Permit #: **28.1121-02**

Effective Date: **April 14, 2016**

Expiration Date: **October 2, 2019**

SOUTH DAKOTA DEPARTMENT OF

ENVIRONMENT AND NATURAL RESOURCES

TITLE V AIR QUALITY OPERATING PERMIT

Steven M. Pirner, P.E., Secretary
Department of Environment and Natural Resources

Under the South Dakota Air Pollution Control Regulations

Pursuant to Chapter 34A-1-21 of the South Dakota Codified Laws and the Air Pollution Control Regulations of the State of South Dakota and in reliance on statements made by the owner designated below, a permit to operate is hereby issued by the Secretary of the Department of Environment and Natural Resources. This permit authorizes such owner to operate the unit(s) at the location designated below and under the listed conditions:

A. Owner

1. Company Name and Address

GCC Dacotah
501 North Saint Onge Street
Rapid City, SD 57702

2. Actual Source Location and Mailing Address if Different from Above

GCC Dacotah
PO Box 360
Rapid City, SD 57709

3. Permit Contact

Jim A. Anderson, Environmental Engineer
605-721-7033

4. Facility Contact

Jim A. Anderson, Environmental Engineer
605-721-7033

5. Responsible Official

Verne Stuessy, Vice President of Operations
303-739-5900

B. Permit Revisions or Modifications

April 12, 2016 – Modification to include the operation of new equipment

C. Type of Operation

Portland cement manufacturing facility

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1.0 Standard Conditions

1.1 Operation of source

In accordance with Administrative Rules of South Dakota (ARSD) 74:36:05:16.01(8), the owner or operator shall operate the units, controls, and processes as described in Table 1.1 in accordance with the statements, representations, and supporting data contained in the complete permit application received June 21, 2010, January 28, 2013, August 12, 2013, January 12, 2015 and December 30, 2015, unless modified by the conditions of this permit. Except as otherwise provided herein, the control equipment shall be operated at all times in accordance with the manufacturer's specification and in a manner that achieves compliance with the conditions of this permit. The application consists of the application forms, supporting data, and supplementary correspondence. If the owner or operator becomes aware it failed to submit any relevant facts in a permit application or submitted incorrect information in an application, such information shall be promptly submitted.

Table 1.1 – Description of Permitted Units, Operations, and Processes

Unit	Plant ID	Description	Maximum Operating Rate	Control Device	Maximum Flow Rate [1]
#1	**EDC101**	Primary and secondary crushers	1,000 tons per hour	Baghouse	7,500 acfm
#2	**EDC102**	Screen	1,000 tons per hour	Baghouse	7,500 acfm
#3	**EDC402**	Rotary kiln #4 fired with coal or natural gas	550 tons clinker per day	Electrostatic precipitator	140,000 acfm
#4	**EDC403**	Rotary kiln #5 fired with coal or natural gas	550 tons clinker per day	Electrostatic precipitator	140,000 acfm
#5	**EDC416**	Kiln #4 and #5 clinker coolers	1,100 tons clinker per day	2 baghouses operated in parallel	55,585 acfm per baghouse
#6	**EDC652**	Raw material storage building to two kiln feed storage silos	180 tons per hour	Baghouse	7,500 acfm
#6a	**EDC501**	Rock silo to Loesche Mill	180 tons per hour	Baghouse	10,000 acfm
#6b	**EDC602**	Kiln feed storage silo to kiln #6	160 tons per hour	Baghouse	4,100 acfm
#7	**EDC420**	Penthouse storage #1 (south)	1100 tons clinker per day	Baghouse	2,300 acfm
#7a	**EDC421**	Penthouse storage #1 (south)	1100 tons clinker per day	Baghouse	3,400 acfm
#7b	**EDC710**	Clinker shed to finish mills	500 tons per hour	Baghouse	15,000 acfm
#7c	**EDC706**	Raw Shed to Loesche Mill	40 tons per hour	Baghouse	1,500 acfm
#7d	**EDC701**	Raw material transferred from belt conveyor 107 to belt conveyor 108	800 tons per hour	Baghouse	2,000 acfm
#7e	**EDC705**	Gypsum raw shed to old clinker building	350 tons per hour	Baghouse	2,000 acfm
#7f	**EDC703**	Raw shed to Loesche Mill	40 tons per hour	Baghouse	1,500 acfm
#7g	**EDC704**	Gypsum raw shed to old	350 tons per hour	Baghouse	2,000 acfm

Unit	Plant ID	Description	Maximum Operating Rate	Control Device	Maximum Flow Rate [1]
		clinker building			
#8	**EDC614**	Penthouse storage #2 (north)	2,250 tons clinker per day	Baghouse	5,000 acfm
#8a	**EDC627**	Penthouse storage #2 (north)	2,250 tons clinker per day	Baghouse	5,000 acfm
#8b	**EDC613**	Penthouse storage #2 (north)	2,250 tons clinker per day	Baghouse	5,000 acfm
#8c	**EDC707**	Rock silo discharge	1,000 tons per hour	Baghouse	5,000 acfm
#9	**EDC619**	Rotary kiln #6 fired on coal or natural gas	2,250 tons clinker per day	Preheater/ precalciner/ baghouse	240,000 acfm
#10	**EDC615**	Dry process clinker cooler	2,250 tons clinker per day	Baghouse	153,000 acfm
#11	**EDC623**	Alkali bypass and alkali waste to waste bin transfer system	2,250 tons clinker per day	Baghouse	60,000 acfm
#12	**EDC731**	Finish mill #3	35 tons per hour	Baghouse	15,000 acfm
#13	**EDC741**	Finish mill #4	40 tons per hour	Baghouse	15,000 acfm
#14	**EDC751**	Finish mill #5	45 tons per hour	Baghouse	15,000 acfm
#15	**EDC761**	Finish mill #6	45 tons per hour	Baghouse	15,000 acfm
#16	**EDC771**	Finish mill #7 (mill sweep)	85 tons per hour	Baghouse	28,000 acfm
#16a	**EDC772**	Finish mill #7 (mill separator)	85 tons per hour	Baghouse	80,000 acfm
#16b	**EDC708**	Finish mill #7 (transfer)	500 tons per hour	Baghouse	4,500 acfm
#16c	**EDC709**	Finish mill #7 (transfer)	500 tons per hour	Baghouse	8,000 acfm
#16d	**EDC713**	Clinker transfer system	500 tons per hour	Baghouse	10,000 acfm
#17	**EDC804**	Bulk storage silos	125 tons per hour	Baghouse	4,000 acfm
#18	**EDC821**	Bulk storage silos	125 tons per hour	Baghouse	4,000 acfm
#19	**EDC805**	Bulk cement or fly ash storage silos	125 tons per hour	Baghouse	4,000 acfm
#20	**EDC832**	Bulk storage silos	125 tons per hour	Baghouse	10,000 acfm
#21	**EDC824**	Bulk cement or fly ash storage silos	200 tons per hour	Baghouse	5,000 acfm
#24	**EDC827**	Rail storage silos	125 tons per hour	Baghouse	4,000 acfm
#25	**EDC828**	Rail storage silos	125 tons per hour	Baghouse	4,000 acfm
#26	**EDC834**	Rail storage silos	125 tons per hour	Baghouse	10,000 acfm
#27	**EDC853**	Bulk rail load outs	500 tons per hour	Baghouse	1,688 acfm
#28	**EDC854**	Bulk rail load outs	500 tons per hour	Baghouse	6,416 acfm
#35	**EDC825**	East bulk cement or fly ash truck load out	500 tons per hour	Baghouse	3,000 acfm
#36	**EDC826**	West bulk truck load out	500 tons per hour	Baghouse	4,000 acfm
#38	**EDC802**	Cement bagging	114 tons per hour	Baghouse	5,900 acfm
#40	**EDC419**	Alkali waste bin	12 tons per hour	Baghouse	2,500 acfm
#41	**ECD628** **EDC629**	Coal mill	20 tons coal per hour 5.3 MMBtus per hour heat input	Single stage cyclone and two	21,000 acfm per baghouse

Unit	Plant ID	Description	Maximum Operating Rate	Control Device	Maximum Flow Rate [1]
				baghouses operated in parallel	
#41b	**EDC274**	Coal stacker top	400 tons per hour	Baghouse	1,300 acfm
#41c	**EDC275**	Coal surge bin top	400 tons per hour	Baghouse	450 acfm
#41d	**EDC702**	Coal tunnel to coal stacker	400 tons per hour	Baghouse	2,000 acfm
#41e	**EDC276**	Coal surge bin top	400 tons per hour	Baghouse	4,000 acfm
#41f	**EDC277**	Coal transfer	400 tons per hour	Baghouse	1,300 acfm
#41g	**EDC280**	Coal bin #4	8.5 tons per hour	Baghouse	1,300 acfm
#41h	**EDC279**	Coal bin #5	8.5 tons per hour	Baghouse	2,500 acfm
#41i	**EDC278**	Coal bin #6	400 tons per hour	Baghouse	1,300 acfm
#62b	**EDC272 EDC273**	Coal – hopper to conveyor	400 tons per hour	Two baghouses operated in parallel	500 acfm per baghouse
#63	EDC606	Air separator – kiln #6 feed system	2,250 tons clinker per day	Baghouse	1906 acfm
#64		Belt transfer from kiln #4 and #5, kiln #4 and #5 weigh feeder, and kiln #4 bucket elevator	1,100 tons of clinker per day	Baghouse	12,200 acfm
#65	EDC104	Raw material transfer point from secondary crusher to a belt conveyor	300 tons of rock per hour	Baghouse	2,000 acfm
#66		Clinker transfer point from kiln #5 clinker cooler to two bucket elevators	550 tons of clinker per day	Baghouse	2,500 acfm
#67		Clinker transfer point from kiln #4 clinker cooler to pan conveyor	550 tons of clinker per day	Baghouse	2,500 acfm
#68	EDC850	Bulk storage silo (Silo 39)	500 tons per hour	Baghouse	2,100 acfm
#69	EDC851	Silo 39 bulk truck load out	60 tons per hour	Baghouse	1,300 acfm
#92		Clinker bypass loadout bin	350 tons per hour	Baghouse	1,800 acfm
#93		Bulk storage – Silo 37	125 tons per hour	Baghouse	3,000 acfm
#94		Bulk truck loadout – silo 37	250 tons per hour	Baghouse	1,600 acfm

[1] – "acfm" means actual cubic feet per minute

1.2 Duty to comply

In accordance with ARSD 74:36:05:16.01(12), the owner or operator shall comply with the conditions of this permit. An owner or operator who knowingly makes a false statement in any record or report or who falsifies, tampers with, or renders inaccurate, any monitoring device or method is in violation of this permit. A violation of any condition in this permit is grounds for enforcement, reopening this permit, permit termination, or denial of a permit renewal application. The owner or operator, in an enforcement action, cannot use the defense that it would have been necessary to cease or reduce the permitted activity to maintain compliance.

The owner or operator shall provide any information requested by the Secretary to determine compliance or whether cause exists for reopening or terminating this permit.

1.3 Property rights or exclusive privileges

In accordance with ARSD 74:36:05:16.01(12), the State's issuance of this permit, adoption of design criteria, and approval of plans and specifications does not convey any property rights of any sort, any exclusive privileges, any authorization to damage, injure or use any private property, any authority to invade personal rights, any authority to violate federal, state or local laws or regulations, or any taking, condemnation or use of eminent domain against any property owned by third parties. The State does not warrant the owner's or operator's compliance with this permit, design criteria, approved plans and specifications, and operation under this permit, will not cause damage, injury or use of private property, an invasion of personal rights, or violation of federal, state or local laws or regulations. The owner or operator is solely and severally liable for all damage, injury or use of private property, invasion of personal rights, infringement of federal, state or local laws and regulations, or taking or condemnation of property owned by third parties, which may result from actions taken under the permit.

1.4 Penalty for violating a permit condition

In accordance with South Dakota Codified Laws (SDCL) 34A-1-39 and 34A-1-47, a violation of a permit condition may subject the owner or operator to civil or criminal prosecution, a state penalty of not more than $10,000 per day per violation, injunctive action, administrative permit action, and other remedies as provided by law.

1.5 Inspection and entry

In accordance with SDCL 34A-1-41, the owner or operator shall allow the Secretary, upon presentation of credentials, to:

1. Enter the premises where a regulated activity is located or where pertinent records are stored;
2. Have access to and copy any records required under this permit;
3. Inspect operations regulated under this permit; and/or
4. Sample or monitor any substances or parameters for the purpose of assuring compliance.

1.6 Severability

In accordance with ARSD 74:36:05:16.01(11), any portion of this permit that is void or challenged shall not affect the validity of the remaining permit requirements.

1.7 Permit termination, modification, or revocation

In accordance with ARSD 74:36:05:46, the Secretary may recommend the Board of Minerals and Environment terminate, modify, or revoke this permit for violations of SDCL 34A-1 or the federal Clean Air Act or for nonpayment of any outstanding fee or enforcement penalty.

1.8 Credible evidence

In accordance with ARSD 74:36:13:07, credible evidence may be used for the purpose of establishing whether the owner or operator has violated or is in violation of this permit. Credible evidence may consist of the following:

1. Information from the use of the following methods is presumptively credible evidence of whether a violation has occurred:
   a. A monitoring method approved pursuant to 40 CFR § 70.6(a)(3) and incorporated in this permit; or
   b. Compliance methods specified in an applicable plan;
2. The following testing, monitoring, or information gathering methods are presumptively credible testing, monitoring, or information-gathering methods:
   a. Any monitoring or testing methods approved in this permit, including those in 40 CFR Parts 51, 60, 61, and 75; or
   b. Other testing, monitoring, or information-gathering methods that produce information comparable to that produced by any method in paragraph (1) or (2)(a).

2.0 Permit Fees

2.1 Annual air fee required

In accordance with ARSD 74:36:05:06.01, the owner or operator shall submit an annual administrative fee and an annual fee. The fee is based on actual emissions in accordance with ARSD 74:37.

2.2 Annual operational report

In accordance with ARSD 74:37:01:06, the Secretary will supply the owner or operator with an annual operational report in January of each year. The owner or operator shall complete and submit the operational report to the Secretary by March 1 of each year. The responsible official shall sign the operational report in the presence of a notary public.

2.3 Annual air fee

In accordance with ARSD 74:37:01:08, the Secretary will notify the owner or operator of the required annual air emission fee and administrative fee by June 1 of each year. The fees shall accrue on July 1 and are payable to the Department of Revenue by July 31 of each year.

3.0 Permit Amendments and Modifications

3.1 Permit flexibility

In accordance with ARSD 74:36:05:30, the owner or operator shall have the flexibility to make changes to the source during the term of this permit. The owner or operator shall provide the Secretary written notice at least seven days in advance of the proposed change (NOTE: The

Secretary will forward a copy of the written notice to EPA). The written notice shall include a brief description of the change, the date on which the change is to occur, any change in emissions, the proposed changes to the permit, and whether the requested revisions are for an administrative permit amendment, minor permit amendment, or permit modification.

The Secretary will notify the owner or operator whether the change is an administrative permit amendment, a minor permit amendment, or a permit modification. A proposed change that is considered an administrative permit amendment or a minor permit amendment can be completed immediately after the Secretary receives the written notification. The owner or operator must comply with both the applicable requirements governing the change and the proposed permit terms and conditions until the Secretary takes final action on the proposed change.

A proposed change that is considered a modification cannot be implemented until the Secretary takes final action on the proposed change or the owner or operator was issued an air quality construction permit. Permit modifications are subject to the same procedural requirements, including public comment, as the original permit issuance except that the required review shall cover only the proposed changes.

3.2 Administrative permit amendment

In accordance with ARSD 74:36:05:33, the Secretary has 60 days from receipt of a written notice to verify the proposed change is an administrative permit amendment. As provided in ARSD 74:36:01:03, the Secretary considers a proposed change an administrative permit amendment if the proposed change accomplishes one of the following:

1. Corrects typographical errors;
2. Changes the name, address, or phone number of any person identified in this permit or provides a similar minor administrative change;
3. Requires more frequent monitoring or reporting;
4. The ownership or operational control changes and the Secretary determines no other change in this permit is necessary. However, the new owner must submit a certification of applicant form and a written statement specifying the date for transfer of operating permit responsibility, coverage, and liability; or
5. Any other changes the Secretary and the administrator of EPA determines to be similar to those requirements in this condition.

3.3 Minor permit amendment

In accordance with ARSD 74:36:05:38, the Secretary has 90 days from receipt of a written notice or 15 days after the end of EPA's 45-day review period, whichever is later, to take final action on a minor permit amendment. Final action consists of issuing or denying a minor permit amendment or determining the proposed change is a permit modification. As provided in ARSD 74:36:05:35, the Secretary considers a proposed change to be a minor permit amendment if the proposed change:

1. Does not violate any applicable requirements;

2. Does not involve significant changes to existing monitoring, reporting, or recordkeeping requirements;
3. Does not require or change a case-by-case determination of an emission limit or other standard, a source-specific determination for temporary sources of ambient impacts, or a visibility or increment analysis; or
4. Does not seek to establish or change a permit term or condition for which the source has assumed to avoid an applicable requirement, a federally enforceable emission cap, or an alternative emission limit. An alternative emission limit is approved pursuant to regulations promulgated under section 112(i)(5) of the federal Clean Air Act.

3.4 Permit modification

In accordance with ARSD 74:36:05:39, an owner or operator may apply for a permit modification. A permit modification is defined in ARSD 74:36:01:10 as a physical change in or change in the operation of a source that results in at least one of the following:

1. An increase in the amount of an air pollutant emitted by the source or results in the emission of an air pollutant not previously emitted;
2. A significant change to existing monitoring, reporting, or recordkeeping requirements in the permit;
3. The change requires or changes a case-by-case determination of an emission limit or other standard, a source-specific determination for temporary sources of ambient impacts, or a visibility or increment analysis; or
4. The change seeks to establish or change a permit term or condition for which there is a corresponding underlying applicable requirement that the source has assumed to avoid an applicable requirement, a federally enforceable emissions cap assumed to avoid classification as a modification under a provision of the Title I of the Clean Air Act, or an alternative emissions limit approved pursuant to regulations promulgated under section 112(i)(5) of the Clean Air Act.

Permit modifications are subject to the same procedural requirements, including public comment, as the original permit issuance except the required review shall cover only the proposed changes.

3.5 Permit revision

In accordance with ARSD 74:36:05:40, the Secretary may reopen and revise this permit to meet requirements of SDCL 34A-1 or the federal Clean Air Act. In accordance with ARSD 74:36:05:41, the Secretary shall notify the owner or operator at least 30 days before reopening this permit. The 30-day period may be less in the case of an emergency.

3.6 Testing new fuels or raw materials

In accordance with ARSD 74:36:11:04, an owner or operator may request permission to test a new fuel or raw material to determine if it is compatible with existing equipment before requesting a permit amendment or modification. A complete test proposal shall consist of the following:

1. A written proposal describing the new fuel or raw material, operating parameters, and parameters that will be monitored and any testing associated with air pollutant emissions during the test;
2. An estimate of the type and amount of regulated air pollutant emissions resulting from the proposed change; and
3. The proposed schedule for conducting the test. In most cases the owner or operator will be allowed to test for a maximum of one week. A request for a test period longer than one week will need additional justification. A test period shall not exceed 180 days.

The Secretary shall approve, conditionally approve, or deny in writing the test proposal within 45 days after receiving a complete proposal. Approval conditions may include changing the test schedule or pollutant sampling and analysis methods. Pollutant sampling and analysis methods may include, but are not limited to performance testing, visible emission evaluation, fuel analysis, dispersion modeling, and monitoring of raw material or fuel rates.

If the Secretary determines the proposed change will result in an increase in the emission of a regulated air pollutant or result in the emission of an additional regulated air pollutant, the Secretary shall give public notice of the proposed test for 30 days. The Secretary shall consider all comments received during the 30-day public comment period before making a final decision on the test.

The Secretary will not approve a test if the test would cause or contribute to a violation of a national ambient air quality standard.

4.0 Permit Renewal

4.1 Permit effective

In accordance with ARSD 74:36:05:07, this permit shall expire five years from date of issuance unless reopened or terminated for cause.

4.2 Permit renewal

In accordance with ARSD 74:36:05:08, the owner or operator shall submit an application for a permit renewal at least 180 days before the date of permit expiration if the owner or operator wishes to continue to operate an activity regulated by this permit. The current permit shall not expire and shall remain in effect until the Secretary takes final action on the timely permit renewal application.

4.3 Permit expiration

In accordance with ARSD 74:36:05:28, permit expiration terminates the owner's or operator's right to operate any unit covered by this permit.

5.0 Recordkeeping and Reporting

5.1 Recordkeeping and reporting

In accordance with ARSD 74:36:05:16.01(9), the owner or operator shall maintain all monitoring data, records, reports, and pertinent information specified by this permit for five years from the date of sample, measurement, report, or application unless otherwise specified in this permit. The records shall be maintained on site for the first two years and may be maintained off site for the last three years. All records must be made available to the Secretary for inspection. All notifications and reports shall be submitted to the following address:

South Dakota Department of Environment and Natural Resources
PMB 2020, Air Quality Program
523 E. Capitol, Joe Foss Building
Pierre, SD 57501-3182

5.2 Signatory requirements

In accordance with ARSD 74:36:05:12 and 74:36:05:16.01, all applications, reports, or other information submitted to the Secretary shall be signed and certified by a responsible official or a duly authorized representative. A responsible official for a corporation is a responsible corporate officer and for a partnership or sole proprietorship is a general partner or the proprietor, respectively. A person is a duly authorized representative only if:

1. The authorization is made in writing by a person described above and submitted to the Secretary; and
2. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility, such as the position of plant manager, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters.

The duly authorized representative must be designated prior to or together with any reports or information to be signed by a duly authorized representative. The responsible official shall notify the Secretary if an authorization is no longer accurate.

5.3 Certification statement

In accordance with ARSD 74:36:05:16.01(14)(a), all documents required by this permit, including application forms, reports, and compliance certification, must be certified by a responsible official or a duly authorized representative. The certification shall include the following statement:

> "I certify that, based on information and belief formed after reasonable inquiry, the statements and information in this document and all attachments are true, accurate, and complete."

5.4 Monitoring log

In accordance with ARSD 74:36:05:16.01(9), the owner or operator shall maintain a monitoring log. The monitoring log shall contain the following information.

1. Maintenance schedule for each piece of control equipment listed in Table 1.1 for Unit #1, #2, #41g, and #41h. At a minimum, the maintenance schedule shall meet the manufacturer's recommended schedule for maintenance. The following information shall be recorded for maintenance:
   a. Identify the unit;
   b. The date and time maintenance was performed;
   c. Description of the type of maintenance;
   d. Reason for performing maintenance; and
   e. Signature of person performing maintenance;
2. The following information shall be recorded for each visible emission reading required in permit condition 9.1 and 9.2:
   a. Identify the unit and if it operates on a monthly, quarterly, semiannual, or annual basis;
   b. The date and time the visible emission reading was performed;
   c. If visible emissions were observed;
   d. Description of maintenance performed to eliminate visible emissions;
   e. Visible emission evaluation if visible emissions are not eliminated; and
   f. Signature of person performing visible emission reading and/or visible emission evaluation; and
3. The following information shall be recorded within two days of each emergency exceedance:
   a. The date of the emergency exceedance and the date the emergency exceedance was reported to the Secretary;
   b. The cause(s) of the emergency;
   c. The reasonable steps taken to minimize the emissions during the emergency; and
   d. A statement the permitted equipment was at the time being properly operated.

