



**Compliance Assurance Monitoring (CAM)
Plan
Longview Mill
WestRock Longview, LLC**

January, 2020

I. Background

Under 40 CFR Part 64, WestRock Longview, LLC (WestRock), is required to submit a Compliance Assurance Monitoring (CAM) Plan to the Washington Department of Ecology as part of the Longview Mill's Title V operating permit renewal application. CAM is required for each federally enforceable applicable standard for each pollutant at each emission unit that meets all of the following criteria.

1. The unit is subject to an emission limitation or standard for the applicable regulated air pollutant (or surrogate thereof), other than an emission limitation or standard that is exempt per §64.2(b)(1).
2. The unit uses a control device to achieve compliance. [40 CFR 64.2(a)(2)]
3. The potential pre-control emissions of the applicable pollutant from the unit are equal to or greater than 100 percent of the major source amount (normally 100 tons per year). [40 CFR 64.2(a)(3)]

CAM is not required for each federally enforceable standard for each pollutant at each emission unit that meets the following exemptions:

1. Emission limitations or standards proposed by the Administrator after November 15, 1990 pursuant to section 111 or 112 of the Act (e.g., New Source Performance Standards (NSPS) or National Emission Standards for Hazardous Air Pollutants / Maximum Achievable Control Technology Standards (NESHAP / MACT) proposed after November 15, 1990) [40 CFR 64.2(b)(1)(i)]
2. Emission limitations or standards for which a part 70 or 71 permit specifies continuous compliance determination, e.g. continuous emission monitoring system (CEMS) and/or continuous opacity monitoring system (COMS) [40 CFR 64.2(b)(1)(vi)]

Appendix A, Table 1 CAM Applicability Determinations - lists the emission limitation or standards for applicable pollutants at WestRock. The first column is for unit number and permit parameter/specific pollutant. The second column details the specific limit for that pollutant. The third column summarizes the monitoring requirements. The fourth column lists the applicable permit or regulatory requirement. The fifth column denotes whether the permit parameter is federally enforceable. The sixth column identifies the type of control device, if any, that is used to achieve compliance. The seventh column denotes whether the pre-controlled emissions are greater than the major source threshold. The eighth column denotes if the applicable standard is CAM applicable. The ninth column denotes whether the standard is a post-1990 CAA §111 or §112 limit. The tenth column identifies whether the permit specifies continuous compliance demonstration. The eleventh column identifies if CAM is necessary to demonstrate continuous compliance with the standard. And finally, the twelfth column lists the proposed CAM approach.

40 CFR 64.1 says, "Control device means equipment, other than inherent process equipment, that is used to destroy or remove air pollutant(s) prior to discharge to the atmosphere. The types of equipment that may commonly be used as control devices include, but are not limited to, fabric filters, mechanical collectors, electrostatic precipitators, inertial separators, afterburners, thermal or catalytic incinerators, adsorption devices (such as carbon beds), condensers, scrubbers (such as wet collection and gas absorption devices), selective catalytic or non-catalytic reduction systems, flue gas recirculation systems, spray dryers, spray towers, mist eliminators, acid plants, sulfur recovery plants, injection systems (such as water, steam, ammonia, sorbent or limestone injection), and combustion devices independent of the particular process being conducted at an emissions unit (e.g., the destruction of emissions achieved by venting process emission streams to flares, boilers or process heaters). For purposes of this part, a control device does not include passive control measures that act to prevent pollutants from forming, such as the use of seals, lids, or roofs to prevent the release of pollutants, use



of low-polluting fuel or feedstocks, or the use of combustion or other process design features or characteristics. If an applicable requirement establishes that particular equipment which otherwise meets this definition of a control device does not constitute a control device as applied to a particular pollutant-specific emissions unit, then that definition shall be binding for purposes of this part.

Note that the use of combustion or other process design features or characteristics to control or limit emissions are specifically exempt. The definition of control equipment specifically excludes the use of combustion or other process design feature to control or limit emission.

Most EPA emission standards adopted since 1990 are specifically exempt from requiring a CAM Plan submittal, because EPA has included all the necessary elements of the plan in the standard.

40 CFR 64.4(b) states that if, "an owner or operator relies on presumptively acceptable monitoring, no further justification for the appropriateness of that monitoring should be necessary other than an explanation of the applicability of such monitoring to the unit in question, unless data or information is brought forward to rebut the assumption." Per 40 CFR 64.4(b)(1), presumptively acceptable monitoring includes "monitoring approaches established by the permitting authority in a rule that constitutes part of the applicable implementation plan required pursuant to title I of the Act" such as NESHAP (MACT), NSPS, etc. Sections 40 CFR 64.4(b)(2) through (5) list additional presumptively acceptable monitoring approaches. WestRock has relied and will continue relying on these type of monitoring approaches to satisfy CAM requirements.

Appendix A, Table 2 Permit Limit Requirements Subject to CAM - is a subset of Table 1 and only lists standards for each emission unit for which CAM is required.



II. Monitoring Approach

A. Recovery Furnace #19

1. Applicable Regulation, Emission Limits, and Monitoring Summary

Particulate	0.040 gr/dscf @ 8% O ₂ , 1-hr average (avg. of three 1-hr tests)	PSD 01-03, Approval Condition No. 1.15
Particulate	0.10 gr/dscf @ 8% O ₂ , 1-hr average (avg. of three 1-hr tests)	WAC 173-405-040(1)(a)
Particulate	292 tons/12-month rolling total	PSD 01-03, Approval Condition No. 1.15
Opacity	35% average for more than 6 consecutive minutes in any 60 minute period.	WAC 173-405-040(6)

2. Monitoring Approach

Applicable Requirement	Particulate
General Monitoring Approach	Continuous opacity monitoring
Indicator Range	Opacity > 20%
Data Representativeness	The monitor is located according to the requirements of 40 CFR 60 Appendix B, Performance Specification 1
Verification of Operational Status	Monthly/Quarterly (M/Q), or as required by the permit, PM samples source test
QA/QC	The COMS is installed and operated according to 40 CFR 60, Appendix B, Performance Specification 1 and daily calibration checks of 40 CFR 60.13
Monitoring Frequency	One cycle of sampling and analyzing for each successive 10-second period and one cycle of data recording for each successive 6-minute period. [40 CFR 60.13(e)(1)]
Data Collection Frequency	One cycle of sampling and analyzing for each successive 10-second period and one cycle of data recording for each successive 6-minute period. [40 CFR 60.13(e)(1)]
Averaging Period	10 consecutive 6 minute averages

3. Justification

A continuous opacity monitoring system (COMS) satisfy the requirements of 40 CFR 64.3(d) and it is a presumptively acceptable monitoring approach per 40 CFR 64.4(b)(1) and (2). This unit is subject to opacity monitoring by NESHAP Subpart MM.



B. Recovery Furnace #22

1. Applicable Regulation, Emission Limits, and Monitoring Summary

Particulate	0.027 gr/dscf @ 8% O ₂ , 1-hr average (avg. of three 1-hr tests)	PSD 01-03, Approval Condition No. 1.22
Particulate	0.044 gr/dscf @ 8% O ₂ , 1-hr average (avg. of three 1-hr tests)	40 CFR 60.282(a)(1)(i)
Particulate	0.10 gr/dscf @ 8% O ₂ , 1-hr average (avg. of three 1-hr tests)	WAC 173-405-040(1)(a)
Particulate	256 tons/12-month rolling total	PSD 01-03, Approval Condition No. 1.22
Opacity	35% average for more than 6 consecutive minutes in any 60 minute period.	WAC 173-405-040(6)

2. Monitoring Approach

Applicable Requirement	Particulate
General Monitoring Approach	Continuous opacity monitoring
Indicator Range	Opacity > 20%
Data Representativeness	The monitor is located according to the requirements of 40 CFR 60 Appendix B, Performance Specification 1
Verification of Operational Status	Monthly/Quarterly (M/Q), or as required by the permit, PM samples source test
QA/QC	The COMS is installed and operated according to 40 CFR 60, Appendix B, Performance Specification 1 and daily calibration checks of 40 CFR 60.13
Monitoring Frequency	One cycle of sampling and analyzing for each successive 10-second period and one cycle of data recording for each successive 6-minute period. [40 CFR 60.13(e)(1)]
Data Collection Frequency	One cycle of sampling and analyzing for each successive 10-second period and one cycle of data recording for each successive 6-minute period. [40 CFR 60.13(e)(1)]
Averaging Period	10 consecutive 6 minute averages

3. Justification

A continuous opacity monitoring system (COMS) satisfy the requirements of 40 CFR 64.3(d) and it is a presumptively acceptable monitoring approach per 40 CFR 64.4(b)(1) and (2). This unit is subject to opacity monitoring by NESHAP Subpart MM.



C. Recovery Furnace #19 Smelt Dissolving Tanks

1. Applicable Regulation, Emission Limits, and Monitoring Summary

Particulate	0.12 lb/T BLS, 1-hr average (avg. of two 1-hr tests per side)	PSD 01-03, Approval Condition No. 1.40
Particulate	0.30 lb/T BLS, 1-hr average	WAC 173-405-040(2)
Particulate	44 tons/12-month rolling total	PSD 01-03, Approval Condition No. 1.40
Opacity	20% average for more than 6 consecutive minutes in any 60 minute period.	NOC Order No. 3462-AQ07, Condition B3.1
Opacity	35% average for more than 6 consecutive minutes in any 60 minute period.	WAC 173-405-040(6)

2. Monitoring Approach

Applicable Requirement	Particulate
General Monitoring Approach	Continuous wet scrubber pressure drop and fluid flow monitoring
Indicator Range	The operation ranges shall be determined as follows: (i) WestRock may base operating ranges on values recorded during previous performance tests or conduct additional performance tests for the specific purpose of establishing operating ranges, provided that test data used to establish the operating ranges are or have been obtained using the test methods required in 40 CFR 63 Subpart MM. WestRock must certify that all control techniques and processes have not been modified subsequent to the testing upon which the data used to establish the operating parameter ranges were obtained. [40 CFR 63.864(j)(1)] (ii) WestRock may establish expanded or replacement operating ranges for the monitoring parameter values and established in paragraph (i) or (ii) of this section during subsequent performance tests using the test methods in 40 CFR 63.865. [40 CFR 63.864(j)(2)]
Data Representativeness	The monitoring device used for the continuous measurement of the pressure drop of the gas stream across the scrubber must be certified by the manufacturer to be accurate to within a gage pressure of ± 500 Pascals (± 2 inches of water gage pressure); and the monitoring device used for continuous measurement of the scrubbing liquid flow rate must be certified by the manufacturer to be accurate within ± 5 percent of the design scrubbing liquid flow rate. [40 CFR 63.864(e)(10)]
Verification of Operational Status	Monthly/Quarterly (M/Q), or as required by the permit, PM samples source test
QA/QC	Confirm the meters read zero when the unit is not operating and calibrate pressure drop annually
Monitoring Frequency	WestRock must install, calibrate, maintain, and operate a continuous monitoring system that can be used to determine and record the pressure drop across the scrubber and the scrubbing liquid flow rate at least once every successive 15-minute period using the procedures in 40 CFR 63.8(c).
Data Collection Frequency	See above
Averaging Period	3-hours

3. Justification

This recovery furnace smelt dissolving tanks are subject to NESHAP Subpart MM. The monitoring requirements for 40 CFR Part 63, Subpart MM will be used as CAM for this unit.



