

Utah State Implementation Plan

Emission Limits and Operating Practices

Section IX, Part H

DRAFT

Adopted by the Air Quality Board
[December 7], 201[6]8

1 **H.1 General Requirements: Control Measures for Area and Point**
2 **Sources, Emission Limits and Operating Practices, PM₁₀ Requirements**
3

- 4 a. Except as otherwise outlined in individual conditions of this Subsection IX.H.1 listed
5 below, the terms and conditions of this Subsection IX.H.1 shall apply to all sources
6 subsequently addressed in Subsection IX.H.2 and IX.H.3. Should any inconsistencies
7 exist between these two subsections, the source specific conditions listed in IX.H.2 and
8 IX.H.3 shall take precedence.
9
- 10 b. Definitions.
11 i. The definitions contained in R307-101-2, Definitions, apply to Section IX, Part H.
12
13 ii. Natural gas curtailment means a period of time during which the supply of natural gas
14 to an affected facility is halted for reasons beyond the control of the facility. The act of
15 entering into a contractual agreement with a supplier of natural gas established for
16 curtailment purposes does not constitute a reason that is under the control of a facility
17 for the purposes of this definition. An increase in the cost or unit price of natural gas
18 does not constitute a period of natural gas curtailment.
19
- 20 c. Recordkeeping and Reporting
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22 i. Any information used to determine compliance shall be recorded for all periods when
23 the source is in operation, and such records shall be kept for a minimum of five years.
24 Any or all of these records shall be made available to the Director upon request, and
25 shall include a period of two years ending with the date of the request.
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27 ii. Each source shall comply with all applicable sections of R307-150 Emission
28 Inventories.
29
30 iii. Each source shall submit a report of any deviation from the applicable requirements of
31 this Subsection IX.H, including those attributable to upset conditions, the probable
32 cause of such deviations, and any corrective actions or preventive measures taken. The
33 report shall be submitted to the Director no later than 24-months following the
34 deviation or earlier if specified by an underlying applicable requirement. Deviations
35 due to breakdowns shall be reported according to the breakdown provisions of R307-
36 107.
37
- 38 d. Emission Limitations.
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40 i. All emission limitations listed in Subsections IX.H.2 and IX.H.3 apply at all times,
41 unless otherwise specified in the source specific conditions listed in IX.H.2 and
42 IX.H.3.
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44 ii. All emission limitations of PM₁₀ listed in Subsections IX.H.2 and IX.H.3 include both
45 filterable and condensable PM, unless otherwise specified in the source specific
46 conditions listed in IX.H.2 and IX.H.3.
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- 48 e. Stack Testing.
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50 i. As applicable, stack testing to show compliance with the emission limitations for
51 the sources in Subsection IX.H.2 and IX.H.3 shall be performed in accordance
52 with the following:

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- 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 other EPA-approved testing methods acceptable to the Director.
 - C. PM₁₀: ~~[The following methods shall be used to measure condensable particulate emissions:]~~40 CFR 51, Appendix M, Methods ~~[201 or]201a and 202~~, or other EPA approved testing methods acceptable to the Director. ~~If a method other [approved testing methods are used which cannot measure the PM10 fraction of the filterable particulate emissions, all of the filterable particulate emissions shall be considered PM10. The following methods shall be used to measure condensable particulate emissions: 40CFR 51, Appendix M, Method 202, or other EPA approved testing method, as] than 201a is used, the portion of the front half of the catch considered~~ PM₁₀ 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.
 - D. SO₂: 40 CFR 60 Appendix A, Method 6C or other EPA-approved testing methods acceptable to the Director.
 - E. NO_x: 40 CFR 60 Appendix A, Method 7E or other EPA-approved testing methods acceptable to the Director.
 - F. 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.
 - G. 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. ~~[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.]~~
 - H. 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:

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- 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 unaffected 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 (FCCU)
 - A. FCCU SO₂ Emissions
 - I. ~~[By no later than January 1, 2018, e]~~ Each owner or operator of an FCCU shall comply with an SO₂ 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, e]~~ 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) or 40 C.F.R. §60.104a(d) to measure PM emissions on the FCCU. Each owner operator shall conduct stack tests once every three (3) years at each FCCU.
 - III. ~~[By n]~~ 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 from the FCCU for determination of source-wide ~~[PM₁₀]~~ particulate emissions as per the requirements of 40 CFR 60.105a(b)(1).
 - ii. Limits on Refinery Fuel Gas.
 - A. All petroleum refineries in or affecting any PM_{2.5} nonattainment area or any PM₁₀ nonattainment or maintenance area shall reduce the H₂S 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

1 fuel gas monitoring requirements of 40 CFR 60.107a and the related recordkeeping
2 and reporting requirements of 40 CR 60.108a. As used herein, refinery “plant gas”
3 shall have the meaning of “fuel gas” as defined in 40 CFR 60.101a, and may be
4 used interchangeably.
5

6 B. For natural gas, compliance is assumed while the fuel comes from a public utility.
7

8 iii. Sulfur Removal Units
9

10 A. All petroleum refineries in or affecting any PM₁₀ nonattainment or maintenance
11 area shall require:
12

13 I. Sulfur removal units/plants (SRUs) that are at least 95% effective in
14 removing sulfur from the streams fed to the unit; or
15

16 II. SRUs that meet the SO₂ emission limitations listed in 40 CFR 60.102a(f)(1) or
17 60.102a(f)(2) as appropriate.
18

19 B. The amine acid gas and sour water stripper acid gas shall be processed in the
20 SRU(s).
21

22 C. Compliance shall be demonstrated by daily monitoring of flows to the SRU(s).
23 Continuous monitoring of SO₂ concentration in the exhaust stream shall be
24 conducted via CEM as outlined in IX.H.1.f above. Compliance shall be
25 determined on a rolling
26 30-day average.
27

28 iv. No Burning of Liquid Fuel Oil in Stationary Sources
29

30 A. No petroleum refineries in or affecting any PM nonattainment or maintenance area
31 shall be allowed to burn liquid fuel oil in stationary sources except during natural gas
32 curtailments or as specified in the individual subsections of Section IX, Part H.
33

34 B. The use of diesel fuel meeting the specifications of 40 CFR 80.510 in
35 standby or emergency equipment is exempt from the limitation of
36 IX.H.1.g.iv.A above.
37

38 v. Requirements on Hydrocarbon Flares.
39

40 A. [~~Beginning January 1, 2018, a~~]All hydrocarbon flares at petroleum refineries
41 located in or affecting a designated PM₁₀ non-attainment area [~~or maintenance~~
42 ~~area~~] within the State shall be subject to the flaring requirements of NSPS Subpart
43 Ja (40 CFR 60.100a–109a), if not already subject under the flare applicability
44 provisions of Ja.
45

46 B. [~~By~~]No later than January 1, 2019, all major source petroleum refineries in or
47 affecting a designated PM_{2.5} non-attainment area within the State shall either 1)
48 install and operate a flare gas recovery system designed to limit hydrocarbon flaring
49 produced from each affected flare during normal operations to levels below the
50 values listed in 40 CFR 60.103a(c), or 2) limit flaring during normal operations to
51 500,000 scfd for each affected flare. Flare gas recovery is not required for dedicated
52 SRU flare and header systems, or HF flare and header systems.

1 **H.2 Source Specific Emission Limitations in Salt Lake County PM₁₀**
2 **Nonattainment/Maintenance Area**
3

4 a. Big West Oil Company
5

6 i. Source-wide PM₁₀ Cap

7 ~~[By n]~~ No later than January 1, 2019, combined emissions of PM₁₀ shall not exceed 1.037
8 tons per day (tpd).
9

10 A. Setting of emission factors:
11

12 The emission factors derived from the most current performance test shall be
13 applied to the relevant quantities of fuel combusted. Unless adjusted by
14 performance testing as discussed in IX.H.2.a.i.B below, the default emission
15 factors to be used are as follows:
16

17 Natural gas:

18 Filterable PM₁₀: 1.9 lb/MMscf

19 Condensable PM₁₀: 5.7 lb/MMscf
20

21 Plant gas:

22 Filterable PM₁₀: 1.9 lb/MMscf

23 Condensable PM₁₀: 5.7 lb/MMscf
24

25 Fuel Oil: The PM₁₀ emission factor shall be determined from the latest edition of
26 AP-42
27

28 Cooling Towers: The PM₁₀ emission factor shall be determined from the
29 latest edition of AP-42
30

31 FCC Stacks: The PM₁₀ emission factor shall be established by stack test.
32

33 Where mixtures of fuel are used in a Unit, the above factors shall be
34 weighted according to the use of each fuel.
35

36 B. The default emission factors listed in IX.H.2.a.i.A above apply until such time as
37 stack testing is conducted as outlined below:
38

39 PM₁₀ stack testing on the FCC shall be performed initially no later than January
40 1, 2019 and at least once every three (3) years thereafter. Stack testing shall be
41 performed as outlined in IX.H.1.e.
42

43 C. Compliance with the source-wide PM₁₀ Cap shall be determined for each
44 day as follows:
45

46 Total 24-hour PM₁₀ emissions for the emission points shall be calculated by

1 adding the daily results of the PM₁₀ emissions equations listed below for
2 natural gas, plant gas, and fuel oil combustion. These emissions shall be added
3 to the emissions from the cooling towers, and the FCCs to arrive at a combined
4 daily PM₁₀ emission total.

5
6 For purposes of this subsection a “day” is defined as a period of 24-
7 hours commencing at midnight and ending at the following midnight.

8
9 Daily gas consumption shall be measured by meters that can delineate the
10 flow of gas to the boilers, furnaces and the SRU incinerator.

11
12 The equation used to determine emissions from these units shall be as
13 follows: Emission Factor (lb/MMscf) * Gas Consumption (MMscf/24
14 hrs)/(2,000 lb/ton)

15
16 Daily fuel oil consumption shall be monitored by means of leveling gauges
17 on all tanks that supply combustion sources.

18
19 The daily PM₁₀ emissions from the FCC shall be calculated using the following
20 equation:

21
22
$$E = FR * EF$$

23
24 Where:

25 E = Emitted PM₁₀

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

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

28
29 Results shall be tabulated for each day, and records shall be kept which include
30 the meter readings (in the appropriate units) and the calculated emissions.

31
32 ii. Source-Wide NO_x Cap

33
34 ~~[By n]~~ No later than January 1, 2019, combined emissions of NO_x shall not exceed 0.80
35 tons per day (tpd) and 195 tons per rolling 12-month period.

36
37 A. Setting of emission factors:

38
39 The emission factors derived from the most current performance test shall be
40 applied to the relevant quantities of fuel combusted. Unless adjusted by
41 performance testing as discussed in IX.H.2.a.ii.B below, the default emission
42 factors to be used are as follows:

43
44 Natural gas: shall be determined from the latest edition of AP-42

45 Plant gas: assumed equal to natural gas

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

1
2 Where mixtures of fuel are used in a Unit, the above factors shall be
3 weighted according to the use of each fuel.
4

- 5 B. The default emission factors listed in IX.H.2.a.ii.A above apply until such time as
6 stack testing is conducted as outlined below:
7

8 Initial NO_x stack testing on natural gas/refinery fuel gas combustion equipment
9 above 40 MMBtu/hr has been performed and the next stack test shall be performed
10 within 3 years of the ~~next~~ previous stack test. At that time a new flow-weighted
11 average emission factor in terms of lbs/MMBtu shall be derived for each combustion
12 type listed in IX.H.2.a.ii.A above. Stack testing shall be performed as outlined in
13 IX.H.1.e.
14

- 15 C. Compliance with the source-wide NO_x Cap shall be determined for each
16 day as follows:
17

18 Total 24-hour NO_x emissions shall be calculated by adding the emissions for each
19 emitting unit. The emissions for each emitting unit shall be calculated by
20 multiplying the hours of operation of a unit, feed rate to a unit, or quantity of each
21 fuel combusted at each affected unit by the associated emission factor, and
22 summing the results.
23

24 Daily plant gas consumption at the furnaces, boilers and SRU incinerator
25 shall be measured by flow meters. The equations used to determine emissions
26 shall be as follows:
27

28 $NO_x = \text{Emission Factor (lb/MMscf)} * \text{Gas Consumption (MMscf/24 hrs)} / (2,000$
29 $\text{lb/ton})$ Where the emission factor is derived from the fuel used, as listed in
30 IX.H.2.a.ii.A above
31

32 Daily fuel oil consumption shall be monitored by means of leveling gauges on all
33 tanks that supply combustion sources.
34

35 The daily NO_x emissions from the FCC shall be calculated using a CEM as outlined
36 in IX.H.1.f
37

38 Total daily NO_x emissions shall be calculated by adding the results of the above NO_x
39 equations for natural gas and plant gas combustion to the estimate for the FCC.
40

41 For purposes of this subsection a “day” is defined as a period of 24-hours
42 commencing at midnight and ending at the following midnight.
43

44 Results shall be tabulated for each day, and records shall be kept which include
45 the meter readings (in the appropriate units) and the calculated emissions.
46

1 iii. Source-Wide SO₂ Cap

2
3 [By n]No later than January 1, 2019, combined emissions of SO₂ shall not exceed 0.60
4 tons per day (tpd) and 140 tons per rolling 12-month period.

5
6 A. Setting of emission factors:

7
8 The emission factors derived from the most current performance test shall be
9 applied to the relevant quantities of fuel combusted. The default emission factors to
10 be used are as follows:

11
12 Natural Gas - 0.60 lb SO₂/MMscf gas

13
14 Plant Gas: The emission factor to be used in conjunction with plant gas
15 combustion shall be determined through the use of a CEM as outlined in
16 IX.H.1.f. .

17
18 SRUs: The emission rate shall be determined by multiplying the sulfur
19 dioxide concentration in the flue gas by the flow rate of the flue gas. The
20 sulfur dioxide concentration in the flue gas shall be determined by CEM as
21 outlined in IX.H.1.f.

22
23 Fuel oil: The emission factor to be used for combustion shall be calculated based on
24 the weight percent of sulfur, as determined by ASTM Method D-4294-89 or EPA-
25 approved equivalent acceptable to the Director, and the density of the fuel oil, as
26 follows:

27
28 $EF \text{ (lb SO}_2\text{/k gal)} = \text{density (lb/gal)} * (1000 \text{ gal/k gal)} * \text{wt. \% S}/100 * (64 \text{ lb SO}_2\text{/32}$
29 $\text{lb S})$

30
31 Where mixtures of fuel are used in a Unit, the above factors shall be
32 weighted according to the use of each fuel.

33
34 B. Compliance with the source-wide SO₂ Cap shall be determined for each day as
35 follows: Total daily SO₂ emissions shall be calculated by adding the daily SO₂
36 emissions for natural gas and plant fuel gas combustion, to those from the FCC and
37 SRU stacks.

38
39 The daily SO₂ emission from the FCC shall be calculated using ~~[the following~~
40 ~~equation: $SO_2 = FG * (ADV/1,000,000) * (64 \text{ lb/mole}) * (\text{operating hours/day}) /$~~
41 ~~(2000 lb/ton)]~~ a CEM as outlined in IX.H.11.f.

42 [Where:

43 FG = Flue Gas in moles/hour

44 ADV = average daily value from SO₂ CEM as outlined in IX.H.1.f]

45
46 Daily natural gas and plant gas consumption shall be determined through the

1 use of flow meters.

2
3 Daily fuel oil consumption shall be monitored by means of leveling gauges on all
4 tanks that supply combustion sources.

5
6 For purposes of this subsection a “day” is defined as a period of 24-hours
7 commencing at midnight and ending at the following midnight.

8
9 Results shall be tabulated for each day, and records shall be kept which include
10 CEM readings for H₂S (averaged for each [~~one-hour period~~]day), all meter reading
11 (in the appropriate units), fuel oil parameters (density and wt% sulfur for each day
12 any fuel oil is burned), and the calculated emissions.

13
14 iv. Emergency and Standby Equipment

15
16 A. The use of diesel fuel meeting the specifications of 40 CFR 80.510 is
17 allowed in standby or emergency equipment at all times.

18
19 v. Alternate Startup and Shutdown Requirements

20
21 A. During any day which includes startup or shutdown of the FCCU, combined
22 emissions of SO₂ shall not exceed 1.2 tons per day (tpd). For purposes of this
23 subsection, a "day" is defined as a period of 24-hours commencing at midnight and
24 ending at the following midnight.

25
26 B. The total number of days which include startup or shutdown of the FCCU shall
27 not exceed ten (10) per 12-month rolling period.

28
29 vi. Requirements on Hydrocarbon Flares

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31 A. No later than January 1, 2021, routine flaring will be limited to 300,000 scfd for
32 each affected flare from October 1 through March 31 and 500,000 scfd for each
33 affected flare for the balance of the year.

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- b. 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: 0.6 g NO_x / kW-hr
 - B. GT #2 and GT #3 (each TITAN Turbine) Exhaust Stack: 7.5 lb NO_x / hr
 - ii. Compliance to the above emission limitations shall be determined by stack test. Stack testing shall be performed as outlined in IX.H.1.e.
 - 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.

- 1 c. Central Valley Water Reclamation Facility: Wastewater Treatment Plant
2 i. NO_x emissions from the operation of all engines at the plant shall not exceed 0.648
3 tons per day.
4
5 ii. Compliance with the emission limitation shall be determined by summing the
6 emissions from all the engines. Emission from each engine shall be calculated from
7 the following equation:
8
9 Emissions (tons/day) = (Power production in kW-hrs/day) x (Emission
10 factor in grams/kW- hr) x (1 lb/453.59 g) x (1 ton/2000 lbs)
11
12 A. Stack tests shall be performed in accordance with IX.H.1.e. Each engine shall
13 be tested at least every three years from the previous test.
14
15 B. The NO_x emission factor for each engine shall be derived from the most recent
16 stack test.
17
18 C. NO_x emissions shall be calculated on a daily basis.
19
20 D. A day is equivalent to the time period from midnight to the following
21 midnight.
22
23 E. The number of kilowatt hours generated by each engine shall be determined
24 by examination of electrical meters, which shall record electricity
25 production on a continuous basis.

1 d. Chevron Products Company

2
3 i. Source-wide PM₁₀ Cap

4 [By] No later than January 1, 2019, combined emissions of PM₁₀ shall not exceed 0.715
5 tons per day (tpd).

6
7 A. Setting of emission factors:

8
9 The emission factors derived from the most current performance test shall be
10 applied to the relevant quantities of fuel combusted. Unless adjusted by
11 performance testing as discussed in IX.H.2.d.i.B below, the default emission factors
12 to be used are as follows:

13
14 Natural gas:

15 Filterable PM₁₀: 1.9 lb/MMscf

16 Condensable PM₁₀: 5.7 lb/MMscf

17
18 Plant gas:

19 Filterable PM₁₀: 1.9 lb/MMscf

20 Condensable PM₁₀: 5.7 lb/MMscf

21
22 HF alkylation polymer: shall be determined from the latest edition of AP-42 (HF
23 alkylation polymer treated as fuel oil #6)

24
25 Diesel fuel: shall be determined from the latest edition of AP-42

26
27 Cooling Towers: shall be determined from the latest edition of AP-42

28
29 FCC Stack:

30 The PM₁₀ emission factors shall be based on the most recent stack test and verified
31 by parametric monitoring as outlined in IX.H.1.g.i.B.III

32
33 Where mixtures of fuel are used in a Unit, the above factors shall be
34 weighted according to the use of each fuel.

35
36 B. The default emission factors listed in IX.H.2.d.i.A above apply until such time as
37 stack testing is conducted as outlined below:

38
39 Initial PM₁₀ stack testing on the FCC stack has been performed and shall be
40 conducted at least once every three (3) years from the date of the last stack test.
41 Stack testing shall be performed as outlined in IX.H.1.e.

42
43 C. Compliance with the source-wide PM₁₀ Cap shall be determined for each
44 day as follows:

45
46 Total 24-hour PM₁₀ emissions for the emission points shall be calculated by adding

1 the daily results of the PM₁₀ emissions equations listed below for natural gas, plant
2 gas, and fuel oil combustion. These emissions shall be added to the emissions
3 from the cooling towers, and the FCC to arrive at a combined daily PM₁₀ emission
4 total. For purposes of this subsection a “day” is defined as a period of 24-hours
5 commencing at midnight and ending at the following midnight.

