



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-100-14

MEMORANDUM

TO: Air Quality Board

THROUGH: Bryce C. Bird, Executive Secretary

FROM: Bill Reiss, Environmental Engineer

DATE: November 25, 2014

SUBJECT: FINAL ADOPTION: Amend SIP Subsections IX.H.11, 12, and 13: Control Measures for Area and Point Sources, Emission Limits and Operating Practices, PM_{2.5} Requirements.

On December 14, 2009, EPA made its designations concerning areas that were not attaining the 2006 National Ambient Air Quality Standard (NAAQS) for PM_{2.5}. Among those areas designated were the Salt Lake City, UT PM_{2.5} Nonattainment Area, and the Provo, UT PM_{2.5} Nonattainment Area.

The Clean Air Act (CAA) requires Utah to submit a nonattainment plan for each of these areas. Those plans must provide for the implementation of all reasonable control measures and include enforceable emission limitations and other control measures as well as schedules and timetables for compliance.

On September 3, 2014, the Board proposed for public comment SIP Subsections IX.H.11, 12, and 13, which address the requirement to include emission limitations, control measures, and schedules for certain large stationary sources. Subsection 11 includes general provisions that apply to sources listed in either nonattainment area, while subsections 12 and 13 apply to specific sources located in the Salt Lake City and Provo nonattainment areas, respectively.

A 30-day public comment period was held, which included a public hearing. A summary of the comments received during the comment period along with the responses from UDAQ is attached.

Any recommended revision to SIP Subsection IX.H.11, 12, or 13 resulting from these comments has been identified in the amended attachment using strikeout and underline.

Staff Recommendation: Staff recommends the Board adopt SIP Subsections IX.H.11, 12, and 13: Control Measures for Area and Point Sources, Emission Limits and Operating Practices, PM_{2.5} Requirements as amended.

1 **H.11. General Requirements: Control Measures for Area and Point Sources,**
2 **Emission Limits and Operating Practices, PM2.5 Requirements**
3

- 4 a. Except as otherwise outlined in individual conditions of this Subsection IX.H.11 listed
5 below, the terms and conditions of this Subsection IX.H.11 shall apply to all sources
6 subsequently addressed in Subsection IX.H.12 and 13. Should any inconsistencies exist
7 between these two subsections, the source specific conditions listed in IX.H.12 and 13 shall
8 take precedence.
- 9 b. The definitions contained in R307-101-2, Definitions, apply to Section IX, Part H.
- 10 c. Any information used to determine compliance shall be recorded for all periods when the
11 source is in operation, and such records shall be kept for a minimum of five years. Any or all
12 of these records shall be made available to the Director upon request.
- 13 d. All emission limitations listed in Subsections IX.H.12 and IX.H.13 apply during steady-state
14 operation, unless otherwise specified in the source specific conditions listed in IX.H.12 and
15 13.
- 16 e. Stack Testing:
- 17 i. As applicable, stack testing to show compliance with the emission limitations for the
18 sources in Subsection IX.H.12 and 13 shall be performed in accordance with the
19 following:
- 20 A. Sample Location: The emission point shall be designed to conform to the requirements
21 of 40 CFR 60, Appendix A, Method 1, or other EPA-approved methods acceptable to
22 the Director.
- 23 B. Volumetric Flow Rate: 40 CFR 60, Appendix A, Method 2 or other EPA-
24 approved testing methods acceptable to the Director.
- 25 C. PM10: 40 CFR 51, Appendix M, Methods 201a and 202, or other EPA approved testing
26 methods acceptable to the Director. If a method other than 201a is used, the portion of
27 the front half of the catch considered PM10 shall be based on information in Appendix
28 B of the fifth edition of the EPA document, AP-42, or other data acceptable to the
29 Director.
- 30 D. PM2.5: 40 CFR 51, Appendix M, 201a and 202, or other EPA approved testing
31 methods acceptable to the Director. The back half condensables shall be used for
32 compliance demonstration as well as for inventory purposes. If a method other than
33 201a is used, the portion of the front half of the catch considered PM2.5 shall be
34 based on information in Appendix B of the fifth edition of the EPA document, AP-42,
35 or other data acceptable to the Director.
- 36 E. SO2: 40 CFR 60 Appendix A, Method 6C or other EPA-approved testing
37 methods acceptable to the Director.
- 38 F. NO_x: 40 CFR 60 Appendix A, Method 7E or other EPA-approved testing
39 methods acceptable to the Director.
- 40 G. VOC: 40 CFR 60 Appendix A, Method 25A or EPA-approved testing
41 methods acceptable to the Director.
- 42 H. Calculations: To determine mass emission rates (lb/hr, etc.) the pollutant concentration
43 as determined by the appropriate methods above shall be multiplied by the volumetric

1 flow rate and any necessary conversion factors to give the results in the specified units
2 of the emission limitation.

- 3 I. A stack test protocol shall be provided at least 30 days prior to the test. A pretest
4 conference shall be held if directed by the Director. The emission point shall be
5 designed to conform to the requirements of 40 CFR 60, Appendix A, Method 1, and
6 Occupational

7
8 Safety and Health Administration (OSHA) approvable access shall be provided to the
9 test location. The production rate during all compliance testing shall be no less than
10 90% of the maximum production rate achieved in the previous three (3) years. If the
11 desired production rate is not achieved at the time of the test, the maximum production
12 rate shall be 110% of the tested achieved rate, but not more than the maximum
13 allowable production rate. This new allowable maximum production rate shall remain
14 in effect until successfully tested at a higher rate. The owner/operator shall request a
15 higher production rate when necessary. Testing at no less than 90% of the higher rate
16 shall be conducted. A new maximum production rate (110% of the new rate) will then
17 be allowed if the test is successful. This process may be repeated until the maximum
18 allowable production rate is achieved.

19 f. Continuous Emission and Opacity Monitoring.

20 i. For all continuous monitoring devices, the following shall apply:

- 21 A. Except for system breakdown, repairs, calibration checks, and zero and span
22 adjustments required under paragraph (d) 40 CFR 60.13, the owner/operator of an
23 affected source shall continuously operate all required continuous monitoring systems
24 and shall meet minimum frequency of operation requirements as outlined in R307-170
25 and 40 CFR 60.13.
26 B. The monitoring system shall comply with all applicable sections of R307-170; 40
27 CFR 13; and 40 CFR 60, Appendix B – Performance Specifications.

28 g. Petroleum Refineries.

29 i. Limits at Fluid Catalytic Cracking Units

30 A. FCCU SO₂ Emissions

- 31 I. By no later than January 1, 2018, each owner or operator of an FCCU shall comply
32 with an SO₂ emission limit of 25 ppmvd @ 0% excess air on a 365-day rolling
33 average
34 basis and 50 ppmvd @ 0% excess air on a 7-day rolling average basis.

35 II. Compliance with this limit shall be determined by following 40 C.F.R. §60.105a(g).

36 B. FCCU PM Emissions

- 37 I. By no later than January 1, 2018, each owner or operator of an FCCU shall
38 comply with an emission limit of 1.0 pounds PM per 1000 pounds coke burned
39 on a 3-hour average basis.

40 II. Compliance with this limit shall be determined by following the stack test
41 protocol specified in 40 C.F.R. §60.106(b) to measure PM emissions on the
42 FCCU. Each owner operator shall conduct stack tests once every five years at
43 each FCCU.