D. Recovery Furnace #22 Smelt Dissolving Tank

1. Applicable Regulation, Emission Limits, and Monitoring Summary

Particulate	0.12 lb/T BLS, 1-hr average (avg. of two 1-hr tests per side)	PSD 01-03, Approval Condition No. 1.46
Particulate	0.2 lb/T BLS, 1-hr average	40 CFR 60.282(a)(2)
Particulate	0.30 lb/T BLS, 1-hr average	WAC 173-405-040(2)
Particulate	44 tons/12-month rolling total	PSD 01-03, Approval Condition No. 1.46
Opacity	20% average for more than 6 consecutive minutes in any 60 minute period.	NOC Order No. 3462-AQ07, Condition B4.1
Opacity	35% average for more than 6 consecutive minutes in any 60 minute period.	WAC 173-405-040(6)

2. Monitoring Approach

Applicable Requirement	Particulate
General Monitoring Approach	Continuous wet scrubber pressure drop and fluid flow monitoring
Indicator Range	<p>The operation ranges shall be determined as follows:</p> <ul style="list-style-type: none"> (i) WestRock may base operating ranges on values recorded during previous performance tests or conduct additional performance tests for the specific purpose of establishing operating ranges, provided that test data used to establish the operating ranges are or have been obtained using the test methods required in 40 CFR 63 Subpart MM. WestRock must certify that all control techniques and processes have not been modified subsequent to the testing upon which the data used to establish the operating parameter ranges were obtained. [40 CFR 63.864(j)(1)] (ii) WestRock may establish expanded or replacement operating ranges for the monitoring parameter values and established in paragraph (i) or (ii) of this section during subsequent performance tests using the test methods in 40 CFR 63.865. [40 CFR 63.864(j)(2)]
Data Representativeness	The monitoring device used for the continuous measurement of the pressure drop of the gas stream across the scrubber must be certified by the manufacturer to be accurate to within a gage pressure of ± 500 Pascals (± 2 inches of water gage pressure); and the monitoring device used for continuous measurement of the scrubbing liquid flow rate must be certified by the manufacturer to be accurate within ± 5 percent of the design scrubbing liquid flow rate. [40 CFR 63.864(e)(10)]
Verification of Operational Status	Monthly/Quarterly (M/Q), or as required by the permit, PM samples source test
QA/QC	Confirm the meters read zero when the unit is not operating and calibrate pressure drop annually
Monitoring Frequency	WestRock must install, calibrate, maintain, and operate a continuous monitoring system that can be used to determine and record the pressure drop across the scrubber and the scrubbing liquid flow rate at least once every successive 15-minute period using the procedures in 40 CFR 63.8(c).
Data Collection Frequency	See above
Averaging Period	3-hours

3. Justification

This recovery furnace smelt dissolving tanks are subject to NESHAP Subpart MM. The monitoring requirements for 40 CFR Part 63, Subpart MM will be used as CAM for this unit.



E. Lime Kiln #3

1. Applicable Regulation, Emission Limits, and Monitoring Summary

Particulate	0.030 gr/dscf @ 10% O ₂ , 1-hr average (avg. of three 1-hr tests)	PSD 01-03, Approval Condition No. 1.58
Particulate	0.13 gr/dscf @ 10% O ₂ , 1-hr average (avg. of three 1-hr tests)	WAC 173-405-040(3)(a)
Particulate	34 tons/12-month rolling total	PSD 01-03-1.58
Opacity	25% average for more than 6 consecutive minutes in any 60 minute period	NOC Order No. 3462-AQ07, Condition C3.1
Opacity	35% average for more than 6 consecutive minutes in any 60 minute period.	WAC 173-405-040(6)

2. Monitoring Approach

Applicable Requirement	Particulate
General Monitoring Approach	Continuous wet scrubber pressure drop and fluid flow monitoring
Indicator Range	The operation ranges shall be determined as follows: <ul style="list-style-type: none"> (i) WestRock may base operating ranges on values recorded during previous performance tests or conduct additional performance tests for the specific purpose of establishing operating ranges, provided that test data used to establish the operating ranges are or have been obtained using the test methods required in 40 CFR 63 Subpart MM. WestRock must certify that all control techniques and processes have not been modified subsequent to the testing upon which the data used to establish the operating parameter ranges were obtained. [40 CFR 63.864(j)(1)] (ii) WestRock may establish expanded or replacement operating ranges for the monitoring parameter values and established in paragraph (i) or (ii) of this section during subsequent performance tests using the test methods in 40 CFR 63.865. [40 CFR 63.864(j)(2)]
Data Representativeness	The monitoring device used for the continuous measurement of the pressure drop of the gas stream across the scrubber must be certified by the manufacturer to be accurate to within a gage pressure of ± 500 Pascals (± 2 inches of water gage pressure); and the monitoring device used for continuous measurement of the scrubbing liquid flow rate must be certified by the manufacturer to be accurate within ± 5 percent of the design scrubbing liquid flow rate. [40 CFR 63.864(e)(10)]
Verification of Operational Status	Monthly/Quarterly (M/Q), or as required by the permit, PM samples source test
QA/QC	Confirm the meters read zero when the unit is not operating and calibrate pressure drop annually
Monitoring Frequency	WestRock must install, calibrate, maintain, and operate a continuous monitoring system that can be used to determine and record the pressure drop across the scrubber and the scrubbing liquid flow rate at least once every successive 15-minute period using the procedures in 40 CFR 63.8(c).
Data Collection Frequency	See above
Averaging Period	3-hours

3. Justification

This lime kiln is subject to NESHAP Subpart MM. The monitoring requirements for 40 CFR Part 63, Subpart MM will be used as CAM for this unit.



F. Lime Kiln #4

1. Applicable Regulation, Emission Limits, and Monitoring Summary

Particulate	0.030 gr/dscf @ 10% O ₂ , 1-hr average (avg. of three 1-hr tests)	PSD 01-03, Approval Condition No. 1.64
Particulate	0.13 gr/dscf @ 10% O ₂ , 1-hr average (avg. of three 1-hr tests)	WAC 173-405-040(3)(a)
Particulate	34 tons/12-month rolling total	PSD 01-03-1.64
Opacity	25% average for more than 6 consecutive minutes in any 60 minute period	NOC Order No. 3462-AQ07, Condition C4.1
Opacity	35% average for more than 6 consecutive minutes in any 60 minute period.	WAC 173-405-040(6)

2. Monitoring Approach

Applicable Requirement	Particulate
General Monitoring Approach	Continuous wet scrubber pressure drop and fluid flow monitoring
Indicator Range	The operation ranges shall be determined as follows: (i) WestRock may base operating ranges on values recorded during previous performance tests or conduct additional performance tests for the specific purpose of establishing operating ranges, provided that test data used to establish the operating ranges are or have been obtained using the test methods required in 40 CFR 63 Subpart MM. WestRock must certify that all control techniques and processes have not been modified subsequent to the testing upon which the data used to establish the operating parameter ranges were obtained. [40 CFR 63.864(j)(1)] (ii) WestRock may establish expanded or replacement operating ranges for the monitoring parameter values and established in paragraph (i) or (ii) of this section during subsequent performance tests using the test methods in 40 CFR 63.865. [40 CFR 63.864(j)(2)]
Data Representativeness	The monitoring device used for the continuous measurement of the pressure drop of the gas stream across the scrubber must be certified by the manufacturer to be accurate to within a gage pressure of ±500 Pascals (±2 inches of water gage pressure); and the monitoring device used for continuous measurement of the scrubbing liquid flow rate must be certified by the manufacturer to be accurate within ±5 percent of the design scrubbing liquid flow rate. [40 CFR 63.864(e)(10)]
Verification of Operational Status	Monthly/Quarterly (M/Q), or as required by the permit, PM samples source test
QA/QC	Confirm the meters read zero when the unit is not operating and calibrate pressure drop annually
Monitoring Frequency	WestRock must install, calibrate, maintain, and operate a continuous monitoring system that can be used to determine and record the pressure drop across the scrubber and the scrubbing liquid flow rate at least once every successive 15-minute period using the procedures in 40 CFR 63.8(c).
Data Collection Frequency	See above
Averaging Period	3-hours

3. Justification

This lime kiln is subject to NESHAP Subpart MM. The monitoring requirements for 40 CFR Part 63, Subpart MM will be used as CAM for this unit.



G. Lime Kiln #5

1. Applicable Regulation, Emission Limits, and Monitoring Summary

Particulate	0.035 gr/dscf @ 10% O ₂ when burning natural gas and 0.060 gr/dscf @ 10% O ₂ when burning oil, 1-hr average (avg. of two 1-hr tests per side)	PSD 01-03, Approval Condition No. 1.70
Particulate	0.067 gr/dscf @ 10% O ₂ when burning natural gas and 0.13 gr/dscf @ 10% O ₂ when burning oil, 1-hr average	40 CFR 60.282(a)(3)
Particulate	0.13 gr/dscf @ 10% O ₂ , 1-hr average	WAC 173-405-040(3)(a)
Particulate	69 tons/12-month rolling total	PSD 01-03, Approval Condition No. 1.70
Opacity	35% average for more than 6 consecutive minutes in any 60 minute period.	WAC 173-405-040(6)

2. Monitoring Approach

Applicable Requirement	Particulate
General Monitoring Approach	Continuous opacity monitoring
Indicator Range	Opacity > 20%
Data Representativeness	The monitor is located according to the requirements of 40 CFR 60 Appendix B, Performance Specification 1
Verification of Operational Status	Monthly/Quarterly (M/Q), or as required by the permit, PM samples source test
QA/QC	The COMS is installed and operated according to 40 CFR 60, Appendix B, Performance Specification 1 and daily calibration checks of 40 CFR 60.13
Monitoring Frequency	One cycle of sampling and analyzing for each successive 10-second period and one cycle of data recording for each successive 6-minute period. [40 CFR 60.13(e)(1)]
Data Collection Frequency	One cycle of sampling and analyzing for each successive 10-second period and one cycle of data recording for each successive 6-minute period. [40 CFR 60.13(e)(1)]
Averaging Period	10 consecutive 6 minute averages

3. Justification

A continuous opacity monitoring system (COMS) satisfy the requirements of 40 CFR 64.3(d) and it is a presumptively acceptable monitoring approach per 40 CFR 64.4(b)(1) and (2). This unit is subject to opacity monitoring by NESHAP Subpart MM.



H. Power Boiler #20

1. Applicable Regulation, Emission Limits, and Monitoring Summary

Particulate	0.030 gr/dscf @ 7% O ₂ , 1-hr average (avg. of two 1-hr tests per side)	Order No. 3466-AQ07
Particulate	0.048 gr/dscf @ 7% O ₂ , 1-hr average	PSD 01-03, Approval Condition No. 1.86
Particulate	0.2 gr/dscf @ 7% O ₂ , 1-hr average	WAC 173-405-040(5)(a)
Particulate	234 tons/12-month rolling total	Order No. 3466-AQ07
Particulate	365 tons/12-month rolling total	PSD 01-03, Approval Condition No. 1.86
PM & PM ₁₀ - filterable	0.025 gr/dscf at 7% O ₂ , 1-hr average	NOC Order No. 8429
PM - total	0.089 gr/dscf at 7% O ₂ , 1-hr average	NOC Order No. 8429
PM ₁₀ - total	0.083 gr/dscf at 7% O ₂ , 1-hr average	NOC Order No. 8429
PM _{2.5} - total	0.081 gr/dscf at 7% O ₂ , 1-hr average	NOC Order No. 8429
Opacity	20% average for more than 6 consecutive minutes in any 60 minute period	Order Nos. NOC Order No. 3462-AQ07, Condition D4.1 & DE 03AQIS-5687, Condition 1
Opacity	20% average for more than 6 consecutive minutes in any 60 minute period, except for emissions due to soot blowing or grate cleaning for up to 15 minutes in 8 consecutive hours	WAC 173-405-040(6)

2. Monitoring Approach

Applicable Requirement	Particulate
General Monitoring Approach	Continuous wet scrubber pressure drop and recirculation flow, and wet electrostatic precipitator (ESP) secondary power monitoring
Indicator Range	Particulate matter limits - 40 CFR Part 63, Subpart DDDDD (Boiler MACT) operating limits for wet scrubber pressure drop, recirculation flow and wet ESP secondary power established during performance testing Opacity limit - 3-hr average limits specified in the "Emission Control Compliance Demonstration Plan (ECCDP)" (Included as an appendix in the Title V Air Operating Permit 000007-8)
Data Representativeness	Continuous wet scrubber pressure drop and recirculation flow, and wet ESP total power monitoring
Verification of Operational Status	Monthly/Quarterly (M/Q), or as required by the permit, PM samples source test
QA/QC	Annual continuous monitoring system (CMS) calibration pursuant to 40 CFR Part 63, Subpart DDDDD
Monitoring Frequency	WestRock must install, calibrate, maintain, and operate a continuous monitoring system that can be used to determine and record the pressure drop across the scrubber, the scrubbing liquid flow rate, and the ESP secondary power at least once every successive 15-minute period using the procedures in 40 CFR 63.8(c) and 40 CFR 63.7525.
Data Collection Frequency	See above
Averaging Period	720-rolling hours (particulate matter limits) and 3-hours (opacity limit)

3. Justification

This power boiler is subject to 40 CFR 60, Subpart Db and to NESHAP Subpart DDDDD (Boiler MACT). The monitoring requirements for 40 CFR Part 63, Subpart DDDDD (Boiler MACT) for particulate matter and ECCDP for opacity will be used as CAM for this unit.