6
7 Daily natural gas and plant gas consumption shall be determined through the
8 use of flow meters.

9
10 Daily fuel oil consumption shall be monitored by means of leveling gauges on all
11 tanks that supply combustion sources.

12
13 The equation used to determine emissions for the boilers and furnaces shall
14 be as follows:

15 Emission Factor (lb/MMscf) * Gas Consumption (MMscf/24 hrs)/(2,000
16 lb/ton) Results shall be tabulated for each day, and records shall be kept which
17 include the meter readings (in the appropriate units) and the calculated
18 emissions.

19
20 ii. Source-wide NO_x Cap

21 ~~[By]~~ No later than January 1, 2019, combined emissions of NO_x shall not exceed 2.1 tons
22 per day (tpd) and 766.5 tons per rolling 12-month period.

23
24 A. Setting of emission factors:

25
26 The emission factors derived from the most current performance test shall be applied to
27 the relevant quantities of fuel combusted. Unless adjusted by performance testing as
28 discussed in IX.H.2.d.ii.B below, the default emission factors to be used are as follows:

29
30 Natural gas: shall be determined from the latest edition of AP-42 Plant gas: assumed
31 equal to natural gas

32
33 Alkylation polymer: shall be determined from the latest edition of AP-42 (as fuel oil
34 #6)

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

36
37 Where mixtures of fuel are used in a Unit, the above factors shall be weighted
38 according to the use of each fuel.

39
40 B. The default emission factors listed in IX.H.2.d.ii.A above apply until such time as stack
41 testing is conducted as outlined below:

42
43 Initial NO_x stack testing on natural gas/refinery fuel gas combustion equipment above
44 100 MMBtu/hr has been performed and shall be conducted at least once every three (3)
45 years from the date of the ~~last~~ previous stack test. At that time a new flow-weighted
46 average emission factor in terms of: lbs/MMbtu shall be derived for each combustion

1 type listed in IX.H.2.d.ii.A above. Stack testing shall be performed as outlined in
2 IX.H.1.e.

3
4 C. Compliance with the source-wide NO_x Cap shall be determined for each day as
5 follows:

6
7 Total 24-hour NO_x emissions shall be calculated by adding the emissions for each
8 emitting unit. The emissions for each emitting unit shall be calculated by multiplying
9 the hours of operation of a unit, feed rate to a unit, or quantity of each fuel combusted
10 at each affected unit by the associated emission factor, and summing the results.

11
12 A NO_x CEM shall be used to calculate daily NO_x emissions from the FCC. Emissions
13 shall be determined by multiplying the nitrogen dioxide concentration in the flue gas by
14 the flow rate of the flue gas. The NO_x concentration in the flue gas shall be determined
15 by a CEM as outlined in IX.H.1.f.

16
17 For purposes of this subsection a “day” is defined as a period of 24-hours commencing
18 at midnight and ending at the following midnight.

19
20 Daily natural gas and plant gas consumption shall be determined through the use of
21 flow meters.

22
23 Daily fuel oil consumption shall be monitored by means of leveling gauges on all tanks
24 that supply combustion sources.

25
26 Results shall be tabulated for each day, and records shall be kept which include the
27 meter readings (in the appropriate units) and the calculated emissions.

28
29 iii. Source-wide SO₂ Cap

30 ~~[By n]~~ No later than January 1, 2019, combined emissions of SO₂ shall not exceed 1.05 tons
31 per day (tpd) and 383.3 tons per rolling 12-month period.

32
33 A Setting of emission factors:

34
35 The emission factors derived from the most current performance test shall be applied to
36 the relevant quantities of fuel combusted. The default emission factors to be used are as
37 follows:

38
39 FCC: The emission rate shall be determined by the FCC SO₂ CEM as outlined in
40 IX.H.1.f.

41
42 SRUs: The emission rate shall be determined by multiplying the sulfur dioxide
43 concentration in the flue gas by the flow rate of the flue gas. The sulfur dioxide
44 concentration in the flue gas shall be determined by CEM as outlined in IX.H.1.f.

45
46 Natural gas: EF = 0.60 lb/MMscf

1
2 Fuel oil & HF Alkylation polymer: The emission factor to be used for combustion shall
3 be calculated based on the weight percent of sulfur, as determined by ASTM Method D-
4 4294-89 or EPA-approved equivalent acceptable to the Director, and the density of the
5 fuel oil, as follows:

6
7
$$\text{EF (lb SO}_2\text{/k gal)} = \text{density (lb/gal)} * (1000 \text{ gal/k gal}) * \text{wt.\% S}/100 * (64 \text{ lb SO}_2\text{/32 lb S)}$$

8
9 Plant gas: the emission factor shall be calculated from the H₂S measurement obtained
10 from the H₂S CEM.

11
12 Where mixtures of fuel are used in a Unit, the above factors shall be weighted
13 according to the use of each fuel.

14
15 B. Compliance with the source-wide SO₂ Cap shall be determined for each day as follows:

16
17 Total daily SO₂ emissions shall be calculated by adding the daily SO₂ emissions for
18 natural gas and plant fuel gas combustion, to those from the FCC and SRU stacks.

19
20 Daily natural gas and plant gas consumption shall be determined through the use of
21 flow meters.

22
23 Daily fuel oil consumption shall be monitored by means of leveling gauges on all tanks
24 that supply combustion sources.

25
26 Results shall be tabulated for each day, and records shall be kept which include CEM
27 readings for H₂S (averaged for each one-hour period), all meter reading (in the
28 appropriate units), fuel oil parameters (density and wt% sulfur for each day any fuel oil
29 is burned), and the calculated emissions.

30
31 iv. Emergency and Standby Equipment and Alternative Fuels

32
33 A. The use of diesel fuel meeting the specifications of 40 CFR 80.510 is allowed
34 in standby or emergency equipment at all times.

35
36 B. HF alkylation polymer may be burned in the Alky Furnace (F-
37 36017).

38
39 C. Plant coke may be burned in the FCC Catalyst Regenerator.

40
41 v. Compressor Engine Requirements

42
43 A. Emissions of NO_x from each rich-burn compressor engine shall not exceed the
44 following:

<u>Engine Number</u>	<u>NO_x in ppmvd @ 0% O₂</u>
<u>1</u>	<u>236</u>
<u>2</u>	<u>208</u>
<u>3</u>	<u>230</u>

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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.

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e. Hexcel Corporation: Salt Lake Operations

- 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.
- ii. After a shutdown and prior to startup of fiber lines 13, 14, 15, or 16, the line's baghouse(s) 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.

1 f. Holly Refining and Marketing Company

2
3 i. Source-wide PM₁₀ Cap

4 [By] No later than January 1, 2019, PM₁₀ emissions from all sources shall not exceed 0.416
5 tons per day (tpd).

6
7 A. Setting of emission factors:

8
9 The emission factors derived from the most current performance test shall be
10 applied to the relevant quantities of fuel combusted. Unless adjusted by
11 performance testing as discussed in IX.H.2.g.i.B below, the default emission factors
12 to be used are as follows:

13
14 Natural gas or Plant gas:

15 non-NSPS combustion equipment: 7.65 lb PM₁₀/MMscf

16 NSPS combustion equipment: 0.52 lb PM₁₀/MMscf

17
18 Fuel oil:

19 The filterable PM₁₀ emission factor for fuel oil combustion shall be determined
20 based on the sulfur content of the oil as follows:

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

23
24 The condensable PM₁₀ emission factor for fuel oil combustion shall be
25 determined from the latest edition of AP-42.

26
27 Cooling Towers: The PM₁₀ emission factor shall be determined from the latest
28 edition of AP-42.

29
30 FCC Wet Scrubbers:

31 The PM₁₀ emission factors shall be based on the most recent stack test and
32 verified by parametric monitoring as outlined in IX.H.1.g.i.B.III

33
34 B. The default emission factors listed in IX.H.2.[g]f.i.A above apply until such time as
35 stack testing is conducted as outlined below:

36
37 Initial stack testing on all NSPS combustion equipment shall be conducted no later
38 than January 1, 2019 and at least once every three (3) years thereafter. At that time
39 a new flow-weighted average emission factor in terms of: lb PM₁₀/MMBtu shall be
40 derived. Stack testing shall be performed as outlined in IX.H.1.e.

41
42 C. Compliance with the source-wide PM₁₀ Cap shall be determined for each
43 day as follows:

44
45 Total 24-hour PM₁₀ emissions for the emission points shall be calculated by adding
46 the daily results of the PM₁₀ emissions equations listed below for natural gas, plant

1 gas, and fuel oil combustion. These emissions shall be added to the emissions
2 from the cooling towers and wet scrubbers to arrive at a combined daily PM₁₀
3 emission total.

4
5 For purposes of this subsection a “day” is defined as a period of 24-hours
6 commencing at midnight and ending at the following midnight.

7
8 Daily natural gas and plant gas consumption shall be determined through the
9 use of flow meters on all gas-fueled combustion equipment.

10
11 Daily fuel oil consumption shall be monitored by means of leveling gauges on all
12 tanks that supply fuel oil to combustion sources.

13
14 The equations used to determine emissions for the boilers and furnaces shall
15 be as follows:

16
17 Emissions (tons/day) = Emission Factor (lb/MMscf) * Natural/Plant Gas
18 Consumption
19 (MMscf/day)/(2,000 lb/ton)

20
21 Emissions (tons/day) = Emission Factor (lb/kgal) * Fuel Oil Consumption
22 (kgal/day)/(2,000 lb/ton)

23
24 Results shall be tabulated for each day, and records shall be kept which
25 include all meter readings (in the appropriate units), and the calculated
26 emissions.

27
28 ii. Source-wide NO_x Cap

29 [By 11] No later than January 1, 2019, NO_x emissions into the atmosphere from all
30 emission points shall not exceed 347.1 tons per rolling 12-month period and 2.09 tons per
31 day (tpd).

32
33 A. Setting of emission factors:

34
35 The emission factors derived from the most current performance test shall be
36 applied to the relevant quantities of fuel combusted. Unless adjusted by
37 performance testing as discussed in IX.H.2.g.ii.B below, the default emission
38 factors to be used are as follows:

39
40 Natural gas/refinery fuel gas combustion using:

41 Low NO_x burners (LNB): 41 lbs/MMscf

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

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

44 Selective catalytic reduction (SCR): 0.02 lbs/MMbtu

45 All other combustion burners: 100 lb/MMscf

1 Where:

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

4
5 All fuel oil combustion: 120 lbs/Kgal

6
7 B. The default emission factors listed in IX.H.2.f.ii.A above apply until such time as
8 stack testing is conducted as outlined in IX.H.1.e or by NSPS.

9
10 C. Compliance with the Source-wide NO_x Cap shall be determined for each
11 day as follows:

12
13 Total daily NO_x emissions for emission points shall be calculated by adding the
14 results of the NO_x equations for plant gas, fuel oil, and natural gas combustion
15 listed below. For purposes of this subsection a "day" is defined as a period of 24-
16 hours commencing at midnight and ending at the following midnight.

17
18 Daily natural gas and plant gas consumption shall be determined through the
19 use of flow meters.

20
21 Daily fuel oil consumption shall be monitored by means of leveling gauges on all
22 tanks that supply combustion sources.

23
24 The equations used to determine emissions for the boilers and furnaces shall
25 be as follows:

26
27 Emissions (tons/day) = Emission Factor (lb/MMscf) * Natural Gas Consumption
28 (MMscf/day)/(2,000 lb/ton)

29
30 Emissions (tons/day) = Emission Factor (lb/MMscf) * Plant Gas Consumption
31 (MMscf/day)/(2,000 lb/ton)

32
33 Emissions (tons/day) = Emission Factor (lb/MMBTU) * Burner Heat Rating
34 (BTU/hr) * 24 hours per day / (2,000 lb/ton)

35
36 Emissions (tons/day) = Emission Factor (lb/kgal) * Fuel Oil Consumption
37 (kgal/day)/(2,000 lb/ton)

38
39 Results shall be tabulated for each day; and records shall be kept which include
40 the meter readings (in the appropriate units), emission factors, and the
41 calculated emissions.

42
43 iii. Source-wide SO₂ Cap

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

1
2 A. Setting of emission factors:

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

5
6 Natural gas - 0.60 lb SO₂/MMscf

7
8 Plant gas - The emission factor to be used in conjunction with plant gas
9 combustion shall be determined through the use of a CEM which will measure
10 the H₂S content of the fuel gas. The CEM shall operate as outlined in IX.H.1.f.

11
12 Fuel oil - The emission factor to be used in conjunction with fuel oil combustion
13 shall be calculated based on the weight percent of sulfur, as determined by
14 ASTM Method D-4294-89 or EPA-approved equivalent, and the density of the
15 fuel oil, as follows:

16
17
$$(\text{lb of SO}_2/\text{kgal}) = (\text{density lb/gal}) * (1000 \text{ gal/kgal}) * (\text{wt. \%S})/100 * (64 \text{ g SO}_2/32$$

18
$$\text{g S})$$

19
20 The weight percent sulfur and the fuel oil density shall be recorded for each day
21 any fuel oil is combusted.

22
23 B. Compliance with the Source-wide SO₂ Cap shall be determined for each
24 day as follows:

25
26 Total daily SO₂ emissions shall be calculated by adding daily results of the SO₂
27 emissions equations listed below for natural gas, plant gas, and fuel oil combustion.
28 For purposes of this subsection a “day” is defined as a period of 24-hours
29 commencing at midnight and ending at the following midnight.

30
31 The equations used to determine emissions are:

32
33
$$\text{Emissions (tons/day)} = \text{Emission Factor (lb/MMscf)} * \text{Natural Gas Consumption}$$

34
$$(\text{MMscf/day})/(2,000 \text{ lb/ton})$$

35
36
$$\text{Emissions (tons/day)} = \text{Emission Factor (lb/MMscf)} * \text{Plant Gas Consumption}$$

37
$$(\text{MMscf/day})/(2,000 \text{ lb/ton})$$

38
39
$$\text{Emissions (tons/day)} = \text{Emission Factor (lb/kgal)} * \text{Fuel Oil Consumption}$$

40
$$(\text{kgal/24 hrs})/(2,000 \text{ lb/ton})$$

41
42 For purposes of these equations, fuel consumption shall be measured as outlined
43 below:

44
45 Daily natural gas and plant gas consumption shall be determined through the use of
46 flow meters.

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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.

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.

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1 g. Kennecott Utah Copper (KUC): Mine

2 i. Bingham Canyon Mine (BCM)

- 3
4 A. Maximum total mileage per calendar day for ore and waste haul trucks shall not exceed
5 30,000 miles.

6
7 KUC shall keep records of daily total mileage for all periods when the mine is in
8 operation. KUC shall track haul truck miles with a Global Positioning System or
9 equivalent. The system shall use real time tracking to determine daily mileage.

- 10
11 B. To minimize fugitive dust on roads at the mine, the owner/operator shall
12 perform the following measures:

13
14 I. Apply water to all active haul roads as weather and operational conditions warrant
15 except during precipitation or freezing weather conditions, and shall apply a
16 chemical dust suppressant to active haul roads located outside of the pit influence
17 boundary no less than twice per year.

18
19 II. Chemical dust suppressant shall be applied as weather and operational conditions
20 warrant except during precipitation or free zing weather conditions on unpaved
21 access roads that receive haul truck traffic and light vehicle traffic.

22
23 III. Records of water and/or chemical dust control treatment shall be kept for all
24 periods when the BCM is in operation.

25
26 IV. KUC is subject to the requirements in the most recent federally approved Fugitive
27 Emissions and Fugitive Dust rules.

- 28
29 C. To minimize emissions at the mine, the owner/operator shall:

30
31 I. Control emissions from the in-pit crusher with a
32 baghouse.

- 33
34 D. Implementation Schedule

35
36 KUC shall purchase new haul trucks with the highest engine Tier level available which
37 meet mining needs. KUC shall maintain records of haul trucks purchased and retired
38

39 ii. Copperton Concentrator (CC)

- 40
41 A. Control emissions from the Product Molybdenite Dryers with a scrubber during
42 operation of the dryers.

43
44 During operation of the dryers, the static pressure differential between the inlet and
45 outlet of the scrubber shall be within the manufacturer's recommended range and shall
46 be recorded weekly.

47
48 The manometer or the differential pressure gauge shall be calibrated according to the
49 manufacturer's instructions at least once per year.

1 h. Kennecott Utah Copper (KUC): Power Plant and Tailings Impoundment

2 i. Utah Power Plant

3 A. Boilers #1, #2, and #3 shall cease operations permanently upon commencing
4 operations of Unit #5 (combined-cycle, natural gas-fired combustion turbine).

5 B. Unit #5 shall not exceed the following emission rates to the atmosphere:

6 Pollutant	lb/hr	lb/event	ppmdv (15% O ₂ dry)
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7
8
9 I. PM₁₀ with duct firing:
10 Filterable + condensable 18.8

11
12 II. NO_x: 2.0
13 Startup/shutdown 395

14
15 III. Startup / Shutdown Limitations:

16
17 1. The total number of startups and shutdowns together shall not exceed 690
18 per calendar year.

19
20 2. The NO_x emissions shall not exceed 395 lbs from each startup/shutdown
21 event, which shall be determined using manufacturer data.

22
23 3. Definitions:

24
25 (i) Startup cycle duration ends when the unit achieves half of the
26 design electrical generation capacity.

27
28 (ii) Shutdown duration cycle begins with the initiation of turbine
29 shutdown sequence and ends when fuel flow to the gas turbine is
30 discontinued.

31
32 C. Upon commencement of operation of Unit #5*, stack testing to demonstrate
33 compliance with the emission limitations in IX.H.2.h.i.B shall be performed as
34 follows for the following air contaminants

35
36 * Initial compliance testing for the natural gas turbine and duct burner is required.
37 The initial test date shall be performed within 60 days after achieving the
38 maximum heat input capacity production rate at which the affected facility will be
39 operated and in no case later than 180 days after the initial startup of a new
40 emission source.

41
42 The limited use of natural gas during maintenance firings and break-in firings does
43 not constitute operation and does not require stack testing.

44 Pollutant	Test Frequency
--------------	----------------

45
46 I. PM₁₀ every year
47
48

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

5 I. During the period from November 1, to the last day in February inclusive, only
6 natural gas shall only be used as a fuel, unless the supplier or transporter of
7 natural gas imposes a curtailment. The power plant may then burn coal, only
8 for the duration of the curtailment plus sufficient time to empty the coal bins
9 following the curtailment. The Director shall be notified of the curtailment
10 within 48 hours of when it begins and within 48 hours of when it ends.
11

12 II. When burning natural gas the emissions to the atmosphere from the
13 indicated emission point shall not exceed the following rates and
14 concentrations:
15

Pollutant 68°F, 29.92 in. Hg	grains/dscf	ppmdv (3% O ₂)
1. PM ₁₀ Units #1, #2, #3 and #4		
filterable	0.004	
filterable + condensable	0.03	
2. NO _x : Units #1, #2 and #3 (each)		336
3. NO _x Unit #4 (Unit 4 after January 1, 2018)		336 60

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32 III. When using coal as a fuel during a curtailment of the natural gas supply,
33 emissions to the atmosphere from the indicated emission point shall not exceed
34 the following rates and concentrations:
35

Pollutant 68°F, 29.92 in Hg	grains/dscf	ppmdv (3% O ₂)
1. Units #1, #2 and #3 (i) PM ₁₀		
filterable	0.029	
filterable + condensable	0.29	
(ii) NO _x Units 1, 2 & 3		426.5
2. Unit #4 (i) PM ₁₀		
filterable	0.029	
filterable +		

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condensable 0.29

(ii) NO_x 384

IV. If the units operated during the months specified above, stack testing to show compliance with the emission limitations in H.2.h.i.D.II and III shall be performed as follows for the following air contaminants:

Pollutant	Test Frequency	Initial Test
1. PM ₁₀	every year	#
2. NO _x	every year	#

Initial compliance testing is required for Unit #4 after low NO_x 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 limited use of natural gas during maintenance firings and break-in firings does not constitute operation and does not require stack testing.

