based on information available which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source.

The permittee shall comply with the applicable general provisions in 40 CFR 63.1-15 as identified in Table 3 of 40 CFR 63 Subpart CCCCCC.

[Origin: 40 CFR 63 Subpart CCCCCC]. [40 CFR 63.11111(b), 40 CFR 63.11115, 40 CFR 63.11116, 40 CFR 63.11130]

II.B.46.c.1 **Monitoring:**

Records required for this permit condition will serve as monitoring. Additionally, the permittee shall comply with the applicable general provisions in 40 CFR 63.1-15 as identified in Table 3 of 40 CFR 63 Subpart CCCCCC. [40 CFR 63.11130]

II.B.46.c.2 **Recordkeeping:**

The permittee shall keep records demonstrating monthly throughput is less than the 10,000-gallon threshold level. Records shall be available within 24 hours of a request by the Director to document gasoline throughput in the affected emission unit. [40 CFR 63.11111(e), 40 CFR 63.11116(b)]

The permittee shall keep records of the occurrence and duration of each malfunction of operation (i.e., process equipment) or the air pollution control and monitoring equipment. Records shall be kept of actions taken during periods of malfunction to minimize emissions, including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation. [40 CFR 63.11115(b), 40 CFR 63.11125(d)]

The permittee shall comply with the applicable general provisions in 40 CFR 63.1-15 as identified in Table 3 of 40 CFR 63 Subpart CCCCCC. [40 CFR 63.11130]

Documentation shall be kept that demonstrates compliance with this provision. Records shall be maintained in accordance with Provision I.S.1. of this permit.

II.B.46.c.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.47 **Conditions on #REFi 201: Refinery Cold Solvent Degreasers.**

II.B.47.a **Condition:**

The permittee shall ensure that the following conditions are met:

(1) Each solvent degreaser is equipped with a cover which shall remain closed except during actual loading, unloading or handling of parts in cleaner. The cover shall be designed so that it can be easily operated with one hand if
   (a) the volatility of the solvent is greater than 2 kPa (15 mm Hg or 0.3 psi) measured at 38 degrees C (100 degrees F),
   (b) the solvent is agitated, or
   (c) the solvent is heated.

(2) An internal draining rack for cleaned parts shall be installed on which parts shall be drained until all dripping ceases. If the volatility of the solvent is greater than 4.3 kPa (32 mm Hg at 38 degrees C (100 degrees F)), the drainage facility must be internal, so that parts are enclosed under the cover while draining. The drainage facility may be external for applications where an internal type cannot fit into the cleaning system.

(3) Waste or used solvent shall be stored in covered containers.

(4) Tanks, containers and all associated equipment shall be maintained in good operating condition and leaks shall be repaired immediately or the degreaser shall be shutdown.

(5) Written procedures for the operation and maintenance of the degreasing or solvent cleaning equipment shall be permanently posted in an accessible and conspicuous location near the equipment.

(6) If the solvent volatility is greater than 4.3 kPa (33 mm Hg or 0.6 psi) measured at 38 degrees C (100 degrees F), or if solvent is heated above 50 degrees C (120 degrees F), then one of the following control devices shall be used:
   (a) freeboard that gives a freeboard ratio greater than 0.7;
   (b) water cover if the solvent is insoluble in and heavier than water;
   (c) other systems of equivalent control, such as a refrigerated chiller or carbon adsorption.

(7) If used, the solvent spray shall be a solid fluid stream at a pressure which does not cause excessive splashing and may not be a fine, atomized or shower type spray.

[Origin: R307-335-4]. [R307-335-4]

II.B.47.a.1 **Monitoring:**

Visual inspections shall be made monthly to demonstrate compliance with this condition.

II.B.47.a.2 **Recordkeeping:**

Results of monthly inspections, the solvent VOC content applied, and the physical characteristics that demonstrate compliance with R307-335 shall be recorded and maintained as described in Provision I.S.1 of this permit.

II.B.47.a.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.48 **Conditions on #REF COM GEN: Emergency Generator - Communications.**

II.B.48.a **Condition:**

The permittee shall use only liquified petroleum gas for fuel in the affected emission unit. [Origin: DAQE-AN0103460045-10]. [R307-401-8(1)(a)(BACT)]

II.B.48.a.1 **Monitoring:**

Records required for this permit condition will serve as monitoring.

II.B.48.a.2 **Recordkeeping:**

The permittee shall keep one of the following sets of records for each affected emission unit, as applicable:

a) Documentation that the emission unit can only burn liquified petroleum gas;
b) Documentation that fuels other than liquified petroleum gas cannot be supplied to the emission unit without modification of the fuel supply system.

Records shall be maintained in accordance with Provision I.S.1 of this permit.

II.B.48.a.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.49 **<u>Conditions on #REF CHP: Refinery Combined Heat and Power Unit.</u>**

II.B.49.a **Condition:**

Combined emissions of NO_x shall be no greater than 5.96 lbs/hour from the gas turbine with the TEG firing and the duct burner. [Origin: DAQE-AN0103460045-10]. [R307-401-8(1)(a)(BACT)]

II.B.49.a.1 **Monitoring:**

Stack testing shall be performed as specified below:

(a) Frequency. Emissions shall be tested every 12 months based on the date of the most recent stack test. The source may also be tested at any time if directed by the Director.
(b) Notification. At least 30 days before the test, the source shall notify the Director of the date, time, and place of testing and provide a copy of the test protocol. The source test protocol shall outline the proposed test methodologies, stack to be tested, procedures to be used, and shall be approved by the Director prior to performing the test(s). The source shall attend a pretest conference if determined necessary by the Director.
(c) Methods.
    (1) Sample Location - the emission point shall conform to the requirements of 40 CFR 60, Appendix A, Method 1, or other EPA-approved testing method, as acceptable to the Director. An Occupational Safety and Health Administration (OSHA)-approved and/or Mine Safety and Health Administration (MSHA)-approved access shall be provided to the test location.
    (2) 40 CFR 60, Appendix A, Method 7, 7A, 7B, 7C, 7D, or 7E, or other EPA-approved testing method, as acceptable to the Director, shall be used to determine the pollutant emission rate.
    (3) 40 CFR 60, Appendix A, Method 2, or other EPA-approved testing method, as acceptable to the Director, shall be used to determine the volumetric flow rate.
(d) Calculations. 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.
(e) Conditions During Testing.
    For a new source/emission point, the production rate during all compliance testing shall be no less than 90 percent of the production capacity of the equipment. If the maximum production capacity has not been achieved at the time of the test, the following procedure shall be followed:
    1) Testing shall be at no less than 90 percent of the production rate achieved to date.

2) If the test is passed, the new maximum allowable production rate shall be 110 percent of the tested achieved rate. This new allowable maximum production rate shall remain in effect until successfully tested at a higher rate.
3) Testing at no less than 90 percent of the higher rate shall be conducted. A new maximum production rate (110 percent of the new rate) will then be allowed if the test is successful. This process may be repeated until the maximum permitted production rate is achieved.

The production rate during all subsequent compliance testing shall be no less than 90 percent of the maximum production achieved in the previous three (3) years.

II.B.49.a.2 **Recordkeeping:**

Results of all stack testing shall be recorded and maintained in accordance with the associated test method and Provision S.1 in Section I of this permit.

II.B.49.a.3 **Reporting:**

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. There are no additional reporting requirements for this provision except those specified in Section I of this permit.

II.B.49.b **Condition:**

Combined emissions of CO shall be no greater than 7.33 lbs/hour from the gas turbine with the TEG firing and the duct burner. [Origin: DAQE-AN0103460045-10]. [R307-401-8(1)(a)(BACT)]

II.B.49.b.1 **Monitoring:**

Stack testing shall be performed as specified below:

(a) Frequency. Emissions shall be tested every 12 months based on the date of the most recent stack test. The source may also be tested at any time if directed by the Director.

If a test result is less than 60.0 percent of the limit for three consecutive years, subsequent testing may be performed every three years. If at any time a test result is greater than 60.0 percent of the limit, testing shall be performed every year. After three consecutive years with test results less than 60.0 percent the Director may be repetitioned for less frequent testing.

(b) Notification. At least 30 days before the test, the source shall notify the Director of the date, time, and place of testing and provide a copy of the test protocol. The source test protocol shall outline the proposed test methodologies, stack to be tested, procedures to be used, and shall be approved by the Director prior to performing the test(s). The source shall attend a pretest conference if determined necessary by the Director.

(c) Methods.
   (1) Sample Location - the emission point shall conform to the requirements of 40 CFR 60, Appendix A, Method 1, or other EPA-approved testing method as acceptable to the Director. An Occupational Safety and Health Administration (OSHA)-approved and/or Mine Safety and Health Administration (MSHA)-approved access shall be provided to the test location.
   (2) 40 CFR 60, Appendix A, Method 10, or other EPA-approved testing method as acceptable to the Director, shall be used to determine the pollutant emission rate.
   (3) 40 CFR 60, Appendix A, Method 2, or other EPA-approved testing method as acceptable to the Director, shall be used to determine the volumetric flow rate.

(d) Calculations. 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.

(e) Conditions During Testing.

For a new source/emission point, the production rate during all compliance testing shall be no less than 90 percent of the production capacity of the equipment. If the maximum production capacity has not been achieved at the time of the test, the following procedure shall be followed:

1) Testing shall be at no less than 90 percent of the production rate achieved to date.
2) If the test is passed, the new maximum allowable production rate shall be 110 percent of the tested achieved rate. This new allowable maximum production rate shall remain in effect until successfully tested at a higher rate.
3) Testing at no less than 90 percent of the higher rate shall be conducted. A new maximum production rate (110 percent of the new rate) will then be allowed if the test is successful. This process may be repeated until the maximum permitted production rate is achieved.

The production rate during all subsequent compliance testing shall be no less than 90 percent of the maximum production achieved in the previous three (3) years.

II.B.49.b.2 **Recordkeeping:**

Results of all stack testing shall be recorded and maintained in accordance with the associated test method and Provision S.1 in Section I of this permit.

II.B.49.b.3 **Reporting:**

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. There are no additional reporting requirements for this provision except those specified in Section I of this permit.

II.B.49.c **Condition:**

Hours of operation for the duct burner on fresh air shall be no greater than 876 hours per rolling 12-month period. [Origin: DAQE-AN0103460045-10]. [R307-401-8(1)(a)(BACT)]

II.B.49.c.1 **Monitoring:**

Compliance shall be demonstrated within the first 25 calendar days of each month, for the previous month, using supervisor monitoring and an operations log. The total shall then be added to the previous 11 months total for a 12-month rolling total.

II.B.49.c.2 **Recordkeeping:**

An operations log shall be maintained which shall include the results of the required monitoring. Monthly hours of operation determined by supervisor monitoring and calculations used to demonstrate compliance shall be recorded in the operations log. All records shall be maintained in accordance with Provision I.S.1 of this permit.

II.B.49.c.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.49.d **Condition:**

Visible emissions shall be no greater than 10 percent opacity. [Origin: DAQE-AN0103460045-10]. [R307-401-8(1)(a)(BACT)]

II.B.49.d.1 **Monitoring:**

A visual observation of each affected emission unit shall be performed on a monthly basis by an individual trained on the observation procedures of 40 CFR 60, Appendix A, Method 9. The individual is not required to be a certified visible emissions observer. If any visible emissions other than steam are observed, an opacity determination of that emission unit shall be performed by a certified visible emissions observer in accordance with 40 CFR 60, Appendix A, Method 9, or other EPA-approved testing method, as acceptable to the Director, within 24 hours of the initial observation.

II.B.49.d.2 **Recordkeeping:**

Records of visual observations performed and data required by 40 CFR 60, Appendix A, Method 9, or other EPA-approved testing method, as acceptable to the Director, for each determination shall be maintained in accordance with Provision I.S.1 of this permit.

II.B.49.d.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.49.e **Condition:**

For new natural gas fired stationary combustion turbines with heat input at peak load (HHV) greater than 50 MMBtu/h and less than or equal to 850 MMBtu/h, emissions of NO_x shall be no greater than 25 ppm at 15 percent O_2 or 150 nanograms per Joule (ng/J) of useful output (1.2 pounds per megawatt-hour (lb/MWh)). [Origin: 40 CFR 60 Subpart KKKK]. [40 CFR 60.4320(a)]

II.B.49.e.1 **Monitoring:**

NO_x performance tests shall be conducted on an annual basis (no more than 14 calendar months following the previous performance test). [40 CFR 60.4400(a)]

To demonstrate continuous compliance, the permittee shall conduct annual performance tests in accordance with 40 CFR 60.4400(a)(1)-(a)(3)(ii)(B), 60.4400(b), 60.4400(b)(2), 60.4400(b)(4), 60.4400(b)(6).

At least 30 days before the test, the source shall notify the Director of the date, time, and place of testing. The source shall attend a pretest conference if determined necessary by the Director. [40 CFR 60.8(d), R307-165].

II.B.49.e.2 **Recordkeeping:**

Results of all performance tests shall be recorded and maintained in accordance with the associated test method and Provision S.1 in Section I of this permit.

II.B.49.e.3 **Reporting:**

The permittee shall submit a written report of the results of each performance test before the close of business on the 60th day following the completion of the performance test. [40 CFR 60.4375(b)] There are no additional reporting requirements for this provision except those specified in Section I of this permit.

II.B.49.f **Condition:**

For heat recovery units operating independent of the combustion turbine, emissions of NO_x shall be no greater than 54 ppm at 15 percent O_2 or 110 ng/J of useful output (0.86 lb/MWh). [Origin: 40 CFR 60 Subpart KKKK]. [40 CFR 60.4320(a)]

II.B.49.f.1 **Monitoring:**

NO_x performance tests shall be conducted on an annual basis (no more than 14 calendar months following the previous performance test). [40 CFR 60.4400(a)]

To demonstrate continuous compliance, the permittee shall conduct annual performance tests in accordance with 40 CFR 60.4400(a)(1)-(a)(3)(ii)(B), 60.4400(b), 60.4400(b)(2), 60.4400(b)(4), 60.4400(b)(6).

At least 30 days before the test, the source shall notify the Director of the date, time, and place of testing. The source shall attend a pretest conference if determined necessary by the Director. [40 CFR 60.8(d), R307-165].

II.B.49.f.2 **Recordkeeping:**

Results of all performance tests shall be recorded and maintained in accordance with the associated test method and Provision S.1 in Section I of this permit.

II.B.49.f.3 **Reporting:**

The permittee shall submit a written report of the results of each performance test before the close of business on the 60th day following the completion of the performance test. [40 CFR 60.4375(b)] There are no additional reporting requirements for this provision except those specified in Section I of this permit.

II.B.49.g **Condition:**

The permittee shall comply with either (1) or (2) below.

(1) The permittee shall not discharge into the atmosphere from the subject stationary combustion turbine any gases which contain SO_2 in excess of 110 nanograms per Joule (ng/J) (0.90 pounds per megawatt-hour (lb/MWh)) gross output;

(2) The permittee shall not burn in the subject stationary combustion turbine any fuel which contains total potential sulfur emissions in excess of 26 ng SO_2/J (0.060 lb SO_2/MMBtu) heat input.

[Origin: 40 CFR 60 Subpart KKKK]. [40 CFR 60.4330(a)]

II.B.49.g.1 **Monitoring:**

a) The permittee shall monitor the total sulfur content of the fuel being fired in the turbine, except as provided in b) below. The sulfur content of the fuel shall be determined using total sulfur methods described in 40 CFR 60.4415. Alternatively, if the total sulfur content of the gaseous fuel during the most recent performance test was less than half the applicable limit, ASTM D4084, D4810, D5504, or D6228, or Gas Processors Association Standard 2377 (all of which are incorporated by reference, see 40 CFR 60.17), which measure the major sulfur compounds, may be used. [40 CFR 60.4360]

If the permittee elects not to demonstrate sulfur content using options in b) below, and the fuel is supplied without intermediate bulk storage, the sulfur content value of the gaseous fuel shall be determined and recorded once per unit operating day or according to custom schedules as specified in 40 CFR 60.4370(c). [40 CFR 60.4370(b), (c)]

b) The permittee may elect not to monitor the total sulfur content of the fuel combusted in the turbine, if the fuel is demonstrated not to exceed potential sulfur emissions of 26 ng SO_2/J (0.060 lb SO_2/MMBtu) heat input. The permittee shall use one of the following sources of information to make the required demonstration: [40 CFR 60.4365]
   1) The fuel quality characteristics in a current, valid purchase contract, tariff sheet or transportation contract for the fuel, specifying that the total sulfur content for natural gas is 20 grains of sulfur or less per 100 standard cubic feet, and has potential sulfur emissions of less than 26 ng SO_2/J (0.060 lb SO_2/MMBtu) heat input; or [40 CFR 60.4365(a)]
   2) Representative fuel sampling data which show that the sulfur content of the fuel does not exceed 26 ng SO_2/J (0.060 lb SO_2/MMBtu) heat input. At a minimum, the amount of fuel sampling data specified in 40 CFR 75 appendix D section 2.3.1.4 or 2.3.2.4 is required. [40 CFR 60.4365(b)]

II.B.49.g.2 **Recordkeeping:**

Results of monitoring and records used to demonstrate compliance shall be maintained in accordance with Provision I.S.1 of this permit.

II.B.49.g.3 **Reporting:**

If the permittee elects to periodically determine the fuel sulfur content, reports of excess emissions and monitor downtime, as defined in 40 CFR 60.4385, shall be submitted in accordance with 40 CFR 60.7(c). Excess emissions shall be reported for all periods of unit operation, including start-up, shutdown, and malfunction. [40 CFR 60.4375(a)] All reports required under 40 CFR 60.7(c) shall be postmarked by the 30th day following the end of each 6-month period. [40 CFR 60.4395] There are no additional reporting requirements for this provision except those specified in Section I of this permit.

II.B.49.h **Condition:**

The permittee shall operate and maintain the stationary combustion turbine, air pollution control equipment, and monitoring equipment in a manner consistent with good air pollution control practices for minimizing emissions at all times including during startup, shutdown, and malfunction. [Origin: 40 CFR 60 Subpart KKKK]. [40 CFR 60.4333(a)]

II.B.49.h.1 **Monitoring:**

Records required for this permit condition will serve as monitoring.

II.B.49.h.2 **Recordkeeping:**

Permittee shall document activities performed to assure proper operation and maintenance. Records shall be maintained in accordance with Provision I.S.1 of this permit.

II.B.49.h.3 **Reporting:**

There are no reporting requirements for this provision except those specified in Section I of this permit.

II.C **Emissions Trading**
(R307-415-6a(10))

Not applicable to this source.

II.D **Alternative Operating Scenarios**.
(R307-415-6a(9))

Not applicable to this source.

SECTION III: PERMIT SHIELD

The following requirements have been determined to be not applicable to this source in accordance with Provision I.M, Permit Shield:

III.A. 40 CFR, Part 60, Subpart LL (NSPS, Metallic Mineral Processing Plants)

This regulation is not applicable to the Permitted Source for the following reason(s): the smelter facility does not produce metallic mineral concentrates from ore and the smelter facility is not located adjacent to the concentrator facility. [Last updated December 22, 2014]

III.B. 40 CFR Part 61, Subpart O (National Emission Standard for Inorganic Arsenic Emissions From Primary Copper Smelters)

This regulation is not applicable to the #Smelter: for the following reason(s): the smelter does not charge molten matte to a copper converter. Subpart O: converter = vessel where copper matte is charged and oxidized to copper; copper matte = molten copper and iron sulfides produced by smelting. FCF not converter by definition. [Last updated December 22, 2014]

SECTION IV: ACID RAIN PROVISIONS

This source is not subject to Title IV. This section is not applicable.

REVIEWER COMMENTS

This operating permit incorporates all applicable requirements contained in the following documents:

Incorporates	DAQE-AN103460054-14 dated June 10, 2014
Incorporates	DAQE-AN0103460045-10 dated April 6, 2010
Incorporates	Utah SIP IX.H.2.b.V dated December 18, 1992
Incorporates	Utah SIP IX.H.2.b.Y dated December 18, 1992

1. Comment on an item originating in 40 CFR 60 and 63 regarding Permitted Source

40 CFR 60 Subpart IIII applicability: The #SME gen: Smelter Powerhouse Emergency Generators and #REFi 210: Emergency Generator - Precious Metals are compression ignition (CI) engines that meet the Subpart IIII definition of Emergency stationary internal combustion engine. According to 40 CFR 60.4200(a)(2), Subpart IIII applies to stationary CI ICE ordered after 7/11/2005 and manufactured after 4/1/2006 for non-fire pump engines. The referenced generators do not meet the date criteria for Subpart IIII applicability.

The diesel-fired emergency generator used in the Flash Smelting Furnace unit (#SME 011b1) is a CI engine that meets the Subpart IIII definition of Emergency stationary internal combustion engine. This engine has applicable requirements from 40 CFR 60 Subpart IIII because it was ordered after 7/11/2005, manufactured after 4/1/2006, and is not a fire pump engine.

40 CFR 60 Subpart JJJJ applicability: The #SME COM GEN: Emergency Generator - Communications and the #REF COM GEN: Emergency Generator - Communications are spark ignition (SI) engines that meet the Subpart JJJJ definition of Emergency stationary internal combustion engine. According to 40 CFR 60.4230(a)(4), emergency engines greater than 25 HP must be ordered after 6/12/2006 and manufactured on or after 1/1/2009 to be subject to the subpart. The referenced generators do not meet the date criteria for Subpart JJJJ applicability.

40 CFR 63 Subpart ZZZZ applicability: The #SME gen: Smelter Powerhouse Emergency Generators and #REFi 210: Emergency Generator - Precious Metals are existing CI reciprocating internal combustion engines (RICE) with applicable requirements from 40 CFR 63 Subpart ZZZZ.

The #SME COM GEN: Emergency Generator - Communications and the #REF COM GEN: Emergency Generator - Communications are new spark ignition (SI) engines according to 40 CFR 63.6590(a)(2)(iii) because they were installed after June 12, 2006. Per 40 CFR 63.6590(c), new stationary RICE at area sources must meet the requirements of Subpart ZZZZ by meeting the requirements of 40 CFR 60 Subpart JJJJ, for spark ignition engines. No further requirements from Subpart ZZZZ apply to the communication generators. However, as noted in 40 CFR 60.4230(a)(4) and in the Subpart JJJJ applicability paragraph above, the two communication generators do not meet the date criteria for Subpart JJJJ applicability because they were manufactured prior to 1/1/2009. Although they are affected units under 40 CFR 63 Subpart ZZZZ, there are no applicable requirements from either 40 CFR 63 Subpart ZZZZ or 40 CFR 60 Subpart JJJJ included in the permit for the communication generators.

The diesel-fired emergency generator used in the Flash Smelting Furnace unit (#SME 011b1) is a new compression ignition (CI) engine according to 40 CFR 63.6590(a)(2)(iii)

because it was installed after June 12, 2006. Per 40 CFR 63.6590(c), new stationary RICE at area sources must meet the requirements of Subpart ZZZZ by meeting the requirements of 40 CFR 60 Subpart IIII, for compression ignition engines. No further requirements from Subpart ZZZZ apply.
[9/15/2010] [Last updated December 22, 2014]

2. Comment on an item originating in DAQE-AN0103460045-10 Condition II.B.1.b and II.B.36.d.1(a) of this permit regarding #REF 002/003: Refinery Boilers

   Landfill gas testing requirement: The permittee is required to do a stack test within 180 days from the first use of landfill gas as a firing fuel in the refinery boilers, if landfill gas is used as a fuel "...for a combined total greater than 60 days... If landfill gas has been used to fire the boilers for a combined total of 60 days or less, use of landfill gas shall not trigger stack testing under this requirement."

   In this condition, the word day is defined to mean any part of any calendar day within a rolling 12-month period. [3/22/2007] [Last updated December 22, 2014]

3. Comment on an item originating in 40 CFR 60 Subpart Kb regarding #REF VOL: Refinery Volatile Organic Liquid Storage Tanks

   Subpart Kb exemption: In the 10/15/03 amendment to the final rule, EPA states it "...is exempting from subpart Kb those storage vessels presently subject to recordkeeping requirements only." Therefore, the previous conditions requiring recordkeeping that originated in Subpart Kb have been removed from the Title V Permit. [4/03/2006] [Last updated December 22, 2014]

4. Comment on an item originating in this permit regarding #REFi 201: Refinery Cold Solvent Degreasers

   Condition II.B.47.a.1: The visual inspections required by this condition do not refer to visual opacity readings. [1/22/2007] [Last updated December 22, 2014]

5. Comment on an item originating in Section II.A of this permit regarding #REFi204, 205, 206, 207, 208: Refinery Comfort Heaters

   This equipment is included for informational purposes only. [1/22/2007] [Last updated December 22, 2014]

6. Comment on an item originating in DAQE-AN0103460045-10 regarding #Refinery:

   Refinery baghouse pressure drop readings: The referenced AO only contains a requirement for baghouse pressure drop readings on the Selenium Crushing and Packaging Baghouse. However, the pressure drop ranges for the other three baghouses in the refinery were submitted as part of the refinery equipment list, Appendix A. The baghouse ranges submitted are 2-6 inches Water Gauge for each baghouse as follows:
   - Precious Metals Filter Press Baghouse (REF 008)
   - Gold/Silver Recovery Baghouse (REF 010)
   - Soda Ash Silo Baghouse (REF 011)

   The above information has been included here for reference purposes only and is not included as a requirement of the permit. [1/22/2007] [Last updated December 22, 2014]

7. Comment on an item originating in DAQE-AN0103460045-10 regarding #Refinery:

   Test frequency in AO condition II.B.1.b: The referenced AO condition indicates the following test frequency for units designated with a '#' symbol. 'If the test results are less than 60.0 percent of the limit specified in [AO] Condition II.B.1.a for three consecutive tests, then KUC may petition the Director to perform the test at a less frequent rate. If at any time a test is performed that is greater than 60 percent of the limit specified in [AO] Condition II.B.1.b, then that test will be required to be performed every three years until that test is performed for three consecutive tests. After three consecutive tests with the test results less than 60.0 percent the Director may be repetitioned for less frequent testing.'

[7/21/2010] [Last updated December 22, 2014]

8. Comment on an item originating in 40 CFR 63 Subpart EEEEEE regarding #SME 011: Main Stack (Stack 11)

   40 CFR 63.11147(a)(1) states, "You must not discharge to the atmosphere through any combination of stacks or other vents captured process exhaust gases from the copper concentrate dryers, smelting vessels, converting vessels, matte drying and grinding plants, secondary gas systems, and anode refining department that contain particulate matter less than 10 microns in aerodynamic diameter (PM_{10}) in excess of 89.5 pounds per hour (lb/hr) on a 24-hour average basis."

   The PM_{10} limit has been incorporated into the operating permit under Condition II.B.25.a for the Main Stack. The captured exhaust gases from the affected emission units subject to the NESHAP PM_{10} limit, "copper concentrate dryers, smelting vessels, converting vessels, matte drying and grinding plants, secondary gas systems, and anode refining department", are described in this permit as being vented to the Main Stack in II.A.9, 10, 12, 15, 17, 21, and 26. The permittee certified compliance with 63.11147(a)(1), as required by 63.11150(b)(1), in a letter dated and received by DAQ 1/30/07. [2/27/2007] [Last updated December 22, 2014]

9. Comment on an item originating in 40 CFR 60 Subpart P regarding #SME 011b1: Flash Smelting Furnace (FSF)

   NSPS Subpart P application: The flash smelting furnace (FSF) and the flash converting furnace (FCF) each discharge to the acid plant through a series of control devices. NSPS 40 CFR 60 (Subpart P) [Standards of Performance for Primary Copper Smelters] is applicable to both the FSF and FCF. Due to both furnaces discharging directly to the acid plant, Subpart P shall be applied to the discharge of the acid plant in lieu of each individual furnace. [4/03/2006] [Last updated December 22, 2014]

10. Comment on an item originating in DAQE-AN103460054-14 Condition II.B.1.p.H regarding #SME 011b: Acid Plant

    AO condition is a design requirement that has been met: The referenced condition states that the permittee shall have contained conveyance of acid plant effluent solutions. This condition is a design requirement that has been verified to have been installed and therefore not a requirement carried forth into this permit. [1/22/2007] [Last updated December 22, 2014]

11. Comment on an item originating in December 4, 1998 Correspondence, DAQC-1919-98 regarding #SME 026: Powerhouse Holman Boiler (Stack 26)

    Approved Alternate Monitoring Plan (plan submitted October 2, 1998 and approved December 4, 1998): A 30 day test was performed between May 16, 1998 and June 14, 1998. Test results indicated the Holman Boiler easily met permit limits for NO_x emissions (0.0373 lb/MMBtu (30 day average) and 3.77 lb/hr (30 day average)). In fact, no single hour exceeded either 0.05 lb/MMBtu or 9.34 lb/hr NO_x emissions.

    The relationship between the monitored parameter (heat input MMBtu/hr) and NO_x emissions (lb/hr) is well developed in the plan. In fact, an additional 75 days monitoring was performed following the initial 30 day test to verify the validity of the developed predictive equation. During the additional test period, measured NO_x emissions averaged 2.8 lb/hr and predicted NO_x emissions averaged 3.0 lb/hr. NO_x emissions (lb/MMBtu) are easily calculated from the mass emission rate. It must be noted here that the predictive equation developed for this plan is only valid for operating conditions present during the test period. For this reason, the position of the flue gas recirculation damper and the flue gas oxygen concentrations are also monitored. The position of the flue gas recirculation damper was adjusted twice during the early part of the test and had significant impact on the line of regression used to predict emissions (line of regression shifted with each

adjustment). In fact, the test start date was modified to begin following the second adjustment of the flue gas recirculation damper. Moving the position of the damper triggers a requirement to perform an additional 30 day test via a certified NO_x CEM in accordance with 40 CFR 60.46b(e). Similarly, flue gas oxygen concentrations never exceeded 3.3 percent (except for brief periods associated with boiler startup and shutdown) during the test period. Analysis of test data, however, did indicate that flue gas oxygen concentrations near 3.3 percent at high heat inputs (greater than 160 MMBtu/hr) correlated with elevated NO_x emissions approaching 0.05 lb/MMBtu. For this reason, a flue gas oxygen concentration of 3.3 percent (30 day average) was selected as a trigger to perform an additional 30 day test via a certified NO_x CEM in accordance with 40 CFR 60.46b(e).

The boiler does not use staged combustion, so it is not possible to monitor that parameter.

Boiler steam output is also monitored since a very close correlation between heat input (MMBtu/hr) and steam output (lbs/hr) was observed during the test period. The steam output parameter can be used to predict heat input if natural gas input and measured heat input are unavailable. [11/16/1999] [Last updated December 22, 2014]

12. Comment on an item originating in Section II.A of this permit regarding #SME SH, WH: Space Heaters and Water Heaters

    This equipment is included for informational purposes only. [1/22/2007] [Last updated December 22, 2014]

13. Comment on an item originating in this permit regarding #SMEi210: Smelter Cold Solvent Degreasers

    Condition II.B.32.a.1: The visual inspections required by this condition do not refer to visual opacity readings. [1/22/2007] [Last updated December 22, 2014]

14. Comment on an item originating in 40 CFR 63 Subpart EEEEEE regarding #Smelter:

    40 CFR 63.11147(a)(2) states, "You must operate a capture system that collects the gases and fumes released during the transfer of molten materials from smelting vessels and converting vessels and conveys the collected gas stream to a control device."

    The capture and control of emissions from the transfer of molten materials from the smelting and converting furnaces are described in this permit under the emission unit descriptions in II.A.17-20. The permittee certified compliance with 63.11147(a)(2), as required by 63.11150(b)(3), in a letter dated and received by DAQ 1/30/07. [2/27/2007] [Last updated December 22, 2014]

15. Comment on an item originating in 40 CFR 63 Subpart EEEEEE regarding #Smelter:

    40 CFR 63.11147(a)(3) states, "You must operate one or more capture systems that collect the gases and fumes released from each vessel used to refine blister copper, remelt anode copper, or remelt anode scrap and convey each collected gas stream to a control device. One control device may be used for multiple collected gas streams."

    The capture and control of emissions from units used to refine blister copper, remelt anode copper, or remelt anode scrap are described in this permit under the emission unit descriptions in II.A.21 and 26. The permittee certified compliance with 63.11147(a)(3), as required by 63.11150(b)(4), in a letter dated and received by DAQ 1/30/07. [2/27/2007] [Last updated December 22, 2014]

16. Comment on an item originating in DAQE-AN103460054-14 Condition II.B.1.q regarding #Smelter:

    AO condition is a design requirement that has been met: The referenced condition states that the permittee shall install secondary hoods and ventilation systems for fugitive emissions capture on the following: concentrate dryer feed chute, slag and matte

granulators, smelting and converting furnaces, and slag pot filling stations. This condition is a design and installation requirement that has been verified to have been met and therefore not a requirement carried forth into this permit. [1/22/2007] [Last updated December 22, 2014]

17. Comment on an item originating in DAQE-AN103460054-14 Condition II.B.1.l regarding #Smelter:

    AO condition not carried forward to this permit: Fugitive dust emissions during construction are not part of day-to-day operations and are appropriately covered by Utah rule R307-205 and R307-309. The referenced condition is therefore not carried forward to this permit. [1/22/2007] [Last updated December 22, 2014]

18. Comment on an item originating in DAQE-AN103460054-14 - II.B.1.p.A, B, C, and F regarding #Smelter:

    AO conditions subsumed by operation and maintenance requirements: The referenced conditions are general requirements for maintenance of the gas handling systems. The general operations and maintenance requirement of this permit adequately addresses and subsumes the requirements of the above noted AO conditions. [1/22/2007] [Last updated December 22, 2014]

19. Comment on an item originating in this permit regarding #Smelter:

    Condition II.B.1.f: This condition is specific to smelter operations only. [4/05/2006] [Last updated December 22, 2014]

20. Comment on an item originating in this permit regarding #Smelter:

    Condition II.B.1.m: Undisturbed, as used in this condition to describe storage piles, is defined as materials that have not been physically agitated for over three months and have formed a crust or covering that prevents fugitive dust. [4/06/2006] [Last updated December 22, 2014]

21. Comment on an item originating in DAQE-AN103460054-14 Condition II.B.1.i regarding #Smelter:

    Opacity monitoring: Monitoring changes were made in the renewal permit dated 7/9/2007 for seven intermittent small sources and one natural gas combustion source:

    Rather than visible emission observations, the permittee shall demonstrate compliance with the opacity limits on the following units either by inspection/maintenance of the control equipment or by fuel records documenting natural gas/propane use.

    Monitoring to ensure the pollution control equipment is properly operated and maintained is justified in lieu of periodic visible emission observations at the first seven listed units, since those units have infrequent, or erratic source operation, and since specific inspection / maintenance requirements on monthly or quarterly intervals, at the baghouses for these particular units, are considered at least as effective as periodic opacity observations, for ensuring good emission control and compliance with opacity limits on an ongoing basis. Monitoring of fuel records is justified in lieu of periodic visible emission observations for the acid plant preheater, which is a natural gas combustion source. The opacity limits at these units remain enforceable under the permit.

    #SME 006: Smelter Limestone Flux Bin (Stack 6) - Pressure drop monitoring also req'd when operating by condition II.B.1.k
    #SME 029: Secondary Gas System Lime Silo (Stack 29) - Bin vent baghouse
    #SME 028: Anode Area Lime Silo (Stack 28) - Bin vent baghouse
    #SME 015: Mold Coating (Barite) Bin (Stack 15) - Pressure drop monitoring also req'd when operating by condition II.B.1.k
    #SME 019: Hydrometallurgical Plant Limestone Bin (Stack 19) - Pressure drop monitoring

also req'd when operating by condition II.B.1.k
#SME 020: Hydrometallurgical Plant Lime Bin (Stack 20) - Pressure drop monitoring also req'd when operating by condition II.B.1.k
#SME 017a, c: Vacuum Cleaning Systems (Stacks 17a,17c) - Pressure drop monitoring also req'd when operating by condition II.B.1.k
#SME 008: Acid Plant Preheater (Stack 8) - Natural gas/propane combustion req'd by II.B.1.f

(Reference for baghouse monitoring "Fabric Filter Operation and Maintenance" at http://yosemite.epa.gov/oaqps/EOGtrain.nsf/DisplayView/SI_412A_6?OpenDocument) [7/9/2007] [Last updated December 22, 2014]

22. Comment on an item originating in DAQE-AN103460054-14 Conditions II.B.1.p.D. & E. regarding #Smelter:
    Weekly Observations and monthly inspections adequately addressed by other permit conditions: The referenced AO conditions indicate that "weekly observations of process units" and "monthly inspection of gas handling systems" respectively, shall be performed. Unit specific requirements (i.e. weekly opacity monitoring) and general operation and maintenance practices, as applicable conditions of this permit, address these two conditions adequately and therefore no specific references are necessary. [4/04/2006] [Last updated December 22, 2014]

23. Comment on an item originating in R307-415-3 regarding Permitted Source
    Greenhouse Gases (GHGs): GHG applicability has been reviewed and evaluated in this permit action and there are no GHG requirements included in this permit. [9/18/2012] [Last updated December 22, 2014]

24. Comment on an item originating in 40 CFR 60 Subpart LL regarding #SME SLAG: Slag Concentrator
    Crushing and Screening operation: 40 CFR 60 Subpart LL is not applicable to the crushing and screening operation in the referenced emission unit because the material being processed is slag from the furnaces rather than ore. Documentation from the permittee confirms the smelter does not process ore and so does not meet the definition of metallic mineral processing plant in Subpart LL. [05/01/2014] [Last updated December 22, 2014]

25. Comment on an item originating in 40 CFR 60 Subpart KKKK regarding #REF CHP: Refinery Combined Heat and Power Unit
    NO_x test frequency: 40 CFR 60.4340(a) allows reduced frequency of subsequent performance tests for NO_x under certain conditions. Since the SIP requires testing for NO_x every year on this emission unit, the reduced frequency language originating in 40 CFR 60.4340(a) has been removed from this permit. [08/04/2014] [Last updated December 22, 2014]

26. Comment on an item originating in DAQE-AN103460054-14 regarding #Smelter:
    AO Condition II.B.1.k: The referenced approval order condition reads, 'The plan shall include a description of dust control practices for paved/unpaved operating areas and paved/unpaved roads located within Kessler Canyon south of State Highway 201.' This language has not been included in the permit, because these areas have been addressed in the fugitive dust control plan. [08/06/2014] [Last updated December 22, 2014]

Federal Register

Tuesday,
January 23, 2007

Part II

Environmental Protection Agency

40 CFR Part 63

National Emission Standards for Hazardous Air Pollutants for Area Sources: Polyvinyl Chloride and Copolymers Production, Primary Copper Smelting, Secondary Copper Smelting, and Primary Nonferrous Metals: Zinc, Cadmium, and Beryllium; Final Rule

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 63

[EPA–HQ–OAR–2006–0510; FRL–8257–4]

RIN 2060–AN45

National Emission Standards for Hazardous Air Pollutants for Area Sources: Polyvinyl Chloride and Copolymers Production, Primary Copper Smelting, Secondary Copper Smelting, and Primary Nonferrous Metals: Zinc, Cadmium, and Beryllium

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rules.

SUMMARY: EPA is issuing national emission standards for hazardous air pollutants (NESHAP) for four area source categories. These final NESHAP include emissions limits and/or work practice standards that reflect the generally available control technologies (GACT) and/or management practices in each of these area source categories.

DATES: These final rules are effective on January 23, 2007. The incorporation by reference of certain publications listed in these rules is approved by the Director of the Federal Register as of January 23, 2007.

ADDRESSES: The EPA has established a docket for this action under Docket ID No. EPA–HQ–OAR–2006–0510. All documents in the docket are listed in the Federal Docket Management System index at *http://www.regulations.gov*. Although listed in the index, some information is not publicly available, e.g., confidential business information or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, is not placed on the Internet and will be publicly available only in hard copy form. Publicly available docket materials are available either electronically through *www.regulations.gov* or in hard copy at the EPA Docket Center, Public Reading Room, EPA West, Room 3334, 1301 Constitution Ave., NW., Washington, DC. The Public Reading Room is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The telephone number for the Public Reading Room is (202) 566–1744, and the telephone number for the Air Docket is (202) 566–1742.

FOR FURTHER INFORMATION CONTACT: Ms. Sharon Nizich, U.S. EPA, Office of Air Quality Planning and Standards, Sector Policies and Programs Division, Metals and Minerals Group (D243–02), Research Triangle Park, North Carolina 27711, telephone number: (919) 541–2825, fax number (919) 541–3207, e-mail address: *nizich.sharon@epa.gov*.

SUPPLEMENTARY INFORMATION:

Outline

The information presented in this preamble is organized as follows:

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B. Where can I get a copy of this document?
C. Judicial Review
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B. NESHAP for Primary Copper Smelting Area Sources
C. NESHAP for Secondary Copper Smelting Area Sources
D. NESHAP for Primary Nonferrous Metals—Zinc, Cadmium, and Beryllium Area Sources
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C. Primary Copper Smelters
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I. General Information

A. Does this action apply to me?

The regulated categories and entities potentially affected by these final standards include:

Category	NAICS code [1]	Examples of regulated entities
Industry:		
Polyvinyl chloride and copolymers production.	325211	Area source facilities that polymerize vinyl chloride monomer to produce vinyl chloride and/or copolymer products.
Primary copper smelting	331411	Area source facilities that produce copper from copper sulfide ore concentrates using pyrometallurgical techniques.
Secondary copper smelting	[2] 331423	Area source facilities that process copper scrap in a blast furnace and converter or use another pyrometallurgical purification process to produce anode copper from copper scrap, including low-grade copper scrap.
Primary nonferrous metals—zinc, cadmium, and beryllium.	331419	Area source facilities that produce zinc, zinc oxide, cadmium, or cadmium oxide from zinc sulfide ore concentrates using pyrometallurgical techniques and area source facilities that produce beryllium metal, alloy, or oxide from beryllium ore.
Federal government		Not affected.
State/local/tribal government		Not affected.

[1] North American Industry Classification System.
[2] This final rule applies only to secondary copper smelters and does not apply to copper, brass, and bronze ingot makers or remelters that may also be included under this NAICS code.

This table is not intended to be exhaustive, but rather provides a guide for readers regarding entities likely to be affected by this action. To determine whether your facility is regulated by this action, you should examine the applicability criteria in 40 CFR 63.11140 of subpart DDDDDD (NESHAP for Polyvinyl Chloride and Copolymers Production Area Sources), 40 CFR 63.11146 of subpart EEEEEE (NESHAP for Primary Copper Smelting Area Sources), 40 CFR 63.11153 of subpart FFFFFF (NESHAP for Secondary Copper Smelting Area Sources), or 40 CFR 63.11160 of subpart GGGGGG (NESHAP for Primary Nonferrous Metals—Zinc, Cadmium, and Beryllium

Area Sources). If you have any questions regarding the applicability of this action to a particular entity, consult either the air permit authority for the entity or your EPA regional representative as listed in 40 CFR 63.13 of subpart A (General Provisions).

B. Where can I get a copy of this document?

In addition to being available in the docket, an electronic copy of this final action will also be available on the Worldwide Web (WWW) through the Technology Transfer Network (TTN). Following signature, a copy of this final action will be posted on the TTN's policy and guidance page for newly proposed or promulgated rules at the following address: *http://www.epa.gov/ttn/oarpg/*. The TTN provides information and technology exchange in various areas of air pollution control.

C. Judicial Review

Under section 307(b)(1) of the Clean Air Act (CAA), judicial review of these final rules is available only by filing a petition for review in the U.S. Court of Appeals for the District of Columbia Circuit by March 26, 2007. Under section 307(d)(7)(B) of the CAA, only an objection to these final rules that was raised with reasonable specificity during the period for public comment can be raised during judicial review. Moreover, under section 307(b)(2) of the CAA, the requirements established by these final rules may not be challenged separately in any civil or criminal proceedings brought by EPA to enforce these requirements.

II. Background Information for Final Area Source Standards

Sections 112(c)(3) and 112(k)(3)(B) of the CAA instruct EPA to identify not less than 30 HAP which, as a result of emissions from area sources, present the greatest threat to public health in the largest number of urban areas, and to list sufficient area source categories [1] to ensure that sources representing 90 percent or more of the emissions of each of the 30 listed HAP (''area source HAP'') are subject to regulation. Sierra Club sued EPA, alleging a failure to complete standards for the source categories listed pursuant to CAA sections 112(c)(3) and (k)(3)(B) within the timeframe specified by the statute. *See Sierra Club* v. *Johnston*, No. 01–1537, (D.D.C.). On March 31, 2006, the court issued an order requiring EPA to promulgate standards under CAA section 112(d) for those area source categories listed pursuant to CAA sections 112(c)(3) and (k)(3)(B).

Among other things, the order requires that, by December 15, 2006, EPA complete standards for four of the listed area source categories. On October 6, 2006 (71 FR 59302) we proposed NESHAP for the following four listed area source categories that we have selected to meet the December 15, 2006 deadline: (1) Primary Copper Smelting; (2) Secondary Copper Smelting; (3) Polyvinyl Chloride and Copolymers Production; and (4) Primary Nonferrous Metals—Zinc, Cadmium, and Beryllium. These final NESHAP complete the required regulatory action for four area source categories.

Under CAA section 112(d)(5), the Administrator may, in lieu of standards requiring maximum achievable control technology (MACT) under section 112(d)(2), elect to promulgate standards or requirements for area sources ''which provide for the use of generally available control technologies or management practices by such sources to reduce emissions of hazardous air pollutants.'' Under section 112(d)(5), the Administrator has the discretion to use generally available control technology (GACT) or management practices in lieu of MACT. As mentioned in the proposed NESHAP for these four area source categories, we have decided not to issue MACT standards and concluded that requirements that provide for the use of GACT or generally available management practices are appropriate for these four source categories (71 FR 59302, 59304, October 6, 2006).

III. Summary of Final Rules and Changes Since Proposal

A. NESHAP for Polyvinyl Chloride and Copolymers Production Area Sources

As proposed, we are adopting the requirements in 40 CFR part 61, subpart F that apply to polyvinyl chloride (PVC) plants as the NESHAP for the Polyvinyl Chloride and Copolymer Production area source category. The only change since the proposed rule is that this final rule does not adopt either the startup, shutdown, and malfunction (SSM) requirements in 40 CFR 63.6(e)(3) or the preconstruction notification requirements in 40 CFR 63.5. As discussed in more detail in section IV.B of this preamble, under the construct of part 61 standards, sources must comply with the standards at all times, including periods of SSM. Because in this final rule we are adopting the part 61 standards for PVC plants as the area source standard, separate requirements governing SSM are not necessary. We have also determined that the preconstruction notification requirements at 40 CFR 63.5 are not necessary because a comparable preconstruction notification is already required under the part 61 General Provisions (40 CFR part 61, subpart A), which apply to this NESHAP.

1. Applicability and Compliance Dates

This final rule applies to both new and existing PVC and copolymer plants that are area sources of HAP. The owner or operator of an existing source must comply with all the requirements of this area source NESHAP by January 23, 2007. The owner or operator of a new source must comply with this area source NESHAP by January 23, 2007 or at startup, whichever is later.

2. Emissions Limits and Work Practice Standards

The Polyvinyl Chloride and Copolymers Production area source category was listed for its contribution to the emissions of the area source HAP vinyl chloride. As proposed, we are adopting the requirements in 40 CFR part 61, subpart F that are applicable to PVC plants as the NESHAP for the Polyvinyl Chloride and Copolymer Production area source category. These requirements in subpart F include numerical emissions limits for reactors; strippers; mixing, weighing, and holding containers; monomer recovery systems; emissions sources following the stripper(s); and reactors used as strippers. In addition, they include emissions limits and work practice requirements that apply to discharges from manual vent valves on a PVC reactor and relief valves in vinyl chloride service, fugitive emissions sources, and equipment leaks. Subpart F also requires a new or existing source to comply with the requirements at 40 CFR part 61, subpart V for the control of equipment leaks. As discussed in the proposal preamble, we have determined that these requirements represent GACT for sources in this area source category.

3. Compliance Requirements

We are including in this NESHAP the monitoring, testing, recordkeeping, and reporting requirements in 40 CFR part 61, subpart F. This final NESHAP requires a vinyl chloride continuous emissions monitoring system (CEMS) for the regulated emissions sources (except for sources following the stripper) and for any control system to which reactor emissions or fugitive

[1] Under section 112(a) of the Clean Air Act, an area source is defined as a stationary source that is not a major source. A major source is defined as a stationary source or a group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit considering controls, in the aggregate, 10 tons per year or more of any HAP or 25 tons per year or more of any combination of HAP.

emissions must be ducted. Plants using a stripper to comply with this NESHAP must also determine the daily average vinyl chloride concentration for each type of resin. The owner or operator must submit quarterly reports containing information on emissions or resin concentrations that exceed the applicable limits. Records are required to demonstrate compliance, including a daily operating log for each reactor. Plants are required to comply with the testing, monitoring, recordkeeping, and reporting requirements in the part 61 General Provisions (40 CFR part 61, subpart A). For the reasons discussed in sections III.A and IV.B of this preamble, this final NESHAP does not require that the owner or operator comply with the SSM requirements at 40 CFR 63.6(e)(3) and the preconstruction notification requirements at 40 CFR 63.5.

4. Exemption From Title V Permit Requirements

Section 502(a) of the CAA provides that EPA may exempt one or more area sources from the requirements of title V if EPA finds that compliance with such requirements is ''impracticable, infeasible, or unnecessarily burdensome'' on such area sources. EPA must determine whether to exempt an area source from title V at the time we issue the relevant section 112 standard (40 CFR 70.3(b)(2)). For the reasons discussed in the preamble to the proposed rule, we are exempting PVC and copolymers production area sources from the requirements of title V. PVC and copolymers production area sources are not required to obtain title V permits solely as a function of being the subject of the NESHAP; however, if they were otherwise required to obtain title V permits, such requirement(s) would not be affected by this exemption. We received no comments on our proposal to exempt PVC and copolymer production area sources from the requirements of title V.

B. NESHAP for Primary Copper Smelting Area Sources

The Primary Copper Smelting area source category was listed for its contribution to the emissions of the area source HAP arsenic, cadmium, chromium, lead, and nickel. As discussed in more detail in section IV.C of this preamble, the major change since the proposed rule is that we established a subcategory of primary copper smelters that use the batch converting technology and developed separate standards for this subcategory. At the time of the proposed rule, we were not aware of any area sources using the batch converting technology. Since then, we received comments indicating that there may or will be primary copper smelting area sources that use the batch converting technology. Because batch technology is quite different from the continuous converting technology we used to develop the proposed standards for the Primary Copper Smelting area source category in terms of process operation, emissions points, and achievable levels of control, we believe that the proposed standards do not represent GACT for existing primary copper smelting area sources that use the batch converting technology. Accordingly, we developed a separate standard for existing sources that use the batch converting technology, and we developed that standard based on the title V permit of one batch converting facility that we have determined to be effectively controlling its HAP emissions by complying with its permit terms and conditions.

In response to comments, we also made several changes to the proposed rule for primary copper smelters that do not use the batch converting technology. As explained in the preamble to the proposed rule, we have determined that certain terms and conditions in the title V permit of the only area source primary smelter of which we are aware provide effective control of HAP emissions and represent GACT for these sources. We made changes in the proposed rule to more accurately capture the relevant terms and conditions in this existing area source's title V permit. Specifically, we clarified that capture and control systems are not required for anode casting and holding operations; that the sampler required for existing sources is a continuous PM sampler; that the emissions limit is expressed as PM less than 10 microns in aerodynamic diameter (PM10) rather than PM; and that a single gas collection system could serve multiple process vessels.

As discussed in section IV.B of this preamble, we allow new and existing sources to comply with either the SSM requirements in 40 CFR 63.6(e)(3) or the detailed SSM requirements in the final rule that were developed from the existing sources' title V permits, which are substantially equivalent to the SSM requirements in 40 CFR part 63.

1. Applicability and Compliance Dates

This final rule applies to each new or existing primary copper smelter that is an area source of HAP. The owner or operator of an existing affected source must comply by January 23, 2007. The owner or operator of a new affected source must comply by January 23, 2007 or upon initial startup, whichever is later. An affected source is new if construction or reconstruction of the affected source was commenced on or after October 6, 2006.

2. Emissions Limits and Work Practice Standards

As previously mentioned, we have developed separate standards for existing sources that use the batch converting technology and for those that do not. However, the standards for new sources apply to all new area source primary copper smelters irrespective of the converting technology utilized.

Under this final rule, the owner or operator of an existing area source using any converting technology is required to control HAP emissions from copper concentrate drying, copper concentrate smelting, copper matte drying and grinding, copper matte converting, and copper anode refining. As discussed in the proposal preamble, we are using PM as a surrogate for HAP metals. Gases and fumes generated by these processes must be captured and vented through one or more PM control devices. For existing primary copper smelters that do not use the batch converting process, the total emissions of PM10 from the captured gas streams from all of these processes is limited to 89.5 pounds per hour (lb/hr) as determined on a 24-hour average basis.

For existing primary copper smelters using the batch converting technology, the exhaust gases from each smelter vessel and each converter must be collected and sent to a PM control device and to a sulfuric acid plant. A secondary gas collection system must be installed on each smelting vessel and converter, and PM emissions from the secondary capture and control system must not exceed 0.02 grains per dry standard cubic foot (gr/dscf). The PM emissions from each copper concentrate dryer must not exceed 0.022 gr/dscf.

Similarly, the owner or operator of a new area source using any converting technology must control HAP emissions from all primary copper smelting processes, including but not limited to those processes mentioned above that are applicable to the new source's smelter design. Gases and fumes generated by these processes at a new source must be captured and vented through one or more PM control devices. We are requiring a new source to achieve a facility input-based emissions rate for total PM no greater than a daily (24-hour) average of 0.6 pounds per ton (lb/ton) of copper concentrate feed charged to the smelting vessel.

This final rule for new area source primary copper smelters also requires a secondary gas system for each smelting

vessel and converting vessel that collects the gases and fumes released during the molten material transfer operations and conveys the collected gas stream to a control device. Capture systems that collect gas and fumes and convey them to a control device also are required for operations in the anode refining. These capture and control requirements apply to all new and existing area sources using any copper smelting technology.

3. Compliance Requirements

In this final rule, we have adopted the testing, monitoring, operation and maintenance, recordkeeping, and reporting requirements for PM emissions that are in the title V permits of the existing area source smelters. Compliance with the emissions limit for existing area sources not using the batch converting technology is based on the daily average PM_{10} emissions measured by a continuous PM sampler. For smelters using the batch conversion technology, compliance is based on performance tests at least every 2.5 years and continuous monitoring using continuous opacity monitoring systems (COMS) for electrostatic precipitators and bag leak detection systems for baghouses.

The operation and maintenance requirements in this final rule for existing sources using any converting technology are based on the existing sources' title V permits. At all times, the owner or operator must to the extent practicable, maintain and operate any affected source, including associated air pollution control equipment, in a manner consistent with good air pollution control practice for minimizing emissions. In addition, all pollution control equipment must be installed, maintained, and operated properly. Instructions from the vendor or established maintenance practices that maximize pollution control must be followed. Maintenance records must be made available to the permitting authority upon request.

This final rule allows any new or existing source to meet the SSM requirements specified in this final rule or the SSM requirements in 40 CFR 63.6(e)(3). The SSM requirements that are specified in this final rule were developed from the existing sources' title V permit requirements, and we believe these requirements are equally applicable to new and existing area sources irrespective of the converting technology used. Sources may nevertheless choose to comply with the SSM provisions in 40 CFR 63.6(e)(3), in lieu of the SSM requirements specified in this final rule. The SSM provisions in this final rule require that all malfunctions be reported within two working days of the event. The report must include a description of the malfunction, steps taken to mitigate emissions, and corrective actions taken. In addition, the owner or operator must show through signed contemporaneous logs or other relevant evidence that: (1) A malfunction occurred and the probable cause can be identified, (2) the facility was being operated properly at the time the malfunction occurred, and (3) all reasonable steps were taken to minimize emissions that exceeded the emission standards. A malfunction or emergency does not include events caused by improperly designed equipment, lack of preventative maintenance, careless or improper operation, or operator error.

The owner or operator of an existing area source using any copper smelting technology must comply with notification requirements in 40 CFR 63.9 of the General Provisions (40 CFR part 63, subpart A). In the notification of compliance status required in 40 CFR 63.9(h), the owner or operator may certify initial compliance with the emissions limit based on monitoring data collected during a previous compliance test. The owner or operator also must certify initial compliance with the work practice standards.

The owner or operator of a new primary copper smelter must install, operate, and maintain a CEMS to measure and record PM concentrations and gas stream flow rates for each emissions source subject to the emissions limit. The standard requires that the PM CEMS meet EPA Performance Specification 11 (40 CFR part 60, appendix B). A device to measure and record the weight of the copper concentrate feed charged to the smelting furnace each day also is required. The owner or operator must continuously monitor PM emissions, determine and record the daily (24-hour) value for each day, and calculate and record the daily average pounds of total PM per ton of copper concentrate feed charged to the smelting furnace. A monthly summary report of the daily averages of PM per ton of copper concentrate feed charged to the smelting vessel also is required. All notification, monitoring, testing, operation and maintenance, recordkeeping, and reporting requirements of the part 63 General Provisions apply to the owner or operator of a new source. This final rule allows a new source to meet the specific SSM requirements that were developed from the title V permit requirements for existing sources or the SSM requirements in 40 CFR 63.6(e)(3).

C. NESHAP for Secondary Copper Smelting Area Sources

We did not receive any comments on our determination of GACT for secondary copper smelters, and we are promulgating the standard as proposed without any changes.

1. Applicability and Compliance Dates

This final rule applies to each new secondary copper smelter that is an area source of HAP. The owner or operator of a new affected source is required to comply by January 23, 2007 or upon initial startup, whichever is later.

2. Emissions Limit and Work Practice Standards

This final rule does not include requirements for existing area sources of secondary copper smelters. As we explained in the preamble to the proposed rule, currently there are no existing major or area sources of secondary copper smelters. Therefore, there is not any, nor would there ever be, an existing secondary copper smelter that would be subject to this rule. In this circumstance, we are not issuing standards for existing area sources of secondary copper smelters. However, this final rule contains requirements for new area sources of secondary copper smelters. The Secondary Copper Smelting area source category was listed for its contribution to the emissions of the area source HAP cadmium, lead and dioxin. We have established requirements for new sources in this category to ensure that any potential emission of these area source HAP from future secondary copper smelting area sources will be appropriately controlled.

We are requiring that the owner or operator of any new secondary copper smelter operate a capture and control system for PM emissions from any process operation that melts copper scrap, alloys, or other metals or that processes molten material. Emissions of PM from the control device must not exceed 0.002 gr/dscf. The owner or operator must also prepare and follow a written plan for the selection, inspection, and pretreatment of copper scrap to minimize, to the extent practicable, the amount of oil and plastics in the scrap that is charged to smelting or melting furnaces. As we explained in the proposal preamble, we are using PM as a surrogate for establishing standards for metal HAP, which are cadmium and lead in this case. The United Nations Environmental Programme (UNEP) has also recommended using control devices with high efficiency PM removal to reduce dioxin emissions. The pollution

prevention measure described above (i.e., presorting and pretreating materials) is another UNEP recommendation for reducing dioxin emissions. We have determined that these requirements represent GACT for new sources of secondary copper smelters and requested comments on this determination in the proposed rule. We did not receive any comments on this determination.

3. Compliance Requirements

Fabric filters (baghouses) are expected to be needed to meet the NESHAP emissions limit. Consequently, the monitoring requirements include bag leak detection systems when baghouses are used. For additional information on bag leak detection systems that operate on the triboelectric effect, see ''Fabric Filter Bag Leak Detection Guidance'', U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, September 1997, EPA–454/R–98–015, NTIS publication number PB98164676. This document is available from the National Technical Information Service (NTIS), 5385 Port Royal Road, Springfield, VA 22161. The owner or operator must prepare a written plan for the selection, inspection, and pretreatment of copper scrap and keep records to document conformance with the requirements in the written plan. If a control device other than a baghouse is used, the owner or operator must submit a monitoring plan to the permitting authority for approval. The monitoring plan must include performance test results showing compliance with the PM emissions limit, a plan for operation and maintenance of the control device, a list of operating parameters that will be monitored, and operating parameter limits that were established during the performance test.

The owner or operator must conduct a performance test to demonstrate initial compliance with the PM emissions limit and report the results in the notification of compliance status required by 40 CFR 63.9(h) of the General Provisions. If a baghouse is used, the PM concentration is to be determined using EPA Method 5 (for negative pressure baghouses) or Method 5D (for positive pressure baghouses) in 40 CFR part 60, appendix A. Repeat performance tests are required every 5 years to demonstrate compliance with the PM emissions limit. All requirements of the part 63 General Provisions apply to the owner or operator of a new source, including the notification, monitoring, testing, operation and maintenance, SSM, recordkeeping, and reporting requirements.

D. NESHAP for Primary Nonferrous Metals—Zinc, Cadmium, and Beryllium Area Sources

1. NESHAP for Primary Zinc Production

In this final rule, we have adopted a limit in grains per dry standard cubic foot (gr/dscf) for certain melting furnaces at existing zinc production area sources in addition to the proposed pound per hour (lb/hr) limits for these furnaces at existing sources. This gr/dscf limit is the limit that we proposed for the same furnaces at new sources. Both the gr/dscf limit and the lb/hr limits reflect the level of emission control that can be achieved based on the technology we identified as GACT for these furnaces (i.e., a well-operated and well-maintained baghouse). However, whereas the lb/hr limits were based on the specific operations at the two existing sources of which we are aware, the gr/dscf emission limit is not operation specific and can apply to these furnaces at any primary zinc production area source irrespective of its operation. For this reason, we proposed this gr/dscf emissions limit for these furnaces at new sources. In this final rule, we similarly allow an existing source to meet this gr/dscf limit for these furnaces. This final rule provides existing sources the option of meeting either the lb/hr limits or the gr/dscf limit for these furnaces. We believe that including both the lb/hr and gr/dscf limits in this final rule will ensure effective control of these furnaces at all existing primary zinc production area sources in the event that there are facilities other than the two we know and with very different operations from the two known sources.

In addition, as discussed in section IV.B of this preamble, we allow new and existing sources to comply with either the SSM requirements in 40 CFR 63.6(e)(3) or with the detailed SSM requirements in the final rule that were developed from the existing sources' title V permits, which are substantially equivalent to the SSM requirements in part 63.

Applicability and compliance dates. This final rule applies to each new or existing primary zinc production facility that is an area source of HAP. The owner or operator of an existing affected source must comply by January 23, 2007. The owner or operator of a new affected source must comply by January 23, 2007 or upon initial startup, whichever is later.

Emissions limits and work practice standards. Primary zinc production facilities were included as part of the Primary Nonferrous Metals area source category due to their contributions to the emissions of the area source HAP arsenic, cadmium, lead, manganese, and nickel, all of which are metal HAP. As we mentioned in the proposal preamble, cadmium is produced as a by-product of zinc smelting processes. There are no primary cadmium smelters in the United States. Accordingly, the requirements for area sources of zinc production in this final rule also address emissions associated with any cadmium production at these zinc production facilities.

As previously mentioned, we are using PM as a surrogate for establishing standards for metal HAP. Under this final rule, the owner or operator of an area source of zinc production is required to exhaust roaster off-gases to PM removal equipment and a sulfuric acid plant. Bypassing the sulfuric acid plant during charging of the roaster is prohibited.

Emissions limits apply to the different types of melting furnaces at primary zinc production facilities. For existing sources, this NESHAP limit PM emissions to 0.93 lb/hr for zinc cathode melting furnaces; 0.1 lb/hr for furnaces that melt zinc dust, chips, and off-specification zinc materials; and 0.228 lb/hr for the combined exhaust from furnaces that melt zinc scrap and alloys. As an alternative to the lb/hr limits for these furnaces at existing sources, the owner or operator may elect to meet a limit of 0.005 gr/dscf. For new sources, the PM limit is 0.005 gr/dscf for the furnaces mentioned above. Other PM limits are 0.014 gr/dscf for anode casting furnaces and 0.015 gr/dscf for cadmium melting furnaces at new and existing sources.

Emissions limits also apply to any sintering machine at a new or existing area source facility. If there is a sintering machine, the owner or operator must comply with the PM limit at 40 CFR 60.172 and the opacity limit at 40 CFR 60.174(a) of the new source performance standard (NSPS) for primary zinc smelters (40 CFR part 60, subpart Q).

Compliance requirements. We are adopting for existing area sources certain monitoring, recordkeeping, and reporting requirements in the title V permits of the two existing facilities that relate to PM emissions control. The owner or operator of an existing area source must monitor baghouse pressure drop, perform routine baghouse maintenance, and keep records to document compliance. In addition, we are requiring repeat performance tests (at least once every 5 years) for existing sources. This final rule also requires a continuous opacity monitoring system (COMS) for any sintering machine in accordance with 40 CFR 60.175.

The owner or operator of an existing area source must comply with initial notification requirements in 40 CFR 63.9 of the General Provisions. In the notification of compliance status required by 40 CFR 63.9(h), the owner or operator may certify initial compliance with the HAP emissions limits based on the results of a PM performance test for each of the regulated emissions sources conducted within the past 5 years. The owner or operator must also certify initial compliance with the work practice standards.

If an existing source has not conducted a performance test to demonstrate compliance with the emissions limits for a furnace, the facility must conduct a test according to the requirements at 40 CFR 63.7 using EPA Method 5 (40 CFR part 60, appendix A) to determine the PM concentration or an alternative method previously approved by the permitting authority. For a sintering machine, the owner or operator must conduct a performance test according to the procedures in 40 CFR 60.176(b) using EPA Method 5 to determine the PM concentration and EPA Method 9 (40 CFR part 60, appendix B) to determine the opacity of emissions.

The operation and maintenance requirements in the final rule for existing sources are based on the sources' title V permits. The owner or operator must maintain all equipment covered under the subpart in such a manner that the performance or operation of the equipment does not cause a deviation from the applicable requirements. A maintenance record must be kept for each item of air pollution control equipment. At a minimum, this record must show the dates of performing maintenance and the nature of preventative maintenance activities.

This final rule allows any existing source to meet the specific SSM requirements that were developed from the title V permit requirements for existing sources or the SSM requirements in 40 CFR 63.6(e)(3). The specific SSM provisions in this final rule require that all malfunctions be reported within two working days of the event. The report must include a description of the malfunction, steps taken to mitigate emissions, and corrective actions taken. In addition, the owner or operator must show through signed contemporaneous logs or other relevant evidence that: (1) A malfunction occurred and the probable cause can be identified, (2) the facility was being operated properly at the time the malfunction occurred, and (3) all reasonable steps were taken to minimize emissions that exceeded the emission standards. A malfunction or emergency does not include events caused by improperly designed equipment, lack of preventative maintenance, careless or improper operation, or operator error.

As required in the existing permits, the owner or operator must submit a notification to the permitting authority of any deviation from the requirements of this final NESHAP. The notification must describe the probable cause of the deviation and any corrective actions or preventative measures taken. Existing facilities are also required to submit semiannual monitoring reports which clearly describe any deviations. Records of baghouse maintenance, all required monitoring data, and support information also are required. The owner or operator of an existing area source must also comply with the notification requirements in 40 CFR 63.9 of the General Provisions.

The owner or operator of a new area source is required to install and operate a bag leak detection system for each baghouse used to comply with a PM emissions limit. For additional information on bag leak detection systems that operate on the triboelectric effect, see ''Fabric Filter Bag Leak Detection Guidance'', U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, September 1997, EPA–454/R–98–015, NTIS publication number PB98164676. This document is available from the National Technical Information Service (NTIS), 5385 Port Royal Road, Springfield, VA 22161. In addition, we are requiring repeat PM performance tests (once every 5 years) for each furnace at a new source. The owner or operator must also install, operate, and maintain a COMS for each sintering machine according to EPA Performance Specification 1 (40 CFR part 60, appendix B).

The owner or operator of a new affected source must demonstrate initial compliance with the applicable emissions limits by conducting a performance test according to the requirements at 40 CFR 63.7 and using EPA 5 or 5D (40 CFR part 60, appendix A), as applicable, to determine the PM concentration. An initial performance test is also required for a sintering machine according to the methods and procedures in 40 CFR 60.176(b). All of the notification, testing, monitoring, operation and maintenance, recordkeeping, and reporting requirements of the part 63 General Provisions apply to a new area source. This final rule allows a new source to meet the specific SSM requirements in this final rule or the SSM requirements in 40 CFR 63.6(e)(3).

2. NESHAP for Primary Beryllium Production Area Sources

The only change since proposal is that this final rule does not adopt the SSM requirements in 40 CFR 63.6(e)(3) and the preconstruction notification requirements in 40 CFR 63.5. As discussed in more detail in section IV.B of this preamble, we have determined that the SSM requirements are not necessary for standards under part 61 that must be met at all times, and the preconstruction notification is already required under the part 61 General Provisions.

Applicability and compliance dates. For this final rule, we are adopting all of the requirements in the National Emission Standard for Beryllium at 40 CFR part 61, subpart C. The owner or operator of an existing area source must comply with this NESHAP by January 23, 2007. The owner or operator of a new area source must comply by January 23, 2007 or at startup, whichever is later.

Emissions limits. Primary beryllium production facilities were included as part of the Primary Nonferrous Metals area source category due to their contributions to the emissions of the area source HAP arsenic, cadmium, lead, manganese, and nickel, all of which are metal HAP. As discussed in the proposal preamble, we are using beryllium as a surrogate for HAP metals. We are adopting the 40 CFR part 61, subpart C standard as the requirements for both new and existing primary beryllium production facilities in this final rule. The part 61, subpart C standard limits emissions from extraction plants (i.e., primary beryllium production facilities) to 10 grams (0.022 lb) of beryllium over a 24-hour period. Alternatively, the owner or operator of a beryllium production facility may request to meet an ambient concentration limit instead of the emissions limit. As discussed in the preamble to the proposed rule, the part 61 standard is highly effective in controlling PM and metal HAP emissions from the only existing beryllium production facility known to us at the time of the proposal. We have determined that these requirements reflect GACT for area sources of beryllium production. We did not receive any comments on this determination.

Compliance requirements. This final rule requires the owner or operator to comply with the testing, monitoring, recordkeeping, and reporting requirements in 40 CFR part 61, subpart

C. An owner or operator subject to the ambient concentration limit must operate air sampling sites to continuously monitor the concentrations of beryllium in the ambient air according to an EPA-approved plan.

The owner or operator must comply with recordkeeping requirements in 40 CFR part 61, subpart C, as well as the testing, monitoring, recordkeeping, and reporting requirements in the part 61 General Provisions in 40 CFR part 61, subpart A. For the reasons discussed in section IV.B of this preamble, this final rule does not require that the owner or operator comply with the requirements for SSM plans and reports in 40 CFR 63.6(e)(3) or the preconstruction notification requirements in 40 CFR 63.5.

IV. Summary of Comments and Responses

A. Existing Area Source Facilities

At proposal, we stated that we did not know of any existing sources in the Polyvinyl Chloride and Copolymer area source category, and we requested comments on whether there are or ever will be any area sources in this area source category. We also stated that currently there is only one area source of primary copper production in operation in the United States and that there are no primary beryllium production area sources.

Comment: One commenter informed us of an area source PVC plant in Alabama. In addition, two commenters stated that there are a few (at least three) PVC plants that they believe may qualify as area sources. According to the commenters, these were once major sources that have reduced HAP emissions significantly or that are currently shut down but are expected to start up again with significantly less emissions than from previous operations as major sources. The commenters requested that EPA clarify the meaning of ''potential to emit'' in its definition of an ''area source'' in the proposed rule, as well as the proposed rule's applicability to plants that have obtained or, for the ones that are not currently operating, will obtain permits that limit emissions to levels below the major source thresholds. In addition, the commenters requested clarification of the proposed rule's applicability to PVC plants co-located at chemical complexes that are major sources.

One commenter notified us of an area source primary beryllium plant in Utah. The commenter sought clarification of the proposed rule's applicability to a primary beryllium plant that is a major source because of perchloroethylene emissions and that may become an area source in the future by eliminating the use of perchloroethylene.

We also received comments that there are two operating primary copper smelters that are area sources rather than just one, as EPA stated in the proposed rule. The company operating this second source reported that it was an area source (synthetic minor) based on a determination by the permitting authority. The company also stated that it is planning to restart a primary copper smelter in Texas that has been shutdown and under ''care and maintenance'' for several years. This facility will incorporate feedstock limitations to remain below major source thresholds, and the company expects that this facility will qualify as an area source when the renewed permits are issued. The commenter sought clarification of the applicability of the proposed rule to the two primary copper smelters described above.

Response: Section 112(a) of the CAA defines the terms ''major source'' and ''area source.'' An ''area source'' is defined as any stationary source that is not a major source. In the proposed rule, we included a definition for ''area source'' and that definition attempted to summarize the statutory definitions of ''major source'' and ''area source.'' Commenters sought clarification of the meaning of the term ''potential to emit'' contained in the proposed definition of ''area source.'' Based on the comment, it appears that the proposed definition of ''area source'' has caused confusion. Because the proposed definition of ''area source'' was merely intended to summarize the statutory definitions of ''major source'' and ''area source'' and is redundant of the definition of ''area source'' contained in the General Provisions (40 CFR part 63, subpart A), we have decided not to finalize the proposed ''area source'' definition. Instead, as noted in the NESHAP for each of these four area source categories, the definitions of ''major source,'' ''area source,'' and ''potential to emit'' in 40 CFR 63.2 apply to this final rule.[2] To the extent the commenters have questions as to whether their facility is a major source or an area source, EPA cannot answer these site-specific applicability questions in the context of this national rulemaking. We refer the commenters to the definitions of ''major source,'' ''area source,'' and ''potential to emit'' found in 40 CFR 63.2, and recommend that the commenters consult with the relevant permitting authority or submit a request for an applicability determination to the EPA regional office in the region where the source is located.

In addition, we want to clarify that a plant that is co-located with other facilities that together qualify as a major source is part of that major source and not an area source.

B. Part 63 General Provisions

Comment: One commenter representing the two beryllium plants objected to the part 63 SSM requirements in the proposed NESHAP for the Primary Beryllium Production area source category. The commenter stated that these two beryllium plants are already subject to 40 CFR part 61, subpart C, which EPA has adopted in this final rule, as well as the SSM requirements in State implementation plans (SIP), State laws, and title V permits. According to the comment, because these plants are subject to a strict ambient air standard for beryllium under the part 61 NESHAP, which requires that the plants monitor continuously and meet the required limits under all conditions, the part 63 SSM requirements are not necessary. Commenters representing facilities in the PVC industry provided similar comments. In addition, they stated that by requiring compliance with part 61 and the SSM provisions in 40 CFR 63.6, the proposed rule would impose two different SSM schemes in one standard. It would also impose more burdensome reporting and recordkeeping obligations on the lower emitting (area) sources.

Representatives of two primary copper companies also stated that the SSM requirements are unnecessary and duplicative of existing requirements and should be deleted. Their title V permits contain existing functionally equivalent

[2] In 1995, the Court of Appeals for the District of Columbia Circuit reviewed the definition of ''potential to emit'' (PTE) contained in 40 CFR in 40 CFR 63.2 (*National Mining Ass'n* v. *EPA*, 59 F.3d 1351 (D.C. Cir. 1995)). In July 2005, the D.C. Circuit remanded the definition to EPA to the extent the definition required that physical or operational limitations be ''federally enforceable'' (*National Mining Ass'n* v. *EPA*, 59 F.3d 1351 (D.C. Cir. 1995)). The court did not vacate the 40 CFR part 63 regulations and therefore the definition of ''potential to emit'' in 40 CFR part 63 remains in place. EPA is currently in the process of developing a proposed rule that responds to the court's remand. EPA has a transitional policy that relates to PTE. See ''Options for Limiting the Potential to Emit (PTE) of a Stationary Source Under Section 112 and Title V of the Clean Air Act (Act)'' (Jan. 25, 1995), available at *http://www.epa.gov/Region7/programs/artd/air/title5/t5memos/ptememo.pdf*. EPA has extended the transition policy several times. See ''Third Extension of January 25, 1995 Potential to Emit Transition Policy'' (December 20, 1999), available at *http://www.epa.gov/Region7/programs/artd/air/title5/t5memos/4thext.pdf*. Under the Third Extension, sources can rely on State-only enforceable PTE limits until we finalize our response to the remand.

SSM provisions, including requirements for timely notification and reporting.

Response: We agree that the SSM requirements in the 40 CFR part 63 General Provisions need not be included in the NESHAP for the PVC and Copolymer Production and the Primary Beryllium Production area source categories, both of which adopted the relevant part 61 standards for these categories. Under the construct of the part 61 standards, sources must comply with the standards at all times, including periods of SSM. Therefore, separate requirements governing SSM are not necessary. Accordingly, we have revised the proposed rule to eliminate the part 63 SSM requirements for new and existing primary beryllium and PVC plants.

We also examined the SSM requirements that are in title V permits for other source categories. The primary copper smelters and primary zinc production plants have similar requirements in their permits. Our review indicates that these requirements are substantially equivalent to the part 63 SSM requirements. For example, the title V permits for these plants require that all malfunctions be reported within two working days of the event. The report must include a description of the malfunction, steps taken to mitigate emissions, and corrective actions taken. In addition, the permittee must show through signed contemporaneous logs or other relevant evidence that: (1) A malfunction occurred and the permittee can identify the probable cause, (2) the facility was being operated properly at the time the malfunction occurred, and (3) all reasonable steps were taken to minimize emissions that exceeded the emission standards or other requirements of the permit. The permit also makes it clear that a malfunction or emergency does not include events caused by improperly designed equipment, lack of preventative maintenance, careless or improper operation, or operator error.

Based on the comments and our review of title V permits, we are including in this final rule alternative SSM requirements that we have formulated based on our review of the title V permits mentioned above. Under this final rule, a new or existing primary copper smelter or primary zinc production facility may choose to meet the SSM requirements in 40 CFR 63.6(e)(3) or the alternative SSM requirements provided in this final rule.

This final rule also includes operation and maintenance requirements for existing sources that are based on the permits. For primary copper smelters, the owner or operator must to the extent practicable, maintain and operate any affected source, including associated air pollution control equipment, in a manner consistent with good air pollution control practice for minimizing emissions. In addition, all pollution control equipment must be installed, maintained, and operated properly. Instructions from the vendor or established maintenance practices that maximize pollution control must be followed. All necessary equipment control and operating devices, such as pressure gauges, ampere meters, volt meters, flow rate indicators, temperature gauges, continuous emissions monitoring systems, etc., must be installed, operated properly and easily accessible to compliance inspectors. A copy of all manufacturers' operating instructions for pollution control equipment and pollution emitting equipment must be maintained at the facility site. These instructions must be available to all employees who operate the equipment and must be made available to the permitting authority upon request. Maintenance records must be made available to the permitting authority upon request.

Comment: One commenter stated that we should not adopt the preconstruction notification requirements in the part 63 General Provisions (40 CFR part 63, subpart A) because they were unnecessary and duplicate the very similar requirements already in the part 61 General Provisions (40 CFR part 61, subpart A). EPA should not impose the additional burden of submitting and processing two duplicative applications and should just rely on the provisions already in the part 61 General Provisions.

Response: We agree that if a preconstruction notification is submitted under the part 61 General Provisions (40 CFR 61.07), it is not necessary to submit another preconstruction notification under the part 63 General Provisions. We have revised the proposed rule to reflect this change.

Comment: One commenter stated that EPA should not incorporate any of the part 63 General Provisions into area source standards that adopt the part 61 NESHAP. These provisions, including those in 40 CFR 63.1 (Applicability), are already addressed in the part 61 General Provisions and enhanced by SIP requirements and title V permits.

Response: We have previously addressed the SSM requirements and preconstruction notifications for facilities subject to part 61 standards. The only other section of the part 63 General Provisions that we have included for these sources deals with applicability in 40 CFR 63.1 (§§ 63.1(a)(1) through (10), 63.1(b)(1), 63.1(c), and 63.1(d)). The provisions on applicability impose no burden on the facility and provide clarity and useful information related to the applicability of standards under part 63. Consequently, the final rule includes portions of § 63.1 from the part 63 General Provisions.

C. Primary Copper Smelters

Comment: Two commenters identified two primary copper smelters as area sources in addition to the one smelter identified as an area source in the proposal preamble. One of these smelters is operating, and the company stated that the facility is an area source (i.e., a synthetic minor source). The other smelter has been shut down for several years, but it is in the process of obtaining permits to re-start and expects to be an area source. Both of these smelters use the batch converting process, whereas the smelter that was identified as an area source at proposal and was the basis for GACT uses flash continuous converting technology. The company pointed to the process descriptions in the proposal preamble that noted the numerous differences in the two technologies. The company suggested that their two smelters fit into a separate subcategory (batch converting technology) and should have rule requirements based on that technology. The requirements in the proposed rule are not appropriate for their smelters because the proposed rule is based on the flash continuous converting technology.

Response: The commenters asserted that there are two area source primary copper smelters that use the batch converting technology. As we described in the proposal preamble (71 FR 59308, October 6, 2006), there are numerous differences in process operation, emissions points, and achievable levels of control. We believe that our proposed standard for existing sources, which is based on flash continuous converting technology, would not be appropriate for existing sources of primary copper smelting that use the batch converting technology and that separate standards are needed to address the different technology used by these existing smelters. Solely for purposes of this analysis, we accept, as true, the commenter's assertion that there are existing area source facilities that use batch processing. As explained above, to the extent the commenter has any question as to whether the smelters identified above are major or area sources, they should consult with the relevant permitting authority or submit

a request for an applicability determination to the EPA regional office in the region where the source is located.

In developing the requirements for sources using the batch converting technology, we reviewed the title V permit of the currently operating source identified in the comment. The emissions from this facility are controlled as a result of its title V permit requirements to capture and control emissions of PM. The vast majority of the gases from the smelting furnace and converter are collected by a primary capture system, sent to control equipment to remove PM, and then processed in a sulfuric acid plant. Fugitive emissions are collected by a secondary capture system and sent to a baghouse for control of PM emissions. We determined that these current permit requirements represent GACT for existing primary copper smelters using the batch converting process and have included these requirements in this final rule as the requirements for existing primary copper smelting area sources that use batch converting technology.

According to these requirements, plants that use batch converting technology must operate primary capture systems on each smelting vessel and each copper converter. Secondary capture systems must be installed to capture emissions from tapping copper matte and slag from the smelting vessel and emissions from charging, skimming, pouring, and holding when the converter mouth is partially rotated out from the primary collection hood. All of the collected gases must be routed to an emissions control system. In addition, emissions from the primary collection system for the smelting vessel and converter must be routed to a sulfuric acid plant after PM removal.

Emissions from each copper concentrate dryer must be controlled and must not exceed 0.022 gr/dscf. Emissions from secondary capture systems that are not vented to a sulfuric acid plant must not exceed 0.02 gr/dscf.

We also examined the monitoring requirements in the title V permit of this primary smelter using the batch technology and found that they would ensure that control devices are working properly on a continuous basis. We therefore included these monitoring requirements in this final rule as requirements for primary copper smelting area sources that use the batch converting technology. Under these requirements, a COMS meeting Performance Specification 1 (40 CFR part 60, appendix B) must be installed on each electrostatic precipitator. If the 24-hour rolling average opacity exceeds 15 percent, the plant must investigate the cause of the problem and take corrective action. Each baghouse must be equipped with and monitored by a bag leak detection system to ensure proper operation. We have also required performance tests every 2.5 years to determine compliance with PM limits.

Comment: A commenter representing the primary copper plant that was the basis for GACT stated that EPA did not properly capture the facility's title V permit requirements in some cases. The commenter supplied additional details and clarifications. Clarification is needed for the requirements for anode casting and holding operations, the emissions limit should not be referred to as ''smelter wide'' but as the limit for the main stack, the limit should be expressed as PM_{10} rather than PM, and the continuous PM sampler should not be referred to as a CEMS. The commenter also asked that EPA modify the proposed rule to clearly state that a single secondary gas collection system can capture and control emissions from multiple processing vessels (i.e., each vessel does not have to have its own separate collection system). The commenter also requested more flexibility in the monitoring requirements so that the permitting authority could approve improved monitoring technology should it become available in the future.

Response: We agree with the commenter and will make most of the suggested changes. The facility's title V permit was the basis for our GACT determination, and we intended that the proposed area source rule incorporate the permit requirements of this well-controlled facility. We understand that in some cases, a gas collection system may be applied to multiple process vessels, and we have included this clarification in this final rule. We understand that flexibility in monitoring is important, especially as improved monitoring techniques become commercially available and demonstrated in metallurgical operations. That said, it is not necessary to revise the proposed rule to allow a facility to request approval of an alternative monitoring method because the procedure for making such requests is contained in 40 CFR 63.8, which applies to the NESHAP for the Primary Copper Smelting area source category in this final rule.

Comment: One commenter noted that the new source standard for primary copper was based on the newer flash continuous converter technology and would not be appropriate for new plants using the batch converting technology. The commenter stated that continuous converting has more limited applicability to ore concentrates that have high impurities levels than does batch converting. The commenter stated that because a new smelter could use either of the technologies, the emission standards for new sources should be reflective of the performance of either of these technologies. This can be achieved by providing flexibility in the emission limits that are adopted. The commenter recommended that the standard for new smelters using the batch converting technology be based on the best performing existing facility with the technology. In addition, a provision should be made to allow an alternate emissions limit to be authorized by either EPA or the permitting authority that is equally protective.

Response: The emissions limit that we proposed for new primary copper smelters is in lb/ton of copper concentrate feed and is applied on a facility wide basis. The format and requirements of the standard can be applied to and achieved by a facility using any primary copper smelting technology if it is well controlled. The format of the standard also provides flexibility because multiple process vessels can have different levels of emissions as long as they collectively meet the overall lb/ton limit. The limit has been demonstrated as achievable by an existing area source that uses a continuous converting process. Unlike existing sources, new sources using any smelting technology have the opportunity to incorporate state-of-the-art capture and control systems into their design, construction, and operation. Based on our engineering experience with capture and control systems that have been applied to primary copper processes and also those that have been applied to similar processes in other metallurgical industries, we believe that the emissions limit for new sources can be achieved by primary copper smelters using any processing technology, including both the continuous and batch converting processes. The standard for new primary copper smelters represents a level of control that is generally available for new sources. Consequently, we chose to promulgate the limit as proposed as GACT for new primary copper smelters.

Comment: Three commenters objected to the requirement of using a PM CEMS for monitoring at new primary copper smelter area sources. Although improvements in PM CEMS have been made as they continue to be developed, there is not sufficient operating history

to prove its feasibility for continuous monitoring at primary copper smelters.

Response: The PM CEMS have been demonstrated in many different applications, including processes with exhaust gases similar to those from primary copper smelters (e.g., at electric utilities where the temperatures and exhaust gas compositions are similar). The commenters did not provide any information that the exhaust gases from primary copper smelting are uniquely different. We have included PM CEMS as the monitoring technology for new sources in this final rule.

D. Primary Zinc Smelters

Comment: One commenter asked if the proposed rule was meant to apply to any zinc refinery that processes any amount of zinc sulfide concentrate. If so, what is the timeframe for using zinc sulfide concentrate and its percentage of the feed that qualifies a facility as a primary zinc smelter? Is EPA really trying to regulate zinc refineries, which produce cathodes in a cathode melting furnace and use zinc sulfide concentrate as a feed material, and not regulate thermal zinc smelters, who do not produce cathodes and do not currently use zinc sulfide concentrate?

Response: The commenter is correct in that this final rule applies to any area source facility that produces zinc products from any amount of zinc sulfide ore concentrates using pyrometallurgical processes (i.e., a ''primary zinc smelter''). This final rule does not apply to thermal zinc smelters if they do not process zinc sulfide concentrate. (Facilities processing only zinc scrap and residues containing zinc would be classified as secondary zinc smelters.) If a facility meets the definition of primary zinc smelter and is an area source on the compliance date, it is subject to this final rule. If the facility is not processing zinc sulfide concentrate but subsequently begins processing it, meets the definition of primary zinc smelter, and is an area source, it is subject to this final rule when it begins processing the zinc sulfide concentrate. Under these facts, such a facility would be subject to the standards for new sources if construction or reconstruction of the primary zinc smelter (the affected source) commenced on or after October 6, 2006.

We are not making a distinction between zinc refineries and thermal zinc smelters as described by the commenter. Either type of facility is subject to this final rule if it is an area source and meets the definition of primary zinc smelter.

Comment: One commenter noted that the proposed rule requires demonstrating compliance by stack testing within 180 days after the compliance date. Their plant has a process that is not operating, it is subject to the rule, but it may not restart until more than 180 days after the compliance date. As the proposed rule reads, they would have to demonstrate compliance by a stack test even though the process is not operating.

Response: We have clarified the proposed rule to indicate that if a process subject to this final rule is not operating on the compliance date and subsequently starts up, compliance testing must be performed within 180 days after startup of the process.

Comment: One commenter noted that the proposed rule requires that initial compliance must be demonstrated ''for each furnace at your facility.'' A zinc smelter may have other types of furnaces that are not subject to emission limits. The commenter assumes that this requirement will have no impact on these furnaces.

Response: The commenter is correct. We have clarified the proposed rule to state that initial compliance must be demonstrated ''for each furnace at your facility that is subject to an emissions limit under this subpart.''

Comment: One commenter stated that the emissions limit of 0.005 gr/dscf for certain furnaces at new sources is greater than the emissions limit for the same furnaces at existing sources. The commenter suggested that the greater of the two values be applied in this case to provide a level playing field for new and existing sources.

Response: We disagree with the comment that the emissions limit of 0.005 gr/dscf for certain furnaces at new sources is greater than the emissions limits for the same furnaces at existing sources. The emissions limit of 0.005 gr/dscf for new sources is applied to the exhaust vent of a zinc cathode melting furnace; scrap zinc melting furnace; furnace melting zinc dust, zinc chips, and other materials containing zinc; and alloy melting furnace. For existing sources, the limits are 0.1 lb/hr from the exhaust vent of a furnace that melts zinc dust, zinc chips, and/or other materials containing zinc; and 0.228 lb/hr from the vent for the combined exhaust from a furnace melting zinc scrap and an alloy furnace. Although the limits for the furnaces mentioned above are expressed in different formats for new and existing sources, both formats reflect the level of emission control that can be achieved based on the technology we identified as GACT for these furnaces (i.e., a well-operated and well-maintained baghouse). However, whereas the lb/hr limits for the above-noted furnaces in the proposed rule were based on the specific operations at the two existing sources of which we are aware, the gr/dscf emission limit is not operation specific and can apply to these furnaces at any primary zinc production area source. We have therefore adopted the gr/dscf limit in addition to the proposed lb/hr limit, and sources can meet either the limit expressed in lb/hr or the limit expressed in gr/dscf.

E. Basis for Area Source Standards

Comment: We received a comment from the National Association of Clean Air Agencies (NACAA) expressing concern with EPA's establishment of area source standards under section 112 of the CAA by adopting existing Federal and/or State area source standards. In the comment, the NACAA stated that the existence of State and local regulations does not relieve EPA of its obligation to establish area source standards under the CAA. The NACAA expressed concern that some States cannot have requirements more stringent than those of the Federal government and may, therefore, be required to change their regulations of area sources to be consistent with EPA's area source standards. The NACAA stated that, if the permit requirements that make these sources ''well controlled'' are not contained within the Federal rule, the nonfederal rules could be relaxed. The NACAA further stated that, in the absence of Federal requirements, there would be nothing to prevent ''backsliding'' by these sources.

The NACAA was particularly concerned with EPA's proposed PVC rule, which adopted the part 61 standards for PVC plants. According to the NACAA, the part 61 standards for PVC plants are outdated and inappropriate as a model for GACT. The NACAA submitted with its comment a recommendation for the standards for area sources of PVC plants. The NACAA previously recommended these limits to EPA as the MACT standards for major sources of PVC plants. The NACAA believes the submittal contains valuable information for EPA in developing PVC regulations for area sources as well.

Response: We have traditionally reviewed operating permits and current standards in the standards development process, and we used this approach in developing the NESHAP for the four area source categories in this final rule. The NACAA did not explain why it would be inappropriate for EPA to adopt existing Federal, State or local standards that EPA has determined to be

effective in controlling HAP emissions. Contrary to the commenter's assertions, EPA is setting final area source standards for the four source categories at issue in this rule. The emissions limits and/or work practice standards in each of the four NESHAP in this final rule have been reviewed, determined by EPA to be the appropriate standards for the relevant area source category, and established by EPA in this final rule as the Federal requirements for that category pursuant to section 112 of the CAA.

It is conceivable that for those States with laws that preclude the State from issuing regulations that are more stringent than EPA's regulations, a State may need to change its existing area source regulation in response to this final rule. However, the NACAA has not identified any existing State regulation that would require modification in this regard. Further, as previously mentioned, we established the area source standards in this final rule based on GACT, which may or may not be reflected by more stringent State or local requirements. The NACAA also asserted that the part 61 standards for PVC plants are outdated and inappropriate as GACT for area source PVC plants. NACAA's statement was apparently based on the fact that the part 61 standards were issued prior to the 1990 Amendments to the Clean Air Act and were based on risk. However, the fact that these are risk-based standards are not per se evidence that they do not reflect GACT for area sources of PVC plants. We believe that the record supports our determination as to what constitutes GACT for the four categories at issue here.

Moreover, we reviewed the information submitted by the commenter that contained their ''presumptive'' determination of MACT that they issued as guidance to State and local agencies. These recommended limits were based on the best-controlled plants, most if not all of which are major sources.[3] We believe that these recommended limits may represent MACT or something beyond MACT, but we do not believe that they are appropriate for these particular area source categories. As previously mentioned, we have decided to establish the standards for the PVC and Copolymer Production area source category based on GACT. We do not believe that NACAA's recommended limits represent GACT for area sources of PVC plants. Because we expect PVC plants to be operating in accordance with the part 61 standards for PVC plants, we believe that these standards represent a level of control that is generally available and is therefore a reasonable representation of GACT for area sources in this source category.

Comment: One commenter stated that area source standards are not needed for primary beryllium plants. All of these plants, including major and area sources, are already subject to NESHAP under 40 CFR part 61. In addition, the proposed area source standard will not achieve any reduction in HAP emissions. A second commenter stated that absent EPA's statutory obligation to establish standards for area sources, there would be no need to regulate PVC and copolymer plants because they are already governed by the existing NESHAP. However, the commenter recognizes EPA's obligation to regulate PVC and copolymer area sources and supports the adoption of the part 61 NESHAP as the area source standard.

Response: The second commenter has captured the issue and provides the response to the first commenter: EPA has a statutory obligation to establish area source NESHAP for primary beryllium plants.

F. Compliance Date

Comment: Two commenters stated that requiring compliance on the date of publication of the final rule in the **Federal Register** does not allow sufficient time for existing sources to develop a SSM plan.

Response: We believe that we have addressed the commenter's concern regarding existing sources' abilities to develop SSM plans by the compliance date. With respect to primary copper smelting and primary zinc production area sources, this final rule allows existing sources in these two area source categories to address SSM according to the relevant requirements in their title V permits, which do not require a SSM plan. As previously discussed in our response to the comments on the necessity of the part 63 SSM requirements (section IV.B of this preamble), we have reviewed the SSM requirements in the title V permits for the existing sources of primary copper smelting and primary zinc production area sources and have determined that these provisions are adequate to replace the SSM requirements in the General Provisions, which require a SSM plan. See 40 CFR 63.6(e)(3). We have therefore included in the final NESHAP for primary copper smelting and primary zinc production area sources requirements that are based on these title V permit terms and conditions. To provide flexibility, sources can comply with the SSM requirements specified in this final rule or comply with the provisions contained in the General Provisions at 40 CFR 63.6(e). Accordingly, the existing sources in these two area source categories are not required to develop SSM plans and may instead continue to follow their title V permit requirements regarding SSM.

In addition, as previously mentioned, we are not requiring SSM plans and reports in 40 CFR 63.6(e)(3) for area source PVC plants and beryllium production facilities. Because the NESHAP for these source categories in this final rule adopt part 61 standards, which require compliance at all times, specific provisions governing SSM are unnecessary. For all of the reasons stated above, we believe that the concern expressed in this comment has been addressed.

V. Statutory and Executive Order Reviews

A. Executive Order 12866: Regulatory Planning and Review

Under Executive Order 12866 (58 FR 51735, October 4, 1993), this action is a ''significant regulatory action'' because it may raise novel legal or policy issues. Accordingly, EPA submitted this action to the Office of Management and Budget (OMB) for review under Executive Order 12866, and any changes made in response to OMB recommendations have been documented in the docket for this action.

B. Paperwork Reduction Act

The NESHAP for Polyvinyl and Copolymers Production Area Sources do not impose any new information collection burden. New and existing plants that are area sources are required to comply with the same testing, monitoring, reporting, and recordkeeping requirements as those in the National Emission Standards for Vinyl Chloride (40 CFR part 61, subpart F), to which these area sources are currently subject, and the information collection requirements in the part 61 NESHAP General Provisions (40 CFR part 61, subpart A), which are incorporated into the NESHAP. The OMB has previously approved the information collection requirements in 40 CFR part 61, subpart F, under the provisions of the Paperwork Reduction Act, 44 U.S.C. 3501 *et seq.* and has assigned OMB control number 2060–0071, EPA Information Collection Request (ICR) number 0186.10.

A copy of the OMB-approved ICR for the National Emission Standards for

[3] It is not clear whether the one polyvinyl chloride area source plant known to the National Association of Clean Air Agencies (NACAA) was among the plants that the NACAA analyzed in developing the recommended limits.

Vinyl Chloride may be obtained from Susan Auby, Collection Strategies Division, U.S. EPA (2822T), 1200 Pennsylvania Ave., NW., Washington, DC 20460, by e-mail at *auby.susan@epa.gov,* or by calling (202) 566–1672.

The requirements for primary beryllium production facilities in the NESHAP for Primary Nonferrous Metals Area Sources do not impose any new information collection burden. New and existing plants that are area sources are required to comply with the same testing, monitoring, recordkeeping, and reporting requirements as those in the National Emission Standards for Beryllium (40 CFR part 61, subpart C), to which these area sources are currently subject, and the information collection requirements in the part 61 General Provisions (40 CFR part 61, subpart A), which are incorporated into the NESHAP for these sources. The OMB has previously approved the information collection requirements in 40 CFR part 61, subpart C, under the provisions of the Paperwork Reduction Act, 44 U.S.C. 3501 *et seq.* and has assigned OMB control number 2060–0092, EPA ICR number 0193.08.

A copy of the OMB-approved ICR for the National Emission Standards for Beryllium may be obtained from Susan Auby, Collection Strategies Division, U.S. EPA (2822T), 1200 Pennsylvania Ave., NW., Washington, DC 20460, by e-mail at *auby.susan@epa.gov,* or by calling (202) 566–1672.

The information requirements in the NESHAP for Polyvinyl Chloride and Copolymers Production Area Sources, Primary Copper Smelting Area Sources, Secondary Copper Smelting Area Sources, and Primary Nonferrous Metals—Zinc, Cadmium, and Beryllium Area Sources have been submitted for approval to OMB under the Paperwork Reduction Act, 44 U.S.C. 3501 *et seq.* The information collection requirements are not enforceable until OMB approves them.

The information collection requirements for primary copper smelting and primary zinc production are based on the current title V permitting requirements for existing sources and the information collection requirements in the part 63 General Provisions (40 CFR part 63, subpart A), most of which are incorporated into the NESHAP for new sources. The ICR document includes the burden estimates for all applicable General Provisions. These recordkeeping and reporting requirements are mandatory pursuant to section 114 of the CAA (42 U.S.C. 7414). All information submitted to EPA pursuant to the information collection requirements for which a claim of confidentiality is made is safeguarded according to CAA section 114(c) and the Agency's implementing regulations at 40 CFR part 2, subpart B.

The PM testing, monitoring, recordkeeping, and reporting requirements with which existing primary copper smelting and primary zinc smelting area sources must comply are the same as the requirements that are in these facilities' current title V operating permits. The only new information collection requirements that apply to these area sources consist of initial notifications. There are no existing secondary copper smelting facilities, and there are no requirements for existing secondary copper smelting area sources.

Any new primary zinc production facility, primary copper smelter, or secondary copper smelter area source is subject to all information collection requirements in the part 63 General Provisions. No costs or burden hours are estimated for new primary copper smelters, secondary copper smelters, or primary zinc production area sources because no new sources are estimated during the 3-year period of the ICR. No new sources have been constructed in more than 10 years, no new construction has been announced, and we have no indication there will be any new sources in the next 3 years.

The annual burden for this information collection (including all four source categories) averaged over the first 3 years of this ICR is estimated to total 23 labor hours per year at a cost of $1,948 for the three existing primary copper smelting area sources and 15.4 labor hours per year at a cost of $1,305 for the two existing primary zinc smelting area sources. No capital/startup costs or operation and maintenance costs are associated with the requirements.

Burden means the total time, effort, or financial resources expended by persons to generate, maintain, retain, disclose, or provide information to or for a Federal agency. This includes the time needed to review instructions; develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information, processing and maintaining information, and disclosing and providing information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to a collection of information; search data sources; complete and review the collection of information; and transmit or otherwise disclose the information.

An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. The OMB control numbers for EPA's regulations in 40 CFR part 63 are listed in 40 CFR part 9. When this ICR is approved by OMB, the Agency will publish a technical amendments for the approved information collection requirements contained in the final rules.

C. Regulatory Flexibility Act

The Regulatory Flexibility Act (RFA) generally requires an agency to prepare a regulatory flexibility analysis of any rule subject to notice and comment rulemaking requirements under the Administrative Procedure Act or any other statute unless the agency certifies that the rule would not have a significant economic impact on a substantial number of small entities. Small entities include small businesses, small not-for-profit enterprises, and small governmental jurisdictions.

For the purposes of assessing the impacts of the area source NESHAP on small entities, small entity is defined as: (1) A small business that meets the Small Business Administration size standards for small businesses at 13 CFR 121.201 (less than 1,000 employees for primary copper smelting and less than 750 employees for PVC and copolymers production, secondary copper smelting, and primary nonferrous metals manufacturing); (2) a small governmental jurisdiction that is a government of a city, county, town, school district, or special district with a population of less than 50,000; and (3) a small organization that is any not-for-profit enterprise which is independently owned and operated and is not dominant in its field.

After considering the economic impacts of these final rules on small entities, I certify that this action will not have a significant economic impact on a substantial number of small entities. The small entities directly regulated by these final rules are small businesses. We have determined that existing small businesses in these area source categories will not incur any adverse impacts on existing area sources of PVC and copolymer production facilities, primary copper smelters, and non-ferrous metal production facilities because the rules do not create any new requirements or burdens other than minimal notification requirements. There will be no adverse impacts on existing secondary copper area sources because there are no existing sources in the category. Although these final NESHAP contain emission control

requirements for new area sources in all four source categories, we are not aware of any new sources being constructed now or planned in the near future, and consequently, we did not estimate any impacts for new sources.

Although this final rule will not have a significant economic impact on a substantial number of small entities, EPA nonetheless has tried to reduce the impact of this rule on small entities. These final rules are designed to harmonize with existing State or local requirements. In addition, we have deleted the proposed requirements for SSM plans and reports.

D. Unfunded Mandates Reform Act

Title II of the Unfunded Mandates Reform Act of 1995 (UMRA), Public Law 104–4, establishes requirements for Federal agencies to assess the effects of their regulatory actions on State, local, and tribal governments and the private sector. Under section 202 of the UMRA, EPA generally must prepare a written statement, including a cost-benefit analysis, for proposed and final rules with ''Federal mandates'' that may result in expenditures by State, local, and tribal governments, in the aggregate, or to the private sector, of $100 million or more in any 1 year. Before promulgating an EPA rule for which a written statement is needed, section 205 of the UMRA generally requires EPA to identify and consider a reasonable number of regulatory alternatives and adopt the least costly, most cost-effective, or least burdensome alternative that achieves the objectives of the rule. The provisions of section 205 do not apply when they are inconsistent with applicable law. Moreover, section 205 allows EPA to adopt an alternative other than the least costly, most cost-effective, or least burdensome alternative if the Administrator publishes with the final rule an explanation why that alternative was not adopted. Before EPA establishes any regulatory requirements that may significantly or uniquely affect small governments, including tribal governments, it must have developed under section 203 of the UMRA a small government agency plan. The plan must provide for notifying potentially affected small governments, enabling officials of affected small governments to have meaningful and timely input in the development of EPA regulatory proposals with significant Federal intergovernmental mandates, and informing, educating, and advising small governments on compliance with the regulatory requirements.

EPA has determined that the final rules do not contain a Federal mandate that may result in expenditures of $100 million or more for State, local, and tribal governments, in the aggregate, or the private sector in any one year. The estimated expenditures for the private sector in any one year are less than $2,500. Thus, the final rules are not subject to the requirements of sections 202 and 205 of the UMRA. In addition, the final rules do not significantly or uniquely affect small governments. The final rules contain no requirements that apply to such governments, impose no obligations upon them, and will not result in expenditures by them of $100 million or more in any one year or any disproportionate impacts on them. Therefore, the final rules are not subject to section 203 of the UMRA.

E. Executive Order 13132: Federalism

Executive Order 13132 (64 FR 43255, August 10, 1999) requires EPA to develop an accountable process to ensure ''meaningful and timely input by State and local officials in the development of regulatory policies that have federalism implications.'' ''Policies that have federalism implications'' are defined in the Executive Order to include regulations that have ''substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.''

These final rules do not have federalism implications. They will not have substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government, as specified in Executive Order 13132. These final rules impose requirements on owners and operators of specified area sources and not State and local governments. Thus, Executive Order 13132 does not apply to these final rules.

F. Executive Order 13175: Consultation and Coordination With Indian Tribal Governments

Executive Order 13175 (65 FR 67249, November 6, 2000), requires EPA to develop an accountable process to ensure ''meaningful and timely input by tribal officials in the development of regulatory policies that have tribal implications.'' These final rules do not have tribal implications, as specified in Executive Order 13175. They will not have substantial direct effects on tribal governments, on the relationship between the Federal government and Indian tribes, or on the distribution of power and responsibilities between the Federal government and Indian tribes, as specified in Executive Order 13175. These final rules impose requirements on owners and operators of specified area sources and not tribal governments. Thus, Executive Order 13175 does not apply to these final rules.

G. Executive Order 13045: Protection of Children From Environmental Health and Safety Risks

Executive Order 13045 (62 FR 19885, April 23, 1997) applies to any rule that: (1) Is determined to be ''economically significant,'' as defined under Executive Order 12866, and (2) concerns an environmental health or safety risk that EPA has reason to believe may have a disproportionate effect on children. If the regulatory action meets both criteria, EPA must evaluate the environmental health or safety effects of the planned rule on children, and explain why the planned regulation is preferable to other potentially effective and reasonably feasible alternatives considered by EPA.

EPA interprets Executive Order 13045 as applying only to those regulatory actions that are based on health or safety risks, such that the analysis required under section 5–501 of the Executive Order has the potential to influence the regulation. These final rules are not subject to the Executive Order. They are based on control technology and not on health or safety risks.

H. Executive Order 13211: Actions That Significantly Affect Energy Supply, Distribution, or Use

These final rules are not a ''significant energy action'' as defined in Executive Order 13211 (66 FR 28355, May 22, 2001) because they are not likely to have a significant adverse effect on the supply, distribution, or use of energy. Further, we have concluded that these final rules are not likely to have any adverse energy effects because energy requirements would remain at existing levels. No additional pollution controls or other equipment that consume energy are required by these final rules.

I. National Technology Transfer Advancement Act

Section 12(d) of the National Technology Transfer and Advancement Act (NTTAA) of 1995 (Pub. L. 104–113, section 12(d), 15 U.S.C. 272 note) directs EPA to use voluntary consensus standards (VCS) in its regulatory activities, unless to do so would be inconsistent with applicable law or otherwise impractical. The VCS are technical standards (*e.g.*, materials specifications, test methods, sampling procedures, and business practices) that are developed or adopted by VCS

bodies. The NTTAA directs EPA to provide Congress, through OMB, explanations when the Agency does not use available and applicable VCS.

This rule involves technical standards. The EPA cites the following standards: EPA Methods 1, 1A, 2, 2A, 2C, 2D, 2F, 2G, 3, 3A, 3B, 4, 5, 5D, and 9 in 40 CFR part 60, appendix A; and Performance Specifications 1 and 11 in 40 CFR part 60, appendix B. The search identified one VCS as an acceptable alternative to EPA Method 3B. The method ASME PTC 19.10–1981, ''Flue and Exhaust Gas Analyses,'' is cited in two of these final rules for its manual method for measuring the oxygen, carbon dioxide, and carbon monoxide content of the exhaust gas. This part of ASME PTC 19.10–1981 is an acceptable alternative to EPA Method 3B.