Appendix A

Table 1 – CAM Applicability Determinations

Table 2 – Permit Limit Requirements Subject to CAM

Table 1 – CAM Applicability Determinations

Unit / Parameter	Limit	Monitoring Summary	Applicable Requirements	Federally Enforceable?	Control Device	Pre-controlled emissions > major source threshold?	CAM Applicable?	Post-11/15/90 §111/112 Limit?	Permit specifies continuous compliance demonstration	CAM Required?	Proposed CAM
Recovery Furnace 19 (RF19)											
PM & PM ₁₀	0.040 grains/dry standard cubic feet (gr/dscf) @ 8% O ₂ , 1-hr average (avg. of three 1-hr tests)	Source Test monthly/quarterly – EPA Reference Method 5 (RM 5)	PSD 01-03, Condition 1.15	Yes	Yes – Electrostatic Precipitator (ESP)	Yes	Yes	No	No	Yes	Opacity
PM & PM ₁₀	0.10 gr/dscf @ 8% O ₂ , 1-hr average (avg. of three 1-hr tests)	Source Test monthly – RM 5	WAC 173-405-040(1)(a)	Yes	Yes - ESP	Yes	Yes	No	No	Yes	Opacity
PM & PM ₁₀	292 tons/12-month rolling total	PSD Permit Mass Rate Limit Calculation	PSD 01-03, Condition 1.15	Yes	Yes - ESP	Yes	Yes	No	No	Yes	Opacity
PM (HAPS)	Particulate as a surrogate: 0.044 gr/dscf @ 8% O ₂	Monitor opacity with a continuous opacity monitor meeting the requirements of 40 CFR 63.6(h) and 63.8	40 CFR 63.862(a)(i) for limit 40 CFR 63.864(d) for monitoring 40 CFR 63.864 (k)(1) for corrective action 40 CFR 63.864 (k)(2) for violation definition 40 CFR 63.864 (k)(3) for number of exceedances per period 40 CFR 63.6(h) for SSM exclusion	Yes	Yes - ESP	Yes	Yes	Yes	Yes	No	---
Opacity	30% average for more than 6 consecutive minutes in any 60 minute period	Monitor continuously using an approved CEM that conforms to 40 CFR 60, App. B, PS 1	NOC Order No. 3462-AQ07, Condition A3.1	Yes	Yes - ESP	---	No	No	Yes – COMS installed prior to 2007-2008 AOP	No	---
Opacity	35% average for more than 6 consecutive minutes in any 60 minute period	EPA Reference Method 9	WAC 173-405-040(6)	Yes	Yes - ESP	---	Yes	No	No	Yes	Opacity
SO ₂	149 lb/hr, 3-hr average	Monitor continuously using an approved CEM that conforms to 40 CFR 60, App. B, PS 2	PSD 01-03, Condition 1.16	Yes	No - Combustion	Yes	No	No	Yes – CEMS installed prior to 2007-2008 AOP	No	---
SO ₂	301 tons/12-month rolling total	PSD Permit Mass Rate Limit Calculation	PSD 01-03, Condition 1.16	Yes	No - Combustion	Yes	No	No	---	No	---
SO ₂	500 ppm @ 8% O ₂ , 1-hr average	Monitor continuously using an approved CEM that conforms to 40 CFR 60, App. B, PS 2	WAC 173-405-040(9)(a)	Yes	No - Combustion	Yes	No	No	Yes – CEMS installed prior to 2007-2008 AOP	No	---
TRS as H ₂ S	10.0 ppm @ 8% O ₂ , 24-hr average	Monitor continuously using an approved CEM that conforms to 40 CFR 60, App. F and App. B, PS 5	PSD 01-03, Condition 1.19	Yes	No – Strong Black Liquor Oxidizer (SBLOX), process	Yes	No	No	Yes – CEMS installed prior to 2007-2008 AOP	No	---
TRS as H ₂ S	59 tons/12-month rolling total	PSD Permit Mass Rate Limit Calculation	PSD 01-03, Condition 1.19	Yes	No – SBLOX (process)	Yes	No	No	No	No	---
TRS (State-only)	17.5 ppm @ 8% O ₂ , 24-hr average	Monitor continuously using an approved CEM that conforms to 40 CFR 60, App. F and App. B, PS 5	WAC 173-405-040(1)(b)	No – State only requirement	No – SBLOX (process)	Yes	No	No	Yes - CEMS installed prior to 2007-2008 AOP	No	---

Unit / Parameter	Limit	Monitoring Summary	Applicable Requirements	Federally Enforceable?	Control Device	Pre-controlled emissions > major source threshold?	CAM Applicable?	Post-11/15/90 §111/112 Limit?	Permit specifies continuous compliance demonstration	CAM Required?	Proposed CAM
Recovery Furnace 19 (RF19)											
CO	600 lb/hr, 8-hr average	Source Test monthly/annually - RM 10	PSD 01-03, Condition 1.17	Yes	No - Combustion	Yes	No	No	No	No	---
CO	2,628 tons/12-month rolling total	PSD Permit Mass Rate Limit Calculation	PSD 01-03, Condition 1.17	Yes	No - Combustion	Yes	No	No	No	No	---
NO _x	95 ppm _d v @ 8% O ₂ , 24-hr average	Source Test monthly/annually - RM 7	PSD 01-03, Condition 1.18	Yes	No - Combustion	Yes	No	No	No	No	---
NO _x	753 tons/12-month rolling total	PSD Permit Mass Rate Limit Calculation	PSD 01-03, Condition 1.18	Yes	No - Combustion	Yes	No	No	No	No	---
VOC	1,020 tons/12-month rolling total	Source Test triennially - RM 25A	PSD 01-03, Condition 1.20	Yes	No - Combustion	Yes	No	No	No	No	---

Unit / Parameter	Limit	Monitoring Summary	Applicable Requirements	Federally Enforceable?	Control Device	Pre-controlled emissions > major source threshold?	CAM Applicable?	Post-11/15/90 §111/112 Limit?	Permit specifies continuous compliance demonstration	CAM Required?	Proposed CAM
Recovery Furnace 22 (RF22)											
PM & PM10	0.027 gr/dscf @ 8% O2, 1-hr average (avg. of three 1-hr tests)	Source Test monthly/quarterly – RM 5	PSD 01-03, Condition 1.22	Yes	Yes - ESP	Yes	Yes	No	No	Yes	Opacity
PM	0.044 gr/dscf @ 8% O2	Source Test monthly/quarterly – RM 5	40 CFR 60.282(a)(1)(i)	Yes	Yes - ESP	Yes	Yes	No	No	Yes	Opacity
PM	0.10 gr/dscf @ 8% O2, 1-hr average	Source Test monthly/quarterly – RM 5	WAC 173-405-040(1)(a)	Yes	Yes - ESP	Yes	Yes	No	No	Yes	Opacity
PM	256 tons/12-month rolling total	PSD Permit Mass Rate Limit Calculation	PSD 01-03, Condition 1.22	Yes	Yes - ESP	Yes	Yes	No	No	Yes	Opacity
PM (HAPS)	0.044 gr/dscf @ 8% O2	Monitor opacity with a continuous opacity monitor meeting the requirements of 40 CFR 63.6(h) and 63.8	40 CFR 63.862(a)(i) for Limit 40 CFR 63.864(d) for Monitoring 40 CFR 63.864 (k)(1) for corrective action 40 CFR 63.864 (k)(2) for violation definition 40 CFR 63.864 (k)(3) for number of exceedances per period 40 CFR 63.6(h) for SSM exclusion	Yes	Yes - ESP	Yes	Yes	Yes	Yes	No	---
Opacity	20% average for more than 6 consecutive minutes in any 60 minute period	Monitor continuously using an approved CEM that conforms to 40 CFR 60, App. B, PS 1	NOC Order No. 3462-AQ07, Condition A4.1	Yes	Yes - ESP	---	No	No	Yes – COMS installed prior to 2007-2008 AOP	No	---
Opacity	35% average for more than 6 consecutive minutes in any 60 minute period	Monitor continuously using an approved CEM that conforms to 40 CFR 60, App. B, PS 1	40 CFR 60.282(a)(1)(ii) for basis of limit 40 CFR 60.284(a)(1) and 40 CFR 60.284(e)(1)(ii) for basis of monitoring	Yes	Yes - ESP	---	No	No	Yes – COMS installed prior to 2007-2008 AOP	No	---
Opacity	35% average for more than 6 consecutive minutes in any 60 minute period	EPA Reference Method 9	WAC 173-405-040(6)	Yes	Yes - ESP	---	Yes	No	No	Yes	Opacity
SO ₂	295 lb/hr, 3-hr average	Monitor continuously using an approved CEM that conforms to 40 CFR 60, App. B, PS 2	PSD 01-03, Condition 1.23	Yes	No - Combustion	Yes	No	No	Yes – CEMS installed prior to 2007-2008 AOP	No	---
SO ₂	500 ppm @ 8% O2, 1-hr average	Monitor continuously using an approved CEM that conforms to 40 CFR 60, App. B, PS 2	WAC 173-405-040(9)(a)	Yes	No - Combustion	Yes	No	No	Yes – CEMS installed prior to 2007-2008 AOP	No	---
SO ₂	1,291 tons/12-month rolling total	PSD Permit Mass Rate Limit Calculation	PSD 01-03, Condition 1.23	Yes	No - Combustion	Yes	No	No	No	No	---
TRS as H ₂ S	3.0 ppm @ 8% O2, 12-hr average	Monitor continuously using an approved CEM that conforms to	PSD 01-03, Condition 1.26	Yes	No - Combustion	Yes	No	No	Yes – CEMS installed prior to 2007-2008 AOP	No	---

Unit / Parameter	Limit	Monitoring Summary	Applicable Requirements	Federally Enforceable?	Control Device	Pre-controlled emissions > major source threshold?	CAM Applicable?	Post-11/15/90 §111/112 Limit?	Permit specifies continuous compliance demonstration	CAM Required?	Proposed CAM
Recovery Furnace 22 (RF22)											
		40 CFR 60, App. F and App. B, PS 5									
TRS as H ₂ S	5.0 ppm @ 8% O ₂ , 24-hr average	Monitor continuously using an approved CEM that conforms to 40 CFR 60, App. F and App. B, PS 5	WAC 173-405-040(1)(c)	Yes	No - Combustion	Yes	No	No	Yes - CEMS installed prior to 2007-2008 AOP	No	---
TRS as H ₂ S	5 ppm @ 8% O ₂ , 12-hr average	Monitor continuously using an approved CEM that conforms to 40 CFR 60, App. F and App. B, PS 5	40 CFR 60.283(a)(2) for basis of limit 40 CFR 60.284(a)(2) and 40 CFR 60.284(e)(1)(i) for basis of monitoring	Yes	No - Combustion	Yes	No	No	Yes - CEMS installed prior to 2007-2008 AOP	No	---
TRS as H ₂ S	17 tons/12-month rolling total	PSD Permit Mass Rate Limit Calculation	PSD 01-03, Condition 1.26	Yes	No - Combustion	Yes	No	No	No	No	---
CO	300 ppm _{dv} @ 8% O ₂	Monitor continuously using an approved CEM that conforms to 40 CFR 60, App. F and App. B, PS 4	PSD 01-03, Condition 1.24	Yes	No - Combustion	Yes	No	No	Yes - CEMS installed prior to 2007-2008 AOP	No	---
CO	1,380 tons/12-month rolling total	PSD Permit Mass Rate Limit Calculation	PSD 01-03, Condition 1.24	Yes	No - Combustion	Yes	No	No	No	No	---
NO _x	95 ppm _{dv} @ 8% O ₂ , 3-hr average	Monitor continuously using an approved CEM that conforms to 40 CFR 60, App. F and App. B, PS 2	PSD 01-03, Condition 1.25	Yes	No - Combustion	Yes	No	No	Yes - CEMS installed prior to 2007-2008 AOP	No	---
NO _x	735 tons/12-month rolling total	PSD Permit Mass Rate Limit Calculation	PSD 01-03, Condition 1.25	Yes	No - Combustion	Yes	No	No	No	No	---