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:

Pollutant	grains/dscf	ppmdv (3% O ₂)
68 ⁰ F, 29.92 in Hg		
1. Units #1, #2, and #3		
(i) PM ₁₀ filterable	0.029	
(ii) filterable + condensable	0.29	
(iii) NO _x Units #1, #2, and #3		426.5
2. Unit #4		
(i) PM ₁₀ filterable	0.029	
(ii) NO _x		384

II. If the units operated during the months specified above, stack testing to show compliance with the emission limitations in H.2.h.i.E.I shall be performed as follows for the following air contaminants:

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Pollutant	Test Frequency
1. PM ₁₀	every year
2. NO _x	every year

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. Tailings Impoundment

- A. No more than 50 contiguous acres or more than 5% of the total tailings area shall be permitted to have the potential for wind erosion.
 - I. Wind erosion potential is the area that is not wet, frozen, vegetated, crusted, or treated and has the potential for wind erosion.
 - II. KUC shall conduct wind erosion potential grid inspections monthly between February 15 and November 15. The results of the inspections shall be used to determine wind erosion potential.
 - III. If KUC or the Director of Utah Division of Air Quality (Director) determines that the percentage of wind erosion potential is exceeded, KUC shall meet with the Director, to discuss additional or modified fugitive dust controls/operational practices, and an implementation schedule for such, within five working days following verbal notification by either party.
- B. If between February 15 and November 15 KUC's daily weather forecast using surrounding area meteorological data is for a wind event (a wind event is defined as wind gusts exceeding 25 mph for more than one hour) the procedures listed below shall be followed within 48 hours of issuance of the forecast. KUC shall:
 - I. Alert the Utah Division of Air Quality promptly.
 - II. Continue surveillance and coordination of appropriate measures.
- C. KUC is subject to the requirements of the most recent federally approved Fugitive Emissions and Fugitive Dust rules.

1 Kennecott Utah Copper (KUC): Smelter & Refinery

2 i. Smelter

3
4 A Emissions to the atmosphere from the indicated emission points shall not exceed
5 the following rates and concentrations:

6
7 I. Main Stack (Stack No. 11)

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1. PM₁₀
 - a. 89.5 lbs/hr (filterable)
 - b. 439 lbs/hr (filterable + condensable)
 2. SO₂
 - a. 552 lbs/hr (3 hr. rolling average)
 - b. 422 lbs/hr (daily average)
 3. NO_x
 - a. 154 lbs/hr (daily average)

II. Holman Boiler

1. NO_x
 - a. 14.0 lbs/hr (calendar -day average)

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

Emission Point	Pollutant	Test Frequency
I. Main Stack (Stack No. 11)	PM ₁₀	every year
	SO ₂	CEM
	NO _x	CEM
II. Holman Boiler	NO _x	every three years & alternate method according to applicable NSPS standards

C. 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.

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ii. Refinery:

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

Emission Point	Pollutant	Maximum Emission Rate
The sum of two (Tankhouse) Boilers	NO _x	9.5 lbs/hr
Combined Heat Plant	NO _x	5.96 lbs/hr

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

Emission Point	Pollutant	Testing Frequency
Tankhouse Boilers	NO _x	every three years*
Combined Heat Plant	NO _x	every year

*Stack testing shall be performed on boilers that have operated at least 300 hours during a three-year period.

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.

iii. Molybdenum Autoclave Project (MAP):

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

Emission Point	Pollutant	Maximum Emission Rate
Combined Heat Plant	NO _x	5.01 lbs/hr

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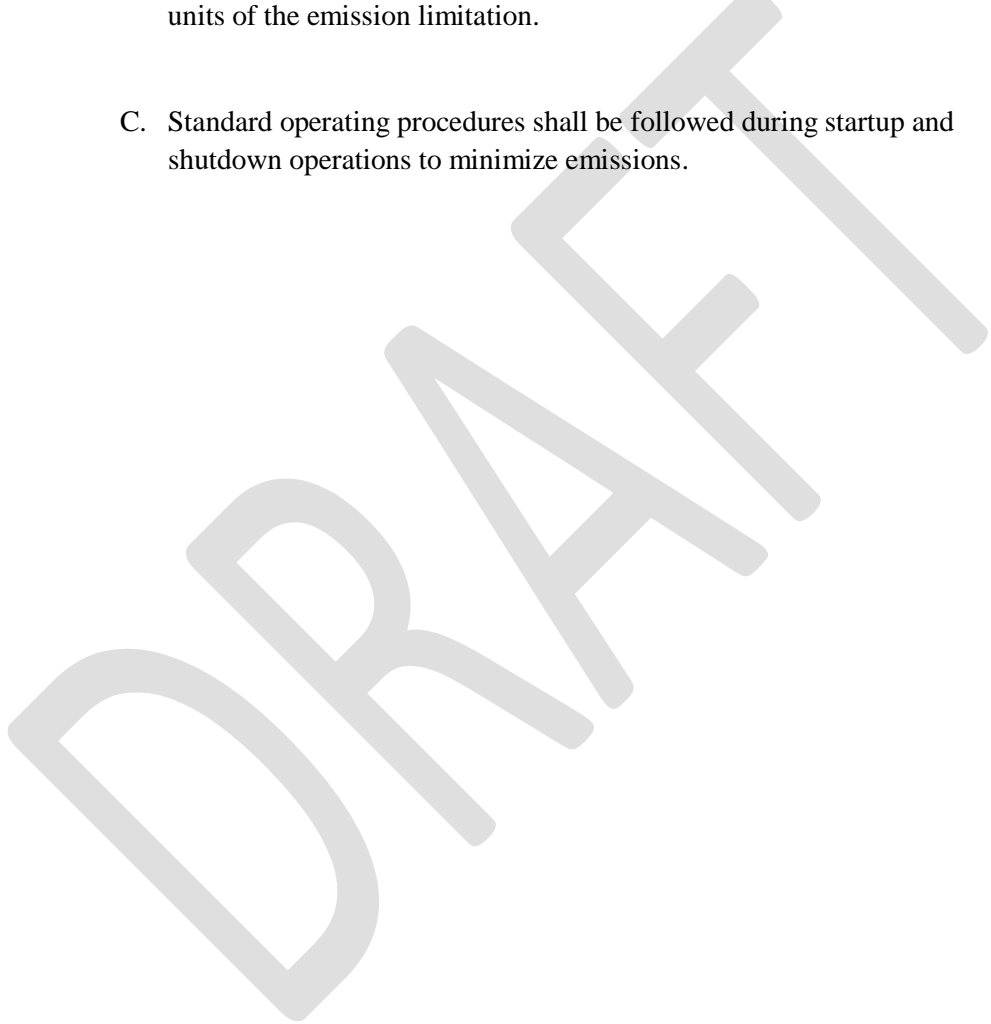
B. Stack testing to show compliance with the above emission limitations shall be performed as follows:

Emission Point	Pollutant	Testing Frequency
Combined Heat Plant	NO _x	every year

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14

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.



1 j. PacifiCorp Energy: Gadsby Power Plant

2
3 i. Steam Generating Unit #1:

4 A. Emissions of NO_x shall be no greater than 179 lbs/hr on a three (3) hour block
5 average basis.

6
7 B. The owner/operator shall install, certify, maintain, operate, and quality-assure a
8 CEM consisting of NO_x and O₂ monitors to determine compliance with the NO_x
9 limitation. The CEM shall operate as outlined in IX.H.1.f.

10
11 ii. Steam Generating Unit #2:

12 A. Emissions of NO_x shall be no greater than 204 lbs/hr on a three (3) hour block
13 average basis.

14
15 B. The owner/operator shall install, certify, maintain, operate, and quality-assure a
16 continuous emission monitoring system (CEMS) consisting of NO_x and O₂
17 monitors to determine compliance with the NO_x limitation.

18
19 iii. Steam Generating Unit #3:

20 A. Emissions of NO_x shall be no greater than

21 I. 142 lbs/hr on a three (3) hour block average basis, applicable between November
22 1 and February 28/29

23 II. 203 lbs/hr on a three (3) hour block average basis, applicable between March 1
24 and October 31

25
26 B. The owner/operator shall install, certify, maintain, operate, and quality-assure a
27 CEM consisting of NO_x and O₂ monitors to determine compliance with the NO_x
28 limitation. The CEM shall operate as outlined in IX.H.1.f.

29
30 iv. Steam Generating Units #1-3:

31
32 A. The owner/operator shall use only natural gas as a primary fuel and No. 2 fuel
33 oil or better as back-up fuel in the boilers. The No. 2 fuel oil may be used only
34 during periods of natural gas curtailment and for maintenance firings.
35 Maintenance firings shall not exceed one-percent of the annual plant Btu
36 requirement. In addition, maintenance firings shall be scheduled between April
37 1 and November 30 of any calendar year. Records of fuel oil use shall be kept
38 and they shall show the date the fuel oil was fired, the duration in hours the fuel
39 oil was fired, the amount of fuel oil consumed during each curtailment, and the
40 reason for each firing.

41
42 v. Natural Gas-fired Simple Cycle Turbine Units:

43 A. Total emissions of NO_x from all three turbines shall be no greater than 600 lbs/day.
44 For purposes of this subsection a “day” is defined as a period of 24-hours
45 commencing at midnight and ending at the following midnight.

1 B. The owner/operator shall install, certify, maintain, operate, and quality-assure a
2 CEM consisting of NO_x and O₂ monitors to determine compliance with the NO_x
3 limitation. The CEM shall operate as outlined in IX.H.1.f.
4

5 vi. Combustion Turbine Startup / Shutdown Emission Minimization Plan
6

7 A. Startup begins when the fuel valves open and natural gas is supplied to the
8 combustion turbines
9

10 B. Startup ends when either of the following conditions is met:
11

12 I. The NO_x water injection pump is operational, the dilution air temperature is
13 greater than 600°F, the stack inlet temperature reaches 570°F, the ammonia
14 block valve has opened and ammonia is being injected into the SCR and the
15 unit has reached an output of ten (10) gross MW; or
16

17 II. The unit has been in startup for two (2) hours.
18

19 C. Unit shutdown begins when the unit load or output is reduced below ten (10) gross
20 MW with the intent of removing the unit from service.
21

22 D. Shutdown ends at the cessation of fuel input to the turbine combustor.
23

24 E. Periods of startup or shutdown shall not exceed two (2) hours per combustion
25 turbine per day.
26

27 F. Turbine output (turbine load) shall be monitored and recorded on an hourly basis
28 with an electrical meter.

1 k. Tesoro Refining & Marketing Company

2
3 i. Source-wide PM₁₀ Cap

4 [By] No later than January 1, 2019, combined emissions of PM₁₀ shall not exceed 2.25
5 tons per day (tpd).

6
7 A. Setting of emission factors:

8
9 The emission factors derived from the most current performance test shall be
10 applied to the relevant quantities of fuel combusted. Unless adjusted by
11 performance testing as discussed in IX.H.2.k.i.B below, the default emission factors
12 to be used are as follows:

13
14 Natural gas:

15 Filterable PM₁₀: 1.9 lb/MMscf

16 Condensable PM₁₀: 5.7 lb/MMscf

17
18 Plant gas:

19 Filterable PM₁₀: 1.9 lb/MMscf

20 Condensable PM₁₀: 5.7 lb/MMscf

21
22 Fuel Oil: The PM₁₀ emission factor shall be determined from the latest edition of
23 AP-42

24
25 Cooling Towers: The PM₁₀ emission factor shall be determined from the latest
26 edition of AP-42

27
28 FCC Wet Scrubber:

29 The PM₁₀ emission factors shall be based on the most recent stack test and
30 verified by parametric monitoring as outlined in IX.H.1.g.i.B.III

31
32 Where mixtures of fuel are used in a Unit, the above factors shall be
33 weighted according to the use of each fuel.

34
35 B. The default emission factors listed in IX.H.2.k.i.A above apply until such time as
36 stack testing is conducted as outlined below:

37
38 Initial PM₁₀ stack testing on the FCC wet gas scrubber stack shall be conducted no
39 later than January 1, 2019 and at least once every three (3) years thereafter. Stack
40 testing shall be performed as outlined in IX.H.1.e.

41
42 C. Compliance with the Source-wide PM₁₀ Cap shall be determined for each
43 day as follows:

44
45 Total 24-hour PM₁₀ emissions for the emission points shall be calculated by adding
46 the daily results of the PM₁₀ emissions equations listed below for natural gas, plant

1 gas, and fuel oil combustion. These emissions shall be added to the emissions
2 from the cooling towers and wet scrubber to arrive at a combined daily PM₁₀
3 emission total. For purposes of this subsection a “day” is defined as a period of 24-
4 hours commencing at midnight and ending at the following midnight.

5
6 Daily natural gas and plant gas consumption shall be determined through the
7 use of flow meters.

8
9 Daily fuel oil consumption shall be monitored by means of leveling gauges on all
10 tanks that supply combustion sources.

11
12 The equation used to determine emissions for the boilers and furnaces shall
13 be as follows:

14 Emission Factor (lb/MMscf) * Gas Consumption (MMscf/24 hrs)/(2,000
15 lb/ton) Results shall be tabulated for each day, and records shall be kept which
16 include the meter readings (in the appropriate units) and the calculated
17 emissions.

18
19 ii. Source-wide NO_x Cap

20 ~~[By n]~~ No later than January 1, 2019, combined emissions of NO_x shall not exceed
21 ~~[1,988]~~ 2.3 tons per day (tpd) and 475 tons per rolling 12-month period.

22
23 A. Setting of emission factors:

24
25 The emission factors derived from the most current performance test shall be
26 applied to the relevant quantities of fuel combusted. Unless adjusted by
27 performance testing as discussed in IX.H.2.k.ii.B below, the default emission
28 factors to be used are as follows:

29
30 Natural gas/refinery fuel gas combustion using: Low NO_x burners (LNB): ~~[41-~~
31 ~~lbs/MMbtu]~~ 0.051 lbs/MMbtu

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

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

34
35 B. The default emission factors listed in IX.H.2.k.ii.A above apply until such time as
36 stack testing is conducted as outlined below:

37
38 Initial NO_x stack testing on natural gas/refinery fuel gas combustion equipment
39 above 100 MMBtu/hr has already been performed and shall be conducted at least
40 once every three (3) years following the date of the last test. At that time a new flow-
41 weighted average emission factor in terms of: lbs/MMbtu shall be derived for each
42 combustion type listed in IX.H.2.k.ii.A above. Stack testing shall be performed as
43 outlined in IX.H.1.e. Stack testing is not required for natural gas/refinery fuel gas
44 combustion equipment with a NO_x CEMS.

45
46 C. Compliance with the source-wide NO_x Cap shall be determined for each

1 day as follows:

2
3 Total 24-hour NO_x emissions shall be calculated by adding the emissions for each
4 emitting unit. The emissions for each emitting unit shall be calculated by
5 multiplying the hours of operation of a unit, feed rate to a unit, or quantity of each
6 fuel combusted at each affected unit by the associated emission factor, and
7 summing the results.

8
9 A NO_x CEM shall be used to calculate daily NO_x emissions from the FCCU wet
10 gas scrubber stack. Emissions shall be determined by multiplying the nitrogen
11 dioxide concentration in the flue gas by the flow rate of the flue gas. The NO_x
12 concentration in the flue gas shall be determined by a CEM as outlined in IX.H.1.f.

13
14 Daily natural gas and plant gas consumption shall be determined through the
15 use of flow meters.

16
17 Daily fuel oil consumption shall be monitored by means of leveling gauges on all
18 tanks that supply combustion sources.

19
20 For purposes of this subsection a “day” is defined as a period of 24-hours
21 commencing at midnight and ending at the following midnight.

22
23 Results shall be tabulated for each day, and records shall be kept which include
24 the meter readings (in the appropriate units) and the calculated emissions.

25
26 iii. Source-wide SO₂ Cap

27 [~~By n~~] No later than January 1, 2019, combined emissions of SO₂ shall not exceed 3.[±]8
28 tons per day (tpd) and 300 tons per rolling 12-month period.

29
30 A. Setting of emission factors:

31
32 The emission factors derived from the most current performance test shall be
33 applied to the relevant quantities of fuel combusted. The default emission factors to
34 be used are as follows:

35
36 Natural gas: EF = 0.60 lb/MMscf

37 Propane: EF = 0.60 lb/MMscf

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

39
40 Plant fuel gas: the emission factor shall be calculated from the H₂S
41 measurement or from the SO₂ measurement obtained by direct
42 testing/monitoring.

43
44 Where mixtures of fuel are used in a unit, the above factors shall be weighted
45 according to the use of each fuel.

1 B. Compliance with the source-wide SO₂ Cap shall be determined for each day as
2 follows: Total daily SO₂ emissions shall be calculated by adding the daily SO₂
3 emissions for natural gas, plant fuel gas, and propane combustion to those from the
4 wet gas scrubber stack.

5
6 Daily SO₂ emissions from the FCCU wet gas scrubber stack shall be determined
7 by multiplying the SO₂ concentration in the flue gas by the flow rate of the flue
8 gas. The SO₂ concentration in the flue gas shall be determined by a CEM as
9 outlined in IX.H.1.f.

10
11 SRUs: The emission rate shall be determined by multiplying the sulfur dioxide
12 concentration in the flue gas by the flow rate of the flue gas. The sulfur dioxide
13 concentration in the flue gas shall be determined by CEM as outlined in IX.H.11.f

14
15 Daily SO₂ emissions from other affected units shall be determined by multiplying
16 the quantity of each fuel used daily at each affected unit by the appropriate emission
17 factor.

18
19 Daily natural gas and plant gas consumption shall be determined through the
20 use of flow meters.

21
22 Daily fuel oil consumption shall be monitored by means of leveling gauges on all
23 tanks that supply combustion sources.

24
25 Results shall be tabulated for each day, and records shall be kept which include
26 CEM readings for H₂S (averaged for each one-hour period), all meter reading (in
27 the appropriate units), fuel oil parameters (density and wt% sulfur for each day any
28 fuel oil is burned), and the calculated emissions.

29
30 C. Instead of complying with Condition IX.H.1.g.ii.A, sources may reduce the H₂S
31 content of the refinery plant gas to 60 ppm or less or reduce SO₂ concentration
32 from fuel gas combustion devices to 8 ppmvd at 0% O₂ or less as described in 40
33 CFR 60.102a. Compliance shall be based on a rolling average of 365 days. The
34 owner/operator shall comply with the fuel gas or SO₂ emissions monitoring
35 requirements of 40 CFR 60.107a and the related recordkeeping and reporting
36 requirements of 40 CFR 60.108a. As used herein, refinery “plant gas” shall have
37 the meaning of “fuel gas” as defined in 40 CFR 60.101a, and may be used
38 interchangeably.

39
40 iv. SO₂ emissions from the SRU/TGTU/TGI shall be limited to:

41
42 A. 1.68 tons per day (tpd) for up to 21 days per rolling 12-month period, and

43
44 B. 0.69 tpd for the remainder of the rolling 12-month period.

1 Compliance with the daily limitations shall be determined as follows:
2

- 3 C. Daily sulfur dioxide emissions from the SRU/TGI/TGTU shall be determined by
4 multiplying the SO₂ concentration in the flue gas by the mass flow of the flue gas.
5 The sulfur dioxide concentration in the flue gas shall be determined by CEM as
6 outlined in IX.H.1.f

7
8 [†]v. Emergency and Standby Equipment

- 9
10 A. The use of diesel fuel meeting the specifications of 40 CFR 80.510 is allowed in
11 standby or emergency equipment at all times.
12
13
14

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1 1. University of Utah: University of Utah Facilities

2
3 i. Emissions to the atmosphere from the listed emission points in Building 303 shall
4 not exceed the following concentrations:

5
6
7

Emission Point	Pollutant	ppmdv (3% O ₂ dry)
A. Boiler #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 *Boiler #4 will be replaced with Boiler #4a and #4b by December 31, 2018.

10
11
12 ii. Testing to show compliance with the emissions limitations of Condition i above
13 shall be performed as specified below:

14
15
16
17

Emission Point	Pollutant	Initial Test	Test Frequency
A. Boiler #3	NO _x	*	every year#
B. Boilers #4a & 4b	NO _x	2018	every year#
C. Boilers #5a & 5b	NO _x	2017	every year#
D. Turbine	NO _x	*	every year#
E. Turbine and WHRU Duct burner	NO _x	*	every year#

18
19 * Initial tests have been performed and the next method test using EPA approved
20 test methods shall be performed within 3 years of the last stack test.