44 III. By no later than January 1, 2019, each owner or operator of an FCCU shall install,

- 1 operate and maintain a continuous parameter monitor system (CPMS) to measure
2 and record operating parameters for determination of source-wide PM_{2.5}
3 emissions as appropriate.
- 4 ii. Limits on Refinery Fuel Gas.
- 5 A. By no later than January 1, 2015, all petroleum refineries in or affecting the
6 PM_{2.5} nonattainment area shall reduce the H₂S content of the refinery plant gas to 60
7 ppm or less as described in 40 CFR 60.102a. Compliance shall be based on a rolling
8 average of 365 days. The owner/operator shall comply with the fuel gas monitoring
9 requirements of 40 CFR 60.107a and the related recordkeeping and reporting
10 requirements of 40 CR 60.108a. As used herein, refinery “plant gas” shall have the
11 meaning of “fuel gas” as defined in 40 CFR 60.101a, and may be used
12 interchangeably.
- 13 B. For natural gas, compliance is assumed while the fuel comes from a public utility.
- 14 iii. Limits on Heat Exchangers.
- 15 A. Each owner or operator shall comply with the requirements of 40 CFR 63.654 for heat
16 exchange systems in VOC service no later than January 1, 2015. The owner or
17 operator may elect to use another EPA-approved method other than the Modified El
18 Paso Method if approved by the Director.
- 19 I. The following applies in lieu of 40 CFR 63.654(b): A heat exchange system is
20 exempt from the requirements in paragraphs 63.654(c) through (g) of this section if
21 it meets any one of the criteria in the following paragraphs (1) through (2) of this
22 section.
- 23 1. All heat exchangers that are in VOC service within the heat exchange system
24 that either:
- 25 a. Operate with the minimum pressure on the cooling water side at least
26 35 kilopascals greater than the maximum pressure on the process
27 side; or
- 28 b. Employ an intervening cooling fluid, containing less than 10 percent by
29 weight of VOCs, between the process and the cooling water. This
30 intervening fluid must serve to isolate the cooling water from the process
31 fluid and must not be sent through a cooling tower or discharged. For
32 purposes of this section, discharge does not include emptying for
33 maintenance purposes.
- 34 2. The heat exchange system cools process fluids that contain less than 10
35 percent by weight VOCs (i.e., the heat exchange system does not contain any
36 heat exchangers that are in VOC service).
- 37 iv. Leak Detection and Repair Requirements.
- 38 A. Each owner or operator shall comply with the requirements of 40 CFR 60.590a
39 to 60.593a no later than January 1, 2016.
- 40 B. For units complying with the Sustainable Skip Period, previous process unit
41 monitoring results may be used to determine the initial skip period interval provided
42 that each valve has been monitored using the 500 ppm leak definition.
- 43 v. Requirements on Hydrocarbon Flares.
- 44 A. Beginning January 1, 2018, all hydrocarbon flares at petroleum refineries located in

- 1 or affecting a designated PM_{2.5} non-attainment area within the State shall be subject
2 to the flaring requirements of NSPS Subpart Ja (40 CFR 60.100a–109a), if not
3 already subject under the flare applicability provisions of Subpart Ja.
- 4 B. By no later than January 1, 2019, all major source petroleum refineries in or affecting
5 a designated PM_{2.5} non-attainment area within the State shall install and operate a
6 flare gas recovery system or equivalent flare gas minimization process(es) designed to
7 limit hydrocarbon flaring from each affected flare to levels below the values listed in
8 40 CFR 60.103a(c), except during periods when one or more process units, connected
9 to the affected flare, are undergoing startup, shutdown or experiencing malfunction.
10 Flare gas recovery is not required for dedicated SRU flare and header systems, or HF
11 flare and header systems.
- 12 vi. Requirements on Tank Degassing.
- 13 A. Beginning January 1, 2017, the owner or operator of any stationary tank of 40,000-
14 gallon or greater capacity and containing or last containing any organic liquid, with a
15 true vapor pressure equal or greater than 10.5 kPa (1.52 psia) at storage temperature
16 (see R307-324- 4(1)) shall not allow it to be opened to the atmosphere unless the
17 emissions are controlled by exhausting VOCs contained in the tank vapor-space to a
18 vapor control device until the organic vapor concentration is 10 percent or less of the
19 lower explosion limit (LEL).
- 20 B. These degassing provisions shall not apply while connecting or disconnecting
21 degassing equipment.
- 22 C. The Director shall be notified of the intent to degas any tank subject to the rule. Except
23 in an emergency situation, initial notification shall be submitted at least three (3) days
24 prior to degassing operations. The initial notification shall include:
- 25 I. Start date and time;
- 26 II. Tank owner, address, tank location, and applicable tank permit numbers;
- 27 III. Degassing operator's name, contact person, telephone number;
- 28 IV. Tank capacity, volume of space to be degassed, and materials stored;
- 29 V. Description of vapor control device.
- 30 vii. The requirements set forth in Parts IX.H.11 and IX.H.12 shall apply unless and until the
31 following occur:
- 32 A. A Notice of Intent is submitted to the Executive Secretary, pursuant to the procedures of
33 R307-401, that describes the specific technologies that will be used to produce gasoline
34 that meets the corporate average sulfur specification for Tier 3 of the federal motor
35 vehicle control program, as specified in 40 CFR 80.
- 36 B. An Approval Order is issued that authorizes implementation of the approach set forth in
37 the Notice of Intent. *(editorial note: The intent of this language was to prevent the SIP*
38 *limits from becoming an impediment to the production of Tier 3 fuel in the event that an*
39 *Approval Order could otherwise be issued in accordance with R307-401. Underlying*
40 *that purpose is the assumption that, because the offsetting requirement for a would-be*
41 *major modification in this nonattainment area can no longer be met until such time as*
42 *sufficient emission reduction credits can be created (post- Dec. 4, 2013), only minor*
43 *modifications could be permitted. Net emission increases in such a permit could only*
44 *reach levels defined as "significant" for such purposes. These levels of significance are*

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- 1 *15 tons per year (tpy) for PM10, 10 tpy for PM2.5, 40 tpy for SO2 or NOx, and 40 tpy for*
2 *VOC in the enveloped ozone maintenance area. In the context of a modeled SIP*
3 *demonstration, it would ordinarily be necessary to incorporate such increases in*
4 *emissions, at their maximum levels and at every refinery, in the modeled demonstration.*
5 *However, since this plan revision demonstrates instead that it is impracticable to attain*
6 *the 2006 24-hour NAAQS for PM2.5 (in accordance with CAA Section 189(a)(1)(B(ii)),*
7 *the additional emissions would, if modeled, only serve to underscore the conclusion that*
8 *attainment of this standard, by the applicable attainment date, is in fact impracticable.*
9 *For this reason, it is unnecessary to re-specify herein each limit so as to also include the*
10 *additional (significant) emissions.)*
- 11 C. Notwithstanding the requirements specified in R307-401, the Notice of Intent must
12 demonstrate that the technologies specified in the Approval Order would represent
13 Reasonably Available Control Measures (RACM), as required by Section 172(c)(1) of
14 the Clean Air Act.
- 15 D. To the extent that the current SIP requirements outlined in Parts IX.H.11 and IX.H.12
16 have been relied upon by the Utah SIP to satisfy Section 172(c) or Section 189(a)(1) of
17 the Clean Air Act, demonstrate that the technologies specified in the Approval Order
18 would also be consistent with the achievement of reasonable further progress and would
19 not interfere with attainment or maintenance of the National Ambient Air Quality
20 Standards for particulate matter. The demonstration required in this paragraph may
21 incorporate modeling previously conducted by the State for the purposes of Sections
22 172(c)(1) or 189(a)(1)(B) of the Clean Air Act.
- 23 E. The technologies specified in the Approval Order have been installed and tested in
24 accordance with the Approval Order.
- 25 F. As of the effective date of the Approval Order the affected PM2.5, SO2, VOC and NOx
26 emissions limits, including applicable monitoring requirements, set forth in that permit as
27 most recently amended, shall become incorporated by reference into the Utah SIP.
28 Henceforth, those terms and conditions specified and identified in the Approval Order
29 shall supersede the affected conditions in Parts IX.H.11 and IX.H.12.