Unit / Parameter	Limit	Monitoring Summary	Applicable Requirements	Federally Enforceable?	Control Device	Pre-controlled emissions > major source threshold?	CAM Applicable?	Post-11/15/90 §111/112 Limit?	Permit specifies continuous compliance demonstration	CAM Required?	Proposed CAM
Smelt Dissolving Tank 19 (SDT19)											
PM & PM10	0.12 lb/T BLS, 1-hr average (avg. of two 1-hr tests per side)	Source Test monthly/quarterly – RM 5	PSD 01-03, Condition 1.40	Yes	Yes – Wet Scrubber	Yes	Yes	No	No	Yes	40 CFR 63 Subpart MM Parameters
PM	0.30 lb/T BLS, 1-hr average	Source Test monthly/quarterly – RM 5	WAC 173-405-040(2)	Yes	Yes – Wet Scrubber	Yes	Yes	No	No	Yes	40 CFR 63 Subpart MM Parameters
PM & PM10	44 tons/12-month rolling total	PSD Permit Mass Rate Limit Calculation	PSD 01-03, Condition 1.40	Yes	Yes – Wet Scrubber	Yes	Yes	No	No	Yes	40 CFR 63 Subpart MM Parameters
PM (HAPS)	Particulate as a surrogate: 0.20 lb/T BLS	Source Test monthly/quarterly – RM 5	40 CFR 63.862(a)(i) for limit 40 CFR 63.864(d) for monitoring 40 CFR 63.864 (k)(1) for corrective action 40 CFR 63.864 (k)(2) for violation definition 40 CFR 63.864 (k)(3) for number of exceedances per period 40 CFR 63.6(h) for SSM exclusion.	Yes	Yes – Wet Scrubber	Yes	Yes	Yes	Yes	No	---
Opacity	20% average for more than 6 consecutive minutes in any 60 minute period	Monitor wet scrubber Subpart MM parameters	NOC Order No. 3462-AQ07, Condition B3.1	Yes	Yes – Wet Scrubber	---	Yes	No	No – Wet Scrubber Subpart MM Parameters	Yes	40 CFR 63 Subpart MM Parameters
Opacity	35% average for more than 6 consecutive minutes in any 60 minute period	Monitor wet scrubber Subpart MM parameters	WAC 173-405-040(6)	Yes	Yes – Wet Scrubber	---	Yes	No	No – Wet Scrubber Subpart MM Parameters	Yes	40 CFR 63 Subpart MM Parameters
SO ₂	1,000 ppm, 1-hr average	Source Test triennially/monthly – RM 6C	WAC 173-405-040(9)(b)	Yes	Yes – Wet Scrubber	Yes	No	No	No	No	---
SO ₂	16 tons/12-month rolling average	Source Test triennially/monthly – RM 6C	PSD 01-03, Condition 1.41	Yes	Yes – Wet Scrubber	Yes	No	No	No	No	---
TRS as H ₂ S	114 tons/12-month rolling average	Source Test triennially/monthly – RM 16	PSD 01-03, Condition 1.44	Yes	Yes – Wet Scrubber	Yes	No	No	No	No	---
CO	66 tons/12-month rolling average	Source Test triennially/monthly – RM 10	PSD 01-03, Condition 1.42	Yes	No	No	No	No	No	No	---
NO _x	11 tons/12-month rolling average	Source Test triennially/monthly – RM 7	PSD 01-03, Condition 1.43	Yes	No	No	No	No	No	No	---

Note: Acid gases prior to the scrubber of the smelt dissolving tank are dependent of a variety of factors. In addition, the scrubber efficiencies are quite high for particulate and are relatively low for acid gases. Some of this is related to the effectiveness of the scrubber and some is related to the relatively low inlet concentrations. NCASI TB 895 provides details on the effectiveness of scrubbers on acid gases such as TRS.

The origin of the permit limitation for H₂S from SDT19 is unknown. Test results for TRS from this unit are well below 10 TPY. For this analysis, measured emission rates are used for the calculation of uncontrolled emissions.

Table 5.5 in NCASI TB 895 provides scrubber efficiencies of between 40 and 67% for H₂S. This is a reasonable assumption for SO₂ due to the relatively low oxidation of sulfur in the smelt. From this the following, pre-controlled emissions have been calculated assuming a scrubber efficiency of 53.5% (average of the efficiencies from TB895):

$$\begin{aligned} \text{SO}_2 \text{ (controlled)} &= 31 \text{ TPY} & \text{SO}_2 \text{ (uncontrolled)} &= 31 / (1 - 0.535) = 66.7 \text{ TPY} \\ \text{TRS (controlled)} &= 6 \text{ TPY} & \text{H}_2\text{S (uncontrolled)} &= 6 / (1 - 0.535) = 12.9 \text{ TPY} \end{aligned}$$

Unit / Parameter	Limit	Monitoring Summary	Applicable Requirements	Federally Enforceable?	Control Device	Pre-controlled emissions > major source threshold?	CAM Applicable?	Post-11/15/90 §111/112 Limit?	Permit specifies continuous compliance demonstration	CAM Required?	Proposed CAM
Smelt Dissolving Tank 19 (SDT19)											
As uncontrolled emissions are less than the major NSR threshold, CAM is not applicable for these compounds.											

Unit / Parameter	Limit	Monitoring Summary	Applicable Requirements	Federally Enforceable?	Control Device	Pre-controlled emissions > major source threshold?	CAM Applicable?	Post-11/15/90 §111/112 Limit?	Permit specifies continuous compliance demonstration	CAM Required?	Proposed CAM
Smelt Dissolving Tank 22 (SDT22)											
PM & PM10	0.12 lb/T BLS, 1-hr average (avg. of three 1-hr tests)	Source Test monthly/quarterly – RM 5	PSD 01-03, Condition 1.46	Yes	Yes – Wet Scrubber	Yes	Yes	No	No	Yes	40 CFR 63 Subpart MM Parameters
PM	0.2 lb/T BLS, 1-hr average	Source Test monthly/quarterly – RM 5	40 CFR 60.282(a)(2)	Yes	Yes – Wet Scrubber	Yes	Yes	No	No	Yes	40 CFR 63 Subpart MM Parameters
PM	0.30 lb/T BLS, 1-hr average	Source Test monthly/quarterly – RM 5	WAC 173-405-040(2)	Yes	Yes – Wet Scrubber	Yes	Yes	No	No	Yes	40 CFR 63 Subpart MM Parameters
PM & PM10	44 tons/12-month rolling total	PSD Permit Mass Rate Limit Calculation	PSD 01-03, Condition 1.46	Yes	Yes – Wet Scrubber	Yes	Yes	No	No	Yes	40 CFR 63 Subpart MM Parameters
PM (HAPS)	Particulate as a surrogate: 0.20 lb/T BLS	Monitor wet scrubber Subpart MM parameters	40 CFR 63.862(a)(i) for limit 40 CFR 63.864(d) for monitoring 40 CFR 63.864 (k)(1) for corrective action 40 CFR 63.864 (k)(2) for violation definition 40 CFR 63.864 (k)(3) for number of exceedances per period 40 CFR 63.6(h) for SSM exclusion.	Yes	Yes – Wet Scrubber	Yes	Yes	Yes	Yes	No	---
Opacity	20% average for more than 6 consecutive minutes in any 60 minute period	Monitor wet scrubber Subpart MM parameters	NOC Order No. 3462-AQ07, Condition B4.1	Yes	Yes – Wet Scrubber	---	Yes	No	No – Wet Scrubber Subpart MM Parameters	Yes	40 CFR 63 Subpart MM Parameters
Opacity	35% average for more than 6 consecutive minutes in any 60 minute period	Monitor wet scrubber Subpart MM parameters	WAC 173-405-040(6)	Yes	Yes – Wet Scrubber	---	Yes	No	No – Wet Scrubber Subpart MM Parameters	Yes	40 CFR 63 Subpart MM Parameters
SO ₂	1,000 ppm, 1-hour average	Source Test triennially/monthly – RM 6C	WAC 173-405-040(9)(b)	Yes	Yes – Wet Scrubber	Yes	No	No	No	No	---
SO ₂	31 tons/12-month rolling total	Source Test triennially/monthly – RM 6C Report monthly	PSD 01-03, Condition 1.47	Yes	Yes – Wet Scrubber	Yes	No	No	No	No	---
TRS as H ₂ S	0.0168 lb/TBLS, 24-hour average	Source Test triennially/monthly – RM 16	PSD 01-03, Condition 1.50	Yes	Yes – Wet Scrubber	Yes	No	No	No	No	---
TRS as H ₂ S	6 tons/12-month rolling total	Source Test triennially/monthly – RM 16	PSD 01-03, Condition 1.50	Yes	Yes – Wet Scrubber	Yes	No	No	No	No	---
TRS as H ₂ S	0.033 lb/T BLS as H ₂ S	Source Test triennially/monthly – RM 6C	40 CFR 60.283(a)(4).	Yes	Yes – Wet Scrubber	Yes	No	No	No	No	---
CO	65 tons/12-month rolling total	Source Test triennially/monthly – RM 10	PSD 01-03, Condition 1.48	Yes	No	No	No	No	No	No	---
NO _x	11 tons/12-month rolling total	Source Test triennially/monthly – RM 7	PSD 01-03, Condition 1.49	Yes	No	No	No	No	No	No	---

Note: Acid gases prior to the scrubber of the smelt dissolving tank are dependent of a variety of factors. In addition, the scrubber efficiencies are quite high for particulate and are relatively low for acid gases. Some of this is related to the effectiveness of the scrubber and some is related to the relatively low inlet concentrations. NCASI TB 895 provides details on the effectiveness of scrubbers on acid gases such as TRS.