21
22
23 # A compliance test shall be performed at least once every three years from the
24 date of the last compliance test that demonstrated compliance with the emission
25 limit(s). Compliance testing shall be performed using EPA approved test
26 methods acceptable to the Director. The Director shall be notified, in
27 accordance with all applicable rules, of any compliance test that is to be
28 performed. Beginning January 2018, annual screening with a portable monitor
29 must be conducted in those years that a compliance test is not performed.
30 Screening with a portable monitor shall be performed in accordance with the

1 portable monitor manufacturer's specifications. If screening with a portable
2 monitor indicates a potential exceedance of the concentration limit, a
3 compliance test must be performed within 90 days of that screening. Records
4 shall be kept on site which indicate the date, time, and results of each screening
5 and demonstrate that the portable monitor was operated in accordance with
6 manufacturer's specifications. .
7

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

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1 m. ~~[West Valley Power Holdings, LLC.: West Valley Power Plant]~~ Utah Municipal Power
2 Association: West Valley Power Plant.

3
4 i. Total emissions of NO_x from all five (5) turbines combined shall be no greater than
5 1050 lb of NO_x on a daily basis. For purposes of this subpart, a "day" is defined as a
6 period of 24- hours commencing at midnight and ending at the following midnight.

7
8 ii. Total emissions of NO_x from all five (5) turbines shall include the sum of all periods in
9 the day including periods of startup, shutdown, and maintenance.

10
11 iii. The NO_x emission rate (lb/hr) shall be determined by CEM. The CEM shall
12 operate as outlined in IX.H.1.f.

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1 ---

2 **H.4 Interim Emission Limits and Operating Practices**

3
4 a. The terms and conditions of this Subsection IX.H.4 shall apply to the sources listed in this
5 section on a temporary basis, as a bridge between the 1991 PM₁₀ State Implementation Plan and
6 this PM₁₀ Maintenance Plan. For all other point sources listed in IX.H.2 and IX.H.3 the limits
7 apply upon approval by the Utah Air Quality Board of the PM₁₀ Maintenance Plan. These
8 bridge requirements are needed to impose limits on the sources that have time delays for
9 implementation of controls. During this timeframe, the sources listed in this section may not
10 meet the established limits listed in IX.H.1 and IX.H.2. As the control technology for the
11 sources listed in this section is installed and operational, the terms and conditions listed in
12 IX.H.1 and IX.H.2 become applicable and those limits replace the limits in this subsection. In no
13 case, shall the terms and conditions listed in this Subsection IX.H.4 extend beyond January
14 1, 2019.

15
16 b. Petroleum Refineries:

17
18 i. All petroleum refineries in or affecting the PM₁₀ nonattainment/maintenance area shall, for
19 the purpose of this PM₁₀ Maintenance Plan:

20
21 A. Achieve an emission rate equivalent to no more than 9.8 kg of SO₂ per 1,000 kg of
22 coke burn- off from any Catalytic Cracking unit by use of low-SO_x catalyst or
23 equivalent emission reduction techniques or procedures, including those outlined in 40
24 CFR 60, Subpart J. Unless otherwise specified in IX.H.2, compliance shall be
25 determined for each day based on a rolling seven-day average.

26
27 B. Compliance Demonstrations.

28
29 I. Compliance with the maximum daily (24-hr) plant-wide emission limitations for
30 PM₁₀, SO₂, and NO_x shall be determined by adding the calculated emission
31 estimates for all fuel burning process equipment to those from any stack-tested or
32 CEM-measured source components. NO_x and PM₁₀ emission factors shall be
33 determined from AP-42 or from test data.

34 For SO_x, the emission factors are:

35 Natural gas: EF = 0.60 lb/MMscf

36 Propane: EF = 0.60 lb/MMscf

37 Plant gas: the emission factor shall be calculated from the H₂S measurement
38 required in IX.H.1.g.ii.A.

39
40 Fuel oils (when permitted): The emission factor shall be calculated based on the
41 weight percent of sulfur, as determined by ASTM Method D-4294-89 or EPA-
42 approved equivalent, and the density of the fuel oil, as follows:

43
44 $EF \text{ (lb SO}_2\text{/k gal)} = \text{density (lb/gal)} * (1000 \text{ gal/k gal)} * \text{wt.\% S}/100 * (64 \text{ lb}$
45 $\text{SO}_2\text{/32 lb S)}$

46
47 Where mixtures of fuel are used in an affected unit, the above factors shall be
48 weighted according to the use of each fuel.

1
2
3
4
5
6

II. Daily emission estimates for stack-tested source components shall be made by multiplying the latest stack-tested hourly emission rate times the logged hours of operation (or other relevant parameter) for that source component for each day. This shall not preclude a source from determining emissions through the use of a CEM that meets the requirements of R307-170.

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1 c. Big West Oil Company

2 i. PM₁₀ Emissions

3 A. Combined emissions of filterable PM₁₀ from all external combustion process
4 equipment shall not exceed the following:

5
6 I. 0.377 tons per day, between October 1 and March 31;

7
8 II. 0.407 tons per day, between April 1 and September 30.

9
10 B. Emissions shall be determined for each day by multiplying the appropriate emission
11 factor from section IX.H.4.b.i.B by the relevant parameter (e.g. hours of operation,
12 feed rate, or quantity of fuel combusted) at each affected unit, and summing the
13 results for the group of affected units.

14
15 The daily primary PM₁₀ contribution from the Catalyst Regeneration System
16 shall be calculated using the following equation:

17
18
$$\text{Emitted PM}_{10} = (\text{Feed rate to FCC in kbbbl/time}) * (22 \text{ lbs/kbbbl})$$

19
20 wherein the emission factor (22 lbs/kbbbl) may be re-established by stack testing.

21 Total 24-hour PM₁₀ emissions shall be calculated by adding the daily emissions from
22 the external combustion process equipment to the estimate for the Catalyst
23 Regeneration System.

24
25 ii. SO₂ Emissions

26
27 A. Combined emissions of sulfur dioxide from all external combustion process
28 equipment shall not exceed the following:

29
30 I. 2.764 tons/day, between October 1 and March 31;

31
32 II. 3.639 tons/day, between April 1 and September 30.

33
34 B. Emissions shall be determined for each day by multiplying the appropriate emission
35 factor from section IX.H.4.b.i.B by the relevant parameter (e.g. hours of operation,
36 feed rate, or quantity of fuel combusted) at each affected unit, and summing the
37 results for the group of affected units.

38
39 The daily SO₂ emission from the Catalyst Regeneration System shall be
40 calculated using the following equation:

41
42
$$\text{SO}_2 = [43.3 \text{ lb SO}_2/\text{hr} / 7,688 \text{ bbl feed/day}] \times [(\text{operational feed rate in bbl/day}) \times$$

43
$$(\text{wt\% sulfur in feed} / 0.1878 \text{ wt\%}) \times (\text{operating hr/day})]$$

44
45 The FCC feed weight percent sulfur concentration shall be determined by the
46 refinery laboratory every 30 days with one or more analyses. Alternatively, SO₂
47 emissions from the Catalyst Regeneration System may be determined using a
48 Continuous Emissions Monitor (CEM) in accordance with IX.H.1.f.

49

1 Emissions from the SRU Tail Gas Incinerator (TGI) shall be determined for each
2 day by multiplying the sulfur dioxide concentration in the flue gas by the mass
3 flow of the flue gas.
4

5 Total 24-hour SO₂ emissions shall be calculated by adding the daily emissions from
6 the external combustion process equipment to the values for the Catalyst
7 Regeneration System and the SRU.
8

9 iii. NO_x Emissions

10 A. Combined emissions of NO_x from all external combustion process equipment shall
11 not exceed the following:
12

13 I. 1.027 tons per day, between October 1 and March 31;
14

15 II. 1.145 tons per day, between April 1 and September 30.
16

17 B. Emissions shall be determined for each day by multiplying the appropriate
18 emission factor from section IX.H.4.b.i.B by the relevant parameter (e.g. hours of
19 operation, feed rate, or quantity of fuel combusted) at each affected unit, and
20 summing the results for the group of affected units.
21

22 The daily NO_x emission from the Catalyst Regeneration System shall be calculated
23 using the following equation:
24

25
$$\text{NO}_x = (\text{Flue Gas, moles/hr}) \times (180 \text{ ppm} / 1,000,000) \times (30.006 \text{ lb/mole}) \times (\text{operating}$$

26
$$\text{hr/day})$$

27

28 wherein the scalar value (180 ppm) may be re-established by stack testing.
29 Alternatively, NO_x emissions from the Catalyst Regeneration System may be
30 determined using a Continuous Emissions Monitor (CEM) in accordance
31 with IX.H.1.f.
32

33 Total 24-hour NO_x emissions shall be calculated by adding the daily emissions
34 from gas-fired compressor drivers and the external combustion process equipment
35 to the value for the Catalyst Regeneration System.
36

1 d. Chevron Products Company

2
3 i. PM₁₀ Emissions

- 4
5 A. Combined emissions of filterable PM₁₀ from all external combustion process
6 equipment shall be no greater than 0.234 tons per day.

7
8 Emissions shall be determined for each day by multiplying the appropriate
9 emission factor from section IX.H.4.b.i.B by the relevant parameter (e.g. hours of
10 operation, feed rate, or quantity of fuel combusted) at each affected unit, and
11 summing the results for the group of affected units.

12
13 ii. SO₂ Emissions

- 14
15 A. Combined emissions of sulfur dioxide from gas-fired compressor drivers and all
16 external combustion process equipment, including the FCC CO Boiler and
17 Catalyst Regenerator, shall not exceed 0.5 tons/day.

18
19 Emissions shall be determined for each day by multiplying the appropriate
20 emission factor from section IX.H.4.b.i.B by the relevant parameter (e.g. hours of
21 operation, feed rate, or quantity of fuel combusted) at each affected unit, and
22 summing the results for the group of affected units.

23
24 Alternatively, SO₂ emissions from the FCC CO Boiler and Catalyst Regenerator
25 may be determined using a Continuous Emissions Monitor (CEM) in accordance
26 with IX.H.1.f.

27
28 iii. NO_x Emissions

- 29
30 A. Combined emissions of NO_x from gas-fired compressor drivers and all external
31 combustion process equipment, including the FCC CO Boiler and Catalyst
32 Regenerator and the SRU Tail Gas Incinerator, shall be no greater than 2.52 tons
33 per day.

34
35 Emissions shall be determined for each day by multiplying the appropriate
36 emission factor from section IX.H.4.b.i.B by the relevant parameter (e.g. hours of
37 operation, feed rate, or quantity of fuel combusted) at each affected unit, and
38 summing the results for the group of affected units.

39
40 Alternatively, NO_x emissions from the FCC CO Boiler and Catalyst Regenerator
41 may be determined using a Continuous Emissions Monitor (CEM) in accordance
42 with IX.H.1.f.

- 43
44 iv. Chevron shall be permitted to combust HF alkylation polymer oil in its Alkylation
45 unit.

1 e. Holly Refining and Marketing Company

2
3 i. PM₁₀ Emissions

4
5 A. Combined emissions of filterable PM₁₀ from all combustion sources, shall be no
6 greater than 0.44 tons per day.

7
8 Emissions shall be determined for each day by multiplying the appropriate emission
9 factor from section IX.H.4.b.i.B, or from testing as described below, by the relevant
10 parameter (e.g. hours of operation, feed rate, or quantity of fuel combusted) at each
11 affected unit, and summing the results for the group of affected units.

12
13 ii. SO₂ Emissions

14
15 A. Combined emissions of SO₂ from all sources shall be no greater than 4.714 tons per
16 day.

17
18 Emissions shall be determined for each day by multiplying the appropriate emission
19 factor from section IX.H.4.b.i.B by the relevant parameter (e.g. hours of operation,
20 feed rate, or quantity of fuel combusted) at each affected unit, and summing the
21 results for the group of affected units.

22
23 Emissions from the FCC wet scrubbers shall be determined using a Continuous
24 Emissions Monitor (CEM) in accordance with IX.H.1.f.

25
26 iii. NO_x Emissions:

27
28 A. Combined emissions of NO_x from all sources shall be no greater than 2.20 tons per
29 day.

30
31 Emissions shall be determined for each day by multiplying the appropriate emission
32 factor from section IX.H.4.b.i.B by the relevant parameter (e.g. hours of operation,
33 feed rate, or quantity of fuel combusted) at each affected unit, and summing the
34 results for the group of affected units.

1 f. Tesoro Refining & Marketing Company

2
3 i. PM₁₀ Emissions

- 4
5 A. Combined emissions of filterable PM₁₀ from gas-fired compressor drivers and all
6 external combustion process equipment, including the FCC/CO Boiler (ESP), shall be no
7 greater than 0.261 tons per day.

8
9 Emissions for gas-fired compressor drivers and the group of external combustion
10 process equipment shall be determined for each day by multiplying the appropriate
11 emission factor from section IX.H.4.b.i.B by the relevant parameter (e.g. hours of
12 operation, feed rate, or quantity of fuel combusted) at each affected unit, and summing
13 the results for the group of affected units.

14
15 ii. SO₂ Emissions

- 16
17 A. Combined emissions of SO₂ from gas-fired compressor drivers and all external
18 combustion process equipment, including the FCC/CO Boiler (ESP), shall not exceed
19 the following:

- 20
21 I. November 1 through end of February: 3.699 tons/day
22
23 II. March 1 through October 31: 4.374 tons/day

24
25 Emissions shall be determined for each day by multiplying the appropriate emission
26 factor from section IX.H.4.b.i.B by the relevant parameter (e.g. hours of operation,
27 feed rate, or quantity of fuel combusted) at each affected unit, and summing the
28 results for the group of affected units.

29
30 Emissions from the ESP stack (FCC/CO Boiler) shall be determined by multiplying
31 the SO₂ concentration in the flue gas by the mass flow of the flue gas.

32
33 The SO₂ concentration in the flue gas shall be determined by a continuous
34 emission monitor (CEM).

35
36 iii. NO_x Emissions

- 37
38 A. Combined emissions of NO_x from gas-fired compressor drivers and all external
39 combustion process equipment shall be no greater than 1.988 tons per day.

40
41 Emissions shall be determined for each day by multiplying the appropriate emission
42 factor from section IX.H.4.b.i.B by the relevant parameter (e.g. hours of operation, feed
43 rate, or quantity of fuel combusted) at each affected unit, and summing the results for
44 the group of affected units.

1 **H.11. General Requirements: Control Measures for Area and Point**
2 **Sources, Emission Limits and Operating Practices, PM_{2.5}**
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 subsections, the source specific conditions listed in IX.H.12 and 13 shall
8 take precedence.
- 9 b. Definitions:
- 10
- 11 i. The definitions contained in R307-101-2, Definitions, apply to Section IX, Part H.
- 12
- 13 ii. Natural gas curtailment means a period of time during which the supply of natural gas
14 to an affected facility is halted for reasons beyond the control of the facility. The act of
15 entering into a contractual agreement with a supplier of natural gas established for
16 curtailment purposes does not constitute a reason that is under the control of a facility
17 for the purposes of this definition. An increase in the cost or unit price of natural gas
18 does not constitute a period of natural gas curtailment.
- 19
- 20 c. Recordkeeping and Reporting:
- 21
- 22 i. Any information used to determine compliance shall be recorded for all periods when
23 the source is in operation, and such records shall be kept for a minimum of five years.
24 Any or all of these records shall be made available to the Director upon request.
- 25
- 26 ii. Each source shall comply with all applicable sections of R307-150 Emission
27 Inventories. iii. Each source shall submit a report of any deviation from the
28 applicable requirements of this Subsection IX.H, including those attributable to upset
29 conditions, the probable cause of such deviations, and any corrective actions or
30 preventive measures taken. The report shall be submitted to the Director no later
31 than 24-months following the deviation or earlier if specified by an underlying
32 applicable requirement. Deviations due to breakdowns shall be reported according to
33 the breakdown provisions of R307-107.
- 34
- 35 d. Emission Limitations:
- 36
- 37 i. All emission limitations listed in Subsections IX.H.12 and IX.H.13 apply at all times,
38 unless otherwise specified in the source specific conditions listed in IX.H.12 and 13.
- 39
- 40 ii. All emission limitations of particulate matter (either PM₁₀ and/or PM_{2.5} listed in
41 Subsections IX.H.12 and IX.H.13 include both filterable and condensable PM,
42 unless otherwise specified in the source specific conditions listed in IX.H.12 and
43 IX.H.13.
- 44
- 45 e. Stack Testing:
- 46

- 1 i. As applicable, stack testing to show compliance with the emission limitations for the
2 sources in Subsection IX.H.12 and 13 shall be performed in accordance with the
3 following:
4
- 5 A. Sample Location: The emission point shall be designed to conform to the
6 requirements of
7 40 CFR 60, Appendix A, Method 1, or other EPA-approved testing methods
8 acceptable to the Director. Occupational Safety and Health Administration
9 (OSHA) approvable access shall be provided to the test location.
- 10
- 11 B. Volumetric Flow Rate: 40 CFR 60, Appendix A, Method 2 or EPA Test Method
12 No. 19 "SO₂ Removal & PM, SO₂, NO_x Rates from Electric Utility Steam
13 Generators" or other EPA-approved testing methods acceptable to the Director.
14
- 15 A. PM: 40 CFR 60, Appendix A, Method 5, or other EPA approved testing
16 methods acceptable to the Director.
17
- 18 B. PM₁₀: 40 CFR 51, Appendix M, Methods 201a and 202, or other EPA approved
19 testing methods acceptable to the Director. If a method other than 201a is used, the
20 portion of the front half of the catch considered PM₁₀ shall be based on information
21 in Appendix B of
22 the fifth edition of the EPA document, AP-42, or other data acceptable to the
23 Director.
24
- 25 E. PM_{2.5}: 40 CFR 51, Appendix M, 201a and 202, or other EPA approved testing
26 methods acceptable to the Director. The back half condensables shall be used for
27 compliance demonstration as well as for inventory purposes. If a method other
28 than 201a is used, the portion of the front half of the catch considered PM_{2.5} shall
29 be based on information in Appendix B of the fifth edition of the EPA document,
30 AP-42, or other data acceptable to the Director.
31
- 32 F. SO₂: 40 CFR 60 Appendix A, Method 6C, or other EPA-approved testing
33 methods acceptable to the Director.
34
- 35 G. NO_x: 40 CFR 60 Appendix A, Method 7E, or other EPA-approved testing
36 methods acceptable to the Director.
37
- 38 H. VOC: 40 CFR 60 Appendix A, Method 25A or other EPA-approved testing
39 methods acceptable to the Director.
40
- 41 I. Calculations: To determine mass emission rates (lb/hr, etc.) the pollutant
42 concentration as determined by the appropriate methods above shall be multiplied
43 by the volumetric flow rate and any necessary conversion factors to give the results
44 in the specified units of the emission limitation.
45
- 46 J. A stack test protocol shall be provided at least 30 days prior to the test. A

1 pretest conference shall be held if directed by the Director.

2
3 K. The production rate during all compliance testing shall be no less than 90% of the
4 maximum production rate achieved in the previous three (3) years. If the desired
5 production rate is not achieved at the time of the test, the maximum production rate
6 shall be 110% of the tested achieved rate, but not more than the maximum allowable
7 production rate. This new allowable maximum production rate shall remain in effect
8 until successfully tested at a higher rate. The owner/operator shall request a higher
9 production rate when necessary. Testing at no less than 90% of the higher rate shall
10 be conducted. A new maximum production rate (110% of the new rate) will then be
11 allowed if the test is successful. This process may be repeated until the maximum
12 allowable production rate is achieved.

13
14 f. Continuous Emission and Opacity Monitoring

15
16 i. For all continuous monitoring devices, the following shall apply:

17
18 A. Except for system breakdown, repairs, calibration checks, and zero and span
19 adjustments required under paragraph (d) 40 CFR 60.13, the owner/operator of an
20 affected source shall continuously operate all required continuous monitoring
21 systems and shall meet minimum frequency of operation requirements as outlined
22 in R307-170 and 40 CFR 60.13. Flow measurement shall be in accordance with the
23 requirements of 40 CFR 52, Appendix E; 40 CFR 60 Appendix B; or 40 CFR 75,
24 Appendix A.