5.5 Annual records

In accordance with ARSD 74:36:05:16.01(9), the owner or operator shall calculate and record the following amounts from January 1 to December 31 of each year:

1. The amount of material fed or processed by each unit listed in Table 1.1 during the calendar year;
2. The number of hours each unit listed in Table 1.1 operated during the calendar year; and
3. The amount of coal burned in Unit #3, #4, and #9 during the calendar year.

5.6 Annual compliance certification

In accordance with ARSD 74:36:05:16.01(14), the owner or operator shall submit an annual compliance certification letter to the Secretary by March 1 of each year this permit is in effect (NOTE: The Secretary will forward a copy of the certification letter to EPA). The certification shall contain the following information:

1. Methods used to determine compliance, including: monitoring, recordkeeping, performance testing and reporting requirements;
2. The source is in compliance and will continue to demonstrate compliance with all applicable requirements;
3. In the event the source is in noncompliance, a compliance plan that indicates how the source has or will be brought into compliance; and
4. Certification statement required in permit condition 5.3.

5.7 Reporting permit violations

In accordance with ARSD 74:36:05:16.01(9), the owner or operator shall report all permit violations. A permit violation should be reported as soon as possible, but no later than the first business day following the day the violation was discovered. The permit violation may be reported by telephone to the South Dakota Department of Environment and Natural Resources at (605) 773-3151 or by FAX at (605) 773-4068.

A written report shall be submitted within five days of discovering the permit violation. Upon prior approval from the Secretary, the submittal deadline for the written report may be extended up to 30 days. The written report shall contain:

1. A description of the permit violation and its cause(s);
2. The duration of the permit violation, including exact dates and times; and
3. The steps taken or planned to reduce, eliminate, and prevent reoccurrence of the permit violation.

6.0 Control of Regulated Air Pollutants

6.1 Visibility limit

In accordance with ARSD 74:36:12:01, the owner or operator may not discharge into the ambient air an air contaminant of a density equal to or greater than that designated as 20 percent opacity from any permitted unit, operation, or process listed in Table 1.1, unless otherwise specified in this permit. This provision does not apply when the presence of uncombined water is the only reason for failure to meet the requirement.

6.2 Visibility exceedances

In accordance with ARSD 74:36:12:02, an exceedance of the opacity limit in permit condition 6.1 is not considered a violation during brief periods of soot blowing, start-up, shutdown, or malfunctions. Malfunction means any sudden and unavoidable failure of air pollution control equipment, process equipment, or a process to operate in a normal or usual manner. A failure caused entirely or in part by poor maintenance, careless operation, preventable equipment breakdown, or any other cause within the control of the owner or operator is not a malfunction and is considered a violation.

6.3 Total suspended particulate matter limits

In accordance with ARSD 74:36:06:03(1), the owner or operator shall not allow the emission of total suspended particulate matter in excess of the emission limit specified in Table 6.1 for the appropriate permitted unit, operation, and process.

Table 6.1 – Total Suspended Particulate Matter Emission Limit

Unit	Description	Emission Limit
#7	Penthouse storage #1 (south)	1.0 pounds per ton
#7a	Penthouse storage #1 (south)	1.0 pounds per ton
#40	Alkali waste bin	1.8 pounds per ton
#41g	Coal bin #4	2.0 pounds per ton
#41h	Coal bin #5	2.0 pounds per ton
#63	Air separator – kiln #6 feed system	0.01 grains per dry standard cubic foot
#64	Belt transfer from kiln #4 and #5, kiln #4 and #5 weigh feeder, and kiln #4 bucket elevator	0.01 grains per dry standard cubic foot
#65	Raw material transfer point from secondary crusher to a belt conveyor	0.01 grains per dry standard cubic foot
#66	Clinker transfer point from kiln #5 clinker cooler to two bucket elevators	0.01 grains per dry standard cubic foot
#67	Clinker transfer point from kiln #4 clinker cooler to pan conveyor	0.01 grains per dry standard cubic foot
#69	EDC851 –Silo 39 bulk truck loadout baghouse	35.4 pounds per hour

6.4 Sulfur dioxide limits

In accordance with ARSD 74:36:06:02(2) and/or 74:36:06:03(2), the owner or operator shall not allow the emission of sulfur dioxide in excess of the emission limit specified in Table 6.2 for the appropriate permitted unit, operations, and process.

Table 6.2 – Sulfur Dioxide Emission Limit

Unit	Description	Emission Limit
#3	Rotary kiln #4	3.0 pounds per million Btu heat input
#4	Rotary kiln #5	3.0 pounds per million Btu heat input

Compliance with the sulfur dioxide emission limit is based on a three-hour rolling average, which is the arithmetic average of three contiguous one-hour periods.

6.5 Air emission exceedances – emergency conditions

In accordance with ARSD 74:36:05:16.01(18), the Secretary will allow for an unavoidable emission exceedance of a technology-based emission limit if the exceedance is caused by an emergency condition and immediate action is taken by the owner or operator to restore the operations back to normal. An emergency condition is a situation arising from a sudden and reasonably unforeseeable event beyond the control of the owner or operator, including acts of God. An emergency shall not include an emission exceedance to the extent caused by improperly designed equipment, lack of preventive maintenance, careless or improper operation,

or operator error. The owner or operator shall notify the Secretary within two working days of the incident and take all steps possible to eliminate the excess emissions. The notification must provide a description of the emergency, any steps taken to mitigate emissions, and corrective actions taken. If the notification is submitted orally, a written report summarizing the information required by the notification shall be submitted and postmarked within 30 days of the oral notification

6.6 Circumvention not allowed

In accordance with ARSD 74:36:08:03, as referenced to 40 CFR § 63.4(b), no owner or operator shall build, erect, install, or use any article, machine, equipment, or process to conceal an emission that would otherwise constitute noncompliance with a relevant standard. Such concealment includes, but is not limited to the use of diluents to achieve compliance with a relevant standard based on the concentration of a pollutant in the effluent discharged to the atmosphere.

6.7 Minimizing emissions

In accordance with ARSD 74:36:08:03, as referenced to 40 CFR § 63.6(e)(1)(i), the owner or operator shall at all times, including periods of startup, shutdown, and malfunction, operate and maintain any permitted unit, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. During a period of startup, shutdown, or malfunction, this general duty to minimize emissions requires the owner or operator to reduce emissions from the permitted unit to the greatest extent which is consistent with safety and good air pollution control practices. The general duty to minimize emissions during a period of startup, shutdown, or malfunction does not require the owner or operator to achieve emission levels that would be required by the applicable standard at other times if this is not consistent with safety and good air pollution control practices, nor does it require the owner or operator to make any further efforts to reduce emissions if levels required by the applicable standard have been achieved. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Secretary which may include, but is not limited to, monitoring results, review of operation and maintenance procedures (including a startup, shutdown, and malfunction plan, if required), review of operation and maintenance records, and inspection of the operation.

7.0 Prevention of Significant Deterioration (#28.1101-PSD)

7.1 Prevention of significant deterioration permit requirements

In accordance with ARSD 74:36:05:16.01(8), (9), and (19), the prevention of significant deterioration air quality permit #28.1101-PSD is fully incorporated by reference throughout this permit, except permit conditions 2.1, 2.2, 2.3, 2.4, 3.4, 3.5, 5.6, and 5.7 of permit #28.1101-PSD. As of the date of issuance of this permit, the owner or operator has complied with permit conditions 2.1, 2.2, 2.3, 2.4, 3.4, 3.5, 5.6, and 5.7 of permit #28.1101-PSD.

7.2 BACT limits for particulate

In accordance with ARSD 74:36:09:02, as referenced to 40 CFR § 52.21(j)(3), the owner or

operator shall limit air emissions of particulate less than or equal to 10 microns in diameter (PM_{10}) from the permitted units to less than or equal to the emission limits in Table 7.1 and 7.2.

Table 7.1 – PM10 Hourly Emission Limits

Unit	PM_{10} Emission Limit [1]
#9	11.95 pounds per hour
#10	8.59 pounds per hour
#11	2.36 pounds per hour
#41	2.09 pounds per hour

[1] - Compliance with the hourly emission limit shall be based on the filterable particulate. The performance test method shall be 40 CFR Part 60, Appendix A, Method 201 or an alternative method approved by the Secretary.

Table 7.2 – PM10 Emission Limits 1

Unit					
#1	**#7f**	**#12**	**#17**	**#28**	**#41f**
#2	**#7g**	**#13**	**#18**	**#35**	**#41i**
#6	**#8**	**#14**	**#19**	**#36**	**#62b**
#6a	**#8a**	**#15**	**#20**	**#38**	**#68**
#6b	**#8b**	**#16**	**#21**	**#41**	
#7b	**#8c**	**#16a**	**#24**	**#41b**	
#7c	**#9**	**#16b**	**#25**	**#41c**	
#7d	**#10**	**#16c**	**#26**	**#41d**	
#7e	**#11**	**#16d**	**#27**	**#41e**	

[1] – Each unit is subject to a PM_{10} emission limit of 0.01 grains per dry standard cubic foot. Compliance with the grains per dry standard cubic foot emission limit is based on the filterable particulate. The performance test method shall be 40 CFR Part 60, Appendix A, Method 201 or an alternative method approved by the Secretary.

7.3 BACT limits for kiln #6 system

In accordance with ARSD 74:36:09:02, as referenced to 40 CFR § 52.21(j)(3), the owner or operator shall limit air emissions from the kiln #6 system to less than or equal to the BACT emission limits in Table 7.3. The kiln #6 system consists of Unit #9, #11, and #41.

Table 7.3 – BACT Emission Limits for Kiln #6 System

Air Pollutant	Short Term Emission Limit [1]	Long Term Emission Limit [2]
Sulfur Dioxide [4, 6]	632 pounds per hour	885 tons per 12 month period [3]
Nitrogen Oxide [7]		2,267 tons per 12 month period [3]
Carbon Monoxide [5, 8]	3,250 pounds per hour	2,002 tons per 12 month period

[1] – The short term emission limit is used to demonstrate compliance with the short term (less than or equal to a 24 hour period) National Ambient Air Quality Standards for sulfur dioxide and carbon monoxide.

[2] – Compliance with the long term emission limit shall be based on a 12 month rolling average. Each monthly emission rate shall be added to the 11 previous monthly emission rates. The result shall be compared to the long term emission limit.

[3] – The long term emission limit is used to demonstrate compliance with the annual National Ambient Air Quality Standard and PSD Increments.
[4] – Compliance with the sulfur dioxide short term emission limit shall be based on a 24 hour block average. Each day, the 24 hourly emission rates shall be added together. The sum of the 24 one hour readings shall be divided by 24 and the result compared to the short term limit
[5] – Compliance with the carbon monoxide short term emission limit shall be based on an 8 hour block average. The eight hourly rates shall be added together. The sum of the eight one-hour readings shall be divided by 8 and the result compared to the short term emission limit. There will be three 8 hour block averages per day. The three 8 hour blocks shall be from Midnight to 7:59 AM, 8:00 AM to 3:59 PM and 4:00 PM to 11:59 PM.
[6] – Sulfur dioxide emissions for the kiln #6 system shall be the summation of the sulfur dioxide emissions recorded by the continuous emission monitoring system on Unit #9 and Unit #41 and the flow rate recorded by the continuous monitoring system on Unit #11 multiplied by the emission concentration determined from the annual stack test on Unit #11.
[7] – Nitrogen oxide emissions from the kiln #6 system shall be the summation of the nitrogen oxide emissions recorded by the continuous emission monitoring system on Unit #9, the flow rate recorded by the continuous monitoring system on Unit #41 multiplied by the pollutant concentration from the continuous emission monitoring system on Unit #9, and the flow rate recorded by the continuous monitoring system on Unit #11 multiplied by the emission concentration determined from the annual stack test on Unit #11.
[8] – Carbon monoxide emissions from the kiln #6 system shall be the summation of the carbon monoxide emissions recorded by the continuous emission monitoring system on Unit #9, the flow rate recorded by the continuous monitoring system on Unit #41 multiplied by the pollutant concentration from the continuous emission monitoring system on Unit #9, and the flow rate recorded by the continuous monitoring system on Unit #11 multiplied by the emission concentration determined from the annual stack test on Unit #11.

7.4 Annual performance test for Unit #11

In accordance with ARSD 74:36:11:02, the owner or operator shall conduct an annual performance test on Unit #11 for sulfur dioxide, nitrogen oxides, and carbon monoxide. The annual performance test must be conducted once each calendar year. The Secretary has the discretion to extend the deadline for completion of the performance test if circumstances reasonably warrant. If the extension results in the test being performed in the next calendar year, the extension does not waive the requirement for annual test for the next calendar year.

7.5 Continuous emission monitoring systems

In accordance with ARSD 74:36:13:01, the owner or operator shall install, certify, operate, and maintain a continuous emission monitoring system on Units #9, #11, and #41 within 180 days of permit issuance. For Unit #9, the continuous emission monitoring system shall measure and record the sulfur dioxide, nitrogen oxide, and carbon monoxide emissions, and the exhaust gas flow rate. For Unit #11, the continuous emission monitoring system shall measure and record the exhaust gas flow rate. For Unit #41 the continuous emission monitoring system shall measure and record the sulfur dioxide emissions and the exhaust gas flow rate. The continuous emission monitoring systems shall operate at all times, including periods of startup, shutdown, and malfunctions. Monitor downtime is allowed for system breakdowns, repairs, calibration checks, cylinder gas audits and span adjustments, and at other time periods at the discretion of the Secretary.

7.6 Performance specifications and quality assurance

In accordance with ARSD 74:36:13:02, as referenced to 40 CFR § 60.13(a), the continuous emission monitoring systems shall meet the performance specifications in 40 CFR Part 60, Appendix B (Performance Specifications 2 and 3). In addition, the continuous emission monitoring systems shall meet the quality assurance requirements in 40 CFR Part 60 Appendix F.

7.7 Re-certification of the continuous emission monitoring system

In accordance with ARSD 74:36:13:01, the owner or operator shall notify the Secretary in writing prior to making any planned changes to the continuous emission monitoring systems. If the change was unforeseen, the owner or operator shall notify the Secretary in writing within five working days after making the change.

In accordance with ARSD 74:36:13:02, as referenced to 40 CFR § 60.13(c), the owner or operator shall re-certify a continuous emission monitoring system for changes that invalidate the certification status. Changes that invalidate the certification status are as follows:

1. Replacement of the analyzer;
2. Change in location or orientation of the sampling probe or site;
3. Modification to the flue gas handling system which changes its flow characteristics; or
4. A change that in the Secretary's judgment significantly affects the ability of the system to measure or record the pollutant concentration and volumetric gas flow.

The owner or operator shall re-certify the continuous emission monitoring system within 90 days of completing any change, which invalidates the monitor's certification status. A calibration gas audit shall be conducted in accordance with 40 CFR, Part 60, Appendix F § 5.1.2 within 24 hours of making a change that invalidates the monitor's certification status. A two point calibration check shall be performed daily, thereafter, until the re-certification test is completed. The results of the re-certification test shall be submitted to the Secretary within 60 days after completing the test.

The following change to a continuous emission monitoring system does not invalidate the certification:

5. Routine or normal corrective maintenance;
6. Replacement of parts on the manufacturer's recommended spare parts list;
7. Software modifications in the automated data acquisition and handling system, where the modification is only for the purpose of generating additional or modified reports; or
8. Temporary replacement of an analyzer with a similar analyzer. A calibration gas audit shall be conducted in accordance with 40 CFR, Part 60, Appendix F § 5.1.2 within 24 hours of installing a temporary replacement analyzer. A two point calibration check shall be performed daily, thereafter, until the temporary replacement analyzer has been replaced with the original analyzer or the temporary replacement analyzer has been certified. A temporary replacement analyzer that is used on a unit for more than 30 days in a 12-month rolling period shall be certified. If the temporary analyzer is used for one hour or more during the day, that constitutes one day. The certification test shall be

performed within 60 days of exceeding the 30 day limit. The results of the certification test shall be submitted to the Secretary within 60 days after completing the test.

7.8 Monitoring data

In accordance with ARSD 74:36:13:02, the continuous emission monitoring system shall monitor the sulfur dioxide, nitrogen oxide, and carbon monoxide emission rates in pounds per hour. The sulfur dioxide, nitrogen oxide, and carbon monoxide emission rates shall be based on one-hour averages computed from four or more data points equally spaced over each one-hour period. A one-hour period starts at the beginning of the hour and ends at the beginning of the following hour. Data recorded during monitor downtime shall be considered invalid data points and not included in the data averages. For one-hour periods during monitor calibrations, quality control audits or other required maintenance; a minimum of two data points at least 15 minutes apart must be collected to consider the one-hour average valid.

7.9 Quarterly report -- excess air emissions

In accordance with ARSD 74:36:09:02, as referenced to ARSD 74:36:05:16.01(9), the owner or operator shall submit a quarterly excess emission report. The report shall contain the following information:

1. Name of the facility, permit number, reference to this permit condition, and identify the submittal as a quarterly report;
2. Any period in which the sulfur dioxide, nitrogen oxide, or carbon monoxide emission limits for the kiln #6 system (Units #9, #11, and #41) in permit condition 4.2 are exceeded based on the compliance period. If an exceedance occurs, the report shall identify the following:
   a. The date, time, and time period of each exceedance;
   b. Magnitude of the exceedance;
   c. Cause of the exceedance; and
   d. Measures taken to bring the operations back into compliance.

   In the case where no exceedance has occurred, the quarterly report shall state that no exceedance has occurred.
3. Any period in which the continuous emission monitoring system was inoperable and did not collect a valid one-hour average while the unit was operational. The following information shall be submitted:
   a. The date, time and time period of each period during which the continuous monitoring system was inoperative and did not collect a valid one-hour period;
   b. The reason the continuous emission monitoring system is down; and
   c. The measures taken to bring the continuous emission monitoring system on line again and measures taken to prevent the reason the system went down from occurring again.

   In the case when there was no time in which the continuous monitoring system was inoperable and did not collect a valid one-hour period while the unit was operational, the quarterly report shall state that the continuous monitoring system was operational at all times.

The quarterly report shall be postmarked no later than the 30th day following the end of each calendar quarter.

7.10 Unpaved road controls

In accordance with ARSD 74:36:09:02, as referenced to ARSD 74:36:05:16.01(8), the owner or operator shall apply a chemical stabilizer on all main haul roads and a chemical stabilizer or water on all secondary roads that have daily vehicular traffic or an alternative method approved by the Secretary. The frequency of applying chemical stabilizer or water will be on an as needed basis to comply with the opacity limit in permit condition 7.13. The owner or operator may pave the main haul roads or secondary roads with tack seal, asphalt, recycled asphalt, or concrete. If the main haul road or secondary haul road is paved, the owner or operator shall meet the requirements of permit condition 7.11. A main haul road is defined as a passageway between the mining area and the processing facility or between the processing facility and the storage area in which material is transferred on a road. A secondary haul road is defined as a passageway in which there is daily vehicular traffic on normal working days other than the main haul roads.

7.11 Paved road and parking area controls

In accordance with ARSD 74:36:09:02, as referenced to ARSD 74:36:05:16.01(8), the owner or operator shall sweep and water flush, vacuum and water flush all paved roads and parking areas, or an alternative method approved by the Secretary to remove particulate matter that has the potential to be re-suspended. The frequency of cleaning will be on an as needed basis to comply with the opacity limit in permit condition 7.13.

7.12 Open storage pile control

In accordance with ARSD 74:36:09:02, as referenced to ARSD 74:36:05:16.01(8), the owner or operator shall sample and analyze the silt content of open storage piles that have a height greater than or equal to three feet and have a total surface area greater than or equal to 150 square feet. The analysis shall be conducted once per calendar year and in accordance with ASTM C-136 or another equivalent method approved by the Secretary. Open storage pile controls shall be applied to each open storage pile that has a silt content of four percent by weight or greater. Silt is defined as any material with a particulate size less than 74 micrometers in diameter and passes through a number 200 sieve. Open storage pile controls shall be applied or constructed in a manner that maintains compliance with the opacity limit in permit condition 7.14. Open storage pile controls shall consist of at least one of the following:

1. Apply chemical stabilizer to the surface area of all open storage piles;
2. Apply water to the surface area of all open storage piles;
3. Install at least a two-sided enclosure with walls extending, at a minimum, to the top of the open storage pile; or
4. An alternative method approved by the Secretary

7.13 Opacity limit for fugitive sources

In accordance with ARSD 74:36:09:02, as referenced to ARSD 74:36:05:16.01(8), the owner or operator shall not discharge a visible emission to the ambient air of a density equal to or greater than 20 percent opacity from an unpaved road, paved road or parking lot, crushing operation,

open storage pile, track out area, or waste pit. The 20 percent opacity reading is based on a series of two minutes averages with a minimum observation period of six minutes. The opacity reading shall be determined by Tennessee Visual Emissions Method 1 as approved by EPA in 40 CFR §52.2220 or by 40 CFR Part 60, Appendix A, Method 9.

If an operation exceeds the opacity limit, the Secretary will allow the owner or operator two opportunities to correct the exceedance with existing controls and/or control measures. In the event of a third exceedance from the same operation, the Secretary will notify the owner or operator that the Best Available Control Measure (BACM) for that operation must be reevaluated. The owner or operator shall reevaluate BACM for that operation and submit a written proposal to the Secretary on the proposed new BACM for the operation within 60 days of receiving the Secretary's notification. The Secretary shall approve or disapprove the proposed new BACM within 60 days of receiving the proposal from the owner or operator.

7.14 Opacity readings during a high wind air pollution alert

In accordance with ARSD 74:36:09:02, as referenced to ARSD 74:36:05:16.01(8), opacity readings documenting an exceedance during a high wind air pollution alert shall not be considered an exceedance of the opacity limit in permit condition 7.13. A high wind air pollution alert is based upon the following weather conditions:

1. Winds equal to or greater than 20 miles per hour on an hourly average occurring for two or more consecutive hours;
2. Peak winds of 40 miles per hour (one minute average) or greater; and
3. The above wind conditions with three or more days of low precipitation (less than 0.02 inches).

8.0 Performance Tests

8.1 Performance test may be required

In accordance with ARSD 74:36:11:02, the Secretary may request a performance test during the term of this permit. A performance test shall be conducted while operating the unit at or greater than 90 percent of its maximum design capacity, unless otherwise specified by the Secretary. A performance test conducted while operating less than 90 percent of its maximum design capacity will result in the operation being limited to the percent achieved during the performance test. The Secretary has the discretion to extend the deadline for completion of performance test required by the Secretary if circumstances reasonably warrant but will not extend the deadline past a federally required performance test deadline.

8.2 Test methods and procedures

In accordance with ARSD 74:36:11:01, the owner or operator shall conduct the performance test in accordance with 40 CFR Part 60, Appendix A, 40 CFR Part 63, Appendix A, and 40 CFR Part 51, Appendix M. The Secretary may approve an alternative method if a performance test specified in 40 CFR Part 60, Appendix A, 40 CFR Part 63, Appendix A, and 40 CFR Part 51, Appendix M is not federally applicable or federally required.

8.3 Representative performance test

In accordance with ARSD 74:36:07:01, as referenced to 40 CFR § 60.8(c), performance tests shall be conducted under such conditions as the Secretary shall specify to the owner or operator based on the representative performance of the unit being tested. The owner or operator shall make available to the Secretary such records as may be necessary to determine the conditions of the performance tests. Operations during periods of startup, shutdown, and malfunction shall not constitute representative conditions for the purpose of a performance test nor shall emissions in excess of the level of the applicable emission limit during periods of startup, shutdown, and malfunction be considered a violation of the applicable emission limit unless otherwise specified in this permit.

