State of Utah

SPENCER J. COX
Governor

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Lieutenant Governor

Department of
Environmental Quality

Kimberly D. Shelley
Executive Director

DIVISION OF AIR QUALITY
Bryce C. Bird
Director

DAQE-IN103030032-25

January 22, 2025

Josh Nelson
Ash Grove Cement Company
P.O. Box 38069
Leamington, UT 84638
cody.watkins@ashgrove.com

Dear Mr. Nelson:

Re: Intent to Approve: Major Prevention of Significant Deterioration Modification of Approval Order DAQE-AN103030035-24
Project Number: N103030032

The attached document is the Intent to Approve (ITA) for the above-referenced project. The ITA is subject to public review. Any comments received shall be considered before an Approval Order (AO) is issued. The Division of Air Quality is authorized to charge a fee for reimbursement of the actual costs incurred in the issuance of an AO. An invoice will follow upon issuance of the final AO.

Future correspondence on this ITA should include the engineer's name, **John Jenks,** as well as the DAQE number as shown on the upper right-hand corner of this letter. John Jenks, can be reached at (385) 306-6510 or jjenks@utah.gov, if you have any questions.

Sincerely,

Jon L. Black
Jon Black (Jan 22, 2025 08:28 MST)

Jon L. Black, Manager
New Source Review Section

JLB:JJ:jg

cc: Central Utah Health Department
EPA Region 8

STATE OF UTAH
Department of Environmental Quality
Division of Air Quality

INTENT TO APPROVE
DAQE-IN103030032-25
Major Prevention of Significant Deterioration Modification of Approval Order DAQE-AN103030035-24

Prepared By
John Jenks, Engineer
(385) 306-6510
jjenks@utah.gov

Issued to
Ash Grove Cement Company - Leamington Cement Plant

Issued On
January 21, 2025

Jon Black (Jan 22, 2025 08:28 MST)

New Source Review Section Manager
Jon L. Black

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GENERAL INFORMATION

CONTACT/LOCATION INFORMATION

Owner Name
Ash Grove Cement Company

Source Name
Ash Grove Cement Company - Leamington Cement Plant

Mailing Address
P.O. Box 38069
Leamington, UT 84638

Physical Address
Highway 132
Leamington, UT 84638

Source Contact
Name: Cody Watkins
Phone: (385) 225-0615
Email: cody.watkins@ashgrove.com

UTM Coordinates
397000 m Easting
4380100 m Northing
Datum NAD83
UTM Zone 12

SIC code 3241 (Cement, Hydraulic)

SOURCE INFORMATION

General Description
Ash Grove Cement Company (Ash Grove) operates the Leamington cement manufacturing plant in Juab County, Utah. Cement is produced when inorganic raw materials, primarily limestone (quarried on site), are correctly proportioned, ground, and mixed and then fed into a rotating kiln. The kiln alters the materials and recombines them into small stones called cement clinker. The clinker is cooled and ground with gypsum and additional limestone into a fine powdered cement. The final product is stored on site for later shipping. The major sources of air emissions are from the combustion of fuels for the kiln operation, from the kiln, and from the clinker cooling process. The Leamington cement plant is a major source of emissions of $PM_{2.5}$, PM_{10}, NO_x, CO, HAPs, and GHG. It is a minor source of SO_2 emissions.

NSR Classification
Major PSD Modification

Source Classification
Located in Attainment Area
Millard County
Airs Source Size: A

Applicable Federal Standards
NSPS (Part 60), A: General Provisions
NSPS (Part 60), Y: Standards of Performance for Coal Preparation and Processing Plants
NSPS (Part 60), OOO: Standards of Performance for Nonmetallic Mineral Processing Plants
MACT (Part 63), A: General Provisions
MACT (Part 63), LLL: National Emission Standards for Hazardous Air Pollutants From the

Portland Cement Manufacturing Industry
Title V (Part 70) Major Source

Project Description
With the Leamington Plant Upgrade Project, Ash Grove is proposing to increase fuel and energy efficiency in its kiln system and throughout the plant to produce more low-carbon cement.

Ash Grove has proposed multiple changes:
1. Kiln system - replace portions of the preheater tower and various mechanical upgrades;
2. Upgrading the SNCR system - adding injection ports and increasing ammonia use;
3. Modified clinker cooler;
4. New finish mill;
5. New rail and truck loading/unloading;
6. Improvements in existing baghouses; and
7. Changes in fugitive emissions.

These changes result in increases in actual emissions but decreases in most potential emissions. There will be an increase in the potential emissions of VOCs and greenhouse gases.

SUMMARY OF EMISSIONS

The emissions listed below are an estimate of the total potential emissions from the source. Some rounding of emissions is possible.

Criteria Pollutant	Change (TPY)	Total (TPY)
CO_2 Equivalent	0	1.00
Carbon Monoxide	-9631	3414.00
Lead Compounds	0.01	0.05
Nitrogen Dioxide	-125.44	1226.00
Particulate Matter - PM_{10}	-33.21	203.15
Particulate Matter - $PM_{2.5}$	-117.27	113.47
Sulfur Dioxide	-146.53	45.87
Volatile Organic Compounds	12.69	72.07

Hazardous Air Pollutant	Change (lbs/yr)	Total (lbs/yr)
Acenaphthylene(TSP) (CAS #208968)	0	160
Arsenic (TSP) (CAS #7440382)	0	16
Benzene (Including Benzene From Gasoline) (CAS #71432)	2580	4080
Benzo (B) Fluoranthene (CAS #205992)	0	1
Beryllium (TSP) (CAS #7440417)	0	1
Biphenyl (CAS #92524)	0	8
Bis(2-Ethylhexyl)Phthalate (DEHP) (CAS #117817)	0	120
Cadmium (CAS #7440439)	0	3
Carbon Disulfide (CAS #75150)	0	140
Chlorobenzene (CAS #108907)	0	20
Chromium Compounds (CAS #CMJ500)	45	180
Dibenzo(A,H)Anthracn (CAS #53703)	0	1

