Montana Department of
ENVIRONMENTAL QUALITY
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PRELIMINARY DETERMINATION
ON PERMIT APPLICATION

Date of Mailing: June 13, 2014

Name of Applicant: Ash Grove Cement Company

Source: Montana City Cement Plant

Proposed Action: The Department of Environmental Quality (Department) proposes to issue a permit, with conditions, to the above-named applicant. The application was assigned Permit Application Number 2005-10.

Proposed Conditions: See attached.

Public Comment: Any member of the public desiring to comment must submit such comments in writing to the Air Resources Management Bureau (Bureau) of the Department at the above address on the letterhead. Comments may address the Department's analysis and determination, or the information submitted in the application. In order to be considered, comments on this Preliminary Determination are due by July 14, 2014. Copies of the application and the Department's analysis may be inspected at the Bureau's office in Helena. For more information, you may contact the Department.

Departmental Action: The Department intends to make a decision on the application after expiration of the Public Comment period described above. A copy of the decision may be obtained at the above address. The permit shall become final on the date stated in the Department's Decision on this permit.

Procedures for Appeal: Any person directly and adversely affected by the Department's decision may request a hearing before the Montana Board of Environmental Review (Board) by filing such a request with the Board at the following address within 15 days after the Department issues the decision: Secretary, Board of Environmental Review, P.O. Box 200901, Helena, Montana 59620-0901 If a request for hearing is filed, an affidavit setting forth the grounds for the request must be filed with the Board at the same address within 30 days after the Department renders its decision. Any hearing will be held under the contested cases provisions of the Montana Administrative Procedure Act.

For the Department,

Julie A. Merkel
Air Permitting Section Supervisor
Air Resources Management Bureau
(406) 444-3626

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JM:CH
Enclosures

MONTANA AIR QUALITY PERMIT

Issued To: Ash Grove Cement Company
100 Highway 518
Clancy, MT 59634

MAQP: #2005-10
Application Complete: May 19, 2014
Preliminary Determination Issued: June 13, 2014
Department's Decision Issued:
Permit Final:
AFS #: 30-043-0001

A Montana Air Quality Permit (MAQP), with conditions, is hereby granted to Ash Grove Cement Company (Ash Grove), pursuant to Sections 75-2-204 and 211 of the Montana Code Annotated (MCA), as amended, and Administrative Rules of Montana (ARM) 17.8.740, *et seq*., as amended, for the following:

Section I: Permitted Facilities

A. Plant Location

The plant's legal location is Sections 12 and 13, Township 9 North, Range 3 West in Jefferson County. The old quarry and silos are located in Sections 7 and 18 of Township 9 North, Range 2 West in Jefferson County. The quarry is located in Sections 9, 10, 15, and 16 of Township 9 North, Range 3 West, in Jefferson County.

B. Current Permit Action

On December 16, 2013, the Department of Environmental Quality (Department) received a request from Ash Grove for a modification to MAQP #2005-09. Ash Grove requested a production increase to the existing facility, achieved through modernization of the existing plant including a conversion from a "wet" process to a "dry" process for the manufacture of Portland cement. Additional information was received after December 16, 2013, up until May 19, 2014, at which time the Department determined the application "complete". Throughout this permit, the project is referred to as the "Modernization Project". Conditions in force prior to the Modernization Project completion are referred to as "Pre-Modernization Completion". The permit action includes information submitted to process the MAQP application for both New Source Review and Prevention of S4ignificant Deterioration (PSD) requirements. This draft permit action includes language from the consent decree in *United States v. Ash Grove Cement Co.*, Case No. 2:13-cv-02299-JTM-DJW (D. Kan. 2013) (Consent Decree) and also includes requirements that would be required upon start-up of the Modernization Project. Additionally, the Regional Haze Federal Implementation Plan (FIP) (40 CFR 52.1396), the Portland Cement (PC) MACT, 40 CFR 63 Subpart LLL and New Source Performance Standard, 40 CFR 60 Subpart F requirements are also included in the draft permit, where applicable.

Section II: Conditions and Limitations Pre-Modernization Completion

A. Plant Wide Emission Limitations Effective until Modernization Project Startup

1. Ash Grove shall operate and maintain all emission control equipment as specified in its application for its MAQP and all subsequent revisions (ARM 17.8.749).

2. Ash Grove may not cause or authorize emissions to be discharged into the outdoor atmosphere from any source installed on or before November 23, 1968, that exhibit an opacity of 40% or greater averaged over a 6-minute period (ARM 17.8.304).

3. Ash Grove may not cause or authorize emissions to be discharged into the outdoor atmosphere from any source installed after November 23, 1968, that exhibit an opacity of 20% or greater averaged over a 6-minute period (ARM 17.8.304).

4. Ash Grove may not cause or authorize the use of any street, road, or parking lot without taking reasonable precautions to control emissions of airborne particulate matter (ARM 17.8.308).

5. Ash Grove shall treat all unpaved portions of the haul roads, access roads, parking lots, or the general plant area with water and/or chemical dust suppressant as necessary to maintain compliance with the reasonable precautions limitation (ARM 17.8.752).

6. Particulate matter (PM) emissions from the dust collection systems DA-1, DA-9 (East and West), DA-19, and DA-20 shall each be limited to 0.02 grains per dry standard cubic foot (gr/dscf) (ARM 17.8.752).

7. The amount of post-consumer recycled glass used by Ash Grove in the cement kiln shall be limited to 250 tons during any rolling 12-month period (ARM 17.8.752).

