



State of Utah

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Department of  
Environmental Quality

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*Executive Director*

DIVISION OF AIR QUALITY  
Bryce C. Bird  
*Director*

DAQ-046-16

**MEMORANDUM**

**TO:** Air Quality Board

**THROUGH:** Bryce C. Bird, Executive Secretary

**FROM:** Bill Reiss, Environmental Engineer

**DATE:** August 25, 2016

**SUBJECT:** PROPOSE FOR PUBLIC COMMENT: Amend SIP Subsection IX. Part H: Emission Limits and Operating Practices. Specifically Proposed for Amendment are the PM<sub>2.5</sub> Requirements in Subparts H. 11, 12, and 13, and the PM<sub>10</sub> Requirements in Subpart H.2.

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On December 3, 2014, the Board adopted the State Implementation Plan (SIP) Subsection IX. Part H. subparts 11, 12, and 13: Control Measures for Area and Point Sources, Emission Limits and Operating Practices, PM<sub>2.5</sub> Requirements. The terms in these subparts enforce the plan requirements for stationary sources located in the Salt Lake City and Provo PM<sub>2.5</sub> nonattainment areas. Part H was submitted to EPA as part of the Moderate Area PM<sub>2.5</sub> SIP for each area.

Part H also includes, in subparts 1–4, emission limits and operating practices specific to PM<sub>10</sub>. The Board revised these subparts, in support of PM<sub>10</sub> Maintenance Plans for the Salt Lake County and Utah County nonattainment areas, on December 2, 2015. These PM<sub>10</sub> emission limits and operating practices were written to be as consistent as possible with the PM<sub>2.5</sub> limits and practices in subparts 11–13. As such, the revisions to the PM<sub>10</sub> limits also addressed comments made by the EPA in its review of the draft 2014 PM<sub>2.5</sub> SIP.

Some of those comments could not be addressed at the time the SIP was finalized, so in essence, the PM<sub>10</sub> conditions had “leap-frogged” the corresponding PM<sub>2.5</sub> conditions.

Most of the amendments proposed herein are intended as a final “clean-up” of the PM<sub>2.5</sub> conditions. The amendments will make the PM<sub>2.5</sub> conditions in Part H consistent with the corresponding PM<sub>10</sub> conditions. This clean-up will address all of EPA’s comments. Most importantly, this effort is intended to facilitate EPA’s review and ultimate approval of the Moderate Area PM<sub>2.5</sub> SIPs for the Salt Lake City and Provo nonattainment areas, as well as the PM<sub>10</sub> Maintenance Plans. Part H is central to both SIPs.

The proposed PM<sub>2.5</sub> revisions can be generalized to cover the following objectives:

**Source Monitoring:** To require the use of Continuous Emission Monitoring Systems (CEMS) wherever feasible, assign stack testing frequencies at no less than once every 3 years, and employ where practicable the use of interim, parametric monitoring (between stack tests).

**Emission Limits:** To match the emission limits with the 24-hour averaging period of the PM<sub>2.5</sub> National Ambient Air Quality Standard (NAAQS), include condensable PM<sub>2.5</sub> in the limits where appropriate, and generally ensure federal enforceability.

In addition to the objectives summarized above, the proposed PM<sub>2.5</sub> amendments include:

- Corrections to emission limits at Chemical Lime Company (H.12.e) based on updated emission factors.
- Revision to the compliance schedule for Compass Minerals (formerly Great Salt Lake Minerals, at H.12.g).
- Elimination of the conditions for Hill Air Force Base (H.12.i). RACT will instead be insured through compliance with R307-355, Control of Emissions from Aerospace Manufacture and Rework Facilities.
- Clarification of the terms affecting units 1, 2, and 3 at Kennecott's Utah Power Plant (H.12.k).
- Elimination of the conditions for Vulcraft/Nucor Building Systems (H.12.u). RACT will instead be insured through compliance with R307-350, Miscellaneous Metal Parts and Products Coatings.

Finally, existing language at Part H.11.g.vii, which was intended to facilitate the production of gasoline meeting the sulfur specification of Tier 3, cannot be approved by EPA. The proposed revision eliminates this language.

The only proposed revision to Part H affecting PM<sub>10</sub> re-introduces a requirement for Kennecott to operate its existing wet scrubber at the Copperton Concentrator (H.2.g.2). This revision will not affect emissions. Rather, it addresses a potential backsliding issue that would have hampered Region 8's approval of the PM<sub>10</sub> Maintenance Plan.

**Staff Recommendation:** Staff recommends that the Board propose for public comment SIP Subsection IX. Part H: Emission Limits and Operating Practices, as amended in subparts 2, 11, 12, and 13.

## H.2 Source Specific Emission Limitations in Salt Lake County PM<sub>10</sub> Nonattainment/Maintenance Area

g. Kennecott Utah Copper (KUC): Mine

i. Bingham Canyon Mine (BCM)

A. Maximum total mileage per calendar day for ore and waste haul trucks shall not exceed 30,000 miles.

KUC shall keep records of daily total mileage for all periods when the mine is in operation. KUC shall track haul truck miles with a Global Positioning System or equivalent. The system shall use real time tracking to determine daily mileage.

B. To minimize fugitive dust on roads at the mine, the owner/operator shall perform the following measures:

I. Apply water to all active haul roads as weather and operational conditions warrant except during precipitation or freezing weather conditions, and shall apply a chemical dust suppressant to active haul roads located outside of the pit influence boundary no less than twice per year.

II. Chemical dust suppressant shall be applied as weather and operational conditions warrant except during precipitation or freezing weather conditions on unpaved access roads that receive haul truck traffic and light vehicle traffic.

III. Records of water and/or chemical dust control treatment shall be kept for all periods when the BCM is in operation.

IV. KUC is subject to the requirements in the most recent federally approved Fugitive Emissions and Fugitive Dust rules.

C. To minimize emissions at the mine, the owner/operator shall:

I. Control emissions from the in-pit crusher with a baghouse.

D. Implementation Schedule

KUC shall purchase new haul trucks with the highest engine Tier level available which meet mining needs. KUC shall maintain records of haul trucks purchased and retired

ii. Copperton Concentrator (CC)

A. Control emissions from the Product Molybdenite Dryers with a scrubber during operation of the dryers.

During operation of the dryers, the static pressure differential between the inlet and outlet of the scrubber shall be within the manufacturer's recommended range and shall be recorded weekly.

The manometer or the differential pressure gauge shall be calibrated according to the manufacturer's instructions at least once per year.

i. ~~Bingham Canyon Mine (BCM)~~

- A. ~~Maximum total mileage per calendar day for ore and waste haul trucks shall not exceed 30,000 miles.~~

~~KUC shall keep records of daily total mileage for all periods when the mine is in operation. KUC shall track haul truck miles with a Global Positioning System or equivalent. The system shall use real-time tracking to determine daily mileage.~~

- B. ~~KUC shall use ultra-low sulfur diesel fuel in its haul trucks.~~

- C. ~~To minimize emissions at the mine, the owner/operator shall:~~

I. ~~Control emissions from the in-pit crusher with a baghouse.~~

II. ~~Use ore conveyors as the primary means for transport of crushed ore from the mine to the concentrator.~~

- D. ~~To minimize fugitive dust on roads at the mine, the owner/operator shall perform the following measures:~~

I. ~~Apply water to all active haul roads as weather and operational conditions warrant except during precipitation or freezing weather conditions, and shall apply a chemical dust suppressant to active haul roads located outside of the pit influence boundary no less than twice per year.~~

II. ~~Chemical dust suppressant shall be applied as weather and operational conditions warrant except during precipitation or freezing weather conditions on unpaved access roads that receive haul truck traffic and light vehicle traffic.~~

- E. ~~KUC is subject to the requirements in the most recent federally approved Fugitive Emissions and Fugitive Dust rules.~~

## H.11. General Requirements: Control Measures for Area and Point Sources, Emission Limits and Operating Practices, PM<sub>2.5</sub> Requirements~~H.11. General Requirements~~

- a. Except as otherwise outlined in individual conditions of this Subsection IX.H.11 listed below, the terms and conditions of this Subsection IX.H.11 shall apply to all sources subsequently addressed in Subsection IX.H.12 and 13. Should any inconsistencies exist between these ~~two~~ subsections, the source specific conditions listed in IX.H.12 and 13 shall take precedence.
- b. Definitions:
  - i. The definitions contained in R307-101-2, Definitions, apply to Section IX, Part H.
  - ii. Natural gas curtailment means a period of time during which the supply of natural gas to an affected facility is halted for reasons beyond the control of the facility. The act of entering into a contractual agreement with a supplier of natural gas established for curtailment purposes does not constitute a reason that is under the control of a facility for the purposes of this definition. An increase in the cost or unit price of natural gas does not constitute a period of natural gas curtailment.
- c. Recordkeeping and Reporting:
  - i. Any information used to determine compliance shall be recorded for all periods when the source is in operation, and such records shall be kept for a minimum of five years. Any or all of these records shall be made available to the Director upon request.
  - ii. Each source shall comply with all applicable sections of R307-150 Emission Inventories.
  - iii. Each source shall submit a report of any deviation from the applicable requirements of this Subsection IX.H, including those attributable to upset conditions, the probable cause of such deviations, and any corrective actions or preventive measures taken. The report shall be submitted to the Director no later than 24-months following the deviation or earlier if specified by an underlying applicable requirement. Deviations due to breakdowns shall be reported according to the breakdown provisions of R307-107.
- d. Emission Limitations:
  - i. All emission limitations listed in Subsections IX.H.12 and IX.H.13 apply during steady-state operation at all times, unless otherwise specified in the source specific conditions listed in IX.H.12 and 13.
  - ii. All emission limitations of particulate matter (either PM<sub>10</sub> and/or PM<sub>2.5</sub> listed in Subsections IX.H.12 and IX.H.13 include both filterable and condensable PM, unless otherwise specified in the source specific conditions listed in IX.H.12 and IX.H.13.
- e. Stack Testing:
  - i. As applicable, stack testing to show compliance with the emission limitations for the sources in Subsection IX.H.12 and 13 shall be performed in accordance with the following:
    - A. 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 testing methods acceptable to the Director. Occupational Safety and Health Administration (OSHA) approvable access shall be provided to the test location.
    - B. Volumetric Flow Rate: 40 CFR 60, Appendix A, Method 2 or EPA Test Method No. 19 "SO<sub>2</sub> Removal & PM, SO<sub>2</sub>, NO<sub>x</sub> Rates from Electric Utility Steam Generators" or other EPA-approved testing methods acceptable to the Director.

- C. PM: 40 CFR 60, Appendix A, Method 5, or other EPA approved testing methods acceptable to the Director.
- D. PM<sub>10</sub>: 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<sub>10</sub> 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.  
~~PM<sub>10</sub>: 40 CFR 51, Appendix M, Methods 201, 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. For stacks in which liquid drops are present, methods to eliminate the liquid drops should be explored. If no reasonable method to eliminate the drops exists, then the following methods shall be used: 40 CFR 60, Appendix A, Method 5, 5A, 5B, 5D, 5E, 5F, or 5I as appropriate, or other EPA-approved testing methods acceptable to the Director. The back half condensables shall also be tested using EPA approved testing methods acceptable to the Director. The portion of the front half of the catch considered PM<sub>10</sub> 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.~~
- E. PM<sub>2.5</sub>: 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<sub>2.5</sub> 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.  
~~PM<sub>2.5</sub>: For stacks in which no liquid drops are present, the following methods shall be used: 40 CFR 51, Appendix M, 201a and 202, or other EPA approved testing methods acceptable to the Director. All particulate captured shall be considered PM<sub>2.5</sub>. The back half condensables shall be used for compliance demonstration as well as for inventory purposes. For stacks in which liquid drops are present, methods to eliminate the liquid drops should be explored. If no reasonable method to eliminate the drops exists, then the following methods shall be used: 40 CFR 60, Appendix A, Method 5, 5A, 5B, 5D, 5E, 5F, or 5I as appropriate, or other EPA-approved testing methods acceptable to the Director. The back half condensables shall also be tested EPA-approved testing methods acceptable to the Director. The portion of the front half of the catch considered PM<sub>2.5</sub> 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. SO<sub>2</sub>: 40 CFR 60 Appendix A, Method ~~6, 6A, 6B,~~ 6C, or other EPA-approved testing methods acceptable to the Director.
- G. NO<sub>x</sub>: 40 CFR 60 Appendix A, Method ~~7, 7A, 7B, 7C, 7D,~~ 7E, or other EPA-approved testing methods acceptable to the Director.
- H. VOC: 40 CFR 60 Appendix A, Method 25A or other EPA-approved testing methods acceptable to the Director.  
~~VOC: EPA-approved testing methods acceptable to the Director.~~
- I. 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 to give the results in the specified units of the

emission limitation.

- J. A stack test protocol shall be provided at least 30 days prior to the test. A pretest conference shall be held if directed by the Director. 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. The production rate during all compliance testing shall be no less than 90% of the maximum production achieved in the previous three (3) years.
  - K. The production rate during all compliance testing shall be no less than 90% of the maximum production rate achieved in the previous three (3) years. If the desired production rate is not achieved at the time of the test, the maximum production rate shall be 110% of the tested achieved rate, but not more than the maximum allowable production rate. This new allowable maximum production rate shall remain in effect until successfully tested at a higher rate. The owner/operator 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 allowable production rate is achieved.
- f. Continuous Emission and Opacity Monitoring
- i. For all continuous monitoring devices, the following shall apply:
    - A. Except for system breakdown, repairs, calibration checks, and zero and span adjustments required under paragraph (d) 40 CFR 60.13, the owner/operator of an affected source shall continuously operate all required continuous monitoring systems and shall meet minimum frequency of operation requirements as outlined in R307-170 and 40 CFR 60.13. Flow measurement shall be in accordance with the requirements of 40 CFR 52, Appendix E; 40 CFR 60 Appendix B; or 40 CFR 75, Appendix A.
    - B. The monitoring system shall comply with all applicable sections of R307-170; 40 CFR 13; and 40 CFR 60, Appendix B – Performance Specifications.
  - ii. Opacity observations of emissions from stationary sources shall be conducted in accordance with 40 CFR 60, Appendix A, Method 9.
- g. Petroleum Refineries.
- i. Limits at Fluid Catalytic Cracking Units
    - A. FCCU SO<sub>2</sub> Emissions
      - I. By no later than January 1, 2018, each owner or operator of an FCCU shall comply with an SO<sub>2</sub> emission limit of 25 ppmvd @ 0% excess air on a 365-day rolling average basis and 50 ppmvd @ 0% excess air on a 7-day rolling average basis.
      - II. Compliance with this limit shall be determined by following 40 C.F.R. §60.105a(g).
    - B. FCCU PM Emissions
      - I. By no later than January 1, 2018, each owner or operator of an FCCU shall comply with an emission limit of 1.0 pounds PM per 1000 pounds coke burned on a 3-hour average basis.

- II. Compliance with this limit shall be determined by following the stack test protocol specified in 40 C.F.R. §60.106(b) to measure PM emissions on the FCCU. Each owner operator shall conduct stack tests once every five years at each FCCU.
    - III. By no later than January 1, 2019, each owner or operator of an FCCU shall install, operate and maintain a continuous parameter monitor system (CPMS) to measure and record operating parameters for determination of source-wide PM<sub>2.5</sub> emissions as appropriate
  - ii. Limits on Refinery Fuel Gas
    - A. By no later than January 1, 2018, all petroleum refineries in or affecting the PM<sub>2.5</sub> nonattainment area shall reduce the H<sub>2</sub>S content of the refinery plant gas to 60 ppm or less as described in 40 CFR 60.102a. Compliance shall be based on a rolling average of 365 days. The owner/operator shall comply with the fuel gas monitoring requirements of 40 CFR 60.107a and the related recordkeeping and reporting requirements of 40 CR 60.108a. As used herein, refinery “plant gas” shall have the meaning of “fuel gas” as defined in 40 CFR 60.101a, and may be used interchangeably.
    - B. For natural gas, compliance is assumed while the fuel comes from a public utility.
  - iii. Limits on Heat Exchangers
    - A. Each owner or operator shall comply with the requirements of 40 CFR 63.654 for heat exchange systems in VOC service as soon as practicable but no later than January 1, 2015~~8~~. The owner or operator may elect to use another EPA-approved method other than the Modified El Paso Method if approved by the Director.
      - I. The following applies in lieu of 40 CFR 63.654(b): A heat exchange system is exempt from the requirements in paragraphs 63.654(c) through (g) of this section if it meets any one of the criteria in the following paragraphs (1) through (2) of this section.
        - 1. All heat exchangers that are in VOC service within the heat exchange system that either:
          - a. Operate with the minimum pressure on the cooling water side at least 35 kilopascals greater than the maximum pressure on the process side; or
          - b. Employ an intervening cooling fluid, containing less than 10 percent by weight of VOCs, between the process and the cooling water. This intervening fluid must serve to isolate the cooling water from the process fluid and must not be sent through a cooling tower or discharged. For purposes of this section, discharge does not include emptying for maintenance purposes.
        - 2. The heat exchange system cools process fluids that contain less than 10 percent by weight VOCs (i.e., the heat exchange system does not contain any heat exchangers that are in VOC service).
  - iv. Leak Detection and Repair Requirements
    - A. Each owner or operator shall comply with the requirements of 40 CFR 60.590a to 60.593a as soon as practicable but no later than January 1, ~~2018~~2016.
    - B. For units complying with the Sustainable Skip Period, previous process unit monitoring results may be used to determine the initial skip period interval provided that each valve has been monitored using the 500 ppm leak definition.
  - v. Requirements on Hydrocarbon Flares