Dibutylphthalate (CAS #84742)	0	60
Ethyl Benzene (CAS #100414)	0	20
Fluoranthene (TSP) (CAS #206440)	0	12
Formaldehyde (CAS #50000)	6905	25660
Generic HAPs (CAS #GHAPS)	0	478
Hexane (CAS #110543)	0	160
Hydrochloric Acid (Hydrogen Chloride) (CAS #7647010)	7745	49385
Lead Compounds (CAS #LCT000)	28	100
Manganese (TSP) (CAS #7439965)	0	1140
Mercury (TSP) (CAS #7439976)	11	64
Methyl Bromide (Bromomethane) (CAS #74839)	0	60
Methylene Chloride (Dichloromethane) (CAS #75092)	0	640
Naphthalene (CAS #91203)	640	2240
Phenanthrene (CAS #85018)	0	520
Phenol (CAS #108952)	0	140
Pyrene (CAS #129000)	0	58
Selenium (TSP) (CAS #7782492)	60	260
Styrene (CAS #100425)	0	2
Toluene (CAS #108883)	0	260
Xylenes (Isomers And Mixture) (CAS #1330207)	0	180
	Change (TPY)	**Total (TPY)**
Total HAPs	11.10	43.08

PUBLIC NOTICE STATEMENT

The NOI for the above-referenced project has been evaluated and has been found to be consistent with the requirements of UAC R307. Air pollution producing sources and/or their air control facilities may not be constructed, installed, established, or modified prior to the issuance of an AO by the Director.

A 30-day public comment period will be held in accordance with R307-401-7. A notification of the intent to approve will be published in the Millard County Chronicle Progress. During the public comment period the proposal and the evaluation of its impact on air quality will be available for the public to review and provide comment. If anyone so requests a public hearing within 15 days of publication, it will be held in accordance with UAC R307-401-7. The hearing will be held as close as practicable to the location of the source. Any comments received during the public comment period and the hearing will be evaluated. The proposed conditions of the AO may be changed as a result of the comments received.

SECTION I: GENERAL PROVISIONS

The intent is to issue an air quality AO authorizing the project with the following recommended conditions and that failure to comply with any of the conditions may constitute a violation of the AO.

I.1	All definitions, terms, abbreviations, and references used in this AO conform to those used in the UAC R307 and 40 CFR. Unless noted otherwise, references cited in these AO conditions refer to those rules. [R307-101]
I.2	The limits set forth in this AO shall not be exceeded without prior approval. [R307-401]

I.3	Modifications to the equipment or processes approved by this AO that could affect the emissions covered by this AO must be reviewed and approved. [R307-401-1]
I.4	All records referenced in this AO or in other applicable rules, which are required to be kept by the owner/operator, shall be made available to the Director or Director's representative upon request, and the records shall include the five-year period prior to the date of the request. Unless otherwise specified in this AO or in other applicable state and federal rules, records shall be kept for a minimum of five years. [R307-401-8]
I.5	At all times, including periods of startup, shutdown, and malfunction, owners and operators shall, to the extent practicable, maintain and operate any equipment approved under this AO, including associated air pollution control equipment, 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 to the Director which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source. All maintenance performed on equipment authorized by this AO shall be recorded. [R307-401-4]
I.6	The owner/operator shall comply with UAC R307-107. General Requirements: Breakdowns. [R307-107]
I.7	The owner/operator shall comply with UAC R307-150 Series. Emission Inventories. [R307-150]
I.8	The owner/operator shall submit documentation of the status of installation of the equipment marked as new or reconstructed in section II.A to the Director within 18 months from the date of this AO. This AO may become invalid if construction is not commenced within 18 months from the date of this AO or if construction is discontinued for 18 months or more. To ensure proper credit when notifying the Director, send the documentation to the Director, attn.: NSR Section. [R307-401-18]

SECTION II: PERMITTED EQUIPMENT

The intent is to issue an air quality AO authorizing the project with the following recommended conditions and that failure to comply with any of the conditions may constitute a violation of the AO.

II.A THE APPROVED EQUIPMENT

II.A.1	**Leamington Cement Plant**
II.A.2	**Quarry: Quarry Operations** Rock drilling operations, truck hauling, and storage piles.
II.A.3	**Stockpiles** Coal storage Area: 1 acre Annual throughput: 20,000 tpy AF and ARM stockpiles Area: 0.25 acre Annual throughput: 8,000 tpy