1 **H.12 Source-Specific Emission Limitations in Salt Lake City – UT**
2 **PM2.5 Nonattainment Area**

3
4 a. ATK Launch Systems Inc. – Promontory

5
6 i. During the period November 1 to February 28/29 on days when the 24-hour average PM2.5
7 levels exceed 35 ug/m³ at the nearest real-time monitoring station, the open burning of
8 reactive wastes with properties identified in 40 CFR 261.23 (a) (6) (7) (8) will be limited
9 to 50 percent of the treatment facility's Department of Solid and Hazardous Waste
10 permitted
11 daily limit. During this period, on days when open burning occurs, records will be
12 maintained identifying the quantity burned and the PM2.5 level at the nearest real-time
13 monitoring station.

14
15 ii. During the period November 1 to February 28/29, on days when the 24-hour average
16 PM2.5 levels exceed 35 ug/m³ at the nearest real-time monitoring station, the following
17 shall not be tested:

18
19 A. Propellant, energetics, pyrotechnics, flares and other reactive compounds greater
20 than 2,400 lbs. per day; or

21
22 B. Rocket motors less than 1,000,000 lbs. of propellant per motor subject to the
23 following exception:

24
25 I. A single test of rocket motors less than 1,000,000 lbs. of propellant per motor is
26 allowed on a day when the 24-hour average PM2.5 level exceeds 35 ug/m³ at the
27 nearest real-time monitoring station provided notice is given to the Director of
28 the Utah Air Quality Division. No additional tests of rocket motors less than
29 1,000,000 lbs. of propellant may be conducted during the inversion period until
30 the 24-hour average PM2.5 level has returned to a concentration below 35
31 ug/m³ at the nearest real-time monitoring station.

32
33 C. During this period, records will be maintained identifying the size of the rocket motors
34 tested and the 24-hour average PM2.5 level at the nearest real-time monitoring station
35 on days when motor testing occur

36
37 iv. Natural Gas-Fired Boilers

38
39 A. Building M-576

40
41 I. Startup and shutdown events shall not exceed 124 hours per boiler per 12-month
42 rolling period.

43
44 II. One 71 MMBTU/hr boiler shall be upgraded with low NOx burners and flue gas

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1 recirculation by January 2016. The boiler shall be rated at a maximum of 9 ppm. The
2 remaining boiler shall not consume more than 100,000 MCF of natural gas per rolling 12-
3 month period unless upgraded so the NO_x emission rate is no greater than 30 ppm.

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

1 b. Big West Oil Refinery

2
3 i. Source-wide PM_{2.5}:

4 Following installation of the Flue Gas Blow Back Filter (FGF), but no later than January 1,
5 2019, combined emissions of filterable PM_{2.5} shall not exceed 0.18 tons per day and 45
6 tons per rolling 12-month period. By no later than January 1, 2019, Big West Oil shall
7 conduct stack testing to establish the ratio of condensable PM_{2.5} from the Catalyst
8 Regeneration System. At that time the condensable fraction will be added and a new
9 source-wide limitation shall be established in the AO.

10
11 PM_{2.5} emissions shall be determined daily by applying the listed emission factors or
12 emission factors determined from the most current performance test to the relevant
13 quantities of fuel combusted. Unless adjusted by performance testing as discussed above,
14 the default emission factors to be used are as follows:

15
16 Natural gas – 1.9 lb/MMscf (filterable), 5.7 lb/MMscf (condensable)
17 Plant gas – 1.9 lb/MMscf (filterable), 5.7 lb/MMscf (condensable)

18
19 Daily gas consumption by all boilers and furnaces shall be measured by meters that can
20 delineate the flow of gas to the indicated emission points.

21
22 The equations used to determine emissions for the boilers and furnaces shall be as follows:

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

24 The daily filterable PM_{2.5} emissions from the Catalyst Regeneration System shall be
25 calculated using the following equation:

26
27 $E = FR * EF$

28
29 Where:

30 E = Emitted PM_{2.5}

31 FR = Feed Rate to Unit (kbbls/day)

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

33
34 Total 24-hour filterable PM_{2.5} emissions shall be calculated by adding the results of the
35 above filterable PM_{2.5} equations for natural gas and plant gas combustion to the estimate
36 for the Catalyst Regeneration System. Results shall be tabulated every day, and records
37 shall be kept which include the meter readings (in the appropriate units) and the calculated
38 emissions.

39
40 ii. Source-wide NO_x

41 By no later than January 1, 2019, combined emissions of NO_x shall not exceed 0.80 tons
42 per day (tpd) and 195 tons per rolling 12-month period.

43
44 NO_x emissions shall be determined daily by applying the listed emission factors or emission
45 factors determined from the most current performance test to the relevant quantities of fuel

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1 combusted. Unless adjusted by performance testing as discussed above, the default
2 emission factors to be used are as follows:

3
4
5 Natural gas – latest version of AP-42 (currently see AP-42, Table 1.4-1)
6 Plant gas – assumed equal to natural gas (use values from AP-42, Table 1.4-1)

7
8 Since the emission factors are considered to be the same for either gas, this factor shall be
9 applied to the metered quantity of blended gas. Should future information reveal that there
10 is a difference in the emission factors for natural gas and plant gas, then the respective
11 quantities shall be delineated in the AO.

12
13 Daily plant gas consumption at the furnaces and boilers shall be measured by flow
14 meters. The equations used to determine emissions for the boilers and furnaces shall be
15 as follows: Emission Factor (lb/MMscf)*Gas Consumption (MMscf/24 hrs)/(2,000
16 lb/ton)

17
18 The daily NO_x emissions from the Catalyst Regeneration System shall be calculated using
19 the following equation:

20
21
$$\text{NO}_x = (\text{Flue Gas, moles/hr}) \times (\text{ADV ppm} / 10^6) \times (30.006 \text{ lb/mole}) \times (\text{operating}$$

22
$$\text{hr/day}) / (2000 \text{ lb/ton})$$

23
24 Where ADV = average daily value from NO_x CEM

25
26 Total daily NO_x emissions shall be calculated by adding the results of the above NO_x
27 equations for natural gas and plant gas combustion to the estimate for the Catalyst
28 Regeneration System. Results shall be tabulated every day, and records shall be kept which
29 include the meter readings (in the appropriate units) and the calculated emissions.

30
31 iii. Source-wide SO₂

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

34
35 SO₂ emissions shall be determined daily by applying the listed emission factors or emission
36 factors determined from the most current performance test to the relevant quantities of fuel
37 combusted. Unless adjusted by performance testing as discussed above, the default
38 emission factors to be used are as follows:

39
40 Natural Gas - 0.60 lb SO₂/MMscf gas

41
42 Plant Gas - The emission factor to be used in conjunction with plant gas combustion shall be
43 determined through the use of a continuous emissions monitor, which shall measure the
44 H₂S content of the fuel gas in ppmv. Daily emission factors shall be calculated using
45 average daily H₂S content data from the CEM. The emission factor shall be calculated as
46 follows:

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Emission Factor (lb SO₂/MMscf gas) = [(24 hr avg. ppmv H₂S)/10⁶]*(64 lb SO₂/lb mole)*[(10⁶ scf/MMscf)/(379 scf/lb mole)]

4

5

6

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

7

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

8

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

9

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

10

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

11

The daily SO₂ emission from the Catalyst Regeneration System shall be calculated using the following equation:

12

13

$$\text{SO}_2 = \text{FG} * (\text{ADV}/1,000,000) * (64 \text{ lb/mole}) * (\text{operating hours/day}) / (2000 \text{ lb/ton})$$

14

Where:

15

FG = Flue Gas in moles/hour

16

ADV = average daily value from SO₂ CEM

17

18

Total daily SO₂ emissions shall be calculated by adding the daily results of the above SO₂ 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 H₂S (averaged for each day), all meter readings (in the appropriate units), and the calculated emissions.