- A. Beginning January 1, 2018, all hydrocarbon flares at petroleum refineries located in or affecting a designated PM<sub>2.5</sub> non-attainment area within the State shall be subject to the flaring requirements of NSPS Subpart Ja (40 CFR 60.100a–109a), if not already subject under the flare applicability provisions of Ja.
  - B. By no later than January 1, 2019, all major source petroleum refineries in or affecting a designated PM<sub>2.5</sub> non-attainment area within the State shall either 1) install and operate a flare gas recovery system designed to limit hydrocarbon flaring produced from each affected flare during normal operations to levels below the values listed in 40 CFR 60.103a(c), or 2) limit flaring during normal operations to 500,000 scfd for each affected flare. Flare gas recovery is not required for dedicated SRU flare and header systems, or HF flare and header systems.
- vi. Requirements on Tank Degassing
- A. Beginning January 1, 2017, the owner or operator of any stationary tank of 40,000-gallon or greater capacity and containing or last containing any organic liquid, with a true vapor pressure equal or greater than 10.5 kPa (1.52 psia) at storage temperature (see R307-324-4(1)) shall not allow it to be opened to the atmosphere unless the emissions are controlled by exhausting VOCs contained in the tank vapor-space to a vapor control device until the organic vapor concentration is 10 percent or less of the lower explosion limit (LEL).
  - B. These degassing provisions shall not apply while connecting or disconnecting degassing equipment.
  - C. The Director shall be notified of the intent to degas any tank subject to the rule. Except in an emergency situation, initial notification shall be submitted at least three (3) days prior to degassing operations. The initial notification shall include:
    - I. Start date and time;
    - II. Tank owner, address, tank location, and applicable tank permit numbers;
    - III. Degassing operator's name, contact person, telephone number;
    - IV. Tank capacity, volume of space to be degassed, and materials stored;
    - V. Description of vapor control device.
- vii. No Burning of Liquid Fuel Oil in Stationary Sources
- A. No petroleum refineries in or affecting any PM nonattainment or maintenance area shall be allowed to burn liquid fuel oil in stationary sources except during natural gas curtailments or as specified in the individual subsections of Section IX, Part H.
  - B. The use of diesel fuel meeting the specifications of 40 CFR 80.510 in standby or emergency equipment is exempt from the limitation of IX.H.11.g.vii.A above.
- viii. ~~The requirements set forth in Parts IX.H.11 and IX.H.12 shall apply unless and until the following occur:~~
- A. ~~A Notice of Intent is submitted to the Director, pursuant to the procedures of R307-401, that describes the specific technologies that will be used to produce gasoline that meets the corporate average sulfur specification for Tier 3 of the federal motor vehicle control program, as specified in 40 CFR 80.~~
  - B. ~~An Approval Order is issued that authorizes implementation of the approach set forth in the Notice of Intent. (editorial note: The intent of this language was to prevent the SIP limits from becoming an impediment to the production of Tier 3 fuel in the event that an Approval Order could otherwise be issued in accordance with R307-401. Underlying that~~

~~purpose is the assumption that, because the offsetting requirement for a would-be major modification in this nonattainment area can no longer be met until such time as sufficient emission reduction credits can be created (post-Dec. 4, 2013), only minor modifications could be permitted. Net emission increases in such a permit could only reach levels defined as “significant” for such purposes. These levels of significance are 15 tons per year (tpy) for PM10, 10 tpy for PM2.5, 40 tpy for SO2 or NOx, and 40 tpy for VOC in the enveloped ozone maintenance area. In the context of a modeled SIP demonstration, it would ordinarily be necessary to incorporate such increases in emissions, at their maximum levels and at every refinery, in the modeled demonstration. However, since this plan revision demonstrates instead that it is impracticable to attain the 2006 24-hour NAAQS for PM2.5 (in accordance with CAA Section 189(a)(1)(B(ii)), the additional emissions would, if modeled, only serve to underscore the conclusion that attainment of this standard, by the applicable attainment date, is in fact impracticable. For this reason, it is unnecessary to re-specify herein each limit so as to also include the additional (significant) emissions.)~~

- ~~C. Notwithstanding the requirements specified in R307-401, the Notice of Intent must demonstrate that the technologies specified in the Approval Order would represent Reasonably Available Control Measures (RACM), as required by Section 172(c)(1) of the Clean Air Act.~~
- ~~D. To the extent that the current SIP requirements outlined in Parts IX.H.11 and IX.H.12 have been relied upon by the Utah SIP to satisfy Section 172(c) or Section 189(a)(1) of the Clean Air Act, demonstrate that the technologies specified in the Approval Order would also be consistent with the achievement of reasonable further progress and would not interfere with attainment or maintenance of the National Ambient Air Quality Standards for particulate matter. The demonstration required in this paragraph may incorporate modeling previously conducted by the State for the purposes of Sections 172(c)(1) or 189(a)(1)(B) of the Clean Air Act.~~
- ~~E. The technologies specified in the Approval Order have been installed and tested in accordance with the Approval Order.~~
- ~~F. As of the effective date of the Approval Order the affected PM2.5, SO2, VOC and NOx emissions limits, including applicable monitoring requirements, set forth in that permit as most recently amended, shall become incorporated by reference into the Utah SIP. Henceforth, those terms and conditions specified and identified in the Approval Order shall supersede the affected conditions in Parts IX.H.11 and IX.H.12.~~

## H.12. Source-Specific Emission Limitations in Salt Lake City – UT PM<sub>2.5</sub> Nonattainment Area

- a. ATK Launch Systems Inc. – Promontory
  - i. During the period November 1 to February 28/29 on days when the 24-hour average PM<sub>2.5</sub> levels exceed 35 ug/m<sup>3</sup> at the nearest real-time monitoring station, the open burning of reactive wastes with properties identified in 40 CFR 261.23 (a) (6) (7) (8) will be limited to 50 percent of the treatment facility's Department of Solid and Hazardous Waste permitted daily limit. During this period, on days when open burning occurs, records will be maintained identifying the quantity burned and the PM<sub>2.5</sub> level at the nearest real-time monitoring station.
  - ii. During the period November 1 to February 28/29, on days when the 24-hour average PM<sub>2.5</sub> levels exceed 35 ug/m<sup>3</sup> at the nearest real-time monitoring station, the following shall not be tested:
    - A. Propellant, energetics, pyrotechnics, flares and other reactive compounds greater than 2,400 lbs. per day; or
    - B. Rocket motors less than 1,000,000 lbs. of propellant per motor subject to the following exception:
      - I. A single test of rocket motors less than 1,000,000 lbs. of propellant per motor is allowed on a day when the 24-hour average PM<sub>2.5</sub> level exceeds 35 ug/m<sup>3</sup> at the nearest real-time monitoring station provided notice is given to the Director of the Utah Air Quality Division. No additional tests of rocket motors less than 1,000,000 lbs. of propellant may be conducted during the inversion period until the 24-hour average PM<sub>2.5</sub> level has returned to a concentration below 35 ug/m<sup>3</sup> at the nearest real-time monitoring station.
    - C. During this period, records will be maintained identifying the size of the rocket motors tested and the 24-hour average PM<sub>2.5</sub> level at the nearest real-time monitoring station on days when motor testing occur.
  - iii. Natural Gas-Fired Boilers
    - A. Building M-576
      - ~~I.—Startup and shutdown events shall not exceed 124 hours per boiler per 12-month rolling period.~~
      - II. One 71 MMBTU/hr boiler shall be upgraded with low NO<sub>x</sub> burners and flue gas recirculation by January 2016. The boiler shall be rated at a maximum of 9 ppm. The remaining boiler shall not consume more than 100,000 MCF of natural gas per rolling 12- month period unless upgraded so the NO<sub>x</sub> emission rate is no greater than 30 ppm.

~~III. Emissions will be controlled during startup and shutdown operations by following manufacture procedures based on best management practices. Records shall be kept on site which indicate the date, and time of startup and shutdown.~~

b. Big West Oil Refinery

i. Source-wide PM<sub>2.5</sub>:

Following installation of the Flue Gas Blow Back Filter (FGF), but no later than January 1, 2019, combined emissions of PM<sub>2.5</sub> (filterable+condensable) shall not exceed 0.29 tons per day and 72.5 tons per rolling 12-month period. By no later than January 1, 2019, Big West Oil shall conduct stack testing to establish the ratio of condensable PM<sub>2.5</sub> from the Catalyst Regeneration System. Following installation of the Flue Gas Blow Back Filter (FGF), but no later than January 1, 2019, combined emissions of filterable PM<sub>2.5</sub> shall not exceed 0.18 tons per day and 45 tons per rolling 12-month period. By no later than January 1, 2019, Big West Oil shall conduct stack testing to establish the ratio of condensable PM<sub>2.5</sub> from the Catalyst Regeneration System.

A. Setting of emission factors:

The emission factors derived from the most current performance test shall be applied to the relevant quantities of fuel combusted. Unless adjusted by performance testing as discussed in IX.H.12.b.i.B below, the default emission factors to be used are as follows:

Natural gas:

Filterable PM<sub>2.5</sub>: 1.9 lb/MMscf

Condensable PM<sub>2.5</sub>: 5.7 lb/MMscf

Plant gas:

Filterable PM<sub>2.5</sub>: 1.9 lb/MMscf

Condensable PM<sub>2.5</sub>: 5.7 lb/MMscf

Fuel Oil: The PM<sub>2.5</sub> emission factors shall be determined from the latest edition of AP-42

FCC Stacks: The PM<sub>2.5</sub> emission factors shall be established by stack test.

Where mixtures of fuel are used in a Unit, the above factors shall be weighted according to the use of each fuel.

B. The default emission factors for the FCC listed in IX.H.12.b.i.A above apply until such time as stack testing is conducted as outlined below:

PM<sub>2.5</sub> stack testing on the FCC shall be performed initially no later than January 1, 2019 and at least once every three (3) years thereafter. Stack testing shall be performed as outlined in IX.H.11.e.

C. Compliance with the source-wide PM<sub>2.5</sub> Cap shall be determined for each day as follows:

Total 24-hour PM2.5 emissions for the emission points shall be calculated by adding the daily results of the PM2.5 emissions equations listed below for natural gas, plant gas, and fuel oil combustion. These emissions shall be added to the emissions from the FCC to arrive at a combined daily PM2.5 emission total.

For purposes of this subsection a “day” is defined as a period of 24-hours commencing at midnight and ending at the following midnight.

Daily gas consumption shall be measured by meters that can delineate the flow of gas to the boilers, furnaces and the SRU incinerator.

The equation used to determine emissions from these units shall be as follows:

Emissions = Emission Factor (lb/MMscf) \* Gas Consumption (MMscf/24 hrs)/(2,000 lb/ton)

Daily fuel oil consumption shall be monitored by means of leveling gauges on all tanks that supply combustion sources.

The daily PM2.5 emissions from the FCC shall be calculated using the following equation:

$$E = FR * EF$$

Where:

E = Emitted PM2.5

FR = Feed Rate to Unit (kbbbl/day)

EF = emission factor (lbs/kbbl), established by the most recent stack test

Results shall be tabulated for each day, and records shall be kept which include the meter readings (in the appropriate units) and the calculated emissions.

~~PM2.5 emissions shall be determined daily by applying the listed emission factors or emission factors determined from the most current performance test to the relevant quantities of fuel combusted. Unless adjusted by performance testing as discussed above, the default emission factors to be used are as follows:~~

~~Natural gas — 1.9 lb/MMscf (filterable), 5.7 lb/MMscf (condensable)~~

~~Plant gas — 1.9 lb/MMscf (filterable), 5.7 lb/MMscf (condensable)~~

~~Daily gas consumption by all boilers and furnaces shall be measured by meters that can delineate the flow of gas to the indicated emission points.~~

~~The equations used to determine emissions for the boilers and furnaces shall be as follows:~~

~~Emission Factor (lb/MMscf)\*Gas Consumption (MMscf/24 hrs)/(2,000 lb/ton)  
The daily filterable PM2.5 emissions from the Catalyst Regeneration System shall be calculated using the following equation:~~

$$E = FR * EF$$

~~Where:~~

~~E = Emitted PM2.5~~

~~FR = Feed Rate to Unit (kbbbl/day)~~

~~EF = emission factor (lbs/kbbl), established by most recent stack test~~

~~Total 24-hour filterable PM2.5 emissions shall be calculated by adding the results of the above filterable PM2.5 equations for natural gas and plant gas combustion to the estimate for the Catalyst Regeneration System. Results shall be tabulated every day, and records shall be kept which include the meter readings (in the appropriate units) and the calculated emissions:~~

ii. Source-wide NO<sub>x</sub> Cap

By no later than January 1, 2019, combined emissions of NO<sub>x</sub> shall not exceed 0.80 tons per day (tpd) and 195 tons per rolling 12-month period.

A. Setting of emission factors:

The emission factors derived from the most current performance test shall be applied to the relevant quantities of fuel combusted. Unless adjusted by performance testing as discussed in IX.H.12.b.ii.B below, the default emission factors to be used are as follows:

Natural gas: shall be determined from the latest edition of AP-42

Plant gas: assumed equal to natural gas

Diesel fuel: shall be determined from the latest edition of AP-42

Where mixtures of fuel are used in a Unit, the above factors shall be weighted according to the use of each fuel.

B. The default emission factors for the FCC listed in IX.H.12.b.ii.A above apply until such time as stack testing is conducted as outlined below:

Initial NO<sub>x</sub> stack testing on natural gas/refinery fuel gas combustion equipment above 40 MMBtu/hr has been performed and the next stack test shall be performed within 3 years of the previous stack test. At that time a new flow-weighted average emission factor in terms of: lbs/MMBtu shall be derived for each combustion type listed in IX.H.12.b.ii.A above. Stack testing shall be performed as outlined in IX.H.11.e.

C. Compliance with the source-wide NO<sub>x</sub> Cap shall be determined for each day as follows:

Total 24-hour NO<sub>x</sub> emissions shall be calculated by adding the emissions for each emitting unit. The emissions for each emitting unit shall be calculated by multiplying the

hours of operation of a unit, feed rate to a unit, or quantity of each fuel combusted at each affected unit by the associated emission factor, and summing the results.

Daily plant gas consumption at the furnaces, boilers and SRU incinerator shall be measured by flow meters. The equations used to determine emissions shall be as follows:

$$\text{NOx} = \text{Emission Factor (lb/MMscf)} * \text{Gas Consumption (MMscf/24 hrs)} / (2,000 \text{ lb/ton})$$

Where the emission factor is derived from the fuel used, as listed in IX.H.12.b.ii.A above

Daily fuel oil consumption shall be monitored by means of leveling gauges on all tanks that supply combustion sources.

The daily NOx emissions from the FCC shall be calculated using a CEM as outlined in IX.H.11.f

Total daily NOx emissions shall be calculated by adding the results of the above NOx equations for natural gas and plant gas combustion to the estimate for the FCC.

For purposes of this subsection a “day” is defined as a period of 24-hours commencing at midnight and ending at the following midnight.

Results shall be tabulated for each day, and records shall be kept which include the meter readings (in the appropriate units) and the calculated emissions.

~~NOx emissions shall be determined daily by applying the listed emission factors or emission factors determined from the most current performance test to the relevant quantities of fuel combusted. Unless adjusted by performance testing as discussed above, the default emission factors to be used are as follows:~~

~~Natural gas — latest version of AP-42 (currently see AP-42, Table 1.4-1)~~

~~Plant gas — assumed equal to natural gas (use values from AP-42, Table 1.4-1)~~

~~Since the emission factors are considered to be the same for either gas, this factor shall be applied to the metered quantity of blended gas. Should future information reveal that there is a difference in the emission factors for natural gas and plant gas, then the respective quantities shall be delineated in the AO.~~

~~Daily plant gas consumption at the furnaces and boilers shall be measured by flow meters. The equations used to determine emissions for the boilers and furnaces shall be as follows:~~

$$\text{Emission Factor (lb/MMscf)} * \text{Gas Consumption (MMscf/24 hrs)} / (2,000 \text{ lb/ton})$$

~~The daily NOx emissions from the Catalyst Regeneration System shall be calculated using the following equation:~~

~~NO<sub>x</sub> = (Flue Gas, moles/hr) x (ADV ppm /10<sup>6</sup>) x (30.006 lb/mole) x (operating-hr/day)/(2000 lb/ton)~~

~~Where ADV = average daily value from NO<sub>x</sub> CEM~~

~~Total daily NO<sub>x</sub> emissions shall be calculated by adding the results of the above NO<sub>x</sub> equations for natural gas and plant gas combustion to the estimate for the Catalyst Regeneration System. Results shall be tabulated every day, and records shall be kept which include the meter readings (in the appropriate units) and the calculated emissions.~~

iii. Source-wide SO<sub>2</sub> Cap

By no later than January 1, 2019, combined emissions of shall not exceed 0.60 tons per day and 140 tons per rolling 12-month period.

A. Setting of emission factors:

The emission factors derived from the most current performance test shall be applied to the relevant quantities of fuel combusted. The default emission factors to be used are as follows:

Natural Gas - 0.60 lb SO<sub>2</sub>/MMscf gas

Plant Gas: The emission factor to be used in conjunction with plant gas combustion shall be determined through the use of a CEM as outlined in IX.H.11.f.

SRUs: The emission rate shall be determined by multiplying the sulfur dioxide concentration in the flue gas by the flow rate of the flue gas. The sulfur dioxide concentration in the flue gas shall be determined by CEM as outlined in IX.H.11.f.

Fuel oil: The emission factor to be used for combustion shall be calculated based on the weight percent of sulfur, as determined by ASTM Method D-4294-89 or EPA approved equivalent acceptable to the Director, and the density of the fuel oil, as follows:

EF (lb SO<sub>2</sub>/k gal) = density (lb/gal) \* (1000 gal/k gal) \* wt. % S/100 \* (64 lb SO<sub>2</sub>/32 lb S)

Where mixtures of fuel are used in a Unit, the above factors shall be weighted according to the use of each fuel.

B. Compliance with the source-wide SO<sub>2</sub> Cap shall be determined for each day as follows:

Total daily SO<sub>2</sub> emissions shall be calculated by adding the daily SO<sub>2</sub> emissions for natural gas and plant fuel gas combustion, to those from the FCC and SRU stacks.

Daily natural gas and plant gas consumption shall be determined through the use of flow meters.

Daily fuel oil consumption shall be monitored by means of leveling gauges on all tanks that supply combustion sources.

Results shall be tabulated for each day, and records shall be kept which include CEM readings for H<sub>2</sub>S (averaged for each one-hour period), all meter readings (in the appropriate units), fuel oil parameters (density and wt% sulfur for each day any fuel oil is burned), and the calculated emissions.