II.A.4	**Stationary Crusher** Stationary crusher with an approximate production rate of 1,000 tons per hour for reduction of quarried material to 3-inch-minus-sized material. The crusher is equipped with a 20,000 acfm baghouse (211.BF1) and with water sprays on the feed hopper. (pre-1983)
II.A.5	**Raw Material Transfer** Crushed material is transported to raw material storage by belt B8. The raw material transfers at the end of conveyor B8 prior to loading into raw material reclaim area. The conveyor transfer point is equipped with a baghouse (211.BF2) 1,500 acfm total airflow, 216 ft^2 total filter area, and water sprays. (pre-1983)
II.A.6	**Material Handling** Conveyor belt systems, secondary feeders and screens, stacker systems.
II.A.7	**Portable Crusher** Portable unit, not a stationary source, no unit-specific requirements.
II.A.8	**Belt Conveyor Transfer Baghouse** Located prior to raw materials processing, this baghouse (311.BC1) with 141 ft^2 filter area and 1,800 acfm total air flow controls emissions from the conveyor belt that transfers the stacked material to the raw material silos.
II.A.9	**Raw Material Silos** Raw materials such as limestone, silica, iron, and shale are stored in one of four silos. The four silos are equipped with one common Fuller plenum pulse baghouse (315.BF1) - 1,689 ft^2 filter area; 9,865 acfm total air flow, controlling particulates from stack C125 (raw storage).
II.A.10	**Fifth Component Silo** Raw materials are stored in a silo. This silo is equipped with a BHA pulse jet baghouse (315.BF2) - 844 ft^2 filter area; 3,500 acfm total air flow.
II.A.11	**Raw Mill Recirculation** Larger particles are removed from the raw mill, recirculated, and reintroduced into the raw mill feed. This system includes vibrating feeders, a conveyor system, and surge bin. Emissions are controlled by five equivalent baghouses (316.BF1, 316.BF2, 316.BF3, 316.BF4, 316.BF5) - each is a DCE Inc. Model DLM V15/15F with 1,000 acfm and 6.21:1 A/C ratio.
II.A.12	**Cross-Belt Analyzer** Used for quality control. Emissions are controlled by a 1,400 acfm baghouse (316.BF6).
II.A.13	**Kiln & Pre-Calciner and Raw Mill** Kiln burning process, calciner, and preheater tower off gases are directed through the bottom of the raw mill, where finely ground raw material is picked up. Combustion gases and fine raw materials are then vented to a 435,000 acfm baghouse (317.BF3) on the main stack (D38). The following equipment is installed: low-NO_x burner, selective non-catalytic reduction (SNCR) for NO_x control; NO_x, CO, total hydrocarbons, CO_2, and oxygen (O_2) CEMS;
II.A.14	**Kiln description continued** mercury (Hg) CEMS or integrated sorbent trap monitoring system; PM continuous parametric monitoring system (CPMS). A carbon injection system is installed at the raw mill bypass duct for mercury adsorption capacity. The carbon injection system is not an emission point as it is in an enclosed building.
II.A.15	**Solios Low Pressure Pulse Jet Baghouse** One Solios, low-pressure pulse jet baghouse - 173,712 ft^2 filter area; air flow: 435,000 acfm controlling particulates from stack D38 (raw mill/kiln stack 317.BF3)

II.A.16	**Two Kiln Feed Blending Silos** Raw material is blended in one of two blending silos prior to feeding the kiln. The blending silos are controlled by one common Fuller plenum pulse baghouse (411.BF1) - 1,351 ft^2 filter area; 7,160 acfm total air flow.
II.A.17	**Blending Silo Elevators (2)** Blended kiln feed is transferred to the kiln by bucket elevators. The elevators are equipped with a Fuller pulse jet baghouse (412.BF1) - 676 ft^2 filter area; 2,800 acfm total air flow through stack E34.
II.A.18	**Kiln Feed Alleviator** A new pulse jet baghouse (414.BF1N) - 9,900 acfm total air flow controls particulate from the central material silo between the blending silos and the preheater. Raw feed is removed from the system near the top of the preheater tower.
II.A.19	**Coal Silo** Storage of coal for grinding to powder, which is subsequently fired in the kiln and calciner. The coal storage silo is equipped with a Unifilter, shaker baghouse (41B.BF1) - 1,508 ft^2 filter area; 1,700 acfm total air flow.
II.A.20	**Coal Grinding System** Coal is ground in a coal mill. Gases drawn from the preheater for the kiln entrain the coal in the mill and are controlled by a Fuller-Kovako, Model 'S' jet pulse baghouse (41B.BF2): 19,500 acfm rated airflow with 3.75:1 A/C ratio
II.A.21	**Clinker Cooler and Baghouse** Reconstructed grate-type cooler used for cooling clinker from the kiln prior to transfer to clinker storage. The clinker cooler vent air is controlled by a pulse jet baghouse (419.BF1) - 173,869 acfm total air flow on the clinker cooler stack (F31). A PM continuous parameter monitoring system (CPMS) is installed.
II.A.22	**Clinker Belt Transfer** Clinker is removed from the clinker cooler by drag chains and dropped onto one of two clinker conveyor belts. The conveyors and transfer points are controlled by a baghouse (419.BF8). The exhaust is routed to the clinker cooler stack.
II.A.23	**Clinker Silos** Clinker from the clinker cooler is transferred to one of three storage silos. Emissions generated when loading the east and west clinker silos and the out-of-spec silo are controlled by a pulse jet baghouse (419.BF9). The exhaust is routed to the clinker cooler stack. Alternatively, clinker can be conveyed to outside storage piles.
II.A.24	**East Clinker Silo Discharge** Produced clinker is fed to the clinker tunnel conveyor belt from the East clinker storage silo. Emissions during transfer of clinker to the conveyor are controlled by a baghouse (511.BF1): 1,800 acfm that discharges into the clinker tunnel.
II.A.25	**West Clinker Silo Discharge** Produced clinker is fed to the clinker tunnel conveyor belt from the West clinker storage silo. Emissions during transfer of clinker to the conveyor are controlled by a baghouse (511.BF2): 1,800 acfm that discharges into the clinker tunnel.
II.A.26	**Clinker Reclaim Hoppers (2)** Imported clinker is fed to the clinker tunnel conveyor belt by two outside clinker hoppers. Emissions during transfer of clinker to the conveyor are controlled by two BHA baghouses (511.HP1 and new 511.HP2): 1,800 acfm each.

