State of Utah

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Governor

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Department of
Environmental Quality

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DIVISION OF AIR QUALITY
Bryce C. Bird
Director

RN103030035

September 24, 2024

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

Dear Paul Pederson,

Re: Engineer Review:
Modification of Approval Order DAQE-AN103030033-24 to Increase Alternative Fuel Allowances
Project Number: N103030035

Please review and sign this letter and attached Engineer Review (ER) within **10 business days**. For this document to be considered as the application for a Title V administrative amendment, a Title V Responsible Official must sign the next page.

Please contact **John Jenks** at (385) 306-6510 if you have any questions or concerns about the ER. If you accept the contents of this ER, please email this signed cover letter to John Jenks at **jjenks@utah.gov.** After receipt of the signed cover letter, the DAQ will prepare an Intent to Approve (ITA) for a 30-day public comment period. When the public comment period ends, the DAQ will consider any comments received and will issue the Approval Order.

If you do not respond to this letter within **10 business days,** the project will move forward without your approval. If you have concerns that we cannot resolve, the DAQ Director may issue an Order prohibiting construction.

Approval Signature _____
(Signature & Date)

OPTIONAL: In order for this Engineer Review and associated Approval Order conditions to be considered as an application to administratively amend your Title V Permit, the Responsible Official, as defined in R307-415-3, must sign the statement below. **THIS IS STRICTLY OPTIONAL.**

If you do not want the Engineer Review to be considered as an application to administratively amend your Operating Permit only the approval signature above is required.

Failure to have the Responsible Official sign below will not delay the Approval Order, but will require submittal of a separate Operating Permit Application to revise the Title V permit in accordance with R307-415-5a through 5e and R307-415-7a through 7i. A guidance document: *Title V Operating Permit Application Due Dates* clarifies the required due dates for Title V operating permit applications and can be viewed at:

https://deq.utah.gov/air-quality/permitting-guidance-and-guidelines-air-quality

"Based on information and belief formed after reasonable inquiry, I certify that the statements and information provided for this Approval Order are true, accurate and complete and request that this Approval Order be considered as an application to administratively amend the Operating Permit."

Responsible Official _____
(Signature & Date)

Print Name of Responsible Official _____

UTAH DIVISION OF AIR QUALITY
ENGINEER REVIEW

SOURCE INFORMATION

Project Number	N103030035
Owner Name	Ash Grove Cement Company
Mailing Address	P.O. Box 38069 Leamington, UT, 84638
Source Name	Ash Grove Cement Company- Leamington Cement Plant
Source Location	Hwy 132 Leamington, UT 84638
UTM Projection	397000 m Easting, 4380100 m Northing
UTM Datum	NAD83
UTM Zone	UTM Zone 12
SIC Code	3241 (Cement, Hydraulic)
Source Contact	Cody Watkins
Phone Number	(385) 225-0615
Email	cody.watkins@ashgrove.com
Billing Contact	Cody Watkins
Phone Number	385.225.0615
Email	cody.watkins@ashgrove.com
Project Engineer	John Jenks, Engineer
Phone Number	(385) 306-6510
Email	jjenks@utah.gov
Notice of Intent (NOI) Submitted	May 21, 2024
Date of Accepted Application	August 28, 2024

SOURCE DESCRIPTION

General Description
Ash Grove Cement Company (Ash Grove) operates the Leamington cement manufacturing plant in Millard 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 for emissions of $PM_{2.5}$, PM_{10}, NO_x, SO_2, CO, HAPs and GHG.

NSR Classification:
Minor Modification at Major Source

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
NSPS (Part 60), IIII: Standards of Performance for Stationary Compression Ignition Internal Combustion Engines
NSPS (Part 60), JJJJ: Standards of Performance for Stationary Spark Ignition Internal Combustion Engines
MACT (Part 63), A: General Provisions
MACT (Part 63), LLL: National Emission Standards for Hazardous Air Pollutants From the Portland Cement Manufacturing Industry
MACT (Part 63), ZZZZ: National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines
Title V (Part 70) Major Source

Project Proposal
Modification of Approval Order DAQE-AN103030033-24 to Increase Alternative Fuel Allowances

Project Description
Ash Grove submitted two separate requests to increase the potential use of alternative fuels. Tire derived fuel (TDF) is currently limited to 15% of total energy supplied to the kiln. As part of Ash Grove's tire recycling efforts they have requested this value be increased to 25% of total energy input. Ash Grove has also requested the possible use of process engineered fuel (PEF) be increased. PEF is currently approved as a coal additive. UDAQ has reviewed the requests and opted to grant TDF and PEF the same fuel use as any other listed approved fuel (see condition II.B.4.a). There will be no change in emissions as a result of this change.