The standard ASTM D6216 (1998), ''Standard Practice for Opacity Monitor Manufacturers to Certify Conformance with Design and Performance Specifications,'' was designated an acceptable alternative for the design specifications given in EPA's Performance Specification 1. As a result, EPA incorporated ASTM D6216–98 by reference into Performance Specification 1 as the design specifications for opacity monitors in August 2000.

The search for emissions measurement procedures identified 13 other VCS. The EPA determined that these 13 standards identified for measuring emissions of the HAP or surrogates subject to emission standards in these final rules were impractical alternatives to EPA test methods for the purposes of the rules. Therefore, EPA does not intend to adopt these standards for this purpose. The reasons for the determinations for the 13 methods are in the docket for these rules.

For the methods required or referenced by these rules, a source may apply to EPA for permission to use alternative test methods or alternative monitoring requirements in place of any required testing methods, performance specifications, or procedures under §§ 63.7(f) and 63.8(f) of subpart A of the General Provisions.

J. Congressional Review Act

The Congressional Review Act, 5 U.S.C. 801, *et seq.*, as added by the Small Business Regulatory Enforcement Fairness Act of 1996, generally provides that before a rule may take effect, the agency promulgating the rule must submit a rule report, which includes a copy of the rule, to each House of Congress and to the Comptroller General of the United States. The EPA will submit a report containing these final rules and other required information to the U.S. Senate, the U.S. House of Representatives, and the Comptroller General of the United States prior to publication of the final rules in the **Federal Register**. A major rule cannot take effect until 60 days after it is published in the **Federal Register**. This action is not a ''major rule'' as defined by 5 U.S.C. 804(2). These final rules will be effective on January 23, 2007.

List of Subjects in 40 CFR Part 63

Environmental protection, Air pollution control, Hazardous substances, Incorporation by reference, Reporting and recordkeeping requirements.

Dated: December 11, 2006.

Stephen L. Johnson,

Administrator.

■ For the reasons stated in the preamble, title 40, chapter I, part 63 of the Code of Federal Regulations is amended as follows:

PART 63—[AMENDED]

■ 1. The authority citation for part 63 continues to read as follows:

Authority: 42 U.S.C. 7401 *et seq.*

Subpart A—[Amended]

■ 2. Section 63.14 is amended by revising paragraph (i)(1) to read as follows:

§ 63.14 Incorporations by reference.

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(i) * * *

(1) ANSI/ASME PTC 19.10–1981, ''Flue and Exhaust Gas Analyses [Part 10, Instruments and Apparatus],'' IBR approved for §§ 63.309(k)(1)(iii), 63.865(b), 63.3166(a)(3), 63.3360(e)(1)(iii), 63.3545(a)(3), 63.3555(a)(3), 63.4166(a)(3), 63.4362(a)(3), 63.4766(a)(3), 63.4965(a)(3), 63.5160(d)(1)(iii), 63.9307(c)(2), 63.9323(a)(3), 63.11148(e)(3)(iii), 63.11155(e)(3), 63.11162(f)(3)(iii) and (f)(4), 63.11163(g)(1)(iii) and (g)(2), and Table 5 of subpart DDDDD of this part.

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■ 3. Part 63 is amended by adding subpart DDDDDD to read as follows:

Subpart DDDDDD—National Emission Standards for Hazardous Air Pollutants for Polyvinyl Chloride and Copolymers Production Area Sources

Sec.

Applicability and Compliance Dates

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Applicability and Compliance Dates

§ 63.11140 Am I subject to this subpart?

(a) You are subject to this subpart if you own or operate a plant specified in 40 CFR 61.61(c) that produces polyvinyl chloride (PVC) or copolymers and is an area source of hazardous air pollutant (HAP) emissions.

(b) This subpart applies to each new or existing affected source. The affected source is the collection of all equipment and activities in vinyl chloride service necessary to produce PVC and copolymers. An affected source does not include portions of your PVC and copolymers production operations that meet the criteria in 40 CFR 61.60(b) or (c).

(1) An affected source is existing if you commenced construction or reconstruction of the affected source before October 6, 2006.

(2) An affected source is new if you commenced construction or reconstruction of the affected source on or after October 6, 2006.

(c) This subpart does not apply to research and development facilities, as defined in section 112(c)(7) of the Clean Air Act (CAA).

(d) You are exempt from the obligation to obtain a permit under 40 CFR part 70 or 40 CFR part 71, provided you are not otherwise required by law to obtain a permit under 40 CFR 70.3(a) or 40 CFR 71.3(a). Notwithstanding the previous sentence, you must continue to comply with the provisions of this subpart.

§ 63.11141 What are my compliance dates?

(a) If you own or operate an existing affected source, you must achieve compliance with the applicable provisions in this subpart by January 23, 2007.

(b) If you own or operate a new affected source, you must achieve compliance with the applicable provisions in this subpart by the dates in paragraphs (b)(1) and (2) of this section.

(1) If you start up a new affected source on or before January 23, 2007, you must achieve compliance with the

applicable provisions in this subpart not later than January 23, 2007.

(2) If you start up a new affected source after January 23, 2007, you must achieve compliance with the provisions in this subpart upon startup of your affected source.

Standards and Compliance Requirements

§ 63.11142 What are the standards and compliance requirements for new and existing sources?

You must meet all the requirements in 40 CFR part 61, subpart F, except for 40 CFR 61.62 and 40 CFR 61.63.

Other Requirements and Information

§ 63.11143 What General Provisions apply to this subpart?

(a) All the provisions in 40 CFR part 61, subpart A, apply to this subpart.

(b) The provisions in 40 CFR part 63, subpart A, applicable to this subpart are specified in paragraphs (b)(1) and (2) of this section.

(1) § 63.1(a)(1) through (10).

(2) § 63.1(b) except paragraph (b)(3), § 63.1(c), and § 63.1(e).

§ 63.11144 What definitions apply to this subpart?

The terms used in this subpart are defined in the CAA; 40 CFR 61.02; 40 CFR 61.61; and § 63.2 for terms used in the applicable provisions of part 63, subpart A, as specified in § 63.11143(b).

§ 63.11145 Who implements and enforces this subpart?

(a) This subpart can be implemented and enforced by the U.S. EPA or a delegated authority such as a State, local, or tribal agency. If the U.S. EPA Administrator has delegated authority to a State, local, or tribal agency, then that Agency has the authority to implement and enforce this subpart. You should contact your U.S. EPA Regional Office to find out if this subpart is delegated to a State, local, or tribal agency within your State.

(b) In delegating implementation and enforcement authority of this subpart to a State, local, or tribal agency under 40 CFR part 63, subpart E, the approval authorities contained in paragraphs (b)(1) through (4) of this section are retained by the Administrator of the U.S. EPA and are not transferred to the State, local, or tribal agency.

(1) Approval of an alternative means of emissions imitation under 40 CFR 61.12(d).

(2) Approval of a major change to test methods under 40 CFR 61.13(h). A ''major change to test method'' is defined in § 63.90.

(3) Approval of a major change to monitoring under 40 CFR 61.14(g). A ''major change to monitoring'' is defined in § 63.90.

(4) Approval of a major change to recordkeeping/reporting under 40 CFR 61.10. A ''major change to recordkeeping/reporting'' is defined in § 63.90.

■ 4. Part 63 is amended by adding subpart EEEEEE to read as follows:

Subpart EEEEEE—National Emission Standards for Hazardous Air Pollutants for Primary Copper Smelting Area Sources

Sec.

Applicability and Compliance Dates

63.11146 What are the applicability provisions and compliance dates?

Standards and Compliance Requirements

63.11147 What are the standards and compliance requirements for existing sources not using batch copper converters?

63.11148 What are the standards and compliance requirements for existing sources using batch copper converters?

63.11149 What are the standards and compliance requirements for new sources?

Other Requirements and Information

63.11150 What General Provisions apply to this subpart?

63.11151 What definitions apply to this subpart?

63.11152 Who implements and enforces this subpart?

Table 1 to Subpart EEEEEE of Part 63—Applicability of General Provisions to Subpart EEEEEE

Applicability and Compliance Dates

§ 63.11146 What are the applicability provisions and compliance dates?

(a) You are subject to this subpart if you own or operate a primary copper smelter that is an area source of hazardous air pollutant (HAP) emissions.

(b) This subpart applies to each new or existing affected source. The affected source is each primary copper smelter.

(1) An affected source is existing if you commenced construction or reconstruction of the affected source before October 6, 2006.

(2) An affected source is new if you commenced construction or reconstruction of the affected source on or after October 6, 2006.

(c) This subpart does not apply to research and development facilities, as defined in section 112(c)(7) of the Clean Air Act (CAA).

(d) If you own or operate an area source subject to this subpart, you must obtain a permit under 40 CFR part 70 or 40 CFR part 71.

(e) If you own or operate an existing affected source, you must achieve compliance with the applicable provisions of this subpart by January 23, 2007.

(f) If you own or operate a new affected source, you must achieve compliance with the applicable provisions of this subpart by the dates in paragraphs (f)(1) and (2) of this section.

(1) If you startup a new affected source on or before January 23, 2007, you must achieve compliance with the applicable provisions of this subpart not later than January 23, 2007.

(2) If you startup a new affected source after January 23, 2007, you must achieve compliance with the applicable provisions of this subpart upon startup of your affected source.

Standards and Compliance Requirements

§ 63.11147 What are the standards and compliance requirements for existing sources not using batch copper converters?

(a) *Emissions limits and work practice standards.* (1) You must not discharge to the atmosphere through any combination of stacks or other vents captured process exhaust gases from the copper concentrate dryers, smelting vessels, converting vessels, matte drying and grinding plants, secondary gas systems, and anode refining department that contain particulate matter less than 10 microns in aerodynamic diameter (PM_{10}) in excess of 89.5 pounds per hour (lb/hr) on a 24-hour average basis.

(2) You must operate a capture system that collects the gases and fumes released during the transfer of molten materials from smelting vessels and converting vessels and conveys the collected gas stream to a control device.

(3) You must operate one or more capture systems that collect the gases and fumes released from each vessel used to refine blister copper, remelt anode copper, or remelt anode scrap and convey each collected gas stream to a control device. One control device may be used for multiple collected gas streams.

(b) *Compliance requirements.* For purposes of determining compliance with the emissions limit in paragraph (a)(1) of this section, you must comply with the requirements in paragraphs (b)(1) through (7) of this section.

(1) You must calibrate, maintain and operate a system to continuously measure emissions of particulate matter (PM) from the smelter's main stack.

(2) All PM collected by the smelter main stack continuous PM sampling system is reported as PM_{10} unless you

demonstrate to the satisfaction of the permitting authority that, due to an infrequent event, the measured PM contains a large fraction of particles greater than 10 microns in diameter.

(3) To determine the mass emissions rate, the PM_{10} concentration as determined by the smelter main stack continuous PM sampling system is multiplied by the volumetric flow rate for the smelter main stack and any necessary conversion factors.

(4) Compliance with the PM_{10} emissions limit is demonstrated based on the average mass PM_{10} emissions rate for each 24-hour period.

(5) The results of the PM monitoring and calculated average mass PM_{10} emissions rate for each 24-hour period must be recorded and the records maintained for at least 5 years. Collected data must be available for inspection when the required laboratory analysis is completed.

(6) You must submit to the permitting authority by the 20th day of each month a report summarizing the 24-hour average mass PM_{10} emissions rates for the previous month.

(7) You may certify initial compliance with the emissions limit in paragraph (a)(1) of this section based on the results of PM sampling conducted during the previous month.

(c) *Operation and maintenance requirements.* (1) At all times, including periods of startup, shutdown, and malfunction, you must to the extent practicable, maintain and operate any affected source, 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 permitting authority which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source.

(2) All pollution control equipment must be installed, maintained, and operated properly. Instructions from the vendor or established maintenance practices that maximize pollution control must be followed. All necessary equipment control and operating devices, such as pressure gauges, amp meters, volt meters, flow rate indicators, temperature gauges, continuous emission monitors, etc., must be installed, operated properly, and easily accessible to compliance inspectors. A copy of all manufacturers' operating instructions for pollution control equipment and pollution emitting equipment must be maintained at your facility site. These instructions must be available to all employees who operate the equipment and must be made available to the permitting authority upon request. Maintenance records must be made available to the permitting authority upon request.

(3) You must document the activities performed to assure proper operation and maintenance of the air pollution control equipment and monitoring systems or devices.

(4) Except as provided in paragraph (c)(5) of this section, in the event of an emergency situation the owner or operator must comply with the requirements in paragraphs (c)(4)(i) through (iii) of this section. For the purposes of complying with this paragraph, an emergency situation is any situation arising from sudden and reasonably unforeseeable events beyond the control of the facility owner or operator that requires immediate corrective action to restore normal operation, and that causes the affected source to exceed an applicable emissions limitation under this subpart, due to unavoidable increases in emissions attributable to the emergency. An emergency must not include noncompliance to the extent it is caused by improperly designed equipment, lack of preventive maintenance, careless or improper operation, or operator error.

(i) During the period of the emergency, you must implement all reasonable steps to minimize levels of emissions that exceed the emissions standards or other applicable requirements in this subpart.

(ii) You must document through signed contemporaneous logs or other relevant evidence that an emergency occurred and you can identify the probable cause, your facility was being operated properly at the time the emergency occurred, and the corrective actions taken to minimize emissions as required by paragraph (c)(4)(i) of this section.

(iii) You must submit a notice of the emergency to the permitting authority within two working days of the time when emissions limitations were exceeded due to the emergency (or an alternate timeframe acceptable to the permitting authority). This notice must contain a description of the emergency, any steps taken to mitigate emissions, and corrective actions taken.

(5) As an alternative to the requirements in paragraph (c)(4) of this section, you must comply with the startup, shutdown, and malfunction requirements in 40 CFR 63.6(e)(3).

(d) *Deviations.* You must submit written notification to the permitting authority of any deviation from the requirements of this subpart, including the probable cause of such deviations and any corrective actions or preventative measures taken. You must submit this notification within 14 days of the date the deviation occurred.

(e) *Reports.* You must submit semiannual monitoring reports to your permitting authority. All instances of deviations from the requirements of this subpart must be clearly identified in the reports.

(f) *Records.* (1) You must retain records of all required monitoring data and support information. Support information includes all calibration and maintenance records, all original strip charts or appropriate recordings for continuous monitoring instrumentation, and copies of all reports required by this subpart. For all monitoring requirements, the owner or operator must record, where applicable, the date, place, and time of sampling or measurement; the date analyses were performed; the company or entity that performed the analyses; the analytical techniques or methods used; the results of such analyses; and the operating conditions existing at the time of sampling or measurement.

(2) You must maintain records of the activities performed to assure proper operation and maintenance of the air pollution control equipment and monitoring systems or devices. Records of these activities must be maintained for at least 5 years.

§ 63.11148 What are the standards and compliance requirements for existing sources using batch copper converters?

(a) *Emissions limits and work practice standards.* (1) For each copper concentrate dryer, you must not discharge to the atmosphere from the dryer vent any gases that contain total particulate matter (PM) in excess of 0.022 grains per dry standard cubic foot (gr/dscf).

(2) You must exhaust the process off gas from each smelting vessel to a control device according to the requirements in paragraphs (a)(2)(i) and (ii) of this section.

(i) During periods when copper ore concentrate feed is charged to and smelted to form molten copper matte and slag layers in the smelting vessel, you must exhaust the process off gas from the smelting vessel to a gas cleaning system controlling PM and to a sulfuric acid plant prior to discharge to the atmosphere.

(ii) During periods when no copper ore concentrate feed is charged to or molten material tapped from the smelting vessel but the smelting vessel

remains in operation to temporarily hold molten material in the vessel before resuming copper production, you must exhaust the process off gas from the smelting vessel to an electrostatic precipitator or baghouse prior to discharge to the atmosphere.

(3) You must control the process emissions released when tapping copper matte or slag from a smelting vessel according to paragraphs (a)(3)(i) and (ii) of this section.

(i) You must operate a capture system that collects the gases and fumes released when copper matte or slag is tapped from the smelting vessel. The design and placement of this capture system must be such that the tapping port opening, launder, and receiving vessel (e.g., ladle, slag pot) are positioned within the confines or influence of the capture system's ventilation draft during those times when the copper matte or slag is flowing from the tapping port opening.

(ii) You must not cause to be discharged to the atmosphere from the capture system used to comply with paragraph (a)(3)(i) of this section any gases that contain total PM in excess of 0.022 gr/dscf.

(4) For each batch copper converter, you must meet the requirements in paragraphs (a)(4)(i) through (iv) of this section.

(i) You must operate a primary capture system that collects the process off gas vented when one or more batch copper converters are blowing. If you operate a batch copper converter that does not use a ''U''-shaped side flue located at one end of the converter, then the capture system design must include use of a primary hood that covers the entire mouth of each batch copper converter vessel when the copper converter is positioned for blowing. The capture system may use multiple intake and duct segments through which the ventilation rates are controlled independently of each other.

(ii) If you operate a batch copper converter that does not use a ''U''-shaped side flue located at one end of the converter, then you must operate a secondary capture system that collects gases and fumes released from the batch copper converter when the converter mouth is rotated out partially or totally from within the confines or influence of the primary capture system's ventilation draft during charging, skimming, pouring, or holding. The capture system design must use additional hoods (e.g., sliding secondary hoods, air curtain hoods) or other capture devices (e.g., building evacuation systems). The capture system may use multiple intake and duct segments through which the ventilation rates are controlled independently of each other, and individual duct segments may be connected to separate PM control devices.

(iii) You must exhaust the process off gas captured by the primary capture system that is used to comply with paragraph (a)(4)(i) of this section to a gas cleaning system controlling PM and to a sulfuric acid plant prior to discharge to the atmosphere.

(iv) For each secondary capture system that is used to comply with paragraph (a)(4)(ii) of this section and is not vented to a gas cleaning system controlling PM and a sulfuric acid plant, you must not cause to be discharged to the atmosphere any gases that contain total particulate matter in excess of 0.02 grains/dscf.

(b) *Monitoring requirements for electrostatic precipitators.* To monitor the performance of each electrostatic precipitator used to comply with the PM emissions limits in paragraph (a) of this section, you must use a continuous opacity monitoring system (COMS) that is installed at the outlet of each electrostatic precipitator or a common duct at the outlet of multiple electrostatic precipitators.

(1) Each COMS must meet Performance Specification 1 in 40 CFR part 60, appendix B.

(2) You must comply with the quality assurance requirements in paragraphs (b)(2)(i) through (v) of this section.

(i) You must automatically (intrinsic to the opacity monitor) check the zero and upscale (span) calibration drifts at least once daily. For a particular COMS, the acceptable range of zero and upscale calibration materials is as defined in the applicable version of Performance Specification 1 in 40 CFR part 60, appendix B.

(ii) You must adjust the zero and span whenever the 24-hour zero drift or 24-hour span drift exceeds 4 percent opacity. The COMS must allow for the amount of excess zero and span drift measured at the 24-hour interval checks to be recorded and quantified. The optical surfaces exposed to the effluent gases must be cleaned prior to performing the zero and span drift adjustments, except for systems using automatic zero adjustments. For systems using automatic zero adjustments, the optical surfaces must be cleaned when the cumulative automatic zero compensation exceeds 4 percent opacity.

(iii) You must apply a method for producing a simulated zero opacity condition and an upscale (span) opacity condition using a certified neutral density filter or other related technique to produce a known obscuration of the light beam. All procedures applied must provide a system check of the analyzer internal optical surfaces and all electronic circuitry including the lamp and photodetector assembly.

(iv) Except during periods of system breakdowns, repairs, calibration checks, and zero and span adjustments, the COMS must be in continuous operation and must complete a minimum of one cycle of sampling and analyzing for each successive 10 second period and one cycle of data recording for each successive 6-minute period.

(v) You must reduce all data from the COMS to 6-minute averages. Six-minute opacity averages must be calculated from 36 or more data points equally spaced over each 6-minute period. Data recorded during periods of system breakdowns, repairs, calibration checks, and zero and span adjustments must not be included in the data averages. An arithmetic or integrated average of all data may be used.

(3) You must evaluate opacity measurements from the COMS on a 24-hour rolling average excluding periods of startup, shutdown, and malfunction. If the 24-hour rolling average opacity exceeds 15 percent, you must initiate investigation of the relevant controls or equipment within 24 hours of the first discovery of the high opacity incident and, if necessary, take corrective action as soon as practicable to adjust or repair the controls or equipment to reduce the opacity average to below the 15 percent level.

(4) You must log in ink or electronic format and maintain a record of 24-hour opacity measurements performed in accordance with paragraph (b)(3) of this section and any corrective actions taken, if any. A record of corrective actions taken must include the date and time during which the 24-hour rolling average opacity exceeded 15 percent and the date, time and type of the corrective action.

(c) *Monitoring requirements for baghouses.* To monitor the performance of each baghouse used to comply with PM emissions limits in paragraph (a) of this section, you must use a bag leak detection system according to the requirements in paragraphs (c)(1) through (4) of this section.

(1) You must install, calibrate, maintain, and continuously operate a bag leak detection system for the baghouse to monitor the baghouse performance.

(2) The baghouse leak detection system must meet the specifications and requirements in paragraphs (c)(2)(i) through (v) of this section.

(i) The bag leak detection system must be certified by the manufacturer to be capable of detecting particulate matter emissions at concentrations that can effectively discern any dysfunctional leaks of the baghouse.

(ii) The bag leak detection system sensor must provide output of relative or absolute particulate matter loadings.

(iii) The bag leak detection system must be equipped with an alarm system that will sound automatically when an increase in relative particulate emissions over a preset level is detected. The alarm must be located where it is easily heard by plant operating personnel.

(iv) The bag leak detection system must be installed downstream of the baghouse.

(v) The bag leak detection system must be installed, operated, calibrated, and maintained in a manner consistent with the manufacturer's written specifications and recommendations. The calibration of the system must, at a minimum, consist of establishing the relative baseline output level by adjusting the sensitivity and the averaging period of the device and establishing the alarm set points and the alarm delay time.

(3) If the bag leak detection system alarm sounds, you must initiate investigation of the baghouse within 24 hours of the first discovery of the alarm and, if necessary, take corrective action as soon as practicable to adjust or repair the baghouse to minimize possible exceedances of the applicable PM emissions limits in paragraph (a) of this section.

(4) You must log in ink or electronic format and maintain a record of installation, calibration, maintenance, and operation of the bag leak detection system. If the bag leak detection system alarm sounds, the records must include an identification of the date and time of all bag leak detection alarms, their cause, and an explanation of the corrective actions taken, if any.

(d) *Alternative monitoring requirements for baghouses.* As an alternative to the requirements in paragraph (c) of this section for bag leak detection systems, you must monitor the performance of each baghouse used to comply with a PM emissions limit in paragraph (a) of this section using a COMS that is installed at the outlet on the baghouse or a common duct at the outlet of multiple baghouses. Each COMS must meet the requirements in paragraphs (b)(1) through (4) of this section.

(e) *Performance testing.* (1) You must demonstrate initial compliance with the applicable PM emissions limits in paragraph (a) of this section based on the results of a performance test for each affected source.

(i) You may certify initial compliance for an affected source based on the results of a previous performance test conducted within the past 12 months before your compliance date.

(ii) If you have not conducted a performance test to demonstrate compliance with the applicable emissions limits within the past 12 months before your compliance date, you must conduct a performance test within 180 days of your compliance date and report the results in your notification of compliance status.

(2) You must demonstrate subsequent compliance with the applicable PM emissions limits in paragraph (a) of this section based on the results of repeat performance tests conducted at least every 2.5 years for each affected source.

(3) You must conduct each performance test according to § 63.7(e)(1) using the test methods and procedures in paragraphs (e)(3)(i) through (v) of this section.

(i) Method 1 or 1A (40 CFR part 60, appendix A) to select sampling port locations and the number of traverse points in each stack or duct. Sampling sites must be located at the outlet of the control device (or at the outlet of the emissions source if no control device is present) prior to any releases to the atmosphere.

(ii) Method 2, 2A, 2C, 2D, 2F, or 2G (40 CFR part 60, appendix A) to determine the volumetric flow rate of the stack gas.

(iii) Method 3, 3A, or 3B (40 CFR part 60, appendix A) to determine the dry molecular weight of the stack gas. You may use ANSI/ASME PTC 19.10–1981, ''Flue and Exhaust Gas Analyses'' (incorporated by reference—see § 63.14) as an alternative to EPA Method 3B.

(iv) Method 4 (40 CFR part 60, appendix A) to determine the moisture content of the stack gas.

(v) Method 5 (40 CFR part 60, appendix A) to determine the PM concentration for negative pressure baghouses or Method 5D (40 CFR part 60, appendix A) for positive pressure baghouses. A minimum of three valid test runs are needed to comprise a PM performance test.

(f) *Operation and maintenance requirements.* (1) At all times, including periods of startup, shutdown, and malfunction, you must to the extent practicable, maintain and operate any affected source, 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 permitting authority which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source.

(2) All pollution control equipment must be installed, maintained, and operated properly. Instructions from the vendor or established maintenance practices that maximize pollution control must be followed. All necessary equipment control and operating devices, such as pressure gauges, amp meters, volt meters, flow rate indicators, temperature gauges, continuous emissions monitor, etc., must be installed, operated properly and easily accessible to compliance inspectors. A copy of all manufacturers' operating instructions for pollution control equipment and pollution emitting equipment must be maintained at your facility site. These instructions must be available to all employees who operate the equipment and must be made available to the permitting authority upon request. Maintenance records must be made available to the permitting authority upon request.

(3) You must document the activities performed to assure proper operation and maintenance of the air pollution control equipment and monitoring systems or devices. Records of these activities must be maintained as required by the permitting authority.

(4) Except as specified in paragraph (f)(5) of this section, in the event of an emergency situation, you must comply with the requirements specified in paragraphs (f)(4)(i) through (iii) of this section. For the purpose of complying with this paragraph, an emergency situation is any situation arising from sudden and reasonably unforeseeable events beyond the control of the facility owner or operator that requires immediate corrective action to restore normal operation and that causes the affected source to exceed applicable emission limitation under this subpart due to unavoidable increases in emissions attributable to the emergency. An emergency must not include noncompliance to the extent it is caused by improperly designed equipment, lack of preventive maintenance, careless or improper operation, or operator error.

(i) During the period of the emergency you must implement all reasonable steps to minimize levels of emissions that exceeded the emission standards or other applicable requirements in this subpart.

(ii) You must document through signed contemporaneous logs or other relevant evidence that an emergency occurred and you can identify the probable cause, your facility was being operated properly at the time the emergency occurred, and the corrective actions taken to minimize emissions as required by paragraph (f)(4)(i) of this section.

(iii) You must submit a notice of the emergency to the permitting authority within two working days of the time when emission limitations were exceeded due to the emergency (or an alternate timeframe acceptable to the permitting authority). This notice must contain a description of the emergency, any steps taken to mitigate emissions, and corrective actions taken.

(5) As an alternative to the requirements in paragraph (f)(4) of this section, you must comply with the startup, shutdown, and malfunction requirements in 40 CFR 63.6(e)(3).

(g) *Recordkeeping requirements.* (1) You must maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of an affected source subject to this subpart; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system or monitoring device is inoperative.

(2) You must maintain a file of all measurements, including continuous monitoring system, monitoring device, and performance testing measurements; all continuous monitoring system performance evaluations; all continuous monitoring system or monitoring device calibration checks; adjustments and maintenance performed on these systems or devices; and all other information required by this section recorded in a permanent form suitable for inspection. The file must be retained for at least 5 years following the date of such measurements, maintenance, reports.

(h) *Reporting requirements.* (1) You must prepare and submit to the permitting authority an excess emissions and monitoring systems performance report and summary report every calendar quarter. A less frequent reporting interval may used for either report as approved by the permitting authority.

(2) The summary report must include the information in paragraphs (h)(2)(i) through (iv) of this section.

(i) The magnitude of excess emissions computed, any conversion factor(s) used, and the date and time of commencement and completion of each time period of excess emissions. The process operating time during the reporting period.

(ii) Specific identification of each period of excess emissions that occurs during startups, shutdowns, and malfunctions of the affected facility. The nature and cause of any malfunction (if known), the corrective action taken or preventative measures adopted.

(iii) The date and time identifying each period during which the continuous monitoring system was inoperative except for zero and span checks and the nature of the system repairs or adjustments.

(iv) When no excess emissions have occurred or the continuous monitoring system(s) have not been inoperative, repaired, or adjusted, such information must be stated in the report.

§ 63.11149 What are the standards and compliance requirements for new sources?

(a) *Emissions limits and work practice standards.* (1) You must not discharge to the atmosphere exhaust gases that contain total PM in excess of 0.6 pound per ton of copper concentrate feed charged on a 24-hour average basis from any combination of stacks, vents, or other openings on furnaces, reactors, or other types of process vessels used for the production of anode copper from copper sulfide ore concentrates by pyrometallurgical techniques. Examples of such process equipment include, but are not limited to, copper concentrate dryers, smelting flash furnaces, smelting bath furnaces, converting vessels, combined smelting and converting reactors, anode refining furnaces, and anode shaft furnaces.

(2) You must operate a capture system that collects the gases and fumes released during the transfer of molten materials from smelting vessels and converting vessels and conveys the collected gas stream to a baghouse or other PM control device.

(3) You must operate one or more capture systems that collect the gases and fumes released from each vessel used to refine blister copper, remelt anode copper, or remelt anode scrap and convey each collected gas stream to a baghouse or other PM control device. One control device may be used for multiple collected gas streams.

(b) *Monitoring requirements.* (1) You must install, operate, and maintain a PM continuous emissions monitoring system (CEMS) to measure and record PM concentrations and gas stream flow rates for the exhaust gases discharged to the atmosphere from each affected source subject to the emissions limit in paragraph (a)(1) of this section. A single PM CEMS may be used for the combined exhaust gas streams from multiple affected sources at a point before the gases are discharged to the atmosphere. For each PM CEMS used to comply with this paragraph, you must meet the requirements in paragraphs (b)(1)(i) through (iii) of this section.

(i) You must install, certify, operate, and maintain the PM CEMS according to EPA Performance Specification 11 in 40 CFR part 60, appendix B, and the quality assurance requirements of Procedure 2 in 40 CFR part 60, appendix F.

(ii) You must conduct an initial performance evaluation of the PM CEMS according to the requirements of Performance Specification 11 in 40 CFR part 60, appendix B. Thereafter, you must perform the performance evaluations as required by Procedure 2 in 40 CFR part 60, appendix F.

(iii) You must perform quarterly accuracy determinations and daily calibration drift tests for the PM CEMS according to Procedure 2 in 40 CFR part 60, appendix F.

(2) You must install, operate, and maintain a weight measurement system to measure and record the weight of the copper concentrate feed charged to the smelting vessel on a daily basis.

(c) *Compliance requirements.* (1) You must demonstrate initial compliance with the emissions limit in paragraph (a)(1) of this section using the procedures in paragraph (c)(2) this section within 180 days after startup and report the results in your notification of compliance status no later than 30 days after the end of the compliance demonstration.

(2) You must demonstrate continuous compliance with the emissions limit in paragraph (a)(1) of this section using the procedures in paragraph (c)(2)(i) through (iii) of this section whenever your facility is producing copper from copper concentrate.

(i) You must continuously monitor and record PM emissions, determine and record the daily (24-hour) value for each day, and calculate and record the daily average pounds of total PM per ton of copper concentrate feed charged to the smelting vessel according to the requirements in paragraph (b) of this section.

(ii) You must calculate the daily average at the end of each calendar day for the preceding 24-hour period.

(iii) You must maintain records of the calculations of daily averages with supporting information and data, including measurements of the weight of copper concentrate feed charged to the smelting vessel. Collected PM CEMS data must be made available for inspection.

(d) *Alternative startup, shutdown, and malfunction requirements.* You must comply with the requirements specified in this paragraph as an alternative to the requirements in 40 CFR 63.6(e)(3). In the event of an emergency situation, you must comply with the requirements specified in paragraphs (d)(1) through (3) of this section. For the purpose of complying with this paragraph, an emergency situation is any situation arising from sudden and reasonably unforeseeable events beyond the control of the facility owner or operator that requires immediate corrective action to restore normal operation, and that causes the affected source to exceed an applicable emissions limitation under this subpart, due to unavoidable increases in emissions attributable to the emergency. An emergency must not include noncompliance to the extent it is caused by improperly designed equipment, lack of preventive maintenance, careless or improper operation, or operator error.

(1) During the period of the emergency, you must implement all reasonable steps to minimize levels of emissions that exceeded the emission standards or other applicable requirements in this subpart.

(2) You must document through signed contemporaneous logs or other relevant evidence that an emergency occurred and you can identify the probable cause, your facility was being operated properly at the time the emergency occurred, and the corrective actions taken to minimize emissions as required by paragraph (d)(1) of this section.

(3) You must submit a notice of the emergency to the permitting authority within two working days of the time when emissions limitations were exceeded due to the emergency (or an alternate timeframe acceptable to the permitting authority). This notice must contain a description of the emergency, any steps taken to mitigate emissions, and corrective actions taken.

(e) *Reports.* You must submit to the permitting authority by the 20th day of each month a summary of the daily average PM per ton of copper concentrate feed charged to the smelting vessel for the previous month.

Other Requirements and Information

§ 63.11150 What General Provisions apply to this subpart?

(a) If you own or operate a new or existing affected source, you must comply with the requirements of the General Provisions (40 CFR part 63, subpart A) as specified in Table 1 to this subpart.

(b) If you own or operate an existing affected source subject to § 63.11147, your notification of compliance status required by § 63.9(h) must include the information specified in paragraphs (b)(1) through (4) of this section.

(1) If you certify initial compliance with the PM emissions limit in § 63.11147(a)(1) based on monitoring data from the previous month, your notification of compliance status must include this certification of compliance, signed by a responsible official: ''This facility complies with the PM emissions limit in § 63.11147(a)(1) based on monitoring data that were collected during the previous month.''

(2) If you conduct a new performance test to demonstrate initial compliance with the PM emissions limit in § 63.11147(a)(1), your notification of compliance status must include the results of the performance test, including required monitoring data.

(3) Your notification of compliance status must include this certification of compliance, signed by a responsible official, for the work practice standard in § 63.11147(a)(2): ''This facility complies with the requirement to capture gases from transfer of molten materials from smelting vessels and converting vessels and convey them to a control device in accordance with § 63.11147(a)(2).''

(4) Your notification of compliance status must include this certification of compliance, signed by a responsible official, for the work practice standard in § 63.11147(a)(3): ''This facility complies with the requirement to capture gases from operations in the anode refining department and convey them to a PM control device in accordance with § 63.11147(a)(3).''

(c) If you own or operate an existing affected source subject to § 63.11148, your notification of compliance status required by § 63.9(h) must include the information specified in paragraphs (c)(1) through (4) of this section.

(1) If you certify initial compliance with the PM emissions limit in § 63.11148(a)(1), (a)(3)(ii), and (a)(4)(iv) based on the results of a previous performance test conducted within the past 12 months before your compliance date, your notification of compliance status must include this certification of compliance, signed by a responsible official: ''This facility complies with the PM emissions limit in § 63.11148(a)(1) based on the results of a previous performance test.''

(2) If you conduct a new performance test to demonstrate initial compliance with the PM emissions limits in § 63.11148(a)(1), (a)(3)(ii), and (a)(4)(iv), your notification of compliance status must include the results of the performance test, including required monitoring data.

(3) Your notification of compliance status must include this certification of compliance, signed by a responsible official, for the work practice standards in § 63.11148(a)(2), and (a)(4)(iii): ''This facility complies with the requirement to vent captured process gases to a gas cleaning system controlling PM and to a sulfuric acid plant in accordance with § 63.11148(a)(2) and (a)(4)(iii).''

(3) Your notification of compliance status must include this certification of compliance, signed by a responsible official, for the work practice standard in § 63.11148(a)(3)(i): ''This facility complies with the requirement to operate capture systems to collect gases and fumes released when copper matte or slag is tapped from the smelting vessel in accordance with § 63.11148(a)(3)(i).''

(4) Your notification of compliance status must include this certification of compliance, signed by a responsible official, for the work practice standard in § 63.11148(a)(4): ''This facility complies with the requirement to operate capture systems to collect gases and fumes released during batch copper converter operations in accordance with § 63.11148(a)(4).''

(d) If you own or operate a new affected source, your notification of compliance status required by § 63.9(h) must include the information in paragraphs (d)(1) through (3) of this section.

(1) Your notification of compliance status must include the results of the initial performance test and monitoring data collected during the test that demonstrate compliance with the emissions limit in § 63.11149(a)(1).

(2) Your notification of compliance status must include this certification of compliance, signed by a responsible official, for the work practice standard in § 63.11149(a)(2): ''This facility complies with the requirement to capture gases from transfer of molten materials from smelting vessels and converting vessels and convey them to a PM control device in accordance with § 63.11149(a)(2).''

(3) Your notification of compliance status must include this certification of compliance, signed by a responsible official, for the work practice standard in § 63.11149(a)(3): ''This facility complies with the requirement to capture gases from each vessel used to refine blister copper, remelt anode copper, or remelt anode scrap, and convey them to a PM control device in accordance with § 63.11149(a)(3).''

§ 63.11151 What definitions apply to this subpart?

Terms used in this subpart are defined in the CAA, in 40 CFR 63.2, and in this section as follows:

Anode refining department means the area at a primary copper smelter in which anode copper refining operations are performed. Emissions sources in the anode refining department include anode refining furnaces and anode shaft furnaces.

Baghouse means a control device that collects particulate matter by filtering the gas stream through bags. A *baghouse* is also referred to as a ''fabric filter.''

Bag leak detection system means a system that is capable of continuously monitoring relative particulate matter (dust) loadings in the exhaust of a baghouse in order to detect bag leaks and other upset conditions. A bag leak detection system includes, but is not limited to, an instrument that operates on triboelectric, light scattering, transmittance or other effect to continuously monitor relative particulate matter loadings.

Batch copper converter means a converter in which molten copper matte is charged and then oxidized to form blister copper by a process that is performed in discrete batches using a sequence of charging, blowing, skimming, and pouring.

Capture system means the collection of components used to capture gases and fumes released from one or more emissions points and then convey the captured gas stream to a control device. A capture system may include, but is not limited to, the following components as applicable to a given capture system design: Duct intake devices, hoods, enclosures, ductwork, dampers, manifolds, plenums, and fans.

Charging means the operating mode for a batch copper converter during which molten or solid material is added into the vessel.

Control device means air pollution control equipment used to remove PM from a gas stream.

Converting vessel means a furnace, reactor, or other type of vessel in which copper matte is oxidized to form blister copper.

Copper concentrate means copper ore that has been beneficiated to increase its copper content.

Copper concentrate dryer means a vessel in which copper concentrates are heated in the presence of air to reduce the moisture content of the material. Supplemental copper-bearing feed materials and fluxes may be added or mixed with the copper concentrates fed to a copper concentrate dryer.

Copper concentrate feed means the mixture of copper concentrate, secondary copper-bearing materials, recycled slags and dusts, fluxes, and other materials blended together for feeding to the smelting vessel.

Copper matte means a material predominately composed of copper and iron sulfides produced by smelting copper ore concentrates.

Deviation means any instance in which an affected source subject to this subpart, or an owner or operator of such a source:

(1) Fails to meet any requirement or obligation established by this subpart, including but not limited to any emissions limitation or work practice standard;

(2) Fails to meet any term or condition that is adopted to implement an applicable requirement in this subpart and that is included in the operating permit for any affected source required to obtain such a permit; or

(3) Fails to meet any emissions limitation or work practice standard in this subpart during startup, shutdown, or malfunction, regardless of whether or not such failure is permitted by this subpart.

Holding means the operating mode for a batch copper converter or a holding furnace associated with a smelting furnace during which the molten bath is maintained in the vessel but no blowing or smelting is performed nor is material added into or removed from the vessel.

Matte drying and grinding plant means the area at a primary copper smelter in which wet granulated matte copper is ground in a mill, dried by blowing heated air through the mill, and then separated from the drying air stream using a control device such as a baghouse.

Pouring means the operating mode for a batch copper converter during which molten copper is removed from the vessel.

Primary copper smelter means any installation or any intermediate process engaged in the production of copper from copper sulfide ore concentrates through the use of pyrometallurgical techniques.

Responsible official means responsible official as defined at 40 CFR 70.2.

Secondary gas system means a capture system that collects the gases and fumes released when removing and transferring molten materials from one or more vessels using tapping ports, launders, and other openings in the vessels. Examples of molten material include, but are not limited to: Copper matte, slag, and blister copper.

Skimming means the batch copper converter operating mode during which molten slag is removed from the vessel.

Smelting vessel means a furnace, reactor, or other type of vessel in which copper ore concentrate and fluxes are smelted to form a molten mass of material containing copper matte and slag. Other copper-bearing materials may also be charged to the smelting vessel.

Work practice standard means any design, equipment, work practice, or operational standard, or combination thereof.

§ 63.11152 Who implements and enforces this subpart?

(a) This subpart can be implemented and enforced by the U.S. EPA, or a delegated authority such as a State, local, or tribal agency. If the U.S. EPA Administrator has delegated authority to a State, local, or tribal agency, then that Agency has the authority to implement and enforce this subpart. You should contact your U.S. EPA Regional Office to find out if this subpart is delegated to a State, local, or tribal agency within your State.

(b) In delegating implementation and enforcement authority of this subpart to a State, local, or tribal agency under 40 CFR part 63, subpart E, the authorities contained in paragraph (c) of this section are retained by the Administrator of the U.S. EPA and are not transferred to the State, local, or tribal agency.

(c) The authorities that will not be delegated to State, local, or tribal agencies are listed in paragraphs (c)(1) through (5) of this section.

(1) Approval of an alternative non-opacity emissions standard under § 63.6(g).

(2) Approval of an alternative opacity emissions standard under § 63.6(h)(9).

(3) Approval of a major change to a test method under § 63.7(e)(2)(ii) and (f). A ''major change to test method'' is defined in § 63.90.

(4) Approval of a major change to monitoring under § 63.8(f). A ''major change to monitoring'' is defined in § 63.90.

(5) Approval of a major change to recordkeeping/reporting under § 63.10(f). A ''major change to recordkeeping/reporting'' is defined in § 63.90.

As required in § 63.11150(a), you must comply with the requirements of the NESHAP General Provisions (40 CFR part 63, subpart A) as shown in the following table.

TABLE 1 TO SUBPART EEEEEE OF PART 63.—APPLICABILITY OF GENERAL PROVISIONS TO SUBPART EEEEEE

Citation	Subject	Applies to subpart EEEEEE?	Explanation
63.1(a)(1), (a)(2), (a)(3), (a)(4), (a)(6), (a)(10)–(a)(12) (b)(1), (b)(3), (c)(1), (c)(2), (c)(5), (e).	Applicability	Yes.	
63.1(a)(5), (a)(7)–(a)(9), (b)(2), (c)(3), (c)(4), (d).	Reserved	No.	
63.2	Definitions	Yes.	
63.3	Units and Abbreviations	Yes.	
63.4	Prohibited Activities and Circumvention	Yes.	
63.5	Preconstruction Review and Notification Requirements.	No.	
63.6(a), (b)(1)–(b)(5), (b)(7), (c)(1), (c)(2), (c)(5).	Compliance with Standards and Maintenance Requirements—Applicability and Compliance Dates.	Yes.	
63.6(e)	Operation and Maintenance Requirements.	Yes/No	Operation and maintenance requirements do not apply to existing sources except that the startup, shutdown, and malfunction requirements in § 63.6(e)(3) are allowed as an alternative to the rule requirements for emergency situations. Operation and maintenance requirements apply to new sources except that the rule requirements for emergency situations are allowed as an alternative to the startup, shutdown, and malfunction requirements in § 63.6(e)(3).
63.6(f), (g), (i), (j)	Compliance with Nonopacity Emission Standards.	Yes.	
63.6(b)(6), (c)(3), (c)(4), (d), (e)(2), (e)(3)(ii), (h)(3), (h)(5)(iv).	Reserved	No.	
63.6(h)(1)–(h)(4), (h)(5)(i)–(h)(5)(iii), (h)(6)–(h)(9).		Yes/No	Requirements apply to new sources but not existing sources.
63.7(a), (e), (f), (g), (h)	Performance Testing Requirements	Yes.	
63.7(b), (c)		Yes/No	Notification of performance tests and quality assurance program apply to new sources but not existing sources.
63.8(a)(1), (a)(2), (b), (c), (f), (g)	Monitoring Requirements	Yes.	
63.8(a)(3)	Reserved	No.	
63.8(a)(4)		No	Subpart EEEEEE does not require flares.
63.8(d), (e)		Yes/No	Requirements for quality control program and performance evaluations apply to new sources but not existing sources.
63.9(a), (b)(1), (b)(2), (b)(5), (c), (d), (h)(1)–(h)(3), (h)(5), (h)(6), (i), (j).	Notification Requirements	Yes.	
63.9(b)(3), (h)(4)	Reserved	No.	
63.9(b)(4), (f)		No.	
63.9(e), (g)		Yes/No	Notification requirements for performance test and use of continuous monitoring systems apply to new sources but not existing sources.
63.10(a), (b)(1), (d)(1), (d)(2), (d)(4), (d)(5), (f).	Recordkeeping and Reporting Requirements.	Yes/No	Recordkeeping requirements apply to new sources but not existing sources.
63.10(b)(2), (b)(3), (c)(1) (c)(5)–(c)(8), (c)(10)–(c)(15), (e)(1), (e)(2).		Yes/No	Recordkeeping requirements apply to new sources but not existing sources.
63.10(c)(2)–(c)(4), (c)(9)	Reserved	No.	
63.10(d)(3), (e)(4)		No	Reporting requirements apply to new sources but not existing sources.
63.10(e)(3)		Yes/No	Reporting requirements apply to new sources but not existing sources.
63.11	Control Device Requirements	No	Subpart EEEEEE does not require flares.
63.12	State Authorities and Delegations	Yes.	
63.13	Addresses	Yes.	
63.14	Incorporations by Reference	Yes.	
63.15	Availability of Information and Confidentiality.	Yes.	
63.16	Performance Track Provisions	Yes.	

■ 5. Part 63 is amended by adding subpart FFFFFF to read as follows:

Subpart FFFFFF—National Emission Standards for Hazardous Air Pollutants for Secondary Copper Smelting Area Sources

Sec.

Applicability and Compliance Dates

63.11153 Am I subject to this subpart?
63.11154 What are my compliance dates?

Standards and Compliance Requirements

63.11155 What are the standards and compliance requirements for new sources?
63.11156 [Reserved]

Other Requirements and Information

63.11157 What General Provisions apply to this subpart?
63.11158 What definitions apply to this subpart?
63.11159 Who implements and enforces this subpart?
Table 1 to Subpart FFFFFF of Part 63—Applicability of General Provisions to Subpart FFFFFF

Applicability and Compliance Dates

§ 63.11153 Am I subject to this subpart?

(a) You are subject to this subpart if you own or operate a new secondary copper smelter that is an area source of hazardous air pollutant (HAP) emissions.

(b) This subpart applies to each new affected source. The affected source is each secondary copper smelter. Your secondary copper smelter is a new affected source if you commenced construction or reconstruction of the affected source before October 6, 2006.

(c) This subpart does not apply to research and development facilities, as defined in section 112(c)(7) of the CAA.

(d) If you own or operate an area source subject to this subpart, you must obtain a permit under 40 CFR part 70 or 40 CFR part 71.

§ 63.11154 What are my compliance dates?

(a) If you startup a new affected source on or before January 23, 2007, you must achieve compliance with the applicable provisions of this subpart not later than January 23, 2007.

(b) If you startup a new affected source after January 23, 2007, you must achieve compliance with the applicable provisions of this subpart upon startup of your affected source.

Standards and Compliance Requirements

§ 63.11155 What are the standards and compliance requirements for new sources?

(a) You must not discharge to the atmosphere any gases which contain particulate matter (PM) in excess of 0.002 grains per dry standard cubic foot (gr/dscf) from the exhaust vent of any capture system for a smelting furnace, melting furnace, or other vessel that contains molten material and any capture system for the transfer of molten material.

(b) For each smelting furnace, melting furnace, or other vessel that contains molten material, you must install and operate a capture system that collects the gases and fumes from the vessel and from the transfer of molten material and convey the collected gas stream to a control device.

(c) You must prepare and operate at all times according to a written plan for the selection, inspection, and pretreatment of copper scrap to minimize, to the extent practicable, the amount of oil and plastics in the scrap that is charged to the smelting furnace. Your plan must include a training program for scrap inspectors. You must keep records to demonstrate continuous compliance with the requirements of your plan. You must keep a current copy of your pollution prevention plan onsite and available for inspection.

(d) You must install, operate, and maintain a bag leak detection system on all baghouses used to comply with the PM emissions limit in paragraph (a) of this section according to paragraph (d)(1) of this section, prepare and operate by a site-specific monitoring plan according to paragraph (d)(2) of this section, take corrective action according to paragraph (d)(3) of this section, and record information according to paragraph (d)(4) of this section.

(1) Each bag leak detection system must meet the specifications and requirements in paragraphs (d)(1)(i) through (viii) of this section.

(i) The bag leak detection system must be certified by the manufacturer to be capable of detecting PM emissions at concentrations of 1 milligram per actual cubic meter (0.00044 grains per actual cubic foot) or less.

(ii) The bag leak detection system sensor must provide output of relative PM loadings. The owner or operator must continuously record the output from the bag leak detection system using electronic or other means (*e.g.*, using a strip chart recorder or a data logger.)

(iii) The bag leak detection system must be equipped with an alarm system that will sound when the system detects an increase in relative particulate loading over the alarm set point established according to paragraph (d)(1)(iv) of this section, and the alarm must be located such that it can be heard by the appropriate plant personnel.

(iv) In the initial adjustment of the bag leak detection system, you must establish, at a minimum, the baseline output by adjusting the sensitivity (range) and the averaging period of the device, the alarm set points, and the alarm delay time.

(v) Following initial adjustment, you must not adjust the averaging period, alarm set point, or alarm delay time without approval from the Administrator or delegated authority except as provided in paragraph (d)(1)(vi) of this section.

(vi) Once per quarter, you may adjust the sensitivity of the bag leak detection system to account for seasonal effects, including temperature and humidity, according to the procedures identified in the site-specific monitoring plan required by paragraph (d)(2) of this section.

(vii) You must install the bag leak detection sensor downstream of the baghouse and upstream of any wet scrubber.

(viii) Where multiple detectors are required, the system's instrumentation and alarm may be shared among detectors.

(2) You must develop and submit to the Administrator or delegated authority for approval a site-specific monitoring plan for each bag leak detection system. You must operate and maintain the bag leak detection system according to the site-specific monitoring plan at all times. Each monitoring plan must describe the items in paragraphs (d)(2)(i) through (vi) of this section.

(i) Installation of the bag leak detection system;

(ii) Initial and periodic adjustment of the bag leak detection system, including how the alarm set-point will be established;

(iii) Operation of the bag leak detection system, including quality assurance procedures;

(iv) How the bag leak detection system will be maintained, including a routine maintenance schedule and spare parts inventory list;

(v) How the bag leak detection system output will be recorded and stored; and

(vi) Corrective action procedures as specified in paragraph (d)(3) of this section. In approving the site-specific monitoring plan, the Administrator or delegated authority may allow owners and operators more than 3 hours to alleviate a specific condition that causes an alarm if the owner or operator identifies in the monitoring plan this specific condition as one that could lead to an alarm, adequately explains why it is not feasible to alleviate this specific

condition within 3 hours of the time the alarm occurs, and demonstrates that the requested time will ensure alleviation of this condition as expeditiously as practicable.

(3) For each bag leak detection system, you must initiate procedures to determine the cause of every alarm within 1 hour of the alarm. Except as provided in paragraph (d)(2)(vi) of this section, you must alleviate the cause of the alarm within 3 hours of the alarm by taking whatever corrective action(s) are necessary. Corrective actions may include, but are not limited to the following:

(i) Inspecting the baghouse for air leaks, torn or broken bags or filter media, or any other condition that may cause an increase in particulate emissions;

(ii) Sealing off defective bags or filter media;

(iii) Replacing defective bags or filter media or otherwise repairing the control device;

(iv) Sealing off a defective baghouse compartment;

(v) Cleaning the bag leak detection system probe or otherwise repairing the bag leak detection system; or

(vi) Shutting down the process producing the particulate emissions.

(4) You must maintain records of the information specified in paragraphs (d)(4)(i) through (iii) of this section for each bag leak detection system.

(i) Records of the bag leak detection system output;

(ii) Records of bag leak detection system adjustments, including the date and time of the adjustment, the initial bag leak detection system settings, and the final bag leak detection system settings; and

(iii) The date and time of all bag leak detection system alarms, the time that procedures to determine the cause of an alarm were initiated, whether procedures were initiated within 1 hour of the alarm, the cause of the alarm, an explanation of the actions taken, the date and time the cause of the alarm was alleviated, and whether the alarm was alleviated within 3 hours of the alarm.

(e) You must conduct a performance test to demonstrate initial compliance with the PM emissions limit within 180 days after startup and report the results in your notification of compliance status. You must conduct each PM test according to § 63.7(e)(1) using the test methods and procedures in paragraphs (e)(1) through (5) of this section.

(1) Method 1 or 1A (40 CFR part 60, appendix A) to select sampling port locations and the number of traverse points in each stack or duct. Sampling sites must be located at the outlet of the control device (or at the outlet of the emissions source if no control device is present) prior to any releases to the atmosphere.

(2) Method 2, 2A, 2C, 2D, 2F, or 2G (40 CFR part 60, appendix A) to determine the volumetric flow rate of the stack gas.

(3) Method 3, 3A, or 3B (40 CFR part 60, appendix A) to determine the dry molecular weight of the stack gas. You may use ANSI/ASME PTC 19.10–1981, ''Flue and Exhaust Gas Analyses (incorporated by reference—see § 63.14) as an alternative to EPA Method 3B.

(4) Method 4 (40 CFR part 60, appendix A) to determine the moisture content of the stack gas.

(5) Method 5 (40 CFR part 60, appendix A) to determine the PM concentration for negative pressure baghouses and Method 5D (40 CFR part 60, appendix A) for positive pressure baghouses. The sampling time and volume for each run must be at least 60 minutes and 0.85 dry standard cubic meters (30 dry standard cubic feet). A minimum of three valid test runs are needed to comprise a PM performance test.

(f) You must conduct subsequent performance tests to demonstrate compliance with the PM emissions limit at least once every 5 years.

(g) If you use a control device other than a baghouse, you must prepare and submit a monitoring plan to the Administrator for approval. Each plan must contain the information in paragraphs (g)(1) through (5) of this section.

(1) A description of the device;

(2) Test results collected in accordance with paragraph (e) of this section verifying the performance of the device for reducing PM to the levels required by this subpart;

(3) Operation and maintenance plan for the control device (including a preventative maintenance schedule consistent with the manufacturer's instructions for routine and long-term maintenance) and continuous monitoring system.

(4) A list of operating parameters that will be monitored to maintain continuous compliance with the applicable emission limits; and

(5) Operating parameter limits based on monitoring data collected during the performance test.

§ 63.11156 [Reserved]

Other Requirements and Information

§ 63.11157 What General Provisions apply to this subpart?

(a) If you own or operate a new affected source, you must comply with the requirements of the General Provisions in 40 CFR part 63, subpart A as specified in Table 1 to this subpart.

(b) Your notification of compliance status required by § 63.9(h) must include the following:

(1) The results of the initial performance tests and monitoring data collected during the test.

(2) This certification of compliance, signed by a responsible official, for the work practice standard in § 63.1155(b): ''This facility complies with the requirement for a capture system for each smelting furnace, melting furnace, or other vessel that contains molten material in accordance with § 63.11155(b).''

(3) This certification of compliance, signed by a responsible official, for the work practice standard in § 63.11155(c): ''This facility complies with the requirement for a written plan for the selection, inspection, and pretreatment of copper scrap in accordance with § 63.11155(c).''

(4) This certification of compliance, signed by a responsible official, for the work practice standard in § 63.11155(d)(2): ''This facility has an approved monitoring plan in accordance with § 63.11155(d)(2).''

(5) This certification of compliance, signed by a responsible official, for the work practice standard in § 63.11157(g): ''This facility has an approved monitoring plan in accordance with § 63.11157(g).''

§ 63.11158 What definitions apply to this subpart?

Terms used in this subpart are defined in the CAA, in 40 CFR 63.2, and in this section as follows:

Anode copper means copper that is cast into anodes and refined in an electrolytic process to produce high purity copper.

Capture system means the collection of components used to capture gases and fumes released from one or more emissions points and then convey the captured gas stream to a control device. A capture system may include, but is not limited to, the following components as applicable to a given capture system design: duct intake devices, hoods, enclosures, ductwork, dampers, manifolds, plenums, and fans.

Melting furnace means any furnace, reactor, or other type of vessel that heats solid materials and produces a molten mass of material.

Secondary copper smelter means a facility that processes copper scrap in a blast furnace and converter or that uses another pyrometallurgical purification process to produce anode copper from copper scrap, including low-grade

copper scrap. A facility where recycled copper scrap or copper alloy scrap is melted to produce ingots or for direct use in a manufacturing process is not a secondary copper smelter.

Smelting furnace means any furnace, reactor, or other type of vessel in which copper scrap and fluxes are melted to form a molten mass of material containing copper and slag.

Work practice standard means any design, equipment, work practice, or operational standard, or combination thereof.

§ 63.11159 Who implements and enforces this subpart?

(a) This subpart can be implemented and enforced by the U.S. EPA, or a delegated authority such as a State, local, or tribal agency. If the U.S. EPA Administrator has delegated authority to a State, local, or tribal agency, then that Agency has the authority to implement and enforce this subpart. You should contact your U.S. EPA Regional Office to find out if this subpart is delegated to a State, local, or tribal agency.

(b) In delegating implementation and enforcement authority of this subpart to a State, local, or tribal agency under 40 CFR part 63, subpart E, the authorities contained in paragraph (c) of this section are retained by the Administrator of the U.S. EPA and are not transferred to the State, local, or tribal agency.

(c) The authorities that will not be delegated to State, local, or tribal agencies are listed in paragraphs (c)(1) through (4) of this section.

(1) Approval of an alternative non-opacity emissions standard under § 63.6(g).

(2) Approval of a major change to test methods under § 63.7(e)(2)(ii) and (f). A ''major change to test method'' is defined in § 63.90.

(3) Approval of a major change to monitoring under § 63.8(f). A ''major change to monitoring'' is defined in § 63.90.

(4) Approval of a major change to recordkeeping/ reporting under § 63.10(f). A ''major change to recordkeeping/reporting'' is defined in § 63.90.

As required in § 63.11157(a), you must comply with the requirements of the General Provisions (40 CFR part 63, subpart A) as shown in the following table.

TABLE 1 TO SUBPART FFFFFF OF PART 63.—APPLICABILITY OF GENERAL PROVISIONS TO SUBPART FFFFFF

Citation	Subject	Applies to subpart FFFFFF?	Explanation
63.1(a)(1), (a)(2), (a)(3), (a)(4), (a)(6), (a)(10)–(a)(12), (b)(1), (b)(3), (c)(1), (c)(2), (c)(5), (e).	Applicability	Yes.	
63.1(a)(5), (a)(7)–(a)(9), (b)(2), (c)(3), (c)(4), (d).	Reserved	No.	
63.2	Definitions	Yes.	
63.3	Units and Abbreviations	Yes.	
63.4	Prohibited Activities and Circumvention	Yes.	
63.5	Preconstruction Review and Notification Requirements.	No.	
63.6(a), (b)(1)–(b)(5), (b)(7), (c)(1), (c)(2), (c)(5), (e)(3)(i), (e)(3)(iii)–(e)(3)(ix), (f), (g), (i), (j).	Compliance with Standards and Maintenance Requirements.	Yes.	
63.6(b)(6), (c)(3), (c)(4), (d), (e)(2), (e)(3)(ii), (h)(3), (h)(5)(iv).	Reserved	No.	
63.6(h)(1)–(h)(4), (h)(5)(i)–(h)(5)(iii), (h)(6)–(h)(9).		No	Subpart FFFFFF does not include opacity or visible emissions standards.
63.7	Performance Testing Requirements	Yes.	
63.8(a)(1), (a)(2), (b), (f)(1)–(5)	Monitoring Requirements	Yes.	
63.8(a)(3)	Reserved	No.	
63.8(c), (d), (e), (f)(6), (g)		No	Subpart FFFFFF does not require a continuous monitoring system.
63.8(a)(4)		No	Subpart FFFFFF does not require flares.
63.9(a), (b)(1), (b)(2), (b)(5), (c), (d), (e), (f), (g), (h)(1)–(h)(3), (h)(5), (h)(6), (i), (j).	Notification Requirements	Yes.	
63.9(b)(3), (h)(4)	Reserved	No.	
63.9(b)(4)		No.	
63.9(f)		No	Subpart FFFFFF does not include opacity or visible emissions standards.
63.9(g)		No	Subpart FFFFFF does not require a continuous monitoring system.
63.10(a), (b)(2)(i)–(b)(2)(v), (b)(2)(xiv), (d)(1), (d)(2), (d)(4), (d)(5), (e)(1), (e)(2), (f).	Recordkeeping and Reporting Requirements.	Yes.	
63.10(c)(2)–(c)(4), (c)(9)	Reserved	No.	
63.10(b)(2)(vi)–(b)(2)(xiii), (c)(1), (c)(5)–(c)(14), (e)(1)–(e)(2), (e)(4).			Subpart FFFFFF does not require a continuous monitoring system.
63.10(d)(3)		No	Subpart FFFFFF does not include opacity or visible emissions standards.
63.10(e)(3)		Yes.	
63.11	Control Device Requirements	No	Subpart FFFFFF does not require flares.
63.12	State Authorities and Delegations	Yes.	
63.13	Addresses	Yes.	
63.14	Incorporations by Reference	Yes.	

TABLE 1 TO SUBPART FFFFFF OF PART 63.—APPLICABILITY OF GENERAL PROVISIONS TO SUBPART FFFFFF—Continued

Citation	Subject	Applies to subpart FFFFFF?	Explanation
63.15	Availability of Information and Confidentiality.	Yes.	
63.16	Performance Track Provisions	Yes.	

■ 6. Part 63 is amended by adding subpart GGGGGG to read as follows:

Subpart GGGGGG—National Emission Standards for Hazardous Air Pollutants for Primary Nonferrous Metals Area Sources—Zinc, Cadmium, and Beryllium

Sec.

Applicability and Compliance Dates

63.11160 Am I subject to this subpart?
63.11161 What are my compliance dates?

Primary Zinc Production Facilities

63.11162 What are the standards and compliance requirements for existing sources?
63.11163 What are the standards and compliance requirements for new sources?
63.11164 What General Provisions apply to primary zinc production facilities?

Primary Beryllium Production Facilities

63.11165 What are the standards and compliance requirements for new and existing sources?
63.11166 What General Provisions apply to primary beryllium production facilities?

Other Requirements and Information

63.11167 What definitions apply to this subpart?
63.11168 Who implements and enforces this subpart?
Table 1 to Subpart GGGGGG of Part 63—Applicability of General Provisions to Primary Zinc Production Area Sources

Applicability and Compliance Dates

§ 63.11160 Am I subject to this subpart?

(a) You are subject to this subpart if you own or operate a primary zinc production facility or primary beryllium production facility that is an area source of hazardous air pollutant (HAP) emissions.

(b) The affected source is each existing or new primary zinc production facility or primary beryllium production facility.

(1) An affected source is existing if you commenced construction or reconstruction of the affected source before October 6, 2006.

(2) An affected source is new if you commenced construction or reconstruction of the affected source on or after October 6, 2006.

(c) If you own or operate a new or existing affected source, you must obtain a permit under 40 CFR part 70 or 71.

§ 63.11161 What are my compliance dates?

(a) If you have an existing affected source, you must achieve compliance with applicable provisions in this subpart by January 23, 2007. If you startup a new sintering machine at an existing affected source after January 23, 2007, you must achieve compliance with the applicable provisions in this subpart not later than 180 days after startup.

(b) If you have a new affected source, you must achieve compliance with applicable provisions in this subpart according to the dates in paragraphs (b)(1) and (2) of this section.

(1) If you startup a new affected source on or before January 23, 2007, you must achieve compliance with applicable provisions in this subpart not later than January 23, 2007.

(2) If you startup a new affected source after January 23, 2007, you must achieve compliance with applicable provisions in this subpart upon initial startup.

Primary Zinc Production Facilities

§ 63.11162 What are the standards and compliance requirements for existing sources?

(a) You must exhaust the off-gases from each roaster to a particulate matter (PM) control device and to a sulfuric acid plant, including during the charging of the roaster.

(b) Except as provided in paragraph (b)(6) of this section, you must not discharge to the atmosphere any gases which contain PM in excess of the emissions limits in paragraphs (b)(1) through (5) of this section.

(1) 0.93 pound per hour (lb/hr) from the exhaust vent of a zinc cathode melting furnace.

(2) 0.1 lb/hr from the exhaust vent of a furnace that melts zinc dust, zinc chips, and/or other materials containing zinc.

(3) 0.228 lb/hr from the vent for the combined exhaust from a furnace melting zinc scrap and an alloy furnace.

(4) 0.014 grains per dry standard cubic foot (gr/dscf) from the exhaust vent of an anode casting furnace.

(5) 0.015 gr/dscf from the exhaust vent of a cadmium melting furnace.

(6) You may elect to meet an emissions limit of 0.005 gr/dscf as an alternative to the emissions limits in lb/hr in paragraphs (b)(1) through (3) of this section.

(c) You must establish an operating range for pressure drop for each baghouse applied to a furnace subject to an emissions limit in paragraph (b) of this section based on the minimum and maximum values recorded during a performance test that demonstrates compliance with the applicable PM emissions limit. Alternatively, you may use an operating range that has been previously established and approved by your permitting authority within the past 5 years. You must monitor the pressure drop daily, maintain the pressure drop for each baghouse within the established operating range, and record the pressure drop measurement in a daily log. You must perform routine maintenance on each baghouse and record maintenance activities in a baghouse maintenance log. Baghouse maintenance logs must include, but are not limited to, inspections, criteria for changing bag filters, and dates on which the bag filters are replaced. Both logs must be maintained in a suitable permanent form and kept available for inspection.

(d) If you own or operate a sintering machine at your facility, you must comply with the PM emissions limit in 40 CFR 60.172(a) and the opacity emissions limit in 40 CFR 60.174(a) for that sintering machine.

(e) If you own or operate a sintering machine at your facility, you must install and operate a continuous opacity monitoring system (COMS) for each sintering machine according to the requirements in 40 CFR 60.175(a). Each COMS must meet Performance Specification 1 (40 CFR part 60, appendix B).

(f) For each furnace at your facility subject to an emissions limit in paragraph (b) of this section, you must demonstrate initial compliance with the applicable PM emissions limit in

paragraph (b) of this section based on the results of a performance test for that furnace. If you own or operate a sintering machine, you must also demonstrate initial compliance with the PM and opacity emissions limits in paragraph (d) of this section based on the results of a performance test for that sintering machine.

(1) You may certify initial compliance for a furnace (and sintering machine, if applicable) based on the results of a previous performance test conducted during the past 5 years.

(2) If you have not conducted a performance test to demonstrate compliance with the applicable emissions limits during the past 5 years, you must conduct a performance test within 180 days of your compliance date and report the results in your notification of compliance status. If a furnace subject to an emissions limit in paragraph (b) of this section is not operating on the compliance date and subsequently resumes operation, you must conduct a performance test within 180 days of startup and report the results in your notification of compliance status.

(3) You must conduct each PM test for a furnace according to § 63.7(e)(1) using the test methods and procedures in paragraphs (f)(3)(i) through (v) of this section.

(i) Method 1 or 1A (40 CFR part 60, appendix A) to select sampling port locations and the number of traverse points in each stack or duct. Sampling sites must be located at the outlet of the control device (or at the outlet of the emissions source if no control device is present) prior to any releases to the atmosphere.

(ii) Method 2, 2A, 2C, 2D, 2F, or 2G (40 CFR part 60, appendix A) to determine the volumetric flow rate of the stack gas.

(iii) Method 3, 3A, or 3B (40 CFR part 60, appendix A) to determine the dry molecular weight of the stack gas. You may use ANSI/ASME PTC 19.10–1981, ''Flue and Exhaust Gas Analyses (incorporated by reference—see § 63.14) as an alternative to EPA Method 3B.

(iv) Method 4 (40 CFR part 60, appendix A) to determine the moisture content of the stack gas.

(v) Method 5 (40 CFR part 60, appendix A) to determine the PM concentration for a negative pressure baghouse, Method 5D (40 CFR part 60, appendix A) for a positive pressure baghouse, or an alternative method previously approved by your permitting authority. A minimum of three valid test runs are needed to comprise a PM performance test.

(4) You must conduct each PM test for a sintering machine according to § 63.7(e)(1) and 40 CFR 60.176(b)(1) using the test methods in paragraph (f)(3) of this section. You must determine the PM concentration using EPA Method 5 (40 CFR part 60, appendix A). You may use ANSI/ASME PTC 19.10–1981, ''Flue and Exhaust Gas Analyses'' (incorporated by reference—see § 63.14) as an alternative to EPA Method 3B.

(5) You must conduct each opacity test for a sintering machine according to the requirements in § 63.6(h)(7). You must determine the opacity of emissions using EPA Method 9 (40 CFR part 60, appendix A).

(g) For each furnace subject to an emissions limit in paragraph (b) of this section, you must conduct subsequent performance tests according to the requirements in paragraph (f)(3) of this section to demonstrate compliance with the applicable PM emissions limit for the furnace every 5 years.

(h) You must submit a notification to your permitting authority of any deviation from the requirements of this subpart within 30 days after the deviation. The notification must describe the probable cause of the deviation and any corrective actions or preventative measures taken.

(i) You must submit semiannual monitoring reports to your permitting authority containing the results for all monitoring required by this subpart. All deviations that occur during the reporting period must be clearly identified.

(j) You must keep records of all required monitoring data and support information. Support information includes all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation and copies of all reports required by this subpart.

(k) You must comply with the operation and maintenance requirements specified in paragraphs (k)(1) and (2) of this section and the requirements for emergency situations specified in paragraph (k)(3) or (4) of this section.

(1) You must maintain all equipment covered under this subpart in such a manner that the performance or operation of such equipment does not cause a deviation from the applicable requirements.

(2) You must keep a maintenance record for each item of air pollution control equipment. At a minimum, this record must show the dates of performing maintenance and the nature of preventative maintenance activities.

(3) Except as specified in paragraph (k)(4) of this section, in the event of an emergency situation you must comply with the requirements in paragraphs (k)(3)(i) through (iii) of this section. For the purpose of complying with this paragraph, an emergency situation is any situation arising from sudden and reasonably unforeseeable events beyond the control of the facility owner or operator that require immediate corrective action to restore normal operation, and that cause the affected source to exceed applicable emission limitation under this subpart, due to unavoidable increases in emissions attributable to the emergency. An emergency must not include noncompliance to the extent it is caused by improperly designed equipment, lack of preventive maintenance, careless or improper operation, or operator error.

(i) During the period of the emergency you must implement all reasonable steps to minimize levels of emissions that exceeded the emission standards or other applicable requirements in this subpart.

(ii) You must document through signed contemporaneous logs or other relevant evidence that an emergency occurred and you can identify the probable cause, your facility was being operated properly at the time the emergency occurred, and the corrective actions taken to minimize emissions as required by paragraph (k)(3)(i) of this section.

(iii) You must submit a notice of the emergency to the permitting authority within two working days of the time when emission limitations were exceeded due to the emergency (or an alternative timeframe acceptable to the permitting authority). This notice must contain a description of the emergency, any steps taken to mitigate emissions, and corrective actions taken.

(4) As an alternative to the requirements in paragraph (k)(3) of this section, you must comply with the startup, shutdown, and malfunction requirements in 40 CFR 63.6(e)(3).

§ 63.11163 What are the standards and compliance requirements for new sources?

(a) You must exhaust the off-gases from each roaster to a PM control device and to a sulfuric acid plant, including the charging of the roaster.

(b) You must not discharge to the atmosphere any gases which contain PM in excess of the emissions limits in paragraphs (b)(1) through (3) of this section.

(1) 0.005 gr/dscf from the exhaust vent of a zinc cathode melting furnace; scrap zinc melting furnace; furnace melting zinc dust, zinc chips, and other

materials containing zinc; and alloy melting furnace.

(2) 0.014 gr/dscf from the exhaust vent of an anode casting furnace.

(3) 0.015 gr/dscf from the exhaust vent of a cadmium melting furnace.

(c) For each melting furnace, you must install and operate a capture system that collects gases and fumes from the melting furnace and from the transfer of molten materials and conveys the collected gases to a control device.

(d) You must install, operate, and maintain a bag leak detection system on all baghouses used to comply with the PM emissions limit in paragraph (b) of this section according to paragraph (d)(1) of this section, prepare and operate by a site-specific monitoring plan according to paragraph (d)(2) of this section, take corrective action according to paragraph (d)(3) of this section, and record information according to paragraph (d)(4) of this section.

(1) Each bag leak detection system must meet the specifications and requirements in paragraphs (d)(1)(i) through (viii) of this section.

(i) The bag leak detection system must be certified by the manufacturer to be capable of detecting PM emissions at concentrations of 1 milligram per actual cubic meter (0.00044 grains per actual cubic foot) or less.

(ii) The bag leak detection system sensor must provide output of relative PM loadings. The owner or operator must continuously record the output from the bag leak detection system using electronic or other means (e.g., using a strip chart recorder or a data logger.)

(iii) The bag leak detection system must be equipped with an alarm system that will sound when the system detects an increase in relative particulate loading over the alarm set point established according to paragraph (d)(1)(iv) of this section, and the alarm must be located such that it can be heard by the appropriate plant personnel.

(iv) In the initial adjustment of the bag leak detection system, you must establish, at a minimum, the baseline output by adjusting the sensitivity (range) and the averaging period of the device, the alarm set points, and the alarm delay time.

(v) Following initial adjustment, you must not adjust the averaging period, alarm set point, or alarm delay time without approval from the Administrator or delegated authority except as provided in paragraph (d)(1)(vi) of this section.

(vi) Once per quarter, you may adjust the sensitivity of the bag leak detection system to account for seasonal effects, including temperature and humidity, according to the procedures identified in the site-specific monitoring plan required by paragraph (d)(2) of this section.

(vii) You must install the bag leak detection sensor downstream of the baghouse and upstream of any wet scrubber.

(viii) Where multiple detectors are required, the system's instrumentation and alarm may be shared among detectors.

(2) You must develop and submit to the Administrator or delegated authority for approval a site-specific monitoring plan for each bag leak detection system. You must operate and maintain the bag leak detection system according to the site-specific monitoring plan at all times. Each monitoring plan must describe the items in paragraphs (d)(2)(i) through (vi) of this section.

(i) Installation of the bag leak detection system;

(ii) Initial and periodic adjustment of the bag leak detection system, including how the alarm set-point will be established;

(iii) Operation of the bag leak detection system, including quality assurance procedures;

(iv) How the bag leak detection system will be maintained, including a routine maintenance schedule and spare parts inventory list;

(v) How the bag leak detection system output will be recorded and stored; and

(vi) Corrective action procedures as specified in paragraph (d)(3) of this section. In approving the site-specific monitoring plan, the Administrator or delegated authority may allow owners and operators more than 3 hours to alleviate a specific condition that causes an alarm if the owner or operator identifies in the monitoring plan this specific condition as one that could lead to an alarm, adequately explains why it is not feasible to alleviate this condition within 3 hours of the time the alarm occurs, and demonstrates that the requested time will ensure alleviation of this condition as expeditiously as practicable.

(3) For each bag leak detection system, you must initiate procedures to determine the cause of every alarm within 1 hour of the alarm. Except as provided in paragraph (d)(2)(vi) of this section, you must alleviate the cause of the alarm within 3 hours of the alarm by taking whatever corrective action(s) are necessary. Corrective actions may include, but are not limited to the following:

(i) Inspecting the baghouse for air leaks, torn or broken bags or filter media, or any other condition that may cause an increase in particulate emissions;

(ii) Sealing off defective bags or filter media;

(iii) Replacing defective bags or filter media or otherwise repairing the control device;

(iv) Sealing off a defective baghouse compartment;

(v) Cleaning the bag leak detection system probe or otherwise repairing the bag leak detection system; or

(vi) Shutting down the process producing the particulate emissions.

(4) You must maintain records of the information specified in paragraphs (d)(4)(i) through (iii) of this section for each bag leak detection system.

(i) Records of the bag leak detection system output;

(ii) Records of bag leak detection system adjustments, including the date and time of the adjustment, the initial bag leak detection system settings, and the final bag leak detection system settings; and

(iii) The date and time of all bag leak detection system alarms, the time that procedures to determine the cause of the alarm were initiated, if procedures were initiated within 1 hour of the alarm, the cause of the alarm, an explanation of the actions taken, the date and time the cause of the alarm was alleviated, and if the alarm was alleviated within 3 hours of the alarm.

(e) If there is a sintering machine at your primary zinc production facility, you must comply with the PM emissions limit in 40 CFR 60.172(a) and the opacity emissions limit in 40 CFR 60.174(a) for that sintering machine.

(f) If there is a sintering machine at your primary zinc production facility, you must install and operate a COMS for each sintering machine according to the requirements in 40 CFR 60.175(a). Each COMS must meet EPA Performance Specification 1 (40 CFR part 60, appendix B).

(g) For each furnace (and sintering machine, if applicable) at your facility, you must conduct a performance test to demonstrate initial compliance with each applicable PM emissions limit for that furnace (and the PM and opacity limits for a sintering machine, if applicable) within 180 days after startup and report the results in your notification of compliance status.

(1) You must conduct each PM test for a furnace according to § 63.7(e)(1) using the test methods and procedures in paragraphs (g)(1)(i) through (v) of this section.

(i) Method 1 or 1A (40 CFR part 60, appendix A) to select sampling port locations and the number of traverse points in each stack or duct. Sampling

sites must be located at the outlet of the control device (or at the outlet of the emissions source if no control device is present) prior to any releases to the atmosphere.

(ii) Method 2, 2A, 2C, 2D, 2F, or 2G (40 CFR part 60, appendix A) to determine the volumetric flow rate of the stack gas.

(iii) Method 3, 3A, or 3B (40 CFR part 60, appendix A) to determine the dry molecular weight of the stack gas. You may use ANSI/ASME PTC 19.10–1981, ''Flue and Exhaust Gas Analyses'' (incorporated by reference—see § 63.14) as an alternative to EPA Method 3B.

(iv) Method 4 (40 CFR part 60, appendix A) to determine the moisture content of the stack gas.

(v) Method 5 (40 CFR part 60, appendix A) to determine the PM concentration for negative pressure baghouses or Method 5D (40 CFR part 60, appendix A) for positive pressure baghouses. A minimum of three valid test runs are needed to comprise a PM performance test.

(2) You must conduct each PM test for a sintering machine according to § 63.7(e)(1) and 40 CFR 60.176(b)(1) using the test methods in paragraph (g)(1) of this section. You must determine the PM concentration using EPA Method 5 (40 CFR part 60, appendix A). You may use ANSI/ASME PTC 19.10–1981, ''Flue and Exhaust Gas Analyses'' (incorporated by reference—see § 63.14) as an alternative to EPA Method 3B.

(3) You must conduct each opacity test for a sintering machine according to the requirements in § 63.6(h)(7). You must determine the opacity of emissions using EPA Method 9 (40 CFR part 60, appendix A).

(h) You must conduct subsequent performance tests according to the requirements in paragraph (g)(1) of this section for each furnace subject to an emissions limit in paragraph (b) of this section to demonstrate compliance at least once every 5 years.

(i) If you use a control device other than a baghouse, you must prepare and submit a monitoring plan to the Administrator for approval. Each plan must contain the information in paragraphs (i)(1) through (5) of this section.

(1) A description of the device;

(2) Test results collected in accordance with paragraph (g) of this section verifying the performance of the device for reducing PM and opacity to the levels required by this subpart;

(3) Operation and maintenance plan for the control device (including a preventative maintenance schedule consistent with the manufacturer's instructions for routine and long-term maintenance) and continuous monitoring system;

(4) A list of operating parameters that will be monitored to maintain continuous compliance with the applicable emission limits; and

(5) Operating parameter limits based on monitoring data collected during the performance test.

(i) As an alternative to the startup, shutdown, and malfunction requirements in 40 CFR 63.6(e)(3), you must comply with the requirements specified in this paragraph. In the event of an emergency situation, you must comply with the requirements in paragraphs (i)(1) through (3) of this section. For the purpose of complying with this paragraph, an emergency situation is any situation arising from sudden and reasonably unforeseeable events beyond the control of the facility owner or operator that require immediate corrective action to restore normal operation, and that cause the affected source to exceed applicable emission limitation under this subpart, due to unavoidable increases in emissions attributable to the emergency. An emergency must not include noncompliance to the extent it is caused by improperly designed equipment, lack of preventive maintenance, careless or improper operation, or operator error.

(1) During the period of the emergency you must implement all reasonable steps to minimize levels of emissions that exceeded the emission standards or other applicable requirements in this subpart.

(2) You must document through signed contemporaneous logs or other relevant evidence that an emergency occurred and you can identify the probable cause, your facility was being operated properly at the time the emergency occurred, and the corrective actions taken to minimize emissions as required by paragraph (i)(1) of this section.

(3) You must submit a notice of the emergency to the permitting authority within two working days of the time when emission limitations were exceeded due to the emergency (or an alternative timeframe acceptable to the permitting authority). This notice must contain a description of the emergency, any steps taken to mitigate emissions, and corrective actions taken.

§ 63.11164 What General Provisions apply to primary zinc production facilities?

(a) If you own or operate an existing affected source, you must comply with the requirements of the General Provisions in 40 CFR part 63, subpart A, according to Table 1 to this subpart and paragraphs (a)(1) through (3) of this section.

(1) Your notification of compliance status required by § 63.9(h) must include this certification of compliance, signed by a responsible official, for the work practice standards in § 63.11162(a): ''This facility complies with the work practice standards in § 63.11162(a).''

(2) If you certify compliance with the PM emissions limits in § 63.11162(b) based on a previous performance test, your notification of compliance status required by § 63.9(h) must include this certification of compliance, signed by a responsible official: ''This facility complies with the PM emissions limits in § 63.11162(b) based on a previous performance test.''

(3) If you conduct a new performance test to demonstrate compliance with the PM emissions limits for a furnace in § 63.11162(b), your notification of compliance status required by § 63.9(h) must include the results of the performance test, including required monitoring data.

(b) If you own or operate a new affected source, you must comply with the requirements of the General Provisions (40 CFR part 63, subpart A) as provided in Table 1 to this subpart and paragraphs (b)(1) through (4) of this section.

(1) Your notification of compliance status required in § 63.9(h) must include the results of the initial performance tests, including required monitoring data.

(2) Your notification of compliance status required by § 63.9(h) must include this certification of compliance, signed by a responsible official, for the work practice standard in § 63.11163(a): ''This facility complies with the work practice standards in § 63.11163(a).''

(3) Your notification of compliance status required by § 63.9(h) must include this certification of compliance, signed by a responsible official, for the capture system requirements in § 63.11163(c): ''This facility has installed capture systems according to § 63.11163(c).''

(4) If you use a baghouse that is subject to the requirements in § 63.11163(d), your notification of compliance status required by § 63.9(h) must include this certification of compliance, signed by a responsible official, for the bag leak detection system requirements in § 63.11163(d): ''This facility has an approved monitoring plan in accordance with § 63.11163(d).''

(5) If you use control devices other than baghouses, your notification of compliance status required by § 63.9(h)

must include this certification of compliance, signed by a responsible official for the monitoring plan requirements in § 63.11163(i): ''This facility has an approved monitoring plan in accordance with § 63.11163(i).''

Primary Beryllium Production Facilities

§ 63.11165 What are the standards and compliance requirements for new and existing sources?

You must comply with the requirements in 40 CFR 61.32 through 40 CFR 61.34 of the National Emission Standards for Beryllium (40 CFR part 61, subpart C).

§ 63.11166 What General Provisions apply to primary beryllium production facilities?

(a) You must comply with all of the requirements of the General Provisions in 40 CFR part 61, subpart A.

(b) You must comply with the requirements of the General Provisions in 40 CFR part 63, subpart A, that are specified in paragraphs (b)(1) and (2) of this section.

(1) Section 63.1(a)(1) through (10).

(2) Section 63.1(b) except paragraph (b)(3), § 63.1(c), and § 63.1(e).

Other Requirements and Information

§ 63.11167 What definitions apply to this subpart?

Terms used in this subpart are defined in the CAA; 40 CFR 60.2; 60.171; 61.02; 61.31; 61.61; 63.2; and in this section as follows:

Alloy furnace means any furnace used to melt alloys or to produce zinc that contains alloys.

Anode casting furnace means any furnace that melts materials to produce the anodes used in the electrolytic process for the production of zinc.

Bag leak detection system means a system that is capable of continuously monitoring the relative particulate matter (dust) loadings in the exhaust of a baghouse to detect bag leaks and other conditions that result in increases in particulate loadings. A bag leak detection system includes, but is not limited to, an instrument that operates on triboelectric, electrodynamic, light scattering, light transmittance, or other effect to continuously monitor relative particulate matter loadings.

Cadmium melting furnace means any furnace used to melt cadmium or produce cadmium oxide from the cadmium recovered in the zinc production process.

Capture system means the collection of equipment used to capture gases and fumes released from one or more emissions points and then convey the captured gas stream to a control device. A capture system may include, but is not limited to, the following components as applicable to a given capture system design: duct intake devices, hoods, enclosures, ductwork, dampers, manifolds, plenums, and fans.

Deviation means any instance in which an affected source subject to this subpart, or an owner or operator of such a source:

(1) Fails to meet any requirement or obligation established by this subpart, including but not limited to any emissions limitation or work practice standard;

(2) Fails to meet any term or condition that is adopted to implement an applicable requirement in this subpart and that is included in the operating permit for any affected source required to obtain such a permit; or

(3) Fails to meet any emissions limitation or work practice standard in this subpart during startup, shutdown, or malfunction, regardless of whether or not such failure is permitted by this subpart.

Primary beryllium production facility means any establishment engaged in the chemical processing of beryllium ore to produce beryllium metal, alloy, or oxide, or performing any of the intermediate steps in these processes. A primary beryllium production facility may also be known as an extraction plant.

Primary zinc production facility means an installation engaged in the production, or any intermediate process in the production, of zinc or zinc oxide from zinc sulfide ore concentrates through the use of pyrometallurgical techniques.

Responsible official means responsible official as defined in 40 CFR 70.2.

Roaster means any facility in which a zinc sulfide ore concentrate charge is heated in the presence of air to eliminate a significant portion (more than 10 percent) of the sulfur contained in the charge.

Sintering machine means any furnace in which calcines are heated in the presence of air to agglomerate the calcines into a hard porous mass called sinter.

Sulfuric acid plant means any facility producing sulfuric acid from the sulfur dioxide (SO_2) in the gases from the roaster.

Work practice standard means any design, equipment, work practice, or operational standard, or combination thereof.

Zinc cathode melting furnace means any furnace used to melt the pure zinc from the electrolytic process.

§ 63.11168 Who implements and enforces this subpart?

(a) This subpart can be implemented and enforced by the U.S. EPA or a delegated authority such as a State, local, or tribal agency. If the U.S. EPA Administrator has delegated authority to a State, local, or tribal agency, then that Agency has the authority to implement and enforce this subpart. You should contact your U.S. EPA Regional Office to find out if this subpart is delegated to your State, local, or tribal agency.

(b) In delegating implementation and enforcement authority of this subpart to a State, local, or tribal agency under 40 CFR part 63, subpart E, the authorities contained in paragraphs (c) and (d) of this section are retained by the Administrator of the U.S. EPA and are not transferred to the State, local, or tribal agency.

(c) For primary zinc production facilities subject to this subpart, the authorities that will not be delegated to State, local, or tribal agencies are listed in paragraphs (c)(1) through (5) of this section.

(1) Approval of an alternative non-opacity emissions standard under § 63.6(g).

(2) Approval of an alternative opacity emissions standard under § 63.6(h)(9).

(3) Approval of a major change to test methods under § 63.7(e)(2)(ii) and (f). A ''major change to test method'' is defined in § 63.90

(4) Approval of a major change to monitoring under § 63.8(f). A ''major change to monitoring'' is defined in § 63.90.

(5) Approval of a major change to recordkeeping/reporting under § 63.10(f). A ''major change to recordkeeping/reporting'' is defined in § 63.90.

(d) For primary beryllium manufacturing facilities subject to this subpart, the authorities that will not be delegated to State, local, or tribal agencies are listed in paragraphs (d)(1) through (4) of this section.

(1) Approval of an alternative non-opacity emissions standard under 40 CFR 61.12(d).

(2) Approval of a major change to test methods under 40 CFR 61.13(h). A ''major change to test method'' is defined in § 63.90.

(3) Approval of a major change to monitoring under 40 CFR 61.14(g). A ''major change to monitoring'' is defined in § 63.90.

(4) Approval of a major change to recordkeeping/reporting under 40 CFR 61.10. A ''major change to recordkeeping/reporting'' is defined in § 63.90.

As required in § 63.11164(a) and (b), you must comply with the requirements of the NESHAP General Provisions (40 CFR part 63, subpart A) as shown in the following table.

TABLE 1 TO SUBPART GGGGGG OF PART 63.—APPLICABILITY OF GENERAL PROVISIONS TO PRIMARY ZINC PRODUCTION AREA SOURCES

Citation	Subject	Applies to subpart GGGGGG	Explanation
63.1(a)(1), (a)(2), (a)(3), (a)(4), (a)(6), (a)(10)–(a)(12), (b)(1), (b)(3), (c)(1), (c)(2), (c)(5), (e).	Applicability	Yes.	
63.1(a)(5), (a)(7)–(a)(9), (b)(2), (c)(3), (c)(4), (d).	Reserved	No.	
63.2	Definitions	Yes.	
63.3	Units and Abbreviations	Yes.	
63.4	Prohibited Activities and Circumvention	Yes.	
63.5	Preconstruction Review and Notification Requirements.	No.	
63.6(a), (b)(1)–(b)(5), (b)(7), (c)(1), (c)(2), (c)(5).	Compliance with Standards and Maintenance Requirements—Applicability Compliance Dates.	Yes.	
63.6(e)	Operation and Maintenance Requirements.	Yes/No	Operation and maintenance requirements do not apply to existing sources except that the startup, shutdown, and malfunction requirements in § 63.6(e)(3) are allowed as an alternative to the rule requirements for emergency situations. Operation and maintenance requirements apply to new sources except that the rule requirements for emergency situations are allowed as an alternative to the startup, shutdown, and malfunction requirements in § 63.6(e)(3).
63.6(f), (g), (i), (j)	Compliance with Nonopacity Emission Standards.	Yes.	
63.6(b)(6), (c)(3), (c)(4), (d), (e)(2), (e)(3)(ii), (h)(3), (h)(5)(iv).	Reserved	No.	
63.6(h)(1)–(h)(4), (h)(5)(i)–(h)(5)(iii), (h)(6)–(h)(9).		Yes.	
63.7(a), (e), (f), (g), (h)	Performance Testing Requirements	Yes.	
63.7(b), (c)		Yes/No	Notification of performance tests and quality assurance program apply to new sources but not existing sources.
63.8(a)(1), (a)(2), (b), (c), (f), (g)	Monitoring Requirements	Yes	Requirements in § 63.6(c)(4)(i)–(ii), (c)(5), (c)(6), (d), (e), (f)(6), and (g) apply if a COMS is used.
63.8(a)(3)	Reserved	No.	
63.8(a)(4)		No	Subpart GGGGGG does not require flares.
63.8(d), (e)		Yes/No	Requirements for quality control program and performance evaluations apply to new sources but not existing sources.
63.9(a), (b)(1), (b)(2), (b)(5), (c), (d), (f), (g), (h)(1)–(h)(3), (h)(5), (h)(6), (i), (j).	Notification Requirements	Yes/No	Notification of performance tests and opacity or visible emissions observations apply to new sources but not existing sources.
63.9(b)(3), (h)(4)	Reserved	No.	
63.9(b)(4)		No.	
63.10(a), (b)(1), (b)(2)(i)–(v), (d)(4), (d)(5)(i), (f).	Recordkeeping and Reporting Requirements.	Yes.	
63.10(b)(2), (b)(3), (c)(1), (c)(5)–(c)(8), (c)(10)–(c)(15), (d)(1)–(d)(3), (d)(5)(ii), (e)(1), (e)(2), (e)(4).		Yes/No	Recordkeeping and reporting requirements apply to new sources but not existing sources.
63.10(c)(2)–(c)(4), (c)(9)	Reserved	No.	
63.10(e)(3)		Yes/No	Reporting requirements apply to new sources but not existing sources.
63.11	Control Device Requirements	No	Subpart GGGGGG does not require flares.
63.12	State Authorities and Delegations	Yes.	
63.13	Addresses	Yes.	
63.14	Incorporations by Reference	Yes.	

TABLE 1 TO SUBPART GGGGGG OF PART 63.—APPLICABILITY OF GENERAL PROVISIONS TO PRIMARY ZINC PRODUCTION AREA SOURCES—Continued

Citation	Subject	Applies to subpart GGGGGG	Explanation
63.15	Availability of Information and Confidentiality.	Yes.	
63.16	Performance Track Provisions	Yes.	

[FR Doc. E7–532 Filed 1–22–07; 8:45 am]
BILLING CODE 6560–50–P

DAQC-301-13
Site ID 10346 (B4)

MEMORANDUM

To: **STACK TEST FILE – KENNECOTT UTAH COPPER – REFINERY**

Through: Harold Burge, Major Source Compliance Section Manager HB

From: Rob Leishman, Environmental Scientist

Date: 3/14/2013

Subject:

Company:	Kennecott Utah Copper
Location:	Kennecott Utah Copper Refinery, 12000 West 2100 South, Magna, Salt Lake County, Utah
Contact:	Ryan Evans, 801-569-6331
Tester:	Air Pollution Testing, Inc.
Source:	Refinery Liberator (REF 001), Boilers (REF 002/003), Anode Scrap Washing (REF005), Gold/Silver Recovery (REF 010) and Combined Heat and Power Unit (REF CHP)
Airs #:	035-00030
Permit #:	Title V Operating Permit 3500030002 dated 7/9/2007
Action Code:	3A
Subject:	Review of Stack Test Report dated 5/3/2012

On 5/3/2012, DAQ received a test report for the Kennecott Utah Copper Refinery Units REF 001, REF 002/003, REF 005, REF 010 and REF CHP in Magna, Utah. Testing was performed on 3/6-9/2012 and 3/13-14/2012, to demonstrate compliance with the Title V operating permit dated 7/9/2007 Condition II.B.35.a, II.B.36.d, II.B.36.e, II.B.37.a, II.B.38.a, II.B.44.a, II.B.49.a and II.B.49.b for NO_X, CO, H_2SO_4 and PM_{10} emissions. The DAQ-calculated test results are:

Source	Test Date	Pollutant	Result	Limit
Liberator REF 001	3/9/2012	H_2SO_4	0.000 gr/dscf 0.00 lb/hr	0.004 gr/dscf 0.46 lb/hr
Boiler A REF 002	3/14/2012	NO_X	3.16 lb/hr	4.75 lb/hr
		CO	0.45 lb/hr	3.0 lb/hr
Boiler B REF 003	3/14/2012	NO_X	3.85 lb/hr	4.75 lb/hr
		CO	0.01 lb/hr	3.0 lb/hr
Anode Scrap Wash REF 005	3/6/2012	H_2SO_4	0.0002 gr/dscf 0.0009 lb/hr	0.0008 gr/dscf 0.02 lb/hr
Gold/Silver Baghouse REF 010	3/13/2012	PM_{10}	0.0002 gr/dscf 0.005 lb/hr	0.01 gr/dscf 0.43 lb/hr
Combined Heat/Power Unit REF CHP	3/7/2012	NO_X	3.66 lb/hr	5.96 lb/hr

Document Date 3/14/2013
DAQ-2013-003252

(Combined Cycle)		CO	0.72 lb/hr	7.33 lb/hr
Combined Heat/Power Unit REF CHP (Turbine Only)	3/8/2012	NO_X	5.09 ppmdv*	25.0 ppmdv*
Combined Heat/Power Unit REF CHP (Duct Burner Only)	3/7/2012	NO_X	32.0 ppmdv*	54.0 ppmdv*

*Note: Unit REF CHP ppmdv values were corrected for 15% O_2.

DEVIATIONS: None noted.

CONCLUSION: The NO_X, CO, H_2SO_4 and PM_{10} emissions were in compliance with the applicable limits at the time of testing.

RECOMMENDATION: No further action is necessary.

HPV: No compliance action is recommended.