8. Ash Grove may not cause or authorize to be discharged into the atmosphere from the cement kiln, including during startup and shutdown, any stack emissions that:

   a. Contain filterable PM in excess of the amount allowed by the following equations (ARM 17.8.752 and Regional Haze FIP 40 CFR 52.1396).

      i. If the process weight rate of the kiln is less than or equal to 30 tons per hour, then the emission limit shall be calculated using the following equation:

$$E = 4.10P^{0.67}$$

      ii. If the process weight rate of the kiln is greater than 30 tons per hour, then the emission limit shall be calculated using the following equation:

$$E = 55.0P^{0.11}-40$$

      where E = rate of emissions in pounds per hour and
      P = process weight rate in tons per hour

9. Ash Grove shall install, operate, and maintain a baghouse to control emissions from the high efficiency air separator (ARM 17.8.752).

10. Ash Grove may not cause or authorize to be discharged into the atmosphere from the high efficiency air separator baghouse stack:

    a. PM in excess of 0.01 grains per dry standard cubic foot (gr/dscf) (ARM 17.8.752) and

    b. Visible emissions that exhibit an opacity of 10% or greater (ARM 17.8.340 and 40 CFR 60 Subpart F).

11. Ash Grove shall comply with all applicable standards and limitations, and the reporting, recordkeeping, and notification requirements of 40 CFR 60 Subpart F as it applies to Bucket Elevator 6 (BE-6), Belt Conveyor 0 (BC-0), the High Efficiency Air Separator, and any other affected facility to which Subpart F is applicable (ARM 17.8.340 and 40 CFR 60 Subpart F).

12. Ash Grove may not cause or authorize to be discharged into the atmosphere, from each portable generator stack:

    a. Oxides of Nitrogen (NO_x) in excess of 42.2 pounds per hour (lb/hr) (ARM 17.8.752);

    b. Carbon Monoxide (CO) in excess of 0.61 lb/hr (ARM 17.8.752); and

    c. Visible emissions that exhibit an opacity of 20% or greater averaged over 6 consecutive minutes (ARM 17.8.304).

PC MACT Requirements (40 CFR 63 Subpart LLL)

Clinker Production Rates

13. Ash Grove shall record the daily clinker production rates in accordance with the requirements found at 40 CFR 60.63(b) (ARM 17.8.340 and ARM 17.8.749).

PM Limits Existing Kiln

14. Ash Grove may not exceed a PM emission rate of 0.07 lb/ton of clinker produced from the kiln stack by September 9, 2015, excluding startup and shutdown periods based on an annual Method 5 stack performance test and a PM continuous parametric monitoring system (PM CPMS). Condensable particulate matter is not included in Method 5 reporting. For all reporting under 40 CFR 63 Subpart LLL, *Startup* means the period starting when a shut down kiln first begins firing fuel and ending when it begins producing clinker. Startup "begins" when a shut down kiln turns on the induced draft fan and begins firing fuel in the main burner. Startup "ends" when feed is being continuously introduced into the kiln for at least 120 minutes or when the feed rate exceeds 60 percent of the kiln design limitation rate, whichever occurs first (40 CFR 63 Subpart LLL, ARM 17.8.342 and ARM 17.8.749).

Mercury Limits Existing Kiln

15. Ash Grove may not exceed emissions of 55 lbs of mercury per million tons of clinker from the main kiln stack averaged over 30 days of continuous monitoring excluding hours of operation of startup and shutdown (40 CFR 63 Subpart LLL, ARM 17.8.342 and ARM 17.8.749).

Total Hydrocarbons (THC) Limits Existing Kiln

16. Ash Grove may not exceed emissions of 24 parts per million by volume (ppmv) THC (measured as propane and corrected to 7% oxygen) from the main kiln stack averaged over 30 days of continuous monitoring excluding hours of operation of startup and shutdown (40 CFR 63 Subpart LLL, ARM 17.8.342 and ARM 17.8.749).

17. As an alternative to the THC Limit in Section II.A.16, Ash Grove may comply with a 12 ppmv organic air toxic limit from the main kiln stack excluding hours of operation of startup and shutdown (40 CFR 63 Subpart LLL, ARM 17.8.342 and ARM 17.8.749).

PM Limits Existing Clinker Cooler

18. Ash Grove may not exceed a PM emission rate of 0.07 lb/ton of clinker produced from the clinker cooler stack by September 9, 2015, excluding startup and shutdown periods of operation based on an annual Method 5 stack performance test and a PM CPMS. Condensable particulate matter is not included in Method 5 reporting (40 CFR 63 Subpart LLL, ARM 17.8.342 and ARM 17.8.749).

Mercury Limits Existing Clinker Cooler

19. Ash Grove may not exceed emissions of 55 lbs of mercury per million tons of clinker from the clinker cooler stack averaged over 30 days of continuous monitoring excluding hours of operation of startup and shutdown (40 CFR 63 Subpart LLL, ARM 17.8.342 and ARM 17.8.749).

THC Limits Existing Clinker Cooler

20. Ash Grove may not exceed emissions of 24 ppmv THC (measured as propane and corrected to 7% oxygen) from the clinker cooler stack averaged over 30 days continuous monitoring excluding hours of operation of startup and shutdown (40 CFR 63 Subpart LLL, ARM 17.8.342 and ARM 17.8.749).

21. As an alternative to the THC Limit in Section II.A.20, Ash Grove may comply with a 12 ppmv organic air toxic limit from the clinker cooler stack excluding hours of operation of startup and shutdown (40 CFR 63 Subpart LLL, ARM 17.8.342 and ARM 17.8.749).