EMISSION IMPACT ANALYSIS

No modeling is required as no change in emissions is taking place. [Last updated September 11, 2024]

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	0	13045.00
Lead Compounds	0	0.04
Nitrogen Dioxide	0	1351.44
Particulate Matter - PM_{10}	0	236.36
Particulate Matter - $PM_{2.5}$	0	230.74
Sulfur Dioxide	0	192.40
Volatile Organic Compounds	0	59.38

Hazardous Air Pollutant	Change (lbs/yr)	Total (lbs/yr)
Benzene (Including Benzene From Gasoline) (CAS #71432)	0	1500
Beryllium (TSP) (CAS #7440417)	0	1
Chromium Compounds (CAS #CMJ500)	0	135
Dioxin/Furan Toxic Equivalents: 2,3,7,8-Tetrachlorodibenzo-P-Dioxin (CAS #1746016)	0	2
Formaldehyde (CAS #50000)	0	18755
Hydrochloric Acid (Hydrogen Chloride) (CAS #7647010)	0	41640
Lead Compounds (CAS #LCT000)	0	72
Mercury (TSP) (CAS #7439976)	0	53
Naphthalene (CAS #91203)	0	1600
Selenium (TSP) (CAS #7782492)	0	200
	Change (TPY)	**Total (TPY)**
Total HAPs	0	31.98

Note: Change in emissions indicates the difference between previous AO and proposed modification.

Review of BACT for New/Modified Emission Units

1. **BACT review regarding no review of BACT required**

This project addresses the use of two previously approved fuels TDF has been approved as a specifically listed fuel in Ash Grove's existing AO. PEF was previously approved as a coal additive as allowed under condition II.B.4.b. Ash Grove has requested that both alternative fuels be approved for use at 25% of total heat input to the kiln and pre-calciner. This change does not require any physical changes to the plant. Total emissions will not increase above currently allowed levels. No review of BACT is required. [Last updated September 11, 2024]

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. **(New or Modified conditions are indicated as "New" in the Outline Label):**

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 two-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]

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. **(New or Modified conditions are indicated as "New" in the Outline Label):**

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 (new) Area: 0.25 acre Annual throughput 8,000 tpy
II.A.4	**211.BF1: 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 and with water sprays on the feed hopper. (pre-1983)
II.A.5	**211.BF2: 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 1,500 acfm total airflow, 216 ft2 total filter area & water sprays. (pre-1983)
II.A.6	**Material Handling** Conveyor belt systems, secondary feeders and screens, stacker system
II.A.7	**Portable Crusher** Portable unit, not a stationary source, no unit specific requirements
II.A.8	**311.BC1: Belt Conveyor Transfer Baghouse** Located prior to raw materials processing, this baghouse (141 ft2 filter area; 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	**315.SX1 thru 4: 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 - 1,689 ft2 filter area; 9,865 acfm total air flow controlling particulates from stack C125 (raw storage) .