Division of Air Quality
Compliance Demonstration
EPA Method 8 Sulfuric Acid Mist

Source Information

Company Name	**Kennecott Utah Copper - Refinery Liberator Unit REF 001**
Company Contact:	**Ryan Evans**
Contact Phone No.	**801-569-6331**
Source Designation:	**Refinery Liberator Unit REF 001**

Test & Review Dates

Test Date:	3/9/2012	
Review Date:	3/7/2013	Tabs Are Shown
Observer:	**Rob Leishman**	
Reviewer:	**Rob Leishman**	

Particulate Emission Limits

lbs/MMBtu	lbs/hr	gr/dscf		
	0.460	0.004		

Emission Rates - "Front Half"

lbs/MMBtu	**lbs/hr**	**gr/dscf**		
	#DIV/0!	**0.0000**		

Test Information

Stack_I.D._inches	**As ft^2**	Y	Dl H @	Cp	Pbar	Pq (static)	**Dn**
29.00	4.59	0.9910	1.86	0.82	25.96	-0.02	0.47

Round

Contractor Information

Contracting Company:	Air Pollution Testing (APT)
Contact:	Andrew Burning - Alex Mongold
Phone No.:	801-974-0481
Project No.:	

F factors for Coal, Oil, and Gas

	Fd scf/MMBtu	Fw scf/MMBtu	Fc scf/MMBtu
COAL			
Anthrocite 2	10100	10540	1970
Bituminous 2	9780	10640	1800
Lignite	9860	11950	1910
OIL	9190	320	1420
GAS			
Natural	8710	10610	1040
Propane	8710	10200	1190
Butane	8710	10390	1250

☐ F factor used

lbs/MMBtu
- O2
- CO2

Summary

Division of Air Quality

Compliance Demonstration of

Reference Methods 8 - Sulfuric Acid Mist

Kennecott Utah Copper - Refinery Liberator Unit REF 001

Testing Results				
Test Date	3/9/2012	3/9/2012	3/9/2012	3/9/2012
Round	Run 1	Run 2	Run 3	Run 4
As ft^2	4.59	4.59	4.59	
Pbar	25.96	25.96	25.96	
Pq (static)	-0.02	-0.02	-0.02	
Ps	25.96	25.96	25.96	
Avg. Ts F	95.00	96.67	98.25	
CO2 - F_{CO2}	0.00	0.00	0.00	
O2	21.00	21.00	21.00	
N2+C	79.00	79.00	79.00	
Md	28.84	28.84	28.84	
Ms	28.45	28.24	28.24	
Y	0.99	0.99	0.99	
Cp	0.82	0.82	0.82	
Vm cf	45.70	46.06	46.80	
Vlc	32.60	50.60	51.00	
$A_{VG.}$ Tm F	51.08	57.50	59.21	
Vm std	40.78	40.58	41.11	
Vw std	1.53	2.38	2.40	
Bws	0.04	0.06	0.06	
S Bws	0.06	0.07	0.07	
Avg. Sqrt Dlp	0.19	0.19	0.19	
Vs	11.67	11.57	11.77	
scfm wet	2651.89	2620.99	2657.40	
acfm	3212.88	3184.99	3238.42	
Qsd dscfh	153342.65	148541.78	150646.58	
# Sample Points	24.00	24.00	24.00	
Dn	0.470	0.470	0.470	
An	1.20E-03	1.20E-03	1.20E-03	
Start Time				
End Time				
Total Test time	60.00	60.00	60.00	
Time @ point	5.00	5.00	5.00	

	Lab Data - grams collected		
Lab Data	Probe	Filter	Back
Run 1	0	0	
Run 2	0	0	
Run 3	0	0	
Run 4			

Front Half Emissions Summary					
	Run 1.	Run 2	Run 3	Run 4	Avg.
gr./dscf	0.0000	0.0000	0.0000		0.0000
lbs/hr					#DIV/0!
lbs/MMBtu					

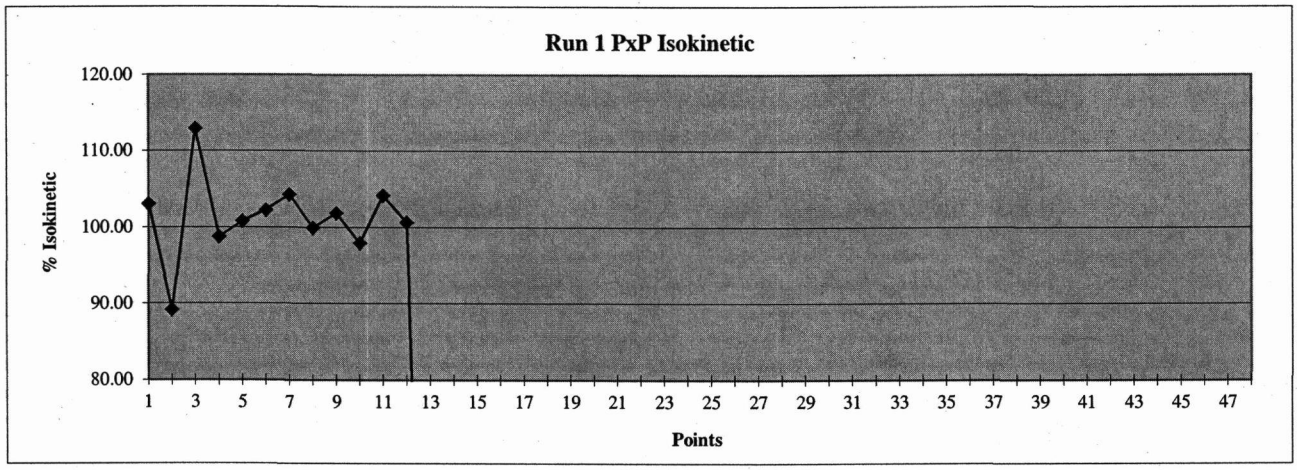
Total Emissions Summary w/back half condensable					
	Run 1	Run 2	Run 3	Run 4	Avg.
gr./dscf	0.0000	0.0000	0.0000		
lbs/hr					
lbs/MMBtu					

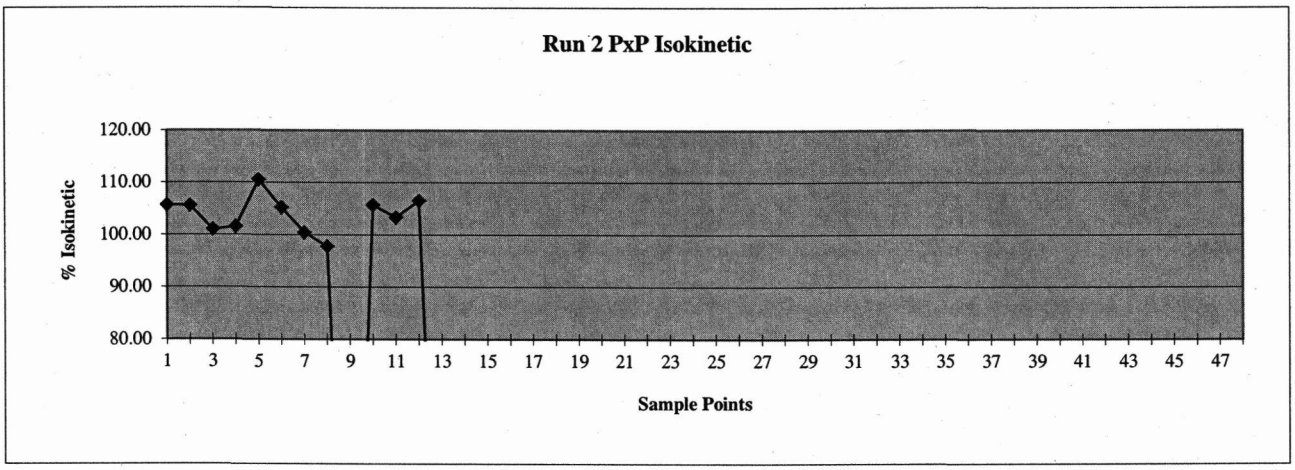
lbs/MMBtu

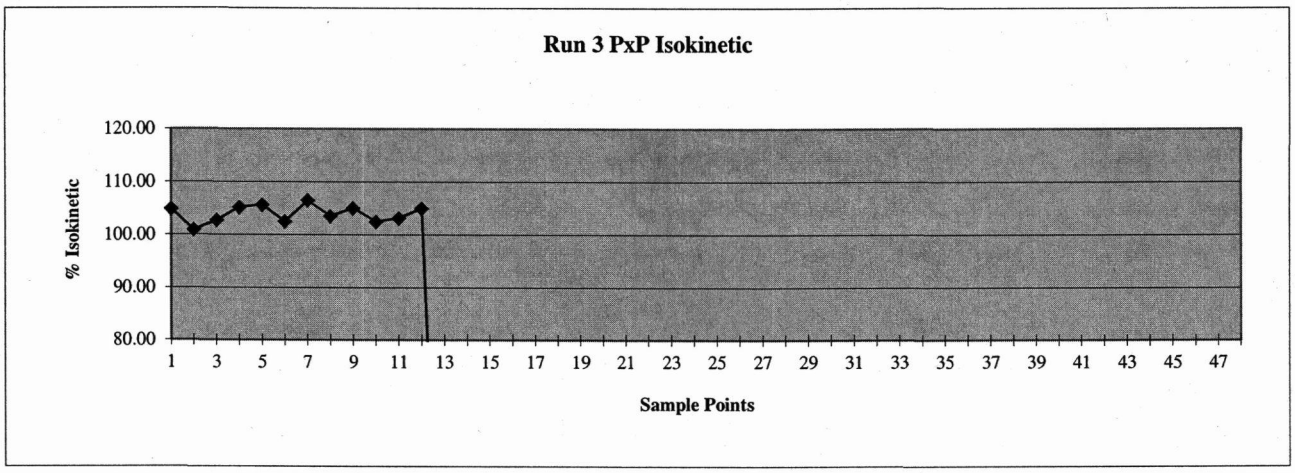
O2

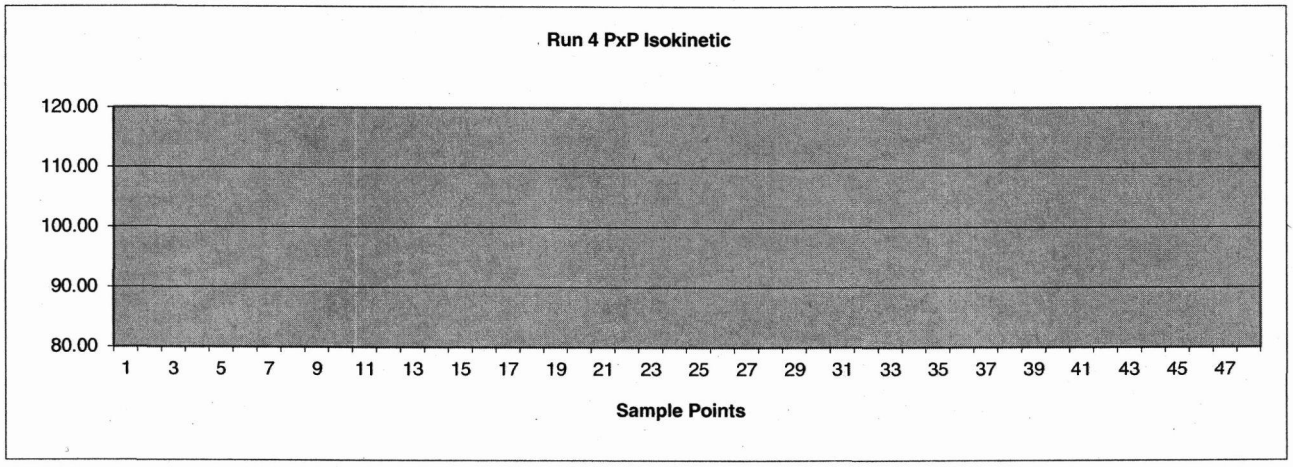
CO2

F factor used


Run 1 PxP Isokinetic
% Isokinetic
120.00
110.00
100.00
90.00
80.00
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45 47
Points


Run 2 PxP Isokinetic
% Isokinetic
120.00
110.00
100.00
90.00
80.00
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45 47
Sample Points


Run 3 PxP Isokinetic
% Isokinetic
120.00
110.00
100.00
90.00
80.00
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45 47
Sample Points


Run 4 PxP Isokinetic
120.00
110.00
100.00
90.00
80.00
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45 47
Sample Points

Kennecott Utah Copper - Re				Flow & Moisture			Test Date	3/9/2012	
As ft^2	Pbar	Pq (static)	Ps	Avg. Ts F	CO2 - F_{CO2}	O2	N2+C	Md	Ms
4.59	25.96	-0.02	25.96	95	0.00	21.00	79.00	28.84	28.45
Y	Cp	Vm cf	Vlc	Avg. Tm F	Vm std	Vw std	Bws	S Bws	0.0642
0.9910	0.82	45.699	32.60	51.08	40.777	1.534	0.0363	0.0642	0.999
Avg. Sqrt Dlp	Vs	scfm wet	acfm	Qsd dscfh	# Sample Points	Dn	Total Test time (minutes)	Time @ point (minutes)	Avg. Dlh
0.192	11.67	2,652	3,213	1.53E+05	24	0.47	60	5.00	1.726667
					FALSE				

Point No.	Meter (cf)	dl "p"	dl "h"	ts F	tm F (in)	tm F (out)
1	234.639	0.03	1.36	94.0	48.0	43.0
2	238.100	0.03	1.36	94.0	49.0	44.0
3	241.100	0.04	1.89	94.0	52.0	45.0
4	245.500	0.05	2.27	95.0	53.0	46.0
5	249.800	0.05	2.27	95.0	54.0	47.0
6	254.200	0.04	1.89	95.0	55.0	47.0
7	258.200	0.02	0.91	94.0	55.0	49.0
8	261.100	0.03	1.36	95.0	56.0	49.0
9	264.500	0.04	1.89	96.0	57.0	50.0
10	268.500	0.05	2.27	96.0	58.0	50.0
11	272.800	0.04	1.89	96.0	58.0	51.0
12	276.900	0.03	1.36	96.0	59.0	51.0
13	280.338					
14						
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Imp. Liquid Collected		
Wt. (Final)	Wt. (Initial)	lc
741.2	742.6	-1.4
784.2	764.9	19.3
765.8	756.4	9.4
901.6	896.3	5.3
		0.0

Isokinetics	101.3	
Test Date	3/9/2012	
Start Time	enter	enter
End Time	enter	

Kennecott Utah Copper - Re				Flow & Moisture			Test Date	5/13/2009	
As ft^2	Pbar	Pq (static)	Ps	Avg. Ts F	CO2 - F_{CO2}	O2	N2+C	Md	Ms
4.59	25.96	-0.02	25.96	97	0.00	21.00	79.00	28.84	28.24
Y	Cp	Vm cf	Vlc	Avg. Tm F	Vm std	Vw std	Bws	S Bws	0.0676
0.9910	0.82	46.056	50.60	58	40.583	2.382	0.0554	0.0676	0.999
Avg. Sqrt Dlp	Vs	scfm wet	acfm	Qsd dscfh	# Sample Points	Dn	Total Test time (minutes)	Time @ point (minutes)	Avg. Dlh
0.189	11.57	2,621	3,185	1.49E+05	24	0.47	60	5.00	1.70
					FALSE				

Point No.	Meter (cf)	dl "p"	dl "h"	ts F	tm F (in)	tm F (out)
1	281.299	0.02	0.94	94.0	55.0	53.0
2	284.200	0.02	0.94	96.0	57.0	53.0
3	287.100	0.03	1.40	96.0	58.0	54.0
4	290.500	0.05	2.34	97.0	59.0	54.0
5	294.900	0.04	1.87	97.0	61.0	54.0
6	299.200	0.04	1.87	97.0	62.0	55.0
7	303.300	0.03	1.40	94.0	61.0	55.0
8	306.700	0.03	1.40	97.0	61.0	55.0
9	310.000	0.04	1..87	98.0	62.0	55.0
10	314.100	0.05	2.34	98.0	62.0	56.0
11	318.700	0.05	2.34	98.0	63.0	56.0
12	323.200	0.04	1.87	98.0	63.0	56.0
13	327.355					
14						
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Imp. Liquid Collected		
Wt. (Final)	Wt. (Initial)	lc
747.80	740.60	7.2
775.50	747.10	28.4
750.30	738.40	11.9
908.10	905.00	3.1
		0.0

Isokinetics	104.1
Test Date	3/9/2012
Start Time	enter
End Time	enter

Kennecott Utah Copper - R				Flow & Moisture			Test Date	5/13/2009	
As ft^2	Pbar	Pq (static)	Ps	Avg. Ts F	CO2 - F_{CO2}	O2	N2+C	Md	Ms
4.59	25.96	-0.02	25.96	98	0.00	21.00	79.00	28.84	28.24
Y	Cp	Vm cf	Vlc	Avg. Tm F	Vm std	Vw std	Bws	S Bws	0.0709
0.9910	0.82	46.797	51.00	59	41.106	2.401	0.0552	0.0709	0.999
Avg. Sqrt Dlp	Vs	scfm wet	acfm	Qsd dscfh	# Sample Points	Dn	Total Test time (minutes)	Time @ point (minutes)	Avg. Dlh
0.192	11.77	2,657	3,238	1.51E+05	24	0.47	60	5.00	1.75
					FALSE				

Point No.	Meter (cf)	dl "p"	dl "h"	ts F	tm F (in)	tm F (out)
1	330.705	0.02	0.94	95.0	58.0	56.0
2	333.600	0.03	1.40	97.0	59.0	55.0
3	337.000	0.04	1.87	98.0	61.0	56.0
4	341.000	0.04	1.87	98.0	62.0	56.0
5	345.100	0.05	2.34	98.0	62.0	56.0
6	349.700	0.04	1.87	99.0	63.0	57.0
7	353.700	0.03	1.40	99.0	62.0	57.0
8	357.300	0.03	1.40	99.0	62.0	57.0
9	360.800	0.04	1.87	99.0	63.0	57.0
10	364.900	0.04	1.87	99.0	63.0	57.0
11	368.900	0.05	2.34	99.0	63.0	58.0
12	373.400	0.04	1.87	99.0	63.0	58.0
13	377.502					
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Imp. Liquid Collected		
Wt. (Final)	Wt. (Initial)	lc
743.5	740.7	2.8
801.8	776.0	25.8
760.1	742.4	17.7
906.3	901.6	4.7
		0.0

Isokinetics	103.9
Test Date	3/9/2012
Start Time	enter
End Time	enter

Division of Air Quality

Instrumental Reference Methods - Gaseous Measurements

Reference Methods 2, 3A, 6C, 7E, 10, & 19

Source Information

Company Name	**Kennecott Utah Copper**
Company Contact:	**Ryan Evans**
Contact Phone No.	**801-569-6331**
Stack Designation:	**Refinery Boiler A Unit REF002**

CO2 Interferece w/CO: ☐ Yes

Wet CEM: ☐ Yes

Correct For O2

Test & Review Dates

Test Date:	**3/14/2012**	High Flow Test Date:	1/0/1900
Review Date:	3/7/2013	Mid Flow Test Date:	1/0/1900
Observer:	Rob Leishman	Low Flow Test Date:	1/0/1900
Reviewer:	**ROB LEISHMAN**		

	Emission Limits			Emission Rates		
	SO_2	NO_X	CO	SO2	NOX	CO
lbs/MMBtu						
lbs/hr		4.8	3.0		3.155	0.452
ppm						
Percent						
%O2 Correction as a whole #						

Test Information

Stack I.D. inches	As ft^2	Y	Dl H @	Cp	Pbar	Pq (static)	fuel flow rate (Btu/hr)	Heat Input (Btu/hr.)
41.00	9.17	0.9910	1.86	0.82	25.43	-0.35		

Round

Heat Input

Contractor Information

Contact:	Alex Mongold - Chris Keefe
Contracting Company:	Air Pollution Testing (APT)
Address:	1959 South 4130 West, Unit B, SLC,Ut. 84104
Phone No.:	801-974-0481 or 303-420-5949 ext. 24
Project No.:	

☑ F factor used

8710

Diluent

- ○ O2
- ○ CO2

Method 19 - F factors for Coal, Oil, and Gas

		Fd scf/MMBtu	Fw scf/MMBtu	Fc scf/MMBtu
COAL	Anthracite 2	○ 10100	○ 10540	○ 1970
	Bituminous	○ 9780	○ 10640	○ 1800
	[illegible]	○ 9860	○ 11950	○ 1910
OIL		○ 9190	○ 320	○ 1420
GAS	Natural	◉ 8710	○ 10610	○ 1040
	Propan	○ 8710	○ 10200	○ 1190
	Butane	○ 8710	○ 10390	○ 1250

Tabs Are Sh

KUC Refinery BoilerA REF002 5-3-12

Division of Air Quality

NSPS Relative Accuracy Performance Specification Test - CEMS C

Kennecott Utah Copper

Refinery Boiler A Unit REF002

lbs/MMBTU
- O2
- CO2
- Clear

Average Emission

Dry	SO_2	NO_X	CO
lbs/Mbtu		0.044	0.006
lbs/hr		3.16	0.45
ppm		0.00	0.00
ppm corrected for %O2			

Average % concentration

CO_2	O_2
9.58	4.43

Run 1

Dry	SO_2	NO_X	CO	CO_2	O_2	Enter O2 or CO2 O2
Atomic Weight	64	46	28			
lbs/MMBtu (O2)		4.45E-02	6.59E-03			E=Cd x Fd x (20.9/(20.9-%O2d))
lbs/MMBtu (CO2)						E=Cd x Fc x (100 / % CO2d)
lbs/cu.ft		4.025E-06	5.962E-07			
lbs/hr		3.228	0.478	9.60	4.43	C For Cal Drift
ppm corrected for %O		0.00	0.00	9.50	4.40	Raw Value

Run 2

Dry	SO_2	NO_X	CO	CO_2	O_2	
Atomic Weight	64	46	28			
lbs/MMBtu (O2)		4.36E-02	6.11E-03			E=Cd x Fd x (20.9/(20.9-%O2d))
lbs/MMBtu (CO2)						E=Cd x Fc x (100 / % CO2d)
lbs/cu.ft		3.942E-06	5.526E-07			
lbs/hr		3.14271	0.44056	9.55	4.43	C For Cal Drift
ppm corrected for %O		0.00	0.00	9.50	4.40	Raw Value

Run 3

Dry	SO_2	NO_X	CO	CO_2	O_2	
Atomic Weight	64	46	28			
lbs/MMBtu (O2)		4.32E-02	6.11E-03			E=Cd x Fd x (20.9/(20.9-%O2d))
lbs/MMBtu (CO2)						E=Cd x Fc x (100 / % CO2d)
lbs/cu.ft		3.906E-06	5.526E-07			
lbs/hr		3.095471	0.437918	9.60	4.43	C For Cal Drift
ppm corrected for %O		0.00	0.000	9.60	4.40	Raw Value

Run 4

Dry	SO_2	NO_X	CO	CO_2	O_2	
Atomic Weight	64	46	28			
lbs/MMBtu (O2)						E=Cd x Fd x (20.9/(20.9-%O2d))
lbs/MMBtu (CO2)						E=Cd x Fc x (100 / % CO2d)
lbs/cu.ft						
lbs/hr						C For Cal Drift
ppm corrected for %O				0.00	0.00	Raw Value

Calibration Error Test

Test Date March 14, 2012			O_2				
		CS - Cal. Span	10.00				
		Units	%				
Cylinder No.	**Expiration Date**	**Cal. Gas**	**C_V- Certified Concentration**	**C_{Dir} or C_S - Measured Concentration**	Difference	**ACE** Eq. 7E-1 Analyzer Cal. Error	**Status**
		Low-level	0.00	0.00	0.00	0.00%	Passed Cal.
		Mid-level	5.03	5.00	0.03	0.30%	Passed Cal.
		High-level	10.00	10.00	0.00	0.00%	Passed Cal.
			% of Span	**Sec. 8.2.1 Cal Gas Verification**			
0 to 20% of CS - Cal. Span		Low-Level	0.00%				
40 to 60% of Cal. Span		Mid-level	50.30%				
100% of Cal. Span		High-level	100.00%				

Test Date March 14, 2012			CO_2				
		CS - Cal. Span	20.00				
		Units	%				
Cylinder No.	**Expiration Date**	**Cal. Gas**	**C_V- Certified Concentration**	**C_{Dir} or C_S - Measured Concentration**	Difference	**ACE** Eq. 7E-1 Analyzer Cal. Error	**Status**
		Low-level	0.00	0.00	0.00	0.000%	Passed Cal.
		Mid-level	10.10	10.00	0.10	0.500%	Passed Cal.
		High-level	20.00	20.00	0.00	0.000%	Passed Cal.
			% of Span	**Sec. 8.2.1 Cal Gas Verification**			
0 to 20% of Cal. Span		Low-Level	0.00%				
40 to 60% of Cal. Span		Mid-level	50.50%				
100% of Cal. Span		High-level	100.00%				

Test Date			SO2				
		CS - Cal. Span					
		Units	ppm				
Cylinder No.	**Expiration Date**	**Cal. Gas**	**C_V- Certified Concentration**	**C_{Dir} or C_S - Measured Concentration**	Difference	**ACE** Eq. 7E-1 Analyzer Cal. Error	**Status**
		Low-level					
		Mid-level					
		High-level					
			% of Span	**Sec. 8.2.1 Cal Gas Verification**			
0 to 20% of Cal. Span		Low-Level					
40 to 60% of Cal. Span		Mid-level					
100% of Cal. Span		High-level					

Test Date March 14, 2012			NOx				
		CS - Cal. Span	90.20				
		Units	ppm				
Cylinder No.	**Expiration Date**	**Cal. Gas**	**C_V- Certified Concentration**	**C_{Dir} or C_S - Measured Concentration**	Difference	**ACE** Eq. 7E-1 Analyzer Cal. Error	**Status**
		Low-level	0.00	0.00	0.00	0.000%	Passed Cal.
		Mid-level	40.30	39.50	0.80	0.887%	Passed Cal.
		High-level	90.20	90.20	0.00	0.000%	Passed Cal.
			% of Span	**Sec. 8.2.1 Cal Gas Verification**			
0 to 20% of Cal. Span		Low-Level	0.00%				
40 to 60% of Cal. Span		Mid-level	44.68%				
100% of Cal. Span		High-level	100.00%				

Test Date March 14, 2012			CO				
3		CS - Cal. Span	79.70				
		Units	ppm				
Cylinder No.	**Expiration Date**	**Cal. Gas**	**C_V- Certified Concentration**	**C_{Dir} or C_S - Measured Concentration**	Difference	**ACE** Eq. 7E-1 Analyzer Cal. Error	**Status**
		Low-level	0.00	0.00	0.00	0.000%	Passed Cal.
		Mid-level	36.10	36.60	0.50	0.627%	Passed Cal.
		High-level	79.70	79.60	0.10	0.125%	Passed Cal.
			% of Span	**Sec. 8.2.1 Cal Gas Verification**			
0 to 20% of Cal. Span		Low-Level	0.00%				
40 to 60% of Cal. Span		Mid-level	45.29%				
100% of Cal. Span		High-level	100.00%				

Division of Air Quality Stack Test Review of
Kennecott Utah Copper

Refinery Boiler A Unit REF002

☐ CO Calibration Gas

Unprotectec

	SO_2	NO_X	CO	CO_2	O_2
CS Calibration Span		90.20	79.70	20.00	10.00
Units	ppm	ppm	ppm	%	%
CV - Cylinder Value:	SO_2	NO_X	CO	CO_2	O_2
Low-Level		0.00	0.00	0.00	0.00
Mid-Level		40.30	36.10	10.10	5.03
High-Level		90.20	79.70	20.00	10.00
0 to 20% of Cal. Span		0.00%	0.00%	0.00%	0.00%
40 to 60% of Cal. Span		44.7%	45.3%	50.5%	50.3%
100% of Cal. Span		100.0%	100.0%	100.0%	100.0%

Cdir - Enter Actual Up-scale Cylinder Value Used To Correct Emission Concentration.

C_{Dir} C_{MA}		40.30	36.10	10.10	5.03

Calibration Error Test

Cs - Measured Concentration	SO_2	NO_X	CO	CO_2	O_2
Low-Level		0.00	0.00	0.00	0.00
Mid-Level		39.50	36.60	10.00	5.00
High-Level		90.20	79.60	20.00	10.00

Enter Up-scale Analyzer Response to be used during testing.

ACE Eq. 7E-1		39.50	36.60	10.00	5.00

Low-Level		0.00%	0.00%	0.00%	0.00%
ppmdv Difference		0	0	0	0
Status		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**
Mid-Level		0.89%	0.63%	0.50%	0.30%
ppmdv Difference		0.8	0.5	0.1	0.03
Status		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**
High-Level		0.00%	0.13%	0.00%	0.00%
ppmdv Difference		0	0.1	0	0
Status		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**

☐ Failed Cal Error Dialog

NOTE
These cells sc
appropriate (
after the Cm
entered.

If this scan is
the Cma and
gas value.

Pre-Test Sampling System Bias

Initial Values	SO_2	NO_X	CO	CO_2	O_2
C_O - Low-Level		0.10	0.00	0.00	0.00
SBi - Zero Bias	TRUE	0.11%	0.00%	0.00%	0.00%
Difference	TRUE	0.1	0	0	0
Pass or Failed Invalid Run		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**
C_M - Up-scale Gas		39.30	36.70	10.00	5.00
SBi - Up-Scale Bias	TRUE	0.22%	0.13%	0.00%	0.00%
Difference	TRUE	0.20	0.10	0.00	0.00
Pass or Failed Invalid Run	**TRUE**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**

System Bias.
± 5% of Span

☐ Failed Bias Dialog

Raw Test Data

Test Date: 3/14/2012

	SO_2	NO_X	CO	CO_2	O_2
		33.0	8.3	9.5	4.4
	0.0%	36.6%	10.4%	47.5%	44.0%

Time	Start	Stop
SO_2		0:21
NO_X	0:00	0:21
CO	0:00	0:21
CO_2/O_2	0:00	0:21

Post-Test System Bias 7E-2 SB=(Cs - Cdir)/CS x 100

Final Values	SO_2	NO_X	CO	CO_2	O_2
C_O - Low-Level		0.30	0.10	0.00	0.00
SBi - Zero Bias	TRUE	0.33%	0.13%	0.00%	0.00%
Difference	**TRUE**	**0.3**	**0.1**	**0.0**	**0.0**
Pass or Invalid Run		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**
C_M - Up-scale Gas		39.60	36.70	10.00	5.00
SBi - Up-Scale Bias	TRUE	0.11%	0.13%	0.00%	0.00%
Difference	TRUE	0.1	0.1	0.0	0.0
Pass or Invalid Run		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**

System Bias.
± 5% of Span

☑ Failed Bias Dialog

Calibration Drift % of Span - D=ABS(SBf - SBi)

Low-Level Drift	TRUE	0.22%	0.13%	0.00%	0.00%
Difference	TRUE	0.2	0.1	0.0	0.0
Pass or Re-Calibrate		**Pass**	**Pass**	**Pass**	**Pass**
Up-scale Gas Drift	TRUE	0.11%	0.00%	0.00%	0.00%
Difference	**TRUE**	**0.3**	**0.0**	**0.0**	**0.0**
Pass or Re-Calibrate		**Pass**	**Pass**	**Pass**	**Pass**

Drift
3% of Span

☐ Failed Drift Dialog

Division of Air Quality Stack Test Review of

Kennecott Utah Copper

Refinery Boiler A Unit REF0(— **Flow & Moisture**

As ft^2	Pbar	Pq (static)	Ps	Avg Ts F	CO2 - F_{CO2}	O2	N2+C	Md	Ms
9.17	25.43	-0.35	25.40	367	9.60	4.43	85.98	29.71	28.01

Y	Cp	Vm cf	Vlc	A_{VG} Tm F	Vm std	Vw std	Bws	S Bws	13.7759
0.9910	0.82	35.341	106.80	71	29.606	5.027	0.1452	0.9990	0.999

AvgSqrtDlp	Vs	scfm wet	acfm	Qsd dscfh	Heat Input Btu/hr
0.6938	52.4	15,633	28,843	8.018E+5	

Load - Megawatts

Low	Mid	High

#1 - Times

Date

Point No.	dl "p"	sqrt dl "p"	ts F	tm F (in)	tm F (out)	Cp *3D Probe*	Final Vf	Initial Vi	
1	0.310	0.56	357	70	68		567.4	467.9	99.5
2	0.390	0.62	358	72	69		460	457.7	2.3
3	0.450	0.67	363	74	69		312.9	310	2.9
4	0.600	0.77	366	73	69		502.4	500.3	2.1
5	0.620	0.79	369	74	69				0
6	0.590	0.77	371	73	69				
7	0.500	0.71	371	73	69				
8	0.410	0.64	373	73	69				
9	0.250	0.50	361	72	68				
10	0.400	0.63	365	73	68				
11	0.480	0.69	366	73	68				
12	0.570	0.75	367	73	68				
13	0.690	0.83	371						
14	0.600	0.77	372						
15	0.510	0.71	372						
16	0.450	0.67	372						
17									
18									
19									
20									
21									
22									
23									
24									

Division of Air Quality Stack Test Review of
Kennecott Utah Copper

Refinery Boiler A Unit REF002

	SO_2	NO_X	CO	CO_2	O_2
CS Calibration Span		90.20	79.70	20.00	10.00
Units	ppm	ppm	ppm	%	%
CV - Cylinder Value:	SO_2	NO_X	CO	CO_2	O_2
Low-Level		**0.00**	**0.00**	**0.00**	**0.00**
Mid-Level		**40.30**	**36.10**	**10.10**	**5.03**
High-Level		**90.20**	**79.70**	**20.00**	**10.00**
0 to 20% of Cal. Span		**0.00%**	**0.00%**	**0.00%**	**0.00%**
40 to 60% of Cal. Span		**44.7%**	**45.3%**	**50.5%**	**50.3%**
100% of Cal. Span		**100.0%**	**100.0%**	**100.0%**	**100.0%**

Cdir - Enter Actual Up-scale Cylinder Value Used To Correct Emission Concentration.

C_{MA}		40.30	36.10	10.10	5.03

Calibration Error Test

Measured Concentration	SO_2	NO_X	CO	CO_2	O_2
Low-Level		**0.00**	**0.00**	**0.00**	**0.00**
Mid-Level		**39.50**	**36.60**	**10.00**	**5.00**
High-Level		**90.20**	**79.60**	**20.00**	**10.00**

Enter Up-scale Analyzer Response to be used during testing.

ACE Eq. 7E-1		39.50	36.60	10.00	5.00
Low-Level		0.00%	0.00%	0.00%	0.00%
ppmdv Difference		0	0	0	0
Status		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**
Mid-Level		0.89%	0.63%	0.50%	0.30%
ppmdv Difference		0.8	0.5	0.1	0.03
Status		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**
High-Level		0.00%	0.13%	0.00%	0.00%
ppmdv Difference		0	0.1	0	0
Status		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**

☐ Failed Cal Error Dialog

Pre-Test Sampling System Bias

Initial Values	SO_2	NO_X	CO	CO_2	O_2
C_O - Low-Level		0.30	0.10	0.00	0.00
SBi - Zero Bias	TRUE	0.33%	0.13%	0.00%	0.00%
Difference	TRUE	0.3	0.1	0	0
Pass or Invalid Run		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**
C_M - Up-scale Gas		39.60	36.70	10.00	5.00
SBi - Up-Scale Bias	TRUE	0.11%	0.13%	0.00%	0.00%
Difference	TRUE	0.1	0.1	0	0
Pass or Invalid Run	**TRUE**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**

System Bias.
± 5% of Span

☐ Failed Bias Dialog

Raw Test Data

Test Date: 3/14/2012

	SO_2	NO_X	CO	CO_2	O_2
		32.4	**7.7**	**9.5**	**4.4**
	0.0%	**35.9%**	**9.7%**	**47.5%**	**44.0%**

Time	**Start**	**Stop**
SO_2		0:21
NO_X	0:00	0:21
CO	0:00	0:21
CO_2/O_2	0:00	0:21

Post-Test System Bias 7E-2 SB=(Cs - Cdir)/CS x 100

Final Values	SO_2	NO_X	CO	CO_2	O_2
C_O - Low-Level		0.40	0.10	0.00	0.00
SBi - Zero Bias	TRUE	0.44%	0.13%	0.00%	0.00%
Difference	**TRUE**	**0.4**	**0.1**	**0.0**	**0.0**
Pass or Invalid Run		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**
C_M - Up-scale Gas		39.30	36.80	10.10	5.00
SBi - Up-Scale Bias	TRUE	0.22%	0.25%	0.50%	0.00%
Difference	TRUE	0.2	0.2	0.1	0.0
Pass or Invalid Run		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**

System Bias.
± 5% of Span

☐ Failed Bias Dialog

Calibration Drift % of Span - D=ABS(SBf - SBi)

Low-Level Drift	TRUE	0.11%	0.00%	0.00%	0.00%
Difference	TRUE	0.1	0.0	0.0	0.0
Pass or Re-Calibrate		**Pass**	**Pass**	**Pass**	**Pass**
Up-scale Gas Drift	TRUE	0.11%	0.13%	0.50%	0.00%
Difference	**TRUE**	**0.3**	**0.1**	**0.1**	**0.0**
Pass or Re-Calibrate		**Pass**	**Pass**	**Pass**	**Pass**

Response Spec.
3% of Span

☐ Failed Drift Dialog

Division of Air Quality Stack Test Review of
Kennecott Utah Copper

Refinery Boiler A Unit R

Flow & Moisture

As ft^2	Pbar	Pq (static)	Ps	Avg Ts F	CO2 - F_{CO2}	O2	N2+C	Md	Ms
9.17	25.43	-0.35	25.40	368	9.55	4.43	86.03	29.70	27.89

Y	Cp	Vm cf	Vlc	A_{VG} Tm F	Vm std	Vw std	Bws	S Bws	13.8738
0.9910	0.82	35.870	116.80	73	29.931	5.498	0.1552	0.9990	0.999

AvgSqrtDlp	Vs	scfm wet	acfm	Qsd dscfh	Heat Input Btu/hr
0.6967	52.8	15,729	29,039	7.973E+5	

Load - Megawatts

Low	Mid	High

#1 - Times
Date

Point No.	dl "p"	sqrt dl "p"	ts F	tm F (in)	tm F (out)	Cp *3D Probe*	Final Vf	Initial Vi	
1	0.290	0.54	**359**	**71**	**68**		588.1	478.6	109.5
2	0.360	0.60	361	74	69		457.4	460	-2.6
3	0.460	0.68	364	75	70		321	312.9	8.1
4	0.580	0.76	367	76	70		504.2	502.4	1.8
5	0.650	0.81	369	76	71				0
6	0.610	0.78	370	75	70				
7	0.530	0.73	370	75	70				
8	0.400	0.63	370	76	71				
9	0.270	0.52	360	76	71				
10	0.390	0.62	368	76	71				
11	0.510	0.71	371	76	71				
12	0.550	0.74	370	77	71				
13	0.720	0.85	372						
14	0.610	0.78	371						
15	0.530	0.73	371						
16	0.440	0.66	370						
17									
18									
19									
20									
21									
22									
23									
24									

Division of Air Quality Stack Test Review of
Kennecott Utah Copper

Refinery Boiler A Unit REF002

	SO_2	NO_X	CO	CO_2	O_2
CS Calibration Span		90.20	79.70	20.00	10.00
Units	ppm	ppm	ppm	%	%
CV - Cylinder Value:	SO_2	NO_X	CO	CO_2	O_2
Low-Level		**0.00**	**0.00**	**0.00**	**0.00**
Mid-Level		**40.30**	**36.10**	**10.10**	**5.03**
High-Level		**90.20**	**79.70**	**20.00**	**10.00**
0 to 20% of Cal. Span		**0.00%**	**0.00%**	**0.00%**	**0.00%**
40 to 60% of Cal. Span		**44.7%**	**45.3%**	**50.5%**	**50.3%**
100% of Cal. Span		**100.0%**	**100.0%**	**100.0%**	**100.0%**

Cdir - Enter Actual Up-scale Cylinder Value Used To Correct Emission Concentration.

C_{MA}		40.30	36.10	10.10	5.03

Calibration Error Test

Measured Concentration	SO_2	NO_X	CO	CO_2	O_2
Low-Level		**0.00**	**0.00**	**0.00**	**0.00**
Mid-Level		**39.50**	**36.60**	**10.00**	**5.00**
High-Level		**90.20**	**79.60**	**20.00**	**10.00**

Enter Up-scale Analyzer Response to be used during testing.

ACE Eq. 7E-1		39.50	36.60	10.00	5.00
Low-Level		0.00%	0.00%	0.00%	0.00%
ppmv Difference		0	0	0	0
Status		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**
Mid-Level		0.89%	0.63%	0.50%	0.30%
ppmv Difference		0.8	0.5	0.1	0.03
Status		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**
High-Level		0.00%	0.13%	0.00%	0.00%
ppmv Difference		0	0.1	0	0
Status		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**

☐ Failed Cal Error Dialog

Pre-Test Sampling System Bias

Initial Values	SO_2	NO_X	CO	CO_2	O_2
C_O - **Low-Level**		0.40	0.10	0.00	0.00
SBi - Zero Bias	TRUE	0.44%	0.13%	0.00%	0.00%
Difference	TRUE	0.4	0.1	0	0
Pass or Invalid Run		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**
C_M - **Up-scale Gas**		39.30	36.80	10.10	5.00
SBi - Up-Scale Bias	TRUE	0.22%	0.25%	0.50%	0.00%
Difference	TRUE	0.2	0.2	0.1	0
Pass or Invalid Run	**TRUE**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**

System Bias.
± 5% of Span

☐ Failed Bias Dialog

Raw Test Data

Test Date: 3/14/2012

	SO_2	NO_X	CO	CO_2	O_2
		32.2	**7.7**	**9.6**	**4.4**
	0.0%	**35.7%**	**9.7%**	**48.0%**	**44.0%**

Time	**Start**	**Stop**
SO_2		0:21
NO_X	0:00	0:21
CO	0:00	0:21
CO_2/O_2	0:00	0:21

Post-Test System Bias 7E-2 SB=(Cs - Cdir)/CS x 100

Final Values	SO_2	NO_X	CO	CO_2	O_2
C_O - **Low-Level**		0.30	0.00	0.00	-0.10
SBi - Zero Bias	TRUE	0.33%	0.00%	0.00%	1.00%
Difference	**TRUE**	**0.3**	**0.0**	**0.0**	**0.1**
Pass or Invalid Run		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**
C_M - **Up-scale Gas**		39.80	36.50	10.10	5.00
SBi - Up-Scale Bias	TRUE	0.33%	0.13%	0.50%	0.00%
Difference	TRUE	0.3	0.1	0.1	0.0
Pass or Invalid Run		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**

System Bias.
± 5% of Span

☐ Failed Bias Dialog

Calibration Drift % of Span - D=ABS(SBf - SBi)

Low-Level Drift	TRUE	0.11%	0.13%	0.00%	1.00%
Difference	TRUE	0.1	0.1	0.0	0.1
Pass or Re-Calibrate		**Pass**	**Pass**	**Pass**	**Pass**
Up-scale Gas Drift	TRUE	0.11%	0.13%	0.00%	0.00%
Difference	**TRUE**	**0.5**	**0.3**	**0.0**	**0.0**
Pass or Re-Calibrate		**Pass**	**Pass**	**Pass**	**Pass**

Response Spec.
3% of Span

☐ Failed Drift Dialog

Division of Air Quality Stack Test Review of
Kennecott Utah Copper

Refinery Boiler A Unit R1 — **Flow & Moisture**

As ft^2	Pbar	Pq (static)	Ps	Avg Ts F	CO2 - F_{CO2}	O2	N2+C	Md	Ms
9.17	25.43	-0.35	25.40	367	9.60	4.43	85.97	29.71	27.87

Y	Cp	Vm cf	Vlc	A_{VG} Tm F	Vm std	Vw std	Bws	S Bws	13.8302
0.9910	0.82	36.141	119.20	76	29.977	5.611	0.1577	0.9990	0.999

AvgSqrtDlp	Vs	scfm wet	acfm	Qsd dscfh	Heat Input Btu/hr
0.6942	52.6	15,680	28,941	7.925E+5	

Load - Megawatts

Low	Mid	High

#1 - Times
Date

Point No.	dl "p"	sqrt dl "p"	ts F	tm F (in)	tm F (out)	Cp *3D Probe*	Final Vf	Initial Vi	
1	0.290	0.54	356	76	73		577.3	468.1	109.2
2	0.390	0.62	360	77	73		432	457.4	-25.4
3	0.470	0.69	363	78	73		353.9	321	32.9
4	0.600	0.77	364	79	73		506.7	504.2	2.5
5	0.620	0.79	366	79	73				0
6	0.580	0.76	369	80	74				
7	0.530	0.73	370	80	74				
8	0.420	0.65	371	80	74				
9	0.300	0.55	366	79	74				
10	0.390	0.62	369	79	73				
11	0.490	0.70	372	78	73				
12	0.590	0.77	371	78	73				
13	0.660	0.81	372						
14	0.540	0.73	371						
15	0.490	0.70	369						
16	0.450	0.67	370						
17									
18									
19									
20									
21									
22									
23									
24									

Division of Air Quality

Instrumental Reference Methods - Gaseous Measurements

Reference Methods 2, 3A, 6C, 7E, 10, & 19

Source Information

Company Name	**Kennecott Utah Copper**
Company Contact:	**Ryan Evans**
Contact Phone No.	**801-569-6331**
Stack Designation:	**Refinery Boiler B Unit REF003**

CO2 Interferece w/CO: ☐ Yes

Wet CEM: ☐ Yes

Correct For O2

Test & Review Dates

Test Date:	**3/14/2012**	High Flow Test Date:	1/0/1900
Review Date:	3/7/2013	Mid Flow Test Date:	1/0/1900
Observer:	Rob Leishman	Low Flow Test Date:	1/0/1900
Reviewer:	**ROB LEISHMAN**		

	Emission Limits			Emission Rates		
	SO_2	NO_X	CO	SO2	NOX	CO
lbs/MMBtu						
lbs/hr		4.8	3.0		3.849	0.008
ppm						
Percent						
%O2 Correction as a whole #						

Test Information

Stack I.D. inches	As ft^2	Y	Dl H @	Cp	Pbar	Pq (static)	Heat Input: fuel flow rate (Btu/hr)	Heat Input: Heat Input (Btu/hr.)
41.00	9.17	0.9910	1.86	0.82	25.43	-0.35		

Round

Contractor Information

Contact:	Alex Mongold - Chris Keefe
Contracting Company:	Air Pollution Testing (APT)
Address:	1959 South 4130 West, Unit B, SLC,Ut. 84104
Phone No.:	801-974-0481 or 303-420-5949 ext. 24
Project No.:	

☑ F factor used

8710

Diluent

- ○ O2
- ○ CO2

Method 19 - F factors for Coal, Oil, and Gas

		Fd scf/MMBtu	Fw scf/MMBtu	Fc scf/MMBtu
COAL	Anthracite 2	○ 10100	○ 10540	○ 1970
	Bituminous	○ 9780	○ 10640	○ 1800
	Lignite	○ 9860	○ 11950	○ 1910
OIL		○ 9190	○ 320	○ 1420
GAS	Natural	◉ 8710	○ 10610	○ 1040
	Propan	○ 8710	○ 10200	○ 1190
	Butane	○ 8710	○ 10390	○ 1250

Tabs Are Sh

KUC Refinery BoilerB REF003 5-3-12

Division of Air Quality

NSPS Relative Accuracy Performance Specification Test - CEMS C

Kennecott Utah Copper

Refinery Boiler B Unit REF003

lbs/MMBTU
O2
CO2
Clear

Average Emission

Dry	SO_2	NO_X	CO
lbs/Mbtu		0.053	0.000
lbs/hr		3.85	0.01
ppm		0.00	0.00
ppm corrected for %O2			

Average % concentration

CO_2	O_2
9.46	4.53

Run 1

Dry	SO_2	NO_X	CO	CO_2	O_2	Enter O2 or CO2 O2
Atomic Weight	64	46	28			
lbs/MMBtu (O2)		5.31E-02	8.13E-05			E=Cd x Fd x (20.9/(20.9-%O2d))
lbs/MMBtu (CO2)						E=Cd x Fc x (100 / % CO2d)
lbs/cu.ft		4.742E-06	7.271E-09			
lbs/hr		3.848	0.006	9.49	4.63	C For Cal Drift
ppm corrected for %O		0.00	0.00	9.40	4.60	Raw Value

Run 2

Dry	SO_2	NO_X	CO	CO_2	O_2	
Atomic Weight	64	46	28			
lbs/MMBtu (O2)		5.33E-02	8.08E-05			E=Cd x Fd x (20.9/(20.9-%O2d))
lbs/MMBtu (CO2)						E=Cd x Fc x (100 / % CO2d)
lbs/cu.ft		4.790E-06	7.271E-09			
lbs/hr		3.82478	0.00581	9.45	4.53	C For Cal Drift
ppm corrected for %O		0.00	0.00	9.40	4.50	Raw Value

Run 3

Dry	SO_2	NO_X	CO	CO_2	O_2	
Atomic Weight	64	46	28			
lbs/MMBtu (O2)		5.28E-02	1.61E-04			E=Cd x Fd x (20.9/(20.9-%O2d))
lbs/MMBtu (CO2)						E=Cd x Fc x (100 / % CO2d)
lbs/cu.ft		4.778E-06	1.454E-08			
lbs/hr		3.874978	0.011793	9.44	4.43	C For Cal Drift
ppm corrected for %O		0.00	0.000	9.40	4.40	Raw Value

Run 4

Dry	SO_2	NO_X	CO	CO_2	O_2	
Atomic Weight	64	46	28			
lbs/MMBtu (O2)						E=Cd x Fd x (20.9/(20.9-%O2d))
lbs/MMBtu (CO2)						E=Cd x Fc x (100 / % CO2d)
lbs/cu.ft						
lbs/hr						C For Cal Drift
ppm corrected for %O				0.00	0.00	Raw Value

Calibration Error Test

Test Date March 14, 2012			O_2				
		CS - Cal. Span	10.00				
		Units	%				
Cylinder No.	**Expiration Date**	**Cal. Gas**	**C_V- Certified Concentration**	**C_{Dir} or C_S - Measured Concentration**	Difference	**ACE** Eq. 7E-1 Analyzer Cal. Error	**Status**
		Low-level	0.00	0.00	0.00	0.00%	Passed Cal.
		Mid-level	5.03	5.00	0.03	0.30%	Passed Cal.
		High-level	10.00	10.00	0.00	0.00%	Passed Cal.
			% of Span	**Sec. 8.2.1 Cal Gas Verification**			
0 to 20% of CS - Cal. Span		Low-Level	0.00%				
40 to 60% of Cal. Span		Mid-level	50.30%				
100% of Cal. Span		High-level	100.00%				

Test Date March 14, 2012			CO_2				
		CS - Cal. Span	20.00				
		Units	%				
Cylinder No.	**Expiration Date**	**Cal. Gas**	**C_V- Certified Concentration**	**C_{Dir} or C_S - Measured Concentration**	Difference	**ACE** Eq. 7E-1 Analyzer Cal. Error	**Status**
		Low-level	0.00	0.00	0.00	0.000%	Passed Cal.
		Mid-level	10.10	10.00	0.10	0.500%	Passed Cal.
		High-level	20.00	20.00	0.00	0.000%	Passed Cal.
			% of Span	**Sec. 8.2.1 Cal Gas Verification**			
0 to 20% of Cal. Span		Low-Level	0.00%				
40 to 60% of Cal. Span		Mid-level	50.50%				
100% of Cal. Span		High-level	100.00%				

Test Date			SO2				
		CS - Cal. Span					
		Units	ppm				
Cylinder No.	**Expiration Date**	**Cal. Gas**	**C_V- Certified Concentration**	**C_{Dir} or C_S - Measured Concentration**	Difference	**ACE** Eq. 7E-1 Analyzer Cal. Error	**Status**
		Low-level					
		Mid-level					
		High-level					
			% of Span	**Sec. 8.2.1 Cal Gas Verification**			
0 to 20% of Cal. Span		Low-Level					
40 to 60% of Cal. Span		Mid-level					
100% of Cal. Span		High-level					

Test Date March 14, 2012			NOx				
		CS - Cal. Span	90.20				
		Units	ppm				
Cylinder No.	**Expiration Date**	**Cal. Gas**	**C_V- Certified Concentration**	**C_{Dir} or C_S - Measured Concentration**	Difference	**ACE** Eq. 7E-1 Analyzer Cal. Error	**Status**
		Low-level	0.00	0.00	0.00	0.000%	Passed Cal.
		Mid-level	40.30	39.50	0.80	0.887%	Passed Cal.
		High-level	90.20	90.30	0.10	0.111%	Passed Cal.
			% of Span	**Sec. 8.2.1 Cal Gas Verification**			
0 to 20% of Cal. Span		Low-Level	0.00%				
40 to 60% of Cal. Span		Mid-level	44.68%				
100% of Cal. Span		High-level	100.00%				

Test Date March 14, 2012			CO				
3		CS - Cal. Span	79.70				
		Units	ppm				
Cylinder No.	**Expiration Date**	**Cal. Gas**	**C_V- Certified Concentration**	**C_{Dir} or C_S - Measured Concentration**	Difference	**ACE** Eq. 7E-1 Analyzer Cal. Error	**Status**
		Low-level	0.00	0.00	0.00	0.000%	Passed Cal.
		Mid-level	36.10	36.60	0.50	0.627%	Passed Cal.
		High-level	79.70	79.70	0.00	0.000%	Passed Cal.
			% of Span	**Sec. 8.2.1 Cal Gas Verification**			
0 to 20% of Cal. Span		Low-Level	0.00%				
40 to 60% of Cal. Span		Mid-level	45.29%				
100% of Cal. Span		High-level	100.00%				

Division of Air Quality Stack Test Review of
Kennecott Utah Copper

Refinery Boiler B Unit REF003

	SO_2	NO_X	CO	CO_2	O_2
CS Calibration Span		90.20	79.70	20.00	10.00
Units	ppm	ppm	ppm	%	%
CV - Cylinder Value:	SO_2	NO_X	CO	CO_2	O_2
Low-Level		**0.00**	**0.00**	**0.00**	**0.00**
Mid-Level		**40.30**	**36.10**	**10.10**	**5.03**
High-Level		**90.20**	**79.70**	**20.00**	**10.00**
0 to 20% of Cal. Span		**0.00%**	**0.00%**	**0.00%**	**0.00%**
40 to 60% of Cal. Span		**44.7%**	**45.3%**	**50.5%**	**50.3%**
100% of Cal. Span		**100.0%**	**100.0%**	**100.0%**	**100.0%**

☐ CO Calibration Gas

Unprotectec

Cdir - Enter Actual Up-scale Cylinder Value Used To Correct Emission Concentration.

C_{Dir} C_{MA}		**40.30**	**36.10**	**10.10**	**5.03**

Calibration Error Test

Cs - Measured Concentration	SO_2	NO_X	CO	CO_2	O_2
Low-Level		**0.00**	**0.00**	**0.00**	**0.00**
Mid-Level		**39.50**	**36.60**	**10.00**	**5.00**
High-Level		**90.30**	**79.70**	**20.00**	**10.00**

Enter Up-scale Analyzer Response to be used during testing.

ACE Eq. 7E-1		**39.50**	**36.60**	**10.00**	**5.00**

Low-Level		0.00%	0.00%	0.00%	0.00%
ppmdv Difference		0	0	0	0
Status		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**
Mid-Level		0.89%	0.63%	0.50%	0.30%
ppmdv Difference		0.8	0.5	0.1	0.03
Status		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**
High-Level		0.11%	0.00%	0.00%	0.00%
ppmdv Difference		0.1	0	0	0
Status		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**

☐ Failed Cal Error Dialog

NOTE
These cells sc
appropriate (
after the Cm
entered.

If this scan is
the Cma and
gas value.

Pre-Test Sampling System Bias

Initial Values	SO_2	NO_X	CO	CO_2	O_2
C_O - Low-Level		**0.60**	**-0.10**	**0.00**	**0.00**
SBi - Zero Bias	TRUE	0.67%	0.13%	0.00%	0.00%
Difference	TRUE	0.6	0.1	0	0
Pass or Failed Invalid Run		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**
C_M - Up-scale Gas		**40.20**	**36.50**	**10.00**	**5.00**
SBi - Up-Scale Bias	TRUE	0.78%	0.13%	0.00%	0.00%
Difference	TRUE	0.70	0.10	0.00	0.00
Pass or Failed Invalid Run	**TRUE**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**

System Bias.
± 5% of Span

☐ Failed Bias Dialog

Raw Test Data

Test Date: 3/14/2012

	SO_2	NO_X	CO	CO_2	O_2
		39.8	**0.1**	**9.4**	**4.6**
	0.0%	**44.1%**	**0.1%**	**47.0%**	**46.0%**

Time	**Start**	**Stop**
SO_2		0:21
NO_X	0:00	0:21
CO	0:00	0:21
CO_2/O_2	0:00	0:21

Post-Test System Bias 7E-2 SB=(Cs - Cdir)/CS x 100

Final Values	SO_2	NO_X	CO	CO_2	O_2
C_O - Low-Level		0.70	-0.10	0.00	0.00
SBi - Zero Bias	TRUE	0.78%	0.13%	0.00%	0.00%
Difference	**TRUE**	**0.7**	**0.1**	**0.0**	**0.0**
Pass or Invalid Run		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**
C_M - Up-scale Gas		40.50	36.60	10.00	5.00
SBi - Up-Scale Bias	TRUE	1.11%	0.00%	0.00%	0.00%
Difference	TRUE	1.0	0.0	0.0	0.0
Pass or Invalid Run		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**

System Bias.
± 5% of Span

☑ Failed Bias Dialog

Calibration Drift % of Span - D=ABS(SBf - SBi)

Low-Level Drift	TRUE	0.11%	0.00%	0.00%	0.00%
Difference	TRUE	0.1	0.0	0.0	0.0
Pass or Re-Calibrate		**Pass**	**Pass**	**Pass**	**Pass**
Up-scale Gas Drift	TRUE	0.33%	0.13%	0.00%	0.00%
Difference	**TRUE**	**0.3**	**0.1**	**0.0**	**0.0**
Pass or Re-Calibrate		**Pass**	**Pass**	**Pass**	**Pass**

Drift
3% of Span

☐ Failed Drift Dialog

Division of Air Quality Stack Test Review of
Kennecott Utah Copper

Refinery Boiler B Unit REF0(— **Flow & Moisture**

As ft^2	Pbar	Pq (static)	Ps	Avg Ts F	CO2 - F_{CO2}	O2	N2+C	Md	Ms
9.17	25.43	-0.35	25.40	359	9.49	4.63	85.88	29.70	28.00

Y	Cp	Vm cf	Vlc	A_{VG} Tm F	Vm std	Vw std	Bws	S Bws	12.3622
0.9910	0.82	35.764	109.10	67	30.169	5.135	0.1455	0.9990	0.999

AvgSqrtDlp	Vs	scfm wet	acfm	Qsd dscfh	Heat Input Btu/hr
0.6985	52.5	15,825	28,896	8.114E+5	

#1 - Times
Date

Load - Megawatts		
Low	Mid	High

Point No.	dl "p"	sqrt dl "p"	ts F	tm F (in)	tm F (out)	Cp *3D Probe*	Final Vf	Initial Vi	
1	0.420	0.65	**351**	66	65		585.7	479.7	106
2	0.490	0.70	353	67	65		432.8	432	0.8
3	0.660	0.81	355	68	64		312.1	310.8	1.3
4	0.710	0.84	358	67	64		507.7	506.7	1
5	0.630	0.79	356	67	64				0
6	0.500	0.71	357	68	64				
7	0.440	0.66	360	68	65				
8	0.420	0.65	360	69	65				
9	0.260	0.51	355	70	66				
10	0.320	0.57	359	71	66				
11	0.440	0.66	361	72	67				
12	0.530	0.73	362	73	67				
13	0.610	0.78	363						
14	0.550	0.74	362						
15	0.480	0.69	363						
16	0.460	0.68	363						
17									
18									
19									
20									
21									
22									
23									
24									

Division of Air Quality Stack Test Review of
Kennecott Utah Copper

Refinery Boiler B Unit REF003

	SO_2	NO_X	CO	CO_2	O_2
CS Calibration Span		90.20	79.70	20.00	10.00
Units	ppm	ppm	ppm	%	%
CV - Cylinder Value:	SO_2	NO_X	CO	CO_2	O_2
Low-Level		**0.00**	**0.00**	**0.00**	**0.00**
Mid-Level		**40.30**	**36.10**	**10.10**	**5.03**
High-Level		**90.20**	**79.70**	**20.00**	**10.00**
0 to 20% of Cal. Span		**0.00%**	**0.00%**	**0.00%**	**0.00%**
40 to 60% of Cal. Span		**44.7%**	**45.3%**	**50.5%**	**50.3%**
100% of Cal. Span		**100.0%**	**100.0%**	**100.0%**	**100.0%**

Cdir - Enter Actual Up-scale Cylinder Value Used To Correct Emission Concentration.

C_{MA}		40.30	36.10	10.10	5.03

Calibration Error Test

Measured Concentration	SO_2	NO_X	CO	CO_2	O_2
Low-Level		**0.00**	**0.00**	**0.00**	**0.00**
Mid-Level		**39.50**	**36.60**	**10.00**	**5.00**
High-Level		**90.30**	**79.70**	**20.00**	**10.00**

Enter Up-scale Analyzer Response to be used during testing.

ACE Eq. 7E-1		39.50	36.60	10.00	5.00
Low-Level		0.00%	0.00%	0.00%	0.00%
ppmdv Difference		0	0	0	0
Status		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**
Mid-Level		0.89%	0.63%	0.50%	0.30%
ppmdv Difference		0.8	0.5	0.1	0.03
Status		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**
High-Level		0.11%	0.00%	0.00%	0.00%
ppmdv Difference		0.1	0	0	0
Status		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**

☐ Failed Cal Error Dialog

Pre-Test Sampling System Bias

Initial Values	SO_2	NO_X	CO	CO_2	O_2
C_O - Low-Level		0.70	-0.10	0.00	0.00
SBi - Zero Bias	TRUE	0.78%	0.13%	0.00%	0.00%
Difference	TRUE	0.7	0.1	0	0
Pass or Invalid Run		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**
C_M - Up-scale Gas		40.50	36.60	10.00	5.00
SBi - Up-Scale Bias	TRUE	1.11%	0.00%	0.00%	0.00%
Difference	TRUE	1	0	0	0
Pass or Invalid Run	**TRUE**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**

System Bias.
± 5% of Span

☐ Failed Bias Dialog

Raw Test Data

Test Date: 3/14/2012

	SO_2	NO_X	CO	CO_2	O_2
		39.9	**0.1**	**9.4**	**4.5**
	0.0%	**44.2%**	**0.1%**	**47.0%**	**45.0%**

Time	**Start**	**Stop**
SO_2		0:21
NO_X	0:00	0:21
CO	0:00	0:21
CO_2/O_2	0:00	0:21

Post-Test System Bias 7E-2 SB=(Cs - Cdir)/CS x 100

Final Values	SO_2	NO_X	CO	CO_2	O_2
C_O - Low-Level		0.50	0.00	0.00	0.00
SBi - Zero Bias	TRUE	0.55%	0.00%	0.00%	0.00%
Difference	**TRUE**	**0.5**	**0.0**	**0.0**	**0.0**
Pass or Invalid Run		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**
C_M - Up-scale Gas		39.60	36.60	10.10	5.00
SBi - Up-Scale Bias	TRUE	0.11%	0.00%	0.50%	0.00%
Difference	TRUE	0.1	0.0	0.1	0.0
Pass or Invalid Run		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**

System Bias.
± 5% of Span

☐ Failed Bias Dialog

Calibration Drift % of Span - D=ABS(SBf - SBi)

Low-Level Drift	TRUE	0.22%	0.13%	0.00%	0.00%
Difference	TRUE	0.2	0.1	0.0	0.0
Pass or Re-Calibrate		**Pass**	**Pass**	**Pass**	**Pass**
Up-scale Gas Drift	TRUE	1.00%	0.00%	0.50%	0.00%
Difference	**TRUE**	**0.9**	**0.0**	**0.1**	**0.0**
Pass or Re-Calibrate		**Pass**	**Pass**	**Pass**	**Pass**

Response Spec.
3% of Span

☐ Failed Drift Dialog

Division of Air Quality Stack Test Review of
Kennecott Utah Copper

Refinery Boiler B Unit Rl — **Flow & Moisture**

As ft^2	Pbar	Pq (static)	Ps	Avg Ts F	CO2 - F_{CO2}	O2	N2+C	Md	Ms
9.17	25.43	-0.35	25.40	362	9.45	4.53	86.03	29.69	27.81

Y	Cp	Vm cf	Vlc	A_{VG} Tm F	Vm std	Vw std	Bws	S Bws	12.9710
0.9910	0.82	35.622	121.50	71	29.843	5.719	0.1608	0.9990	0.999

AvgSqrtDlp	Vs	scfm wet	acfm	Qsd dscfh	Heat Input Btu/hr
0.6992	52.9	15,859	29,091	7.985E+5	

#1 - Times
Date

Load - Megawatts		
Low	Mid	High

Point No.	dl "p"	sqrt dl "p"	ts F	tm F (in)	tm F (out)	Cp *3D Probe*	Final Vf	Initial Vi	
1	0.410	0.64	355	68	67		589.4	476.5	112.9
2	0.520	0.72	356	70	67		436.9	432.8	4.1
3	0.680	0.82	358	70	67		314.6	312.1	2.5
4	0.700	0.84	360	71	67		509.7	507.7	2
5	0.610	0.78	362	72	68				0
6	0.480	0.69	365	73	68				
7	0.430	0.66	366	75	68				
8	0.400	0.63	367	75	68				
9	0.280	0.53	360	75	68				
10	0.320	0.57	361	76	69				
11	0.470	0.69	362	77	69				
12	0.520	0.72	363	78	69				
13	0.590	0.77	366						
14	0.560	0.75	366						
15	0.510	0.71	365						
16	0.450	0.67	366						
17									
18									
19									
20									
21									
22									
23									
24									

Division of Air Quality Stack Test Review of
Kennecott Utah Copper

Refinery Boiler B Unit REF003

	SO_2	NO_X	CO	CO_2	O_2
CS Calibration Span		90.20	79.70	20.00	10.00
Units	ppm	ppm	ppm	%	%
CV - Cylinder Value:	SO_2	NO_X	CO	CO_2	O_2
Low-Level		**0.00**	**0.00**	**0.00**	**0.00**
Mid-Level		**40.30**	**36.10**	**10.10**	**5.03**
High-Level		**90.20**	**79.70**	**20.00**	**10.00**
0 to 20% of Cal. Span		**0.00%**	**0.00%**	**0.00%**	**0.00%**
40 to 60% of Cal. Span		**44.7%**	**45.3%**	**50.5%**	**50.3%**
100% of Cal. Span		**100.0%**	**100.0%**	**100.0%**	**100.0%**

Cdir - Enter Actual Up-scale Cylinder Value Used To Correct Emission Concentration.

C_{MA}		40.30	36.10	10.10	5.03

Calibration Error Test

Measured Concentration	SO_2	NO_X	CO	CO_2	O_2
Low-Level		**0.00**	**0.00**	**0.00**	**0.00**
Mid-Level		**39.50**	**36.60**	**10.00**	**5.00**
High-Level		**90.30**	**79.70**	**20.00**	**10.00**

Enter Up-scale Analyzer Response to be used during testing.

ACE Eq. 7E-1		39.50	36.60	10.00	5.00
Low-Level		0.00%	0.00%	0.00%	0.00%
ppmv Difference		0	0	0	0
Status		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**
Mid-Level		0.89%	0.63%	0.50%	0.30%
ppmv Difference		0.8	0.5	0.1	0.03
Status		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**
High-Level		0.11%	0.00%	0.00%	0.00%
ppmv Difference		0.1	0	0	0
Status		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**

☐ Failed Cal Error Dialog

Pre-Test Sampling System Bias

Initial Values	SO_2	NO_X	CO	CO_2	O_2
C_O - Low-Level		0.50	0.00	0.00	0.00
SBi - Zero Bias	TRUE	0.55%	0.00%	0.00%	0.00%
Difference	TRUE	0.5	0	0	0
Pass or Invalid Run		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**
C_M - Up-scale Gas		39.60	36.60	10.10	5.00
SBi - Up-Scale Bias	TRUE	0.11%	0.00%	0.50%	0.00%
Difference	TRUE	0.1	0	0.1	0
Pass or Invalid Run	**TRUE**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**

System Bias.
± 5% of Span

☐ Failed Bias Dialog

Raw Test Data

Test Date: 3/14/2012

	SO_2	NO_X	CO	CO_2	O_2
		39.7	**0.2**	**9.4**	**4.4**
	0.0%	**44.0%**	**0.3%**	**47.0%**	**44.0%**

Time	**Start**	**Stop**
SO_2		0:21
NO_X	0:00	0:21
CO	0:00	0:21
CO_2/O_2	0:00	0:21

Post-Test System Bias 7E-2 SB=(Cs - Cdir)/CS x 100

Final Values	SO_2	NO_X	CO	CO_2	O_2
C_O - Low-Level		0.50	0.00	0.10	0.00
SBi - Zero Bias	TRUE	0.55%	0.00%	0.50%	0.00%
Difference	**TRUE**	**0.5**	**0.0**	**0.1**	**0.0**
Pass or Invalid Run		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**
C_M - Up-scale Gas		40.30	36.50	10.00	5.00
SBi - Up-Scale Bias	TRUE	0.89%	0.13%	0.00%	0.00%
Difference	TRUE	0.8	0.1	0.0	0.0
Pass or Invalid Run		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**

System Bias.
± 5% of Span

☐ Failed Bias Dialog

Calibration Drift % of Span - D=ABS(SBf - SBi)

Low-Level Drift	TRUE	0.00%	0.00%	0.50%	0.00%
Difference	TRUE	0.0	0.0	0.1	0.0
Pass or Re-Calibrate		**Pass**	**Pass**	**Pass**	**Pass**
Up-scale Gas Drift	TRUE	0.78%	0.13%	0.50%	0.00%
Difference	**TRUE**	**0.7**	**0.1**	**0.1**	**0.0**
Pass or Re-Calibrate		**Pass**	**Pass**	**Pass**	**Pass**

Response Spec.
3% of Span

☐ Failed Drift Dialog

Division of Air Quality Stack Test Review of
Kennecott Utah Copper

Refinery Boiler B Unit Rl — **Flow & Moisture**

As ft^2	Pbar	Pq (static)	Ps	Avg Ts F	$CO2 - F_{CO2}$	O2	N2+C	Md	Ms
9.17	25.43	-0.35	25.40	362	9.44	4.43	86.13	29.69	27.93

Y	Cp	Vm cf	Vlc	A_{VG} Tm F	Vm std	Vw std	Bws	S Bws	12.9194
0.9910	0.82	35.677	111.40	75	29.673	5.244	0.1502	0.9990	0.999

AvgSqrtDlp	Vs	scfm wet	acfm	Qsd dscfh	Heat Input Btu/hr
0.7027	53.0	15,905	29,165	8.110E+5	

#1 - Times
Date

Load - Megawatts		
Low	Mid	High

Point No.	dl "p"	sqrt dl "p"	ts F	tm F (in)	tm F (out)	Cp *3D Probe*	Final Vf	Initial Vi	
1	0.420	0.65	353	75	71		589.3	482.2	107.1
2	0.490	0.70	358	76	72		433.9	436.9	-3
3	0.690	0.83	361	76	72		321.2	314.6	6.6
4	0.720	0.85	360	76	72		510.4	509.7	0.7
5	0.610	0.78	361	77	72				0
6	0.460	0.68	363	77	73				
7	0.450	0.67	364	77	73				
8	0.410	0.64	364	78	73				
9	0.300	0.55	361	78	73				
10	0.330	0.57	362	77	72				
11	0.450	0.67	363	77	72				
12	0.530	0.73	364	77	72				
13	0.650	0.81	364						
14	0.570	0.75	365						
15	0.500	0.71	365						
16	0.430	0.66	365						
17									
18									
19									
20									
21									
22									
23									
24									

Division of Air Quality
Compliance Demonstration
Method 8 - Sulfuric Acid Mist

Source Information

Company Name	**Kennecott Utah Copper - Refinery - Annode Scrap Wash REF 005**
Company Contact:	**Ryan Evans**
Contact Phone No.	**801-569-6331**
Source Designation:	**Annode Scrap Wash REF 005**

Test & Review Dates

Test Date:	3/6/2012	
Review Date:	3/11/2013	Tabs Are Shown
Observer:	**Rob Leishman**	
Reviewer:	**Rob Leishman**	

Particulate Emission Limits

lbs/MMBtu	lbs/hr	gr/dscf		
	0.020	0.001		

Emission Rates - "Front Half"

lbs/MMBtu	**lbs/hr**	**gr/dscf**		
	0.0008	**0.0002**		

Test Information

Stack_I.D._inches	**As ft^2**	Y	Dl H @	Cp	Pbar	Pq (static)	**Dn**
14.40	1.13	0.9910	1.86	0.84	25.07	0.85	0.271

Round

Contractor Information

Contracting Company:	Air Pollution Testing (APT)
Contact:	Andrew Burning - Alex Mongold
Phone No.:	801-974-0481
Project No.:	

F factors for Coal, Oil, and Gas

	Fd scf/MMBtu	Fw scf/MMBtu	Fc scf/MMBtu
COAL			
Anthrocite 2	10100	10540	1970
Bituminous 2	9780	10640	1800
Lignite	9860	11950	1910
OIL	9190	320	1420
GAS			
Natural	8710	10610	1040
Propane	8710	10200	1190
Butane	8710	10390	1250

☐ F factor used

lbs/MMBtu
- O2
- CO2

Summary

Division of Air Quality

Reference Methods 8 - Sulfuric Acid Mist

Compliance Demonstration of

Kennecott Utah Copper - Refinery - Annode Scrap Wash REF 005

Testing Results				
Test Date	3/6/2012	3/6/2012	3/6/2012	3/6/2012
Round	Run 1	Run 2	Run 3	Run 4
As ft^2	1.13	1.13	1.13	
Pbar	25.07	25.07	25.07	
Pq (static)	0.85	0.85	0.85	
Ps	25.13	25.13	25.13	
Avg. Ts F	122.42	124.00	126.08	
CO2 - F_{CO2}	0.00	0.00	0.00	
O2	21.00	21.00	21.00	
N2+C	79.00	79.00	79.00	
Md	28.84	28.84	28.84	
Ms	27.44	27.29	27.10	
Y	0.99	0.99	0.99	
Cp	0.84	0.84	0.84	
Vm cf	44.89	44.58	41.29	
Vlc	118.00	131.50	146.00	
$A_{VG.}$ Tm F	66.04	70.88	45.75	
Vm std	37.57	36.97	35.91	
Vw std	5.55	6.19	6.87	
Bws	0.13	0.14	0.16	
S Bws	0.15	0.15	0.16	
Avg. Sqrt Dlp	0.21	0.20	0.21	
Vs	14.15	13.35	14.17	
scfm wet	731.19	687.74	727.74	
acfm	960.18	905.58	961.67	
Qsd dscfh	38220.16	35346.19	36651.01	
# Sample Points	8.00	8.00	8.00	
Dn	0.271	0.271	0.271	
An	4.01E-04	4.01E-04	4.01E-04	
Start Time				
End Time				
Total Test time	60.00	60.00	60.00	
Time @ point	5.00	5.00	5.00	

	Lab Data - grams collected			Mils Titrant
Lab Data	Probe	Filter	Back	
Run 1	0	0.000215133		0.25
Run 2	0	0.000286844		0.3
Run 3	0	0.000645398		0.55
Run 4				

Front Half Emissions Summary					
	Run 1	Run 2	Run 3	Run 4	Avg.
gr./dscf	0.00009	0.00012	0.00028		0.000162
lbs/hr	0.0005	0.0006	0.0015		0.00085
lbs/MMBtu					
	0.000481869	0.000652861	0.001512106		0.000882279

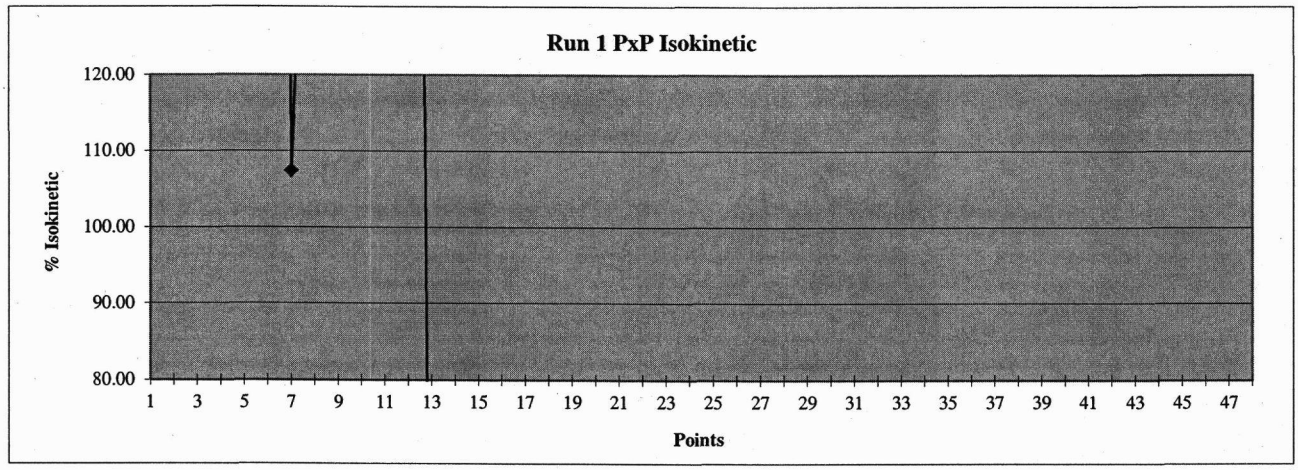
Total Emissions Summary w/back half condensable					
	Run 1	Run 2	Run 3	Run 4	Avg.
gr./dscf	0.00009	0.00012	0.00028		0.00016
lbs/hr	0.00048	0.00060	0.00145		0.00085
lbs/MMBtu					

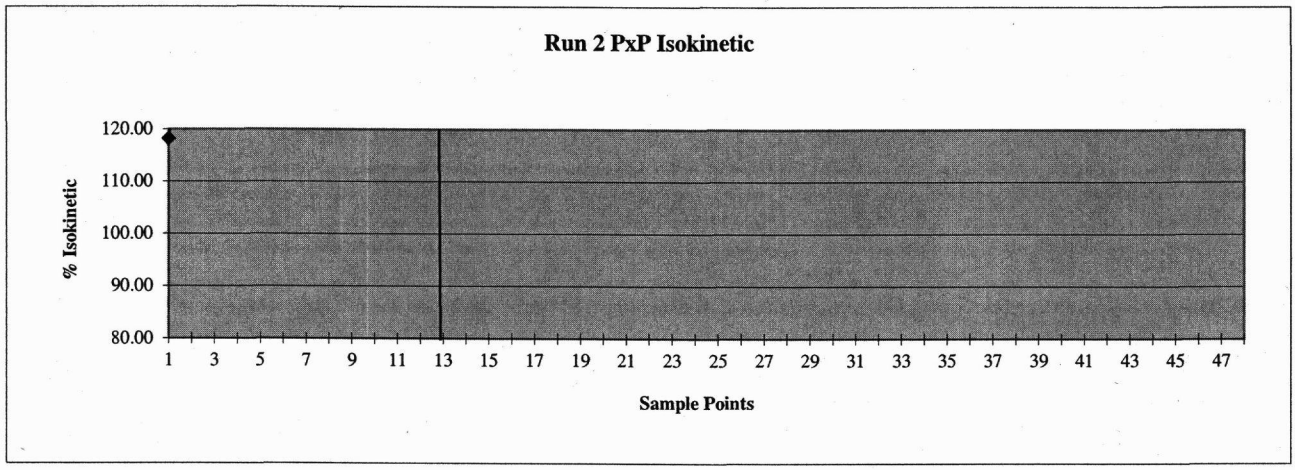
lbs/MMBtu

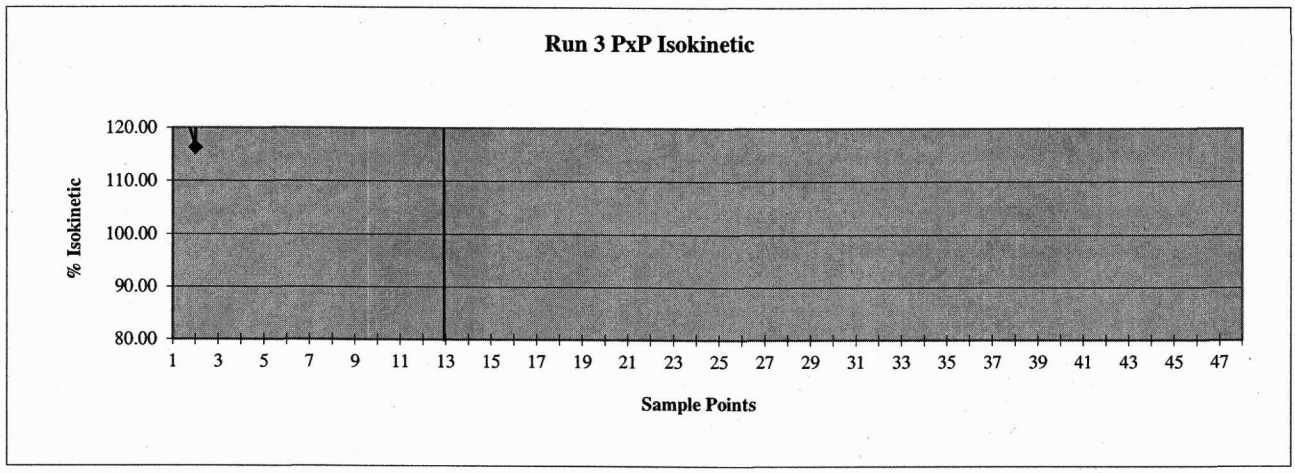
O2

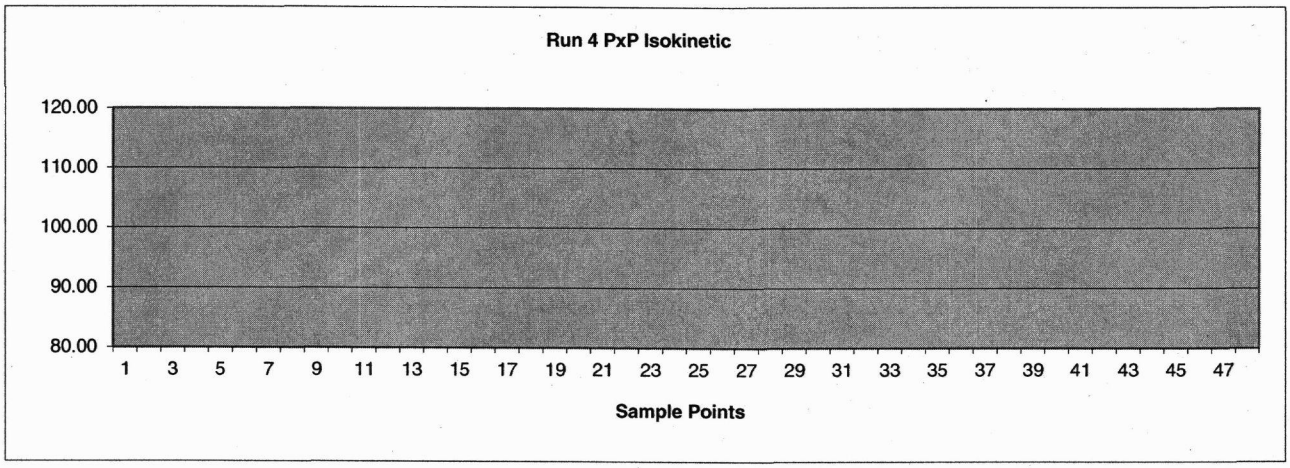
CO2

F factor used


Run 1 PxP Isokinetic
% Isokinetic
120.00
110.00
100.00
90.00
80.00
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45 47
Points


Run 2 PxP Isokinetic
% Isokinetic
120.00
110.00
100.00
90.00
80.00
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45 47
Sample Points


Run 3 PxP Isokinetic
% Isokinetic
120.00
110.00
100.00
90.00
80.00
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45 47
Sample Points


Run 4 PxP Isokinetic
120.00
110.00
100.00
90.00
80.00
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45 47
Sample Points

Kennecott Utah Copper - Re				Flow & Moisture			Test Date	3/6/2012	
As ft^2	Pbar	Pq (static)	Ps	Avg. Ts F	CO2 - F_{CO2}	O2	N2+C	Md	Ms
1.13	25.07	0.85	25.13	122	0.00	21.00	79.00	28.84	27.44
Y	Cp	Vm cf	Vlc	Avg. Tm F	Vm std	Vw std	Bws	S Bws	0.1470
0.9910	0.84	44.888	118.00	66.04	37.566	5.554	0.1288	0.1470	0.999
Avg. Sqrt Dlp	Vs	scfm wet	acfm	Qsd dscfh	# Sample Points	Dn	Total Test time (minutes)	Time @ point (minutes)	Avg. Dlh
0.214	14.15	731	960	3.82E+04	8	0.271	60	5.00	1.536667
					TRUE				

Point No.	Meter (cf)	dl "p"	dl "h"	ts F	tm F (in)	tm F (out)
1	757.614	0.19	1.64	124	63	61
2	761.400	0.20	1.33	120	65	62
3	764.800	0.01	1.29	124	68	62
4	768.500	0.02	1.47	120	70	63
5	772.000	0.05	1.73	121	70	63
6	775.900	0.01	1.87	123	70	63
7	780.100	0.24	1.20	123	69	64
8	783.400	0.10	1.38	119	70	64
9	787.000	0.00	1.47	123	70	64
10	790.700	0.00	1.73	125	70	64
11	794.600	0.01	1.69	122	71	64
12	798.600	0.02	1.64	125	71	64
13	802.502					
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15						
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Imp. Liquid Collected		
Wt. (Final)	Wt. (Initial)	lc
763.2	716.2	47.0
774.6	734.5	40.1
735.5	725.6	9.9
901.7	880.7	21.0
		0.0

Isokinetics	101.5	
Test Date	3/6/2012	
Start Time	enter	enter
End Time	enter	

Kennecott Utah Copper - Re				Flow & Moisture			Test Date	5/13/2009	
As ft^2	Pbar	Pq (static)	Ps	Avg. Ts F	CO2 - F_{CO2}	O2	N2+C	Md	Ms
1.13	25.07	0.85	25.13	124	0.00	21.00	79.00	28.84	27.29
Y	Cp	Vm cf	Vlc	Avg. Tm F	Vm std	Vw std	Bws	S Bws	0.1535
0.9910	0.84	44.584	131.50	71	36.969	6.190	0.1434	0.1535	0.999
Avg. Sqrt Dlp	Vs	scfm wet	acfm	Qsd dscfh	# Sample Points	Dn	Total Test time (minutes)	Time @ point (minutes)	Avg. Dlh
0.201	13.35	688	906	3.53E+04	8	0.271	60	5.00	1.51
					TRUE				

Point No.	Meter (cf)	dl "p"	dl "h"	ts F	tm F (in)	tm F (out)
1	808.261	0.17	1.05	125.0	67.0	65.0
2	811.300	0.11	1.23	121.0	69.0	66.0
3	814.600	0.00	1.55	123.0	71.0	66.0
4	818.400	0.00	1.51	125.0	73.0	67.0
5	822.200	0.03	1.74	128.0	75.0	68.0
6	826.300	0.01	1.51	131.0	75.0	68.0
7	830.000	0.16	1.10	128.0	74.0	69.0
8	833.200	0.17	1.33	119.0	76.0	69.0
9	836.700	0.02	1.60	123.0	76.0	70.0
10	840.400	0.03	1.74	122.0	76.0	70.0
11	844.300	0.03	1.83	119.0	75.0	70.0
12	848.400	0.01	1.97	124.0	76.0	70.0
13	852.845					
14						
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Imp. Liquid Collected		
Wt. (Final)	Wt. (Initial)	lc
787.20	731.30	55.9
801.10	765.40	35.7
788.10	767.40	20.7
890.90	871.70	19.2
		0.0

Isokinetics	103.9
Test Date	3/6/2012
Start Time	enter
End Time	enter

Kennecott Utah Copper - Re				Flow & Moisture			Test Date	5/13/2009	
As ft^2	Pbar	Pq (static)	Ps	Avg. Ts F	CO2 - F_{CO2}	O2	N2+C	Md	Ms
1.13	25.07	0.85	25.13	126	0.00	21.00	79.00	28.84	27.10
Y	Cp	Vm cf	Vlc	Avg. Tm F	Vm std	Vw std	Bws	S Bws	0.1624
0.9910	0.84	41.288	146.00	46	35.914	6.872	0.1606	0.1624	0.999
Avg. Sqrt Dlp	Vs	scfm wet	acfm	Qsd dscfh	# Sample Points	Dn	Total Test time (minutes)	Time @ point (minutes)	Avg. Dlh
0.213	14.17	728	962	3.67E+04	8	0.271	60	5.00	1.29
					TRUE				

Point No.	Meter (cf)	dl "p"	dl "h"	ts F	tm F (in)	tm F (out)
1	867.566	0.16	1.09	119.0	46.0	45.0
2	870.600	0.26	1.23	121.0	47.0	45.0
3	874.100	0.01	1.47	127.0	49.0	45.0
4	877.700	0.05	1.40	130.0	49.0	44.0
5	881.200	0.01	1.37	129.0	49.0	44.0
6	884.700	0.01	1.37	127.0	49.0	44.0
7	888.400	0.19	1.02	128.0	49.0	44.0
8	891.500	0.19	1.16	126.0	48.0	43.0
9	894.900	0.00	1.37	127.0	48.0	43.0
10	898.300	0.00	1.40	126.0	48.0	42.0
11	901.900	0.01	1.37	126.0	47.0	42.0
12	905.400	0.00	1.26	127.0	47.0	41.0
13	908.854					
14						
15						
16						
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45						
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47						
48						

Imp. Liquid Collected		
Wt. (Final)	Wt. (Initial)	lc
790.8	731.9	58.9
794.9	744.9	50.0
805.1	783.2	21.9
905.2	890.0	15.2
		0.0

Isokinetics	97.2
Test Date	3/6/2012
Start Time	enter
End Time	enter

2.0000

Division of Air Quality
Compliance Demonstration

Referance Method 201 & 201A for PM10

Source Information

Company Name	**Kennecott Utah Copper - Refinery**
Company Contact:	**Ryan Evans**
Contact Phone No.	**801-569-6331**
Stack Designation:	**Gold/Silver Baghouse REF 010**

Test & Review Dates

Test Date:	3/13/2012
Review Date:	3/13/2013
Observer:	Not Observed
Reviewer:	**Rob Leishman**

Particulate Emission Limits

lbs/MMBTU	lbs/hr	gr/dscf		
0.000	0.430	0.010		

Front Half Emission Rates

lbs/MMBTU	lbs/hr	gr/dscf		
	0	0.000213783		

Total (Front & Back Half) Emission Rates

lbs/MMBTU	lbs/hr	gr/dscf		
	0.004845854	0.000213783		

Test Information

Stack I.D. inches	As ft^2	Y	Dl H @	Cp	Pbar	Pq (static)	Dn	Target Time
12.00	0.79	0.9910	1.89	0.84	25.37	0.89	0.146	60

Circular

Contractor Information

Contracting Company:	Air Control Techniques, P.C.
Contact:	John Richards, Ph.D., PE.
Phone No.:	1/0/1900
Project No.:	

F factors for Coal, Oil, and Gas

	Fd scf/MMBtu	Fw scf/MMBtu	Fc scf/MMBtu
COAL			
Anthrocite 2	10100	10540	1970
Bituminous 2	9780	10640	1800
Lignite	9860	11950	1910
OIL	9190	320	1420
GAS			
Natural	8710	10610	1040
Propane	8710	10200	1190
Butane	8710	10390	1250

☐ F factor used

lbs/MMBtu
- O2
- CO2

Division of Air Quality
Reference Methods 5 - TSP
Compliance Demonstration of

Kennecott Utah Copper - Refinery - Gold/Silver Baghouse REF 010

Testing Results				
Test Date	3/13/2012	3/13/2012	3/13/2012	3/13/2012
	Run 1	Run 2	Run 3	Run 4
As ft^2	0.79	0.79	0.79	0.79
Pbar	25.37	25.37	25.37	25.37
Pq (static)	0.89	0.89	0.89	0.89
Ps	25.43	25.43	25.43	25.43
Avg. Ts F	85.20	92.00	99.20	
CO2 - F_{CO2}	0.00	0.00	0.00	0.00
O2	21.00	21.00	21.00	0.00
N2+C	79.00	79.00	79.00	100.00
Md	28.84	28.84	28.84	28.00
Mw	28.55	28.60	28.59	
Y	0.9910	0.9910	0.9910	0.9910
Cp	0.84	0.84	0.84	0.84
Vm cf	27.116	27.047	26.063	0.000
Vlc	13.400	11.100	11.200	0.000
$A_{VG.}$ Tm F	63.45	69.50	69.70	
Vm cf	27.116	27.047	26.063	0
Vm std	23.012	22.692	21.858	#VALUE!
Vw std	0.630	0.520	0.530	
Bws	2.60%	2.20%	2.30%	#VALUE!
S Bws	4.82%	5.98%	7.45%	#VALUE!
Avg. Sqrt Dlp	1.13	1.12	1.07	0.87
Vs	70.544	69.951	67.506	
scfm wet	2736.30	2679.90	2552.92	#VALUE!
acfm	3324.30	3296.38	3181.16	
Qsd dscfm	159910	157256	149652	
Qs ft^3/min	0.476518	0.483091	0.489402	#VALUE!
% Isokinetic	98.03	99.13	105.25	
Viscostiy	182.77	184.71	186.39	

	Lab Data - grams collected		
Lab Data	Cyclone Catch	Filter	Back
Run 1	**0.0005**	**0.000000**	**0.00000**
Run 2	**0.0005**	**0.000000**	**0.00000**
Run 3	**0.0000**	**0.000000**	**0.0000**
Run 4			

Kennecott Utah Copper - Refinery Gold/Silver Baghouse REF 010

Front Half Emissions Summary					
	Run 1	Run 2	Run 3	Run 4	Avg.
gr./dscf	0.00034	0.00031	0.00000		0.00021
lbs/hr	0.0000	0.0000	0.0000		0.00000
lbs/MMbtu					

Particulate Emission Limits			***Front Half Emission Rates***		
lbs/MMBTU	**lbs/hr**	**gr/dscf**	**lbs/MMBTU**	**lbs/hr**	**gr/dscf**
	0.430	**0.010**		**0**	**0.000213783**

Kennecott Utah Copper - Refinery Gold/Silver Baghouse REF 010

Total Emissions Summary w/back half condensable					
	Run 1	Run 2	Run 3	Run 4	Avg.
gr./dscf	0.00034	0.0003	0.0000		0.000214
lbs/hr	0.0077	0.0069	0.0000		0.004846
lbs/MMbtu					

Particulate Emission Limits			***Total Emission Rates***		
lbs/MMBTU	**lbs/hr**	**gr/dscf**	**lbs/MMBTU**	**lbs/hr**	**gr/dscf**
	0.430	**0.010**		**0.004845854**	**0.000213783**

Test Quality Parameters				
	Run 1	Run 2	Run 3	Run 4
D50	9.99	9.99	9.99	
Outlying Dlp's	0.00	0.00	0.00	
% Isokinetic	98.03	99.13	105.24	

	D50	Outlying Dlp's	% Isokinetic	Status
Run 1	Passed	Passed	Passed	Acceptable Run
Run 2	Passed	Passed	Passed	Acceptable Run
Run 3	Passed	Passed	Passed	Acceptable Run
Run 4				

Kennecott Utah Copper - Refinery									Test Date	3/13/2012	Imp. Liquid Collected in grams		
Run No. 1 - RM 201A - Pre-test velocity traverse:											Wt. (Final)	Wt. (Tare)	lc
	Port 1		Port 2		Port 3		Port 4				480.1	477.9	2.2
Point No.	ΔP'	sqrt ΔP'	ΔP'	sqrt ΔP'	ΔP'	sqrt ΔP'	ΔP'	sqrt ΔP'			663.1	663.0	0.1
1											768.6	764.6	4.0
2											830.7	823.6	7.1
3													0.0

ΔP1	Avg. Sqrt ΔP	No. Sample Points	t_1 in min.
0.75	0.991912267	12	4.32

	Ts avg -50°F	Avg. Ts oF	Ts avg +50°F
Ts °F	35.20	85.20	135.20
ΔH	0.65	0.59	0.54

Δ = delta, i.e., delta P would be ΔP

Stack I.D. (inches)	As ft^2	Pbar	Pq (static)	Ps	CO2 %	O2 %	N2+C	Md lb/lb mole	Mw lb/lb mole	Stack Saturation
12.00	0.79	25.37	0.89	25.43	0.00	21.00	79.00	28.84	28.55	0.0482

Y	ΔH@	Cp 201A	Cp 2	Dn	An	Vm cf	Vm std	Vlc	Vw std	Bws	S Bws
0.9910	1.89	0.84	0.84	0.146	1.16E-04	27.116	23.012	13.40	0.630	0.0260	0.0482

Avg. Sqrt Δp	Vs ft/sec	Avg. Δh	Avg. Tm F	scfm wet	acfm	Qsd dscfh	Qs (final) ft^3/min	μs Viscosity
1.1336	70.54	0.580	63.45	2,736	3,324	1.60E+05	0.476518409	182.77

Run Time (act)	Target Time
59.50	60

Sample Point No.	Dn used	Sampling End Time (Min.Sec.)	Actual Dwell Time (Min.Sec.)	Desired Dwell Time (Min.Sec.)	Stack Temp. Ts F	Velocity Head ΔP	Δh	D50	Dry Gas Meter Temp. tm F (in)	tm F (out)	Status Pmin & Pmax
1 - ΔP t1	0.146	3.45	3.45	3.45	81	0.75	0.58	9.990	60	59	Passed
2 - ΔP tn	0.146	8.00	4.15	3.45	80	0.94	0.58	9.990	60	59	Passed
3 - ΔP tn	0.146	13.00	5.00	4.30	84	1.30	0.58	9.990	61	60	Passed
4 - ΔP tn	0.146	18.45	5.45	5.15	88	1.70	0.58	9.990	63	60	Passed
5 - ΔP tn	0.146	24.30	5.45	5.15	91	1.80	0.58	9.990	64	61	Passed
6 - ΔP tn	0.146	28.30	4.00	3.30	81	0.78	0.58	9.990	65	61	Passed
7 - ΔP tn	0.146	32.45	4.15	4.00	83	0.97	0.58	9.990	66	62	Passed
8 - ΔP tn	0.146	37.45	5.00	4.30	80	1.30	0.58	9.990	67	62	Passed
9 - ΔP tn	0.146	42.45	5.00	4.30	81	1.30	0.58	9.990	68	62	Passed
10 - ΔP tn	0.146	48.15	5.30	5.00	89	1.60	0.58	9.990	69	64	Passed
11 - ΔP tn	0.146	54.00	5.45	5.15	93	1.70	0.58	9.990	69	65	Passed
12 - ΔP tn	0.146	59.30	5.30	5.00	92	1.60	0.58	9.990	71	65	Passed
12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	

Run Acceptance Results.			Test Run Completed
			Acceptable Run
D_{50}	9.9900	Passed	Acceptable Run
Sampling Points outside of Pmin & Pmax	0.00	Passed	Acceptable Run
% Isokinetic	98.0	Passed	Acceptable Run

The results are acceptabel if two conditions are met:

A. D50 is between 9.0 μm & 11.0 μm.

⇒ If D50 is less than 9.0 reject the results and repeat the test.

B. One of the following conditions must also be met:That no sampling points are outside Pmin and Pmax or

1. No sampling points are outside the Pmin and Pmax or
2. Isokinetics sampling is betwee 80 percent & 120 percent and no more than one sampling point is outside ΔPmin and ΔPmax.

Kennecott Utah Copper - Refinery									Test Date	3/13/2012
Run No. 2 - RM 201A - Pre-test velocity traverse:										
	Port 1		Port 2		Port 3		Port 4			
Point No.	ΔP'	sqrt ΔP'	ΔP'	sqrt ΔP'	ΔP'	sqrt ΔP'	ΔP'	sqrt ΔP'		
1										
2										
3										

Imp. Liquid Collected in grams		
Wt. (Final)	Wt. (Tare)	lc
495.4	494.7	0.7
660.5	661.5	-1.0
752.1	752.3	-0.2
837.7	826.1	11.6
		0.0

ΔP1	Avg. Sqrt ΔP	No. Sample Points	t_1 in min.
0.75	0.9716114	12	4.38

	Ts avg -50°F	Avg. Ts oF	Ts avg +50°F
Ts °F	42.00	92.00	142.00
ΔH	0.66	0.60	0.55

Δ = delta, i.e., delta P would be ΔP

Stack I.D. (inches)	As ft^2	Pbar	Pq (static)	Ps	CO2 %	O2 %	N2+C	Md lb/lb mole	Mw lb/lb mole	Stack Saturation
12.00	0.79	25.37	0.89	25.43	0.00	21.00	79.00	28.84	28.60	0.0598

Y	ΔH@	Cp 201A	Cp 2	Dn	An	Vm cf	Vm std	Vlc	Vw std	Bws	S Bws
0.9910	1.89		0.84	0.146	1.16E-04	27.047	22.692	11.10	0.520	0.0220	0.0598

Avg. Sqrt Δp	Vs ft/sec	Avg. Δh	Avg. Tm F	scfm wet	acfm	Qsd dscfh	Qs (final) ft^3/min	μs Viscosity
1.1181	69.95	0.580	69.50	2,680	3,296	1.57E+05	0.4830906	184.71

Run Time (act)	Target Time
59.00	60

Sample Point No.	Dn used	Sampling End Time (Min.Sec.)	Actual Dwell Time (Min.Sec.)	Desired Dwell Time (Min.Sec.)	Stack Temp. Ts F	Velocity Head ΔP	Δh	D50	Dry Gas Meter Temp. tm F (in)	tm F (out)	Status Pmin & Pmax
1 - ΔP t1	0.146	3.45	3.45	4.00	89	0.75	0.58	9.990	70	68	Passed
2 - ΔP tn	0.146	8.30	4.45	4.30	90	1.00	0.58	9.990	71	68	Passed
3 - ΔP tn	0.146	13.00	4.30	4.45	91	1.10	0.58	9.990	72	69	Passed
4 - ΔP tn	0.146	17.45	4.45	5.00	91	1.20	0.58	9.990	72	68	Passed
5 - ΔP tn	0.146	23.30	5.45	6.00	94	1.70	0.58	9.990	73	69	Passed
6 - ΔP tn	0.146	28.45	5.15	5.45	97	1.50	0.58	9.990	69	69	Passed
7 - ΔP tn	0.146	32.45	4.00	4.15	89	0.89	0.58	9.990	68	68	Passed
8 - ΔP tn	0.146	37.15	4.30	4.30	89	1.00	0.58	9.990	70	69	Passed
9 - ΔP tn	0.146	42.30	5.15	5.30	87	1.40	0.58	9.990	70	69	Passed
10 - ΔP tn	0.146	48.15	5.45	6.00	95	1.70	0.58	9.990	70	69	Passed
11 - ΔP tn	0.146	53.45	5.30	5.45	96	1.60	0.58	9.990	69	69	Passed
12 - ΔP tn	0.146	59.00	5.15	5.30	97	1.40	0.58	9.990	70	69	Passed
12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	

Run Acceptance Results.			Test Run Completed
D_{50}	9.9900	Passed	Acceptable Run
Sampling Points outside of Pmin & Pmax	0.00	Passed	Acceptable Run
% Isokinetic	99.1	Passed	Acceptable Run

The results are acceptabel if two conditions are met:

A. D50 is between 9.0 μm & 11.0 μm.

⇒ If D50 is less than 9.0 reject the results and repeat the test.

B. One of the following conditions must also be met:That no sampling points are outside Pmin and Pmax or

1. No sampling points are outside the Pmin and Pmax or
2. Isokinetics sampling is betwee 80 percent & 120 percent and no more than one sampling point is outside ΔPmin and ΔPmax.

Kennecott Utah Copper - Refinery									Test Date	3/13/2012
Run No. 3 - RM 201A - Pre-test velocity traverse:										
	Port 1		Port 2		Port 3		Port 4			
Point No.	ΔP'	sqrt ΔP'	ΔP'	sqrt ΔP'	ΔP'	sqrt ΔP'	ΔP'	sqrt ΔP'		
1										
2										
3										

Imp. Liquid Collected in grams		
Wt. (Final)	Wt. (Tare)	lc
479.9	478.0	**1.9**
661.9	662.8	**-0.9**
763.5	763.3	**0.2**
840.7	830.7	**10.0**
		0.0

ΔP1	Avg. Sqrt ΔP	No. Sample Points	t_1 in min.
0.75	**0.9631712**	**12**	**4.21**

	Ts avg -50°F	Avg. Ts oF	Ts avg +50°F
Ts °F	**49.20**	**99.20**	**149.20**
ΔH	**0.67**	**0.61**	**0.56**

Δ = delta, i.e., delta P would be ΔP

Stack I.D. (inches)	As ft^2	Pbar	Pq (static)	Ps	CO2 %	O2 %	N2+C	Md lb/lb mole	Mw lb/lb mole	Stack Saturation
12.00	0.79	25.37	0.89	25.43	0.00	21.00	79.00	28.84	28.59	0.0745

Y	ΔH@	Cp 201A	Cp 2	Dn	An	Vm cf	Vm std	Vlc	Vw std	Bws	S Bws
0.9910	1.89		0.84	0.146	1.16E-04	26.063	21.858	11.20	0.530	0.0230	0.0745

Avg. Sqrt Δp	Vs ft/sec	Avg. Δh	Avg. Tm F	scfm wet	acfm	Qsd dscfh	Qs (final) ft^3/min	μs Viscosity
1.0719	67.51	0.580	69.70	2,553	3,181	1.50E+05	0.4894015	186.39

Run Time (act)	Target Time
56.25	60

Sample Point No.	Dn used	Sampling End Time (Min.Sec.)	Actual Dwell Time (Min.Sec.)	Desired Dwell Time (Min.Sec.)	Stack Temp. Ts F	Velocity Head ΔP	Δh	D50	Dry Gas Meter Temp. tm F (in)	tm F (out)	Status Pmin & Pmax
1 - ΔP t1	0.146	3.45	3.45	4.00	90	0.75	0.58	9.990	68	69	**Passed**
2 - ΔP tn	0.146	8.00	4.15	4.30	95	0.95	0.58	9.990	69	69	**Passed**
3 - ΔP tn	0.146	12.30	4.30	4.45	92	1.10	0.58	9.990	70	69	**Passed**
4 - ΔP tn	0.146	17.45	5.15	5.30	92	1.40	0.58	9.990	70	69	**Passed**
5 - ΔP tn	0.146	22.45	5.00	5.15	102	1.30	0.58	9.990	71	69	**Passed**
6 - ΔP tn	0.146	27.45	5.00	5.15	103	1.30	0.58	9.990	71	69	**Passed**
7 - ΔP tn	0.146	31.45	4.00	4.15	96	0.87	0.58	9.990	71	70	**Passed**
8 - ΔP tn	0.146	36.00	4.15	4.30	99	0.95	0.58	9.990	70	69	**Passed**
9 - ΔP tn	0.146	40.45	4.45	5.00	101	1.20	0.58	9.990	71	69	**Passed**
10 - ΔP tn	0.146	46.00	5.15	5.30	105	1.40	0.58	9.990	71	69	**Passed**
11 - ΔP tn	0.146	51.15	5.15	5.30	108	1.40	0.58	9.990	71	69	**Passed**
12 - ΔP tn	0.146	56.15	5.00	5.15	108	1.30	0.58	9.990	71	69	**Passed**
12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	

Run Acceptance Results.			Test Run Completed
			Acceptable Run
D_{50}	9.9900	Passed	**Acceptable Run**
Sampling Points outside of Pmin & Pmax	0.00	Passed	**Acceptable Run**
% Isokinetic	105.2	Passed	**Acceptable Run**

The results are acceptabel if two conditions are met:

A. D50 is between 9.0 μm & 11.0 μm.

⇒ If D50 is less than 9.0 reject the results and repeat the test.

B. One of the following conditions must also be met:That no sampling points are outside Pmin and Pmax or

1. No sampling points are outside the Pmin and Pmax or
2. Isokinetics sampling is betwee 80 percent & 120 percent and no more than one sampling point is outside ΔPmin and ΔPmax.

Division of Air Quality

Instrumental Reference Methods - Gaseous Measurements

Reference Methods 2, 3A, 6C, 7E, 10, & 19

Source Information

Company Name	**KUC Refinery**
Company Contact:	**Ryan Evans**
Contact Phone No.	**801-569-6331**
Stack Designation:	**CHP Combined Cycle**

CO2 Interferece w/CO: ☐ Yes

Wet CEM: ☐ Yes

Correct For O2

Test & Review Dates

Test Date:	**3/8/2012**	High Flow Test Date:	1/0/1900
Review Date:	3/14/3013	Mid Flow Test Date:	1/0/1900
Observer:	Rob Leishman	Low Flow Test Date:	1/0/1900
Reviewer:	**ROB LEISHMAN**		

	Emission Limits			Emission Rates		
	SO_2	NO_X	CO	SO2	NOX	CO
lbs/MMBtu						
lbs/hr		6.0	7.3		3.656	0.719
ppm						
Percent						
%O2 Correction as a whole #						

Test Information

Stack I.D. inches	As ft^2	Y	Dl H @	Cp	Pbar	Pq (static)	fuel flow rate (Btu/hr)	Heat Input (Btu/hr.)
53.25	15.47	0.9910	1.86	0.82	25.48	-0.92		
Round								

Heat Input

Contractor Information

Contact:	Alex Mongold - Chris Keefe
Contracting Company:	Air Pollution Testing (APT)
Address:	1959 South 4130 West, Unit B, SLC,Ut. 84104
Phone No.:	801-974-0481 or 303-420-5949 ext. 24
Project No.:	

☑ F factor used

8710

Diluent

- ○ O2
- ○ CO2

Method 19 - F factors for Coal, Oil, and Gas

		Fd scf/MMBtu	Fw scf/MMBtu	Fc scf/MMBtu
COAL	Anthracite 2	○ 10100	○ 10540	○ 1970
	Bituminous	○ 9780	○ 10640	○ 1800
	Lignite	○ 9860	○ 11950	○ 1910
OIL		○ 9190	○ 320	○ 1420
GAS	Natural	◉ 8710	○ 10610	○ 1040
	Propan	○ 8710	○ 10200	○ 1190
	Butane	○ 8710	○ 10390	○ 1250

Tabs Are Sh

Division of Air Quality

NSPS Relative Accuracy Performance Specification Test - CEMS C

KUC Refinery

CHP Combined Cycle

lbs/MMBTU
- O2
- CO2
- Clear

Average Emission

Dry	SO_2	NO_X	CO
lbs/Mbtu		0.032	0.006
lbs/hr		3.66	0.72
ppm		0.00	0.00
ppm corrected for %O2			

Average % concentration

CO_2	O_2
5.63	10.82

Run 1

Dry	SO_2	NO_X	CO	CO_2	O_2	Enter O2 or CO2 / O2
Atomic Weight	64	46	28			
lbs/MMBtu (O2)		3.24E-02	7.01E-03			E=Cd x Fd x (20.9/(20.9-%O2d))
lbs/MMBtu (CO2)						E=Cd x Fc x (100 / % CO2d)
lbs/cu.ft		1.780E-06	3.854E-07			
lbs/hr		3.706	0.803	5.49	10.90	C For Cal Drift
ppm corrected for %O		0.00	0.00	5.70	11.10	Raw Value

Run 2

Dry	SO_2	NO_X	CO	CO_2	O_2	
Atomic Weight	64	46	28			
lbs/MMBtu (O2)		3.12E-02	5.25E-03			E=Cd x Fd x (20.9/(20.9-%O2d))
lbs/MMBtu (CO2)						E=Cd x Fc x (100 / % CO2d)
lbs/cu.ft		1.732E-06	2.908E-07			
lbs/hr		3.57737	0.60070	5.74	10.81	C For Cal Drift
ppm corrected for %O		0.00	0.00	5.90	11.00	Raw Value

Run 3

Dry	SO_2	NO_X	CO	CO_2	O_2	
Atomic Weight	64	46	28			
lbs/MMBtu (O2)		3.19E-02	6.52E-03			E=Cd x Fd x (20.9/(20.9-%O2d))
lbs/MMBtu (CO2)						E=Cd x Fc x (100 / % CO2d)
lbs/cu.ft		1.780E-06	3.635E-07			
lbs/hr		3.683101	0.752311	5.64	10.75	C For Cal Drift
ppm corrected for %O		0.00	0.000	5.80	11.00	Raw Value

Run 4

Dry	SO_2	NO_X	CO	CO_2	O_2	
Atomic Weight	64	46	28			
lbs/MMBtu (O2)						E=Cd x Fd x (20.9/(20.9-%O2d))
lbs/MMBtu (CO2)						E=Cd x Fc x (100 / % CO2d)
lbs/cu.ft						
lbs/hr						C For Cal Drift
ppm corrected for %O				0.00	0.00	Raw Value

Calibration Error Test

Test Date March 8, 2012			O_2				
		CS - Cal. Span	21.20				
		Units	%				
Cylinder No.	**Expiration Date**	**Cal. Gas**	**C_V- Certified Concentration**	**C_{Dir} or C_S - Measured Concentration**	Difference	**ACE** Eq. 7E-1 Analyzer Cal. Error	**Status**
		Low-level	0.00	0.00	0.00	0.00%	Passed Cal.
		Mid-level	10.00	10.20	0.20	0.94%	Passed Cal.
		High-level	21.20	21.20	0.00	0.00%	Passed Cal.
			% of Span	**Sec. 8.2.1 Cal Gas Verification**			
0 to 20% of CS - Cal. Span		Low-Level	0.00%				
40 to 60% of Cal. Span		Mid-level	47.17%				
100% of Cal. Span		High-level	100.00%				

Test Date March 8, 2012			CO_2				
		CS - Cal. Span	10.10				
		Units	%				
Cylinder No.	**Expiration Date**	**Cal. Gas**	**C_V- Certified Concentration**	**C_{Dir} or C_S - Measured Concentration**	Difference	**ACE** Eq. 7E-1 Analyzer Cal. Error	**Status**
		Low-level	0.00	0.00	0.00	0.000%	Passed Cal.
		Mid-level	5.10	5.30	0.20	1.980%	Passed Cal.
		High-level	10.10	10.10	0.00	0.000%	Passed Cal.
			% of Span	**Sec. 8.2.1 Cal Gas Verification**			
0 to 20% of Cal. Span		Low-Level	0.00%				
40 to 60% of Cal. Span		Mid-level	50.50%				
100% of Cal. Span		High-level	100.00%				

Test Date			SO2				
		CS - Cal. Span					
		Units	ppm				
Cylinder No.	**Expiration Date**	**Cal. Gas**	**C_V- Certified Concentration**	**C_{Dir} or C_S - Measured Concentration**	Difference	**ACE** Eq. 7E-1 Analyzer Cal. Error	**Status**
		Low-level					
		Mid-level					
		High-level					
			% of Span	**Sec. 8.2.1 Cal Gas Verification**			
0 to 20% of Cal. Span		Low-Level					
40 to 60% of Cal. Span		Mid-level					
100% of Cal. Span		High-level					

Test Date March 8, 2012			NOx				
		CS - Cal. Span	19.00				
		Units	ppm				
Cylinder No.	**Expiration Date**	**Cal. Gas**	**C_V- Certified Concentration**	**C_{Dir} or C_S - Measured Concentration**	Difference	**ACE** Eq. 7E-1 Analyzer Cal. Error	**Status**
		Low-level	0.00	0.00	0.00	0.000%	Passed Cal.
		Mid-level	10.20	10.00	0.20	1.053%	Passed Cal.
		High-level	19.00	19.00	0.00	0.000%	Passed Cal.
			% of Span	**Sec. 8.2.1 Cal Gas Verification**			
0 to 20% of Cal. Span		Low-Level	0.00%				
40 to 60% of Cal. Span		Mid-level	53.68%				
100% of Cal. Span		High-level	100.00%				

Test Date March 8, 2012			CO				
7.33		CS - Cal. Span	36.10				
		Units	ppm				
Cylinder No.	**Expiration Date**	**Cal. Gas**	**C_V- Certified Concentration**	**C_{Dir} or C_S - Measured Concentration**	Difference	**ACE** Eq. 7E-1 Analyzer Cal. Error	**Status**
		Low-level	0.00	0.00	0.00	0.000%	Passed Cal.
		Mid-level	15.70	15.90	0.20	0.554%	Passed Cal.
		High-level	36.10	36.10	0.00	0.000%	Passed Cal.
			% of Span	**Sec. 8.2.1 Cal Gas Verification**			
0 to 20% of Cal. Span		Low-Level	0.00%				
40 to 60% of Cal. Span		Mid-level	43.49%				
100% of Cal. Span		High-level	100.00%				

Division of Air Quality Stack Test Review of
KUC Refinery

	SO_2	NO_X	CO	CO_2	O_2	*CHP Combined Cycle*
CS Calibration Span		19.00	36.10	10.10	21.20	☐ CO Calibration Gas
Units	ppm	ppm	ppm	%	%	Unprotectec
CV - Cylinder Value:	SO_2	NO_X	CO	CO_2	O_2	
Low-Level		0.00	0.00	0.00	0.00	
Mid-Level		10.20	15.70	5.10	10.00	
High-Level		19.00	36.10	10.10	21.20	
0 to 20% of Cal. Span		0.00%	0.00%	0.00%	0.00%	
40 to 60% of Cal. Span		53.7%	43.5%	50.5%	47.2%	
100% of Cal. Span		100.0%	100.0%	100.0%	100.0%	

Cdir - Enter Actual Up-scale Cylinder Value Used To Correct Emission Concentration.

C_{Dir} C_{MA}		10.20	15.70	5.10	10.00

Calibration Error Test

Cs - Measured Concentration	SO_2	NO_X	CO	CO_2	O_2
Low-Level		0.00	0.00	0.00	0.00
Mid-Level		10.00	15.90	5.30	10.20
High-Level		19.00	36.10	10.10	21.20

Enter Up-scale Analyzer Response to be used during testing.

ACE Eq. 7E-1		10.00	15.90	5.30	10.20

Low-Level		0.00%	0.00%	0.00%	0.00%
ppmdv Difference		0	0	0	0
Status		Passed Cal.	Passed Cal.	Passed Cal.	Passed Cal.
Mid-Level		1.05%	0.55%	1.98%	0.94%
ppmdv Difference		0.2	0.2	0.2	0.2
Status		Passed Cal.	Passed Cal.	Passed Cal.	Passed Cal.
High-Level		0.00%	0.00%	0.00%	0.00%
ppmdv Difference		0	0	0	0
Status		Passed Cal.	Passed Cal.	Passed Cal.	Passed Cal.

☐ Failed Cal Error Dialog

NOTE
These cells sc appropriate (after the Cm entered.

If this scan is the Cma and gas value.

Pre-Test Sampling System Bias

Initial Values	SO_2	NO_X	CO	CO_2	O_2
C_O - Low-Level		-0.20	0.20	0.10	0.10
SBi - Zero Bias	TRUE	1.05%	0.55%	0.99%	0.47%
Difference	TRUE	0.2	0.2	0.1	0.1
Pass or Failed Invalid Run		Passed Cal.	Passed Cal.	Passed Cal.	Passed Cal.
C_M - Up-scale Gas		10.20	15.70	5.30	10.20
SBi - Up-Scale Bias	TRUE	1.05%	0.55%	0.00%	0.00%
Difference	TRUE	0.20	0.20	0.00	0.00
Pass or Failed Invalid Run	TRUE	Passed Cal.	Passed Cal.	Passed Cal.	Passed Cal.

System Bias.
± 5% of Span
☐ Failed Bias Dialog

Raw Test Data

Test Date: 3/8/2012

	SO_2	NO_X	CO	CO_2	O_2
		14.9	5.2	5.7	11.1
	0.0%	78.4%	14.4%	56.4%	52.4%

Time	Start	Stop
SO_2		0:21
NO_X	0:00	0:21
CO	0:00	0:21
CO_2/O_2	0:00	0:21

Post-Test System Bias 7E-2 SB=(Cs - Cdir)/CS x 100

Final Values	SO_2	NO_X	CO	CO_2	O_2
C_O - Low-Level		0.30	0.20	0.10	0.30
SBi - Zero Bias	TRUE	1.58%	0.55%	0.99%	1.42%
Difference	TRUE	0.3	0.2	0.1	0.3
Pass or Invalid Run		Passed Cal.	Passed Cal.	Passed Cal.	Passed Cal.
C_M - Up-scale Gas		10.30	15.60	5.30	10.20
SBi - Up-Scale Bias	TRUE	1.58%	0.83%	0.00%	0.00%
Difference	TRUE	0.3	0.3	0.0	0.0
Pass or Invalid Run		Passed Cal.	Passed Cal.	Passed Cal.	Passed Cal.