Unit / Parameter	Limit	Monitoring Summary	Applicable Requirements	Federally Enforceable?	Control Device	Pre-controlled emissions > major source threshold?	CAM Applicable?	Post-11/15/90 §111/112 Limit?	Permit specifies continuous compliance demonstration	CAM Required?	Proposed CAM
Smelt Dissolving Tank 22 (SDT22)											
<p>Table 5.5 in NCASI TB 895 provides scrubber efficiencies of between 40 and 67% for H2S. This is a reasonable assumption for SO2 due to the relatively low oxidation of sulfur in the smelt. From this the following, pre-controlled emissions have been calculated assuming a scrubber efficiency of 53.5% (average of the efficiencies from TB895):</p> <p>SO2 (controlled) = 31 TPY SO2 (uncontrolled) = 31 / (1 - 0.535) = 66.7 TPY TRS (controlled) = 6 TPY H2S (uncontrolled) = 6 / (1 - 0.535) = 12.9 TPY</p> <p>As uncontrolled emissions are less than the major NSR threshold, CAM is not applicable for these compounds.</p>											

Unit / Parameter	Limit	Monitoring Summary	Applicable Requirements	Federally Enforceable?	Control Device	Pre-controlled emissions > major source threshold?	CAM Applicable?	Post-11/15/90 §111/112 Limit?	Permit specifies continuous compliance demonstration	CAM Required?	Proposed CAM
Lime Kiln 3 (LK3)											
PM & PM10	0.030 gr/dscf @ 10% O2, 1-hr average (avg. of three 1-hr tests)	Source Test monthly/quarterly – RM 5	PSD 01-03, Condition 1.58	Yes	Yes – Wet Scrubber	Yes	Yes	No	No	Yes	40 CFR 63 Subpart MM Parameters
PM	0.13 gr/dscf @ 10% O2, 1-hr average (avg. of three 1-hr tests)	Source Test monthly/quarterly – RM 5	WAC 173-405-040(3)(a)	Yes	Yes – Wet Scrubber	Yes	Yes	No	No	Yes	40 CFR 63 Subpart MM Parameters
PM & PM10	34 tons/12-month rolling total	PSD Permit Mass Rate Limit Calculation	PSD 01-03, Condition 1.58	Yes	Yes – Wet Scrubber	Yes	Yes	Yes	No	Yes	40 CFR 63 Subpart MM Parameters
PM (HAPS)	Particulate as a surrogate: 0.064 gr/dscf @ 10% O2, 1-hr average	Monitor wet scrubber Subpart MM parameters	40 CFR 63.862(a)(i) for limit 40 CFR 63.864(d) for monitoring 40 CFR 63.864 (k)(1) for corrective action 40 CFR 63.864 (k)(2) for violation definition 40 CFR 63.864 (k)(3) for number of exceedances per period 40 CFR 63.6(h) for SSM exclusion	Yes	Yes – Wet Scrubber	Yes	Yes	Yes	Yes	No	---
Opacity	25% average for more than 6 consecutive minutes in any 60 minute period	Monitor wet scrubber Subpart MM parameters	NOC Order No. 3462-AQ07, Condition C3.1	Yes	Yes – Wet Scrubber	---	Yes	No	No – Wet Scrubber Subpart MM Parameters	Yes	40 CFR 63 Subpart MM Parameters
Opacity	35% average for more than 6 consecutive minutes in any 60 minute period	Monitor wet scrubber Subpart MM parameters	WAC 173-405-040(6)	Yes	Yes – Wet Scrubber	---	Yes	No	No – Wet Scrubber Subpart MM Parameters	Yes	40 CFR 63 Subpart MM Parameters
SO ₂	20 ppm _{dv} @ 10% O2, 3-hr average	Monitor continuously using an approved CEM that conforms to 40 CFR 60, App. B, PS 2	PSD 01-03, Condition 1.59	Yes	Yes – Wet Scrubber	Yes	No	No	Yes - CEMS installed post 2007-2008 AOP	No	---
SO ₂	500 ppm @ 10% O2, 1-hr average	Monitor continuously using an approved CEM that conforms to 40 CFR 60, App. B, PS 2	WAC 173-405-040(9)(a)	Yes	Yes – Wet Scrubber	Yes	No	No	Yes - CEMS installed post 2007-2008 AOP	No	---
SO ₂	27 tons/12-month rolling total	PSD Permit Mass Rate Limit Calculation	PSD 01-03, Condition 1.59	Yes	Yes – Wet Scrubber	---	No	No	No	No	---
TRS as H ₂ S	20 ppm @ 10% O2, 24-hr average	Monitor continuously using an approved CEM that conforms to 40 CFR 60, App. B, PS 5	PSD 01-03, Condition 1.62	Yes	Yes – Wet Scrubber Lime Mud Oxidizer (process)	---	No	No	Yes – CEMS installed prior to 2007-2008 AOP	No	---
TRS as H ₂ S	10 tons/12-month rolling total	PSD Permit Mass Rate Limit Calculation	PSD 01-03, Condition 1.62	Yes	Yes – Wet Scrubber Lime Mud Oxidizer (process)	---	No	No	Yes – CEMS installed prior to 2007-2008 AOP	No	---
TRS as H ₂ S	Temperature ≥ 1,200°F and retention time ≥ 0.5 seconds when burning NCGs	Monitor unit operation, flame safety interlocks, and interlock connections to NCG valves	40 CFR 60.283(a)(1)(iii)	Yes	Yes – Wet Scrubber Lime Mud Oxidizer (process)	---	No	No	---	No	---
TRS (State-only)	20 ppm @ 10% O ₂ , 24-hr average	Monitor continuously using an approved CEM that conforms to	WAC 173-405-040(3)(c)	No	Yes – Wet Scrubber	---	No	No	Yes – CEMS installed prior to 2007-2008 AOP	No	---

Unit / Parameter	Limit	Monitoring Summary	Applicable Requirements	Federally Enforceable?	Control Device	Pre-controlled emissions > major source threshold?	CAM Applicable?	Post-11/15/90 §111/112 Limit?	Permit specifies continuous compliance demonstration	CAM Required?	Proposed CAM
Lime Kiln 3 (LK3)											
		40 CFR 60, App. B, PS 5			Lime Mud Oxidizer (process)						
TRS (State-only)	80 ppm H ₂ S @ 10% O ₂ for more than 2 consecutive hours	Monitor continuously using an approved CEM that conforms to 40 CFR 60, App. B, PS 5	WAC 173-405-040(3)(b)	No	Yes - Wet Scrubber Lime Mud Oxidizer (process)	---	No	No	Yes - CEMS installed prior to 2007-2008 AOP	No	---
CO	133 lb/hr, 8-hr average	Source Test monthly/annually - RM 10	PSD 01-03, Condition 1.60	Yes	No - Combustion	Yes	No	No	No	No	---
CO	581 tons/12-month rolling total	PSD Permit Mass Rate Limit Calculation	PSD 01-03, Condition 1.60	Yes	No - Combustion	Yes	No	No	No	No	---
NO _x	340 ppmdv @ 10% O ₂ , 24-hr average	Source Test monthly/annually - RM 7	PSD 01-03, Condition 1.61	Yes	No - Combustion	Yes	No	No	No	No	---
NO _x	238 tons/12-month rolling total	PSD Permit Mass Rate Limit Calculation	PSD 01-03, Condition 1.61	Yes	No - Combustion	Yes	No	No	No	No	---

NOTE: Scrubber efficiencies and uncontrolled emissions of H₂S and SO₂ from lime kiln scrubbers are highly variable due to the amount of sulfur, degree of mud washing efficiency and sulfur content of scrubbing solution. In addition, the kiln is equipped with TRS and SO₂ CEMS so regardless of the level of uncontrolled emissions, these units are exempt from CAM for these pollutants due to the presence of CEMS.

Unit / Parameter	Limit	Monitoring Summary	Applicable Requirements	Federally Enforceable?	Control Device	Pre-controlled emissions > major source threshold?	CAM Applicable?	Post-11/15/90 §111/112 Limit?	Permit specifies continuous compliance demonstration	CAM Required?	Proposed CAM
Lime Kiln 4 (LK4)											
PM & PM10	0.030 gr/dscf @ 10% O2, 1-hr average (avg. of three 1-hr tests)	Source Test monthly/quarterly – RM 5	PSD 01-03, Condition 1.64	Yes	Yes – Wet Scrubber	Yes	Yes	No	No	Yes	40 CFR 63 Subpart MM Parameters
PM	0.13 gr/dscf @ 10% O2, 1-hr average	Source Test monthly/quarterly – RM 5	WAC 173-405-040(3)(a)	Yes	Yes – Wet Scrubber	Yes	Yes	No	No	Yes	40 CFR 63 Subpart MM Parameters
PM & PM10	35.6 tons/12-month rolling total	PSD Permit Mass Rate Limit Calculation	PSD 01-03, Condition 1.64	Yes	Yes – Wet Scrubber	Yes	Yes	No	No	Yes	40 CFR 63 Subpart MM Parameters
PM (HAPS)	Particulate as a surrogate: 0.064 gr/dscf @ 10% O2, 1-hr average	Monitor wet scrubber Subpart MM parameters	40 CFR 63.862(a)(i) for limit 40 CFR 63.864(d) for monitoring 40 CFR 63.864 (k)(1) for corrective action 40 CFR 63.864 (k)(2) for violation definition 40 CFR 63.864 (k)(3) for number of exceedances per period 40 CFR 63.6(h) for SSM exclusion	Yes	Yes – Wet Scrubber	Yes	Yes	Yes	Yes	No	---
Opacity	25% average for more than 6 consecutive minutes in any 60 minute period	Monitor wet scrubber Subpart MM parameters	NOC Order No. 3462-AQ07, Condition C4.1	Yes	Yes – Wet Scrubber	---	Yes	No	No – Wet Scrubber Subpart MM Parameters	Yes	40 CFR 63 Subpart MM Parameters
Opacity	35% average for more than 6 consecutive minutes in any 60 minute period	Monitor wet scrubber Subpart MM parameters	WAC 173-405-040(6)	Yes	Yes – Wet Scrubber	---	Yes	No	No – Wet Scrubber Subpart MM Parameters	Yes	40 CFR 63 Subpart MM Parameters
SO ₂	20 ppmdv @ 10% O2, 3-hr average	Monitor continuously using an approved CEM that conforms to 40 CFR 60, App. B, PS 2	PSD 01-03, Condition 1.65	Yes	Yes – Wet Scrubber	Yes	No	No	Yes – CEMS installed post 2007-2008 AOP	No	---
SO ₂	500 ppm @ 10% O2, 1-hr average	Monitor continuously using an approved CEM that conforms to 40 CFR 60, App. B, PS 2	WAC 173-405-040(9)(a)	Yes	Yes – Wet Scrubber	Yes	No	No	Yes – CEMS installed post 2007-2008 AOP	No	---
SO ₂	28 tons/12-month rolling total	PSD Permit Mass Rate Limit Calculation	PSD 01-03, Condition 1.65	Yes	Yes – Wet Scrubber	---	No	---	---	No	---
TRS as H ₂ S	20 ppm @ 10% O2, 24-hr average	Monitor continuously using an approved CEM that conforms to 40 CFR 60, App. B, PS 5	PSD 01-03, Condition 1.68	Yes	Yes – Wet Scrubber Lime Mud Oxidizer (process)	---	No	No	Yes – CEMS installed prior to 2007-2008 AOP	No	---
TRS as H ₂ S	11 tons/12-month rolling total	PSD Permit Mass Rate Limit Calculation	PSD 01-03, Condition 1.68	Yes	Yes – Wet Scrubber Lime Mud Oxidizer (process)	---	No	No	Yes – CEMS installed prior to 2007-2008 AOP	No	---
TRS as H ₂ S	Temperature ≥ 1,200°F and retention time ≥0.5 seconds when burning NCGs	Monitor unit operation, flame safety interlocks, and interlock connections to NCG valves	40 CFR 60.283(a)(1)(iii)	Yes	Yes – Wet Scrubber Lime Mud Oxidizer (process)	---	No	No	---	No	---

Unit / Parameter	Limit	Monitoring Summary	Applicable Requirements	Federally Enforceable?	Control Device	Pre-controlled emissions > major source threshold?	CAM Applicable?	Post-11/15/90 §111/112 Limit?	Permit specifies continuous compliance demonstration	CAM Required?	Proposed CAM
Lime Kiln 4 (LK4)											
TRS (State-only)	20 ppm @ 10% O ₂ , 24-hr average	Monitor continuously using an approved CEM that conforms to 40 CFR 60, App. B, PS 5	WAC 173-405-040(3)(c)	No	Yes – Wet Scrubber Lime Mud Oxidizer (process)	---	No	No	Yes – CEMS installed prior to 2007-2008 AOP	No	---
TRS (State-only)	80 ppm H ₂ S @ 10% O ₂ for more than 2 consecutive hours	Monitor continuously using an approved CEM that conforms to 40 CFR 60, App. B, PS 5	WAC 173-405-040(3)(b).	No	Yes – Wet Scrubber Lime Mud Oxidizer (process)	---	No	No	Yes – CEMS installed prior to 2007-2008 AOP	No	---
CO	138 lb/hr, 8-hr average	Source Test monthly/annually – RM 10	PSD 01-03, Condition 1.66	Yes	No – Combustion	Yes	No	No	No	No	---
CO	605 tons/12-month rolling total	PSD Permit Mass Rate Limit Calculation	PSD 01-03, Condition 1.66	Yes	No – Combustion	Yes	No	No	No	No	---
NO _x	340 ppmdv @ 10% O ₂ , 24-hr average	Source Test monthly/annually – RM 7	PSD 01-03, Condition 1.67	Yes	No – Combustion	Yes	No	No	No	No	---
NO _x	248 tons/12-month rolling total	PSD Permit Mass Rate Limit Calculation	PSD 01-03, Condition 1.67	Yes	No – Combustion	Yes	No	No	No	No	---
NOTE: Scrubber efficiencies and uncontrolled emissions of H ₂ S and SO ₂ from lime kiln scrubbers are highly variable due to the amount of sulfur, degree of mud washing efficiency and sulfur content of scrubbing solution. In addition, the kiln is equipped with TRS and SO ₂ CEMS so regardless of the level of uncontrolled emissions, these units are exempt from CAM for these pollutants due to the presence of CEMs.											