II.A.10	**315.BF2: Fifth Component Silo** Raw materials are stored in a silo. This silo is equipped with a BHA, pulse jet baghouse - 844 ft2 filter area; 3,500 acfm total air flow.
II.A.11	**316.BF1 thru 5: Raw Mill Recirculation** Larger particles are removed from the raw mill, recirculated, and re-introduced 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	**316.BF6: Cross-Belt Analyzer** Used for quality control. Emissions are controlled by a 1,400 acfm baghouse.
II.A.13	**317.BF3: 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 baghouse 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, 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 ft2 filter area; air flow ranging from 360,000 to 435,000 acfm controlling particulates from stack D38 (raw mill/kiln stack 317.BF3)
II.A.16	**411.BF1 and 2: 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 - 1,351 ft2 filter area; 7,160 acfm total air flow.
II.A.17	**412.BF1 and 2: 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 - 676 ft2 filter area; 2,800 acfm total air flow through stack E34.
II.A.18	**414.BF1: Kiln Feed Alleviator** A pulse jet baghouse - 1,144 ft2 filter area; 1,672 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	**41B.BF1: 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 - 1,508 ft2 filter area; 1,700 acfm total air flow.
II.A.20	**41B.BF2: 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, 19,500 acfm rated airflow with 3.75:1 A/C ratio baghouse.
II.A.21	**419.BF1: Clinker Cooler and Baghouse** 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 Fuller, plenum pulse baghouse - 32,426 ft2 filter area; 202,414 acfm total air flow on the clinker cooler stack (F31). A PM CPMS is installed.
II.A.22	**419.BF8 and 419.BF10: Clinker Belt Transfer** Clinker is removed from the clinker cooler by drag chains and dropped onto one of two clinker conveyor belts. Particulates from outside the clinker belt are controlled by one Fuller, plenum pulse baghouse - 1,351 ft2 filter area; 4,700 acfm total air flow. The conveyor and transfer points are controlled by a second, similar baghouse - 1,351 ft2 filter area; 6,500 acfm total air flow through stack F73.
II.A.23	**419.BF9: 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 baghouse.
II.A.24	**419.BF9: East Clinker Belt** Clinker from the clinker cooler is transferred into the East clinker silo by conveyor belt. The discharge from the belt is controlled by a baghouse.
II.A.25	**419.BF9: West Clinker Belt** Clinker from the clinker cooler is transferred into the West clinker silo by conveyor belt. The discharge from the belt is controlled by a baghouse.
II.A.26	**419.BF9 - Pulse Jet Baghouse** One General Electric, pulse jet baghouse - 11,880 acfm total air flow controlling particulates from east and west clinker storage silos and from the out of specification silo
II.A.27	**511.BF1: 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 (1,800 acfm) that discharges into the clinker tunnel.
II.A.28	**511.BF2: 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 (1,800 acfm) that discharges into the clinker tunnel.

II.A.29	**511.BF3: Clinker Reclaim Hopper** Imported clinker is fed to the clinker tunnel conveyor belt by the outside clinker hopper. Emissions during transfer of clinker to the conveyor are controlled by a BHA baghouse (1,800 acfm) that discharges into the clinker tunnel.
II.A.30	**511.BF4: Gypsum Silo Discharge** Gypsum is fed to the clinker tunnel conveyor belt from the gypsum storage silo. Emissions during transfer of gypsum to the conveyor are controlled by a BHA baghouse (1,800 acfm) that discharges into the clinker tunnel.
II.A.31	**511.BF1 thru 4: Clinker Tunnel Exitway** The clinker reclaim hopper baghouse (511.BF3), east clinker silo discharge baghouse (511.BF1), west clinker silo discharge baghouse (511.BF2), and gypsum silo discharge baghouse (511.BF4) all discharge in the clinker tunnel. Emissions are discharged through the tunnel exitway.
II.A.32	**512.SX1: Gypsum Silo** Gypsum is stored in the gypsum storage silo. A Unifilter 1,500 acfm total airflow, 1,508 ft2 total filter area baghouse is installed on the gypsum storage silo to control dust during loading.
II.A.33	**512.BF2 and 3: Limestone Silo & Belt** Limestone is stored in the limestone storage silo and transferred to the finish mill by conveyor belt. Emissions from the silo and conveyor are controlled by two BHA baghouses. 512.BF2 (1800 acfm) discharges in the clinker tunnel. 512.BF3 (1,000 acfm) is located on top of the silo.
II.A.34	**514.BF2: Finish Mill (Ball Mill)** The finish mill grinds clinker and gypsum to produce finished cement product. Dust generated during milling is captured by a BHA, pulse jet baghouse - 6,080 ft2 filter area; 32,000 acfm total air flow controlling particulates from stack G105 (finish grinding stack).
II.A.35	**514.BF1: Finish 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 - 4,053 ft2 filter area; 20,000 acfm total air flow controlling particulates from stack G55 (finish mill stack).
II.A.36	**611.BF1: 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 - 1,351 ft2 filter area; 8,000 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.37	**611.BF3: 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 - with 676 ft2 filter area; 2,800 acfm air flow during unloading from the silos for rail shipping.