~~SO<sub>2</sub> emissions shall be determined daily by applying the listed emission factors or emission factors determined from the most current performance test to the relevant quantities of fuel combusted. Unless adjusted by performance testing as discussed above, the default emission factors to be used are as follows:~~

~~Natural Gas – 0.60 lb SO<sub>2</sub>/MMscf gas~~

~~Plant Gas – The emission factor to be used in conjunction with plant gas combustion shall be determined through the use of a continuous emissions monitor, which shall measure the H<sub>2</sub>S content of the fuel gas in ppmv. Daily emission factors shall be calculated using average daily H<sub>2</sub>S content data from the CEM. The emission factor shall be calculated as follows:~~

~~Emission Factor (lb SO<sub>2</sub>/MMscf gas) = [(24 hr avg. ppmv H<sub>2</sub>S)/10<sup>6</sup>]\*(64 lb SO<sub>2</sub>/lb mole)\*[(10<sup>6</sup> scf/MMscf)/(379 scf/lb mole)]~~

~~Daily natural gas consumption shall be measured by the two meters that supply the refinery.~~

~~Daily plant gas consumption at the furnaces and boilers shall be measured by flow meters.~~

~~The equations used to determine emissions for the boilers and furnaces shall be as follows:~~

~~Emission Factor (lb/MMscf)\*Natural Gas Consumption (MMscf/24 hrs)/(2,000 lb/ton)~~

~~Emission Factor (lb/MMscf)\*Plant Gas Consumption (MMscf/24 hrs)/(2,000 lb/ton)~~

~~The daily SO<sub>2</sub> emission from the Catalyst Regeneration System shall be calculated using the following equation:~~

~~SO<sub>2</sub> = FG \* (ADV/1,000,000) \* (64 lb/mole) \* (operating hours/day) / (2000 lb/ton)~~

~~Where:~~

~~FG = Flue Gas in moles/hour~~

~~ADV = average daily value from SO<sub>2</sub> CEM~~

~~Total daily SO<sub>2</sub> emissions shall be calculated by adding the daily results of the above SO<sub>2</sub> emissions equations for natural gas and plant gas combustion to the estimate for the Catalyst Regeneration System. Results shall be tabulated every day, and records shall be kept which include the CEM readings for H<sub>2</sub>S (averaged for each day), all meter readings (in the appropriate units), and the calculated emissions.~~

iv. Emergency and Standby Equipment

A. The use of diesel fuel meeting the specifications of 40 CFR 80.510 is allowed in standby or emergency equipment at all times.

v. Alternate Startup and Shutdown Requirements

A. During any day which includes startup or shutdown of the FCCU, combined emissions of SO<sub>2</sub> shall not exceed 1.2 tons per day (tpd). For purposes of this subsection, a "day" is defined as a period of 24-hours commencing at midnight and ending at the following midnight.

B. The total number of days which include startup or shutdown of the FCCU shall not exceed ten (10) per 12-month rolling period.

c. Bountiful City Light and Power: Power Plant

- i. Emissions to the atmosphere shall not exceed the following rates and concentrations:
  - A. GT #1 (5.3 MW Turbine) Exhaust Stack:  
NO<sub>x</sub> 0.6 g/kW-hr
  - B. GT #2 and GT #3 (each TITAN Turbine) Exhaust Stack:  
NO<sub>x</sub> 15 ppm
- ii. Compliance to the above emission limitations shall be determined by stack test as outlined in Section IX Part H.11.e of this SIP. ~~Each turbine shall be tested at least once per year.~~
  - A. Initial stack tests have been performed. Each turbine shall be tested at least once per year.
- iii. Combustion Turbine Startup / Shutdown Emission Minimization Plan
  - A. Startup begins when natural gas is supplied to the combustion turbine(s) with the intent of combusting the fuel to generate electricity. Startup conditions end within sixty (60) minutes of natural gas being supplied to the turbine(s).
  - B. Shutdown begins with the initiation of the stop sequence of a turbine until the cessation of natural gas flow to the turbine.
  - C. Periods of startup or shutdown shall not exceed two (2) hours per combustion turbine per day.

d. Central Valley Water Reclamation Facility: Wastewater Treatment Plant

- i. NOx emissions from the operation of all engines at the plant shall not exceed 0.648 tons per day.
- ii. Compliance with the emission limitation shall be determined by summing the emissions from all the engines. Emission from each engine shall be calculated from the following equation:

$$\text{Emissions (tons/day)} = (\text{Power production in kW-hrs/day}) \times (\text{Emission factor in grams/kW-hr}) \times (1 \text{ lb}/453.59 \text{ g}) \times (1 \text{ ton}/2000 \text{ lbs})$$

- A. Stack tests shall be performed in accordance with IX.H.11.e. Each engine shall be tested at least every three years from the previous test.
- B. The NOx emission factor for each engine shall be derived from the most recent stack test.
- C. NOx emissions shall be calculated on a daily basis.
- D. A day is equivalent to the time period from midnight to the following midnight.
- E. The number of kilowatt hours generated by each engine shall be determined by examination of electrical meters, which shall record electricity production on a continuous basis.

~~NOx emissions from the operation of all engines at the plant shall not exceed 0.648 tons per day.~~

~~Compliance with the daily mass emission limits shall be demonstrated by multiplying emission factors (in units of mass per kw-hr) determined for each engine by the most recent stack test results, by the respective kilowatt hours generated each day. Power production shall be determined by examination of electrical meters which shall record the electricity production. Continuous recording is required. The records shall be kept on a daily basis.~~

~~NOx emission from the operation of all engines at the plant shall not exceed 205.6 tons per calendar year.~~

~~Stack testing to determine the emission factors necessary to show compliance with the emission limitations stated in this condition shall be performed at least once every five (5) years.~~

~~ii. Emissions to the atmosphere from each of the 1150 kw engine generators shall not exceed the following rates and concentrations:~~

~~Pollutant      lb/hr      gm/(hp-hr)~~

~~NOx              5.95              1.75~~

~~iii. Emissions to the atmosphere from each of the 1340 kw engine generators shall not exceed the following rates and concentrations:~~

~~Pollutant lb/hr gm/(hp-hr)~~

~~NOx 7.13 1.8~~

~~i. Compliance to the above emission limits shall be determined by stack test as outlined in Section IX Part H.11.e of this SIP.~~

~~vii. Emissions will be controlled during startup and shutdown operations by following the manufacture procedures based on best management practices.~~

e. Chemical Lime Company (LHoist North America)

Lime Production Kiln

- i. No later than January 1, 2019, or upon source start-up, whichever comes later, SNCR technology shall be installed on the Lime Production Kiln for reduction of NO<sub>x</sub> emission.
  - a. Effective January 1, 2019, NO<sub>x</sub> emissions shall not exceed 56 lb/hr.
  - b. Compliance with the above emissions limit shall be determined by stack testing as outlined in Section IX Part H.11.e of this SIP.
- ii. No later than January 1, 2019, or upon source start-up, whichever comes later, a baghouse control technology shall be installed and operating on the Lime Production Kiln for reduction of PM emissions.
  - a. Effective January 1, 2019, PM emissions shall not exceed 0.12 pounds per ton (lb/ton) of stone feed.
  - b. Effective January 1, 2019, PM<sub>2.5</sub> emissions shall not exceed 1.5 lbs/ton of stone feed.
  - c. Compliance with the above emission limits shall be determined by stack testing as outlined in Section IX Part H.11.e of this SIP and in accordance with 40 CFR 63 Subpart AAAAA.
- iii. An initial compliance test is required no later than January 1, 2019 (if start-up occurs on or before January 1, 2019) or within 180 days of source start-up (if start-up occurs after January 1, 2019)
- iv. Upon plant start-up kiln emissions shall be exhausted through the baghouse during all startup, shutdown, and operations of the kiln.
- v. Start-up/shut-down provisions for SNCR technology be as follows:
  - a. No ammonia or urea injection during startup until the combustion gases exiting the kiln reach the temperature when NO<sub>x</sub> reduction is effective, and
  - b. No ammonia or urea injection during shutdown.
  - c. Records of ammonia or urea injection shall be documented in an operations log. The operations log shall include all periods of start-up/shut-down and subsequent beginning and ending times of ammonia or urea injection which documents v.a and v.b above.

i. Lime Production Kiln:

~~A. Upon plant start-up SNCR technology shall be installed on the Lime Production Kiln for reduction of NO<sub>x</sub> emissions.~~

~~B. Upon plant start-up a baghouse control technology shall be installed and operating on the Lime Production Kiln for reduction of PM emissions.~~

~~I. PM emissions shall not exceed 0.12 pounds per ton (lb/ton) of stone feed~~

~~II. Compliance with the above emission limit shall be determined by stack testing as outlined in Section IX Part H.11.e of this SIP and in accordance with 40 CFR 63 Subpart AAAAAA.~~

~~C. An initial compliance test is required within 180 days of source start-up.~~

~~D. Subsequent to initial compliance testing, stack testing is required at a minimum of every five years.~~

~~E. Startup/shutdown provisions for SNCR technology be as follows: (a) no ammonia or urea injection during startup until the combustion gases exiting the kiln reach the temperature when NO<sub>x</sub> reduction is effective, and (b) no ammonia or urea injection during shutdown.~~

f. Chevron Products Company - Salt Lake Refinery

i. Source-wide PM2.5 Cap

By no later than January 1, 2019, combined emissions of PM2.5 (filterable+condensable) shall not exceed 0.305 tons per day (tpd) and 110 tons per rolling 12-month period. By no later than January 1, 2019, combined emissions of filterable PM2.5 shall not exceed 0.18 tons per day (tpd) and 65 tons per rolling 12-month period.

A. Setting of emission factors:

The emission factors derived from the most current performance test shall be applied to the relevant quantities of fuel combusted. Unless adjusted by performance testing as discussed in IX.H.12.gf.i.B below, the default emission factors to be used are as follows:

Natural gas:

Filterable PM2.5: 1.9 lb/MMscf

Condensable PM2.5: 5.7 lb/MMscf

Plant gas:

Filterable PM2.5: 1.9 lb/MMscf

Condensable PM2.5: 5.7 lb/MMscf

HF alkylation polymer: shall be determined from the latest edition of AP-42 (HF alkylation polymer treated as fuel oil #6)

Diesel fuel: shall be determined from the latest edition of AP-42

FCC Stack:

The PM2.5 emission factors shall be based on the most recent stack test and verified by parametric monitoring as outlined in IX.H.11.g.i.B.III

Where mixtures of fuel are used in a Unit, the above factors shall be weighted according to the use of each fuel.

B. The default emission factors listed in IX.H.12.gf.i.A above apply until such time as stack testing is conducted as outlined below:

Initial PM2.5 stack testing on the FCC stack has been performed and shall be conducted at least once every three (3) years from the date of the last stack test. Stack testing shall be performed as outlined in IX.H.11.e.

C. Compliance with the source-wide PM2.5 Cap shall be determined for each day as follows:

Total 24-hour PM2.5 emissions for the emission points shall be calculated by adding the

daily results of the PM2.5 emissions equations listed below for natural gas, plant gas, and fuel oil combustion. These emissions shall be added to the emissions from the FCC to arrive at a combined daily PM2.5 emission total.

For purposes of this subsection a “day” is defined as a period of 24-hours commencing at midnight and ending at the following midnight.

Daily natural gas and plant gas consumption shall be determined through the use of flow meters.

Daily fuel oil consumption shall be monitored by means of leveling gauges on all tanks that supply combustion sources.

The equation used to determine emissions for the boilers and furnaces shall be as follows:

Emissions = Emission Factor (lb/MMscf) \* Gas Consumption (MMscf/24 hrs)/(2,000 lb/ton)

Results shall be tabulated for each day, and records shall be kept which include the meter readings (in the appropriate units) and the calculated emissions.

~~Compliance with the daily PM2.5 limit shall be determined daily by multiplying the quantity of each fuel burned at the affected units by the associated emission factor for that fuel, and summing the results.~~

~~PM2.5 emissions shall be determined daily by applying the listed emission factors or emission factors determined from the most current performance test to the relevant quantities of fuel combusted. Unless adjusted by performance testing as discussed above, the default emission factors to be used are as follows:~~

~~Natural gas — 1.9 lb/MMscf (filterable), 5.7 lb/MMscf (condensable)~~

~~Plant gas — 1.9 lb/MMscf (filterable), 5.7 lb/MMscf (condensable)~~

~~Fuel Oil/ HF alkylation polymer: The filterable PM2.5 emission factor shall be determined based on the sulfur content of the fuel (S) according to the equation:~~

~~$EF \text{ (lb/1000 gal)} = (\text{Wt. \% S} * 10) + 3.22$~~

~~The condensable PM2.5 emission factor for fuel oil combustion shall be determined from the latest edition of AP-42.~~

~~Daily plant gas consumption at the furnaces and boilers shall be measured by flow meters.~~

~~Daily fuel oil consumption shall be monitored with tank gauges. Fuel oil consumption shall be allowed only during periods of natural gas curtailment.~~

~~The filterable PM2.5 emission factor for the FCC Catalyst Regenerator shall be determined based on the results of the most recent stack test.~~

~~By no later than January 1, 2017, Chevron shall conduct stack testing to establish the ratio of condensable PM2.5 from the FCC Catalyst Regenerator and SRUs. At that time the condensable fraction will be added and a new source-wide limitation shall be established in the AO.~~

ii. Source-wide NOx Cap

By no later than January 1, 2019, combined emissions of NOx shall not exceed 2.1 tons per day (tpd) and 766.5 tons per rolling 12-month period.

A. Setting of emission factors:

The emission factors derived from the most current performance test shall be applied to the relevant quantities of fuel combusted. Unless adjusted by performance testing as discussed in IX.H.12.gf.ii.B below, the default emission factors to be used are as follows:

Natural gas: shall be determined from the latest edition of AP-42

Plant gas: assumed equal to natural gas

Alkylation polymer: shall be determined from the latest edition of AP-42 (as fuel oil #6)

Diesel fuel: shall be determined from the latest edition of AP-42

Where mixtures of fuel are used in a Unit, the above factors shall be weighted according to the use of each fuel.

B. The default emission factors listed in IX.H.12.gf.ii.A above apply until such time as stack testing is conducted as outlined below:

Initial NOx stack testing on natural gas/refinery fuel gas combustion equipment above 100 MMBtu/hr has been performed and shall be conducted at least once every three (3) years from the date of the last stack test. At that time a new flow-weighted average emission factor in terms of: lbs/MMbtu shall be derived for each combustion type listed in IX.H.12.gf.ii.A above. Stack testing shall be performed as outlined in IX.H.11.e.

C. Compliance with the source-wide NOx Cap shall be determined for each day as follows:

Total 24-hour NOx emissions shall be calculated by adding the emissions for each

emitting unit. The emissions for each emitting unit shall be calculated by multiplying the hours of operation of a unit, feed rate to a unit, or quantity of each fuel combusted at each affected unit by the associated emission factor, and summing the results.

A NOx CEM shall be used to calculate daily NOx emissions from the FCC. Emissions shall be determined by multiplying the nitrogen dioxide concentration in the flue gas by the flow rate of the flue gas. The NOx concentration in the flue gas shall be determined by a CEM as outlined in IX.H.11.f.

For purposes of this subsection a “day” is defined as a period of 24-hours commencing at midnight and ending at the following midnight.

Daily natural gas and plant gas consumption shall be determined through the use of flow meters.

Daily fuel oil consumption shall be monitored by means of leveling gauges on all tanks that supply combustion sources.

Results shall be tabulated for each day, and records shall be kept which include the meter readings (in the appropriate units) and the calculated emissions

~~Compliance with the daily limit shall be determined daily by multiplying the quantity of each fuel burned at each affected unit by the associated emission factor for that fuel at that unit, and summing the results.~~

~~Chevron shall maintain a record of fuel meter identifiers and locations, conversion factors, and other information required to demonstrate the required calculations. Records shall be kept showing the daily fuel usage, fuel meter readings, required fuel properties, hours of equipment operation, and calculated daily emissions.~~

~~The emission factors to be used for the above limitations are as follows:~~

~~Natural Gas/Plant Gas: by individual furnace/boiler\*~~

~~\*the most recent listing of these emission factors is maintained in Chevron’s AO.~~

~~FCC Regenerator: The emission rate shall be determined by the FCC Regenerator NOx CEM~~

~~All other emission units shall be stack tested if directed by the Director. Chevron may also perform a stack test to provide information for updating the emission factors.~~

iii. Source-wide SO<sub>2</sub>

By no later than January 1, 2019, combined emissions of SO<sub>2</sub> shall not exceed 1.05 tons per

day (tpd) and 383.3 tons per rolling 12-month period.

A. Setting of emission factors:

The emission factors derived from the most current performance test shall be applied to the relevant quantities of fuel combusted. The default emission factors to be used are as follows:

FCC: The emission rate shall be determined by the FCC SO<sub>2</sub> CEM as outlined in IX.H.11.f.

SRUs: The emission rate shall be determined by multiplying the sulfur dioxide concentration in the flue gas by the flow rate of the flue gas. The sulfur dioxide concentration in the flue gas shall be determined by CEM as outlined in IX.H.11.f.

Natural gas: EF = 0.60 lb/MMscf

Fuel oil & HF Alkylation polymer: The emission factor to be used for combustion shall be calculated based on the weight percent of sulfur, as determined by ASTM Method D-4294-89 or EPA-approved equivalent acceptable to the Director, and the density of the fuel oil, as follows:

EF (lb SO<sub>2</sub>/k gal) = density (lb/gal) \* (1000 gal/k gal) \* wt.% S/100 \* (64 lb SO<sub>2</sub>/32 lb S)

Plant gas: the emission factor shall be calculated from the H<sub>2</sub>S measurement obtained from the H<sub>2</sub>S CEM.

Where mixtures of fuel are used in a Unit, the above factors shall be weighted according to the use of each fuel.

B. Compliance with the source-wide SO<sub>2</sub> Cap shall be determined for each day as follows:

Total daily SO<sub>2</sub> emissions shall be calculated by adding the daily SO<sub>2</sub> emissions for natural gas and plant fuel gas combustion, to those from the FCC and SRU stacks.

Daily natural gas and plant gas consumption shall be determined through the use of flow meters.

Daily fuel oil consumption shall be monitored by means of leveling gauges on all tanks that supply combustion sources.