19

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- 1 c. Bountiful City Light and Power: Power Plant
2
3 i. Emissions to the atmosphere shall not exceed the following rates and concentrations:
4
5 A. GT #1 (5.3 MW Turbine) Exhaust
6 Stack: NO_x 0.6 g/kW-hr
7
8 B. GT #2 and GT #3 (each TITAN Turbine) Exhaust Stack:
9 NO_x 15 ppm
10
11 ii. Compliance to the above emission limitations shall be determined by stack testing as
12 outlined in Section IX Part H.11.e of this SIP. Each turbine shall be tested at least once per
13 year.
14
15 iii. Combustion Turbine Startup / Shutdown Emission Minimization Plan
16
17 A. Startup begins when natural gas is supplied to the combustion turbine(s) with the intent
18 of combusting the fuel to generate electricity. Startup conditions end within sixty (60)
19 minutes of natural gas being supplied to the turbine(s).
20
21 B. Shutdown begins with the initiation of the stop sequence of a turbine until the cessation
22 of natural gas flow to the turbine.
23
24 C. Periods of startup or shutdown shall not exceed two (2) hours per combustion turbine
25 per day.

1 d. CER Generation II, LLC (Exelon Generation): West Valley Power Plant.
2

3 i. Emissions of NO_x from each individual turbine shall be no greater than 5 ppm_{dv} (15% O₂,
4 dry) based on a 30-day rolling average.

5
6 ii. Total emissions of NO_x from all five turbines shall be no greater than 37 lbs/hour (15% O₂,
7 dry) based on a 30-day rolling average.

8
9 iii. The NO_x emission rate (lb/hr) shall be calculated by multiplying the NO_x concentration
10 (ppm_{dv}) generated from CEMs and the volumetric flow rate. The 30-day rolling average
11 shall be calculated by adding previous 30 days data on a daily basis.
12

13 iv. Combustion Turbine Startup / Shutdown Emission Minimization Plan
14

15 A. Startup begins when natural gas is supplied to the combustion turbine(s) with the
16 intent of combusting the fuel to generate electricity. Startup conditions end within
17 sixty (60) minutes of natural gas being supplied to the turbine(s).
18

19 B. Shutdown begins with the initiation of the stop sequence of a turbine until the
20 cessation of natural gas flow to the turbine.

21
22 C. Periods of startup or shutdown shall not exceed two (2) hours per combustion
23 turbine per day.

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e. Central Valley Water Reclamation Facility: Wastewater Treatment Plant

- i. NO_x 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.

NO_x 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)
NO _x	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)
NO _x	7.13	1.8

- iv. 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.

1 f. Chemical Lime Company (LHoist North America).
2

3 i. Lime Production Kiln:
4

5 A. Upon plant start-up SNCR technology shall be installed on the Lime Production Kiln
6 for reduction of NO_x emissions.
7

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

10 I. PM emissions shall not exceed 0.12 pounds per ton (lb/ton) of stone feed
11

12 II. Compliance with the above emission limit shall be determined by stack testing as
13 outlined in Section IX Part H.11.e of this SIP and in accordance with 40 CFR 63
14 Subpart AAAAA.
15

16 C. An initial compliance test is required within 180 days of source start-up.
17

18 D. Subsequent to initial compliance testing, stack testing is required at a minimum of every
19 five years.
20

21 E. Startup/shutdown provisions for SNCR technology be as follows: (a) no ammonia or
22 urea injection during startup until the combustion gases exiting the kiln reach the
23 temperature when NO_x reduction is effective, and (b) no ammonia or urea injection
24 during shutdown.
25

1 g. Chevron Products Company - Salt Lake Refinery

2
3 i. Source-wide PM_{2.5}

4 By no later than January 1, 2019, combined emissions of filterable PM_{2.5} shall not exceed
5 0.18 tons per day (tpd) and 65 tons per rolling 12-month period.

6
7 Compliance with the daily PM_{2.5} limit shall be determined daily by multiplying the
8 quantity of each fuel burned at the affected units by the associated emission factor for that
9 fuel, and summing the results.

10
11 PM_{2.5} emissions shall be determined daily by applying the listed emission factors or
12 emission factors determined from the most current performance test to the relevant
13 quantities of fuel combusted. Unless adjusted by performance testing as discussed above,
14 the default emission factors to be used are as follows:

15
16 Natural gas – 1.9 lb/MMscf (filterable), 5.7 lb/MMscf (condensable)

17 Plant gas – 1.9 lb/MMscf (filterable), 5.7 lb/MMscf (condensable)

18
19 Fuel Oil/ HF alkylation polymer: The filterable PM_{2.5} emission factor shall be determined
20 based on the sulfur content of the fuel (S) according to the equation:

21
22
$$EF \text{ (lb/1000 gal)} = (\text{Wt. \% S} * 10) + 3.22$$

23
24 The condensable PM_{2.5} emission factor for fuel oil combustion shall be determined from
25 the latest edition of AP-42.

26
27 Daily plant gas consumption at the furnaces and boilers shall be measured by flow meters.

28
29 Daily fuel oil consumption shall be monitored with tank gauges. Fuel oil consumption shall
30 be allowed only during periods of natural gas curtailment.

31
32 The filterable PM_{2.5} emission factor for the FCC Catalyst Regenerator shall be determined
33 based on the results of the most recent stack test.

34
35 By no later than January 1, 2017, Chevron shall conduct stack testing to establish the ratio
36 of condensable PM_{2.5} from the FCC Catalyst Regenerator and SRUs. At that time the
37 condensable fraction will be added and a new source-wide limitation shall be established in
38 the AO.

39
40 ii. Source-wide NO_x

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

43
44 Compliance with the daily limit shall be determined daily by multiplying the quantity of each

1 fuel burned at each affected unit by the associated emission factor for that fuel at that unit,
2 and summing the results.

3
4 Chevron shall maintain a record of fuel meter identifiers and locations, conversion factors,
5 and other information required to demonstrate the required calculations. Records shall be
6 kept showing the daily fuel usage, fuel meter readings, required fuel properties, hours of
7 equipment operation, and calculated daily emissions.

8
9 The emission factors to be used for the above limitations are as

10 follows: Natural Gas/Plant Gas: by individual furnace/boiler*

11 *the most recent listing of these emission factors is maintained in Chevron's AO.

12
13 FCC Regenerator: The emission rate shall be determined by the FCC Regenerator NO_x CEM

14
15 All other emission units shall be stack-tested if directed by the Director. Chevron may also
16 perform a stack test to provide information for updating the emission factors.

17
18 iii. Source-wide SO₂

19 By no later than January 1, 2019, combined emissions of SO₂ shall not exceed 1.05 tons per
20 day (tpd) and 383.3 tons per rolling 12-month period.

21
22 Daily SO₂ emissions from affected units shall be determined by multiplying the quantity of
23 each fuel used daily (24 hr usage) at each affected unit by the appropriate emission factor
24 below. The values shall be summed to show the total daily sulfur dioxide emission.

25
26 Emission factors (EF) for the various fuels and emission points shall be as follows:

27
28 FCC Regenerator: The emission rate shall be determined by the FCC Regenerator SO₂ CEM

29
30 SRUs: The emission rate shall be determined by multiplying the sulfur dioxide
31 concentration in the flue gas by the mass flow of the flue gas. The sulfur dioxide
32 concentration in the flue gas shall be determined by CEM.