II.A.27	**Gypsum Silo** Gypsum is stored in the gypsum storage silo. A Unifilter 1,500 acfm total airflow, 1,508 ft^2 total filter area baghouse (512.BF1) is installed on the gypsum storage silo to control dust during loading.
II.A.28	**Clinker Tunnel Exitway** The east clinker silo discharge baghouse (511.BF1), west clinker silo discharge baghouse (511.BF2), 512.BF2 (1,800 acfm) limestone discharges in the clinker tunnel, and (511.BF4): 1,800 acfm, gypsum discharge into the clinker tunnel, all discharge in the clinker tunnel. Emissions are vented through the tunnel exitway.
II.A.29	**Limestone Silo** Limestone is stored in the limestone storage silo and transferred to the finish mill by conveyor belt. [BM1] One BHA baghouse is installed on the limestone storage silo to control dust during loading. 512.BF3 (1,000 acfm) is located on top of the silo.
II.A.30	**Finish Mill (Ball Mill)** The finish mill grinds clinker and gypsum to produce finished cement products. Dust generated during milling is captured by a BHA pulse jet baghouse (514.BF2) - 6,080 ft^2 filter area; 32,000 acfm total air flow, controlling particulates from stack G105 (finish grinding stack).
II.A.31	**Finish Mill (Ball Mill) Separator** After clinker and gypsum are ground into cement product, a separator returns the oversized cement particles to the finish mill. Dust generated by the finish mill separator is collected by a BHA pulse jet baghouse (514.BF1) - 4,053 ft^2 filter area; 20,000 acfm total air flow, controlling particulates from stack G55 (finish mill stack).
II.A.32	**Finish Mill and Separator (Vertical Mill)** New finish mill, vertical style, equipped with 10.43 MMBtu/hr natural gas-fired heater. The stack is controlled by a baghouse (524.BF3): 158,376 acfm. Two baghouses control conveyor transfer points (524.BF2 & 4). Ten baghouses serve as nuisance dust filters (520.BF1 thru 4, 521.BF1 & 2, 524.BF1, 525.BF1 thru 3).
II.A.33	**Finish Cement Storage Silos** There are six storage and two interstice silos where the finished cement product is stored. A single common Fuller plenum pulse baghouse (611.BF1) - 1,351 ft^2 filter area; 6,400 acfm total air flow through stack H7 is located on top of the silos and is used to control emissions during loading and unloading operations.
II.A.34	**North Cement Load Out** The cement loadout system located on the North side of the silos (rail load outside) is controlled by a Fuller, pulse jet baghouse (611.BF3) during unloading from the silos for rail shipping. This baghouse discharges into the enclosed space inside the silos.
II.A.35	**South Cement Load Out** The cement loadout system located on the South side of the silos (truck load outside) is controlled by a Fuller pulse jet baghouse (611.BF2) during unloading from the silos for truck shipping. Two pulse jet baghouses (611.BF4, 611.BF5) control emissions from the cement conveyor fluidslides and truck loading chutes. These baghouses discharge into the enclosed space inside the silos.
II.A.36	**Rail and Truck Loading/Unloading** New rail and truck loading/unloading facility, equipped with two baghouses (NRL_UPR, NRL_LWR) to control fugitive emissions from the roof and from transfer of cement or raw materials - each 2,500 acfm.

II.A.37	**MHO: Materials Handling Operation** Includes the following emission units: 315.BF1; 315.BF2; 316.BF1 thru 5; 316.BF6; 411.BF1 & 2; 412.BF1 & 2; 414.BF1; 419.BF8; 514.BF3; 419.BF9; 419.BF10; 511.BF1 thru 4; 512.BF1; 611.BF1 thru 5; 512.BF2 & 3; 413.BF1.
II.A.38	**LBS: Limestone Bypass System** Additional limestone is added to the clinker and gypsum by the limestone bypass system (LBS). The LBS consists of a screen and conveyors. Emissions are controlled by water sprays at the screen and material handling drop points.
II.A.39	**GEN: Emergency Generators** One diesel-fired emergency generator (new) Rating: 762 hp (Kiln, Tier 3, permitted 2022) Two natural gas-fired emergency generators Rating: 304 hp (Main office and control room, permitted in 2023) One diesel-fired emergency generator Rating: 560 hp (Shipping, permitted 2023)
II.A.40	**Dust Shuttle System** A dust-shuttling system is used intermittently to mitigate mercury emissions as required. The system includes the following equipment: elevator from baghouse, pneumatic air slide, alkali silo, pug mill, pug mill loadout, fringe bin, 14-inch knife gate, 8-inch knife gate, 8-inch air slides, surge bin, and pneumatic blower. Emissions are controlled by a baghouse (4,500 acfm) on the fringe bin (514.BF3) and a baghouse (4,500 acfm) on the alkali silo (413.BF1).
II.A.41	**Miscellaneous Storage Tanks** One diesel storage tank (<2,000 gallons) One gasoline storage tank (500 gallons) Three ammonia storage tanks (8,000 gallons each)

SECTION II: SPECIAL PROVISIONS

The intent is to issue an air quality AO authorizing the project with the following recommended conditions and that failure to comply with any of the conditions may constitute a violation of the AO.

II.B REQUIREMENTS AND LIMITATIONS

II.B.1	**Requirements on the Cement Plant:**
II.B.1.a	The following limits shall not be exceeded: A. Clinker production - 1,155,000 tons per rolling 12-month period B. Used oil consumption - 85,724 gallons per rolling 12-month period C. Limestone bypass material processed - 216,260 tons per rolling 12-month period. [R307-401-8]