Results shall be tabulated for each day, and records shall be kept which include CEM readings for H<sub>2</sub>S (averaged for each one-hour period), all meter reading (in the

appropriate units), fuel oil parameters (density and wt% sulfur for each day any fuel oil is burned), and the calculated emissions.

~~Daily SO<sub>2</sub> emissions from affected units shall be determined by multiplying the quantity of each fuel used daily (24 hr usage) at each affected unit by the appropriate emission factor below. The values shall be summed to show the total daily sulfur dioxide emission.~~

~~Emission factors (EF) for the various fuels and emission points shall be as follows:~~

~~FCC Regenerator: The emission rate shall be determined by the FCC Regenerator SO<sub>2</sub>-CEM~~

~~SRUs: The emission rate shall be determined by multiplying the sulfur dioxide concentration in the flue gas by the mass flow of the flue gas. The sulfur dioxide concentration in the flue gas shall be determined by CEM.~~

~~Natural gas: EF = 0.60 lb/MMscf~~

~~Fuel oil & HF Alkylation polymer: The emission factor to be used for combustion shall be calculated based on the weight percent of sulfur, as determined by ASTM Method D-4294-89 or EPA-approved equivalent acceptable to the Director, and the density of the fuel oil, as follows:~~

~~EF (lb SO<sub>2</sub>/k gal) = density (lb/gal) \* (1000 gal/k gal) \* wt.% S/100 \* (64 lb SO<sub>2</sub>/32 lb S)~~

~~Plant gas: the emission factor shall be calculated from the H<sub>2</sub>S measurement obtained from the H<sub>2</sub>S CEM. The emission factor shall be calculated as follows:~~

~~EF (lb SO<sub>2</sub>/MMscf gas) = (24 hr avg. ppmdv H<sub>2</sub>S) / 10<sup>6</sup> \* (64 lb SO<sub>2</sub>/lb mole) \* (10<sup>6</sup> scf/MMscf) / (379 scf/lb mole)~~

~~Chevron shall maintain a record of fuel meter identifiers and locations, conversion factors, and other information required to demonstrate the required calculations. Records shall be kept showing the daily fuel usage, fuel meter readings, required fuel properties, hours of equipment operation, and calculated daily emissions.~~

#### iv. Emergency and Standby Equipment and Alternative Fuels

A. The use of diesel fuel meeting the specifications of 40 CFR 80.510 is allowed in standby or emergency equipment at all times.

B. HF alkylation polymer may be burned in the Alky Furnace (F-36017).

C. Plant coke may be burned in the FCC Catalyst Regenerator.

v. Compressor Engine Requirements

A. Emissions of NO<sub>x</sub> from each rich-burn compressor engine shall not exceed the following:

<u>Engine Number</u>	<u>NO<sub>x</sub> in ppmvd @ 0% O<sub>2</sub></u>
<u>1</u>	<u>236</u>
<u>2</u>	<u>208</u>
<u>3</u>	<u>230</u>

B. Initial stack testing to demonstrate compliance with the above emission limitations shall be performed no later than January 1, 2019 and at least once every three years thereafter. Stack testing shall be performed as outlined in IX.H.11.e.

vi. Flare Calculation

A. Chevron's Flare #3 receives gases from its Isomerization unit, Reformer unit as well as its HF Alkylation Unit. The HF Alkylation Unit's flow contribution to Flare #3 will not be included in determining compliance with the flow restrictions set in IX.H.11.g.v.B

g. Compass Minerals Ogden Inc.

- i. NOx emissions to the atmosphere from the indicated emission point shall not exceed the following concentrations:

<u>Emission Points</u>	<u>Concentration (ppm)</u>
<u>Boiler #1</u>	<u>9.0</u>
<u>Boiler #2</u>	<u>9.0</u>

Compliance to the above emission limits shall be determined by stack test as outlined in Section IX Part H.11.e of this SIP. A compliance test shall be performed at least once every three years subsequent to the initial compliance test.

- ii. PM2.5 emissions to the atmosphere from each of the following emission points shall not exceed a concentration of 0.01 grains/dscf (@ 68 degrees F and 29.92 in Hg):

Source  
SOP Plant Compaction/Loadout  
Salt Plant Screening  
SOP Plant Dryer D-001  
SOP Plant Dryer D-002  
SOP Plant Dryer D-003  
SOP Plant Dryer D-004  
SOP Plant Drying Circuit Fluid Bed Heater D-005  
Salt Plant Dryer D-501

- A. Compliance to the above emission limits shall be determined by stack test as outlined in Section IX Part H.11.e of this SIP. Compliance testing shall be performed at least once every three years.
- B. Process emissions shall be routed through operating controls prior to being emitted to the atmosphere.

- iii. PM2.5 emissions to the atmosphere from the indicated emission point shall not exceed the following rates and concentrations:

<u>Source</u>	<u>Concentration (grains/dscf)</u> <u>(@ 68 degrees F 29.92 in Hg)</u>
<u>SOP Loadout</u>	<u>0.01</u>
<u>SOP Silo Dust Collection</u>	<u>0.01</u>
<u>SOP Plant Compaction</u>	<u>0.020</u>
<u>Salt Plant Dust Collection</u>	<u>0.01</u>

Bulk Truck Salt Loadout	0.0053
Mag Chloride Plant	0.01

- A. Compliance to the above emission limits shall be determined by stack test as outlined in Section IX Part H.11.e of this SIP. Compliance testing shall be performed at least once every three years.

iv. Dryer Requirements

- A. By October 1, 2017, dryer units D-002 and D-004 shall be retired and removed from service
- B. By January 1, 2017, emissions of NOx from all other dryers with heat input in excess of 5 MMBtu/hour shall not exceed 20 ppmvd at 3% O2
- C. Compliance to the above NOx emission limits shall be determined by stack test as outlined in Section IX Part H.11.e of this SIP. Compliance testing shall be performed at least once every three years.

~~Great Salt Lake Minerals Corporation: Production Plant~~

~~NOx emissions to the atmosphere from the indicated emission point shall not exceed the following concentrations:~~

~~Emission Points ——— Concentration (ppm)~~

~~Boiler #1 ——— 9.0~~

~~Boiler #2 ——— 9.0~~

- ~~a. Compliance to the above emission limits shall be determined by stack test as outlined in Section IX Part H.11.e of this SIP. A compliance test shall be performed at least once every three years subsequent to the initial compliance test.~~
- ii. ~~PM10 emissions to the atmosphere from the indicated emission point shall not exceed the following rates and concentrations:~~

~~Source ——— Concentration (grains/dscf)  
(@ 68 degrees F 29.92 in Hg)~~

~~SOP Plant Compaction/Loadout ——— 0.01~~

<del>Salt Plant Screening</del>	<del>0.01</del>
<del>SOP Plant Dryer D-001</del>	<del>0.01</del>
<del>SOP Plant Dryer D-002</del>	<del>0.01</del>
<del>SOP Plant Dryer D-003</del>	<del>0.01</del>
<del>SOP Plant Dryer D-004</del>	<del>0.01</del>
<del>SOP Plant Drying Circuit Fluid Bed Heater D-005</del>	<del>0.01</del>
<del>Salt Plant Dryer D-501</del>	<del>0.01</del>

- a. ~~Compliance to the above emission limits shall be determined by stack test as outlined in Section IX Part H.11a of this SIP. The stack test date shall be performed as soon as possible and in no case later than June 1, 2015 except for SOP Plant Dryer D-003 when a stack test shall be performed no later than January 1, 2016. A compliance test shall be done at least once every three years subsequent to the initial compliance test.~~
- b. ~~Within one hundred and twenty (120) days after the initial compliance test date required above for each baghouse/scrubber, GSLM shall submit a Notice of Intent to DAQ in which a PM2.5 emission limit in grains/dscf and pounds/hour is proposed.~~
- c. ~~e. Process emissions shall be routed through operating controls prior to being emitted into the atmosphere.~~

iii. ~~PM10 emissions to the atmosphere from the indicated emission point shall not exceed the following rates and concentrations:~~

Source	Concentration (grains/dscf (@ 68 degrees F 29.92 in Hg))
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<del>SOP Loadout</del>	<del>0.01</del>
<del>SOP Silo Dust Collection</del>	<del>0.01</del>
<del>SOP Plant Compaction</del>	<del>0.020</del>
<del>Salt Plant Dust Collection</del>	<del>0.01</del>
<del>Bulk Truck Salt Loadout</del>	<del>0.0053</del>
<del>Mag Chloride Plant</del>	<del>0.01</del>

- a. ~~Compliance to the above emission limits shall be determined by stack test as outlined in Section IX Part H.11a of this SIP. The stack test date shall be performed as soon as possible and in no case later than June 1, 2015. A compliance test shall be done at least once every five years subsequent to the initial compliance test.~~
- b. ~~Within one hundred and twenty (120) days after the initial compliance test date required~~

~~above for each baghouse/scrubber, GSLM shall submit a Notice of Intent to DAQ in which a PM2.5 emission limit in grains/dscf and pounds/hour is proposed.~~

- ~~iv. By January 1, 2017, Low NOx burner technology with a minimum manufacturer guarantee of 77% NOx removal efficiency shall be in operation on all dryers.~~

h. Hexcel Corporation: Salt Lake Operations

- ~~i. The following limits shall not be exceeded for Fiber Lines 2-8, 10-16, the Pilot Plant, and Matrix Operations:
  - ~~A. 4.42 MMscf of natural gas consumed per day.~~
  - ~~B. 0.061 MM pounds of carbon fiber produced per day.~~
  - ~~C. Compliance with each limit shall be determined by the following methods:
    - ~~I. Natural gas consumption shall be determined by examination of natural gas billing records for the plant.~~
    - ~~II. Fiber production shall be determined by examination of plant production records.~~
    - ~~III. Records of consumption and production shall be kept on a daily basis for all periods when the plant is in operation.~~~~~~
- i. The following limits shall not be exceeded for fiber line operations:
  - A. 5.50 MMscf of natural gas consumed per day.
  - B. 0.061 MM pounds of carbon fiber produced per day.
  - C. Compliance with each limit shall be determined by the following methods:
    - I. Natural gas consumption shall be determined by examination of natural gas billing records for the plant and onsite pipe-line metering.
    - II. Fiber production shall be determined by examination of plant production records.
    - III. Records of consumption and production shall be kept on a daily basis for all periods when the plant is in operation.
- v. After a shutdown and prior to startup of fiber lines 13 to 16, the line's baghouse(s) and natural gas injection dual chambered regenerative thermal oxidizer shall be started and remain in operation during production.
  - A. During fiber line production, the static pressure differential across the filter media shall be within the manufacturer's recommended range and shall be recorded daily.
  - B. The manometer or the differential pressure gauge shall be calibrated according to the manufacturer's instructions at least once every 12 months.
- vi. After a shutdown and prior to startup of the fiber lines, the residence time and temperature

associated with the regenerative thermal-oxidation fume incinerators and solvent-coating fume incinerators shall be started and remain in operation during production.

- A. Unless otherwise indicated, the carbon fiber production thermal-oxidation fume incinerators the minimum temperature shall be 1,400 deg F and the residence time shall be greater than or equal to 0.5 seconds

Solvent-coating fume incinerators the minimum temperature shall be 1,450 deg F and the residence time shall be greater than or equal to 0.5 seconds

For fiber lines 6, 7, 8, 10, 11, 12, and the line associated with the Research and Development Facility, the solvent coating fume incinerators temperature shall range from 1,400 to 1,700 deg F and the residence time shall be greater than or equal to 1.0 second

Residence times shall be determined by

Where

R = residence time

V = interior volume of the incinerator – ft<sup>3</sup>

Q<sub>max</sub> = maximum exhaust gas flow rate – ft<sup>3</sup>/second

- B. Incinerator temperatures shall be monitored with temperature sensing equipment that is capable of continuous measurement and readout of the combustion temperature. The readout shall be located such that an inspector/operator can at any time safely read the output. The measurement shall be accurate within  $\pm 25^{\circ}\text{F}$  at operating temperature. The measurement need not be continuously recorded. All instruments shall be calibrated against a primary standard at least once every 180 days. The calibration procedure shall be in accordance with 40 CFR 60, Appendix A, Method 2, paragraph 6.3, and 10.31, or use a type "K" thermocouple.

i. ~~Hill Air Force Base: Main Base~~

~~i.—VOC emissions from painting and depainting operations shall not exceed 0.5 tons per day.~~

~~ii.—Compliance with this daily average shall be determined monthly.~~

j. Holly Corporation: Holly Refining & Marketing Company (Holly Refinery)

i. Source-wide PM2.5 Cap

By no later than January 1, 2019, PM2.5 emissions (filterable + condensable) from all combustion sources shall not exceed 47.6 tons per rolling 12-month period and 0.134 tons per day (tpd).

A. Setting of emission factors:

The emission factors derived from the most current performance test shall be applied to the relevant quantities of fuel combusted. Unless adjusted by performance testing as discussed in IX.H.12.ki.i.B below, the default emission factors to be used are as follows:

Natural gas or Plant gas:

non-NSPS combustion equipment: 7.65 lb PM2.5/MMscf

NSPS combustion equipment: 0.52 lb PM2.5/MMscf

Fuel oil:

The filterable PM2.5 emission factor for fuel oil combustion shall be determined based on the sulfur content of the oil as follows:

$$\text{PM2.5 (lb/1000 gal)} = (10 * \text{wt. \% S}) + 3$$

The condensable PM2.5 emission factor for fuel oil combustion shall be determined from the latest edition of AP-42.

FCC Wet Scrubbers:

The PM2.5 emission factors shall be based on the most recent stack test and verified by parametric monitoring as outlined in IX.H.11.g.i.B.III

B. The default emission factors listed in IX.H.12.ki.i.A above apply until such time as stack testing is conducted as outlined below:

Initial stack testing on all NSPS combustion equipment shall be conducted no later than January 1, 2019 and at least once every three (3) years thereafter. At that time a new flow-weighted average emission factor in terms of: lb PM2.5/MMBtu shall be derived. Stack testing shall be performed as outlined in IX.H.11.e.

C. Compliance with the source-wide PM2.5 Cap shall be determined for each day as follows:

Total 24-hour PM2.5 emissions for the emission points shall be calculated by adding the daily results of the PM2.5 emissions equations listed below for natural gas, plant gas, and fuel oil combustion. These emissions shall be added to the emissions from the wet scrubbers to arrive at a combined daily PM2.5 emission total.

For purposes of this subsection a “day” is defined as a period of 24-hours commencing at midnight and ending at the following midnight.

Daily natural gas and plant gas consumption shall be determined through the use of flow meters on all gas-fueled combustion equipment.

Daily fuel oil consumption shall be monitored by means of leveling gauges on all tanks that supply fuel oil to combustion sources.

The equations used to determine emissions for the boilers and furnaces shall be as follows:

Emissions (tons/day) = Emission Factor (lb/MMscf) \* Natural/Plant Gas Consumption (MMscf/day)/(2,000 lb/ton)

Emissions (tons/day) = Emission Factor (lb/kgal) \* Fuel Oil Consumption (kgal/day)/(2,000 lb/ton)

Results shall be tabulated for each day, and records shall be kept which include all meter readings (in the appropriate units), and the calculated emissions.

~~PM2.5 emissions shall be determined daily by applying the listed emission factors or emission factors determined from the most current performance test to the relevant quantities of fuel combusted. Unless adjusted by performance testing as discussed above, the default emission factors to be used are as follows:~~

~~Natural gas or Plant gas for all non-NSPS combustion equipment: 7.65 lb PM2.5/MMscf~~

~~Natural gas or Plant gas for all NSPS combustion equipment: 0.52 lb PM2.5/MMscf~~

~~Fuel oil: The filterable PM2.5 emission factor for fuel oil combustion shall be determined based on the sulfur content of the oil as follows:~~

~~$PM2.5 \text{ (lb/1000 gal)} = (10 * \text{wt. \% S}) + 3.22$~~

~~The condensable PM2.5 emission factor for fuel oil combustion shall be determined from the latest edition of AP-42.~~

~~Daily natural gas and plant gas consumption shall be determined through the use of flow meters on all gas-fueled combustion equipment.~~

~~Daily fuel oil consumption shall be monitored by means of leveling gauges on all tanks that supply fuel oil to combustion sources. Fuel oil consumption shall be allowed only during periods of natural gas curtailment.~~

~~The equations used to determine emissions for the boilers and furnaces shall be as follows:~~

~~Emissions (tons/day) = Emission Factor (lb/MMscf) \* Natural/Plant Gas Consumption (MMscf/day)/(2,000 lb/ton)~~

~~Emissions (tons/day) = Emission Factor (lb/kgal) \* Fuel Oil Consumption (kgal/day)/(2,000 lb/ton)~~

~~Total 24-hour PM2.5 emissions for the emission points shall be calculated by adding the daily results of the above PM2.5 emissions equations for natural gas, plant gas, and fuel oil combustion. Results shall be tabulated for every day, and records shall be kept which include all meter readings (in the appropriate units), fuel oil parameters (wt. %S), and the calculated emissions.~~

ii. Source-wide NOx Cap

By no later than January 1, 2019, NOx emissions into the atmosphere from all emission points shall not exceed 347.1 tons per rolling 12-month period and 2.09 tons per day (tpd).

A. Setting of emission factors:

The emission factors derived from the most current performance test shall be applied to the relevant quantities of fuel combusted.

Unless adjusted by performance testing as discussed in IX.H.12.ki.ii.B below, the default emission factors to be used are as follows:

Natural gas/refinery fuel gas combustion using:

Low NOx burners (LNB): 41 lbs/MMscf

Ultra-Low NOx (ULNB) burners: 0.04 lbs/MMbtu

Next Generation Ultra Low NOx burners (NGULNB): 0.10 lbs/MMbtu

Boiler #5: 0.02 lbs/MMbtu

All other boilers with selective catalytic reduction (SCR): 0.02 lbs/MMbtu

All other combustion burners: 100 lb/MMscf

Where:

"Natural gas/refinery fuel gas" shall represent any combustion of natural gas, refinery fuel gas, or combination of the two in the associated burner.

All fuel oil combustion: 120 lbs/Kgal

B. The default emission factors listed in IX.H.12.k.ii.A above apply until such time as stack testing is conducted as outlined in IX.H.11.e or by NSPS.