33
34 Natural gas: EF = 0.60 lb/MMscf

35
36 Fuel oil & HF Alkylation polymer: The emission factor to be used for combustion shall be
37 calculated based on the weight percent of sulfur, as determined by ASTM Method D-4294-
38 89 or EPA-approved equivalent acceptable to the Director, and the density of the fuel oil,
39 as follows:

40
41
$$EF \text{ (lb SO}_2\text{/k gal)} = \text{density (lb/gal)} * (1000 \text{ gal/k gal)} * \text{wt.\% S/100} * (64 \text{ lb SO}_2\text{/32 lb S)}$$

42
43 Plant gas: the emission factor shall be calculated from the H₂S measurement obtained
44 from the H₂S CEM. The emission factor shall be calculated as follows:

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

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.

1 h. Great Salt Lake Minerals Corporation: Production Plant

2
3 i. NO_x emissions to the atmosphere from the indicated emission point shall not exceed the
4 following concentrations:

5

6 Emission Points	Concentration (ppm)
7 Boiler #1	9.0
8 Boiler #2	9.0

9

10
11 a. Compliance to the above emission limits shall be determined by stack test as outlined in
12 Section IX Part H.11.e of this SIP. A compliance test shall be performed at least once every
13 three years subsequent to the initial compliance test.

14
15 ii. PM₁₀ emissions to the atmosphere from the indicated emission point shall not exceed
16 the following rates and concentrations:

17

18 Source	Concentration (grains/dscf) (@ 68 degrees F 29.92 in Hg)
19 SOP Plant Compaction/Loadout	0.01
20 Salt Plant Screening	0.01
21 SOP Plant Dryer D-001	0.01
22 SOP Plant Dryer D-002	0.01
23 SOP Plant Dryer D-003	0.01
24 SOP Plant Dryer D-004	0.01
25 SOP Plant Drying Circuit Fluid Bed Heater D-005	0.01
26 Salt Plant Dryer D-501	0.01

27

28 a. Compliance to the above emission limits shall be determined by stack test as outlined in
29 Section IX Part H.11 a of this SIP. The stack test date shall be performed as soon as
30 possible and in no case later than ~~January~~ June 1, 2015 except for SOP Plant Dryer D-
31 003 when a stack test shall be performed no later than January 1, 2016. A compliance
32 test shall be done at least once every three years subsequent to the initial compliance
33 test.

34
35 b. Within one hundred and twenty (120) days after the initial compliance test date
36 required above for each baghouse/scrubber, GSLM shall submit a Notice of Intent
37 to DAQ in which a PM_{2.5} emission limit in grains/dscf and pounds/hour is
38 proposed.

39
40 c. Process emissions shall be routed through operating controls prior to being
41 emitted into the atmosphere.

42
43 iii. PM₁₀ emissions to the atmosphere from the indicated emission point shall
44 not exceed the following rates and concentrations:

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Source	Concentration (grains/dscf) (@ 68 degrees F 29.92 in Hg)
SOP Loadout	0.01
SOP Silo Dust Collection	0.01
SOP Plant Compaction	0.020
Salt Plant Dust Collection	0.01
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.11a of this SIP. The stack test date shall be performed as soon as possible and in no case later than ~~January~~ 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.

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- i. 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.
 - ii. All control equipment shall be in operation prior to initiating fiber line operations.

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j. 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.

1 k. HollyFrontier Corporation: Holly Refining and Marketing Company – Woods Cross
2 L.L.C. (Holly Refinery)

3
4 i. Source-wide PM_{2.5}

5 By no later than January 1, 2019, PM_{2.5} emissions (filterable + condensable) from all
6 combustion sources shall not exceed 47.6 tons per rolling 12-month period and 0.134 tons
7 per day (tpd).

8
9 PM_{2.5} emissions shall be determined daily by applying the listed emission factors or
10 emission factors determined from the most current performance test to the relevant
11 quantities of fuel combusted. Unless adjusted by performance testing as discussed above,
12 the default emission factors to be used are as follows:

13
14 Natural gas or Plant gas for all non-NSPS combustion equipment: 7.65 lb PM_{2.5}/MMscf

15 Natural gas or Plant gas for all NSPS combustion equipment: 0.52 lb PM_{2.5}/MMscf

16
17 Fuel oil: The filterable PM_{2.5} emission factor for fuel oil combustion shall be determined
18 based on the sulfur content of the oil as follows:

19
20
$$\text{PM}_{2.5} \text{ (lb/1000 gal)} = (10 * \text{wt. \% S}) + 3.22$$

21
22 The condensable PM_{2.5} emission factor for fuel oil combustion shall be determined from
23 the latest edition of AP-42.

24
25 Daily natural gas and plant gas consumption shall be determined through the use of flow
26 meters on all gas-fueled combustion equipment.

27
28 Daily fuel oil consumption shall be monitored by means of leveling gauges on all tanks that
29 supply fuel oil to combustion sources. Fuel oil consumption shall be allowed only during
30 periods of natural gas curtailment.

31
32 The equations used to determine emissions for the boilers and furnaces shall be as follows:

33
34
$$\text{Emissions (tons/day)} = \text{Emission Factor (lb/MMscf)} * \text{Natural/Plant Gas Consumption}$$

35
$$\text{(MMscf/day)/(2,000 lb/ton)}$$

36
37
$$\text{Emissions (tons/day)} = \text{Emission Factor (lb/kgal)} * \text{Fuel Oil Consumption (kgal/day)/(2,000}$$

38
$$\text{lb/ton)}$$

39
40 Total 24-hour PM_{2.5} emissions for the emission points shall be calculated by adding the
41 daily results of the above PM_{2.5} emissions equations for natural gas, plant gas, and fuel oil
42 combustion. Results shall be tabulated for every day, and records shall be kept which
43 include all meter readings (in the appropriate units), fuel oil parameters (wt. %S), and the
44 calculated emissions.

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ii. Source-wide NO_x

By no later than January 1, 2019, NO_x 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).

NO_x 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 NO_x burners (LNB): 41 lbs/MMscf
Natural gas/refinery fuel gas combusted using Ultra-Low NO_x burners: 0.04 lbs/MMbtu
Natural gas/refinery fuel gas combusted using Next Generation Ultra Low NO_x 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:

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

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

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

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

Total daily NO_x emissions for emission points shall be calculated by adding the results of the

1
2 above NO_x equations for plant gas, fuel oil, and natural gas combustion. Results shall be
3 tabulated for every day; and records shall be kept which include the meter readings (in the
4 appropriate units), emission factors, and the calculated emissions.
5

6 iii. Source-wide SO₂

7 By no later than January 1, 2019, the emission of SO₂ from all emission points (excluding
8 routine SRU turnaround maintenance emissions) shall not exceed 110.3 tons per rolling 12-
9 month period and 0.31 tons per day (tpd).
10

11 The routine turnaround maintenance period (a maximum of once every three years for a
12 maximum of a 15 day period) for the SRU (Unit 17) shall only be scheduled during the
13 period of April 1 through October 31. The projected SRU turnaround period shall be
14 submitted to the Director by April 1 of each year in which a turnaround is planned. Notice
15 shall also be provided to the Director 30 days prior to the planned turnaround.
16

17 SO₂ emissions into the atmosphere shall be determined by applying the following emission
18 factors or emission factors determined from the most current performance testing to the
19 relevant quantities of fuel burned. SO₂ emission factors for the various fuels shall be as
20 follows:
21

22 Natural gas - 0.60 lb SO₂/MMscf
23

24 Plant gas - The emission factor to be used in conjunction with plant gas combustion shall be
25 determined through the use of a CEM which will measure the H₂S content of the fuel gas
26 in parts per million by volume (ppmv). Daily emission factors shall be calculated using
27 average daily H₂S content data from the CEM. The emission factor shall be calculated as
28 follows:
29

$$30 \text{ (lb SO}_2\text{/MMscf gas)} = (24 \text{ hr avg. ppmv H}_2\text{S})/10^6 * (64 \text{ lb SO}_2\text{/lb mole}) * (10^6$$
$$31 \text{ scf/MMscf)/(379 scf / lb mole)}$$

32

33 Fuel oil - The emission factor to be used in conjunction with fuel oil combustion (during
34 natural gas curtailments) shall be calculated based on the weight percent of sulfur, as
35 determined by ASTM Method 0-4294-89 or EPA-approved equivalent, and the density of
36 the fuel oil, as follows:
37

$$38 \text{ (lb of SO}_2\text{/kgal)} = (\text{density lb/gal}) * (1000 \text{ gal/kgal}) * (\text{wt. \%S})/100 * (64 \text{ g SO}_2\text{/32 g S)}$$

39

40 The weight percent sulfur and the fuel oil density shall be recorded for each day any fuel oil
41 is combusted. Fuel oil may be combusted only during periods of natural gas curtailment.
42

43 Fuel Consumption shall be measured as follows:
44

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

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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:

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

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

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

Total daily SO₂ emissions shall be calculated by adding daily results of the above SO₂ 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 H₂S (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.