8.4 Submittal of test plan

In accordance with ARSD 74:36:11:01, the owner or operator shall submit the proposed testing procedures to the Secretary at least 30 days prior to any performance test. The Secretary will notify the owner or operator if the proposed test procedures are approved or denied. If the proposed test procedures are denied, the Secretary will provide written notification outlining what needs to be completed for approval.

8.5 Notification of test

In accordance with ARSD 74:36:07:01, as referenced to 40 CFR § 60.8(d), the owner or operator shall notify the Secretary at least 30 days prior to the start of a performance test to afford the Secretary the opportunity to have an observer present. If there is a delay in conducting the scheduled performance test, the owner or operator shall notify the Secretary as soon as possible of any delay in the original test date, either by providing at least 7 days prior notice of the rescheduled date of the performance test, or by arranging a rescheduled date with the Secretary by mutual agreement.

8.6 Performance test report

In accordance with ARSD 74:36:05:16.01(9), the owner or operator shall submit a performance test report to the Secretary within 60 days after completing the performance test or by a date designated by the Secretary. The performance test report shall contain the following information:

1. A brief description of the process and the air pollution control system being tested;
2. Sampling location description(s);
3. A description of sampling and analytical procedures and any modifications to standard procedures;
4. Test results represented in the same terminology as the permit limits;
5. Quality assurance procedures and results;
6. Records of operating conditions during the test necessary for demonstrating compliance with the permit limits, preparation of standards, and calibration procedures;
7. Raw data sheets for field sampling and field and laboratory analyses;
8. Documentation of calculations;
9. All data recorded and used to establish parameters for compliance monitoring; and
10. Any other information required by the test method.

8.7 Performance test to verify compliance

In accordance with ARSD 74:36:11:02, the owner or operator shall conduct a stack performance test on the following:

1. Unit #12, #13, or #14 for particulate matter;
2. Unit #16b or #16d for particulate matter; and
3. Unit #62b or #65 for particulate matter.

The stack performance tests shall be conducted within 180 days after permit issuance.

9.0 Monitoring

9.1 Periodic opacity monitoring for units operating on a monthly or more frequent basis

In accordance with ARSD 74:36:05:16.01(9), the owner or operator shall demonstrate compliance with opacity limits on a periodic basis for units that operate on a monthly or more frequent basis and are listed in paragraph (1) of permit condition 5.4. Periodic monitoring for units that operate on a monthly or more frequent basis shall be based on the following steps:

Step 1: Periodic monitoring shall consist of a visible emission reading. A visible emission reading shall consist of a visual survey of each unit over a two-minute period to identify if there are visible emissions. The visible emission reading must be conducted while the unit is in operation; but not during periods of startup, shutdown, or malfunctions. Visible emission readings shall be based on the following frequency:

a. The owner or operator shall conduct a visible emission reading once per calendar month;
b. If no visible emissions are observed from a unit in six consecutive monthly visible emission readings, the owner or operator may decrease the frequency of readings from monthly to semiannually for that unit; or
c. If no visible emissions are observed from a unit in two consecutive semiannual visible emission readings, the owner or operator may decrease the frequency of testing of readings from semiannually to annually for that unit.

Step 2: If visible emissions are observed from a unit at any time other than periods of startup, shutdown, or malfunction, periodic monitoring shall consist of a visible emission test to determine if the unit is in compliance with the opacity limit specified in Chapter 6.0. The visible emission test shall be for at least six minutes and conducted in accordance with 40 CFR Part 60, Appendix A, Method 9. The visible emission test must be conducted while the unit is in operation; but not during periods of startup, shutdown, or malfunctions. Visible emission tests shall be based on the following frequency:

a. The visible emission test must be conducted within one hour of witnessing a visible emission from a unit;

b. If the visible emission test required in Step 2(a) results in an opacity value less than or equal to 50 percent of the opacity limit for the unit, the owner or operator shall perform a visible emission test once per month;
c. If the opacity value of a visible emission test in Step 2(b) is less than five percent for three straight monthly tests, the owner or operator may revert back to monthly visible emission readings as required in Step 1;
d. If the visible emission test required in Step 2(a) results in an opacity value greater than 50 percent of the opacity limit but less than the opacity limit, the owner or operator shall perform a visible emission test once per week; or
e. If the visible emission test in Step 2(d) results in an opacity value less than or equal to 50 percent of the opacity limit for four straight weekly readings, the owner or operator may revert back to a monthly visible emission test as required in Step 2(b).

The person conducting the visible emission reading does not have to be certified in accordance with 40 CFR Part 60, Appendix A, Method 9. The person conducting the visible emission test must be certified in accordance with 40 CFR Part 60, Appendix A, Method 9. If a visible emission test is required before a person is certified in accordance with permit condition 9.3, the owner or operator shall notify the Secretary within 24 hours of observing the visible emissions to schedule a visible emission test performed by a state inspector.

9.2 Monitoring opacity limits for units operating periodically

In accordance with ARSD 74:36:05:16.01(9), the owner or operator shall demonstrate compliance with opacity limits for units that operate on a quarterly, semiannual, or annual basis and are listed in paragraph (1) of permit condition 5.4. Periodic monitoring shall be based on the following steps:

Step 1: For units that operate on a quarterly basis, monitoring shall consist of the following:
a. Monitoring shall consist of a visible emission reading once per quarter. A visible emission reading shall consist of a visual survey of the unit over a two-minute period to identify if there are visible emissions. The visible emission reading must be conducted while the unit is in operation; but not during periods of startup, shutdown, or malfunctions; or
b. If visible emissions are observed from a unit at any time other than periods of startup, shutdown, or malfunction, the owner or operator shall conduct a visible emission test on that unit to determine if the unit is in compliance with the opacity limit specified in Chapter 6.0. The visible emission test must be conducted within one hour of witnessing a visible emission from the unit. The visible emission test shall be for at least six minutes and conducted in accordance with 40 CFR Part 60, Appendix A, Method 9. The visible emission test must be conducted while the unit is in operation; but not during periods of startup, shutdown, or malfunctions.

Step 2: For units that operate on a semiannual or annual basis, monitoring shall consist of the following:
a. Monitoring shall consist of a visible emission reading once per year. A visible emission reading shall consist of a visual survey of the unit over a two-minute period

to identify if there are visible emissions. The visible emission reading must be conducted while the unit is in operation; but not during periods of startup, shutdown, or malfunctions;

b. If visible emissions are observed from a unit at any time other than periods of startup, shutdown, or malfunction, the owner or operator shall conduct a visible emission test on that unit to determine if the unit is in compliance with the opacity limit specified in Chapter 6.0. The visible emission test must be conducted within one hour of witnessing a visible emission from the unit. The visible emission test shall be for at least six minutes and conducted in accordance with 40 CFR Part 60, Appendix A, Method 9. The visible emission test must be conducted while the unit is in operation; but not during periods of startup, shutdown, or malfunctions.

The person conducting the visible emission reading does not have to be certified in accordance with 40 CFR Part 60, Appendix A, Method 9. The person conducting the visible emission test must be certified in accordance with 40 CFR Part 60, Appendix A, Method 9. If a visible emission test is required before a person is certified in accordance with permit condition 9.3, the owner or operator shall notify the Secretary within 24 hours of observing the visible emissions to schedule a visible emission test performed by a state inspector.

9.3 Certified personnel – visible emission tests

In accordance with ARSD 74:36:13:07, within 180 days after permit issuance the owner or operator shall retain a person that is certified to perform a visible emission test in accordance with 40 CFR Part 60, Appendix A, Method 9. The owner or operator shall retain a certified person throughout the remaining term of this permit.

10.0 NSPS Requirements – Coal Preparation

10.1 Standards for coal mill, storage, transfer and loading equipment

In accordance with ARSD 74:36:07:16, as referenced to 40 CFR § 60.254(a), the owner or operator shall not cause to be discharged into the atmosphere from the equipment listed in Table 10.1 any gases which exhibit 20 percent opacity or greater.

Table 10.1 – Units Subject to Opacity Limit

Unit	Description
#41b	Coal stacker top
#41c	Coal surge bin top
#41d	Coal tunnel to coal stacker
#41e	Coal surge bin top
#41f	Coal transfer
#41g	Coal bin #4
#41h	Coal bin #5
#41i	Coal bin #6
#62b	Coal – hopper to conveyor

10.2 Demonstrating compliance with opacity limits

In accordance with ARSD 74:36:07:16, as reference to 40 CFR § 60.257(a)(1) and (3), the owner or operator shall determine compliance with the opacity limits in Table 10.1 using 40 CFR Part 60, Appendix A-4, Method 9, except for the following procedures:

1. The duration shall be one hour (10 6-minute averages); and
2. If during the initial 30 minutes of observations, all of the 6-minute average opacity readings are less than or equal to half the applicable opacity limit, then the observations may be reduced from one hour to 30 minutes.

A visible emissions observer may conduct visible emission observations for up to 3 stacks within a 15-second interval if the emissions points are within a 70 degree viewing sector or angle in front of the observer such that the proper sun position can be maintained for all points and if an opacity reading for any one of the emissions points is within 5 percent opacity from the applicable standard (excluding readings of zero opacity), then the observer must stop taking readings for the other points and continue reading just that single point.

10.3 Semiannual excess emissions report for opacity

In accordance with ARSD 74:36:07:16, as reference to 40 CFR § 60.258(b), the owner or operator shall submit a semiannual excess emission report for all 6-minute opacity reading that exceed the applicable limit in Table 10-1. When no excess emissions have occurred during the reporting period, such information shall be stated in the report. The semiannual report shall be postmarked no later than the 30th day following the end of each semiannual period (January 30th and July 30th).

11.0 MACT Requirements – Portland Cement Plant

A. Emission and Operational Limits

11.1 Existing emission limits for kilns and clinker coolers

In accordance with ARSD 74:36:08:21, as referenced to 40 CFR § 63.1343(a) and (d), prior to September 9, 2015, or prior to the owner or operator certifying compliance with the applicable limit in Table 11.2, whichever is earlier, the owner or operator shall not discharge into the ambient air an air contaminant greater than the emission limits specified in Table 11.1.

Table 11.1 – Existing emission limits for kilns, clinker coolers, and finish mills [1]

Unit	Description	Pollutant	Emission Limit
#3	Rotary kiln #4	Particulate matter	0.30 pounds per ton feed
		Dioxins/furans [2]	0.2 nanograms per dry standard cubic meter (8.7×10^{-11} grains per dry standard cubic foot) (TEQ [3]) corrected to 7% oxygen
		Opacity	20%
#4	Rotary kiln #5	Particulate matter	0.30 pounds per ton feed

Unit	Description	Pollutant	Emission Limit
		Dioxins/furans [2]	0.2 nanograms per dry standard cubic meter (8.7×10^{-11} grains per dry standard cubic foot) (TEQ [3]) corrected to 7% oxygen
		Opacity	20%
#5	Unit #5a – Kiln #4 clinker cooler Unit #5b – Kiln #5 clinker cooler	Particulate matter	0.10 pounds per ton feed
		Opacity	10%
#9/#11	Rotary kiln #6 and alkali bypass	Particulate matter	0.30 pounds per ton feed [4]
		Dioxins/furans [2]	0.2 nanograms per dry standard cubic meter (8.7×10^{-11} grains per dry standard cubic foot) (TEQ [3]) corrected to 7% oxygen
		Opacity	20%
#10	Kiln #6 clinker cooler	Particulate matter	0.10 pounds per ton feed
		Opacity	10%
#12	Finish mill #3	Opacity	10%
#13	Finish mill #4	Opacity	10%
#14	Finish mill #5	Opacity	10%
#15	Finish mill #6	Opacity	10%
#16	Finish mill #7 (mill sweep)	Opacity	10%
#16a	Finish mill #7 (mill separator)	Opacity	10%

[1] – Compliance with the opacity limit for each unit shall be based on a continuous opacity monitoring system. Compliance is achieved if the average opacity for any 6-minute block period is less than or equal to the appropriate opacity limit;

[2] – If the average temperature at the inlet to the particulate matter control device during the dioxins/furans performance test is 400 degrees Fahrenheit or less, the dioxins/furans limit is 0.4 nanograms per dry standard cubic meter (1.7×10^{-10} grains per dry standard cubic foot) (TEQ [3]) corrected to 7% oxygen;

[3]– "TEQ" means the international method of expressing toxicity equivalents for dioxins and furans as defined in *U.S. EPA Interim Procedures for Estimating Risks Associated with Exposures to Mixtures of Chlorinated Dibenzo-p-dioxins and dibensofurans (CDDs and CDFs) an 1989 Update*, March 1989; and

[4] – The particulate matter emission limit applies to the combined particulate matter emissions from Unit #9 and #11.

11.2 Future emission limits for kilns, clinker coolers, and finish mills

In accordance with ARSD 74:36:08:21, as referenced to 40 CFR §§ 63.1343(a) and (b) and 63.1351(c), on or after September 9, 2015, or once the owner or operator certifies compliance with the applicable limit in Table 11.2, whichever is earlier, the owner or operator shall not discharge into the ambient air an air contaminant greater than the emission limits specified in Table 11.2.

Table 11.2 – Future emission limits for kilns, clinker coolers, and finish mills

Unit	Operating Mode	Pollutant	Emission Limit
#3	Normal operation	Particulate matter	0.07 pounds per ton clinker [1]
		Dioxins/furans [2]	0.2 nanograms per dry standard cubic meter (TEQ [3]) corrected to 7% oxygen
		Mercury [5]	55 pounds per million tons clinker
		Total hydrocarbon [4, 5]	24 parts per million by volume dry measured as propane and corrected to 7% oxygen
		Hydrogen chloride [6]	3 parts per million by volume dry corrected to 7 percent oxygen
	Startup and shutdown	Not applicable	Work practices identified in permit condition 11.8
#4	Normal operation	Particulate matter	0.07 pounds per ton clinker [1]
		Dioxins/furans [2]	0.2 nanograms per dry standard cubic meter (TEQ [3]) corrected to 7% oxygen
		Mercury [5]	55 pounds per million tons clinker
		Total hydrocarbon [4, 5]	24 parts per million by volume dry measured as propane and corrected to 7% oxygen
		Hydrogen chloride [6]	3 parts per million by volume dry corrected to 7 percent oxygen
	Startup and shutdown	Not applicable	Work practices identified in permit condition 11.8
#5	Normal operation	Particulate matter	0.07 pounds per ton clinker
	Startup and shutdown	Not applicable	[7]
#9, #11, and #41 [8]	Normal operation	Particulate matter	0.07 pounds per ton clinker [1]
		Dioxins/furans [2]	0.2 nanograms per dry standard cubic meter (TEQ [3]) corrected to 7% oxygen
		Mercury [5]	55 pounds per million tons clinker
		Total hydrocarbon [4, 5]	24 parts per million by volume dry measured as propane and corrected to 7% oxygen
		Hydrogen chloride [6]	3 parts per million by volume dry corrected to 7 percent oxygen
	Startup and shutdown	Not applicable	Work practices identified in permit condition 11.8
#10	Normal operation	Particulate matter	0.07 pounds per ton clinker
	Startup and shutdown	Not applicable	[7]
#12	All operating modes	Opacity	10%
#13	All operating modes	Opacity	10%
#14	All operating modes	Opacity	10%
#15	All operating modes	Opacity	10%
#16	All operating modes	Opacity	10%

Unit	Operating Mode	Pollutant	Emission Limit
#16a	All operating modes	Opacity	10%

[1] – Particulate matter performance tests are performed using 40 CFR Part 60, Appendix A-3, Method 5 or 5l and consist of three 1-hour tests;
[2] – If the average temperature at the inlet to the first particulate matter control device during the dioxins/furans performance test is 400 degrees Fahrenheit or less, the dioxins/furans limit is 0.4 nanograms per dry standard cubic meter (TEQ) corrected to 7% oxygen;
[3] – "TEQ" means the international method of expressing toxicity equivalents for dioxins and furans as defined in *U.S. EPA Interim Procedures for Estimating Risks Associated with Exposures to Mixtures of Chlorinated Dibenzo-p-dioxins and dibensofurans (CDDs and CDFs) an 1989 Update*, March 1989;
[4] – The owner or operator may elect to meet an alternative limit of 12 parts per million by volume on a dry basis for total organic hazardous air pollutants;
[5] – The emission limit is based on a rolling 30-day average. The 30-day period means 30 consecutive operating days, excluding periods of startup and shutdown. The owner or operator shall ensure appropriate corrections for moisture are made when measuring flow rate used to calculate mercury emissions;
[6] – If using a hydrogen chloride continuous emission monitoring system to demonstrate compliance with the emission limit, the hydrogen chloride emission limit is based on a rolling 30-day average. The 30-day period means 30 consecutive operating days, excluding periods of startup and shutdown;
[7] - In accordance with ARSD 74:36:08:21, as reference to 40 CFR § 63.1348(b)(9), the owner or operator shall demonstrate compliance during startup and shutdown by operating all air pollution control devices associated with the applicable unit during startup and shutdown; and
[8] – The particulate matter emission limit applies to the combined particulate matter emissions from Unit #9, #11, and #41.

11.3 Open clinker storage piles and accidental spillage

In accordance with ARSD 74:36:08:21, as referenced to 40 CFR §§ 63.1343(c) and 63.1351(e), the owner or operator of an open clinker storage pile or piles of clinker that are not part of open clinker storage piles, such as accidental spillage, shall prepare and operate these piles in accordance with the fugitive dust emission control measures described in the operation and maintenance plan in permit condition 11.54.

11.4 Opacity limit for handling and storage

In accordance with ARSD 74:36:08:21, as referenced to 40 CFR § 63.1345, the owner or operator shall not discharge into the ambient air an air contaminant of a density greater than 10 percent opacity from the operations listed in Table 11.3.

Table 11.3 – Handling and storage activities

Unit	Description	Control Device
#6	Raw material storage building to two kiln feed storage silos	Baghouse
#6a	Rock silo to Loesche mill	Baghouse
#6b	Kiln feed storage silo to kiln #6	Baghouse
#7	Penthouse storage #1 (south)	Baghouse
#7a	Penthouse storage #1 (south)	Baghouse
#7b	Clinker shed to finish mills	Baghouse

Unit	Description	Control Device
#7c	Raw shed to Loesche mill	Baghouse
#7d	Raw material transfer from belt conveyor 107 to belt conveyor 108	Baghouse
#7e	Gypsum raw shed to old clinker building	Baghouse
#7f	Raw shed to Loesche mill	Baghouse
#7g	Gypsum raw shed to old clinker building	Baghouse
#8	Penthouse storage #2 (north)	Baghouse
#8a	Penthouse storage #2 (north)	Baghouse
#8b	Penthouse storage #2 (north)	Baghouse
#8c	Rock silo discharge	Baghouse
#16b	Finish mill #7 (transfer)	Baghouse
#16c	Finish mill #7 (transfer)	Baghouse
#16d	Clinker transfer system	Baghouse
#17	Bulk storage silos	Baghouse
#18	Bulk storage silos	Baghouse
#19	Bulk storage silos	Baghouse
#20	Bulk storage silos	Baghouse
#21	Bulk storage silos	Baghouse
#24	Rail storage silos	Baghouse
#25	Rail storage silos	Baghouse
#26	Rail storage silos	Baghouse
#27	Bulk rail loadouts	Baghouse
#28	Bulk rail loadouts	Baghouse
#35	East bulk truck loadout	Baghouse
#36	West bulk truck loadout	Baghouse
#38	Cement bagging	Baghouse
#40	Alkali waste bin	Baghouse
#63	Air separator – kiln #6 feed system	Baghouse
#64	Belt transfer from kiln #4 and #5, kiln #4 and #5 weigh feeder, and kiln #4 bucket elevator	Baghouse
#65	Raw material transfer point from secondary crusher to a belt conveyor	Baghouse
#66	Clinker transfer point from kiln #5 clinker cooler to two bucket elevators	Baghouse
#67	Clinker transfer point from kiln #4 clinker cooler to pan conveyor	Baghouse
#68	Bulk storage silo – Silo 39	Baghouse
#69	Silo 39 bulk truck load out	Baghouse
#92	Clinker bypass loadout bin	Baghouse
#93	Bulk storage – Silo 37	Baghouse
#94	Bulk truck loadout – Silo 37	Baghouse

11.5 Temperature limits for kilns and alkali bypass

In accordance with ARSD 74:36:08:21, as referenced to 40 CFR § 63.1346(a) and (b), the owner or operator of Unit #3 and #4 shall operate each unit such that the temperature of the gas at the inlet of the particulate matter control device for each unit does not exceed the applicable temperature limit established in permit condition 11.41. The owner or operator of Unit #9 and #11 shall operate each unit such that:

1. When the raw mill is operating, the applicable temperature limit established in permit condition 11.41 for Unit #9 shall not be exceeded, except during periods of startup and shutdown. During periods of startup and shutdown, the temperature limit may be exceeded by no more than 10 percent;
2. When the raw mill is not operating, the applicable temperature limit established in permit condition 11.41 for Unit #9 shall not be exceeded, except during periods of startup and shutdown. During periods of startup and shutdown, the temperature limit may be exceeded by no more than 10 percent; and
3. The applicable temperature limit established in permit condition 11.41 for Unit #11 with or without the raw mill operating, shall not be exceeded, except during periods of startup and shutdown. During periods of startup and shutdown, the temperature limit may be exceeded by no more than 10 percent.

11.6 Sorbent injection rate and operating limit for kilns and alkali bypass

In accordance with ARSD 74:36:08:21, as referenced to 40 CFR § 63.1346(c) through (e), if the owner or operator of Unit #3, #4, #9, and/or #11 employs sorbent injection as an emission control technique for dioxin and furan emissions, the owner or operator shall operate the sorbent injection system as follows:

1. The three-hour rolling average activated sorbent injection rate shall be equal to or greater than the sorbent injection rate determined in paragraph (5) of permit condition 11.41; and
2. Maintain the minimum activated carbon injection carrier gas flow rate, as a three-hour rolling average, based on the manufacturer's specifications. Theses specifications shall be documented in the test plan developed in accordance with permit condition 11.34**;** or
3. Maintain the minimum activated carbon injection carrier gas pressure drop, as a three-hour rolling average, based on the manufacturer's specifications. Theses specifications shall be documented in the test plan developed in accordance with permit condition 11.34; and
4. Except as provided in paragraph (5) of this permit condition, specify and use the brand and type of sorbent used during the performance test until a subsequent performance test is conducted, unless the test plan contains documentation of key parameters that affect adsorption and the owner or operator establishes limits based on those parameters and the limits on these parameters are maintained; and
5. The owner or operator may substitute, at any time, a different brand or type of sorbent provided the replacement has equivalent or improved properties compared to the sorbent specified in the test plan and used in the performance test. The owner or operator shall

maintain documentation the substitute sorbent will provide the same or better level of control as the original sorbent.

11.7 Fly ash restrictions

In accordance with ARSD 74:36:08:21, as referenced to 40 CFR § 63.1346(f), the owner or operator shall not use any fly ash, where the mercury content of the fly ash has been increased through the use of activated carbon or any other sorbent, as a raw material or fuel in Unit #3, #4, or #9 unless the owner or operator can demonstrate the use of the fly ash will not result in mercury emissions over baseline emissions (i.e., emissions not using the fly ash). The owner or operator has the burden of proving there has been no emission increase over baseline. This permit condition is no longer applicable once the owner or operator demonstrates compliance with the applicable mercury emission limit in Table 11.2 while using the fly ash.