System Bias.
± 5% of Span
☑ Failed Bias Dialog

Calibration Drift % of Span - D=ABS(SBf - SBi)

Low-Level Drift	TRUE	0.53%	0.00%	0.00%	0.94%
Difference	TRUE	0.5	0.0	0.0	0.2
Pass or Re-Calibrate		Pass	Pass	Pass	Pass
Up-scale Gas Drift	TRUE	0.53%	0.28%	0.00%	0.00%
Difference	TRUE	0.1	0.1	0.0	0.0
Pass or Re-Calibrate		Pass	Pass	Pass	Pass

Drift
3% of Span
☐ Failed Drift Dialog

Division of Air Quality Stack Test Review of
KUC Refinery

CHP Combined Cycle — **Flow & Moisture**

As ft^2	Pbar	Pq (static)	Ps	Avg Ts F	$CO2 - F_{CO2}$	O2	N2+C	Md	Ms
15.47	25.48	-0.92	25.41	276	5.49	10.90	83.61	29.31	28.22

Y	Cp	Vm cf	Vlc	A_{VG} Tm F	Vm std	Vw std	Bws	S Bws	3.7475
0.9910	0.82	35.515	71.30	45	31.307	3.356	0.0968	0.9990	0.999

AvgSqrtDlp	Vs	scfm wet	acfm	Qsd dscfh	Heat Input Btu/hr
0.9572	68.0	38,429	63,086	2.083E+6	

Load - Megawatts

Low	Mid	High

#1 - Times
Date

Point No.	dl "p"	sqrt dl "p"	ts F	tm F (in)	tm F (out)	Cp *3D Probe*	Final Vf	Initial Vi	
1	0.720	0.85	**258**	43	43		529.8	469.6	60.2
2	0.710	0.84	259	43	43		440.5	444.8	-4.3
3	0.750	0.87	266	45	44		321.2	310	11.2
4	0.930	0.96	276	46	44		473.8	469.6	4.2
5	1.100	1.05	280	46	44				0
6	1.200	1.10	283	47	44				
7	1.300	1.14	283	47	43				
8	1.300	1.14	269	48	43				
9	0.590	0.77	275	49	44				
10	0.550	0.74	280	49	44				
11	0.550	0.74	280	50	44				
12	0.710	0.84	282	50	44				
13	0.890	0.94	284						
14	1.200	1.10	285						
15	1.300	1.14	285						
16	1.200	1.10	274						
17									
18									
19									
20									
21									
22									
23									
24									

Division of Air Quality Stack Test Review of
KUC Refinery

	SO_2	NO_X	CO	CO_2	O_2	*CHP Combined Cycle*
CS Calibration Span		19.00	36.10	10.10	21.20	
Units	ppm	ppm	ppm	%	%	
CV - Cylinder Value:	SO_2	NO_X	CO	CO_2	O_2	
Low-Level		**0.00**	**0.00**	**0.00**	**0.00**	
Mid-Level		**10.20**	**15.70**	**5.10**	**10.00**	
High-Level		**19.00**	**36.10**	**10.10**	**21.20**	
0 to 20% of Cal. Span		**0.00%**	**0.00%**	**0.00%**	**0.00%**	
40 to 60% of Cal. Span		**53.7%**	**43.5%**	**50.5%**	**47.2%**	
100% of Cal. Span		**100.0%**	**100.0%**	**100.0%**	**100.0%**	

Cdir - Enter Actual Up-scale Cylinder Value Used To Correct Emission Concentration.

C_{MA}		10.20	15.70	5.10	10.00

Calibration Error Test

Measured Concentration	SO_2	NO_X	CO	CO_2	O_2
Low-Level		**0.00**	**0.00**	**0.00**	**0.00**
Mid-Level		**10.00**	**15.90**	**5.30**	**10.20**
High-Level		**19.00**	**36.10**	**10.10**	**21.20**

Enter Up-scale Analyzer Response to be used during testing.

ACE Eq. 7E-1		10.00	15.90	5.30	10.20

Low-Level		0.00%	0.00%	0.00%	0.00%	
ppmdv Difference		0	0	0	0	
Status		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	
Mid-Level		1.05%	0.55%	1.98%	0.94%	
ppmdv Difference		0.2	0.2	0.2	0.2	
Status		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	☐ Failed Cal Error Dialog
High-Level		0.00%	0.00%	0.00%	0.00%	
ppmdv Difference		0	0	0	0	
Status		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	

Pre-Test Sampling System Bias

Initial Values	SO_2	NO_X	CO	CO_2	O_2	
C_O - **Low-Level**		0.30	0.20	0.10	0.30	**System Bias. ± 5% of Span**
SBi - Zero Bias	TRUE	1.58%	0.55%	0.99%	1.42%	
Difference	TRUE	0.3	0.2	0.1	0.3	☐ Failed Bias Dialog
Pass or Invalid Run		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	
C_M - **Up-scale Gas**		10.30	15.60	5.30	10.20	
SBi - Up-Scale Bias	TRUE	1.58%	0.83%	0.00%	0.00%	
Difference	TRUE	0.3	0.3	0	0	
Pass or Invalid Run	**TRUE**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	

Raw Test Data

Test Date: 3/8/2012

	SO_2	NO_X	CO	CO_2	O_2
		14.7	**4.1**	**5.9**	**11.0**
	0.0%	**77.4%**	**11.4%**	**58.4%**	**51.9%**

Time	**Start**	**Stop**
SO_2		0:21
NO_X	0:00	0:21
CO	0:00	0:21
CO_2/O_2	0:00	0:21

Post-Test System Bias 7E-2 SB=(Cs - Cdir)/CS x 100

Final Values	SO_2	NO_X	CO	CO_2	O_2	
C_O - **Low-Level**		0.30	-0.40	0.10	0.30	**System Bias. ± 5% of Span**
SBi - Zero Bias	TRUE	1.58%	1.11%	0.99%	1.42%	
Difference	**TRUE**	**0.3**	**0.4**	**0.1**	**0.3**	☐ Failed Bias Dialog
Pass or Invalid Run		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	
C_M - **Up-scale Gas**		10.50	16.20	5.20	10.20	
SBi - Up-Scale Bias	TRUE	2.63%	0.83%	0.99%	0.00%	
Difference	TRUE	0.5	0.3	0.1	0.0	
Pass or Invalid Run		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	

Calibration Drift % of Span - D=ABS(SBf - SBi)

Low-Level Drift	TRUE	0.00%	0.55%	0.00%	0.00%	Response Spec. **3% of Span**
Difference	TRUE	0.0	0.6	0.0	0.0	
Pass or Re-Calibrate		**Pass**	**Pass**	**Pass**	**Pass**	☐ Failed Drift Dialog
Up-scale Gas Drift	TRUE	1.05%	0.00%	0.99%	0.00%	
Difference	**TRUE**	**0.2**	**0.6**	**0.1**	**0.0**	
Pass or Re-Calibrate		**Pass**	**Pass**	**Pass**	**Pass**	

Division of Air Quality Stack Test Review of
KUC Refinery

CHP Combined Cycle — **Flow & Moisture**

As ft^2	Pbar	Pq (static)	Ps	Avg Ts F	CO2 - F_{CO2}	O2	N2+C	Md	Ms
15.47	25.48	-0.92	25.41	273	5.74	10.81	83.45	29.35	28.21

Y	Cp	Vm cf	Vlc	A_{VG} Tm F	Vm std	Vw std	Bws	S Bws	3.5829
0.9910	0.82	35.559	73.50	51	31.018	3.460	0.1003	0.9990	0.999

AvgSqrtDlp	Vs	scfm wet	acfm	Qsd dscfh	Heat Input Btu/hr
0.9511	67.4	38,263	62,579	2.065E+6	

Load - Megawatts

Low	Mid	High

#1 - Times
Date

Point No.	dl "p"	sqrt dl "p"	ts F	tm F (in)	tm F (out)	Cp *3D Probe*	Final Vf	Initial Vi	
1	0.760	0.87	253	48	45		555.3	489.2	66.1
2	0.740	0.86	264	52	46		430.4	440.5	-10.1
3	0.840	0.92	265	52	46		333	321.2	11.8
4	1.100	1.05	272	53	47		479.5	473.8	5.7
5	1.200	1.10	274	54	47				0
6	1.100	1.05	276	55	48				
7	1.200	1.10	278	57	48				
8	1.200	1.10	278	55	48				
9	0.530	0.73	268	55	48				
10	0.560	0.75	271	55	48				
11	0.530	0.73	273	55	49				
12	0.550	0.74	276	55	49				
13	1.000	1.00	281						
14	1.200	1.10	282						
15	1.200	1.10	282						
16	1.100	1.05	282						
17									
18									
19									
20									
21									
22									
23									
24									

Division of Air Quality Stack Test Review of
KUC Refinery

	SO_2	NO_X	CO	CO_2	O_2	*CHP Combined Cycle*
CS Calibration Span		19.00	36.10	10.10	21.20	
Units	ppm	ppm	ppm	%	%	
CV - Cylinder Value:	SO_2	NO_X	CO	CO_2	O_2	
Low-Level		**0.00**	**0.00**	**0.00**	**0.00**	
Mid-Level		**10.20**	**15.70**	**5.10**	**10.00**	
High-Level		**19.00**	**36.10**	**10.10**	**21.20**	
0 to 20% of Cal. Span		**0.00%**	**0.00%**	**0.00%**	**0.00%**	
40 to 60% of Cal. Span		**53.7%**	**43.5%**	**50.5%**	**47.2%**	
100% of Cal. Span		**100.0%**	**100.0%**	**100.0%**	**100.0%**	

Cdir - Enter Actual Up-scale Cylinder Value Used To Correct Emission Concentration.

C_{MA}		10.20	15.70	5.10	10.00

Calibration Error Test

Measured Concentration	SO_2	NO_X	CO	CO_2	O_2
Low-Level		**0.00**	**0.00**	**0.00**	**0.00**
Mid-Level		**10.00**	**15.90**	**5.30**	**10.20**
High-Level		**19.00**	**36.10**	**10.10**	**21.20**

Enter Up-scale Analyzer Response to be used during testing.

ACE Eq. 7E-1		10.00	15.90	5.30	10.20

Low-Level		0.00%	0.00%	0.00%	0.00%
ppmv Difference		0	0	0	0
Status		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**
Mid-Level		1.05%	0.55%	1.98%	0.94%
ppmv Difference		0.2	0.2	0.2	0.2
Status		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**
High-Level		0.00%	0.00%	0.00%	0.00%
ppmv Difference		0	0	0	0
Status		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**

☐ Failed Cal Error Dialog

Pre-Test Sampling System Bias

Initial Values	SO_2	NO_X	CO	CO_2	O_2
C_O - Low-Level		0.30	-0.40	0.10	0.30
SBi - Zero Bias	TRUE	1.58%	1.11%	0.99%	1.42%
Difference	TRUE	0.3	0.4	0.1	0.3
Pass or Invalid Run		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**
C_M - Up-scale Gas		10.50	16.20	5.20	10.20
SBi - Up-Scale Bias	TRUE	2.63%	0.83%	0.99%	0.00%
Difference	TRUE	0.5	0.3	0.1	0
Pass or Invalid Run	**TRUE**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**

System Bias.
± 5% of Span

☐ Failed Bias Dialog

Raw Test Data

Test Date: 3/8/2012

	SO_2	NO_X	CO	CO_2	O_2
		15.0	**5.1**	**5.8**	**11.0**
	0.0%	**78.9%**	**14.1%**	**57.4%**	**51.9%**

Time	**Start**	**Stop**
SO_2		0:21
NO_X	0:00	0:21
CO	0:00	0:21
CO_2/O_2	0:00	0:21

Post-Test System Bias 7E-2 SB=(Cs - Cdir)/CS x 100

Final Values	SO_2	NO_X	CO	CO_2	O_2
C_O - Low-Level		0.40	-0.10	0.10	0.30
SBi - Zero Bias	TRUE	2.11%	0.28%	0.99%	1.42%
Difference	**TRUE**	**0.4**	**0.1**	**0.1**	**0.3**
Pass or Invalid Run		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**
C_M - Up-scale Gas		10.30	15.40	5.30	10.30
SBi - Up-Scale Bias	TRUE	1.58%	1.39%	0.00%	0.47%
Difference	TRUE	0.3	0.5	0.0	0.1
Pass or Invalid Run		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**

System Bias.
± 5% of Span

☐ Failed Bias Dialog

Calibration Drift % of Span - D=ABS(SBf - SBi)

Low-Level Drift	TRUE	0.53%	0.83%	0.00%	0.00%
Difference	TRUE	0.1	0.3	0.0	0.0
Pass or Re-Calibrate		**Pass**	**Pass**	**Pass**	**Pass**
Up-scale Gas Drift	TRUE	1.05%	0.55%	0.99%	0.47%
Difference	**TRUE**	**0.2**	**0.8**	**0.1**	**0.1**
Pass or Re-Calibrate		**Pass**	**Pass**	**Pass**	**Pass**

Response Spec.
3% of Span

☐ Failed Drift Dialog

Division of Air Quality Stack Test Review of
KUC Refinery

CHP Combined Cycle — **Flow & Moisture**

As ft^2	Pbar	Pq (static)	Ps	Avg Ts F	CO2 - F_{CO2}	O2	N2+C	Md	Ms
15.47	25.48	-0.92	25.41	277	5.64	10.75	83.60	29.33	28.15

Y	Cp	Vm cf	Vlc	A_{VG} Tm F	Vm std	Vw std	Bws	S Bws	3.7895
0.9910	0.82	35.458	77.40	44	31.326	3.643	0.1042	0.9990	0.999

AvgSqrtDlp	Vs	scfm wet	acfm	Qsd dscfh	Heat Input Btu/hr
0.9583	68.2	38,501	63,263	2.069E+6	

Load - Megawatts

Low	Mid	High

#1 - Times
Date

Point No.	dl "p"	sqrt dl "p"	ts F	tm F (in)	tm F (out)	Cp *3D Probe*	Final Vf	Initial Vi	
1	0.750	0.87	260	48	38		530.9	474.6	56.3
2	0.730	0.85	266	48	38		442.5	430.4	12.1
3	0.800	0.89	272	48	39		338.5	333	5.5
4	1.000	1.00	274	49	40		483	479.5	3.5
5	1.100	1.05	279	49	40				0
6	1.200	1.10	282	49	40				
7	1.200	1.10	283	49	40				
8	1.300	1.14	282	49	40				
9	0.560	0.75	271	49	40				
10	0.560	0.75	273	49	40				
11	0.530	0.73	275	49	40				
12	0.780	0.88	278	49	40				
13	0.980	0.99	282						
14	1.100	1.05	283						
15	1.200	1.10	285						
16	1.200	1.10	285						
17									
18									
19									
20									
21									
22									
23									
24									

Division of Air Quality

Instrumental Reference Methods - Gaseous Measurements

Reference Methods 2, 3A, 6C, 7E, 10, & 19

Source Information

Company Name	**KUC Refinery**
Company Contact:	**Ryan Evans**
Contact Phone No.	**801-569-6331**
Stack Designation:	**CHP Turbine Only**

CO2 Interferece w/CO: ☐ Yes

Wet CEM: ☐ Yes

Correct For O2

Test & Review Dates

Test Date:	**3/8/2012**	High Flow Test Date:	1/0/1900
Review Date:	3/14/3013	Mid Flow Test Date:	1/0/1900
Observer:	Rob Leishman	Low Flow Test Date:	1/0/1900
Reviewer:	**ROB LEISHMAN**		

	Emission Limits			Emission Rates		
	SO_2	NO_x	CO	SO2	NOX	CO
lbs/MMBtu						
lbs/hr						
ppm		25.0			5.093	
Percent						
%O2 Correction as a whole #		**15.00**				

Test Information

Stack I.D. inches	As ft^2	Y	Dl H @	Cp	Pbar	Pq (static)	fuel flow rate (Btu/hr)	Heat Input (Btu/hr.)
53.25	15.47	0.9910	1.86	0.82	25.90	-0.86		

Round

Heat Input

Contractor Information

Contact:	Alex Mongold - Chris Keefe
Contracting Company:	Air Pollution Testing (APT)
Address:	1959 South 4130 West, Unit B, SLC,Ut. 84104
Phone No.:	801-974-0481 or 303-420-5949 ext. 24
Project No.:	

☑ F factor used

8710

Diluent

- ○ O2
- ○ CO2

Method 19 - F factors for Coal, Oil, and Gas

		Fd scf/MMBtu	Fw scf/MMBtu	Fc scf/MMBtu
COAL	Anthracite 2	○ 10100	○ 10540	○ 1970
	Bituminous	○ 9780	○ 10640	○ 1800
	Lignite	○ 9860	○ 11950	○ 1910
OIL		○ 9190	○ 320	○ 1420
GAS	Natural	◉ 8710	○ 10610	○ 1040
	Propan	○ 8710	○ 10200	○ 1190
	Butane	○ 8710	○ 10390	○ 1250

Tabs Are Sh

KUC Refinery CHP Turbine Only 5-3-12

Division of Air Quality

NSPS Relative Accuracy Performance Specification Test - CEMS C

KUC Refinery

CHP Turbine Only

lbs/MMBTU
- O2
- CO2
- Clear

Average Emission

Dry	SO_2	NO_X	CO
lbs/Mbtu		0.019	0.002
lbs/hr			
ppm		5.09	0.00
ppm corrected for %O2			

Average % concentration

CO_2	O_2
3.15	15.29

Run 1

Dry	SO_2	NO_X	CO	CO_2	O_2	Enter O2 or CO2 / O2
Atomic Weight	64	46	28			
lbs/MMBtu (O2)		1.69E-02	2.11E-03			E=Cd x Fd x (20.9/(20.9-%O2d))
lbs/MMBtu (CO2)						E=Cd x Fc x (100 / % CO2d)
lbs/cu.ft		5.256E-07	6.544E-08			
lbs/hr		1.075	0.134	3.13	15.25	C For Cal Drift
ppm corrected for %O		4.60	0.00	3.10	15.30	Raw Value

Run 2

Dry	SO_2	NO_X	CO	CO_2	O_2	
Atomic Weight	64	46	28			
lbs/MMBtu (O2)		1.89E-02	2.11E-03			E=Cd x Fd x (20.9/(20.9-%O2d))
lbs/MMBtu (CO2)						E=Cd x Fc x (100 / % CO2d)
lbs/cu.ft		5.853E-07	6.544E-08			
lbs/hr		1.22020	0.13642	3.19	15.25	C For Cal Drift
ppm corrected for %O		5.12	0.00	3.10	15.20	Raw Value

Run 3

Dry	SO_2	NO_X	CO	CO_2	O_2	
Atomic Weight	64	46	28			
lbs/MMBtu (O2)		2.05E-02	2.16E-03			E=Cd x Fd x (20.9/(20.9-%O2d))
lbs/MMBtu (CO2)						E=Cd x Fc x (100 / % CO2d)
lbs/cu.ft		6.211E-07	6.544E-08			
lbs/hr		1.306625	0.137654	3.12	15.38	C For Cal Drift
ppm corrected for %O		5.56	0.000	3.00	15.30	Raw Value

Run 4

Dry	SO_2	NO_X	CO	CO_2	O_2	
Atomic Weight	64	46	28			
lbs/MMBtu (O2)						E=Cd x Fd x (20.9/(20.9-%O2d))
lbs/MMBtu (CO2)						E=Cd x Fc x (100 / % CO2d)
lbs/cu.ft						
lbs/hr						C For Cal Drift
ppm corrected for %O				0.00	0.00	Raw Value

KUC Refinery CHP Turbine Only 5-3-12

Division of Air Quality

NSPS Relative Accuracy Performance Specification Test - CEMS C

KUC Refinery

CHP Turbine Only

lbs/MMBTU
O2
CO2
Clear

Run 5

Dry	SO_2	NO_X	CO	CO_2	O_2	
Atomic Weight	64	46	28			
lbs/MMBtu (O2)						E=Cd x Fd x (20.9/(20.9-%O2d))
lbs/MMBtu (CO2)						E=Cd x Fc x (100 / % CO2d)
lbs/cu.ft						
lbs/hr						C For Cal Drift
ppm corrected for %O				0.00	0.00	Raw Value

Run 6

Dry	SO_2	NO_X	CO	CO_2	O_2	
Atomic Weight	64	46	28			
lbs/MMBtu (O2)						E=Cd x Fd x (20.9/(20.9-%O2d))
lbs/MMBtu (CO2)						E=Cd x Fc x (100 / % CO2d)
lbs/cu.ft						
lbs/hr						C For Cal Drift
ppm corrected for %O				0.00	0.00	Raw Value

Run 7

Dry	SO_2	NO_X	CO	CO_2	O_2	
Atomic Weight	64	46	28			
lbs/MMBtu (O2)						E=Cd x Fd x (20.9/(20.9-%O2d))
lbs/MMBtu (CO2)						E=Cd x Fc x (100 / % CO2d)
lbs/cu.ft						
lbs/hr						C For Cal Drift
ppm corrected for %O				0.00	0.00	Raw Value

Run 8

Dry	SO_2	NO_X	CO	CO_2	O_2	
Atomic Weight	64	46	28			
lbs/MMBtu (O2)						E=Cd x Fd x (20.9/(20.9-%O2d))
lbs/MMBtu (CO2)						E=Cd x Fc x (100 / % CO2d)
lbs/cu.ft						
lbs/hr						C For Cal Drift
ppm corrected for %O				0.00	0.00	Raw Value

Run 9

Dry	SO_2	NO_X	CO	CO_2	O_2	
Atomic Weight	64	46	28			
lbs/MMBtu (O2)						E=Cd x Fd x (20.9/(20.9-%O2d))
lbs/MMBtu (CO2)						E=Cd x Fc x (100 / % CO2d)
lbs/cu.ft						
lbs/hr						C For Cal Drift
ppm corrected for %O				0.00	0.00	Raw Value

KUC Refinery CHP Turbine Only 5-3-12

Division of Air Quality

NSPS Relative Accuracy Performance Specification Test - CEMS C

KUC Refinery

CHP Turbine Only

lbs/MMBTU
- O2
- CO2
- Clear

Run 10

Dry	SO_2	NO_X	CO	CO_2	O_2	
Atomic Weight	64	46	28			
lbs/MMBtu (O2)						E=Cd x Fd x (20.9/(20.9-%O2d))
lbs/MMBtu (CO2)						E=Cd x Fc x (100 / % CO2d)
lbs/cu.ft						
lbs/hr						C For Cal Drift
ppm corrected for %O				0.00	0.00	Raw Value

Run 11

Dry	SO_2	NO_X	CO	CO_2	O_2	
Atomic Weight	64	46	28			
lbs/MMBtu (O2)						E=Cd x Fd x (20.9/(20.9-%O2d))
lbs/MMBtu (CO2)						E=Cd x Fc x (100 / % CO2d)
lbs/cu.ft						
lbs/hr						Corrected for Moisture
ppm corrected for %O				0.00	0.00	Raw Value

Run 12

Dry	SO_2	NO_X	CO	CO_2	O_2	
Atomic Weight	64	46	28			
lbs/MMBtu (O2)						E=Cd x Fd x (20.9/(20.9-%O2d))
lbs/MMBtu (CO2)						E=Cd x Fc x (100 / % CO2d)
lbs/cu.ft						
lbs/hr						Corrected for Moisture
ppm corrected for %O				0.00	0.00	Raw Value

Calibration Error Test

Test Date March 8, 2012			O_2				
		CS - Cal. Span	21.20				
		Units	%				
Cylinder No.	**Expiration Date**	**Cal. Gas**	**C_V- Certified Concentration**	**C_{Dir} or C_S - Measured Concentration**	Difference	**ACE** Eq. 7E-1 Analyzer Cal. Error	**Status**
		Low-level	0.00	0.00	0.00	0.00%	Passed Cal.
		Mid-level	10.00	10.10	0.10	0.47%	Passed Cal.
		High-level	21.20	21.20	0.00	0.00%	Passed Cal.
			% of Span	**Sec. 8.2.1 Cal Gas Verification**			
0 to 20% of CS - Cal. Span		Low-Level	0.00%				
40 to 60% of Cal. Span		Mid-level	47.17%				
100% of Cal. Span		High-level	100.00%				

Test Date March 8, 2012			CO_2				
		CS - Cal. Span	10.10				
		Units	%				
Cylinder No.	**Expiration Date**	**Cal. Gas**	**C_V- Certified Concentration**	**C_{Dir} or C_S - Measured Concentration**	Difference	**ACE** Eq. 7E-1 Analyzer Cal. Error	**Status**
		Low-level	0.00	0.00	0.00	0.000%	Passed Cal.
		Mid-level	5.10	5.10	0.00	0.000%	Passed Cal.
		High-level	10.10	10.10	0.00	0.000%	Passed Cal.
			% of Span	**Sec. 8.2.1 Cal Gas Verification**			
0 to 20% of Cal. Span		Low-Level	0.00%				
40 to 60% of Cal. Span		Mid-level	50.50%				
100% of Cal. Span		High-level	100.00%				

Test Date			SO2				
		CS - Cal. Span					
		Units	ppm				
Cylinder No.	**Expiration Date**	**Cal. Gas**	**C_V- Certified Concentration**	**C_{Dir} or C_S - Measured Concentration**	Difference	**ACE** Eq. 7E-1 Analyzer Cal. Error	**Status**
		Low-level					
		Mid-level					
		High-level					
			% of Span	**Sec. 8.2.1 Cal Gas Verification**			
0 to 20% of Cal. Span		Low-Level					
40 to 60% of Cal. Span		Mid-level					
100% of Cal. Span		High-level					

Test Date March 8, 2012			NOx				
		CS - Cal. Span	19.00				
		Units	ppm				
Cylinder No.	**Expiration Date**	**Cal. Gas**	**C_V- Certified Concentration**	**C_{Dir} or C_S - Measured Concentration**	Difference	**ACE** Eq. 7E-1 Analyzer Cal. Error	**Status**
		Low-level	0.00	0.20	0.20	1.053%	Passed Cal.
		Mid-level	10.20	10.30	0.10	0.526%	Passed Cal.
		High-level	19.00	19.00	0.00	0.000%	Passed Cal.
			% of Span	**Sec. 8.2.1 Cal Gas Verification**			
0 to 20% of Cal. Span		Low-Level	0.00%				
40 to 60% of Cal. Span		Mid-level	53.68%				
100% of Cal. Span		High-level	100.00%				

Test Date March 8, 2012			CO				
		CS - Cal. Span	36.10				
		Units	ppm				
Cylinder No.	**Expiration Date**	**Cal. Gas**	**C_V- Certified Concentration**	**C_{Dir} or C_S - Measured Concentration**	Difference	**ACE** Eq. 7E-1 Analyzer Cal. Error	**Status**
		Low-level	0.00	0.00	0.00	0.000%	Passed Cal.
		Mid-level	15.70	15.80	0.10	0.277%	Passed Cal.
		High-level	36.10	36.10	0.00	0.000%	Passed Cal.
			% of Span	**Sec. 8.2.1 Cal Gas Verification**			
0 to 20% of Cal. Span		Low-Level	0.00%				
40 to 60% of Cal. Span		Mid-level	43.49%				
100% of Cal. Span		High-level	100.00%				

Division of Air Quality Stack Test Review of
KUC Refinery

	SO_2	NO_X	CO	CO_2	O_2
CS Calibration Span		19.00	36.10	10.10	21.20
Units	ppm	ppm	ppm	%	%
CV - Cylinder Value:	SO_2	NO_X	CO	CO_2	O_2
Low-Level		**0.00**	**0.00**	**0.00**	**0.00**
Mid-Level		**10.20**	**15.70**	**5.10**	**10.00**
High-Level		**19.00**	**36.10**	**10.10**	**21.20**
0 to 20% of Cal. Span		**0.00%**	**0.00%**	**0.00%**	**0.00%**
40 to 60% of Cal. Span		**53.7%**	**43.5%**	**50.5%**	**47.2%**
100% of Cal. Span		**100.0%**	**100.0%**	**100.0%**	**100.0%**

CHP Turbine Only

☐ CO Calibration Gas

Unprotectec

Cdir - Enter Actual Up-scale Cylinder Value Used To Correct Emission Concentration.

C_{Dir} C_{MA}		**10.20**	**15.70**	**5.10**	**10.00**

Calibration Error Test

Cs - Measured Concentration	SO_2	NO_X	CO	CO_2	O_2
Low-Level		**0.20**	**0.00**	**0.00**	**0.00**
Mid-Level		**10.30**	**15.80**	**5.10**	**10.10**
High-Level		**19.00**	**36.10**	**10.10**	**21.20**

Enter Up-scale Analyzer Response to be used during testing.

ACE Eq. 7E-1		**10.30**	**15.80**	**5.10**	**10.10**
Low-Level		1.05%	0.00%	0.00%	0.00%
ppmdv Difference		0.2	0	0	0
Status		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**
Mid-Level		0.53%	0.28%	0.00%	0.47%
ppmdv Difference		0.1	0.1	0	0.1
Status		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**
High-Level		0.00%	0.00%	0.00%	0.00%
ppmdv Difference		0	0	0	0
Status		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**

NOTE
These cells sc appropriate (after the Cm entered.

If this scan is the Cma and gas value.

☐ Failed Cal Error Dialog

Pre-Test Sampling System Bias

Initial Values	SO_2	NO_X	CO	CO_2	O_2
C_O - Low-Level		**0.20**	**0.00**	**0.00**	**0.00**
SBi - Zero Bias	TRUE	0.00%	0.00%	0.00%	0.00%
Difference	TRUE	0	0	0	0
Pass or Failed Invalid Run		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**
C_M - Up-scale Gas		**10.30**	**15.80**	**5.10**	**10.10**
SBi - Up-Scale Bias	TRUE	0.00%	0.00%	0.00%	0.00%
Difference	TRUE	0.00	0.00	0.00	0.00
Pass or Failed Invalid Run	**TRUE**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**

System Bias.
± 5% of Span

☐ Failed Bias Dialog

Raw Test Data

Test Date: 3/8/2012

	SO_2	NO_X	CO	CO_2	O_2
		4.6	**0.9**	**3.1**	**15.3**
	0.0%	**24.2%**	**2.5%**	**30.7%**	**72.2%**

Time	**Start**	**Stop**
SO_2		0:21
NO_X	0:00	0:21
CO	0:00	0:21
CO_2/O_2	0:00	0:21

Post-Test System Bias 7E-2 SB=(Cs - Cdir)/CS x 100

Final Values	SO_2	NO_X	CO	CO_2	O_2
C_O - Low-Level		0.30	0.30	0.00	0.10
SBi - Zero Bias	TRUE	0.53%	0.83%	0.00%	0.47%
Difference	**TRUE**	**0.1**	**0.3**	**0.0**	**0.1**
Pass or Invalid Run		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**
C_M - Up-scale Gas		10.30	15.70	5.00	10.00
SBi - Up-Scale Bias	TRUE	0.00%	0.28%	0.99%	0.47%
Difference	TRUE	0.0	0.1	0.1	0.1
Pass or Invalid Run		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**

System Bias.
± 5% of Span

☑ Failed Bias Dialog

Calibration Drift % of Span - D=ABS(SBf - SBi)

Low-Level Drift	TRUE	0.53%	0.83%	0.00%	0.47%
Difference	TRUE	0.1	0.3	0.0	0.1
Pass or Re-Calibrate		**Pass**	**Pass**	**Pass**	**Pass**
Up-scale Gas Drift	TRUE	0.00%	0.28%	0.99%	0.47%
Difference	**TRUE**	**0.0**	**0.1**	**0.1**	**0.1**
Pass or Re-Calibrate		**Pass**	**Pass**	**Pass**	**Pass**

Drift
3% of Span

☐ Failed Drift Dialog

Division of Air Quality Stack Test Review of
KUC Refinery

CHP Turbine Only — **Flow & Moisture**

As ft^2	Pbar	Pq (static)	Ps	Avg Ts F	CO2 - F_{CO2}	O2	N2+C	Md	Ms
15.47	25.90	-0.86	25.84	270	3.13	15.25	81.62	29.11	28.35

Y	Cp	Vm cf	Vlc	A_{VG} Tm F	Vm std	Vw std	Bws	S Bws	3.3368
0.9910	0.82	35.215	48.80	47	31.438	2.297	0.0681	0.9990	0.999

AvgSqrtDlp	Vs	scfm wet	acfm	Qsd dscfh	Heat Input Btu/hr
0.9021	63.1	36,584	58,583	2.046E+6	

Load - Megawatts

Low	Mid	High

#1 - Times
Date

Point No.	dl "p"	sqrt dl "p"	ts F	tm F (in)	tm F (out)	Cp *3D Probe*	Final Vf	Initial Vi	
1	0.720	0.85	263	43	42		489.5	477.7	11.8
2	0.740	0.86	265	45	42		469.2	438.5	30.7
3	0.740	0.86	266	47	42		312	310	2
4	0.760	0.87	268	49	43		486	481.7	4.3
5	1.000	1.00	268	50	43				0
6	1.100	1.05	270	51	44				
7	1.100	1.05	271	51	44				
8	1.000	1.00	275	52	45				
9	0.520	0.72	268	52	46				
10	0.530	0.73	269	53	46				
11	0.500	0.71	271	54	47				
12	0.480	0.69	273	54	47				
13	0.900	0.95	273						
14	1.000	1.00	274						
15	1.100	1.05	274						
16	1.100	1.05	274						
17									
18									
19									
20									
21									
22									
23									
24									

Division of Air Quality Stack Test Review of
KUC Refinery

	SO_2	NO_X	CO	CO_2	O_2	*CHP Turbine Only*
CS Calibration Span		19.00	36.10	10.10	21.20	
Units	ppm	ppm	ppm	%	%	
CV - Cylinder Value:	SO_2	NO_X	CO	CO_2	O_2	
Low-Level		**0.00**	**0.00**	**0.00**	**0.00**	
Mid-Level		**10.20**	**15.70**	**5.10**	**10.00**	
High-Level		**19.00**	**36.10**	**10.10**	**21.20**	
0 to 20% of Cal. Span		**0.00%**	**0.00%**	**0.00%**	**0.00%**	
40 to 60% of Cal. Span		**53.7%**	**43.5%**	**50.5%**	**47.2%**	
100% of Cal. Span		**100.0%**	**100.0%**	**100.0%**	**100.0%**	

Cdir - Enter Actual Up-scale Cylinder Value Used To Correct Emission Concentration.

C_{MA}		10.20	15.70	5.10	10.00

Calibration Error Test

Measured Concentration	SO_2	NO_X	CO	CO_2	O_2
Low-Level		**0.20**	**0.00**	**0.00**	**0.00**
Mid-Level		**10.30**	**15.80**	**5.10**	**10.10**
High-Level		**19.00**	**36.10**	**10.10**	**21.20**

Enter Up-scale Analyzer Response to be used during testing.

ACE Eq. 7E-1		10.30	15.80	5.10	10.10
Low-Level		1.05%	0.00%	0.00%	0.00%
ppmdv Difference		0.2	0	0	0
Status		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**
Mid-Level		0.53%	0.28%	0.00%	0.47%
ppmdv Difference		0.1	0.1	0	0.1
Status		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**
High-Level		0.00%	0.00%	0.00%	0.00%
ppmdv Difference		0	0	0	0
Status		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**

☐ Failed Cal Error Dialog

Pre-Test Sampling System Bias

Initial Values	SO_2	NO_X	CO	CO_2	O_2
C_O - Low-Level		0.30	0.30	0.00	0.10
SBi - Zero Bias	TRUE	0.53%	0.83%	0.00%	0.47%
Difference	TRUE	0.1	0.3	0	0.1
Pass or Invalid Run		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**
C_M - Up-scale Gas		10.30	15.70	5.00	10.00
SBi - Up-Scale Bias	TRUE	0.00%	0.28%	0.99%	0.47%
Difference	TRUE	0	0.1	0.1	0.1
Pass or Invalid Run	**TRUE**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**

System Bias.
± 5% of Span

☐ Failed Bias Dialog

Raw Test Data

Test Date: 3/8/2012

	SO_2	NO_X	CO	CO_2	O_2
		5.2	**0.9**	**3.1**	**15.2**
	0.0%	**27.4%**	**2.5%**	**30.7%**	**71.7%**

Time	**Start**	**Stop**
SO_2		0:21
NO_X	0:00	0:21
CO	0:00	0:21
CO_2/O_2	0:00	0:21

Post-Test System Bias 7E-2 SB=(Cs - Cdir)/CS x 100

Final Values	SO_2	NO_X	CO	CO_2	O_2
C_O - Low-Level		0.40	0.20	0.00	0.10
SBi - Zero Bias	TRUE	1.05%	0.55%	0.00%	0.47%
Difference	**TRUE**	**0.2**	**0.2**	**0.0**	**0.1**
Pass or Invalid Run		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**
C_M - Up-scale Gas		10.50	15.60	4.90	10.00
SBi - Up-Scale Bias	TRUE	1.05%	0.55%	1.98%	0.47%
Difference	TRUE	0.2	0.2	0.2	0.1
Pass or Invalid Run		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**

System Bias.
± 5% of Span

☐ Failed Bias Dialog

Calibration Drift % of Span - D=ABS(SBf - SBi)

Low-Level Drift	TRUE	0.53%	0.28%	0.00%	0.00%
Difference	TRUE	0.1	0.1	0.0	0.0
Pass or Re-Calibrate		**Pass**	**Pass**	**Pass**	**Pass**
Up-scale Gas Drift	TRUE	1.05%	0.28%	0.99%	0.00%
Difference	**TRUE**	**0.2**	**0.1**	**0.1**	**0.0**
Pass or Re-Calibrate		**Pass**	**Pass**	**Pass**	**Pass**

Response Spec.
3% of Span

☐ Failed Drift Dialog

Division of Air Quality Stack Test Review of
KUC Refinery

CHP Turbine Only — **Flow & Moisture**

As ft^2	Pbar	Pq (static)	Ps	Avg Ts F	CO2 - F_{CO2}	O2	N2+C	Md	Ms
15.47	25.90	-0.86	25.84	272	3.19	15.25	81.55	29.12	28.34

Y	Cp	Vm cf	Vlc	A_{VG} Tm F	Vm std	Vw std	Bws	S Bws	3.4206
0.9910	0.82	35.636	50.20	59	31.078	2.363	0.0707	0.9990	0.999

AvgSqrtDlp	Vs	scfm wet	acfm	Qsd dscfh	Heat Input Btu/hr
0.9226	64.7	37,387	59,993	2.085E+6	

#1 - Times
Date

Load - Megawatts		
Low	Mid	High

Point No.	dl "p"	sqrt dl "p"	ts F	tm F (in)	tm F (out)	Cp *3D Probe*	Final Vf	Initial Vi	
1	0.730	0.85	**266**	**54**	50		467.2	473.6	-6.4
2	0.760	0.87	268	57	51		516.9	469.2	47.7
3	0.750	0.87	268	60	52		314.1	312	2.1
4	0.810	0.90	270	61	53		492.8	486	6.8
5	1.100	1.05	273	62	54				0
6	1.000	1.00	273	64	55				
7	1.100	1.05	274	64	56				
8	1.100	1.05	273	65	57				
9	0.550	0.74	270	66	58				
10	0.540	0.73	271	67	58				
11	0.530	0.73	271	67	60				
12	0.540	0.73	274	69	60				
13	0.980	0.99	274						
14	1.100	1.05	275						
15	1.100	1.05	273						
16	1.200	1.10	273						
17									
18									
19									
20									
21									
22									
23									
24									

Division of Air Quality Stack Test Review of
KUC Refinery

	SO_2	NO_X	CO	CO_2	O_2	*CHP Turbine Only*
CS Calibration Span		19.00	36.10	10.10	21.20	
Units	ppm	ppm	ppm	%	%	
CV - Cylinder Value:	SO_2	NO_X	CO	CO_2	O_2	
Low-Level		**0.00**	**0.00**	**0.00**	**0.00**	
Mid-Level		**10.20**	**15.70**	**5.10**	**10.00**	
High-Level		**19.00**	**36.10**	**10.10**	**21.20**	
0 to 20% of Cal. Span		**0.00%**	**0.00%**	**0.00%**	**0.00%**	
40 to 60% of Cal. Span		**53.7%**	**43.5%**	**50.5%**	**47.2%**	
100% of Cal. Span		**100.0%**	**100.0%**	**100.0%**	**100.0%**	

Cdir - Enter Actual Up-scale Cylinder Value Used To Correct Emission Concentration.

C_{MA}		10.20	15.70	5.10	10.00

Calibration Error Test

Measured Concentration	SO_2	NO_X	CO	CO_2	O_2
Low-Level		**0.20**	**0.00**	**0.00**	**0.00**
Mid-Level		**10.30**	**15.80**	**5.10**	**10.10**
High-Level		**19.00**	**36.10**	**10.10**	**21.20**

Enter Up-scale Analyzer Response to be used during testing.

ACE Eq. 7E-1		10.30	15.80	5.10	10.10

Low-Level		1.05%	0.00%	0.00%	0.00%	
ppmv Difference		0.2	0	0	0	
Status		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	
Mid-Level		0.53%	0.28%	0.00%	0.47%	
ppmv Difference		0.1	0.1	0	0.1	
Status		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	☐ Failed Cal Error Dialog
High-Level		0.00%	0.00%	0.00%	0.00%	
ppmv Difference		0	0	0	0	
Status		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	

Pre-Test Sampling System Bias

Initial Values	SO_2	NO_X	CO	CO_2	O_2	
C_O - Low-Level		0.40	0.20	0.00	0.10	**System Bias. ± 5% of Span**
SBi - Zero Bias	TRUE	1.05%	0.55%	0.00%	0.47%	
Difference	TRUE	0.2	0.2	0	0.1	☐ Failed Bias Dialog
Pass or Invalid Run		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	
C_M - Up-scale Gas		10.50	15.60	4.90	10.00	
SBi - Up-Scale Bias	TRUE	1.05%	0.55%	1.98%	0.47%	
Difference	TRUE	0.2	0.2	0.2	0.1	
Pass or Invalid Run	**TRUE**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	

Raw Test Data

Test Date: 3/8/2012						**Time**	**Start**	**Stop**
						SO_2		0:21
	SO_2	NO_X	CO	CO_2	O_2	NO_X	0:00	0:21
		5.6	**0.9**	**3.0**	**15.3**	CO	0:00	0:21
	0.0%	**29.5%**	**2.5%**	**29.7%**	**72.2%**	CO_2/O_2	0:00	0:21

Post-Test System Bias 7E-2 SB=(Cs - Cdir)/CS x 100

Final Values	SO_2	NO_X	CO	CO_2	O_2	
C_O - Low-Level		0.50	0.40	0.00	0.20	**System Bias. ± 5% of Span**
SBi - Zero Bias	TRUE	1.58%	1.11%	0.00%	0.94%	
Difference	**TRUE**	**0.3**	**0.4**	**0.0**	**0.2**	☐ Failed Bias Dialog
Pass or Invalid Run		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	
C_M - Up-scale Gas		10.50	15.70	4.90	10.00	
SBi - Up-Scale Bias	TRUE	1.05%	0.28%	1.98%	0.47%	
Difference	TRUE	0.2	0.1	0.2	0.1	
Pass or Invalid Run		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	

Calibration Drift % of Span - D=ABS(SBf - SBi)

Low-Level Drift	TRUE	0.53%	0.55%	0.00%	0.47%	Response Spec. **3% of Span**
Difference	TRUE	0.1	0.2	0.0	0.1	
Pass or Re-Calibrate		**Pass**	**Pass**	**Pass**	**Pass**	☐ Failed Drift Dialog
Up-scale Gas Drift	TRUE	0.00%	0.28%	0.00%	0.00%	
Difference	**TRUE**	**0.0**	**0.1**	**0.0**	**0.0**	
Pass or Re-Calibrate		**Pass**	**Pass**	**Pass**	**Pass**	

Division of Air Quality Stack Test Review of
KUC Refinery

CHP Turbine Only — **Flow & Moisture**

As ft^2	Pbar	Pq (static)	Ps	Avg Ts F	$CO2 - F_{CO2}$	O2	N2+C	Md	Ms
15.47	25.90	-0.86	25.84	271	3.12	15.38	81.50	29.11	28.52

Y	Cp	Vm cf	Vlc	A_{VG} Tm F	Vm std	Vw std	Bws	S Bws	3.3960
0.9910	0.82	35.537	36.80	65	30.626	1.732	0.0535	0.9990	0.999

AvgSqrtDlp	Vs	scfm wet	acfm	Qsd dscfh	Heat Input Btu/hr
0.9168	64.0	37,043	59,405	2.104E+6	

#1 - Times
Date

Load - Megawatts		
Low	Mid	High

Point No.	dl "p"	sqrt dl "p"	ts F	tm F (in)	tm F (out)	Cp *3D Probe*	Final Vf	Initial Vi	
1	0.720	0.85	265	68	63		500.2	467.2	33
2	0.740	0.86	267	69	63		433.2	459.7	-26.5
3	0.760	0.87	270	70	63		342.9	314.1	28.8
4	0.830	0.91	273	70	64		494.3	492.8	1.5
5	1.000	1.00	272	69	64				0
6	1.100	1.05	272	69	64				
7	1.100	1.05	271	68	63				
8	1.100	1.05	272	68	63				
9	0.530	0.73	267	68	62				
10	0.530	0.73	268	67	62				
11	0.550	0.74	271	66	61				
12	0.540	0.73	272	65	60				
13	1.000	1.00	275						
14	1.100	1.05	275						
15	1.000	1.00	274						
16	1.100	1.05	275						
17									
18									
19									
20									
21									
22									
23									
24									

Division of Air Quality

Instrumental Reference Methods - Gaseous Measurements

Reference Methods 2, 3A, 6C, 7E, 10, & 19

Source Information

Company Name	**KUC Refinery**
Company Contact:	**Ryan Evans**
Contact Phone No.	**801-569-6331**
Stack Designation:	**CHP Duct Burner Only**

CO2 Interferece w/CO: ☐ Yes

Wet CEM: ☐ Yes

Correct For O2:

Test & Review Dates

Test Date:	**3/8/2012**	High Flow Test Date:	1/0/1900
Review Date:	3/14/3013	Mid Flow Test Date:	1/0/1900
Observer:	Rob Leishman	Low Flow Test Date:	1/0/1900
Reviewer:	**ROB LEISHMAN**		

	Emission Limits			Emission Rates		
	SO_2	NO_X	CO	SO2	NOX	CO
lbs/MMBtu						
lbs/hr						
ppm		54.0			32.043	
Percent						
%O2 Correction as a whole #		15.00				

Test Information

Stack I.D. inches	As ft^2	Y	Dl H @	Cp	Pbar	Pq (static)	fuel flow rate (Btu/hr)	Heat Input (Btu/hr.)
53.25	15.47	0.9910	1.86	0.82	25.90	-0.86		

Round

Heat Input

Contractor Information

Contact:	Alex Mongold - Chris Keefe
Contracting Company:	Air Pollution Testing (APT)
Address:	1959 South 4130 West, Unit B, SLC,Ut. 84104
Phone No.:	801-974-0481 or 303-420-5949 ext. 24
Project No.:	

☑ F factor used

8710

Diluent

- ○ O2
- ○ CO2

Method 19 - F factors for Coal, Oil, and Gas

		Fd scf/MMBtu	Fw scf/MMBtu	Fc scf/MMBtu
COAL	Anthracite 2	○ 10100	○ 10540	○ 1970
	Bituminous	○ 9780	○ 10640	○ 1800
	Lignite	○ 9860	○ 11950	○ 1910
OIL		○ 9190	○ 320	○ 1420
GAS	Natural	◉ 8710	○ 10610	○ 1040
	Propan	○ 8710	○ 10200	○ 1190
	Butane	○ 8710	○ 10390	○ 1250

Tabs Are Sh

Division of Air Quality

NSPS Relative Accuracy Performance Specification Test - CEMS C

KUC Refinery

CHP Duct Burner Only

lbs/MMBTU
- O2
- CO2
- Clear

Average Emission

Dry	SO_2	NO_X	CO
lbs/Mbtu		0.118	0.069
lbs/hr			
ppm		32.04	0.00
ppm corrected for %O2			

Average % concentration

CO_2	O_2
3.42	14.77

Run 1

Dry	SO_2	NO_X	CO	CO_2	O_2	Enter O2 or CO2 / O2
Atomic Weight	64	46	28			
lbs/MMBtu (O2)		1.18E-01	8.42E-02			E=Cd x Fd x (20.9/(20.9-%O2d))
lbs/MMBtu (CO2)						E=Cd x Fc x (100 / % CO2d)
lbs/cu.ft		4.037E-06	2.879E-06			
lbs/hr		8.486	6.052	3.40	14.68	C For Cal Drift
ppm corrected for %O		32.05	0.00	3.40	14.80	Raw Value

Run 2

Dry	SO_2	NO_X	CO	CO_2	O_2	
Atomic Weight	64	46	28			
lbs/MMBtu (O2)		1.19E-01	7.09E-02			E=Cd x Fd x (20.9/(20.9-%O2d))
lbs/MMBtu (CO2)						E=Cd x Fc x (100 / % CO2d)
lbs/cu.ft		3.954E-06	2.356E-06			
lbs/hr		8.28215	4.93470	3.43	14.85	C For Cal Drift
ppm corrected for %O		32.27	0.00	3.40	14.80	Raw Value

Run 3

Dry	SO_2	NO_X	CO	CO_2	O_2	
Atomic Weight	64	46	28			
lbs/MMBtu (O2)		1.17E-01	5.34E-02			E=Cd x Fd x (20.9/(20.9-%O2d))
lbs/MMBtu (CO2)						E=Cd x Fc x (100 / % CO2d)
lbs/cu.ft		3.930E-06	1.789E-06			
lbs/hr		8.235787	3.748388	3.43	14.80	C For Cal Drift
ppm corrected for %O		31.81	0.000	3.40	14.70	Raw Value

Run 4

Dry	SO_2	NO_X	CO	CO_2	O_2	
Atomic Weight	64	46	28			
lbs/MMBtu (O2)						E=Cd x Fd x (20.9/(20.9-%O2d))
lbs/MMBtu (CO2)						E=Cd x Fc x (100 / % CO2d)
lbs/cu.ft						
lbs/hr						C For Cal Drift
ppm corrected for %O				0.00	0.00	Raw Value

Calibration Error Test

Test Date March 8, 2012			O_2				
		CS - Cal. Span	21.20				
		Units	%				
Cylinder No.	**Expiration Date**	**Cal. Gas**	**C_V- Certified Concentration**	**C_{Dir} or C_S - Measured Concentration**	Difference	**ACE** Eq. 7E-1 Analyzer Cal. Error	**Status**
		Low-level	0.00	0.00	0.00	0.00%	Passed Cal.
		Mid-level	10.00	10.10	0.10	0.47%	Passed Cal.
		High-level	21.20	21.20	0.00	0.00%	Passed Cal.
			% of Span	**Sec. 8.2.1 Cal Gas Verification**			
0 to 20% of CS - Cal. Span		Low-Level	0.00%				
40 to 60% of Cal. Span		Mid-level	47.17%				
100% of Cal. Span		High-level	100.00%				

Test Date March 8, 2012			CO_2				
		CS - Cal. Span	10.10				
		Units	%				
Cylinder No.	**Expiration Date**	**Cal. Gas**	**C_V- Certified Concentration**	**C_{Dir} or C_S - Measured Concentration**	Difference	**ACE** Eq. 7E-1 Analyzer Cal. Error	**Status**
		Low-level	0.00	0.00	0.00	0.000%	Passed Cal.
		Mid-level	5.10	5.10	0.00	0.000%	Passed Cal.
		High-level	10.10	10.10	0.00	0.000%	Passed Cal.
			% of Span	**Sec. 8.2.1 Cal Gas Verification**			
0 to 20% of Cal. Span		Low-Level	0.00%				
40 to 60% of Cal. Span		Mid-level	50.50%				
100% of Cal. Span		High-level	100.00%				

Test Date			SO2				
		CS - Cal. Span					
		Units	ppm				
Cylinder No.	**Expiration Date**	**Cal. Gas**	**C_V- Certified Concentration**	**C_{Dir} or C_S - Measured Concentration**	Difference	**ACE** Eq. 7E-1 Analyzer Cal. Error	**Status**
		Low-level					
		Mid-level					
		High-level					
			% of Span	**Sec. 8.2.1 Cal Gas Verification**			
0 to 20% of Cal. Span		Low-Level					
40 to 60% of Cal. Span		Mid-level					
100% of Cal. Span		High-level					

Test Date March 8, 2012			NOx				
		CS - Cal. Span	90.20				
		Units	ppm				
Cylinder No.	**Expiration Date**	**Cal. Gas**	**C_V- Certified Concentration**	**C_{Dir} or C_S - Measured Concentration**	Difference	**ACE** Eq. 7E-1 Analyzer Cal. Error	**Status**
		Low-level	0.00	0.00	0.00	0.000%	Passed Cal.
		Mid-level	40.30	39.50	0.80	0.887%	Passed Cal.
		High-level	90.20	90.20	0.00	0.000%	Passed Cal.
			% of Span	**Sec. 8.2.1 Cal Gas Verification**			
0 to 20% of Cal. Span		Low-Level	0.00%				
40 to 60% of Cal. Span		Mid-level	44.68%				
100% of Cal. Span		High-level	100.00%				

Test Date March 8, 2012			CO				
		CS - Cal. Span	36.10				
		Units	ppm				
Cylinder No.	**Expiration Date**	**Cal. Gas**	**C_V- Certified Concentration**	**C_{Dir} or C_S - Measured Concentration**	Difference	**ACE** Eq. 7E-1 Analyzer Cal. Error	**Status**
		Low-level	0.00	0.00	0.00	0.000%	Passed Cal.
		Mid-level	15.70	15.70	0.00	0.000%	Passed Cal.
		High-level	36.10	36.20	0.10	0.277%	Passed Cal.
			% of Span	**Sec. 8.2.1 Cal Gas Verification**			
0 to 20% of Cal. Span		Low-Level	0.00%				
40 to 60% of Cal. Span		Mid-level	43.49%				
100% of Cal. Span		High-level	100.00%				

Division of Air Quality Stack Test Review of
KUC Refinery

	SO_2	NO_X	CO	CO_2	O_2
CS Calibration Span		90.20	36.10	10.10	21.20
Units	ppm	ppm	ppm	%	%
CV - Cylinder Value:	SO_2	NO_X	CO	CO_2	O_2
Low-Level		0.00	0.00	0.00	0.00
Mid-Level		40.30	15.70	5.10	10.00
High-Level		90.20	36.10	10.10	21.20
0 to 20% of Cal. Span		0.00%	0.00%	0.00%	0.00%
40 to 60% of Cal. Span		44.7%	43.5%	50.5%	47.2%
100% of Cal. Span		100.0%	100.0%	100.0%	100.0%

CHP Duct Burner Only

☐ CO Calibration Gas

Unprotectec

Cdir - Enter Actual Up-scale Cylinder Value Used To Correct Emission Concentration.

C_{Dir} C_{MA}		40.30	36.10	5.10	10.00

Calibration Error Test

Cs - Measured Concentration	SO_2	NO_X	CO	CO_2	O_2
Low-Level		0.00	0.00	0.00	0.00
Mid-Level		39.50	15.70	5.10	10.10
High-Level		90.20	36.20	10.10	21.20

Enter Up-scale Analyzer Response to be used during testing.

ACE Eq. 7E-1		39.50	36.20	5.10	10.10

NOTE
These cells sc appropriate (after the Cm entered.

If this scan is the Cma and gas value.

Low-Level		0.00%	0.00%	0.00%	0.00%
ppmdv Difference		0	0	0	0
Status		Passed Cal.	Passed Cal.	Passed Cal.	Passed Cal.
Mid-Level		0.89%	0.00%	0.00%	0.47%
ppmdv Difference		0.8	0	0	0.1
Status		Passed Cal.	Passed Cal.	Passed Cal.	Passed Cal.
High-Level		0.00%	0.28%	0.00%	0.00%
ppmdv Difference		0	0.1	0	0
Status		Passed Cal.	Passed Cal.	Passed Cal.	Passed Cal.

☐ Failed Cal Error Dialog

Pre-Test Sampling System Bias

Initial Values	SO_2	NO_X	CO	CO_2	O_2
C_O - Low-Level		0.00	0.00	0.00	0.00
SBi - Zero Bias	TRUE	0.00%	0.00%	0.00%	0.00%
Difference	TRUE	0	0	0	0
Pass or Failed Invalid Run		Passed Cal.	Passed Cal.	Passed Cal.	Passed Cal.
C_M - Up-scale Gas		39.50	36.20	5.10	10.10
SBi - Up-Scale Bias	TRUE	0.00%	0.00%	0.00%	0.00%
Difference	TRUE	0.00	0.00	0.00	0.00
Pass or Failed Invalid Run	TRUE	Passed Cal.	Passed Cal.	Passed Cal.	Passed Cal.

System Bias.
± 5% of Span

☐ Failed Bias Dialog

Raw Test Data

Test Date: 3/8/2012

	SO_2	NO_X	CO	CO_2	O_2
		33.1	39.6	3.4	14.8
	0.0%	36.7%	109.7%	33.7%	69.8%

Time	Start	Stop
SO_2		0:21
NO_X	0:00	0:21
CO	0:00	0:21
CO_2/O_2	0:00	0:21

Post-Test System Bias 7E-2 SB=(Cs - Cdir)/CS x 100

Final Values	SO_2	NO_X	CO	CO_2	O_2
C_O - Low-Level		0.70	0.00	0.00	0.10
SBi - Zero Bias	TRUE	0.78%	0.00%	0.00%	0.47%
Difference	TRUE	0.7	0.0	0.0	0.1
Pass or Invalid Run		Passed Cal.	Passed Cal.	Passed Cal.	Passed Cal.
C_M - Up-scale Gas		39.30	36.00	5.10	10.10
SBi - Up-Scale Bias	TRUE	0.22%	0.55%	0.00%	0.00%
Difference	TRUE	0.2	0.2	0.0	0.0
Pass or Invalid Run		Passed Cal.	Passed Cal.	Passed Cal.	Passed Cal.

System Bias.
± 5% of Span

☑ Failed Bias Dialog

Calibration Drift % of Span - D=ABS(SBf - SBi)

Low-Level Drift	TRUE	0.78%	0.00%	0.00%	0.47%
Difference	TRUE	0.7	0.0	0.0	0.1
Pass or Re-Calibrate		Pass	Pass	Pass	Pass
Up-scale Gas Drift	TRUE	0.22%	0.55%	0.00%	0.00%
Difference	TRUE	0.2	0.2	0.0	0.0
Pass or Re-Calibrate		Pass	Pass	Pass	Pass

Drift
3% of Span

☐ Failed Drift Dialog

Division of Air Quality Stack Test Review of
KUC Refinery

CHP Duct Burner Only — **Flow & Moisture**

As ft^2	Pbar	Pq (static)	Ps	Avg Ts F	CO2 - F_{CO2}	O2	N2+C	Md	Ms
15.47	25.90	-0.86	25.84	269	3.40	14.68	81.92	29.13	28.46

Y	Cp	Vm cf	Vlc	A_{VG} Tm F	Vm std	Vw std	Bws	S Bws	3.2480
0.9910	0.82	35.409	42.50	54	31.165	2.000	0.0603	0.9990	0.999

AvgSqrtDlp	Vs	scfm wet	acfm	Qsd dscfh	Heat Input Btu/hr
0.9200	64.2	37,281	59,567	2.102E+6	

#1 - Times
Date

Load - Megawatts		
Low	Mid	High

Point No.	dl "p"	sqrt dl "p"	ts F	tm F (in)	tm F (out)	Cp *3D Probe*	Final Vf	Initial Vi	
1	0.760	0.87	260	54	52		494.1	453	41.1
2	0.750	0.87	261	55	52		432.3	433.2	-0.9
3	0.770	0.88	264	56	52		311.8	311.8	0
4	0.800	0.89	265	57	52		496.6	494.3	2.3
5	1.100	1.05	267	57	52				0
6	1.000	1.00	270	57	52				
7	1.200	1.10	274	57	52				
8	1.100	1.05	271	57	52				
9	0.510	0.71	266	58	52				
10	0.510	0.71	268	58	52				
11	0.540	0.73	268	58	52				
12	0.530	0.73	270	58	52				
13	0.870	0.93	272						
14	1.100	1.05	273						
15	1.100	1.05	273						
16	1.200	1.10	274						
17									
18									
19									
20									
21									
22									
23									
24									

Division of Air Quality Stack Test Review of
KUC Refinery

	SO_2	NO_X	CO	CO_2	O_2	*CHP Duct Burner Only*
CS Calibration Span		90.20	36.10	10.10	21.20	
Units	ppm	ppm	ppm	%	%	
CV - Cylinder Value:	SO_2	NO_X	CO	CO_2	O_2	
Low-Level		**0.00**	**0.00**	**0.00**	**0.00**	
Mid-Level		**40.30**	**15.70**	**5.10**	**10.00**	
High-Level		**90.20**	**36.10**	**10.10**	**21.20**	
0 to 20% of Cal. Span		**0.00%**	**0.00%**	**0.00%**	**0.00%**	
40 to 60% of Cal. Span		**44.7%**	**43.5%**	**50.5%**	**47.2%**	
100% of Cal. Span		**100.0%**	**100.0%**	**100.0%**	**100.0%**	

Cdir - Enter Actual Up-scale Cylinder Value Used To Correct Emission Concentration.

C_{MA}		40.30	36.10	5.10	10.00

Calibration Error Test

Measured Concentration	SO_2	NO_X	CO	CO_2	O_2
Low-Level		**0.00**	**0.00**	**0.00**	**0.00**
Mid-Level		**39.50**	**15.70**	**5.10**	**10.10**
High-Level		**90.20**	**36.20**	**10.10**	**21.20**

Enter Up-scale Analyzer Response to be used during testing.

ACE Eq. 7E-1		39.50	36.20	5.10	10.10

Low-Level		0.00%	0.00%	0.00%	0.00%	
ppmdv Difference		0	0	0	0	
Status		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	
Mid-Level		0.89%	0.00%	0.00%	0.47%	
ppmdv Difference		0.8	0	0	0.1	
Status		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	☐ Failed Cal Error Dialog
High-Level		0.00%	0.28%	0.00%	0.00%	
ppmdv Difference		0	0.1	0	0	
Status		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	

Pre-Test Sampling System Bias

Initial Values	SO_2	NO_X	CO	CO_2	O_2	
C_O - Low-Level		0.70	0.00	0.00	0.10	**System Bias. ± 5% of Span**
SBi - Zero Bias	TRUE	0.78%	0.00%	0.00%	0.47%	
Difference	TRUE	0.7	0	0	0.1	☐ Failed Bias Dialog
Pass or Invalid Run		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	
C_M - Up-scale Gas		39.30	36.00	5.10	10.10	
SBi - Up-Scale Bias	TRUE	0.22%	0.55%	0.00%	0.00%	
Difference	TRUE	0.2	0.2	0	0	
Pass or Invalid Run	**TRUE**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	

Raw Test Data

Test Date: 3/8/2012	SO_2	NO_X	CO	CO_2	O_2
		32.7	**32.3**	**3.4**	**14.8**
	0.0%	**36.3%**	**89.5%**	**33.7%**	**69.8%**

Time	**Start**	**Stop**
SO_2		0:21
NO_X	0:00	0:21
CO	0:00	0:21
CO_2/O_2	0:00	0:21

Post-Test System Bias 7E-2 SB=(Cs - Cdir)/CS x 100

Final Values	SO_2	NO_X	CO	CO_2	O_2	
C_O - Low-Level		1.60	0.00	0.00	0.10	**System Bias. ± 5% of Span**
SBi - Zero Bias	TRUE	1.77%	0.00%	0.00%	0.47%	
Difference	**TRUE**	**1.6**	**0.0**	**0.0**	**0.1**	☐ Failed Bias Dialog
Pass or Invalid Run		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	
C_M - Up-scale Gas		39.90	35.90	5.00	9.90	
SBi - Up-Scale Bias	TRUE	0.44%	0.83%	0.99%	0.94%	
Difference	TRUE	0.4	0.3	0.1	0.2	
Pass or Invalid Run		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	

Calibration Drift % of Span - D=ABS(SBf - SBi)

Low-Level Drift	TRUE	1.00%	0.00%	0.00%	0.00%	Response Spec. **3% of Span**
Difference	TRUE	0.9	0.0	0.0	0.0	
Pass or Re-Calibrate		**Pass**	**Pass**	**Pass**	**Pass**	☐ Failed Drift Dialog
Up-scale Gas Drift	TRUE	0.22%	0.28%	0.99%	0.94%	
Difference	**TRUE**	**0.6**	**0.1**	**0.1**	**0.2**	
Pass or Re-Calibrate		**Pass**	**Pass**	**Pass**	**Pass**	

Division of Air Quality Stack Test Review of
KUC Refinery

CHP Duct Burner Only — **Flow & Moisture**

As ft^2	Pbar	Pq (static)	Ps	Avg Ts F	CO2 - F_{CO2}	O2	N2+C	Md	Ms
15.47	25.90	-0.86	25.84	272	3.43	14.85	81.72	29.14	28.42

Y	Cp	Vm cf	Vlc	A_{VG} Tm F	Vm std	Vw std	Bws	S Bws	3.4311
0.9910	0.82	35.462	45.70	55	31.194	2.151	0.0645	0.9990	0.999

AvgSqrtDlp	Vs	scfm wet	acfm	Qsd dscfh	Heat Input Btu/hr
0.9225	64.6	37,320	59,900	2.095E+6	

Load - Megawatts

Low	Mid	High

#1 - Times
Date

Point No.	dl "p"	sqrt dl "p"	ts F	tm F (in)	tm F (out)	Cp *3D Probe*	Final Vf	Initial Vi	
1	0.740	0.86	262	53	50		480.2	437.6	42.6
2	0.740	0.86	262	55	50		433.4	432.3	1.1
3	0.770	0.88	264	57	50		313	311.8	1.2
4	0.820	0.91	269	58	51		497.4	496.6	0.8
5	0.990	0.99	271	59	51				0
6	1.100	1.05	271	59	51				
7	1.000	1.00	273	59	51				
8	1.000	1.00	276	59	52				
9	0.540	0.73	270	59	52				
10	0.530	0.73	274	59	52				
11	0.580	0.76	275	60	53				
12	0.590	0.77	276	60	53				
13	0.960	0.98	276						
14	1.200	1.10	277						
15	1.100	1.05	276						
16	1.200	1.10	277						
17									
18									
19									
20									
21									
22									
23									
24									

Division of Air Quality Stack Test Review of
KUC Refinery

	SO_2	NO_X	CO	CO_2	O_2	*CHP Duct Burner Only*
CS Calibration Span		90.20	36.10	10.10	21.20	
Units	ppm	ppm	ppm	%	%	
CV - Cylinder Value:	SO_2	NO_X	CO	CO_2	O_2	
Low-Level		**0.00**	**0.00**	**0.00**	**0.00**	
Mid-Level		**40.30**	**15.70**	**5.10**	**10.00**	
High-Level		**90.20**	**36.10**	**10.10**	**21.20**	
0 to 20% of Cal. Span		**0.00%**	**0.00%**	**0.00%**	**0.00%**	
40 to 60% of Cal. Span		**44.7%**	**43.5%**	**50.5%**	**47.2%**	
100% of Cal. Span		**100.0%**	**100.0%**	**100.0%**	**100.0%**	

Cdir - Enter Actual Up-scale Cylinder Value Used To Correct Emission Concentration.

C_{MA}		40.30	36.10	5.10	10.00

Calibration Error Test

Measured Concentration	SO_2	NO_X	CO	CO_2	O_2
Low-Level		**0.00**	**0.00**	**0.00**	**0.00**
Mid-Level		**39.50**	**15.70**	**5.10**	**10.10**
High-Level		**90.20**	**36.20**	**10.10**	**21.20**

Enter Up-scale Analyzer Response to be used during testing.

ACE Eq. 7E-1		39.50	36.20	5.10	10.10
Low-Level		0.00%	0.00%	0.00%	0.00%
ppmv Difference		0	0	0	0
Status		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**
Mid-Level		0.89%	0.00%	0.00%	0.47%
ppmv Difference		0.8	0	0	0.1
Status		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**
High-Level		0.00%	0.28%	0.00%	0.00%
ppmv Difference		0	0.1	0	0
Status		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**

☐ Failed Cal Error Dialog

Pre-Test Sampling System Bias

Initial Values	SO_2	NO_X	CO	CO_2	O_2
C_O - Low-Level		1.60	0.00	0.00	0.10
SBi - Zero Bias	TRUE	1.77%	0.00%	0.00%	0.47%
Difference	TRUE	1.6	0	0	0.1
Pass or Invalid Run		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**
C_M - Up-scale Gas		39.90	35.90	5.00	9.90
SBi - Up-Scale Bias	TRUE	0.44%	0.83%	0.99%	0.94%
Difference	TRUE	0.4	0.3	0.1	0.2
Pass or Invalid Run	**TRUE**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**

System Bias.
± 5% of Span

☐ Failed Bias Dialog

Raw Test Data

Test Date: 3/8/2012

	SO_2	NO_X	CO	CO_2	O_2
		32.9	**24.5**	**3.4**	**14.7**
	0.0%	**36.5%**	**67.9%**	**33.7%**	**69.3%**

Time	**Start**	**Stop**
SO_2		0:21
NO_X	0:00	0:21
CO	0:00	0:21
CO_2/O_2	0:00	0:21

Post-Test System Bias 7E-2 SB=(Cs - Cdir)/CS x 100

Final Values	SO_2	NO_X	CO	CO_2	O_2
C_O - Low-Level		1.40	0.00	0.00	0.00
SBi - Zero Bias	TRUE	1.55%	0.00%	0.00%	0.00%
Difference	**TRUE**	**1.4**	**0.0**	**0.0**	**0.0**
Pass or Invalid Run		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**
C_M - Up-scale Gas		40.10	36.00	5.10	10.00
SBi - Up-Scale Bias	TRUE	0.67%	0.55%	0.00%	0.47%
Difference	TRUE	0.6	0.2	0.0	0.1
Pass or Invalid Run		**Passed Cal.**	**Passed Cal.**	**Passed Cal.**	**Passed Cal.**

System Bias.
± 5% of Span

☐ Failed Bias Dialog

Calibration Drift % of Span - D=ABS(SBf - SBi)

Low-Level Drift	TRUE	0.22%	0.00%	0.00%	0.47%
Difference	TRUE	0.2	0.0	0.0	0.1
Pass or Re-Calibrate		**Pass**	**Pass**	**Pass**	**Pass**
Up-scale Gas Drift	TRUE	0.22%	0.28%	0.99%	0.47%
Difference	**TRUE**	**0.2**	**0.1**	**0.1**	**0.1**
Pass or Re-Calibrate		**Pass**	**Pass**	**Pass**	**Pass**

Response Spec.
3% of Span

☐ Failed Drift Dialog

Division of Air Quality Stack Test Review of
KUC Refinery

CHP Duct Burner Only — **Flow & Moisture**

As ft^2	Pbar	Pq (static)	Ps	Avg Ts F	CO2 - F_{CO2}	O2	N2+C	Md	Ms
15.47	25.90	-0.86	25.84	270	3.43	14.80	81.77	29.14	28.33

Y	Cp	Vm cf	Vlc	A_{VG} Tm F	Vm std	Vw std	Bws	S Bws	3.3299
0.9910	0.82	35.642	51.90	58	31.163	2.443	0.0727	0.9990	0.999

AvgSqrtDlp	Vs	scfm wet	acfm	Qsd dscfh	Heat Input Btu/hr
0.9283	65.0	37,666	60,306	2.096E+6	

Load - Megawatts

Low	Mid	High

#1 - Times
Date

Point No.	dl "p"	sqrt dl "p"	ts F	tm F (in)	tm F (out)	Cp *3D Probe*	Final Vf	Initial Vi	
1	0.740	0.86	**259**	**56**	53		522.2	480.2	42
2	0.750	0.87	263	58	53		434	433.4	0.6
3	0.810	0.90	265	60	53		315.6	313	2.6
4	0.860	0.93	266	61	54		504.1	497.4	6.7
5	1.000	1.00	268	62	54				0
6	1.200	1.10	271	62	55				
7	1.200	1.10	273	62	55				
8	1.200	1.10	274	63	55				
9	0.520	0.72	269	63	55				
10	0.510	0.71	270	62	56				
11	0.550	0.74	271	62	56				
12	0.600	0.77	273	62	56				
13	0.930	0.96	274						
14	1.100	1.05	274						
15	1.100	1.05	275						
16	1.000	1.00	275						
17									
18									
19									
20									
21									
22									
23									
24									

Document Date 4/4/2013

DAQ-2013-004758

DAQC-395-13
Site ID 10346 (B4)

MEMORANDUM

To: **STACK TEST FILE – KENNECOTT UTAH COPPER – REFINERY**

Through: Harold Burge, Major Source Compliance Section Manager

From: Rob Leishman, Environmental Scientist

Date: 4/11/2013

Subject:

Company:	Kennecott Utah Copper
Location:	Kennecott Utah Copper Refinery, 12000 West 2100 South, Magna, Salt Lake County, Utah
Contact:	Jennifer Sekulski-Barton, 801-569-6331
Tester:	Air Pollution Testing, Inc.
Source:	Refinery Cathode Washing (REF004), Hydrometallurgical Precious Metals Recovery (REF006) and Hydrometallurgical Silver Production (REF007)
Airs #:	035-00030
Permit#	Title V operating permit 3500030002 dated 7/9/2007
Action Code:	3A
Subject:	Review of Stack Test Report dated 7/6/2012

On 7/9/2012, DAQ received a test report for the Kennecott Utah Copper Refinery Units REF004, REF006, and REF007 in Magna, Utah. Testing was performed on 5/8-11/2012, to demonstrate compliance with the Title V operating permit dated 7/9/2007 Conditions II.B.37.a, II.B.39.a, II.B.39.b, II.B.39.c, II.B.39.e, II.B.41.b, and II.B.41.c for sulfuric acid mist, SO_2, HCl, Pb and NH_3 emissions. The DAQ-calculated test results are:

Source	Test Date	Pollutant	Result	Limit
REF004	5/8/2012	H_2SO_4 Mist	0.0001 gr/dscf 0.007 lb/hr	0.0008 gr/dscf 0.12 lb/hr
REF006	5/11/2012	SO_3/H_2SO_4 Mist	0.0002 gr/dscf 0.014 lb/hr	0.005 gr/dscf 0.36 lb/hr
		SO_2	0.1 lb/hr	1.7 lb/hr
		HCl	0.00008 gr/dscf 0.005 lb/hr	0.005 gr/dscf 0.22 lb/hr
		Pb	0.0001 lb/hr	0.02 lb/hr
REF007	5/8/2012	H_2SO_4 Mist	0.0002 gr/dscf 0.004 lb/hr	0.009 gr/dscf 0.22 lb/hr
		NH_3	0.03 lb/hr	0.14 lb/hr

DEVIATIONS: None noted.

CONCLUSION: The sulfuric acid mist, SO_2, HCl, Pb and NH_3 emissions were in compliance

with the applicable limits at the time of testing.

RECOMMENDATION: No further action is necessary.

HPV: No compliance action is recommended.

Division of Air Quality
Compliance Demonstration
Method 8 - Sulfuric Acid Mist

Source Information

Company Name	**Kennecott Utah Copper - Refinery Cathod Scrap Wash (REF 004)**
Company Contact:	**Jennifer Sekulski Barton**
Contact Phone No.	**801-569-6331**
Source Designation:	**Refinery Cathod Scrap Wash (REF 004)**

Test & Review Dates

Test Date:	5/9/2012	
Review Date:	4/8/2013	Tabs Are Shown
Observer:	**Rob Leishman**	
Reviewer:	**Rob Leishman**	

Particulate Emission Limits

lbs/MMBtu	lbs/hr	gr/dscf		
	0.120	0.001		

Emission Rates - "Front Half"

lbs/MMBtu	**lbs/hr**	**gr/dscf**		
	0.0066	**0.0001**		

Test Information

Stack_I.D._inches	**As ft^2**	Y	Dl H @	Cp	Pbar	Pq (static)	**Dn**
23.50	3.01	0.9870	1.54	0.831	25.63	1.1	0.195

Round

Contractor Information

Contracting Company:	Air Pollution Testing (APT)
Contact:	Andrew Burning - Alex Mongold
Phone No.:	801-974-0481
Project No.:	

F factors for Coal, Oil, and Gas

	Fd scf/MMBtu	Fw scf/MMBtu	Fc scf/MMBtu
COAL			
Anthrocite 2	10100	10540	1970
Bituminous 2	9780	10640	1800
Lignite	9860	11950	1910
OIL	9190	320	1420
GAS			
Natural	8710	10610	1040
Propane	8710	10200	1190
Butane	8710	10390	1250

☐ F factor used

lbs/MMBtu
- O2
- CO2

Summary

Division of Air Quality

Reference Methods 5 - TSP

Compliance Demonstration of

Kennecott Utah Copper - Refinery Cathod Scrap Wash (REF 004)

Testing Results				
Test Date	5/9/2012	5/9/2012	5/9/2012	5/9/2012
Round	Run 1	Run 2	Run 3	Run 4
As ft^2	3.01	3.01	3.01	
Pbar	25.63	25.63	25.63	
Pq (static)	1.10	1.10	1.10	
Ps	25.71	25.71	25.71	
Avg. Ts F	113.25	113.04	113.88	
CO2 - F_{CO2}	0.00	0.00	0.00	
O2	21.00	21.00	21.00	
N2+C	79.00	79.00	79.00	
Md	28.84	28.84	28.84	
Ms	27.63	27.65	27.62	
Y	0.99	0.99	0.99	
Cp	0.83	0.83	0.83	
Vm cf	41.76	43.04	46.98	
Vlc	96.20	90.50	101.30	
$A_{VG.}$ Tm F	63.67	95.21	98.48	
Vm std	35.71	34.70	37.68	
Vw std	4.53	4.26	4.77	
Bws	0.11	0.11	0.11	
S Bws	0.11	0.11	0.11	
Avg. Sqrt Dlp	1.04	1.00	1.08	
Vs	66.55	63.52	68.73	
scfm wet	9519.41	9088.82	9821.02	
acfm	12027.18	11478.99	12421.78	
Qsd dscfh	507669.37	485709.22	523076.17	
# Sample Points	8.00	8.00	8.00	
Dn	0.195	0.195	0.195	
An	2.07E-04	2.07E-04	2.07E-04	
Start Time				
End Time				
Total Test time	60.00	60.00	60.00	
Time @ point	2.50	2.50	2.50	

	Lab Data - grams collected			
Lab Data	Probe	Filter	Back	Titrant Volume
Run 1	0	7.1098E-05		0.1
Run 2	0	0.000213294		0.2
Run 3	0	0.00035549		0.3
Run 4				

Front Half Emissions Summary					
	Run 1	Run 2	Run 3	Run 4	Avg.
gr./dscf	0.000031	0.000095	0.000146		0.000090
lbs/hr	0.002229	0.006582	0.010880		0.00656
lbs/MMBtu					

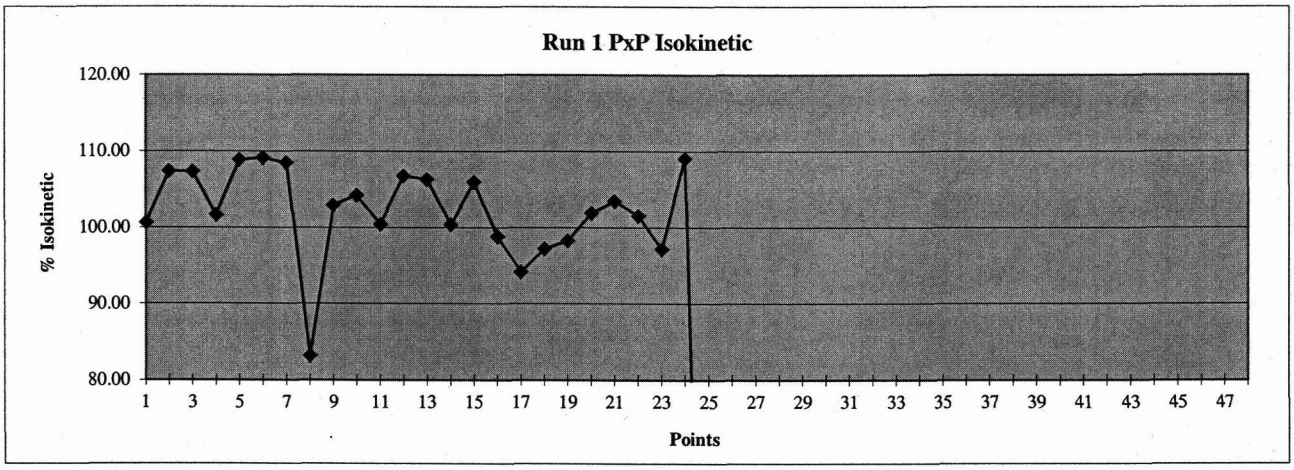
Total Emissions Summary w/back half condensable					
	Run 1	Run 2	Run 3	Run 4	Avg.
gr./dscf	0.0000	0.0001	0.0001		0.0001
lbs/hr	0.0022	0.0066	0.0109		0.0066
lbs/MMBtu					

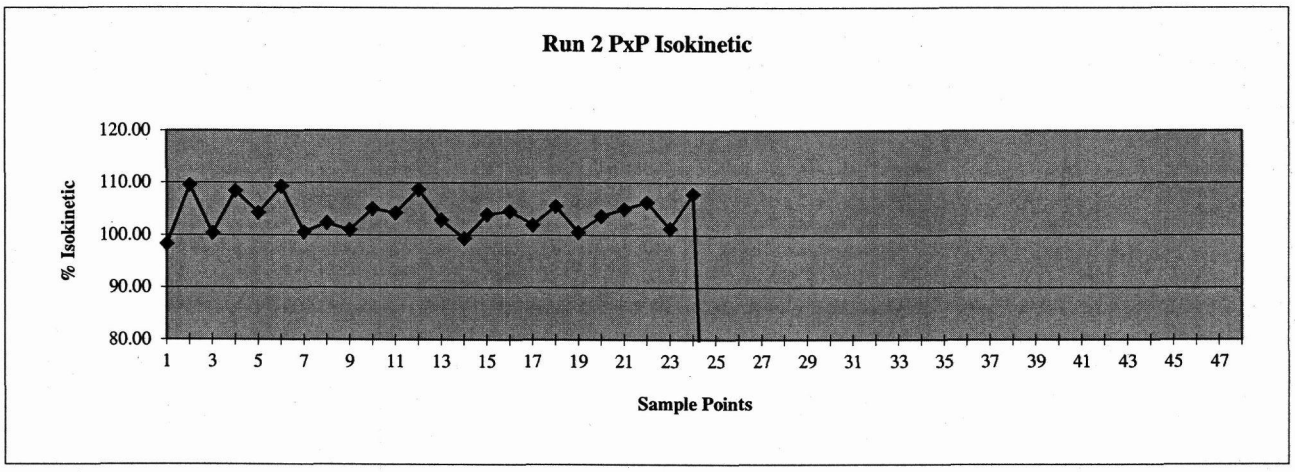
lbs/MMBtu

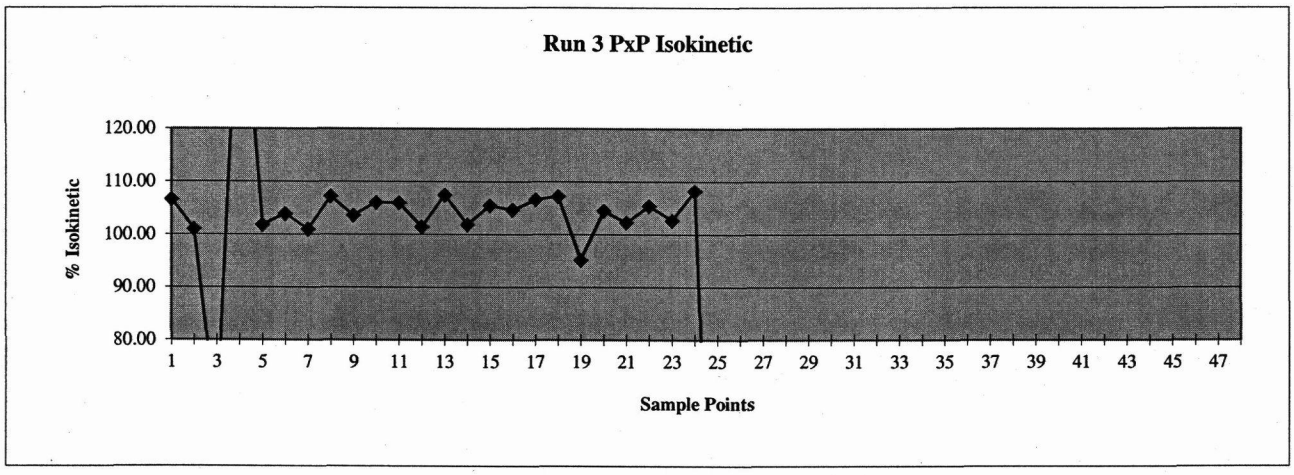
O2

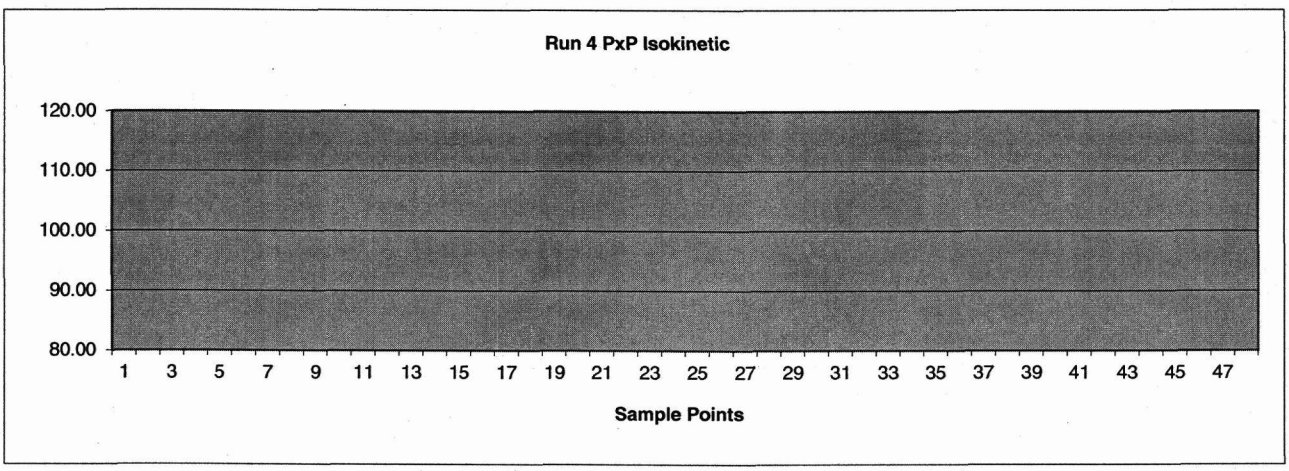
CO2

F factor used


Run 1 PxP Isokinetic
% Isokinetic
120.00
110.00
100.00
90.00
80.00
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45 47
Points


Run 2 PxP Isokinetic
% Isokinetic
120.00
110.00
100.00
90.00
80.00
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45 47
Sample Points


Run 3 PxP Isokinetic
% Isokinetic
120.00
110.00
100.00
90.00
80.00
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45 47
Sample Points


Run 4 PxP Isokinetic
120.00
110.00
100.00
90.00
80.00
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45 47
Sample Points

Kennecott Utah Copper - Re				Flow & Moisture			Test Date	5/9/2012	
As ft^2	Pbar	Pq (static)	Ps	Avg. Ts F	CO2 - F_{CO2}	O2	N2+C	Md	Ms
3.01	25.63	1.10	25.71	113	0.00	21.00	79.00	28.84	27.63
Y	Cp	Vm cf	Vlc	Avg. Tm F	Vm std	Vw std	Bws	S Bws	0.1112
0.9870	0.83	41.764	96.20	63.67	35.710	4.528	0.1125	0.1112	0.999
Avg. Sqrt Dlp	Vs	scfm wet	acfm	Qsd dscfh	# Sample Points	Dn	Total Test time (minutes)	Time @ point (minutes)	Avg. Dlh
1.043	66.55	9,519	12,027	5.08E+05	8	0.195	60	2.50	1.185417
					TRUE				

Point No.	Meter (cf)	dl "p"	dl "h"	ts F	tm F (in)	tm F (out)
1	542.612	0.74	0.78	112	54	54
2	544.000	1.10	1.20	112	53	53
3	545.800	1.10	1.20	115	56	53
4	547.600	1.10	1.20	119	57	53
5	549.300	0.95	1.00	119	59	55
6	551.000	0.55	0.58	117	59	55
7	552.300	0.95	1.00	116	60	55
8	554.000	0.94	1.00	113	60	55
9	555.300	1.60	1.70	112	61	56
10	557.400	1.70	1.80	111	63	57
11	559.600	1.50	1.60	111	66	58
12	561.600	1.20	1.30	113	66	58
13	563.500	0.96	1.00	113	68	60
14	565.200	0.95	1.00	114	69	62
15	566.800	1.20	1.30	113	70	62
16	568.700	1.10	1.20	113	71	63
17	570.400	0.94	1.00	114	72	64
18	571.900	0.56	0.59	113	73	65
19	573.100	0.85	0.90	112	76	66
20	574.600	1.70	1.80	111	76	68
21	576.800	1.50	1.60	111	76	68
22	578.900	1.40	1.50	111	79	70
23	580.900	1.10	1.20	112	80	71
24	582.600	0.95	1.00	111	80	71
25	584.376					
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47						
48						

Imp. Liquid Collected		
Wt. (Final)	Wt. (Initial)	lc
718.0	709.3	8.7
663.1	634.8	28.3
762.2	729.7	32.5
744.2	730.7	13.5
855.2	842.0	13.2

Isokinetics	102.4	
Test Date	5/9/2012	
Start Time	enter	enter
End Time	enter	

Kennecott Utah Copper - Re				Flow & Moisture			Test Date	5/13/2009	
As ft^2	Pbar	Pq (static)	Ps	Avg. Ts F	CO2 - F_{CO2}	O2	N2+C	Md	Ms
3.01	25.63	1.10	25.71	113	0.00	21.00	79.00	28.84	27.65
Y	Cp	Vm cf	Vlc	Avg. Tm F	Vm std	Vw std	Bws	S Bws	0.1105
0.9870	0.83	43.037	90.50	95	34.704	4.260	0.1093	0.1105	0.999
Avg. Sqrt Dlp	Vs	scfm wet	acfm	Qsd dscfh	# Sample Points	Dn	Total Test time (minutes)	Time @ point (minutes)	Avg. Dlh
0.996	63.52	9,089	11,479	4.86E+05	8	0.195	60	2.50	1.15
					TRUE				

Point No.	Meter (cf)	dl "p"	dl "h"	ts F	tm F (in)	tm F (out)
1	585.686	0.90	1.00	112.0	92.0	95.0
2	587.300	0.90	1.00	110.0	92.0	94.0
3	589.100	1.20	1.40	110.0	91.0	94.0
4	591.000	0.82	0.93	112.0	93.0	94.0
5	592.700	0.88	0.99	108.0	94.0	94.0
6	594.400	0.40	0.45	111.0	94.0	94.0
7	595.600	0.74	0.89	111.0	94.0	94.0
8	597.100	1.40	1.60	110.0	95.0	94.0
9	599.200	1.30	1.50	110.0	96.0	94.0
10	601.200	1.20	1.40	111.0	96.0	96.0
11	603.200	1.10	1.20	112.0	96.0	96.0
12	605.100	0.91	1.00	112.0	95.0	95.0
13	606.900	0.81	0.92	115.0	94.0	94.0
14	608.500	0.76	0.86	115.0	95.0	95.0
15	610.000	1.00	1.10	115.0	96.0	95.0
16	611.800	1.10	1.20	115.0	96.0	96.0
17	613.700	0.93	1.10	118.0	96.0	96.0
18	615.400	0.76	0.86	114.0	98.0	96.0
19	617.000	0.95	1.10	114.0	97.0	95.0
20	618.700	1.00	1.10	114.0	98.0	95.0
21	620.500	1.60	1.80	115.0	98.0	95.0
22	622.800	1.30	1.50	115.0	98.0	95.0
23	624.900	1.30	1.50	117.0	99.0	96.0
24	626.900	0.95	1.10	117.0	99.0	96.0
25	628.723					
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Imp. Liquid Collected		
Wt. (Final)	Wt. (Initial)	lc
712.90	703.60	9.3
638.30	621.50	16.8
779.30	751.10	28.2
757.00	742.50	14.5
888.4	866.7	21.7

Isokinetics	103.8
Test Date	5/9/2012
Start Time	enter
End Time	enter

Kennecott Utah Copper - Rc				Flow & Moisture			Test Date	5/13/2009	
As ft^2	Pbar	Pq (static)	Ps	Avg. Ts F	CO2 - F_{CO2}	O2	N2+C	Md	Ms
3.01	25.63	1.10	25.71	114	0.00	21.00	79.00	28.84	27.62
Y	Cp	Vm cf	Vlc	Avg. Tm F	Vm std	Vw std	Bws	S Bws	0.1132
0.9870	0.83	46.979	101.30	98	37.684	4.768	0.1123	0.1132	0.999
Avg. Sqrt Dlp	Vs	scfm wet	acfm	Qsd dscfh	# Sample Points	Dn	Total Test time (minutes)	Time @ point (minutes)	Avg. Dlh
1.076	68.73	9,821	12,422	5.23E+05	8	0.195	60	2.50	1.36
					TRUE				

Point No.	Meter (cf)	dl "p"	dl "h"	ts F	tm F (in)	tm F (out)
1	628.964	1.50	1.70	115.0	90.0	93.0
2	631.200	1.20	1.40	116.0	92.0	94.0
3	633.100	0.97	1.10	113.0	92.0	94.0
4	634.200	0.95	1.10	115.0	93.0	94.0
5	636.800	0.63	0.72	111.0	94.0	95.0
6	638.200	0.79	0.90	110.0	94.0	95.0
7	639.800	0.95	1.10	116.0	96.0	96.0
8	641.500	1.40	1.60	112.0	97.0	97.0
9	643.700	1.50	1.70	112.0	98.0	96.0
10	645.900	1.30	1.50	114.0	100.0	97.0
11	648.000	1.30	1.50	114.0	100.0	98.0
12	650.100	0.93	1.10	114.0	100.0	97.0
13	651.800	1.40	1.60	116.0	98.0	97.0
14	654.000	1.40	1.60	110.0	98.0	99.0
15	656.100	1.30	1.50	111.0	100.0	100.0
16	658.200	1.20	1.40	114.0	102.0	100.0
17	660.200	0.94	1.10	117.0	102.0	100.0
18	662.000	0.64	0.93	114.0	102.0	101.0
19	663.500	0.52	0.59	116.0	103.0	101.0
20	664.700	1.20	1.40	115.0	103.0	102.0
21	666.700	1.80	2.00	113.0	104.0	102.0
22	669.100	1.70	1.90	115.0	104.0	102.0
23	671.500	1.50	1.70	115.0	104.0	103.0
24	673.700	1.40	1.60	115.0	105.0	103.0
25	675.943					
26						
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Imp. Liquid Collected		
Wt. (Final)	Wt. (Initial)	lc
711.5	716.8	-5.3
669.3	639.0	30.3
756.8	722.7	34.1
742.4	723.6	18.8
878.5	855.1	23.4

Isokinetics	104.7
Test Date	5/9/2012
Start Time	enter
End Time	enter

Division of Air Quality
Compliance Demonstration
Method 8 - Sulfuric Acid Mist

Source Information

Company Name	**Kennecott Utah Copper - Refinery Hydromet Precious (REF 006)**
Company Contact:	**Jennifer Sekulski Barton**
Contact Phone No.	**801-569-6331**
Source Designation:	**Refinery Hydromet Precious (REF 006)**

Test & Review Dates

Test Date:	5/11/2012
Review Date:	4/8/2013
Observer:	**Rob Leishman**
Reviewer:	**Rob Leishman**

Tabs Are Shown

Particulate Emission Limits

lbs/MMBtu	lbs/hr	gr/dscf		
	0.360	0.005		

Emission Rates - "Front Half"

lbs/MMBtu	**lbs/hr**	**gr/dscf**		
	0.0136	**0.0002**		

Test Information

Stack_I.D._inches	**As ft^2**	Y	Dl H @	Cp	Pbar	Pq (static)	**Dn**
36.00	7.07	1.0040	1.78	0.82	25.66	0.08	0.334

Round

Contractor Information

Contracting Company:	Air Pollution Testing (APT)
Contact:	Andrew Burning - Alex Mongold
Phone No.:	801-974-0481
Project No.:	

F factors for Coal, Oil, and Gas

	Fd scf/MMBtu	Fw scf/MMBtu	Fc scf/MMBtu
COAL			
Anthrocite 2	10100	10540	1970
Bituminous 2	9780	10640	1800
Lignite	9860	11950	1910
OIL	9190	320	1420
GAS			
Natural	8710	10610	1040
Propane	8710	10200	1190
Butane	8710	10390	1250

F factor used

lbs/MMBtu

O2

CO2

Summary

Division of Air Quality

Reference Methods 5 - TSP

Compliance Demonstration of

Kennecott Utah Copper - Refinery Hydromet Precious (REF 006)

Testing Results				
Test Date	5/11/2012	5/11/2012	5/11/2012	5/11/2012
Round	Run 1	Run 2	Run 3	Run 4
As ft^2	7.07	7.07	7.07	
Pbar	25.66	25.66	25.66	
Pq (static)	0.08	0.08	0.08	
Ps	25.67	25.67	25.67	
Avg. Ts F	89.25	90.83	92.67	
CO2 - F_{CO2}	0.00	0.00	0.00	
O2	21.00	21.00	21.00	
N2+C	79.00	79.00	79.00	
Md	28.84	28.84	28.84	
Ms	28.41	28.36	28.34	
Y	1.00	1.00	1.00	
Cp	0.82	0.82	0.82	
Vm cf	45.02	45.36	45.43	
Vlc	34.00	37.80	39.10	
$A_{VG.}$ Tm F	70.17	73.21	79.92	
Vm std	38.76	38.82	38.40	
Vw std	1.60	1.78	1.84	
Bws	0.04	0.04	0.05	
S Bws	0.05	0.06	0.06	
Avg. Sqrt Dlp	0.36	0.36	0.36	
Vs	21.77	21.68	21.72	
scfm wet	7615.28	7560.13	7550.33	
acfm	9234.77	9194.32	9212.97	
Qsd dscfh	438798.93	433730.32	432302.94	
# Sample Points	16.00	16.00	16.00	
Dn	0.334	0.334	0.334	
An	6.08E-04	6.08E-04	6.08E-04	
Start Time				
End Time				
Total Test time	60.00	60.00	60.00	
Time @ point	5.00	5.00	5.00	

	Lab Data - grams collected			
Lab Data	Probe	Filter	Back	Titrant Volume
Run 1	0	0.000924274		0.7
Run 2	0	0.000213294		0.2
Run 3	0	0.000497686		0.4
Run 4				

Front Half Emissions Summary					
	Run 1	Run 2	Run 3	Run 4	Avg.
gr./dscf	0.000368	0.000085	0.000200		0.000218
lbs/hr	0.023072	0.005254	0.012353		0.01356
lbs/MMBtu					

Total Emissions Summary w/back half condensable					
	Run 1	Run 2	Run 3	Run 4	Avg.
gr./dscf	0.0004	0.0001	0.0002		0.00022
lbs/hr	0.0231	0.0053	0.0124		0.01356
lbs/MMBtu					

lbs/MMBtu

O2

CO2

F factor used

Division of Air Quality
Compliance Demonstration
Method 8 - Sulfur Dioxide (SO2)

Source Information

Company Name	**Kennecott Utah Copper - Refinery Hydromet Precious (REF 006)**
Company Contact:	**Jennifer Sekulski Barton**
Contact Phone No.	**801-569-6331**
Source Designation:	**Refinery Hydromet Precious (REF 006)**

Test & Review Dates

Test Date:	5/11/2012	
Review Date:	4/8/2013	Tabs Are Shown
Observer:	**Rob Leishman**	
Reviewer:	**Rob Leishman**	

Particulate Emission Limits

lbs/MMBtu	lbs/hr	gr/dscf		
	1.700			

Emission Rates - "Front Half"

lbs/MMBtu	**lbs/hr**	**gr/dscf**		
	0.1227	**0.0020**		

Test Information

Stack_I.D._inches	**As ft^2**	Y	Dl H @	Cp	Pbar	Pq (static)	**Dn**
36.00	7.07	1.0040	1.78	0.82	25.66	0.08	0.334

Round

Contractor Information

Contracting Company:	Air Pollution Testing (APT)
Contact:	Andrew Burning - Alex Mongold
Phone No.:	801-974-0481
Project No.:	

F factors for Coal, Oil, and Gas

	Fd scf/MMBtu	Fw scf/MMBtu	Fc scf/MMBtu
COAL			
Anthrocite 2	10100	10540	1970
Bituminous 2	9780	10640	1800
Lignite	9860	11950	1910
OIL	9190	320	1420
GAS			
Natural	8710	10610	1040
Propane	8710	10200	1190
Butane	8710	10390	1250

☐ F factor used

lbs/MMBtu
- O2
- CO2

Summary

Division of Air Quality

Reference Methods 8 - SO2

Compliance Demonstration of

Kennecott Utah Copper - Refinery Hydromet Precious (REF 006)

Testing Results				
Test Date	5/11/2012	5/11/2012	5/11/2012	5/11/2012
Round	Run 1	Run 2	Run 3	Run 4
As ft^2	7.07	7.07	7.07	
Pbar	25.66	25.66	25.66	
Pq (static)	0.08	0.08	0.08	
Ps	25.67	25.67	25.67	
Avg. Ts F	89.25	90.83	92.67	
CO2 - F_{CO2}	0.00	0.00	0.00	
O2	21.00	21.00	21.00	
N2+C	79.00	79.00	79.00	
Md	28.84	28.84	28.84	
Ms	28.41	28.36	28.34	
Y	1.00	1.00	1.00	
Cp	0.82	0.82	0.82	
Vm cf	45.02	45.36	45.43	
Vlc	34.00	37.80	39.10	
$A_{VG.}$ Tm F	70.17	73.21	79.92	
Vm std	38.76	38.82	38.40	
Vw std	1.60	1.78	1.84	
Bws	0.04	0.04	0.05	
S Bws	0.05	0.06	0.06	
Avg. Sqrt Dlp	0.36	0.36	0.36	
Vs	21.77	21.68	21.72	
scfm wet	7615.28	7560.13	.7550.33	
acfm	9234.77	9194.32	9212.97	
Qsd dscfh	438798.93	433730.32	432302.94	
# Sample Points	16.00	16.00	16.00	
Dn	0.334	0.334	0.334	
An	6.08E-04	6.08E-04	6.08E-04	
Start Time				
End Time				
Total Test time	60.00	60.00	60.00	
Time @ point	5.00	5.00	5.00	

	Lab Data - grams collected			
Lab Data	Probe	Filter	Back	Titrant Volume
Run 1	0	0.001857623		0.1
Run 2	0	0.00557287		0.2
Run 3	0	0.007430494		0.25
Run 4				

Front Half Emissions Summary					
	Run 1	Run 2	Run 3	Run 4	Avg.
gr./dscf	0.000740	0.002215	0.002986		0.001980
lbs/hr	0.046371	0.137280	0.184430		0.12269
lbs/MMBtu					

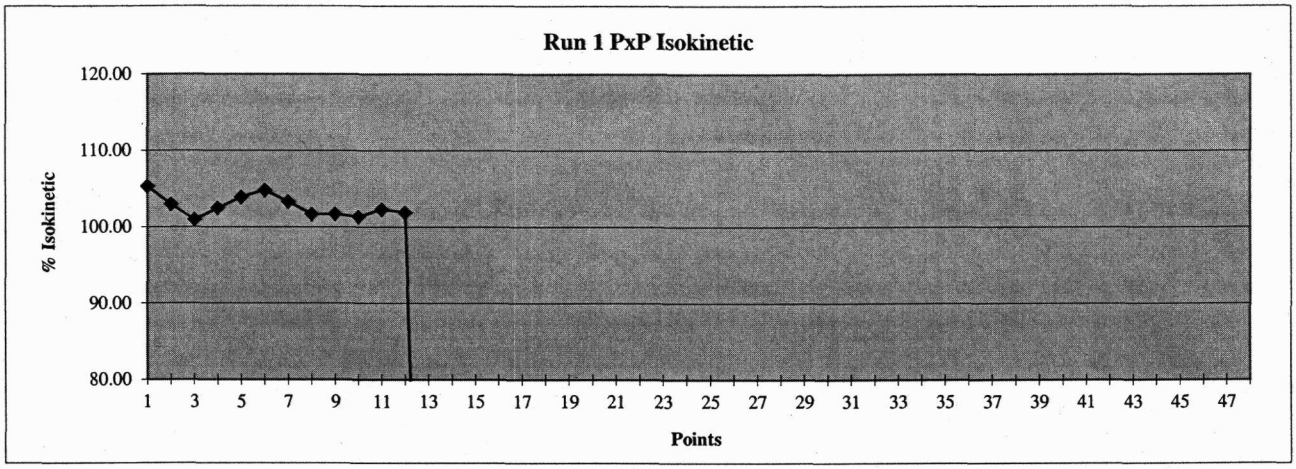
Total Emissions Summary w/back half condensable					
	Run 1	Run 2	Run 3	Run 4	Avg.
gr./dscf	0.0007	0.0022	0.0030		0.00198
lbs/hr	0.0464	0.1373	0.1844		0.12269
lbs/MMBtu					