II.A.38	**611.BF2, 611.BF4, 611.BF5: 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 - 676 ft2 filter area; 2,800 acfm air flow (611.BF2) during unloading from the silos for truck shipping. Two pulse jet baghouses (611.BF4, 611.BF5; both 2,825 acfm and 682 ft2 filter area) control emissions from the cement conveyor fluidslides and truck loading chutes.
II.A.39	**MHO: Materials Handling Operation** Includes the following emission units: 315.SX1 thru 4; 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.SX1; 611.BF1 thru 5; 512.BF2 & 3; 413.BF1.
II.A.40	**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.41	**GEN: Emergency Generators** One diesel-fired emergency generator Rating: 762 hp (Kiln, Tier 3, permitted 2022) Two natural gas-fired emergency generators (new) Rating: 304 hp (Main office and control room, installed 2023) One diesel-fired emergency generator (new) Rating: 762 hp (Shipping, installed 2023).
II.A.42	**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 (317.BE1), pneumatic air slide (317.AS12), alkali silo (413.BN1), pug mill (413.MZ1), pug mill loadout (wetted material), fringe bin (Finish Mill) (514.BN1), 14 inch knife gate (317.GA2), 8 inch knife gate (317.GA4), 8 inch air slides (317.AS21, 317.AS22, 317.AS23), surge bin (317.BN1), pneumatic blower system (413.BL2).
II.A.43	**Dust shuttle sys continued** Emissions from the dust shuttle system 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.44	**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. **(New or Modified conditions are indicated as "New" in the Outline Label):**

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 - 962,265 tons per rolling 12-month period B. Used oil consumption - 85,724 gallons per rolling 12-month period C. Limestone bypass material processed - 150,000 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: 13,045 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 1,347.2 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 THC: 24 ppmvd (corrected to 7% O_2) Source: Clinker Cooler Stack (F31) PM: 0.07 lbs filterable PM per ton of clinker. [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 NEW	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 — *** — ++ 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. ++ Compliance with the limits shall be demonstrated through use of a continuous emissions

	monitoring system as outlined in Condition II.B.3.a. The PM_{10} initial performance test shall be performed in accordance with 40 CFR 63.1349 and compliance shall be demonstrated 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 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 be performed using Method 5 or 5I and consist of three (3) one-hr tests. [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.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. All crushers - 15% opacity B. All screens - 10% opacity C. Conveyor transfer points - 10% opacity D. All stacking conveyors - 10% opacity E. Bins and trap feeder - 10% opacity F. All diesel engines - 20% opacity G. All support equipment - 20% opacity H. All baghouses - 10% opacity I. Fugitive dust - 20% opacity J. All other points, except for blasting - 20% opacity. [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 (6) 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.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.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 1/raw mill stack and clinker cooler. The owner/ operator shall record the output of the system: including the quantity of NO_x and CO emissions at the kiln stack. 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. 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. The monitoring system shall comply with all applicable sections of R307-170, UAC; and 40 CFR 60, Appendix B. A Total Hydrocarbons (THC) and Oxygen (O_2) CEMs shall be installed on Kiln 1. A mercury (Hg) CEM or integrated sorbent trap monitoring system shall be installed on Kiln 1. A HCl CEM shall be installed on Kiln 1. 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 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 NEW	Prior to burning any proposed coal additive, the owner/operator shall obtain approval from the Director. To obtain approval, the owner/operator shall submit Material Safety Data Sheets (MSDS) 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 100ºF. 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 1500ºF 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]

PERMIT HISTORY

When issued, the approval order shall supersede (if a modification) or will be based on the following documents:

Is Derived From	Source Submitted NOI dated February 4, 2024
Incorporates	Additional Information Received dated May 21, 2024
Supersedes	DAQE-AN103030033-24 dated March 21, 2024

REVIEWER COMMENTS

1. **Comment regarding project related AO changes:**
   The only change in conditions from this project is the inclusion of PEF as a specifically listed fuel in condition II.B.4.a. Subparagraph J has been renumbered as K. The text of that subparagraph has also been updated - removing the restriction on TDF. This allows for all listed fuels to be used as desired. Coal additives are still specifically limited by conditions II.B.4.b, b.1 and b.2. [Last updated September 11, 2024]

2. **Comment regarding no emission changes:**
   There is no change in emissions from this project. Potential emissions are based on total hours of kiln operation and specific emission factors listed in II.B.1.e. These emission factors are verified by stack tests and CEM. The emission factors are not changing as a result of this project. [Last updated September 11, 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 EPA 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 - 40 CFR 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 UDAQ use
EPA	Environmental Protection Agency
FDCP	Fugitive dust control plan
GHG	Greenhouse Gas(es) - 40 CFR 52.21 (b)(49)(i)
GWP	Global Warming Potential - 40 CFR Part 86.1818-12(a)
HAP or HAPs	Hazardous air pollutant(s)
ITA	Intent to Approve
LB/HR	Pounds per hour
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