C. Compliance with the Source-wide NOx Cap shall be determined for each day as follows:

Total daily NOx emissions for emission points shall be calculated by adding the results of the NOx equations for plant gas, fuel oil, and natural gas combustion listed below. For purposes of this subsection a “day” is defined as a period of 24-hours commencing at midnight and ending at the following midnight.

Daily natural gas and plant gas consumption shall be determined through the use of flow meters.

Daily fuel oil consumption shall be monitored by means of leveling gauges on all tanks that supply combustion sources.

The equations used to determine emissions for the boilers and furnaces shall be as follows:

Emissions (tons/day) = Emission Factor (lb/MMscf) \* Natural Gas Consumption (MMscf/day)/(2,000 lb/ton)

Emissions (tons/day) = Emission Factor (lb/MMscf) \* Plant Gas Consumption (MMscf/day)/(2,000 lb/ton)

Emissions (tons/day) = Emission Factor (lb/MMBTU) \* Burner Heat Rating (BTU/hr)\* 24 hours per day /(2,000 lb/ton)

Emissions (tons/day) = Emission Factor (lb/kgal) \* Fuel Oil Consumption (kgal/day)/(2,000 lb/ton)

Results shall be tabulated for each day; and records shall be kept which include the meter readings (in the appropriate units), emission factors, and the calculated emissions.

~~NOx emissions shall be determined by applying the following emission factors or emission factors determined from the most current performance testing to the relevant quantities of fuel combusted.~~

~~Natural gas/refinery fuel gas combustion using Low NOx burners (LNB): 41 lbs/MMscf  
Natural gas/refinery fuel gas combusted using Ultra-Low NOx burners: 0.04 lbs/MMbtu  
Natural gas/refinery fuel gas combusted using Next-Generation Ultra Low NOx burners: 0.10 lbs/MMbtu  
Natural gas/refinery fuel gas combusted burners using selective catalytic reduction (SCR): 0.02 lbs/MMbtu  
All other natural gas/refinery fuel gas combustion burners: 100 lb/MMscf~~

~~All fuel oil combustion: 120 lbs/Kgal~~

~~Where:~~

~~"Natural gas/refinery fuel gas" shall represent any combustion of natural gas, refinery fuel gas, or combination of the two in the associated burner.~~

~~Daily natural gas and plant gas consumption shall be determined through the use of flow meters.~~

~~Daily fuel oil consumption shall be monitored by means of leveling gauges on all tanks that supply combustion sources. Fuel oil consumption shall be allowed only during periods of natural gas curtailment.~~

~~The equations used to determine emissions for the boilers and furnaces shall be as follows:~~

~~Emissions (tons/day) = Emission Factor (lb/MMscf) \* Natural Gas Consumption (MMscf/day)/(2,000 lb/ton)~~

~~Emissions (tons/day) = Emission Factor (lb/MMscf) \* Plant Gas Consumption (MMscf/day)/(2,000 lb/ton)~~

~~Emissions (tons/day) = Emission Factor (lb/MMBTU) \* Burner Heat Rating (BTU/hr) \* 24 hours per day/(2,000 lb/ton)~~

~~Emissions (tons/day) = Emission Factor (lb/kgal) \* Fuel Oil Consumption (kgal/day)/(2,000 lb/ton)~~

~~Total daily NOx emissions for emission points shall be calculated by adding the results of the tabulated for every day; and records shall be kept which include the meter readings (in the appropriate units), emission factors, and the calculated emissions.~~

### iii. Source-wide SO2 Cap

By no later than January 1, 2019, the emission of SO2 from all emission points (excluding routine SRU turnaround maintenance emissions) shall not exceed 110.3 tons per rolling 12-month period and 0.31 tons per day (tpd).

#### A. Setting of emission factors:

The emission factors listed below shall be applied to the relevant quantities of fuel combusted:

Natural gas - 0.60 lb SO2/MMscf

Plant gas - The emission factor to be used in conjunction with plant gas combustion shall be determined through the use of a CEM which will measure the H2S content of the fuel gas. The CEM shall operate as outlined in IX.H.11.f.

Fuel oil - The emission factor to be used in conjunction with fuel oil combustion shall be calculated based on the weight percent of sulfur, as determined by ASTM Method D-4294-89 or EPA-approved equivalent, and the density of the fuel oil, as follows:

$$\text{(lb of SO}_2\text{/kgal)} = \text{(density lb/gal)} * \text{(1000 gal/kgal)} * \text{(wt. \%S)/100} * \text{(64 g SO}_2\text{/32 g S)}$$

The weight percent sulfur and the fuel oil density shall be recorded for each day any fuel oil is combusted.

B. Compliance with the Source-wide SO<sub>2</sub> Cap shall be determined for each day as follows:

Total daily SO<sub>2</sub> emissions shall be calculated by adding daily results of the SO<sub>2</sub> emissions equations listed below for natural gas, plant gas, and fuel oil combustion. For purposes of this subsection a “day” is defined as a period of 24-hours commencing at midnight and ending at the following midnight.

The equations used to determine emissions are:

$$\text{Emissions (tons/day)} = \text{Emission Factor (lb/MMscf)} * \text{Natural Gas Consumption (MMscf/day)/(2,000 lb/ton)}$$

$$\text{Emissions (tons/day)} = \text{Emission Factor (lb/MMscf)} * \text{Plant Gas Consumption (MMscf/day)/(2,000 lb/ton)}$$

$$\text{Emissions (tons/day)} = \text{Emission Factor (lb/kgal)} * \text{Fuel Oil Consumption (kgal/24 hrs)/(2,000 lb/ton)}$$

For purposes of these equations, fuel consumption shall be measured as outlined below:

Daily natural gas and plant gas consumption shall be determined through the use of flow meters.

Daily fuel oil consumption shall be monitored by means of leveling gauges on all tanks that supply combustion sources.

Results shall be tabulated for each day, and records shall be kept which include CEM readings for H<sub>2</sub>S (averaged for each one-hour period), all meter reading (in the appropriate units), fuel oil parameters (density and wt% sulfur for each day any fuel oil is burned), and the calculated emissions.

~~The routine turnaround maintenance period (a maximum of once every three years for a maximum of a 15 day period) for the SRU (Unit 17) shall only be scheduled during the period of April 1 through October 31. The projected SRU turnaround period shall be submitted to the Director by April 1 of each year in which a turnaround is planned. Notice shall also be provided to the Director 30 days prior to the planned turnaround.~~

~~SO<sub>2</sub> emissions into the atmosphere shall be determined by applying the following emission factors or emission factors determined from the most current performance testing to the relevant quantities of fuel burned. SO<sub>2</sub> emission factors for the various fuels shall be as follows:~~

~~Natural gas – 0.60 lb SO<sub>2</sub>/MMscf~~

~~Plant gas – The emission factor to be used in conjunction with plant gas combustion shall be determined through the use of a CEM which will measure the H<sub>2</sub>S content of the fuel gas in parts per million by volume (ppmv). Daily emission factors shall be calculated using average daily H<sub>2</sub>S content data from the CEM. The emission factor shall be calculated as follows:~~

$$\text{(lb SO}_2\text{/MMscf gas)} = (24 \text{ hr avg. ppmv H}_2\text{S})/10^6 * (64 \text{ lb SO}_2\text{/lb mole)} * (10^6 \text{ scf/MMscf})/(379 \text{ scf/lb mole})$$

~~Fuel oil – The emission factor to be used in conjunction with fuel oil combustion (during natural gas curtailments) shall be calculated based on the weight percent of sulfur, as determined by ASTM Method 0-4294-89 or EPA approved equivalent, and the density of the fuel oil, as follows:~~

$$\text{(lb of SO}_2\text{/kgal)} = (\text{density lb/gal}) * (1000 \text{ gal/kgal}) * (\text{wt. \%S})/100 * (64 \text{ g SO}_2\text{/32 g S})$$

~~The weight percent sulfur and the fuel oil density shall be recorded for each day any fuel oil is combusted. Fuel oil may be combusted only during periods of natural gas curtailment.~~

~~Fuel Consumption shall be measured as follows:~~

~~Natural gas and plant gas consumption shall be determined through the use of flow meters.~~

~~Fuel oil consumption shall be measured each day by means of leveling gauges on all tanks that supply oil to combustion sources.~~

~~The equations used to determine emissions shall be as follows:~~

~~Emissions (tons/day) = Emission Factor (lb/MMscf) \* Natural Gas Consumption (MMscf/day)/(2,000 lb/ton)~~

~~Emissions (tons/day) = Emission Factor (lb/MMscf) \* Plant Gas Consumption (MMscf/day)/(2,000 lb/ton)~~

~~Emissions (tons/day) = Emission Factor (lb/kgal) \* Fuel Oil Consumption (kgal/24-hrs)/(2,000 lb/ton)~~

~~Total daily SO<sub>2</sub> emissions shall be calculated by adding daily results of the above SO<sub>2</sub> emissions equations for natural gas, plant gas, and fuel oil combustion. Results shall be tabulated for every day; and records shall be kept which include the CEM readings for H<sub>2</sub>S (averaged for each one-hour period), all meter readings (in the appropriate units), fuel oil parameters (density and wt. %S, recorded for each day any fuel oil is burned), and the calculated emissions.~~

iv. Emergency and Standby Equipment

- A. The use of diesel fuel meeting the specifications of 40 CFR 80.510 is allowed in standby or emergency equipment at all times.

k. Kennecott Utah Copper (KUC): Mine

i. Bingham Canyon Mine (BCM)

- A. Maximum total mileage per calendar day for ore and waste haul trucks shall not exceed 30,000 miles.

KUC shall keep records of daily total mileage for all periods when the mine is in operation. KUC shall track haul truck miles with a Global Positioning System or equivalent. The system shall use real time tracking to determine daily mileage.

- ~~B. The following source-wide emission limits at the BCM shall not be exceeded:~~

~~I. 6,205 tons of NOX, PM2.5 and SO2 combined per rolling 12-month period until January 1, 2019.~~

~~II. After January 1, 2019, combined emissions of NOX, PM2.5, and SO2 shall not exceed 5,585 tons per rolling 12-month period.~~

~~Compliance with the 12-month period limits shall be determined on a rolling 12-month total based on the previous 12 months per methodology outlined in Emissions Inventory. KUC shall calculate a new 12-month total by the 20th day of each month using data from the previous 12 months. [R307-401-8]~~

- B. To minimize fugitive dust on roads at the mine, the owner/operator shall perform the following measures:

I. Apply water to all active haul roads as weather and operational conditions warrant except during precipitation or freezing weather conditions, and shall apply a chemical dust suppressant to active haul roads located outside of the pit influence boundary no less than twice per year.

II. Chemical dust suppressant shall be applied as weather and operational conditions warrant except during precipitation or freezing weather conditions on unpaved access roads that receive haul truck traffic and light vehicle traffic.

III. Records of water and/or chemical dust control treatment shall be kept for all periods when the BCM is in operation.

IV. KUC is subject to the requirements in the most recent federally approved Fugitive Emissions and Fugitive Dust rules.

~~I. Apply water to all active haul roads as conditions warrant, and shall~~

~~1. ensure the surface of the active haul roads located within the pit influence boundary consists of road base material, blasted waste rock, crushed rock, or chemical dust suppressant, and~~

~~2. apply a chemical dust suppressant to active haul roads located outside of the pit influence boundary no less than twice per year.~~

C. To minimize emissions at the mine, the owner/operator shall:

I. Control emissions from the in-pit crusher with a baghouse.

~~II. Ore conveyors shall be the primary means for transport of crushed ore from the mine to the concentrator.~~

~~III. Chemical dust suppressant shall be applied as conditions warrant on unpaved access roads that receive haul truck traffic and light vehicle traffic.~~

D. Implementation Schedule

KUC shall purchase new haul trucks with the highest engine Tier level available which meet mining needs. KUC shall maintain records of haul trucks purchased and retired.

~~I. KUC shall reduce emissions of combined PM2.5, SOx and NOx on a 12-month rolling period by 10% to 5,585 tons by 2019. In doing so, KUC is required to purchase the highest tier level trucks available that meet the production requirement, from certified manufactures.~~

ii. Copperton Concentrator (CC)

A. Control emissions from the Product Molybdenite Dryers with a scrubber during operation of the dryers.

During operation of the dryers, the static pressure differential between the inlet and outlet of the scrubber shall be within the manufacturer's recommended range and shall be recorded weekly.

The manometer or the differential pressure gauge shall be calibrated according to the manufacturer's instructions at least once per year.

I. Kennecott Utah Copper: Power Plant

i. UTAH POWER PLANT

A. ~~After January 1, 2018, boiler units #1, #2, and #3 shall not operate during the period November 1 to February 28/29 inclusive. Boiler units #1, #2, and #3 shall be decommissioned and removed upon commencement of unit #5 operations. Boilers #1, #2, and #3 shall not be operated after January 1, 2018, or upon commencing operations of Unit #5 (combined-cycle, natural gas-fired combustion turbine), whichever is sooner~~

B. Unit #5 (combined cycle, natural gas-fired combustion turbine) shall not exceed the following emission rates to the atmosphere:

POLLUTANT	lb/hr	lb/event	ppmdv (15% O2 dry)
I. PM2.5 with duct firing: Filterable + condensable	18.8		
II. VOC:			2.0*
III. NOx: Startup / Shutdown		395	2.0*

\* ~~Except during startup and shutdown. Under steady state operation~~

IV. Startup / Shutdown Limitations:

1. The total number of startups and shutdowns together shall not exceed 690 per calendar year.
2. The NOx emissions shall not exceed 395 lbs from each startup/shutdown event, which shall be determined using manufacturer data.

3. Definitions:

- (i) Startup cycle duration ends when the unit achieves half of the design electrical generation capacity.
- (ii) Shutdown duration cycle begins with the initiation of turbine shutdown sequence and ends when fuel flow to the gas turbine is discontinued.

C. ~~Stack testing to show compliance with the above Unit #5 emission limitations shall be performed as follows:~~

~~POLLUTANT — TEST FREQUENCY~~

~~I. NOx: — 3 years~~

~~II. VOC: — 3 years~~

~~III. PM2.5 — 3 years~~

~~The heat input during all compliance testing shall be no less than 90% of the design rate.~~

Upon commencement of operation of Unit #5\*, stack testing to demonstrate compliance with the emission limitations in IX.H.12.k.i.B shall be performed as follows for the following air contaminants.

\* 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 startup of a new emission source.

The limited use of natural gas during maintenance firings and break-in firings does not constitute operation and does not require stack testing.

Pollutant	Test	Frequency
I.	PM2.5	every year
II.	NOx	every year
III.	VOC	every year

~~D. The following requirements are applicable to Unit #4 during the period November 1 to February 28/29 inclusive:~~

~~I. During the period from November 1, to the last day in February inclusive, only natural gas shall only be used as a fuel, unless the supplier or transporter of natural gas imposes a curtailment. The power plant may then burn coal, only for the duration of the curtailment plus sufficient time to empty the coal bins following the curtailment.~~

~~II. Except during a curtailment of natural gas supply, emissions to the atmosphere from the indicated emission point shall not exceed the following rates and concentrations:~~

~~POLLUTANT ————— grains/dscf ————— ppmdv (3% O2)  
68°F, 29.92 in. Hg~~

~~1. Before January 1, 2018~~

~~a. PM2.5~~

~~filterable ————— 0.004~~

~~filterable +~~

~~condensable ————— 0.03~~

~~b. NOx: ————— 336~~

~~2. After January 1, 2018~~

a. ~~PM2.5~~

~~filterable 0.004~~

~~filterable+~~

~~condensable 0.03~~

b. ~~NOx: 60~~

~~III. When using coal during a curtailment of the natural gas supply, emissions to the atmosphere from the indicated emission point shall not exceed the following rates and concentrations:~~

<del>POLLUTANT</del>	<del>grains/dscf</del>	<del>lb/hr</del>	<del>ppmdv (3% O2)</del>
	<del>68°F, 29.92 in. Hg</del>		

~~1. PM2.5~~

~~filterable 0.029 33.5~~

~~filterable+~~

~~condensable 0.29 382~~

~~H. NOx: 384~~

~~IV. Stack testing to show compliance with the emission limitations in H.12.m.i.D.II and III shall be performed as follows for the following air contaminants:~~

<del>POLLUTANT</del>	<del>TEST FREQUENCY</del>
<del>1. PM2.5</del>	<del>every year</del>
<del>2. NOx</del>	<del>every year</del>

~~The heat input during all compliance testing shall be no less than 90% of the design rate.~~

~~The limited use of natural gas during startup, for maintenance firings and break-in firings does not constitute operation and does not require stack testing.~~

~~V. KUC shall operate Units 4 & 5 in accordance with best management practices to limit emissions of NOx during periods of startup and shutdown.~~

D. Prior to January 1, 2018, the following requirements are applicable to Units #1, #2, #3, and #4 during the period November 1 to February 28/29 inclusive:

I. Only natural gas shall only be used as a fuel, unless the supplier or transporter of natural gas imposes a curtailment. The power plant may then burn coal, only for the duration of the curtailment plus sufficient time to empty the coal bins following the

curtailment. The Director shall be notified of the curtailment within 48 hours of when it begins and within 48 hours of when it ends.

II. When burning natural gas the emissions to the atmosphere from the indicated emission point shall not exceed the following rates and concentrations:

<u>POLLUTANT</u>	<u>grains/dscf</u> <u>68°F, 29.92 in. Hg</u>	<u>ppmdv (3% O2)</u>
<u>1. PM2.5 Units #1, #2, #3 and #4</u>		
<u>filterable</u>	<u>0.004</u>	
<u>filterable + condensable</u>	<u>0.03</u>	
<u>2. NOx</u>		
<u>Units #1, #2 and #3</u>		<u>336</u>
<u>3. NOx:</u>		
<u>Unit #4</u>		<u>336</u>
<u>(Unit #4 after January 1, 2018)</u>		<u>60</u>

III. When using coal during a curtailment of the natural gas supply, emissions to the atmosphere from the indicated emission point shall not exceed the following rates and concentrations:

<u>POLLUTANT</u>	<u>grains/dscf</u>	<u>ppmdv (3% O2)</u> <u>68°F, 29.92 in. Hg</u>
<u>1. PM2.5</u>		
<u>Filterable</u>	<u>0.029</u>	
<u>filterable + condensable</u>	<u>0.29</u>	
<u>2. NOx:</u>		
<u>Units #1, #2 and #3</u>		<u>426.5</u>
<u>Unit #4</u>		<u>384</u>

IV. If the units are operated during the months specified above, stack testing to show compliance with the emission limitations in H.12.k.i.D.II and III shall be performed as follows for the following air contaminants:

<u>Pollutant</u>	<u>Test Frequency</u>	<u>Initial Test</u>
<u>1. PM2.5</u>	<u>every year</u>	<u>#</u>
<u>2. NOx</u>	<u>every year</u>	<u>#</u>

# Initial compliance testing is required for Unit #4 after low NOx burner installation. 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 startup of a new emission source.