1 1. Kennecott Utah Copper (KUC): Mine

2
3 i. Bingham Canyon Mine (BCM)

4
5 A. Maximum total mileage per calendar day for ore and waste haul trucks shall not
6 exceed 30,000 miles.

7
8 B. The following source-wide emission limits at the BCM shall not be exceeded:

9
10 I. 6,205 tons of NO_x, PM_{2.5} and SO₂ combined per rolling 12-month period
11 until January 1, 2019.

12
13 II. After January 1, 2019, combined emissions of NO_x, PM_{2.5}, and SO₂ shall not
14 exceed 5,585 tons per rolling 12 month period.

15
16 Compliance with the 12-month period limits shall be determined on a rolling 12-
17 month total based on the previous 12 months per methodology outlined in
18 Emissions Inventory. KUC shall calculate a new 12-month total by the 20th day of
19 each month using data from the previous 12 months. [R307-401-8]

20
21 C. To minimize fugitive dust on roads at the mine, the owner/operator shall perform
22 the following measures:

23
24 I. Apply water to all active haul roads as conditions warrant, and shall

25
26 1. ensure the surface of the active haul roads located within the pit influence
27 boundary consists of road base material, blasted waste rock, crushed rock,
28 or chemical dust suppressant, and

29
30 2. apply a chemical dust suppressant to active haul roads located outside of the
31 pit influence boundary no less than twice per year.

32
33 II. Ore conveyors shall be the primary means for transport of crushed ore from the
34 mine to the concentrator.

35
36 III. Chemical dust suppressant shall be applied as conditions warrant on unpaved
37 access roads that receive haul truck traffic and light vehicle traffic.

38
39 D. Implementation Schedule

40
41 I. KUC shall reduce emissions of combined PM_{2.5}, SO_x and NO_x on a 12-month
42 rolling period by 10% to 5,585 tons by 2019. In doing so, KUC is required to
43 purchase the highest tier level trucks available that meet the production requirement,
44 from certified manufactures.

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m. Kennecott Utah Copper: Power Plant

i. UTAH POWER PLANT

A. 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 shall not exceed the following emission rates to the

atmosphere: POLLUTANT	lb/hr	ppmdv (15% O2
dry) NO _x :		2.0*
II. VOC:		2.0*
III. PM _{2.5} with duct firing:		
Filterable + condensable	18.8	

* Under steady state operation.

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

POLLUTANT	TEST FREQUENCY
I. PM _{2.5}	3 years
II. NO _x	3 years
III. VOC	3 years

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

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.

1
 2 II. Except during a curtailment of natural gas supply, emissions to the atmosphere
 3 from the indicated emission point shall not exceed the following rates and
 4 concentrations:
 5

6 POLLUTANT grains/dscf ppmdv (3% O²)
 7 68⁰F, 29.92 in. Hg
 8

9 1. Before January 1, 2018

10 a. PM_{2.5}

11 filterable 0.004
 12 filterable +
 condensable 0.03

13 b. NO_x: 336

14 3. After January 1, 2018

15 a. PM_{2.5}

16 filterable 0.004
 filterable +
 condensable 0.03

17 b. NO_x: 60

18
 19 III. When using coal during a curtailment of the natural gas supply, emissions to the
 20 atmosphere from the indicated emission point shall not exceed the following rates
 21 and concentrations:

22 POLLUTANT grains/dscf lb/hr ppmdv (3%
 23 O₂) 68⁰F, 29.92 in Hg
 24

1. PM_{2.5}

filterable 0.029 33.5
 filterable +
 condensable 0.29 382

2. NO_x 384

25
 26 IV. Stack testing to show compliance with the emission limitations in H.12.m.i.D.II and
 27 III shall be performed as follows for the following air contaminants:
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 29

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POLLUTANT	TEST FREQUENCY
1. PM _{2.5}	every year
2. NO _x	every year

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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.

ii. BONNEVILLE BORROW AREA PLANT

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

1 n. Kennecott Utah Copper: Smelter and Refinery.
 2
 3 i. SMELTER:
 4
 5 A. Emissions to the atmosphere from the indicated emission points shall not exceed the
 6 following rates and concentrations:

- 7 I. Main Stack (Stack No. 11)
- 8 1. PM_{2.5}
 9 a. 85 lbs/hr (filterable)
 10 b. 434 lbs/hr (filterable + condensable)
 11
 12 2. SO₂
 13 a. 552 lbs/hr (3 hr. rolling average)
 14 b. 422 lbs/hr (daily average)
 15
 16 3. NO_x 35 lbs/hr (annual average)
 17

- 18 II. Acid Plant Tail Gas
- 19
 20 1. SO₂
 21 a. 1,050 ppmdv (3 hr. rolling average)
 22 b. 650 ppmdv (6 hr. rolling average)
 23

- 24 III. Holman Boiler
- 25
 26 1. NO_x
 27 a. 9.34 lbs/hr, 30-day average
 28 b. 0.05 lbs. MMBTU, 30-day average
 29

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

32	EMISSION POINT	POLLUTANT	TEST FREQUENCY
35	I. Main Stack (Stack No. 11)	PM _{2.5}	Every Year
36		SO ₂	CEM
37		NO _x	CEM
38	II. Acid Plant Tailgas	SO ₂	CEM
39			

1 III. Holman Boiler NO_x CEM or alternate method determined
 2 according to applicable NSPS standards
 3

4 C. During startup/shutdown operations, NO_x and SO₂ emissions are monitored by CEMS or
 5 alternate methods in accordance with applicable NSPS standards.
 6

7 ii. REFINERY:
 8

9 A. Emissions to the atmosphere from the indicated emission point shall not exceed
 10 the following rate:
 11

EMISSION POINT	POLLUTANT	MAXIMUM EMISSION RATE
The sum of two (Tankhouse) Boilers	NO _x	9.5 lbs/hr
Combined Heat Plant	NO _x	5.96 lbs/hr

12
 13
 14 B. Stack testing to show compliance with the above emission limitations shall be
 15 performed as follows:
 16

EMISSION POINT	POLLUTANT	TESTING FREQUENCY
Tankhouse Boilers	NO _x	every three
years Combined Heat Plant	NO _x	every year

17
 18
 19
 20
 21 To determine mass emission rate, the pollutant concentration as determined by the
 22 appropriate methods above, shall be multiplied by the volumetric flow rate and any
 23 necessary conversion factors to give the results in the specified units of the emission
 24 limitation. Provided that the two boilers installed are identical in make, model, and
 25 pollution control equipment, compliance with the emission limitation by the second
 26 boiler shall be determined by the stack test of the first boiler.
 27

28 C. The owner/operator shall use only natural gas or landfill gas as a primary fuel in the
 29 boilers. The boilers may be equipped to operate on #2 fuel oil; however, operation of the
 30 boilers on #2 fuel oil shall only occur during periods of natural gas curtailment and during
 31 testing and maintenance periods. Operation of the boilers on #2 fuel oil shall be reported
 32 to the Director within one working day of start-up. Emissions resulting from operation of
 33 the boiler on #2 fuel oil shall be reported to the Director within 30 days following the
 34 use of #2 fuel oil in the boilers.
 35

36 D. Standard operating procedures shall be followed during startup and shutdown
 37 operations to minimize emissions.

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iii. MAP:

A. Emissions to the atmosphere from the Natural Gas Turbine combined with Duct Burner and with TEG Firing shall not exceed the following rate:

EMISSION POINT	POLLUTANT	MAXIMUM EMISSION RATE
Combined Heat Plant	NO _x	5.01 lbs/hr

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

EMISSION POINT	POLLUTANT	TESTING FREQUENCY
Combined Heat Plant	NO _x	every year

To determine mass emission rates (lbs/hr, etc.), the pollutant concentration as determined by the appropriate methods above, shall be multiplied by the volumetric flow rate and any necessary conversion factors to give the results in the specified units of the emission limitation.