25
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
29 ii. Opacity observations of emissions from stationary sources shall be conducted in
30 accordance with 40 CFR 60, Appendix A, Method 9.

31
32 g. Petroleum Refineries.

33
34 i. Limits at Fluid Catalytic Cracking Units

35
36 A. FCCU SO₂ Emissions

37
38 I. ~~[By no later than January 1, 2018, e]~~ Each owner or operator of an FCCU
39 shall comply with an SO₂ emission limit of 25 ppmvd @ 0% excess air on a
40 365-day rolling average basis and 50 ppmvd @ 0% excess air on a 7-day
41 rolling average basis.

42
43 II. Compliance with this limit shall be determined by following 40 C.F.R.
44 §60.105a(g).

45
46 B. FCCU PM Emissions

- 1 I. ~~[By no later than January 1, 2018, e]~~Each owner or operator of an FCCU shall
2 comply with an emission limit of 1.0 pounds PM per 1000 pounds coke burned
3 on a 3-hour average basis.
4
5 II. Compliance with this limit shall be determined by following the stack test
6 protocol specified in 40 C.F.R. §60.106(b) to measure PM emissions on the
7 FCCU. Each owner operator shall conduct stack tests once every five years
8 at each FCCU.
9
10 III. ~~[By n]~~No later than January 1, 2019, each owner or operator of an FCCU shall
11 install, operate and maintain a continuous parameter monitor system (CPMS) to
12 measure and record operating parameters for determination of source-wide
13 PM_{2.5} emissions as per the requirements of 40 CFR 60.105a(b)(1).
14

15 ii. Limits on Refinery Fuel Gas
16

- 17 A. ~~[By no later than January 1, 2018, a]~~All petroleum refineries in or affecting any
18 PM_{2.5} nonattainment area or any PM₁₀ nonattainment or maintenance area shall
19 reduce the H₂S content of the refinery plant gas to 60 ppm or less as described in 40
20 CFR 60.102a. Compliance shall be based on a rolling average of 365 days. The
21 owner/operator shall comply with the fuel gas monitoring requirements of 40 CFR
22 60.107a and the related recordkeeping and reporting requirements of 40 CFR
23 60.108a. As used herein, refinery “plant gas” shall have the meaning of “fuel gas”
24 as defined in 40 CFR 60.101a, and may be used interchangeably.
25
26 B. For natural gas, compliance is assumed while the fuel comes from a public utility.
27

28 iii. Limits on Heat Exchangers
29

- 30 A. Each owner or operator shall comply with the requirements of 40 CFR 63.654
31 for heat exchange systems in VOC service as soon as practicable but no later
32 than January 1, 2015. The owner or operator may elect to use another EPA-
33 approved method other than the Modified El Paso Method if approved by the
34 Director.
35
36 I. The following applies in lieu of 40 CFR 63.654(b): A heat exchange system is
37 exempt from the requirements in paragraphs 63.654(c) through (g) of this
38 section if it meets any one of the criteria in the following paragraphs (1)
39 through (2) of this section.
40
41 1. All heat exchangers that are in VOC service within the heat exchange
42 system that either:
43
44 a. Operate with the minimum pressure on the cooling water side at
45 least 35 kilopascals greater than the maximum pressure on the
46 process side; or

1
2 b. Employ an intervening cooling fluid, containing less than 10 percent by
3 weight of VOCs, between the process and the cooling water. This
4 intervening fluid must serve to isolate the cooling water from the process
5 fluid and must not be sent through a cooling tower or discharged. For
6 purposes of this section, discharge does not include emptying for
7 maintenance purposes.

8
9 2. The heat exchange system cools process fluids that contain less than 10
10 percent by weight VOCs (i.e., the heat exchange system does not contain
11 any heat exchangers that are in VOC service).

12
13 iv. Leak Detection and Repair Requirements

14
15 A. Each owner or operator shall comply with the requirements of 40 CFR 60.590a to
16 60.593a as soon as practicable [~~but no later than January 1, 2016~~].

17
18 B. For units complying with the Sustainable Skip Period, previous process unit
19 monitoring results may be used to determine the initial skip period interval
20 provided that each valve has been monitored using the 500 ppm leak definition.

21
22 v. Requirements on Hydrocarbon Flares

23
24 A. [~~Beginning January 1, 2018, a~~] All hydrocarbon flares at petroleum refineries
25 located in or affecting a designated PM_{2.5} non-attainment area within the State
26 shall be subject to the flaring requirements of NSPS Subpart Ja (40 CFR 60.100a–
27 109a), if not already subject under the flare applicability provisions of Ja.

28
29 B. [~~By~~] No later than January 1, 2019, all major source petroleum refineries in or
30 affecting a designated PM_{2.5} non-attainment area within the State shall either 1)
31 install and operate a flare gas recovery system designed to limit hydrocarbon
32 flaring produced from each affected flare during normal operations to levels below
33 the values listed in 40 CFR 60.103a(c), or 2) limit flaring during normal operations
34 to 500,000 scfd for each affected flare. Flare gas recovery is not required for
35 dedicated SRU flare and header systems, or HF flare and header systems.

36
37 vi. Requirements on Tank Degassing

38
39 A. Beginning January 1, 2017, the owner or operator of any stationary tank of 40,000-
40 gallon or greater capacity and containing or last containing any organic liquid, with
41 a true vapor pressure equal or greater than 10.5 kPa (1.52 psia) at storage
42 temperature (see R307-324-4(1)) shall not allow it to be opened to the atmosphere
43 unless the emissions are controlled by exhausting VOCs contained in the tank
44 vapor-space to a vapor control device until the organic vapor concentration is 10
45 percent or less of the lower explosion limit (LEL).

46
47 B. These degassing provisions shall not apply while connecting or disconnecting

1 degassing equipment.

2
3 C. The Director shall be notified of the intent to degas any tank subject to the rule.
4 Except in an emergency situation, initial notification shall be submitted at least
5 three (3) days prior to degassing operations. The initial notification shall include:

6
7 I. Start date and time;

8
9 II. Tank owner, address, tank location, and applicable tank permit numbers;

10
11 III. Degassing operator's name, contact person, telephone number;

12
13 IV. Tank capacity, volume of space to be degassed, and materials stored;

14
15 V. Description of vapor control device.

16
17 vii. No Burning of Liquid Fuel Oil in Stationary Sources

18
19 A. No petroleum refineries in or affecting any PM nonattainment or maintenance area
20 shall be allowed to burn liquid fuel oil in stationary sources except during natural
21 gas curtailments or as specified in the individual subsections of Section IX, Part H.

22
23 B. The use of diesel fuel meeting the specifications of 40 CFR 80.510 in standby or
24 emergency equipment is exempt from the limitation of IX.H.11.g.vii.A above.

25
26 h. Catalytic Oxidation for VOC Control

27
28 i. Internal Combustion Engines

29
30 A. Emissions from each VOC catalytic-controlled IC engine shall be routed through the
31 oxidation catalyst system prior to being emitted to the atmosphere. The oxidation
32 catalyst system shall be installed and operated as outlined in 40 CFR 63.6625(e).

33
34 ii. Natural Gas Combustion Turbines

35
36 A. Emissions from each VOC catalytic-controlled combustion turbine shall be routed
37 through the oxidation catalyst system prior to being emitted to the atmosphere. The
38 oxidation catalyst system shall be installed and operated according to the
39 manufacturer's emission-related written instructions and in a manner consistent with
40 good air pollution control practice for minimizing emissions.

1 **H.12. Source-Specific Emission Limitations in Salt Lake City – UT PM_{2.5}**
2 **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
7 PM_{2.5} levels exceed 35 ug/m³ at the nearest real-time monitoring station, the open
8 burning of reactive wastes with properties identified in 40 CFR 261.23 (a) (6) (7) (8)
9 will be limited to 50 percent of the treatment facility's Department of Solid and
10 Hazardous Waste permitted daily limit. During this period, on days when open burning
11 occurs, records will be maintained identifying the quantity burned and the PM_{2.5} level
12 at the nearest real-time monitoring station.

13
14 ii. During the period November 1 to February 28/29, on days when the 24-hour average
15 PM_{2.5} levels exceed 35 ug/m³ at the nearest real-time monitoring station, the following
16 shall not be tested:

17
18 A. Propellant, energetics, pyrotechnics, flares and other reactive compounds greater
19 than 2,400 lbs. per day; or

20
21 B. Rocket motors less than 1,000,000 lbs. of propellant per motor subject to the
22 following exception:

23
24 I. A single test of rocket motors less than 1,000,000 lbs. of propellant per motor is
25 allowed on a day when the 24-hour average PM_{2.5} level exceeds 35 ug/m³ at
26 the nearest real-time monitoring station provided notice is given to the Director
27 of the Utah Air Quality Division. No additional tests of rocket motors less than
28 1,000,000 lbs. of propellant may be conducted during the inversion period until
29 the 24-hour average PM_{2.5} level has returned to a concentration below 35
30 ug/m³ at the nearest real-time monitoring station.

31
32 C. During this period, records will be maintained identifying the size of the rocket
33 motors tested and the 24-hour average PM_{2.5} level at the nearest real-time
34 monitoring station on days when motor testing occur.

35
36 iii. Natural Gas-Fired Boilers

37
38 A. Building M-576

39
40 I. One 71 MMBTU/hr boiler shall be upgraded with low NO_x burners and flue gas
41 recirculation by January 2016. The boiler shall be rated at a maximum of 9 ppm.
42 The remaining boiler shall not consume more than 100,000 MCF of natural gas
43 per rolling 12- month period unless upgraded so the NO_x emission rate is no
44 greater than 30 ppm.

45
46 II. Records shall be kept on site which indicate the date, and time of startup and
47 shutdown.

48
49 B. Building M-14

50
51 I. One 25 MMBTU/hr boiler shall be upgraded with low NO_x burners and flue gas.

1
2

recirculation by December 2019. The boiler shall be rated at a maximum of 15 ppm.

DRAFT

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
5 January 1, 2019, combined emissions of PM_{2.5} (filterable+condensable) shall not
6 exceed 0.29 tons per day and 72.5 tons per rolling 12-month period. ~~[By n]~~ No later
7 than January 1, 2019, Big West Oil shall conduct stack testing to establish the ratio of
8 filterable and condensable PM_{2.5} from the Catalyst Regeneration System.
9

10 A. Setting of emission factors:

11
12 The emission factors derived from the most current performance test shall be
13 applied to the relevant quantities of fuel combusted. Unless adjusted by
14 performance testing as discussed in IX.H.12.b.i.B below, the default emission
15 factors to be used are as follows:

16
17 Natural gas:

18 Filterable PM_{2.5}: 1.9 lb/MMscf

19 Condensable PM_{2.5}: 5.7 lb/MMscf

20
21 Plant gas:

22 Filterable PM_{2.5}: 1.9 lb/MMscf

23 Condensable PM_{2.5}: 5.7 lb/MMscf

24
25 Fuel Oil: The PM_{2.5} emission factors shall be determined from the latest edition
26 of AP-42

27
28 FCC Stacks: The PM_{2.5} emission factors shall be established by stack test.

29
30 Where mixtures of fuel are used in a Unit, the above factors shall be weighted
31 according to the use of each fuel.
32

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

35
36 PM_{2.5} stack testing on the FCC shall be performed initially no later than
37 January 1, 2019 and at least once every three (3) years thereafter. Stack testing
38 shall be performed as outlined in IX.H.11.e.
39

40 C. Compliance with the source-wide PM_{2.5} Cap shall be determined for each day
41 as follows: Total 24-hour PM_{2.5} emissions for the emission points shall be
42 calculated by adding the daily results of the PM_{2.5} emissions equations listed
43 below for natural gas, plant gas, and fuel oil combustion. These emissions shall
44 be added to the emissions from the FCC to arrive at a combined daily PM_{2.5}
45 emission total.

1
2 For purposes of this subsection a “day” is defined as a period of 24-hours
3 commencing at midnight and ending at the following midnight.
4

5 Daily gas consumption shall be measured by meters that can delineate the
6 flow of gas to the boilers, furnaces and the SRU incinerator.
7

8 The equation used to determine emissions from these units shall be as
9 follows: Emissions = Emission Factor (lb/MMscf) * Gas Consumption
10 (MMscf/24 hrs)/(2,000
11 lb/ton)
12

13 Daily fuel oil consumption shall be monitored by means of leveling gauges
14 on all tanks that supply combustion sources.
15

16 The daily PM_{2.5} emissions from the FCC shall be calculated using the following
17 equation: E = FR * EF
18

19 Where:

20 E = Emitted PM_{2.5}

21 FR = Feed Rate to Unit (kbbbls/day)

22 EF = emission factor (lbs/kbbl), established by the most recent stack test
23

24 Results shall be tabulated for each day, and records shall be kept which include
25 the meter readings (in the appropriate units) and the calculated emissions.
26

27 ii. Source-wide NO_x Cap

28 [By n] No later than January 1, 2019, combined emissions of NO_x shall not exceed
29 0.80 tons per day (tpd) and 195 tons per rolling 12-month period.
30

31 A. Setting of emission factors:
32

33 The emission factors derived from the most current performance test shall be applied
34 to the relevant quantities of fuel combusted. Unless adjusted by performance testing
35 as discussed in IX.H.12.b.ii.B below, the default emission factors to be used are as
36 follows:
37

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

39 Plant gas: assumed equal to natural gas

40 Diesel fuel: shall be determined from the latest edition of AP-42
41

42 Where mixtures of fuel are used in a Unit, the above factors shall be weighted
43 according to the use of each fuel.
44

45 B. The default emission factors for the FCC listed in IX.H.12.b.ii.A above apply until

1 such time as stack testing is conducted as outlined below:

2
3 Initial NO_x stack testing on natural gas/refinery fuel gas combustion equipment
4 above 40 MMBtu/hr has been performed and the next stack test shall be performed
5 within 3 years of the previous stack test. At that time a new flow-weighted average
6 emission factor in terms of: lbs/MMbtu shall be derived for each combustion type
7 listed in IX.H.12.b.ii.A above. Stack testing shall be performed as outlined in
8 IX.H.11.e.

- 9
10 C. Compliance with the source-wide NO_x Cap shall be determined for each day as
11 follows: Total 24-hour NO_x emissions shall be calculated by adding the emissions
12 for each emitting unit. The emissions for each emitting unit shall be calculated by
13 multiplying the hours of operation of a unit, feed rate to a unit, or quantity of each
14 fuel combusted at each affected unit by the associated emission factor, and
15 summing the results.

16
17 Daily plant gas consumption at the furnaces, boilers and SRU incinerator shall be
18 measured by flow meters. The equations used to determine emissions shall be as
19 follows:

20
21
$$\text{NO}_x = \text{Emission Factor (lb/MMscf)} * \text{Gas Consumption (MMscf/24 hrs)} / (2,000$$

22 lb/ton)

23
24 Where the emission factor is derived from the fuel used, as listed in IX.H.12.b.ii.A
25 above Daily fuel oil consumption shall be monitored by means of leveling gauges
26 on all tanks that supply combustion sources.

27
28 The daily NO_x emissions from the FCC shall be calculated using a CEM as outlined
29 in IX.H.11.f

30
31 Total daily NO_x emissions shall be calculated by adding the results of the above NO_x
32 equations for natural gas and plant gas combustion to the estimate for the FCC.

33
34 For purposes of this subsection a “day” is defined as a period of 24-hours
35 commencing at midnight and ending at the following midnight.

36
37 Results shall be tabulated for each day, and records shall be kept which include the
38 meter readings (in the appropriate units) and the calculated emissions.

- 39
40 iii. Source-wide SO₂ Cap

41 ~~[By a]~~ No later than January 1, 2019, combined emissions of SO₂ shall not exceed 0.60
42 tons per day and 140 tons per rolling 12-month period.

- 43
44 A. Setting of emission factors:

45 The emission factors derived from the most current performance test shall be

1 applied to the relevant quantities of fuel combusted. The default emission factors
2 to be used are as follows:

3
4 Natural Gas - 0.60 lb SO₂/MMscf gas

5
6 Plant Gas: The emission factor to be used in conjunction with plant gas combustion
7 shall be determined through the use of a CEM as outlined in IX.H.11.f.

8
9 SRUs: The emission rate shall be determined by multiplying the sulfur
10 dioxide concentration in the flue gas by the flow rate of the flue gas. The
11 sulfur dioxide concentration in the flue gas shall be determined by CEM as
12 outlined in IX.H.11.f.

13
14 Fuel oil: The emission factor to be used for combustion shall be calculated based
15 on the weight percent of sulfur, as determined by ASTM Method D-4294-89 or
16 EPA approved equivalent acceptable to the Director, and the density of the fuel
17 oil, as follows:

18
19
$$\text{EF (lb SO}_2\text{/k gal)} = \text{density (lb/gal)} * (1000 \text{ gal/k gal}) * \text{wt. \% S/100} * (64 \text{ lb SO}_2\text{/32}$$

20 lbs)

21
22 Where mixtures of fuel are used in a Unit, the above factors shall be weighted
23 according to the use of each fuel.

24
25 B. Compliance with the source-wide SO₂ Cap shall be determined for each day as
26 follows:

27 Total daily SO₂ emissions shall be calculated by adding the daily SO₂ emissions
28 for natural gas and plant fuel gas combustion, to those from the FCC and SRU
29 stacks.

30
31 The daily SO_x emissions from the FCC shall be calculated using a CEM as outlined
32 in IX.H.11.f

33
34 Daily natural gas and plant gas consumption shall be determined through the use
35 of flow meters.

36
37 Daily fuel oil consumption shall be monitored by means of leveling gauges on all
38 tanks that supply combustion sources.

39
40 For purposes of this subsection a “day” is defined as a period of 24-hours
41 commencing at midnight and ending at the following midnight.

42
43 Results shall be tabulated for each day, and records shall be kept which include
44 CEM readings for H₂S (averaged for each day), all meter readings (in the
45 appropriate units), fuel oil parameters (density and wt% sulfur for each day any

1 fuel oil is burned), and the calculated emissions.

2
3 iv. Emergency and Standby Equipment

4
5 A. The use of diesel fuel meeting the specifications of 40 CFR 80.510 is allowed in
6 standby or emergency equipment at all times.

7
8 v. Alternate Startup and Shutdown Requirements

9
10 A. During any day which includes startup or shutdown of the FCCU, combined
11 emissions of SO₂ shall not exceed 1.2 tons per day (tpd). For purposes of this
12 subsection, a "day" is defined as a period of 24-hours commencing at midnight and
13 ending at the following midnight.

14
15 B. The total number of days which include startup or shutdown of the FCCU
16 shall not exceed ten (10) per 12-month rolling period.

17
18 vi. Requirements on Hydrocarbon Flares

19
20 A. No later than January 1, 2021, routine flaring will be limited to 300,000 scfd
21 for each affected flare from October 1 through March 31 and 500,000 scfd
22 for each affected flare for the balance of the year.

1 ~~[e. Bountiful City Light and Power: Power Plant~~

2 ~~i. Emissions to the atmosphere shall not exceed the following rates and concentrations:-~~

3 ~~A. GT #1 (5.3 MW Turbine) Exhaust Stack:~~

4 ~~NO_x 0.6 g/kW-hr~~

5
6
7 ~~B. GT #2 and GT #3 (each TITAN Turbine) Catalytic controlled Exhaust Stack:-~~

8 ~~NO_x 15 ppm~~

9
10 ~~ii. Compliance to the above emission limitations shall be determined by stack test as outlined in~~
11 ~~Section IX Part H.11.e of this SIP.~~

12
13
14 ~~A. Initial stack tests have been performed. Each turbine shall be tested at least once per~~
15 ~~year.~~

16
17 ~~iii. Combustion Turbine Startup / Shutdown Emission Minimization Plan~~

18
19
20 ~~A. Startup begins when natural gas is supplied to the combustion turbine(s) with the intent~~
21 ~~of combusting the fuel to generate electricity. Startup conditions end within sixty (60)-~~
22 ~~minutes of natural gas being supplied to the turbine(s).~~

23
24 ~~B. Shutdown begins with the initiation of the stop sequence of a turbine until the cessation~~
25 ~~of natural gas flow to the turbine.~~

26
27 ~~C. Periods of startup or shutdown shall not exceed two (2) hours per combustion turbine per~~
28 ~~day.]~~

1 [d.—Central Valley Water Reclamation Facility: Wastewater Treatment Plant
2
3

4 i.—NO_x emissions from the operation of all engines at the plant shall not exceed 0.648 tons per
5 day.
6
7

8 ii.—Compliance with the emission limitation shall be determined by summing the emissions from
9 all the engines. Emission from each engine shall be calculated from the following equation:

10
11 Emissions (tons/day) = (Power production in kW hrs/day) x (Emission factor in grams/kW hr) x
12 (1 lb/453.59 g) x (1 ton/2000 lbs)
13
14

15 A.—Stack tests shall be performed in accordance with IX.H.11.e. Each engine shall be tested
16 at least every three years from the previous test.