II.B.1.a.1	To determine compliance with a rolling 12-month total, the owner/operator shall calculate a new 12-month total by the 25th day of each month using data from the previous 12 months. Records shall be kept for all periods when the plant is in operation. Consumption and production shall be calculated through use of the plant's acquisition system. [R307-401-8]
II.B.1.b	Emissions to the atmosphere at all times from the indicated emission point(s) shall not exceed the following rates and concentrations: Source: Kiln 1/Raw Mill Stack (D38) PM: 0.07 lbs filterable PM per ton of clinker SO_2: 0.4 lbs per ton of clinker (3-hr average) CO: 3,395 tons per rolling 12-month period and 6,600 lbs/hr NO_x: 2.8 lbs per ton clinker based upon a 30-day rolling average and 1,233 tons per rolling 12-month period Dioxins and furans (D/F): 0.2 ng/dscm (TEQ) (corrected to 7% O_2); or 0.4 ng/dscm (TEQ) (corrected to 7% O_2) when the average temperature at the inlet of the PM control device is 400°F or less. Mercury (Hg): 55 lb/MM tons clinker (30-day operating day rolling average) THC: 24 ppmvd (corrected to 7% O_2) (30-day operating day rolling average) CO_2e: 0.92 ton CO_2e per ton of clinker (12-month rolling average) Source: Clinker Cooler Stack (F31) PM: 0.02 lbs filterable PM per ton of clinker. [40 CFR 60 Subpart F, 40 CFR 63 Subpart LLL, R307-401-8]
II.B.1.c	A fugitive coal dust emissions control plan shall be submitted in accordance with 40 CFR 60.254(c) for the coal stockpile. Adherence to the most recently submitted fugitive coal dust emissions control plan shall be monitored to demonstrate that appropriate control measures are being implemented to minimize fugitive coal dust to the greatest extent practicable. A copy of the most recently submitted fugitive coal dust control plan shall be kept on site. Records shall be kept that demonstrate all components required by 40 CFR 60.254(c) have been included in the plan and that the source is operating in accordance with the submitted plan. For petitions to approve alternative control measures, the permittee shall keep a copy of the submitted petition and any approvals received. [40 CFR 60 Subpart Y]
II.B.1.d	Unless the owner/operator has chosen to operate the Leamington Cement Plant as an area source of HAPs, emissions of HCl shall not exceed 3 ppmvd (corrected to 7% O_2). [40 CFR 63 Subpart LLL]

II.B.1.e

Stack testing to show compliance with the emission limitations stated in Conditions II.B.1.b and II.B.1.d shall be performed as specified below:

A. Kiln/Raw Mill Stack

Pollutant	Test Status	Test Frequency
PM	*	#
CO	*	++
SO_2	**	##
NO_x	*	++
Dioxin/Furan	*	+++
THC	***	++
Hg	***	++
HCL	***	++
CO_2	*	++

B. Clinker Cooler (F31)

Pollutant	Test Status	Test Frequency
PM	+	#

C. Testing Status (To be applied above)

* The initial testing has already been performed.

** The SO_2 initial performance test was conducted on August 26, 2013.

*** The initial compliance test shall be conducted within the first 30 operating days of operation in which the affected source operates using a CEMS.

Test once every year. If performance testing would be required less than 15 operating days after the Kiln has completed Startup after being down for more than 24 hours, then performance testing may be deferred up to 15 operating days after completion of the Startup. The Director may require testing at any time.

Test at least once every two years. The Director may require testing at any time.

+ Initial testing is required within 180 days of startup of the reconstructed equipment

++ Compliance with the limits shall be demonstrated through use of a continuous emissions monitoring system as outlined in Condition II.B.3.a and as follows:

To determine continuous operating compliance, the owner/operator must record the PM CPMS output data for all periods when the process is operating and use all the PM CPMS data for calculations when the PM CPMS is not out of control. The owner/operator must demonstrate continuous compliance by using all quality-assured hourly average data collected by the PM CPMS for all operating hours to calculate the arithmetic average operating parameter in units of the operating limit on a 30-operating day rolling average basis, updated at the end of each new kiln operating day.

+++ Test every 30 months.

[40 CFR 60 Subpart F, 40 CFR 63 Subpart LLL, R307-401-8]

II.B.1.e.1	Notification The Director shall be notified at least 30 days prior to conducting any required emission testing. A source test protocol shall be submitted to DAQ when the testing notification is submitted to the Director. The notification requirements for performance tests subject to 40 CFR 63, Subpart LLL are required within 60 days prior to conducting the performance testing. The source test protocol shall be approved by the Director prior to performing the test(s). The source test protocol shall outline the proposed test methodologies, stack to be tested, and procedures to be used. A pretest conference shall be held, if directed by the Director. [R307-165]
II.B.1.e.2	Sample Location The emission point shall be designed to conform to the requirements of 40 CFR 60, Appendix A, Method 1, or other EPA-approved methods acceptable to the Director. An Occupational Safety and Health Administration (OSHA)- or Mine Safety and Health Administration (MSHA)-approved access shall be provided to the test location. [R307-165]
II.B.1.e.3	Volumetric Flow Rate 40 CFR 60, Appendix A, Method 2. [R307-165]
II.B.1.e.4	PM 40 CFR 60, Appendix A, Method 5, or 5I, or other EPA-approved method as acceptable to the Director. The initial and subsequent PM performance tests shall consist of three runs, with each run at least 120 minutes in duration and each run collecting a sample of 60 dry standard cubic feet. [40 CFR 60 Subpart F, 40 CFR 63 Subpart LLL, R307-165]
II.B.1.e.5	Carbon Monoxide (CO) Continuous Emission Monitor (see Condition II.B.3.a). [R307-170]
II.B.1.e.6	Nitrogen Oxides (NO_x) Continuous Emission Monitor (see Condition II.B.3.a). [R307-170]
II.B.1.e.7	Sulfur Dioxide (SO_2) 40 CFR 60, Method 6 or 6C of Appendix A-4, or other EPA-approved method as acceptable to the Director. [R307-165]
II.B.1.e.8	Dioxin/Furan Continuous Monitoring System. [40 CFR 63 Subpart LLL]
II.B.1.e.9	Total Hydrocarbons (THC) Continuous Emission Monitoring (See Condition II.B.3.a). [40 CFR 63 Subpart LLL]
II.B.1.e.10	Mercury (Hg) Continuous Emission or Integrated Sorbent Trap Monitoring (See Condition II.B.3.a). [40 CFR 63 Subpart LLL]
II.B.1.e.11	HCl Performance test methods and procedures found in 40 CFR 63.1349(b)(6) or other EPA-approved method as acceptable to the Director. [40 CFR 63 Subpart LLL]
II.B.1.e.12	Calculations To determine mass emission rates (lb/hr, etc.), the pollutant concentration as determined by the appropriate methods above shall be multiplied by the volumetric flow rate and any necessary conversion factors determined by the Director, to give the results in the specified units of the emission limitation. [R307-165]
II.B.1.e.13	Existing Source Operation For an existing source/emission point, the production rate during all compliance testing shall be no less than 90% of the maximum production achieved in the previous three years. [R307-165]