Dioxin/Furans Existing Kiln

22. Ash Grove may not cause to be discharged into the atmosphere from the kiln, excluding hours of operation during startup and shutdown, any gases that contain dioxins and furans in excess of:

    a. 0.20 nanograms per dry standard cubic meter (ng per dscm) ($8.7x10^{-11}$ gr/dscf) Toxic Equivalent (TEQ) corrected to 7% oxygen; or

    b. 0.40 ng per dscm ($1.7x10^{-10}$ gr/dscf) (TEQ) corrected to 7% oxygen, when the average of the performance test run average temperatures at the inlet to the particulate matter control device is 204° C (400° F) or less (40 CFR 63 Subpart LLL, ARM 17.8.342 and ARM 17.8.749).

Work Practices

23. Ash Grove shall utilize "work practices" for the existing kiln, existing clinker cooler and existing dryers as identified in 40 CFR 63.1346(f) and 40 CFR 63.1348(b)(9) (40 CFR 63 Subpart LLL, ARM 17.8.342 and ARM 17.8.749).

All Other Applicable Requirements from 40 CFR 63 Subpart LLL

24. Ash Grove shall meet all applicable requirements of 40 CFR 63 Subpart LLL not specifically highlighted within this permit (ARM 17.8.749 and ARM 17.8.342).

Additional Regional Haze Requirements 40 CFR 52.1396

25. Ash Grove may not exceed a sulfur dioxide (SO_2) emission rate of 11.5 lb/ton of clinker no later than April 17, 2013 (180 days following October 18, 2012). Ash Grove shall limit SO_2 emissions from the kiln during startup, shutdown, malfunction and normal operation to 11.5 lb/ton of clinker produced based on a 30-day rolling average unless Ash Grove is unable to meet the limit with existing control equipment and then the compliance date is extended to October 18, 2017. An SO_2 Continuous Emission Monitoring system (CEMs) shall be maintained, calibrated and operated at all times to demonstrate compliance with the emission limit (Regional Haze FIP 40 CFR 52.1396 and ARM 17.8.749).

26. Ash Grove may not exceed a NO_x emission rate of 8.0 lb/ton of clinker no later than April 17, 2013 (180 days following October 18, 2012). Ash Grove shall limit NO_x emissions from the kiln during startup, shutdown, malfunction and normal operation to 8.0 lb/ton of clinker produced based on a 30-day rolling average unless Ash Grove is unable to meet the limit with existing control equipment and then the compliance date is extended to October 18, 2017. Ash Grove shall maintain, calibrate and operate a NO_x CEMs at all times to demonstrate compliance with the emission limit (Regional Haze FIP 40 CFR 52.1396 and ARM 17.8.749).

27. Ash Grove shall meet all applicable Regional Haze Requirements not specifically highlighted in this permit (ARM 17.8.749)

B. Interim – Existing Kiln Emission Limits From *United States v. Ash Grove Cement Co.*, Case No. 2:13-cv-02299-JTM-DJW (D. Kan. 2013) (Consent Decree)

1. By September 10, 2014, Ash Grove shall install and operate baghouse control technology on the kiln exhaust and may not exceed a PM emission rate of 0.07 lb/ton of clinker based on a 30-day rolling average from the kiln during startup, shutdown, malfunction, and normal operation (Consent Decree and ARM 17.8.749)

2. Ash Grove 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 0.07 lb/ton of clinker limit. Ash Grove shall conduct the performance test using EPA Method 5 or Method 5I at appendix A-3 of 40 CFR Part 60. Compliance demonstration shall be an initial test and within 365 days thereafter (Consent Decree and ARM 17.8.749).

3. Ash Grove shall install and operate by September 10, 2014, selective non-catalytic reduction (SNCR) control technology, and demonstrate compliance with the 8.0 lb/ton of clinker limit beginning by the 30th operating day after 9/10/2014 (Consent Decree and ARM 17.8.749).

4. If Ash Grove provides notice that it intends to replace the existing Montana City Kiln 1 with a replacement kiln (Replacement Kiln), Ash Grove shall continue to comply with the Demonstration Phase 30-Day Rolling average emission limit for NOx and continuously operate the SNCR until it retires the existing Montana City Kiln 1 (Consent Decree and ARM 17.8.749).

5. By September 10, 2014, Ash Grove shall install and operate Semi-Dry Scrubbing control technology and shall demonstrate compliance with an SO2 emission limit of 2.0 lb/ton of clinker by the 210th operating day after September 10, 2014, (Consent Decree and ARM 17.8.749).

6. Ash Grove shall meet all other Consent Decree requirements not specifically highlighted within this permit (ARM 17.8.749).

C. Testing Requirements – Pre-Modernization Project Completion

1. Ash Grove shall demonstrate compliance with the opacity limit in Section II.A.10 for the high efficiency air separator within 180 days after installation of the separator. Ash Grove shall conduct additional visible emission observations as requested by the Department thereafter (ARM 17.8.105, ARM 17.8.106 and ARM 17.8.340).

2. PM Testing Requirements on Kiln Stack. Ash Grove shall monitor the kiln stack emissions to demonstrate compliance with PM limits in Section II.A.14 as follows: (a) by September 9, 2015, and annually thereafter, conduct a Method 5 (or equivalent as approved by the Department) performance stack test; and (b) by September 9, 2015, operate a PM continuous parametric monitoring system (CPMS). The test methods and procedures shall be

conducted in accordance with the Montana Source Test Protocol and Procedures Manual. Condensable particulate matter is not included in Method 5 reporting (ARM 17.8.105, ARM 17.8.106, ARM 17.8.749 and 40 CFR 63 Subpart LLL).

3. PM Testing Requirements on Kiln Stack. Before October 10, 2014, Ash Grove shall test the kiln stack exhaust emissions for PM compliance with Sections II.A.8 and II.B.1 by conducting an initial and then annual Method 5 performance stack tests. The test methods and procedures shall be conducted in accordance with the Montana Source Test Protocol and Procedures Manual with the following exceptions: a test shall consist of three runs with each run lasting at least 120 minutes in duration and each run collecting a minimum sample volume of 60 dry standard cubic feet (Regional Haze FIP 40 CFR 52.1396, ARM 17.8.105 and ARM 17.8.106).