The heat input during all compliance testing shall be no less than 90% of the design rate.

The limited use of natural gas during startup, for maintenance firings and break-in firings does not constitute operation and does not require stack testing.

V. Records shall be kept on site which indicate the date, and time of startup and shutdown.

E. The following requirements are applicable to Units #1, #2, #3, and #4 during the period March 1 to October 1 inclusive:

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

<u>Pollutant</u>	<u>grains/dscf</u>	<u>ppmdv (3% O<sub>2</sub>)</u> <u>68°F, 29.92 in Hg</u>
<u>1. Units #1, #2, #3, #4</u>		
<u>(i) PM2.5 filterable</u>	<u>0.029</u>	
<u>(ii) filterable +</u> <u>condensable</u>	<u>0.29</u>	
<u>(iii) NOx Units #1, #2, #3</u>		<u>426.5</u>
<u>(iv) NOx Unit #4</u>		<u>384</u>

II. If the units are operated during the months specified above, stack testing to show compliance with the emission limitations in H.12.k.i.E.I shall be performed as follows for the following air contaminants:

<u>Pollutant</u>	<u>Test Frequency</u>
<u>1. PM2.5</u>	<u>every year</u>
<u>2. NOx</u>	<u>every year</u>

The limited use of natural gas during maintenance firings and break-in firings does not constitute operation and does not require stack testing.

F. The sulfur content of any fuel burned shall not exceed 0.66 lb of sulfur per million BTU per test.

I. Coal increments will be collected using ASTM 2234, Type I conditions A, B, or C and systematic spacing.

II. Percent sulfur content and gross calorific value of the coal on a dry basis will be determined for each gross sample using ASTM D methods 2013, 3177, 3173, and 2015.

III. KUC shall measure at least 95% of the required increments in any one month that coal is burned in Units #1, #2, #3 or #4.

~~ii. BONNEVILLE BORROW AREA PLANT~~

~~A. Maximum total mileage per day for haul trucks shall not exceed 12,500 miles.~~

m. 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. PM2.5
  - a. 85 lbs/hr (filterable)
  - b. 434 lbs/hr (filterable + condensable)
2. SO2
  - a. 552 lbs/hr (3 hr. rolling average)
  - b. 422 lbs/hr (daily average)
3. NOx ~~154.35~~ lbs/hr (~~annual-daily~~ average)

II. ~~Acid Plant Tail Gas~~

- ~~1. SO2
 
  - a. 1,050 ppmdv (3 hr. rolling average)
  - b. 650 ppmdv (6 hr. rolling average)~~

II. Holman Boiler

1. NOx
  - a. ~~14.09~~ 34 lbs/hr, (~~calendar-day 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)	PM2.5	Every Year
	SO2	CEM
	NOx	CEM
II. <del>Acid Plant Tailgas</del>	<del>SO2</del>	<del>CEM</del>
II. Holman Boiler	NOx	<u>Every three years and CEM or alternate method determined according to applicable NSPS standards</u>

The Holman boiler shall use an EPA approved test method every three years and in between years use an alternate method according to applicable NSPS standards.

C. During startup/shutdown operations, NOx and SO2 emissions are monitored by CEMS or alternate methods in accordance with applicable NSPS standards.

D. KUC must operate and maintain the 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.

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	NOx	9.5 lbs/hr
Combined Heat Plant	NOx	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	NOx	every three years*
Combined Heat Plant	NOx	every year

~~Stack testing shall be performed on boilers that have operated more than 300 hours during a three year period.\* 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. KUC must 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. Records shall be kept on site which indicate the date, and time of startups and shutdowns. ~~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.~~

iii. Molybdenum Autoclave Project (MAP)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	NOx	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	NOx	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. Records shall be kept on site which indicate the date and time of startups and shutdowns. ~~Standard operating procedures shall be followed during startup and shutdown operations to minimize emissions.~~

n. Nucor Steel Mills

i. Emissions to the atmosphere from the indicated emission points shall not exceed ~~the~~ following rates:

A. Electric Arc Furnace Baghouse

I. PM2.5

1. 17.4 lbs/hr (24 hr. average filterable only)
2. 29.53 lbs/hr (condensable only)

II. SO2

1. 93.98 lbs/hr (3 hr. rolling average)
2. 89.0 lbs/hr (daily average)

III. NOx ~~59.75~~ lbs/hr (calendar-day 12-month rolling average)

IV. VOC 22.20 lbs/hr

B. Reheat Furnace #1

NOx 15.0 lb/hr

C. Reheat Furnace #2

NOx 8.0 lb/hr

ii. Stack testing to show compliance with the emissions limitations of Condition (i) above shall be performed as outlined in IX.H.11.e and as specified below:

EMISSION POINT	POLLUTANT	TEST FREQUENCY
A. Electric Arc Furnace Baghouse	PM2.5	every year
	SO2	CEM
	NO <del>x</del>	CEM
	VOC	every <del>5</del> years
B. Reheat Furnace #1	NOx	every <del>3</del> years
C. Reheat Furnace #2	NOx	every <del>3</del> years

iii. Testing Status (To be applied to (i) and (ii) above)

A. To demonstrate compliance with the Electric Arc Furnace stack mass emissions limits for SO2 and NOx of Condition (i)(A) above, Nucor shall calibrate, maintain and operate the measurement systems for continuously monitoring for SO2 and NOx concentrations and stack gas volumetric flow rates in the Electric Arc Furnace stack. Such measurement systems shall meet the requirements of R307-170.

- B. For PM2.5 testing, 40 CFR 60, Appendix A, Method 5D, or another EPA approved method acceptable to the Director, shall be used to determine total TSP emissions. If TSP emissions are below the PM2.5 limit, that will constitute compliance with the PM2.5 limit. If TSP emissions are not below the PM2.5 limit, the owner/operator shall retest using EPA approved methods specified for PM2.5 testing, within 120 days.
- C. Startup/shutdown NOx and SO2 emissions are monitored by CEMS.

- o. Olympia Sales Company: Cabinet Manufacturing Facility
- i. ~~By January 1, 2015, By July 31, 2018,~~ a baghouse control device shall be in operation for control of the process exhaust streams from the Mill, Door, and Sanding areas.~~installed and operating for control of PM from the process exhaust streams from the mill, door, and sanding areas.~~
  - ii. Process emissions from the ~~mill~~Mill, ~~door~~Door, and ~~sanding~~Sanding areas shall be exhausted through the baghouse during ~~all~~ startup, shutdown, and ~~normal~~ operations of the plant.
  - iii. The baghouse shall operate a maximum of 4,160 hours per rolling 12-month period. Records of baghouse operation shall be kept for all periods of plant operation. The records shall be kept on a daily basis. Hours of operation shall be determined by supervisor monitoring and maintaining of an operations log.
  - iv. The owner/operator shall use High Volume Low Pressure (HVLV) spray guns or equivalent for all painting processes at this facility comply with all applicable provisions of R307-349.

p. PacifiCorp Energy: Gadsby Power Plant

i. Steam Generating Unit #1:

- A. Emissions of NO<sub>x</sub> shall be no greater than 179 lbs/hr on a three (3) hour block average basis.
- B. The owner/operator shall install, certify, maintain, operate, and quality-assure a CEM consisting of NO<sub>x</sub> and O<sub>2</sub> monitors to determine compliance with the NO<sub>x</sub> limitation. The CEM shall operate as outlined in IX.H.11.f.

ii. Steam Generating Unit #2:

- A. Emissions of NO<sub>x</sub> shall be no greater than 204 lbs/hr on a three (3) hour block average basis.
- B. The owner/operator shall install, certify, maintain, operate, and quality-assure a continuous emission monitoring system (CEMS) consisting of NO<sub>x</sub> and O<sub>2</sub> monitors to determine compliance with the NO<sub>x</sub> limitation.

iii. Steam Generating Unit #3:

- A. Emissions of NO<sub>x</sub> shall be no greater than
  - I. 142 lbs/hr on a three (3) hour block average basis, applicable between November 1 and February 28/29
  - II. 203 lbs/hr on a three (3) hour block average basis, applicable between March 1 and October 31
- B. The owner/operator shall install, certify, maintain, operate, and quality-assure a CEM consisting of NO<sub>x</sub> and O<sub>2</sub> monitors to determine compliance with the NO<sub>x</sub> limitation. The CEM shall operate as outlined in IX.H.11.f.

iv. Steam Generating Units #1-3:

- A. The owner/operator shall use only natural gas as a primary fuel and No. 2 fuel oil or better as back-up fuel in the boilers. The No. 2 fuel oil may be used only during periods of natural gas curtailment and for maintenance firings. Maintenance firings shall not exceed one-percent of the annual plant Btu requirement. In addition, maintenance firings shall be scheduled between April 1 and November 30 of any calendar year. Records of fuel oil use shall be kept and they shall show the date the fuel oil was fired, the duration in hours the fuel oil was fired, the amount of fuel oil consumed during each curtailment, and the reason for each firing.

v. Natural Gas-fired Simple Cycle Turbine Units:

- A. Total emissions of NO<sub>x</sub> from all three turbines shall be no greater than 600 lbs/day. For purposes of this subsection a “day” is defined as a period of 24-hours commencing at midnight and ending at the following midnight.
- B. The owner/operator shall install, certify, maintain, operate, and quality-assure a CEM consisting of NO<sub>x</sub> and O<sub>2</sub> monitors to determine compliance with the NO<sub>x</sub> limitation. The CEM shall operate as outlined in IX.H.11.f.

vi. Combustion Turbine Startup / Shutdown Emission Minimization Plan

- A. Startup begins when the fuel valves open and natural gas is supplied to the combustion turbines
- B. Startup ends when either of the following conditions is met:
  - I. The NOx water injection pump is operational, the dilution air temperature is greater than 600°F, the stack inlet temperature reaches 570°F, the ammonia block value has opened and ammonia is being injected into the SCR and the unit has reached an output of ten (10) gross MW; or
  - II. The unit has been in startup for two (2) hours.
- C. Unit shutdown begins when the unit load or output is reduced below ten (10) gross MW with the intent of removing the unit from service.
- D. Shutdown ends at the cessation of fuel input to the turbine combustor.
- E. Periods of startup or shutdown shall not exceed two (2) hours per combustion turbine per day.
- F. Turbine output (turbine load) shall be monitored and recorded on an hourly basis with an electrical meter.

i. Steam Generating Unit #1:

A. Emissions of NOx shall be no greater than 336 ppm<sub>dv</sub> (3% O<sub>2</sub>, dry).

B. The owner/operator shall install, certify, maintain, operate, and quality-assure a continuous emission monitoring system (CEMS) consisting of NOx and O<sub>2</sub> monitors to determine compliance with the NOx limitation.

ii. Steam Generating Unit #2:

A. Emissions of NOx shall be no greater than 336 ppm<sub>dv</sub> (3% O<sub>2</sub>, dry).

B. The owner/operator shall install, certify, maintain, operate, and quality-assure a continuous emission monitoring system (CEMS) consisting of NOx and O<sub>2</sub> monitors to determine compliance with the NOx limitation.

iii. Steam Generating Unit #3:

A. Emissions of NOx shall be no greater than 336 ppm<sub>dv</sub> (3% O<sub>2</sub>, dry).

B. The owner/operator shall install, certify, maintain, operate, and quality-assure a continuous emission monitoring system (CEMS) consisting of NOx and O<sub>2</sub> monitors to determine compliance with the NOx limitation.

iv. Natural Gas-fired Simple Cycle Turbine Units:

A. Total emissions of NOx from all three turbines shall be no greater than 22.2 lbs/hour (15% O<sub>2</sub>, dry) based on a 30-day rolling average.

B. Emission of NOx from each individual turbine shall be no greater than 5 ppm<sub>dv</sub> (15% O<sub>2</sub>, dry) based on 30-day rolling average.

C. The owner/operator shall install, certify, maintain, operate, and quality-assure a continuous emission monitoring system (CEMS) consisting of NOx and O<sub>2</sub> monitors to determine compliance with the applicable NOx limitations. The NOx emission rate (lb/hr) shall be calculated by multiplying the NOx concentration (ppm<sub>dv</sub>) generated

~~from CEMs and the volumetric flow rate.~~

~~D. The owner/operator shall expand the catalyst beds to achieve additional NOx control on Natural Gas-fired Simple Cycle Turbine Units (Units #4, #5 and #6) by no later than January 1, 2016~~

~~v. Combustion Turbine Startup / Shutdown Emission Minimization Plan~~

~~A. Startup begins when the fuel valves open and natural gas is supplied to the combustion turbines~~

~~B. Startup ends when either of the following conditions is met:~~

~~I. The NOx water injection pump is operational, the dilution air temperature is greater than 600 oF, the stack inlet temperature reaches 570 oF, the ammonia block valve has opened and ammonia is being injected into the SCR and the unit has reached an output of ten (10) gross MW; or~~

~~H. The unit has been in startup for two (2) hours.~~

~~C. Unit shutdown begins when the unit load or output is reduced below ten (10) gross MW with the intent of removing the unit from service.~~

~~D. Shutdown ends at the cessation of fuel input to the turbine combustor.~~

~~E. Periods of startup or shutdown shall not exceed two (2) hours per combustion turbine per day.~~

q. Tesoro Refining and Marketing Company: Salt Lake City Refinery

i. Source-wide PM2.5 Cap

By no later than January 1, 2019, combined emissions of PM2.5 (filterable + condensable) shall not exceed 2.25 tons per day (tpd) and 179 tons per rolling 12-month period. ~~By no later than January 1, 2019, combined emissions of filterable PM2.5 shall not exceed 0.42 tons per day (tpd) and 110 tons per rolling 12-month period.~~

A. Setting of emission factors:

The emission factors derived from the most current performance test shall be applied to the relevant quantities of fuel combusted. Unless adjusted by performance testing as discussed in IX.H.12.f.i.B below, the default emission factors to be used are as follows:

Natural gas:

Filterable PM2.5: 1.9 lb/MMscf

Condensable PM2.5: 5.7 lb/MMscf

Plant gas:

Filterable PM2.5: 1.9 lb/MMscf

Condensable PM2.5: 5.7 lb/MMscf

Fuel Oil: The PM2.5 emission factor shall be determined from the latest edition of AP-42

FCC Wet Scrubber:

The PM2.5 emission factors shall be based on the most recent stack test and verified by parametric monitoring as outlined in IX.H.11.g.i.B.III

Where mixtures of fuel are used in a Unit, the above factors shall be weighted according to the use of each fuel.

B. The default emission factors listed in IX.H.12.f.i.A above apply until such time as stack testing is conducted as outlined below:

Initial PM2.5 stack testing on the FCC wet gas scrubber stack shall be conducted no later than January 1, 2019 and at least once every three (3) years thereafter. Stack testing shall be performed as outlined in IX.H.11.e.

C. Compliance with the Source-wide PM2.5 Cap shall be determined for each day as follows:

Total 24-hour PM2.5 emissions for the emission points shall be calculated by adding the daily results of the PM2.5 emissions equations listed below for natural gas, plant gas, and fuel oil combustion. These emissions shall be added to the emissions from the wet scrubber to arrive at a combined daily PM2.5 emission total. For purposes of this subsection a “day” is defined as a period of 24-hours commencing at midnight and

ending at the following midnight.

Daily natural gas and plant gas consumption shall be determined through the use of flow meters.

Daily fuel oil consumption shall be monitored by means of leveling gauges on all tanks that supply combustion sources.

The equation used to determine emissions for the boilers and furnaces shall be as follows:

Emission Factor (lb/MMscf) \* Gas Consumption (MMscf/24 hrs)/(2,000 lb/ton)

Results shall be tabulated for each day, and records shall be kept which include the meter readings (in the appropriate units) and the calculated emissions.

~~PM2.5 emissions shall be determined daily by applying the listed emission factors or emission factors determined from the most current performance test to the relevant quantities of fuel combusted. Unless adjusted by performance testing as discussed above, the default emission factors to be used are as follows:~~

~~Natural gas — 1.9 lb/MMscf (filterable), 5.7 lb/MMscf (condensable)~~

~~Plant gas — 1.9 lb/MMscf (filterable), 5.7 lb/MMscf (condensable)~~

~~Daily gas consumption by all boilers and furnaces shall be measured by meters that can delineate the flow of gas to the indicated emission points.~~

~~The equations used to determine emissions for the boilers and furnaces shall be as follows:~~

~~Emission Factor (lb/MMscf) \* Gas Consumption (MMscf/24 hrs)/(2,000 lb/ton)~~

~~By no later than January 1, 2019, Tesoro shall conduct stack testing to establish the ratio of condensable PM2.5 from the FCCU wet gas scrubber stack. At that time the condensable fraction will be added and a new source-wide limitation shall be established in the AO.~~

~~Total 24-hour PM2.5 (filterable + condensable) emissions shall be calculated by adding the results of the above filterable PM2.5 equations for natural gas and plant gas combustion to the values for the FCCU wet gas scrubber stack and to the estimate for the SRU/TGTU/TGI. Results shall be tabulated every day, and records shall be kept which include the meter readings (in the appropriate units) and the calculated emissions.~~

ii. Source-wide NOx Cap

By no later than January 1, 2019, combined emissions of NOx shall not exceed 1.988 tons per day (tpd) and 475 tons per rolling 12-month period.