II.B.1.e.14	New Source Operation For a new source/emission point, the production rate during all compliance testing shall be no less than 90% of the maximum production rate listed in this AO. If the maximum AO allowable production rate has not been achieved at the time of the test, the following procedure shall be followed: 1) Testing shall be at no less than 90% of the production rate achieved to date. 2) If the test is passed, the new maximum allowable production rate shall be 110% of the tested achieved rate, but not more than the maximum allowable production rate. This new allowable maximum production rate shall remain in effect until successfully tested at a higher rate. 3) The owner/operator shall request a higher production rate when necessary. Testing at no less than 90% of the higher rate shall be conducted. A new maximum production rate (110% of the new rate) will then be allowed if the test is successful. This process may be repeated until the maximum AO production rate is achieved. [R307-165]
II.B.1.f	The owner/operator shall determine clinker production as outlined in 40 CFR 63 Subpart LLL. [40 CFR 63 Subpart LLL]
II.B.1.g	The Dust Shuttle System Fringe Bin and Alkali Silo baghouses shall be operating at all times of Dust Shuttle System operation to assist in the capture of mercury emission. [R307-401-8]
II.B.1.h	Visible emissions from the following emission points shall not exceed the following values: A. Limestone crushers - 15% opacity B. Limestone screens - 10% opacity C. Limestone conveyor transfer points - 10% opacity D. All other crushers - 15% opacity E. All other screens - 10% opacity F. All other conveyor transfer points - 10% opacity G. All stacking conveyors - 10% opacity H. Bins and trap feeder - 10% opacity I. All diesel engines - 20% opacity J. All support equipment - 20% opacity K. Coal storage and transfer - 20% opacity L. All baghouses - 10% opacity M. Fugitive dust - 20% opacity N. All other points - 20% opacity. [40 CFR 60 Subpart OOO, 40 CFR 60 Subpart Y, R307-401-8]

II.B.1.i	Any totally enclosed conveying system transfer point, regardless of the location of the transfer point, is not required to conduct Method 22 visible emissions monitoring under this paragraph. The enclosures for these transfer points must be operated and maintained as total enclosures on a continuing basis in accordance with the facility operations and maintenance plan. If any partially enclosed or unenclosed conveying system transfer point is located in a building, the owner/operator must conduct a Method 22 performance test, of Appendix A-7 to 40 CFR 60, according to the following: (i) The owner/operator must conduct a monthly ten-minute visible emissions test of each affected source in accordance with Method 22 of Appendix A-7 to 40 CFR 60. The performance test must be conducted while the affected source is in operation. (ii) If no visible emissions are observed in six consecutive monthly tests for any affected source, the owner/operator may decrease the frequency of performance testing from monthly to semi-annually for that affected source. If visible emissions are observed during any semi-annual test, the owner/operator must resume performance testing of that affected source on a monthly basis and maintain that schedule until no visible emissions are observed in six consecutive monthly tests. (iii) If no visible emissions are observed during the semi-annual test for any affected source, the owner/operator may decrease the frequency of performance testing from semi-annually to annually for that affected source. If visible emissions are observed during any annual performance test, the owner/operator must resume performance testing of that affected source on a monthly basis and maintain that schedule until no visible emissions are observed in six consecutive monthly tests. (iv) If visible emissions are observed during any Method 22 performance test of Appendix A-7 to 40 CFR 60, the owner/operator must conduct 30 minutes of opacity observations, recorded at 15-second intervals, in accordance with Method 9 of Appendix A-4 to 40 CFR 60. The Method 9 performance test, of Appendix A-4 to 40 CFR 60, must begin within one hour of any observation of visible emissions. (v) If visible emissions from a building are monitored, the requirements of paragraphs (i) through (iv) of this Condition apply to the monitoring of the building, and the owner/operator must also test visible emissions from each side, roof, and vent of the building for at least ten minutes. [R307-401]

II.B.1.j	Emissions of filterable particulate matter (PM) from the following baghouses shall not exceed 0.005 gr/dscf: 520.BF1 520.BF2 520.BF3 520.BF4 521.BF2 521.BF1 524.BF1 524.BF2 524.BF4 524.BF3 525.BF1 525.BF2 525.BF3 511.HP2 NRL_UPR NRL_LWR [R307-401-8]
II.B.1.j.1	To determine compliance with the grain loading limitation, each baghouse shall be tested as outlined in II.B.1.e.4. Each baghouse shall be tested at least annually. Upon demonstration through at least three annual tests that the PM limits are not being exceeded, the owner/operator may request approval from the Director to conduct stack testing less frequently than annually. [R307-401-8]
II.B.2	**Roads and Fugitive Dust Requirements:**
II.B.2.a	Paved roads and operational areas shall be swept and/or water sprayed to minimize fugitive dusts as dry conditions warrant or as determined necessary by the Director to maintain opacity limits listed in this AO. [R307-401]
II.B.2.b	All unpaved roads and other unpaved operational areas that are used by mobile equipment shall be water sprayed and/or chemically treated to control fugitive dust. The application of water or chemical treatment shall be used. Treatment shall be of sufficient frequency and quantity to maintain the surface material in a damp/moist condition unless it is below freezing. If chemical treatment is to be used, the plan must be approved by the Director. Records of water and/or chemical treatment shall be kept for all periods when the plant is in operation. The records shall include the following items: Instances of water and/or chemical application to unpaved areas shall be recorded and maintained by the owner/operator. The ambient temperature shall be recorded any time water should be applied but cannot due to freezing conditions. [R307-401-8]
II.B.2.c	Water sprays or chemical dust suppression sprays shall be installed at the following points to control fugitive emissions: A. Hopper at the primary crusher B. Material belt feeding the stacker C. Limestone bypass screen/conveyor drops. The sprays shall operate whenever dry conditions warrant meeting the required opacity limitations or as determined necessary by the Director. Water sprays shall not be required during periods of freezing temperatures. [R307-401-8]