4. Ash Grove shall monitor the clinker cooler stack emissions to demonstrate compliance with the PM limit of 0.07 lb/ton of clinker in Section II.A.18 as follows: (a) by September 9, 2015, and annually thereafter, conducting a Method 5 (or equivalent) performance stack test; and (b) by September 9, 2015, operating a PM CPMS. Condensable particulate matter is not included in Method 5 reporting (40 CFR 63 Subpart LLL, ARM 17.8.105, ARM 17.8.106, ARM 17.8.749, and ARM 17.8.342).

5. Ash Grove shall test the kiln stack exhaust emissions for SO_2 to demonstrate compliance with the emission limit in Section II.A.25. Testing shall be conducted initially, and then annually, or on another testing/monitoring schedule as approved by the Department (ARM 17.8.105, ARM 17.8.106, ARM 17.8.749 and Regional Haze FIP 40 CFR 52.1396).

6. Ash Grove shall test the kiln stack exhaust emissions for NO_x to demonstrate compliance with the emission limit in Section II.A.26. Testing shall be conducted initially, and then annually, or on another testing/monitoring schedule as approved by the Department (ARM 17.8.105, ARM 17.8.106, ARM 17.8.749 and Regional Haze FIP 40 CFR 52.1396).

7. Mercury Testing Requirements. Ash Grove shall conduct initial testing using Method 23 to demonstrate compliance with the mercury limit in Section II.A.15 and then continue to monitor compliance using a mercury CEMs or sorbent trap monitoring system. The initial compliance test must be based on the first 30 kiln operating days in which the affected source operates using a mercury CEMS or a sorbent trap monitoring system after the compliance date of the rule. (ARM 17.8.105, ARM 17.8.106, ARM 17.8.342, ARM 17.8.749 and 40 CFR 63 Subpart LLL).

8. Ash Grove shall conduct initial testing to demonstrate compliance with the THC limit (measured as propane and corrected to 7% oxygen) in Section II.A.16 and then continue to demonstrate compliance using a THC CEMs (ARM 17.8.105, ARM 17.8.106 and ARM 17.8.749).

9. Ash Grove shall conduct additional testing as required by the Department (ARM 17.8.105).

10. All compliance source tests must be completed in accordance with the Montana Source Test Protocol and Procedures Manual (ARM 17.8.106).

D. Operational Reporting Requirement Pre-Modernization Project Completion

1. Ash Grove shall supply the Department with annual production information for all emission points, as required by the Department in the annual emission inventory request. The request will include, but is not limited to, all sources of emissions identified in the emission inventory contained in the permit analysis.

   Production information shall be gathered on a calendar-year basis and submitted to the Department by the date required in the emission inventory request. Information shall be in the units required by the Department. This information may be used for calculating operating fees, based on actual emissions from the facility, and to verify compliance with permit limitations (ARM 17.8.505).

2. Ash Grove shall notify the Department of any construction or improvement project conducted pursuant to ARM 17.8.745(1) that would include ***the addition of a new emissions unit***, a change in control equipment, stack height, stack diameter, stack flow, stack gas temperature, source location, or fuel specifications, or would result in an increase in source capacity above its permitted operation. The notice must be submitted to the Department, in writing, 10 days prior to start up or use of the proposed de minimis change, or as soon as reasonably practicable in the event of an unanticipated circumstance causing the de minimis change, and must include the information requested in ARM 17.8.745(1) (ARM 17.8.745).

3. Ash Grove shall record the daily clinker production rates in accordance with the requirements found at 40 CFR 60.63(b) (ARM 17.8.340 and ARM 17.8.749).

4. Ash Grove shall calculate and record the 30-operating day rolling emission rates of SO_2 and NO_X lb/ton of clinker produced excluding startup and shutdown periods, as the total of all hourly emissions data for the cement kiln in the preceding 30 days, divided by the total tons of clinker produced in that kiln during the same 30-day operating period, using the following equation:

$$E_D = k \frac{1}{(n)} \sum_{i=1}^{n} \frac{C_i Q_i}{P_i}$$

Where:
ED = 30 kiln operating day average emission rate of NOX or SO2, lb/ton of clinker;
Ci = Concentration of NOx or SO2 for hour i, ppm;

Qi = volumetric flow rate of effluent gas for hour i, where Ci and Qi are on the same basis (either wet or dry), scf/hr;
Pi = total kiln clinker produced during production hour i, ton/hr;
k = conversion factor, 1.194 × 10E-7 for NOX and 1.660 × 10E-7 for SO2; and
n = number of kiln operating hours over 30 kiln operating days, n = 1 to 720

For each kiln operating hour for which Ash Grove does not have at least one valid 15-minute CEMS data value, Ash Grove must use the average emissions rate (lb/hr) from the most recent previous hour for which valid data are available. Hourly clinker production shall be determined by Ash Grove in accordance with the requirements found at 40 CFR 60.63(b) (40 CFR 60.63(b) and ARM 17.8.340).