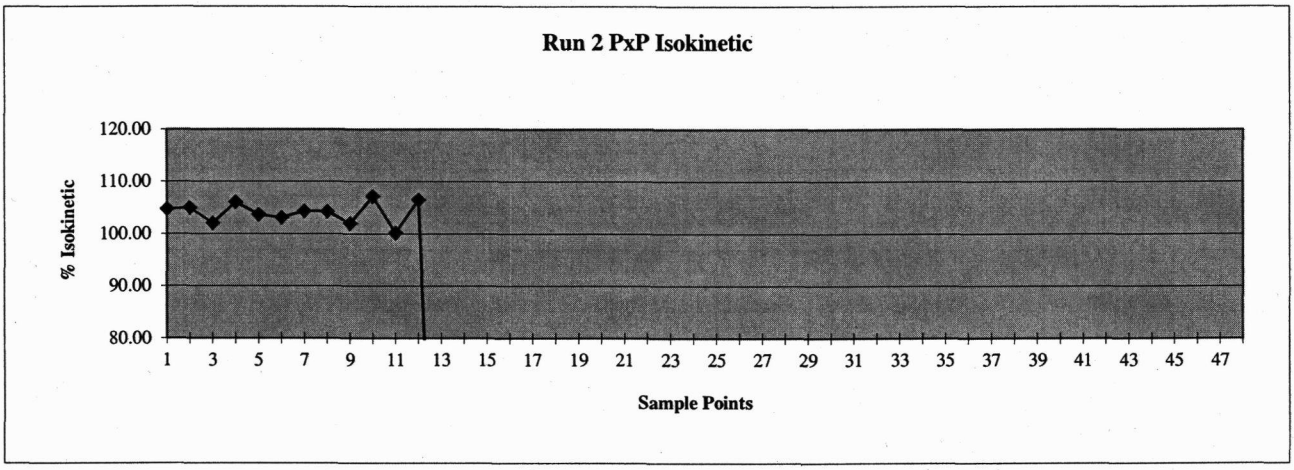
lbs/MMBtu

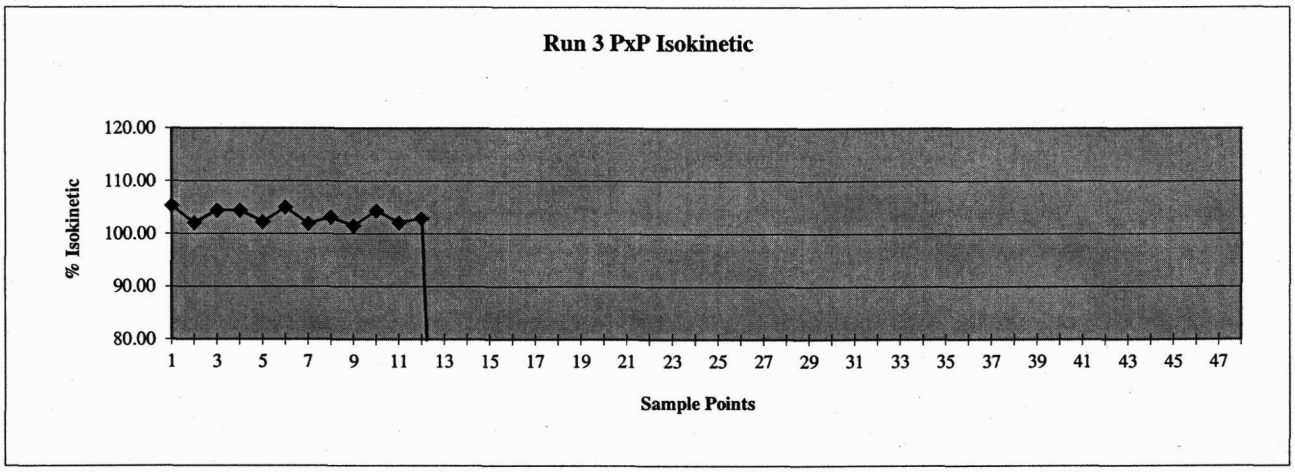
O2

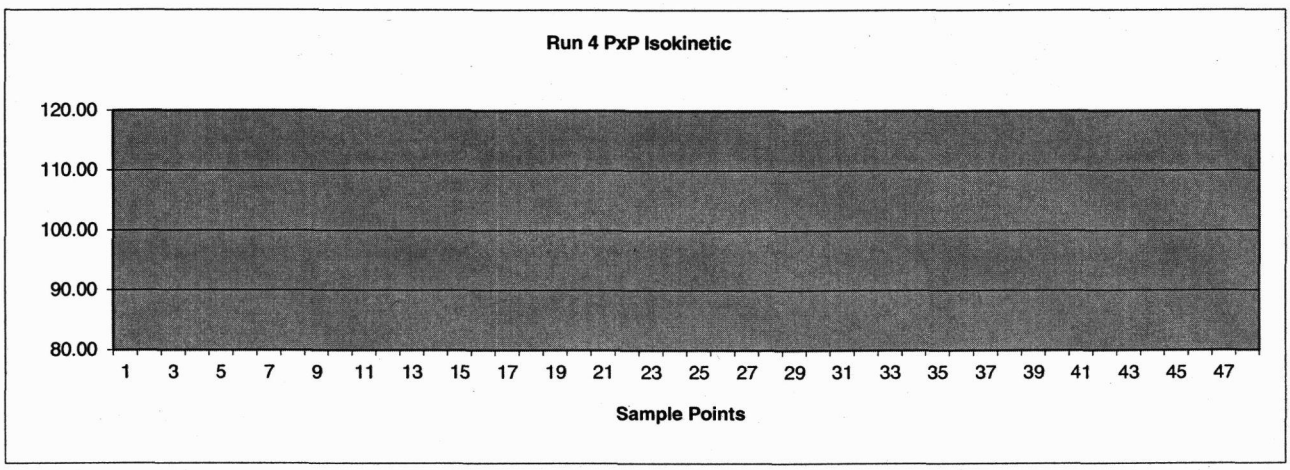
CO2

F factor used


Run 1 PxP Isokinetic
% Isokinetic
120.00
110.00
100.00
90.00
80.00
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45 47
Points


Run 2 PxP Isokinetic
% Isokinetic
120.00
110.00
100.00
90.00
80.00
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45 47
Sample Points


Run 3 PxP Isokinetic
% Isokinetic
120.00
110.00
100.00
90.00
80.00
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45 47
Sample Points


Run 4 PxP Isokinetic
120.00
110.00
100.00
90.00
80.00
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45 47
Sample Points

Kennecott Utah Copper - R				Flow & Moisture			Test Date	5/11/2012	
As ft^2	Pbar	Pq (static)	Ps	Avg. Ts F	CO2 - F_{CO2}	O2	N2+C	Md	Ms
7.07	25.66	0.08	25.67	89	0.00	21.00	79.00	28.84	28.41
Y	Cp	Vm cf	Vlc	Avg. Tm F	Vm std	Vw std	Bws	S Bws	0.0543
1.0040	0.82	45.020	34.00	70.17	38.760	1.600	0.0397	0.0543	0.999
Avg. Sqrt Dlp	Vs	scfm wet	acfm	Qsd dscfh	# Sample Points	Dn	Total Test time (minutes)	Time @ point (minutes)	Avg. Dlh
0.358	21.77	7,615	9,235	4.39E+05	16	0.334	60	5.00	1.533333
					FALSE				

Point No.	Meter (cf)	dl "p"	dl "h"	ts F	tm F (in)	tm F (out)
1	513.818	0.12	1.40	86.0	62.0	63.0
2	517.500	0.12	1.40	87.0	63.0	63.0
3	521.100	0.13	1.60	88.0	71.0	64.0
4	524.800	0.14	1.70	89.0	73.0	64.0
5	528.700	0.15	1.80	89.0	74.0	65.0
6	532.800	0.12	1.40	90.0	74.0	65.0
7	536.500	0.11	1.30	90.0	75.0	66.0
8	540.000	0.12	1.40	90.0	75.0	67.0
9	543.600	0.14	1.70	90.0	77.0	69.0
10	547.500	0.14	1.70	90.0	79.0	71.0
11	551.400	0.13	1.60	91.0	80.0	72.0
12	555.200	0.12	1.40	91.0	80.0	72.0
13	558.838					
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Imp. Liquid Collected		
Wt. (Final)	Wt. (Initial)	lc
667.0	698.7	-31.7
631.7	620.9	10.8
790.6	763.5	27.1
748.0	735.5	12.5
903.5	888.2	15.3

Isokinetics	102.7	
Test Date	5/11/2012	
Start Time	enter	enter
End Time	enter	

Kennecott Utah Copper - Re				Flow & Moisture			Test Date	5/13/2009	
As ft^2	Pbar	Pq (static)	Ps	Avg. Ts F	CO2 - F_{CO2}	O2	N2+C	Md	Ms
7.07	25.66	0.08	25.67	91	0.00	21.00	79.00	28.84	28.36
Y	Cp	Vm cf	Vlc	Avg. Tm F	Vm std	Vw std	Bws	S Bws	0.0571
1.0040	0.82	45.355	37.80	73	38.824	1.779	0.0438	0.0571	0.999
Avg. Sqrt Dlp	Vs	scfm wet	acfm	Qsd dscfh	# Sample Points	Dn	Total Test time (minutes)	Time @ point (minutes)	Avg. Dlh
0.356	21.68	7,560	9,194	4.34E+05	16	0.334	60	5.00	1.52
					FALSE				

Point No.	Meter (cf)	dl "p"	dl "h"	ts F	tm F (in)	tm F (out)
1	558.968	0.11	1.30	90.0	69.0	71.0
2	562.500	0.12	1.40	90.0	70.0	71.0
3	566.200	0.12	1.40	90.0	71.0	71.0
4	569.800	0.13	1.60	90.0	73.0	71.0
5	573.700	0.15	1.80	90.0	76.0	70.0
6	577.800	0.13	1.60	90.0	77.0	70.0
7	581.600	0.12	1.40	91.0	78.0	70.0
8	585.300	0.12	1.40	91.0	79.0	70.0
9	589.000	0.14	1.70	92.0	79.0	70.0
10	592.900	0.14	1.70	92.0	79.0	70.0
11	597.000	0.13	1.60	92.0	80.0	71.0
12	600.700	0.11	1.30	92.0	80.0	71.0
13	604.323					
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Imp. Liquid Collected		
Wt. (Final)	Wt. (Initial)	lc
684.40	712.60	-28.2
649.40	637.90	11.5
750.00	726.20	23.8
721.70	709.10	12.6
872.0	853.9	18.1

Isokinetics	104.0
Test Date	5/11/2012
Start Time	enter
End Time	enter

Kennecott Utah Copper - Re				Flow & Moisture			Test Date	5/13/2009	
As ft^2	Pbar	Pq (static)	Ps	Avg. Ts F	CO2 - F_{CO2}	O2	N2+C	Md	Ms
7.07	25.66	0.08	25.67	93	0.00	21.00	79.00	28.84	28.34
Y	Cp	Vm cf	Vlc	Avg. Tm F	Vm std	Vw std	Bws	S Bws	0.0605
1.0040	0.82	45.425	39.10	80	38.404	1.840	0.0457	0.0605	0.999
Avg. Sqrt Dlp	Vs	scfm wet	acfm	Qsd dscfh	# Sample Points	Dn	Total Test time (minutes)	Time @ point (minutes)	Avg. Dlh
0.356	21.72	7,550	9,213	4.32E+05	16	0.334	60	5.00	1.55
					FALSE				

Point No.	Meter (cf)	dl "p"	dl "h"	ts F	tm F (in)	tm F (out)	Imp. Liquid Collected		
							Wt. (Final)	Wt. (Initial)	lc
1	604.484	0.12	1.50	91.0	73.0	72.0	666.5	704.2	-37.7
2	608.200	0.12	1.50	94.0	75.0	73.0	636.5	623.7	12.8
3	611.800	0.14	1.70	93.0	79.0	74.0	787.6	757.5	30.1
4	615.800	0.14	1.70	93.0	79.0	74.0	762.6	747.3	15.3
5	619.800	0.13	1.60	92.0	83.0	76.0	868.9	850.3	18.6
6	623.600	0.11	1.30	92.0	84.0	77.0			
7	627.200	0.11	1.30	92.0	86.0	77.0			
8	630.700	0.12	1.50	93.0	87.0	78.0			
9	634.400	0.13	1.60	93.0	89.0	79.0			
10	638.200	0.13	1.60	93.0	87.0	79.0			
11	642.100	0.15	1.80	93.0	88.0	79.0			
12	646.200	0.12	1.50	93.0	90.0	80.0			
13	649.909								
14									
15									
16									
17									
18									
19									
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Isokinetics	103.2
Test Date	5/11/2012
Start Time	enter
End Time	enter

Division of Air Quality
Compliance Demonstration
Method 26- HCl

Source Information

Company Name	**Kennecott Utah Copper - Refinery Hydromet Precious (REF 006)**
Company Contact:	**Jennifer Sekulski Barton**
Contact Phone No.	**801-569-6331**
Source Designation:	**Refinery Hydromet Precious (REF 006)**

Test & Review Dates

Test Date:	5/11/2012	
Review Date:	4/8/2013	Tabs Are Shown
Observer:	**Rob Leishman**	
Reviewer:	**Rob Leishman**	

Particulate Emission Limits

lbs/MMBtu	lbs/hr	gr/dscf		
	0.220	0.003		

Emission Rates - "Front Half"

lbs/MMBtu	**lbs/hr**	**gr/dscf**		
	0.005	**0.00008**		

Test Information

Stack_I.D._inches	**As ft^2**	Y	Dl H @	Cp	Pbar	Pq (static)	**Dn**
36.00	7.07	0.9990	1.54	0.834	25.66	0.08	0.338

Round

Contractor Information

Contracting Company:	Air Pollution Testing (APT)
Contact:	Andrew Burning - Alex Mongold
Phone No.:	801-974-0481
Project No.:	

F factors for Coal, Oil, and Gas

	Fd scf/MMBtu	Fw scf/MMBtu	Fc scf/MMBtu
COAL			
Anthrocite 2	10100	10540	1970
Bituminous 2	9780	10640	1800
Lignite	9860	11950	1910
OIL	9190	320	1420
GAS			
Natural	8710	10610	1040
Propane	8710	10200	1190
Butane	8710	10390	1250

☐ F factor used

lbs/MMBtu
- O2
- CO2

Summary

Division of Air Quality

Compliance Demonstration of
Reference Methods 26 - HCl
Kennecott Utah Copper - Refinery Hydromet Precious (REF 006)

Testing Results				
Test Date	5/11/2012	5/11/2012	5/11/2012	5/11/2012
Round	Run 1	Run 2	Run 3	Run 4
As ft^2	7.07	7.07	7.07	
Pbar	25.66	25.66	25.66	
Pq (static)	0.08	0.08	0.08	
Ps	25.67	25.67	25.67	
Avg. Ts F	88.42	90.83	92.58	
CO2 - F_{CO2}	0.00	0.00	0.00	
O2	21.00	21.00	21.00	
N2+C	79.00	79.00	79.00	
Md	28.84	28.84	28.84	
Ms	28.39	28.46	28.34	
Y	1.00	1.00	1.00	
Cp	0.83	0.83	0.83	
Vm cf	44.65	45.33	43.93	
Vlc	34.70	29.20	38.40	
$A_{VG.}$ Tm F	74.29	80.33	76.83	
Vm std	37.92	38.07	37.12	
Vw std	1.63	1.37	1.81	
Bws	0.04	0.03	0.05	
S Bws	0.05	0.06	0.06	
Avg. Sqrt Dlp	0.35	0.35	0.34	
Vs	21.83	21.86	21.27	
scfm wet	7647.07	7623.56	7393.90	
acfm	9259.26	9271.47	9020.73	
Qsd dscfh	439877.75	441476.46	423037.10	
# Sample Points	16.00	16.00	16.00	
Dn	0.338	0.338	0.338	
An	6.23E-04	6.23E-04	6.23E-04	
Start Time				
End Time				
Total Test time	60.00	60.00	60.00	
Time @ point	5.00	5.00	5.00	

	Lab Data - grams collected			Titrant Volume
Lab Data	Probe	Lab Weight (g)	Back	
Run 1	0	0.000201		
Run 2	0	0.000311		
Run 3	0	0.000079		
Run 4				

Front Half Emissions Summary					
	Run 1	Run 2	Run 3	Run 4	Avg.
gr./dscf	0.000082	0.000126	0.000033		0.0000802
lbs/hr	0.005141	0.007952	0.001985		0.0050259
lbs/MMBtu					

Total Emissions Summary w/back half condensable					
	Run 1	Run 2	Run 3	Run 4	Avg.
gr./dscf	0.00008	0.00013	0.000033		0.00008
lbs/hr	0.0051	0.0080	0.0020		0.005
lbs/MMBtu					

lbs/MMBtu

O2

CO2

F factor used

Division of Air Quality
Compliance Demonstration
Method 12 - Lead

Source Information

Company Name	**Kennecott Utah Copper - Refinery Hydromet Precious (REF 006)**
Company Contact:	**Jennifer Sekulski Barton**
Contact Phone No.	**801-569-6331**
Source Designation:	**Refinery Hydromet Precious (REF 006)**

Test & Review Dates

Test Date:	5/11/2012	
Review Date:	4/8/2013	Tabs Are Shown
Observer:	**Rob Leishman**	
Reviewer:	**Rob Leishman**	

Particulate Emission Limits

lbs/MMBtu	lbs/hr	gr/dscf		
	1.700			

Emission Rates - "Front Half"

lbs/MMBtu	**lbs/hr**	**gr/dscf**		
	0.0001	**0.0000**		

Test Information

Stack_I.D._inches	**As ft^2**	Y	Dl H @	Cp	Pbar	Pq (static)	**Dn**
36.00	7.07	0.9870	1.54	0.834	25.66	0.08	0.338

Round

Contractor Information

Contracting Company:	Air Pollution Testing (APT)
Contact:	Andrew Burning - Alex Mongold
Phone No.:	801-974-0481
Project No.:	

F factors for Coal, Oil, and Gas

	Fd scf/MMBtu	Fw scf/MMBtu	Fc scf/MMBtu
COAL			
Anthrocite 2	10100	10540	1970
Bituminous 2	9780	10640	1800
Lignite	9860	11950	1910
OIL	9190	320	1420
GAS			
Natural	8710	10610	1040
Propane	8710	10200	1190
Butane	8710	10390	1250

☐ F factor used

lbs/MMBtu
- O2
- CO2

Summary

Division of Air Quality

Compliance Demonstration of
Reference Methods 12 - Lead
Kennecott Utah Copper - Refinery Hydromet Precious (REF 006)

Testing Results				
Test Date	5/11/2012	5/11/2012	5/11/2012	5/11/2012
Round	Run 1	Run 2	Run 3	Run 4
As ft^2	7.07	7.07	7.07	
Pbar	25.66	25.66	25.66	
Pq (static)	0.08	0.08	0.08	
Ps	25.67	25.67	25.67	
Avg. Ts F	88.42	90.83	92.58	
CO2 - F_{CO2}	0.00	0.00	0.00	
O2	21.00	21.00	21.00	
N2+C	79.00	79.00	79.00	
Md	28.84	28.84	28.84	
Ms	28.39	28.46	28.33	
Y	0.99	0.99	0.99	
Cp	0.83	0.83	0.83	
Vm cf	44.65	45.33	43.93	
Vlc	34.70	29.20	38.40	
$A_{VG.}$ Tm F	74.29	80.33	76.83	
Vm std	37.47	37.62	36.68	
Vw std	1.63	1.37	1.81	
Bws	0.04	0.04	0.05	
S Bws	0.05	0.06	0.06	
Avg. Sqrt Dlp	0.35	0.35	0.34	
Vs	21.83	21.86	21.27	
scfm wet	7647.77	7624.15	7394.66	
acfm	9260.11	9272.19	9021.66	
Qsd dscfh	439697.40	441323.87	422841.95	
# Sample Points	16.00	16.00	16.00	
Dn	0.338	0.338	0.338	
An	6.23E-04	6.23E-04	6.23E-04	
Start Time				
End Time				
Total Test time	60.00	60.00	60.00	
Time @ point	5.00	5.00	5.00	

	Lab Data - grams collected			
Lab Data	Probe	Lab Weight (g)	Back	Titrant Volume
Run 1	0	0.000005		0.1
Run 2	0	0.0000021		0.2
Run 3	0	0.0000037		0.25
Run 4				

Front Half Emissions Summary					
	Run 1	Run 2	Run 3	Run 4	Avg.
gr./dscf	0.000002	0.000001	0.000002		0.0000015
lbs/hr	0.000129	0.000054	0.000094		0.0000926
lbs/MMBtu					

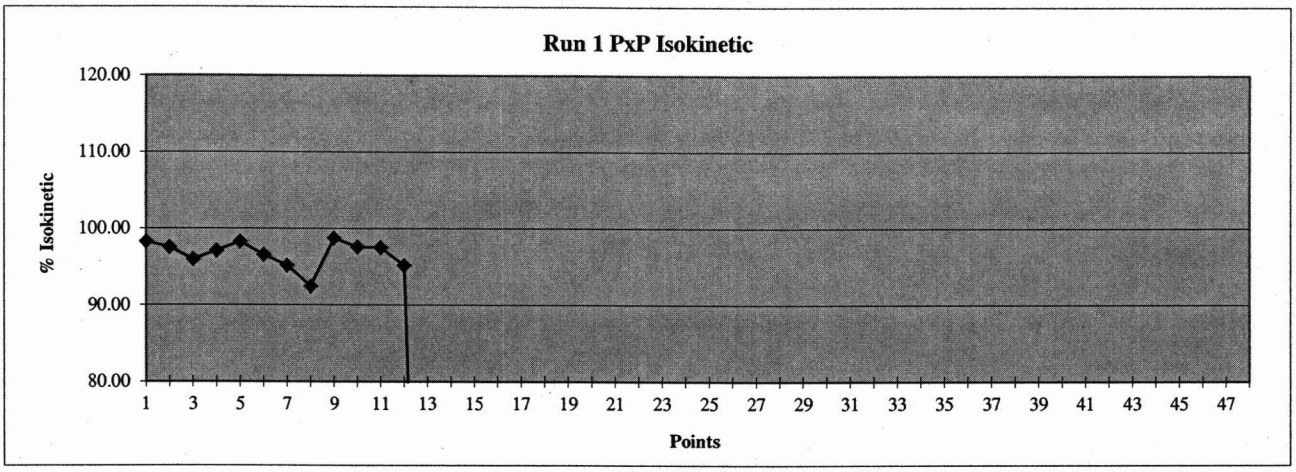
Total Emissions Summary w/back half condensable					
	Run 1	Run 2	Run 3	Run 4	Avg.
gr./dscf	0.0000	0.0000	0.0000		0.000001
lbs/hr	0.0001	0.0001	0.0001		0.0000926
lbs/MMBtu					

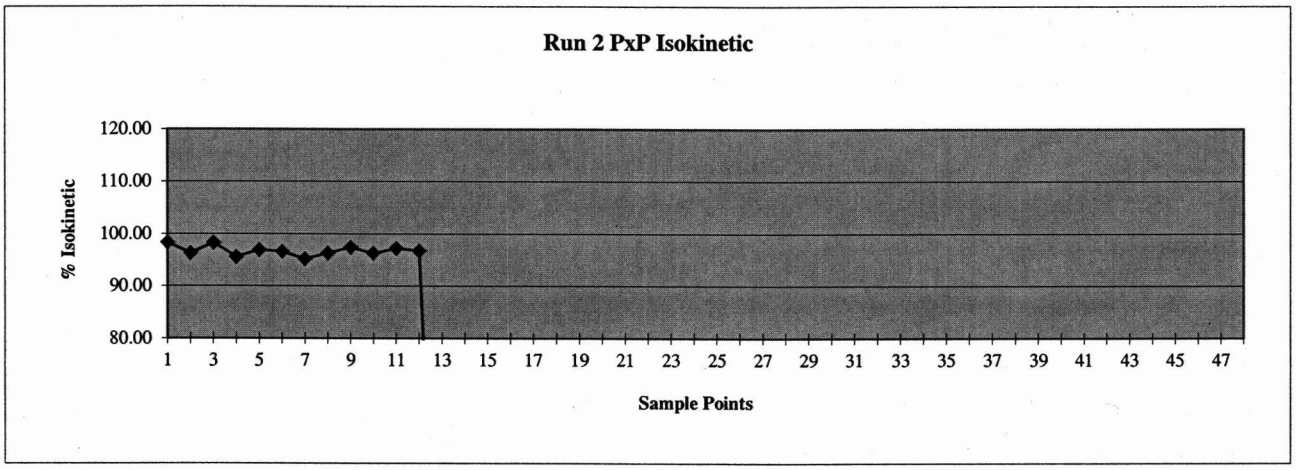
lbs/MMBtu

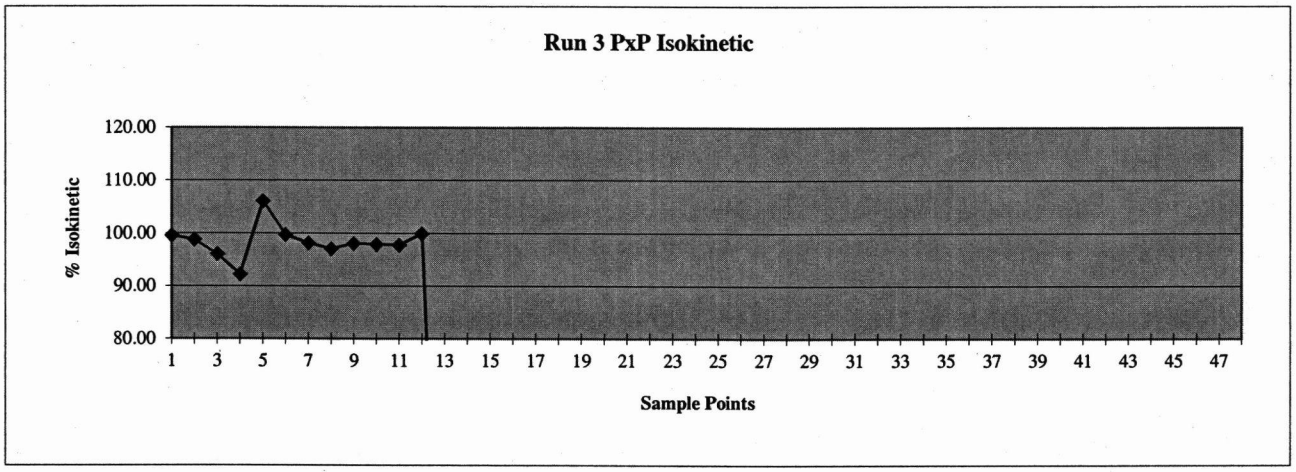
O2

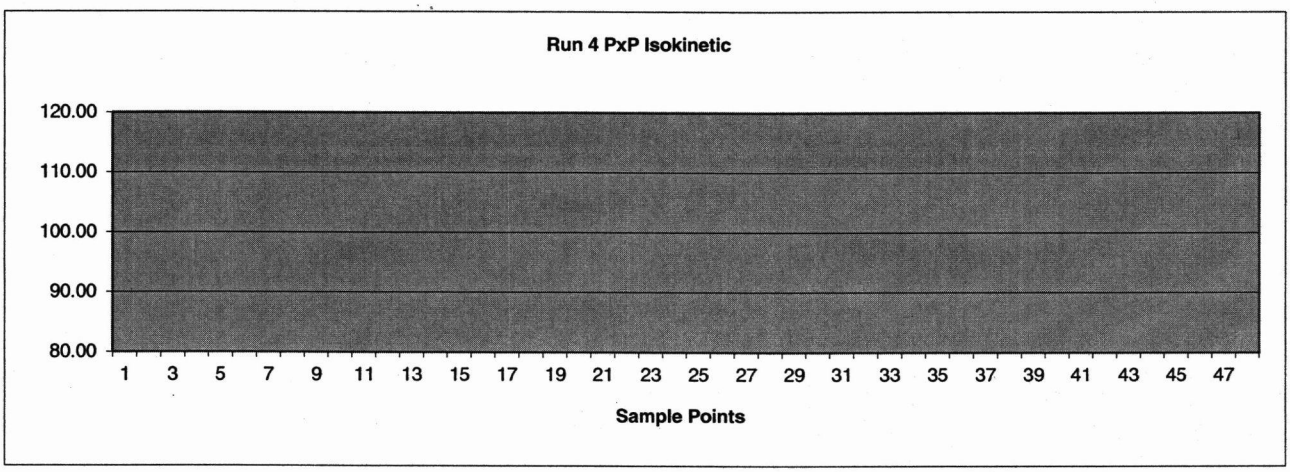
CO2

F factor used


Run 1 PxP Isokinetic
% Isokinetic
120.00
110.00
100.00
90.00
80.00
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45 47
Points


Run 2 PxP Isokinetic
% Isokinetic
120.00
110.00
100.00
90.00
80.00
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45 47
Sample Points


Run 3 PxP Isokinetic
% Isokinetic
120.00
110.00
100.00
90.00
80.00
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45 47
Sample Points


Run 4 PxP Isokinetic
120.00
110.00
100.00
90.00
80.00
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45 47
Sample Points

Kennecott Utah Copper - Re				Flow & Moisture			Test Date	5/11/2012	
As ft^2	Pbar	Pq (static)	Ps	Avg. Ts F	CO2 - F_{CO2}	O2	N2+C	Md	Ms
7.07	25.66	0.08	25.67	88	0.00	21.00	79.00	28.84	28.39
Y	Cp	Vm cf	Vlc	Avg. Tm F	Vm std	Vw std	Bws	S Bws	0.0529
0.9870	0.83	44.646	34.70	74.29	37.465	1.633	0.0418	0.0529	0.999
Avg. Sqrt Dlp	Vs	scfm wet	acfm	Qsd dscfh	# Sample Points	Dn	Total Test time (minutes)	Time @ point (minutes)	Avg. Dlh
0.353	21.83	7,648	9,260	4.40E+05	16	0.338	60	5.00	1.250833
					FALSE				

Point No.	Meter (cf)	dl "p"	dl "h"	ts F	tm F (in)	tm F (out)
1	719.718	0.09	0.91	87.0	68.0	68.0
2	722.900	0.11	1.10	87.0	70.0	69.0
3	726.400	0.12	1.20	87.0	71.0	69.0
4	730.000	0.13	1.30	87.0	73.0	70.0
5	733.800	0.14	1.40	87.0	75.0	71.0
6	737.800	0.13	1.30	87.0	77.0	72.0
7	741.600	0.12	1.20	89.0	78.0	73.0
8	745.200	0.12	1.20	90.0	79.0	74.0
9	748.700	0.13	1.30	90.0	81.0	75.0
10	752.600	0.14	1.40	90.0	81.0	75.0
11	756.600	0.14	1.40	90.0	81.0	76.0
12	760.600	0.13	1.30	90.0	81.0	76.0
13	764.364					
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Imp. Liquid Collected		
Wt. (Final)	Wt. (Initial)	lc
776.4	768.7	7.7
727.2	719.5	7.7
655.6	651.4	4.2
864.0	848.9	15.1
		0.0

Isokinetics	96.7	
Test Date	5/11/2012	
Start Time	enter	enter
End Time	enter	

Kennecott Utah Copper - Rc				Flow & Moisture			Test Date	5/13/2009	
As ft^2	Pbar	Pq (static)	Ps	Avg. Ts F	CO2 - F_{CO2}	O2	N2+C	Md	Ms
7.07	25.66	0.08	25.67	91	0.00	21.00	79.00	28.84	28.46
Y	Cp	Vm cf	Vlc	Avg. Tm F	Vm std	Vw std	Bws	S Bws	0.0571
0.9870	0.83	45.333	29.20	80	37.616	1.374	0.0353	0.0571	0.999
Avg. Sqrt Dlp	Vs	scfm wet	acfm	Qsd dscfh	# Sample Points	Dn	Total Test time (minutes)	Time @ point (minutes)	Avg. Dlh
0.353	21.86	7,624	9,272	4.41E+05	16	0.338	60	5.00	1.25
					FALSE				

Point No.	Meter (cf)	dl "p"	dl "h"	ts F	tm F (in)	tm F (out)
1	764.497	0.10	1.00	90.0	74.0	74.0
2	767.900	0.11	1.10	90.0	75.0	75.0
3	771.400	0.13	1.30	90.0	78.0	77.0
4	775.300	0.13	1.30	90.0	80.0	77.0
5	779.100	0.14	1.40	90.0	81.0	77.0
6	783.100	0.14	1.40	91.0	83.0	79.0
7	787.100	0.11	1.10	91.0	84.0	79.0
8	790.600	0.12	1.20	91.0	85.0	79.0
9	794.300	0.13	1.30	91.0	86.0	80.0
10	798.200	0.14	1.40	92.0	87.0	80.0
11	802.200	0.13	1.30	92.0	87.0	82.0
12	806.100	0.12	1.20	92.0	87.0	82.0
13	809.830					
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Imp. Liquid Collected		
Wt. (Final)	Wt. (Initial)	lc
771.60	755.10	16.5
738.60	739.90	-1.3
631.00	627.20	3.8
826.40	816.20	10.2
		0.0

Isokinetics	96.7
Test Date	5/11/2012
Start Time	enter
End Time	enter

Kennecott Utah Copper - Re				Flow & Moisture			Test Date	5/13/2009	
As ft^2	Pbar	Pq (static)	Ps	Avg. Ts F	CO2 - F_{CO2}	O2	N2+C	Md	Ms
7.07	25.66	0.08	25.67	93	0.00	21.00	79.00	28.84	28.33
Y	Cp	Vm cf	Vlc	Avg. Tm F	Vm std	Vw std	Bws	S Bws	0.0603
0.9870	0.83	43.925	38.40	77	36.678	1.807	0.0470	0.0603	0.999
Avg. Sqrt Dlp	Vs	scfm wet	acfm	Qsd dscfh	# Sample Points	Dn	Total Test time (minutes)	Time @ point (minutes)	Avg. Dlh
0.342	21.27	7,395	9,022	4.23E+05	16	0.338	60	5.00	1.18
					FALSE				

Point No.	Meter (cf)	dl "p"	dl "h"	ts F	tm F (in)	tm F (out)
1	810.195	0.10	1.00	94.0	75.0	75.0
2	813.600	0.12	1.20	94.0	75.0	75.0
3	817.300	0.12	1.20	94.0	76.0	75.0
4	820.900	0.13	1.30	93.0	76.0	75.0
5	824.500	0.14	1.40	92.0	77.0	74.0
6	828.800	0.13	1.30	92.0	78.0	74.0
7	832.700	0.09	0.92	92.0	78.0	75.0
8	835.900	0.11	1.10	92.0	79.0	75.0
9	839.400	0.12	1.20	92.0	80.0	76.0
10	843.100	0.12	1.20	92.0	81.0	77.0
11	846.800	0.12	1.20	92.0	82.0	77.0
12	850.500	0.11	1.10	92.0	82.0	77.0
13	854.120					
14						
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Imp. Liquid Collected		
Wt. (Final)	Wt. (Initial)	lc
790.2	772.1	18.1
736.1	728.4	7.7
661.1	657.7	3.4
872.6	863.4	9.2
		0.0

Isokinetics	98.4
Test Date	5/11/2012
Start Time	enter
End Time	enter

Division of Air Quality
Compliance Demonstration
Method 8 - Sulfuric Acid Mist

Source Information

Company Name	**Kennecott Utah Copper - Refinery Ammonia Scrubber (REF 007)**
Company Contact:	**Jennifer Sekulski Barton**
Contact Phone No.	**801-569-6331**
Source Designation:	**Refinery Ammonia Scrubber (REF 007)**

Test & Review Dates

Test Date:	5/8/2012	
Review Date:	4/8/2013	Tabs Are Shown
Observer:	**Rob Leishman**	
Reviewer:	**Rob Leishman**	

Particulate Emission Limits

lbs/MMBtu	lbs/hr	gr/dscf		
	0.220	0.009		

Emission Rates - "Front Half"

lbs/MMBtu	**lbs/hr**	**gr/dscf**		
	0.0044	**0.0002**		

Test Information

Stack_I.D._inches	**As ft^2**	Y	Dl H @	Cp	Pbar	Pq (static)	**Dn**
12.00	0.79	0.9870	1.54	0.831	25.72	0.16	0.161
Round							

Contractor Information

Contracting Company:	Air Pollution Testing (APT)
Contact:	Andrew Burning - Alex Mongold
Phone No.:	801-974-0481
Project No.:	

F factors for Coal, Oil, and Gas

	Fd scf/MMBtu	Fw scf/MMBtu	Fc scf/MMBtu
COAL			
Anthrocite 2	10100	10540	1970
Bituminous 2	9780	10640	1800
Lignite	9860	11950	1910
OIL	9190	320	1420
GAS			
Natural	8710	10610	1040
Propane	8710	10200	1190
Butane	8710	10390	1250

☐ F factor used

lbs/MMBtu
- O2
- CO2

Summary

Division of Air Quality

Reference Methods 8 - Sulfuric Acid Mist

Compliance Demonstration of

Kennecott Utah Copper - Refinery Ammonia Scrubber (REF 007)

Testing Results				
Test Date	5/8/2012	5/8/2012	5/8/2012	5/8/2012
Round	Run 1	Run 2	Run 3	Run 4
As ft^2	0.79	0.79	0.79	
Pbar	25.72	25.72	25.72	
Pq (static)	0.16	0.16	0.16	
Ps	25.73	25.73	25.73	
Avg. Ts F	85.63	84.88	97.96	
CO2 - F_{CO2}	0.00	0.00	0.00	
O2	21.00	21.00	21.00	
N2+C	79.00	79.00	79.00	
Md	28.84	28.84	28.84	
Ms	28.46	28.51	28.31	
Y	0.99	0.99	0.99	
Cp	0.83	0.83	0.83	
Vm cf	42.29	43.28	44.05	
Vlc	27.60	23.90	39.20	
$A_{VG.}$ Tm F	74.56	88.50	90.48	
Vm std	35.55	35.46	35.97	
Vw std	1.30	1.12	1.85	
Bws	0.04	0.03	0.05	
S Bws	0.05	0.05	0.07	
Avg. Sqrt Dlp	1.47	1.46	1.47	
Vs	90.18	89.54	91.61	
scfm wet	3536.56	3516.37	3513.34	
acfm	4249.44	4219.38	4316.97	
Qsd dscfh	204711.68	204493.81	200513.57	
# Sample Points	8.00	8.00	8.00	
Dn	0.161	0.161	0.161	
An	1.41E-04	1.41E-04	1.41E-04	
Start Time				
End Time				
Total Test time	60.00	60.00	60.00	
Time @ point	2.50	2.50	2.50	

	Lab Data - grams collected			
Lab Data	Probe	Filter	Back	Titrant Volume
Run 1	0	0.000284392		0.25
Run 2	0	0.000142196		0.15
Run 3	0	0.000639882		0.5
Run 4				

Front Half Emissions Summary					
	Run 1	Run 2	Run 3	Run 4	Avg.
gr./dscf	0.000123	0.000062	0.000275		0.000153
lbs/hr	0.003611	0.001808	0.007866		0.00443
lbs/MMBtu					

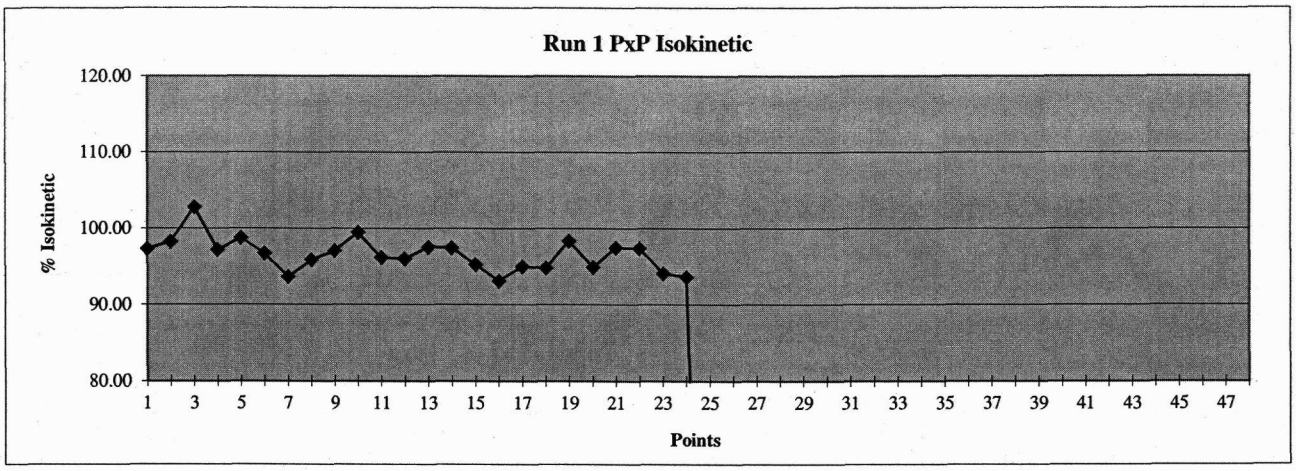
Total Emissions Summary w/back half condensable					
	Run 1	Run 2	Run 3	Run 4	Avg.
gr./dscf	0.0001	0.0001	0.0003		0.00015
lbs/hr	0.0036	0.0018	0.0079		0.00443
lbs/MMBtu					

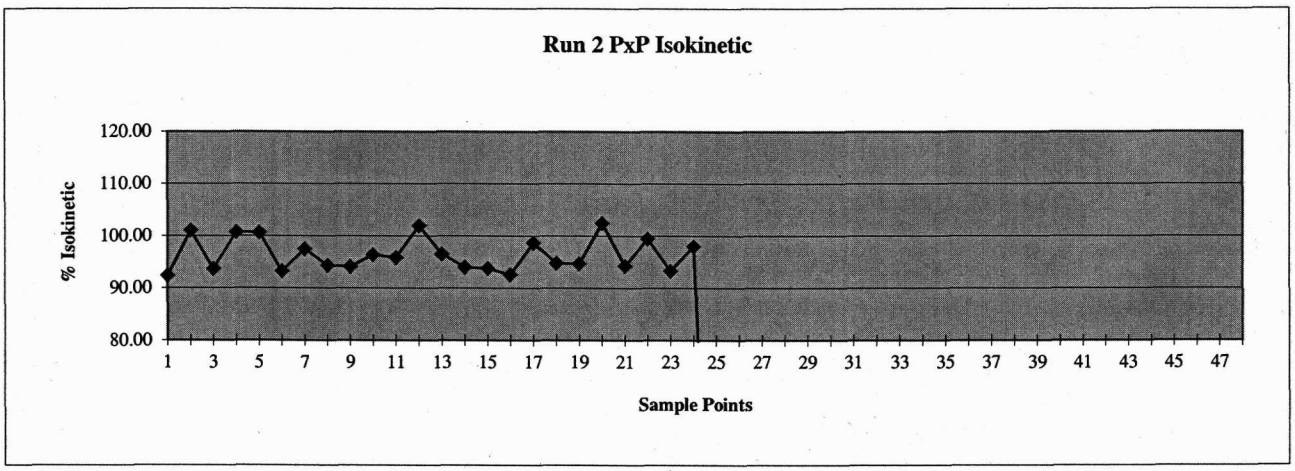
lbs/MMBtu

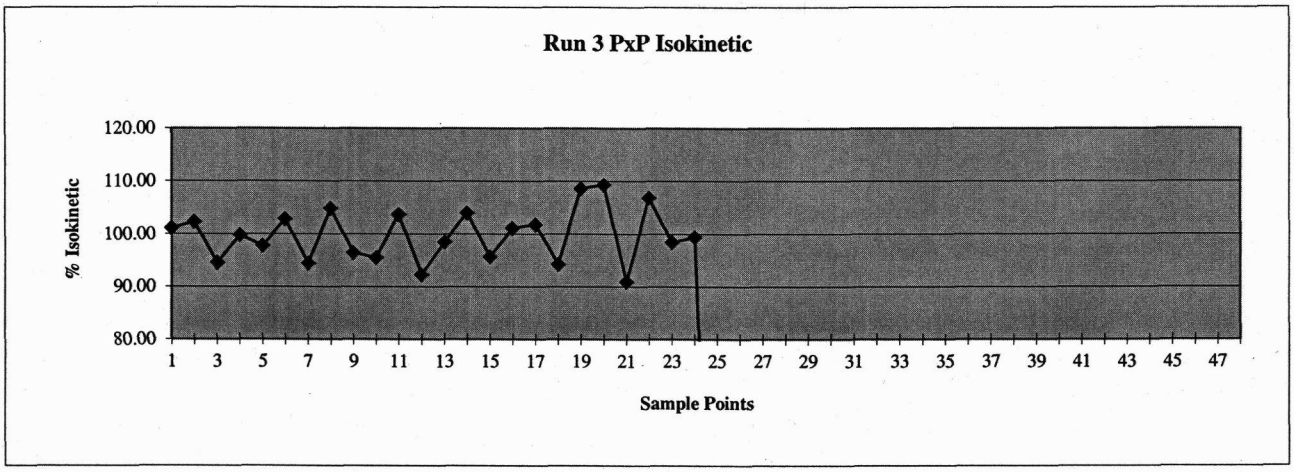
O2

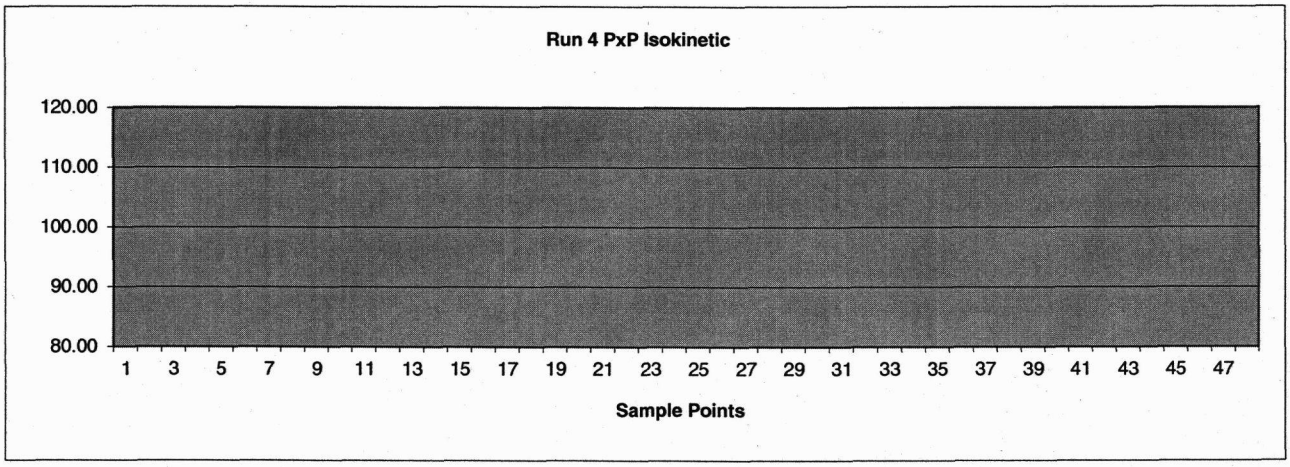
CO2

F factor used


Run 1 PxP Isokinetic
% Isokinetic
120.00
110.00
100.00
90.00
80.00
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45 47
Points


Run 2 PxP Isokinetic
% Isokinetic
120.00
110.00
100.00
90.00
80.00
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45 47
Sample Points


Run 3 PxP Isokinetic
% Isokinetic
120.00
110.00
100.00
90.00
80.00
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45 47
Sample Points


Run 4 PxP Isokinetic
120.00
110.00
100.00
90.00
80.00
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45 47
Sample Points

Kennecott Utah Copper - Rc				Flow & Moisture			Test Date	5/8/2012	
As ft^2	Pbar	Pq (static)	Ps	Avg. Ts F	CO2 - F_{CO2}	O2	N2+C	Md	Ms
0.79	25.72	0.16	25.73	86	0.00	21.00	79.00	28.84	28.46
Y	Cp	Vm cf	Vlc	Avg. Tm F	Vm std	Vw std	Bws	S Bws	0.0483
0.9870	0.83	42.285	27.60	74.56	35.546	1.299	0.0353	0.0483	0.999
Avg. Sqrt Dlp	Vs	scfm wet	acfm	Qsd dscfh	# Sample Points	Dn	Total Test time (minutes)	Time @ point (minutes)	Avg. Dlh
1.470	90.18	3,537	4,249	2.05E+05	8	0.161	60	2.50	1.226667
					TRUE				

Point No.	Meter (cf)	dl "p"	dl "h"	ts F	tm F (in)	tm F (out)
1	412.310	2.50	1.40	85	69	69
2	414.200	2.50	1.40	85	9	69
3	416.000	2.50	1.40	85	70	70
4	418.000	2.80	1.60	85	70	70
5	420.000	2.70	1.50	85	72	70
6	422.000	2.80	1.60	85	75	70
7	424.000	2.70	1.50	86	75	70
8	425.900	2.30	1.30	86	76	71
9	427.700	2.00	1.10	86	76	71
10	429.400	1.90	1.10	86	77	71
11	431.100	1.80	1.00	86	77	71
12	432.700	1.80	1.00	86	78	72
13	434.300	2.20	1.20	86	79	73
14	436.100	2.20	1.20	86	80	73
15	437.900	2.30	1.30	86	80	74
16	439.700	2.40	1.40	86	82	74
17	441.500	2.30	1.30	86	82	75
18	443.300	2.30	1.30	86	83	76
19	445.100	1.90	1.10	86	84	76
20	446.800	1.80	1.00	86	85	77
21	448.400	1.70	0.96	86	86	78
22	450.000	1.70	0.96	85	86	78
23	451.600	1.60	0.91	85	86	78
24	453.100	1.60	0.91	85	87	79
25	454.595					
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Imp. Liquid Collected		
Wt. (Final)	Wt. (Initial)	lc
722.4	714.3	8.1
638.5	635.3	3.2
725.4	716.5	8.9
733.2	732.2	1.0
830.3	823.9	6.4

Isokinetics	96.5	
Test Date	5/8/2012	
Start Time	enter	enter
End Time	enter	

Kennecott Utah Copper - Re				Flow & Moisture			Test Date	5/13/2009	
As ft^2	Pbar	Pq (static)	Ps	Avg. Ts F	CO2 - F_{CO2}	O2	N2+C	Md	Ms
0.79	25.72	0.16	25.73	85	0.00	21.00	79.00	28.84	28.51
Y	Cp	Vm cf	Vlc	Avg. Tm F	Vm std	Vw std	Bws	S Bws	0.0472
0.9870	0.83	43.275	23.90	89	35.456	1.125	0.0308	0.0472	0.999
Avg. Sqrt Dlp	Vs	scfm wet	acfm	Qsd dscfh	# Sample Points	Dn	Total Test time (minutes)	Time @ point (minutes)	Avg. Dlh
1.462	89.54	3,516	4,219	2.04E+05	8	0.161	60	2.50	1.25

					TRUE				
Point No.	Meter (cf)	dl "p"	dl "h"	ts F	tm F (in)	tm F (out)	Imp. Liquid Collected		
1	454.768	2.20	1.20	86.0	83.0	82.0	Wt. (Final)	Wt. (Initial)	lc
2	456.500	2.20	1.20	85.0	86.0	81.0	707.30	695.70	11.6
3	458.400	2.30	1.30	85.0	86.0	81.0	625.10	622.10	3.0
4	460.200	2.20	1.30	85.0	89.0	82.0	750.80	749.60	1.2
5	462.100	2.20	1.20	85.0	89.0	82.0	739.20	737.20	2.0
6	464.000	2.30	1.30	85.0	90.0	82.0	850.8	844.7	6.1
7	465.800	2.10	1.20	85.0	91.0	82.0			
8	467.600	2.00	1.20	85.0	91.0	82.0	Isokinetics	96.4	
9	469.300	2.00	1.20	84.0	92.0	83.0	Test Date	5/8/2012	
10	471.000	1.90	1.10	84.0	93.0	83.0	Start Time	enter	
11	472.700	1.70	0.99	84.0	93.0	84.0	End Time	enter	
12	474.300	1.70	0.99	84.0	91.0	84.0			
13	476.000	1.90	1.10	85.0	91.0	85.0			
14	477.700	2.00	1.20	85.0	92.0	85.0			
15	479.400	2.00	1.20	85.0	93.0	86.0			
16	481.100	2.30	1.30	85.0	94.0	86.0			
17	482.900	2.50	1.50	85.0	95.0	86.0			
18	484.900	2.70	1.60	85.0	96.0	87.0			
19	486.900	2.70	1.60	85.0	97.0	87.0			
20	488.900	2.30	1.30	85.0	97.0	87.0			
21	490.900	2.20	1.30	85.0	98.0	87.0			
22	492.700	2.20	1.30	85.0	98.0	87.0			
23	494.600	2.00	1.20	85.0	98.0	87.0			
24	496.300	1.90	1.10	85.0	99.0	88.0			
25	498.043								
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Kennecott Utah Copper - Re				Flow & Moisture			Test Date	5/13/2009	
As ft^2	Pbar	Pq (static)	Ps	Avg. Ts F	CO2 - F_{CO2}	O2	N2+C	Md	Ms
0.79	25.72	0.16	25.73	98	0.00	21.00	79.00	28.84	28.31
Y	Cp	Vm cf	Vlc	Avg. Tm F	Vm std	Vw std	Bws	S Bws	0.0709
0.9870	0.83	44.051	39.20	90	35.967	1.845	0.0488	0.0709	0.999
Avg. Sqrt Dlp	Vs	scfm wet	acfm	Qsd dscfh	# Sample Points	Dn	Total Test time (minutes)	Time @ point (minutes)	Avg. Dlh
1.473	91.61	3,513	4,317	2.01E+05	8	0.161	60	2.50	1.29

					TRUE				
Point No.	Meter (cf)	dl "p"	dl "h"	ts F	tm F (in)	tm F (out)	Imp. Liquid Collected		
1	498.225	2.20	1.30	94.0	89.0	89.0	Wt. (Final)	Wt. (Initial)	lc
2	500.100	2.20	1.30	94.0	91.0	89.0	737.7	715.8	21.9
3	502.000	2.30	1.40	95.0	92.0	92.0	641.2	636.1	5.1
4	503.800	2.30	1.40	96.0	94.0	91.0	725.1	722.1	3.0
5	505.700	2.40	1.40	97.0	95.0	90.0	718.8	717.7	1.1
6	507.600	2.40	1.40	97.0	96.0	90.0	842.3	834.2	8.1
7	509.600	2.30	1.40	97.0	97.0	90.0			
8	511.400	2.30	1.40	97.0	98.0	90.0	Isokinetics	99.7	
9	513.400	2.20	1.30	97.0	98.0	90.0	Test Date	5/8/2012	
10	515.200	2.00	1.20	97.0	98.0	90.0	Start Time	enter	
11	516.900	1.90	1.10	98.0	99.0	90.0	End Time	enter	
12	518.700	1.90	1.10	98.0	98.0	90.0			
13	520.300	1.90	1.10	99.0	94.0	90.0			
14	522.000	1.90	1.10	99.0	96.0	91.0			
15	523.800	2.00	1.20	99.0	97.0	91.0			
16	525.500	2.00	1.20	100.0	99.0	92.0			
17	527.300	2.20	1.30	100.0	99.0	92.0			
18	529.200	2.30	1.40	99.0	99.0	92.0			
19	531.000	2.50	1.50	99.0	99.0	9.0			
20	533.000	2.50	1.50	100.0	100.0	2.0			
21	535.000	2.20	1.30	99.0	100.0	92.0			
22	536.700	2.20	1.30	100.0	101.0	93.0			
23	538.700	2.10	1.20	100.0	101.0	93.0			
24	540.500	2.00	1.20	100.0	102.0	93.0			
25	542.276								
26									
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Division of Air Quality
Compliance Demonstration

Referance Method ST-1B - Ammonia (NH3)

Source Information

Company Name	**Kennecott Utah Copper - Refinery**
Company Contact:	**Jennifer Sekulski Barton**
Contact Phone No.	**801-569-6331**
Stack Designation:	**Ammonia Scrubber - REF007**

Test & Review Dates

Test Date:	5/8/2013
Review Date:	4/11/2013
Observer:	Rob Leishman
Reviewer:	**Rob Leishman**

Particulate Emission Limits

lbs/MMBTU	lbs/hr	gr/dscf		
0.000	0.140	0.000		

Front Half Emission Rates

lbs/MMBTU	lbs/hr	gr/dscf		
	0.02545072	0.000897615		

Total (Front & Back Half) Emission Rates

lbs/MMBTU	lbs/hr	gr/dscf		

Test Information

Stack I.D. inches	As ft^2	Y	Dl H @	Cp	Pbar	Pq (static)	Dn	Target Time
12.00	0.79	1.0040	1.78	0.831	25.72	0.16	0.161	60

Circular

Contractor Information

Contracting Company:	Air Control Techniques, P.C.
Contact:	John Richards, Ph.D., PE.
Phone No.:	1/0/1900
Project No.:	

F factors for Coal, Oil, and Gas

	Fd scf/MMBtu	Fw scf/MMBtu	Fc scf/MMBtu
COAL			
Anthrocite 2	10100	10540	1970
Bituminous 2	9780	10640	1800
Lignite	9860	11950	1910
OIL	9190	320	1420
GAS			
Natural	8710	10610	1040
Propane	8710	10200	1190
Butane	8710	10390	1250

☐ F factor used

lbs/MMBtu
- O2
- CO2

Division of Air Quality
Reference Methods ST-1B - Ammonia (NH3)
Compliance Demonstration of

Kennecott Utah Copper - Refinery - Ammonia Scrubber - REF007

Testing Results				
Test Date	5/8/2013	5/8/2013	5/8/2013	5/8/2013
	Run 1	Run 2	Run 3	Run 4
As ft^2	0.79	0.79	0.79	0.79
Pbar	25.72	25.72	25.72	25.72
Pq (static)	0.16	0.16	0.16	0.16
Ps	25.73	25.73	25.73	25.73
Avg. Ts F	85.60	85.00	98.00	
CO2 - F_{CO2}	0.00	0.00	0.00	0.00
O2	21.00	21.00	21.00	0.00
N2+C	79.00	79.00	79.00	100.00
Md	28.84	28.84	28.84	28.00
Mw	28.50	28.52	28.21	
Y	1.0040	1.0040	1.0040	1.0040
Cp	0.83	0.83	0.83	0.83
Vm cf	39.796	38.797	39.900	0.000
Vlc	23.600	21.400	43.900	0.000
$A_{VG.}$ Tm F	72.25	81.70	83.33	
Vm cf	39.796	38.797	39.9	0
Vm std	34.194	32.754	33.585	#VALUE!
Vw std	1.110	1.010	2.070	
Bws	3.10%	2.90%	5.80%	#VALUE!
S Bws	4.83%	4.74%	7.10%	#VALUE!
Avg. Sqrt Dlp	1.47	1.46	1.47	1.47
Vs	90.061	89.353	91.546	
scfm wet	3531.98	3508.06	3510.42	#VALUE!
acfm	4244.04	4210.67	4314.00	
Qsd dscfm	205349	204380	198409	
Qs ft^3/min	0.474493	0.474241	0.481743	#VALUE!
% Isokinetic	92.51	89.03	94.04	
Viscostiy	182.49	182.49	183.50	

	Lab Data - grams collected		
Lab Data	Cyclone Catch	Filter	Back
Run 1	**0.0000**	**0.000017**	
Run 2	**0.0000**	**0.000014**	
Run 3	**0.0000**	**0.005830**	
Run 4			

Kennecott Utah Copper - Refinery Ammonia Scrubber - REF007

Front Half Emissions Summary					
	Run 1	Run 2	Run 3	Run 4	Avg.
gr./dscf	0.00001	0.00001	0.00268		0.00090
lbs/hr	0.00022114	0.00018712	0.0759439		0.0255
lbs/MMbtu					

Particulate Emission Limits			*Front Half Emission Rates*		
lbs/MMBTU	**lbs/hr**	**gr/dscf**	**lbs/MMBTU**	**lbs/hr**	**gr/dscf**
	0.140	**0.000**		**0.02545072**	**0.000897615**

Kennecott Utah Copper - Refinery Ammonia Scrubber - REF007

Total Emissions Summary w/back half condensable					
	Run 1	Run 2	Run 3	Run 4	Avg.
gr./dscf					
lbs/hr					
lbs/MMbtu					

Particulate Emission Limits			*Total Emission Rates*		
lbs/MMBTU	**lbs/hr**	**gr/dscf**	**lbs/MMBTU**	**lbs/hr**	**gr/dscf**
	0.140	**0.000**			

Test Quality Parameters				
	Run 1	Run 2	Run 3	Run 4
D50	9.99	9.99	9.99	
Outlying Dlp's	12.00	12.00	12.00	
% Isokinetic	92.50	89.03	94.03	

	D50	Outlying Dlp's	% Isokinetic	Status	
Run 1	Passed	Out	Passed	Acceptable Run	
Run 2	Passed	Out	Passed	Acceptable Run	
Run 3	Passed	Out	Passed	Acceptable Run	
Run 4					

Kennecott Utah Copper - Refinery									Test Date	5/8/2013	Imp. Liquid Collected in grams		
Run No. 1 - RM 201A - Pre-test velocity traverse:											Wt. (Final)	Wt. (Tare)	lc
	Port 1		Port 2		Port 3		Port 4				23.6		23.6
Point No.	ΔP'	sqrt ΔP'	ΔP'	sqrt ΔP'	ΔP'	sqrt ΔP'	ΔP'	sqrt ΔP'					0.0
1													0.0
2													0.0
3													0.0

ΔP1	Avg. Sqrt ΔP	No. Sample Points	t_1 in min.
2.16	1.469693846	12	5.00

	Ts avg -50°F	Avg. Ts oF	Ts avg +50°F
Ts °F	35.60	85.60	135.60
ΔH	0.61	0.55	0.5

Δ = delta, i.e., delta P would be ΔP

Stack I.D. (inches)	As ft^2	Pbar	Pq (static)	Ps	CO2 %	O2 %	N2+C	Md lb/lb mole	Mw lb/lb mole	Stack Saturation
12.00	0.79	25.72	0.16	25.73	0.00	21.00	79.00	28.84	28.50	0.0483

Y	ΔH@	Cp 201A	Cp 2	Dn	An	Vm cf	Vm std	Vlc	Vw std	Bws	S Bws
1.0040	1.78	0.84	0.83	0.161	1.41E-04	39.796	34.194	23.60	1.110	0.0310	0.0483

Avg. Sqrt Δp	Vs ft/sec	Avg. Δh	Avg. Tm F	scfm wet	acfm	Qsd dscfh	Qs (final) ft^3/min	μs Viscosity
1.4697	90.06	1.400	72.25	3,532	4,244	2.05E+05	0.474493442	182.49

Run Time (act)	Target Time
60.00	60

Sample Point No.	Dn used	Sampling End Time (Min.Sec.)	Actual Dwell Time (Min.Sec.)	Desired Dwell Time (Min.Sec.)	Stack Temp. Ts F	Velocity Head ΔP	Δh	D50	Dry Gas Meter Temp. tm F (in)	tm F (out)	Status Pmin & Pmax
1 - ΔP t1	0.161	5.00	5.00	5.00	86	2.16	1.40	9.990	67	68	Out
2 - ΔP tn	0.161	10.00	5.00	5.00	86	2.16	1.40	9.990	67	69	Out
3 - ΔP tn	0.161	15.00	5.00	5.00	86	2.16	1.40	9.990	70	68	Out
4 - ΔP tn	0.161	20.00	5.00	5.00	86	2.16	1.40	9.990	71	68	Out
5 - ΔP tn	0.161	25.00	5.00	5.00	86	2.16	1.40	9.990	73	68	Out
6 - ΔP tn	0.161	30.00	5.00	5.00	86	2.16	1.40	9.990	74	69	Out
7 - ΔP tn	0.161	35.00	5.00	5.00	86	2.16	1.40	9.990	75	69	Out
8 - ΔP tn	0.161	40.00	5.00	5.00	86	2.16	1.40	9.990	77	70	Out
9 - ΔP tn	0.161	45.00	5.00	5.00	86	2.16	1.40	9.990	79	71	Out
10 - ΔP tn	0.161	50.00	5.00	5.00	86	2.16	1.40	9.990	80	72	Out
11 - ΔP tn	0.161	55.00	5.00	5.00	86	2.16	1.40	9.990	81	73	Out
12 - ΔP tn	0.161	60.00	5.00	5.00	86	2.16	1.40	9.990	82	73	Out
12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	

Run Acceptance Results.			Test Run Completed
			Acceptable Run
D_{50}	9.9900	Passed	Acceptable Run
Sampling Points outside of Pmin & Pmax	12.00	Out	Acceptable Run
% Isokinetic	92.5	Passed	Acceptable Run

The results are acceptabel if two conditions are met:

A. D50 is between 9.0 μm & 11.0 μm.

⇒ If D50 is less than 9.0 reject the results and repeat the test.

B. One of the following conditions must also be met:That no sampling points are outside Pmin and Pmax or

1. No sampling points are outside the Pmin and Pmax or
2. Isokinetics sampling is betwee 80 percent & 120 percent and no more than one sampling point is outside ΔPmin and ΔPmax.

Kennecott Utah Copper - Refinery									Test Date	5/8/2013	Imp. Liquid Collected in grams		
Run No. 2 - RM 201A - Pre-test velocity traverse:											Wt. (Final)	Wt. (Tare)	lc
	Port 1		Port 2		Port 3		Port 4				21.4		21.4
Point No.	ΔP'	sqrt ΔP'	ΔP'	sqrt ΔP'	ΔP'	sqrt ΔP'	ΔP'	sqrt ΔP'					0.0
1													0.0
2													0.0
3													0.0

ΔP1	Avg. Sqrt ΔP	No. Sample Points	t_1 in min.
2.13	1.459452	12	5.00

	Ts avg -50°F	Avg. Ts oF	Ts avg +50°F
Ts °F	35.00	85.00	135.00
ΔH	0.61	0.55	0.51

Δ = delta, i.e., delta P would be ΔP

Stack I.D. (inches)	As ft^2	Pbar	Pq (static)	Ps	CO2 %	O2 %	N2+C	Md lb/lb mole	Mw lb/lb mole	Stack Saturation
12.00	0.79	25.72	0.16	25.73	0.00	21.00	79.00	28.84	28.52	0.0474

Y	ΔH@	Cp 201A	Cp 2	Dn	An	Vm cf	Vm std	Vlc	Vw std	Bws	S Bws
1.0040	1.78		0.83	0.161	1.41E-04	38.797	32.754	21.40	1.010	0.0290	0.0474

Avg. Sqrt Δp	Vs ft/sec	Avg. Δh	Avg. Tm F	scfm wet	acfm	Qsd dscfh	Qs (final) ft^3/min	μs Viscosity
1.4595	89.35	1.400	81.70	3,508	4,211	2.04E+05	0.4742414	182.49

Run Time (act)	Target Time
60.00	60

Sample Point No.	Dn used	Sampling End Time (Min.Sec.)	Actual Dwell Time (Min.Sec.)	Desired Dwell Time (Min.Sec.)	Stack Temp. Ts F	Velocity Head ΔP	Δh	D50	Dry Gas Meter Temp. tm F (in)	tm F (out)	Status Pmin & Pmax
1 - ΔP t1	0.161	5.00	5.00	5.00	85	2.13	1.40	9.990	79	75	Out
2 - ΔP tn	0.161	10.00	5.00	5.00	85	2.13	1.40	9.990	80	76	Out
3 - ΔP tn	0.161	15.00	5.00	5.00	85	2.13	1.40	9.990	82	76	Out
4 - ΔP tn	0.161	20.00	5.00	5.00	85	2.13	1.40	9.990	83	76	Out
5 - ΔP tn	0.161	25.00	5.00	5.00	85	2.13	1.40	9.990	86	77	Out
6 - ΔP tn	0.161	30.00	5.00	5.00	85	2.13	1.40	9.990	86	77	Out
7 - ΔP tn	0.161	35.00	5.00	5.00	85	2.13	1.40	9.990	86	79	Out
8 - ΔP tn	0.161	40.00	5.00	5.00	85	2.13	1.40	9.990	87	79	Out
9 - ΔP tn	0.161	45.00	5.00	5.00	85	2.13	1.40	9.990	88	80	Out
10 - ΔP tn	0.161	50.00	5.00	5.00	85	2.13	1.40	9.990	89	80	Out
11 - ΔP tn	0.161	55.00	5.00	5.00	85	2.13	1.40	9.990	89	80	Out
12 - ΔP tn	0.161	60.00	5.00	5.00	85	2.13	1.40	9.990	90	81	Out
12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	

Run Acceptance Results.			Test Run Completed
			Acceptable Run
D_{50}	9.9900	Passed	Acceptable Run
Sampling Points outside of Pmin & Pmax	12.00	Out	Acceptable Run
% Isokinetic	89.0	Passed	Acceptable Run

The results are acceptabel if two conditions are met:

A. D50 is between 9.0 μm & 11.0 μm.

⇒ If D50 is less than 9.0 reject the results and repeat the test.

B. One of the following conditions must also be met:That no sampling points are outside Pmin and Pmax or

1. No sampling points are outside the Pmin and Pmax or
2. Isokinetics sampling is betwee 80 percent & 120 percent and no more than one sampling point is outside ΔPmin and ΔPmax.

Kennecott Utah Copper - Refinery									Test Date	5/8/2013
Run No. 3 - RM 201A - Pre-test velocity traverse:										
	Port 1		Port 2		Port 3		Port 4			
Point No.	ΔP'	sqrt ΔP'	ΔP'	sqrt ΔP'	ΔP'	sqrt ΔP'	ΔP'	sqrt ΔP'		
1										
2										
3										

Imp. Liquid Collected in grams		
Wt. (Final)	Wt. (Tare)	lc
43.9		43.9
		0.0
		0.0
		0.0
		0.0

ΔP1	Avg. Sqrt ΔP	No. Sample Points	t_1 in min.
2.16	1.4696938	12	5.00

	Ts avg -50°F	Avg. Ts oF	Ts avg +50°F
Ts °F	48.00	98.00	148.00
ΔH	0.58	0.52	0.48

Δ = delta, i.e., delta P would be ΔP

Stack I.D. (inches)	As ft^2	Pbar	Pq (static)	Ps	CO2 %	O2 %	N2+C	Md lb/lb mole	Mw lb/lb mole	Stack Saturation
12.00	0.79	25.72	0.16	25.73	0.00	21.00	79.00	28.84	28.21	0.0710

Y	ΔH@	Cp 201A	Cp 2	Dn	An	Vm cf	Vm std	Vlc	Vw std	Bws	S Bws
1.0040	1.78		0.83	0.161	1.41E-04	39.900	33.585	43.90	2.070	0.0580	0.0710

Avg. Sqrt Δp	Vs ft/sec	Avg. Δh	Avg. Tm F	scfm wet	acfm	Qsd dscfh	Qs (final) ft^3/min	μs Viscosity
1.4697	91.55	1.400	83.33	3,510	4,314	1.98E+05	0.4817428	183.50

Run Time (act)	Target Time
60.00	60

Sample Point No.	Dn used	Sampling End Time (Min.Sec.)	Actual Dwell Time (Min.Sec.)	Desired Dwell Time (Min.Sec.)	Stack Temp. Ts F	Velocity Head ΔP	Δh	D50	Dry Gas Meter Temp. tm F (in)	tm F (out)	Status Pmin & Pmax
1 - ΔP t1	0.161	5.00	5.00	5.00	98	2.16	1.40	9.990	82	82	Out
2 - ΔP tn	0.161	10.00	5.00	5.00	98	2.16	1.40	9.990	82	82	Out
3 - ΔP tn	0.161	15.00	5.00	5.00	98	2.16	1.40	9.990	82	82	Out
4 - ΔP tn	0.161	20.00	5.00	5.00	98	2.16	1.40	9.990	83	83	Out
5 - ΔP tn	0.161	25.00	5.00	5.00	98	2.16	1.40	9.990	83	83	Out
6 - ΔP tn	0.161	30.00	5.00	5.00	98	2.16	1.40	9.990	83	83	Out
7 - ΔP tn	0.161	35.00	5.00	5.00	98	2.16	1.40	9.990	84	84	Out
8 - ΔP tn	0.161	40.00	5.00	5.00	98	2.16	1.40	9.990	84	84	Out
9 - ΔP tn	0.161	45.00	5.00	5.00	98	2.16	1.40	9.990	84	84	Out
10 - ΔP tn	0.161	50.00	5.00	5.00	98	2.16	1.40	9.990	84	84	Out
11 - ΔP tn	0.161	55.00	5.00	5.00	98	2.16	1.40	9.990	84	84	Out
12 - ΔP tn	0.161	60.00	5.00	5.00	98	2.16	1.40	9.990	85	85	Out
12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	

Run Acceptance Results.			Test Run Completed
			Acceptable Run
D_{50}	9.9900	Passed	Acceptable Run
Sampling Points outside of Pmin & Pmax	12.00	Out	Acceptable Run
% Isokinetic	94.0	Passed	Acceptable Run

The results are acceptabel if two conditions are met:

A. D50 is between 9.0 μm & 11.0 μm.

⇒ If D50 is less than 9.0 reject the results and repeat the test.

B. One of the following conditions must also be met:That no sampling points are outside Pmin and Pmax or

1. No sampling points are outside the Pmin and Pmax or
2. Isokinetics sampling is betwee 80 percent & 120 percent and no more than one sampling point is outside ΔPmin and ΔPmax.

Company: Kennecott Utah Copper LLC- Sn
Site ID: 10346
Project: PM10 SIP
Date: 3/17/2015

County FIPS	Category NAICS	NAICS	SIC	Site ID
35	5	331411	3331	10346
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County FIPS	Category NAICS	NAICS	SIC	Site ID
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County FIPS	Category NAICS	NAICS	SIC	Site ID
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County FIPS	Category NAICS	NAICS	SIC	Site ID
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County FIPS	Category NAICS	NAICS	SIC	Site ID
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Site Name	Comp ID	Process ID	Process Code
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Kennecott Utah Copper LLC- Smelter & Refinery	1359	1	a
Kennecott Utah Copper LLC- Smelter & Refinery	1360	1	a
Kennecott Utah Copper LLC- Smelter & Refinery	4895	1	a
Kennecott Utah Copper LLC- Smelter & Refinery	13957	1	a
Kennecott Utah Copper LLC- Smelter & Refinery	13958	1	a
Kennecott Utah Copper LLC- Smelter & Refinery	13959	1	a
Kennecott Utah Copper LLC- Smelter & Refinery	13960	1	a
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Kennecott Utah Copper LLC- Smelter & Refinery	13962	1	a
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Kennecott Utah Copper LLC- Smelter & Refinery	13971	1	a
Kennecott Utah Copper LLC- Smelter & Refinery	13971	2	b
Kennecott Utah Copper LLC- Smelter & Refinery	13972	1	a
Kennecott Utah Copper LLC- Smelter & Refinery	13974	1	a
Kennecott Utah Copper LLC- Smelter & Refinery	13975	1	a
Kennecott Utah Copper LLC- Smelter & Refinery	13977	1	a
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Kennecott Utah Copper LLC- Smelter & Refinery	13982	1	a
Kennecott Utah Copper LLC- Smelter & Refinery	13993	1	a
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Kennecott Utah Copper LLC- Smelter & Refinery	14002	1	a
Kennecott Utah Copper LLC- Smelter & Refinery	14003	1	a
Kennecott Utah Copper LLC- Smelter & Refinery	14085	1	a

Kennecott Utah Copper LLC- Smelter & Refinery	14086	1	a
Kennecott Utah Copper LLC- Smelter & Refinery	14087	1	a
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Kennecott Utah Copper LLC- Smelter & Refinery	14089	1	a
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Kennecott Utah Copper LLC- Smelter & Refinery	14095	1	a
Kennecott Utah Copper LLC- Smelter & Refinery	14096	1	a
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Kennecott Utah Copper LLC- Smelter & Refinery	14103	2	b
Kennecott Utah Copper LLC- Smelter & Refinery	14105	1	a
Kennecott Utah Copper LLC- Smelter & Refinery	14180	1	a
Kennecott Utah Copper LLC- Smelter & Refinery	15227	1	a
Kennecott Utah Copper LLC- Smelter & Refinery	16402	1	a
Kennecott Utah Copper LLC- Smelter & Refinery	18017	1	a
Kennecott Utah Copper LLC- Smelter & Refinery	21056	1	a
Kennecott Utah Copper LLC- Smelter & Refinery	21056	2	b
Kennecott Utah Copper LLC- Smelter & Refinery	21057	1	a
Kennecott Utah Copper LLC- Smelter & Refinery	21058	1	a
Kennecott Utah Copper LLC- Smelter & Refinery	21059	1	a
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Kennecott Utah Copper LLC- Smelter & Refinery	168234	1	a
Kennecott Utah Copper LLC- Smelter & Refinery	170986	1	a
Kennecott Utah Copper LLC- Smelter & Refinery	170987	1	a
Kennecott Utah Copper LLC- Smelter & Refinery	172397	1	a
Kennecott Utah Copper LLC- Smelter & Refinery	172398	1	a
Kennecott Utah Copper LLC- Smelter & Refinery	177531	1	a
Kennecott Utah Copper LLC- Smelter & Refinery	177531	2	b
Kennecott Utah Copper LLC- Smelter & Refinery	177531	3	c
Kennecott Utah Copper LLC- Smelter & Refinery	177532	1	a
Kennecott Utah Copper LLC- Smelter & Refinery	177533	1	a
Kennecott Utah Copper LLC- Smelter & Refinery	177534	1	a

Site Name	Comp ID	Process ID	Process Code
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Kennecott Utah Copper LLC- Smelter & Refinery	4895	1	a
Kennecott Utah Copper LLC- Smelter & Refinery	13957	1	a
Kennecott Utah Copper LLC- Smelter & Refinery	13958	1	a
Kennecott Utah Copper LLC- Smelter & Refinery	13959	1	a
Kennecott Utah Copper LLC- Smelter & Refinery	13960	1	a
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Kennecott Utah Copper LLC- Smelter & Refinery	13971	1	a
Kennecott Utah Copper LLC- Smelter & Refinery	13971	2	b
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Kennecott Utah Copper LLC- Smelter & Refinery	177531	3	c
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Site Name	Comp ID	Process ID	Process Code
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Kennecott Utah Copper LLC- Smelter & Refinery	13970	1	a
Kennecott Utah Copper LLC- Smelter & Refinery	13971	1	a
Kennecott Utah Copper LLC- Smelter & Refinery	13971	2	b
Kennecott Utah Copper LLC- Smelter & Refinery	13972	1	a
Kennecott Utah Copper LLC- Smelter & Refinery	13974	1	a
Kennecott Utah Copper LLC- Smelter & Refinery	13975	1	a
Kennecott Utah Copper LLC- Smelter & Refinery	13977	1	a
Kennecott Utah Copper LLC- Smelter & Refinery	13979	1	a
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Kennecott Utah Copper LLC- Smelter & Refinery	13982	1	a
Kennecott Utah Copper LLC- Smelter & Refinery	13993	1	a
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Kennecott Utah Copper LLC- Smelter & Refinery	14103	1	a
Kennecott Utah Copper LLC- Smelter & Refinery	14103	2	b
Kennecott Utah Copper LLC- Smelter & Refinery	14105	1	a
Kennecott Utah Copper LLC- Smelter & Refinery	14180	1	a
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Component Description	Material or Fuel	Component SCC	ID	Height
10 Cold solvent deg part washer	Degreaser	40100398	926647	10
Carpenter Shop Cyclone	Wood	30500599	200	9
Lab BH	Lime	30500599	201	10
Fueling	Gasoline	40688801	930724	10
Feed Strg Xfer Belt BH	Copper Concentrate	30500599	3947	25
Feed Strg Bldg BH	Copper Concentrate	30500599	3753	11
Feed Xfer Belt BH	Copper Concentrate	30500599	3754	43
Wet Feed BH	Copper Concentrate	30500599	3755	145
Dry Feed BH	Copper Concentrate	30500599	3756	144
Limestone Silo BH	Copper Concentrate	30500599	3757	95
Ground Matte Silo BH	Matte	30500599	3758	143
Hydromet Plt Limestone Silo BH	Limestone	30500599	3761	78
Hydromet Plt Lime Silo BH	Lime	30500599	3762	95
main stack	Copper Concentrate	30300512	3763	1215
acid plant preheater	Natural Gas	30500599	3763	1215
pH superheater	Natural Gas	10200602	3763	1215
pH aux. boiler	Natural Gas	10200602	3763	1215
concentrate dryer	Natural Gas	30300506	3763	1215
launder heaters	Natural Gas	10500206	3763	1215
matte grinding	Natural Gas	30500599	3763	1215
*** anode furnace	Natural Gas	30300505	3763	1215
shaft furnace	Natural Gas	30500599	3763	1215
holding furnace	Natural Gas	30500599	3763	1215
anode launder heaters	Natural Gas	30500599	3763	1215
A (North) Boiler	Natural Gas	10200602	3771	26
Refinery Boilers- Diesel Fuel	Distillate Oil (No. 2)	10200502	3772	26
Cathode Wash		30300599	3773	23.5
Anode Scrap		30300599	3774	23.6
Liberator	Electrolyte	30300599	3775	31
Hydrometallurgical Precious Metals Recovery Scrubber		30300599	3776	63.8
Hydrometallurgical Silver Production Scrubber		30300599	3777	72
Se Crushing/Packing Baghouse		30300599	3779	65
Au/Ag Baghouse		30300599	3780	35
Soda Ash Filter	Soda Ash	30300599	3781	64
building heating	Natural Gas	10500106	939592	10

@ water heaters	Natural Gas	10200603	939593	10
Acid Plant	Water	39999996	939594	10
Power House	Water	39999996	939595	10
Granulator	Water	39999996	939596	10
Slag Concentrator	Slag	30300599	939597	10
Loading to Storage Pile on Patio	Concentrate	30300599	939598	10
Emergency backup power generator	Distillate Oil (No. 2)	20200102	939602	10
Emergency backup power generator	Distillate Oil (No. 2)	20200102	939603	10
Diesel generator	Distillate Oil (No. 2)	20200102	939604	10
Space Heaters	Natural Gas	30300599	939605	10
Gasoline Fueling	Gasoline	40688801	939606	10
Cooling Tower #1	Water	39999996	939607	10
Cooling Tower #2	Water	39999996	939608	10
Degreasing	Degreaser	40100398	939609	10
Paint	Paint	40200110	939610	10
Primer	Primer	40200110	939610	10
Diesel Generators	Distillate Oil (No. 2)	20300101	939612	10
Smelter Fugitives	Copper (Blister)	30300510	939686	10
Misc. Storage Piles & Loadout	Slag	30300599	940629	10
main stack	Natural Gas	30300512	3763	1215
Anode Furnace Scrubber Fugitives	Copper (Blister)	30300505	943200	10
Powerhouse Holman Boiler	Natural Gas	10200602	3763	1215
Holman Boiler (Propane)	Propane	10200602	3763	1215
Vacuum Cleaning System	Lime	30500599	946176	10
Vacuum Cleaning System	Lime	30500599	946177	10
Vacuum Cleaning System	Lime	30500599	946178	10
Mold Coating Silo BH	Barium Sulfate	30500599	3759	56
Granulated Matte	Matte	30500599	946180	10
Acid Plant Fugitive Leaks	Process Gas	30300361	946181	10
Recycle and Crushing Building	Dust	30500599	948072	10
Anode Area Lime Silo	Lime	30500599	950746	10
Secondary Gas System Lime Silo	Lime	30500599	950747	10
Diesel Compressor	Distillate Oil (No. 2)	20200401	952132	10
Diesel Compressor	Distillate Oil (No. 2)	20200102	952133	10
Solar, Inc NG Turbine and generator	Natural Gas	20200203	178809	10
Supplemental NG Duct Burner & HRSG	Natural Gas	20200203	178809	10
Supplemental NG Duct Burner & HRSG	Natural Gas	20200203	178809	10
LPG Generator	Liquified Petroleum Ga	20201012	178810	10
Slag granulation scrubber exhaust	Copper Concentrate	30500599	178811	130
Smelter Comm. Generator	Liquified Petroleum Ga	20201012	178812	10

Component Description	Material or Fuel	Component SCC		
			ID	Height
10 Cold solvent deg part washer	Degreaser	40100398	926647	10
Carpenter Shop Cyclone	Wood	30500599	200	9
Lab BH	Lime	30500599	201	10
Fueling	Gasoline	40688801	930724	10
Feed Strg Xfer Belt BH	Copper Concentrate	30500599	3947	25
Feed Strg Bldg BH	Copper Concentrate	30500599	3753	11
Feed Xfer Belt BH	Copper Concentrate	30500599	3754	43
Wet Feed BH	Copper Concentrate	30500599	3755	145
Dry Feed BH	Copper Concentrate	30500599	3756	144
Limestone Silo BH	Copper Concentrate	30500599	3757	95
Ground Matte Silo BH	Matte	30500599	3758	143
Hydromet Plt Limestone Silo BH	Limestone	30500599	3761	78
Hydromet Plt Lime Silo BH	Lime	30500599	3762	95
main stack	Copper Concentrate	30300512	3763	1215
acid plant preheater	Natural Gas	30500599	3763	1215
pH superheater	Natural Gas	10200602	3763	1215
pH aux. boiler	Natural Gas	10200602	3763	1215
concentrate dryer	Natural Gas	30300506	3763	1215
launder heaters	Natural Gas	10500206	3763	1215
matte grinding	Natural Gas	30500599	3763	1215
*** anode furnace	Natural Gas	30300505	3763	1215
shaft furnace	Natural Gas	30500599	3763	1215
holding furnace	Natural Gas	30500599	3763	1215
anode launder heaters	Natural Gas	30500599	3763	1215
A (North) Boiler	Natural Gas	10200602	3771	26
Refinery Boilers- Diesel Fuel	Distillate Oil (No. 2)	10200502	3772	26
Cathode Wash	0	30300599	3773	23.5
Anode Scrap	0	30300599	3774	23.6
Liberator	Electrolyte	30300599	3775	31
metallurgical Precious Metals Recovery Scr	0	30300599	3776	63.8
ydrometallurgical Silver Production Scrubbe	0	30300599	3777	72
Se Crushing/Packing Baghouse	0	30300599	3779	65
Au/Ag Baghouse	0	30300599	3780	35
Soda Ash Filter	Soda Ash	30300599	3781	64
building heating	Natural Gas	10500106	939592	10
@ water heaters	Natural Gas	10200603	939593	10
Acid Plant	Water	39999996	939594	10
Power House	Water	39999996	939595	10
Granulator	Water	39999996	939596	10
Slag Concentrator	Slag	30300599	939597	10
Loading to Storage Pile on Patio	Concentrate	30300599	939598	10
Emergency backup power generator	Distillate Oil (No. 2)	20200102	939602	10
Emergency backup power generator	Distillate Oil (No. 2)	20200102	939603	10
Diesel generator	Distillate Oil (No. 2)	20200102	939604	10
Space Heaters	Natural Gas	30300599	939605	10

Gasoline Fueling	Gasoline	40688801	939606	10
Cooling Tower #1	Water	39999996	939607	10
Cooling Tower #2	Water	39999996	939608	10
Degreasing	Degreaser	40100398	939609	10
Paint	Paint	40200110	939610	10
Primer	Primer	40200110	939610	10
Diesel Generators	Distillate Oil (No. 2)	20300101	939612	10
Smelter Fugitives	Copper (Blister)	30300510	939686	10
Misc. Storage Piles & Loadout	Slag	30300599	940629	10
main stack	Natural Gas	30300512	3763	1215
Anode Furnace Scrubber Fugitives	Copper (Blister)	30300505	943200	10
Powerhouse Holman Boiler	Natural Gas	10200602	3763	1215
Holman Boiler (Propane)	Propane	10200602	3763	1215
Vacuum Cleaning System	Lime	30500599	946176	10
Vacuum Cleaning System	Lime	30500599	946177	10
Vacuum Cleaning System	Lime	30500599	946178	10
Mold Coating Silo BH	Barium Sulfate	30500599	3759	56
Granulated Matte	Matte	30500599	946180	10
Acid Plant Fugitive Leaks	Process Gas	30300361	946181	10
Recycle and Crushing Building	Dust	30500599	948072	10
Anode Area Lime Silo	Lime	30500599	950746	10
Secondary Gas System Lime Silo	Lime	30500599	950747	10
Diesel Compressor	Distillate Oil (No. 2)	20200401	952132	10
Diesel Compressor	Distillate Oil (No. 2)	20200102	952133	10
Solar, Inc NG Turbine and generator	Natural Gas	20200203	178809	10
Supplemental NG Duct Burner & HRSG	Natural Gas	20200203	178809	10
Supplemental NG Duct Burner & HRSG	Natural Gas	20200203	178809	10
LPG Generator	ified Petroleum Gas (L	20201012	178810	10
Slag granulation scrubber exhaust	Copper Concentrate	30500599	178811	130
Smelter Comm. Generator	ified Petroleum Gas (L	20201012	178812	10

Component Description	Material or Fuel	Component SCC		
			ID	Height
10 Cold solvent deg part washer	Degreaser	40100398	926647	10
Carpenter Shop Cyclone	Wood	30500599	200	9
Lab BH	Lime	30500599	201	10
Fueling	Gasoline	40688801	930724	10
Feed Strg Xfer Belt BH	Copper Concentrate	30500599	3947	25
Feed Strg Bldg BH	Copper Concentrate	30500599	3753	11

Feed Xfer Belt BH	Copper Concentrate	30500599	3754	43
Wet Feed BH	Copper Concentrate	30500599	3755	145
Dry Feed BH	Copper Concentrate	30500599	3756	144
Limestone Silo BH	Copper Concentrate	30500599	3757	95
Ground Matte Silo BH	Matte	30500599	3758	143
Hydromet Plt Limestone Silo BH	Limestone	30500599	3761	78
Hydromet Plt Lime Silo BH	Lime	30500599	3762	95
main stack	Copper Concentrate	30300512	3763	1215
acid plant preheater	Natural Gas	30500599	3763	1215
pH superheater	Natural Gas	10200602	3763	1215
pH aux. boiler	Natural Gas	10200602	3763	1215
concentrate dryer	Natural Gas	30300506	3763	1215
launder heaters	Natural Gas	10500206	3763	1215
matte grinding	Natural Gas	30500599	3763	1215
*** anode furnace	Natural Gas	30300505	3763	1215
shaft furnace	Natural Gas	30500599	3763	1215
holding furnace	Natural Gas	30500599	3763	1215
anode launder heaters	Natural Gas	30500599	3763	1215
A (North) Boiler	Natural Gas	10200602	3771	26
Refinery Boilers- Diesel Fuel	Distillate Oil (No. 2)	10200502	3772	26
Cathode Wash	0	30300599	3773	23.5
Anode Scrap	0	30300599	3774	23.6
Liberator	Electrolyte	30300599	3775	31
metallurgical Precious Metals Recovery Sc	0	30300599	3776	63.8
ydrometallurgical Silver Production Scrubbe	0	30300599	3777	72
Se Crushing/Packing Baghouse	0	30300599	3779	65
Au/Ag Baghouse	0	30300599	3780	35
Soda Ash Filter	Soda Ash	30300599	3781	64
building heating	Natural Gas	10500106	939592	10
@ water heaters	Natural Gas	10200603	939593	10
Acid Plant	Water	39999996	939594	10
Power House	Water	39999996	939595	10
Granulator	Water	39999996	939596	10
Slag Concentrator	Slag	30300599	939597	10
Loading to Storage Pile on Patio	Concentrate	30300599	939598	10
Emergency backup power generator	Distillate Oil (No. 2)	20200102	939602	10
Emergency backup power generator	Distillate Oil (No. 2)	20200102	939603	10
Diesel generator	Distillate Oil (No. 2)	20200102	939604	10
Space Heaters	Natural Gas	30300599	939605	10
Gasoline Fueling	Gasoline	40688801	939606	10
Cooling Tower #1	Water	39999996	939607	10
Cooling Tower #2	Water	39999996	939608	10
Degreasing	Degreaser	40100398	939609	10
Paint	Paint	40200110	939610	10
Primer	Primer	40200110	939610	10
Diesel Generators	Distillate Oil (No. 2)	20300101	939612	10
Smelter Fugitives	Copper (Blister)	30300510	939686	10
Misc. Storage Piles & Loadout	Slag	30300599	940629	10
main stack	Natural Gas	30300512	3763	1215

Anode Furnace Scrubber Fugitives	Copper (Blister)	30300505	943200	10
Powerhouse Holman Boiler	Natural Gas	10200602	3763	1215
Holman Boiler (Propane)	Propane	10200602	3763	1215
Vacuum Cleaning System	Lime	30500599	946176	10
Vacuum Cleaning System	Lime	30500599	946177	10
Vacuum Cleaning System	Lime	30500599	946178	10
Mold Coating Silo BH	Barium Sulfate	30500599	3759	56
Granulated Matte	Matte	30500599	946180	10
Acid Plant Fugitive Leaks	Process Gas	30300361	946181	10
Recycle and Crushing Building	Dust	30500599	948072	10
Anode Area Lime Silo	Lime	30500599	950746	10
Secondary Gas System Lime Silo	Lime	30500599	950747	10
Diesel Compressor	Distillate Oil (No. 2)	20200401	952132	10
Diesel Compressor	Distillate Oil (No. 2)	20200102	952133	10
Solar, Inc NG Turbine and generator	Natural Gas	20200203	178809	10
Supplemental NG Duct Burner & HRSG	Natural Gas	20200203	178809	10
Supplemental NG Duct Burner & HRSG	Natural Gas	20200203	178809	10
LPG Generator	ified Petroleum Gas (L	20201012	178810	10
Slag granulation scrubber exhaust	Copper Concentrate	30500599	178811	130
Smelter Comm. Generator	ified Petroleum Gas (L	20201012	178812	10

Component Description	Material or Fuel	Component SCC		
			ID	Height
10 Cold solvent deg part washer	Degreaser	40100398	926647	10
Carpenter Shop Cyclone	Wood	30500599	200	9
Lab BH	Lime	30500599	201	10
Fueling	Gasoline	40688801	930724	10
Feed Strg Xfer Belt BH	Copper Concentrate	30500599	3947	25
Feed Strg Bldg BH	Copper Concentrate	30500599	3753	11
Feed Xfer Belt BH	Copper Concentrate	30500599	3754	43
Wet Feed BH	Copper Concentrate	30500599	3755	145
Dry Feed BH	Copper Concentrate	30500599	3756	144
Limestone Silo BH	Copper Concentrate	30500599	3757	95
Ground Matte Silo BH	Matte	30500599	3758	143
Hydromet Plt Limestone Silo BH	Limestone	30500599	3761	78
Hydromet Plt Lime Silo BH	Lime	30500599	3762	95
main stack	Copper Concentrate	30300512	3763	1215
acid plant preheater	Natural Gas	30500599	3763	1215
pH superheater	Natural Gas	10200602	3763	1215

pH aux. boiler	Natural Gas	10200602	3763	1215
concentrate dryer	Natural Gas	30300506	3763	1215
launder heaters	Natural Gas	10500206	3763	1215
matte grinding	Natural Gas	30500599	3763	1215
*** anode furnace	Natural Gas	30300505	3763	1215
shaft furnace	Natural Gas	30500599	3763	1215
holding furnace	Natural Gas	30500599	3763	1215
anode launder heaters	Natural Gas	30500599	3763	1215
A (North) Boiler	Natural Gas	10200602	3771	26
Refinery Boilers- Diesel Fuel	Distillate Oil (No. 2)	10200502	3772	26
Cathode Wash	0	30300599	3773	23.5
Anode Scrap	0	30300599	3774	23.6
Liberator	Electrolyte	30300599	3775	31
metallurgical Precious Metals Recovery Scr	0	30300599	3776	63.8
ydrometallurgical Silver Production Scrubbe	0	30300599	3777	72
Se Crushing/Packing Baghouse	0	30300599	3779	65
Au/Ag Baghouse	0	30300599	3780	35
Soda Ash Filter	Soda Ash	30300599	3781	64
building heating	Natural Gas	10500106	939592	10
@ water heaters	Natural Gas	10200603	939593	10
Acid Plant	Water	39999996	939594	10
Power House	Water	39999996	939595	10
Granulator	Water	39999996	939596	10
Slag Concentrator	Slag	30300599	939597	10
Loading to Storage Pile on Patio	Concentrate	30300599	939598	10
Emergency backup power generator	Distillate Oil (No. 2)	20200102	939602	10
Emergency backup power generator	Distillate Oil (No. 2)	20200102	939603	10
Diesel generator	Distillate Oil (No. 2)	20200102	939604	10
Space Heaters	Natural Gas	30300599	939605	10
Gasoline Fueling	Gasoline	40688801	939606	10
Cooling Tower #1	Water	39999996	939607	10
Cooling Tower #2	Water	39999996	939608	10
Degreasing	Degreaser	40100398	939609	10
Paint	Paint	40200110	939610	10
Primer	Primer	40200110	939610	10
Diesel Generators	Distillate Oil (No. 2)	20300101	939612	10
Smelter Fugitives	Copper (Blister)	30300510	939686	10
Misc. Storage Piles & Loadout	Slag	30300599	940629	10
main stack	Natural Gas	30300512	3763	1215
Anode Furnace Scrubber Fugitives	Copper (Blister)	30300505	943200	10
Powerhouse Holman Boiler	Natural Gas	10200602	3763	1215
Holman Boiler (Propane)	Propane	10200602	3763	1215
Vacuum Cleaning System	Lime	30500599	946176	10
Vacuum Cleaning System	Lime	30500599	946177	10
Vacuum Cleaning System	Lime	30500599	946178	10
Mold Coating Silo BH	Barium Sulfate	30500599	3759	56
Granulated Matte	Matte	30500599	946180	10
Acid Plant Fugitive Leaks	Process Gas	30300361	946181	10
Recycle and Crushing Building	Dust	30500599	948072	10

Anode Area Lime Silo	Lime	30500599	950746	10
Secondary Gas System Lime Silo	Lime	30500599	950747	10
Diesel Compressor	Distillate Oil (No. 2)	20200401	952132	10
Diesel Compressor	Distillate Oil (No. 2)	20200102	952133	10
Solar, Inc NG Turbine and generator	Natural Gas	20200203	178809	10
Supplemental NG Duct Burner & HRSG	Natural Gas	20200203	178809	10
Supplemental NG Duct Burner & HRSG	Natural Gas	20200203	178809	10
LPG Generator	ified Petroleum Gas (L	20201012	178810	10
Slag granulation scrubber exhaust	Copper Concentrate	30500599	178811	130
Smelter Comm. Generator	ified Petroleum Gas (L	20201012	178812	10

Component Description	Material or Fuel	Component SCC		
			ID	Height
10 Cold solvent deg part washer	Degreaser	40100398	926647	10
Carpenter Shop Cyclone	Wood	30500599	200	9
Lab BH	Lime	30500599	201	10
Fueling	Gasoline	40688801	930724	10
Feed Strg Xfer Belt BH	Copper Concentrate	30500599	3947	25
Feed Strg Bldg BH	Copper Concentrate	30500599	3753	11
Feed Xfer Belt BH	Copper Concentrate	30500599	3754	43
Wet Feed BH	Copper Concentrate	30500599	3755	145
Dry Feed BH	Copper Concentrate	30500599	3756	144
Limestone Silo BH	Copper Concentrate	30500599	3757	95
Ground Matte Silo BH	Matte	30500599	3758	143
Hydromet Plt Limestone Silo BH	Limestone	30500599	3761	78
Hydromet Plt Lime Silo BH	Lime	30500599	3762	95
main stack	Copper Concentrate	30300512	3763	1215
acid plant preheater	Natural Gas	30500599	3763	1215
pH superheater	Natural Gas	10200602	3763	1215
pH aux. boiler	Natural Gas	10200602	3763	1215
concentrate dryer	Natural Gas	30300506	3763	1215
launder heaters	Natural Gas	10500206	3763	1215
matte grinding	Natural Gas	30500599	3763	1215
*** anode furnace	Natural Gas	30300505	3763	1215
shaft furnace	Natural Gas	30500599	3763	1215
holding furnace	Natural Gas	30500599	3763	1215
anode launder heaters	Natural Gas	30500599	3763	1215
A (North) Boiler	Natural Gas	10200602	3771	26
Refinery Boilers- Diesel Fuel	Distillate Oil (No. 2)	10200502	3772	26

Cathode Wash	0	30300599	3773	23.5
Anode Scrap	0	30300599	3774	23.6
Liberator	Electrolyte	30300599	3775	31
metallurgical Precious Metals Recovery Scr	0	30300599	3776	63.8
ydrometallurgical Silver Production Scrubbe	0	30300599	3777	72
Se Crushing/Packing Baghouse	0	30300599	3779	65
Au/Ag Baghouse	0	30300599	3780	35
Soda Ash Filter	Soda Ash	30300599	3781	64
building heating	Natural Gas	10500106	939592	10
@ water heaters	Natural Gas	10200603	939593	10
Acid Plant	Water	39999996	939594	10
Power House	Water	39999996	939595	10
Granulator	Water	39999996	939596	10
Slag Concentrator	Slag	30300599	939597	10
Loading to Storage Pile on Patio	Concentrate	30300599	939598	10
Emergency backup power generator	Distillate Oil (No. 2)	20200102	939602	10
Emergency backup power generator	Distillate Oil (No. 2)	20200102	939603	10
Diesel generator	Distillate Oil (No. 2)	20200102	939604	10
Space Heaters	Natural Gas	30300599	939605	10
Gasoline Fueling	Gasoline	40688801	939606	10
Cooling Tower #1	Water	39999996	939607	10
Cooling Tower #2	Water	39999996	939608	10
Degreasing	Degreaser	40100398	939609	10
Paint	Paint	40200110	939610	10
Primer	Primer	40200110	939610	10
Diesel Generators	Distillate Oil (No. 2)	20300101	939612	10
Smelter Fugitives	Copper (Blister)	30300510	939686	10
Misc. Storage Piles & Loadout	Slag	30300599	940629	10
main stack	Natural Gas	30300512	3763	1215
Anode Furnace Scrubber Fugitives	Copper (Blister)	30300505	943200	10
Powerhouse Holman Boiler	Natural Gas	10200602	3763	1215
Holman Boiler (Propane)	Propane	10200602	3763	1215
Vacuum Cleaning System	Lime	30500599	946176	10
Vacuum Cleaning System	Lime	30500599	946177	10
Vacuum Cleaning System	Lime	30500599	946178	10
Mold Coating Silo BH	Barium Sulfate	30500599	3759	56
Granulated Matte	Matte	30500599	946180	10
Acid Plant Fugitive Leaks	Process Gas	30300361	946181	10
Recycle and Crushing Building	Dust	30500599	948072	10
Anode Area Lime Silo	Lime	30500599	950746	10
Secondary Gas System Lime Silo	Lime	30500599	950747	10
Diesel Compressor	Distillate Oil (No. 2)	20200401	952132	10
Diesel Compressor	Distillate Oil (No. 2)	20200102	952133	10
Solar, Inc NG Turbine and generator	Natural Gas	20200203	178809	10
Supplemental NG Duct Burner & HRSG	Natural Gas	20200203	178809	10
Supplemental NG Duct Burner & HRSG	Natural Gas	20200203	178809	10
LPG Generator	ified Petroleum Gas (L	20201012	178810	10
Slag granulation scrubber exhaust	Copper Concentrate	30500599	178811	130
Smelter Comm. Generator	ified Petroleum Gas (L	20201012	178812	10

Component Description	Material or Fuel	Component SCC		
			ID	Height
10 Cold solvent deg part washer	Degreaser	40100398	926647	10
Carpenter Shop Cyclone	Wood	30500599	200	9
Lab BH	Lime	30500599	201	10
Fueling	Gasoline	40688801	930724	10
Feed Strg Xfer Belt BH	Copper Concentrate	30500599	3947	25
Feed Strg Bldg BH	Copper Concentrate	30500599	3753	11
Feed Xfer Belt BH	Copper Concentrate	30500599	3754	43
Wet Feed BH	Copper Concentrate	30500599	3755	145
Dry Feed BH	Copper Concentrate	30500599	3756	144
Limestone Silo BH	Copper Concentrate	30500599	3757	95
Ground Matte Silo BH	Matte	30500599	3758	143
Hydromet Plt Limestone Silo BH	Limestone	30500599	3761	78
Hydromet Plt Lime Silo BH	Lime	30500599	3762	95
main stack	Copper Concentrate	30300512	3763	1215
acid plant preheater	Natural Gas	30500599	3763	1215
pH superheater	Natural Gas	10200602	3763	1215
pH aux. boiler	Natural Gas	10200602	3763	1215
concentrate dryer	Natural Gas	30300506	3763	1215
launder heaters	Natural Gas	10500206	3763	1215
matte grinding	Natural Gas	30500599	3763	1215
*** anode furnace	Natural Gas	30300505	3763	1215
shaft furnace	Natural Gas	30500599	3763	1215
holding furnace	Natural Gas	30500599	3763	1215
anode launder heaters	Natural Gas	30500599	3763	1215
A (North) Boiler	Natural Gas	10200602	3771	26
Refinery Boilers- Diesel Fuel	Distillate Oil (No. 2)	10200502	3772	26
Cathode Wash	0	30300599	3773	23.5
Anode Scrap	0	30300599	3774	23.6
Liberator	Electrolyte	30300599	3775	31
metallurgical Precious Metals Recovery Scr	0	30300599	3776	63.8
ydrometallurgical Silver Production Scrubbe	0	30300599	3777	72
Se Crushing/Packing Baghouse	0	30300599	3779	65
Au/Ag Baghouse	0	30300599	3780	35
Soda Ash Filter	Soda Ash	30300599	3781	64
building heating	Natural Gas	10500106	939592	10
@ water heaters	Natural Gas	10200603	939593	10

Acid Plant	Water	39999996	939594	10
Power House	Water	39999996	939595	10
Granulator	Water	39999996	939596	10
Slag Concentrator	Slag	30300599	939597	10
Loading to Storage Pile on Patio	Concentrate	30300599	939598	10
Emergency backup power generator	Distillate Oil (No. 2)	20200102	939602	10
Emergency backup power generator	Distillate Oil (No. 2)	20200102	939603	10
Diesel generator	Distillate Oil (No. 2)	20200102	939604	10
Space Heaters	Natural Gas	30300599	939605	10
Gasoline Fueling	Gasoline	40688801	939606	10
Cooling Tower #1	Water	39999996	939607	10
Cooling Tower #2	Water	39999996	939608	10
Degreasing	Degreaser	40100398	939609	10
Paint	Paint	40200110	939610	10
Primer	Primer	40200110	939610	10
Diesel Generators	Distillate Oil (No. 2)	20300101	939612	10
Smelter Fugitives	Copper (Blister)	30300510	939686	10
Misc. Storage Piles & Loadout	Slag	30300599	940629	10
main stack	Natural Gas	30300512	3763	1215
Anode Furnace Scrubber Fugitives	Copper (Blister)	30300505	943200	10
Powerhouse Holman Boiler	Natural Gas	10200602	3763	1215
Holman Boiler (Propane)	Propane	10200602	3763	1215
Vacuum Cleaning System	Lime	30500599	946176	10
Vacuum Cleaning System	Lime	30500599	946177	10
Vacuum Cleaning System	Lime	30500599	946178	10
Mold Coating Silo BH	Barium Sulfate	30500599	3759	56
Granulated Matte	Matte	30500599	946180	10
Acid Plant Fugitive Leaks	Process Gas	30300361	946181	10
Recycle and Crushing Building	Dust	30500599	948072	10
Anode Area Lime Silo	Lime	30500599	950746	10
Secondary Gas System Lime Silo	Lime	30500599	950747	10
Diesel Compressor	Distillate Oil (No. 2)	20200401	952132	10
Diesel Compressor	Distillate Oil (No. 2)	20200102	952133	10
Solar, Inc NG Turbine and generator	Natural Gas	20200203	178809	10
Supplemental NG Duct Burner & HRSG	Natural Gas	20200203	178809	10
Supplemental NG Duct Burner & HRSG	Natural Gas	20200203	178809	10
LPG Generator	ified Petroleum Gas (L	20201012	178810	10
Slag granulation scrubber exhaust	Copper Concentrate	30500599	178811	130
Smelter Comm. Generator	ified Petroleum Gas (L	20201012	178812	10

Stack					Location			
Diameter	Temp	Flow	Area	Velocity	Lat	Long	Hrs/Day	Days/Wk
1	72	12	0.785398	15.28	40.71667	-112.2	8	7
1.2	70	73	1.130973	64.46	40.71667	-112.2	24	1
2	70	217	3.141593	68.98	40.71667	-112.2	5	7
1	72	12	0.785398	15.28	40.71667	-112.2	24	7
1.3	90	82	1.327323	61.78	40.71667	-112.2	24	7
5	81	652	19.63495	33.23	40.71667	-112.2	24	7
0.8	90	20	0.502655	40.78	40.71667	-112.2	24	7
3.12	97	322	7.64538	41.96	40.71667	-112.2	24	7
1.4	154	69	1.53938	44.82	40.71667	-112.2	24	7
0.8	68	12	0.502655	24.87	40.71667	-112.2	24	7
0.9	125	17	0.636173	26.72	40.71667	-112.2	24	7
1	72	20	0.785398	25.85	40.71667	-112.2	3	7
1	72	22	0.785398	28.27	40.71667	-112.2	2	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
3.4	344	12	9.079203	1.32	40.71667	-112.2	24	7
3.4	344	12	9.079203	1.32	40.71667	-112.2	24	7
2	102	12	3.141593	3.82	40.71667	-112.2	16	7
1.2	130	12	1.130973	10.61	40.71667	-112.2	16	7
2.4	83	12	4.523893	2.65	40.71667	-112.2	24	7
3	86	12	7.068583	1.7	40.71667	-112.2	24	7
2.9	87	12	6.605199	1.82	40.71667	-112.2	24	7
0.92	90	21	0.664761	31.9	40.71667	-112.2	8	7
1	76	12	0.785398	15.28	40.71667	-112.2	12	6
1	72	12	0.785398	15.28	40.71667	-112.2	6	1
1	72	12	0.785398	15.28	40.71667	-112.2	24	7

1	72	12	0.785398	15.28	40.71667	-112.2	24	7
1	72	12	0.785398	15.28	40.71667	-112.2	24	7
1	72	12	0.785398	15.28	40.71667	-112.2	24	7
1	72	12	0.785398	15.28	40.71667	-112.2	24	7
1	72	12	0.785398	15.28	40.71667	-112.2	24	7
1	72	12	0.785398	15.28	40.71667	-112.2	24	7
1	72	12	0.785398	15.28	40.71667	-112.2	1	1
1	72	12	0.785398	15.28	40.71667	-112.2	1	1
1	72	12	0.785398	15.28	40.71667	-112.2	1	1
0	72	0	0	0	40.71667	-112.2	24	7
0	72	0	0	0	40.71667	-112.2	24	7
0	72	0	0	0	40.71667	-112.2	24	7
0	72	0	0	0	40.71667	-112.2	24	7
0	72	0	0	0	40.71667	-112.2	1	1
0	72	0	0	0	40.71667	-112.2	1	1
0	72	0	0	0	40.71667	-112.2	1	1
0	72	0	0	0	40.71667	-112.2	1	1
1	72	12	0.785398	15.28	40.71667	-112.2	24	7
1	72	12	0.785398	15.28	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
1	72	12	0.785398	15.28	40.71667	-112.2	1	1
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	0	0
1	72	12	0.785398	15.28	40.71667	-112.2	24	1
1	72	12	0.785398	15.28	40.71667	-112.2	24	1
1	72	12	0.785398	15.28	40.71667	-112.2	24	1
1	72	13	0.785398	16.55	40.71667	-112.2	24	7
1	72	12	0.785398	15.28	40.71667	-112.2	24	7
1	72	12	0.785398	15.28	40.71667	-112.2	24	7
1	72	12	0.785398	15.28	40.71667	-112.2	8	5
1	72	12	0.785398	15.28	40.71667	-112.2	24	1
1	72	12	0.785398	15.28	40.71667	-112.2	24	1
1	72	12	0.785398	15.28	40.71667	-112.2	8	5
1	72	12	0.785398	15.28	40.71667	-112.2	17	7
4.44	273	1235.48	15.48303	79.89	40.71667	-112.2	24	7
4.44	273	1235.48	15.48303	79.89	40.71667	-112.2	24	7
4.44	273	1235.48	15.48303	79.89	40.71667	-112.2	2	7
1	72	12	0.785398	15.28	40.71667	-112.2	0	7
2.3	68	261	4.154756	62.82	40.71667	-112.2	8	7
1	72	12	0.785398	15.28	40.71667	-112.2	0	1