11.8 Startup and shutdown requirements

In accordance with ARSD 74:36:08:21, as referenced to 40 CFR §§ 63.1346(g), on or after September 9, 2015, during periods of startup and shutdown for Unit #3, #4, and #9, the owner or operator shall meet the following requirements:

1. During startup, the owner or operator shall use only natural gas as a fuel until the unit reaches a temperature of 1,200 degrees Fahrenheit;
2. Combustion of coal may commence once the unit's temperature reaches 1,200 degrees Fahrenheit;
3. All air pollution control devices associated with the unit shall be turned on and operating prior to combusting any fuel; and
4. The owner or operator shall maintain records as specified in permit condition 11.56 during periods of startup and shutdown.

Startup means the time from when a shutdown unit first begins firing fuel until it begins producing clinker. Startup begins when a shutdown unit turns on the induced draft fan and begins firing fuel in the main burner. Startup ends when feed is being continuously introduced into the unit for at least 120 minutes or when the feed rate exceeds 60 percent of the unit's design limitation rate, whichever occurs first. Shutdown means the cessation of unit operation. Shutdown begins when feed to the unit is halted and ends when the unit's continuous rotation ceases.

11.9 General duty to minimize emissions

In accordance with ARSD 74:36:08:21, as referenced to 40 CFR § 63.1348(d), the owner or operator shall at all times operate and maintain the units, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Secretary which may include monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the unit.

B. Initial Compliance

11.10 Initial compliance demonstration – particulate matter

In accordance with ARSD 74:36:08:21, as referenced to 40 CFR § 63.1348(a)(1), the owner or operator shall demonstrate initial compliance with the particulate matter emission limit for Unit #3, #4, #5, #9, #10, #11, and #41 in Table 11.2 by March 9, 2016 using the performance testing requirements in permit condition 11.39.

11.11 Initial compliance demonstration – opacity

In accordance with ARSD 74:36:08:21, as referenced to 40 CFR § 63.1348(a)(2), the owner or operator shall demonstrate initial compliance with the opacity limits in Table 11.3 by March 9, 2016, using the performance test methods and procedures in permit condition 11.40. The maximum 6-minute average opacity exhibited during the initial performance test period shall be used to determine compliance.

11.12 Initial compliance demonstration – dioxin/furan

In accordance with ARSD 74:36:08:21, as referenced to 40 CFR § 63.1348(a)(3), the owner or operator shall demonstrate initial compliance with the dioxin/furan limits in Table 11-2 by March 9, 2016, using the performance test methods and procedures in permit condition 11.41. The owner or operator shall demonstrate initial compliance with Unit #9 by conducting separate performance tests while the raw mill is operating and not operating. The dioxin/furan concentration shall be determined for each run and the arithmetic average of the concentrations measured for the three runs shall be calculated to determine compliance. In addition, the owner or operator shall:

1. Demonstrate initial compliance with the temperature operating limit in permit condition 11.5 by using the performance test methods and procedures in permit condition 11.41. The arithmetic average of the temperatures measured during the three runs shall be used to determine the applicable temperature limit;
2. If activated carbon injection is used, demonstrate initial compliance with the activated carbon injection rate operating limit in permit condition 11.6 by using the performance test methods and procedures in paragraph (5) of permit condition 11.41; and
3. If activated carbon injection is used, the owner or operator shall develop a carrier gas parameter (i.e., carrier gas flow rate or the carrier gas pressure drop) during the initial performance test that meets the requirements of paragraph (5)(d) of permit condition 11.41. Compliance is demonstrated if the system is maintained within plus or minus 5 percent accuracy during the performance test determined in accordance with the procedures and criteria submitted for review in the owner's and operator's site-specific monitoring plan required in permit condition 11.55.

11.13 Initial compliance demonstration – total hydrocarbon

In accordance with ARSD 74:36:08:21, as referenced to 40 CFR § 63.1348(a)(4)(i), the owner or operator shall demonstrate initial compliance with the total hydrocarbon limits in Table 11.2 by March 9, 2016, using the performance test methods and procedures in permit condition 11.42. The first 30 consecutive operating days of the total hydrocarbon continuous emission monitoring

after September 9, 2015, shall be used to average total hydrocarbon concentration data and determine initial compliance. The first day of the 30 operating day performance test is the first day after September 9, 2015, following completion of the field testing and data collection that demonstrates the continuous emission monitoring system has satisfied the relevant performance specifications.

11.14 Initial compliance demonstration – total organic HAP

In accordance with ARSD 74:36:08:21, as referenced to 40 CFR § 63.1348(a)(4)(ii) through (v), if the owner or operator elects to demonstrate compliance with the total organic hazardous air pollutant emission limit in footnote 4 of Table 11.2 in lieu of the total hydrocarbon emission limit, the owner or operator shall demonstrate initial compliance with the total organic hazardous air pollutant emission limit by March 9, 2016, using the performance test methods and procedures in permit condition 11.43. The average total organic hazardous air pollutant concentration measured during the performance test shall be used to determine initial compliance. The average total hydrocarbon concentrations measured during the initial performance test in permit condition 11.13 shall be used to determine the total hydrocarbon limit.

During the initial performance test for Unit #9, the owner or operator shall conduct separate performance tests while the raw mill is operating and while the raw mill is not operating. The average total organic hazardous air pollutant concentration measured during the separate performance test shall be used to determine initial compliance. For Unit #9, the total hydrocarbon limit shall be a weighted average of the total hydrocarbon levels measured during raw mill on and raw mill off testing using one of the two approaches in paragraph (2)(e) of permit condition 11.43 depending on the level of organic hazardous air pollutants measured during the compliance test.

11.15 Initial compliance demonstration – mercury

In accordance with ARSD 74:36:08:21, as referenced to 40 CFR § 63.1348(a)(5), the owner or operator shall demonstrate initial compliance with the mercury emission limits in Table 11.2 by March 9, 2016, using the test methods and procedures in permit condition 11.44. Initial compliance with the mercury emission limit shall be demonstrated by operating a mercury continuous emission monitoring system or a sorbent trap based continuous emission monitoring system. The first 30 consecutive operating days of mercury emission monitoring or sorbent trap based continuous parameter monitoring after September 9, 2015, shall be used to determine initial compliance. The first day of the 30 operating day performance test is the first day after September 9, 2015, following completion of the field testing and data collection that demonstrates the continuous emission monitoring system or continuous parameter monitoring system has satisfied the relevant performance specifications.

In calculating a 30 operating day emissions value using an integrating sorbent trap continuous parameter monitoring system, assign the average mercury emissions concentration determined for an integrating period (i.e., 7 day sorbent trap monitoring system sample) to each relevant hour of the operating days spanned by each integrated sample. Calculate the 30 operating day emissions rate value using the assigned hourly mercury emissions concentrations and the respective flow and production rate values collected during the 30 operating day performance

test period. Depending on the duration of each integrated sampling period, the owner or operator may not be able to calculate the 30 operating day emissions value until several days after the end of the 30 operating day performance test period. For example, a sorbent trap monitoring system producing an integrated 7-day sample will provide mercury concentration data for each hour of the first 28 operating days (i.e., four values spanning 7 days each) of a 30 operating day period. The mercury concentration values for the hours of the last 2 days of the 30 operating day period will not be available for calculating the emissions for the performance test period until at least five days after the end of the subject period.

11.16 Initial compliance demonstration – hydrogen chloride

In accordance with ARSD 74:36:08:21, as referenced to 40 CFR § 63.1348(a)(6), the owner or operator shall demonstrate initial compliance with the hydrogen chloride emission limits in Table 11.2 by March 9, 2016, using the test methods and procedures in permit condition 11.45. The owner or operator shall demonstrate initial compliance by operating a continuous emission monitoring system as specified in paragraph (1) of permit condition 11.45. The first 30 consecutive operating days of hydrogen chloride emission monitoring after September 9, 2015, shall be used to determine initial compliance. The first day of the 30 operating day performance test is the first day after September 9, 2015, following completion of the field testing and data collection that demonstrates the continuous emission monitoring system has satisfied the relevant performance specifications.

11.17 Commingled exhaust requirements for Unit #9 and #41

In accordance with ARSD 74:36:08:21, as referenced to 40 CFR § 63.1348(a)(7), the owner or operator may demonstrate compliance with Unit #9's emission limits in Table 11.2 by one of the following methods for the commingled exhaust from Unit #9 that is emitted through Unit #41's stack:

1. Perform required emissions monitoring and testing on the commingled exhaust from Unit #9 and #41 that is emitted through Unit #41's stack; or
2. Perform required emission monitoring and testing of Unit #9's exhaust prior to the reintroduction of the coal mill exhaust and also test Unit #9's exhaust diverted to Unit #41.

All emissions shall be added together for all emission points and shall not exceed the limit per each pollutant in Table 11.2.

C. Continuous Compliance

11.18 General requirements for continuous compliance

In accordance with ARSD 74:36:08:21, as reference to 40 CFR §§ 63.1348(b)(1) and 63.1350(a), the owner or operator shall:

1. On and after September 9, 2015, the owner or operator shall demonstrate compliance with this chapter on a continuous basis;

2. All continuous monitoring data for periods of startup and shutdown shall be compiled and averaged separately from data gathered during other operating periods;
3. For units equipped with a continuous monitoring system, maintain the average emissions or operating parameter values within the emission limit or operating limit established during the performance tests;
4. Demonstrate compliance with the applicable emission limits and operational limits in this chapter by using the performance test methods and procedures specified in this chapter;
5. Monitor and collect data as specified in this chapter and the site-specific monitoring plan required in permit condition 11.55;
6. Except for periods of startup and shutdown, monitoring system malfunctions, repairs associated with monitoring system malfunctions, and required monitoring system quality assurance or quality control activities (including, as applicable, calibration checks and required zero and span adjustments), the owner or operator shall operate the monitoring system and collect data at all required intervals at all times the unit is operating;
7. The owner or operator may not use data recorded during monitoring system malfunctions, repairs associated with monitoring system malfunctions, or required monitoring system quality assurance or control activities in calculations used to report emissions or operating levels. A monitoring system malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring system to provide valid data. Monitoring system failures caused in part by poor maintenance or careless operation are not malfunctions. The owner or operator shall use all the data collected during all other periods in assessing the operation of the control device and associated control system;
8. The owner or operator shall demonstrate the hourly production rate of clinker, in pounds per million ton of clinker, according to permit condition 11.29 for determining compliance with the mercury emission limits in Table 11.2; and
9. Any instance where the owner or operator fails to comply with the continuous monitoring requirements specified in this chapter is a violation.

11.19 Continuous compliance - particulate matter

In accordance with ARSD 74:36:08:21, as referenced to 40 CFR §§ 63.1348(b)(2) and 63.1350(b), the owner or operator shall use a particulate matter continuous parameter monitoring system to establish an operating limit corresponding to the results of the performance tests conducted to demonstrate compliance with the particulate matter emission limits in Table 11.2. The owner or operator shall use the particulate matter continuous parameter monitoring system to demonstrate continuous compliance with the operating limit. The owner or operator shall repeat the performance test annually and reassess and adjust the operating limit in accordance with the results of the performance test using the procedures in permit condition 11.39. The owner or operator shall also repeat the test if the owner or operator changes the analytical range of the instrument, changes the instrument itself, or changes any principle analytical component of the instrument that would alter the relationship of output signal to in-stack particulate matter concentration. To determine continuous compliance, the owner or operator shall use the particulate matter continuous parameter monitoring system's output data for all periods when the process is operating and the particulate matter continuous parameter monitoring system is not out-of-control. The owner or operator shall demonstrate continuous compliance by using all

quality-assured hourly average data collected by the particulate matter continuous parameter monitoring system for all operating hours to calculate the arithmetic average operating parameter in units of the operating limit (milliamps) on a 30 operating day rolling average basis, updated at the end of each new operating day. For any exceedance of the 30 operating day particulate matter continuous parameter monitoring system average value from the established operating parameter limit, the owner or operator shall:

1. Within 48 hours of the exceedance, visually inspect the air pollution control device;
2. If inspection of the air pollution control device identifies the cause of the exceedance, take corrective action as soon as possible and return the particulate matter continuous parameter monitoring system measurement to within the established value; and
3. Within 30 days of the exceedance or at the time of the annual compliance test, whichever comes first, conduct a particulate matter emissions compliance test to determine compliance with the particulate matter emissions limit and verify or re-establish the particulate matter continuous parameter monitoring system operating limit within 45 days. The owner or operator is not required to conduct additional testing for any exceedances that occur between the time of the original exceedance and the particulate matter emissions compliance test required under this permit condition.

Particulate matter continuous parameter monitoring system exceedances leading to more than four required performance tests in a 12-month process operating period (rolling monthly) constitute a presumptive violation of this chapter.

11.20 Continuous compliance - Opacity for handling and storage

In accordance with ARSD 74:36:08:21, as reference to 40 CFR §§ 63.1348(b)(3) and 63.1350(f)(1) and (3), the owner or operator shall demonstrate compliance with the opacity limits in permit condition 11.4 in accordance with the following procedures and in accordance with the owner's and operator's site-specific monitoring plan developed under permit condition 11.55 and if applicable, paragraph (5) of permit condition 11.32:

1. The owner or operator shall conduct a monthly 10-minute visible emissions test of the applicable unit in accordance with 40 CFR Part 60, Appendix A-7, Method 22. The performance test shall be conducted while the applicable unit is in operation;
2. If no visible emissions are observed in six consecutive monthly tests for any applicable unit, the owner or operator may decrease the frequency of performance testing from monthly to semi-annually for that applicable unit. If visible emissions are observed during any semi-annual test, the owner or operator shall resume performance testing of that applicable unit on a monthly basis and maintain that schedule until no visible emissions are observed in six consecutive monthly tests;
3. If no visible emissions are observed during the semi-annual test for any applicable unit, the owner or operator may decrease the frequency of performance testing from semi-annually to annually for that applicable unit. If visible emissions are observed during any annual performance test, the owner or operator shall resume performance testing of that applicable unit on a monthly basis and maintain that schedule until no visible emissions are observed in six consecutive monthly tests;

4. If visible emissions are observed during any Method 22 performance test, the owner or operator shall conduct 30 minutes of opacity observations, recorded at 15-second intervals in accordance with 40 CFR Part 60, Appendix A-4, Method 9. The Method 9 performance test shall begin within 1 hour of any observation of visible emissions;
5. The requirement to conduct Method 22 visible emissions monitoring do not apply to any totally enclosed conveying system transfer point, regardless of the location of the transfer point. Totally enclosed conveying system transfer point means a conveying system transfer point that is enclosed on all sides, top, and bottom. The enclosures for these transfer points shall be operated and maintained as total enclosures on a continuing basis in accordance with the operation and maintenance plan in permit condition 11.54;
6. If any partially enclosed or unenclosed conveying system transfer point is located in a building, the owner or operator has the option to conduct a Method 22 performance test according to the requirements of paragraph (1) through (4) of this permit condition for each such conveying system transfer point located within the building or for the building itself, according to paragraph (7) of this permit condition; and
7. If visible emissions from a building are monitored, the requirements of paragraph (1) through (4) of this permit condition apply to the monitoring of the building, and the owner or operator shall also test visible emissions from each side, roof, and vent of the building for at least 10 minutes.

If visible emissions are observed during any Method 22 visible emissions test, the owner or operator shall initiate, within one-hour, the corrective actions specified in the operation and maintenance plan required in permit condition 11.54.

11.21 Continuous compliance – Opacity for finish mills

In accordance with ARSD 74:36:08:21, as reference to 40 CFR §§ 63.1348(b)(3) and 63.1350(f)(2) and (3), the owner or operator shall demonstrate compliance with the opacity limits in Table 11.2 for finish mills in accordance with the operation and maintenance plan in paragraph (1) through (4) of permit condition 11.55 and paragraph (5) of permit condition 11.32 and the following procedures:

1. The owner or operator shall conduct a daily visible emissions observations of the finish mills (Unit #12, #13, #14, #15, #16, and #16a) particulate matter control device for the applicable unit in accordance with 40 CFR Part 60, Appendix A-7, Method 22. The duration of the Method 22 performance test shall be 6 minutes;
2. Within 24 hours of the end of the Method 22 performance observation in which visible emissions were observed, the owner or operator shall conduct a follow up Method 22 performance observation on the applicable unit; and
3. If visible emissions are observed during the follow up Method 22 performance observation, the owner or operator shall conduct a visual opacity test on the applicable unit in accordance with 40 CFR Part 60, Appendix A-4, Method 9. The duration of the Method 9 test shall be 30 minutes.

If visible emissions are observed during any Method 22 visible emissions test, the owner or operator shall initiate, within one-hour, the corrective actions specified in the operation and maintenance plan required in permit condition 11.54.

11.22 Continuous compliance – Alternative opacity for finish mills

In accordance with ARSD 74:36:08:21, as reference to 40 CFR §§ 63.1348(b)(3)(i) and (ii) and 63.1350(f)(4), if the owner or operator installs a continuous opacity monitoring system or bag leak detection system on a specific finish mill, the opacity monitoring in permit condition 11.21 is not required. The continuous opacity monitoring system shall be installed at the outlet of the particulate matter control device of the finish mill and the continuous opacity monitoring system shall be installed, maintained, calibrated, and operated in accordance with permit condition 11.60 through 11.62 and 40 CFR Part 60, Appendix B, Performance Specification 1. A bag leak detection system shall meet the requirements in paragraph (1) through (4), (9), and (10) of permit condition 11.30.

11.23 Continuous compliance – Dioxin/Furan

In accordance with ARSD 74:36:08:21, as reference to 40 CFR §§ 63.1348(b)(4) and 63.1350(g), the owner or operator shall demonstrate compliance with the dioxin/furan emission limits in Table 11.2 using a continuous monitoring system installed, operated, and maintained to record the temperature of specified gas streams and in accordance with the following:

1. Install, calibrate, maintain, and operate a continuous monitor to record the temperature of the exhaust gases from the unit at the inlet to or upstream of the unit's particulate matter control device. The continuous monitoring device shall meet the following requirements:
   a. The temperature recorder response range shall include zero and 1.5 times the average temperature established according to the requirements in permit condition 11.41;
   b. The calibration reference for the temperature measurement shall be a National Institute of Standards and Technology calibrated reference thermocouple-potentiometer system or alternate reference subject to approval by the Secretary;
2. The calibration of all thermocouples and other temperature sensors shall be verified at least once every three months;
3. Monitor and continuously record the temperature of the exhaust gases from the unit's particulate matter control device;
4. The required minimum data collection frequency shall be one minute;
5. Each hour, calculate the rolling three-hour average temperature for the previous 3 hours of process operation using 180 successive one-minute temperatures in accordance with permit condition 11.41; and
6. When the operating status of the in-line raw mill associated with Unit #9 changes from off to on or from on to off, the calculation of the three-hour rolling average temperature shall begin anew, without considering previous recordings.

The owner or operator shall also comply with the requirements in paragraph (1) through (4) of permit condition 11.30 and the site-specific monitoring plan in permit condition 11.55.

11.24 Continuous compliance – Sorbent injection

In accordance with ARSD 74:36:08:21, as reference to 40 CFR §§ 63.1348(b)(5) and 63.1350(h), if the owner or operator employs carbon injection as an dioxin/furan emission control technique, the owner or operator shall additionally demonstrate compliance using a continuous monitoring system that is installed, operated, and maintained to record the rate of activated carbon injection and the activated carbon injection system gas parameter in accordance with the following:

1. Install, calibrate, maintain, and operate a continuous monitor to record the rate of activated carbon injection. The accuracy of the rate measurement device shall be plus or minus one percent of the rate being measured. The owner or operator shall:
   a. Verify the calibration of the device at least once per month;
   b. Each hour, calculate the three-hour rolling average activated carbon injection rate for the previous 3 hours of process operation in accordance with permit condition 11.41 using all of the one-minute data available; and
   c. When the operating status of the in-line raw mill associated with Unit #9 is changed from off to on or from on to off, the calculation of the three-hour rolling average activated carbon injection rate shall begin anew, without considering previous recordings; and
2. Install, calibrate, maintain, and operate a continuous monitor to record the activated carbon injection system carrier gas parameter (i.e., the carrier gas flow rate or the carrier gas pressure drop) established during the dioxin/furan performance test required in permit condition 11.41. Each hour, calculate the three-hour rolling average of the selected parameter value for the previous 3 hours of process operation using all of the one-minute data available.

The owner or operator shall also comply with the requirements in paragraph (1) through (4) and (8) of permit condition 11.30 and the site-specific monitoring plan in permit condition 11.55.

11.25 Continuous compliance – Total hydrocarbon

In accordance with ARSD 74:36:08:21, as reference to 40 CFR §§ 63.1348(b)(6) and 63.1350(i), except as specified in permit condition 11.26, the owner or operator shall demonstrate compliance with the total hydrocarbon emission limits in Table 11.2 in accordance with the following procedures:

1. Total hydrocarbon emissions shall be measured upstream of the coal mill or in the coal mill stack;
2. Install, maintain, and operate a total hydrocarbon continuous emission monitoring system in accordance with permit condition 11.60 through 11.63 and 40 CFR Part 60, Appendix B, Performance Specification 8A.
3. Operate and maintain each continuous emission monitoring system according to the quality assurance requirements in 40 CFR Part 60, Appendix F, Procedure 1; and
4. Performance tests on the alkali bypass (Unit #11) and coal mill (Unit #41) shall be conducted in accordance with 40 CFR Part 60, Appendix A, Method 25A and repeated annually;

The owner or operator shall also comply with the requirements in paragraph (1) through (4) of permit condition 11.30 and the site-specific monitoring plan in permit condition 11.55.

11.26 Continuous compliance – Total organic hazardous air pollutants

In accordance with ARSD 74:36:08:21, as reference to 40 CFR §§ 63.1348(b)(6) and 63.1350(j), if the owner or operator elects to comply with the total organic hazardous air pollutant emission limit instead of the total hydrocarbon limit, the owner or operator shall demonstrate compliance in accordance with the following procedures:

1. Total hydrocarbon emissions shall be measured upstream of the coal mill or in the coal mill stack;
2. Install, maintain, and operate a total hydrocarbon continuous emission monitoring system in accordance with permit condition 11.60 through 11.62 and 40 CFR Part 60, Appendix B, Performance Specification 15.
3. Operate and maintain each continuous emission monitoring system according to the quality assurance requirements in 40 CFR Part 60, Appendix F, Procedure 1; and
4. Performance tests on the alkali bypass (Unit #11) and coal mill (Unit #41) shall be conducted in accordance with 40 CFR Part 60, Appendix A, Method 25A and repeated annually;

The owner or operator shall also comply with the requirements in paragraph (1) through (4) of permit condition 11.30 and the site-specific monitoring plan in permit condition 11.55.

11.27 Continuous compliance – Mercury

In accordance with ARSD 74:36:08:21, as reference to 40 CFR §§ 63.1348(b)(7) and 63.1350(k), the owner or operator shall install, maintain, and operate a mercury continuous emissions monitoring system in accordance with 40 CFR Part 60, Appendix B, Performance Specification 12A or an integrated sorbent trap monitoring system in accordance with 40 CFR Part 60, Appendix B, Performance Specification 12B. If an integrated sorbent trap monitoring system is used to determine ongoing compliance, the owner or operator shall use the procedures in permit condition 11.15 to assign hourly mercury concentration values and calculate rolling 30 operating day emission rates. Since the owner or operator assigns the mercury concentration measured with the sorbent trap to each relevant hour respectively for each operating day of the integrated period, the owner or operator may schedule the sorbent trap change periods to any time of the day (i.e., the sorbent trap replacement need not be scheduled at 12:00 midnight nor shall the sorbent trap replacements occur only at integral 24-hour intervals). The owner or operator shall continuously monitor mercury upstream of the coal mill or in the coal mill stack and in accordance with the following procedures:

1. The span value for any mercury continuous emission monitoring system shall represent the mercury concentration corresponding to approximately two times the emissions standard and may be rounded up to the nearest multiple of 5 micrograms per cubic meter ($\mu g/m^3$) of total mercury or higher level if necessary to include mercury concentrations which may occur (excluding concentrations for Unit #9 during in-line raw "mill off"

operation). As specified in section 6.1.1 of 40 CFR Part 60, Appendix B, Performance Specification 12A, the data recorder output range shall include the full range of expected mercury concentration values which would include those expected for Unit #9 during "mill off" conditions. Engineering judgments made and calculations used to determine the corresponding span concentration from the emission standard shall be documented in the site-specific monitoring plan and associated records.