5. Ash Grove shall calculate and record the 30-operating day rolling emission rates of SO_2 and NO_X lb/ton of clinker produced including startup, shutdown, and malfunctions periods as the total of all hourly emissions data for the cement kiln in the preceding 30 days, divided by the total tons of clinker produced in that kiln during the same 30-day operating period, using the following equation (40 CFR 52.1396):

$$E_D = k \frac{1}{(n)} \sum_{i=1}^{n} \frac{C_i Q_i}{P_i}$$

Where:
ED = 30 kiln operating day average emission rate of NOX or SO2, lb/ton of clinker;
Ci = Concentration of NOx or SO2 for hour i, ppm;
Qi = volumetric flow rate of effluent gas for hour i, where Ci and Qi are on the same basis (either wet or dry), scf/hr;
Pi = total kiln clinker produced during production hour i, ton/hr;
k = conversion factor, 1.194 × 10E-7 for NOX and 1.660 × 10E-7 for SO2; and
n = number of kiln operating hours over 30 kiln operating days, n = 1 to 720

For each kiln operating hour for which Ash Grove does not have at least one valid 15-minute CEMS data value, Ash Grove must use the average emissions rate (lb/hr) from the most recent previous hour for which valid data are available. Hourly clinker production shall be determined by Ash Grove in accordance with the requirements found at 40 CFR 60.63(b) (40 CFR 52.1396 and ARM 17.8.340).

6. Ash Grove shall calculate and record the 30-operating day rolling emission rates of mercury in lb/ton of clinker produced, as the total of all hourly emissions data for the cement kiln in the preceding 30 days, divided by the total tons of clinker produced in that kiln during the same 30-day operating period, or equivalent method if a mercury sorbent trap system is used instead of a mercury CEMs (40 CFR 63 Subpart LLL).

For each kiln operating hour for which Ash Grove does not have at least one valid 15-minute CEMS data value, Ash Grove must use the average emissions rate (lb/hr) from the most recent previous hour for which valid data are available. Hourly clinker production shall be determined by Ash Grove in accordance with the requirements found at 40 CFR 60.63(b) (40 CFR 60.63(b) and ARM 17.8.340).

7. Ash Grove shall calculate and record the 30-operating day rolling emission rates of PM, in lb/ton of clinker produced, as determined using the PM CPMS and all requirements required for the site specific operating limit (SSOL), excluding startup and shutdown periods of hourly emissions data for the cement kiln in the preceding 30 days, divided by the total tons of clinker produced in that kiln during the same startup and shutdown periods for the 30-day operating period.

   At the end of each kiln operating day, Ash Grove shall calculate and record a new 30-day rolling average PM emission in lb/ton of clinker from the arithmetic average of all valid hourly emission rates for the current kiln operating day and the previous 29 successive kiln operating days for each unit (40 CFR 60 Subpart F and 40 CFR 63 Subpart LLL).

8. Ash Grove shall calculate and record the 30-operating day rolling emission rates of PM, in lb/ton of clinker produced, as determined using the PM CPMS and all requirements required for the SSOL, including startup, shutdown, and malfunction periods of hourly emissions data for the cement kiln in the preceding 30 days, divided by the total tons of clinker produced in that kiln during the same startup and shutdown periods for the 30-day operating period.

   At the end of each kiln operating day, Ash Grove shall calculate and record a new 30-day rolling average PM emission in lb/ton clinker from the arithmetic average of all valid hourly emission rates for the current kiln operating day and the previous 29 successive kiln operating days for each unit (40 CFR Part 52.1396 and Consent Decree).

9. Ash Grove shall document, by month, the amount of recycled glass used in the kiln. By the 25th day of each month, Ash Grove shall calculate the amount of recycled glass used in the kiln the prior month. The monthly information will be used to verify compliance with the rolling 12-month limitation in Section II.A.7. The information for each of the previous months shall be submitted along with the annual emission inventory (ARM 17.8.749).

10. The records compiled in accordance with this MAQP shall be maintained by Ash Grove as a permanent business record for at least 5 years following the date of the measurement, shall be submitted to the Department upon request, and shall be available at the plant site for inspection by the Department (ARM 17.8.749).

11. For each continuous monitoring system (CMS) required in this section, Ash Grove must develop, and submit to the Department for approval upon request, a site-specific monitoring plan that addresses the following paragraphs "a" through "c". This site-specific monitoring plan, if requested, must be submitted at least 30 days before the initial performance evaluation of Ash Grove's CMS (ARM 17.8.749).

a. Installation of the CMS sampling probe or other interface at a measurement location relative to each affected process unit such that the measurement is representative of control of the exhaust emissions (e.g., on or downstream of the last control device);

b. Performance and equipment specifications for the sample interface, the pollutant concentration or parametric signal analyzer, and the data collection and reduction systems; and

c. Performance evaluation procedures and acceptance criteria (e.g., calibrations).

12. Ash Grove shall document, by month, the lb/hr amount of carbon dioxide (CO_2) emissions discharged into the atmosphere from the kiln and the lb/hr of clinker produced. Ash Grove shall maintain and operate a CO_2 CEMS monitor. Total CO_2 emissions and total clinker produced shall be calculated from 12:00 midnight to 12:00 midnight on a daily basis and averaged over rolling 12-month time periods (ARM 17.8.749).

Section III: Conditions and Limitations Effective Upon Modernization Startup

A. Baghouse Emission Limits Associated with Modernization Project

The below requirements do not become effective until the start-up of the facility following the modernization project.

1. Ash Grove shall install, operate, and maintain baghouses (or an equivalent emission control technology upon Department approval) on its respective sources as described in the MAQP #2005-10 application (ARM 17.8.752).