17
18 B.—The NO_x emission factor for each engine shall be derived from the most recent stack test.

19 C.—NO_x emissions shall be calculated on a daily basis.

20 D.—A day is equivalent to the time period from midnight to the following midnight.

21
22 E.—The number of kilowatt hours generated by each engine shall be determined by
23 examination of electrical meters, which shall record electricity production on a
24 continuous basis.]

1 [e]c. Chemical Lime Company (LHoist North America)

2
3 Lime Production Kiln

- 4
5 i. No later than January 1, 2019, or upon source start-up, whichever comes later, SNCR
6 technology shall be installed on the Lime Production Kiln~~[for reduction of NO_x emission]~~.
7
8 a. Effective January 1, 2019, or upon source start-up, whichever comes later, NO_x
9 emissions shall not exceed 56 lb/hr.
10
11 b. Compliance with the above emissions limit shall be determined by stack
12 testing as outlined in Section IX Part H.11.e of this SIP.
13
14 ii. No later than January 1, 2019, or upon source start-up, whichever comes later, a
15 baghouse control technology shall be installed and operating on the Lime Production
16 Kiln~~[for reduction of PM emissions]~~.
17
18 a. Effective January 1, 2019, or upon source start-up, whichever comes later, PM
19 emissions shall not exceed 0.12 pounds per ton (lb/ton) of stone feed.
20
21 b. Effective January 1, 2019, or upon source start-up, whichever comes later, PM_{2.5}
22 emissions shall not exceed 1.5 lbs/ton of stone feed.
23
24 c. Compliance with the above emission limits shall be determined by stack testing as
25 outlined in Section IX Part H.11.e of this SIP and in accordance with 40 CFR 63
26 Subpart AAAAA.
27
28 iii. An initial compliance test is required no later than January 1, 2019 (if start-up occurs
29 on or before January 1, 2019) or within 180 days of source start-up (if start-up occurs
30 after January 1, 2019)
31
32
33 iv. Upon plant start-up kiln emissions shall be exhausted through the baghouse during all
34 startup, shutdown, and operations of the kiln.
35
36 v. Start-up/shut-down provisions for SNCR technology be as follows:
37
38
39 a. No ammonia or urea injection during startup until the combustion gases exiting
40 the kiln reach the temperature when NO_x reduction is effective, and
41
42 b. No ammonia or urea injection during shutdown.
43
44 c. Records of ammonia or urea injection shall be documented in an operations log.
45 The operations log shall include all periods of start-up/shut-down and subsequent
46 beginning and ending times of ammonia or urea injection which documents v.a
47 and v.b above.

1 [f]d. Chevron Products Company - Salt Lake Refinery

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

4
5 [By n]No later than January 1, 2019, combined emissions of PM_{2.5}
6 (filterable+condensable) shall not exceed 0.305 tons per day (tpd) and 110 tons per
7 rolling 12-month period.

8
9 A. Setting of emission factors:

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

14
15 Natural gas:

16 Filterable PM_{2.5}: 1.9 lb/MMscf

17 Condensable PM_{2.5}: 5.7 lb/MMscf

18
19 Plant gas:

20 Filterable PM_{2.5}: 1.9 lb/MMscf

21 Condensable PM_{2.5}: 5.7 lb/MMscf

22
23 HF alkylation polymer: shall be determined from the latest edition of AP-42 (HF
24 alkylation polymer treated as fuel oil #6)

25
26 Diesel fuel: shall be determined from the latest edition of AP-42

27
28 FCC Stack:

29 The PM_{2.5} emission factors shall be based on the most recent stack test and verified
30 by parametric monitoring as outlined in IX.H.11.g.i.B.III

31
32 Where mixtures of fuel are used in a Unit, the above factors shall be weighted
33 according to the use of each fuel.

34
35 B. The default emission factors listed in IX.H.12.f.i.A above apply until such time as
36 stack testing is conducted as outlined below:

37
38 Initial PM_{2.5} stack testing on the FCC stack has been performed and shall be
39 conducted at least once every three (3) years from the date of the last stack test.
40 Stack testing shall be performed as outlined in IX.H.11.e.

41
42 C. Compliance with the source-wide PM_{2.5} Cap shall be determined for each day as
43 follows:

44
45 Total 24-hour PM_{2.5} emissions for the emission points shall be calculated by adding
46 the daily results of the PM_{2.5} emissions equations listed below for natural gas, plant
47 gas, and fuel oil combustion. These emissions shall be added to the emissions from
48 the FCC to arrive at a combined daily PM_{2.5} emission total.

49
50 For purposes of this subsection a “day” is defined as a period of 24-hours
51 commencing at midnight and ending at the following midnight.

1
2 Daily natural gas and plant gas consumption shall be determined through the use of
3 flow meters.

4
5 Daily fuel oil consumption shall be monitored by means of leveling gauges on all
6 tanks that supply combustion sources.
7

8 The equation used to determine emissions for the boilers and furnaces shall be as
9 follows: Emissions = Emission Factor (lb/MMscf) * Gas Consumption (MMscf/24
10 hrs)/(2,000 lb/ton)
11

12 Results shall be tabulated for each day, and records shall be kept which include the
13 meter readings (in the appropriate units) and the calculated emissions.
14

15 ii. Source-wide NO_x Cap

16
17 ~~By~~ No later than January 1, 2019, combined emissions of NO_x shall not exceed 2.1
18 tons per day (tpd) and 766.5 tons per rolling 12-month period.
19

20 A. Setting of emission factors:
21

22 The emission factors derived from the most current performance test shall be
23 applied to the relevant quantities of fuel combusted. Unless adjusted by
24 performance testing as discussed in IX.H.12.f.ii.B below, the default emission
25 factors to be used are as follows:
26

27 Natural gas: shall be determined from the latest edition of AP-42
28

29 Plant gas: assumed equal to natural gas
30

31 Alkylation polymer: shall be determined from the latest edition of AP-42 (as fuel
32 oil #6)
33

34 Diesel fuel: shall be determined from the latest edition of AP-42
35

36 Where mixtures of fuel are used in a Unit, the above factors shall be weighted
37 according to the use of each fuel.
38

39 B. The default emission factors listed in IX.H.12.f.ii.A above apply until such time as
40 stack testing is conducted as outlined below:
41

42 Initial NO_x stack testing on natural gas/refinery fuel gas combustion equipment
43 above 100 MMBtu/hr has been performed and shall be conducted at least once
44 every three (3) years from the date of the last stack test. At that time a new flow-
45 weighted average emission factor in terms of: lbs/MMbtu shall be derived for each
46 combustion type listed in IX.H.12.f.ii.A above. Stack testing shall be performed as
47 outlined in IX.H.11.e.
48

49 C. Compliance with the source-wide NO_x Cap shall be determined for each day as
50 follows:
51

1 Total 24-hour NO_x emissions shall be calculated by adding the emissions for each
2 emitting unit. The emissions for each emitting unit shall be calculated by
3 multiplying the hours of operation of a unit, feed rate to a unit, or quantity of each
4 fuel combusted at each affected unit by the associated emission factor, and
5 summing the results.
6

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

12 For purposes of this subsection a “day” is defined as a period of 24-hours
13 commencing at midnight and ending at the following midnight.
14

15 Daily natural gas and plant gas consumption shall be determined through the use of
16 flow meters.
17

18 Daily fuel oil consumption shall be monitored by means of leveling gauges on all
19 tanks that supply combustion sources.
20

21 Results shall be tabulated for each day, and records shall be kept which include the
22 meter readings (in the appropriate units) and the calculated emissions
23

24 iii. Source-wide SO₂
25

26 ~~By~~ No later than January 1, 2019, combined emissions of SO₂ shall not exceed 1.05
27 tons per day (tpd) and 383.3 tons per rolling 12-month period.
28

29 A. Setting of emission factors:
30

31 The emission factors derived from the most current performance test shall be
32 applied to the relevant quantities of fuel combusted. The default emission factors to
33 be used are as follows:
34

35 FCC: The emission rate shall be determined by the FCC SO₂ CEM as outlined in
36 IX.H.11.f.
37

38 SRUs: The emission rate shall be determined by multiplying the sulfur dioxide
39 concentration in the flue gas by the flow rate of the flue gas. The sulfur dioxide
40 concentration in the flue gas shall be determined by CEM as outlined in IX.H.11.f.
41

42 Natural gas: EF = 0.60 lb/MMscf
43

44 Fuel oil & HF Alkylation polymer: The emission factor to be used for combustion
45 shall be calculated based on the weight percent of sulfur, as determined by ASTM
46 Method D-4294-89 or EPA-approved equivalent acceptable to the Director, and the
47 density of the fuel oil, as follows:
48

49 $EF \text{ (lb SO}_2\text{/k gal)} = \text{density (lb/gal)} * (1000 \text{ gal/k gal)} * \text{wt.\% S}/100 * (64 \text{ lb}$
50 $\text{SO}_2\text{/32 lb S)}$
51

1 Plant gas: the emission factor shall be calculated from the H₂S measurement
2 obtained from the H₂S CEM.

3
4 Where mixtures of fuel are used in a Unit, the above factors shall be weighted
5 according to the use of each fuel.
6

7 B. Compliance with the source-wide SO₂ Cap shall be determined for each day as
8 follows: Total daily SO₂ emissions shall be calculated by adding the daily SO₂
9 emissions for natural gas and plant fuel gas combustion, to those from the FCC and
10 SRU stacks.
11

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

14 Daily fuel oil consumption shall be monitored by means of leveling gauges on all
15 tanks that supply combustion sources.
16

17 Results shall be tabulated for each day, and records shall be kept which include
18 CEM readings for H₂S (averaged for each one-hour period), all meter reading (in
19 the appropriate units), fuel oil parameters (density and wt% sulfur for each day any
20 fuel oil is burned), and the calculated emissions.
21

22
23 iv. Emergency and Standby Equipment and Alternative Fuels
24

25 A. The use of diesel fuel meeting the specifications of 40 CFR 80.510 is allowed in
26 standby or emergency equipment at all times.
27

28 B. HF alkylation polymer may be burned in the Alky Furnace (F-36017).
29

30 C. Plant coke may be burned in the FCC Catalyst Regenerator.
31

32 v. Compressor Engine Requirements
33

34 A. Emissions of NO_x from each rich-burn compressor engine shall not exceed the
35 following:
36

Engine Number	NO _x in ppmvd @ 0% O ₂
1	236
2	208
3	230

37
38 B. Initial stack testing to demonstrate compliance with the above emission limitations
39 shall be performed no later than January 1, 2019 and at least once every three years
40 thereafter. Stack testing shall be performed as outlined in IX.H.11.e.
41

42 vi. Flare Calculation
43

44 A. Chevron's Flare #3 receives gases from its Isomerization unit, Reformer unit as

1
2
3

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

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1 [g]e. Compass Minerals Ogden Inc.

- 2
3 i. NO_x emissions to the atmosphere from the indicated emission point shall not
4 exceed the following concentrations:
5

Emission Points	Concentration (ppm)	lb/hr
Boiler #1	[9.0] 12	1.6
Boiler #2	[9.0] 12	1.6

9
10 Compliance to the above emission limits shall be determined by stack test as outlined in
11 Section IX Part H.11.e of this SIP. A compliance test shall be performed at least once
12 every three years subsequent to the initial compliance test.
13

- 14 ii. PM_{2.5} emissions (filterable+condensable) to the atmosphere from each of the
15 following emission points shall not exceed ~~[a concentration of 0.01 grains/dscf~~
16 ~~(@ 68 degrees F and 29.92 in Hg)]~~the listed lb/hr emission rates]:
17

18 [Source
19 SOP Plant Compaction/Loadout
20 Salt Plant Screening
21 SOP Plant Dryer D-001
22 SOP Plant Dryer D-002
23 SOP Plant Dryer D-003
24 SOP Plant Dryer D-004
25 SOP Plant Drying Circuit Fluid Bed Heater D-005
26 Salt Plant Dryer D-501]
27

Emission Unit	PM _{2.5} Emission Rate (lb/hr)
AH-500	2.52
AH-502	5.49
AH-513	2.32
BH-501	3.77
BH-1545	13.55
AH-1555	1.92
BH-1400	8.42
AH-692	0.44

28
29
30
31
32
33
34
35
36
37
38 A. Compliance to the above emission limits shall be determined by stack test as outlined
39 in Section IX Part H.11.e of this SIP. Compliance testing shall be performed at least
40 once every three years.
41

42 B. Process emissions shall be routed through operating controls prior to being emitted to
43 the atmosphere.
44

- 45 iii. PM_{2.5} emissions (filterable only) to the atmosphere ~~[from the indicated emission point~~
46 ~~shall not exceed the following rates and concentrations]~~from each of the following
47 emission points shall not exceed the listed lb/hr emission rates:
48

[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]
Emission Unit	PM _{2.5} Emission Rate (lb/hr)
SOP Plant Compaction Building Baghouse	0.21
BH-001	0.27
BH-002	0.6
BH-502	0.15

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.

iv. Emissions of VOC from all Magnesium Chloride Evaporators (four stacks total) shall not exceed 9.27 lb/hr.

A. Compliance 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.

1 [h]f. Hexel Corporation: Salt Lake Operations

2
3 i. The following limits shall not be exceeded for fiber line
4 operations:

5
6 A. 5.50 MMscf of natural gas consumed per day.

7
8 B. 0.061 MM pounds of carbon fiber produced per day.

9
10 C. Compliance with each limit shall be determined by the following methods:

11
12 I. Natural gas consumption shall be determined by examination of natural
13 gas billing records for the plant and onsite pipe-line metering.

14
15 II. Fiber production shall be determined by examination of plant production records.

16
17 III. Records of consumption and production shall be kept on a daily basis for all
18 periods when the plant is in operation.

19
20 ii. After a shutdown and prior to startup of fiber lines 13 to 16, the line's
21 baghouse(s) and natural gas injection dual chambered regenerative thermal
22 oxidizer shall be started and remain in operation during production.

23
24 A. During fiber line production, the static pressure differential across the filter media
25 shall be within the manufacturer's recommended range and shall be recorded daily.

26
27 B. The manometer or the differential pressure gauge shall be calibrated according to the
28 manufacturer's instructions at least once every 12 months.

29
30 iii. Filter boxes will be installed on Fiber lines 13 and 14 to control PM_{2.5} emissions no
31 later than December 31, 2019.

32
33 iv. After a shutdown and prior to startup of the fiber lines, the residence time and
34 temperature associated with the regenerative thermal-oxidation fume incinerators
35 and solvent-coating fume incinerators shall be started and remain in operation during
36 production.

37
38 A. Unless otherwise indicated, the carbon fiber production thermal-oxidation fume
39 incinerators the minimum temperature shall be 1,400 deg F and the residence time
40 shall be greater than or equal to 0.5 seconds

41
42 Solvent-coating fume incinerators the minimum temperature shall be 1,450 deg F
43 and the residence time shall be greater than or equal to 0.5 seconds

44
45 For fiber lines 6, 7, 8, 10, 11, 12, and the line associated with the Research and
46 Development Facility, the solvent coating fume incinerators temperature shall range
47 from 1,400 to 1,700 deg F and the residence time shall be greater than or equal to 1.0
48 second

49
50 Residence times shall be determined by:

$$R = V / Q_{\max}$$

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16

Where

R = residence time

V = interior volume of the incinerator – ft³

Q_{max} = maximum exhaust gas flow rate – ft³/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.

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1 i. Holly Corporation: Holly Refining & Marketing Company (Holly Refinery)

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

4
5 [By ~~it~~] 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
7 tons per day (tpd).

8
9 A. Setting of emission factors:

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

14
15 Natural gas or Plant gas:

16 non-NSPS combustion equipment: 7.65 lb PM_{2.5}/MMscf

17 NSPS combustion equipment: 0.52 lb PM_{2.5}/MMscf

18
19 Fuel oil:

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

22
23
$$\text{PM}_{2.5} \text{ (lb/1000 gal)} = (10 * \text{wt. \% S}) + 3$$

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

27
28 FCC Wet Scrubbers:

29 The PM_{2.5} emission factors shall be based on the most recent stack test and
30 verified by parametric monitoring as outlined in IX.H.11.g.i.B.III

31
32 B. The default emission factors listed in IX.H.12.i.i.A above apply until such time as
33 stack testing is conducted as outlined below:

34
35 Initial stack testing on all NSPS combustion equipment shall be conducted no
36 later than January 1, 2019 and at least once every three (3) years thereafter. At
37 that time a new flow-weighted average emission factor in terms of: lb
38 PM_{2.5}/MMBtu shall be derived. Stack testing shall be performed as outlined in
39 IX.H.11.e.

40
41 C. Compliance with the source-wide PM_{2.5} Cap shall be determined for each day as
42 follows: Total 24-hour PM_{2.5} emissions for the emission points shall be calculated
43 by adding the daily results of the PM_{2.5} emissions equations listed below for natural
44 gas, plant gas, and fuel oil combustion. These emissions shall be added to the
45 emissions from the wet scrubbers to arrive at a combined daily PM_{2.5} emission
46 total.

47
48 For purposes of this subsection a “day” is defined as a period of 24-hours
49 commencing at midnight and ending at the following midnight.

50
51 Daily natural gas and plant gas consumption shall be determined through the use of
52 flow meters on all gas-fueled combustion equipment.

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

3
4 The equations used to determine emissions for the boilers and furnaces shall
5 be as follows:

6
7 Emissions (tons/day) = Emission Factor (lb/MMscf) * Natural/Plant Gas
8 Consumption
9 (MMscf/day)/(2,000 lb/ton)

10
11 Emissions (tons/day) = Emission Factor (lb/kgal) * Fuel Oil Consumption
12 (kgal/day)/(2,000 lb/ton)

13
14 Results shall be tabulated for each day, and records shall be kept which include all
15 meter readings (in the appropriate units), and the calculated emissions.

16
17 ii. Source-wide NO_x Cap

18
19 ~~[By n]~~ No later than January 1, 2019, NO_x emissions into the atmosphere from all
20 emission points shall not exceed 347.1 tons per rolling 12-month period and 2.09 tons
21 per day (tpd).

22
23 A. Setting of emission factors:

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

26
27 Unless adjusted by performance testing as discussed in IX.H.12.i.ii.B below, the
28 default emission factors to be used are as follows:

29
30 Natural gas/refinery fuel gas combustion using:

31 Low NO_x burners (LNB): 41 lbs/MMscf

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

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

34 Boiler #5: 0.02 lbs/MMbtu

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

36 All other combustion burners: 100 lb/MMscf

37
38 Where:

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

41
42 All fuel oil combustion: 120 lbs/Kgal

43
44 B. The default emission factors listed in IX.H.12.k.ii.A above apply until such time as
45 stack testing is conducted as outlined in IX.H.11.e or by NSPS.

46
47 C. Compliance with the Source-wide NO_x Cap shall be determined for each day as
48 follows: Total daily NO_x emissions for emission points shall be calculated by
49 adding the results of
50 the NO_x equations for plant gas, fuel oil, and natural gas combustion listed below.
51 For
52 purposes of this subsection a "day" is defined as a period of 24-hours
53 commencing at midnight and ending at the following midnight.