2. In order to quality assure data measured above the span value, the owner or operator shall use one of the following options:
   a. Include a second span that encompasses the mercury emission concentrations expected to be encountered for Unit #9 during "mill off" conditions. This second span may be rounded to a multiple of 5 $\mu g/m^3$ of total mercury. The requirements of 40 CFR Part 60, Appendix B, Performance Specification 12A, shall be followed for this second span with the exception that a Relative Accuracy Test Audit (RATA) with the mill off is not required; or
   b. Quality assure any data above the span value established in paragraph (1) of this permit condition using the following procedure:
      i. Any time two consecutive one-hour average measured concentration of mercury exceeds the span value, the owner or operator shall, within 24 hours before or after, introduce a higher, "above span" mercury reference gas standard to the mercury continuous emission monitoring system;
      ii. The "above span" reference gas shall meet the requirements of Section 7.1 of 40 CFR Part 60, Appendix B, Performance Specification 12A, shall be of a concentration level between 50 and 150 percent of the highest hourly concentration measured during the period of measurements above span, and shall be introduced at the probe;
      iii. Record and report the results of this procedure like a daily calibration; and
      iv. The "above span" calibration is successful if the value measured by the mercury continuous emission monitoring system is within 20 percent of the certified value of the reference gas. If the value measured by the mercury continuous emission monitoring system exceeds 20 percent of the certified value of the reference gas, then the owner or operator shall normalize the one-hour average stack gas values measured above the span during the 24-hour period preceding or following the "above span" calibration for reporting based on the mercury continuous emission monitoring system response to the reference gas as shown in Equation 11.1.

Equation 11.1 – Normalized stack gas results

$$Normalized\ stack\ gas\ result = \frac{Certified\ reference\ gas\ value}{Measured\ value\ of\ reference\ gas} \times Measured\ stack\ gas\ results$$

Only one "above span" calibration is needed per 24 hour period;

3. The owner or operator shall operate and maintain each mercury continuous emission monitoring system or an integrated sorbent trap monitoring system according to the quality assurance requirements in 40 CFR Part 60, Appendix F, Procedure 5. During the RATA of integrated sorbent trap monitoring systems required under Procedure 5, the

owner or operator may apply the following for the appropriate exception for sorbent trap section 2 breakthrough:

a. For stack mercury concentrations greater than 1 µg/dry standard cubic meter, less than or equal to 10% of section 1 mass;
b. For stack mercury concentrations less than or equal to 1 µg/ dry standard cubic meter and greater than 0.5 µg/ dry standard cubic meter, less than or equal to 20% of section 1 mass;
c. For stack mercury concentrations less than or equal to 0.5 µg/ dry standard cubic meter and greater than 0.1 µg/ dry standard cubic meter, less than or equal to 50% of section 1 mass; and
d. For stack mercury concentrations less than or equal to 0.1 µg/ dry standard cubic meter, no breakthrough criterion assuming all other quality assurance/quality control specifications are met;

4. Relative accuracy testing of mercury monitoring systems under 40 CFR Part 60, Appendix B, Performance Specification 12A or 12B or 40 CFR Part 60, Appendix F, Procedure 5 shall be conducted at normal operating conditions. For Unit #9, the testing shall occur with the raw mill on;
5. For each mercury continuous emission monitoring system or integrated sorbent trap monitoring system, the owner or operator shall install, operate, calibrate, and maintain an instrument for continuously measuring and recording the exhaust gas flow rate to the atmosphere according to the requirements in paragraph (1) through (9) in permit condition 11.31. For Unit #9, the owner or operator shall account for the mercury emitted from Unit #11 and #41 by the following procedures:
   a. Develop a mercury hourly mass emissions rate by conducting annual performance tests using 40 CFR Part 60, Appendix A, Method 29, or Method 30B, to measure the concentration of mercury in the gases exhausted from the alkali bypass (Unit #11) and coal mill (Unit #41);
   b. On a continuous basis, determine the mass emissions of mercury in pounds per hour from Unit #11's and #41's exhausts by using the mercury hourly emissions rate, the exhaust gas flow rate and hourly mercury emission rate to calculate hourly mercury emissions in pounds per hour;
   c. Sum the hourly mercury emissions from the Unit #9, #11, and #41 to determine total mercury emissions. Using hourly clinker production, calculate the hourly emissions rate in pounds per ton of clinker to determine the 30 day rolling average;
   d. If mercury emissions from Unit #41 are below the method detection limit for two consecutive annual performance tests, the owner or operator may reduce the frequency of the performance tests of Unit #41 to once every 30 months. If the measured mercury concentration exceeds the method detection limit, the owner or operator shall revert to testing annually until two consecutive annual tests are below the method detection limit; and
6. If the owner or operator operates an integrated sorbent trap monitoring system conforming to 40 CFR Part 60, Appendix A, Performance Specification 12B, the owner or operator may use a monitoring period at least 24 hours but no longer than 168 hours in length. The owner or operator should use a monitoring period that is a multiple of 24

hours (except during relative accuracy testing as allowed in Performance Specification 12B).

The owner or operator shall also comply with the site-specific monitoring plan in permit condition 11.55.

11.28 Continuous compliance – Hydrogen chloride

In accordance with ARSD 74:36:08:21, as reference to 40 CFR §§ 63.1348(b)(8) and 63.1350(l), the owner or operator shall demonstrate compliance using the performance test methods and procedures in permit condition 11.45. The owner or operator shall demonstrate compliance using paragraph (1) of this permit condition. The owner or operator shall continuously monitor hydrogen chloride emissions upstream of the coal mill or in the coal mill stack in accordance with following applicable procedures:

1. If the owner or operator monitors compliance with the hydrogen chloride emissions limit by operating a hydrogen chloride continuous emission monitoring system, the owner or operator shall comply 40 CFR Part 60, Appendix B, Performance Specification 15. The owner or operator shall operate, maintain, and quality assure a hydrogen chloride continuous emission monitoring system installed and certified under Performance Specification 15 according to the quality assurance requirements in 40 CFR Part 60, Appendix F, Procedure 1, except the Relative Accuracy Test Audit requirements of Procedure 1 shall be replaced with the validation requirements and criteria of sections 11.1.1 and 12.0 of Performance Specification 15. The owner or operator shall use 40 CFR Part 63, Appendix A, Method 321 as the reference test method for conducting relative accuracy testing. The following span value and calibration requirements apply to a hydrogen chloride continuous emission monitoring system other than those installed and certified under Performance Specification 15:
    a. The owner or operator shall use a span value for any hydrogen chloride continuous emission monitoring system that represents the intended upper limit of the hydrogen chloride concentration measurement range for Unit #9 during normal inline raw "mill on" operation. The span value should be a concentration equivalent to approximately two times the emissions standard and it may be rounded to the nearest multiple of 5 parts per million (ppm) of hydrogen chloride. The hydrogen chloride continuous emission monitoring system data recorder output range shall include the full range of expected hydrogen chloride concentration values which would include those expected from Unit #9 during "mill off" conditions. Engineering judgments made and calculations used to determine the corresponding span concentration from the emission standard shall be documented in the site-specific monitoring plan and associated records.
    b. In order to quality assure data measured above the span value, the owner or operator shall use one of the following options:
        i. Include a second span that encompasses the hydrogen chloride emission concentrations expected to be encountered from Unit #9 during "mill off" conditions. This second span may be rounded to a multiple of 5 $\mu g/m^3$ of total hydrogen chloride. The requirements of the appropriate hydrogen chloride

monitor performance specification, shall be followed for this second span with the exception that a Relative Accuracy Test Audit with Unit #9 in the "mill off" position is not required; or

ii. Quality assure any data above the span value established in paragraph (1)(a) of this permit condition using the following procedure. Any time the average measured concentration of hydrogen chloride exceeds or is expected to exceed the span value for greater than two hours, the owner or operator shall, within a period 24 hours before or after the "above span" period, introduce a higher, "above span" hydrogen chloride reference gas standard to the hydrogen chloride continuous emission monitoring system. The "above span" reference gas shall meet the requirements of the applicable performance specification and be of a concentration level between 50 and 100 percent of the highest hourly concentration measured during the period of measurements above span, and shall be introduced at the probe. Record and report the results of this procedure like a daily calibration. The "above span" calibration is successful if the value measured by the hydrogen chloride continuous emission monitoring system is within 20 percent of the certified value of the reference gas. If the value measured by the hydrogen chloride continuous emission monitoring system is not within 20 percent of the certified value of the reference gas, then the owner or operator shall normalize the stack gas values measured above span as described in paragraph (1)(b)(iii) of this permit condition. If the "above span" calibration is conducted during the period when measured emissions are above span and there is a failure to collect the required minimum number of data points in an hour due to the calibration duration, then the owner or operator shall determine the emissions average for that missed hour as the average of hourly averages for the hour preceding the missed hour and the hour following the missed hour; and

iii. In the event the "above span" calibration is not successful (i.e., the hydrogen chloride continuous emission monitoring system measured value is not within 20 percent of the certified value of the reference gas), then the owner or operator shall normalize the one-hour average stack gas values measured above the span during the 24-hour period preceding or following the "above span" calibration for reporting based on the hydrogen chloride continuous emission monitoring system response to the reference gas as shown in Equation 11.1. Only one "above span" calibration is needed per 24-hour period; or

The owner or operator shall also meet the requirements in paragraph (1) through (4) of permit condition 11.30 and the site-specific monitoring plan in permit condition 11.55.

11.29 Continuous monitoring – Clinker production

In accordance with ARSD 74:36:08:21, as referenced to 40 CFR § 63.1350(d), the owner or operator shall continuously monitor clinker production as follows:

1. Determine hourly clinker production by one of the following methods:
   a. Install, calibrate, maintain, and operate a permanent weigh scale system to measure and record weight rates in tons-mass per hour of the amount of clinker produced. The

system of measuring hourly clinker production shall be maintained within plus or minus 5 percent accuracy; or

   b. Install, calibrate, maintain, and operate a permanent weigh scale system to measure and record weight rates in tons-mass per hour of the amount of feed to the kiln. The system of measuring feed shall be maintained within plus or minus 5 percent accuracy. The owner or operator shall calculate the hourly clinker production rate using a kiln specific feed to clinker ratio based on reconciled clinker production determined for accounting purposes and recorded feed rates. This ratio shall be updated monthly. Note that if this ratio changes at clinker reconciliation, the owner or operator shall use the new ratio going forward, but does not have to retroactively change clinker production rates previously estimated;

2. Determine, record, and maintain a record of the accuracy of the system of measuring hourly clinker production (or feed mass flow if applicable). During each quarter of source operation, the owner or operator shall determine, record, and maintain a record of the ongoing accuracy of the system of measuring hourly clinker production (or feed mass flow);
3. If clinker production is measured directly, record the daily clinker production rates;
4. If the kiln feed rate is measured and clinker production is calculated, record the hourly kiln feed and clinker production rate; and
5. Develop and implement a site-specific monitoring plan in accordance with permit condition 11.55.

<u>11.30 Continuous parameter monitoring requirements</u>

In accordance with ARSD 74:36:08:21, as reference to 40 CFR § 63.1350(m), if an operating limit requires the use of a continuous monitoring system, the owner or operator shall install, maintain, and operate a continuous parameter monitoring system in accordance with paragraph (1) through (4) of this permit condition by September 9, 2015. The owner or operator shall also meet the applicable requirements in paragraph (5) through (11) of this permit condition:

1. The continuous parameter monitoring system shall complete a minimum of one cycle of operation for each successive 15-minute period. A minimum of four successive cycles of operation are required for a valid hour of data;
2. The continuous parameter monitoring system shall be operational at all times the unit is operating;
3. Determine the 1-hour block average of all recorded readings;
4. Record the results of each inspection, calibration, and validation check;
5. If the owner or operator has an operating limit that requires the use of a flow measurement device, the owner or operator shall install, maintain, and operate a flow measurement device that meets the following:
   a. Locate the flow sensor and other necessary equipment in a position that provides a representative flow;
   b. Use a flow sensor with a measurement sensitivity of 2 percent of the flow rate;
   c. Reduce swirling flow or abnormal velocity distributions due to upstream and downstream disturbances; and
   d. Conduct a flow sensor calibration check at least semiannually;

6. If the owner or operator has an operating limit that requires the use of a pressure measurement device, the owner or operator shall install, maintain, and operate a pressure measurement device that meets the following:
   a. Locate the pressure sensor(s) in a position that provides a representative measurement of the pressure;
   b. Minimize or eliminate pulsating pressure, vibration, and internal and external corrosion;
   c. Use a gauge with a minimum tolerance of 1.27 centimeters of water or a transducer with a minimum tolerance of 1 percent of the pressure range;
   d. Check pressure tap pluggage daily;
   e. Using a manometer, check gauge calibration quarterly and transducer calibration monthly; and
   f. Conduct calibration checks any time the sensor exceeds the manufacturer's specified maximum operating pressure range or install a new pressure sensor;
7. If the owner or operator has an operating limit that requires the use of a pH measurement device, the owner or operator shall install, maintain, and operate a pH measurement device that meets the following:
   a. Locate the pH sensor in a position that provides a representative measurement of scrubber effluent pH;
   b. Ensure the sample is properly mixed and representative of the fluid to be measured; and
   c. Check the pH meter's calibration on at least two points every 8 hours of process operation.
8. If the owner or operator has an operating limit that requires the use of equipment to monitor sorbent injection rate (i.e., weigh belt, weigh hopper, or hopper flow measurement device), the owner or operator shall install, maintain, and operate the equipment to monitor sorbent injection rate that meets the following:
   a. Locate the device in a position(s) that provides a representative measurement of the total sorbent injection rate;
   b. Install and calibrate the device in accordance with manufacturer's procedures and specifications; and
   c. At least annually, calibrate the device in accordance with the manufacturer's procedures and specifications.
9. If the owner or operator elects to use a fabric filter bag leak detection system, the owner or operator shall install, calibrate, maintain, and continuously operate a bag leak detection system that meets the following:
   a. Install and operate a bag leak detection system for each exhaust stack of the fabric filter;
   b. Each bag leak detection system shall be installed, operated, calibrated, and maintained in a manner consistent with the manufacturer's written specifications and recommendations and in accordance with the guidance provided in EPA-454/R-98-015, September 1997;
   c. The bag leak detection system shall be certified by the manufacturer to be capable of detecting particulate matter emissions at concentrations of 10 or fewer milligrams per actual cubic meter;

d. The bag leak detection system sensor shall provide output of relative or absolute particulate matter loadings;
e. The bag leak detection system shall be equipped with a device to continuously record the output signal from the sensor;
f. The bag leak detection system shall be equipped with an alarm system that will alert an owner or operator automatically when an increase in relative particulate matter emissions over a preset level is detected. The alarm shall be located such that the alert is detected and recognized easily by an owner or operator;
g. For positive pressure fabric filter systems that do not duct all compartments of cells to a common stack, a bag leak detection system shall be installed in each baghouse compartment or cell; and
h. Where multiple bag leak detectors are required, the system's instrumentation and alarm may be shared among detectors;

10. For each bag leak detection system, the owner or operator shall initiate procedures to determine the cause of every alarm within 8 hours of the alarm. The owner or operator shall alleviate the cause of the alarm within 24 hours of the alarm by taking whatever corrective action(s) are necessary. Corrective actions may include, but are not limited to the following:
    a. Inspecting the fabric filter for air leaks, torn or broken bags or filter media, or any other condition that may cause an increase in particulate matter emissions;
    b. Sealing off defective bags or filter media;
    c. Replacing defective bags or filter media or otherwise repairing the control device;
    d. Sealing off a defective fabric filter compartment;
    e. Cleaning the bag leak detection system probe or otherwise repairing the bag leak detection system; and/or
    f. Shutting down the process producing the particulate matter emissions.

<u>11.31 Continuous monitoring – Flow rate</u>

In accordance with ARSD 74:36:08:21, as reference to 40 CFR § 63.1350(n), the owner or operator shall install, operate, calibrate, and maintain instruments for continuously measuring and recording the stack gas flow rate to allow determination of the pollutant mass emission rate to the atmosphere from a unit subject to an emissions limit that has a pounds per ton of clinker unit in accordance with the following:

1. Install each sensor of the flow rate monitoring system in a location that provides representative measurement of the exhaust gas flow rate at the sampling location of the mercury or particulate matter continuous emission monitoring system, taking into account the manufacturer's recommendations. The flow rate sensor is that portion of the system that senses the volumetric flow rate and generates an output proportional to that flow rate;
2. The flow rate monitoring system shall be designed to measure the exhaust flow rate over a range that extends from a value of at least 20 percent less than the lowest expected exhaust flow rate to a value of at least 20 percent greater than the highest expected exhaust flow rate;

3. The flow rate monitoring system shall be equipped with a data acquisition and recording system capable of recording values over the entire range specified in paragraph (2) of this permit condition;
4. The signal conditioner, wiring, power supply, and data acquisition and recording system for the flow rate monitoring system shall be compatible with the output signal of the flow rate sensors used in the monitoring system;
5. The flow rate monitoring system shall be designed to complete a minimum of one cycle of operation for each successive 15-minute period;
6. The flow rate sensor shall have provisions to determine the daily zero and upscale calibration drift (i.e., see Sections 3.1 and 8.3 of 40 CFR Part 60, Appendix B, Performance Specification 2) and meet the following requirements:
   a. Conduct the calibration drift tests at two reference signal levels, zero (i.e., 0 to 20 percent of span) and upscale (i.e., 50 to 70 percent of span); and
   b. The absolute value of the difference between the flow monitor response and the reference signal shall be equal to or less than 3 percent of the flow monitor span;
7. Perform an initial relative accuracy test of the flow rate monitoring system according to Section 8.2 of 40 CFR Part 60, Appendix B, Performance Specification 6 with the following exceptions:
   a. The relative accuracy test is to evaluate the flow rate monitoring system alone rather than a continuous emission rate monitoring system; and
   b. The relative accuracy of the flow rate monitoring system shall be no greater than 10 percent of the mean value of the reference method data;
8. Verify the accuracy of the flow rate monitoring system at least once per year by repeating the relative accuracy test specified in paragraph (7) of this permit condition; and
9. Operate the flow rate monitoring system and record data during all periods of operation of the applicable unit including periods of startup, shutdown, and malfunction, except for periods of monitoring system malfunctions, repairs associated with monitoring system malfunctions, and required monitoring system quality assurance or quality control activities (including, as applicable, calibration checks and required zero and span adjustments).

11.32 Alternative monitoring approval

In accordance with ARSD 74:36:08:21, as reference to 40 CFR § 63.1350(o), the owner or operator may submit an application to the Secretary for approval of alternate monitoring requirements to demonstrate compliance with the emission limits in this chapter, except for emission standards for total hydrocarbons. The following will be considered and required of alternative monitoring proposals:

1. The Secretary will not approve averaging periods other than those specified in this chapter, unless the owner or operator documents, using data or information, that the longer averaging period will ensure emissions do not exceed levels achieved during the performance test over any increment of time equivalent to the time required to conduct three runs of the performance test;

2. If the application to use an alternate monitoring requirement is approved, the owner or operator shall continue to use the original monitoring requirement until approval is received to use another monitoring requirement;
3. The owner or operator shall submit the application for approval of alternate monitoring requirements no later than the notification of performance test. The application shall contain the following information:
   a. Data or information justifying the request, such as the technical or economic infeasibility, or the impracticality of using the required approach;
   b. A description of the proposed alternative monitoring requirement, including the operating parameter to be monitored, the monitoring approach and technique, the averaging period for the limit, and how the limit is to be calculated; and
   c. Data or information documenting that the alternative monitoring requirement would provide equivalent or better assurance of compliance with the relevant emission standard;
4. The Secretary will notify the owner or operator of the approval or denial of the application within 90 calendar days after receipt of the original request, or within 60 calendar days of the receipt of any supplementary information, whichever is later. The Secretary will not approve an alternate monitoring application unless it would provide equivalent or better assurance of compliance with the relevant emission standard. Before disapproving any alternate monitoring application, the Secretary will provide:
   a. Notice of the information and findings on which the intended disapproval is based; and
   b. Notice of opportunity for the owner or operator to present additional supporting information before final action is taken on the application. This notice will specify how much additional time is allowed for the owner or operator to provide additional supporting information;
5. The owner or operator is responsible for submitting any supporting information in a timely manner to enable the Secretary to consider the application prior to the performance test. Neither submittal of an application, nor the Secretary's failure to approve or disapprove the application relieves the owner or operator of the responsibility to comply with any provision in this chapter; and
6. The Secretary may decide at any time, on a case-by-case basis, that additional or alternative operating limits or alternative approaches to establishing operating limits are necessary to demonstrate compliance with the emission standards of this chapter.

11.33 Notification of continuous monitoring system tests

In accordance with ARSD 74:36:08:03 and 74:36:08:21, as referenced to 40 CFR §§ 63.9(g), and 63.1353(b)(4), the owner or operator required to use a continuous monitoring system shall furnish the Secretary written notification as follows:

1. A notification of the date the continuous monitoring system performance evaluation under permit condition 11.62 is scheduled to begin, submitted simultaneously with the notification of the performance test date required under permit condition 11.37. If no performance test is required, the owner or operator shall notify the Secretary in writing of

the date of the performance evaluation at least 60 calendar days before the evaluation is scheduled to begin; and

2. A notification that continuous opacity monitoring data results will be used to determine compliance with the applicable opacity emission standard during a performance test in lieu of a 40 CFR Part 60, Appendix A, Method 9 or other opacity emissions test method data. The notification shall be submitted at least 60 calendar days before the performance test is scheduled to begin.; and

D. Performance Testing

11.34 Site-specific test plan

In accordance with ARSD 74:36:08:21, as reference to § 63.1349(a) and ARSD 74:36:08:03, as referenced to 40 CFR § 63.7(c)(2)(i), (ii), (iv), and (v), the owner or operator shall develop and, if requested by the Secretary, submit a site-specific test plan for approval at least 60 calendar days before the performance test is scheduled to take place, that is, simultaneously with the notification of intention to conduct a performance test required in permit condition 11.37, or on a mutually agreed upon date. The site-specific test plan is in addition to the test plan required in permit condition 7.4. The site-specific test plan shall include a test program summary, the test schedule, data quality objectives, and both an internal and external quality assurance program. Data quality objectives are the pretest expectations of precision, accuracy, and completeness of data. The internal quality assurance program shall include, at a minimum, the activities planned by routine operators and analysts to provide an assessment of test data precision. An example of internal quality assurance is the sampling and analysis of replicate samples. The Secretary may request additional relevant information after the submittal of a site-specific test plan.