Baghouse Emitting Unit	Description	Design Rate SCFM
111BF290	Limestone - Apron Feeder/Crusher Building	14828
121BF110	Limestone - Quarry Pile Loadout VFeeder Bagfilter	2779
121BF120	Limestone - Quarry Pile Loadout VFeeder Bagfilter	2779
121BF130	Limestone - Quarry Pile Loadout VFeeder Bagfilter	2779
121BF140	Limestone Belt 111BC160 to 121BC100	4663
121BF150	Limestone Belt 121BC100 to Over land BC 1	4663
121BF230	Limestone Over Land BC 1 to Over Land BC 2	7043
121BF290	Limestone Over Land BC 2 to Over Land BC 3	7043
121BF330	Limestone Over Land BC 3 to Over Land BC 4	7043
121BF370	Limestone Over Land BC 4 to 121BC400	7043
121BF410	Limestone 121BC400 to 121BC450	7043
121BF430	Limestone 121BC460 to 121BC470	8328
141BF415	Limestone 141BC400 to 141BC450	3709
143BF340	Additive Hopper 143FY325 & 143BC330 to 143BC355	2779
143BF350	Additive 143BC355 to 143BC400	3709

242BF340	Additive Hopper 232FY325 & 232BC330 to 242BC350	2779
242BF320	Additive 242BC350 to 242BC400	5806
232BF110	Additive Hopper 212FY045/FY055 to 232BC100	2779
231BF160	Solid Fuel Hopper 241AF090 to 241BC150	2779
311BF020	Raw Mill Additive Bins	14828
311BF080	Raw Mill Limestone Bins	3709
311BF610	Raw Mill Bins to 311BC600	9921
321BF020	Raw Mill 311BC600 to 321BC010	9921
321BF290	Raw Mill 321BC200 to 321BE220	9921
321BF610	Raw Meal 321AS510 to 341BE050	1944
341BF090	Raw Meal 341BE050 to 341AS060	1944
341BF085	Raw Meal 331VA585 to 341AV080	2593
341BF400	Raw Meal silo South	1944
342BF400	Raw Meal silo North	1944
351BF400	Raw Meal 351BE340 351SA300 351BL100 351AS050	3261
351BF410	Raw Meal 351BE340 to 351AS350	1944
351BF085	Raw Meal 331VA585 to 341AV080	2593
441BF620	Clinker Cooler to 471DB100	5527
451BF610	Other dust 451BE330 to 451BI410 and 451LS495 to Truck	2952
461BF045	Raw Coal/Solid Fuel - 461 BC010 to bins 461BI020 and BI030	9080
461BF050	Raw Coal/Solid Fuel - Bins 461BI020 and BI030 to 461BC080	5634
461BF560	Pulverized Fuel Bin 461BI550	100
461BF660	Pulverized Fuel Bin 461BI650	100
471BF150	Existing Clinker Silo 1 thru 6 Venting	4674
471BF160	Clinker -471BE110 to 471DB210	1845
471BF620	Clinker - 471DB100 to 471BE110	5527
481BF450	Off Std Clinker 471DB240 to Off Standard Clinker Silo	3853
481BF520	Off Std Clinker Silo to 481BW416 , 481LS430 (truck loadout), and 481BW181	5527
481BF610	Clinker Silos to 481BC150, BC160, BC170 to 481BW181	9840
481BF620	Clinker - 481BW181 to 481BC190	3095
511BF070	Cement Mill Feed - 242BC400 to 511BC150 to 511BI200 and 511BI300	9840
531BF020	Clinker - 531BE220 to 531BC010	9840
531BF290	Clinker - 531BC200 to 531BC210 to 531BE220	7532
541BF050	Cement - 541BE100 to 541 AS110	1845
541BF150	Cement - 541 AS110 to 541AS120 to 541BE200	3095
541BF250	Cement - 541BE200 to 611SI100, SI200, SI300, SI400	3095
611BF610	Cement - 611SI100 to Cement Silo	2461
612BF610	Cement - 611SI200 to Cement Silo	2461
613BF610	Cement - 611SI300 to Cement Silo	2461
614BF610	Cement - 611SI400 to Cement Silo	2461
611BF560	Cement - 611AS500 to 611TK550	2472

621BF162	Cement - 611TK550 to Truck	848
621BF142	Cement - 611TK550 to Rail	848
612BF560	Cement - 612AS500 to 612TK550	2472
622BF162	Cement - 612TK550 to Truck	848
622BF142	Cement - 612TK550 to Rail	848
613BF560	Cement - 613AS500 to 613TK550	2472
623BF162	Cement - 613TK550 to Truck	848
623BF142	Cement - 613TK550 to Rail	848
614BF560	Cement - 614AS500 to 614TK550	2472
624BF162	Cement - 614TK550 to Truck	848
624BF142	Cement - 614TK550 to Rail	848
Existing Point Sources		
DA12	Valve House	4300
DA14	South Packer (SLA)	3300
DA17	Silo #13 Bottom (Rail loading)	6000
DA18	Silo #11 Top (Rail loading)	6000
416BF3	Lime Silo	1000
416BF4	Dust Bin	2200
416BF5	Dust Master	125
416BF6	Loadout Spout	1400

2. Ash Grove may not cause or authorize to be discharged into the atmosphere, from any of the baghouses referenced in Section III.A.1 (ARM 17.8.752):

   a. Filterable particulate matter (PM) in excess of 0.0055 gr/dscf (ARM 17.8.752)

   b. Filterable particulate matter (PM_{10}) in excess of 0.005 gr/dscf (ARM 17.8.752)

   c. Filterable particulate matter ($PM_{2.5}$) in excess of 0.004 gr/dscf (ARM 17.8.752)

   d. Visible emissions that exhibit an opacity of 10% or greater (ARM 17.8.340 and 40 CFR 60 Subpart F)

3. Ash Grove shall install, operate, and maintain baghouse 461.BF300 on the In-line Solid Fuel Mill Stack (461.SK395) as described in the MAQP #2005-10 application (ARM 17.8.752).