Unit / Parameter	Limit	Monitoring Summary	Applicable Requirements?	Federally Enforceable?	Control Device	Pre-controlled emissions > major source threshold?	CAM Applicable?	Post-11/15/90 §111/112 Limit?	Permit specifies continuous compliance demonstration	CAM Required?	Proposed CAM
Lime Kiln 5 (LK5)											
PM & PM10	0.035 gr/dscf @ 10% O2 when burning natural gas and 0.060 gr/dscf @ 10% O2 when burning oil, 1-hr average (avg. of two 1-hr tests per side)	Source Test monthly/quarterly – RM 5	PSD 01-03, Condition 1.70	Yes	Yes – ESP	Yes	Yes	No	No	Yes	Opacity
PM	0.067 gr/dscf @ 10% O2 when burning natural gas and 0.13 gr/dscf @ 10% O2 when burning oil, 1-hr average	Source Test monthly/quarterly – RM 5	40 CFR 60.282(a)(3)	Yes	Yes – ESP	Yes	Yes	No	No	Yes	Opacity
PM	0.13 gr/dscf @ 10% O2, 1-hr average	Source Test monthly/quarterly – RM 5	WAC 173-405-040(3)(a)	Yes	Yes – ESP	Yes	Yes	No	No	Yes	Opacity
PM & PM10	69 tons/12-month rolling total	PSD Permit Mass Rate Limit Calculation	PSD 01-03, Condition 1.70	Yes	Yes – ESP	Yes	Yes	No	No	Yes	Opacity
PM (HAPS)	Particulate as a surrogate: 0.064 gr/dscf @ 10% O2, 1-hr average	Monitor opacity with a continuous opacity monitor meeting the requirements of 40 CFR 63.6(h) and 63.8	40 CFR 63.862(a)(i) for limit 40 CFR 63.864(d) for monitoring 40 CFR 63.864 (k)(1) for corrective action 40 CFR 63.864 (k)(2) for violation definition 40 CFR 63.864 (k)(3) for number of exceedances per period 40 CFR 63.6(h) for SSM exclusion	Yes	Yes – ESP	Yes	Yes	Yes	Yes	No	---
Opacity	25% average for more than 6 consecutive minutes in any 60 minute period	Monitor continuously using an approved CEM that conforms to 40 CFR 60, App. B, PS 1	NOC Order No. 3462-AQ07, Condition C5.1	Yes	Yes – ESP	---	No	No	Yes – COMS installed prior to 2007-2008 AOP	No	---
Opacity	35% average for more than 6 consecutive minutes in any 60 minute period	EPA Reference Method 9	WAC 173-405-040(6)	Yes	Yes - ESP	---	Yes	No	No	Yes	Opacity
SO2	20 ppmdv @ 10% O2, 3-hr average	Monitor continuously using an approved CEM that conforms to 40 CFR 60, App. B, PS 2	PSD 01-03, Condition 1.71	Yes	No	Yes	No	No	Yes – CEMS installed post NOC 8429	No	---
SO2	500 ppm @ 10% O2, 1-hr average	Monitor continuously using an approved CEM that conforms to 40 CFR 60, App. B, PS 2	WAC 173-405-040(9)(a)	Yes	No	Yes	No	No	Yes – CEMS installed post NOC 8429	No	---
SO2	28 tons/12-month rolling total	PSD Permit Mass Rate Limit Calculation	PSD 01-03, Condition 1.71	Yes	No	Yes	No	No	---	No	---
SO2	20 ppmdv @ 10% O2, 3-hr average	Monitor continuously using an approved CEM that conforms to 40 CFR 60, App. B, PS 2	NOC Order No. 8429, Condition 3.1	Yes	No	Yes	No	No	Yes – CEMS installed post NOC 8429	No	---
TRS as H2S	8 ppm @ 10% O2, 12-hr average	Monitor continuously using an approved CEM that conforms to 40 CFR 60, App. B, PS 5	40 CFR 60.283(a)(5) and PSD	Yes	No – Lime Mud Oxidizer (process)	Yes	No	No	Yes – COMS installed prior to 2007-2008 AOP	No	---

Unit / Parameter	Limit	Monitoring Summary	Applicable Requirements?	Federally Enforceable?	Control Device	Pre-controlled emissions > major source threshold?	CAM Applicable?	Post-11/15/90 §111/112 Limit?	Permit specifies continuous compliance demonstration	CAM Required?	Proposed CAM
Lime Kiln 5 (LK5)											
TRS as H ₂ S	6 tons/12-month rolling total	PSD Permit Mass Rate Limit Calculation	01-03, Condition 1.74 PSD 01-03, Condition 1.74	Yes	No - Lime Mud Oxidizer (process)	Yes	No	No	---	No	---
TRS (State-only)	20 ppm @ 10% O ₂ , 24-hr average	Monitor continuously using an approved CEM that conforms to 40 CFR 60, App. B, PS 5	WAC 173-405-040(3)(c)	No	No - Lime Mud Oxidizer (process)	Yes	No	No	Yes - COMS installed prior to 2007-2008 AOP	No	---
TRS (State-only)	80 ppm H ₂ S @ 10% O ₂ for more than 2 consecutive hours	Monitor continuously using an approved CEM that conforms to 40 CFR 60, App. B, PS 5	WAC 173-405-040(3)(b)	No	No - Lime Mud Oxidizer (process)	Yes	No	No	Yes - COMS installed prior to 2007-2008 AOP	No	---
CO	64 lb/hr, 8-hr average	Monitor continuously using an approved CEM that conforms to 40 CFR 60, App. F and App. B, PS 4	PSD 01-03, Condition 1.72	Yes	No - Combustion	Yes	No	No	Yes - COMS installed prior to 2007-2008 AOP	No	---
CO	282 tons/12-month rolling total	PSD Permit Mass Rate Limit Calculation	PSD 01-03, Condition 1.72	Yes	No - Combustion	Yes	No	No	---	No	---
NO _x	275 ppmdv @ 10% O ₂ , 24-hr average	Monitor continuously using an approved CEM that conforms to 40 CFR 60, App. F and App. B, PS 2	PSD 01-03, Condition 1.73	Yes	No - Combustion	Yes	No	No	Yes - CEMS installed post NOC 8429	No	---
NO _x	262 tons/12-month rolling total	PSD Permit Mass Rate Limit Calculation	PSD 01-03, Condition 1.73	Yes	No - Combustion	Yes	No	No	---	No	---
NO _x	275 ppmdv @ 10% O ₂ , 24-hr average	Monitor continuously using an approved CEM that conforms to 40 CFR 60, App. F and App. B, PS 4	NOC Order No. 8429, Condition 3.2	Yes	No - Combustion	Yes	No	No	Yes - CEMS installed post NOC 8429	No	---

Unit / Parameter	Limit	Monitoring Summary	Applicable Requirements	Federally Enforceable?	Control Device	Pre-controlled emissions > major source threshold?	CAM Applicable?	Post-11/15/90 §111/112 Limit?	Permit specifies continuous compliance demonstration	CAM Required?	Proposed CAM
Power Boiler 20 (PB20)											
PM & PM10	0.030 gr/dscf @ 7% O2, 1-hr average (avg. of two 2-hr tests per side)	Source Test monthly/quarterly – RM 5	NOC Order No. 3466-AQ07, Condition 1	Yes	Yes - Wet Scrubber & Wet ESP	Yes	Yes	No	No	Yes	40 CFR Part 63, Subpart DDDDD (Boiler MACT) operating limits
PM & PM10	0.048 gr/dscf @ 7% O2, 1-hr average	Source Test monthly/quarterly – RM 5	PSD 01-03, Condition 1.86	Yes	Yes - Wet Scrubber & Wet ESP	Yes	Yes	No	No	Yes	40 CFR Part 63, Subpart DDDDD (Boiler MACT) operating limits
PM	0.085 lb/MMBtu, when firing natural gas, oil, or a mixture of these fuels with solid fuels when combusting greater than 30% wood on an annual basis	Source Test monthly/quarterly – RM 5	40 CFR 60 Subpart Db. 40 CFR 60.43b(h)(4) for emission limit	Yes	Yes - Wet Scrubber & Wet ESP	---	Yes	No	No	Yes	40 CFR Part 63, Subpart DDDDD (Boiler MACT) operating limits
PM & PM10	234 tons/12-month rolling total	PSD Permit Mass Rate Limit Calculation	NOC Order No. 3466-AQ07, Condition 1	Yes	Yes - Wet Scrubber & Wet ESP	Yes	Yes	No	No	Yes	40 CFR Part 63, Subpart DDDDD (Boiler MACT) operating limits
PM & PM10	365 tons/12-month rolling total	PSD Permit Mass Rate Limit Calculation	PSD 01-03, Condition 1.86	Yes	Yes - Wet Scrubber & Wet ESP	Yes	Yes	No	No	Yes	40 CFR Part 63, Subpart DDDDD (Boiler MACT) operating limits
PM & PM10 filterable	0.025 gr/dscf at 7% O2, 1-hr average (avg. of two 2-hr tests per side)	Source Test monthly/quarterly – RM 5	NOC Order No. 8429, Condition 5.1	Yes	Yes - Wet Scrubber & Wet ESP	Yes	Yes	No	No	Yes	40 CFR Part 63, Subpart DDDDD (Boiler MACT) operating limits
PM – total	0.089 gr/dscf at 7% O2, 1-hr average	Source Test quarterly/annually – RM 202	NOC Order No. 8429, Condition 5.2	Yes	Yes - Wet Scrubber & Wet ESP	Yes	Yes	No	No	Yes	40 CFR Part 63, Subpart DDDDD (Boiler MACT) operating limits
PM10 – total	0.083 gr/dscf at 7% O2, 1-hr average	Source Test quarterly/annually – RM 202	NOC Order No. 8429, Condition 5.3	Yes	Yes - Wet Scrubber & Wet ESP	Yes	Yes	No	No	Yes	40 CFR Part 63, Subpart DDDDD (Boiler MACT) operating limits
PM2.5 – total	0.081 gr/dscf at 7% O2, 1-hr average	Source Test quarterly/annually – RM 202	NOC Order No. 8429, Condition 5.4	Yes	Yes - Wet Scrubber & Wet ESP	Yes	Yes	No	No	Yes	40 CFR Part 63, Subpart DDDDD (Boiler MACT) operating limits
PM	0.085 lb/MMBtu, when firing natural gas, oil, or a mixture of these fuels with solid fuels when combusting greater than 30% wood on an annual basis	Source Test monthly/quarterly – RM 5	40 CFR 60 Subpart Db. 40 CFR 60.43b(h)(4) for emission limit	Yes	Yes - Wet Scrubber & Wet ESP	---	Yes	No	No	Yes	40 CFR Part 63, Subpart DDDDD (Boiler MACT) operating limits
HAPS (filterable PM, Mercury, CO, and HCl)	Multiple	Source Test annually/triennially – RM 5 (filterable particulate); RM 30B (mercury); RM 10 (CO); and RM 26A (HCl)	40 CFR Part 63, Subpart DDDDD	Yes	Yes – Wet Scrubber and Wet ESP for PM & Mercury; No – Combustion for CO; No – HCl	Yes – as major source of HAPS	No	Yes – Boiler MACT – 40 CFR Part 63, Subpart DDDDD	Yes – Wet Scrubber & Wet ESP Boiler MACT Operating Limits	No	---
Opacity	20% average for more than 6 consecutive minutes in any 60 minute period	Monitor wet scrubber and wet ESP ECCDP parameters	Order Nos. NOC Order No. 3462-AQ07, Condition D4.1 & DE 03AQIS-5687, Condition 1	Yes	Yes – Wet Scrubber and Wet ESP	---	Yes	No	No – Wet Scrubber & Wet ESP ECCDP Parameters	Yes	Wet Scrubber and Wet ESP ECCDP Parameters
Opacity	Average 20% for more than 6 consecutive minutes in any 60 minute period, except for emissions due to soot blowing	Monitor wet scrubber and wet ESP ECCDP parameters	WAC 173-405-040(6) for basis of limit WAC 173-400-105(5)(d) for	Yes	Yes - Wet Scrubber & Wet ESP	---	Yes	No	No – Wet Scrubber & Wet ESP ECCDP Parameters	Yes	Wet Scrubber and Wet ESP ECCDP Parameters