11.35 Performance test audits

In accordance with ARSD 74:36:08:03, as referenced to 40 CFR § 63.7(c)(2)(iii), the performance test shall include a test method performance audit. The performance audit consists of blind audit samples supplied by an accredited audit sample provider and analyzed during the performance test in order to provide a measure of test data bias. Gaseous audit samples are designed to audit the performance of the sampling system as well as the analytical system and shall be collected by the sampling system during the compliance test just as the compliance samples are collected. If a liquid or solid audit sample is designed to audit the sampling system, it shall also be collected by the sampling system during the compliance test. If multiple sampling systems or sampling trains are used during the compliance test for any of the test methods, the tester is only required to use one of the sampling systems per method to collect the audit sample. The audit sample shall be analyzed by the same analyst using the same analytical reagents and analytical system and at the same time as the compliance samples. Retests are required when there is a failure to produce acceptable results for an audit sample. However, if the audit results do not affect the compliance or noncompliance status of the applicable unit, the Secretary may waive the reanalysis requirement, further audits, or retests and accept the results of the compliance test. Acceptance of the test results shall constitute a waiver of the reanalysis requirement, further audits, or retests. The Secretary may also use the audit sample failure and the compliance test results as evidence to determine the compliance or noncompliance status of the applicable unit.

A blind audit sample is a sample whose value is known only to the sample provider and is not revealed to the owner or operator until after they report the measured value of the audit sample. For pollutants that exist in the gas phase at ambient temperature, the audit sample shall consist of an appropriate concentration of the pollutant in air or nitrogen that can be introduced into the sampling system of the test method at or near the same entry point as a sample from the emission source. If no gas phase audit samples are available, an acceptable alternative is a sample of the pollutant in the same matrix that would be produced when the sample is recovered from the sampling system as required by the test method. For samples that exist only in a liquid or solid form at ambient temperature, the audit sample shall consist of an appropriate concentration of the pollutant in the same matrix that would be produced when the sample is recovered from the sampling system as required by the test method. An accredited audit sample provider is an organization that has been accredited to prepare audit samples by an independent, third party accrediting body.

11.36 Performance test audit samples

In accordance with ARSD 74:36:08:03, as referenced to 40 CFR § 63.7(c)(2)(iii)(A), the owner, operator, or contractor shall obtain an audit sample, if commercially available, from an accredited audit sample provider for each test method used for regulatory compliance purposes. No audit samples are required for the following test methods: 40 CFR Part 60, Appendix A-3, Method 3C; 40 CFR Part 60, Appendix A-4, Method 6C, 7E, 9, and 10, 40 CFR Part 60, Appendix A-6, Method 18; 40 CFR Part 60, Appendix A-7, Method 20, 22, and 25A; and 40 CFR Part 63, Appendix A, Method 303, 318, 320, and 321. If the owner or operator conducts multiple tests, only one audit sample is required for each method used during a compliance test. The Secretary may waive the requirement to include an audit sample if it is determined an audit sample is not necessary. "Commercially available" means two or more independent accredited audit sample providers have blind audit samples available for purchase. If the owner, operator, or contractor cannot find an audit sample for a specific method, the owner, operator, or contractor shall consult the EPA Web site at the following URL, *http://www.epa.gov/ttn/emc,* to confirm whether there is an accredited audit sample provider that can supply an audit sample for that method. If the EPA Web site does not list an available audit sample at least 60 days prior to the beginning of the compliance test, the owner, operator, or contractor shall not be required to include an audit sample as part of the quality assurance program for the compliance test. When ordering an audit sample, the owner, operator, or contractor shall give the accredited audit sample provider an estimate for the concentration of each pollutant emitted or the estimated concentration of each pollutant based on the permitted level and the name, address, and phone number of the Secretary. The owner, operator, or contractor shall report the results for the audit sample along with a summary of the emission test results for the audited pollutant to the Secretary and the results of the audit sample to the accredited audit sample provider. The owner, operator, or contractor shall make both reports at the same time and in the same manner or shall report to the Secretary first and then report to the accredited audit sample provider. If the method being audited is a method that allows the samples to be analyzed in the field and the contractor plans to analyze the samples in the field, the contractor may analyze the audit samples prior to collecting the emission samples provided the Secretary is present at the testing site. The contractor may request and the Secretary may grant a waiver to the requirement that the

Secretary must be present at the testing site during the field analysis of an audit sample. The owner, operator, or contractor may report the results of the audit sample to the Secretary and then report the results of the audit sample to the accredited audit sample provider prior to collecting any emission samples. The test protocol and final test report shall document whether an audit sample was ordered and utilized and the pass/fail results as applicable.

11.37 Notification of performance test

In accordance with ARSD 74:36:08:03, as referenced to 40 CFR §§ 63.7(b) and 63.9(e) and ARSD 74:36:08:21, as referenced to 40 CFR § 63.1353(b)(2) and (6), the owner or operator shall notify the Secretary in writing of the intention to conduct a performance test required in this chapter at least 60 calendar days before the performance test is scheduled to begin to allow the Secretary to review and approve the site-specific test plan required in permit condition 11.34 and to have an observer present during the test, except when a retest is triggered by an exceedance. If an exceedance occurs that triggers a retest to establish compliance and new operating limits, the owner or operator shall notify the Secretary of the planned performance test within 48 hours of the exceedance. In the event the owner or operator is unable to conduct the performance test on the date specified due to unforeseeable circumstances beyond his or her control, the owner or operator shall notify the Secretary as soon as practicable and without delay prior to the scheduled performance test date and specify the date when the performance test is rescheduled. This notification of delay in conducting the performance test shall not relieve the owner or operator of legal responsibility for compliance with any other applicable provisions of this part or with any other applicable federal, state, or local requirement, nor will it prevent the Secretary from implementing or enforcing this part or taking any other action.

11.38 Notification of opacity and visible emission observations

In accordance with ARSD 74:36:08:03, as referenced to 40 CFR § 63.9(f) and ARSD 74:36:08:21, as referenced to 40 CFR § 63.1353(b)(3), the owner or operator shall notify the Secretary in writing of the anticipated date for conducting an opacity test or visible emission observations. The notification shall be submitted with the notification of the performance test date specified in permit condition 11.37, or if no performance test is required or visibility or other conditions prevent the opacity test or visible emission observations from being conducted concurrently with the initial performance test required under permit condition 11.11, the owner or operator shall deliver or postmark the notification not less than 30 days before the opacity test or visible emission observations are scheduled to take place.

11.39 Testing - Particulate matter

In accordance with ARSD 74:36:08:03 and 74:36:08:21, as referenced to 40 CFR §§ 63.7(a)(2) and 63.1349(b)(1), respectively, the owner or operator shall demonstrate initial compliance by March 9, 2016 and subsequent compliance with the particulate matter emission limit for Unit #3, #4, #9, #11, and #41 in Table 11.2 using 40 CFR Part 60, Appendix A-3, Method 5 or 5l. During the initial performance test and subsequent tests, the owner or operator shall monitor continuous performance through the use of a particulate matter continuous parametric monitoring system to establish an operating limit for particulate matter limit. The particulate matter continuous parametric monitoring system and operational limit shall be based on the following:

1. The particulate matter continuous parametric monitoring system shall provide a 4 to 20 milliamp output and the establishment of its relationship to manual reference method measurements shall be determined in units of milliamps;
2. The particulate matter continuous parametric monitoring system operating range shall be capable of reading particulate matter concentrations from zero to a level equivalent to three times the allowable emission limit. If the particulate matter continuous parametric monitoring system is an auto-ranging instrument capable of multiple scales, the primary range of the instrument shall be capable of reading particulate matter concentration from zero to a level equivalent to three times the allowable emission limit;
3. During the initial performance test or any such subsequent performance test that demonstrates compliance with the particulate matter limit, record and average all milliamp output values from the particulate matter continuous parametric monitoring system for the periods corresponding to the compliance test runs (i.e., average all the particulate matter continuous parametric monitoring system output values for three corresponding 2-hour Method 5I test runs);
4. The owner or operator shall establish a site-specific operating limit using the following criteria:
    a. If the particulate matter compliance test demonstrates the particulate matter emission levels to be at or above 75 percent of the emission limit, the owner or operator will use the average particulate matter continuous parametric monitoring system value recorded during the particulate matter compliance test to establish the operating limit;
    b. Determine your operating limit as specified in paragraphs (b)(1)(iii) through (iv) of this section.
    c. If the average of the three Method 5 or 5I compliance test runs is below 75 percent of the particulate matter emission limit, the owner or operator shall calculate an operating limit by establishing a relationship of the particulate matter continuous parametric monitoring system signal to particulate matter concentration using the particulate matter continuous parametric monitoring system instrument zero, the average particulate matter continuous parametric monitoring system values corresponding to the three compliance test runs, and the average particulate matter concentration from the Method 5 or 5I compliance test with the following procedures:
        i. Determine the particulate matter continuous parametric monitoring system instrument zero output with one of the following procedures:
            (1) Zero point data for in-situ instruments should be obtained by removing the instrument from the stack and monitoring ambient air on a test bench;
            (2) Zero point data for extractive instruments should be obtained by removing the extractive probe from the stack and drawing in clean ambient air;
            (3) The zero point may also be established by performing manual reference method measurements when the flue gas is free of particulate matter emissions or contains very low particulate matter concentrations (i.e., when the process is not operating, but the fans are operating or the unit is combusting only natural gas) and plotting these with the compliance data to find the zero intercept; and

(4) If none of the steps in subparagraphs (c)(i)(*1*) through (*3*) of this permit condition are possible, the owner or operator shall use a zero output value provided by the manufacturer.

ii. Determine the particulate matter continuous parametric monitoring system instrument average in milliamps and the average of the corresponding three particulate matter compliance test runs, using Equation 11.2;

Equation 11.2 – Average milliamps

$$\overline{x} = \frac{1}{n}\sum_{i-1}^{n} X_1, \overline{y} = \frac{1}{n}\sum_{i-1}^{n} Y_1$$

Where:

- X_1 = The particulate matter continuous parametric monitoring system data points for the three runs constituting the performance test;
- Y_1 = The particulate matter concentration value for the three runs constituting the performance test; and
- n = The number of data points;

iii. With the instrument zero expressed in milliamps, the three run average particulate matter continuous parametric monitoring system milliamp value and the three run particulate matter compliance test average, determine a relationship of pounds per ton-clinker per milliamp with Equation 11.3;

Equation 11.3 – Pounds per ton-clinker per milliamp relationship

$$R = \frac{Y_1}{(X_1 - z)}$$

Where:

- R = The relative pounds per ton-clinker per milliamp for the particulate matter continuous parametric monitoring system;
- Y_1 = The three run average pounds per ton-clinker particulate matter concentration;
- X_1 = The three run average milliamp output from the particulate matter continuous parametric monitoring system; and
- z = The milliamp equivalent of the instrument zero determined from subparagraph (c)(i) of this permit condition;

iv. Determine the unit specific 30-day rolling average operating limit using the pounds per ton-clinker per milliamp value from Equation 11.3 in Equation 11.4. This sets the operating limit at the particulate matter continuous parametric monitoring system output value corresponding to 75 percent of the emission limit;

Equation 11.4 – Unit Specific 30-day rolling average operating limit

$$O_1 = z + \frac{0.75(L)}{R}$$

Where:

- O_l = The operating limit for the particulate matter continuous parametric monitoring system on a 30-day rolling average, in milliamps;
- L = The unit emission limit, in pounds per ton clinker;
- z = The instrument zero determined from subparagraph (c)(i) of this permit condition, in milliamps; and
- R = The relative pounds per ton-clinker per milliamp for your particulate matter continuous parametric monitoring system, from Equation 11.3;

d. If the average of the three particulate matter compliance test runs is at or above 75 percent of the particulate matter emission limit, the owner or operator shall determine the operating limit by averaging the particulate matter continuous parametric monitoring system milliamp output corresponding to the three particulate matter performance test runs that demonstrate compliance with the emission limit using Equation 11.5;

Equation 11.5 – Site specific operating limit

$$O_h = \frac{1}{n}\sum_{i-1}^{n} X_1$$

Where:

- X_l = The particulate matter continuous parametric monitoring system data points for all runs i;
- n = The number of data points; and
- O_h = The site specific operating limit, in milliamps.

e. To determine continuous operating compliance, the owner or operator shall record the particulate matter continuous parametric monitoring system output data for all periods when the process is operating and use all the particulate matter continuous parametric monitoring system data for calculations when the unit is not out-of-control. The owner or operator shall demonstrate continuous compliance by using all quality-assured hourly average data collected by the particulate matter continuous parametric monitoring system for all operating hours to calculate the arithmetic average operating parameter in units of the operating limit (milliamps) on a 30 operating day rolling average basis, updated at the end of each operating day. Use Equation 11.6 to determine the 30 operating day average;

Equation 11.6 – 30 operating day average

$$30\ Operating\ Day\ Average = \frac{\sum_{i=1}^{n} H_{pvi}}{n}$$

Where:

- Hpvi = The hourly parameter value for hour i; and
- n = The number of valid hourly parameter values collected over the 30 operating days.

f. For each performance test, conduct at least three separate test runs under the conditions that exist when the unit is operating at the highest load or capacity level reasonably expected to occur. Conduct each test run to collect a minimum sample volume of 1 dry standard cubic meter for determining compliance with the particulate matter limit in permit condition 11.2. Calculate the average of the results from three consecutive runs, including applicable sources as required by (D)(viii), to determine compliance. You need not determine the particulate matter collected in the impingers ("back half") of the Method 5 or Method 5I particulate sampling train to demonstrate compliance with the PM standards of this subpart. This shall not preclude the permitting authority from requiring a determination of the "back half" for other purposes;

g. For particulate matter performance test reports used to set a particulate matter continuous parameter monitoring system operating limit, the electronic submission of the test report shall also include the make and model of the particulate matter continuous parameter monitoring system instrument, serial number of the instrument, analytical principle of the instrument (i.e., beta attenuation), span of the instruments primary analytical range, milliamp value equivalent to the instrument zero output, technique by which this zero value was determined, and the average milliamp signals corresponding to each particulate matter compliance test run;

h. When there is an alkali bypass and/or an inline coal mill with a separate stack associated with a kiln, the main exhaust and alkali bypass and/or inline coal mill shall be tested simultaneously and the combined emission rate of particulate matter from the kiln and alkali bypass and/or inline coal mill shall be computed for each run using Equation 11.7;

Equation 11.7 – Combined hourly emission rate

$$E = \frac{E_K + E_B + E_C}{P}$$

$$E_c = \frac{E_K + E_B + E_C}{P} \qquad \text{(Eq. 8)}$$

Where:

- E = Combined hourly emission rate of particulate matter from the kiln and bypass stack and/or inline coal mill, in pounds per ton of kiln clinker production;
- E_K = Hourly particulate matter emissions from the kiln, in pounds;
- E_B = Hourly particulate matter emissions from the alkali bypass stack, in pounds;
- E_C = Hourly particulate matter emissions from the inline coal mill stack, in pounds; and
- P = Hourly clinker production, in tons.

i. The owner or operator of a kiln with an in-line raw mill and subject to limitations on particulate matter emissions shall demonstrate initial compliance by conducting

separate performance tests while the raw mill is under normal operating conditions and while the raw mill is not operating

5. The owner or operator will use the particulate matter continuous parametric monitoring system to demonstrate continuous compliance with the operating limit as specified in permit condition 11.19; and
6. The owner or operator shall repeat the particulate matter performance test annually and reassess and adjust the operating limit in accordance with the results of the performance test.

11.40 Testing – Opacity

In accordance with ARSD 74:36:08:21, as referenced to 40 CFR § 63.1349(b)(2), the owner or operator shall conduct opacity tests in accordance with 40 CFR Part 60, Appendix A-4, Method 9. The duration of the Method 9 performance test shall be 3 hours (i.e., 30 6-minute averages), except the duration of the Method 9 performance test may be reduced to 1 hour if the following conditions apply:

1. There are no individual readings greater than 10 percent opacity; and
2. There are no more than three readings of 10 percent for the first 1-hour period.

For batch processes not run for 3-hour periods or longer, compile observations totaling 3 hours when the unit is operating.

11.41 Testing – Dioxin/Furan

In accordance with ARSD 74:36:08:03 and 74:36:08:21, as referenced to 40 CFR §§ 63.7(a)(2) and 63.1349(b)(3), respectively, the owner or operator shall demonstrate initial compliance by March 9, 2016 and subsequent compliance with the dioxin/furan emission limit for Unit #3, #4, #9, and #11 in Table 11.2 using 40 CFR Part 60, Appendix A-7, Method 23. The performance test for Unit #9 and #11 shall be conducted simultaneously. The owner or operator may conduct the performance test of Unit #11 when the raw mill is on or off. The performance test shall meet the following:

1. Each performance test shall consist of three separate runs conducted under representative conditions. The duration of each run shall be at least 3 hours, and the sample volume for each run shall be at least 2.5 dry standard cubic meter (90 dry standard cubic foot);
2. The temperature at the inlet to the particulate matter control device for Unit #3, #4, #9, and #11 shall be continuously recorded during the test and the continuous temperature record(s) shall be included in the performance test report;
3. Hourly average temperatures shall be calculated for each run of the performance test;
4. The run average temperature shall be calculated for each run, and the average of the run average temperatures shall be determined and included in the performance test report and will determine the applicable temperature limit in permit condition 11.5;
5. If sorbent injection is used for dioxin/furan control, the owner or operator shall conduct the following:
    a. The rate of sorbent injection to the exhaust for Unit #3, #4, and/or #9, and where applicable, the rate of sorbent injection to the exhaust for Unit #11, shall be

continuously recorded during the test in accordance with paragraph (8) in permit condition 11.30, and the continuous injection rate record(s) shall be included in the performance test report;

b. The performance test report shall include the brand and type of sorbent used during the performance test;
c. The owner or operator shall maintain a continuous record of either the carrier gas flow rate or the carrier gas pressure drop for the duration of the performance test. If the carrier gas flow rate is used, the owner or operator shall determine, record, and maintain a record of the accuracy of the carrier gas flow rate monitoring system according to the procedures in 40 CFR Part 75, Appendix A. If the carrier gas pressure drop is used, the owner or operator shall determine, record, and maintain a record of the accuracy of the carrier gas pressure drop monitoring system according to the procedures in paragraph (6) of permit condition 11.30; and
d. The run average sorbent injection rate shall be calculated for each run and the average of the run average injection rates shall be determined and included in the performance test report. The owner or operator will determine the applicable injection rate limit in permit condition 11.6.

11.42 Testing – Total hydrocarbon

In accordance with ARSD 74:36:08:21, as referenced to 40 CFR § 63.1349(b)(4), except as specified in permit condition 11.43, the owner or operator shall operate a total hydrocarbon continuous emission monitoring system in accordance with permit condition 11.25. For the purposes of conducting the accuracy and quality assurance evaluations for the continuous emission monitoring system, the total hydrocarbon span value (as propane) is 50 parts per million by volume on a dry basis and the reference method is 40 CFR Part 60, Appendix A, Method 25A. The initial compliance test shall be based on the first 30 operating days of operation in which the applicable unit operates using the continuous emission monitoring system. For Unit #9, #11, and #41, the total hydrocarbon limit shall be calculated using Equation 11.8.

Equation 11.8 – Total hydrocarbon concentration

$$C_{ks} = \frac{\left(MACT\ limit \times (Q_{ab} + Q_{cm} + Q_{ks}) - (Q_{ab} \times C_{ab}) - (Q_{cm} \times C_{cm})\right)}{Q_{ks}}$$

Where:

- Cks = Unit #9 stack concentration, in parts per million by volume on a dry basis;
- Qab = Unit #11 flow rate, in volume per hour;
- Cab = Unit #11 concentration, in parts per million by volume on a dry basis;
- Qcm = Unit #41 flow rate, in volume per hour;
- Ccm = Unit #41 concentration, in parts per million by volume on a dry basis; and
- Qks = Unit #9 stack flow rate, in volume per hour.

11.43 Testing – Total organic hazardous air pollutants

In accordance with ARSD 74:36:08:21, as referenced to 40 CFR § 63.1349(b)(7), instead of conducting the performance test on total hydrocarbons in permit condition 11.42, the owner or

operator may conduct a performance test to determine emissions of total organic hazardous air pollutants by the following procedures:

1. 40 CFR Part 60, Appendix A, Method 18 or 40 CFR Part 63, Appendix A, Method 320 or ASTM D6348-03 or a combination of these test methods shall be used to determine emissions of total organic hazardous air pollutants. Each performance test shall consist of three separate runs under the conditions that exist when the unit is operating at the representative performance conditions. Each run shall be conducted for at least 1 hour;
2. At the same time, the owner or operator shall also determine total hydrocarbon emissions by operating a continuous emission monitoring system in accordance with the requirements of permit condition 11.26. The duration of the performance test shall be 3 hours and the average total hydrocarbon concentration (as calculated from the 1-minute averages) during the 3-hour test shall be calculated. The owner or operator shall establish the total hydrocarbon operating limit and determine compliance with it according the following procedures. It is permissible to extend the testing time of the organic hazardous air pollutant performance test if extending the test is required to adequately capture total hydrocarbon variability over time:
    a. When conducting the test on Unit #9, the owner or operator shall use the fraction of time the raw mill is on and the fraction of time the raw mill is off and calculate the limit as a weighted average of the total hydrocarbon levels measured during raw mill on and raw mill off testing;
    b. If the organic hazardous air pollutant emissions are below 75 percent of the organic hazardous air pollutant standard and the operating limit is determined with paragraph (2)(e) of this permit condition, the total hydrocarbon continuous emission monitoring system shall be calibrated and operated on a measurement scale no greater than 180 parts per million by volume, as carbon, or 60 parts per million by volume, as propane;
    c. The total hydrocarbon continuous emission monitoring system measurement scale shall be capable of reading total hydrocarbon concentrations from zero to a level equivalent to two times the highest total hydrocarbon emissions average determined during the performance test, including mill on or mill off operation. This may require the use of a dual range instrument to meet this requirement and paragraph (2)(b) of this permit condition;
    d. Determine the operating limit as specified in paragraph (2)(e) and (f) of this permit condition. If the organic hazardous air pollutant performance test demonstrates the average organic hazardous air pollutant emission levels are below 75 percent of the emission limit (9 parts per million by volume) the owner or operator shall use the average total hydrocarbon value recorded during the organic hazardous air pollutant performance test and the average total organic hazardous air pollutant result of the performance test to establish the operating limit. If the organic hazardous air pollutant compliance test results demonstrate the average organic hazardous air pollutant emission levels are at or above 75 percent of the emission limit, the operating limit is established as the average total hydrocarbon value recorded during the organic hazardous air pollutant performance test. The owner or operator shall establish a new operating limit after each performance test. The owner or operator shall repeat the performance test no later than 30 months following the last performance test and

reassess and adjust the operating limit in accordance with the results of the performance test;

e. If the average organic hazardous air pollutant results for the three Method 18 and/or Method 320 performance test runs are below 75 percent of the organic hazardous air pollutant emission limit, the owner or operator shall calculate an operating limit by establishing a relationship of total hydrocarbon continuous emission monitoring system signal to the organic hazardous air pollutant concentration using the average total hydrocarbon continuous emission monitoring system value corresponding to the three organic hazardous air pollutant compliance test runs and the average organic hazardous air pollutant total concentration from the Method 18 and/or Method 320 performance test runs with the following procedures:

   i. Determine the total hydrocarbon continuous emission monitoring system average values in parts per million by volume and the average of the corresponding three total organic hazardous air pollutant compliance test runs, using Equation 11.9;

Equation 11.9 – Total hydrocarbon average values

$$\overline{x} = \frac{1}{n}\sum_{i=1}^{n} X_i, \overline{y} = \frac{1}{n}\sum_{i=1}^{n} Y_i$$

Where:

- $\overline{x}$= The total hydrocarbon continuous emission monitoring system average values in parts per million by volume;
- Xi= The total hydrocarbon continuous emission monitoring system data points for all three runs i;
- Yi= The sum of organic hazardous air pollutant concentrations for test runs i; and
- n = The number of data points.