4. Ash Grove may not cause or authorize to be discharged into the atmosphere, from the In-line Solid Fuel Mill Stack (461.SK395) referenced in Section III.A.3 (ARM 17.8.752):

   a. Filterable PM in excess of 0.008 gr/dscf (ARM 17.8.752)

b. Filterable PM_{10} in excess of 0.006 gr/dscf (ARM 17.8.752)

c. Filterable $PM_{2.5}$ in excess of 0.004 gr/dscf (ARM 17.8.752)

d. Visible emissions that exhibit an opacity of 10% or greater (ARM 17.8.340 and 40 CFR 60 Subpart F).

5. Ash Grove shall install, operate, and maintain baghouse 441.BF550 on the Clinker Cooler as described in the MAQP #2005-10 application (ARM 17.8.752).

6. Ash Grove may not cause or authorize to be discharged into the atmosphere, from the Clinker Cooler Stack (441.SK720) referenced in Section III.A.5 (ARM 17.8.752):

a. Filterable PM in excess of 0.0055 gr/dscf (ARM 17.8.752)
b. Filterable PM_{10} in excess of 0.005 gr/dscf (ARM 17.8.752)
c. Filterable $PM_{2.5}$ in excess of 0.004 gr/dscf (ARM 17.8.752)

7. Ash Grove shall install, operate, and maintain baghouse 331.BF300 and baghouse 451.BF200 prior to the Kiln Stack/Bypass (331.SK410) as described in the MAQP #2005-10 application (ARM 17.8.752).

8. Ash Grove shall install, operate, and maintain baghouse 531.BF500 on the Cement Mill from the Cement Mill Stack (531.SK590) as described in the MAQP #2005-10 application (ARM 17.8.752).

9. Ash Grove may not cause or authorize to be discharged into the atmosphere, from Cement Mill Stack (531.SK590) referenced in Section III.A.8 (ARM 17.8.752):

a. Filterable PM in excess of 0.0055 gr/dscf (ARM 17.8.752)
b. Filterable PM_{10} in excess of 0.005 gr/dscf (ARM 17.8.752)
c. Filterable $PM_{2.5}$ in excess of 0.004 gr/dscf (ARM 17.8.752).

10. Ash Grove may not cause or authorize to be discharged into the atmosphere, from Kiln Stack/Bypass (331.SK410):

a. Particulate matter (PM total including condensable) in excess of 0.14 lb/ ton clinker (ARM 17.8.752)

b. Particulate matter (PM_{10} total including condensable) in excess of 0.11 lb/ ton clinker (ARM 17.8.752)

c. Particulate matter ($PM_{2.5}$ total including condensable) in excess of 0.11 lb/ ton clinker (ARM 17.8.752)

d. Visible emissions that exhibit an opacity of 10% or greater (ARM 17.8.316, ARM 17.8.340 and 40 CFR 60 Subpart F).

B. New Kiln Stack Specific Limits 331.SK410 and 461.SK395 as noted

PM limits noted here apply to "kiln stacks" associated with the kiln including Kiln System stack 331.SK410 and In-line solid fuel mill stack 461.SK395, and the results of the two PM CPMS units must be summed to determine compliance with the limits stated below in "1" thru "4".

Similarly, SO_2, CO, NO_x and mercury results must be summed for the respective pollutants for analyzers on the 331.SK410 and 461.SK395 stacks.

1. Ash Grove may not exceed a PM emission rate of 0.02 lb/ton of clinker. Upon startup of the Replacement Kiln, Ash Grove shall limit total filterable particulate emissions from the kiln stacks (331.SK410 and 461.SK395), excluding startup and shutdown periods, to 0.02 lb/ton of clinker produced based on an annual Method 5 stack performance test and PM CPMS. Condensable particulate matter is not included in Method 5 reporting. For all reporting under 40 CFR 63 Subpart LLL, *Startup* means the time from when a shut down kiln first begins firing fuel until it begins producing clinker Startup "begins" when a shut down kiln turns on the induced draft fan and begins firing fuel in the main burner. Startup "ends" when feed is being continuously introduced into the kiln for at least 120 minutes or when the feed rate exceeds 60 percent of the kiln design limitation rate, whichever occurs first (40 CFR 63 Subpart LLL and ARM 17.8.749).

2. Ash Grove may not cause or authorize to be discharged into the atmosphere from the cement kiln including hours during startup and shutdown any stack emissions that:

   a. Contain filterable PM in excess of the amount allowed by the following equations (ARM 17.8.752 and Regional Haze FIP 40 CFR 52.1396).

      i. If the process weight rate of the kiln is less than or equal to 30 tons per hour, then the emission limit shall be calculated using the following equation:

         $E = 4.10P^{0.67}$
         where E = rate of emissions in pounds per hour and
               P = process weight rate in tons per hour

      ii. If the process weight rate of the kiln is greater than 30 tons per hour, then the emission limit shall be calculated using the following equation:

         $E = 55.0P^{0.11}-40$
         where E = rate of emissions in pounds per hour and
               P = process weight rate in tons per hour

3. Ash Grove shall install and operate a baghouse to control kiln emissions and may not exceed a PM emission rate of 0.07 lb/ton of clinker. Condensable particulate matter is not included in Method 5 reporting (Consent Decree and ARM 17.8.749).

4. Twelve (12) months after commencing operation of the Montana City Replacement Kiln, Ash Grove may not exceed a rolling 12-Month tonnage PM limit of 32.7 tpy including periods of startup, shutdown, and malfunction. Condensable particulate matter is not included in Method 5 reporting (Consent Decree and ARM 17.8.749).