Unit / Parameter	Limit	Monitoring Summary	Applicable Requirements	Federally Enforceable?	Control Device	Pre-controlled emissions > major source threshold?	CAM Applicable?	Post-11/15/90 §111/112 Limit?	Permit specifies continuous compliance demonstration	CAM Required?	Proposed CAM
Power Boiler 20 (PB20)											
	or grate cleaning for up to 15 minutes in 8 consecutive hours		basis of monitoring								
Opacity	Average 20% for more than 6 consecutive minutes in any 60 minute period, except for one six minute period of not more than 27% opacity	Monitor wet scrubber and wet ESP ECCDP parameters	40 CFR 60.42(a)(2) for basis of limit 40 CFR 60.45(a) for basis of monitoring	Yes	Yes – Wet Scrubber and Wet ESP	---	No	No	No – Wet Scrubber & Wet ESP ECCDP Parameters	No	---
SO ₂	100 ppmdv @ 7% O ₂ , 3-hr average	Monitor continuously using an approved CEM that conforms to 40 CFR 60, App. B, PS 2	PSD 01-03, Condition 1.87	Yes	Yes – Wet Scrubber	Yes	Yes	No	Yes – CEMS installed prior to 2007-2008 AOP	No	---
SO ₂	0.8 lb/mmBtu, 3-hr average	Monitor continuously using an approved CEM that conforms to 40 CFR 60, App. B, PS 2	40 CFR 60.43(a)(1) for basis of limit 40 CFR 60.45(a) for basis of monitoring	Yes	Yes – Wet Scrubber	Yes	Yes	No	Yes – CEMS installed prior to 2007-2008 AOP	No	---
SO ₂	1,000 ppm @ 7% O ₂ , 1-hr average	Monitor continuously using an approved CEM that conforms to 40 CFR 60, App. B, PS 2	WAC 173-405-040(9)(b)	Yes	Yes – Wet Scrubber	Yes	Yes	No	Yes – CEMS installed prior to 2007-2008 AOP	No	---
SO ₂	946 tons/12-month rolling total	PSD Permit Mass Rate Limit Calculation	PSD 01-03, Condition 1.87	Yes	Yes – Wet Scrubber	Yes	Yes	No	Yes – CEMS installed prior to 2007-2008 AOP	No	---
CO	900 lb/hr, 8-hr average	Source Test monthly/annually – RM 10	PSD 01-03, Condition 1.88	Yes	No - Combustion	Yes	No	No	No	No	---
CO	3,942 tons/12-month rolling total	PSD Permit Mass Rate Limit Calculation	PSD 01-03, Condition 1.88	Yes	No - Combustion	Yes	No	No	No	No	---
NO _x	0.20 lb/mmBtu, 3-hr average when burning only natural gas	Monitor continuously using an approved CEM that conforms to 40 CFR 60, App. B, PS 2	40 CFR 60.44(a)(1) for basis of limit 40 CFR 60.45(a) for basis of monitoring PSD 01-03, Condition 1.89	Yes	No - Combustion	Yes	No	No	Yes	No	---
NO _x	0.30 lb/mmBtu, 3-hr average when burning other fuels	Monitor continuously using an approved CEM that conforms to 40 CFR 60, App. B, PS 2	40 CFR 60.44(a)(1) for basis of limit 40 CFR 60.45(a) for basis of monitoring PSD 01-03, Condition 1.89	Yes	No - Combustion	Yes	No	No	Yes	No	---
NO _x	1,183 tons/12-month rolling total	PSD Permit Mass Rate Limit Calculation	PSD 01-03, Condition 1.89	Yes	No - Combustion	Yes	No	No	No	No	---
NO _x	≤0.150 lb/MMBtu, 30-day average	Monitor continuously using an approved CEM that conforms to 40 CFR 60, App. B, PS 2	NOC Order No. 8429, Condition 5.5	Yes	Yes – SNCR	Yes	Yes	No	Yes – CEMS installed prior to 2007-2008 AOP	No	---
NH ₃	25 ppmv @ 7% O ₂ , 24-hr average	Source Test – annually/monthly – Bay Area Air Quality Management District (BAAQMD) Source Test Procedure ST-1B or alternative method approved by Ecology	NOC Order No. 8429, Condition 5.6	Yes	No – Ammonia Slip from SNCR	---	No	No	No	No	---

Note: Scrubber efficiencies for SO₂ removal is not known but regardless of the level of uncontrolled emissions, this unit is exempt from CAM due to presence of a CEMS for SO₂.

Unit / Parameter	Limit	Monitoring Summary	Applicable Requirements	Federally Enforceable?	Control Device	Pre-controlled emissions > major source threshold?	CAM Applicable?	Post-11/15/90 §111/112 Limit?	Permit specifies continuous compliance demonstration	CAM Required?	Proposed CAM
Neutral Sulfite Semi-Chemical (NSSC)											
VOCs	26.4 tons/yr	Source Test once/5-yr – RM 25A	NOC Order No. 3462-AQ07, Condition F1.1	Yes	No	No	No	No	No	No	---

Unit / Parameter	Limit	Monitoring Summary	Applicable Requirements	Federally Enforceable?	Control Device	Pre-controlled emissions > major source threshold?	CAM Applicable?	Post-11/15/90 §111/112 Limit?	Permit specifies continuous compliance demonstration	CAM Required?	Proposed CAM
Digesters, Evaporators, Brown Stock Washers, and Condensate Steam Stripper											
TRS	5 ppmv @ 10% O ₂ , unless combusted in a lime kiln or equivalent.	References Lime Kiln and Power Boiler NSPS Subpart BB TRS requirements	40 CFR 60.283(a)(1) for basis of limit 40 CFR 60.283(a)(iii) for basis of monitoring	Yes	No	Yes	Yes	No	No	No	---
TRS (State-only)	Treat noncondensable gasses to reduce TRS emission equal to reduction achieved by thermal oxidation in a lime kiln; install a backup treatment system	References above monitoring requirement	WAC 173-405-040(4)	No	No	Yes	No	No	No	No	---

Table 2 – Permit Limit Requirements Subject to CAM

Unit / Parameter	Limit	Monitoring Summary	Applicable Requirements	Federally Enforceable?	Control Device	Pre-controlled emissions > major source threshold?	CAM Applicable?	Post-11/15/90 §111/112 Limit?	Permit specifies continuous compliance demonstration	CAM Required?	Proposed CAM
Recovery Furnace 19 (RF19)											
PM & PM ₁₀	0.040 grains/dry standard cubic feet (gr/dscf) @ 8% O ₂ , 1-hr average (avg. of three 1-hr tests)	Source Test monthly/quarterly – EPA Reference Method 5 (RM 5)	PSD 01-03, Condition 1.15	Yes	Yes - ESP	Yes	Yes	No	No	Yes	Opacity
PM & PM ₁₀	0.10 gr/dscf @ 8% O ₂ , 1-hr average (avg. of three 1-hr tests)	Source Test monthly – RM 5	WAC 173-405-040(1)(a)	Yes	Yes - ESP	Yes	Yes	No	No	Yes	Opacity
PM & PM ₁₀	292 tons/12-month rolling total	PSD Permit Mass Rate Limit Calculation	PSD 01-03, Condition 1.15	Yes	Yes - ESP	Yes	Yes	No	No	Yes	Opacity
Opacity	35% average for more than 6 consecutive minutes in any 60 minute period	EPA Reference Method 9	WAC 173-405-040(6)	Yes	Yes - ESP	---	Yes	No	No	Yes	Opacity

Unit / Parameter	Limit	Monitoring Summary	Applicable Requirements	Federally Enforceable?	Control Device	Pre-controlled emissions > major source threshold?	CAM Applicable?	Post-11/15/90 §111/112 Limit?	Permit specifies continuous compliance demonstration	CAM Required?	Proposed CAM
Recovery Furnace 22 (RF22)											
PM & PM ₁₀	0.027 gr/dscf @ 8% O ₂ , 1-hr average (avg. of three 1-hr tests)	Source Test monthly/quarterly – RM 5	PSD 01-03, Condition 1.22	Yes	Yes - ESP	Yes	Yes	No	No	Yes	Opacity
PM	0.044 gr/dscf @ 8% O ₂ , 1-hr average (avg. of three 1-hr tests)	Source Test monthly/quarterly – RM 5	40 CFR 60.282(a)(1)(i)	Yes	Yes - ESP	Yes	Yes	No	No	Yes	Opacity
PM	0.10 gr/dscf @ 8% O ₂ , 1-hr average	Source Test monthly/quarterly – RM 5	WAC 173-405-040(1)(a)	Yes	Yes - ESP	Yes	Yes	No	No	Yes	Opacity
PM	256 tons/12-month rolling total	PSD Permit Mass Rate Limit Calculation	PSD 01-03, Condition 1.22	Yes	Yes - ESP	Yes	Yes	No	No	Yes	Opacity
Opacity	35% average for more than 6 consecutive minutes in any 60 minute period	EPA Reference Method 9	WAC 173-405-040(6)	Yes	Yes - ESP	---	Yes	No	No	Yes	Opacity

Unit / Parameter	Limit	Monitoring Summary	Applicable Requirements	Federally Enforceable?	Control Device	Pre-controlled emissions > major source threshold?	CAM Applicable?	Post-11/15/90 §111/112 Limit?	Permit specifies continuous compliance demonstration	CAM Required?	Proposed CAM
Smelt Dissolving Tank 19 (SDT19)											
PM & PM ₁₀	0.12 lb/T BLS, 1-hr average (avg. of two 1-hr tests per side)	Source Test monthly/quarterly – RM 5	PSD 01-03, Condition 1.40	Yes	Yes - Wet Scrubber	Yes	Yes	No	No	Yes	40 CFR 63 Subpart MM Parameters
PM	0.30 lb/T BLS, 1-hr average	Source Test monthly/quarterly – RM 5	WAC 173-405-040(2)	Yes	Yes – Wet Scrubber	Yes	Yes	No	No	Yes	40 CFR 63 Subpart MM Parameters
PM & PM ₁₀	44 tons/12-month rolling total	PSD Permit Mass Rate Limit Calculation	PSD 01-03, Condition 1.40	Yes	Yes – Wet Scrubber	Yes	Yes	No	No	Yes	40 CFR 63 Subpart MM Parameters
Opacity	20% average for more than 6 consecutive minutes in any 60 minute period	Monitor wet scrubber Subpart MM parameters	NOC Order No. 3462-AQ07, Condition B3.1	Yes	Yes – Wet Scrubber	---	Yes	No	No – Wet Scrubber Subpart MM Parameters	Yes	40 CFR 63 Subpart MM Parameters
Opacity	35% average for more than 6 consecutive minutes in any 60 minute period	Monitor wet scrubber Subpart MM parameters	WAC 173-405-040(6)	Yes	Yes – Wet Scrubber	---	Yes	No	No – Wet Scrubber Subpart MM Parameters	Yes	40 CFR 63 Subpart MM Parameters