   ii. The owner or operator shall use the three run average total hydrocarbon continuous emission monitoring system value and the three run average organic hazardous air pollutant concentration from the three Method 18 and/or Method 320 compliance tests to determine the operating limit. Equation 11.10 shall be used to determine the operating limit in units of parts per million by volume total hydrocarbon, as propane;

Equation 11.10 – Total hydrocarbon operating limit, as propane

$$T_l = \left(\frac{9}{Y_1}\right) \times X_1$$

Where:

- T_l = The 30-day operating limit for the total hydrocarbon continuous emission monitoring system, in parts per million by volume;
- Y_1 = The average organic hazardous air pollutant concentration from Equation 11.9, in parts per million by volume; and
- X_1 = The average total hydrocarbon continuous emission monitoring system concentration from Equation 11.9, in parts per million by volume.

iii. If the average of the three organic hazardous air pollutant performance test runs is at or above 75 percent of the organic hazardous air pollutant emission limit, the owner or operator shall determine the operating limit using Equation 11.11 by averaging the total hydrocarbon continuous emission monitoring system output values corresponding to the three organic hazardous air pollutant performance test runs that demonstrate compliance with the emission limit. If the new total hydrocarbon continuous emission monitoring system value is below the current operating limit, the owner or operator may opt to retain the current operating limit, but the owner or operator shall still submit all performance test and total hydrocarbon continuous emission monitoring system data according to the reporting requirements in permit condition 11.49;

Equation 11.11 – Total hydrocarbon operating limit

$T_h = \frac{1}{n}\sum_{i=1}^{n} X_1$,

$$T_h = \frac{1}{n}\sum_{i=1} X_1 \, . \qquad \text{(Eq. 14)}$$

Where:

- X1 = The total hydrocarbon continuous emission monitoring system data points for all runs i;
- Y1 = The organic hazardous air pollutant total value for runs i;
- n = The number of data points; and
- T_h = The total hydrocarbon operating limit, in parts per million by volume.

iv. For Unit #9, the owner or operator shall conduct separate performance tests while the raw mill is operating ("mill on") and while the raw mill is not operating ("mill off"). Using the fraction of time the raw mill is on and the fraction of time the raw mill is off, calculate the limit as a weighted average of the total hydrocarbon levels measured during raw mill on and raw mill off compliance testing with Equation 11.12;

Equation 11.12 – Raw mill total hydrocarbon operating limit

$R = (y \times t) + \big(x \times (1 - t)\big)$

Where:

- R = Operating limit as total hydrocarbon, in parts per million by volume;
- y = Average total hydrocarbon continuous emission monitoring system value during mill on operations in parts per million by volume;
- t = Percentage of operating time with mill on;
- x = Average total hydrocarbon continuous emission monitoring system value during mill off operations, in parts per million by volume; and
- (1-t) = Percentage of operating time with mill off.

v. To determine continuous compliance with the total hydrocarbon operating limit, the owner or operator shall record the total hydrocarbon continuous emission

monitoring system output data for all periods when the process is operating and the total hydrocarbon continuous emission monitoring system is not out-of-control. The owner or operator shall demonstrate continuous compliance by using all quality-assured hourly average data collected by the total hydrocarbon continuous emission monitoring system for all operating hours to calculate the arithmetic average operating parameter in units of the operating limit (parts per million by volume) on a 30 operating day rolling average basis, updated at the end of each operating day. Use Equation 11.13 to determine the 30 operating day average;

Equation 11.13 – 30 operating day average

$$30\ operating\ day = \frac{\sum_{i-1}^{n} H_{pvi}}{n}$$

Where:

- Hpvi = The hourly parameter value for hour i, in parts per million by volume; and
- n = The number of valid hourly parameter values collected over 30 kiln operating days.

vi. Method 18 or 320 shall be used to determine organic hazardous air pollutant emissions. For each performance test, conduct at least three separate runs under the conditions that exist when the unit is operating at the highest load or capacity level reasonably expected to occur. For Unit #9, the owner or operator shall conduct three separate test runs with the raw mill on and three separate runs under the conditions that exist when Unit #9 is operating at the highest load or capacity level reasonably expected to occur with the mill off. Conduct each Method 18 test run to collect a minimum target sample equivalent to three times the method detection limit. Calculate the average of the results from three runs to determine compliance;

vii. If the total hydrocarbon level exceeds by 10 percent or more the total hydrocarbon emissions limit, the owner or operator shall:

(1) As soon as possible but no later than 30 days after the exceedance, conduct an inspection and take corrective action to return the total hydrocarbon continuous emission monitoring system measurements to within the established value; and

(2) Within 90 days of the exceedance or at the time of the annual compliance test, whichever comes first, conduct another performance test to determine compliance with the organic hazardous air pollutant limit and to verify or re-establish the total hydrocarbon emissions limit.

11.44 Testing – Mercury

In accordance with ARSD 74:36:08:21, as referenced to 40 CFR § 63.1349(b)(5), the owner or operator shall operate a mercury continuous emission monitoring system or a sorbent trap monitoring system on Unit #3, #4, and #9 in accordance with the requirements in permit condition 11.26. The initial compliance test for mercury emissions shall be based on the first 30 operating days in which the unit operates using a continuous emission monitoring system. In addition, the owner or operator shall install, calibrate, maintain, and operate an instrument for

continuously measuring and recording the exhaust gas flow rate to the atmosphere in accordance with paragraph (5) of permit condition 11.27.

The mercury emission rate shall be calculated using Equation 11.14.

Equation 11.14 – Calculating average mercury emission rate

$$E_{30D} = k\frac{\sum_{i=1}^{n} C_i\, Q_i}{P}$$

Where:

- E_{30D} = 30-day rolling emission rate of mercury, in pounds per million tons of clinker;
- C_s = Concentration of mercury for operating hour i, in micrograms per standard cubic meter;
- Q_s = Volumetric flow rate of effluent gas for operating hour i, where Ci and Qi are on the same basis (i.e., wet or dry), in standard cubic meter per hour;
- P = 30 days of clinker production during the same period as the mercury emission measured, in million tons; and
- k = Conversion factor, 1,000 pounds per 454,000,000 microgram.

11.45 Testing - Hydrogen chloride

In accordance with ARSD 74:36:08:21, as referenced to 40 CFR § 63.1349(b)(6), the owner or operator shall conduct hydrogen chloride performance tests by one of the following methods:

1. The owner or operator shall operate a continuous emission monitoring system in accordance with paragraph (1) of permit condition 11.28; and
2. The initial compliance test shall be based on the 30 operating days that occur after September 9, 2015 in which the unit operates using the hydrogen chloride continuous emission monitoring system. Hourly hydrogen chloride concentration data shall be obtained according to paragraph (1) of permit condition 11.28; and
3. For Unit #9, the owner or operator shall calculate the hydrogen chloride limit for Unit #9 using Equation 11.15.

Equation 11.15 – Unit #9 hydrogen chloride concentration

$$C_{ks} = \frac{\left(MACT\ Limit \times (Q_{ab} + Q_{cm} + Q_{ks})\right) - (Q_{ab} \times C_{ab}) - (Q_{cm} \times C_{cm})}{Q_{ks}}$$

Where:

- Cks = Kiln stack concentration, in parts per million by volume, dry;
- Qab = Alkali bypass flow rate, in volume per hour;
- Cab = Alkali bypass concentration, in parts per million by volume, dry;
- Qcm = Coal mill flow rate, in volume per hour;
- Ccm = Coal mill concentration, in parts per million by volume, dry; and
- Qks = Kiln stack flow rate, in volume per hour.

11.46 Testing – Hydrogen chloride with sulfur dioxide monitor

In accordance with ARSD 74:36:08:21, as referenced to 40 CFR § 63.1349(b)(8), if the owner or operator elects to monitor sulfur dioxide emissions using a continuous emission monitoring system to demonstrate compliance with the hydrogen chloride emission limit, the owner or operator shall meet the following procedures and in accordance with the requirements of paragraph (1) permit condition 11.28. The owner or operator shall establish a sulfur dioxide operating limit equal to the average of the sulfur dioxide emissions recorded during the hydrogen chloride stack test. This operating limit will apply only for demonstrating hydrogen chloride compliance:

1. 40 CFR Part 63, Appendix A, Method 321 shall be used to determine emissions of hydrogen chloride. Each performance test shall consist of three separate runs under the conditions that exist when the unit is operating at the representative performance conditions. Each run shall be conducted for at least one hour;
2. At the same time of the hydrogen chloride performance test, the owner or operator shall also determine sulfur dioxide operating limit by operating an sulfur dioxide continuous emission monitoring system in accordance with paragraph (1) of permit condition 11.28. The duration of the performance test shall be three hours and the average sulfur dioxide concentration (as calculated from the 1-minute averages) during the 3-hour test shall be calculated. The owner or operator shall establish the sulfur dioxide operating limit and determine compliance with it according to paragraph (7) and (8) of this permit condition;
3. For Unit #9, the owner or operator shall use the fraction of time the raw mill is on and the fraction of time that the raw mill is off and calculate this limit as a weighted average of the sulfur dioxide levels measured during raw mill on and raw mill off testing;
4. The sulfur dioxide continuous emission monitoring system shall be calibrated and operated in accordance with the following:
   a. The sulfur dioxide continuous emission monitoring system shall be installed, operated and maintained according to 40 CFR Part 60, Appendix B, Performance Specification 2;
   b. The span value for the sulfur dioxide continuous emission monitoring system is the sulfur dioxide emission concentration that corresponds to 125 percent of the applicable emissions limit at full clinker production capacity and the expected maximum fuel sulfur content;
   c. The owner or operator shall conduct performance evaluations of each sulfur dioxide continuous emission monitoring system according to the requirements in 40 CFR § 60.13(c) and 40 CFR Part 60, Appendix B, Performance Specification 2. The owner or operator shall use 40 CFR Part 60, Appendix A-4, Method 6, 6A, or 6C for conducting the relative accuracy evaluations. The method ASME PTC 19.10-1981, "Flue and Exhaust Gas Analyses," (incorporated by reference in 40 CFR § 60.17) is an acceptable alternative to Method 6 or 6A; and
   d. The owner or operator shall comply with the quality assurance requirements in 40 CFR Part 60, Appendix F, Procedure 1 for each sulfur dioxide continuous emission monitoring system, including quarterly accuracy determinations for monitors, and daily calibration drift tests.

5. The sulfur dioxide continuous emission monitoring system measurement scale shall be capable of reading sulfur dioxide concentrations consistent with the requirements in paragraph (4) of this permit condition, including mill on or mill off operation;
6. For Unit #9, the owner or operator shall conduct separate performance tests while the raw mill is operating ("mill on") and while the raw mill is not operating ("mill off"). Using the fraction of time the raw mill is on and the fraction of time that the raw mill is off, calculate this limit as a weighted average of the sulfur dioxide levels measured during raw mill on and raw mill off compliance testing with Equation 11.16;

Equation 11.16 – Sulfur dioxide operating limit

$$R = (y \times t) + \left(x \times (1 - t)\right)$$

Where:

- R = Operating limit as sulfur dioxide, in parts per million by volume;
- y = Average sulfur dioxide continuous emission monitoring system value during mill on operations, in parts per million by volume;
- t = Percentage of operating time with mill on, expressed as a decimal;
- x = Average sulfur dioxide continuous emission monitoring system value during mill off operations, in parts per million by volume; and
- (1-t) = Percentage of operating time with mill off, expressed as a decimal.

7. To determine continuous compliance with the sulfur dioxide operating limit, the owner or operator shall record the sulfur dioxide continuous emission monitoring system output data for all periods when the process is operating and the sulfur dioxide continuous emission monitoring system is not out-of-control. The owner or operator shall demonstrate continuous compliance by using all quality-assured hourly average data collected by the sulfur dioxide continuous emission monitoring system for all operating hours to calculate the arithmetic average operating parameter in units of the operating limit (i.e., parts per million by volume) on a 30 operating day rolling average basis, updated at the end of each operating day. Use Equation 11.17 to determine the 30 operating day average;

Equation 11.17 – 30 operating day average

$$30\ operating\ day = \frac{\sum_{i-1}^{n} H_{pvi}}{n}$$

Where:

- Hpvi = The hourly parameter value for hour i, in parts per million by volume; and
- n = The number of valid hourly parameter values collected over 30 operating days.

8. 40 CFR Part 63, Appendix A, Method 321 shall be used to determine hydrogen chloride emissions. For each performance test, conduct at least three separate runs under the conditions that exist when the unit is operating at the highest load or capacity level reasonably expected to occur. For Unit #9, the owner or operator shall conduct three separate test runs with the raw mill on and three separate runs under the conditions that

exist when Unit #9 is operating at the highest load or capacity level reasonably expected to occur with the mill off; and

9. If the sulfur dioxide level exceeds by 10 percent or more the sulfur dioxide operating limit, the owner or operator shall:
    a. As soon as possible but no later than 30 days after the exceedance, conduct an inspection and take corrective action to return the sulfur dioxide continuous emission monitoring system measurements to within the established value; and
    b. Within 90 days of the exceedance or at the time of the annual compliance test, whichever comes first, conduct another performance test to determine compliance with the hydrogen chloride limit and to verify or re-establish the sulfur dioxide operating limit.

11.47 Testing frequency

In accordance with ARSD 74:36:08:21, as referenced to 40 CFR § 63.1349(c), except as provided in permit condition 11.48 and for pollutants where the specific pollutant is monitored using a continuous emission monitoring system, the owner or operator shall repeat performance tests every 30 months on units subject to a dioxin/furan, total organic hazardous air pollutant, or hydrogen chloride emissions limit. Tests for particulate matter are repeated every 12 months.

11.48 Change in operation

In accordance with ARSD 74:36:08:21, as reference to 40 CFR § 63.1348(c), if the owner or operator undertakes a change in operations that may adversely affect compliance with an applicable standard, operating limit, or parametric monitoring value in this chapter, the owner or operator shall conduct an applicable performance test as specified in permit condition 11.39 through 11.46. In preparation for and while conducting the performance test, the owner or operator may operate under the planned operational change conditions for a period not to exceed 360 hours, provided the following conditions are met. The owner or operator shall submit temperature and other monitoring data recorded during the pretest operations:

1. The owner or operator shall provide the Secretary written notice at least 60 days prior to undertaking an operational change that may adversely affect compliance with an applicable standard, operating limit, or parametric monitoring value in this chapter, or as soon as practicable where 60 days advance notice is not feasible. Notice provided under this paragraph shall include a description of the planned change, the emissions standards that may be affected by the change, and a schedule for completion of the performance test required in this permit condition, including when the planned operational change period would begin;
2. The performance test results shall be documented in a test report according to permit condition 11.49;
3. A test plan shall be made available to the Secretary prior to performance testing, if requested; and
4. The performance test shall be completed within 360 hours after the planned operational change period begins.

11.49 Reporting performance test results

In accordance with ARSD 74:36:08:03, as referenced to 40 CFR § 63.10(d)(2) and ARSD 74:36:08:21, as referenced to 40 CFR §§ 63.1349(a) and (d) and 63.1354(b)(1), the owner or operator shall document performance test results in complete test reports that contain the information, as well as all other relevant information. For purposes of determining exhaust gas flow rate to the atmosphere from Unit #11 and #41, the owner or operator shall use the continuous monitoring system for the exhaust gas flow rate in permit condition 11.31 or use the maximum design exhaust gas flow rate. For purposes of determining the combined emissions from Unit #9, #11, and #41, instead of installing a continuous emission monitoring system on Unit #11 and/or #41, the owner or operator may use the results of the initial and subsequent performance test to demonstrate compliance with the relevant emissions limit:

1. A brief description of the process and the air pollution control system;
2. Sampling location description(s);
3. A description of sampling and analytical procedures and any modifications to standard procedures;
4. Test results;
5. Quality assurance procedures and results;
6. Records of operating conditions during the performance test, preparation of standards, and calibration procedures;
7. Raw data sheets for field sampling and field and laboratory analyses;
8. Documentation of calculations;
9. All data recorded and used to establish parameters for monitoring;
10. Any other information required by the performance test method;
11. The values for the operating limits or parameters established pursuant to permit condition 11.39, 11.41, 11.43, and 11.45, as applicable, and a description, including sample calculations, of how the operating limits and parameters were established during the performance test; and
12. The performance test shall be signed by the responsible official;

The owner or operator shall submit the performance test report no later than 60 days following the performance test. Within 60 days after the date of completing each performance test conducted to demonstrate compliance with this chapter, the owner or operator shall submit the relative accuracy test audit data and performance test data, except opacity data, to EPA by successfully submitting the data electronically to EPA's Central Data Exchange (CDX) by using the Electronic Reporting Tool(ERT) (*see http://www.epa.gov/ttn/chief/ert/ert_tool.html/*).

11.50 Opacity test report

In accordance with ARSD 74:36:08:21, as referenced to 40 CFR § 63.1354(b)(2), if an owner or operator is required to conduct an opacity test at the same time as a performance test, the owner or operator shall submit the results of an opacity test with the results of a performance test. If no performance test is required or if visibility or other conditions prevent the opacity test from being conducted concurrently with the performance test, the owner or operator shall report the opacity test results before the close of business on the 30th day following completion of the opacity test.

11.51 Conditions of performance tests

In accordance with ARSD 74:36:08:21, as referenced to 40 CFR § 63.1349(e), the owner or operator shall conduct performance tests under such conditions as the Secretary specifies to the owner or operator based on representative performance of the unit for the period being tested. Upon request, the owner or operator shall make available to the Secretary such records as may be necessary to determine the conditions of performance tests.

11.52 Additional test methods

In accordance with ARSD 74:36:08:21, as referenced to 40 CFR § 63.1352, the owner or operator may have the following options:

1. The owner or operator may use 40 CFR Part 63, Appendix A, Method 320 or 321 to determine the hydrogen chloride emission rate from Unit #9; and
2. The owner or operator may use 40 CFR Part 63, Appendix A, Method 320 or 40 CFR Part 60, Appendix A, Method 18 to determine the organic hazardous air pollutant emissions from Unit #3, #4, or #9.

11.53 Force majeure

In accordance with ARSD 74:36:08:03, as referenced to 40 CFR § 63.7(a)(4), if a force majeure is about to occur, occurs, or has occurred for which the owner or operator intends to assert a claim of force majeure, the owner or operator shall:

1. Notify the Secretary, in writing as soon as practicable following the date the owner or operator first knew, or through due diligence should have known the event may cause or caused a delay in testing beyond the regulatory deadline specified in this chapter of this permit. The notification shall occur before the performance test deadline unless the initial force majeure or a subsequent force majeure event delays the notice, and in such cases, the notification shall occur as soon as practicable; and
2. Provide to the Secretary a written description of the force majeure event and a rationale for attributing the delay in testing beyond the regulatory deadline to the force majeure; describe the measures taken or to be taken to minimize the delay; and identify a date by which the owner or operator proposes to conduct the performance test. The performance test shall be conducted as soon as practicable after the force majeure occurs.

"Force majeure" means an event that will be or has been caused by circumstances beyond the control of the owner or operator, its contractors, or any entity controlled by the owner or operator that prevents the owner or operator from complying with the regulatory requirement to conduct performance tests within the specified timeframe despite the owner's or operator's best efforts to fulfill the obligation. Examples of such events are acts of nature, acts of war or terrorism, or equipment failure or safety hazard beyond the control of the owner or operator.

The decision to grant an extension to the performance test deadline is solely within the discretion of the Secretary. The Secretary will notify the owner or operator in writing of approval or disapproval of the request for an extension as soon as practicable. Until an extension of the

performance test deadline has been approved by the Secretary, the owner or operator is subject to the specified performance test deadlines.

E. Applicable Plans

11.54 Operation and maintenance plan

In accordance with ARSD 74:36:08:21, as referenced to 40 CFR §§ 63.1343(c)(1) through (3) and 63.1347, the owner or operator shall prepare a written operations and maintenance plan. The plan shall be submitted to the Secretary for review and approval by September 9, 2015 and include the following:

1. Procedures for proper operation and maintenance of the units and associated air pollution control devices listed in Table 11.2 and 11.3 in order to meet the appropriate emission limits and operating limits, including periods of startup and shutdown;
2. Corrective actions to be taken when required by permit condition 11.20;
3. Procedures to be used during an inspection of the components of the combustion system of Unit #3, #4, and #9 at least once per year;
4. Describe the measures that will be used to minimize fugitive dust emissions from piles of clinker, such as accidental spillage, that are not part of open clinker storage piles;
5. Describe the location of each current or future open clinker storage pile and the fugitive dust emissions control measures the owner or operator will use to minimize fugitive dust emissions from each clinker storage pile;
6. Specify that one or more of the following control measures will be used to minimize to the greatest extent practicable fugitive dust from open clinker storage piles based on the most appropriate site conditions. The plan shall also explain how the measure or measures selected are applicable and appropriate for site conditions:
   a. Locating the source inside a partial enclosure;
   b. Installing and operating a water spray or fogging system;
   c. Applying appropriate chemical dust suppression agents;
   d. Use of a wind barrier;
   e. Compaction;
   f. Use of tarpaulin or other equally effective cover;
   g. Use of a vegetative cover; and/or
   h. The plan shall be revised as needed to reflect any changing site conditions;
7. Temporary piles of clinker that result from accidental spillage or clinker storage cleaning operations shall be cleaned up within 3 days.

Failure to comply with any provision of the operation and maintenance plan is a violation of the applicable standards in this chapter.

11.55 Site-specific monitoring plan

In accordance with ARSD 74:36:08:21, as reference to 40 CFR § 63.1350(p), the owner or operator shall develop and maintain a site-specific monitoring plan to demonstrate compliance with any applicable emission limit through performance stack testing or other emissions monitoring, for alternative monitoring parameters approved by the EPA Administrator under

permit condition 11.32, and/or use of a bag leak detection system. The site-specific monitoring plan shall meet the following requirements, if applicable:

1. For each continuous monitoring system, the owner or operator shall develop and submit for approval upon request by the Secretary, at least 30 days before the initial performance evaluation for the continuous monitoring system, a site-specific monitoring plan that addresses the following:
   a. Installation of the continuous monitoring system sampling probe or other interface at a measurement location relative to each unit such that the measurement is representative of control of the exhaust emissions (i.e., on or downstream of the last control device);
   b. Performance and equipment specifications for the sample interface, the pollutant concentration or parametric signal analyzer, and the data collection and reduction systems; and
   c. Performance evaluation procedures and acceptance criteria (i.e., calibrations);
2. Ongoing operation and maintenance procedures in accordance with the general requirements of permit condition 11.60;
3. Ongoing data quality assurance procedures in accordance with permit condition 11.61;
4. Ongoing recordkeeping and reporting procedures in accordance with the permit condition 11.56 and 11.57;
5. Conduct a performance evaluation of each continuous monitoring system in accordance with the site-specific monitoring plan;
6. Operate and maintain the continuous monitoring system in continuous operation according to the site-specific monitoring plan;
7. The site-specific monitoring plan shall describe the following if a bag leak detection system is applicable:
   a. Installation of the bag leak detection system;
   b. Initial and periodic adjustment of the bag leak detection system, including how the alarm set-point is established;
   c. Operation of the bag leak detection system, including quality assurance procedures;
   d. How the bag leak detection system is maintained, including a routine maintenance schedule and spare parts inventory list; and
   e. How the bag leak detection system output is recorded and stored.