1
2 Daily natural gas and plant gas consumption shall be determined through the use of
3 flow meters.

4
5 Daily fuel oil consumption shall be monitored by means of leveling gauges on all
6 tanks that supply combustion sources.

7
8 The equations used to determine emissions for the boilers and furnaces shall
9 be as follows:

10
11 Emissions (tons/day) = Emission Factor (lb/MMscf) * Natural Gas Consumption
12 (MMscf/day)/(2,000 lb/ton)

13
14 Emissions (tons/day) = Emission Factor (lb/MMscf) * Plant Gas Consumption
15 (MMscf/day)/(2,000 lb/ton)

16
17 Emissions (tons/day) = Emission Factor (lb/MMBTU) * Burner Heat Rating
18 (BTU/hr)*
19 24 hours per day /(2,000 lb/ton)

20
21 Emissions (tons/day) = Emission Factor (lb/kgal) * Fuel Oil Consumption
22 (kgal/day)/(2,000 lb/ton)

23
24 Results shall be tabulated for each day; and records shall be kept which include the
25 meter readings (in the appropriate units), emission factors, and the calculated
26 emissions.

27
28 iii. Source-wide SO₂ Cap

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

32
33 A. Setting of emission factors:

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

36
37 Natural gas - 0.60 lb SO₂/MMscf

38
39 Plant gas - The emission factor to be used in conjunction with plant gas combustion
40 shall be determined through the use of a CEM which will measure the H₂S content
41 of the fuel gas. The CEM shall operate as outlined in IX.H.11.f.

42
43 Fuel oil - The emission factor to be used in conjunction with fuel oil combustion
44 shall be calculated based on the weight percent of sulfur, as determined by ASTM
45 Method D-4294-89 or EPA-approved equivalent, and the density of the fuel oil, as
46 follows:

47
48 (lb of SO₂/kgal) = (density lb/gal) * (1000 gal/kgal) * (wt. %S)/100 * (64 g SO₂/32
49 g S)

50
51 The weight percent sulfur and the fuel oil density shall be recorded for each day
52 any fuel oil is combusted.

1 B. Compliance with the Source-wide SO₂ Cap shall be determined for each day as
2 follows: Total daily SO₂ emissions shall be calculated by adding daily results of the
3 SO₂ emissions
4 equations listed below for natural gas, plant gas, and fuel oil combustion. For
5 purposes
6 of this subsection a “day” is defined as a period of 24-hours commencing at
7 midnight and ending at the following midnight.
8

9 The equations used to determine emissions are:

10
11 Emissions (tons/day) = Emission Factor (lb/MMscf) * Natural Gas Consumption
12 (MMscf/day)/(2,000 lb/ton)

13
14 Emissions (tons/day) = Emission Factor (lb/MMscf) * Plant Gas Consumption
15 (MMscf/day)/(2,000 lb/ton)

16
17 Emissions (tons/day) = Emission Factor (lb/kgal) * Fuel Oil Consumption
18 (kgal/24 hrs)/(2,000 lb/ton)

19
20 For purposes of these equations, fuel consumption shall be measured as outlined
21 below: Daily natural gas and plant gas consumption shall be determined through
22 the use of flow meters.
23

24 Daily fuel oil consumption shall be monitored by means of leveling gauges on all
25 tanks that supply combustion sources.
26

27 Results shall be tabulated for each day, and records shall be kept which include CEM
28 readings for H₂S (averaged for each one-hour period), all meter reading (in the
29 appropriate units), fuel oil parameters (density and wt% sulfur for each day any fuel
30 oil is burned), and the calculated emissions.
31

32 iv. Emergency and Standby Equipment

33
34 A. The use of diesel fuel meeting the specifications of 40 CFR 80.510 is allowed in
35 standby or emergency equipment at all times.
36
37

1 j. 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]~~ Emissions
6 at the Bingham Canyon Mine shall not exceed 6,205 tons of NO_x, PM_{2.5}, and SO₂
7 combined per rolling 12-month period[30,000 miles].

8
9 ~~[KUC shall keep records of daily total mileage for all periods when the mine is in~~
10 ~~operation. KUC shall track haul truck miles with a Global Positioning System or~~
11 ~~equivalent. The system shall use real time tracking to determine daily mileage.]~~

12
13 B. Maximum total NO₂ emissions from ore and waste haul trucks shall not exceed 16.9
14 tons per day (calendar month average).

15
16 ~~[B]C.~~ To minimize fugitive dust on roads at the mine, the owner/operator shall
17 perform the following measures:

18
19 I. Apply water to all active haul roads as weather and operational conditions
20 warrant except during precipitation or freezing weather conditions, and shall
21 apply a chemical dust suppressant to active haul roads located outside of the pit
22 influence boundary no less than twice per year.

23
24 II. Chemical dust suppressant shall be applied as weather and operational
25 conditions warrant except during precipitation or freezing weather conditions on
26 unpaved access roads that receive haul truck traffic and light vehicle traffic.

27
28 III. Records of water and/or chemical dust control treatment shall be kept for all
29 periods when the BCM is in operation.

30
31 IV. KUC is subject to the requirements in the most recent federally approved
32 Fugitive Emissions and Fugitive Dust rules.

33
34 ~~[C]D.~~ ~~[To minimize emissions at the mine, the owner/operator shall:]~~ The In-pit
35 crusher baghouse shall not exceed a PM_{2.5} emission limit of 0.78 lbs/hr. PM_{2.5}
36 monitoring shall be performed by stack testing every three years.

37
38 ~~[I. Control emissions from the in-pit crusher with a baghouse.]~~

39
40 ~~[D]E.~~ Implementation Schedule

41
42 When KUC replaces[shall purchase new] haul trucks, they shall be replaced with
43 trucks that have the highest engine Tier level available which meet mining needs.
44 KUC shall maintain records of haul trucks purchased and [retired]replaced.

45
46 ~~[E. Minimum design payload per ore and waste haul truck shall not be less than 240-~~
47 ~~tons. The minimum design payload for all trucks combined shall be an average of~~
48 ~~300 tons.]~~

49
50 ii. Copperton Concentrator (CC)

51
52 A. Control emissions from the Product Molybdenite Dryers with a scrubber during
53 operation of the dryers.

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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.

~~[The remaining heaters shall not operate more than 300 hours per rolling 12-month period unless upgraded so the NOx emission rate is no greater than 30 ppm.]~~

B. The eight (8) Tioga heaters shall not consume more than 120 MMCF of natural gas per year.

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1 k. Kennecott Utah Copper (KUC): Power Plant

2
3 i. Utah Power Plant

4
5 A. ~~[Boilers #1, #2, and #3 shall not be operated after January 1, 2018, or upon~~
6 ~~commencing operations of Unit #5 (combined cycle, natural gas fired combustion~~
7 ~~turbine), whichever is sooner.]When burning natural gas, Unit #4 shall not exceed~~
8 ~~the following emission rates to the atmosphere:~~

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

	Pollutant	grains/dscf 68°F. 29.92 in Hg	ppmdv	lbs/hr 3% O ₂	lbs/event
11					
12	I. PM _{2.5} :				
13	Filterable	0.004			
14	Filterable +				
15	condensable	0.03			
16					
17	II NO _x :		20	17.0	
18	Startup / Shutdown				395
19					
20					
21					
22					
23					

24 ~~[III. NH₄ _____ 2.0*]~~

25 B. When burning coal Unit #4 shall not exceed the following emission rates to the
26 atmosphere:

	Pollutant	grains/dscf 68°F. 29.92 in Hg	ppmdv	lbs/MMBTU 3% O ₂	lbs/event
27					
28	I. PM _{2.5} :				
29	Filterable	0.029			
30	Filterable +				
31	condensable	0.29			
32					
33	II NO _x :		80	0.06	
34	Startup / Shutdown				395
35					
36					
37					

38 * Except during startup and shutdown.

39
40 IV. Startup / Shutdown Limitations:

- 41
- 42 1. The total number of startups and shutdowns together shall not exceed 690 per
 - 43 calendar year.
 - 44
 - 45 2. The NO_x emissions shall not exceed 395 lbs from each startup/shutdown event,
 - 46 which shall be determined using manufacturer data.
 - 47

48 3. Definitions:

- 49
- 50 (i) Startup cycle duration ends when the unit achieves half of the design electrical
 - 51 generation capacity.
 - 52

(ii) Shutdown duration cycle begins with the initiation of boiler shutdown and ends when fuel flow to the boiler is discontinued.

B. Upon commencement of operation of Unit #4, stack testing to demonstrate compliance with ~~the~~ each emission limitation[s] in IX.H.12.k.i.A and IX.H.12.k.i.B shall be performed as follows~~[for the following air contaminants]~~:

* Initial compliance testing for the ~~[natural gas-fired]~~ Unit 4 boiler is required. Initial testing shall be performed when burning natural gas and also when burning coal as fuel. 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. PM_{2.5} every year
- II. NO_x every year
- ~~III. NH₄ every year]~~

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

Pollutant	lbs/hr	lbs/event	ppmdv (15% O ₂ dry)
I. PM _{2.5} with duct firing: Filterable + condensable	18.8		
II. VOC:			2.0*
III. NO _x : Startup / Shutdown	395		2.0*
IV. NH₄			2.0*]

* Except during startup and shutdown.

IV. Startup / Shutdown Limitations:

1. The total number of startups and shutdowns together shall not exceed 690 per calendar year.
2. The NO_x 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 boiler shutdown and ends when fuel flow to the boiler is discontinued.

D: Upon commencement of operation of Unit #5*, stack testing to demonstrate compliance with the emission limitations in IX.H.12.m.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. PM _{2.5}	every year
II. NO _x	every year
III. VOC	every year
IV. NH₄	every year

1 1. 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
8 I. Main Stack (Stack No. 11)

- 9
10 1. $PM_{2.5}$
11 a. 85 lbs/hr (filterable)
12 b. 434 lbs/hr (filterable + condensable)
13
14 2. SO_2
15 a. 552 lbs/hr (3 hr. rolling average)
16 b. 422 lbs/hr (daily average)
17
18 3. NO_x 154 lbs/hr (daily average)

19
20 II. Holman Boiler

- 21
22 1. NO_x
23 a. [14]9.0 lbs/hr, (calendar-day average)
24

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

27
28

EMISSION POINT	POLLUTANT	TEST FREQUENCY
29 I. Main Stack (Stack No. 11)	$PM_{2.5}$	Every Year
	SO_2	CEM
	NO_x	CEM
34 II. Holman Boiler	NO_x	Every three years and 35 alternate method 36 according to 37 applicable NSPS 38 standards

39

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

43
44 C. During startup/shutdown operations, NO_x and SO_2 emissions are monitored by
45 CEMS or alternate methods in accordance with applicable NSPS standards.

46
47 D. KUC must operate and maintain the air pollution control equipment and monitoring
48 equipment in a manner consistent with good air pollution control practices for
49 minimizing emissions at all times including during startup, shutdown, and
50 malfunction.

51
52 ii. Refinery:

1 A. Emissions to the atmosphere from the indicated emission point shall not exceed the
2 following rate:

3	EMISSION POINT	POLLUTANT	MAXIMUM EMISSION RATE
4			
5			
6	The sum of two		
7	(Tankhouse) Boilers	NO _x	9.5 lbs/hr (<u>before December 2020</u>)
8			
9	<u>(Upgraded</u>		
10	<u>Tankhouse Boiler)</u>	NO _x	1.5 lbs/hr (After December 2020)
11			
12	Combined Heat Plant	NO _x	5.96 lbs/hr
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
17			
18			
19	Upgraded Tankhouse		
20	Boilers	NO _x	every three years*
21			
22	Combined Heat Plant	NO _x	every year
23			

24 * Stack testing shall be performed on boilers that have operated more than 300
25 hours during a three year period.

26
27 C. One 82 MMBTU/hr Tankhouse boiler shall be upgraded to meet a NO_x rating of 9
28 ppm no later than December 31, 2020. The remaining Tankhouse boiler shall not
29 consume more than 100,000 MCF of natural gas per rolling 12- month period unless
30 upgraded so the NO_x emission rate is no greater than 30 ppm

31
32 D. KUC must operate and maintain the stationary combustion turbine, air pollution
33 control equipment, and monitoring equipment in a manner consistent with good air
34 pollution control practices for minimizing emissions at all times including during
35 startup, shutdown, and malfunction. Records shall be kept on site which indicate the
36 date[₇] and time of startups and shutdowns.
37

1 m. Nucor Steel Mills

2
3 i. Emissions to the atmosphere from the indicated emission points shall not exceed the
4 following rates:

5
6 A. Electric Arc Furnace Baghouse

7
8 I. PM_{2.5}

- 9 1. 17.4 lbs/hr (24 hr. average filterable)
10 2. 29.53 lbs/hr (24 hr. average condensable)

11
12 II. SO₂

- 13 1. 93.98 lbs/hr (3 hr. rolling average)
14 2. 89.0 lbs/hr (daily average)

15
16 III. NO_x 59.5 lbs/hr (calendar-day average)

17
18 IV. VOC 22.20 lbs/hr

19
20 B. Reheat Furnace #1

21 NO_x 15.0 lb/hr

22
23 C. Reheat Furnace #2

24 NO_x 8.0 lb/hr

25
26 ii. Stack testing to show compliance with the emissions limitations of Condition (i)
27 above shall be performed as outlined in IX.H.11.e and as specified below:

28
29

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

30
31
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38
39

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

41
42 A. To demonstrate compliance with the Electric Arc Furnace stack mass emissions
43 limits for SO₂ and NO_x of Condition (i)(A) above, Nucor shall calibrate, maintain
44 and operate the measurement systems for continuously monitoring for SO₂ and NO_x
45 concentrations and stack gas volumetric flow rates in the Electric Arc Furnace stack.
46 Such measurement systems shall meet the requirements of R307-170.

47
48 B. For PM_{2.5} testing, 40 CFR 60, Appendix A, Method 5D, or another EPA approved
49 method acceptable to the Director, shall be used to determine total TSP emissions. If
50 TSP emissions are below the PM_{2.5} limit, that will constitute compliance with the
51 PM_{2.5} limit. If TSP emissions are not below the PM_{2.5} limit, the owner/operator shall
52 retest using EPA approved methods specified for PM_{2.5} testing, within 120 days.
53

C. Startup/shutdown NO_x and SO₂ emissions are monitored by CEMS.

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1 ~~[n. Olympia Sales Company: Cabinet Manufacturing Facility~~

2
3
4 ~~i. By July 31, 2018, a baghouse control device shall be in operation for control of the process-~~
5 ~~exhaust streams from the Mill, Door, and Sanding areas.~~

6
7 ~~ii. Process emissions from the Mill, Door, and Sanding areas shall be exhausted through the~~
8 ~~baghouse during startup, shutdown, and operations of the plant.~~

9
10 ~~iii. The baghouse shall operate a maximum of 4,160 hours per rolling 12-month period. Records-~~
11 ~~of baghouse operation shall be kept for all periods of plant operation. The records shall be~~
12 ~~kept on a daily basis. Hours of operation shall be determined by supervisor monitoring and~~
13 ~~maintaining of an operations log.~~

14
15 ~~iv. The owner/operator shall comply with all applicable provisions of R307-349.]~~
16

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1 n. PacifiCorp Energy: Gadsby Power Plant

2
3 i. Steam Generating Unit #1:

4
5 A. Emissions of NO_x shall be no greater than 179 lbs/hr on a three (3) hour block
6 average basis.

7
8 B. The owner/operator shall install, certify, maintain, operate, and quality-assure a
9 CEM consisting of NO_x and O₂ monitors to determine compliance with the
10 NO_x limitation. The CEM shall operate as outlined in IX.H.11.f.

11
12 ii. Steam Generating Unit #2:

13
14 A. Emissions of NO_x shall be no greater than 204 lbs/hr on a three (3) hour block
15 average basis.

16
17 B. The owner/operator shall install, certify, maintain, operate, and quality-assure a
18 continuous emission monitoring system (CEMS) consisting of NO_x and O₂
19 monitors to determine compliance with the NO_x limitation.

20
21 iii. Steam Generating Unit #3:

22 A. Emissions of NO_x shall be no greater than

23
24 I. 142 lbs/hr on a three (3) hour block average basis, applicable between
25 November 1 and February 28/29.

26
27 II. 203 lbs/hr on a three (3) hour block average basis, applicable between March 1
28 and October 31.

29 B. The owner/operator shall install, certify, maintain, operate, and quality-assure a
30 CEM consisting of NO_x and O₂ monitors to determine compliance with the
31 NO_x limitation. The CEM shall operate as outlined in IX.H.11.f.

32
33 iv. Steam Generating Units #1-3:

34
35 A. The owner/operator shall use only natural gas as a primary fuel and No. 2 fuel oil or
36 better as back-up fuel in the boilers. The No. 2 fuel oil may be used only during
37 periods of natural gas curtailment and for maintenance firings. Maintenance firings
38 shall not exceed one-percent of the annual plant Btu requirement. In addition,
39 maintenance firings shall be scheduled between April 1 and November 30 of any
40 calendar year. Records of fuel oil use shall be kept and they shall show the date the
41 fuel oil was fired, the duration in hours the fuel oil was fired, the amount of fuel oil
42 consumed during each curtailment, and the reason for each firing.

43
44 v. Natural Gas-fired Simple Cycle, Catalytic-controlled Turbine Units:

45
46 A. Total emissions of NO_x from all three turbines shall be no greater than 600
47 lbs/day. For purposes of this subsection a “day” is defined as a period of 24-hours
48 commencing at midnight and ending at the following midnight.

49
50 B. The owner/operator shall install, certify, maintain, operate, and quality-assure a
51 CEM consisting of NO_x and O₂ monitors to determine compliance with the
52 NO_x limitation. The CEM shall operate as outlined in IX.H.11.f.

1 vi. Combustion Turbine Startup / Shutdown Emission Minimization Plan

- 2
- 3 A. Startup begins when the fuel valves open and natural gas is supplied to the combustion
- 4 turbines
- 5
- 6 B. Startup ends when either of the following conditions is met:
- 7
- 8 I. The NO_x water injection pump is operational, the dilution air temperature is greater
- 9 than 600°F, the stack inlet temperature reaches 570°F, the ammonia block value has
- 10 opened and ammonia is being injected into the SCR and the unit has reached an
- 11 output of ten (10) gross MW; or
- 12
- 13 II. The unit has been in startup for two (2) hours.
- 14
- 15 C. Unit shutdown begins when the unit load or output is reduced below ten (10) gross MW
- 16 with the intent of removing the unit from service.
- 17
- 18 D. Shutdown ends at the cessation of fuel input to the turbine combustor.
- 19
- 20 E. Periods of startup or shutdown shall not exceed two (2) hours per combustion turbine
- 21 per day.
- 22
- 23 F. Turbine output (turbine load) shall be monitored and recorded on an hourly basis with
- 24 an electrical meter.

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

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

4
5 ~~[By 1]~~ No later than January 1, 2019, combined emissions of PM_{2.5}
6 (filterable+condensable) shall not exceed 2.25 tons per day (tpd) and 179 tons per
7 rolling 12-month period.

8
9 A. Setting of emission factors:

10
11 The emission factors derived from the most current performance test shall be
12 applied to the relevant quantities of fuel combusted. Unless adjusted by
13 performance testing as discussed in IX.H.12.p.i.B below, the default emission
14 factors to be used are as follows:

15
16 Natural gas:

17 Filterable PM_{2.5}: 1.9 lb/MMscf

18 Condensable PM_{2.5}: 5.7 lb/MMscf

19
20 Plant gas:

21 Filterable PM_{2.5}: 1.9 lb/MMscf

22 Condensable PM_{2.5}: 5.7 lb/MMscf

23
24 Fuel Oil: The PM_{2.5} emission factor shall be determined from the latest edition of
25 AP-42

26
27 FCC Wet Scrubber:

28 The PM_{2.5} emission factors shall be based on the most recent stack test and verified
29 by parametric monitoring as outlined in IX.H.11.g.i.B.III

30
31 Where mixtures of fuel are used in a Unit, the above factors shall be weighted
32 according to the use of each fuel.