Stack					Location			
Diameter	Temp	Flow	Area	Velocity	Lat	Long	Hrs/Day	Days/Wk
1	72	12	0.785398	15.28	40.71667	-112.2	8	7
1.2	70	73	1.130973	64.46	40.71667	-112.2	24	1
2	70	217	3.141593	68.98	40.71667	-112.2	5	7
1	72	12	0.785398	15.28	40.71667	-112.2	24	7
1.3	90	82	1.327323	61.78	40.71667	-112.2	24	7
5	81	652	19.63495	33.23	40.71667	-112.2	24	7
0.8	90	20	0.502655	40.78	40.71667	-112.2	24	7
3.12	97	322	7.64538	41.96	40.71667	-112.2	24	7
1.4	154	69	1.53938	44.82	40.71667	-112.2	24	7
0.8	68	12	0.502655	24.87	40.71667	-112.2	24	7
0.9	125	17	0.636173	26.72	40.71667	-112.2	24	7
1	72	20	0.785398	25.85	40.71667	-112.2	3	7
1	72	22	0.785398	28.27	40.71667	-112.2	2	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
3.4	344	12	9.079203	1.32	40.71667	-112.2	24	7
3.4	344	12	9.079203	1.32	40.71667	-112.2	24	7
2	102	12	3.141593	3.82	40.71667	-112.2	16	7
1.2	130	12	1.130973	10.61	40.71667	-112.2	16	7
2.4	83	12	4.523893	2.65	40.71667	-112.2	24	7
3	86	12	7.068583	1.7	40.71667	-112.2	24	7
2.9	87	12	6.605199	1.82	40.71667	-112.2	24	7
0.92	90	21	0.664761	31.9	40.71667	-112.2	8	7
1	76	12	0.785398	15.28	40.71667	-112.2	12	6
1	72	12	0.785398	15.28	40.71667	-112.2	6	1
1	72	12	0.785398	15.28	40.71667	-112.2	24	7
1	72	12	0.785398	15.28	40.71667	-112.2	24	7
1	72	12	0.785398	15.28	40.71667	-112.2	24	7
1	72	12	0.785398	15.28	40.71667	-112.2	24	7
1	72	12	0.785398	15.28	40.71667	-112.2	24	7
1	72	12	0.785398	15.28	40.71667	-112.2	24	7
1	72	12	0.785398	15.28	40.71667	-112.2	24	7
1	72	12	0.785398	15.28	40.71667	-112.2	1	1
1	72	12	0.785398	15.28	40.71667	-112.2	1	1
1	72	12	0.785398	15.28	40.71667	-112.2	1	1
0	72	0	0	0	40.71667	-112.2	24	7

0	72	0	0	0	40.71667	-112.2	24	7
0	72	0	0	0	40.71667	-112.2	24	7
0	72	0	0	0	40.71667	-112.2	24	7
0	72	0	0	0	40.71667	-112.2	1	1
0	72	0	0	0	40.71667	-112.2	1	1
0	72	0	0	0	40.71667	-112.2	1	1
0	72	0	0	0	40.71667	-112.2	1	1
1	72	12	0.785398	15.28	40.71667	-112.2	24	7
1	72	12	0.785398	15.28	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
1	72	12	0.785398	15.28	40.71667	-112.2	1	1
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	0	0
1	72	12	0.785398	15.28	40.71667	-112.2	24	1
1	72	12	0.785398	15.28	40.71667	-112.2	24	1
1	72	12	0.785398	15.28	40.71667	-112.2	24	1
1	72	13	0.785398	16.55	40.71667	-112.2	24	7
1	72	12	0.785398	15.28	40.71667	-112.2	24	7
1	72	12	0.785398	15.28	40.71667	-112.2	24	7
1	72	12	0.785398	15.28	40.71667	-112.2	8	5
1	72	12	0.785398	15.28	40.71667	-112.2	24	1
1	72	12	0.785398	15.28	40.71667	-112.2	24	1
1	72	12	0.785398	15.28	40.71667	-112.2	8	5
1	72	12	0.785398	15.28	40.71667	-112.2	17	7
4.44	273	1235.48	15.48303	79.89	40.71667	-112.2	24	7
4.44	273	1235.48	15.48303	79.89	40.71667	-112.2	24	7
4.44	273	1235.48	15.48303	79.89	40.71667	-112.2	2	7
1	72	12	0.785398	15.28	40.71667	-112.2	0	7
2.3	68	261	4.154756	62.82	40.71667	-112.2	8	7
1	72	12	0.785398	15.28	40.71667	-112.2	0	1

Stack					Location			
Diameter	Temp	Flow	Area	Velocity	Lat	Long	Hrs/Day	Days/Wk
1	72	12	0.785398	15.28	40.71667	-112.2	8	7
1.2	70	73	1.130973	64.46	40.71667	-112.2	24	1
2	70	217	3.141593	68.98	40.71667	-112.2	5	7
1	72	12	0.785398	15.28	40.71667	-112.2	24	7
1.3	90	82	1.327323	61.78	40.71667	-112.2	24	7
5	81	652	19.63495	33.23	40.71667	-112.2	24	7

0.8	90	20	0.502655	40.78	40.71667	-112.2	24	7
3.12	97	322	7.64538	41.96	40.71667	-112.2	24	7
1.4	154	69	1.53938	44.82	40.71667	-112.2	24	7
0.8	68	12	0.502655	24.87	40.71667	-112.2	24	7
0.9	125	17	0.636173	26.72	40.71667	-112.2	24	7
1	72	20	0.785398	25.85	40.71667	-112.2	3	7
1	72	22	0.785398	28.27	40.71667	-112.2	2	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
3.4	344	12	9.079203	1.32	40.71667	-112.2	24	7
3.4	344	12	9.079203	1.32	40.71667	-112.2	24	7
2	102	12	3.141593	3.82	40.71667	-112.2	16	7
1.2	130	12	1.130973	10.61	40.71667	-112.2	16	7
2.4	83	12	4.523893	2.65	40.71667	-112.2	24	7
3	86	12	7.068583	1.7	40.71667	-112.2	24	7
2.9	87	12	6.605199	1.82	40.71667	-112.2	24	7
0.92	90	21	0.664761	31.9	40.71667	-112.2	8	7
1	76	12	0.785398	15.28	40.71667	-112.2	12	6
1	72	12	0.785398	15.28	40.71667	-112.2	6	1
1	72	12	0.785398	15.28	40.71667	-112.2	24	7
1	72	12	0.785398	15.28	40.71667	-112.2	24	7
1	72	12	0.785398	15.28	40.71667	-112.2	24	7
1	72	12	0.785398	15.28	40.71667	-112.2	24	7
1	72	12	0.785398	15.28	40.71667	-112.2	24	7
1	72	12	0.785398	15.28	40.71667	-112.2	24	7
1	72	12	0.785398	15.28	40.71667	-112.2	24	7
1	72	12	0.785398	15.28	40.71667	-112.2	1	1
1	72	12	0.785398	15.28	40.71667	-112.2	1	1
1	72	12	0.785398	15.28	40.71667	-112.2	1	1
0	72	0	0	0	40.71667	-112.2	24	7
0	72	0	0	0	40.71667	-112.2	24	7
0	72	0	0	0	40.71667	-112.2	24	7
0	72	0	0	0	40.71667	-112.2	24	7
0	72	0	0	0	40.71667	-112.2	1	1
0	72	0	0	0	40.71667	-112.2	1	1
0	72	0	0	0	40.71667	-112.2	1	1
0	72	0	0	0	40.71667	-112.2	1	1
1	72	12	0.785398	15.28	40.71667	-112.2	24	7
1	72	12	0.785398	15.28	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7

1	72	12	0.785398	15.28	40.71667	-112.2	1	1
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	0	0
1	72	12	0.785398	15.28	40.71667	-112.2	24	1
1	72	12	0.785398	15.28	40.71667	-112.2	24	1
1	72	12	0.785398	15.28	40.71667	-112.2	24	1
1	72	13	0.785398	16.55	40.71667	-112.2	24	7
1	72	12	0.785398	15.28	40.71667	-112.2	24	7
1	72	12	0.785398	15.28	40.71667	-112.2	24	7
1	72	12	0.785398	15.28	40.71667	-112.2	8	5
1	72	12	0.785398	15.28	40.71667	-112.2	24	1
1	72	12	0.785398	15.28	40.71667	-112.2	24	1
1	72	12	0.785398	15.28	40.71667	-112.2	8	5
1	72	12	0.785398	15.28	40.71667	-112.2	17	7
4.44	273	1235.48	15.48303	79.89	40.71667	-112.2	24	7
4.44	273	1235.48	15.48303	79.89	40.71667	-112.2	24	7
4.44	273	1235.48	15.48303	79.89	40.71667	-112.2	2	7
1	72	12	0.785398	15.28	40.71667	-112.2	0	7
2.3	68	261	4.154756	62.82	40.71667	-112.2	8	7
1	72	12	0.785398	15.28	40.71667	-112.2	0	1

Stack					Location			
Diameter	Temp	Flow	Area	Velocity	Lat	Long	Hrs/Day	Days/Wk
1	72	12	0.785398	15.28	40.71667	-112.2	8	7
1.2	70	73	1.130973	64.46	40.71667	-112.2	24	1
2	70	217	3.141593	68.98	40.71667	-112.2	5	7
1	72	12	0.785398	15.28	40.71667	-112.2	24	7
1.3	90	82	1.327323	61.78	40.71667	-112.2	24	7
5	81	652	19.63495	33.23	40.71667	-112.2	24	7
0.8	90	20	0.502655	40.78	40.71667	-112.2	24	7
3.12	97	322	7.64538	41.96	40.71667	-112.2	24	7
1.4	154	69	1.53938	44.82	40.71667	-112.2	24	7
0.8	68	12	0.502655	24.87	40.71667	-112.2	24	7
0.9	125	17	0.636173	26.72	40.71667	-112.2	24	7
1	72	20	0.785398	25.85	40.71667	-112.2	3	7
1	72	22	0.785398	28.27	40.71667	-112.2	2	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7

24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
3.4	344	12	9.079203	1.32	40.71667	-112.2	24	7
3.4	344	12	9.079203	1.32	40.71667	-112.2	24	7
2	102	12	3.141593	3.82	40.71667	-112.2	16	7
1.2	130	12	1.130973	10.61	40.71667	-112.2	16	7
2.4	83	12	4.523893	2.65	40.71667	-112.2	24	7
3	86	12	7.068583	1.7	40.71667	-112.2	24	7
2.9	87	12	6.605199	1.82	40.71667	-112.2	24	7
0.92	90	21	0.664761	31.9	40.71667	-112.2	8	7
1	76	12	0.785398	15.28	40.71667	-112.2	12	6
1	72	12	0.785398	15.28	40.71667	-112.2	6	1
1	72	12	0.785398	15.28	40.71667	-112.2	24	7
1	72	12	0.785398	15.28	40.71667	-112.2	24	7
1	72	12	0.785398	15.28	40.71667	-112.2	24	7
1	72	12	0.785398	15.28	40.71667	-112.2	24	7
1	72	12	0.785398	15.28	40.71667	-112.2	24	7
1	72	12	0.785398	15.28	40.71667	-112.2	24	7
1	72	12	0.785398	15.28	40.71667	-112.2	24	7
1	72	12	0.785398	15.28	40.71667	-112.2	1	1
1	72	12	0.785398	15.28	40.71667	-112.2	1	1
1	72	12	0.785398	15.28	40.71667	-112.2	1	1
0	72	0	0	0	40.71667	-112.2	24	7
0	72	0	0	0	40.71667	-112.2	24	7
0	72	0	0	0	40.71667	-112.2	24	7
0	72	0	0	0	40.71667	-112.2	24	7
0	72	0	0	0	40.71667	-112.2	1	1
0	72	0	0	0	40.71667	-112.2	1	1
0	72	0	0	0	40.71667	-112.2	1	1
0	72	0	0	0	40.71667	-112.2	1	1
1	72	12	0.785398	15.28	40.71667	-112.2	24	7
1	72	12	0.785398	15.28	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
1	72	12	0.785398	15.28	40.71667	-112.2	1	1
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	0	0
1	72	12	0.785398	15.28	40.71667	-112.2	24	1
1	72	12	0.785398	15.28	40.71667	-112.2	24	1
1	72	12	0.785398	15.28	40.71667	-112.2	24	1
1	72	13	0.785398	16.55	40.71667	-112.2	24	7
1	72	12	0.785398	15.28	40.71667	-112.2	24	7
1	72	12	0.785398	15.28	40.71667	-112.2	24	7
1	72	12	0.785398	15.28	40.71667	-112.2	8	5

1	72	12	0.785398	15.28	40.71667	-112.2	24	1
1	72	12	0.785398	15.28	40.71667	-112.2	24	1
1	72	12	0.785398	15.28	40.71667	-112.2	8	5
1	72	12	0.785398	15.28	40.71667	-112.2	17	7
4.44	273	1235.48	15.48303	79.89	40.71667	-112.2	24	7
4.44	273	1235.48	15.48303	79.89	40.71667	-112.2	24	7
4.44	273	1235.48	15.48303	79.89	40.71667	-112.2	2	7
1	72	12	0.785398	15.28	40.71667	-112.2	0	7
2.3	68	261	4.154756	62.82	40.71667	-112.2	8	7
1	72	12	0.785398	15.28	40.71667	-112.2	0	1

Stack					Location			
Diameter	Temp	Flow	Area	Velocity	Lat	Long	Hrs/Day	Days/Wk
1	72	12	0.785398	15.28	40.71667	-112.2	8	7
1.2	70	73	1.130973	64.46	40.71667	-112.2	24	1
2	70	217	3.141593	68.98	40.71667	-112.2	5	7
1	72	12	0.785398	15.28	40.71667	-112.2	24	7
1.3	90	82	1.327323	61.78	40.71667	-112.2	24	7
5	81	652	19.63495	33.23	40.71667	-112.2	24	7
0.8	90	20	0.502655	40.78	40.71667	-112.2	24	7
3.12	97	322	7.64538	41.96	40.71667	-112.2	24	7
1.4	154	69	1.53938	44.82	40.71667	-112.2	24	7
0.8	68	12	0.502655	24.87	40.71667	-112.2	24	7
0.9	125	17	0.636173	26.72	40.71667	-112.2	24	7
1	72	20	0.785398	25.85	40.71667	-112.2	3	7
1	72	22	0.785398	28.27	40.71667	-112.2	2	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
3.4	344	12	9.079203	1.32	40.71667	-112.2	24	7
3.4	344	12	9.079203	1.32	40.71667	-112.2	24	7

2	102	12	3.141593	3.82	40.71667	-112.2	16	7
1.2	130	12	1.130973	10.61	40.71667	-112.2	16	7
2.4	83	12	4.523893	2.65	40.71667	-112.2	24	7
3	86	12	7.068583	1.7	40.71667	-112.2	24	7
2.9	87	12	6.605199	1.82	40.71667	-112.2	24	7
0.92	90	21	0.664761	31.9	40.71667	-112.2	8	7
1	76	12	0.785398	15.28	40.71667	-112.2	12	6
1	72	12	0.785398	15.28	40.71667	-112.2	6	1
1	72	12	0.785398	15.28	40.71667	-112.2	24	7
1	72	12	0.785398	15.28	40.71667	-112.2	24	7
1	72	12	0.785398	15.28	40.71667	-112.2	24	7
1	72	12	0.785398	15.28	40.71667	-112.2	24	7
1	72	12	0.785398	15.28	40.71667	-112.2	24	7
1	72	12	0.785398	15.28	40.71667	-112.2	24	7
1	72	12	0.785398	15.28	40.71667	-112.2	24	7
1	72	12	0.785398	15.28	40.71667	-112.2	1	1
1	72	12	0.785398	15.28	40.71667	-112.2	1	1
1	72	12	0.785398	15.28	40.71667	-112.2	1	1
0	72	0	0	0	40.71667	-112.2	24	7
0	72	0	0	0	40.71667	-112.2	24	7
0	72	0	0	0	40.71667	-112.2	24	7
0	72	0	0	0	40.71667	-112.2	24	7
0	72	0	0	0	40.71667	-112.2	1	1
0	72	0	0	0	40.71667	-112.2	1	1
0	72	0	0	0	40.71667	-112.2	1	1
0	72	0	0	0	40.71667	-112.2	1	1
1	72	12	0.785398	15.28	40.71667	-112.2	24	7
1	72	12	0.785398	15.28	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
1	72	12	0.785398	15.28	40.71667	-112.2	1	1
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	0	0
1	72	12	0.785398	15.28	40.71667	-112.2	24	1
1	72	12	0.785398	15.28	40.71667	-112.2	24	1
1	72	12	0.785398	15.28	40.71667	-112.2	24	1
1	72	13	0.785398	16.55	40.71667	-112.2	24	7
1	72	12	0.785398	15.28	40.71667	-112.2	24	7
1	72	12	0.785398	15.28	40.71667	-112.2	24	7
1	72	12	0.785398	15.28	40.71667	-112.2	8	5
1	72	12	0.785398	15.28	40.71667	-112.2	24	1
1	72	12	0.785398	15.28	40.71667	-112.2	24	1
1	72	12	0.785398	15.28	40.71667	-112.2	8	5
1	72	12	0.785398	15.28	40.71667	-112.2	17	7
4.44	273	1235.48	15.48303	79.89	40.71667	-112.2	24	7
4.44	273	1235.48	15.48303	79.89	40.71667	-112.2	24	7
4.44	273	1235.48	15.48303	79.89	40.71667	-112.2	2	7
1	72	12	0.785398	15.28	40.71667	-112.2	0	7
2.3	68	261	4.154756	62.82	40.71667	-112.2	8	7
1	72	12	0.785398	15.28	40.71667	-112.2	0	1

Stack					Location			
Diameter	Temp	Flow	Area	Velocity	Lat	Long	Hrs/Day	Days/Wk
1	72	12	0.785398	15.28	40.71667	-112.2	8	7
1.2	70	73	1.130973	64.46	40.71667	-112.2	24	1
2	70	217	3.141593	68.98	40.71667	-112.2	5	7
1	72	12	0.785398	15.28	40.71667	-112.2	24	7
1.3	90	82	1.327323	61.78	40.71667	-112.2	24	7
5	81	652	19.63495	33.23	40.71667	-112.2	24	7
0.8	90	20	0.502655	40.78	40.71667	-112.2	24	7
3.12	97	322	7.64538	41.96	40.71667	-112.2	24	7
1.4	154	69	1.53938	44.82	40.71667	-112.2	24	7
0.8	68	12	0.502655	24.87	40.71667	-112.2	24	7
0.9	125	17	0.636173	26.72	40.71667	-112.2	24	7
1	72	20	0.785398	25.85	40.71667	-112.2	3	7
1	72	22	0.785398	28.27	40.71667	-112.2	2	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
3.4	344	12	9.079203	1.32	40.71667	-112.2	24	7
3.4	344	12	9.079203	1.32	40.71667	-112.2	24	7
2	102	12	3.141593	3.82	40.71667	-112.2	16	7
1.2	130	12	1.130973	10.61	40.71667	-112.2	16	7
2.4	83	12	4.523893	2.65	40.71667	-112.2	24	7
3	86	12	7.068583	1.7	40.71667	-112.2	24	7
2.9	87	12	6.605199	1.82	40.71667	-112.2	24	7
0.92	90	21	0.664761	31.9	40.71667	-112.2	8	7
1	76	12	0.785398	15.28	40.71667	-112.2	12	6
1	72	12	0.785398	15.28	40.71667	-112.2	6	1
1	72	12	0.785398	15.28	40.71667	-112.2	24	7
1	72	12	0.785398	15.28	40.71667	-112.2	24	7

1	72	12	0.785398	15.28	40.71667	-112.2	24	7
1	72	12	0.785398	15.28	40.71667	-112.2	24	7
1	72	12	0.785398	15.28	40.71667	-112.2	24	7
1	72	12	0.785398	15.28	40.71667	-112.2	24	7
1	72	12	0.785398	15.28	40.71667	-112.2	24	7
1	72	12	0.785398	15.28	40.71667	-112.2	1	1
1	72	12	0.785398	15.28	40.71667	-112.2	1	1
1	72	12	0.785398	15.28	40.71667	-112.2	1	1
0	72	0	0	0	40.71667	-112.2	24	7
0	72	0	0	0	40.71667	-112.2	24	7
0	72	0	0	0	40.71667	-112.2	24	7
0	72	0	0	0	40.71667	-112.2	24	7
0	72	0	0	0	40.71667	-112.2	1	1
0	72	0	0	0	40.71667	-112.2	1	1
0	72	0	0	0	40.71667	-112.2	1	1
0	72	0	0	0	40.71667	-112.2	1	1
1	72	12	0.785398	15.28	40.71667	-112.2	24	7
1	72	12	0.785398	15.28	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
1	72	12	0.785398	15.28	40.71667	-112.2	1	1
24	129	17255	452.3893	38.14	40.71667	-112.2	24	7
24	129	17255	452.3893	38.14	40.71667	-112.2	0	0
1	72	12	0.785398	15.28	40.71667	-112.2	24	1
1	72	12	0.785398	15.28	40.71667	-112.2	24	1
1	72	12	0.785398	15.28	40.71667	-112.2	24	1
1	72	13	0.785398	16.55	40.71667	-112.2	24	7
1	72	12	0.785398	15.28	40.71667	-112.2	24	7
1	72	12	0.785398	15.28	40.71667	-112.2	24	7
1	72	12	0.785398	15.28	40.71667	-112.2	8	5
1	72	12	0.785398	15.28	40.71667	-112.2	24	1
1	72	12	0.785398	15.28	40.71667	-112.2	24	1
1	72	12	0.785398	15.28	40.71667	-112.2	8	5
1	72	12	0.785398	15.28	40.71667	-112.2	17	7
4.44	273	1235.48	15.48303	79.89	40.71667	-112.2	24	7
4.44	273	1235.48	15.48303	79.89	40.71667	-112.2	24	7
4.44	273	1235.48	15.48303	79.89	40.71667	-112.2	2	7
1	72	12	0.785398	15.28	40.71667	-112.2	0	7
2.3	68	261	4.154756	62.82	40.71667	-112.2	8	7
1	72	12	0.785398	15.28	40.71667	-112.2	0	1

				Temporal Operating Information				
Wks/Yr	Hrs/Yr	% Jan	% Feb	% Mar	% Apr	% May	% Jun	% Jul
52	2920	8.5	7.7	8.5	8.2	8.5	8.2	8.5
0	0	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	1825	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	8760	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	7014	9.13	6.65	6.53	7.54	8.97	8.71	8.88
52	7014	9.13	6.65	6.53	7.54	8.97	8.71	8.88
52	7014	9.13	6.65	6.53	7.54	8.97	8.71	8.88
52	7014	9.13	6.65	6.53	7.54	8.97	8.71	8.88
52	7014	9.13	6.65	6.53	7.54	8.97	8.71	8.88
0	0	9.13	6.65	6.53	7.54	8.97	8.71	8.88
52	6543	8.49	7.67	8.49	8.22	8.49	8.22	8.49
52	562	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	294	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	8760	8.49	7.67	8.49	8.22	8.49	8.22	8.49
52	20	0	0	0	0	100	0	0
52	8642	8.95	8.08	8.94	8.63	4.35	8.6	8.95
52	8642	8.95	8.08	8.94	8.63	4.35	8.6	8.95
52	7014	9.13	6.65	6.53	7.54	8.97	8.71	8.88
52	8760	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	6543	8.49	7.67	8.49	8.22	8.49	8.22	8.49
52	8760	8.49	7.67	8.49	8.22	8.49	8.22	8.49
52	2039	6.67	12.09	11.73	13.4	6.07	6.6	6.92
52	8760	8.49	7.67	8.49	8.22	8.49	8.22	8.49
52	8760	8.49	7.67	8.49	8.22	8.49	8.22	8.49
52	5568	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	0	20	80	0	0	0	0	0
52	3718	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	3082	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	4851	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	8646	8.8	8.2	8.7	6.3	8.2	8.2	8.7
52	8730	8.5	8	8.5	8.2	8.2	8.3	8.2
52	2948	10.7	7.9	10.5	7.2	10.5	7.9	11.2
52	3423	7.65	7.36	7.71	7.98	7.6	7.71	8.27
26	0	8.31	8.2	8.71	8.41	8.61	8.2	8.71
52	5088	14.6	13.2	14.6	7.1	0	0	0

30	5088	14.6	13.2	14.6	7.1	0	0	0
52	8760	8.5	7.9	8.5	8.2	8.5	8.2	8.5
52	8760	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	8760	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	5111	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	8760	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	28	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	29	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	0	8.5	7.7	8.5	8.2	8.5	8.2	8.5
26	4368	17	17	16	0	0	0	0
52	8760	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	8760	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	8760	8.33	8.33	8.33	8.33	8.33	8.33	8.33
1	0	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	52	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	52	8.33	8.33	8.33	8.33	8.33	8.33	8.33
7	34	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	8760	8.73	7.89	8.73	8.45	5.92	8.45	8.73
52	8760	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	8760	8.49	7.67	8.49	8.22	8.49	8.22	8.49
52	164	8.49	7.67	8.49	8.22	8.49	8.22	8.49
52	8550	8.6	7.4	8.5	8.3	8.6	8.3	8.4
0	0	8.6	7.4	8.5	8.3	8.6	8.3	8.4
0	0	8.33	8.33	8.33	8.33	8.33	8.33	8.33
0	0	8.33	8.33	8.33	8.33	8.33	8.33	8.33
0	0	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	98	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	6543	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	8760	8.73	7.89	8.73	8.45	5.92	8.45	8.73
52	2600	8.33	8.33	8.33	8.33	8.33	8.33	8.33
0	24	8.33	8.33	8.33	8.33	8.33	8.33	8.33
0	306	4.9	9.5	9.8	3.9	1.3	1	30.4
2	221	0	0	0	0	0	100	0
3	1337	8.49	7.67	8.49	8.22	8.49	8.22	8.49
52	4810	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	4449	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	332	4.5	1	0	10.2	4	0	0.5
52	26	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	1809	9.2	7.5	9.1	6.5	8.2	10.1	9.4
52	29	8.33	8.33	8.33	8.33	8.33	8.33	8.33

Temporal Operating Information								
Wks/Yr	Hrs/Yr	% Jan	% Feb	% Mar	% Apr	% May	% Jun	% Jul
52	2920	8.5	7.7	8.5	8.2	8.5	8.2	8.5
0	0	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	1825	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	8760	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	7014	9.13	6.65	6.53	7.54	8.97	8.71	8.88
52	7014	9.13	6.65	6.53	7.54	8.97	8.71	8.88
52	7014	9.13	6.65	6.53	7.54	8.97	8.71	8.88
52	7014	9.13	6.65	6.53	7.54	8.97	8.71	8.88
52	7014	9.13	6.65	6.53	7.54	8.97	8.71	8.88
0	0	9.13	6.65	6.53	7.54	8.97	8.71	8.88
52	6543	8.49	7.67	8.49	8.22	8.49	8.22	8.49
52	562	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	294	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	8760	8.49	7.67	8.49	8.22	8.49	8.22	8.49
52	20	0	0	0	0	100	0	0
52	8642	8.95	8.08	8.94	8.63	4.35	8.6	8.95
52	8642	8.95	8.08	8.94	8.63	4.35	8.6	8.95
52	7014	9.13	6.65	6.53	7.54	8.97	8.71	8.88
52	8760	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	6543	8.49	7.67	8.49	8.22	8.49	8.22	8.49
52	8760	8.49	7.67	8.49	8.22	8.49	8.22	8.49
52	2039	6.67	12.09	11.73	13.4	6.07	6.6	6.92
52	8760	8.49	7.67	8.49	8.22	8.49	8.22	8.49
52	8760	8.49	7.67	8.49	8.22	8.49	8.22	8.49
52	5568	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	0	20	80	0	0	0	0	0
52	3718	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	3082	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	4851	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	8646	8.8	8.2	8.7	6.3	8.2	8.2	8.7
52	8730	8.5	8	8.5	8.2	8.2	8.3	8.2
52	2948	10.7	7.9	10.5	7.2	10.5	7.9	11.2
52	3423	7.65	7.36	7.71	7.98	7.6	7.71	8.27
26	0	8.31	8.2	8.71	8.41	8.61	8.2	8.71
52	5088	14.6	13.2	14.6	7.1	0	0	0
30	5088	14.6	13.2	14.6	7.1	0	0	0
52	8760	8.5	7.9	8.5	8.2	8.5	8.2	8.5
52	8760	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	8760	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	5111	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	8760	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	28	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	29	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	0	8.5	7.7	8.5	8.2	8.5	8.2	8.5
26	4368	17	17	16	0	0	0	0

52	8760	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	8760	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	8760	8.33	8.33	8.33	8.33	8.33	8.33	8.33
1	0	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	52	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	52	8.33	8.33	8.33	8.33	8.33	8.33	8.33
7	34	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	8760	8.73	7.89	8.73	8.45	5.92	8.45	8.73
52	8760	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	8760	8.49	7.67	8.49	8.22	8.49	8.22	8.49
52	164	8.49	7.67	8.49	8.22	8.49	8.22	8.49
52	8550	8.6	7.4	8.5	8.3	8.6	8.3	8.4
0	0	8.6	7.4	8.5	8.3	8.6	8.3	8.4
0	0	8.33	8.33	8.33	8.33	8.33	8.33	8.33
0	0	8.33	8.33	8.33	8.33	8.33	8.33	8.33
0	0	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	98	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	6543	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	8760	8.73	7.89	8.73	8.45	5.92	8.45	8.73
52	2600	8.33	8.33	8.33	8.33	8.33	8.33	8.33
0	24	8.33	8.33	8.33	8.33	8.33	8.33	8.33
0	306	4.9	9.5	9.8	3.9	1.3	1	30.4
2	221	0	0	0	0	0	100	0
3	1337	8.49	7.67	8.49	8.22	8.49	8.22	8.49
52	4810	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	4449	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	332	4.5	1	0	10.2	4	0	0.5
52	26	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	1809	9.2	7.5	9.1	6.5	8.2	10.1	9.4
52	29	8.33	8.33	8.33	8.33	8.33	8.33	8.33

				Temporal Operating Information				
Wks/Yr	**Hrs/Yr**	**% Jan**	**% Feb**	**% Mar**	**% Apr**	**% May**	**% Jun**	**% Jul**
52	2920	8.5	7.7	8.5	8.2	8.5	8.2	8.5
0	0	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	1825	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	8760	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	7014	9.13	6.65	6.53	7.54	8.97	8.71	8.88
52	7014	9.13	6.65	6.53	7.54	8.97	8.71	8.88

52	7014	9.13	6.65	6.53	7.54	8.97	8.71	8.88
52	7014	9.13	6.65	6.53	7.54	8.97	8.71	8.88
52	7014	9.13	6.65	6.53	7.54	8.97	8.71	8.88
0	0	9.13	6.65	6.53	7.54	8.97	8.71	8.88
52	6543	8.49	7.67	8.49	8.22	8.49	8.22	8.49
52	562	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	294	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	8760	8.49	7.67	8.49	8.22	8.49	8.22	8.49
52	20	0	0	0	0	100	0	0
52	8642	8.95	8.08	8.94	8.63	4.35	8.6	8.95
52	8642	8.95	8.08	8.94	8.63	4.35	8.6	8.95
52	7014	9.13	6.65	6.53	7.54	8.97	8.71	8.88
52	8760	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	6543	8.49	7.67	8.49	8.22	8.49	8.22	8.49
52	8760	8.49	7.67	8.49	8.22	8.49	8.22	8.49
52	2039	6.67	12.09	11.73	13.4	6.07	6.6	6.92
52	8760	8.49	7.67	8.49	8.22	8.49	8.22	8.49
52	8760	8.49	7.67	8.49	8.22	8.49	8.22	8.49
52	5568	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	0	20	80	0	0	0	0	0
52	3718	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	3082	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	4851	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	8646	8.8	8.2	8.7	6.3	8.2	8.2	8.7
52	8730	8.5	8	8.5	8.2	8.2	8.3	8.2
52	2948	10.7	7.9	10.5	7.2	10.5	7.9	11.2
52	3423	7.65	7.36	7.71	7.98	7.6	7.71	8.27
26	0	8.31	8.2	8.71	8.41	8.61	8.2	8.71
52	5088	14.6	13.2	14.6	7.1	0	0	0
30	5088	14.6	13.2	14.6	7.1	0	0	0
52	8760	8.5	7.9	8.5	8.2	8.5	8.2	8.5
52	8760	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	8760	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	5111	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	8760	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	28	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	29	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	0	8.5	7.7	8.5	8.2	8.5	8.2	8.5
26	4368	17	17	16	0	0	0	0
52	8760	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	8760	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	8760	8.33	8.33	8.33	8.33	8.33	8.33	8.33
1	0	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	52	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	52	8.33	8.33	8.33	8.33	8.33	8.33	8.33
7	34	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	8760	8.73	7.89	8.73	8.45	5.92	8.45	8.73
52	8760	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	8760	8.49	7.67	8.49	8.22	8.49	8.22	8.49

52	164	8.49	7.67	8.49	8.22	8.49	8.22	8.49
52	8550	8.6	7.4	8.5	8.3	8.6	8.3	8.4
0	0	8.6	7.4	8.5	8.3	8.6	8.3	8.4
0	0	8.33	8.33	8.33	8.33	8.33	8.33	8.33
0	0	8.33	8.33	8.33	8.33	8.33	8.33	8.33
0	0	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	98	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	6543	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	8760	8.73	7.89	8.73	8.45	5.92	8.45	8.73
52	2600	8.33	8.33	8.33	8.33	8.33	8.33	8.33
0	24	8.33	8.33	8.33	8.33	8.33	8.33	8.33
0	306	4.9	9.5	9.8	3.9	1.3	1	30.4
2	221	0	0	0	0	0	100	0
3	1337	8.49	7.67	8.49	8.22	8.49	8.22	8.49
52	4810	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	4449	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	332	4.5	1	0	10.2	4	0	0.5
52	26	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	1809	9.2	7.5	9.1	6.5	8.2	10.1	9.4
52	29	8.33	8.33	8.33	8.33	8.33	8.33	8.33

				Temporal Operating Information				
Wks/Yr	**Hrs/Yr**	**% Jan**	**% Feb**	**% Mar**	**% Apr**	**% May**	**% Jun**	**% Jul**
52	2920	8.5	7.7	8.5	8.2	8.5	8.2	8.5
0	0	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	1825	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	8760	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	7014	9.13	6.65	6.53	7.54	8.97	8.71	8.88
52	7014	9.13	6.65	6.53	7.54	8.97	8.71	8.88
52	7014	9.13	6.65	6.53	7.54	8.97	8.71	8.88
52	7014	9.13	6.65	6.53	7.54	8.97	8.71	8.88
52	7014	9.13	6.65	6.53	7.54	8.97	8.71	8.88
0	0	9.13	6.65	6.53	7.54	8.97	8.71	8.88
52	6543	8.49	7.67	8.49	8.22	8.49	8.22	8.49
52	562	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	294	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	8760	8.49	7.67	8.49	8.22	8.49	8.22	8.49
52	20	0	0	0	0	100	0	0
52	8642	8.95	8.08	8.94	8.63	4.35	8.6	8.95

52	8642	8.95	8.08	8.94	8.63	4.35	8.6	8.95
52	7014	9.13	6.65	6.53	7.54	8.97	8.71	8.88
52	8760	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	6543	8.49	7.67	8.49	8.22	8.49	8.22	8.49
52	8760	8.49	7.67	8.49	8.22	8.49	8.22	8.49
52	2039	6.67	12.09	11.73	13.4	6.07	6.6	6.92
52	8760	8.49	7.67	8.49	8.22	8.49	8.22	8.49
52	8760	8.49	7.67	8.49	8.22	8.49	8.22	8.49
52	5568	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	0	20	80	0	0	0	0	0
52	3718	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	3082	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	4851	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	8646	8.8	8.2	8.7	6.3	8.2	8.2	8.7
52	8730	8.5	8	8.5	8.2	8.2	8.3	8.2
52	2948	10.7	7.9	10.5	7.2	10.5	7.9	11.2
52	3423	7.65	7.36	7.71	7.98	7.6	7.71	8.27
26	0	8.31	8.2	8.71	8.41	8.61	8.2	8.71
52	5088	14.6	13.2	14.6	7.1	0	0	0
30	5088	14.6	13.2	14.6	7.1	0	0	0
52	8760	8.5	7.9	8.5	8.2	8.5	8.2	8.5
52	8760	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	8760	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	5111	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	8760	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	28	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	29	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	0	8.5	7.7	8.5	8.2	8.5	8.2	8.5
26	4368	17	17	16	0	0	0	0
52	8760	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	8760	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	8760	8.33	8.33	8.33	8.33	8.33	8.33	8.33
1	0	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	52	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	52	8.33	8.33	8.33	8.33	8.33	8.33	8.33
7	34	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	8760	8.73	7.89	8.73	8.45	5.92	8.45	8.73
52	8760	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	8760	8.49	7.67	8.49	8.22	8.49	8.22	8.49
52	164	8.49	7.67	8.49	8.22	8.49	8.22	8.49
52	8550	8.6	7.4	8.5	8.3	8.6	8.3	8.4
0	0	8.6	7.4	8.5	8.3	8.6	8.3	8.4
0	0	8.33	8.33	8.33	8.33	8.33	8.33	8.33
0	0	8.33	8.33	8.33	8.33	8.33	8.33	8.33
0	0	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	98	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	6543	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	8760	8.73	7.89	8.73	8.45	5.92	8.45	8.73
52	2600	8.33	8.33	8.33	8.33	8.33	8.33	8.33

0	24	8.33	8.33	8.33	8.33	8.33	8.33	8.33
0	306	4.9	9.5	9.8	3.9	1.3	1	30.4
2	221	0	0	0	0	0	100	0
3	1337	8.49	7.67	8.49	8.22	8.49	8.22	8.49
52	4810	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	4449	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	332	4.5	1	0	10.2	4	0	0.5
52	26	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	1809	9.2	7.5	9.1	6.5	8.2	10.1	9.4
52	29	8.33	8.33	8.33	8.33	8.33	8.33	8.33

				Temporal Operating Information				
Wks/Yr	**Hrs/Yr**	**% Jan**	**% Feb**	**% Mar**	**% Apr**	**% May**	**% Jun**	**% Jul**
52	2920	8.5	7.7	8.5	8.2	8.5	8.2	8.5
0	0	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	1825	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	8760	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	7014	9.13	6.65	6.53	7.54	8.97	8.71	8.88
52	7014	9.13	6.65	6.53	7.54	8.97	8.71	8.88
52	7014	9.13	6.65	6.53	7.54	8.97	8.71	8.88
52	7014	9.13	6.65	6.53	7.54	8.97	8.71	8.88
52	7014	9.13	6.65	6.53	7.54	8.97	8.71	8.88
0	0	9.13	6.65	6.53	7.54	8.97	8.71	8.88
52	6543	8.49	7.67	8.49	8.22	8.49	8.22	8.49
52	562	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	294	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	8760	8.49	7.67	8.49	8.22	8.49	8.22	8.49
52	20	0	0	0	0	100	0	0
52	8642	8.95	8.08	8.94	8.63	4.35	8.6	8.95
52	8642	8.95	8.08	8.94	8.63	4.35	8.6	8.95
52	7014	9.13	6.65	6.53	7.54	8.97	8.71	8.88
52	8760	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	6543	8.49	7.67	8.49	8.22	8.49	8.22	8.49
52	8760	8.49	7.67	8.49	8.22	8.49	8.22	8.49
52	2039	6.67	12.09	11.73	13.4	6.07	6.6	6.92
52	8760	8.49	7.67	8.49	8.22	8.49	8.22	8.49
52	8760	8.49	7.67	8.49	8.22	8.49	8.22	8.49
52	5568	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	0	20	80	0	0	0	0	0

52	3718	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	3082	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	4851	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	8646	8.8	8.2	8.7	6.3	8.2	8.2	8.7
52	8730	8.5	8	8.5	8.2	8.2	8.3	8.2
52	2948	10.7	7.9	10.5	7.2	10.5	7.9	11.2
52	3423	7.65	7.36	7.71	7.98	7.6	7.71	8.27
26	0	8.31	8.2	8.71	8.41	8.61	8.2	8.71
52	5088	14.6	13.2	14.6	7.1	0	0	0
30	5088	14.6	13.2	14.6	7.1	0	0	0
52	8760	8.5	7.9	8.5	8.2	8.5	8.2	8.5
52	8760	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	8760	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	5111	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	8760	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	28	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	29	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	0	8.5	7.7	8.5	8.2	8.5	8.2	8.5
26	4368	17	17	16	0	0	0	0
52	8760	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	8760	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	8760	8.33	8.33	8.33	8.33	8.33	8.33	8.33
1	0	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	52	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	52	8.33	8.33	8.33	8.33	8.33	8.33	8.33
7	34	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	8760	8.73	7.89	8.73	8.45	5.92	8.45	8.73
52	8760	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	8760	8.49	7.67	8.49	8.22	8.49	8.22	8.49
52	164	8.49	7.67	8.49	8.22	8.49	8.22	8.49
52	8550	8.6	7.4	8.5	8.3	8.6	8.3	8.4
0	0	8.6	7.4	8.5	8.3	8.6	8.3	8.4
0	0	8.33	8.33	8.33	8.33	8.33	8.33	8.33
0	0	8.33	8.33	8.33	8.33	8.33	8.33	8.33
0	0	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	98	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	6543	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	8760	8.73	7.89	8.73	8.45	5.92	8.45	8.73
52	2600	8.33	8.33	8.33	8.33	8.33	8.33	8.33
0	24	8.33	8.33	8.33	8.33	8.33	8.33	8.33
0	306	4.9	9.5	9.8	3.9	1.3	1	30.4
2	221	0	0	0	0	0	100	0
3	1337	8.49	7.67	8.49	8.22	8.49	8.22	8.49
52	4810	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	4449	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	332	4.5	1	0	10.2	4	0	0.5
52	26	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	1809	9.2	7.5	9.1	6.5	8.2	10.1	9.4
52	29	8.33	8.33	8.33	8.33	8.33	8.33	8.33

				Temporal Operating Information				
Wks/Yr	Hrs/Yr	% Jan	% Feb	% Mar	% Apr	% May	% Jun	% Jul
52	2920	8.5	7.7	8.5	8.2	8.5	8.2	8.5
0	0	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	1825	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	8760	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	7014	9.13	6.65	6.53	7.54	8.97	8.71	8.88
52	7014	9.13	6.65	6.53	7.54	8.97	8.71	8.88
52	7014	9.13	6.65	6.53	7.54	8.97	8.71	8.88
52	7014	9.13	6.65	6.53	7.54	8.97	8.71	8.88
52	7014	9.13	6.65	6.53	7.54	8.97	8.71	8.88
0	0	9.13	6.65	6.53	7.54	8.97	8.71	8.88
52	6543	8.49	7.67	8.49	8.22	8.49	8.22	8.49
52	562	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	294	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	8760	8.49	7.67	8.49	8.22	8.49	8.22	8.49
52	20	0	0	0	0	100	0	0
52	8642	8.95	8.08	8.94	8.63	4.35	8.6	8.95
52	8642	8.95	8.08	8.94	8.63	4.35	8.6	8.95
52	7014	9.13	6.65	6.53	7.54	8.97	8.71	8.88
52	8760	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	6543	8.49	7.67	8.49	8.22	8.49	8.22	8.49
52	8760	8.49	7.67	8.49	8.22	8.49	8.22	8.49
52	2039	6.67	12.09	11.73	13.4	6.07	6.6	6.92
52	8760	8.49	7.67	8.49	8.22	8.49	8.22	8.49
52	8760	8.49	7.67	8.49	8.22	8.49	8.22	8.49
52	5568	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	0	20	80	0	0	0	0	0
52	3718	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	3082	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	4851	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	8646	8.8	8.2	8.7	6.3	8.2	8.2	8.7
52	8730	8.5	8	8.5	8.2	8.2	8.3	8.2
52	2948	10.7	7.9	10.5	7.2	10.5	7.9	11.2
52	3423	7.65	7.36	7.71	7.98	7.6	7.71	8.27
26	0	8.31	8.2	8.71	8.41	8.61	8.2	8.71
52	5088	14.6	13.2	14.6	7.1	0	0	0
30	5088	14.6	13.2	14.6	7.1	0	0	0

52	8760	8.5	7.9	8.5	8.2	8.5	8.2	8.5
52	8760	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	8760	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	5111	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	8760	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	28	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	29	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	0	8.5	7.7	8.5	8.2	8.5	8.2	8.5
26	4368	17	17	16	0	0	0	0
52	8760	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	8760	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	8760	8.33	8.33	8.33	8.33	8.33	8.33	8.33
1	0	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	52	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	52	8.33	8.33	8.33	8.33	8.33	8.33	8.33
7	34	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	8760	8.73	7.89	8.73	8.45	5.92	8.45	8.73
52	8760	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	8760	8.49	7.67	8.49	8.22	8.49	8.22	8.49
52	164	8.49	7.67	8.49	8.22	8.49	8.22	8.49
52	8550	8.6	7.4	8.5	8.3	8.6	8.3	8.4
0	0	8.6	7.4	8.5	8.3	8.6	8.3	8.4
0	0	8.33	8.33	8.33	8.33	8.33	8.33	8.33
0	0	8.33	8.33	8.33	8.33	8.33	8.33	8.33
0	0	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	98	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	6543	8.5	7.7	8.5	8.2	8.5	8.2	8.5
52	8760	8.73	7.89	8.73	8.45	5.92	8.45	8.73
52	2600	8.33	8.33	8.33	8.33	8.33	8.33	8.33
0	24	8.33	8.33	8.33	8.33	8.33	8.33	8.33
0	306	4.9	9.5	9.8	3.9	1.3	1	30.4
2	221	0	0	0	0	0	100	0
3	1337	8.49	7.67	8.49	8.22	8.49	8.22	8.49
52	4810	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	4449	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	332	4.5	1	0	10.2	4	0	0.5
52	26	8.33	8.33	8.33	8.33	8.33	8.33	8.33
52	1809	9.2	7.5	9.1	6.5	8.2	10.1	9.4
52	29	8.33	8.33	8.33	8.33	8.33	8.33	8.33

PM10	PM2.5	SO2
247.681	237.175	695.889

% Aug	% Sep	% Oct	% Nov	% Dec	Permit Status	PM10	PM2.5	SO2
8.5	8.2	8.5	8.2	8.5	Yes	0.000	0.000	
8.5	8.2	8.5	8.2	8.5	No	0.000	0.000	0.000
8.5	8.2	8.5	8.2	8.5	Yes	1.551	0.776	0.000
8.5	8.2	8.5	8.2	8.5	Yes	0.000	0.000	0.000
8.85	7.84	8.84	8.82	9.24	Yes	0.386	0.368	0.000
8.85	7.84	8.84	8.82	9.24	Yes	3.963	3.788	0.000
8.85	7.84	8.84	8.82	9.24	Yes	0.151	0.146	0.000
8.85	7.84	8.84	8.82	9.24	Yes	1.648	1.561	0.000
8.85	7.84	8.84	8.82	9.24	Yes	0.701	0.526	0.000
8.85	7.84	8.84	8.82	9.24	Yes	0.000	0.000	0.000
8.49	8.22	8.49	8.22	8.51	Yes	0.105	0.105	0.000
8.33	8.33	8.33	8.33	8.33	Yes	0.084	0.042	0.000
8.33	8.33	8.33	8.33	8.33	Yes	0.044	0.022	0.000
8.49	8.22	8.49	8.22	8.51	Yes	173.950	173.950	530.355
0	0	0	0	0	Yes	0.011	0.011	0.001
8.95	8.66	8.92	8.67	8.3	Yes	0.000	0.000	0.000
8.95	8.66	8.92	8.67	8.3	Yes	0.000	0.000	0.000
8.85	7.84	8.84	8.82	9.24	Yes	0.000	0.000	0.000
8.5	8.2	8.5	8.2	8.5	Yes	0.000	0.000	0.000
8.49	8.22	8.49	8.22	8.51	Yes	0.000	0.000	0.000
8.49	8.22	8.49	8.22	8.51	Yes	0.000	0.000	0.000
8.88	8.89	6.75	5.01	6.99	Yes	0.000	0.000	0.000
8.49	8.22	8.49	8.22	8.51	Yes	0.000	0.000	0.000
8.49	8.22	8.49	8.22	8.51	Yes	0.000	0.000	0.000
8.33	8.33	8.33	8.33	8.33	Yes	0.715	0.715	0.056
0	0	0	0	0	Yes	0.001	0.001	0.005
8.33	8.33	8.33	8.33	8.33	Yes	0.007	0.003	0.000
8.33	8.33	8.33	8.33	8.33	Yes	0.021	0.011	0.000
8.33	8.33	8.33	8.33	8.33	Yes	0.001	0.001	0.000
8.7	8.4	8.7	8.4	8.7	Yes	0.021	0.013	0.346
8.5	8.2	8.6	8.3	8.5	Yes	0.007	0.005	0.000
9.1	6.7	5.7	6.2	6.4	Yes	0.003	0.001	0.000
8.24	7.42	7.95	12.32	9.79	Yes	0.009	0.004	0.000
8.71	7.21	7.71	8.51	8.71	Yes	0.000	0.000	0.000
0	7.1	14.6	14.2	14.6	Yes	0.083	0.083	0.007

0	7.1	14.6	14.2	14.6	Yes	0.041	0.041	0.003
8.3	8.2	8.5	8.2	8.5	Yes	16.572	16.572	0.000
8.5	8.2	8.5	8.2	8.5	Yes	18.848	18.848	0.000
8.5	8.2	8.5	8.2	8.5	Yes	3.405	3.405	0.000
8.5	8.2	8.5	8.2	8.5	Yes	4.300	2.150	0.000
8.5	8.2	8.5	8.2	8.5	Yes	1.200	0.600	0.000
8.5	8.2	8.5	8.2	8.5	Yes	0.015	0.015	0.015
8.5	8.2	8.5	8.2	8.5	Yes	0.016	0.016	0.016
8.5	8.2	8.5	8.2	8.5	Yes	0.000	0.000	0.000
0	0	16	17	17	Yes	0.038	0.038	0.003
8.33	8.33	8.33	8.33	8.33	Yes	0.000	0.000	0.000
8.33	8.33	8.33	8.33	8.33	Yes	3.087	0.000	0.000
8.33	8.33	8.33	8.33	8.33	Yes	2.407	0.000	0.000
8.33	8.33	8.33	8.33	8.33	Yes	0.000	0.000	
8.33	8.33	8.33	8.33	8.33	Yes	0.000	0.000	
8.33	8.33	8.33	8.33	8.33	Yes	0.000	0.000	
8.33	8.33	8.33	8.33	8.33	Yes	0.036	0.036	0.017
8.73	8.45	8.73	8.45	8.74	Yes	0.127	0.101	160.336
8.5	8.2	8.5	8.2	8.5	Yes	1.730	0.870	0.000
8.49	8.22	8.49	8.22	8.51	Yes	0.000	0.000	0.000
8.49	8.22	8.49	8.22	8.51	Yes	5.253	5.253	2.709
8.4	8.1	8.6	8.3	8.5	Yes	2.016	2.016	0.159
8.4	8.1	8.6	8.3	8.5	Yes	0.000	0.000	0.000
8.33	8.33	8.33	8.33	8.33	Yes	0.000	0.000	0.000
8.33	8.33	8.33	8.33	8.33	Yes	0.000	0.000	0.000
8.33	8.33	8.33	8.33	8.33	Yes	0.000	0.000	0.000
8.33	8.33	8.33	8.33	8.33	Yes	0.015	0.007	0.000
8.5	8.2	8.5	8.2	8.5	Yes	0.000	0.000	0.000
8.73	8.45	8.73	8.45	8.74	Yes	0.154	0.154	0.053
8.33	8.33	8.33	8.33	8.33	Yes	0.062	0.031	0.000
8.33	8.33	8.33	8.33	8.33	Yes	0.001	0.001	0.000
0	0	7.5	31.7	0	Yes	0.016	0.008	0.000
0	0	0	0	0	No	0.039	0.039	0.023
8.49	8.22	8.49	8.22	8.51	No	0.618	0.618	0.822
8.33	8.33	8.33	8.33	8.33		2.080	2.080	0.354
8.33	8.33	8.33	8.33	8.33		0.535	0.535	0.062
71	0	4	4.2	0.6		0.083	0.083	0.005
8.33	8.33	8.33	8.33	8.33		0.000	0.000	0.000
4.6	9.6	10.1	8.8	6.9		1.529	1.529	0.543
8.33	8.33	8.33	8.33	8.33		0.000	0.000	0.000

	PM10	PM2.5	SO2
Smelter emissions	241.280	236.297	695.473
Refinery emissions	6.401	0.878	0.417

Does the 2019 True-Up In

					Permit			
% Aug	% Sep	% Oct	% Nov	% Dec	Status	PM10	PM2.5	SO2
8.5	8.2	8.5	8.2	8.5	Yes	0	0	0
8.5	8.2	8.5	8.2	8.5	No	0	0	0
8.5	8.2	8.5	8.2	8.5	Yes	1.55125	0.775625	0
8.5	8.2	8.5	8.2	8.5	Yes	0	0	0
8.85	7.84	8.84	8.82	9.24	Yes	0.38577	0.368235	0
8.85	7.84	8.84	8.82	9.24	Yes	3.96291	3.78756	0
8.85	7.84	8.84	8.82	9.24	Yes	0.150801	0.145541	0
8.85	7.84	8.84	8.82	9.24	Yes	1.64829	1.560615	0
8.85	7.84	8.84	8.82	9.24	Yes	0.7014	0.52605	0
8.85	7.84	8.84	8.82	9.24	Yes	0	0	0
8.49	8.22	8.49	8.22	8.51	Yes	0.104688	0.104688	0
8.33	8.33	8.33	8.33	8.33	Yes	0.0843	0.04215	0
8.33	8.33	8.33	8.33	8.33	Yes	0.0441	0.02205	0
8.49	8.22	8.49	8.22	8.51	Yes	173.9495	173.9495	530.3554
0	0	0	0	0	Yes	0.01061	0.01061	0.000838
8.95	8.66	8.92	8.67	8.3	Yes	0	0	0
8.95	8.66	8.92	8.67	8.3	Yes	0	0	0
8.85	7.84	8.84	8.82	9.24	Yes	0	0	0
8.5	8.2	8.5	8.2	8.5	Yes	0	0	0
8.49	8.22	8.49	8.22	8.51	Yes	0	0	0
8.49	8.22	8.49	8.22	8.51	Yes	0	0	0
8.88	8.89	6.75	5.01	6.99	Yes	0	0	0
8.49	8.22	8.49	8.22	8.51	Yes	0	0	0
8.49	8.22	8.49	8.22	8.51	Yes			
8.33	8.33	8.33	8.33	8.33	Yes			
0	0	0	0	0	Yes			
8.33	8.33	8.33	8.33	8.33	Yes			
8.33	8.33	8.33	8.33	8.33	Yes			
8.33	8.33	8.33	8.33	8.33	Yes			
8.7	8.4	8.7	8.4	8.7	Yes			
8.5	8.2	8.6	8.3	8.5	Yes			
9.1	6.7	5.7	6.2	6.4	Yes			
8.24	7.42	7.95	12.32	9.79	Yes			
8.71	7.21	7.71	8.51	8.71	Yes			
0	7.1	14.6	14.2	14.6	Yes			
0	7.1	14.6	14.2	14.6	Yes			
8.3	8.2	8.5	8.2	8.5	Yes	16.57179	16.57179	0
8.5	8.2	8.5	8.2	8.5	Yes	18.84792	18.84792	0
8.5	8.2	8.5	8.2	8.5	Yes	3.404968	3.404968	0
8.5	8.2	8.5	8.2	8.5	Yes	4.3	2.15	0
8.5	8.2	8.5	8.2	8.5	Yes	1.2	0.6	0
8.5	8.2	8.5	8.2	8.5	Yes	0.015061	0.015061	0.015188
8.5	8.2	8.5	8.2	8.5	Yes	0.015599	0.015599	0.015731
8.5	8.2	8.5	8.2	8.5	Yes	0	0	0
0	0	16	17	17	Yes	0.037544	0.037544	0.002964

8.33	8.33	8.33	8.33	8.33	Yes	0	0	0
8.33	8.33	8.33	8.33	8.33	Yes			
8.33	8.33	8.33	8.33	8.33	Yes			
8.33	8.33	8.33	8.33	8.33	Yes	0	0	0
8.33	8.33	8.33	8.33	8.33	Yes	0	0	0
8.33	8.33	8.33	8.33	8.33	Yes	0	0	0
8.33	8.33	8.33	8.33	8.33	Yes	0.036465	0.036465	0.016989
8.73	8.45	8.73	8.45	8.74	Yes	0.1265	0.1012	160.3355
8.5	8.2	8.5	8.2	8.5	Yes	1.73	0.87	0
8.49	8.22	8.49	8.22	8.51	Yes	0	0	0
8.49	8.22	8.49	8.22	8.51	Yes	5.253	5.253	2.709
8.4	8.1	8.6	8.3	8.5	Yes	2.015843	2.015843	0.159146
8.4	8.1	8.6	8.3	8.5	Yes	0	0	0
8.33	8.33	8.33	8.33	8.33	Yes	0	0	0
8.33	8.33	8.33	8.33	8.33	Yes	0	0	0
8.33	8.33	8.33	8.33	8.33	Yes	0	0	0
8.33	8.33	8.33	8.33	8.33	Yes	0.0147	0.00735	0
8.5	8.2	8.5	8.2	8.5	Yes	0	0	0
8.73	8.45	8.73	8.45	8.74	Yes	0.154	0.154	0.053
8.33	8.33	8.33	8.33	8.33	Yes	0.06227	0.031135	0
8.33	8.33	8.33	8.33	8.33	Yes	0.001236	0.000618	0
0	0	7.5	31.7	0	Yes	0.015759	0.00788	0
0	0	0	0	0	No	0.039449	0.039449	0.022792
8.49	8.22	8.49	8.22	8.51	No	0.617694	0.617694	0.822379
8.33	8.33	8.33	8.33	8.33	0	2.08007	2.08007	0.353612
8.33	8.33	8.33	8.33	8.33	0	0.53455	0.53455	0.062402
71	0	4	4.2	0.6	0	0.083433	0.083433	0.005006
8.33	8.33	8.33	8.33	8.33	0	0.000047	0.000047	0.000001
4.6	9.6	10.1	8.8	6.9	0	1.528605	1.528605	0.5427
8.33	8.33	8.33	8.33	8.33	0	0.000145	0.000145	0.000001

PM10	**PM2.5**	**SO2**
336.459	329.510	969.818

					Permit			
% Aug	**% Sep**	**% Oct**	**% Nov**	**% Dec**	**Status**	**PM10**	**PM2.5**	**SO2**
8.5	8.2	8.5	8.2	8.5	Yes	0	0	0
8.5	8.2	8.5	8.2	8.5	No	0	0	0
8.5	8.2	8.5	8.2	8.5	Yes	2.163178	1.081589	0
8.5	8.2	8.5	8.2	8.5	Yes	0	0	0
8.85	7.84	8.84	8.82	9.24	Yes	0.537946	0.513494	0
8.85	7.84	8.84	8.82	9.24	Yes	5.526174	5.281653	0

8.85	7.84	8.84	8.82	9.24	Yes	0.210288	0.202953	0
8.85	7.84	8.84	8.82	9.24	Yes	2.298497	2.176237	0
8.85	7.84	8.84	8.82	9.24	Yes	0.978084	0.733563	0
8.85	7.84	8.84	8.82	9.24	Yes	0	0	0
8.49	8.22	8.49	8.22	8.51	Yes	0.145985	0.145985	0
8.33	8.33	8.33	8.33	8.33	Yes	0.117554	0.058777	0
8.33	8.33	8.33	8.33	8.33	Yes	0.061496	0.030748	0
8.49	8.22	8.49	8.22	8.51	Yes	242.568	242.568	739.5667
0	0	0	0	0	Yes	0.014795	0.014795	0.001169
8.95	8.66	8.92	8.67	8.3	Yes	0	0	0
8.95	8.66	8.92	8.67	8.3	Yes	0	0	0
8.85	7.84	8.84	8.82	9.24	Yes	0	0	0
8.5	8.2	8.5	8.2	8.5	Yes	0	0	0
8.49	8.22	8.49	8.22	8.51	Yes	0	0	0
8.49	8.22	8.49	8.22	8.51	Yes	0	0	0
8.88	8.89	6.75	5.01	6.99	Yes	0	0	0
8.49	8.22	8.49	8.22	8.51	Yes	0	0	0
8.49	8.22	8.49	8.22	8.51	Yes	0	0	0
8.33	8.33	8.33	8.33	8.33	Yes	0	0	0
0	0	0	0	0	Yes	0	0	0
8.33	8.33	8.33	8.33	8.33	Yes	0	0	0
8.33	8.33	8.33	8.33	8.33	Yes	0	0	0
8.33	8.33	8.33	8.33	8.33	Yes	0	0	0
8.7	8.4	8.7	8.4	8.7	Yes	0	0	0
8.5	8.2	8.6	8.3	8.5	Yes	0	0	0
9.1	6.7	5.7	6.2	6.4	Yes	0	0	0
8.24	7.42	7.95	12.32	9.79	Yes	0	0	0
8.71	7.21	7.71	8.51	8.71	Yes	0	0	0
0	7.1	14.6	14.2	14.6	Yes	0	0	0
0	7.1	14.6	14.2	14.6	Yes	0	0	0
8.3	8.2	8.5	8.2	8.5	Yes	23.10892	23.10892	0
8.5	8.2	8.5	8.2	8.5	Yes	26.28293	26.28293	0
8.5	8.2	8.5	8.2	8.5	Yes	4.748139	4.748139	0
8.5	8.2	8.5	8.2	8.5	Yes	5.996237	2.998119	0
8.5	8.2	8.5	8.2	8.5	Yes	1.673369	0.836684	0
8.5	8.2	8.5	8.2	8.5	Yes	0.021002	0.021002	0.021179
8.5	8.2	8.5	8.2	8.5	Yes	0.021752	0.021752	0.021936
8.5	8.2	8.5	8.2	8.5	Yes	0	0	0
0	0	16	17	17	Yes	0.052354	0.052354	0.004133
8.33	8.33	8.33	8.33	8.33	Yes	0	0	0
8.33	8.33	8.33	8.33	8.33	Yes	0	0	0
8.33	8.33	8.33	8.33	8.33	Yes	0	0	0
8.33	8.33	8.33	8.33	8.33	Yes	0	0	0
8.33	8.33	8.33	8.33	8.33	Yes	0	0	0
8.33	8.33	8.33	8.33	8.33	Yes	0	0	0
8.33	8.33	8.33	8.33	8.33	Yes	0.050849	0.050849	0.023691
8.73	8.45	8.73	8.45	8.74	Yes	0.176401	0.141121	223.5837
8.5	8.2	8.5	8.2	8.5	Yes	2.41244	1.213192	0
8.49	8.22	8.49	8.22	8.51	Yes	0	0	0

8.49	8.22	8.49	8.22	8.51	Yes	7.325171	7.325171	3.77763
8.4	8.1	8.6	8.3	8.5	Yes	2.81104	2.81104	0.221925
8.4	8.1	8.6	8.3	8.5	Yes	0	0	0
8.33	8.33	8.33	8.33	8.33	Yes	0	0	0
8.33	8.33	8.33	8.33	8.33	Yes	0	0	0
8.33	8.33	8.33	8.33	8.33	Yes	0	0	0
8.33	8.33	8.33	8.33	8.33	Yes	0.020499	0.010249	0
8.5	8.2	8.5	8.2	8.5	Yes	0	0	0
8.73	8.45	8.73	8.45	8.74	Yes	0.214749	0.214749	0.073907
8.33	8.33	8.33	8.33	8.33	Yes	0.086834	0.043417	0
8.33	8.33	8.33	8.33	8.33	Yes	0.001724	0.000862	0
0	0	7.5	31.7	0	Yes	0.021976	0.010988	0
0	0	0	0	0	No	0.055011	0.055011	0.031783
8.49	8.22	8.49	8.22	8.51	No	0.861358	0.861358	1.146786
8.33	8.33	8.33	8.33	8.33	0	2.900603	2.900603	0.493103
8.33	8.33	8.33	8.33	8.33	0	0.745416	0.745416	0.087018
71	0	4	4.2	0.6	0	0.116345	0.116345	0.006981
8.33	8.33	8.33	8.33	8.33	0	6.55E-05	6.55E-05	1.39E-06
4.6	9.6	10.1	8.8	6.9	0	2.1316	2.1316	0.756781
8.33	8.33	8.33	8.33	8.33	0	0.000202	0.000202	1.39E-06

PM10	**PM2.5**	**SO2**
404.106	395.760	1164.806

					Permit			
% Aug	**% Sep**	**% Oct**	**% Nov**	**% Dec**	**Status**	**PM10**	**PM2.5**	**SO2**
8.5	8.2	8.5	8.2	8.5	Yes	0	0	0
8.5	8.2	8.5	8.2	8.5	No	0	0	0
8.5	8.2	8.5	8.2	8.5	Yes	2.598096	1.299048	0
8.5	8.2	8.5	8.2	8.5	Yes	0	0	0
8.85	7.84	8.84	8.82	9.24	Yes	0.646103	0.616735	0
8.85	7.84	8.84	8.82	9.24	Yes	6.637243	6.343559	0
8.85	7.84	8.84	8.82	9.24	Yes	0.252568	0.243758	0
8.85	7.84	8.84	8.82	9.24	Yes	2.760623	2.613781	0
8.85	7.84	8.84	8.82	9.24	Yes	1.174733	0.88105	0
8.85	7.84	8.84	8.82	9.24	Yes	0	0	0
8.49	8.22	8.49	8.22	8.51	Yes	0.175336	0.175336	0
8.33	8.33	8.33	8.33	8.33	Yes	0.141189	0.070595	0
8.33	8.33	8.33	8.33	8.33	Yes	0.07386	0.03693	0
8.49	8.22	8.49	8.22	8.51	Yes	291.3377	291.3377	888.2607
0	0	0	0	0	Yes	0.01777	0.01777	0.001404
8.95	8.66	8.92	8.67	8.3	Yes	0	0	0

8.95	8.66	8.92	8.67	8.3	Yes	0	0	0
8.85	7.84	8.84	8.82	9.24	Yes	0	0	0
8.5	8.2	8.5	8.2	8.5	Yes	0	0	0
8.49	8.22	8.49	8.22	8.51	Yes	0	0	0
8.49	8.22	8.49	8.22	8.51	Yes	0	0	0
8.88	8.89	6.75	5.01	6.99	Yes	0	0	0
8.49	8.22	8.49	8.22	8.51	Yes	0	0	0
8.49	8.22	8.49	8.22	8.51	Yes	0	0	0
8.33	8.33	8.33	8.33	8.33	Yes	0	0	0
0	0	0	0	0	Yes	0	0	0
8.33	8.33	8.33	8.33	8.33	Yes	0	0	0
8.33	8.33	8.33	8.33	8.33	Yes	0	0	0
8.33	8.33	8.33	8.33	8.33	Yes	0	0	0
8.7	8.4	8.7	8.4	8.7	Yes	0	0	0
8.5	8.2	8.6	8.3	8.5	Yes	0	0	0
9.1	6.7	5.7	6.2	6.4	Yes	0	0	0
8.24	7.42	7.95	12.32	9.79	Yes	0	0	0
8.71	7.21	7.71	8.51	8.71	Yes	0	0	0
0	7.1	14.6	14.2	14.6	Yes	0	0	0
0	7.1	14.6	14.2	14.6	Yes	0	0	0
8.3	8.2	8.5	8.2	8.5	Yes	27.7551	27.7551	0
8.5	8.2	8.5	8.2	8.5	Yes	31.56726	31.56726	0
8.5	8.2	8.5	8.2	8.5	Yes	5.702779	5.702779	0
8.5	8.2	8.5	8.2	8.5	Yes	7.201815	3.600907	0
8.5	8.2	8.5	8.2	8.5	Yes	2.009809	1.004904	0
8.5	8.2	8.5	8.2	8.5	Yes	0.025225	0.025225	0.025437
8.5	8.2	8.5	8.2	8.5	Yes	0.026126	0.026126	0.026347
8.5	8.2	8.5	8.2	8.5	Yes	0	0	0
0	0	16	17	17	Yes	0.06288	0.06288	0.004964
8.33	8.33	8.33	8.33	8.33	Yes	0	0	0
8.33	8.33	8.33	8.33	8.33	Yes	0	0	0
8.33	8.33	8.33	8.33	8.33	Yes	0	0	0
8.33	8.33	8.33	8.33	8.33	Yes	0	0	0
8.33	8.33	8.33	8.33	8.33	Yes	0	0	0
8.33	8.33	8.33	8.33	8.33	Yes	0	0	0
8.33	8.33	8.33	8.33	8.33	Yes	0.061073	0.061073	0.028454
8.73	8.45	8.73	8.45	8.74	Yes	0.211867	0.169494	268.5364
8.5	8.2	8.5	8.2	8.5	Yes	2.897474	1.457111	0
8.49	8.22	8.49	8.22	8.51	Yes	0	0	0
8.49	8.22	8.49	8.22	8.51	Yes	8.797938	8.797938	4.537143
8.4	8.1	8.6	8.3	8.5	Yes	3.376216	3.376216	0.266544
8.4	8.1	8.6	8.3	8.5	Yes	0	0	0
8.33	8.33	8.33	8.33	8.33	Yes	0	0	0
8.33	8.33	8.33	8.33	8.33	Yes	0	0	0
8.33	8.33	8.33	8.33	8.33	Yes	0	0	0
8.33	8.33	8.33	8.33	8.33	Yes	0.02462	0.01231	0
8.5	8.2	8.5	8.2	8.5	Yes	0	0	0
8.73	8.45	8.73	8.45	8.74	Yes	0.257925	0.257925	0.088767
8.33	8.33	8.33	8.33	8.33	Yes	0.104292	0.052146	0

8.33	8.33	8.33	8.33	8.33	Yes	0.00207	0.001035	0
0	0	7.5	31.7	0	Yes	0.026394	0.013198	0
0	0	0	0	0	No	0.066071	0.066071	0.038173
8.49	8.22	8.49	8.22	8.51	No	1.034539	1.034539	1.377354
8.33	8.33	8.33	8.33	8.33	0	3.483786	3.483786	0.592244
8.33	8.33	8.33	8.33	8.33	0	0.895286	0.895286	0.104513
71	0	4	4.2	0.6	0	0.139737	0.139737	0.008384
8.33	8.33	8.33	8.33	8.33	0	7.87E-05	7.87E-05	1.67E-06
4.6	9.6	10.1	8.8	6.9	0	2.56017	2.56017	0.908936
8.33	8.33	8.33	8.33	8.33	0	0.000243	0.000243	1.67E-06

PM10	**PM2.5**	**SO2**
461.452	451.922	1330.103

					Permit			
% Aug	**% Sep**	**% Oct**	**% Nov**	**% Dec**	**Status**	**PM10**	**PM2.5**	**SO2**
8.5	8.2	8.5	8.2	8.5	Yes	0	0	0
8.5	8.2	8.5	8.2	8.5	No	0	0	0
8.5	8.2	8.5	8.2	8.5	Yes	2.966791	1.483396	0
8.5	8.2	8.5	8.2	8.5	Yes	0	0	0
8.85	7.84	8.84	8.82	9.24	Yes	0.737791	0.704255	0
8.85	7.84	8.84	8.82	9.24	Yes	7.57913	7.243771	0
8.85	7.84	8.84	8.82	9.24	Yes	0.288409	0.27835	0
8.85	7.84	8.84	8.82	9.24	Yes	3.152382	2.984702	0
8.85	7.84	8.84	8.82	9.24	Yes	1.341439	1.006079	0
8.85	7.84	8.84	8.82	9.24	Yes	0	0	0
8.49	8.22	8.49	8.22	8.51	Yes	0.200218	0.200218	0
8.33	8.33	8.33	8.33	8.33	Yes	0.161225	0.080613	0
8.33	8.33	8.33	8.33	8.33	Yes	0.084342	0.042171	0
8.49	8.22	8.49	8.22	8.51	Yes	332.6813	332.6813	1014.313
0	0	0	0	0	Yes	0.020292	0.020292	0.001603
8.95	8.66	8.92	8.67	8.3	Yes	0	0	0
8.95	8.66	8.92	8.67	8.3	Yes	0	0	0
8.85	7.84	8.84	8.82	9.24	Yes	0	0	0
8.5	8.2	8.5	8.2	8.5	Yes	0	0	0
8.49	8.22	8.49	8.22	8.51	Yes	0	0	0
8.49	8.22	8.49	8.22	8.51	Yes	0	0	0
8.88	8.89	6.75	5.01	6.99	Yes	0	0	0
8.49	8.22	8.49	8.22	8.51	Yes	0	0	0
8.49	8.22	8.49	8.22	8.51	Yes	0	0	0
8.33	8.33	8.33	8.33	8.33	Yes	0	0	0
0	0	0	0	0	Yes	0	0	0

8.33	8.33	8.33	8.33	8.33	Yes	0	0	0
8.33	8.33	8.33	8.33	8.33	Yes	0	0	0
8.33	8.33	8.33	8.33	8.33	Yes	0	0	0
8.7	8.4	8.7	8.4	8.7	Yes	0	0	0
8.5	8.2	8.6	8.3	8.5	Yes	0	0	0
9.1	6.7	5.7	6.2	6.4	Yes	0	0	0
8.24	7.42	7.95	12.32	9.79	Yes	0	0	0
8.71	7.21	7.71	8.51	8.71	Yes	0	0	0
0	7.1	14.6	14.2	14.6	Yes	0	0	0
0	7.1	14.6	14.2	14.6	Yes	0	0	0
8.3	8.2	8.5	8.2	8.5	Yes	31.69381	31.69381	0
8.5	8.2	8.5	8.2	8.5	Yes	36.04695	36.04695	0
8.5	8.2	8.5	8.2	8.5	Yes	6.512057	6.512057	0
8.5	8.2	8.5	8.2	8.5	Yes	8.22382	4.11191	0
8.5	8.2	8.5	8.2	8.5	Yes	2.29502	1.14751	0
8.5	8.2	8.5	8.2	8.5	Yes	0.028804	0.028804	0.029047
8.5	8.2	8.5	8.2	8.5	Yes	0.029833	0.029833	0.030086
8.5	8.2	8.5	8.2	8.5	Yes	0	0	0
0	0	16	17	17	Yes	0.071804	0.071804	0.005669
8.33	8.33	8.33	8.33	8.33	Yes	0	0	0
8.33	8.33	8.33	8.33	8.33	Yes	0	0	0
8.33	8.33	8.33	8.33	8.33	Yes	0	0	0
8.33	8.33	8.33	8.33	8.33	Yes	0	0	0
8.33	8.33	8.33	8.33	8.33	Yes	0	0	0
8.33	8.33	8.33	8.33	8.33	Yes	0	0	0
8.33	8.33	8.33	8.33	8.33	Yes	0.06974	0.06974	0.032492
8.73	8.45	8.73	8.45	8.74	Yes	0.241933	0.193547	306.6443
8.5	8.2	8.5	8.2	8.5	Yes	3.308653	1.663889	0
8.49	8.22	8.49	8.22	8.51	Yes	0	0	0
8.49	8.22	8.49	8.22	8.51	Yes	10.04645	10.04645	5.181007
8.4	8.1	8.6	8.3	8.5	Yes	3.855333	3.855333	0.304369
8.4	8.1	8.6	8.3	8.5	Yes	0	0	0
8.33	8.33	8.33	8.33	8.33	Yes	0	0	0
8.33	8.33	8.33	8.33	8.33	Yes	0	0	0
8.33	8.33	8.33	8.33	8.33	Yes	0	0	0
8.33	8.33	8.33	8.33	8.33	Yes	0.028114	0.014057	0
8.5	8.2	8.5	8.2	8.5	Yes	0	0	0
8.73	8.45	8.73	8.45	8.74	Yes	0.294528	0.294528	0.101363
8.33	8.33	8.33	8.33	8.33	Yes	0.119092	0.059546	0
8.33	8.33	8.33	8.33	8.33	Yes	0.002364	0.001182	0
0	0	7.5	31.7	0	Yes	0.030139	0.015071	0
0	0	0	0	0	No	0.075447	0.075447	0.04359
8.49	8.22	8.49	8.22	8.51	No	1.18135	1.18135	1.572813
8.33	8.33	8.33	8.33	8.33	0	3.978168	3.978168	0.676289
8.33	8.33	8.33	8.33	8.33	0	1.022336	1.022336	0.119345
71	0	4	4.2	0.6	0	0.159567	0.159567	0.009574
8.33	8.33	8.33	8.33	8.33	0	8.99E-05	8.99E-05	1.91E-06
4.6	9.6	10.1	8.8	6.9	0	2.923482	2.923482	1.037923
8.33	8.33	8.33	8.33	8.33	0	0.000277	0.000277	1.91E-06

PM10	**PM2.5**	**SO2**
490.008	479.887	1412.411

					Permit			
% Aug	**% Sep**	**% Oct**	**% Nov**	**% Dec**	**Status**	**PM10**	**PM2.5**	**SO2**
8.5	8.2	8.5	8.2	8.5	Yes	0	0	0
8.5	8.2	8.5	8.2	8.5	No	0	0	0
8.5	8.2	8.5	8.2	8.5	Yes	3.15038	1.57519	0
8.5	8.2	8.5	8.2	8.5	Yes	0	0	0
8.85	7.84	8.84	8.82	9.24	Yes	0.783447	0.747836	0
8.85	7.84	8.84	8.82	9.24	Yes	8.048136	7.692023	0
8.85	7.84	8.84	8.82	9.24	Yes	0.306256	0.295574	0
8.85	7.84	8.84	8.82	9.24	Yes	3.347455	3.169399	0
8.85	7.84	8.84	8.82	9.24	Yes	1.424449	1.068337	0
8.85	7.84	8.84	8.82	9.24	Yes	0	0	0
8.49	8.22	8.49	8.22	8.51	Yes	0.212607	0.212607	0
8.33	8.33	8.33	8.33	8.33	Yes	0.171202	0.085601	0
8.33	8.33	8.33	8.33	8.33	Yes	0.089561	0.044781	0
8.49	8.22	8.49	8.22	8.51	Yes	353.268	353.268	1077.08
0	0	0	0	0	Yes	0.021547	0.021547	0.001702
8.95	8.66	8.92	8.67	8.3	Yes	0	0	0
8.95	8.66	8.92	8.67	8.3	Yes	0	0	0
8.85	7.84	8.84	8.82	9.24	Yes	0	0	0
8.5	8.2	8.5	8.2	8.5	Yes	0	0	0
8.49	8.22	8.49	8.22	8.51	Yes	0	0	0
8.49	8.22	8.49	8.22	8.51	Yes	0	0	0
8.88	8.89	6.75	5.01	6.99	Yes	0	0	0
8.49	8.22	8.49	8.22	8.51	Yes	0	0	0
8.49	8.22	8.49	8.22	8.51	Yes	0	0	0
8.33	8.33	8.33	8.33	8.33	Yes	0	0	0
0	0	0	0	0	Yes	0	0	0
8.33	8.33	8.33	8.33	8.33	Yes	0	0	0
8.33	8.33	8.33	8.33	8.33	Yes	0	0	0
8.33	8.33	8.33	8.33	8.33	Yes	0	0	0
8.7	8.4	8.7	8.4	8.7	Yes	0	0	0
8.5	8.2	8.6	8.3	8.5	Yes	0	0	0
9.1	6.7	5.7	6.2	6.4	Yes	0	0	0
8.24	7.42	7.95	12.32	9.79	Yes	0	0	0
8.71	7.21	7.71	8.51	8.71	Yes	0	0	0
0	7.1	14.6	14.2	14.6	Yes	0	0	0
0	7.1	14.6	14.2	14.6	Yes	0	0	0

8.3	8.2	8.5	8.2	8.5	Yes	33.65506	33.65506	0
8.5	8.2	8.5	8.2	8.5	Yes	38.27758	38.27758	0
8.5	8.2	8.5	8.2	8.5	Yes	6.915031	6.915031	0
8.5	8.2	8.5	8.2	8.5	Yes	8.73272	4.36636	0
8.5	8.2	8.5	8.2	8.5	Yes	2.437038	1.218519	0
8.5	8.2	8.5	8.2	8.5	Yes	0.030587	0.030587	0.030845
8.5	8.2	8.5	8.2	8.5	Yes	0.031679	0.031679	0.031948
8.5	8.2	8.5	8.2	8.5	Yes	0	0	0
0	0	16	17	17	Yes	0.076247	0.076247	0.006019
8.33	8.33	8.33	8.33	8.33	Yes	0	0	0
8.33	8.33	8.33	8.33	8.33	Yes	0	0	0
8.33	8.33	8.33	8.33	8.33	Yes	0	0	0
8.33	8.33	8.33	8.33	8.33	Yes	0	0	0
8.33	8.33	8.33	8.33	8.33	Yes	0	0	0
8.33	8.33	8.33	8.33	8.33	Yes	0	0	0
8.33	8.33	8.33	8.33	8.33	Yes	0.074055	0.074055	0.034502
8.73	8.45	8.73	8.45	8.74	Yes	0.256904	0.205524	325.6198
8.5	8.2	8.5	8.2	8.5	Yes	3.513397	1.766853	0
8.49	8.22	8.49	8.22	8.51	Yes	0	0	0
8.49	8.22	8.49	8.22	8.51	Yes	10.66813	10.66813	5.501614
8.4	8.1	8.6	8.3	8.5	Yes	4.093905	4.093905	0.323204
8.4	8.1	8.6	8.3	8.5	Yes	0	0	0
8.33	8.33	8.33	8.33	8.33	Yes	0	0	0
8.33	8.33	8.33	8.33	8.33	Yes	0	0	0
8.33	8.33	8.33	8.33	8.33	Yes	0	0	0
8.33	8.33	8.33	8.33	8.33	Yes	0.029854	0.014927	0
8.5	8.2	8.5	8.2	8.5	Yes	0	0	0
8.73	8.45	8.73	8.45	8.74	Yes	0.312753	0.312753	0.107636
8.33	8.33	8.33	8.33	8.33	Yes	0.126462	0.063231	0
8.33	8.33	8.33	8.33	8.33	Yes	0.00251	0.001255	0
0	0	7.5	31.7	0	Yes	0.032004	0.016003	0
0	0	0	0	0	No	0.080116	0.080116	0.046287
8.49	8.22	8.49	8.22	8.51	No	1.254453	1.254453	1.670141
8.33	8.33	8.33	8.33	8.33	0	4.224342	4.224342	0.718138
8.33	8.33	8.33	8.33	8.33	0	1.085599	1.085599	0.12673
71	0	4	4.2	0.6	0	0.169441	0.169441	0.010167
8.33	8.33	8.33	8.33	8.33	0	9.55E-05	9.55E-05	2.03E-06
4.6	9.6	10.1	8.8	6.9	0	3.104391	3.104391	1.10215
8.33	8.33	8.33	8.33	8.33	0	0.000294	0.000294	2.03E-06

2011 Actual Emissions (tons/yr)						
NOx	VOC	CO	NH3	Benzene	Chlorine	HCl
168.047	9.657	105.341	6.002	0.000	0.000	0.000

2011 Actual Emissions							
NOx	VOC	CO	NH3	Benzene	Chlorine	HCl	
	0.002						0.000
0.000	0.000	0.000	0.000				0.000
0.000	0.000	0.000	0.000				0.776
0.000	0.156	0.000	0.000				0.000
0.000	0.000	0.000	0.000				0.018
0.000	0.000	0.000	0.000				0.175
0.000	0.000	0.000	0.000				0.005
0.000	0.000	0.000	0.000				0.088
0.000	0.000	0.000	0.000				0.175
0.000	0.000	0.000	0.000				0.000
0.000	0.000	0.000	0.000				0.000
0.000	0.000	0.000	0.000				0.042
0.000	0.000	0.000	0.000				0.022
126.098	0.000	0.000	0.000				0.000
0.070	0.008	0.117	0.004				0.000
0.000	0.000	0.000	0.997				0.000
0.000	0.000	0.000	1.339				0.000
0.000	0.000	0.000	0.796				0.000
0.000	0.000	0.000	0.295				0.000
0.000	0.000	0.000	0.239				0.000
0.000	0.000	0.000	0.235				0.000
0.000	0.000	0.000	0.105				0.000
0.000	0.000	0.000	0.012				0.000
0.000	0.000	0.000	0.251				0.000
10.022	0.517	0.278	0.301				0.000
0.013	0.000	0.003	0.000				0.000
0.000	0.000	0.000	0.000				0.003
0.000	0.000	0.000	0.000				0.011
0.000	0.000	0.000	0.000				0.000
0.000	0.000	0.000	0.000			0.000	0.008
0.000	0.000	0.000	0.000				0.001
0.000	0.000	0.000	0.000				0.001
0.000	0.000	0.000	0.000				0.004
0.000	0.000	0.000	0.000				0.000
0.331	0.060	0.912	0.035				0.000

0.537	0.030	0.451	0.017				0.000
0.000	0.000	0.000	0.000				0.000
0.000	0.000	0.000	0.000				0.000
0.000	0.000	0.000	0.000				0.000
0.000	0.000	0.000	0.000				2.150
0.000	0.000	0.000	0.000				0.600
0.901	0.026	0.207	0.000				0.000
0.933	0.027	0.214	0.000				0.000
0.000	0.000	0.000	0.000				0.000
0.464	0.027	0.198	0.004				0.000
0.000	0.041	0.000	0.000				0.000
0.000	0.000	0.000	0.000				3.087
0.000	0.000	0.000	0.000				2.407
	0.000						0.000
	0.027						0.000
	0.036						0.000
0.257	0.021	0.055	0.000				0.000
0.000	0.000	0.000	0.000				0.025
0.000	0.000	0.000	0.000				0.860
0.000	5.036	76.921	0.000				0.000
0.312	0.014	0.211	0.000				0.000
10.531	1.459	22.280	0.849				0.000
0.000	0.000	0.000	0.000				0.000
0.000	0.000	0.000	0.000				0.000
0.000	0.000	0.000	0.000				0.000
0.000	0.000	0.000	0.000				0.000
0.000	0.000	0.000	0.000				0.007
0.000	0.000	0.000	0.000				0.000
0.000	0.000	0.000	0.000				0.000
0.000	0.000	0.000	0.000				0.031
0.000	0.000	0.000	0.000				0.001
0.000	0.000	0.000	0.000				0.008
0.770	0.025	0.099	0.000				0.000
5.668	0.177	0.690	0.000				0.000
9.861	0.728	2.165	0.328				0.000
0.000	1.069	0.000	0.169				0.000
1.251	0.167	0.417	0.026				0.000
0.013	0.002	0.058	0.000				0.000
0.000	0.000	0.000	0.000				0.000
0.014	0.002	0.064	0.000				0.000

2019 True-Up Emissions (tons/yr)						
NOx	**VOC**	**CO**	**NH3**	**Benzene**	**Chlorine**	**HCl**
157.144	9.050	103.696	5.398	0.000	0.000	0.000

10.903 0.607

nclude Growth?	

2019 True-Up Emissions							
NOx	VOC	CO	NH3	Benzene	Chlorine	HCl	
0	0.002261	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.776
0	0.155617	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.018
0	0	0	0	0	0	0	0.175
0	0	0	0	0	0	0	0.005
0	0	0	0	0	0	0	0.088
0	0	0	0	0	0	0	0.175
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.042
0	0	0	0	0	0	0	0.022
126.098	0	0	0	0	0	0	0.000
0.0698	0.007678	0.117264	0.004467	0	0	0	0.000
0	0	0	0.997456	0	0	0	0.000
0	0	0	1.338618	0	0	0	0.000
0	0	0	0.796322	0	0	0	0.000
0	0	0	0.295397	0	0	0	0.000
0	0	0	0.239186	0	0	0	0.000
0	0	0	0.234634	0	0	0	0.000
0	0	0	0.105046	0	0	0	0.000
0	0	0	0.011568	0	0	0	0.000
							0.000
							0.000
							0.000
							0.000
							0.000
							0.000
							0.000
							0.000
							0.000
							0.000
							0.000
							0.000
							0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	2.150
0	0	0	0	0	0	0	0.600
0.901167	0.026472	0.206517	0	0	0	0	0.000
0.933351	0.027417	0.213893	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0.46436	0.02717	0.1976	0.003952	0	0	0	0.000

0	0.041418	0	0	0	0	0	0.000
							0.000
							0.000
0	0	0	0	0	0	0	0.000
0	0.0265	0	0	0	0	0	0.000
0	0.0355	0	0	0	0	0	0.000
0.256913	0.020836	0.055361	0	0	0	0	0.000
0	0	0	0	0	0	0	0.025
0	0	0	0	0	0	0	0.860
0	5.036482	76.92082	0	0	0	0	0.000
0.3116	0.013776	0.210822	0	0	0	0	0.000
10.531	1.458834	22.28037	0.848776	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.007
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.031
0	0	0	0	0	0	0	0.001
0	0	0	0	0	0	0	0.008
0.770301	0.024848	0.099394	0	0	0	0	0.000
5.668227	0.176856	0.689737	0	0	0	0	0.000
9.8605	0.728024	2.1645	0.327893	0	0	0	0.000
0	1.0691	0	0.168528	0	0	0	0.000
1.251495	0.166866	0.417165	0.026304	0	0	0	0.000
0.012897	0.002149	0.057821	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0.014386	0.002398	0.064496	0	0	0	0	0.000

2019 Projected Emissions (tons/yr)						
NOx	**VOC**	**CO**	**NH3**	**Benzene**	**Chlorine**	**HCl**
219.133	12.620	144.601	7.528	0.000	0.000	0.000

2019 Projected Emissions							
NOx	**VOC**	**CO**	**NH3**	**Benzene**	**Chlorine**	**HCl**	
0	0.003153	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	1.082
0	0.217004	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.024
0	0	0	0	0	0	0	0.245

0	0	0	0	0	0	0	0.007
0	0	0	0	0	0	0	0.122
0	0	0	0	0	0	0	0.245
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.059
0	0	0	0	0	0	0	0.031
175.8404	0	0	0	0	0	0	0.000
0.097334	0.010707	0.163522	0.006229	0	0	0	0.000
0	0	0	1.390926	0	0	0	0.000
0	0	0	1.866668	0	0	0	0.000
0	0	0	1.11045	0	0	0	0.000
0	0	0	0.411923	0	0	0	0.000
0	0	0	0.333539	0	0	0	0.000
0	0	0	0.327191	0	0	0	0.000
0	0	0	0.146484	0	0	0	0.000
0	0	0	0.016131	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	2.998
0	0	0	0	0	0	0	0.837
1.256654	0.036915	0.287983	0	0	0	0	0.000
1.301534	0.038232	0.298268	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0.647538	0.037888	0.275548	0.005511	0	0	0	0.000
0	0.057756	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0.036954	0	0	0	0	0	0.000
0	0.049504	0	0	0	0	0	0.000
0.358258	0.029055	0.077199	0	0	0	0	0.000
0	0	0	0	0	0	0	0.035
0	0	0	0	0	0	0	1.199
0	7.023242	107.2641	0	0	0	0	0.000

0.434518	0.01921	0.293986	0	0	0	0	0.000
14.6852	2.034306	31.06939	1.183596	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.010
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.043
0	0	0	0	0	0	0	0.001
0	0	0	0	0	0	0	0.011
1.074165	0.03465	0.138602	0	0	0	0	0.000
7.904194	0.246621	0.96182	0	0	0	0	0.000
13.75021	1.01521	3.018339	0.457238	0	0	0	0.000
0	1.490832	0	0.235008	0	0	0	0.000
1.745177	0.23269	0.581726	0.03668	0	0	0	0.000
0.017985	0.002997	0.08063	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0.020061	0.003344	0.089938	0	0	0	0	0.000

2024 Projected Emissions (tons/yr)						
NOx	**VOC**	**CO**	**NH3**	**Benzene**	**Chlorine**	**HCl**
263.191	15.158	173.674	9.041	0.000	0.000	0.000

2024 Projected Emissions							
NOx	**VOC**	**CO**	**NH3**	**Benzene**	**Chlorine**	**HCl**	
0	0.003787	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	1.299
0	0.260634	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.029
0	0	0	0	0	0	0	0.294
0	0	0	0	0	0	0	0.009
0	0	0	0	0	0	0	0.147
0	0	0	0	0	0	0	0.294
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.071
0	0	0	0	0	0	0	0.037
211.1941	0	0	0	0	0	0	0.000
0.116904	0.012859	0.196399	0.007482	0	0	0	0.000
0	0	0	1.67058	0	0	0	0.000

0	0	0	2.241972	0	0	0	0.000
0	0	0	1.333712	0	0	0	0.000
0	0	0	0.494743	0	0	0	0.000
0	0	0	0.400598	0	0	0	0.000
0	0	0	0.392975	0	0	0	0.000
0	0	0	0.175935	0	0	0	0.000
0	0	0	0.019375	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	3.601
0	0	0	0	0	0	0	1.005
1.509311	0.044336	0.345883	0	0	0	0	0.000
1.563214	0.045919	0.358237	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0.777729	0.045505	0.330949	0.006619	0	0	0	0.000
0	0.069369	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0.044383	0	0	0	0	0	0.000
0	0.059457	0	0	0	0	0	0.000
0.430288	0.034897	0.092721	0	0	0	0	0.000
0	0	0	0	0	0	0	0.042
0	0	0	0	0	0	0	1.440
0	8.435304	128.8301	0	0	0	0	0.000
0.52188	0.023073	0.353093	0	0	0	0	0.000
17.63775	2.443314	37.31607	1.421564	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.012
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.052

0	0	0	0	0	0	0	0.001
0	0	0	0	0	0	0	0.013
1.290131	0.041616	0.166469	0	0	0	0	0.000
9.493377	0.296206	1.1552	0	0	0	0	0.000
16.51477	1.219324	3.625192	0.549169	0	0	0	0.000
0	1.790572	0	0.282258	0	0	0	0.000
2.096055	0.279474	0.698685	0.044055	0	0	0	0.000
0.0216	0.003599	0.096841	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0.024094	0.004016	0.108021	0	0	0	0	0.000

2028 Projected Emissions (tons/yr)						
NOx	**VOC**	**CO**	**NH3**	**Benzene**	**Chlorine**	**HCl**
300.540	17.309	198.320	10.324	0.000	0.000	0.000

2028 Projected Emissions							
NOx	**VOC**	**CO**	**NH3**	**Benzene**	**Chlorine**	**HCl**	
0	0.004324	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	1.483
0	0.29762	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.034
0	0	0	0	0	0	0	0.335
0	0	0	0	0	0	0	0.010
0	0	0	0	0	0	0	0.168
0	0	0	0	0	0	0	0.335
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.081
0	0	0	0	0	0	0	0.042
241.1645	0	0	0	0	0	0	0.000
0.133494	0.014684	0.224269	0.008543	0	0	0	0.000
0	0	0	1.907651	0	0	0	0.000
0	0	0	2.560129	0	0	0	0.000
0	0	0	1.522979	0	0	0	0.000
0	0	0	0.564952	0	0	0	0.000
0	0	0	0.457447	0	0	0	0.000
0	0	0	0.448741	0	0	0	0.000
0	0	0	0.200902	0	0	0	0.000
0	0	0	0.022124	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000

0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	4.112
0	0	0	0	0	0	0	1.148
1.723497	0.050628	0.394967	0	0	0	0	0.000
1.785049	0.052435	0.409074	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0.888096	0.051963	0.377913	0.007558	0	0	0	0.000
0	0.079213	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0.050682	0	0	0	0	0	0.000
0	0.067894	0	0	0	0	0	0.000
0.49135	0.039849	0.105879	0	0	0	0	0.000
0	0	0	0	0	0	0	0.048
0	0	0	0	0	0	0	1.645
0	9.632354	147.1123	0	0	0	0	0.000
0.59594	0.026347	0.403201	0	0	0	0	0.000
20.14071	2.790044	42.61157	1.623298	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.014
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.060
0	0	0	0	0	0	0	0.001
0	0	0	0	0	0	0	0.015
1.473213	0.047522	0.190093	0	0	0	0	0.000
10.84058	0.33824	1.319133	0	0	0	0	0.000
18.85837	1.392358	4.139642	0.627101	0	0	0	0.000
0	2.044671	0	0.322313	0	0	0	0.000
2.393505	0.319134	0.797835	0.050307	0	0	0	0.000
0.024666	0.00411	0.110584	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0.027513	0.004586	0.12335	0	0	0	0	0.000

2030 Projected Emissions (tons/yr)						
NOx	VOC	CO	NH3	Benzene	Chlorine	HCl
319.138	18.380	210.592	10.963	0.000	0.000	0.000

2030 Projected Emissions							
NOx	VOC	CO	NH3	Benzene	Chlorine	HCl	
0	0.004592	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	1.575
0	0.316037	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.036
0	0	0	0	0	0	0	0.356
0	0	0	0	0	0	0	0.011
0	0	0	0	0	0	0	0.178
0	0	0	0	0	0	0	0.356
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.086
0	0	0	0	0	0	0	0.045
256.088	0	0	0	0	0	0	0.000
0.141754	0.015593	0.238147	0.009072	0	0	0	0.000
0	0	0	2.025699	0	0	0	0.000
0	0	0	2.718553	0	0	0	0.000
0	0	0	1.617223	0	0	0	0.000
0	0	0	0.599911	0	0	0	0.000
0	0	0	0.485755	0	0	0	0.000
0	0	0	0.47651	0	0	0	0.000
0	0	0	0.213334	0	0	0	0.000
0	0	0	0.023493	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000

0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	4.366
0	0	0	0	0	0	0	1.219
1.830149	0.053761	0.419408	0	0	0	0	0.000
1.89551	0.05568	0.434388	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0.943053	0.055179	0.401299	0.008026	0	0	0	0.000
0	0.084114	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0.053818	0	0	0	0	0	0.000
0	0.072096	0	0	0	0	0	0.000
0.521756	0.042315	0.112431	0	0	0	0	0.000
0	0	0	0	0	0	0	0.051
0	0	0	0	0	0	0	1.747
0	10.22842	156.2158	0	0	0	0	0.000
0.632818	0.027977	0.428151	0	0	0	0	0.000
21.38704	2.962695	45.24843	1.72375	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.015
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0	0	0	0	0	0	0	0.063
0	0	0	0	0	0	0	0.001
0	0	0	0	0	0	0	0.016
1.564377	0.050463	0.201856	0	0	0	0	0.000
11.5114	0.359171	1.400763	0	0	0	0	0.000
20.02535	1.478519	4.395808	0.665906	0	0	0	0.000
0	2.171198	0	0.342258	0	0	0	0.000
2.541618	0.338882	0.847206	0.05342	0	0	0	0.000
0.026192	0.004364	0.117427	0	0	0	0	0.000
0	0	0	0	0	0	0	0.000
0.029216	0.00487	0.130983	0	0	0	0	0.000

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67 FR 40478, 06/12/2002—EPA—NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS FOR PRIMARY COPPER SMELTING

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 63

[FRL-7214-9]

RIN 2060-AE41

NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS FOR PRIMARY COPPER SMELTING

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: This action promulgates national emission standards for hazardous air pollutants (NESHAP) for primary copper smelting. Primary copper smelters can potentially emit significant amounts of certain toxic metals listed as hazardous air pollutants (HAP) in Clean Air Act (CAA) section 112(b)(1). These metals include antimony, arsenic, beryllium, cadmium, cobalt, lead, manganese, nickel and selenium. Exposure to these substances has been demonstrated to cause adverse health effects such as diseases of the lung, kidney, central nervous system, and cancer. The final rule establishes emissions limitations and work practice standards for primary copper smelters that are (or are part of) a major source of HAP emissions and that use batch copper converters. The standards reflect the application of the maximum achievable control technology (MACT). When fully implemented, we estimate the rule will reduce annual nationwide HAP emissions from the source category by approximately 23 percent or 22 megagrams per year.

EFFECTIVE DATE: June 12, 2002.

ADDRESSES: Docket No. A-96-22 contains supporting information used in developing the rule. The docket is located at the U.S. EPA, 401 M Street, SW., Washington, DC 20460 in Room M-1500, Waterside Mall (ground floor), and may be inspected from 8:30 a.m. to 5:30 p.m., Monday through Friday, excluding legal holidays.

FOR FURTHER INFORMATION CONTACT: Mr. Eugene Crumpler, Metals Group, Emission Standards Division (C439-02), U.S. EPA, Research Triangle Park, NC, 27711, telephone number (919) 541-0881, facsimile number (919) 541-5450, electronic mail address "crumpler.gene@epa.gov".

SUPPLEMENTARY INFORMATION: *Docket.* The docket is an organized and complete file of all the information considered by the EPA in the development of the rule. The docket is a dynamic file because material is added throughout the rulemaking process. The docketing system is intended to allow members of the public and industries involved to readily identify and locate documents so that they can effectively participate in the rulemaking process. Along with the proposed and promulgated rules and their preambles, the contents of the docket will serve as the record in the case of judicial review. (See CAA section 307(d)(7)(A).) Other material related to this rulemaking is available for review in the docket or copies may be mailed on request from the Air Docket by calling (202) 260-7548. A reasonable fee may be charged for copying docket materials.

World Wide Web (WWW). In addition to being available in the docket, an electronic copy of today's final rule will also be available on the WWW through the Technology Transfer Network (TTN). Following signature, a copy of the rule will be posted on the TTN's policy and guidance page for newly proposed or promulgated rules at *http://www.epa.gov/ttn/oarpg*. The TTN provides information and technology exchange in various areas of air pollution control. If more information regarding the TTN is needed, call the TTN HELP line at (919) 541-5384.

Judicial Review. Today's action constitutes final administrative action on the proposed NESHAP for primary copper smelting (63 FR 19582, April 20, 1998; 65 FR 39326, June 26, 2000). Under CAA section 307(b)(1), judicial review of the final rule is available only by filing a petition for review in the U.S. Court of Appeals for the District of Columbia Circuit by August 12, 2002. Under CAA section 307(b)(2) , the requirements that are the subject of this document may not be challenged later in civil or criminal proceedings brought by the EPA to enforce these requirements.

Regulated Entities. Entities potentially regulated by this action are primary copper smelters (North American Industry Classification System (NAICS) Code 331411 Primary Smelting and Refining of Copper). No federal government entities nor State/local/tribal government entities are regulated by this rule.

This description of the regulated entities is not intended to be exhaustive, but rather provides a guide for readers regarding entities likely to be regulated by this action. To determine whether your facility is regulated by this action, you should examine the applicability criteria in §63.1440 of the final rule. If you have any questions regarding the applicability of this action to a particular entity, consult the appropriate person listed in the preceding **FOR FURTHER INFORMATION CONTACT** section.

Outline. The information in this preamble is organized as follows:

I. Background

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B. What Criteria Are Used in the Development of NESHAP?

C. How Did We Develop the Rule?

D. How Has the Copper Industry Changed Since Rule Proposal?

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D. Why Did We Modify the Test Protocol Used to Determine Compliance With the Opacity Limits for Existing Copper Converter Departments?

E. How Did We Select the Final Opacity Limits for Existing Copper Converter Departments?

F. Why Did We Change the Compliance Date for Existing Sources?

G. Why Did We Change the Inspection and Monitoring Requirements?

H. Is the Kennecott Utah Copper Smelter a Major or Area Source of HAP Emissions?

I. To What Extent Was the Kennecott Utah Copper Smelter Considered in the MACT Floor Determinations for

New and Existing Sources?

V. Administrative Requirements

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B. Executive Order 13132, Federalism

C. Executive Order 13045 , Protection of Children from Environmental Health Risks and Safety Risks

D. Executive Order 13175, Consultation and Coordination With Indian Tribal Governments

E. Unfunded Mandates Reform Act of 1995

F. Regulatory Flexibility Act (RFA), as Amended by Small Business Regulatory Enforcement Act of 1996 (SBREFA), 5 U.S.C. 601 *et seq.*

G. Paperwork Reduction Act

H. National Technology Transfer and Advancement Act of 1995

I. Congressional Review Act

J. Executive Order 13211, Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution or Use

I. Background

A. What is the Statutory Authority for NESHAP?

Section 112 of the CAA requires us to list categories and subcategories of major sources and area sources of HAP and to establish NESHAP for the listed source categories and subcategories. The category of major sources covered by today's final NESHAP, "primary copper smelting," was listed on July 16, 1992 (57 FR 31576). Major sources of HAP are those that have the potential to emit greater than 10 tons per year (tpy) of any one HAP or 25 tpy of any combination of HAP.

B. What Criteria Are Used in the Development of NESHAP?

Section 112 of the CAA requires that we establish NESHAP for the control of HAP from both new and existing major sources. The CAA requires the NESHAP to reflect the maximum degree of reduction in emissions of HAP that is achievable. This level of control is commonly referred to as MACT.

The MACT floor is the minimum control level allowed for NESHAP and is defined under CAA section 112(d)(3). In essence, the MACT floor ensures that the standards are set at a level that assures that all major sources achieve the level of control at least as stringent as that already achieved by the better controlled and lower emitting sources in each source category or subcategory. For new sources, the MACT floor cannot be less stringent than the emission control that is achieved in practice by the best controlled similar source. The MACT standards for existing sources can be less stringent than standards for new sources, but they cannot be less stringent than the average emission limitation achieved by the best performing 12 percent of existing sources in the category or subcategory (or the best performing five sources for categories or subcategories with fewer than 30 sources).

In developing MACT, we also consider control options that are more stringent than the floor. We may establish standards more stringent than the floor based on the consideration of cost of achieving the emissions reductions, any health and environmental impacts, and

energy requirements.

C. How Did We Develop the Rule?

We proposed the NESHAP for the primary copper smelting source category on April 20, 1998 (63 FR 19582). A 90-day comment period was provided for the proposed rule. We received a total of 11 comment letters. A copy of each of these comment letters is available in the docket for this rulemaking (Docket No. A-96-22).

After our review and evaluation of the comments and additional information we collected after proposal, we decided that several changes to our proposed rule were appropriate. On June 26, 2000, a supplemental proposal to the rule was published in the **Federal Register** (65 FR 39326). Specifically, we proposed a particulate matter emission limit for sulfuric acid plants used at primary copper smelters to control the process off-gas discharged from the smelting and converting operations. We also proposed a limit on bag leak detector alarms for those baghouses used to comply with the particulate emission limit standards under the rule. A 60-day comment period was provided for the supplemental proposal. We received a total of eight comment letters regarding our supplement to the proposed rule. A copy of each of these letters also is available in Docket No. A-96-22.

All of the comments regarding the primary copper smelter NESHAP were reviewed and carefully considered. To clarify and obtain additional information about some specific comments, we held follow-up discussions with individual commenters. The promulgated rule reflects our full consideration of all the comments we received on the initial and supplemental rule proposals.

D. How Has the Copper Industry Changed Since Rule Proposal?

Since proposal of the NESHAP for the primary copper smelting source category, several changes have occurred in the copper industry in the United States. First, corporate ownership has changed for three of the primary copper smelters potentially subject to the NESHAP. The smelter near Miami, Arizona, owned and operated by the Cyprus Miami Mining Corporation during the time we were developing the proposed rule, is now owned by the Phelps Dodge Corporation. The name of this smelter is now the Phelps Dodge Miami smelter. The smelters located in Hayden, Arizona and El Paso, Texas were owned and operated by Asarco Incorporated at the time of rule proposal. As a result of a corporate merger, Asarco is now a subsidiary of Groupo Mexico, S.A. de C.V., the third largest producer of copper in the world.

Second, since proposal of the rule, four of the smelters potentially subject to the NESHAP have suspended operations and are not producing copper: the Asarco smelter in El Paso, Texas; the BHP Copper smelter near San Manuel, Arizona; and both of the Phelps Dodge smelters in New Mexico. At this time, it is unknown when and even if these smelters will resume production.

II. Summary of Final Rule and Changes Since Proposal

After the proposal of the NESHAP for primary copper smelters, the EPA adopted a new "plain language" format for all rulemakings. Accordingly, we have revised the organization, wording style, and presentation of the final rule. While these changes to the rule make it appear substantially different from the proposed rule, most of the technical and administrative requirements remain the same as proposed. In addition, for the final rule, we are correcting the name of the source category as published in the proposed rule from primary copper smelters to primary copper smelting, which is the way the source category name appears on the source category list and promulgation schedule.