F. Recordkeeping and Reporting

11.56 Recordkeeping requirements for Portland cement plants

In accordance with ARSD 74:36:08:03, as referenced to 40 CFR § 63.10(b) and (c) and ARSD 74:36:08:21, as referenced to 40 CFR § 63.1355, the owner or operator shall maintain files of all information (including all reports and notifications), required in this chapter, recorded in a form suitable and readily available for expeditious inspection and review. The files shall be retained for at least five years following the date of each occurrence, measurement, maintenance, corrective action, report, or record. At a minimum, the most recent two years of data shall be retained on site. The remaining three years of data may be retained off site. The files may be

maintained on microfilm, on a computer, on floppy disks, on magnetic tape, or on microfiche. The owner or operator shall maintain the following applicable records for each unit:

1. All documentation supporting initial notifications and notifications of compliance status required by this chapter;
2. All records of applicability determination, including supporting analyses;
3. All required maintenance performed on the air pollution control equipment and monitoring equipment;
4. Each period during which a continuous monitoring system is malfunctioning or inoperative (including out-of-control periods);
5. All required measurements needed to demonstrate compliance with a relevant standard including 15-minute averages of continuous monitoring data, raw performance testing measurements, and raw performance evaluation measurements, that support data that is required to be reported;
6. If the continuous emissions monitoring system is automated and the calculated data averages do not exclude periods of continuous emissions monitoring system breakdown or malfunction, a computerized data acquisition system shall record and reduce the measured data to the form of the pollutant emission standard. In lieu of maintaining a file of all continuous emissions monitoring system sub-hourly measurements as required under paragraph (5) of this permit condition, the owner or operator shall retain the most recent consecutive three averaging periods of sub-hourly measurements and a file that contains a hard copy of the data acquisition system algorithm used to reduce the measured data into the reportable form of the standard;
7. If the measured data from the continuous emissions monitoring system is manually reduced to obtain the reportable form of the standard and where the calculated data averages do not exclude periods of continuous emissions monitoring system breakdown or malfunction, the owner or operator shall retain all sub-hourly measurements for the most recent reporting period. The sub-hourly measurements shall be retained for 120 days from the date of the most recent summary or excess emission report submitted to the Secretary.
8. The Secretary, upon notification to the owner or operator, may require the owner or operator to maintain all measurements as required by paragraph (5) of this permit condition, if the Secretary determines these records are required to more accurately assess the compliance status of the unit.
9. All results of performance tests, continuous emissions monitoring system performance evaluations, and opacity and visible emission observations;
10. All measurements as may be necessary to determine the conditions of performance tests and performance evaluations;
11. All continuous emissions monitoring system calibration checks;
12. All adjustments and maintenance performed on a continuous emissions monitoring system;
13. Annual records of the amount of cement kiln dust which is removed from the kiln system and either disposed of as solid waste or otherwise recycled for a beneficial use outside of the kiln system;
14. Records of the daily clinker production rates and kiln feed rates;

15. Records of the date, time, and duration of each startup or shutdown period for any affected source that is subject to a standard during startup or shutdown that differs from the standard applicable at other times, and the quantity of feed and fuel used during the startup or shutdown period;
16. Records of the date, time and duration of each malfunction that causes a unit to fail to meet an applicable standard; if there was also a monitoring malfunction, the date, time and duration of the monitoring malfunction; the record shall list the applicable unit or monitoring device, an estimate of the volume of each regulated pollutant emitted over the standard for which the unit failed to meet a standard, and a description of the method used to estimate the emissions;
17. Records of actions taken during periods of malfunction to minimize emissions in accordance with permit condition 11.9 including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation;
18. For each exceedance from an emissions standard or established operating parameter limit, the owner or operator shall maintain records of the date, duration and description of each exceedance and the specific actions taken for each exceedance including inspections, corrective actions and repeat performance tests and the results of those actions;
19. All required continuous emissions monitoring system measurements including monitoring data recorded during unavoidable continuous emissions monitoring system breakdowns and out of control periods;
20. The date and time identifying each period during which the continuous emissions monitoring system was inoperative except for zero (low-level) and high-level checks;
21. The date and time identifying each period during which the continuous emissions monitoring system was out of control;
22. The specific identification (i.e., the date and time of commencement and completion) of each period of excess emissions and parameter monitoring exceedances, as defined in the relevant standard(s), that occurs during startups, shutdowns, and malfunctions of the affected source;
23. The specific identification (i.e., the date and time of commencement and completion) of each time period of excess emissions and parameter monitoring exceedances, as defined in the relevant standard(s), that occurs during periods other than startups, shutdowns, and malfunctions of the affected source;
24. The nature and cause of any malfunction (if known);
25. The corrective action taken or preventive measures adopted;
26. The nature of the repairs or adjustments to the continuous emissions monitoring system that was inoperative or out of control;
27. The total process operating time during the reporting period; and
28. All procedures that are part of a quality control program developed and implemented for continuous emissions monitoring system under permit condition 11.62.

11.57 Continuous monitoring system performance evaluation report

In accordance with ARSD 74:36:08:21, as referenced to 40 CFR § 63.1354(b)(6), the owner or operator shall submit a written report of the results of a performance evaluation for a continuous

monitoring system as required in permit condition 11.62. The report shall be submitted simultaneously with the results of the performance test.

11.58 Semiannual report – Continuous monitoring system excess emission report

In accordance with ARSD 74:36:08:03 as referenced to 40 CFR § 63.10(e)(3) and ARSD 74:36:08:21, as referenced to 40 CFR §§ 63.1354(b)(8) through (10) and 63.1354(c), the owner or operator shall submit a semiannual report to the Secretary. The semiannual reports shall include a summary of the following information on each permitted unit, operation, or process and air pollution control devices listed in Table 1.1:

1. Name of the facility, permit number, reference to this permit condition, identify the submittal as a semiannual report, and calendar dates covered in the reporting period;
2. Identification of each permitted unit and the associated continuous monitoring system, including monitoring equipment manufacturer and model number;
3. The emission and/or operating parameter limit specified for each permitted unit with a continuous monitoring system;
4. The date of the latest continuous monitoring system certification or audit;
5. The total operating time of the permitted unit during the reporting period;
6. An emission data summary(or similar summary, if the owner or operator monitors control system parameters, including the total duration of excess emissions during the reporting period (recorded in minutes for opacity and hours for gases), the total duration of excess emissions expressed as a percent of the total permitted unit operating time during the reporting period, and a breakdown of the total duration of excess emissions during the reporting period into those that are due to startup/shutdown, control equipment problems, process problems, other known causes, and other unknown causes;
7. A continuous monitoring system performance summary or similar summary, if the owner or operator monitors control system parameters, including the total continuous monitoring system downtime during the reporting period (recorded in minutes for opacity and hours for gases), the total duration of continuous monitoring system downtime expressed as a percent of the total source operating time during that reporting period, and a breakdown of the total continuous monitoring system downtime during the reporting period into periods that are due to monitoring equipment malfunctions, non-monitoring equipment malfunctions, quality assurance/quality control calibrations, other known causes, and other unknown causes;
8. A description of any changes in the continuous monitoring system, processes, or controls since the last reporting period;
9. The name, title, and signature of the responsible official who is certifying the accuracy of the report; and
10. The date of the report.
11. All exceedances of maximum control device inlet gas temperature limits specified in permit condition 11.64 and 11.65;
12. All failures to calibrate thermocouples and other temperature sensors as required under permit condition 11.23;

13. All failures to maintain the activated carbon injection rate, and the activated carbon injection carrier gas flow rate or pressure drop, as applicable, as required in permit condition 11.24;
14. The results of any combustion system component inspections conducted within the reporting period as required permit condition 11.25;
15. All failures to comply with any provision of the operation and maintenance plan developed in accordance with permit condition 11.54;
16. In response to each violation of an emissions standard or established operating parameter limit, the date, duration and description of each violation and the specific actions taken for each violation including inspections, corrective actions and repeat performance tests and the results of those actions;
17. If the total continuous monitoring system downtime for any continuous emission monitoring system or any continuous monitoring system for the reporting period is ten percent or greater of the total operating time for the reporting period, the owner or operator shall submit an excess emissions and continuous monitoring system performance report along with the summary report;
18. For each failure to meet a standard or emissions limit caused by a malfunction at an applicable unit, the owner or operator shall report the date, time and duration, and the cause of each event (including unknown cause, if applicable), and a sum of the number of events in the reporting period. The report must list for each event the applicable permitted unit, an estimate of the volume of each regulated pollutant emitted over the emission limit for which the permitted unit failed to meet a standard, and a description of the method used to estimate the emissions. The report must also include a description of actions taken by an owner or operator during the malfunction to minimize emissions in accordance with permit condition 11.9, including actions taken to correct a malfunction; and
19. The information required in paragraph (20) through (28) of permit condition 11.56;

If the total duration of excess emissions or process or control system parameter exceedances for the reporting period is less than 1 percent of the total operating time for the reporting period, and continuous monitoring system downtime for the reporting period is less than 5 percent of the total operating time for the reporting period, only paragraph (1) through (10) of this permit condition may be submitted. If the total duration of excess emissions or process or control system parameter exceedances for the reporting period is 1 percent or greater of the total operating time for the reporting period, or the total continuous monitoring system downtime for the reporting period is 5 percent or greater of the total operating time for the reporting period, both the summary report and the excess emissions and continuous monitoring system performance report shall be submitted. When no excess emissions or exceedances of a parameter have occurred or a continuous monitoring system has not been inoperative, out of control, repaired, or adjusted, such information shall be stated in the report. The semiannual report shall be postmarked no later than the 30th day following the end of each semiannual period (January 30th and July 30th).

11.59 Reporting to EPA – Continuous monitoring systems

In accordance with ARSD 74:36:08:21, as referenced to 40 CFR §§ 63.1354(b)(9)(vi), the owner or operator of each particulate matter, hydrogen chloride, mercury and total hydrocarbon continuous emission monitoring system and mercury sorbent trap monitoring system shall submit reports to the EPA's WebFIRE database within 60 days after the reporting periods in permit condition 11.58. The owner shall use the Compliance and Emissions Data Reporting Interface (CEDRI) accessed through EPA's Central Data Exchange (CDX) (i.e., www.epa.gov/cdx). The owner or operator shall use the appropriate electronic reporting form in CEDRI or provide an alternate electronic file consistent with the EPA's reporting form output format. For each reporting period, the reports shall include all of the calculated 30-operating day rolling average values derived from the continuous emission monitoring system or mercury sorbent trap monitoring systems.

G. Monitoring Requirements

11.60 Operation and maintenance of continuous monitoring systems

In accordance with ARSD 74:36:08:03, as reference to 40 CFR § 63.8(c), the owner or operator shall maintain and operate each continuous monitoring system as follows, unless otherwise specified in this chapter, and in a manner consistent with good air pollution control practices:

1. The owner or operator shall maintain the necessary parts for routine repairs of the continuous monitoring system equipment readily available;
2. The continuous monitoring system shall be installed such that representative measures of emissions or process parameters from the applicable unit are obtained;
3. The owner or operator shall ensure the read out (i.e., visual display or record), or other indication of operation, from any continuous monitoring system required for compliance with the emission standard is readily accessible on site for operational control or inspection by the operator of the equipment;
4. The continuous monitoring system shall be installed, operational, and the data verified as specified in this chapter prior to or in conjunction with conducting performance tests. Verification of operational status shall, at a minimum, include completion of the manufacturer's written specifications or recommendations for installation, operation, and calibration of the system;
5. Except for system breakdowns, out-of-control periods, repairs, maintenance periods, calibration checks, and zero (low-level) and high-level calibration drift adjustments, the continuous monitoring system shall be in continuous operation and meet minimum frequency of operation requirements as follows:
    a. All continuous opacity monitoring systems shall complete a minimum of one cycle of sampling and analyzing for each successive 10-second period and one cycle of data recording for each successive 6-minute period;
    b. All continuous emission monitoring systems for measuring emissions other than opacity shall complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute period;
6. Unless otherwise approved by the Secretary, minimum procedures for continuous opacity monitoring systems shall include a method for producing a simulated zero opacity

condition and an upscale (high-level) opacity condition using a certified neutral density filter or other related technique to produce a known obscuration of the light beam. Such procedures shall provide a system check of all the analyzer's internal optical surfaces and all electronic circuitry, including the lamp and photodetector assembly normally used in the measurement of opacity;

7. The owner or operator of a continuous monitoring system that is not a continuous parameter monitoring system, which is installed in accordance with the provisions of this chapter and the applicable continuous monitoring system performance specification(s), shall check the zero (low-level) and high-level calibration drifts at least once daily in accordance with the written procedure specified in the performance evaluation plan in permit condition 11.61. The zero or (low-level) and high-level calibration drifts must be adjusted, at a minimum; whenever the 24-hour zero (low-level) drift exceeds two times the limit specified in the applicable performance specification for the continuous emission monitoring system. The system shall allow the amount of excess zero or low-level and high-level drift measured at the 24-hour interval checks to be recorded and quantified whenever specified. For continuous opacity monitoring systems, all optical and instrumental surfaces exposed to the effluent gases must be cleaned prior to performing the zero or low-level and high-level drift adjustments; the optical surfaces and instrumental surfaces must be cleaned when the cumulative automatic zero compensation, if applicable, exceeds 4 percent opacity. The continuous parameter monitoring systems must be calibrated prior to use for the purposes of complying with this chapter. The continuous parameter monitoring systems must be checked daily for indication that the system is responding. If the continuous parameter monitoring systems system includes an internal system check, results must be recorded and checked daily for proper operation.
8. A continuous monitoring system is out of control if:
   a. The zero or (low-level), mid-level (if applicable), or high-level calibration drift exceeds two times the limit specified in the applicable performance specification for the continuous emission monitoring system; or
   b. The continuous monitoring system fails a performance test audit (i.e., cylinder gas audit), relative accuracy audit, relative accuracy test audit, or linearity test audit; or
   c. The continuous opacity monitoring system’s calibration drift exceeds two times the limit specified in the applicable performance specification for the continuous emission monitoring system.
9. When the continuous monitoring system is out of control, the owner or operator shall take the necessary corrective action and shall repeat all necessary tests which indicate the system is out of control. The owner or operator shall take corrective action and conduct retesting until the performance requirements are below the applicable limits. The beginning of the out-of-control period is the hour the owner or operator conducts a performance check (i.e., calibration drift) that indicates an exceedance of the performance requirements established under this part. The end of the out-of-control period is the hour following the completion of corrective action and successful demonstration that the system is within the allowable limits. During the period the continuous monitoring system is out of control, recorded data shall not be used in data averages and calculations, or to meet any data availability requirement established under this part.

10. The owner or operator of a continuous monitoring system that is out of control shall submit all information concerning out-of-control periods, including start and end dates and hours and descriptions of corrective actions taken, in the excess emissions and continuous monitoring system performance report required in permit condition 11.58.

11.61 Continuous monitoring system quality control program

In accordance with ARSD 74:36:08:03, as reference to 40 CFR § 63.8(d), the owner or operator shall develop and maintain a continuous monitoring system quality control program. The quality control program shall include, at a minimum, a written protocol that describes procedures for each of the following operations:

1. Initial and any subsequent calibration of the continuous monitoring system;
2. Determination and adjustment of the calibration drift of the continuous monitoring system;
3. Preventive maintenance of the continuous monitoring system, including spare parts inventory;
4. Data recording, calculations, and reporting;
5. Accuracy audit procedures, including sampling and analysis methods; and
6. Program of corrective action for a malfunctioning continuous monitoring system.

The owner or operator shall maintain these written procedures on record until the owner or operator is no longer subject to operating the continuous monitoring system. The written procedures shall be available for inspection. If the continuous monitoring system quality control program is revised, the owner or operator shall maintain previous versions of the continuous monitoring system quality control program on record for inspection for a period of five years after each revision to the plan.

11.62 Performance evaluation of a continuous monitoring system

In accordance with ARSD 74:36:08:03, as reference to 40 CFR § 63.8(e), performance evaluations of continuous monitoring systems required by this chapter or by the Secretary shall be conducted according to the following applicable specifications and procedures:

1. The owner or operator shall notify the Secretary in writing of the date of the performance evaluation simultaneously with the notification of the performance test date required in permit condition 11.37 or at least 60 days prior to the date the performance evaluation is scheduled to begin if no performance test is required;
2. Before conducting a performance evaluation of a continuous monitoring system, the owner or operator shall develop a site-specific test plan and submit it to the Secretary for approval upon request. The site-specific test plan shall meet the requirements in permit condition 11.34;
3. Conduct a performance evaluation of a required continuous monitoring system during any performance test. If the owner or operator elects to submit continuous opacity monitoring system data for compliance with a relevant opacity emission standard, the owner or operator shall conduct a performance evaluation of the continuous opacity

monitoring system before the performance test is conducted in time to submit the results of the performance evaluation as specified in paragraph (5) of this permit condition.

4. The owner or operator shall furnish the Secretary a copy of a written report of the results of the performance evaluation simultaneously with the results of the performance test or within 60 days of completion of the performance evaluation if no test is required. The Secretary may request the owner or operator submit the raw data from a performance evaluation in the report of the performance evaluation results.
5. The owner or operator using a continuous opacity monitoring system to determine opacity compliance during any performance test shall furnish the Secretary one copy of a written report of the results of the continuous opacity monitoring system performance evaluation. The written report shall be provided at least 15 calendar days before a performance test is conducted.

11.63 Reduction of continuous monitoring system data

In accordance with ARSD 74:36:08:03, as reference to 40 CFR § 63.8(g), the owner or operator of each continuous monitoring system shall reduce the monitoring data as follows:

1. The data from continuous opacity monitoring systems shall be reduced to 6-minute averages calculated from 36 or more data points equally spaced over each 6-minute period. Data from continuous emission monitoring systems for measurement other than opacity, unless otherwise specified in this chapter, shall be reduced to 1-hour averages computed from four or more data points equally spaced over each 1-hour period, except during periods when calibration, quality assurance, or maintenance activities pursuant to provisions of this part are being performed. During these periods, a valid hourly average shall consist of at least two data points with each representing a 15-minute period. Alternatively, an arithmetic or integrated 1-hour average of continuous emission monitoring systems data may be used.
2. The data may be recorded in reduced or non-reduced form (i.e., parts per million pollutant and percent oxygen (O_2) or nanograms per Joule of pollutant).
3. All emission data shall be converted into units of the relevant standard for reporting purposes using the conversion procedures specified in this chapter. After conversion into units of the relevant standard, the data may be rounded to the same number of significant digits as used in that standard to specify the emission limit (i.e., rounded to the nearest 1 percent opacity).
4. Monitoring data recorded during periods of unavoidable continuous monitoring system breakdowns, out-of-control periods, repairs, maintenance periods, calibration checks, and zero (low-level) and high-level adjustments must not be included in any data average computed under this chapter. For the owner or operator complying with the requirements of permit condition 11.56, data averages must include any data recorded during periods of monitor breakdown or malfunction.

H. Affirmative Defense

11.64 Affirmative defense for exceedances during malfunction

In accordance with ARSD 74:36:08:21, as referenced to 40 CFR § 63.1344(a), the owner or operator may assert an affirmative defense to a claim of civil penalties for exceedances of an emission limit in permit condition 11.2, 11.3, and 11.4 caused by a malfunction. Malfunction means any sudden, infrequent, and not reasonably preventable failure of air pollution control and monitoring equipment, process equipment, or a process to operate in a normal or usual manner which causes or has the potential to cause the emission limitations in an applicable standard to be exceeded. Failures that are caused in part by poor maintenance or careless operation are not malfunctions. Appropriate penalties may be assessed if the owner or operator fails to meet its burden of proving all of the requirements in the affirmative defense. The affirmative defense shall not be available for claims for injunction relief. To establish the affirmative defense in any action to enforce such a limit, the owner or operator shall timely meet the notification requirements identified below and prove by a preponderance of evidence that:

1. The violation:
   a. Was caused by a sudden, infrequent, and unavoidable failure of air pollution control equipment, process equipment, or a process to operate in a normal or usual manner;
   b. Could not have been prevented through careful planning, proper design or better operation and maintenance practices;
   c. Did not stem from any activity or event that could have been foreseen and avoided, or planned for; and
   d. Was not part of a recurring pattern indicative of inadequate design, operation, or maintenance;
2. Repairs were made as expeditiously as possible when a violation occurred;
3. The frequency, amount and duration of the violation (including any bypass) were minimized to the maximum extent practicable;
4. If the violation resulted from a bypass of control equipment or a process, then the bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
5. All possible steps were taken to minimize the impact of the violation on ambient air quality, the environment, and human health;
6. All emissions monitoring and control systems were kept in operation if at all possible, consistent with safety and good air pollution control practices;
7. All actions in response to the violation were documented by properly signed, contemporaneous operating logs;
8. At all times, the applicable unit was operated in a manner consistent with good practices for minimizing emissions; and
9. The owner or operator prepared a written root cause analysis to determine, correct, and eliminate the primary causes of the malfunction and the violation resulting from the malfunction event at issue. The analysis shall also specify using best monitoring methods and engineering judgment, the amount of any emissions that were the result of the malfunction.

11.65 Affirmative defense report

In accordance with ARSD 74:36:08:21, as referenced to 40 CFR § 63.1344(b), the owner or operator seeking to assert an affirmative defense shall submit a written report to the Secretary with all necessary supporting documentation that it has met the requirements set forth in permit condition 11.64. The affirmative defense report shall be included in the first periodic compliance, deviation report, or excess emission report otherwise required after the initial occurrence of the violation of the relevant standard which may be the end of any applicable averaging period. If such compliance, deviation report, or excess emission report is due less than 45 days after the initial occurrence of the violation, the affirmative defense report may be included in the second compliance, deviation report, or excess emission report due after the initial occurrence of the violation of the relevant standard.

12.0 PSD Exemption

12.1 Particulate matter limits

In accordance with ARSD 74:36:05:16.01(8), the owner or operator shall limit air emissions of particulate less than or equal to 10 microns in diameter (PM10) from the permitted units to less than or equal to the emission limits in Table 12.1.

Table 12.1 – PM10 Emission Limit

Unit	Description	Emission Limit
#92	Clinker bypass loadout bin	0.01 grains per dry standard cubic foot
#93	Bulk storage – Silo 37	0.01 grains per dry standard cubic foot
#94	Bulk truck loadout-Silo 37	0.01 grains per dry standard cubic foot

The PM10 emission limit is based on a three-hour rolling average, which is the arithmetic average of three contiguous one-hour periods. Compliance with the short term limit will be based on the stack testing requirements in chapter 8.0.

12.2 Prevention of significant deterioration review exemption

In accordance with ARSD 74:36:05:16.01(8), the owner or operator is exempt from a prevention of significant deterioration review for particulate matter less than or equal to 10 microns in diameter. Any relaxation in a permit condition that increases applicable emissions equal to or greater than 238 tons per 12-month rolling period may require a full prevention of significant deterioration review as though construction had not commenced on the source.

13.0 NSPS – Subpart F for Portland Cement Plants

13.1 Opacity limit

In accordance with ARSD 74:36:07:01, as referenced to 40 CFR § 60.8(a) and ARSD 74:36:07:09, as referenced to 40 CFR §§ 60.62(c), within 60 days after achieving the maximum production rate at which the units operate, but not later than 180 days after initial startup, the

owner or operator shall not allow the opacity from each unit in excess of the amount specified in Table 13.1

Table 13.1 – Opacity Standards

Unit	Description	Limit
#92	Clinker bypass loadout bin	10 percent

The opacity limit shall apply at all times except during periods of startup, shutdown, and malfunctions. The owner or operator shall at all times, including periods of startup, shutdown, and malfunction, to the extent practicable maintain and operate in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection.

13.2 Test methods and procedures

In accordance with ARSD 74:36:07:01, as referenced to 40 CFR § 60.8, the owner or operator shall conduct a performance test on Unit #92 within 60 days of achieve the maximum production rate but not later than 180 days after initial startup. The tests shall be conducted to determine the opacity emission rates.