C. Standard operating procedures shall be followed during startup and shutdown operations to minimize emissions.

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o. 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. PM_{2.5}

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

II. SO₂

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

III. NO_x 59.75 lbs/hr (12-month rolling average)

IV. VOC 22.20 lbs/hr

B. Reheat Furnace

#1 NO_x 15.0

lb/hr

C. Reheat Furnace #2

NO_x 8.0 lb/hr

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

EMISSION POINT	POLLUTANT	TEST FREQUENCY
A. Electric Arc Furnace Baghouse	PM _{2.5}	every year
	SO ₂	CEM
	NO	CEM
	VOC	every 5 years
B. Reheat Furnace #1	NO _x	every 3 years
C. Reheat Furnace #2	NO _x	every 3 years

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

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- A. To demonstrate compliance with the Electric Arc Furnace stack mass emissions limits for SO₂ and NO_x of Condition (i)(A) above, Nucor shall calibrate, maintain and operate the measurement systems for continuously monitoring for SO₂ and NO_x 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 PM_{2.5} 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 PM_{2.5} limit, that will constitute compliance with the PM_{2.5} limit. If TSP emissions are not below the PM_{2.5} limit, the owner/operator shall retest using EPA approved methods specified for PM_{2.5} testing, within 120 days.
- C. Startup/shutdown NO_x and SO₂ emissions are monitored by CEMS.

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- p. Olympia Sales Company: Cabinet Manufacturing Facility
 - i. By January 1, 2015, a baghouse control device shall be 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, door, and sanding areas shall be exhausted through the baghouse during startup, shutdown, and normal operations of the plant.

- 1 q. PacifiCorp Energy: Gadsby Power Plant
- 2
- 3 i. Steam Generating Unit #1:
- 4 A. Emissions of NO_x shall be no greater than 336 ppm_{dv} (3% O₂, dry).
- 5
- 6 B. The owner/operator shall install, certify, maintain, operate, and quality-assure a
- 7 continuous emission monitoring system (CEMS) consisting of NO_x and O₂
- 8 monitors to determine compliance with the NO_x limitation.
- 9
- 10 ii. Steam Generating Unit #2:
- 11 A. Emissions of NO_x shall be no greater than 336 ppm_{dv} (3% O₂, dry).
- 12
- 13 B. The owner/operator shall install, certify, maintain, operate, and quality-assure a
- 14 continuous emission monitoring system (CEMS) consisting of NO_x and O₂
- 15 monitors to determine compliance with the NO_x limitation.
- 16
- 17 iii. Steam Generating Unit #3:
- 18 A. Emissions of NO_x shall be no greater than 336 ppm_{dv} (3% O₂, dry).
- 19
- 20 B. The owner/operator shall install, certify, maintain, operate, and quality-assure a
- 21 continuous emission monitoring system (CEMS) consisting of NO_x and O₂
- 22 monitors to determine compliance with the NO_x limitation.
- 23
- 24 iv. Natural Gas-fired Simple Cycle Turbine Units:
- 25 A. Total emissions of NO_x from all three turbines shall be no greater than 22.2
- 26 lbs/hour (15% O₂, dry) based on a 30-day rolling average.
- 27
- 28 B. Emission of NO_x from each individual turbine shall be no greater than 5 ppm_{dv} (15%
- 29 O₂, dry) based on 30 day rolling average.
- 30
- 31 C. The owner/operator shall install, certify, maintain, operate, and quality-assure a
- 32 continuous emission monitoring system (CEMS) consisting of NO_x and O₂ monitors to
- 33 determine compliance with the applicable NO_x limitations. The NO_x emission rate
- 34 (lb/hr) shall be calculated by multiplying the NO_x concentration (ppm_{dv}) generated
- 35 from CEMs and the volumetric flow rate.
- 36
- 37 D. The owner/operator shall expand the catalyst beds to achieve additional NO_x control
- 38 on Natural Gas-fired Simple Cycle Turbine Units (Units #4, #5 and #6) by no
- 39 later than January 1, 2016
- 40
- 41 v. Combustion Turbine Startup / Shutdown Emission Minimization Plan
- 42
- 43 A. Startup begins when the fuel valves open and natural gas is supplied to the
- 44 combustion
- 45 turbines

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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
- 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.

1 r. Tesoro Refining and Marketing Company: Salt Lake City Refinery

2
3 i. Source-wide PM_{2.5}

4 By no later than January 1, 2019, combined emissions of filterable PM_{2.5} shall not exceed
5 0.42 tons per day (tpd) and 110 tons per rolling 12-month period.

6
7 PM_{2.5} emissions shall be determined daily by applying the listed emission factors or
8 emission factors determined from the most current performance test to the relevant
9 quantities of fuel combusted. Unless adjusted by performance testing as discussed above,
10 the default emission factors to be used are as follows:

11
12 Natural gas – 1.9 lb/MMscf (filterable), 5.7 lb/MMscf (condensable)

13 Plant gas – 1.9 lb/MMscf (filterable), 5.7 lb/MMscf (condensable)

14
15 Daily gas consumption by all boilers and furnaces shall be measured by meters that can
16 delineate the flow of gas to the indicated emission points.

17
18 The equations used to determine emissions for the boilers and furnaces shall be as follows:

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

20 By no later than January 1, 2019, Tesoro shall conduct stack testing to establish the ratio of
21 condensable PM_{2.5} from the FCCU wet gas scrubber stack. At that time the condensable
22 fraction will be added and a new source-wide limitation shall be established in the AO.

23
24 Total 24-hour PM_{2.5} (filterable + condensable) emissions shall be calculated by adding the
25 results of the above filterable PM_{2.5} equations for natural gas and plant gas combustion to
26 the values for the FCCU wet gas scrubber stack and to the estimate for the
27 SRU/TGTU/TGI. Results shall be tabulated every day, and records shall be kept which
28 include the meter readings (in the appropriate units) and the calculated emissions.

29
30 ii. Source-wide NO_x

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

33
34 Compliance shall be determined daily by multiplying the hours of operation of a unit, feed
35 rate to a unit, or quantity of each fuel combusted at each affected unit by the associated
36 emission factor, and summing the results.

37
38 A NO_x CEM shall be used to calculate daily NO_x emissions from the FCCU wet gas
39 scrubber stack. Emissions shall be determined by multiplying the nitrogen dioxide
40 concentration in the flue gas by the mass flow of the flue gas. The NO_x concentration in the
41 flue gas shall be determined by a CEM.

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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_x 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 SO₂

By no later than January 1, 2019, combined emissions of SO₂ shall not exceed 3.1 tons per day (tpd) and 300 tons per rolling 12-month period.

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:

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

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 H₂S (averaged for each one-hour period), all meter readings (in the appropriate units), and the calculated emissions.