33
34 B. The default emission factors listed in IX.H.12.p.i.A above apply until such time as
35 stack testing is conducted as outlined below:

36
37 Initial PM_{2.5} stack testing on the FCC wet gas scrubber stack shall be conducted no
38 later than January 1, 2019 and at least once every three (3) years thereafter. Stack
39 testing shall be performed as outlined in IX.H.11.e.

40
41 C. Compliance with the Source-wide PM_{2.5} Cap shall be determined for each day as
42 follows: Total 24-hour PM_{2.5} emissions for the emission points shall be calculated
43 by adding the daily results of the PM_{2.5} emissions equations listed below for natural
44 gas, plant gas, and fuel oil combustion. These emissions shall be added to the
45 emissions from the wet scrubber to arrive at a combined daily PM_{2.5} emission total.
46 For purposes of this subsection a “day” is defined as a period of 24-hours
47 commencing at midnight and ending at the following midnight.

1
2 Daily natural gas and plant gas consumption shall be determined through the use of
3 flow meters.
4

5 Daily fuel oil consumption shall be monitored by means of leveling gauges on all tanks
6 that supply combustion sources.
7

8 The equation used to determine emissions for the boilers and furnaces shall be as
9 follows: Emission Factor (lb/MMscf) * Gas Consumption (MMscf/24 hrs)/(2,000
10 lb/ton)

11 Results shall be tabulated for each day, and records shall be kept which include the
12 meter readings (in the appropriate units) and the calculated emissions.
13

14 ii. Source-wide NO_x Cap
15

16 ~~[By n]~~ No later than January 1, 2019, combined emissions of NO_x shall not exceed 2.3
17 tons per day (tpd) and 475 tons per rolling 12-month period.
18

19 A. Setting of emission factors:
20

21 The emission factors derived from the most current performance test shall be
22 applied to the relevant quantities of fuel combusted. Unless adjusted by
23 performance testing as discussed in IX.H.12.p.ii.B below, the default emission
24 factors to be used are as follows:
25

26 Natural gas/refinery fuel gas combustion using:

27 Low NO_x burners (LNB): 0.051 lbs/MMBtu

28 Ultra-Low NO_x (ULNB) burners: 0.04 lbs/MMBtu

29 Diesel fuel: shall be determined from the latest edition of AP-42
30

31 B. The default emission factors listed in IX.H.12.p.ii.A above apply unless stack
32 testing results are available or emissions are measured by operation of a NO_x
33 CEMS.
34

35 Initial NO_x stack testing on natural gas/refinery fuel gas combustion equipment
36 above 100 MMBtu/hr has already been performed and shall be conducted at least
37 once every three (3) years following the date of the last test. At that time a new
38 flow-weighted average emission factor in terms of: lbs/MMBtu shall be derived for
39 each combustion type listed in IX.H.12.p.ii.A above. Stack testing shall be
40 performed as outlined in IX.H.11.e. Stack testing is not required for natural
41 gas/refinery fuel gas combustion equipment with a NO_x CEMS.
42

43 C. Compliance with the source-wide NO_x Cap shall be determined for each day as
44 follows: Total 24-hour NO_x emissions shall be calculated by adding the emissions
45 for each emitting unit. The emissions for each emitting unit shall be calculated by
46 multiplying the hours of operation of a unit, feed rate to a unit, or quantity of each
47 fuel combusted at each affected unit by the associated emission factor, and
48 summing the results.
49

50 A NO_x CEM shall be used to calculate daily NO_x emissions from the FCCU wet
51 gas scrubber stack. Emissions shall be determined by multiplying the nitrogen
52 dioxide concentration in the flue gas by the flow rate of the flue gas. The NO_x
53 concentration in the flue gas shall be determined by a CEM as outlined in

1 IX.H.11.f.

2
3 Daily natural gas and plant gas consumption shall be determined through the use of
4 flow meters.

5
6 Daily fuel oil consumption shall be monitored by means of leveling gauges on all
7 tanks that supply combustion sources.

8
9 For purposes of this subsection a “day” is defined as a period of 24-hours
10 commencing at midnight and ending at the following midnight.

11
12 Results shall be tabulated for each day, and records shall be kept which include the
13 meter readings (in the appropriate units) and the calculated emissions.

14
15 iii. Source-wide SO₂ Cap

16
17 ~~[By n]~~ No later than January 1, 2019, combined emissions of SO₂ shall not exceed 3.8
18 tons per day (tpd) and 300 tons per rolling 12-month period.

19
20 A. Setting of emission factors:

21
22 The emission factors derived from the most current performance test shall be
23 applied to the relevant quantities of fuel combusted. The default emission factors to
24 be used are as follows:

25
26 Natural gas: EF = 0.60 lb/MMscf

27 Propane: EF = 0.60 lb/MMscf

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

29
30 Plant fuel gas: the emission factor shall be calculated from the H₂S measurement or
31 from the SO₂ measurement obtained by direct testing/monitoring.

32
33 Where mixtures of fuel are used in a unit, the above factors shall be weighted
34 according to the use of each fuel.

35
36 B. Compliance with the source-wide SO₂ Cap shall be determined for each day as
37 follows: Total daily SO₂ emissions shall be calculated by adding the daily SO₂
38 emissions for natural gas, plant fuel gas, and propane combustion to those from the
39 wet gas scrubber stack.

40
41 Daily SO₂ emissions from the FCCU wet gas scrubber stack shall be determined by
42 multiplying the SO₂ concentration in the flue gas by the flow rate of the flue gas.
43 The SO₂ concentration in the flue gas shall be determined by a CEM as outlined in
44 IX.H.11.f.

45
46 SRUs: The emission rate shall be determined by multiplying the sulfur dioxide
47 concentration in the flue gas by the flow rate of the flue gas. The sulfur dioxide
48 concentration in the flue gas shall be determined by CEM as outlined in IX.H.11.f

49
50 Daily SO₂ emissions from other affected units shall be determined by multiplying
51 the quantity of each fuel used daily at each affected unit by the appropriate
52 emission factor.

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

3
4 Daily fuel oil consumption shall be monitored by means of leveling gauges on all
5 tanks that supply combustion sources.

6
7 Results shall be tabulated for each day, and records shall be kept which include
8 CEM readings for H₂S (averaged for each one-hour period), all meter reading (in
9 the appropriate units), fuel oil parameters (density and wt% sulfur for each day any
10 fuel oil is burned), and the calculated emissions.

- 11
12 C. Instead of complying with Condition IX.H.11.g.ii.A, ~~[By no later than January 1,~~
13 ~~2018,]source may~~ reduce the H₂S content of the refinery plant gas to 60 ppm or less
14 or reduce SO₂ concentration from fuel gas combustion devices to 8 ppmvd at 0%
15 O₂ or less as described in 40 CFR 60.102a. Compliance shall be based on a rolling
16 average of 365 days. The owner/operator shall comply with the fuel gas or SO₂
17 emissions monitoring requirements of 40 CFR 60.107a and the related
18 recordkeeping and reporting requirements of 40 CFR 60.108a. As used herein,
19 refinery "plant gas" shall have the meaning of "fuel gas" as defined in 40 CFR
20 60.101a, and may be used interchangeably.

21
22 iv. SO₂ emissions from the SRU/TGTU/TGI shall be limited to:

- 23
24 A. 1.68 tons per day (tpd) for up to 21 days per rolling 12-month period, and
25
26 B. 0.69 tpd for the remainder of the rolling 12-month period.

27
28 Compliance with the daily limitations shall be determined as follows:

- 29
30 C. Daily sulfur dioxide emissions from the SRU/TGI/TGTU shall be determined by
31 multiplying the SO₂ concentration in the flue gas by the mass flow of the flue gas.
32 The sulfur dioxide concentration in the flue gas shall be determined by CEM as
33 outlined in IX.H.11.f

34
35 ~~iv~~v. Emergency and Standby Equipment

- 36
37 A. The use of diesel fuel meeting the specifications of 40 CFR 80.510 is allowed in
38 standby or emergency equipment at all times.

1 p. The Procter & Gamble Paper Products Company

- 2
3 i. Emissions to the atmosphere at all times from the indicated emission points shall not
4 exceed the following rates:

5
6 Source: Paper Making Boilers (Each)

7
8

Pollutant	Oxygen Ref.	lb/hr
NO _x	3%	3.3
PM _{2.5} (Filterable and Condensables)	3%	0.9

9
10
11

12 Source: Paper Machine Process Stack

13
14

Pollutant	Oxygen Ref.	lb/hr
NO _x	3%	13.50
PM _{2.5} (Filterable and Condensables)	3%	17.95

15
16
17

18 Source: Utility Boilers (Each)

19
20

Pollutant	Oxygen Ref.	lb/hr
NO _x	3%	1.8
PM _{2.5} (Filterable and Condensables)	3%	0.74

21
22
23

24 A. Compliance with the above emission limits shall be determined by stack test as
25 outlined in Section IX Part H.11.e of this SIP.

26
27 B. Subsequent to initial compliance testing, stack testing is required at a minimum of
28 every three years.

29
30 ii. Boiler Startup/Shutdown Emissions Minimization Plan

31
32 A. Startup begins when natural gas is supplied to the Boiler(s) with the intent of
33 combusting the fuel to generate steam. Startup conditions end within thirty (30) minutes
34 of natural gas being supplied to the boilers(s).

35
36 B. Shutdown begins with the initiation of the stop sequence of the boiler until the
37 cessation of natural gas flow to the boiler.

38
39 iii. Paper Machine Startup/Shutdown Emissions Minimization Plan

40
41 A. Startup begins when natural gas is supplied to the dryer combustion equipment with
42 the intent of combusting the fuel to heat the air to a desired temperature for the paper
43 machine. Startup conditions end within thirty (30) minutes of natural gas being
44 supplied to the dryer combustion equipment.

45
46 B. Shutdown begins with the diversion of the hot air to the dryer startup stack and then
47 the cessation of natural gas flow to the dryer combustion equipment. Shutdown
48 conditions end within thirty (30) minutes of hot air being diverted to the dryer
49 startup stack.

1 q. University of Utah: University of Utah Facilities

2
3 i Emissions to the atmosphere from the listed emission points in Building 303 LCHWTP
4 shall not exceed the following concentrations:
5

6

Emissions Point	Pollutant	ppmdv (3% O ₂ dry)
[Boilers #3]	[NO _x]	[18]7
Boiler[s] #4[a & 4b]*	NO _x	[9]7
Boilers #[5a]6 & [5b]7	NO _x	9
<u>Boiler #9*</u>	<u>NO_x</u>	9
Turbine	NO _x	9
Turbine and WHRU Duct burner	NO _x	15

7 *~~Boiler #4 will be replaced with Boiler #4a and #4b by 2018~~ By December 31, 2019,
8 Boiler #4 will be decommissioned and Boiler #9 will be installed and operational.
9

10 ii. Stack testing to show compliance with the emissions limitations of Condition i above
11 shall be performed as outlined in IX.H.11.e and as specified below:
12

13

Emissions Point	Pollutant	Initial Test	Test Frequency[#]
[Boilers #3]	[NO _x]	[*]	[every 3 years]
Boilers #4[a & 4b]*	NO _x	[2018]*	[every 3 years]#
Boilers #[5a]6 & [5b]7	NO _x	[2017]*	[every 3 years]#
Boiler #9*	NO _x	2020	[every 3 years]#
Turbine	NO _x	*	[every 3 years]#
Turbine and WHRU Duct Burner	NO _x	*	[every 3 years]#

14

15
16 Initial test already performed
17

18 * Initial tests have been performed and the next method test using EPA approved
19 test methods shall be performed within 3 years of the last stack test. Initial
20 compliance testing for Boiler #9 is required. The initial test date shall be
21 performed within 60 days after achieving the maximum heat input capacity
22 production rate at which the affected facility will be operated and in no case later
23 than 180 days after the initial startup of a new emission source.

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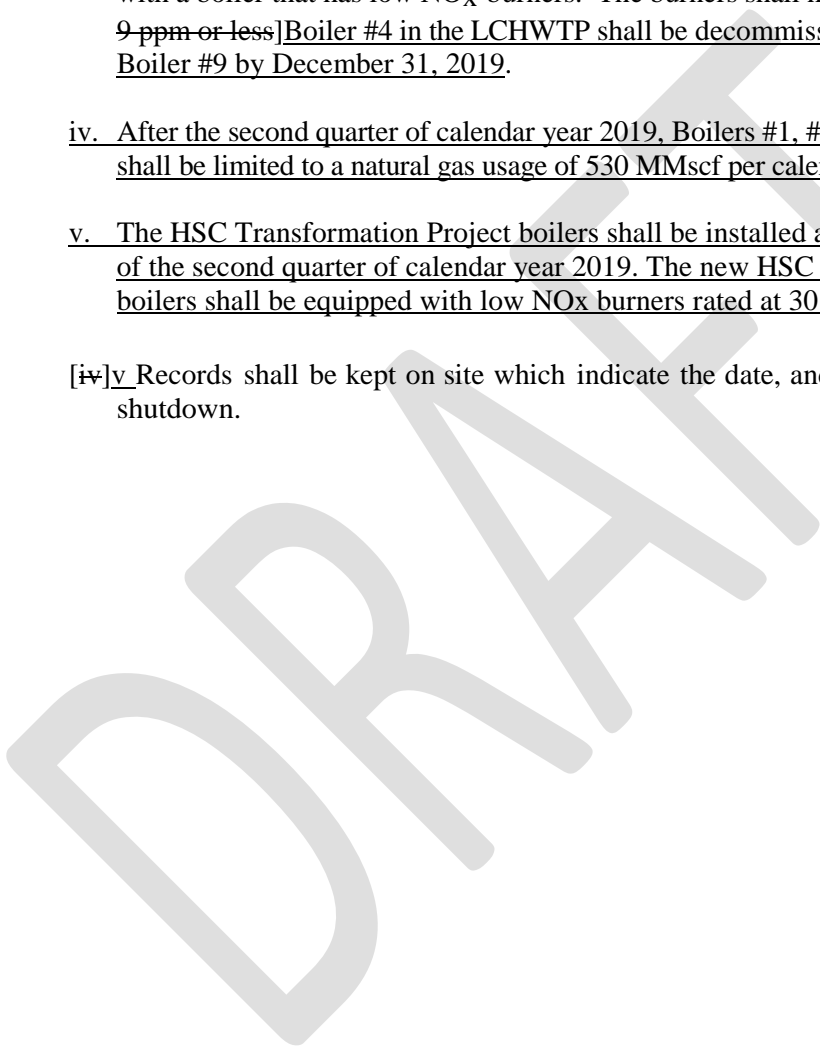
A compliance test shall be performed at least once every three years from the date of the last compliance test that demonstrated compliance with the emission limit(s). Compliance testing shall be performed using EPA approved test methods acceptable to the Director. The Director shall be notified, in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

~~ii. [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 NO_x burners or is replaced with a boiler that has low NO_x burners. The burners shall have a NO_x rating that are 9 ppm or less]~~ Boiler #4 in the LCHWTP shall be decommissioned and replaced by Boiler #9 by December 31, 2019.

iv. After the second quarter of calendar year 2019, Boilers #1, #3, and #4 in the UCHWTP shall be limited to a natural gas usage of 530 MMscf per calendar year.

v. The HSC Transformation Project boilers shall be installed and operational by the end of the second quarter of calendar year 2019. The new HSC Transformation Project boilers shall be equipped with low NO_x burners rated at 30 ppmvd at 3% O₂ or less.

~~[i]~~ v Records shall be kept on site which indicate the date, and time of startup and shutdown.



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- r. Utah Municipal Power Association: West Valley Power Plant.
 - i. Total emissions of NO_x from all five (5) catalytic-controlled turbines combined shall be no greater than 1050 lb of NO_x 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 NO_x from all five (5) catalytic-controlled turbines shall include the sum of all periods in the day including periods of startup, shutdown, and maintenance.
 - iii. The NO_x emission rate (lb/hr) shall be determined by CEM. The CEM shall operate as outlined in IX.H.11.f.

DRAFT

1 [u. ~~Wasatch Integrated Waste Management District~~

2
3 Energy Recovery Facility

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

7
8 ii. ~~By January 1, 2018, emissions of NO_x from the Municipal Waste Combustors shall not~~
9 ~~exceed 320 ppm_{dv} (7% O₂, dry basis), based on a 24-hour daily arithmetic average-~~
10 ~~concentration.~~

11
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13
14 A. ~~Compliance with the NO_x limitation shall be determined by operation of CEMS. The~~
15 ~~operation of the CEMS shall be in accordance with IX.H.11.f.~~

16
17 iii. ~~Emissions of SO₂ from the Municipal Waste Combustors shall not exceed 31 ppm_{dv} (7%~~
18 ~~O₂, dry basis), based on a 24-hour daily block geometric average concentration.~~

19
20 A. ~~Compliance with the SO₂ limitation shall be determined by operation of CEMS. The~~
21 ~~operation of the CEMS shall be in accordance with IX.H.11.f.~~

22
23 iv. ~~Emissions of PM_{2.5} from the Municipal Waste Combustors shall not exceed 27~~
24 ~~milligrams (filterable) per dry standard cubic meter (Averaging Time: 3-run average),~~
25 ~~based on a run duration specified in the test method.~~

26
27 A. ~~Compliance with the PM_{2.5} limitation shall be determined by stack testing. The~~
28 ~~stack testing shall be done in accordance with IX.H.11.e.~~

29
30 v. ~~Gas Suspension Absorber (GSA) and PAC Injection~~

31
32 A. ~~The control system for the GSA shall automatically shut down or start up the feeder~~
33 ~~screws, slurry pumps, and PAC feeder based upon minimum required gas flows and~~
34 ~~temperature.~~

35
36 B. ~~The facility shall follow the Operations and Maintenance Manual shall ensure the GSA is~~
37 ~~operated as long as possible during startup/shutdown:~~

38
39 I. ~~Cold Light Off~~

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

43
44 II. ~~Hot Light Off~~

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

48
49 III. ~~Secure to Hot~~

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

1 ~~IV. Secure to Cold~~

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

4
5 ~~V. Malfunction Shut Down~~

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

8
9 ~~The GSA and PAC injection operations shall be recorded and documented in an operations log.~~
10 ~~The log shall record the hours operated, date, and time during start up/shut down events.~~

11
12 ~~vi. Electrostatic Precipitator (ESP)~~

13
14 ~~A. Each unit is equipped with an ESP for control of particulate emissions. The ESPs shall be~~
15 ~~operated in accordance with the facility Operations and Maintenance Manual. The facility~~
16 ~~Operations and Maintenance Manual shall ensure the ESP is operated as long as possible~~
17 ~~during start up/shut down:~~

18
19 ~~I. Cold Light Off~~

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

22
23 ~~II. Hot Light Off~~

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

26
27 ~~III. Secure to Hot~~

28 ~~Continue operations of the ESP throughout shutdown period as possible.~~

29
30 ~~IV. Secure to Cold~~

31 ~~Continue operations of the ESP throughout shutdown period as possible.~~

32
33 ~~V. Malfunction Shut Down~~

34 ~~Continue operations of the ESP throughout shutdown period as possible.~~

35
36 ~~All operations of the ESPs shall be documented in an operations log. This log shall record the~~
37 ~~hours operated, date, and times during start up/shut down events.~~

38
39 Landfill Operation

40
41 ~~i. The owner/operator shall be subject to and comply with the requirements of 40 CFR 63~~
42 ~~Subpart AAAAA (National Emission Standards for Hazardous Air Pollutants: Municipal Solid~~
43 ~~Waste Landfills)]~~
44

1 s. Hill Air Force Base

2
3 i. Painting and Depainting Operations

4
5 A. VOC emissions from painting and depainting operations shall not exceed 0.58 tons per
6 day (tpd).

7
8 I. No later than the 28th of each month, a rolling 30-day VOC emission average shall
9 be calculated for the previous month.

10
11 ii. Boilers

12
13 A. The combined NO_x emissions for all boilers (except those less than 5 MMBtu/hr) shall
14 not exceed 95 lb/hr. This limit shall not apply during periods of curtailment.

15
16 I. No later than the 28th of each month, the NO_x lb/hr emission total shall be
17 calculated for the previous month.

18
19 B. No later than December 31, 2024, no boiler shall be operating on base with the capacity
20 over 30 MMBtu/hr and with a manufacture date older than January 1, 1989.

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