Unit / Parameter	Limit	Monitoring Summary	Applicable Requirements	Federally Enforceable?	Control Device	Pre-controlled emissions > major source threshold?	CAM Applicable?	Post-11/15/90 §111/112 Limit?	Permit specifies continuous compliance demonstration	CAM Required?	Proposed CAM
Smelt Dissolving Tank 22 (SDT22)											
PM & PM10	0.12 lb/T BLS, 1-hr average (avg. of three 1-hr tests)	Source Test monthly/quarterly – RM 5	PSD 01-03, Condition 1.46	Yes	Yes – Wet Scrubber	Yes	Yes	No	No	Yes	40 CFR 63 Subpart MM Parameters
PM	0.2 lb/T BLS, 1-hr average	Source Test monthly/quarterly – RM 5	40 CFR 60.282(a)(2)	Yes	Yes – Wet Scrubber	Yes	Yes	No	No	Yes	40 CFR 63 Subpart MM Parameters
PM	0.30 lb/T BLS, 1-hr average	Source Test monthly/quarterly – RM 5	WAC 173-405-040(2)	Yes	Yes – Wet Scrubber	Yes	Yes	No	No	Yes	40 CFR 63 Subpart MM Parameters
PM & PM10	44 tons/12-month rolling total	PSD Permit Mass Rate Limit Calculation	PSD 01-03, Condition 1.46	Yes	Yes – Wet Scrubber	Yes	Yes	No	No	Yes	40 CFR 63 Subpart MM Parameters
Opacity	20% average for more than 6 consecutive minutes in any 60 minute period	Monitor wet scrubber Subpart MM parameters	NOC Order No. 3462-AQ07, Condition B4.1	Yes	Yes – Wet Scrubber	---	Yes	No	No – Wet Scrubber Subpart MM Parameters	Yes	40 CFR 63 Subpart MM Parameters
Opacity	35% average for more than 6 consecutive minutes in any 60 minute period	Monitor wet scrubber Subpart MM parameters	WAC 173-405-040(6)	Yes	Yes – Wet Scrubber	---	Yes	No	No – Wet Scrubber Subpart MM Parameters	Yes	40 CFR 63 Subpart MM Parameters

Unit / Parameter	Limit	Monitoring Summary	Applicable Requirements	Federally Enforceable?	Control Device	Pre-controlled emissions > major source threshold?	CAM Applicable?	Post-11/15/90 §111/112 Limit?	Permit specifies continuous compliance demonstration	CAM Required?	Proposed CAM
Lime Kiln 3 (LK3)											
PM & PM10	0.030 gr/dscf @ 10% O2, 1-hr average (avg. of three 1-hr tests)	Source Test monthly/quarterly – RM 5	PSD 01-03, Condition 1.58	Yes	Yes – Wet Scrubber	Yes	Yes	No	No	Yes	40 CFR 63 Subpart MM Parameters
PM	0.13 gr/dscf @ 10% O2, 1-hr average (avg. of three 1-hr tests)	Source Test monthly/quarterly – RM 5	WAC 173-405-040(3)(a)	Yes	Yes – Wet Scrubber	Yes	Yes	No	No	Yes	40 CFR 63 Subpart MM Parameters
PM & PM10	34 tons/12-month rolling total	PSD Permit Mass Rate Limit Calculation	PSD 01-03, Condition 1.58	Yes	Yes – Wet Scrubber	Yes	Yes	Yes	No	Yes	40 CFR 63 Subpart MM Parameters
Opacity	25% average for more than 6 consecutive minutes in any 60 minute period	Monitor wet scrubber Subpart MM parameters	NOC Order No. 3462-AQ07, Condition C3.1	Yes	Yes – Wet Scrubber	---	Yes	No	No – Wet Scrubber Subpart MM Parameters	Yes	40 CFR 63 Subpart MM Parameters
Opacity	35% average for more than 6 consecutive minutes in any 60 minute period	Monitor wet scrubber Subpart MM parameters	WAC 173-405-040(6)	Yes	Yes – Wet Scrubber	---	Yes	No	No – Wet Scrubber Subpart MM Parameters	Yes	40 CFR 63 Subpart MM Parameters

Unit / Parameter	Limit	Monitoring Summary	Applicable Requirements	Federally Enforceable?	Control Device	Pre-controlled emissions > major source threshold?	CAM Applicable?	Post-11/15/90 §111/112 Limit?	Permit specifies continuous compliance demonstration	CAM Required?	Proposed CAM
Lime Kiln 4 (LK4)											
PM & PM10	0.030 gr/dscf @ 10% O2, 1-hr average (avg. of three 1-hr tests)	Source Test monthly/quarterly – RM 5	PSD 01-03, Condition 1.64	Yes	Yes – Wet Scrubber	Yes	Yes	No	No	Yes	40 CFR 63 Subpart MM Parameters
PM	0.13 gr/dscf @ 10% O2, 1-hr average	Source Test monthly/quarterly – RM 5	WAC 173-405-040(3)(a)	Yes	Yes – Wet Scrubber	Yes	Yes	No	No	Yes	40 CFR 63 Subpart MM Parameters
PM & PM10	35.6 tons/12-month rolling total	PSD Permit Mass Rate Limit Calculation	PSD 01-03, Condition 1.64	Yes	Yes – Wet Scrubber	Yes	Yes	No	No	Yes	40 CFR 63 Subpart MM Parameters
Opacity	25% average for more than 6 consecutive minutes in any 60 minute period	Monitor wet scrubber Subpart MM parameters	NOC Order No. 3462-AQ07, Condition C4.1	Yes	Yes – Wet Scrubber	---	Yes	No	No – Wet Scrubber Subpart MM Parameters	Yes	40 CFR 63 Subpart MM Parameters
Opacity	35% average for more than 6 consecutive minutes in any 60 minute period	Monitor wet scrubber Subpart MM parameters	WAC 173-405-040(6)	Yes	Yes – Wet Scrubber	---	Yes	No	No – Wet Scrubber Subpart MM Parameters	Yes	40 CFR 63 Subpart MM Parameters

Unit / Parameter	Limit	Monitoring Summary	Applicable Requirements?	Federally Enforceable?	Control Device	Pre-controlled emissions > major source threshold?	CAM Applicable?	Post-11/15/90 §111/112 Limit?	Permit specifies continuous compliance demonstration	CAM Required?	Proposed CAM
Lime Kiln 5 (LK5)											
PM & PM10	0.035 gr/dscf @ 10% O2 when burning natural gas and 0.060 gr/dscf @ 10% O2 when burning oil, 1-hr average (avg. of two 1-hr tests per side)	Source Test monthly/quarterly – RM 5	PSD 01-03, Condition 1.70	Yes	Yes – ESP	Yes	Yes	No	No	Yes	Opacity
PM	0.067 gr/dscf @ 10% O2 when burning natural gas and 0.13 gr/dscf @ 10% O2 when burning oil, 1-hr average	Source Test monthly/quarterly – RM 5	40 CFR 60.282(a)(3)	Yes	Yes – ESP	Yes	Yes	No	No	Yes	Opacity
PM	0.13 gr/dscf @ 10% O2, 1-hr average	Source Test monthly/quarterly – RM 5	WAC 173-405-040(3)(a)	Yes	Yes – ESP	Yes	Yes	No	No	Yes	Opacity
PM & PM10	69 tons/12-month rolling total	PSD Permit Mass Rate Limit Calculation	PSD 01-03, Condition 1.70	Yes	Yes – ESP	Yes	Yes	No	No	Yes	Opacity
Opacity	35% average for more than 6 consecutive minutes in any 60 minute period	EPA Reference Method 9	WAC 173-405-040(6)	Yes	Yes - ESP	---	Yes	No	No	Yes	Opacity

Unit / Parameter	Limit	Monitoring Summary	Applicable Requirements	Federally Enforceable?	Control Device	Pre-controlled emissions > major source threshold?	CAM Applicable?	Post-11/15/90 §111/112 Limit?	Permit specifies continuous compliance demonstration	CAM Required?	Proposed CAM
Power Boiler 20 (PB20)											
PM & PM10	0.030 gr/dscf @ 7% O2, 1-hr average (avg. of two 2-hr tests per side)	Source Test monthly/quarterly – RM 5	NOC Order No. 3466-AQ07, Condition 1	Yes	Yes - Wet Scrubber & Wet ESP	Yes	Yes	No	No	Yes	40 CFR Part 63, Subpart DDDDD (Boiler MACT) operating limits
PM & PM10	0.048 gr/dscf @ 7% O2, 1-hr average	Source Test monthly/quarterly – RM 5	PSD 01-03, Condition 1.86	Yes	Yes - Wet Scrubber & Wet ESP	Yes	Yes	No	No	Yes	40 CFR Part 63, Subpart DDDDD (Boiler MACT) operating limits
PM	0.085 lb/MMBtu, when firing natural gas, oil, or a mixture of these fuels with solid fuels when combusting greater than 30% wood on an annual basis	Source Test monthly/quarterly – RM 5	40 CFR 60 Subpart Db. 40 CFR 60.43b(h)(4) for emission limit	Yes	Yes - Wet Scrubber & Wet ESP	---	Yes	No	No	Yes	40 CFR Part 63, Subpart DDDDD (Boiler MACT) operating limits
PM & PM10	234 tons/12-month rolling total	PSD Permit Mass Rate Limit Calculation	NOC Order No. 3466-AQ07, Condition 1	Yes	Yes - Wet Scrubber & Wet ESP	Yes	Yes	No	No	Yes	40 CFR Part 63, Subpart DDDDD (Boiler MACT) operating limits
PM & PM10	365 tons/12-month rolling total	PSD Permit Mass Rate Limit Calculation	PSD 01-03, Condition 1.86	Yes	Yes - Wet Scrubber & Wet ESP	Yes	Yes	No	No	Yes	40 CFR Part 63, Subpart DDDDD (Boiler MACT) operating limits
PM & PM10 filterable	0.025 gr/dscf at 7% O2, 1-hr average (avg. of two 2-hr tests per side)	Source Test monthly/quarterly – RM 5	NOC Order No. 8429, Condition 5.1	Yes	Yes - Wet Scrubber & Wet ESP	Yes	Yes	No	No	Yes	40 CFR Part 63, Subpart DDDDD (Boiler MACT) operating limits
PM – total	0.089 gr/dscf at 7% O2, 1-hr average	Source Test quarterly/annually – RM 202	NOC Order No. 8429, Condition 5.2	Yes	Yes - Wet Scrubber & Wet ESP	Yes	Yes	No	No	Yes	40 CFR Part 63, Subpart DDDDD (Boiler MACT) operating limits
PM10 - total	0.083 gr/dscf at 7% O2, 1-hr average	Source Test quarterly/annually – RM 202	NOC Order No. 8429, Condition 5.3	Yes	Yes - Wet Scrubber & Wet ESP	Yes	Yes	No	No	Yes	40 CFR Part 63, Subpart DDDDD (Boiler MACT) operating limits
PM2.5 - total	0.081 gr/dscf at 7% O2, 1-hr average	Source Test quarterly/annually – RM 202	NOC Order No. 8429, Condition 5.4	Yes	Yet - Wet Scrubber & Wet ESP	Yes	Yes	No	No	Yes	40 CFR Part 63, Subpart DDDDD (Boiler MACT) operating limits
Opacity	20% average for more than 6 consecutive minutes in any 60 minute period	Monitor wet scrubber and wet ESP ECCDP parameters	Order Nos. NOC Order No. 3462-AQ07, Condition	Yes	Yes – Wet Scrubber and Wet ESP	---	Yes	No	No – Wet Scrubber & Wet ESP ECCDP Parameters	Yes	Wet Scrubber and Wet ESP

Unit / Parameter	Limit	Monitoring Summary	Applicable Requirements	Federally Enforceable?	Control Device	Pre-controlled emissions > major source threshold?	CAM Applicable?	Post-11/15/90 §111/112 Limit?	Permit specifies continuous compliance demonstration	CAM Required?	Proposed CAM
Power Boiler 20 (PB20)											
			D4.1 & DE 03AQIS-5687, Condition 1								ECCDP Parameters
Opacity	Average 20% for more than 6 consecutive minutes in any 60 minute period, except for emissions due to soot blowing or grate cleaning for up to 15 minutes in 8 consecutive hours	Monitor wet scrubber and wet ESP ECCDP parameters	WAC 173-405-040(6) for basis of limit WAC 173-400-105(5)(d) for basis of monitoring	Yes	Yes - Wet Scrubber & Wet ESP	---	Yes	No	No - Wet Scrubber & Wet ESP ECCDP Parameters	Yes	Wet Scrubber and Wet ESP ECCDP Parameters