II.B.2.d	All disturbed surfaces not involved with operations shall be stabilized to minimize generation of fugitive dusts as dry conditions warrant or as determined necessary by the Director. [R307-401-8]
II.B.2.e	The owner/operator shall only conduct blasting operations between the hours of 9 AM and 5 PM. [R307-401-8]
II.B.3	**Continuous Emission Monitoring Requirements:**
II.B.3.a	The owner/operator shall install, calibrate, maintain, and continuously operate a continuous emissions monitoring system on the kiln/raw mill stack and clinker cooler. A. For the NO_x mass emission limits, during any time when the CEMS are inoperable and otherwise not measuring emissions of NO_x from the kiln, the owner/operator shall apply the missing data substitution procedures used by the UDAQ or the missing data substitution procedures in 40 CFR Part 75, Subpart D, whichever is deemed appropriate by the UDAQ B. In calculating the 30-day rolling average emission rate, the total pounds of NO_x emitted during a specified period shall include all kiln emissions that occur during the specified period, including during each startup, shutdown, or malfunction C. The monitoring system shall comply with all applicable sections of R307-170, UAC, and 40 CFR 60, Appendix B D. Total Hydrocarbons (THC), HCl, Oxygen (O_2) and Carbon Dioxide (CO_2) CEMs shall be installed on the kiln/raw mill stack E. A mercury (Hg) CEM or integrated sorbent trap monitoring system shall be installed on the kiln/raw mill stack F. The owner/operator shall record the output of the system: including the quantity of NO_x, CO, O_2, THC, Hg, HCl, and CO_2 emissions at the kiln stack G. Except for system breakdown, repairs, calibration checks, and zero and span adjustments required under paragraph (d) 40 CFR 60.13, the owner/operator of an affected source shall continuously operate all required continuous monitoring devices and shall meet minimum frequency of operation requirements as outlined in 40 CFR 60.13 and Section UAC R307-170. [40 CFR 60 Subpart F, 40 CFR 63 Subpart LLL, R307-170]
II.B.3.b	The owner/operator shall install and operate a PM CPMS on the Kiln 1/Raw Mill and clinker cooler stacks in accordance with the requirements of 40 CFR 63.1350 (b) and (d). Except during periods of CPMS breakdowns, repairs, calibration checks, and zero span adjustments, the PM CPMS shall be operated at all times of kiln operation. The owner/operator shall use a PM CPMS to establish a Site-Specific Operating Limit (SSOL) for PM corresponding to the results of the performance test demonstrating compliance with the filterable PM limit and using the methodology in 40 CFR 63.1349(b). The owner/operator shall reassess and adjust the SSOL developed in accordance with the results of the most recent PM performance test demonstrating compliance with the PM emission limit. The owner/operator shall use the PM CPMS to demonstrate continuous compliance with the SSOL in accordance with the requirements of 40 CFR 63.1350(b)(1). [40 CFR 63 Subpart LLL]

II.B.4	**Fuel Limitations:**
II.B.4.a	The owner/operator shall use only the following fuels in the kiln and pre-calciner: A. Coal B. Diaper Derived Fuel (DDF) C. Tire Derived Fuel (TDF) D. Natural Gas E. Coke F. Fuel Oil G. Used Oil Fuel H. Synthetic Fuel I. Wood J. Process Engineered Fuel (PEF) K. Coal Additives as defined in Condition II.B.4.b. If any other fuel is to be used, an AO shall be required in accordance with R307-401, UAC. [R307-401]
II.B.4.b	Prior to burning any proposed coal additive, the owner/operator shall obtain approval from the Director. To obtain approval, the owner/operator shall submit Safety Data Sheets (SDS) or the results of suitable tests giving data similar to a proximate and ultimate analysis of the proposed coal additive. [R307-401-8]
II.B.4.b.1	Approval by the Director shall consist of a letter approving the use of the proposed coal additive. Approval is not required to change from one previously approved coal additive to another previously approved coal additive. [R307-401-8]
II.B.4.b.2	The average quantity of coal additives burned shall not be greater than 15% of the total daily heat input of the kiln and precalciner. The owner/operator may increase the average quantity of coal additives up to 25% of the total daily heat input of the kiln and precalciner upon approval by the Director in accordance with the approval process described in Condition II.B.4.b. [R307-401-8]
II.B.4.c	The sulfur content of any coal, oil, or mixture thereof, burned in any fuel-burning or process installation not covered by New Source Performance Standards for sulfur emissions or covered elsewhere in this AO, shall contain no more than 1.0 pound sulfur per million gross Btu heat input for any mixture of coal nor 0.85 pounds sulfur per million gross Btu heat input for any oil except used oil. The sulfur content shall comply with all applicable sections of UAC R307-203. [R307-203, R307-401-8]