A. Who Must Comply With This Rule?

The final rule applies to any owner or operator of a primary copper smelter that is a major source of HAP emissions and uses batch copper converters. A batch converter is a cylindrical vessel in which copper matte produced by the flash smelting of copper ore concentrates is oxidized in discrete batches following a sequence of steps consisting of charging, blowing, skimming, and pouring. Examples of batch converters are Pierce-Smith converters and Hoboken converters. A smelter that uses batch converters but is not a major source of HAP emissions is not subject to the rule.

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For the final rule, we changed the definition of "primary copper smelter" to be consistent with the definition that is used in two related rules applicable to primary copper smelters. These are 40 CFR part 60, subpart P, Standards of Performance for Primary Copper Smelters, and 40 CFR part 61, subpart O, National Emission Standard for Inorganic Arsenic Emissions from Primary Copper Smelters. A primary copper smelter is defined as any installation or intermediate process engaged in the production of copper from copper sulfide ore concentrates through the use of pyrometallurgical techniques.

B. What Sources at Primary Copper Smelters Are Affected?

The final rule establishes standards for: (1) Copper concentrate dryers; (2) smelting furnaces; (3) slag cleaning vessels; (4) batch converters; and (5) fugitive dust sources associated with the handling, transfer, and storage of copper concentrate, dross, reverts, slag, speiss, and other solid copper-bearing materials.

C. When Must an Affected Source Comply With the Standards?

For the final rule, the compliance date for existing sources is 3 years from June 12, 2002. An affected source is an existing source if its construction began before April 20, 1998. An affected source is a new source if its construction or reconstruction began on or after April 20, 1998. An affected source has been reconstructed if it meets the definition of "reconstruction" in 40 CFR 63.2. A new or reconstructed source must be in compliance on June 12, 2002, or, if it is not yet operational, upon initial startup of the source.

D. What Are the Emission Limits and Work Practice Standards?

1. Copper Concentrate Dryers

The emission limit for an existing copper concentrate dryer is no more than 50 milligrams per dry standard cubic meter (mg/dscm) of total particulate matter, as measured by Method 5—Determination of Particulate Emissions From Stationary Sources in 40 CFR part 60, appendix A. The emission limit for a new copper concentrate dryer is no more than 23 mg/dscm of total particulate matter, as measured by Method 5.

2. Smelting Furnaces

We changed the proposed emission limit (in the supplemental proposal) for the by-product sulfuric acid plant tail gas from a limit on total particulate matter to a limit on nonsulfuric acid particulate matter. Under the final rule, nonsulfuric acid particulate matter in the tail gas discharged to the atmosphere from sulfuric acid plant can be no more than 6.2 mg/dscm, as measured by Method 5B—Determination of Nonsulfuric Acid Particulate Matter From Stationary Sources in 40 CFR part 60, appendix A.

A second revision to the standards for smelting furnaces is the particulate matter emission limit for process fugitive emissions from matte

and slag tapping. The limit has been changed from 16 mg/dscm to 23 mg/dscm of total particulate matter, as measured by Method 5. The value of this emission limit was changed based on our reconsideration of the test data.

3. Slag Cleaning Vessels

The standards for slag cleaning vessels have been revised to be consistent with changes discussed above that we made for the process off-gas and process fugitive emission limits for smelting furnaces. The final standard requires that the process off-gas from slag cleaning vessels be vented to a sulfuric acid plant that meets a 6.2 mg/dscm emission limit for nonsulfuric acid particulate matter (as measured by Method 5B). As an alternative to meeting this standard, an owner or operator may choose to vent the process off-gas from the slag cleaning vessel to a wet scrubber that meets a 46 mg/dscm emission limit for total particulate matter (as measured using Method 5). The particulate matter limit for process fugitive emissions generated by tapping molten material from the slag cleaning vessel is revised to be consistent with the standard for smelting furnaces (23 mg/dscm of total particulate matter, as measured by Method 5).

4. Copper Converter Departments

Where applicable, the standards for batch converters have been revised to be consistent with the final particulate matter emission limits for process off-gas and process fugitive emissions from smelting furnaces. Process off-gas captured during converter blowing must be vented to the smelter's sulfuric acid plant that meets the 6.2 mg/dscm emission limit for nonsulfuric acid particulate matter. The particulate matter limit for process fugitive emissions generated by converter operations is set at 23 mg/dscm of total particulate matter, as measured by Method 5.

We also made several revisions to the proposed opacity limit requirements for copper converter departments. First,we modified the test protocol used to determine compliance with the applicable opacity limit. We revised how the field opacity data are compiled and averaged in order to reduce the duration of the observation period needed to obtain the required number of acceptable opacity readings. The test protocol in the final rule requires that the average opacity value for the affected source be calculated using a minimum of 120 1-minute intervals during which at least one copper converter was blowing and there were no visible emission interferences as specified in the rule (i.e., during the 1-minute interval, there were no other copper production events generating visible emissions inside the converter building that potentially could interfere with the visible emissions from the converter capture systems as seen by the outside observers).

Next, considering the above revision to the test protocol, we decided it was necessary to reexamine the test data used to establish the opacity limit for existing Pierce-Smith converters to determine the effect of using the new protocol on the proposed opacity limit. Based on this analysis, we changed the opacity limit for existing Pierce-Smith converter departments to 4 percent opacity. In the final rule, the opacity limit for existing Hoboken copper converter departments is the same value as proposed, 4 percent opacity.

Finally, we have reconsidered the selection of new source MACT for copper converter departments by applying the level of process fugitive emissions control achieved by the best controlled similar source, flash converting technology. Based on this new source MACT for copper converting operations, we have selected, as the final standard for new sources, a work practice standard that prohibits altogether the operation of batch copper converters at new copper converter departments subject to the rule.

5. Fugitive Dust Sources

The final standards for fugitive dust sources are the same as proposed with one change. We added the requirement that the fugitive dust control plan, which the smelter owner or operator is required to prepare and adhere to at all times, must be approved by the State with delegated authority for enforcement. For the purpose of complying with the final rule, an existing fugitive dust control plan may be used, provided that this plan addresses the fugitive dust sources and includes the information specified in the rule. An existing fugitive dust control plan that meets these conditions and also has been incorporated into a State implementation plan is considered

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to be approved for the purpose of complying with this requirement.

6. Alternative Emission Limit for Combined Gas Streams

The equation in the final rule that an owner or operator can elect to use to determine an alternative or equivalent particulate matter emission limit for gas streams combined from two or more affected sources has been corrected to include a potential control situation that was inadvertently omitted at proposal. For the final rule, the equation includes a component to address the situation where the off-gas stream exhausted from a slag cleaning vessel is not vented to the sulfuric acid plant or a dedicated wet scrubbing system, but instead is combined with other gas streams and vented to a common particulate control device.

E. What Are the General Compliance Requirements?

A new section is added to the final rule listing the general requirements for complying with the rule. The owner or operator must be in compliance with each applicable particulate matter emission limit and work practice standard at all times, except during periods of startup, shutdown, and malfunction. Each smelter owner or operator must develop and implement a written startup, shutdown, and malfunction plan for the smelter according to the general provisions of 40 CFR part 63 and the additional requirements specified in the rule.

Compliance with the opacity limits for copper converter departments is determined using the test protocol and requirements specified in the rule. The general provision requirements for compliance with opacity and visible emission standards under 40 CFR 63.6(h) do not apply to the opacity limit standards for copper converter departments.

F. How Is Initial Compliance Demonstrated?

Initial compliance with each of the particulate matter emission limits is to be determined by a performance test conducted according to 40 CFR 63.7 of the general provisions and specific EPA reference test methods. The average of three test runs is to be used to determine compliance with each of the applicable emission limits specified in the rule. During each initial performance test, the owner or operator is also required to establish limits for appropriate control device operating parameters based on the actual values recorded during the performance test.

We reconsidered our proposed requirements for when an owner or operator must conduct a performance test and decided it is appropriate to require periodic testing beyond the initial performance test to reaffirm compliance with the applicable emission limitation. Under the final rule, compliance with each applicable particulate matter emission limit must be demonstrated initially and, thereafter, at least once per year.

G. How Is Continuous Compliance Demonstrated?

To demonstrate continuous compliance with the applicable emission limitations and work practice standards under the final rule, an owner or operator must perform periodic inspections and continuous monitoring of air pollution control devices used to comply with the

rule. In those situations when a deviation from the operating limits specified for a control device or capture system is indicated by the monitoring system, or when a damaged or defective component is detected during an inspection, the owner or operator must implement the appropriate corrective actions. Monthly visual inspections of all capture systems used to comply with the rule are required. Minor revisions to the procedures for these inspections were made for the final rule.

Each baghouse used to comply with a total particulate matter emission limit must be operated according to written operating and maintenance procedures that describe in detail the procedures to be used for inspection, maintenance, bag leak detection, and corrective action for the baghouse. The final rule includes the requirement as proposed in the supplemental proposal for an alarm operating limit on baghouse leak detectors. We have made minor revisions to the procedures used for inspection, maintenance, bag leak detection, and corrective action for baghouses so that the rule is consistent with the requirements for baghouses in other NESHAP.

H. What Are the Notification, Recordkeeping, and Reporting Requirements?

The final rule requires the notification, recordkeeping, and reporting requirements in the general provisions to 40 CFR part 63 with one exception. The notification, recordkeeping, and reporting requirements in the general provisions related directly to compliance with opacity and visible emission standards as specified in 40 CFR 63.6(h) do not apply to this rule. The specific recordkeeping and reporting requirements for documenting compliance with the opacity limit provisions are specified in the rule. The dates by which the notifications and reports must be submitted to us (or the applicable delegated State authority) are specified in the rule.

Each affected owner or operator must submit a semiannual compliance report containing the information specified in the rule. The final rule requires that this report be submitted whether a deviation has or has not occurred during the reporting period. However, only summary information is required if no deviation occurred. The rule does not require emergency reports if actions taken are consistent with the smelter's startup, shutdown, and malfunction plan. If actions taken are not consistent with this plan, the events and the response are to be included in the semiannual compliance report.

III. Summary of Health, Environmental, Energy, and Economic Impacts

A. What Are the Health Impacts?

The HAP emitted from primary copper smelters include compounds of antimony, arsenic, beryllium, cadmium, cobalt, lead, manganese, nickel, and selenium. The HAP metal compounds controlled by this rule are associated with a variety of adverse health effects. These adverse health effects include chronic health disorders (e.g., diseases of the lung, kidney, central nervous system), and acute health disorders (e.g., lung irritation and congestion, alimentary effects such as nausea and vomiting, and effects on the central nervous system). Arsenic and nickel compounds have been classified by the EPA as human carcinogens, and compounds formed from four other HAP metals (beryllium, cadmium, lead, and nickel) have been classified as probable carcinogens.

Emission data collected during development of the rule indicate that the HAP emitted in the largest quantities are arsenic and lead compounds. Exposure of humans to arsenic by inhalation or by ingestion has been shown to be associated with forms of lung, bladder, liver, and other cancers. Brain damage, kidney damage, and gastrointestinal distress may occur from acute exposure to high levels of lead in humans. Chronic exposure to lead by humans results in effects on the central nervous system, blood, blood pressure, and kidneys.

We do not have the detailed data on each of the primary copper smelters potentially subject to this rule or the people living around the facilities

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necessary to determine the actual population exposures to the HAP emitted from these smelters and the potential for resultant health effects. Therefore, we do not know the extent to which the adverse health effects occur in the populationssurrounding these facilities. However, to the extent the adverse effects do occur, the rule will reduce emissions and subsequent exposures.

B. What Are the Air Emission Reduction Impacts?

Current nationwide HAP emissions from the three currently operating primary copper smelters potentially subject to the final rule are estimated to be about 96 megagrams per year (Mg/yr). We estimate that implementation of the final rule will reduce these nationwide HAP emissions by approximately 23 percent or 22 Mg/yr.

C. What Are Other Non-air Environmental and Energy Impacts?

With only three of the potentially regulated smelter operating at this time, one of the affected smelters will need to install additional air pollution control equipment to meet the copper converter department standards. The additional controls at this smelter consists of doubling the converter secondary hood ventilation rate and venting the secondary hoods to a new baghouse (fabric filter). The non-air environmental impacts associated with operating these new controls will be a small increase in the amount of solid waste generated at each smelter from the particulate matter collected in the new baghouse. Operation of the fans used to increase the converter secondary hood ventilation rates will result in a small increase in overall smelter electricity usage. No significant adverse solid waste or energy impacts are expected as a result of operating these additional air pollution controls.

D. What Are the Cost and Economic Impacts?

Costs to smelter owners and operators for complying with the final rule were estimated. As noted above, one smelters will need to install additional air pollution control equipment to meet the copper converter department standards. The total capital costs for the purchase and installation of this additional control is estimated to be $4.1 million. Total annual costs of meeting all of the requirements of the rule, including operating and maintenance costs, are estimated to be $860,000 per year.

The economic impact of the rule is determined by comparing the annualized costs incurred by each smelter to their estimated annual copper production revenues. The share of costs to estimated revenues for the affected smelters range from a low of 0.004 percent to a high of 0.2 percent. Thus, compared to the estimated production revenues for each affected smelter, the total annualized costs are minimal. Based on the smelter-specific total annual cost to sales ratios, impacts of the final rule on the companies owning the facilities are anticipated to be negligible. The economic impact analysis we prepared to support this finding is available in Docket No. A-96-22.

IV. Summary of Responses to Major Comments

A summary of our responses to selected major comments received on the proposed rule (including the supplemental proposal) is presented below. Our responses to all of the substantive public comments on the proposal are presented in the document titled *National Emission Standards for Hazardous Air Pollutant (NESHAP) for Primary Copper Smelters: Background Information Document for Promulgated Standards* (BID). The BID is available in Docket No. A-96-22.

A. How Did We Select the Emission Limit for Sulfuric Acid Plant Tail Gas?

Comment. Seven commenters disagreed with our proposal to establish a particulate emission limit for the tail gas exhaust from the by-

product sulfuric acid plants used to treat the process off-gases discharged from smelting furnaces, slag cleaning vessels, and batch converters. Reasons cited include: (1) Method 5 is an inappropriate test method for measuring HAP concentrations in acid plant tail gas because Method 5 measures as particulate matter material that is not HAP (i.e., sulfuric acid mist and waters of hydration); and (2) the proposed numerical limit is based on data for only four sources not the five best performing sources as is required by CAA section 112 for establishing MACT.

Response. For the process off-gases discharged from smelting furnaces, slag cleaning vessels, and batch converters, we originally proposed an equipment standard that would require these sulfur dioxide rich process off-gases to be vented to a by-product sulfuric acid plant with its ancillary particulate matter precleaning and conditioning systems, or other type of sulfur recovery process unit capable of achieving comparable levels of particulate matter removal. At the time of proposal, all six smelters in the source category operated by-product sulfuric acid plants.

After careful review and evaluation of comments received objecting to our use of an equipment standard rather than a numerical emission limit and new emissions data obtained since proposal, we concluded that a change in the proposed standards for process off-gas emissions was warranted. As a result, we issued a supplement to the proposed rule (65 FR 39326, June 26, 2000) in which we proposed a numerical emission standard that would limit the concentration of total particulate matter in the off-gases discharged. Specifically, we proposed to set a total particulate matter emission limit for acid plant tail gas of 23 mg/dscm based on Method 5 measurements.

In response to the commenters' concerns regarding the use of total particulate matter as the surrogate for HAP and the use of Method 5 for determining compliance, we examined more closely the suitability of Method 5 for measuring particulate matter in tail gas from sulfuric acid plants at primary copper smelters. Method 5 is the basic reference test method used for determining particulate matter emissions from stationary sources. The sampling probe and filter temperature specified for Method 5 (250°F) is below the acid dewpoint for sulfuric acid. Consequently, when sampling sulfuric acid plant tail gas by Method 5, condensed sulfuric acid mist and waters of hydration not driven off at the sampling temperature are included in the probe wash and filter catch, along with any metal HAP contained in the tail gas. Thus, we agree that establishing and determining compliance with a total particulate matter emission limit based on Method 5 may include sulfuric acid mist condensables not related to the control or emissions of metal HAP. Based on some limited test data obtained using Arizona Method A1 (a test method adopted by the State of Arizona for measuring particulate matter in sulfur containing gas streams that excludes acid condensate), the condensate may account for as much as 12 percent of the total particulate catch.

Method 5B was developed specifically to measure nonsulfuric acid particulate matter in circumstances when appreciable quantities of condensable sulfuric acid are present in the stack exhaust to be tested. The procedure is identical to Method 5 except that the front-half of the Method 5 sampling train is maintained at 320°F instead of 250°F, and the probe and filter samples are to be heated in a oven to 320°F for 6 hours prior to weighing. At the higher sampling temperature, most of the sulfuric acid mist and waters of hydration present pass

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through the probe and filter without condensing. Heating the probe wash residues and sample filter in an oven before weighing volatilizes any condensed sulfuric acid that may have collected in the front-half. Because sulfuric acid mist and waters of hydration are not counted as part of the total particulate catch, the total particulate matter concentration value measured in the front-half by Method 5B will be lower than the concentration value that would have been measured on the filter using Method 5. Given the gas stream characteristics of sulfuric acid plant tail gas, it is our conclusion that Method 5B is the appropriate test method to use for setting a particulate matter concentration limit that serves as a surrogate for metal HAP emissions contained in the tail gas from sulfuric acid plants.

Lacking any available Method 5B emissions test data to set an emission limit, we convened a meeting with company representatives of each of the six smelters potentially subject to the NESHAP. Two options were considered: (1) Derive an emission limit based on the available Method 5 test data and a conversion factor inferred from the limited Arizona Method 1A test data; or (2) gather actual Method 5B test data by testing each of the operating by-product sulfuric acid plants. The consensus view was that Method 5B testing was needed to establish a credible emission limit.

A test program was planned and implemented jointly by us and the companies owning the three copper smelters currently producing copper. The source tests were conducted by an independent consultant hired by the smelter companies. Four individual test runs were conducted at each of the three smelters. To our best knowledge, all of the tests were conducted at normal smelter production levels and under normal acid plant operating conditions.

We considered two approaches in selecting the level of the standard: (1) Base the emission limit on the highest credible individual run measured at the three smelters; or (2) base the limit on the highest three-run average measured at the highest emitting smelter. If we base the emission limit on the highest individual run, the standard expressed in concentration units would be 6.2 mg/dscm. If we base the emission limit using the highest three-run average (highest single performance test), the standard would be 5.0 mg/dscm.

In selecting the appropriate level for the emission limit, consideration was given to the full range of smelter process and acid plant operating conditions which could reasonably be foreseen to recur, under which the standard is to be achieved. This is especially important where the emission limit is applied to a gas stream in whichthe outlet loading will typically fluctuate within a range of values during the course of normal operations. After examining the design and operating conditions of the three acid plants tested, we can find no discernible differences among the three plants which would lead us to conclude that one is superior or inferior to another. In addition, we believe that each test run was conducted under conditions representative of acceptable sulfuric acid plant performance.

Based on the above considerations, we believe that the performance of the sulfuric acid plant under a reasonable worst case circumstance is best represented by the single highest individual run, and that selecting this highest value will ensure that the standard will be met under all foreseeable acceptable operating conditions. Therefore, we are selecting 6.2 mg/dscm of nonsulfuric acid particulate matter based on measurements using Method 5B as the emission limit for the sulfuric acid plant tail gas.

B. How Did We Select the Emission Limit for Process Fugitive Emissions?

Comment. Four commenters stated that the proposed emission limit of 16 mg/dscm for the process fugitive emissions from smelting furnaces, slag cleaning vessels, and batch converters is overly stringent and is not representative of the MACT floor. The commenters claimed that the source test data we used to select the value consisted of only a few source tests, and that these tests do not account for the range of variability in emissions associated with normal operating conditions. The commenters recommended that the value of the standard be increased to 50 mg/dscm which is consistent with the particulate matter emission limit we proposed for existing copper concentrate dryers.

Response. We selected the application of baghouses as MACT for controlling process fugitive HAP emissions based on the control devices used to control fugitive emissions (i.e., secondary emissions) from batch converters (63 FR 19595 and 19597, April 20, 1998). Four of the five smelters that use secondary hoods to capture the converter fugitive emissions vent the captured gas stream to a baghouse for

control. The fifth smelter employs an electrostatic precipitator (ESP). Because the common practice at the smelters is to vent the emissions captured by the hoods over the smelting and slag cleaning vessel tapping ports to the same control device used to control converter secondary emissions, we also selected use of baghouses as the MACT floor for controlling process fugitive emissions from the matte and slag tapping operations at the smelting furnaces and slag cleaning vessels. Consistent with other NESHAP based on application of baghouses as MACT for control of particulate matter emissions, we selected concentration units as the format of the standard.

The data used to select the proposed emission limit consist of results from four performance tests, one test for each of the four smelters employing baghouses for the control of converter secondary emissions. Each test is comprised of three test runs conducted at the baghouse outlets using Method 5.

For the proposed emission limit, we selected the highest average concentration (16 mg/dscm) measured among the four performance tests. Since proposal, we have reexamined the data and our approach to setting the standard. A close review of each of the performance tests shows a high degree of variability and imprecision among individual test runs within a performance test, with the highest measured values ranging from 1 1/2 to 4 1/2 times the lowest measured values. Given the lack of precision among the test results, we reconsidered whether relying on the highest three-run average measured at one smelter truly accounts for the full range of acceptable process and control device operating conditions which could be reasonably foreseen to recur. We believe that a more conservative and, perhaps, better approach in this case is to set the standard based on the highest single credible test run. This will provide better assurance that the standard is achievable under reasonable worst case circumstances. Of the 12 individual test runs, the value of the highest run and the value selected for the final standard is 23 mg/dscm.

C. How Did We Select MACT Floor for Pierce-Smith Converters?

Comment. Several commenters disagreed with our MACT floor determination for existing Pierce-Smith converters. The commenters claimed that CAA section 112(d)(3) requires us to determine the MACT floor for existing sources based on applicable "emissions limitations" rather than relying on actual emissions data as we did for the proposed rule. Using an emissions limitations approach based on application of existing State regulations, the commenters concluded that the opacity limit for existing Pierce-

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Smith converters should be established at a value of 40 percent opacity.

Response. Wedisagree with the commenters' assertion that CAA section 112(d)(3) requires us to establish MACT floors for existing sources based on applicable "emissions limitations." We have and continue to use several approaches to establishing MACT floors, depending on the type and quality of the available information. Typically, we examine several approaches and rely on the one best suited for each particular circumstance. The approaches include: (1) Reliance on information such as test data on actual emissions from the pool of sources (the best five sources or best 12 percent) that comprise the best performers; (2) information on applicable emissions limitations or standards specified in State and local regulations and/or operating permits; or (3) a technology approach based on the application of a specific control technology and accompanying performance data. We believe that each of these approaches has merit, and we have relied on using each to various degrees throughout the MACT program.

The emissions limitations approach to establish the MACT floor for Pierce-Smith converters was examined at proposal and dismissed. Of the five smelters in the source category that operate Pierce-Smith converters, only three are subject to an emissions limitation. The converter building at one smelter is subject to a zero percent opacity limit specified in the facility's operating permit. The converter buildings at the two smelters located in Arizona are arguably subject to the State's general 40 percent opacity limit applicable to process fugitive emissions from any source. The converter buildings at the remaining two smelters, both located in New Mexico, are not subject to an opacity limit. Then and now, the commenters supported establishing the MACT floor based on the median or third most stringent emissions limitation. Using this approach, the MACT floor would be 40 percent opacity.

The emissions limitation approach advanced by the commenters is workable only when the outcome produces a realistic inference of actual performance of the best performing sources. This has been affirmed unequivocally by the DC Circuit Court in *Sierra Club* vs. *EPA, 167F.3d.* in which the court opined that to comply with the statute, the EPA's method of setting emissions floors must reasonably estimate the performance of the relevant best performing sources. Observations made by us and the industry at all five of the smelters operating Pierce-Smith converters indicate that actual visible emissions from the converter buildings are typically in the range of zero percent to 10 percent opacity, well below the 40 percent opacity value supported by the commenters. Consequently, we believe that the use of the emissions limitation approach in this case is not appropriate.

Comment. The same commenters making the above comment further stated that if test data on actual emissions is used for determining the MACT floor for Pierce-Smith converters, then the average emissions limitation should be represented by the emissions data for the median performing source of the five best performing sources rather than the average of the emissions data for all five sources as was done for the proposed standard. In this case, the commenters claimed that the median technology for Pierce-Smith converters is the use of primary and secondary ventilation systems for the prevention and capture of emissions coupled with air pollution control devices for sulfur dioxide and particulate matter control. The commenters identified the controls used at the Hayden and Hidalgo smelters as the median technology for Pierce-Smith converters.

Response. We assessed how using the median technology approach would affect the selection of the MACT floor for Pierce-Smith converters. To do so, we evaluated each of the five smelters operating Pierce-Smith converters to determine the median performing source based on both performance data and engineering design. Using either approach, our assessment shows that the Chino Mines smelter is the median performing source of the five smelters that operate Pierce-Smith converters, not the Hayden or Hidalgo smelters as suggested by the commenters. In addition, the opacity value prescribed to the Chino Mines smelter is 3 percent, the same as the value we proposed for the opacity limit for Pierce-Smith converters based on averaging opacity data for all five sources.

To select the median technology based on source performance data, we ranked the converter capture systems used at the five smelters in order of decreasing performance using the average overall opacity value for each smelter. This ranking assumes that the average opacity value is indicative of the overall capture efficiency of the control system (i.e., the lower the opacity, the higher the capture efficiency). For our assessment, we used the overall average opacity values rounded to the next highest whole percent for the five smelters used for the MACT floor determination at proposal. The results of this ranking show that the best performing source is the El Paso smelter (zero percent opacity) followed by, in decreasing order, the San Manuel smelter (1 percent opacity), the Chino Mines smelter (3 percent), the Hidalgo smelter (5 percent), and the Hayden smelter (8 percent opacity). The median performing smelter of the five smelters that operate Pierce-Smith converters is the third best performer, the Chino Mines smelter.

For the engineering design assessment, we first assembled pertinent information on the primary and secondary capture systems used at each of the five affected smelters. The information included hood ventilation rates (both primary and secondary), converter blowing rates (amount of air blown through the tuyeres into the molten bath), and detailed information on the design and physical configurations of each secondary hood.

Each of the five smelters uses the same basic approach to capturing emissions from their Pierce-Smith converter during slag and copper blows. Specifically, a retractable primary hood for capturing the voluminous process emissions generated during blowing and a fixed or sliding secondary hood for capturing the secondary or fugitive emissions that escape capture by the primary hood. Although the basic approach used at each smelter is fundamentally the same, there are, however, differences among the smelters in both the design and operation of their primary and secondary capture systems that affect performance.

The El Paso smelter uses a converter capture system design that is unique compared to the designs used at any of the other smelters. Instead of the fixed or sliding secondary hood designs used by other four smelters, each converter at the El Paso smelter is equipped with an air curtain secondary hood. The air curtain hood encloses the sides and back area around the converter mouth. During converter blowing operations, a horizontal jet of air flows across the open top of the enclosure to provide a continuous sheet or curtain of air that sweeps the process fugitive emissions into an exhaust hood, and subsequently a particulate control device. Capture efficiencies in excess of 90 percent are achieved using air curtain hood systems. Also at the El Paso smelter, any process fugitive emissions that escape capture by the air curtain hoods are further controlled by evacuating the entire converter building to a particulate control device. Thus, effectively 100 percent of the process fugitive emissions from converter operations at the El Paso smelter are captured. Clearly, the use of

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air curtain secondary hoods in combination with a tertiary building evacuation system represents the best capture system technology used at any of the five smelters that operate Pierce-Smith converters.

We believe that the second best performer is the San Manuel smelter which relies primarily on primary hood ventilation to effect capture. The San Manuel smelter is unique in that it has surplus by-product acid plant capacity which allows each of the converter primary hoods to operate at a substantially higher ventilation rate than is usual for other smelters. The primary hoods at the San Manuel smelter are operated at a primary hood ventilation rate to converter blowing rate ratio of 3.8. In contrast, for the converter primary hoods at other smelters, the ratios range from 2.2 to 2.6. As evidenced by the building opacity data for the San Manuel smelter, operation of the primary hoods at a substantially higher ventilation rate results in enhanced capture efficiency and minimal fugitive emissions due to leakage about the primary hood.

Our assessment of the remaining three smelters supports our earlier finding using the performance data approach; the median or third best performing smelter is the Chino Mines smelter. All three smelters operate their primary hoods similarly and each converter is equipped with a secondary hood. Each of the secondary hoods are, with minor variations, similar in design. The principal difference is that the ventilation rate during converter blowing used for the secondary hoods at the Chino Mines smelter 120,000 standard cubic feet per minute (scfm) is approximately twice that used at the Hayden or Hidalgo smelters (50,000 scfm and 60,000 scfm, respectively). We believe that by operating at this substantially higher ventilation rate, the secondary hood system operated at the Chino Mines smelter is more effective at capturing the process fugitive emissions that escape from the converter primary hood during blowing compared to the secondary capture systems used at the other two smelters. It is, thus, our conclusion that the emissions capture system applied at the Chino Mines smelter is the third best among the five smelters that operate Pierce-Smith converters.

Regardless of whether we base our assessment of performance on average opacity or on engineering design, the smelter that uses the third best performing or median control technology is the Chino Mines smelter. If we had used the median technology approach at proposal to select the opacity limit for smelters that operate Pierce-Smith converters, we would have selected 3 percent, the same value we proposed.

D. Why Did We Modify the Test Protocol Used To Determine Compliance with the Opacity Limits for Existing Copper Converter Departments?

We received no comments on the duration of the observation period needed to obtain the required number of acceptable opacity readings specified by the proposed test protocol for determining compliance with the opacity limits for existing copper converter departments. However, based on our experience using the protocol in the field and further analysis of the data that we collected using the protocol, we decided to revise the test protocol for the final rule with respect to how the opacity data are compiled and averaged in order to reduce the duration of the observation period needed to obtain the required number of acceptable opacity readings for a compliance determination.

The proposed test protocol specified making opacity readings using Method 9 over an observation period sufficient to obtain a minimum of 20 continuous 6-minute average opacity values during times when at least one converter is blowing and none of the specific visible emissions interferences listed in the test protocol has occurred. Our experience indicates that to obtain the minimum 20 continuous 6-minute averages required by the proposed test protocol, an observation period lasting 4 to 5 days or longer would be needed. This occurs for two reasons. First, Method 9 requires an observer when making opacity readings to be positioned with the sun to the observer's back and at a position from the source such that the observer's line-of-sight is approximately perpendicular to the longer axis of the converter building. This generally limits the window for observation at a smelter to 4 to 5 hours on any given day. Second, many of the continuous 6-minute periods are invalidated due to unavoidable, normal production events that occur inside the converter building that are unrelated to the converter blowing operations but also generate visible emissions. These visible emissions can potentially interfere with the visible emissions from the converter capture systems as seen by the outside observers. Because such interferences may misrepresent the actual performance of the converter capture system at a given smelter, the opacity readings made during these periods are invalidated and excluded from the compliance determination.

We have decided to revise the test protocol to allow for a shorter, more reasonable observation period to obtain the required number of acceptable opacity readings (i.e., opacity readings when there is at least one converter blowing without any visible emissions interferences). We are revising the test protocol to require averaging a minimum of 120 acceptable 1-minute average opacity values in place of the proposed 20 acceptable 6-minute average opacity values. Under the final test protocol, compliance will be demonstrated against the average opacity recorded for a minimum of 120 1-minute averages of eight readings per minute (a team of two opacity observers, each making four readings at 15-second intervals). This revision provides the same minimum number of opacity values for a performance test (a minimum total of 120 minutes of acceptable opacity readings) as the proposed procedure, without the additional restriction that the acceptable readings also must be made in continuous 6-minute blocks. With this change, smelter owners and operators should be able to obtain the required number of acceptable opacity readings in a more reasonable 1- to 2-day observation period.

E. How Did We Select the Final Opacity Limits for Existing Copper Converter Departments?

1. Pierce-Smith Converters

Because of our decision to change the test protocol to facilitate compliance determinations, we concluded that a reexamination of the proposed opacity limit for existing Pierce-Smith converters using the new protocol was warranted to determine whether using the protocol affected the proposed, and ultimately, the final opacity limit. As specified by the new protocol, we considered all 1-minute average opacity values recorded during the field observations when at least one converter was blowing, and there were no visible

emissions interferences from other copper production activities or malfunctions inside the copper converter building. Consistent with the MACT floor approach we used at proposal, we based our selection of the MACT floor on the average of the test data for the five best performing sources (in this case, all five smelters in the source category that operate Pierce-Smith converters).

The field data considered at proposal and reexamined include a compilation of visible emission observations and process data gathered in the spring of 1997 at each of the smelters operating

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Pierce-Smith or Hoboken converters. A description of the field data collection and analysis procedures used to compile the data is available in the preamble to the proposed rule (63 FR 19596). In general, a sufficient number of opacity observations were obtained during the site visits to compile a data base that included for each smelter a total of 400 to 500 minutes of 1-minute average opacity readings. Not included in these data are any opacity readings made at a smelter during periods when the converter operations were judged not to be representative of normal operations (e.g., during a converter capture system malfunction) or when the opacity observation conditions did not meet Method 9 criteria (e.g., improper sun angle).

For each smelter, we prepared a data summary that listed the average opacity values for only those 1-minute intervals during which at least one of the converters was blowing, and there were no visible emissions interferences as defined by the test protocol. For four of the smelters, there are a sufficient number of acceptable 1-minute intervals to simulate two performance tests as specified by the test protocol (the total number of acceptable 1-minute intervals can be divided into two blocks with at least 120 1-minute average opacity values in each block). For the fifth smelter, we have a total of 167 minutes of acceptable 1-minute average opacity values which we treated as a single performance test. The individual performance test results are presented in the BID.

Next, we calculated the average percent opacity for each performance test for a given smelter. Each of the calculated averages that includes a fraction of a percent opacity was then rounded up to the next whole number. For the smelters having two performance tests, we selected the higher of the two recorded values as the indicator of performance for the smelter. Following this procedure, the average opacity values for the five individual smelters are, in order of increasing value, zero percent, 1 percent, 3 percent, 5 percent, and 10 percent. The arithmetic average of these five opacity values is 3.8 percent which rounds to 4 percent opacity. Therefore, we selected the MACT floor for Pierce-Smith converters to be 4 percent opacity.

In response to comments received since proposal, we have evaluated two possible beyond-the-floor alternatives for the control of Pierce-Smith converters: Alternative 1—retrofit of air curtain secondary hoods on each converter at each affected smelter to complement the primary and secondary capture systems; and Alternative 2—installation of a converter building evacuation system. Total annual costs to implement these options were estimated assuming that each of the five smelters with Pierce-Smith converters would be subject to the rule (i.e., each smelter is a major source of HAP emissions). Total capital costs for implementing Alternative 1 at the five smelters are estimated to be $41 million. Implementing Alternative 1 is estimated to reduce HAP emissions beyond the floor by 29 tpy at a total annual cost of $12 million per year or about $430,000 per ton of HAP reduction. Total capital costs for implementing Alternative 2 at the five smelters are estimated to be $93 million. Implementing Alternative 2 is estimated to reduce HAP emissions beyond the floor by 34 tpy at a total annual cost of $32 million per year or about $910,000 per ton of HAP reduction. Taking into consideration the costs of implementing either of the beyond-the-floor alternatives against the level of additional emission reduction estimated to be achieved, we concluded that neither of these beyond-the-floor alternatives is reasonable. Therefore, MACT for Pierce-Smith converters is 4 percent opacity, and we chose this value for the final standard.

2. Hoboken Converters

Comment. One commenter stated that the proposed opacity limit for existing Hoboken converters was based on a set of opacity readings that was too small to adequately reflect an achievable emission limit. Furthermore, the commenter stated that these data are not representative of normal operating conditions at the one existing smelter using Hoboken converters. The commenter submitted additional opacity data for the existing Hoboken converters. The commenter stated that these data were more representative of a two-converter operation which is typical at the smelter and requested that the data be used to recalculate the opacity limit.

Response. We examined the new data submitted by the commenter according to the revised test protocol. It is important to remember that the test protocol allows consideration of only those opacity readings that are taken during converter blowing and when no visible emissions interferences occur (as defined in the test protocol). Opacity readings during periods when visible emissions interferences occur are excluded from the calculation. Our analysis of the new data provided by the commenter yields an average opacity value of 3.8 percent which supports the 4 percent opacity limit proposed for Hoboken converters.

F. Why Did We Change the Compliance Date for Existing Sources?

Comment. Three commenters requested that the compliance date for existing sources be extended to the full 3 years allowed under the CAA. The commenters, all companies operating primary copper smelters potentially subject to the NESHAP, claimed that the control measures required to meet the requirements of the proposed rule cannot be readily implemented within the proposed 2-year period. The principal reason expressed by the commenters for extending the compliance period to 3 years is the rule will require smelters to plan and implement several significant changes, some of which cannot be completed within a 2-year period.

Response. Section 112(i)(3) of the CAA directs us to establish a compliance date for existing sources which provides for compliance with the applicable standards as expeditiously as practicable but no later than 3 years after the effective date of the standards. For the final rule, we reconsidered our proposed compliance date for existing sources subject to the primary copper smelter NESHAP. We expect that many of the existing sources that could be subject to the rule already have the type of controls in place that are needed to comply with the standards. However, we also recognize that the control systems for some existing sources subject to the rule will likely need to be upgraded to meet the standards. To allow smelter owners and operators a reasonable period of time to design, procure, install, and startup these control upgrades, we decided to establish the compliance date for existing sources under the final rule at no later than 3 years after promulgation.

G. Why Did We Change the Inspection and Monitoring Requirements?

1. Batch Converter Capture System Inspection Requirements

Comment: Three commenters stated that the requirement to inspect the batch converter capture systems on a monthly basis should be limited to those components of the converter capture system that are readily accessible during normal operations. The proposed requirement to visually inspect each month all of the capture system components is not practical, if not impossible to achieve. For example, the fan blade inspection that would be required under the proposed rule can only be performed when the fan housing

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is opened, and operations must be shutdown to do this. Another example is the practicality of inspecting duct components that are covered with insulation.

Response. The intended purpose of the monthly inspection is to visually check the accessible components of the capture system for any defects or damage that could diminish or impair capture system performance from the level that the capture system is capable of achieving when it is properly operated and maintained. We also recognize that certain components of the capture system, such as the examples cited by the commenters, cannot be inspected by workers without shutdown of the process or disassembling components. It would be impractical to inspect these components on a monthly basis. In the final rule, we have revised the wording of the visual inspection requirement for capture systems to clarify which capture system components are to be inspected on a monthly basis. The final rule specifies that the owner or operator inspect those components of the capture system that can affect the performance of the system to collect the gases and fumes emitted from the affected source (e.g., hoods, exposed ductwork, dampers, pressure senors, damper switches). During each inspection, the inspector must visually check the physical appearance of the equipment (e.g., presence of holes, dents, or other damage in hoods or ductwork) and check the settings for each damper and other devices which can be adjusted to control flow in the capture system.

2. Operating Limit for Baghouse Leak Detector Alarms

Comment. Six commenters objected to our proposed 5 percent limit on baghouse leak detector alarms during each 6-month reporting period. Reasons cited included: (1) The use of baghouse leak detectors for baghouses operated at copper smelters is unproven technology; (2) the selection of the proposed alarm time limit is arbitrary; (3) experience of commenters has shown that the detectors are subject to false alarms; (4) any limit on baghouse leak detector time should not include alarms during periods of startup, shutdown, or malfunction; and (5) what the EPA means by "initiation of corrective action" is not clear for the purpose of counting the elapsed alarm time.

Response. The use of baghouse leak detectors is a proven technology that can provide an effective means for early detection of bag failures allowing the baghouse operator to take timely action to correct the problem and minimize excessive particulate matter emissions that would result if the problem was not promptly addressed. These detectors currently are used for baghouse applications at primary lead smelters and other metallurgical facilities with gas stream characteristics and operating conditions similar to those control situations at primary copper smelters for which an owner or operator also may choose to use a baghouse to comply with the rule requirements. We believe that there is no reason why baghouse leak detectors cannot similarly be used on baghouses at primary copper smelters.

The selection of the limit value for alarm time is not arbitrary. We selected this value based on our judgement of an upper limit to the number of alarms that can reasonably be expected to occur (excluding false alarms) over a 6-month period for a baghouse for which the owner or operator implements good inspection and maintenance practices.

We reviewed the proposed language for use of baghouse leak detectors with respect to concerns raised by the commenters about false alarms. For the final rule, we have revised the requirements for baghouse leak detectors to be consistent with the requirements we promulgated for the Primary Lead Smelting NESHAP under 40 CFR part 63, subpart TTT. These requirements include provisions which address the concerns raised by the commenters about counting false alarms and alarms during startup, shutdown, or malfunctions in the alarm time limit compliance calculation. Under the Primary Copper Smelting NESHAP, alarms are not included in the sum of alarm times for purposes of calculating the percentage of time the alarm on the bag leak detection system sounds if it is determined that an alarm sounds solely as the result of a malfunction of the bag leak detection system, or if the alarm sounds as result of a condition that is described in the smelter's startup, shutdown, and malfunction plan (SSMP) and the procedures in the plan described to respond to this condition are implemented.

Finally, when an alarm first sounds from the bag leak detector, we recognize that there are situations when the cause of the alarm cannot be corrected or fixed immediately or within a short period of a few hours. The correction of a torn bag or other problem which can trip the alarm may require that the baghouse be shutdown to allow facility personnel to enter the baghouse when it is safe to do so. We revised the language for the final rule to clarify that alarm time is counted as the time elapsed from when the alarm first sounds until the owner or operator acknowledges the alarm and determines the cause of the alarm. Alarm time is not the total time until the problem which tripped the alarm is corrected.

H. Is the Kennecott Utah Copper Smelter a Major or Area Source of HAP Emissions?

Comment. We received two comments challenging our conclusions that the Kennecott Utah Copper Corporation smelter located near Garfield, Utah, does not emit HAP at major source levels and is, therefore, an area source. The Utah Department of Environmental Quality (DEQ) commented that the information that we used to characterize the emissions potential of the smelter is incorrect or outdated. Data in the smelter's emission inventory report for the year 1997 indicate that the smelter did emit and has the potential to emit HAP at major source levels. The Kennecott Utah Copper Corporation (hereafter referred to as "Kennecott"), owner and operator of the smelter, commented and acknowledged that the HAP emissions from its smelter in 1997 exceeded the major source threshold levels, but that the company planned to install new air pollution control equipment in the anode furnace and casting departments that will reduce HAP emissions, especially emissions of lead compounds, to well below major source levels.

Response. The proposed rule was developed before any HAP emissions data were available based on the fulltime operation of the Kennecott smelter. At the time, all the available evidence indicated that the smelter would not be a "major source" of HAP emissions because of the smelter's unique design and anticipated level of emission control.

In their comments on the proposed rule, the Utah DEQ presented HAP emissions data obtained in 1997, the first full year of operation of the new smelter. Contrary to the company's, the State's, and our expectations, total annual HAP emissions from the smelter in 1997 exceeded the major source threshold level. Specifically, lead emissions, the most prominent HAP emitted, were reported to exceed 23 tpy. This level is well above the 10 tpy single HAP threshold level for major sources and exceeds substantially the smelter's title V permitted lead emission rate of 1.3 pounds per hour, which is equivalent to about 6 tpy.

Extensive in-plant testing by Kennecott determined that the primary source of the excess lead emissions was the two anode furnaces used to refine the blister copper flowing from the flash converting furnace prior to anode

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casting. At the time, the combined off-gas from both furnaces was treated in two high-energy wet scrubbers installed in series and designed to achieve both sulfur dioxide and particulate matter control. Testing of the anode furnace off-gas and the scrubber system outlet gas stream showed much higher levels of fine particulate and lead emissions than originally anticipated. Results of particle size measurements performed on the anode furnace off-gas indicated that more than half of the particulate matter was less than 1 micron in diameter with significant portions less than 0.3 microns.

During 1999 and 2000, Kennecott installed additional air pollution control equipment to better control the fine particulate and lead compounds in the anode furnace process off-gas. A quench tower, a lime injection system, and a baghouse were installed upstream of the two wet scrubbers. With the installation and startup of the new controls, the levels of fine particulate matter and HAP metal compounds emitted in the anode furnace off-gas have been significantly reduced. Based on results from a month-long test program conducted in

January 2001, total annual lead emissions from the smelter were determined to be approximately 1.75 tpy, and the emissions of all metals to be approximately 2.6 tpy. These annual HAP emissions levels are well below the 10 tpy major source threshold level for a single HAP and 25 tpy major source threshold level for total HAP. Consequently, the smelter is no longer a major source of HAP emissions.

On February 15, 2001, Kennecott submitted to the Utah DEQ a notification of compliance with all title V operating permit limits and conditions including its lead limit of 1.3 pounds per hour. The requirements of the smelter's title V operating permit are federally enforceable, and both the State of Utah and the EPA have authority to take enforcement action should Kennecott fail to continue to operate the smelter in compliance with its permitted emission limits.

I. To What Extent Was the Kennecott Utah Copper Smelter Considered in the MACT Floor Determinations for New and Existing Sources?

Comment. Two commenters objected to the exclusion of the Kennecott smelter from the primary copper smelter source category definition and from consideration as part of the MACT floor determination for new and existing sources. Both commenters argued for a broader definition than that contained in the April 1998 proposal. They supported a definition similar to that used in the new source performance standard (NSPS) and Inorganic Arsenic NESHAP that would include smelters using continuous flash converters like that used at the rebuilt Kennecott smelter. Both commenters also argued for the need to include the Kennecott smelter and its continuous flash converter in the MACT floor determination for the six smelters that employ the more conventional batch converters (Pierce-Smith and Hoboken). In addition, one of the commenters suggested that Kennecott's continuous flash converter should be considered the best controlled similar source and, thus, new source MACT for the primary copper smelting source category.

Response. At the time we initiated work on the NESHAP, the primary copper smelting source category was comprised of seven smelters, all of which were engaged in the production of anode copper from copper ore concentrates by first smelting the concentrates to obtain molten copper matte in a flash smelting furnace, and then converting the molten matte to blister copper using batch converters followed by fire refining and anode casting. Consequently, every smelter that potentially could be a major HAP source used either Pierce-Smith converters (five smelters) or Hoboken converters (one smelter).

In the intervening years, Kennecott shutdown its existing smelter at Garfield, Utah, that had used batch converters. The company built a new smelter at the same location that uses a flash smelting furnace similar to that used at the other smelters, and a new continuous flash converter. The Kennecott smelter is the only domestic smelter that does not use batch converters, either Pierce-Smith or Hoboken designs, to produce blister copper.

From the perspective of raw materials processed and final product shipped, a smelter using batch-converting technology and a smelter using continuous flash-converting technology would appear to be similar, both process copper sulfide ore concentrate and produce anode copper for shipment to a electrolytic refining facility. We agree that, in general, the overall function of both of these smelters is to produce anode copper from copper ore concentrates. However, there are significant dissimilarities between how the anode copper is produced at the smelter using continuous flash converters compared with the smelters using batch converters.

The use of a continuous flash converter allows blister copper to be produced in a continuous process at the Kennecott smelter instead of a batch process as is required at the other smelters. At the Kennecott smelter, molten copper matte tapped from the continuous flash smelting furnace is first granulated by quenching with water to form solid granules of copper matte. These matte granules are then ground to a fine texture and fed to the continuous flash converter. Slag and blister copper produced are tapped from ports near the bottom of the furnace. Molten slag is transferred from the furnace to a slag hauler for subsequent disposal. Molten blister copper is transferred in heated launders directly to the anode furnace for further refining into anode copper.

Due to its unique design and operation, most of the process fugitive emission sources associated with smelters using batch converting are eliminated at the Kennecott smelter. There are no transfers of molten material in open ladles between the smelting, converting, and anode refining departments at the Kennecott smelter. In addition, there are no fugitive emissions associated with the repeated rolling-out of converters for charging, skimming, and pouring. Also, only one continuous flash converter is needed at the Kennecott smelter compared with the need for three or more batch copper converters at the other smelters.

Another difference between continuous flash converters versus batch converters is that blister copper produced by the continuous flash converter at the Kennecott smelter contains higher levels of residual sulfur and metal HAP impurities than levels seen in blister copper produced by batch converters. As a result, the anode furnace and casting departments at the Kennecott smelter use emission controls for sulfur dioxide and metal HAP emissions that are not needed at smelters using batch converters.

These differences aside, we have reconsidered whether the source category definition included in the April 1998 proposal should be broadened to include smelters using continuous flash-converting technology like the Kennecott smelter. We have concluded that the definition should be broadened and made consistent with that used to define primary copper smelters pursuant to both the primary copper smelter NSPS and Inorganic Arsenic NESHAP. We are changing the definition of primary copper smelters to mean "any installation or any intermediate process engaged in the production of copper from copper sulfide ore concentrates through the use of pyrometallurgical techniques."

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Relative to the inclusion of the Kennecott smelter in the MACT floor determination, we disagree with the commenters that primary copper smelters using continuous flash converting should be grouped with primary copper smelters using batch converting for the existing source MACT floor determination. Section 112 of the CAA provides the Administrator the discretion to divide categories of sources into subcategories where appropriate. In establishing such subcategories for other source categories in the NESHAP program, we have considered factors such as differences in process operations (including differences between batch and continuous operation), emission characteristics, control device applicability, and opportunities for pollution prevention.

We believe that the design and operating differences between these two classes of copper converters make these sources so dissimilar with respect to HAP emission sources, level of HAP emissions, and the subsequent control measures required to control HAP emissions from these sources as to warrant the creation of two separate subcategories of primary copper smelters: primary copper smelters using batch converters, and primary copper smelters using continuous flash converters. Thus, we conclude that consideration of the Kennecott smelter in the MACT floor determinations for existing sources within the subcategory of primary copper smelters using batch converters is inappropriate since it is not among the pool of sources that comprises the subcategory.

Regarding the comment on new source MACT, we believe that there is merit to the commenter's position that for the purpose of selecting new source MACT for copper converter operations, the best controlled similar source uses flash converting. This is especially true considering our decision to change the source category definition to include all smelters engaged in the production of copper from copper sulfide ore concentrates regardless of the pyrometallurgical (smelting) techniques used. The practical effect of a decision to base new source MACT on flash converting would be a ban on the construction of a new converter department employing batch converters, which would lead to the virtual elimination of process fugitive emissions discharged from new copper converter departments. This would be best

accomplished through a work practice standard that would expressly prohibit the construction of a new copper converter department employing batch copper converters. Consequently, we have selected as the final standard a work practice standard that prohibits altogether the operation of batch copper converters at new copper converter departments. We believe that the impact of this decision on the industry is none, given both the availability of newer and cleaner converting technologies, and the rigor of the new source review permitting process to which a new source would be subject.

V. Administrative Requirements

A. Executive Order 12866, Regulatory Planning and Review

Under Executive Order 12866 (58 FR 51735, October 4, 1993), the EPA must determine whether the regulatory action is "significant" and therefore subject to review by the Office of Management and Budget (OMB) and the requirements of the Executive Order. The Executive Order defines "significant regulatory action" as one that is likely to result in a rule that may:

(1) Have an annual effect on the economy of $100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities;

(2) create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;

(3) materially alter the budgetary impact of entitlements, grants, user fees, or loan programs, or the rights and obligation of recipients thereof; or

(4) raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the Executive Order.

It has been determined that this rule is not a "significant regulatory action" under the terms of Executive Order 12866, and is therefore not subject to OMB review.

B. Executive Order 13132, Federalism

Executive Order 13132, entitled "Federalism" (64 FR 43255, August 10, 1999), requires the EPA to develop an accountable process to ensure "meaningful and timely input by State and local officials in the development of regulatory policies that have federalism implications." "Policies that have federalism implications" is defined in the Executive Order to include regulations that have "substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government."

Under Section 6 of Executive Order 13132, the EPA may not issue a regulation that has federalism implications, that imposes substantial direct compliance costs, and that is not required by statute, unless the Federal government provides the funds necessary to pay the direct compliance costs incurred by State and local governments, or the EPA consults with State and local officials early in the process of developing the proposed regulation. The EPA also may not issue a regulation that has federalism implications and that preempts State law, unless the Agency consults with State and local officials early in the process of developing the proposed regulation.

This final rule does not have federalism implications. It will not have substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government, as specified in Executive Order 13132. No State or local governments own or operate primary copper smelters. Thus, the requirements of section 6 of the Executive Order do not apply to this rule.

C. Executive Order 13045, Protection of Children From Environmental Health Risks and Safety Risks

Executive Order 13045 (62 FR 19885, April 23, 1997) applies to any rule that: (1) Is determined to be "economically significant" as defined under Executive Order 12866, and (2) concerns an environmental health or safety risk that the EPA has reason to believe may have a disproportionate effect on children. If the regulatory action meets both criteria, the Agency must evaluate the environmental health or safety effects of the planned rule on children, and explain why the planned regulation is preferable to other potentially effective and reasonably feasible alternatives considered by the Agency.

The EPA interprets Executive Order 13045 as applying only to those regulatory actions that are based on health or safety risks, such that the analysis required under section 5-501 of the Executive Order has the potential to influence the regulation. This rule is not subject to Executive Order 13045 because it is based on control technology performance and not on health or safety risks.

D. Executive Order 13175, Consultation and Coordination with Indian Tribal Governments

Executive Order 13175, entitled "Consultation and Coordination with

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Indian Tribal Governments" (65 FR 67249, November 6, 2000), requires EPA to develop an accountable process to ensure "meaningful and timely input by tribal officials in the development of regulatory policies that have tribal implications." "Policies that have tribal implications" is defined in the Executive Order to include regulations that have "substantial direct effects on one or more Indian tribes, on the relationship between the Federal government and the Indian tribes, or on the distribution of power and responsibilities between the Federal government and Indian tribes."

Under section 5(b) of Executive Order 13175, the EPA may not issue a regulation that has tribal implications, that imposes substantial direct compliance costs, and that is not required by statute, unless the Federal government provides the funds necessary to pay the direct compliance costs incurred by tribal governments, or the EPA consults with tribal officials early in the process of developing the proposed regulation. Under section 5(c) of Executive Order 13175, the EPA may not issue a regulation that has tribal implications and that preempts tribal law, unless the Agency consults with tribal officials early in the process of developing the proposed regulation.

This final rule does not significantly or uniquely affect the communities of Indian tribal governments. No tribal governments own or operate primary copper smelters. Accordingly, the requirements of Executive Order 13175 do not apply to this action.

E. Unfunded Mandates Reform Act of 1995

Title II of the Unfunded Mandates Reform Act of 1995 (UMRA), Public Law 104-4, establishes requirements for Federal agencies to assess the effects of their regulatory actions on State, local, and tribal governments and the private sector. Under section 202 of the UMRA, the EPA generally must prepare a written statement, including a cost-benefit analysis, for proposed and final rules with "Federal mandates" that may result in expenditures to State, local, and tribal governments, in aggregate, or to the private sector, of $100 million or more in any 1 year. Before promulgating an EPA rule for which a written statement is needed, section 205 of the UMRA generally requires the EPA to identify and consider a reasonable number of regulatory alternatives and adopt the least-costly, most cost-effective, or least-burdensome alternative that achieves the objectives of the rule. The provisions of section 205 do not apply when they are inconsistent

with applicable law. Moreover, section 205 allows the EPA to adopt an alternative other than the least-costly, most cost-effective, or least-burdensome alternative if the Administrator publishes with the final rule an explanation why that alternative was not adopted. Before the EPA establishes any regulatory requirements that may significantly or uniquely affect small governments, including tribal governments, it must have developed under section 203 of the UMRA a small government agency plan. The plan must provide for notifying potentially affected small governments, enabling officials of affected small governments to have meaningful and timely input in the development of the EPA regulatory proposals with significant Federal intergovernmental mandates, and informing, educating, and advising small governments on compliance with the regulatory requirements.

The EPA has determined that this rule does not contain a Federal mandate that may result in expenditures of $100 million or more for State, local, and tribal governments, in the aggregate, or the private sector in any 1 year. In addition, the EPA has determined that this final rule contains no regulatory requirements that might significantly or uniquely affect small governments because it contains no requirements that apply to such governments or impose obligations upon them. Therefore, today's final rule is not subject to the requirements of section 203 of the UMRA.

F. Regulatory Flexibility Act (RFA), as Amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), 5 U.S.C. 601 et seq.

The RFA generally requires an agency to prepare a regulatory flexibility analysis of any rule subject to notice and comment rulemaking requirements under the Administrative Procedure Act or any other statute unless the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. Small entities include small businesses, small organizations, and small governmental jurisdictions.

For purposes of assessing the impacts of today'srule on small entities, small entity is defined as: (1) A small business that is a business having less than 1,000 employees; (2) a small governmental jurisdiction that is a government of a city, county, town, school district or special district with a population of less than 50,000; and (3) a small organization that is any not-for-profit enterprise which is independently owned and operated and is not dominant in its field.

Based on the Small Business Administration's NAICS-based size definitions and reported employment data for the affected companies, the Agency identified no small businesses in the Primary Copper Smelting and Refining industry (NAICS code 331411). After considering the economic impacts of today's final rule on small entities, it has been determined that this action will not have a significant economic impact on a substantial number of small entities. All smelters potentially subject to the rule are owned by international corporations and employ more than 1,000 employees. This rule will not impose any requirements on small entities. No small businesses, small government jurisdictions, nor small organizations own or operate primary copper smelters potentially subject to the rule.

G. Paperwork Reduction Act

The information collection requirements in this final rule are being submitted for approval to OMB under the requirements of the Paperwork Reduction Act, 44 U.S.C. 3501 *et seq.* An information collection request (ICR) document has been prepared by EPA (ICR No. 1850.03), and a copy may be obtained from Sandy Farmer, Office of Environmental Information, Collection Strategies Division, U.S. Environmental Protection Agency (2137), 1200 Pennsylvania Avenue, NW., Washington, DC 20460, or by calling (202) 260-2740.

The information collection requirements in the final rule include mandatory notifications, records, and reports required by the NESHAP general provisions (40 CFR part 63, subpart A). These information requirements are needed to confirm the compliance status of major sources, to identify any nonmajor sources not subject to the standard and any new or reconstructed sources subject to the standards to confirm that emission control devices are being properly operated and maintained and to ensure that the standards are being achieved. Based on the recorded and reported information, the EPA can decide which facilities, records, or processes should be inspected. These recordkeeping and reporting requirements are specifically authorized under CAA section 114 (42 U.S.C. 7414). All information submitted to EPA for which a claim of confidentiality is made will be safeguarded according to EPA policies in 40 CFR part 2, subpart B.

The annual public reporting and recordkeeping burden for this collection

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of information (averaged over the first 3 years after the effective date of this rule and assuming that all six smelters with batch converters are operating and subject to the rule) is estimated to total 20,500 labor hours per year at a total annual cost of $923,800. This estimate includes initial notifications, preparation of a SSMP, preparation of a fugitive dust control plan, annual performance testing, semiannual compliance reports, and recordkeeping. Total capital costs associated with the monitoring equipment over the 3-year period of the ICR is estimated at $276,000. The total annualized cost of the monitoring equipment is estimated at $98,000. This estimate includes the capital, operating, and maintenance costs associated with the installation and operation of the monitoring equipment.

Burden means the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose or provide information to or for a Federal agency. This includes the time needed to review instructions; develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information, processing and maintaining information, and disclosing and providing information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to a collection of information; search data sources; complete and review the collection of information; and transmit or otherwise disclose the information.

An Agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. The OMB control number for EPA's regulations are listed in 40 CFR part 9 and 48 CFR chapter 15.

H. National Technology Transfer and Advancement Act of 1995

Section 12(d) of the National Technology Transfer and Advancement Act (NTTAA) of 1995 (Pub. L. No. 104-113; 15 U.S.C. 272 note) directs the EPA to use voluntary consensus standards in their regulatory activities unless to do so would be inconsistent with applicable law or otherwise impractical. Voluntary consensus standards are technical standards (e.g., materials specifications, test methods, sampling procedures, or business practices) that are developed or adopted by voluntary consensus bodies. The NTTAA directs the EPA to provide Congress, through OMB, explanations when the agency does not use available and applicable voluntary consensus standards.

This rulemaking involves technical standards. The Agency conducted a search to identify potentially applicable voluntary consensus standards. However, we identified no such standards, and none were brought to our attention in comments. Therefore, we have decided to use EPA Reference Methods 1, 2, 3, 4, 5, 5B, and 29 of 40 CFR part 60, appendix A.

I. Congressional Review Act

The Congressional Review Act, 5 U.S.C. 801 *et seq.*, as added by the Small Business Regulatory Enforcement Fairness Act of 1996, generally provides that before a rule may take effect, the agency promulgating the rule must submit a rule report, which includes a copy of the rule, to each House of the Congress and to the Comptroller of the United States. The EPA will submit a report containing this rule

and other required information to the U.S. Senate, the U.S. House of Representatives, and the Comptroller General of the United States prior to publication of the rule in the **Federal Register**. A major rule cannot take effect until 60 days after it is published in the **Federal Register**. This rule is not a "major rule" as defined by 5 U.S.C. 804(2).

J. Executive Order 13211, Actions Concerning Regulations that Significantly Affect Energy Supply, Distribution or Use

This final rule is not subject to Executive Order 13211 (66 FR 28355, May 22, 2001) because it is not a significant regulatory action under Executive Order 12866.

List of Subjects in 40 CFR Part 63

Environmental protection, Administrative practice and procedure, Air pollution control, Hazardous substances, Intergovernmental relations, Reporting and recordkeeping requirements.

Dated: May 15, 2002.

Christine Todd Whitman,

Administrator.

For the reasons stated in the preamble, title 40, chapter I, part 63 of the Code of Federal Regulations is amended as follows:

PART 63—[AMENDED]

1. The authority citation for part 63 continues to read as follows:

Authority: 42 U.S.C. 7401, *et seq.*

2. Part 63 is amended by adding subpart QQQ to read as follows:

Subpart QQQ—National Emission Standards for Hazardous Air Pollutants for Primary Copper Smelting

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Subpart QQQ—National Emission Standards for Hazardous Air Pollutants for Primary Copper Smelting

What This Subpart Covers

§ 63.1440 What is the purpose of this subpart?

This subpart establishes national emission standards for hazardous air pollutants (NESHAP) for primary copper smelters. This subpart also establishes requirements to demonstrate initial and continuous compliance with all applicable emission limitations, work practice standards, and operation and maintenance requirements in this subpart.

§ 63.1441 Am I subject to this subpart?

You are subject to this subpart if you own or operate a primary copper smelter that is (or is part of) a major source of hazardous air pollutant (HAP) emissions on the first compliance date that applies to you, and your primary copper smelter uses batch copper converters as defined in §63.1459. Your primary copper smelter is a major source of HAP if it emits or has the potential to emit any single HAP at the rate of 10 tons or more per year or any combination of HAP at a rate of 25 tons or more per year.

§ 63.1442 What parts of my plant does this subpart cover?

(a) This subpart applies to each new and existing affected source at your primary copper smelter. The affected sources are each copper concentrate dryer, each smelting furnace, each slag cleaning vessel, each copper converter department, and the entire group of fugitive emission sources, as defined in §63.1459.

(b) An affected source at your primary copper smelter is existing if you commenced construction or reconstruction of the affected source before April 20, 1998.

(c) An affected source at your primary copper smelter is new if you commenced construction or reconstruction of the affected source on or after April 20, 1998. An affected source is reconstructed if it meets the definition of "reconstruction" in §63.2.

§ 63.1443 When do I have to comply with this subpart?

(a) If you have an existing affected source, you must comply with each emission limitation, work practice standard, and operation and maintenance requirement in this subpart that applies to you no later than June 13, 2005.

(b) If you have a new affected source and its initial startup date is on or before June 12, 2002, you must comply with each emission limitation, work practice standard, and operation and maintenance requirement in this subpart that applies to you by June 12, 2002.

(c) If you have a new affected source and its initial startup date is after June 12, 2002, you must comply with each emission limitation, work practice standard, and operation and maintenance requirement in this subpart that applies to you upon initial startup.

(d) If your primary copper smelter is an area source that becomes a major source of HAP, the compliance dates listed in paragraphs (d)(1) and (2) of this section apply to you.

(1) Any portion of the existing primary copper smelter that is a new affected source or a new reconstructed source must be in compliance with this subpart upon startup.

(2) All other parts of the primary copper smelter must be in compliance with this subpart no later than 3 years after it becomes a major source.

(e) You must meet the notification and schedule requirements in §63.1454. Several of these notifications must be submitted before the compliance date for your affected source.

Emission Limitations and Work Practice Standards

§ 63.1444 What emissions limitations and work practice standards must I meet for my copper concentrate dryers, smelting furnaces, slag cleaning vessels, and copper converter departments?

(a) *Copper concentrate dryers.* For each copper concentrate dryer, you must comply with the emission limitation in paragraph (a)(1) or (2) of this section that applies to you.

(1) For each existing copper concentrate dryer, you must not cause to be discharged to the atmosphere from the dryer vent any gases that contain total particulate matter in excess of 50 milligrams per dry standard cubic meter (mg/dscm) as measured using the test methods specified in §63.1450(a).

(2) For each new copper concentrate dryer, you must not cause to be discharged to the atmosphere from the dryer vent any gases that contain total particulate matter in excess of 23 mg/dscm as measured using the test methods specified in §63.1450(a).

(b) *Smelting furnaces.* For each smelting furnace, you must comply with the emission limitations and work practice standards in paragraphs (b)(1) and (2) of this section.

(1) For each smelting furnace, you must not cause to be discharged to the atmosphere any process off-gas that contains nonsulfuric acid particulate matter in excess of 6.2 mg/dscm as measured using the test methods specified in §63.1450(b). Process off-gas from a smelting furnace is generated when copper ore concentrates and fluxes are being smelted to form molten copper matte and slag layers.

(2) For each smelting furnace, you must control the process fugitive emissions released when tapping copper matte or slag from the smelting furnace according to paragraphs (b)(2)(i) and (ii) of this section.

(i) At all times when copper matte or slag is tapped from the smelting furnace, you must operate a capture system that collects the gases and fumes released from the tapping port in use. The design and placement of this capture system must be such that the tapping port opening, launder, and receiving vessel (e.g., ladle, slag pot) are positioned within the confines or influence of the capture system's ventilation draft during those times when the copper matte or slag is flowing from the tapping port opening.

(ii) You must not cause to be discharged to the atmosphere from the capture system used to comply with paragraph (b)(2)(i) of this section any gases that contain total particulate matter in excess of 23 mg/dscm as measured using the test methods specified in §63.1450(a).

(c) *Slag cleaning vessels.* For each slag cleaning vessel, you must comply with the emission limitations and work practice standards in paragraphs (c)(1) through (3) of this section that apply to you.

(1) For each slag cleaning vessel, except as provided for in paragraph (c)(2) of this section, you must not cause to be discharged to the atmosphere any process off-gas that contains nonsulfuric acid particulate matter in excess of 6.2 mg/dscm as measured using the test methods specified in §63.1450(b).

(2) As an alternative to complying with the emission limit for nonsulfuric acid particulate matter in paragraph (c)(1) of this section, for each existing slag cleaning vessel you may choose to comply with the emission limit for total particulate matter specified in this paragraph (c)(2). You must not cause to be discharged to the atmosphere any process off-gas that contains total particulate matter in excess of 46 mg/dscm as measured using the test methods specified in §63.1450(a) .

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(3) For each slag cleaning vessel, you must control process fugitive emissions released when tapping copper matte or slag from the slag cleaning vessel according to paragraphs (c)(3)(i) and (ii) of this section.

(i) At all times when copper matte or slag is tapped from the slag cleaning vessel, you must operate a capture system that collects the gases and fumes released from the tapping port in use. The design and placement of this capture system must be such that the tapping port opening, launder, and receiving vessel (e.g., ladle, slag pot) are positioned within the confines or influence of the capture system's ventilation draft during those times when the copper matte or slag is flowing from the tapping port opening.

(ii) You must not cause to be discharged to the atmosphere from the capture system used to comply with paragraph (c)(3)(i) of this section any gases that contain total particulate matter in excess of 23 mg/dscm as measured using the test methods specified in §63.1450(a).

(d) *Existing copper converter departments.* For each existing copper converter department, you must comply with the emission limitations and work practice standards in paragraphs (d)(1) through (6) of this section that apply to you.

(1) You must operate a capture system that collects the process off gas vented from each batch copper converter. At all times when one or more batch copper converters are blowing, you must operate the capture system according to the written operation and maintenance plan that has been prepared according to the requirements in §63.1447(b).

(2) If your copper converter department uses Pierce-Smith converters, the capture system design must include use of a primary hood that covers the entire mouth of the converter vessel when the copper converter is positioned for blowing. Additional hoods (e.g., secondary hoods) or other capture devices must be included in the capture system design as needed to achieve the opacity limit in paragraph (d)(4) of this section. The capture system design may use multiple intake and duct segments through which the ventilation rates are controlled independently of each other, and individual duct segments may be connected to separate control devices.

(3) If your copper converter department uses Hoboken converters, the capture system must collect all process off-gas vented during blowing through the side-flue intake on each converter vessel.

(4) You must operate the capture system such that any visible emissions exiting the roof monitors or roof exhaust fans on the building housing the copper converter department meet the opacity limit as specified in paragraphs (d)(4)(i) and (ii) of this section.

(i) The opacity of any visible emissions exiting the roof monitors or roof exhaust fans on the building housing the copper converter department must not exceed 4 percent as determined by a performance test conducted according to §63.1450(c).

(ii) The opacity limit in paragraph (d)(4)(i) of this section applies only at those times when a performance test is conducted according to §63.1450(c). The requirements for compliance with opacity and visible emission standards specified in §63.6(h) do not apply to this opacity limit.

(5) You must not cause to be discharged to the atmosphere from any Pierce-Smith converter primary hood capture system or Hoboken converter side-flue intake capture system any process off-gas that contains nonsulfuric acid particulate matter in excess of 6.2 mg/dscm as measured using the test methods specified in §63.1450(b).

(6) You must not cause to be discharged to the atmosphere from any secondary capture system any gases that contain total particulate matter in excess of 23 mg/dscm as measured using the test methods specified in §63.1450(a).

(e) *New copper converter departments.* For each new copper converter department for which construction commenced on or after April 20, 1998, the use of batch copper converters is prohibited.

(f) *Baghouses.* For each baghouse applied to meet any total particulate matter emission limit in paragraphs (a) through (d) of this section, you must operate the baghouse such that the bag leak detection system does not alarm for more than 5 percent of the total operating time in any semiannual reporting period.

(g) *Venturi wet scrubbers.* For each venturi wet scrubber applied to meet any total particulate matter emission limit in paragraphs (a) through (d) of this section, you must maintain the hourly average pressure drop and scrubber water flow rate at or above the minimum levels established during the initial or subsequent performance test.

(h) *Other control devices.* For each control device other than a baghouse or venturi wet scrubber applied to meet any total particulate matter emission limit in paragraphs (a) through (d) of this section, you must operate the control device as specified in paragraphs (h)(1) and (2) of this section.

(1) You must select one or more operating parameters, as appropriate for the control device design, that can be used as representative and reliable indicators of the control device operation.

(2) You must maintain the hourly average value for each of the selected parameters at or above the minimum level or at or below the maximum level, as appropriate for the selected parameter, established during the initial or subsequent performance test.

§ 63.1445 What work practice standards must I meet for my fugitive dust sources?

(a) You must control particulate matter emissions from fugitive dust sources at your primary copper smelter by operating according to a written fugitive dust control plan that has been approved by the designated authority. For the purpose of complying with this paragraph (a) you may use an existing fugitive dust control plan provided that the plan complies with the requirements of this section. A fugitive dust control plan is considered to be approved if the plan has been incorporated in your applicable State implementation plan, and the document addresses the fugitive dust sources specified in paragraph (b) of this section and includes the information specified in paragraph (c) of this section.

(b) Your fugitive dust control plan must address each of the fugitive dust emission sources listed in paragraphs (b)(1) through (6) of this section that are located at your primary copper smelter.

(1) On-site roadways used by trucks or other motor vehicles (e.g., front-end loaders) when transporting bulk quantities of fugitive dust materials. Paved roads and parking areas that are not used by these vehicles do not need to be included in the plan (e.g., employee and visitor parking lots).

(2) Unloading of fugitive dust materials from trucks or railcars.

(3) Outdoor piles used for storage of fugitive dust materials.

(4) Bedding areas used for blending copper concentrate and other feed constituents.

(5) Each transfer point in conveying systems used to transport fugitive dust materials. These points include, but are not limited to, transfer of material from one conveyor belt to another and transfer of material to a hopper or bin.

(6) Other site-specific sources of fugitive dust emissions that the Administrator or delegated permitting authority designate to be included in your fugitive dust control plan.

(c) Your fugitive dust control plan must describe the control measures you use to control fugitive dust emissions

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from each source addressed in the plan, as applicable and appropriate for your site conditions. Examples of control measures include, but are not limited to, locating the source inside a building or other enclosure, installing and operating a local hood capture system over the source and venting the captured gas stream to a control device, placing material stockpiles below grade, installing wind screens or wind fences around the source, spraying water on the source as weather conditions require, applying appropriate dust suppression agents on the source, or combinations of these control measures.

(d) The requirement for you to operate according to a written fugitive dust control plan must be incorporated in your operating permit that is issued by the designated permitting authority under part 70 of this chapter. A copy of your fugitive dust control plan must be sent to the designated permitting authority on or before the compliance date for your primary copper smelter, as specified in §63.1443.

§ 63.1446 What alternative emission limitation may I meet for my combined gas streams?

(a) For situations where you combine gas streams from two or more affected sources for discharge to the atmosphere through a single vent, you may choose to meet the requirements in paragraph (b) of this section as an alternative to complying with the individual total particulate matter emission limits specified in §63.1444 that apply to you. This alternative emission limit for a combined gas stream may be used for any combination of the affected source gas steams specified in paragraphs (a)(1) through (5) of this section.

(1) Gas stream discharged from a copper concentrate dryer vent that would otherwise be subject to §63.1444(a)(1) or (2);

(2) Gas stream discharged from a smelting furnace capture system that would otherwise be subject to §63.1444(b)(2)(ii);

(3) Process off-gas stream discharged from a slag cleaning vessel that would otherwise be subject to §63.1444(c)(2);

(4) Gas stream discharged from a slag cleaning vessel capture system that would otherwise be subject to §63.1444(c)(3)(ii); and

(5) Gas stream discharged from a batch copper converter secondary capture system that would otherwise be subject to §63.1444(d)(5).

(b) You must meet the requirements specified in paragraphs (b)(1) and (2) of this section for the combined gas stream discharged through a single vent.

(1) For each combined gas stream discharged through a single vent, you must not cause to be discharged to the atmosphere any gases that contain total particulate matter in excess of the emission limit calculated using the procedure in paragraph (b)(2) of this section and measured using the test methods specified in §63.1450(a).

(2) You must calculate the alternative total particulate matter emission limit for your combined gas stream using Equation 1 of this section. The volumetric flow rate value for each of the individual affected source gas streams that you use for Equation 1 (i.e., the flow rate of the gas stream discharged from the affected source but before this gas stream is combined with the other gas streams) is to be the average of the volumetric flow rates measured using the test method specified in §63.1450(a)(1)(ii):

$$E_{Alt} = \frac{E_d Q_d + E_{sv} Q_{sv} + E_{scvp} Q_{scvp} + E_{scvf} Q_{scvf} + E_{cc} Q_{cc}}{Q_d + Q_{sv} + Q_{scvp} + Q_{scvf} + Q_{cc}} \qquad \text{(Eq. 1)}$$

Where

E_{Alt} = Alternative total particulate matter emission limit for the combined gas stream discharged to atmosphere through a single vent (mg/dscm);

E_d = Total particulate matter emission limit applicable to copper concentrate dryer as specified in §63.1444(a)(1) or (2) (mg/dscm);

Q_d = Copper concentrate dryer exhaust gas stream volumetric flow rate before being combined with other gas streams (dscm);

E_{sv} = Total particulate matter emission limit for smelting furnace capture system as specified in §63.1444(b)(2)(ii) (mg/dscm);

Q_{sv} = Smelting furnace capture system exhaust gas stream volumetric flow rate before being combined with other gas streams (dscm);

E_{scvp} = Total particulate matter emission limit for slag cleaning vessel process off-gas as specified in §63.1444(c)(2) (mg/dscm);

Q_{scvp} = Slag cleaning vessel process off-gas volumetric flow rate before being combined with other gas streams (dscm);

E_{scvf} = Total particulate matter emission limit for slag cleaning vessel capture system as specified in §63.1444(c)(3)(ii) (mg/dscm);

Q_{scvf} = Slag cleaning vessel capture system exhaust gas stream volumetric flow rate before being combined with other gas streams (dscm);

E_{cc} = Total particulate emission limit for the batch copper converter secondary capture system as specified in §63.1544(d)(5) (mg/dscm); and

Q_{cc} = Batch copper converter capture system exhaust gas stream volumetric flow rate before being combined with other gas streams (dscm).

(c) For each baghouse applied to meet any total particulate matter emission limit in paragraph (b) of this section, you must operate the baghouse such that the bag leak detection system does not alarm for more than 5 percent of the total operating time in any semiannual reporting period.

(d) For each venturi wet scrubber applied to meet any total particulate matter emission limit in paragraph (b) of this section, you must maintain the hourly average pressure drop and scrubber water flow rate at or above the minimum levels established during the initial or subsequent performance test.

(e) For each control device other than a baghouse or venturi wet scrubber applied to meet any total particulate matter emission limit in paragraph (b) of this section, you must operate the control device as specified in paragraphs (e)(1) and (2) of this section.

(1) You must select one or more operating parameters, as appropriate for the control device design, that can be used as representative and reliable indicators of the control device operation.

(2) You must maintain the hourly average value for each of the selected parameters at or above the minimum level or at or below the maximum level, as appropriate for the selected parameter, established during the initial or subsequent performance test.

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Operation and Maintenance Requirements

§ 63.1447 What are my operation and maintenance requirements?

(a) As required by §63.6(e)(1)(i), you must always operate and maintain your affected source, including air pollution control and monitoring equipment, in a manner consistent with good air pollution control practices for minimizing emissions at least to the levels required by this subpart.

(b) You must prepare and operate at all times according to a written operation and maintenance plan for each capture system and control device subject to standards in §63.1444 or §63.1446. The plan must address the requirements in paragraphs (b)(1) through (3) of this section as applicable to the capture system or control device.

(1) *Preventative maintenance.* You must perform preventative maintenance for each capture system and control device according to written procedures specified in your operation and maintenance plan. The procedures must include a preventative maintenance schedule that is consistent with the manufacturer's instructions for routine and long-term maintenance.

(2) *Capture system inspections.* You must conduct monthly inspections of the equipment components of the capture system that can affect the performance of the system to collect the gases and fumes emitted from the affected source (e.g., hoods, exposed ductwork, dampers, fans) according to written procedures specified in your operation and maintenance plan. The inspection procedure must include the requirements in paragraphs (b)(2)(i) through (iii) of this section as applicable to the capture system or control device.

(i) Observations of the physical appearance of the equipment to confirm the physical integrity of the equipment (e.g., verify by visual inspection no holes in ductwork or hoods, no flow constrictions caused by dents, or accumulated dust in ductwork).

(ii) Inspection, and if necessary testing, of equipment components to confirm that the component is operating as intended (e.g., verify by appropriate measures that flow or pressure sensors, damper plates, automated damper switches and motors are operating according to manufacture or engineering design specifications).

(iii) In the event that a defective or damaged component is detected during an inspection, you must initiate corrective action according to written procedures specified in your operation and maintenance plan to correct the defect or deficiency as soon as practicable.

(3) *Copper converter department capture system operating limits.* You must establish, according to the requirements in paragraph (b)(3)(i) through (iii) of this section, operating limits for the capture system that are representative and reliable indicators of the performance of capture system when it is used to collect the process off-gas vented from batch copper converters during blowing.

(i) Select operating limit parameters appropriate for the capture system design that are representative and reliable indicators of

the performance of the capture system when it is used to collect the process off-gas vented from batch copper converters during blowing. At a minimum, you must use appropriate operating limit parameters that indicate the level of the ventilation draft and the damper position settings for the capture system when operating to collect the process off-gas from the batch copper converters during blowing. Appropriate operating limit parametersfor ventilation draft include, but are not limited to, volumetric flow rate through each separately ducted hood, total volumetric flow rate at the inlet to control device to which the capture system is vented, fan motor amperage, or static pressure. Any parameter for damper position setting may be used that indicates the duct damper position relative to the fully open setting.

(ii) For each operating limit parameter selected in paragraph (b)(3)(i) of this section, designate the value or setting for the parameter at which the capture system operates during batch copper converter blowing. If your blister copper production operations allow for more than one batch copper converter to be operating simultaneously in the blowing mode, designate the value or setting for the parameter at which the capture system operates during each possible batch copper converter blowing configuration that you may operate at your smelter (i.e., the operating limits with one converter blowing, with two converters blowing, with three converters blowing, as applicable to your smelter).

(iii) Include documentation in the plan to support your selection of the operating limits established for the capture system. This documentation must include a description of the capture system design, a description of the capture system operation during blister copper production, a description of each selected operating limit parameter, a rationale for why you chose the parameter, a description of the method used to monitor the parameter according to the requirements in §63.1452(a), and the data used to set the value or setting for the parameter for each of your batch copper converter configurations.

(4) *Baghouse leak detection corrective actions.* In the event a bag leak detection system alarm is triggered, you must initiate corrective action according to written procedures specified in your operation and maintenance plan to determine the cause of the alarm within 1 hour of the alarm, initiate corrective action to correct the cause of the problem within 24 hours of the alarm, and complete the corrective action as soon as practicable. Corrective actions may include, but are not limited to, the activities listed in paragraphs (b)(3)(i) through (vi) of this section.

(i) Inspecting the baghouse for air leaks, torn or broken bags or filter media, or any other condition that may cause an increase in emissions.

(ii) Sealing off defective bags or filter media.

(iii) Replacing defective bags or filter media or otherwise repairing the control device.

(iv) Sealing off a defective baghouse compartment.

(v) Cleaning the bag leak detection system probe, or otherwise repair the bag leak detection system.

(vi) Shutting down the process producing the particulate emissions.

General Compliance Requirements

§ 63.1448 What are my general requirements for complying with this subpart?

(a) You must be in compliance with the emission limitations, work practice standards, and operation and maintenance requirements in this subpart at all times, except during periods of startup, shutdown, and malfunction as defined in §63.2.

(b) During the period between the compliance date specified for your affected source in §63.1443, and the date upon which continuous monitoring systems have been installed and certified and any applicable operating limits have been set, you must maintain a log detailing the operation and maintenance of the process and emissions control equipment.

(c) You must develop and implement a written startup, shutdown, and malfunction plan according to the provisions in §63.6(e)(3).

Initial Compliance Requirements

§ 63.1449 By what dates must I conduct performance tests or other initial compliance demonstrations?

(a) As required in §63.7(a)(2), you must conduct a performance test within

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180 calendar days of the compliance date that is specified in §63.1443 for your affected source to demonstrate initial compliance with each emission and opacity limit in §63.1443 and §63.1446 that applies to you.

(b) For each work practice standard and operation and maintenance requirement that applies to you where initial compliance is not demonstrated using a performance test or opacity observation, you must demonstrate initial compliance within 30 calendar days after the compliance date that is specified for your affected source in §63.1443.

§ 63.1450 What test methods and other procedures must I use to demonstrate initial compliance with the emission limitations?

(a) *Total particulate matter emission limits.* You must conduct each performance test to determine compliance with the total particulate matter emission limits in §63.1444 or §63.1446 that apply to you according to the requirements for representative test conditions specified in §63.7(e)(1) and using the test methods and procedures in paragraphs (a)(1) through (5) of this section.

(1) Determine the concentration of total particulate matter according to the test methods in appendix A to part 60 of this chapter as specified in paragraphs (a)(1)(i) through (iii) of this section.

(i) Method 1 to select sampling port locations and the number of traverse points. Sampling ports must be located at the outlet of the control device and prior to any releases to the atmosphere.

(ii) Method 2, 2F, or 2G to determine the volumetric flow rate of the stack gas.

(iii) Method 3, 3A, or 3B to determine the dry molecular weight of the stack gas.

(iv) Method 4 to determine the moisture content of the stack gas.

(v) Method 5, 5D, or 17, as applicable, to determine the concentration of total particulate matter. You can also use ASTM D4536-96 incorporated by reference in §63.14 as an alternative to the sampling equipment and operating procedures in Method 5 or 17 when testing a positive pressure baghouse, but you must use the sample traverse location and number of sampling points described in Method 5D.

(2) As an alternative to using the applicable method specified in paragraph (a)(1)(v) of this section, you may determine total particulate matter emissions from the control device using Method 29 in appendix A of part 60 of this chapter provided that you follow the procedures and precautions prescribed in Method 29. If the control device is a positive pressure baghouse, you must also follow the measurement procedure specified in sections 4.1 through 4.3 of Method 5D.

(3) You must conduct three separate test runs for each performance test. Each test run must have a minimum sampling time of 60 minutes and a minimum sampling volume of 0.85 dscm. For the purpose of determining compliance with the applicable total particulate matter emission limit, the arithmetic mean of the results for the three separate test runs is used.

(4) For a venturi wet scrubber applied to emissions from an affected source and subject to operating limits in §63.1444(g) or §63.1446(d) for pressure drop and scrubber water flow rate, you must establish site-specific operating limits according to the procedures in paragraph (a)(4)(i) and (ii) of this section.

(i) Using the continuous parameter monitoring system (CPMS) required in §63.1452, measure and record the pressure drop and scrubber water flow rate during each run of the particulate matter performance test.

(ii) Compute and record the hourly average pressure drop and scrubber water flow rate for each individual test run. Your operating limits are the lowest average pressure drop and scrubber water flow rate value in any of the three runs that meet the applicable emission limit.

(5) For a control device other than a baghouse or venturi wet scrubber applied to emissions from an affected source and subject to site-specific operating limit(s) in §63.1444(h) or §63.1446(e) for appropriate, site-specific operating parameters that are representative and reliable indicators of the control device performance, you must establish a site-specific operating limit(s) according to the procedures in paragraph (a)(5)(i) through (iv) of this section.

(i) Select one or more operating parameters, as appropriate for the control device design, that can be used as representative and reliable indicators of the control device operation.

(ii) Using the CPMS required in §63.1452, measure and record the selected operating parameters for the control device during each run of the total particulate matter performance test.

(iii) Compute and record the hourly average value for each of the selected operating parameters for each individual test run. Your operating limits are the lowest value or the highest value, as appropriate for the selected operating parameter, measured in any of the three runs that meet the applicable emission limit.

(iv) You must prepare written documentation to support your selection of the operating parameters used for the control device. This documentation must include a description of each selected parameter, a rationale for why you chose the parameter, a description of the method used to monitor the parameter, and the data recorded during the performance test and used to set the operating limit(s).

(b) *Nonsulfuric acid particulate matter emission limits.* You must conduct each performance test to determine compliance with the nonsulfuric acid particulate matter emission limits in §63.1444 that apply to you according to the requirements for representative test conditions specified in §63.7(e)(1) and using the test methods and procedures in paragraphs (b)(1) and (2) of this section.

(1) Determine the concentration of nonsulfuric acid particulate matter according to the test methods in appendix A to part 60 of this chapter as specified in paragraphs (b)(1)(i) through (v) of this section.

(i) Method 1 to select sampling port locations and the number of traverse points. Sampling ports must be located at the outlet of the control device and prior to any releases to the atmosphere.

(ii) Method 2, 2F, or 2G to determine the volumetric flow rate of the stack gas.

(iii) Method 3, 3A, or 3B to determine the dry molecular weight of the stack gas.

(iv) Method 4 to determine the moisture content of the stack gas.

(v) Method 5B to determine the nonsulfuric acid particulate matter emissions.

(2) You must conduct three separate test runs for each performance test. Each test run must have a minimum sampling time of 240 minutes and a minimum sampling volume of 3.4 dscm. For the purpose of determining compliance with the nonsulfuric acid particulate matter emission limit, the arithmetic mean of the results for the three separate test runs is used.

(c) *Copper converter department capture system opacity limit.* You must conduct each performance test to determine compliance with the opacity limit in §63.1444 using the test methods and procedures in paragraphs (c)(1) through (9) of this section.

(1) You must conduct the performance test during the period when the primary copper smelter is operating under conditions representative of the smelter's normal blister copper production rate. You may

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not conduct a performance test during periods of startup, shutdown, or malfunction. Before conducting the performance test, you must prepare a written test plan specifying the copper production conditions to be maintained throughout the opacity observation period and including a copy of the written documentation you have prepared according to paragraph (a)(3) of this section to support the established operating limits for the copper converter department capture system. You must submit a copy of the test plan for review and approval by the Administrator or delegated authority. During the observation period, you must collect

appropriate process information and copper converter department capture system operating information to prepare documentation sufficient to verify that all opacity observations were made during the copper production and capture system operating conditions specified in the approved test plan.

(2) You must notify the Administrator or delegated authority before conducting the opacity observations to allow the Administrator or delegated authority the opportunity to have authorized representatives attend the test. Written notification of the location and scheduled date for conducting the opacity observations must be received by the Administrator on or before 30 calendar days before this scheduled date.

(3) You must gather the data needed for determining compliance with the opacity limit using qualified visible emission observers and process monitors as described in paragraphs (c)(3)(i) and (ii) of this section.

(i) Opacity observations must be performed by a sufficient number of qualified visible emission observers to obtain two complete concurrent sets of opacity readings for the required observation period. Each visible emission observer must be certified as a qualified observer by the procedure specified in section 3 of Method 9 in appendix A of part 60 of this chapter. The entire set of readings during the required observation period does not need to be made by the same two observers. More than two observers may be used to allow for substitutions and provide for observer rest breaks. The owner or operator must obtain proof of current visible emission reading certification for each observer.

(ii) A person (or persons) familiar with the copper production operations conducted at the smelter must serve as the indoor process monitor. The indoor process monitor is stationed at a location inside the building housing the batch copper converters such that he or she can visually observe and record operations that occur in the batch copper converter aisle during the times that the visible emission observers are making opacity readings. More than one indoor process monitor may be used to allow for substitutions and provide for rest breaks.

(4) You must make all opacity observations using Method 9 in appendix A to part 60 of this chapter and following the procedures described in paragraphs (c)(4)(i) and (ii) of this section.

(i) Each visible emission observer must make his or her readings at a position from the outside of the building that houses the copper converter department such that the observer's line-of-sight is approximately perpendicular to the longer axis of the converter building, and the observer has an unobstructed view of thebuilding roof monitor sections or roof exhaust fan outlets that are positioned over each of the batch copper converters inside the building. Opacity readings can only be made during those times when the observer's position meets the sun orientation and other conditions specified in section 2.1 of Method 9.

(ii) At 15-second intervals, each visible emission observer views the building roof monitor sections or roof exhaust fan outlets that are positioned over each of the batch copper converters inside the building and reads the opacity of the visible plumes. If no plume is visible, the observer records zero as the opacity value for the 15-second interval. In situations when it is possible for an observer to distinguish two or more visible emission plumes from the building roof monitor sections or roof exhaust fan outlets, the observer must identify, to the extent feasible, the plume having the highest opacity and record his or her opacity reading for that plume as the opacity value for the 15-second interval.

(5) You must make opacity observations for a period of sufficient duration to obtain a minimum of 120 1-minute intervals during which at least one copper converter is blowing and no interferences have occurred from other copper production events, as specified in paragraph (c)(7) of this section, which generate visible emissions inside the building that potentially can interfere with the visible emissions from the converter capture systems as seen by the outside observers. To obtain the required number of 1-minute intervals, the observation period may be divided into two or more segments performed on the same day or on different days if conditions prevent the required number of opacity readings from being obtained during one continuous time period. Examples of these conditions include, but are not limited to, changes in the sun's orientation relative to visible emission observers' positions such that the Method 9 conditions are no longer met or an unexpected thunder storm. If the total observation period is divided into two or more segments, all opacity observations must be made during the same set of copper production conditions described in your approved test plan as required by paragraph (c)(1) of this section.

(6) You must gather indoor process information during all times that the visible emission observers are making opacity readings outside the building housing the copper converter department. The indoor process monitor must continually observe the operations occurring in the copper converter department and prepare a written record of his or her observations using the procedure specified in paragraphs (c)(6)(i) through (iv) of this section.

(i) At the beginning of each observation period or segment, the clock time setting on the watch or clock to be used by the indoor process monitor must be synchronized with the clock time settings for the timepieces to be used by the outdoor opacity observers.

(ii) During each period or segment when opacity readings are being made by the visible emission observers, the indoor process monitor must continuously observe the operations occurring in the copper converter department and record his or her observations in a log book, on data sheets, or other type of permanent written format.

(iii) When a batch copper converter is blowing, a record must be prepared for the converter that includes, but is not limited to, the clock times for when blowing begins and when blowing ends and the converter blowing rate. This information may be recorded by the indoor process monitor or by a separate, automated computer data system.

(iv) The process monitor must record each event other than converter blowing that occurs in or nearby the converter aisle that he or she observes to generate visible emissions inside the building. The recorded entry for each event must include, but is not limited to, a description of the event and the clock times when the event begins and when the event ends.

(7) You must prepare a summary of the data for the entire observation period using the information recorded during the observation period by the outdoor visible emission observers and the indoor process monitor and the

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procedure specified in paragraphs (c)(7)(i) through (iv) of this section.

(i) Using the field data sheets, identify the 1-minute clock times for which a total of eight opacity readings were made and recorded by both observers at 15-second intervals according to the test procedures (i.e., a total of four opacity values have been recorded for the 1-minute interval by each of the two observers). Calculate the average of the eight 15-second interval readings

recorded on the field data sheets by the two observers during the clock time minute interval (add the four consecutive 15-second interval opacity readings made by Observer A during the specified clock time minute, plus the four consecutive 15-second interval opacity readings made by Observer B during the same clock time minute, and divide the resulting total by eight). Record the clock time and the opacity average for the 1-minute interval on a data summary sheet. Figure 1 of this subpart shows an example of the format for the data summary sheet you may use, but are not required to use.

(ii) Using the data summary sheets prepared according to paragraph (c)(7)(i) of this section and the process information recorded according to paragraph (c)(6)(iii) of this section, identify those 1-minute intervals for which at least one of the batch copper converters was blowing.

(iii) Using the data summary sheets prepared according to paragraph (c)(7)(ii) of this section and the process information recorded according to paragraph (c)(6)(iv) of this section, identify the 1-minute intervals during which at least one copper converter was blowing but none of the interference events listed in paragraphs (c)(7)(iii)(A) through (F) of this section occurred. Other ancillary activities not listed but conducted in or adjacent to the converter aisle during the opacity observations are not considered to be interference events (e.g., converter aisle cleaning, placement of smoking ladles or skulls on the converter aisle floor).

(A) Charging of copper matte, reverts, or other materials to a batch copper converter;

(B) Skimming slag or other molten materials from a batch copper converter;

(C) Pouring of blister copper or other molten materials from a batch copper converter;

(D) Return of slag or other molten materials to the flash smelting furnace or slag cleaning vessel;

(E) Roll-out or roll-in of the batch copper converter; or

(F) Smoke and fumes generated inside the converter building by operation of the smelting furnace, the slag cleaning vessel (if used), anode refining and casting processes that drift into the copper converter department.

(iv) Using the data summary sheets prepared according to paragraph (c)(7)(iii) of this section, up to five 1-minute intervals following an interference event may be eliminated from data used for the compliance determination calculation specified in paragraph (c)(8) of this section by applying a time delay factor. The time delay factor must be a constant number of minutes not to exceed 5 minutes that is added to the clock time recorded when cessation of the interference event occurs. The same time delay factor must be used for all interference events (i.e., a constant time delay factor for the smelter of 1 minute, 2 minutes, 3 minutes, 4 minutes, or 5 minutes). The number of minutes to be used for the time delay factor is determined based on the site-specific equipment and converter building configuration. An explanation of the rationale for selecting the value used for the time delay factor must be prepared and included in the test report.

(8) You must use the data summary prepared in paragraph (c)(7) of this section to calculate the average opacity value for a minimum of 120 1-minute intervals during which at least one copper converter was blowing with no interference events as determined according to paragraphs (c)(7)(iii) and (iv) of this section. Average opacity is calculated using Equation 1 of this section:

$$VE_{ave} = \frac{1}{n}\sum_{i=1}^{n} VE_i \qquad \text{(Eq. 1)}$$

Where

VE_{ave} = Average opacity to be used for compliance determination (percent);

n = Total number of 1-minute intervals during which at least one copper converter was blowing with no interference events as determined according to paragraphs (c)(7)(iii) and (iv) of this section (at least 120 1-minute intervals);

i = 1-minute interval "i" during which at least one copper converter was blowing with no interference events as determined according to paragraphs (c)(7)(iii) and (iv) of this section; and

VE_i = Average opacity value calculated for the eight opacity readings recorded during 1-minute interval "i" (percent).

(9) You must certify that the copper converter department capture system operated during the performance test at the operating limits established in your capture system operation and maintenance plan using the procedure specified in paragraphs (c)(9)(i) through (iv) of this section.

(i) Concurrent with all opacity observations, measure and record values for each of the operating limit parameters in your capture system operation and maintenance plan according to the monitoring requirements specified in §63.1452(a).

(ii) For any dampers that are manually set and remain in the same position at all times the capture system is operating, the damper position must be visually checked and recorded at the beginning and end of each opacity observation period segment.

(iii) Review the recorded monitoring data. Identify and explain any times during batch copper converter blowing when the capture system operated outside the applicable operating limits.

(iv) Certify in your performance test report that during all observation period segments, the copper converter department capture system was operating at the values or settings established in your capture system operation and maintenance plan.

§ 63.1451 How do I demonstrate initial compliance with the emission limitations, work practice standards, and operation and maintenance requirements that apply to me?

(a) *Total particulate matter emission limits.* For each copper concentrate dryer, smelting furnace, slag cleaning vessel, and copper converter department subject to a total particulate matter emission limits in §63.1444 or §63.1446 that applies to you, you have demonstrated initial compliance if you meet both of the conditions in paragraphs (a)(1) and (2) of this section.

(1) The average concentration of total particulate matter from a control device applied to emissions from the affected source, measured according to the performance test procedures in §63.1450(a), did not exceed the applicable emission limit.

(2) You have submitted a notification of compliance status according to the requirements in §63.1454(e).

(b) *Nonsulfuric acid particulate matter emissions limits.* For each smelting furnace, slag cleaning vessel, and copper converter departments subject to the nonsulfuric acid particulate matter emissions limit in §63.1444 as applies to you, you have demonstrated initial compliance if you meet both of the conditions in paragraphs (b)(1) and (2) of this section.

(1) The average concentration of nonsulfuric acid particulate matter in the process off-gas discharged from the affected source, measured according to the performance test procedures in §63.1450(b), did not exceed 6.2 mg/dscm.

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(2) You have submitted a notification of compliance status according to the requirements in §63.1454(e).

(c) For each existing copper converter department subject to the opacity limit in §63.1444, you have demonstrated initial compliance if you meet both of the conditions in paragraphs (c)(1) and (2) of this section.

(1) The opacity of visible emissions exiting the roof monitors or roof exhaust fans on the building housing the copper converter department measured according to the performance test procedures in §63.1450(c), did not exceed 4 percent opacity.

(2) You have submitted a notification of compliance status according to the requirements in §63.1454(e).

(d) *Copper converter department capture systems.* You have demonstrated initial compliance of the copper converter department capture system if you meet all of the conditions in paragraphs (d)(1) through (4) of this section.

(1) Prepared the capture system operation and maintenance plan according to the requirements of paragraph (a) of this section;

(2) Conducted an initial performance test according to the procedures of §63.1450(c) demonstrating the opacity of any visible emissions exiting the roof monitors or roof exhaust fans on the building housing the copper converter department does not exceed 4 percent opacity;

(3) Included in your notification of compliance status a copy of your written capture system operation and maintenance plan and have certified in your notification of compliance status that you will operate the copper converter department capture system at all times during blowing at the values or settings established for the operating limits in that plan; and

(4) Submitted a notification of compliance status according to the requirements in §63.1454(e).

(e) *Baghouses.* For each baghouse subject to operating limits in §63.1444(f) or §63.1446(c), you have demonstrated initial compliance if you meet all of the conditions in paragraphs (e)(1) through (3) of this section.

(1) You have included in your written operation and maintenance plan required under §63.1447(b) detailed descriptions of the procedures you use for inspection, maintenance, bag leak detection, and corrective action for the baghouse.

(2) You have certified in your notification of compliance status that you will operate the baghouse according to your written operation and maintenance plan.

(3) You have submitted the notification of compliance status according to the requirements in §63.1454(e).

(f) *Venturi wet scrubbers.* For each venturi wet scrubber subject to operating limits in §63.1444(g) or §63.1446(d), you have demonstrated initial compliance if you meet all of the conditions in paragraphs (f)(1) through (3) of this section.

(1) Established site-specific operating limits for pressuredrop and scrubber water flow rate and have a record of the pressure drop and scrubber water flow rate measured during the performance test you conduct to demonstrate initial compliance with paragraph (a) of this section.

(2) Certified in your notification of compliance status that you will operate the venturi wet scrubber within the established operating limits for pressure drop and scrubber water flow rate.

(3) Submitted a notification of compliance status according to the requirements in §63.1454(e).

(g) *Other control devices.* For each control device other than a baghouse or venturi wet scrubber subject to operating limits in §63.1444(h) or §63.1446(e), you have demonstrated initial compliance if you meet all of the conditions in paragraphs (g)(1) through (4) of this section.

(1) Selected one or more operating parameters, as appropriate for the control device design, that can be used as representative and reliable indicators of the control device operation.

(2) Established site-specific operating limits for each of the selected operating parameters based on values measured during the performance test you conduct to demonstrate initial compliance with paragraph (a) of this section and have prepared written documentation according to the requirements in §63.1450(a)(5)(iv).

(3) Included in your notification of compliance status a copy of the written documentation you have prepared to demonstrate compliance with paragraph (g)(2) of this section and have certified in your notification of compliance status that you will operate the control device within the established operating limits.

(4) Submitted a notification of compliance status according to the requirements in §63.1454(e).

(h) *Fugitive dust sources.* For all fugitive dust sources subject to work practice standards in §63.1445, you have demonstrated initial compliance if you meet all of the conditions in paragraphs (i)(1) through (3) of this section.

(1) Prepared a written fugitive dust control plan according to the requirements in §63.1454 and it has been approved by the designated authority.

(2) Certified in your notification of compliance status that you will control emissions from the fugitive dust sources according to the procedures in the approved plan.

(3) Submitted the notification of compliance status according to the requirements in §63.1454(e) .

(i) *Operation and maintenance requirements.* You have demonstrated initial compliance with the operation and maintenance requirements that apply to you if you meet all of the conditions in paragraphs (i)(1) through (3) of this section.

(1) Prepared an operation and maintenance plan according to the requirements in §63.1454(b).

(2) Certified in your notification of compliance status that you will operate each capture system and control device according to the procedures in the plan.

(3) Submitted the notification of compliance status according to the requirements in §63.1454(e) .

Continuous Compliance Requirements

§ 63.1452 What are my monitoring requirements?

(a) *Copper converter department capture systems.* For each operating limit established under your capture system operation and maintenance plan, you must install, operate, and maintain an appropriate monitoring device according the requirements in paragraphs (a)(1) though (6) of this section to measure and record the operating limit value or setting at all times the copper converter department capture system is operating during batch copper converter blowing. Dampers that are manually set and remain in the same position at all times the capture system is operating are exempted from the requirements of this paragraph (a).

(1) Install the monitoring device, associated sensor(s), and recording equipment according to the manufacturers' specifications. Locate the sensor(s) used for monitoring in or as close to a position that provides a representative measurement of the parameter being monitored.

(2) If a flow measurement device is used to monitor the operating limit parameter, you must meet the requirements in paragraph (a)(2)(i) through (iv) of this section.

(i) Locate the flow sensor and other necessary equipment such as

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straightening vanes in a position that provides a representative flow.

(ii) Use a flow sensor with a minimum tolerance of 2 percent of the flow rate.

(iii) Reduce swirling flow or abnormal velocity distributions due to upstream and downstream disturbances.

(iv) Conduct a flow sensor calibration check at least semiannually.

(3) If a pressure measurement device is used to monitor the operating limit parameter, you must meet the requirements in paragraph (a)(3)(i) through (v) of this section.

(i) Locate the pressure sensor(s) in or as close to a position that provides a representative measurement of the pressure.

(ii) Minimize or eliminate pulsating pressure, vibration, and internal and external corrosion.

(iii) Use a gauge with a minimum tolerance of 0.5 inch of water or a transducer with a minimum tolerance of 1 percent of the pressure range.

(iv) Check pressure tap pluggage daily.

(v) Using a manometer, check gauge calibration quarterly and transducer calibration monthly.

(4) Conduct calibration and validation checks any time the sensor exceeds the manufacturer's specifications or you install a new sensor.

(5) At least monthly, inspect all components for integrity, all electrical connections for continuity, and all mechanical connections for leakage.

(6) Record the results of each inspection, calibration, and validation check.

(b) *Baghouses.* For each baghouse subject to the operating limit in §63.1444(f) or §63.1446(c) for the bag leak detection system alarm, you must at all times monitor the relative change in particulate matter loadings using a bag leak detection system according to the requirements in paragraph (b)(1) of this section and conduct regular inspections according to the requirements in paragraph (b)(2) of this section.

(1) You must install, operate, and maintain each bag leak detection system according to the requirements in paragraphs (b)(1)(i) through (vii) of this section.

(i) The system must be certified by the manufacturer to be capable of detecting emissions of particulate matter at concentrations of 10 milligrams per actual cubic meter (0.0044 grains per actual cubic foot) or less.

(ii) The system must provide output of relative changes in particulate matter loadings.

(iii) The system must be equipped with an alarm that will sound when an increase in relative particulate loadings is detected over a preset level. The alarm must be located such that it can be heard by the appropriate plant personnel.

(iv) Each system that works based on the triboelectric effect must be installed, operated, and maintained in a manner consistent with the guidance document, "Fabric Filter Bag Leak Detection Guidance," EPA-454/R-98-015, September 1997. You may obtain a copy of this guidance document by contacting the National Technical Information Service (NTIS) at 800-553-6847. You may

install, operate, and maintain other types of bag leak detection systems in a manner consistent with the manufacturer's written specifications and recommendations.

(v) To make the initial adjustment of the system, establish the baseline output by adjusting the sensitivity (range) and the averaging period of the device. Then, establish the alarm set points and the alarm delay time.

(vi) Following the initial adjustment, do not adjust the sensitivity or range, averaging period, alarm set points, or alarm delay time, except as detailed in your operation and maintenance plan. Do not increase the sensitivity by more than 100 percent or decrease the sensitivity by more than 50 percent over a 365-day period unless a responsible official certifies, in writing, that the baghouse has been inspected and found to be in good operating condition.

(vii) Where multiple detectors are required, the system's instrumentation and alarm may be shared among detectors.

(2) You must conduct baghouse inspections at their specified frequencies according to the requirements in paragraphs (b)(2)(i) through (viii) of this section.

(i) Monitor the pressure drop across each baghouse cell each day to ensure pressure drop is within the normal operating range identified in the manual.

(ii) Confirm that dust is being removed from hoppers through weekly visual inspections or other means of ensuring the proper functioning of removal mechanisms.

(iii) Check the compressed air supply for pulse-jet baghouses each day.

(iv) Monitor cleaning cycles to ensure proper operation using an appropriate methodology.

(v) Check bag cleaning mechanisms for proper functioning through monthly visual inspection or equivalent means.

(vi) Make monthly visual checks of bag tension on reverse air and shaker-type baghouses to ensure that bags are not kinked (kneed or bent) or laying on their sides. You do not have to make this check for shaker-type baghouses using self-tensioning (spring-loaded) devices.

(vii) Confirm the physical integrity of the baghouse through quarterly visual inspections of the baghouse interior for air leaks.

(viii) Inspect fans for wear, material buildup, and corrosion through quarterly visual inspections, vibration detectors, or equivalent means.

(c) *Venturi wet scrubbers.* For each venturi wet scrubber subject to the operating limits for pressure drop and scrubber water flow rate in §63.1444(g) or §63.1446(d), you mustat all times monitor the hourly average pressure drop and water flow rate using a CPMS. You must install, operate, and maintain each CPMS according to the requirements in paragraphs (c)(1) and (2) of this section.

(1) For the pressure drop CPMS, you must meet the requirements in paragraphs (c)(1)(i) through (vi) of this section.