John Jenks <jjenks@utah.gov>

Ash Grove PEF increase

1 message

Cody Watkins <cody.watkins@ashgrove.com> Tue, May 21, 2024 at 9:33 AM
To: John Jenks <jjenks@utah.gov>

John,

I hope all is going well. Last year the Leamington Plant received an approval for Process Engineered Fuel (PEF) of 15% of total daily heat input. In the letter it states we need the Director's approval to increase that to 25%.

I have attached the approval letter for review and use.

What do we need to do to get approved for 25%?

Thank you,

Cody Watkins

Ash Grove Cement Company

A CRH Company

Environmental Manager

Leamington Plant, UT

Office: (435)857-1283

Cell: (385)225-0615

2023 03 20 LE PEF Approval DAQE-GN103030031-23.pdf
190K

John Jenks <jjenks@utah.gov>

RE: Leamington TDF

1 message

Cody Watkins <cody.watkins@ashgrove.com> Thu, Apr 11, 2024 at 8:51 AM
To: John Jenks <jjenks@utah.gov>
Cc: Jeff Briggs <jeff.briggs@ashgrove.com>

John,

Good morning. Have you been able to look into this or have an update on how this process works?

Thank you,

Cody Watkins

Ash Grove Cement Company

A CRH Company

Environmental Manager

Leamington Plant, UT

Office: (435)857-1283

Cell: (385)225-0615

From: Cody Watkins
Sent: Monday, February 5, 2024 1:14 PM
To: John Jenks <jjenks@utah.gov>
Cc: Jeff Briggs <jeff.briggs@ashgrove.com>
Subject: Leamington TDF

John,

I hope all is going well. The Leamington Plant is permitted to use Tire Derived Fuel (TDF) as an alternative fuel in the kiln and pre-calciner in Section II.B.4.b in our Title V. We are currently permitted to burn TDF up to 15% of the total daily heat input of the kiln and pre-calciner. The plant is interested obtaining approval from the Director to burn up to 25% of the total daily heat input of the kiln and pre-calciner. We are currently listed as a Waste Tire Recycler though the state of Utah to burn these tires and we would like to utilize the recycling efforts to burn more tires. What information do we need to provide to work towards getting the 25% approved by the Director?

Thank you,

Cody Watkins

Ash Grove Cement Company

A CRH Company

Environmental Manager

Leamington Plant, UT

Office: (435)857-1283

Cell: (385)225-0615

State of Utah

SPENCER J. COX
Governor

DEIDRE HENDERSON
Lieutenant Governor

Department of
Environmental Quality

Kimberly D. Shelley
Executive Director

DIVISION OF AIR QUALITY
Bryce C. Bird
Director

DAQE-GN103030031-23

March 20, 2023

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

Dear Mr. Pederson:

RE: Use of Processed Engineered Fuel as a Coal Additive
Project Number: N103030031

The Division of Air Quality (DAQ) has reviewed your request of November 22, 2022, requesting the use of processed engineered fuel as a coal additive at your Leamington Cement Plant.

The use of alternative fuels as a coal additive is outlined in conditions II.B.4.a, II.B.4.b and II.B.4.b.1 of Ash Grove's Approval Order (DAQE-AN103030030-22). Ash Grove has submitted information pursuant to the test results listed in condition II.B.4.b. DAQ agrees that the proposed fuel meets the definition of a coal additive. The average quantity of processed engineered fuel burned shall not be greater than 15% of the total daily heat input of the kiln and precalciner. Ash Grove 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. No Approval Order change is required. There will be no change in emission quality or quantity as a result of this change.

The charge for the review done in making this change is a flat fee plus a filing fee as authorized by the Utah Legislature. You will receive an invoice for these charges shortly. If you have any questions, please contact John Jenks who can be reached at (385) 306-6510 or jjenks@utah.gov.

Sincerely,

Jon L Black
Jon Black (Mar 20, 2023 09:47 MDT)

Jon L. Black, Manager
New Source Review Section

JLB:JJ:jg