A. Setting of emission factors:

The emission factors derived from the most current performance test shall be applied to the relevant quantities of fuel combusted. Unless adjusted by performance testing as discussed in IX.H.12.fp.ii.B below, the default emission factors to be used are as follows:

Natural gas/refinery fuel gas combustion using:

Low NOx burners (LNB): 41 lbs/MMbtu

Ultra-Low NOx (ULNB) burners: 0.04 lbs/MMbtu

Diesel fuel: shall be determined from the latest edition of AP-42

B. The default emission factors listed in IX.H.12.fp.ii.A above apply until such time as stack testing is conducted as outlined below:

Initial NOx stack testing on natural gas/refinery fuel gas combustion equipment above 100 MMBtu/hr has already been performed and shall be conducted at least once every three (3) years following the date of the last test. At that time a new flow-weighted average emission factor in terms of: lbs/MMbtu shall be derived for each combustion type listed in IX.H.12.fp.ii.A above. Stack testing shall be performed as outlined in IX.H.11.e.

C. Compliance with the source-wide NOx Cap shall be determined for each day as follows:

Total 24-hour NOx emissions shall be calculated by adding the emissions for each emitting unit. The emissions for each emitting unit shall be calculated by multiplying the hours of operation of a unit, feed rate to a unit, or quantity of each fuel combusted at each affected unit by the associated emission factor, and summing the results.

A NOx CEM shall be used to calculate daily NOx emissions from the FCCU wet gas scrubber stack. Emissions shall be determined by multiplying the nitrogen dioxide concentration in the flue gas by the flow rate of the flue gas. The NOx concentration in the flue gas shall be determined by a CEM as outlined in IX.H.11.f.

Daily natural gas and plant gas consumption shall be determined through the use of flow meters.

Daily fuel oil consumption shall be monitored by means of leveling gauges on all tanks that supply combustion sources.

For purposes of this subsection a “day” is defined as a period of 24-hours commencing at midnight and ending at the following midnight.

Results shall be tabulated for each day, and records shall be kept which include the meter readings (in the appropriate units) and the calculated emissions.

~~Compliance shall be determined daily by multiplying the hours of operation of a unit, feed rate to a unit, or quantity of each fuel combusted at each affected unit by the associated emission factor, and summing the results.~~

~~A NO<sub>x</sub> CEM shall be used to calculate daily NO<sub>x</sub> emissions from the FCCU wet gas scrubber stack. Emissions shall be determined by multiplying the nitrogen dioxide concentration in the flue gas by the mass flow of the flue gas. The NO<sub>x</sub> concentration in the flue gas shall be determined by a CEM.~~

~~The emission factors for all other emission units are based on the results of the most recent stack test for that unit.~~

~~Total daily NO<sub>x</sub> emissions shall be calculated by adding the emissions for each emitting unit. Results shall be tabulated every day, and records shall be kept which include the meter readings (in the appropriate units) and the calculated emissions.~~

iii. Source-wide SO<sub>2</sub> Cap

By no later than January 1, 2019, combined emissions of SO<sub>2</sub> shall not exceed 3.1 tons per day (tpd) and 300 tons per rolling 12-month period.

A. Setting of emission factors:

The emission factors derived from the most current performance test shall be applied to the relevant quantities of fuel combusted. The default emission factors to be used are as follows:

Natural gas: EF = 0.60 lb/MMscf

Propane: EF = 0.60 lb/MMscf

Diesel fuel: shall be determined from the latest edition of AP-42

Plant fuel gas: the emission factor shall be calculated from the H<sub>2</sub>S measurement or from the SO<sub>2</sub> measurement obtained by direct testing/monitoring.

Where mixtures of fuel are used in a unit, the above factors shall be weighted according to the use of each fuel.

B. Compliance with the source-wide SO<sub>2</sub> Cap shall be determined for each day as follows:

Total daily SO<sub>2</sub> emissions shall be calculated by adding the daily SO<sub>2</sub> emissions for natural gas, plant fuel gas, and propane combustion to those from the wet gas scrubber stack.

Daily SO<sub>2</sub> emissions from the FCCU wet gas scrubber stack shall be determined by

multiplying the SO2 concentration in the flue gas by the flow rate of the flue gas. The SO2 concentration in the flue gas shall be determined by a CEM as outlined in IX.H.11.f.

Daily SO2 emissions from other affected units shall be determined by multiplying the quantity of each fuel used daily at each affected unit by the appropriate emission factor.

Daily natural gas and plant gas consumption shall be determined through the use of flow meters.

Daily fuel oil consumption shall be monitored by means of leveling gauges on all tanks that supply combustion sources.

Results shall be tabulated for each day, and records shall be kept which include CEM readings for H2S (averaged for each one-hour period), all meter reading (in the appropriate units), fuel oil parameters (density and wt% sulfur for each day any fuel oil is burned), and the calculated emissions.

~~Daily SO2 emissions from the FCCU wet gas scrubber stack shall be determined by multiplying the SO2 concentration in the flue gas by the mass flow of the flue gas. The SO2 concentration in the flue gas shall be determined by a CEM.~~

~~Daily SO2 emissions from other affected units shall be determined by multiplying the quantity of each fuel used daily (24-hour usage) at each affected unit by the appropriate emission factor below.~~

~~Emission factors (EF) for the various fuels shall be as follows:~~

~~Natural gas: EF = 0.60 lb/MMscf~~

~~Propane: EF = 0.60 lb/MMscf~~

~~Plant fuel gas: the emission factor shall be calculated from the H2S measurement or from the SO2 measurement obtained by direct testing/monitoring.~~

~~The emission factor, where appropriate, shall be calculated as follows:~~

$$\text{EF (lb SO}_2\text{/MMscf gas)} = [(24 \text{ hr avg. ppmdv H}_2\text{S)} / 10^6] [(64 \text{ lb SO}_2\text{/lb mole)}] [(10^6 \text{ scf/MMscf}) / (379 \text{ scf/lb mole})]$$

~~Where mixtures of fuel are used in a Unit, the above factors shall be weighted according to the use of each fuel.~~

~~Total daily SO2 emissions shall be calculated by adding the daily results of the above SO2 emissions equations for natural gas, plant fuel gas, and propane combustion to the wet gas scrubber stack. Results shall be tabulated every day, and records shall be kept which include~~

~~the CEM readings for H<sub>2</sub>S (averaged for each one-hour period), all meter readings (in the appropriate units), and the calculated emissions.~~

iv. Emergency and Standby Equipment

A. The use of diesel fuel meeting the specifications of 40 CFR 80.510 is allowed in standby or emergency equipment at all times.

r. The Procter & Gamble Paper Products Company

- i. Emissions to the atmosphere at all times from the indicated emission points shall not exceed the following rates:

Source: Boilers (Each)

Pollutant	Oxygen Ref.	lb/hr
NO <sub>x</sub>	3%	3.3
<u>PM<sub>2.5(Filterable)</sub></u>	<u>3%</u>	<u>0.72</u>

Source: Paper Machines Process Stacks (Each)

<u>Pollutant</u>	<u>Oxygen Ref.</u>	<u>lb/hr</u>
<u>NO<sub>x</sub></u>	<u>3%</u>	<u>13.50</u>
<u>PM<sub>2.5(Filterable)</sub></u>	<u>3%</u>	<u>6.65</u>

- A. Compliance with the above emission limits shall be determined by stack test as outlined in Section IX Part H.11.e of this SIP.
- B. By no later than January 1, 2015, stack testing shall be completed to establish the ratio of condensable PM<sub>2.5</sub>. At that time the condensable fraction will be added and a PM<sub>2.5</sub> limit established in the AO.
- C. Subsequent to initial compliance testing, stack testing is required at a minimum of every five-three years.

ii. Boiler Startup/Shutdown Emissions Minimization Plan

- A. Startup begins when natural gas is supplied to the Boiler(s) with the intent of combusting the fuel to generate steam. Startup conditions end within thirty (30) minutes of natural gas being supplied to the boilers(s).
- B. Shutdown begins with the initiation of the stop sequence of the boiler until the cessation of natural gas flow to the boiler.

iii. Paper Machine Startup/Shutdown Emissions Minimization Plan

- A. Startup begins when natural gas is supplied to the dryer combustion equipment with the intent of combusting the fuel to heat the air to a desired temperature for the paper machine. Startup conditions end within thirty (30) minutes of natural gas being supplied to the dryer combustion equipment.
- B. Shutdown begins with the diversion of the hot air to the dryer startup stack and then the cessation of natural gas flow to the dryer combustion equipment. Shutdown conditions end within thirty (30) minutes of hot air being diverted to the dryer startup stack.

s. University of Utah: University of Utah Facilities

- i Emissions to the atmosphere from the listed emission points in Building 303 shall not exceed the following concentrations:

Emissions Point	Pollutant	ppmdv (3% O2 dry)
A. Boilers #3	NOx	187
B. Boilers #4a & 4b*	NOx	9
C. Boilers #5a & 5b	NOx	9
D. Turbine	NOx	9
E. Turbine and WHRU Duct burner	NOx	15

\*Boiler #4 will be replaced with Boiler #4a and #4b by 2018.

- ii. Stack testing to show compliance with the emissions limitations of Condition i above shall be performed as outlined in IX.H.11.e and as specified below:

Emissions Point	Pollutant	Initial Test	Test Frequency
A. Boilers #3	NOx	*	every 3 years
B. Boilers #4a & #4b	NOx	2018	every 3 years
C. Boilers #5a & #5b	NOx	2017	every 3 years
D. Turbine	NOx	<del>*2014</del>	every 3 years
E. Turbine and WHRU Duct Burner	NOx	<del>*2014</del>	every 3 years

Initial test already performed

\* Initial tests have been performed and the next method test using EPA approved test methods shall be performed within 3 years of the last stack test.

# A compliance test shall be performed at least once every three years from the date of the last compliance test that demonstrated compliance with the emission limit(s). Compliance testing shall be performed using EPA approved test methods acceptable to the Director. The Director shall be notified, in accordance with all applicable rules, of any compliance test that is to be performed.

- iii. After January 1, 2019, Boiler #3 shall only be used as a back-up/peaking boiler and shall not exceed 300 hours of operation per rolling-12 months. Boiler #3 may be operated on a continuous basis if it is equipped with low NOx burners or is replaced with a boiler that has low NOx burners. The burners shall have a NOx rating that are 9 ppm or less.

~~iii. Testing Status (To be applied to A, B, C, D, and E in i and ii above)~~

~~A. After January 1, 2019, Boiler #3 shall only be used as a back-up/peaking boiler. Unit #3 may be operated on a continuous basis with a boiler(s) that is equipped with low NOx burners.~~

~~B. To be applied to boilers #4a, #4b, #5a, and #5b, initial test shall be performed by February 28th of the year specified.~~

~~C. To be applied to boilers #4a, #4b, #5a, and #5b, testing will be performed at least every 3 years, between November 1 and February 28/29.~~

~~D. To be applied to turbine, and turbine and WHRU Duct Burner, testing will be performed at least every year between November 1 through February 28/29.~~

~~iv. Standard operating procedures shall be followed during startup and shutdown operations to minimize emissions. Records shall be kept on site which indicate the date, and time of startup and shutdown.~~

~~v. Units 1 & 3 of Building 302 shall have a combustion control system with automatic O2 trim installed by December 2014~~

- t. ~~Utah Municipal Power Association: West Valley Power Plant. CER-Generation II, LLC (Exelon-Generation): West Valley Power Plant~~
- i. ~~Total emissions of NOx from all five (5) turbines combined shall be no greater than 1050 lb of NOx on a daily basis. For purposes of this subpart, a "day" is defined as a period of 24-hours commencing at midnight and ending at the following midnight.~~
  - ii. ~~Total emissions of NOx from all five (5) turbines shall include the sum of all periods in the day including periods of startup, shutdown, and maintenance.~~
  - iii. ~~The NOx emission rate (lb/hr) shall be determined by CEM. The CEM shall operate as outlined in IX.H.11.f.~~
    - i. ~~Emissions of NOx from each individual turbine shall be no greater than 5 ppm<sub>dv</sub> (15% O<sub>2</sub>, dry) based on a 30-day rolling average.~~
    - ii. ~~Total emissions of NOx from all five turbines shall be no greater than 37 lbs/hour (15% O<sub>2</sub>, dry) based on a 30-day rolling average.~~
    - iii. ~~The NOx emission rate (lb/hr) shall be calculated by multiplying the NOx concentration (ppm<sub>dv</sub>) generated from CEMs and the volumetric flow rate. The 30-day rolling average shall be calculated by adding previous 30 days data on a daily basis.~~
    - iv. ~~Combustion Turbine Startup / Shutdown Emission Minimization Plan~~
      - A. ~~Startup begins when natural gas is supplied to the combustion turbine(s) with the intent of combusting the fuel to generate electricity. Startup conditions end within sixty (60) minutes of natural gas being supplied to the turbine(s).~~
      - B. ~~Shutdown begins with the initiation of the stop sequence of a turbine until the cessation of natural gas flow to the turbine.~~
      - C. ~~Periods of startup or shutdown shall not exceed two (2) hours per combustion turbine per day.~~

u. ~~Vulcraft / Nucor Building Systems~~

- i. ~~R307-350 Miscellaneous Metal Parts and Products Coatings applies to the painting operations at Vulcraft and Nucor Building Systems.~~
- ii. ~~The combined source-wide emissions of VOCs from the joist dip tanks, paint booths, spray painting, degreasers, parts cleaners, and associated operations from the Vulcraft Joist plant and the Nucor Building Systems plant shall not exceed 305.07 tons per rolling 12-month period after January 1, 2014. VOCs emissions shall be calculated from paint and solvent usage based on inventory records.—~~

v. Wasatch Integrated Waste Management District

Energy Recovery Facility

i. By January 1, 2018, SNCR technology shall be installed and operating on each of the two Municipal Waste Combustors for the reduction of NO<sub>x</sub> emissions.

ii. ~~By January 1, 2018, E~~missions of NO<sub>x</sub> from the Municipal Waste Combustors shall not exceed ~~350~~ 320 ppmdv (7% O<sub>2</sub>, dry basis), based on a 24-hour daily arithmetic average concentration.

~~iii. Compliance shall be determined by CEMs.~~

~~A. Compliance with the NO<sub>x</sub> limitation shall be determined by operation of CEMS. The operation of the CEMS shall be in accordance with IX.H.11.f.~~

iii. Emissions of SO<sub>2</sub> from the Municipal Waste Combustors shall not exceed 31 ppmdv (7% O<sub>2</sub>, dry basis), based on a 24-hour daily block geometric average concentration.

A. Compliance with the SO<sub>2</sub> limitation shall be determined by operation of CEMS. The operation of the CEMS shall be in accordance with IX.H.11.f.

iv. Emissions of PM<sub>2.5</sub> from the Municipal Waste Combustors shall not exceed 27 milligrams (filterable) per dry standard cubic meter (Averaging Time: 3-run average), based on a run duration specified in the test method.

A. Compliance with the PM<sub>2.5</sub> limitation shall be determined by stack testing. The stack testing shall be done in accordance with IX.H.11.e.

v. Gas Suspension Absorber (GSA) and PAC Injection

A. The control system for the GSA shall automatically shut-down or start-up the feeder screws, slurry pumps, and PAC feeder based upon minimum required gas flows and temperature.

B. The facility shall follow the Operations and Maintenance Manual shall ensure the GSA is operated as long as possible during startup/shutdown:

I. Cold Light Off

The GSA is placed into startup sequence during final heating when the ESP inlet temperature reaches 285 degrees Fahrenheit and coincident to introducing MSW to the unit.

II. Hot Light Off

The GSA is placed into startup sequence during final heating when the ESP inlet temperature reaches 285 degrees Fahrenheit and coincident to introducing MSW to the unit.

III. Secure to Hot

Continue operations of the GSA after stopping feeding of refuse until ESP inlet temperature drops below 285 degrees Fahrenheit.

IV. Secure to Cold

Continue operations of the GSA after stopping feeding of refuse until ESP inlet temperature drops below 285 degrees Fahrenheit.

V. Malfunction Shut Down

Continue operations of the GSA after stopping feeding of refuse until ESP inlet temperature drops below 285 degrees Fahrenheit.

The GSA and PAC injection operations shall be recorded and documented in an operations log. The log shall record the hours operated, date, and time during start-up/shut-down events.

vi. Electrostatic Precipitator (ESP)

A. Each unit is equipped with an ESP for control of particulate emissions. The ESPs shall be operated in accordance with the facility Operations and Maintenance Manual. The facility Operations and Maintenance Manual shall ensure the ESP is operated as long as possible during start-up/shut-down:

I. Cold Light Off

The ESP is lined up and placed into operation prior to lighting burners and well before introducing MSW to the unit.

II. Hot Light Off

The ESP is lined up and placed into operation prior to lighting burners and well before introducing MSW to the unit.

III. Secure to Hot

Continue operations of the ESP throughout shutdown period as possible.

IV. Secure to Cold

Continue operations of the ESP throughout shutdown period as possible.

V. Malfunction Shut Down

Continue operations of the ESP throughout shutdown period as possible.

All operations of the ESPs shall be documented in an operations log. This log shall record the hours operated, date, and times during start-up/shut-down events.

Landfill Operation

- i. The owner/operator shall be subject to and comply with the requirements of 40 CFR 63 Subpart AAAA (National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills)

H.13 Source-Specific Emission Limitations in Provo – UT PM<sub>2.5</sub> Nonattainment Area

a. Brigham Young University: Main Campus

- i. All central heating plant units shall operate on natural gas from November 1 to February 28 each season beginning in the winter season of 2013-2014. Fuel oil may be used as backup fuel during periods of natural gas curtailment. The sulfur content of the fuel oil shall not exceed 0.0015 % by weight. BYU must maintain a fuel specification certification document from the fuel supplier with the sulfur content guarantee. Alternatively, sulfur content may be verified through testing completed by BYU or the fuel supplier using ASTM Method D-4294-10 or EPA approved equivalent acceptable to the Director.
- ii. Emissions to the atmosphere from the indicated emission point shall not exceed the following rates and concentrations:

Emission Point	Pollutant	ppm (7% O2 dry) *	lb/hr
A. Unit #1	NOx	<u>95</u> <u>36</u>	<u>9.55</u> <u>5.44</u>
B. Unit #4	NOx	<u>127</u> <u>36</u>	<u>38.5</u> <u>19.2</u>
C. Unit #6	NOx	<u>127</u> <u>36</u>	<u>38.5</u> <u>19.2</u>

\* Unit #1 NOx limit is 95 ppm (9.55 lb/hr) until it operates for more than 300 hours during a rolling 12-month period, then the limit will be 36 ppm (5.44 lb/hr). The NOx limit for units #4 and #6 is 127 ppm (38.5 lb/hr) and starting on December 31, 2018, the limit will then be 36 ppm (19.2 lb/hr).