1 s. The Procter & Gamble Paper Products Company

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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 _x	3%	3.3

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9

Source: Paper Machines Process Stacks (Each)

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Pollutant	lb/hr
PM ₁₀	6.65
PM _{2.5}	to be determined

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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_{2.5}. At that time the condensable fraction will be added and a PM_{2.5} limit established in the AO.

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

25 ii. Boiler Startup/Shutdown Emissions Minimization Plan

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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.

36 iii. Paper Machine Startup/Shutdown Emissions Minimization Plan

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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.

1 t. University of Utah: University of Utah Facilities

2

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

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EMISSION POINT	POLLUTANT	ppmdv (3% O ₂ dry)
A. Boilers #3	NO _x	187
B. Boilers #4a & 4b	NO _x	9
C. Boilers #5a & 5b	NO _x	9
D. Turbine	NO _x	9
E. Turbine and WHRU Duct burner	NO _x	15

8

9 ii. Stack testing to show compliance with the emissions limitations of Condition i above shall
10 be performed as specified below:

11

12

13

EMISSION POINT	POLLUTANT	INITIAL TEST	TEST FREQUENCY
A. Boilers #3	NO _x	*	every 3 years
B. Boilers #4a & #4b	NO _x	2018	every 3 years
C. Boilers #5a & #5b	NO _x	2017	every 3 years
D. Turbine	NO _x	2014	every year
E. Turbine and WHRU Duct Burner	NO _x	2014	every year

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* Initial test already performed

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

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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 NO_x
burners.

23

24

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

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

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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.

1 v. Wasatch Integrated Waste Management District

2
3 i. By January 1, 2018, SNCR technology shall be installed and operating on each of the two
4 Municipal Waste Combustors for the reduction of NO_x emissions.

5
6 ii. Emissions of NO_x from the Municipal Waste Combustors shall not exceed 350 ppmdv (7%
7 O₂, dry), based on a daily arithmetic average concentration.

8
9 iii. Compliance shall be determined by CEMs.

10
11
12 iv. Gas Suspension Absorber (GSA) and PAC Injection

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

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

18 I. Cold Light Off

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

22
23 II. Hot Light Off

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

27
28 III. Secure to Hot

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

31
32 IV. Secure to Cold

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

35
36 V. Malfunction Shut Down

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

39
40
41 v. Electrostatic Precipitator (ESP)

42
43 A. Each unit is equipped with an ESP for control of particulate emissions. The ESPs
44 shall be operated in accordance with the facility Operations and Maintenance
45 Manual. The facility Operations and Maintenance Manual shall ensure the ESP is
46 operated as long as possible during start-up/shut-down:

47
48 I. Cold Light Off

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

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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.

**H.13 Source-Specific Emission Limitations in Provo – UT
PM2.5 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.

ii. Emissions to the atmosphere from the indicated emission point shall not exceed the following concentrations:

EMISSION POINT	POLLUTANT	ppmdv (3% O2 dry)
A. Unit #1	NO _x	36 ppm
B. Unit #4	NO _x	36 ppm
C. Unit #6	NO _x	36 ppm

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	NO _x	*	every three years
B. Unit #4	NO _x	January 1, 2017	every three years
C. Unit #6	NO _x	January 1, 2017	every three years

* 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 NO_x burners with Flue Gas Recirculation shall be installed and tested within 18 months of exceeding 300 hours of operation.

iv. Natural Gas-Fired Boilers

A. Central Heating Plant Natural Gas-Fired Boilers

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- 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.

1 b. Geneva Nitrogen Inc.: Geneva Nitrogen Plant

2
3 i. Prill Tower:

4
5 PM10 emissions shall not exceed 0.22 ton/day and 79 ton/yr

6
7 ii. Testing

8
9 A. Stack testing shall be performed as specified below:

10
11 I. Frequency. Emissions shall be tested every three years. The source shall also
12 be tested at any time as required by the Director.

13
14 B. The daily and rolling 12-month mass emissions shall be calculated by multiplying the
15 most recent stack test results by the appropriate hours of operation for each day and
16 for each rolling 12-month period.

17
18 iii. Montecatini Plant:

19
20 NO_x emissions shall not exceed 30.8 lb/hr

21
22 iv. Weatherly Plant:

23
24 NO_x emissions shall not exceed 18.4 lb/hr

25
26 v. Testing

27
28 Compliance testing is required on the Prill tower, Montecatini Plant, and Weatherly Plants.
29 The test shall be performed as soon as possible and in no case later than January 1, 2019.

30
31 A. Stack testing to show compliance with the NO_x emission limitations shall be performed
32 as specified below:

33
34 I. Testing and Frequency. Emissions shall be tested every three years. The source
35 may also be tested at any time as required by the Director.

36
37 B. NO_x concentration (ppmdv) shall be used as an indicator to provide a
38 reasonable assurance of compliance with the NO_x emission limitation as
39 specified below:

40
41 I. Measurement Approach: NO_x concentration (ppmdv) shall be determined by
42 using a NO_x CEM.

43
44 II. Indicator Range: An excursion is defined as a one-hour average NO_x concentration
45 in excess of 200 ppmdv as measured by the NO_x CEM. Excursions trigger an
46 inspection, corrective action, and a reporting requirement.

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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 ppm_{dv} (in 0.5 ppm_{dv} 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: NO_x concentration (ppm_{dv}) shall be recorded and stored electronically.
5. Averaging Period: Use 15-second NO_x concentration (ppm_{dv}) to calculate hourly average NO_x concentration (ppm_{dv}).

vi. Start-up/Shut-down

- 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/PM_{2.5} in the Ammonium Nitrate Prill Tower shall be in operation either prior to or at the same time the scrubber initiates operation.

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c. PacifiCorp Energy: Lake Side Power Plant

i. Block #1 Turbine/HRSG Stacks:

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

ii. Block #2 Turbine/HRSG Stacks:

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

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

iv. 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, NO_x 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_x emissions from the Block #1 Turbine/HRSG Stacks shall not exceed 25 ppmvd at 15% O₂.

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C. Definitions:

I. Startup is defined as the period beginning with turbine initial firing until the unit meets the ppmvd emission limits listed in IX.H.13.c.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_x concentration exceeds 2.0 ppmv dry @ 15% O₂. Transient load conditions include 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.

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d. Pacific States Cast Iron Pipe Company: Pipe Casting Plant

- i. By January 1, 2015, all VOC emissions shall be limited to ~~[118.66]~~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. The Annealing Oven furnaces are limited to 63.29 MMBtu/hr.
- iii. Emissions from the ~~[Annealing Oven furnaces]~~desulfurization and ductile treatment system shall be routed through the operating baghouse prior to be emitted into the atmosphere.
- iv. Emissions from the Special Lining Shotblast operations shall be routed through the operating baghouse prior to being emitted into the atmosphere.

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e. Payson City Corporation: Payson City Power

i. Emissions of NO_x shall be no greater than 1.54 ton per day and 268 tons per rolling 12-month period for all engines combined.

ii. Compliance with the emission limitation shall be determined by 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_x 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.

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f. Provo City Power: Power Plant

i. Emissions of NO_x 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:

$$\text{Emissions (tons/rolling 12-month period)} = (\text{Power production in kW-hrs/day}) \times (\text{Emission factor in grams/kW-hr}) \times (1 \text{ lb}/453.59 \text{ g}) \times (1 \text{ ton}/2000 \text{ lbs})$$

$$\text{Emissions (tons/rolling 12-month period)} = (\text{Power production in kW-hrs/rolling 12-month period}) \times (\text{Emission factor in grams/kW-hr}) \times (1 \text{ lb}/453.59 \text{ g}) \times (1 \text{ ton}/2000 \text{ lbs})$$

The emission factors for NO_x 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. NO_x 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.

1 g. Springville City Corporation: Whitehead Power Plant

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i. Emissions of NO_x 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 NO_x 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.