(i) Locate the pressure sensor(s) in or as close to a position that provides a representative measurement of the pressure and that minimizes or eliminates pulsating pressure, vibration, and internal and external corrosion.

(ii) Use a gauge with a minimum measurement sensitivity of 0.5 inch of water or a transducer with a minimum measurement sensitivity of 1 percent of the pressure range.

(iii) Check the pressure tap for pluggage daily.

(iv) Using a manometer, check gauge calibration quarterly and transducer calibration monthly.

(v) Conduct calibration checks any time the sensor exceeds the manufacturer's specified maximum operating pressure range, or install a new pressure sensor.

(vi) At least monthly, inspect all components for integrity, all electrical connections for continuity, and all mechanical connections for leakage.

(2) For the scrubber water flow rate CPMS, you must meet the requirements in paragraphs (c)(2)(i) through (iv) of this section.

(i) Locate the flow sensor and other necessary equipment in a position that provides a representative flow and that reduces swirling flow or abnormal velocity distributions due to upstream and downstream disturbances.

(ii) Use a flow sensor with a minimum measurement sensitivity of 2 percent of the flow rate.

(iii) Conduct a flow sensor calibration check at least semiannually according to the manufacturer's instructions.

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(iv) At least monthly, inspect all components for integrity, all electrical connections for continuity, and all mechanical connections for leakage.

(d) *Other control devices.* For each control device other than a baghouse or venturi wet scrubber subject to the operating limits for appropriate parameters in §63.1444(h) or §63.1446(e), you must at all times monitor the hourly average pressure drop and water flow rate using a CPMS. You must install, operate, and maintain each CPMS according to the equipment manufacturer's specifications and the requirements in paragraphs (d)(1) though (5) of this section.

(1) Locate the sensor(s) used for monitoring in or as close to a position that provides a representative measurement of the parameter being monitored.

(2) Determine the hourly average of all recorded readings.

(3) Conduct calibration and validation checks any time the sensor exceeds the manufacturer's specifications or you install a new

sensor.

(4) At least monthly, inspect all components for integrity, all electrical connections for continuity, and all mechanical connections for leakage.

(5) Record the results of each inspection, calibration, and validation check.

(e) Except for monitoring malfunctions, associated repairs, and required quality assurance or control activities (including as applicable, calibration checks and required zero and span adjustments), you must monitor continuously (or collect data at all required intervals) at all times an affected source is operating.

(f) You may not use data recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities in data averages and calculations used to report emission or operating levels or to fulfill a minimum data availability requirement, if applicable. You must use all the data collected during all other periods in assessing compliance.

(g) A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the monitor to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions.

§ 63.1453 How do I demonstrate continuous compliance with the emission limitations, work practice standards, and operation and maintenance requirements that apply to me?

(a) *Particulate matter emission limits.* For each affected source subject to a particulate matter emission limit §63.1444 or §63.1446 as applies to you, you must demonstrate continuous compliance according to the requirements in paragraphs (a)(1) and (2) of this section.

(1) For each copper concentrate dryer, smelting furnace, slag cleaning vessel, and copper converter department subject to a total particulate matter emission limit in §63.1444 or §63.1446 as applies to you, you must demonstrate continuous compliance by meeting the conditions in paragraphs (a)(1)(i) and (ii) of this section.

(i) Maintain the average concentration of total particulate matter in the gases discharged from the affected source at or below the applicableemission limit.

(ii) Conduct subsequent performance tests following your initial performance test no less frequently than once per year according to the performance test procedures in §63.1450(a).

(2) For each smelting furnace, slag cleaning vessel, and copper converter department subject to the nonsulfuric acid particulate matter emission limit in §63.1444 as applies to you, you must demonstrate continuous compliance by meeting the conditions in paragraphs (a)(2)(i) and (ii) of this section.

(i) Maintain the average concentration of nonsulfuric acid particulate matter in the process off-gas discharged from the affected source at or below 6.2 mg/dscm.

(ii) Conduct subsequent performance tests following your initial performance test no less frequently than once per year according to the performance test procedures in §63.1450(b).

(b) *Copper converter department capture systems.* You must demonstrate continuous compliance of the copper converter department capture system by meeting the requirements in paragraphs (b)(1) through (4) of this section.

(1) Operate the copper converter department capture system at all times during blowing at or above the lowest values or settings established for the operating limits and demonstrated to achieve the opacity limit according to the applicable requirements of this subpart;

(2) Inspect and maintain the copper converter department capture system according to the applicable requirements in §63.1447 and recording all information needed to document conformance with these requirements;

(3) Monitor the copper converter department capture system according to the requirements in §63.1452(a) and collecting, reducing, and recording the monitoring data for each of the operating limit parameters according to the applicable requirements of this subpart; and

(4) Conduct subsequent performance tests according to the requirements of §63.1450(c) following your initial performance test no less frequently than once per year to demonstrate that the opacity of any visible emissions exiting the roof monitors or roof exhaust fans on the building housing the copper converter department does not exceed 4 percent opacity.

(c) *Baghouses.* For each baghouse subject to the operating limit for the bag leak detection system alarm in §63.1444(f) or §63.1446(c), you must demonstrate continuous compliance by meeting the requirements in paragraphs (c)(1) through (3) of this section.

(1) Maintain the baghouse such that the bag leak detection system alarm does not sound for more than 5 percent of the operating time during any semiannual reporting period. To determine the percent of time the alarm sounded use the procedures in paragraphs (c)(1)(i) through (v) of this section.

(i) Alarms that occur due solely to a malfunction of the bag leak detection system are not included in the calculation.

(ii) Alarms that occur during startup, shutdown, or malfunction are not included in the calculation if the condition is described in the startup, shutdown, and malfunction plan, and all the actions you took during the startup, shutdown, or malfunction were consistent with the procedures in the startup, shutdown, and malfunction plan.

(iii) Count 1 hour of alarm time for each alarm when you initiated procedures to determine the cause of the alarm within 1 hour.

(iv) Count the actual amount of time you took to initiate procedures to determine the cause of the alarm if you did not initiate procedures to determine the cause of the alarm within 1 hour of the alarm.

(v) Calculate the percentage of time the alarm on the bag leak detection system sounds as the ratio of the sum of alarm times to

the total operating time multiplied by 100.

(2) Maintain records of the times the bag leak detection system alarm sounded, and for each valid alarm, the time you initiated corrective action, the corrective action(s) taken, and the date on which corrective action was completed.

(3) Inspect and maintain each baghouse according to the requirements in §63.1451(b)(2) and recording all information needed to document conformance with these requirements. If

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you increase or decrease the sensitivity of the bag leak detection system beyond the limits specified in §63.1451(b)(1)(vi), you must include a copy of the required written certification by a responsible official in the next semiannual compliance report.

(d) *Venturi wet scrubbers.* For each venturi wet scrubber subject to the operating limits for pressure drop and scrubber water flow rate in §63.1444(g) or §63.1446(d), you must demonstrate continuous compliance by meeting the requirements of paragraphs (d)(1) through (3) of this section.

(1) Maintain the hourly average pressure drop and scrubber water flowrate at levels no lower than those established during the initial or subsequent performance test;

(2) Inspect and maintain each venturi wet scrubber CPMS according to §63.1452(c) and recording all information needed to document conformance with these requirements; and

(3) Collect and reduce monitoring data for pressure drop and scrubber water flow rate according to §63.1452(e) and recording all information needed to document conformance with these requirements.

(e) *Other control devices.* For each control device other than a baghouse or venturi wet scrubber subject to the operating limits for site-specific operating parameters in §63.1444(h) or §63.1446(e), you must demonstrate continuous compliance by meeting the requirements of paragraphs (e)(1) through (3) of this section:

(1) Maintain the hourly average rate at levels no lower than those established during the initial or subsequent performance test;

(2) Inspect and maintain each venturi wet scrubber CPMS according to §63.1452(d) and recording all information needed to document conformance with these requirements; and

(3) Collect and reduce monitoring data for selected parameters according to §63.1452(e) and recording all information needed to document conformance with these requirements.

(f) *Fugitive dust sources.* For each fugitive dust source subject to work practice standards in §63.1445, you must demonstrate continuous compliance by implementing all of fugitive control measures specified for the source in your written fugitive dust control plan.

Notifications, Reports and Records

§ 63.1454 What notifications must I submit and when?

(a) You must submit all of the notifications in §§63.6(h)(4) and (h)(5), 63.7(b) and (c), 63.8(f)(4), and 63.9(b) through (h) that apply to you by the specified dates.

(b) As specified in §63.9(b)(2), if you start your affected source before June 12, 2002, you must submit your initial notification not later than October 10, 2002.

(c) As specified in §63.9(b)(3), if you start your new affected source on or after June 12, 2002, you must submit your initial notification not later than 120 calendar days after you become subject to this subpart.

(d) If you are required to conduct a performance test, you must submit a notification of intent to conduct a performance test at least 60 calendar days before the performance test is scheduled to begin as required in §63.7(b)(1).

(e) If you are required to conduct a performance test, opacity observation, or other initial compliance demonstration, you must submit a notification of compliance status according to §63.9(h)(2)(ii) by the date specified in paragraph (e)(1) or (2) of this section as applies to you.

(1) For each initial compliance demonstration that does not include a performance test, you must submit the notification of compliance status before the close of business on the 30th calendar day following the completion of the initial compliance demonstration.

(2) For each initial compliance demonstration that includes a performance test, you must submit the notification of compliance status, including the performance test results, before the close of business on the 60th calendar day following the completion of the performance test according to §63.10(d)(2).

§ 63.1455 What reports must I submit and when?

(a) You must submit each report in paragraphs (a)(1) and (2) of this section that applies to you.

(1) You must submit a compliance report semiannually according to the requirements in paragraph (b) of this section and containing the information in paragraph (c) of this section.

(2) You must submit an immediate startup, shutdown, and malfunction report if you had a startup, shutdown, or malfunction during the reporting period that is not consistent with your startup, shutdown, and malfunction plan. You must report the actions taken for the event by fax or telephone within 2 working days after starting actions inconsistent with the plan. You must submit the information in §63.10(d)(5)(ii) of this part by letter within 7 working days after the end of the event unless you have made alternative arrangements with the permitting authority.

(b) Unless the Administrator has approved a different schedule under §63.10(a), you must submit each compliance report required in paragraph (a) of this section according to the applicable requirements in paragraphs (b)(1) through (5) of this section.

(1) The first compliance report must cover the period beginning on the compliance date that is specified for your affected source in §63.1443 and ending on June 30 or December 31, whichever date comes first after the compliance date that is specified for your source in §63.1443.

(2) The first compliance report must be postmarked or delivered no later than July 31 or January 31, whichever date comes first after your first compliance report is due.

(3) Each subsequent compliance report must cover the semiannual reporting period from January 1 through June 30 or the semiannual reporting period from July 1 through December 31.

(4) Each subsequent compliance report must be postmarked or delivered no later than July 31 or January 31, whichever date comes first after the end of the semiannual reporting period.

(5) For each affected source that is subject to permitting regulations pursuant to 40 CFR part 70 or 40 CFR part 71, and if the permitting authority has established dates for submitting semiannual reports pursuant to 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A) of this chapter, you may submit the first and subsequent compliance reports according to the dates the permitting authority has established instead of according to the dates in paragraphs (b)(1) through (4) of this section.

(c) Each compliance report must contain the information in paragraphs (c)(1) through (3) of this section and, as applicable, paragraphs (c)(4) through (8) of this section.

(1) Company name and address.

(2) Statement by a responsible official, as defined in 40 CFR 63.2, with that official's name, title, and signature, certifying the accuracy and completeness of the content of the report.

(3) Date of report and beginning and ending dates of the reporting period.

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(4) If you had a startup, shutdown or malfunction during the reporting period and you took actions consistent with your startup, shutdown, and malfunction plan, the compliance report must include the information in §63.10(d)(5)(i).

(5) If there are no deviations from any emission limitations (emission limit, operating limit, opacity limit) that applies to you and there are no deviations from the requirements for work practice standards in this subpart, a statement that there were no deviations from the emission limitations, work practice standards, or operation and maintenance requirements during the reporting period.

(6) If there were no periods during which an operating parameter monitoring system was out-of-control as specified in §63.8(c)(7), a statement that there were no periods during which the monitoring system was out-of-control during the reporting period.

(7) For each deviation from an emission limitation (emission limit, operating limit, opacity limit) and for each deviation from the requirements for work practice standards that occurs at an affected source where you are not using a continuous monitoring system to comply with the emission limitations or work practice standards in this subpart, the compliance report must contain the information in paragraphs (b)(1) through (4) of this section and the information in paragraphs (b)(7)(i) and (ii) of this section. This includes periods of startup, shutdown, and malfunction.

(i) The total operating time of each affected source during the reporting period.

(ii) Information on the number, duration, and cause of deviations (including unknown cause, if applicable), as applicable, and the corrective action taken.

(8) For each deviation from an emission limitation (emission limit, operating limit, opacity limit, and visible emission limit) occurring at an affected source where you are using a operating parameter monitoring system to comply with the emission limitation in this subpart, you must include the information in paragraphs (b)(1) through (4) of this section and the information in paragraphs (c)(8)(i) through (xi) of this section. This includes periods of startup, shutdown, and malfunction.

(i) The date and time that each malfunction started and stopped.

(ii) The date and time that each monitoring system was inoperative, except for zero (low-level) and high-level checks.

(iii) The date, time and duration that each monitoring system was out-of-control, including the information in §63.8(c)(8).

(iv) The date and time that each deviation started and stopped, and whether each deviation occurred during a period of startup, shutdown, or malfunction or during another period.

(v) A summary of the total duration of the deviation during the reporting period and the total duration as a percent of the total source operating time during that reporting period.

(vi) A breakdown of the total duration of the deviations during the reporting period into those that are due to startup, shutdown, control equipment problems, process problems, other known causes, and other unknown causes.

(vii) A summary of the total duration of monitoring system downtime during the reporting period and the total duration of monitoring system downtime as a percent of the total source operating time during that reporting period.

(viii) A brief description of the process units.

(ix) A brief description of the monitoring system.

(x) The date of the latest monitoring system certification or audit.

(xi) A description of any changes in continuous monitoring systems, processes, or controls since the last reporting period.

(d) If you have obtained a Title V operating permit pursuant to 40 CFR part 70 or 40 CFR part 71 must report all deviations as defined in

this subpart in the semiannual monitoring report required by 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A). If you submit a compliance report pursuant to paragraph (a) of this section along with, or as part of, the semiannual monitoring report required by 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A), and the compliance report includes all required information concerning deviations from any emission limitation (including any operating limit), or work practice requirement in this subpart, submission of the compliance report is deemed to satisfy any obligation to report the same deviations in the semiannual monitoring report. However, submission of a compliance report does not otherwise affect any obligation you may have to report deviations from permit requirements to the permit authority.

§ 63.1456 What records must I keep and how long must I keep my records?

(a) You must keep the records listed in paragraphs (a)(1) through (7) of this section.

(1) A copy of each notification and report that you submitted to comply with this subpart, including all documentation supporting any initial notification or notification of compliance status that you submitted, according to the requirements in §63.10(b)(2)(xiv).

(2) The records in §63.6(e)(3)(iii) through (v) related to startup, shutdown, and malfunction.

(3) Records of performance tests and performance evaluations as required in §63.10(b)(2)(viii).

(4) For each monitoring system, you must keep the records specified in paragraphs (a)(4)(i) through (iv) of this section.

(i) Records described in §63.10(b)(2)(vi) through (xi).

(ii) Monitoring data recorded by the monitoring system during a performance evaluation as required in §63.6(h)(7)(i) and (ii).

(iii) Previous (i.e., superseded) versions of the performance evaluation plan as required in §63.8(d)(3).

(iv) Records of the date and time that each deviation started and stopped, and whether the deviation occurred during a period of startup, shutdown, or malfunction or during another period.

(5) For each performance test you conduct to demonstrate compliance with a opacity limit according to §63.1450(c), you must keep the records specified in paragraphs (a)(5)(i) through (ix) of this section.

(i) Dates and time intervals of all opacity observation period segments;

(ii) Description of overall smelter operating conditions during each observation period. Identify, if any, the smelter copper production process equipment that was out-of-service during the performance test and explain why this equipment was not in operation;

(iii) Name, affiliation, and copy of current visible emission reading certification for each visible emission observer participating in the performance test;

(iv) Name, title, and affiliation for each indoor process monitor participating in the performance test;

(v) Copies of all visible emission observer opacity field data sheets;

(vi) Copies of all indoor process monitor operating log sheets;

(vii) Copies of all data summary sheets used for data reduction;

(viii) Copy of calculation sheets of the average opacity value used to demonstrate compliance with the opacity limit; and

(ix) Documentation according to the requirements in §63.1450(c)(9)(iv) to support your selection of the site-

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specific capture system operating limits used for each batch copper converter capture system when blowing.

(6) For each baghouse subject to the operating limit in §63.1444(f) or §63.1446(c), you must keep the records specified in paragraphs (a)(6)(i) and (ii) of this section.

(i) Records of alarms for each bag leak detection system.

(ii) Description of the corrective actions taken following each bag leak detection alarm.

(7) For each control device other than a baghouse or venturi wet scrubber subject to site-specific operating limits in §63.1444(g) or §63.1446(f), you must keep documentation according to the requirements in §63.1450(a)(5)(iv) to support your selection of the site-specific operating limits for the control device.

(b) Your records must be in a form suitable and readily available for expeditious review, according to §63.10(b)(1).

(c) As specified in §63.10(b)(1), you must keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record.

(d) You must keep each record on site for at least 2 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to §63.10(b)(1). You can keep the records off site for the remaining 3 years.

Other Requirements and Information

§ 63.1457 What part of the general provisions apply to me?

Table 2 to this subpart shows which parts of the general provisions in §§63.1 through 63.15 apply to you.

§ 63.1458 Who implements and enforces this subpart?

(a) This subpart can be implemented and enforced by us, the United States Environmental Protection Agency (U.S. EPA), or a delegated

authority such as your State, local, or tribal agency. If the U.S. EPA Administrator has delegated authority to your State, local, or tribal agency, then that agency has the authority to implement and enforce this subpart. You should contact your U.S. EPA Regional Office to find out if this subpart is delegated to your State, local, or tribal agency.

(b) In delegating implementation and enforcement authority of this subpart to a State, local, or tribal agency under 40 CFR part 63, subpart E, the authorities listed in paragraph (c) of this section are retained by the U.S. EPA Administrator and are not transferred to the State, local, or tribal agency.

(c) The authorities that will not be delegated to State, local, or tribal agencies are as listed in paragraphs (c)(1) through (4) of this section.

(1) Approval of alternatives to the emission limitations and work practice standards in §§63.1444 through 63.1446 under §63.6(g).

(2) Approval of major alternatives to test methods under §63.7(f) and as defined in §63.90.

(3) Approval of major alternatives to monitoring under §63.8(f) and as defined in §63.90.

(4) Approval of major alternatives to recordkeeping and reporting under §63.10(f) and as defined in §63.90.

§ 63.1459 What definitions apply to this subpart?

Terms used in this subpart are defined in the Clean Air Act, in §63.2, and in this section as follows:

Bag leak detection system means a system that is capable of continuously monitoring relative particulate matter (dust) loadings in the exhaust of a baghouse in order to detect bag leaks and other upset conditions. A bag leak detection system includes, but is not limited to, an instrument that operates on triboelectric, light scattering, transmittance or other effect to continuously monitor relative particulate matter loadings.

Baghouse means a control device that collects particulate matter by filtering the gas stream through bags. A baghouse is also referred to as a "fabric filter."

Batch copper converter means a Pierce-Smith converter or Hoboken converter in which copper matte is oxidized to form blister copper by a process that is performed in discrete batches using a sequence of charging, blowing, skimming, and pouring.

Blowing means the operating mode for a batch copper converter during which air or oxygen-enriched air is injected into the molten converter bath.

Capture system means the collection of components used to capture gases and fumes released from one or more emission points, and to convey the captured gases and fumes to a control device. A capture system may include, but is not limited to, the following components as applicable to a given capture system design: duct intake devices, hoods, enclosures, ductwork, dampers, manifolds, plenums, and fans.

Charging means the operating mode for a batch copper converter during which molten or solid material is added into the vessel.

Control device means the air pollution control equipment used to collect particulate matter emissions. Examples of such equipment include, but are not limited to, a baghouse, an electrostatic precipitator, and a wet scrubber.

Copper concentrate dryer means a vessel in which copper concentrates are heated in the presence of air to reduce the moisture content of the material. Supplemental copper-bearing feed materials and fluxes may be added or mixed with the copper concentrates fed to a copper concentrate dryer.

Copper converter department means the area at a primary copper smelter in which the copper converters are located.

Copper matte means a material predominately composed of copper and iron sulfides produced by smelting copper ore concentrates.

Deviation means any instance in which an affected source subject to this subpart or an owner or operator of such a source fails to meet any of the following:

(1) Any requirement or obligation established by this subpart including, but not limited to, any emission limitation (including any operating limit) or work practice standard;

(2) Any term or condition that is adopted to implement an applicable requirement in this subpart and that is included in the operating permit for any affected source required to obtain such a permit; or

(3) Any emission limitation (including any operating limit) or work practice standard in this subpart during startup, shutdown, or malfunction, regardless whether or not such failure is permitted by this subpart.

Emission limitation means any emission limit, opacity limit, operating limit, or visible emission limit.

Fugitive dust material means copper concentrate, dross, reverts, slag, speiss, or other solid copper-bearing materials.

Fugitive dust source means a stationary source of particulate matter emissions resulting from the handling, storage, transfer, or other management of fugitive dust materials where the source is not associated with a specific process, process vent, or stack. Examples of a fugitive dust source include, but are not limited to, on-site roadways used by trucks transporting copper concentrate, unloading of materials from trucks or railcars, outdoor material storage piles, and transfer of material to hoppers and bins.

Holding means the operating mode for a batch copper converter during which the molten bath is maintained in the vessel but no blowing is performed nor is material added into or removed from the vessel.

Opacity means the degree to which emissions reduce the transmission of light.

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Particulate matter means any finely divided solid or liquid material, other than uncombined water, as measured by the specific reference method.

Pouring means the operating mode for a batch copper converter during which molten copper is removed from the vessel.

Primary copper smelter means any installation or any intermediate process engaged in the production of copper from copper sulfide ore concentrates through the use of pyrometallurgical techniques.

Responsible official means responsible official as defined in 40 CFR 70.2.

Skimming means the batch copper converter operating mode during which molten slag is removed from the vessel.

Slag cleaning vessel means a vessel that receives molten copper-bearing material and the predominant use of the vessel is to separate this material into molten copper matte and slag layers.

Smelting furnace means a furnace, reactor, or other type of vessel in which copper ore concentrate and fluxes are melted to form a molten mass of material containing copper matte and slag. Other copper-bearing materials may also be charged to the smelting furnace.

Work practice standard means any design, equipment, work practice, or operational standard, or combination thereof, that is promulgated pursuant to section 112(h) of the Clean Air Act.

As required in §63.1457, you must comply with the requirements of the NESHAP General Provisions (40 CFR part 63, subpart A) shown in the following table:

Table 1 to Subpart QQQ of Part 63.--Applicability of General Provisions to Subpart QQQ

Citation	Subject	Applies to subpart QQQ	Explanation
§63.1	Applicability	Yes.	
§63.2	Definitions	Yes.	
§63.3	Units and Abbreviations	Yes.	
§63.4	Prohibited Activities	Yes.	
§63.5	Construction and Reconstruction	Yes.	
§63.6(a)-(g)	Compliance with Standards and Maintenance requirements	Yes.	
§63.6(h)	Determining compliance with Opacity and VE standards	No	Subpart QQQ specifies the requirements and test protocol used to determine compliance with the opacity limits.
§63.6(i)-(j)	Extension of Compliance and Presidential Compliance Exemption.	Yes.	
§63.7(a)(1)-(2)	Applicability and Performance Test	No	Subpart QQQ specifies per-

	Dates.		formance test applicability and dates.
§63.7(a)(3), (b)-(h).....	Performance Testing Requirements	Yes.	
§63.8 except for (a)(4),(c)(4), and (f)(6).....	Monitoring Requirements.....	Yes.	
§63.8(a)(4).....	Additional Monitoring Requirements for Control devices in §63.11.	No.....	Subpart QQ does not require flares.
§63.8(c)(4).....	Continuous Monitoring System Requirements.	No.....	Subpart QQQ specifies requirements for operation of CMS.
§63.8(f)(6).....	RATA Alternative..	No.....	Subpart QQQ does not require continuous emission monitoring systems.
§63.9.....	Notification Requirements.....	Yes.	
§63.9(g)(5).....	DATA reduction....	No.....	Subpart QQQ specifies data reduction requirements
§63.10 except for (b)(2)(xiii) and (c)(7)-(8).....	Recordkeeping and reporting Requirements.....	Yes.	
§63.10(b)(2)(xiii)...	CMS Records for RATA Alternative.....	No.....	Subpart QQQ does not require continuous emission monitoring systems.
§63.10(c)(7)-(8).	Records of Excess Emissions and Parameter Monitoring Accedences for CMS.	No.....	Subpart QQQ specifies record keeping requirements
§63.11.....	Control Device	No.....	Subpart QQQ does

	Requirements.....		not require flares
§63.12.....	State Authority and Delegations.....	Yes.	
§§63.13-63.15.....	Addresses, Incorporation by Reference, Availability of Information.	Yes.	

Figure 1 to Subpart QQQ of Part 63.--Data Summary Sheet for Determination of Average Opacity

Clock time	Number of converters blowing	Converter aisle activity	Average opacity for 1-minute interval (percent)	Visible emissions interference observed during 1-minute interval? (yes or no)	Average opacity for 1-minute interval blowing without visible emission interferences (percent)

[FR Doc. 02-12773 Filed 6-11-02; 8:45 am]

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State of Utah

GARY R. HERBERT
Governor

SPENCER J. COX
Lieutenant Governor

Department of
Environmental Quality

Amanda Smith
Executive Director

DIVISION OF AIR QUALITY
Bryce C. Bird
Director

DAQE-AN103460054-14

June 10, 2014

Chris Kaiser
Kennecott Utah Copper LLC
4700 Daybreak Parkway
South Jordan, UT 84095

Dear Mr. Kaiser:

Re: Approval Order: Modification of Smelter AO to Change PM_{10} Stack Testing Requirements
Project Number: N10346-0054

The attached document is the Approval Order for the above-referenced project. Future correspondence on this Approval Order should include the engineer's name as well as the DAQE number as shown on the upper right-hand corner of this letter. The project engineer for this action is Nando Meli Jr., who may be reached at (801) 536-4052.

Sincerely,

Bryce C. Bird
Director

BCB:NM:sa

cc: Mike Owens
Salt Lake Valley Health Department

STATE OF UTAH

Department of Environmental Quality

Division of Air Quality

APPROVAL ORDER: Modification of Smelter AO to Change PM_{10} Stack Testing Requirements

Prepared By: Nando Meli Jr., Engineer
Phone: (801) 536-4052
Email: nmeli@utah.gov

APPROVAL ORDER NUMBER

DAQE-AN103460054-14

Date: June 10, 2014

Kennecott Utah Copper LLC
Smelter & Refinery
Source Contact:
Ryan Evans
Phone: (801) 569-6331
Email: ryan.evans@riotinto.com

Bryce C. Bird
Director

Abstract

Kennecott Utah Copper LLC (KUC) is requesting a clarification to its stack testing requirements. The clarification is needed due to the KUC smelter being listed in the $PM_{2.5}$ State Implementation Plan (SIP). The $PM_{2.5}$ SIP was adopted by the Utah Air Quality Board on January 8, 2014. No changes to emission limits are proposed through this modification.

The KUC smelter is a major source for PM_{10}, $PM_{2.5}$, SO_2, CO, and NO_x, and is subject to NSPS Subparts A, Db, Dc, P, IIII, KKKK and JJJJ, and MACT Subparts A, ZZZZ and EEEEEE. The modifications in this permit will not require a change in the SIP limits. The smelter currently operates under the Title V Operating Permit # 3500030002. KUC will submit a Title V permit application to modify the Title V permit. Salt Lake County is a nonattainment area of the NAAQS for PM_{10}, $PM_{2.5}$ and SO_2, and a maintenance area for ozone. The PTE (in TPY) will remain as follows: PM_{10} (including $PM_{2.5}$) = 510.82, and $PM_{2.5}$ = 426.35, SO_2 = 1,085.72, NO_x = 185.29, CO = 171.40, VOC = 13.50, HAP =13.51, and GHGe = 255,074.

This air quality AO authorizes the project with the following conditions and failure to comply with any of the conditions may constitute a violation of this order. This AO is issued to, and applies to the following:

Name of Permittee:	**Permitted Location:**
Kennecott Utah Copper LLC 4700 Daybreak Parkway South Jordan, UT 84095	Smelter & Refinery 12000 West 2100 South Magna, UT 84044

UTM coordinates: 399,000 m Easting, 4,508,000 m Northing, UTM Zone 12
SIC code: 3331 (Primary Smelting & Refining of Copper)

Section I: GENERAL PROVISIONS

I.1 The limits set forth in this AO shall not be exceeded without prior approval. [R307-401]

I.2 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.3 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 two-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.4 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.5 The owner/operator shall comply with R307-150 Series. Inventories, Testing and Monitoring. [R307-150]

I.6 The owner/operator shall comply with UAC R307-107. General Requirements: Breakdowns. [R307-107]

I.7 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]

Section II: SPECIAL PROVISIONS

II.A The approved installations shall consist of the following equipment:

II.A.1 **Smelter**

Copper Smelter

II.A.2 **Filter Plant**

Filter Plant Wet Feed Conveyor with baghouse

II.A.3 **Feed and Reagent Storage**

Feed and reagent storage and transfer consisting of:

1) Wet Feed Storage building with baghouse

2) Wet Feed Conveyor transfer point with baghouse

3) Outside Wet Feed Hopper with partial enclosure

4) Wet Feed Bins with baghouse

5) Flash Smelting Furnace Dry Feed Bin with baghouse

6) Smelter Limestone Flux Bin with bin vent baghouse

II.A.4 **Feed and Reagent Storage Equipment Continued**

7) Matte, dust, flux, feed bins with baghouse

8) Mold Coating Silo with bin vent baghouse

9) Hydrometallurgical Plant Limestone Silo with bin vent baghouse

10) Hydrometallurgical Plant Lime Silo with bin vent baghouse

11) Anode Area Lime Silo with bin vent baghouse

12) Secondary Gas System Lime Silo with bin vent baghouse

II.A.5 **Pyrometallurgical Processes**

1) Rotary Feed Dryer with baghouse followed by a scrubber

2) Flash Smelting Furnace (FSF) with (in series)

a) waste heat boiler

b) electrostatic precipitator

c) scrubber served by wet electrostatic precipitator and acid plant

d) emergency generator with turbo charger and after cooling
Maximum HP 998

II.A.6 **Pyrometallurgical Processes Continued**

3) Matte Granulation with three stage impingement scrubber for North Matte Granulator and a three stage impingement scrubber for South Matte Granulator. Emissions are either directed a) to the scrubber and then to the atmosphere through the vent stack or b) to the scrubber and then to the secondary gas system.

4) Matte Drying and Grinding Plant with baghouse

II.A.7 **Pyrometallurgical Processes Continued**

5) Flash Converting Furnace (FCF) with (in series)

a) waste heat boiler

b) electrostatic precipitator

c) scrubber served by wet electrostatic precipitator and acid plant

6) Slag Granulation with three stage impingement scrubber. Emissions are either directed a) to the scrubber and then to the atmosphere through the vent stack or b) to the scrubber and then to the secondary gas system.

II.A.8 **Pyrometallurgical Processes Continued**

7) Anode furnace system consisting of:

a) Anode Furnaces and optional coherent jet lances* with (in series)

(1) quench tower,
(2) lime injection,
(3) baghouse, and
(4) two scrubbers in series

*The lances are used for material heating and melting on a non-continuous basis

b) Wenmec twin casting wheel and quench tower

c) Shaft furnace and holding furnace with baghouse

d) Mold casting furnace

II.A.9 **Product Recovery/Gas Cleaning Facilities**

Product Recovery/Gas Cleaning Facilities that serve multiple sources

1) Wet Electrostatic Precipitator (serves FSF & FCF)

2) Acid Plant (serves FSF & FCF), with

a) Acid Plant Cooling Tower

b) Acid Plant Collection System, with adjustable negative pressure ductwork and collection hoses placed as needed for opacity control

II.A.10 **Product Recovery/Gas Cleaning Continued**

3) Secondary Gas Cleaning System (Serves fugitive emission sources, Matte Granulators or Slag Granulators as needed), with

a) lime injection system

b) baghouse

c) Reverse Jet scrubber A and Reverse Jet scrubber B

II.A.11 **Intermediate Product Storage**

Intermediate Product Storage, Crushing and Grinding Operations

1) Slag Concentrator

2) Recycle Materials Crushing & Storage building with baghouse

a) Manufacturer MAC Filtration (division of MAC Equipment, Inc.)

b) Type MCF Filter

II.A.12 **Miscellaneous Diesel Equipment**

Miscellaneous diesel equipment including emergency generators and mobile equipment

II.A.13 **Smelter Powerhouse**

Smelter powerhouse with:

1) Natural Gas Fired Superheater with ultra low NO_x burners

2) Foster Wheeler Natural Gas Fired Boiler

3) Holman Natural Gas Fired 187 MMBtu/hr Boiler

4) Powerhouse Cooling Tower

II.A.14 **Hydrometallurgical Plant**

Hydrometallurgical Plant with two scrubbers

II.A.15 **Vacuum Cleaning Systems**

Vacuum Cleaning Systems

1) Matte handling vacuum cleaning system with baghouse

2) FSF vacuum cleaning system ducted to the secondary gas collection system

3) FCF vacuum cleaning system with baghouse

II.A.16 **Support Facilities**

1) Laboratories, with baghouse

2) Various degreasing parts washers

3) Gasoline fueling station

II.A.17 **Support Facilities Continued**

4) Wash rooms*

5) Change house*

6) Engineering shops*

7) Warehouses*

8) Administrative buildings*

*These buildings are listed for informational purposes only.

II.A.18 **Communication Emergency Generator**

1) Fuel - liquid propane

2) Maximum Rating - 75 brake horsepower

II.A.19 **Crushing and Screening Operation**

Jaw crusher	Maximum 600 ton/hour capacity
Cone crusher	Maximum 600 ton/hour capacity
Fines crusher	Maximum 600 ton/hour capacity
Conveyors	Partially enclosed transfer points with water sprays
Triple deck screen	
High frequency screens	

II.B Requirements and Limitations

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

II.B.1.a KUC shall notify the Director in writing when the installation of the new Dry Matte Bin Baghouse (Stack No. 13) in Condition II.A.4.7, and the crushing and screening operation listed above in II.A.19 has been completed and is operational, as an initial compliance inspection is required. To ensure proper credit when notifying the Director, send your correspondence to the Director, attn: Compliance Section.

If installation has not been completed within 18 months from the date of the AO DAQE-AN103460053-14, dated April 9, 2014, the Director shall be notified in writing on the status of the installation. At that time, the Director shall require documentation of the continuous installation of the operation and may revoke the AO in accordance with R307-401-18. [R307-401]

II.B.1.b Emissions to the atmosphere from the indicated emission points shall not exceed the following rates and concentrations:

A. Wet Feed Conveyor Baghouse (Stack No. 1)

PM_{10} 0.7 lbs/hr (filterable)
0.016 grains/dscf (68ºF, 29.92" Hg)

B. Wet Feed Storage Building Baghouse (Stack No. 2)

PM_{10} 7.8 lbs/hr (filterable)
0.016 grains/dscf (68ºF, 29.92" Hg)

C. Wet Feed Conveyor Transfer Point Baghouse (Stack No. 3)

PM_{10} 0.4 lbs/hr (filterable)
0.016 grains/dscf (68ºF, 29.92" Hg)

D. Wet Feed Bin Baghouse (Stack No. 4)

PM_{10} 3.4 lbs/hr (filterable)
0.016 grains/dscf (68ºF, 29.92" Hg)

E. Flash Smelting Furnace Dry Feed Bin Baghouse (Stack No. 5)

PM_{10} 1.2 lbs/hr (filterable)
0.016 grains/dscf (68ºF, 29.92" Hg)

F. Smelter Limestone Flux Bin Baghouse (Stack No. 6)

PM_{10} 0.3 lbs/hr (filterable)
0.016 grains/dscf (68ºF, 29.92" Hg)

G. Holman Boiler (Stack No. 26)

NO_x 9.34 lbs/hr, 30-day average
0.05 lb/million Btu, 30-day average

H. Main Stack (Stack No. 11)

PM_{10} 89.5 lbs/hr (24 hr. average - calendar day) (filterable)
$PM_{2.5}$ 85 lbs/hr (filterable)
434 lbs/hr (filterable + condensable)

SO_2 552 lbs/hr (3 hr. average)
422 lbs/hr (24 hr. average - calendar day)
211 lbs/hr (annual average)

NO_x 35.0 lb/hr (annual average)

Lead 1.3 lb/hr (annual average)

I. Dry Matte Bin Baghouse (Stack No. 13)

PM_{10} 0.3 lbs/hr (filterable)
0.016 grains/dscf (68ºF, 29.92" Hg)

J. Vacuum Cleaning Systems (Stacks No. 17a & 17c)

PM_{10} 0.7 lbs/hr (combined) (filterable)
0.016 grains/dscf (68ºF, 29.92" Hg)

K. Acid Plant Tail Gas

SO_2 250 ppmdv (6 hr. block average)
170 ppmdv (24 hr. average - calendar day)
100 ppmdv (annual average)

Sulfuric Acid Mist 0.67 mg/scf (68ºF, 29.92" Hg)

L. Dedicated Rotary Dryer Baghouse

Particulate Emissions (TSP) 0.022 grains/dscf (68ºF, 29.92" Hg) (filterable)

M. Matte Granulation Exhaust Scrubbers (Stack No. 10a)

Combined total for the North and South Matte Granulation Exhaust scrubbers

PM_{10} 4.6 lbs/hr (24 hr. average - calendar day) (filterable)

SO_2 2.0 lbs/hr (24 hr. average - calendar day)

Operating Hours 4380 hrs per rolling 12-month period

N. Slag Granulation Exhaust Scrubber (Stack No. 10b)

PM_{10} 1.9 lbs/hr (24 hr. average - calendar day) (filterable)

SO_2 2.0 lbs/hr (24 hr. average - calendar day)

Operating Hours 3504 hrs per rolling 12-month period

All annual average emissions limits shall be based on rolling 12-month averages. Based on the first day of each month, a new 12-month total shall be calculated using the previous 12 months.

Reference to stack in Condition II.B.1.b above and Condition II.B.1.c below may 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. [R307-401-8]

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

A.	Emission Point	Pollutant	Testing Status	Test Frequency
1)	Stack Nos. 1, 2, 3, 4, 5, 6, 13, 17a & 17 c	PM_{10}	**	every 5 years
2)	Stack Nos. 10a	PM_{10}	@	every 5 years
	SO_2		@	every 5 years
3)	Stack Nos. 10b	PM_{10}	*	every 5 years
	SO_2		*	every 5 years
4)	Main Stack	PM_{10}	**	every year
	Stack No. 11	$PM_{2.5}$	**	every year
	SO_2		**	CEM
	NO_x		**	CEM
	Lead		**	continuous particulate monitor
5)	Holman Boiler Stack No. 26	NO_x	**	CEM or alternate method determined according to Condition II.B.1.e

6)	Acid Plant Tailgas	SO_2	**	CEM (concentration)
	Sulfuric Acid			
		Mist	**	every 3 years
7)	Dedicated Rotary Dryer			
	Baghouse/Scrubber	TSP	**	every 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.

@ Initial testing for the Matte Granulation scrubbers shall be performed as soon as possible and in no case later than 180 days after the emissions are vented to the atmosphere through the vent stack.

If after two stack tests are conducted at a particular emissions point under this condition, it is shown that because of reliability of pollution control equipment, constant emissions or other appropriate reasons, the stack testing frequency prescribed by this condition is more frequent than necessary to determine the quantity of emissions, the Director may be petitioned to reduce the stack testing frequency of any particular emissions point in a given year.

C. Notification

Notification of the test date shall be provided at least 30 days prior to the test. A pretest conference shall be held if directed by the Director. The emission point shall be designed to conform to the requirements of 40 CFR 60, Appendix A, Method 1, and Occupational Safety and Health Administration (OSHA) approvable access shall be provided to the test location.

D. TSP

40 CFR 60, Appendix A, Method 5.

E. PM_{10}

As applicable, stack testing to show compliance with the PM_{10} emission limitations shall be performed using 40 CFR 51, Appendix M, Methods 201a and 202, or other EPA approved testing methods acceptable to the Director. If a method other than 201a is used, the portion of the front half of the catch considered PM_{10} shall be based on information in Appendix B of the fifth edition of the EPA document, AP-42, or other data acceptable to the Director.

F. $PM_{2.5}$

As applicable, stack testing to show compliance with the $PM_{2.5}$ emission limitations shall be performed using 40 CFR 51, Appendix M, 201a and 202, or other EPA approved testing methods acceptable to the Director. The back half condensables shall be used for compliance demonstration as well as for inventory purposes. If a method other than 201a is used, the portion of the front half of the catch considered $PM_{2.5}$ shall be based on information in Appendix B of the fifth edition of the EPA document, AP-42, or other data acceptable to the Director.

G. Sample Location

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.

H. Volumetric Flow Rate

40 CFR 60, Appendix A, Method 2 or EPA Test Method No. 19 "SO_2 Removal & PM, SO_2, NO_x Rates from Electric Utility Steam Generators" or other EPA-approved testing methods acceptable to the Director.

I. Sulfur Dioxide

40 CFR 60 Appendix A, Method 6, 6A, 6B, 6C, or other EPA-approved testing methods acceptable to the Director.

J. Nitrogen Oxides

40 CFR 60 Appendix A, Method 7, 7A, 7B, 7C, 7D, 7E, or other EPA-approved testing methods acceptable to the Director.

K. Sulfuric Acid Mist

40 CFR 60, Appendix A, Method 8

L. Lead

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. KUC shall monitor in accordance with the most recent monitoring plan approved by the Director.

M. Source Operation

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 years. For baghouses listed below, 90% of maximum production rate is defined as 90% of the flow rates listed below. For stacks involving more than one emission source, or for those stacks in which the above conditions cannot be met, KUC shall propose in the test protocol, stack test conditions and retest thresholds to assure that stack testing is representative of actual operation.

Source Name		Flow Rates (dscfm)
1)	Wet Feed Conveyor Baghouse (stack 1)	5,000
2)	Wet Feed Storage Building Baghouse (stack 2)	30,500

3)	Wet Feed Conveyor Transfer Point Baghouse (stack 3)	1,200
4)	Wet Feed Bin Baghouse (stack 4)	14,900
5)	Smelter Limestone Flux Bin Baghouse (stack 6)	2,000
6)	Vacuum Cleaning Systems (stack 17, combined)	5,000

For the Flash Smelting Furnace Dry Feed Bin Baghouse (stack 5), the production rate during all compliance tests shall be no less than 90% of the maximum rotary dryer feed rate achieved in during the previous three years.

For the Dry Matte Bin Baghouse (stack 13), the production rate during all compliance tests shall be no less than 90% of the maximum matte grinding mill feed rate achieved in during the previous three years.

[R307-401-8]

II.B.1.d To demonstrate compliance with the main stack mass emissions limits for SO_2 and NO_x of Condition II.B.1.b.H, KUC 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. The continuous SO_2 and NO_x monitoring systems described in this subsection shall meet the following requirements:

A. KUC shall comply with all applicable parts of R307-170, UAC "Continuous Emission Monitoring Systems Program", including the requirements for annual Relative Accuracy Test Audits and quarterly Relative Accuracy Audits or Cylinder Gas Audits. The required Relative Accuracy Test Audits, Relative Accuracy Audits, and Cylinder Gas Audits shall be conducted following procedures contained in Appendix B, Specification 2, Part 60, Title 40, CFR and Appendix F, Part 60, Title 40,CFR. Acceptable methods for the annual relative accuracy test audits include 40CFR 60, Appendix A, reference methods 6, or 6C for SO_2 and methods 7 or 7E for NO_x. All audit and test results shall be submitted to the Director within 60 days after the audit or test is completed.

B. KUC shall perform Appendix E, Part 52, Title 40, CFR 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.1.d.A demonstrate that the SO_2 and NO_x monitoring systems are not performing properly.

C. KUC shall maintain a record of all measurements required by Condition II.B.1.d.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.Results for each measurement or monitoring system and reports evaluating the performance of such systems shall be summarized and shall be submitted to the Director within 20 days after the end of each month. The Director, in consultation with KUC, shall determine an acceptable format for reporting such results and system

evaluations. The following measurements, expressed as lbs/hr SO_2 and NO_x, shall also be summarized and submitted in such report(s):

1) The total number of hourly periods during the month in which measurements were not taken.

2) For any periods where loss of measurement is greater than three continuous hours, the reason for loss of measurement in each period.

3) The date(s) on which three and 24-hour emissions averages for SO_2 exceeded the applicable emission level in Condition II.B.1.b.H.

4) The date(s) on which the annual emissions average based on hourly emissions exceeded the applicable emission level in Condition II.B.1.b.H for NO_x for the month being reported and the number of such exceedances, and the daily NO_x averages.

5) All conversion values used to derive the three and 24-hour average emissions for SO_2, and the 24-hour average and annual average for NO_x, including temperature and differential pressure of stack gases

D. Failure of KUC to measure SO_2 at least ninety-five percent (95%) of the hours during which emissions occurred in any month 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.1.d. Any hour for which the measurements comply with R-307-170, UAC shall be considered as measured. Calibration shall be performed once per day; the hour during which calibration is performed shall be considered as measured if at least 40 minutes of data are measured for that hour. 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.1.d. The Director may grant exemptions to the requirements of Condition II.B.1.d if unusual circumstances, not to include malfunction of any of the monitoring instrumentation, arise which prevent KUC from obtaining hourly measurements of emissions in accordance with Condition II.B.1.d.

E. During periods of malfunctioning or maintenance of the stack gas temperature and velocity measurement instrumentation, KUC may estimate stack gas flow rate. Such estimates will be considered as measurements for the purpose of Condition II.B.1.d. 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 submitted with the monthly data reports. No more than 10% of the flow rates in any one month may be estimated.

F. Data, reports, or results required to be submitted pursuant to Condition II.B.1.d, 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.b.H, unless, within 30 days of the time such data, reports, or results are submitted, KUC or the Director provides evidence that the data, results, or reports or any part thereof, are greater than 20% in error.

G. KUC shall record the output of the systems, for measuring the NO_x emissions on the main stack. Measurement results shall be expressed as pounds of NO_x emitted per hour calculated at the end of each calendar day for the preceding 24 hours. Each month the annual average shall be calculated from the daily averages from the preceding 12-month period. The monitoring system shall comply with all applicable sections of R307-170, UAC and 40 CFR 60, Appendix B, Specification 2 - Oxides of Nitrogen. KUC shall calculate the emission in lbs/hr averaged over the previous 12 calendar months and shall submit the emissions to the Director by the twentieth day of each month using data from the previous 12 months.

[R307-401-8]

II.B.1.e KUC shall install, calibrate, maintain, and operate continuous monitoring systems on the rotary dryer baghouse/scrubber, the main stack, and the acid plant tail gas.

Initial compliance with the Holman boiler NO_x limit was demonstrated with the CEM in accordance with 40 CFR 60.46b(e)(1). KUC 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 alternate plan submitted to the Director on December 4, 1998 shall be used.

KUC shall record the output of the systems, for measuring the opacity of emissions on the rotary dryer baghouse/scrubber outlet and the main stack. The monitoring systems shall comply with all applicable sections of R307-170, UAC and 40 CFR 60, Appendix B, Specification 1 - Opacity (See condition II.B.1.i for opacity limits).

KUC shall record the output of the systems, for measuring the opacity of emissions and the SO_2 concentration on the acid plant tail gas. The monitoring systems shall comply with all applicable sections of R307-170, UAC and 40 CFR 60, Appendix B, Specification 1 - Opacity and Specification 2 - SO_2.

KUC shall continuously measure emissions of particulate matter from the main stack. For the purposes of determining compliance with Condition II.B.1.b.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.b.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 daily, and a summary of 24-hour averages shall be submitted to the Director monthly (within 20 days of the end of the month). KUC may petition the Director at any time to discontinue the operation of the continuous monitor. An analysis of the potential PM_{10} uncontrolled emissions from the main stack shall be submitted to the Director at the time of such a petition.

KUC 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. KUC shall monitor in accordance with the most recent monitoring plan approved by the Director. If KUC cannot monitor the lead emissions using the continuous particulate sampler, then KUC shall monitor the lead emissions using a monitoring plan approved by the Director.

[R307-401-8]

II.B.1.f KUC shall install, calibrate, maintain, and operate the 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 from the Division of Air Quality can safely read them at any time.

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.

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).

C. A monitoring device for the continuous measurement of the change in pressure of the gas stream across each baghouse.

The operating range and accuracy of the monitoring devices shall be submitted to the Director. The monitoring devices shall be calibrated in accordance with the manufacturer's instructions.

[R307-401-8]

II.B.1.g KUC shall maintain a monitoring record or log that shall contain the following data:

A. The operating pressure drop across the secondary ventilation scrubber, rotary dryer scrubber, anode furnace scrubber, and hydrometallurgical plant scrubber(s) shall be maintained within the operating ranges listed below:

Secondary Ventilation Scrubber Minimum Pressure Drop = 3.5" Water Gauge (W.G.) (across both scrubbers combined)
Rotary Dryer Scrubber Pressure Drop = 5" to 19.25" W.G.
Anode Furnace Scrubber Pressure Drop = 25" to 50.5" W.G.
Hydrometallurgical Plant Scrubber Model #480 Pressure Drop = 5" to 10" W.G.
Hydrometallurgical Plant Scrubber Model #575 Pressure Drop = 6" to 12" W.G.

B. The operating scrubbing liquid flow rate for the rotary dryer scrubber, secondary ventilation scrubber, anode furnace scrubber, and hydrometallurgical plant scrubbers shall be maintained within the operating ranges listed below:

Secondary Ventilation Scrubber Flow Rate greater than 4800 gpm (each)
Rotary Dryer Scrubber Flow Rate greater than 7360 gpm
Anode Furnace Scrubber Flow Rate greater than 2000 gpm
Hydrometallurgical Plant Scrubber Model #480 Flow Rate greater than 50 gpm
Hydrometallurgical Plant Scrubber Model #575 Flow Rate greater than 40 gpm

C. Pressure drops for each baghouse shall be maintained within the operating ranges listed below:

Filter Plant Wet Feed Conveyor Baghouse:
Pressure Drop = 0.5" to 4" W.G.

Wet Feed Storage Building Baghouse:
Pressure Drop = 1.5" to 5" W.G.

Wet Feed Conveyor Belt Transfer Point Baghouse:
Pressure Drop = 0.5" to 5.25" W.G.
Wet Feed Bin(s) Baghouse:
Pressure Drop = 2.75" to 5" W.G.

Flash Smelting Furnace Dry Feed Bin Baghouse:
Pressure Drop = 0.25" to 11" W.G.

Limestone Flux Bin Baghouse:
Pressure Drop = 0.5" to 4" W.G.

Secondary Gas Handling System Baghouse:
Pressure Drop = 6" to 15" W.G.

Matte Drying and Grinding Plant Baghouse:
Pressure Drop = 5" to 15" W.G.

Dry Matte Bin Baghouse:
Pressure Drop = 0.5" to 13" W.G.

Anode Refining Furnace Baghouse:
Pressure Drop = 1" to 9" W.G.

Anode Shaft Furnace Baghouse:
Pressure Drop = 1" to 10" W.G.

Mold Coating (Barite) Bin Baghouse:
Pressure Drop = 0.25" to 4" W.G.

Vacuum Cleaning Systems (2 Baghouses):
Pressure Drop = 0.25" to 6" (each) W.G.

Hydrometallurgical Plant Limestone Storage Bin Baghouse:
Pressure Drop = 0.5" to 4" W.G.

Hydrometallurgical Plant Lime Storage Bin Baghouse:
Pressure Drop = 0.25" to 4" W.G.

Recycle Materials Crushing and Storage Building Baghouse:
Pressure Drop = 1" to 5" W.G.

[R307-401-8]

II.B.1.h The natural gas consumption shall not exceed the limitations for the equipment listed:

Acid Plant Preheater - 74,476 MMBTU per rolling 12-month period*

Powerhouse:
Superheater, Foster - Wheeler Boiler
and Holman Boiler - 2,288,148 MMBTU per rolling 12-month period

Anode Plant**, Launder Heaters,
Matte Grinding, and
Concentrate Drying - 1,947,847 MMBTU per rolling 12-month period

* This is based on the BTU rating of the natural gas in 1994 at 1,067.67 BTU/standard ft^3 at 1 atm and 68ºF

** The Anode Plant includes the shaft furnace, anode furnaces, holding furnaces, and mold furnace.

The natural gas allocations in this condition, may be reapportioned upon demonstration to the Director that no increase in potential NO_x emissions would result.

Propane may be used as an alternate fuel supply during natural gas curtailment.

Compliance with the limitations shall be determined on a rolling 12-month total. Based on the first day of each month a new 12-month total shall be calculated using the previous 12 months. Records of consumption shall be kept for all periods when the plant is in operation and shall be made available to the Director or Director's representative upon request, which shall include a period of two years ending with the date of the request. Natural gas consumption shall be determined by individual gas meters readings reconciled against monthly billing statements. [R307-401-8]

II.B.1.i Visible emissions from the following emission points shall not exceed the following values:

	Emission Point	Opacity Limit
A.	Wet Feed Conveyor Baghouse (stack 1)	7%
B.	Wet Feed Storage Building Baghouse (stack 2)	7%
C.	Wet Feed Conveyor Transfer Point Baghouse (stack 3)	7%
D.	Wet Feed Bin Baghouse (stack 4)	7%
E.	Flash Smelting Furnace Dry Feed Bin Baghouse (stack 5)	7%
F.	Smelter Limestone Flux Bin Baghouse (stack 6)	10%
G.	Acid Plant Preheater (stack 8)	10%
H.	Matte Granulator Scrubber Stack (stack 10a)	15%
I.	Slag Granulator Scrubber Stack (stack 10b)	15%
J.	Smelter Main Stack (stack 11)	20%
K.	Dry Matte Bin Baghouse (stack 13)	10%
L.	Mold Coating Silo Baghouse (stack 15)	10%

M.	Vacuum Cleaning System (stacks 17a & 17c)	10%
N.	Hydromet Plant Limestone Silo Baghouse (stack 19)	10%
O.	Hydromet Lime Silo Baghouse (stack 20)	10%
P.	Laboratory Baghouse (stack 22)	10%
Q.	Slag Concentrator Bin	10%
R.	Slag Crushing and Grinding Transfer Points	10%
S.	Natural gas boiler (stack 26)	10%
T.	Recycle Materials Crushing & Storage Building Baghouse (stack 27)	10%
U.	Anode Area Lime Silo Baghouse (stack 28)	10%
V.	Secondary Gas System Lime Silo Baghouse (stack 29)	10%
W.	Crushing and Screening Plant	10%
X.	Acid Plant Tail Gas	15%
Y.	Rotary Dryer Baghouse/Scrubber Outlet	15%
Z.	Hot Metals Building Roof Vents	20%
AA.	Acid Plant Process Gas Leaks	20%
AB.	All other points	20%

Opacity observations of emissions from stationary sources shall be conducted in accordance with 40 CFR 60, Appendix A, Method 9.

Sources equipped with continuous opacity monitors (rotary dryer baghouse/scrubber, acid plant tailgas and main stack) shall use the compliance methods contained in 40 CFR 60.11. [R307-305-3]

II.B.1.j 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.1.k All roads, parking lots, and service yards directly servicing the approved constructed installations listed above in II.A.2 through II.A.16 shall be paved. KUC shall carry out the current Fugitive Dust Control Plan approved by the Director. The plan shall include a description of dust control practices for paved/unpaved operating areas and paved/unpaved roads located within Kessler Canyon south of State Highway 201. [R307-401-8]

II.B.1.l Fugitive dust emissions during construction or demolition shall be controlled in accordance with R307-205 and R307-309, UAC. [R307-309]

II.B.1.m The sulfur content of any diesel fuel oil used in the operation shall not exceed 0.0015% by weight (15 ppm) as determined by ASTM Method D-4294-89 or approved equivalent. The sulfur content shall be tested if directed by the Director.

Monitoring:

Compliance with this limitation shall be demonstrated either by testing each fuel delivery for the sulfur content or by inspection of the fuel sulfur-content specifications provided by the vendor in purchase records. Sulfur content in either instance shall be determined in accordance with ASTM-4294, or equivalent.

Recordkeeping:

Compliance with the above limitation shall be demonstrated by maintaining fuel receipt records showing sulfur content of the delivered fuel or maintaining records of all sulfur content testing performed on the delivered fuel. Records shall be maintained in accordance with Condition I.3 of this permit.

Reporting:

There are no reporting requirements for this provision except those specified in Section I of this permit. [R307-401-8]

II.B.1.n 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.

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.1.i.Q. 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.3. [R307-401-8]

II.B.1.o 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]

II.B.1.p KUC 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:

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

B. Operation and maintenance of gas collection systems in good working order

C. Making available to the preventive/routine maintenance records for the hooding systems; dust collection mechanism of waste heat boilers; furnace wet scrubbing systems; and dry electrostatic precipitators

D. Weekly observation of process units

E. Monthly inspection of gas handling systems

F. Maintenance of gas handling systems, available on call on a 24-hour basis

G. Operation and maintenance of an upwind/downwind fugitive monitoring system. KUC may petition the Director to discontinue the operation of this system.

H. Contained conveyance of acid plant effluent solutions

KUC shall use approved forms and records to comply with Conditions D, and E above. KUC may modify these forms and records in accordance with R307-401.

[R307-401-8]

II.B.1.q 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:

A. Concentrate Dryer Feed Chute

B. Slag and Matte Granulators

C. Smelting and Converting Furnaces

D. Slag Pot Filling Stations

[R307-401-8]

II.B.1.r 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.

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.1.s 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. 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. It is the responsibility of the owner/operator of the source to supply these observations to the Director. A currently certified observer must be used for these observations. [40 CFR 60 Subpart A]

II.B.1.t 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:

A. All crushers

B. All stationary conveyor transfer points

C. The crusher and screening units shall have water sprays at the input to the crusher and at the discharge points from the crusher.

The sprays shall operate whenever dry conditions warrant or as determined necessary by the Director.

[R307-309]

II.B.2 **Acid Plant Gas Leak Requirements**

II.B.2.a Leaks of sulfur dioxide and sulfur trioxide, or other process emissions that do not pass through a stack, may occur as part of routine operations and shall be controlled using best operational practices to minimize emissions. Best operational practices to minimize the emissions shall be adhered to and shall include weekly visual opacity surveys and the prompt repair or correction and control to minimize emissions. Acid plant process gas leaks shall be controlled to ensure visible emissions from acid plant process gas leaks are no greater than 20 percent opacity.

A visual opacity survey of the acid plant process gas leaks emission unit shall be performed on a weekly basis, by an individual trained on the observation procedures of 40 CFR 60, Appendix A, Method 9. 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.

If visible emissions greater than 15% opacity are observed, then best operational practices will be initiated within 24 hours 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 be limited to: 1) placement or adjustment of negative pressure ductwork and collection hoses, 2) welding of process gas leaks, or 3) containment of process gas leaks.

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. [R307-401-8]

Section III: APPLICABLE FEDERAL REQUIREMENTS

In addition to the requirements of this AO, all applicable provisions of the following federal programs have been found to apply to this installation. This AO in no way releases the owner or operator from any liability for compliance with all other applicable federal, state, and local regulations including UAC R307.

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), 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

PERMIT HISTORY

This AO is based on the following documents:

Is Derived From	2014 $PM_{2.5}$ SIP dated January 8, 2014
Supersedes	AO DAQE-AN103460053-14 dated April 9, 2014

ADMINISTRATIVE CODING

The following information is for UDAQ internal classification use only:

Salt Lake County
CDS A
MACT (Part 63), Compliance Assurance Monitoring (CAM), Nonattainment or Maintenance Area, Title V (Part 70) major source, PM_{10} SIP / Maint Plan, Major criteria source, NSPS (Part 60)

ACRONYMS

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

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 EPA 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 - 40 CFR Part 98, Subpart A, Table A-1
COM	Continuous opacity monitor
DAQ	Division of Air Quality (typically interchangeable with UDAQ)
DAQE	This is a document tracking code for internal UDAQ use
EPA	Environmental Protection Agency
FDCP	Fugitive dust control plan
GHG	Greenhouse Gas(es) - 40 CFR 52.21 (b)(49)(i)
GWP	Global Warming Potential - 40 CFR Part 86.1818-12(a)
HAP or HAPs	Hazardous air pollutant(s)
ITA	Intent to Approve
LB/HR	Pounds per hour
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
UDAQ	Utah Division of Air Quality (typically interchangeable with DAQ)
VOC	Volatile organic compounds

State of Utah

GARY R. HERBERT
Governor

GREG BELL
Lieutenant Governor

Department of
Environmental Quality

Amanda Smith
Executive Director

DIVISION OF AIR QUALITY
Bryce C. Bird
Director

DAQE-AN103460052-13

March 18, 2013

Chris Kaiser
Kennecott Utah Copper LLC
4700 Daybreak Parkway
South Jordan, UT 84095

Dear Mr. Kaiser:

Re: Approval Order: Modification to Approval Order DAQE-AN0103460046-10 to Add Equipment to the Molybdenum Autoclave Process Plant
Project Number: N10346-0052

The attached document is the Approval Order for the above-referenced project. Future correspondence on this Approval Order should include the engineer's name as well as the DAQE number as shown on the upper right-hand corner of this letter. The project engineer for this action is Nando Meli Jr., who may be reached at (801) 536-4052.

Sincerely,

Bryce C. Bird
Director

BCB:NM:kw

cc: Mike Owens
Salt Lake Valley Health Department

STATE OF UTAH

Department of Environmental Quality

Division of Air Quality

APPROVAL ORDER: Modification to Approval Order DAQE-AN0103460046-10 to Add Equipment to the Molybdenum Autoclave Process Plant

Prepared By: Nando Meli Jr., Engineer
Phone: (801) 536-4052
Email: nmeli@utah.gov

APPROVAL ORDER NUMBER

DAQE-AN103460052-13

Date: March 18, 2013

Kennecott Utah Copper LLC
Smelter & Refinery

Source Contact:
Ryan Evans, Senior Environmental Engineer
Phone: (801) 569-6449
Email: ryan.evans@riotinto.com

Bryce C. Bird
Director

Abstract

Kennecott Utah Copper LLC (KUC) is in the process of building a new Molybdenum Autoclave Process (MAP) plant. During the construction KUC has modified the design and has submitted an NOI to modify the AO DAQE-AN0103460046-10. The design changes have resulted in the modification of the cooling tower. KUC will also add a natural gas-fired boiler, calciner, reoxidizer, two dryers, and pollution control equipment.

The MAP Plant is located in Salt Lake County which is a non-attainment area of the NAAQS for PM_{10}, $PM_{2.5}$ and SO_2, and is a maintenance area for Ozone. Title V of the 1990 Clean Air Act applies to this source. The emissions, in TPY, will change as follows: PM_{10} = -1.23, $PM_{2.5}$ = -4.35, SO_2 = +1.20, CO = +10.29, NO_x = +7.58, VOC = +0.89 and HAPs = +0.01. The MAP Plant site wide emissions will be (TPY): PM_{10} = 13.11, $PM_{2.5}$ = 9.99, SO_2 = 2.43, NO_x = 35.57, CO = 39.54, VOC = 6.71, HAPs = 0.36 and CO_2e = 74,755. R307-403-9 states that when a source is constructed or modified in stages that the allowable emission from all such stages shall be added together in determining the applicability of R307-403. The MAP plant has been constructed in stages and therefore will be required to offset the combined PM_{10}, SO_2 and NO_x which is 51.11 TPY at a ratio of 1.2:1. This requires an offset by KUC of 61.33 TPY for the combined PM_{10}, SO_2 and NO_x. In 2010 KUC modified the MAP and increased the combined PM_{10}, SO_2 and NO_x PTE to 43.56 TPY and this was offset at that time. With these credits, the remaining credits required for this modification are 61.33 – 43.56 = 17.77 TPY. KUC has met this requirement with 18.0 TPY of SO_2 ERCs.

This air quality AO authorizes the project with the following conditions and failure to comply with any of the conditions may constitute a violation of this order. This AO is issued to, and applies to the following:

Name of Permittee:	**Permitted Location:**
Kennecott Utah Copper LLC 4700 Daybreak Parkway South Jordan, UT 84095	Smelter & Refinery 12000 West 2100 South Magna, UT 84044

UTM coordinates: 399000 m Easting, 4508000 m Northing, UTM Zone 12
SIC code: 3331 (Primary Smelting & Refining of Copper)

Section I: GENERAL PROVISIONS

I.1 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. [R307-415-6b]

I.2 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.3 The limits set forth in this AO shall not be exceeded without prior approval. [R307-401]

I.4 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.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. Inventories, Testing and Monitoring. [R307-150]

Section II: SPECIAL PROVISIONS

II.A The approved installations shall consist of the following equipment:

II.A.1 **Plantwide**

MAP Plant

II.A.2 **Combined Heat and Power (CHP) Unit (Turbine)**

Manufacturer	Solar Turbines, Inc.
Model	Taurus 70-10301S axial turbine with Turbine Electric Generator (TEG)
Fuel	One natural gas turbine
Maximum turbine burner rating	75.0 MMBtu/hr at 0ºF and 60% relative humidity 9.0 ppm NO_x @ 15% oxygen 25.0 ppm CO @ 15% oxygen

II.A.3 **CHP Unit (Duct Burner)**

Manufacturer	CB Energy
Model	Duct burner and heat recovery steam generator
Fuel	Natural gas
Maximum duct burner rating with TEG firing	36.0 MMBtu/hr at 0ºF and 60% relative humidity 0.065 lb NO_x /MMBTU/hr 0.050 lb CO /MMBTU/hr
with fresh air firing	86.0 MMBtu/hr at 0ºF and 60% relative humidity 0.150 lb NO_x /MMBTU/hr 0.050 lb CO /MMBTU/hr

II.A.4 **One MAP Steam Start-up Boiler**

Maximum heat input per boiler	30.1 MMBTU/hr
Fuel type	Natural Gas
Maximum burner rating	20 ppm NO_x @ 15% oxygen

II.A.5 **Support Boiler**

Maximum heat input per boiler	12 MMBTU/hr
Fuel type	Natural Gas
NO_x control	Low NO_x burners with FGR
Maximum burner rating	9 ppm NO_x @ 15% oxygen

II.A.6 **Wet Cooling Tower with Drift Eliminator**

Maximum water flow	20,000 gallons per minute

II.A.7 **Briquette Dryer**

Maximum heat input	1.85 MMBTU/hr
Fuel type	natural gas
Maximum NO_x burner rating	45 ppm

One Briquette Dryer Dust Collector

Maximum air flow	19,500 actual cubic ft per minute
Filter medium	polyester felt or equivalent

II.A.8 **One Packaging Area Dust Collector**

Maximum air flow	3,200 actual cubic ft per minute
Filter medium	polyester felt or equivalent

II.A.9 **Autoclave Venturi Scrubber**

Type	Two-stage Venturi
Minimum pressure drop	38" water column
Manufacturer rated minimum control efficiency	95%*

* This equipment specification is listed for informational purposes only.

II.A.10 **Ammonia Scrubber**

Scrubber type	Packed adsorption tower
Minimum reagent recirculation rate	60 gallons per minute
Minimum packing depth	4.5 ft*
Manufacturer rated maximum concentration to atmosphere	50 ppm by volume (ppmv) NH_3

* These equipment specifications are listed for informational purposes only.

II.A.11 **Sulfuric Acid Scrubber**

Scrubber type	Packed adsorption tower
Minimum reagent recirculation rate	30 gallons per minute
Minimum packing depth	4 ft*
Manufacturer rated maximum concentration to atmosphere	5 ppmv H_2SO_4

* These equipment specifications are listed for informational purposes only.

II.A.12 **Hydrogen Sulfide Scrubber**

Scrubber type	Packed adsorption tower
Minimum reagent recirculation rate	50 gallons per minute
Minimum packing depth	10 ft*
Manufacturer rated maximum concentration to atmosphere	5 ppmv H_2S

* These equipment specifications are listed for informational purposes only.

II.A.13 **Silos with Bin Vents and Scrubber**

Manufacturer rated minimum control efficiency	99%*

* These equipment specifications are listed for informational purposes only.

II.A.14 **Emergency Generator**

Maximum generator rating	75 hp
Fuel Type	Propane

II.A.15 **Emergency Fire Water Pump**

Maximum generator rating	210 hp
Fuel Type	Ultra low sulfur diesel

II.A.16 **Calciner**

Maximum heat input	16 MMBTU/hr
Fuel type	natural gas
Maximum NO_x burner rating	45 ppm

II.A.17 **Two Dryers**

Maximum heat input	3 MMBTU/hr (each)
Fuel type	natural gas
Maximum NO_x burner rating	45 ppm

II.A.18 **Reoxidizer**

Maximum heat input	2.25 MMBTU/hr
Fuel type	natural gas
Maximum NO_x burner rating	45 ppm

II.A.19 **Solvent Extracting Lines**

Two solvent extraction lines with covers

II.A.20 **Test Lab Dust Collector**

Manufacturer rated minimum control efficiency	99%*

* These equipment specifications are listed for informational purposes only.

II.B Requirements and Limitations

II.B.1 **<u>Limitations and Testing Requirements</u>**

II.B.1.a Emissions to the atmosphere from the CHP Unit shall not exceed the following rates and concentrations:

Natural Gas Turbine combined with Duct Burner and with TEG Firing

Pollutant	Mass rate
NO_x	5.01 lbs/hr
CO	6.34 lbs/hr

[R307-401-8]

II.B.1.b Stack testing to show compliance with the emission limitations stated in the above condition for the CHP Unit shall be performed as specified below:

Emission Point	Pollutant	Test Frequency
Natural Gas Turbine and Duct Burner with TEG Firing	NO_x	#
	CO	#

\# Stack testing frequency for the gas turbine and duct burner combined are at least every 12-months based on the date of the last stack test. The Director may require testing at any time.

Test required every year after initial compliance test. If a test result is less than 60.0% of the limit specified in Condition II.B.1.a for three consecutive years, then that test may be performed every three years. If at any time a test is performed that is greater than 60.0% of the limit specified in Condition II.B.1.a, then that test will be required to be performed every year. After three consecutive tests with the test results less than 60.0%, the Director may be re-petitioned for less frequent testing.

Initial compliance testing for the natural gas turbine and duct burner is required. The initial test date shall be performed within 60 days after achieving the maximum heat input capacity production rate at which the affected facility will be operated and in no case later than 180 days after the initial start up of a new emission source. [R307-401-8]

II.B.1.c The following test methods and requirements shall be used when testing for the Combined Heat and Power Unit limitations listed above:

A. Notification

The Director shall be notified at least 30 days prior to conducting any required emission testing. A source test protocol shall be submitted to DAQ when the testing notification is submitted to the Director.

The source test protocol shall be approved by the Director prior to performing the test(s). The source test protocol shall outline the proposed test methodologies, stack to be tested, and procedures to be used. A pretest conference shall be held, if directed by the Director.

B. Sample Location

The emission point shall be designed to conform to the requirements of 40 CFR 60, Appendix A, Method 1, or other methods as approved by the Director.
An Occupational Safety and Health Administration (OSHA) or Mine Safety and Health Administration (MSHA) approved access shall be provided to the test location.

C. Volumetric Flow Rate

40 CFR 60, Appendix A, Method 2 or other testing methods approved by the Director.

D. NO_x - 40 CFR 60, Appendix A, Method 7, 7A, 7B, 7C, 7D or 7E

E. CO - 40 CFR 60, Appendix A, Method 10

F. Calculations

To determine mass emission rates (lbs/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.

G. Source Operation

For a new source/emission point, the production rate during all compliance testing shall be no less than 90% of the production capacity of the equipment. If the maximum production capacity has not been achieved at the time of the test, the following procedure shall be followed:

1) Testing shall be at no less than 90% of the production rate achieved to date.

2) If the test is passed, the new maximum allowable production rate shall be 110% of the tested achieved rate. This new allowable maximum production rate shall remain in affect until successfully tested at a higher rate. This process may be repeated until the maximum AO production rate is achieved.

For an existing source/emission point, the production rate during all compliance testing shall be no less than 90% of the maximum production achieved in the previous three (3) years. [R307-401-8]

II.B.1.d After the CHP Unit becomes operational, the following limits shall not be exceeded:

A. The amount of natural gas consumed at the MAP plant (excluding use for comfort heating) shall not exceed 1,310,153 dekatherms (MMBTU) per rolling 12-month period.

B. The hours of operation for the duct burners firing on fresh air shall not exceed 1,314 hours per rolling 12-month period.

Compliance with the gaseous fuel consumption limitation shall be determined by gaseous fuel supplier statements and/or heat input records. Heat input records shall be determined by the BTU value of the gaseous fuel. If natural gas is not used, daily records of the BTU value of the gaseous fuel used shall be kept. The method used to determine the BTU value shall be approved by the Director. Hours of operation shall be determined by supervisor monitoring and maintaining of an operations log. Records of monthly fuel consumption and hours of operation shall be maintained on site. Records shall include the total of the latest 12 consecutive months of gas consumed as determined by the vendor billing statements and/or heat input records and hours of operation. [R307-401-8]

II.B.1.e Visible emissions from the following emission points shall not exceed the following values:

A. All baghouses - 10% opacity
B. All boilers, dryers, calciners, and reoxidizers - 10% opacity
C. All natural gas-fired engines - 10% opacity
D. All scrubbers - 15% opacity
E. All conveyor transfer points - 15% opacity
F. All other points - 20% opacity

Opacity observations of emissions from stationary sources shall be conducted according to 40 CFR 60, Appendix A, Method 9.

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. [R307-401-8]

II.B.1.f The operation on the 75 hp emergency generator for maintenance and testing shall not exceed 100 hours per rolling 12-month period.

To determine compliance with a rolling 12-month total, KUC shall calculate a new 12-month total by the twentieth day of each month using data from the previous 12 months. An hour meter shall be installed on the generator and the hours of operation shall be maintained in an operations log which shall be maintained the supervisor. Hours of operation shall be kept on a monthly basis.

Emergency generators shall be used for electricity producing operation only during the periods when electric power from the public utilities is interrupted, or for regular maintenance of the generators. Records documenting generator usage shall be kept in a log; and they shall show the date the generator was used, the duration in hours of the generator usage, and the reason for each generator usage. [R307-401-8]

II.B.2 **Fuels**

II.B.2.a In the boiler, CHP turbine, CHP duct burner, and dryers, reoxidizer, and calciner, KUC shall only use natural gas as a fuel. [R307-401-8]

II.B.2.b In the emergency generator, KUC shall only use LP as a fuel. [R307-401-8]

II.B.2.c In the fire water pump, KUC shall only use ultra low sulfur diesel as a fuel. [R307-401-8]

II.B.3 **Monitoring**

II.B.3.a A manometer or magnehelic pressure gauge shall be installed to measure the differential pressure across the scrubbers and dust collector. The following operating parameters shall be maintained within the indicated ranges:

A. Autoclave Scrubber

The pressure drop shall not be less than 38" water column.

B. Ammonia Scrubber

The liquid flow rate shall not be less than 60 gpm.

C. Sulfuric Acid Scrubber

The liquid flow rate shall not be less than 30 gpm.

D. Hydrogen Sulfide Scrubber

The liquid flow rate shall not be less than 50 gpm.

E. Briquette Dryer and Packaging Area Dust Collectors

The pressure drop for each baghouse shall not be less than 4.0" water column.

They shall be monitored with equipment located such that an inspector/operator can safely read the output any time. Each operating parameter listed above shall be read and recorded at a minimum of once per week. The readings shall be accurate to within the following ranges:

F. Pressure drop - Plus or minus 0.25" water column for the Autoclave Scrubber and Briquette Dryer and Packaging Area Dust Collector.

G. Liquid flow rate - Plus or minus 5 gpm for the Ammonia Scrubber, Sulfuric Acid Scrubber and Hydrogen Sulfide Scrubber.

All instruments shall be calibrated according to the manufacturer's instructions at least once every 12 months. [R307-401-8]

II.B.4 **Miscellaneous Requirements**

II.B.4.a KUC shall notify the Director in writing when the installation of the equipment listed in Condition II.A has been completed and is operational. To insure proper credit when notifying the Director, send your correspondence to the Director, attn: Compliance Section.

AOs issued by the Director in accordance with the provisions of R307-401 will be reviewed 18 months after the date of issuance to determine the status of construction, installation, modification, relocation or establishment. In 18 months from the date of this AO, the Director shall be notified in writing on the status of the plant construction and installation of the equipment. If a continuous program of construction, installation, modification, relocation or establishment is not proceeding, the Director may revoke the AO. [R307-401]

II.B.4.b The autoclave venturi scrubber shall control process streams from the autoclave circuit. This two-stage scrubber shall be sized to handle at least 24,000 acfm. All exhaust air from the

autoclave processes shall be routed through the two-stage scrubber before being vented to the atmosphere. [R307-401-8]

II.B.4.c The Briquette Dryer Dust Collector shall control process streams from the Briquette Dryer. This baghouse shall be sized to handle at least 19,500 acfm. All exhaust air from the Briquette Dryer shall be routed through their respective baghouse before being vented to the atmosphere. [R307-401-8]

II.B.4.d The Packaging Area Dust Collector shall control process streams from Packaging Area. This baghouse shall be sized to handle at least 3,200 acfm. All exhaust air from the Packaging Area shall be routed through their respective baghouse before being vented to the atmosphere. [R307-401-8]

II.B.4.e The ammonia wet scrubber shall control process vents from the solvent extraction process, purification process, crystallization process, dryer/calciner process and the ammonia recovery. This wet scrubber shall be sized to handle at least 6,300 acfm. Exhaust air from the aforementioned processes shall be routed through the wet scrubber before being vented to the atmosphere. [R307-401-8]

II.B.4.f The sulfuric acid wet scrubber shall control process vents from the autoclave, alkali and acid leach tanks. This wet scrubber shall be sized to handle at least 4,000 acfm. Exhaust air from the aforementioned processes shall be routed through the wet scrubber before being vented to the atmosphere. [R307-401-8]

II.B.4.g The hydrogen sulfide wet scrubber shall control process streams from the copper precipitation tank and thickener and NAHS storage tank. This wet scrubber shall be sized to handle at least 1,700 acfm. All exhaust air from the NAHS storage tank, copper precipitation tanks and thickener shall be routed through the wet scrubber before being vented to the atmosphere. [R307-401-8]

Section III: APPLICABLE FEDERAL REQUIREMENTS

In addition to the requirements of this AO, all applicable provisions of the following federal programs have been found to apply to this installation. This AO in no way releases the owner or operator from any liability for compliance with all other applicable federal, state, and local regulations including UAC R307.

NSPS (Part 60), Db: Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units
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
Title V (Part 70) major source

PERMIT HISTORY

This AO is based on the following documents:

Incorporates	Additional Information dated February 1, 2013
Incorporates	Additional Information dated January 25, 2013
Incorporates	Additional Information dated January 22, 2013
Incorporates	Additional Information dated December 11, 2012
Incorporates	Additional Information dated December 6, 2012
Incorporates	Additional Information dated November 2, 2012
Incorporates	Additional Information dated October 29, 2012
Incorporates	Additional Information dated October 5, 2012
Incorporates	NOI dated September 28, 2012
Supersedes	AO DAQE-AN0103460046-10 dated August 10, 2010

ADMINISTRATIVE CODING

The following information is for UDAQ internal classification use only:

Salt Lake County
CDS A
NSPS (Part 60), Nonattainment or Maintenance Area, Title V (Part 70) major source, PM_{10} SIP / Maint Plan, Major criteria source,

ACRONYMS

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

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 EPA 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 - 40 CFR Part 98, Subpart A, Table A-1
COM	Continuous opacity monitor
DAQ	Division of Air Quality (typically interchangeable with UDAQ)
DAQE	This is a document tracking code for internal UDAQ use
EPA	Environmental Protection Agency
FDCP	Fugitive dust control plan
GHG	Greenhouse Gas(es) - 40 CFR 52.21 (b)(49)(i)
GWP	Global Warming Potential - 40 CFR Part 86.1818-12(a)
HAP or HAPs	Hazardous air pollutant(s)
ITA	Intent to Approve
LB/HR	Pounds per hour
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
UDAQ	Utah Division of Air Quality (typically interchangeable with DAQ)
VOC	Volatile organic compounds

State of Utah

GARY R. HERBERT
Governor

GREG BELL
Lieutenant Governor

Department of
Environmental Quality

Amanda Smith
Executive Director

DIVISION OF AIR QUALITY
Cheryl Heying
Director

DAQE-AN0103460045-10

April 6, 2010

Chris Kaiser
Kennecott Utah Copper LLC
12000 West 2100 South
PO Box 6001
Magna, UT 84044-6001

Dear Mr. Kaiser:

Re: Approval Order: Modification to Approval Order DAQE-AN0346030-07 to Add Combined Heat and Power Unit to Refinery
Project Number: N010346-0045

The attached document is the Approval Order for the above-referenced project. Future correspondence on this Approval Order should include the engineer's name as well as the DAQE number as shown on the upper right-hand corner of this letter. The project engineer for this action is Nando Meli Jr., who may be reached at (801) 536-4052.

Sincerely,

M. Cheryl Heying, Executive Secretary
Utah Air Quality Board

MCH:NM:kw

cc: Mike Owens
Salt Lake Valley Health Department

STATE OF UTAH

Department of Environmental Quality

Division of Air Quality

APPROVAL ORDER: Modification to Approval Order DAQE-AN0346030-07 to Add Combined Heat and Power Unit to Refinery

Prepared By: Nando Meli Jr., Engineer
Phone: (801) 536-4052
Email: nmeli@utah.gov

APPROVAL ORDER NUMBER

DAQE-AN0103460045-10

Date: April 6, 2010

Kennecott Utah Copper LLC
Smelter & Refinery
Source Contact:
Mr. Ryan Evans
Phone: (801) 569-6449

M. Cheryl Heying
Executive Secretary
Utah Air Quality Board

Abstract

Kennecott Utah Copper LLC (KUC) has requested approval to construct a new Combined Heat and Power (CHP) Unit at their Refinery. The refinery is located in the Magna area of Salt Lake County. The CHP Unit is natural gas fired and has been designed to provide electricity and to replace the steam currently provided by the north and south boilers. It will be a natural-gas-fired turbine and generator with supplemental burners and a heat recovery steam generator. The existing boilers will remain at the Refinery in stand-by capacity to meet steam demand if needed. The operation of the CHP Unit and the boilers are limited by a natural gas consumption limit. Currently it is 1,664,400 dekatherms per rolling 12-month period and will be decreased to 1,562,777 dekatherms per rolling 12-month period. The CHP Unit will generate up to 6.2 megawatts (MW) of electrical energy and produce up to 70,000 pounds per hour (lb/hr) of steam. The CHP Unit will implement the latest control technologies to reduce emissions.

Salt Lake County is a Non-attainment area of the NAAQS for PM_{10}, $PM_{2.5}$ and SO_2, and is a Maintenance area for Ozone. Title V of the 1990 Clean Air Act applies to this source. The Title V operating permit for this source shall be amended prior to the implementation of the requested modifications. The net emissions increase (actual to potential), in TPY, will be as follows: PM_{10} = 8.38, $PM_{2.5}$ = 8.38, NO_x =14.99, SO_2 = 1.21, CO = 35.48, VOC = 6.53, and HAPs 0.31. The changes in TPY emissions will result in the following potential to emit totals: PM_{10} = 25.64, $PM_{2.5}$ = 25.64, NO_x = 38.57, SO_2 = 4.44, CO = 37.42, VOC = 8.42 and HAPs = 3.42.

This air quality AO authorizes the project with the following conditions and failure to comply with any of the conditions may constitute a violation of this order. This AO is issued to, and applies to the following:

Name of Permittee:	**Permitted Location:**
Kennecott Utah Copper LLC 12000 West 2100 South PO Box 6001 Magna, UT 84044-6001	Smelter & Refinery 12000 West 2100 South Magna, UT 84044

UTM coordinates: 399000 m Easting, 4508000 m Northing, UTM Zone 12
SIC code: 3331 (Primary Smelting & Refining of Copper)

Section I: GENERAL PROVISIONS

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]

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 Executive Secretary or Executive Secretary's representative upon request, and the records shall include the two-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. [R307-415-6b]

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 Executive Secretary 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 R307-150 Series. Inventories, Testing and Monitoring. [R307-150]

I.7 The owner/operator shall comply with UAC R307-107. General Requirements: Unavoidable Breakdowns. [R307-107]

Section II: SPECIAL PROVISIONS

II.A The approved installations shall consist of the following equipment:

II.A.1 **Plantwide**

Electrolytic Copper Refinery, Precious Metals Refinery and Combined Heat Power Unit

II.A.2 **Cathode Washing**

Cathodes are transported from the "tankhouse" by transfer cars to the Machine and Product Control (MPC) building where they are washed. Acid mist produced is collected through local hooding and passed through demister pads.

II.A.3 **Anode Scrap Washing**

Spent anodes are transported from the "tankhouse" by transfer cars to the MPC building where they are washed. Acid mist produced is collected through local hooding and passed through demister pads.

II.A.4 **Liberator**

A small amount of electrolyte is circulated from the electrolytic tanks to the liberator electrowinning process, used to control concentration of copper in solution. The electrolyte purification demister pad collects mist emitted from the liberator.

II.A.5 **Refinery Laboratory Sample Preparation**

A laboratory induction furnace is hooded and vented inside the MPC building

II.A.6 **Precious Metals Filter Presses**

Product lead carbonate and crude selenium are dewatered in filter presses, which are vented during emptying and cleaning through the precious metals filter press baghouse.

II.A.7 **Selenium Crushing and Packaging**

Either purified (retorted and condensed) selenium is crushed, sized, and packaged for shipment or filtered crude selenium is packaged for shipment. This system vents to a baghouse.

II.A.8 **Gold/Silver Recovery**

Following leaching and solvent extraction processes, gold and silver are melted in furnaces to produce bullion. Emissions from drying of precious metals sands and from metals volatilized during melting processes are vented to a baghouse.

II.A.9 **Tank House Boiler #1 (North)**

Capacity at peak efficiency:	82 MMBTU/hr gas 79 MMBTU/hr oil
Burners:	Low NO_x with flue gas recirculation

Capable of burning natural gas, landfill gas, or fuel oil, (equipped with low excess air, low NO_x burner and flue gas recirculation technologies) are used to generate steam to heat electrolyte solution.

II.A.10 **Tank House Boiler #2 (South)**

Capacity at peak efficiency:	82 MMBTU/hr gas 79 MMBTU/hr oil
Burners:	Low NO_x with flue gas recirculation

Capable of burning natural gas, landfill gas, or fuel oil, (equipped with low excess air, low NO_x burner and flue gas recirculation technologies) are used to generate steam to heat electrolyte solution.

II.A.11 **Refinery Cooling Towers**

Two water cooling towers are in operation at the refinery.

II.A.12 **Refinery Cold Solvent Degreasers**

Organic solvent is used in degreasing tanks for small parts washing. The cold solvent degreasers have a total throughput of approximately 25 gallons solvent per year.

II.A.13 **Emergency Generator - Communications**

One liquefied petroleum gas (LPG) fired emergency generator with a maximum rating of 75 brake horsepower used for emergency powering of the refinery communication systems during primary power supply outages.

II.A.14 **Emergency Generator - Precious Metals**

One #2 diesel fired emergency generator for emergency powering of the refinery precious metals plant rated at no greater than 487.5 hp

II.A.15 **Fueling Station Unleaded Gasoline Storage Tank**

2,500-gallon capacity above ground unleaded gasoline storage tank with approximately 12,800 gallons throughput per year. The gasoline is delivered to the storage tank by bulk truck and is dispensed to light duty vehicles as required.

II.A.16 **Refinery Paint Shop**

Paint shop surface coating with organic solvent evaporation from stripping. Annual usage equals approximately 23 gallons per year of paint primer & 106 gallons per year of paint.

II.A.17 **Electrolytic Refining Tanks**

Copper anodes produced at the smelter are immersed in heated electrolyte, a solution of sulfuric acid and copper sulfate, in polymer concrete tanks in the tankhouse building. Copper cathodes are produced by an electrolytic refining process.

II.A.18 **Hydrometallurgical Precious Metals Recovery**

Gold, silver, selenium, copper telluride, and lead salts are recovered in a series of hydrometallurgical processes. Acidic gases from the processes are collected, scrubbed with a soda ash solution, and exhausted through the sodium based scrubber.

II.A.19 **Hydrometallurgical Silver Production**

Ammonium hydroxide is used to leach silver from a solid mixture. Ammonia is recovered and regenerated in a closed loop system. H_2SO_4 is used to precipitate the silver chloride salt. Ammonia vapor from this process is ducted to an acidic scrubber.

II.A.20 **Soda Ash Silo**

Soda ash for feeding sodium based scrubber is stored in a silo. Air displaced in the silo during soda ash loading is passed through a baghouse.

II.A.21 **Refinery Volatile Organic Liquid Storage Tanks**

Two 37,000 gallon and one 500 gallon fuel oil storage tanks located in the refinery area

II.A.22 **Combined Heat and Power (CHP) Unit**

Manufacturer	Solar Turbines, Inc. (for turbine) and CB Energy (for duct burner)
Model	Taurus 70-10301S Axial turbine with Turbine Electric Generator (TEG), duct burner and Heat Recovery Steam Generator (HRSG)
Fuel	One natural gas turbine and one natural gas duct burner
Maximum burner rating	120.6 MMBtu/hr at 0ºF and 50% relative humidity 9.0 ppm NO_x @ 15% oxygen (turbine only) 25.0 ppm CO @ 15% oxygen (turbine only)

II.A.23 **Miscellaneous Natural Gas Fired Equipment**

Natural gas fired equipment including water heaters or comfort heaters that are each individually rated at less than 5 MMBTU/hr. This equipment is listed for informational purposes only.

II.B Requirements and Limitations

II.B.1 **<u>Stack Testing Requirements for Electrolytic Copper Refinery, Precious Metals Refinery and Combined Heat Power Unit</u>**

II.B.1.a Emissions to the atmosphere from the indicated emission points for the Electrolytic Copper Refinery and Precious Metals Refinery shall not exceed the following rates and concentrations:

Electrolyte Purification Liberator w/Demister Pads

Acid Mist	0.46 lbs/hr	0.004 grains/dscf

Each Boiler

NO_x	4.75 lbs/hr
CO	3.00 lbs/hr

Cathode Wash with Demister Pads

Acid Mist	0.12 lbs/hr	0.0008 grains/dscf

Scrap Wash with Demister Pads

Acid Mist	0.02 lbs/hr	0.0008 grains/dscf

Hydrometallurgical Precious Metals Recovery Scrubber

SO_2	1.7 lbs/hr	
Pb	0.02 lbs/hr	
HCl	0.22 lbs/hr	0.003 grains/dscf
H_2SO_4	0.36 lbs/hr	0.005 grains/dscf

Hydrometallurgical Silver Production Scrubber

H_2SO_4	0.22 lbs/hr	0.009 grains/dscf
NH_3	0.14 lbs/hr	

Gold/Silver Recovery Baghouse

PM_{10}	0.43 lbs/hr	0.010 grains/dscf

The above emission limits shall not be exceeded, while the efficiencies of indicated control equipment below shall not be less than the following levels:

Hydrometallurgical Precious Metals

Recovery Scrubber	50% control efficiency for inlet loadings of SO_2 greater than or equal to 1.7 lbs/hr
Hydrometallurgical Silver Production Scrubber	50% control efficiency for inlet loadings of NH_3 greater than or equal to 0.02 lbs/hr

Compliance with the above control efficiencies shall be determined concurrently with determination of compliance of the emission limitations. Both limitations shall be used to determine compliance. [R307-401]

II.B.1.b Stack testing to show compliance with the emission limitations for the Electrolytic Copper Refinery and Precious Metals Refinery stated in the above condition shall be performed as specified below:

Emission Point	Pollutant	Test Frequency
Electrolyte Purification Liberator w/Demister Pads	H_2SO_4	#
Boilers (each boiler)	NO_x@	*
	CO	*
Cathode Wash with Demister Pads	H_2SO_4	#
Scrap Wash with Demister Pads	H_2SO_4	#
Hydrometallurgical Precious Metals Recovery Scrubber	SO_2	#
	Pb	#
	HCl	#
	H_2SO_4	#

Hydrometallurgical Silver Production Scrubber	H_2SO_4	#
	NH_3	#
Gold/Silver Recovery Baghouse	PM_{10}	#

Test every three years or sooner from when the most recent stack test was performed. Every three years means the test must be performed every third year and in the same calendar quarter in which the most recent test was performed.

If the test results are less than 60.0% of the limit specified in Condition II.B.1.a for three consecutive tests, then KUC may petition the Executive Secretary to perform the test at a less frequent rate. If at any time a test is performed that is greater than 60% of the limit specified in Condition II.B.1.b, then that test will be required to be performed every three years until that test is performed for three consecutive tests. After three consecutive tests with the test results less than 60.0% the Executive Secretary may be repetitioned for less frequent testing.

* Test every three years or sooner from when the most recent stack test was performed. Every three years means the test must be performed every third year and in the same calendar quarter in which the most recent test was performed.

@ Provided that the two boilers are identical in make, model, and pollution control technology, compliance with the emission limitation by the second boiler shall be determined by the stack test of the first boiler. The boilers shall be tested within 180 days after Kennecott has started to use landfill gas as a fuel for greater than a combined total of 60 days of firing in the boilers. A combined total of 60 days or less using landfill gas will not trigger stack testing under this requirement. [R307-401]

II.B.1.c Emissions to the atmosphere from the CHP Unit shall not exceed the following rates and concentrations:

Natural Gas Turbine combined with Duct Burner and with TEG Firing

NO_x	5.96 lbs/hr
CO	7.33 lbs/hr.

[R307-401-8]

II.B.1.d Stack testing to show compliance with the emission limitations stated in the above condition for the CHP unit shall be performed as specified below:

Emission Point	Pollutant	Test Frequency
Natural Gas Turbine and Duct Burner with TEG Firing	NO_x	#
	CO	#

Stack testing frequency for the gas turbine and duct burner combined are at least every 12-months based on the date of the last stack test. The Executive Secretary may require testing at any time.

Test required every year after initial compliance test. If a test result is less than 60.0% of the limit specified in Condition II.b.1.c for three consecutive years, then that test may be performed every three years. If at any time a test is performed that is greater than 60.0% of the limit specified in Condition II.b.1.c, then that test will be required to be performed every year until that test is performed for three consecutive years. After three consecutive tests with the test results less than 60.0% the Executive Secretary may be repetitioned for less frequent testing.

Initial compliance testing for the natural gas turbine and duct burner is required. The initial test date shall be performed within 60 days after achieving the maximum heat input capacity production rate at which the affected facility will be operated and in no case later than 180 days after the initial start up of a new emission source. [R307-401]

II.B.1.e The following test methods and requirements shall be used when testing for the CHP Unit limitations listed above:

A. Notification

The Executive Secretary shall be notified at least 30 days prior to conducting any required emission testing. A source test protocol shall be submitted to DAQ when the testing notification is submitted to the Executive Secretary.

The source test protocol shall be approved by the Executive Secretary prior to performing the test(s). The source test protocol shall outline the proposed test methodologies, stack to be tested, and procedures to be used. A pretest conference shall be held, if directed by the Executive Secretary.

B. Sample Location

The emission point shall be designed to conform to the requirements of 40 CFR 60, Appendix A, Method 1, or other methods as approved by the Executive Secretary. An Occupational Safety and Health Administration (OSHA) or Mine Safety and Health Administration (MSHA) approved access shall be provided to the test location.

C. Volumetric Flow Rate

40 CFR 60, Appendix A, Method 2 or other testing methods approved by the Executive Secretary.

D. NO_x - 40 CFR 60, Appendix A, Method 7, 7A, 7B, 7C, 7D or 7E

E. CO - 40 CFR 60, Appendix A, Method 10

F. Calculations

To determine mass emission rates (lbs/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 Executive Secretary to give the results in the specified units of the emission limitation.

G. Source Operation

For a new source/emission point, the production rate during all compliance testing shall be no less than 90% of the production capacity of the equipment. If the maximum production capacity has not been achieved at the time of the test, the following procedure shall be followed:

1) Testing shall be at no less than 90% of the production rate achieved to date.

2) If the test is passed, the new maximum allowable production rate shall be 110% of the tested achieved rate. This new allowable maximum production rate shall remain in affect until successfully tested at a higher rate.

3) KUCC shall request a higher production rate when necessary. Testing at no less than 90% of the higher rate shall be conducted. A new maximum production rate (110% of the new rate) will then be allowed if the test is successful. This process may be repeated until the maximum AO production rate is achieved.

For an existing source/emission point, the production rate during all compliance testing shall be no less than 90% of the maximum production achieved in the previous three (3) years. [R307-401-8]

II.B.1.f Prior to the CHP Unit becoming operational, the amount of gaseous fuel consumed at the entire refinery shall not exceed 1,664,400 dekatherms per rolling 12-month period. [R307-401]

II.B.1.g After the CHP Unit becomes operational, the following limits shall not be exceeded:

A. The amount of gaseous fuel consumed at the Electrolytic Copper Refinery, Precious Metals Refinery and the CHP Unit shall not exceed 1,562,777 dekatherms (MMBTU) per rolling 12-month period.

B. The hours of operation for the duct burners on fresh air shall not exceed 876 hours per rolling 12-month period.

Compliance with the gaseous fuel consumption limitation shall be determined by gaseous fuel supplier statements and/or heat input records. Heat input records shall be determined by the BTU value of the gaseous fuel. If natural gas is not used, daily records of the BTU value of the gaseous fuel used shall be kept. The method used to determine the BTU value shall be approved by the Executive Secretary. Hours of operation shall be determined by supervisor monitoring and maintaining of an operations log. Records of monthly fuel consumption and

hours of operation shall be maintained on site. Records shall include the total of the latest 12 consecutive months of gas consumed as determined by the vendor billing statements and/or heat input records and hours of operation. [R307-401]

II.B.1.h KUC shall notify the Executive Secretary in writing when the installation of the equipment listed in Condition II.A.22 has been completed and is operational. To ensure proper credit when notifying the Executive Secretary, send your correspondence to the Executive Secretary, Attn: Compliance Section.

If the construction of the CHP Unit has not been completed within 18 months from the date of this AO, the Executive Secretary shall be notified in writing on the status of the construction. At that time, the Executive Secretary shall require documentation of the continuous construction of the CHP Unit and may revoke the AO in accordance with R307-401-18. [R307-401]

II.B.2 **Visible Emissions**

II.B.2.a Visible emissions from the following emission points at the refinery and the CHP shall not exceed the following opacity values:

A. Electrolytic Copper Refinery and Precious Metals Refinery Emission Points

1)	Boiler Stack (each or Combined)	10%
2)	Precious Metals Filter Press Baghouse	10%
3)	Selenium Crushing and Packaging Baghouse	10%
4)	Gold/Silver Recovery Baghouse	10%
5)	Soda Ash Silo Exhaust Vent Filter	10%
6)	Electrolyte Purification Liberator Exhaust	15%
7)	Cathode Wash Exhaust	15%
8)	Scrap Wash Process Exhaust	15%
9)	Hydrometallurgical Precious Metals Recovery Scrubber Exhaust	15%
10)	Hydrometallurgical Silver Production Scrubber Exhaust	15%
11)	Fugitive Emissions	15%
12)	Precious Metals Emergency Generator	20%
13)	Fugitive Dust	20%

B. CHP Emission Points

1)	Turbine and Duct Burner	10%
2)	All other Emissions	10%

Opacity observations of emissions from stationary sources shall be conducted according to 40 CFR 60, Appendix A, Method 9. [R307-170-9]

II.B.3 **Roads and Fugitives**

II.B.3.a All roads, service yards, and permanent parking lots associated with refining operations shall be paved. Fugitive dust generated from these areas shall be limited to 20% opacity. Methods of control shall include, but not be limited to, sweeping and water flushing of the affected areas. [R307-205]

II.B.3.b Control of fugitive dust from disturbed or stripped areas is required at all times (24 hours per day every day) for the duration of the operation so that the opacity does not exceed 20%. Methods of control of fugitive emissions from these areas shall include, but not be limited to, water treatments or chemical treatments. [R307-205]

II.B.4 **Fuels**

II.B.4.a KUC shall only use natural gas or landfill gas as a primary fuel in the boilers. The boilers may be equipped to operate on #2 fuel oil, however, operation of the boilers on #2 fuel oil shall only occur during periods of natural gas curtailment and during testing and maintenance periods. Operation of the boilers on #2 fuel oil during periods of natural gas curtailment shall be reported to the Executive Secretary within one working day of start-up. Emissions resulting from operation of the boiler on #2 fuel oil during periods of natural gas curtailment shall be reported to the Executive Secretary within 30 days following the use of #2 fuel oil in the boilers. Use of #2 fuel oil during testing and maintenance periods lasting less than 24-hours in duration shall be recorded, but shall not require reporting to the Executive Secretary under this condition. [R307-401]

II.B.4.b KUC shall only use natural gas as a fuel in the CHP turbine and the duct burner. [R307-401]

II.B.4.c KUC shall only use LP as a fuel in the communications emergency generator. [R307-401]

II.B.4.d The sulfur content of any fuel oil burned in the boilers shall not exceed 0.50 percent by weight. The sulfur content shall be determined by ASTM Method D-4294-89 or approved equivalent. Certification of fuel oil sulfur content shall be either by KUC's own testing or test reports from the fuel marketer. [R307-401]

II.B.5 **Monitoring**

II.B.5.a The pressure drop for the Selenium Crushing and Packaging Baghouse shall not be less than 1.0 inch of water column or more than 6.0 inches of water column. The pressure drop shall be monitored with equipment located such that an inspector/operator can safely read the output at any time.

All instruments shall be calibrated according to the manufactures instructions at least once every year. Continuous or intermittent recording of the reading is not required. It shall be recorded on a monthly basis. If the pressure drop remains out of range for greater than 48 operating hours from the initial out of range reading it shall be considered a deviation from this AO condition. [R307-401]

II.B.5.b KUC shall install monitoring devices for the continuous measurement of the pressure drop of the gas stream and the scrubbing liquid flow rate through each scrubber. These monitoring devices should be of the type(s) supplied as part of the original equipment or an alternate of similar design that meets monitoring performance requirements. [R307-401]

II.B.5.c The monitors required for the scrubbers that measure scrubbing liquid flow rate and gas stream pressure drop shall be installed such that an inspector/operator can safely read the output at any time. [R307-401]

II.B.5.d KUC shall calibrate, maintain, and operate monitoring devices for the continuous measurement of the pressure drop of the gas stream and the scrubbing liquid flow rate through each scrubber. The pressure drop and scrubbing liquid flow rate shall be maintained within manufacturers' recommended operating ranges. The readings for gas stream pressure drop shall be accurate to one-inch water gauge. The readings for scrubbing liquid flow rate shall be accurate to five gallons per minute. The instruments shall be calibrated according to the manufacturer's instructions at least semi-annually (every six months), except for those instruments that are sealed by the manufacturer and cannot be calibrated. Continuous recording for the monitoring device is not required. However, daily records of the readings shall be maintained. If the pressure drop or the liquid flow rate remains out of range for greater than 48 operating hours from the initial out of range reading it shall be considered a deviation from this AO condition. [R307-401]

Section III: APPLICABLE FEDERAL REQUIREMENTS

In addition to the requirements of this AO, all applicable provisions of the following federal programs have been found to apply to this installation. This AO in no way releases the owner or operator from any liability for compliance with all other applicable federal, state, and local regulations including UAC R307.

NSPS (Part 60), Dc: Small Indus Com InstitnSteamGenratr
NSPS (Part 60), KKKK: Stationary Combustion Turbines
NSPS (Part 60), Db: Indus Com Institn Steam Generator
NSPS (Part 60), P: Primary Copper Smelters

PERMIT HISTORY

This AO is based on the following documents:

Incorporates	Additional Information dated January 20, 2010
Incorporates	Additional Information dated January 14, 2010
Incorporates	Additional Information dated January 13, 2010
Incorporates	Additional Information dated December 22, 2009

Incorporates	Additional Information dated December 21, 2009
Incorporates	Additional Information dated December 8, 2009
Incorporates	Additional Information dated November 30, 2009
Incorporates	Additional Information dated November 23, 2009
Incorporates	Additional Information dated November 9, 2009
Incorporates	Additional Information dated October 21, 2009
Incorporates	Additional Information dated August 25, 2009
Incorporates	Additional Information dated August 11, 2009
Incorporates	Additional Information dated July 2, 2009
Incorporates	Additional Information dated March 23, 2009
Incorporates	Additional Information dated January 20, 2009
Incorporates	Additional Information dated January 13, 2009
Incorporates	Additional Information dated December 29, 2008
Incorporates	Additional Information dated December 16, 2008
Incorporates	Additional Information dated November 11, 2008
Incorporates	Additional Information dated October 14, 2008
Incorporates	Additional Information dated October 1, 2008
Incorporates	Additional Information dated September 30, 2008
Incorporates	NOI dated September 24, 2008
Supersedes	DAQE-AN0346030-07 dated January 8, 2007
Used (in conjunction) With	PM_{10} SIP Section IX, Part H, Subpart 2.j(2) dated July 6, 2005

ADMINISTRATIVE CODING

The following information is for UDAQ internal classification use only:

Salt Lake County
CDS A
Major criteria source, NSPS (Part 60), Nonattainment or Maintenance Area, PM_{10} SIP / Maint Plan, Title V (Part 70) Major source

ACRONYMS

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

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 EPA to classify sources by size/type)
CEM	Continuous emissions monitor
CEMS	Continuous emissions monitoring system
CFR	Code of Federal Regulations
CO	Carbon monoxide
COM	Continuous opacity monitor
DAQ	Division of Air Quality (typically interchangeable with UDAQ)
DAQE	This is a document tracking code for internal UDAQ use
EPA	Environmental Protection Agency
HAP or HAPs	Hazardous air pollutant(s)
ITA	Intent to Approve
LB/HR	Pounds per hour
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
UDAQ	Utah Division of Air Quality (typically interchangeable with DAQ)
VOC	Volatile organic compounds

III. Holman Boiler	NO_X	CEM or alternate method determined according to applicable NSPS standards

A. During startup/shutdown operations, NO_x and SO_2 emissions are monitored by CEMS or alternate methods in accordance with applicable NSPS standards-.

ii. REFINERY:

A. Emissions to the atmosphere from the indicated emission point shall not exceed the following rate:

EMISSION POINT	POLLUTANT	MAXIMUM EMISSION RATE
The sum of two (Tankhouse) Boilers	NO_X	9.5 lbs/hr
Combined Heat Plant	NO_X	5.96 lbs/hr

B. Stack testing to show compliance with the above emission limitations shall be performed as follows:

EMISSION POINT	POLLUTANT	TESTING FREQUENCY
Tankhouse Boilers	NO_X	every three years
Combined Heat Plant	NO_X	every year

To determine mass emission rate, the pollutant concentration as determined by the appropriate methods above, shall be multiplied by the volumetric flow rate and any necessary conversion factors to give the results in the specified units of the emission limitation. Provided that the two boilers installed are identical in make, model, and pollution control equipment, compliance with the emission limitation by the second boiler shall be determined by the stack test of the first boiler.

C. The owner/operator shall use only natural gas or landfill gas as a primary fuel in the boilers. The boilers may be equipped to operate on #2 fuel oil; however, operation of the boilers on #2 fuel oil shall only occur during periods of natural gas curtailment and during testing and maintenance periods. Operation of the boilers on #2 fuel oil shall be reported to the Director within one working day of start-up. Emissions resulting from operation of the boiler on #2 fuel oil shall be reported to the Director within 30 days following the use of #2 fuel oil in the boilers.

D. Standard operating procedures shall be followed during startup and shutdown

operations to minimize emissions.

iii. MAP:

A. Emissions to the atmosphere from the Natural Gas Turbine combined with Duct Burner and with TEG Firing shall not exceed the following rate:

EMISSION POINT	POLLUTANT	MAXIMUM EMISSION RATE
Combined Heat Plant	NO_X	5.01 lbs/hr

B. Stack testing to show compliance with the above emission limitations shall be performed as follows:

EMISSION POINT	POLLUTANT	TESTING FREQUENCY
Combined Heat Plant	NO_X	every year

To determine mass emission rates (lbs/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 to give the results in the specified units of the emission limitation.

C. Standard operating procedures shall be followed during startup and shutdown operations