Emission Point	Pollutant	ppm (7% O2 dry)	lb/hr
D. Unit #2	NOx	<u>331</u>	<u>37.4</u>
	SO2	<u>597</u>	<u>56.0</u>
E. Unit #3	NOx	<u>331</u>	<u>37.4</u>
	SO2	<u>597</u>	<u>56.0</u>
F. Unit #5	NOx	<u>331</u>	<u>74.8</u>
	SO2	<u>597</u>	<u>112.07</u>

- iii. Stack testing to show compliance with the above emission limitations shall be performed as follows:

EMISSION POINT	POLLUTANT	INITIAL TEST	TEST FREQUENCY
A. Unit #1	NOx	<u>&amp;</u>	<u>every year*</u>
B. Unit #2	NOx	<u>#</u>	<u>every year*</u>
C. Unit #3	NOx	<u>#</u>	<u>every year*</u>
D. Unit #4	NOx	<u>#</u>	<u>every year*</u>
E. Unit #5	NOx	<u>#</u>	<u>every year*</u>
F. Unit #6	NOx	<u>#</u>	<u>every year*</u>

& If Unit #1 is operated for more than 100 hours per rolling 12-month period, the stack test shall be performed within 60 days of exceeding 100 hours of operations. Unit #1 shall only be operated as a back-up boiler to Units #4 and #6 and shall not be operated more than 300 hours per rolling 12-month period. If Unit #1 operates more than 300 hours per rolling 12-month period, then low NOx burners with Flue Gas Recirculation shall be installed and tested within 18 months of exceeding 300 hours of operation.

# The test shall be performed at least every 3 years based on the date of the last stack test. Units #4 and #6 shall be retested by March 1, 2018.

\* A compliance test shall be performed at least once every three years from the date of the last compliance test that demonstrated compliance with the emission limit(s). Compliance testing shall be performed using EPA approved test methods acceptable to the Director. The Director shall be notified, in accordance with all applicable rules, of any compliance test that is to be performed. Beginning January 2018, annual screening with a portable monitor must be conducted in those years that a compliance test is not performed. Screening with a portable monitor shall be performed in accordance with the portable monitor manufacturer's specifications. If screening with a portable monitor indicates a potential exceedance of the concentration limit, a compliance test must be performed within 90 days of that screening. Records shall be kept on site which indicate the date, time, and results of each screening and demonstrate that the portable monitor was operated in accordance with manufacturer's specifications.

iv. Natural Gas-Fired Boilers

A. Central Heating Plant Natural Gas-Fired Boilers

I. Startup and shutdown events shall not exceed 216 hours per boiler per 12-month rolling period.

II. The owner/operator of Unit #4 and Unit #6 shall replace the burner spud tips with low NOx tips and add a minimum of 18% Flue Gas Recirculation. Other modifications include installing combustion controls fully metered with oxygen trim. The modifications shall be completed by January 1, 2017.

iv. Central Heating Plant Coal-Fired Boilers

Records shall be kept on site which indicate the date, and time of startup and shutdown.

A. The sulfur content of any coal or any mixture of coals burned shall not exceed either of the following:

I. 0.54 pounds of sulfur per million BTU heat input as determined by ASTM Method D-4239-85, or EPA-approved equivalent acceptable to the Director.

II. 0.60% by weight as determined by ASTM Method D-4239-85, or EPA-approved equivalent acceptable to the Director.

For the sulfur content of coal, Brigham Young University shall either:

III. Determine the weight percent sulfur and the fuel heating value by submitting a coal

sample to a laboratory, acceptable to the Director, on no less than a monthly basis; or

- IV. For each delivery of coal, inspect the fuel sulfur content expressed as weight % determined by the vendor using methods of the ASTM; or
- V. For each delivery of coal, inspect documentation provided by the vendor that indirectly demonstrates compliance with this provision.

v. Central Heating Plant Boilers

- A. Records shall be kept on site which indicate the date, and time of startup and shutdown.

b. Geneva Nitrogen Inc.: Geneva Nitrogen Plant

i. Prill Tower:

~~PM10 emissions shall not exceed 0.22 ton/day and 79 ton/yr~~  
~~PM10 emissions (filterable and condensable) shall not exceed 0.236 ton/day~~  
~~PM2.5 emissions (filterable and condensable) shall not exceed 0.196 ton/day~~

~~A day is defined as from midnight to the following midnight.~~

ii. Testing

~~A~~D. Stack testing shall be performed as specified below:

~~I. Frequency. Emissions shall be tested every three years. The source shall also be tested at any time as required by the Director.~~

I. Frequency: Emissions shall be tested every three years. The test shall be performed as soon as possible and in no case later than December 31, 2017.

~~B~~E. The daily and rolling 12-month mass emissions shall be calculated by multiplying the most recent stack test results by the appropriate hours of operation for each day and for each rolling 12-month period.

iii. Montecatini Plant:

NOx emissions shall not exceed 30.8 lb/hr

iv. Weatherly Plant:

NOx emissions shall not exceed 18.4 lb/hr

v. Testing:

~~Compliance testing is required on the Prill tower, Montecatini Plant, and Weatherly Plants. The test shall be performed as soon as possible and in no case later than January 1, 2019.~~

~~F. Stack testing to show compliance with the NOx emission limitations shall be performed as specified below:~~

~~I. Testing and Frequency. Emissions shall be tested every three years. The source may also be tested at any time as required by the Director.~~

~~A. Stack testing for NOx shall be performed as specified below:~~

I. Stack testing to show compliance with the NOx emission limitations shall be performed as specified below:

1. Testing and Frequency. Emissions shall be tested every three years using an EPA approved test method.

- II. NOx concentration (ppmdv) shall be used as an indicator to provide a reasonable assurance of compliance with the NOx emission limitation as specified below:
1. Measurement Approach: NOx concentration (ppmdv) shall be determined by using a continuous NOx monitoring system.
  2. Performance Criteria:
    - i. QA/QC Practices and Criteria: The continuous monitoring system shall be operated, calibrated, and maintained in accordance with manufacture's recommendations. Zero and span drift tests shall be conducted on a daily basis.

III. The EPA approved method test for the Montecatini Plant shall be performed as soon as possible and in no case later than December 31, 2017, and the test for the Weatherly Plant shall be performed as soon as possible and in no case later than December 31, 2018.

G. — NOx concentration (ppmdv) shall be used as an indicator to provide a reasonable assurance of compliance with the NOx emission limitation as specified below:

I. — Measurement Approach: NOx concentration (ppmdv) shall be determined by using a NOx CEM.

II. — Indicator Range: An excursion is defined as a one-hour average NOx concentration in excess of 200 ppmdv as measured by the NOx CEM. Excursions trigger an inspection, corrective action, and a reporting requirement.

III. Performance Criteria:

1. — Data Representativeness: Measurements made by a continuous monitoring system shall provide a direct indicator of SCR performance. The low detectable limit is 0.01 ppmdv (in 0.5 ppmdv full scale range) and the precision is 1% of the full scale.

2. — QA/QC Practices and Criteria: The continuous monitoring system shall be operated, calibrated, and maintained in accordance with manufacture's recommendations. Zero and span drift tests shall be conducted on a daily basis.

3. — Monitoring Frequency: Emission shall be monitored continuously and a data point recorded every 15 seconds.

~~4. Data Collection Procedure: NOx concentration (ppmdv) shall be recorded and stored electronically.~~

~~5. Averaging Period: Use 15-second NOx concentration (ppmdv) to calculate hourly average NOx concentration (ppmdv).~~

vi. Start-up/Shut-down

A. Startup / Shutdown Limitations:

I. Planned shut-down and start-up events shall not exceed 50 hours per acid plant (Montecatini or Weatherly) per 12-month rolling period.

II. Total startup and shutdown events shall not exceed four hours per acid plant in any one calendar day.

~~A. A low temperature catalyst shall be utilized in the abatement process so that the catalyst can be initiated at the lowest temperature possible while avoiding ammonium nitrate and ammonium nitrite condensation temperatures. Geneva Nitrogen shall initiate the SCR abatement process as soon as temperature permits and by using pure clean water in the absorption process for maximum absorption efficiency during start-up conditions.~~

~~B. The wet scrubbing system used for the reduction of PM10/PM2.5 in the Ammonium Nitrate Prill Tower shall be in operation either prior to or at the same time the scrubber initiates operation.~~

- c. Pacific States Cast Iron Pipe Company: Pipe Casting PlantMcWane Ductile - Utah
- i. ~~By January 1, 2015, all VOC emissions shall be limited to 140.85 tons per rolling 12-month period.~~
    - A. ~~By the twentieth day of each month, a new 12-month total shall be calculated using data from the previous 12 months.~~
    - B. ~~Records shall be kept for all periods the plant is in operation.~~
  - ii. Emissions of VOC from the finishing paint line shall not exceed 1 ton/day.
    - A. Compliance with the above conditions shall be demonstrated as follows: VOC emissions at the finishing paint line shall be determined by asphalt paint consumption. Asphalt paint consumption shall be monitored by liquid level monitoring sensors on the finishing paint line bulk tanks.
    - B. For purposes of this section a day is defined as a period of 24-hours commencing at midnight and ending at the following midnight.
  - iii. The Annealing Oven furnaces are limited to 63.29 MMBtu/hr.
  - iv. Emissions from the desulfurization and ductile treatment system shall be routed through the operating baghouse prior to be emitted into the atmosphere.
  - v. Emissions from the Special Lining Shotblast operations shall be routed through the operating baghouse prior to being emitted into the atmosphere.

d. PacifiCorp Energy: Lake Side Power Plant

~~i. Block #1 Turbine/HRSG Stacks:~~

~~Emissions of NOx shall not exceed 2.0 ppmvd (15% O2) on a 3-hour average basis.~~

i. Block #1 Turbine/HRSG Stacks:

A. Emissions of NOx shall not exceed 14.9 lb/hr on a 3-hr average basis

B. Compliance with the above conditions shall be demonstrated as follows:

I. NOx monitoring shall be through use of a CEM as outlined in IX.H.11.f

~~ii. Block #2 Turbine/HRSG Stacks:~~

~~Emissions of NOx shall not exceed 2.0 ppmvd (15% O2) on a 3-hour average basis.~~

ii. Block #2 Turbine/HRSG Stacks:

A. Emissions of NOx shall not exceed 18.1 lb/hr on a 3-hr average basis

B. Compliance with the above conditions shall be demonstrated as follows:

I. NOx monitoring shall be through use of a CEM as outlined in IX.H.11.f

~~iii. The owner/operator shall install, certify, maintain, operate, and quality-assure a continuous emission monitoring system (CEMS) consisting of NOx and O2 monitors to determine compliance with the applicable NOx limitations.~~

iii. Startup / Shutdown Limitations:

A. Block #1:

I. Startup and shutdown events shall not exceed 613.5 hours per turbine per 12-month rolling period.

II. Total startup and shutdown events shall not exceed 14 hours per turbine in any one calendar day.

III. Cumulative short-term transient load excursions shall not exceed 160 hours per 12-month rolling period.

IV. During periods of transient load conditions, NOx emissions from the Block #1 Turbine/HRSG Stacks shall not exceed 25 ppmvd at 15% O2.

B. Block #2:

- I. Startup and shutdown events shall not exceed 553.6 hours per turbine per 12-month rolling period.
- II. Total startup and shutdown events shall not exceed 8 hours per turbine in any one calendar day.
- III. Cumulative short-term transient load excursions shall not exceed 160 hours per 12-month rolling period.
- IV. During periods of transient load conditions, NO<sub>x</sub> emissions from the Block #1-2 Turbine/HRSG Stacks shall not exceed 25 ppmvd at 15% O<sub>2</sub>.

C. Definitions:

- I. Startup is defined as the period beginning with turbine initial firing until the unit meets the lb/hrppmvd emission limits listed in IX.H.13.de.i and ii above.
- II. Shutdown is defined as the period beginning with the initiation of turbine shutdown sequence and ending with the cessation of firing of the gas turbine engine.
- III. Transient load conditions are those periods, not to exceed four consecutive 15-minute periods, when the 15-minute average NO<sub>x</sub> concentration exceeds 2.0 ppmv dry @ 15% O<sub>2</sub>. Transient load conditions consist of the following:
  1. Initiation/shutdown of combustion turbine inlet air-cooling.
  2. Rapid combustion turbine load changes.
  3. Initiation/shutdown of HRSG duct burners.
  4. Provision of Ancillary Services and Automatic Generation Control.

IV. For purposes of this subsection a “day” is defined as a period of 24-hours commencing at midnight and ending at the following midnight.

e. Payson City Corporation: Payson City Power

- i. Emissions of NO<sub>x</sub> shall be no greater than 1.54 ton per day for all engines combined.
- ii. Compliance with the emission limitation shall be determined by summing the emissions from all the engines. Emission from each engine shall be calculated from the following equation:

$$\text{Emissions (tons/day)} = (\text{Power production in kW-hrs/day}) \times (\text{Emission factor in grams/kW-hr}) \times (1 \text{ lb}/453.59 \text{ g}) \times (1 \text{ ton}/2000 \text{ lbs})$$

~~iii. The emission factor shall be derived from the most recent emission test results. The source shall be tested every three years based on the date of the last stack test. Emissions for NO<sub>x</sub> shall be the sum of emissions from each engine and shall be calculated on a daily basis.~~

~~iv. The number of kilowatt hours generated by each engine shall be recorded on a daily basis.~~

~~v. Startup / Shutdown Limitations:~~

~~A. Startup and shutdown events shall not exceed 936 hours per rolling 12-month period.~~

~~B. Total startup and shutdown events shall not exceed six (6) hours in any one calendar day.~~

~~C. The daily startup and shutdown totals shall be summed across all four dual fuel engines.~~

- A. The NO<sub>x</sub> emission factor for each engine shall be derived from the most recent stack test. Stack tests shall be performed in accordance with IX.H.11.e. Each engine shall be tested at least every three years from the previous test.
- B. NO<sub>x</sub> emissions shall be calculated on a daily basis.
- C. A day is equivalent to the time period from midnight to the following midnight.
- D. The number of kilowatt hours generated by each engine shall be recorded on a daily basis with an electrical meter.

f. Provo City Power: Power Plant

- i. ~~Emissions of NOx shall be no greater than 2.45 tons per day and 254 tons per rolling 12-month period for all engines and boilers combined.~~
- ii. ~~Compliance with the emission limitations shall be determined by the following equations:~~

~~Emissions (tons/rolling 12-month period) = (Power production in kW-hrs/day) x (Emission factor in grams/kW-hr) x (1 lb/453.59 g) x (1ton/2000 lbs)~~

~~Emissions (tons/rolling 12-month period) = (Power production in kW-hrs/rolling 12-month period) x (Emission factor in grams/kW-hr) x (1 lb/453.59 g) x (1ton/2000 lbs)~~

~~The emission factors for NOx shall be derived from the most recent emission test results.~~

- iii. ~~Each engine and boiler shall be tested every 8,760 hours of operation and/or at least every five years based on the date of the last stack test, whichever occurs sooner.~~
- iv. ~~NOx emissions shall be the sum of emissions from each engine and boiler. The number of kilowatt hours generated by each engine and boiler shall be recorded on a daily basis.~~
- v. ~~Startup / Shutdown Limitations:~~

~~A. Startup and shutdown events shall not exceed 936 hours per rolling 12-month period.~~

~~B. Total startup and shutdown events shall not exceed six (6) hours in any one calendar day.~~

~~C. The daily startup and shutdown totals shall be summed across all four dual fuel engines.~~

- i. NOx emissions from the operation of all engines at the plant shall not exceed 2.45 tons per day.
- ii. Compliance with the emission limitation shall be determined by summing the emissions from all the engines. Emission from each engine shall be calculated from the following equation:  
Emissions (tons/day) = (Power production in kW-hrs/day) x (Emission factor in grams/kW-hr) x (1 lb/453.59 g) x (1 ton/2000 lbs)
  - A. The NOx emission factor for each engine shall be derived from the most recent stack test. Stack tests shall be performed in accordance with IX.H.11.e. Each engine shall be tested every 8,760 hours of operation or at least every three years from the previous test, whichever occurs first.
  - B. NOx emissions shall be calculated on a daily basis.
  - C. A day is equivalent to the time period from midnight to the following midnight.
  - D. The number of kilowatt hours generated by each engine shall be recorded on a daily basis with an electrical meter.

g. Springville City Corporation: Whitehead Power Plant

- iii. NOx emissions from the operation of all engines at the plant shall not exceed 1.68 tons per day.
- iv. Internal combustion engine emissions shall be calculated from the operating data recorded by the CEM as outlined in IX.H.11.f. A day is equivalent to the time period from midnight to the following midnight. Emissions of NOx shall be calculated for each individual engine by the following equation:

$$D = (X * K)/453.6$$

Where:

X = grams/kW-hr rate for each generator (recorded by CEM)

K = total kW-hr generated by the generator each day (recorded by output meter)

D = daily output of pollutant in lbs/day

i. Emissions of NOx shall be no greater than 1.68 ton per day and 248 tons per rolling 12-month period for all Unit Engines combined.

ii. Internal combustion engine emissions shall be calculated from the operating data recorded by the CEM. Emissions shall be calculated for NOx for each individual engine in the following manner:

Daily Rate Calculation:

X = grams/kW-hr rate for each generator (recorded by CEM)

K = total kW-hr generated by the generator each day (recorded by output meter)

D = daily output of pollutant in lbs/day

$$D = (X * K)/453.6$$

The daily outputs are summed into a monthly output.

The monthly outputs are summed into an annual rolling 12-month total of pollutant in tons/year.

iii. Startup / Shutdown Limitations:

A. Startup and shutdown events shall not exceed 1638 hours per rolling 12-month period.

B. Total startup and shutdown events shall not exceed 10.5 hours in any one calendar day.

C. The daily startup and shutdown totals shall be summed across all seven (7) dual fuel engines.