II.B.4.c.1	Certification of fuels shall be either by the owner/operator's own testing or test reports from the fuel marketer. Records of each fuel supplier's test report on sulfur content shall be available onsite. Methods for determining sulfur content of coal and fuel oil shall be those methods of the American Society for Testing and Materials, UAC R307-203-1 (4). A. For determining sulfur content in coal, ASTM Methods D3177-75 or D4239-85 are to be used B. For determining sulfur content in oil, ASTM Methods D2880-71 or D4294-89 are to be used C. For determining the gross calorific (or Btu) content of coal, ASTM Methods D2015-77 or D3286-85 are to be used. [R307-203]
II.B.4.d	The concentration/parameters of contaminants in any used oil fuel shall not exceed the following levels: 1) Arsenic 5 ppm by weight 2) Barium 100 ppm by weight 3) Cadmium 2 ppm by weight 4) Chromium 10 ppm by weight 5) Lead 100 ppm by weight 6) Total halogens 1,000 ppm by weight 7) Sulfur 0.5 percent by weight A. The flash point of all used oil to be burned shall not be less than 100°F. B. The owner/operator shall provide test certification for each load of used oil fuel received. Certification shall be either by their own testing or test reports from the used oil fuel marketer. Records of used oil fuel consumption and the test reports shall be kept for all periods when the plant is in operation C. Used oil that does not exceed any of the listed contaminants content may be burned. The owner/operator shall record the quantities of oil burned on a daily basis D. Any used oil fuel that contains more than 1000 ppm by weight of total halogens shall be considered a hazardous waste and shall not be burned in the kiln/preheater. The oil shall be tested for halogen content by ASTM Method D-808-81, EPA Method 8240, or Method 8260 before used oil fuel is transferred to the burn tank and burned. [R307-401-8]
II.B.4.e	The following operating parameters shall be met at all times when used oil or TDF is burned in the rotary kiln: A. Combustion gas temperature at the rotary kiln exit-no less than 1500°F for more than five minutes in any 60-minute period B. Oxygen content at the kiln system ID fan - no less than 2% for more than five minutes in any 60-minute period. [R307-401-8]

II.B.4.e.1	The temperature and oxygen content shall both be monitored with equipment approved by the Director. The calibration procedure and frequency shall be according to manufacturer's specifications. Use of factory-calibrated thermocouples for temperature measurement is approved. However, any other method of temperature measurement must be approved by the Director prior to use. The monitoring equipment for both temperature and oxygen content shall be located such that an inspector can at any time safely read the output. [R307-401-8]
II.B.5	**Emergency Engine Requirements**
II.B.5.a	The owner/operator shall only operate the emergency engines for testing and maintenance purposes between the hours of 1 PM and 3 PM. There is no restriction on emergency operation. [R307-401-8]
II.B.5.b	The owner/operator shall only use diesel fuel (e.g., fuel oil #1, #2, or diesel fuel oil additives) as fuel in each emergency engine. [R307-401-8]
II.B.5.b.1	The owner/operator shall only combust diesel fuel which has a sulfur content of 15 ppm or less. [R307-401-8]
II.B.5.b.2	To demonstrate compliance with the diesel fuel sulfur requirement, the owner/operator shall maintain records of diesel fuel purchase invoices or obtain certification of sulfur content from the diesel fuel supplier. [R307-401-8]

PERMIT HISTORY

This Approval Order shall supersede (if a modification) or will be based on the following documents:

Supersedes	AO DAQE-AN103030035-24 dated November 27, 2024
Is Derived From	Source Submitted NOI dated November 30, 2022
Incorporates	Additional Information Received dated April 26, 2023
Incorporates	Additional Information Received dated September 26, 2023
Incorporates	Additional Information Received dated July 23, 2024
Incorporates	Additional Information Received dated October 25, 2024
Incorporates	Additional Information Received dated November 25, 2024

ACRONYMS

The following lists commonly used acronyms and associated translations as they apply to this document:

40 CFR	Title 40 of the Code of Federal Regulations
AO	Approval Order
BACT	Best Available Control Technology
CAA	Clean Air Act
CAAA	Clean Air Act Amendments
CDS	Classification Data System (used by Environmental Protection Agency to classify sources by size/type)
CEM	Continuous emissions monitor
CEMS	Continuous emissions monitoring system
CFR	Code of Federal Regulations
CMS	Continuous monitoring system
CO	Carbon monoxide
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent - Title 40 of the Code of Federal Regulations Part 98, Subpart A, Table A-1
COM	Continuous opacity monitor
DAQ/UDAQ	Division of Air Quality
DAQE	This is a document tracking code for internal Division of Air Quality use
EPA	Environmental Protection Agency
FDCP	Fugitive dust control plan
GHG	Greenhouse Gas(es) - Title 40 of the Code of Federal Regulations 52.21 (b)(49)(i)
GWP	Global Warming Potential - Title 40 of the Code of Federal Regulations Part 86.1818-12(a)
HAP or HAPs	Hazardous air pollutant(s)
ITA	Intent to Approve
LB/YR	Pounds per year
MACT	Maximum Achievable Control Technology
MMBTU	Million British Thermal Units
NAA	Nonattainment Area
NAAQS	National Ambient Air Quality Standards
NESHAP	National Emission Standards for Hazardous Air Pollutants
NOI	Notice of Intent
NO_x	Oxides of nitrogen
NSPS	New Source Performance Standard
NSR	New Source Review
PM_{10}	Particulate matter less than 10 microns in size
$PM_{2.5}$	Particulate matter less than 2.5 microns in size
PSD	Prevention of Significant Deterioration
PTE	Potential to Emit
R307	Rules Series 307
R307-401	Rules Series 307 - Section 401
SO_2	Sulfur dioxide
Title IV	Title IV of the Clean Air Act
Title V	Title V of the Clean Air Act
TPY	Tons per year
UAC	Utah Administrative Code
VOC	Volatile organic compounds