SO_2 Limits

5. Ash Grove may not exceed an SO_2 emission rate of 11.5 lb/ton of clinker. No later than April 17, 2013 (180 days following October 18, 2012), Ash Grove may not exceed SO_2 emissions from the kiln during startup, shutdown, malfunction and normal operation of 11.5 lb/ton of clinker produced based on a 30-day rolling average unless Ash Grove is unable to meet the limit with existing control equipment; in that case, the compliance date is extended to October 18, 2017 (Regional Haze FIP 40 CFR 52.1396 and ARM 17.8.749).

6. Ash Grove may not exceed an SO_2 emission rate of 0.4 lb/ton of clinker based on a 30-day rolling average excluding startup and shutdown periods. Compliance demonstration with the 0.4 lb/ton of clinker limit shall be completed within 180 days after Replacement Kiln startup (Consent Decree and ARM 17.8.749).

7. Ash Grove may not exceed an SO_2 emission rate of 0.4 lb/ton of clinker based on a 30-day rolling average including startup, shutdown, and malfunction periods. Ash Grove shall complete a compliance demonstration with the 0.4 lb/ton of clinker limit within 60 days after achieving maximum production rate but not later than 180 days after startup (40 CFR 60 Subpart F, and ARM 17.8.749).

8. Within twelve (12) consecutive months after startup of the Replacement Kiln, Ash Grove may not exceed a rolling 12-month tonnage SO_2 limit of 200 tpy including periods of startup, shutdown, and malfunction (Consent Decree and ARM 17.8.749).

NO_x Limits

9. No later than April 17, 2013 (180 days following October 18, 2012), Ash Grove may not exceed NO_x emissions from the kiln during startup, shutdown, malfunction, and normal operation of 8.0 lb/ton of clinker produced based on a 30-day rolling average unless Ash Grove is unable to meet the limit with existing control equipment; in that case, the compliance date is extended to October 18, 2017 (Regional Haze FIP 40 CFR 52.1396 and ARM 17.8.749).

10. Ash Grove may not exceed a NO_x emission rate of 1.5 lb/ton of clinker based on a 30-day rolling average excluding startup and shutdown periods. Ash Grove shall complete a compliance demonstration with the 1.5 lb/ton of clinker limit within 180 days after Replacement Kiln startup (Consent Decree and ARM 17.8.749).

11. Ash Grove may not exceed a NO_x emission rate of 1.5 lb/ton of clinker based on a 30-day rolling average including startup, shutdown, and malfunction periods. Ash Grove shall complete a compliance demonstration with the 1.5 lb/ton of clinker limit within 60 days after achieving maximum production rate but not later than 180 days from startup (40 CFR 60 Subpart F, and ARM 17.8.749).

12. Within twelve (12) consecutive months after startup of the Replacement Kiln, Ash Grove may not exceed a rolling 12-Month tonnage NO_x limit of 700 tpy including periods of startup, shutdown and malfunction (Consent Decree and ARM 17.8.749).

Mercury Limits

13. Ash Grove may not exceed emissions of 21 lbs mercury per million tons of clinker averaged over 30 days continuous monitoring excluding periods during startup and shutdown. Ash Grove shall maintain either a sorbent mercury trap or CEMs to demonstrate compliance with this limit (40 CFR 63 Subpart LLL, ARM 17.8.342 and ARM 17.8.749).

THC Limits

14. Ash Grove may not exceed emissions of 24 ppmv THC (measured as propane and corrected to 7% oxygen) averaged over 30 days of continuous monitoring excluding periods during startup and shutdown (40 CFR 63 Subpart LLL, ARM 17.8.342 and ARM 17.8.749).

15. As an alternative to the THC Limit above, Ash Grove may comply with a 12 ppmv organic air toxic limit excluding periods during startup and shutdown (40 CFR 63 Subpart LLL, ARM 17.8.342 and ARM 17.8.749).

Dioxin/Furans

16. Ash Grove may not cause to be discharged into the atmosphere from the kiln, excluding hours during startup and shutdown, any gases that contain dioxins and furans in excess of:

    a. 0.20 ng per dscm (8.7x10-11 gr/dscf) (TEQ) corrected to 7% oxygen; or

    b. 0.40 ng per dscm (1.7x10-10 gr/dscf) (TEQ) corrected to 7% oxygen, when the average of the performance test run average temperatures at the inlet to the particulate matter control device is 204° C (400° F) or less (40 CFR 63 Subpart LLL and ARM 17.8.342).

Hydrochloric Acid (HCl)

17. If, following modernization project completion, Ash Grove is no longer an area source and becomes a major source, Ash Grove may not exceed 3 ppmv HCl at 7 percent oxygen excluding hours during startup and shutdown (40 CFR 63 Subpart LLL, ARM 17.8.342 and ARM 17.8.749).

CO

18. Ash Grove may not exceed a CO limit of 459.4 tons on a 12-month rolling basis including periods of startup, shutdown, and malfunction (ARM 17.8.749 and ARM 17.8.752).

GHGs

19. Ash Grove may not exceed a rolling 12-Month rolling carbon dioxide equivalent (CO_2e) limit of 0.95 tons CO_2e/ ton of clinker including periods of startup, shutdown, and malfunction (ARM 17.8.749 and ARM 17.8.752).

20. Ash Grove shall use only natural gas in the Finish Mill Heater (ARM 17.8.752).

C. Kiln Stack (331.SK410) CEM Requirements

1. Ash Grove shall install, operate and maintain on the kiln stack, a PM CPMS (40 CFR 63 Subpart LLL, ARM 17.8.342 and ARM 17.8.749).

2. Ash Grove 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 0.07 lb/ton of clinker limit. Ash Grove shall conduct the performance test using EPA Method 5 or Method 5I at appendix A-3 of 40 CFR Part 60. Ash Grove shall commence operation of the PM CPMS for that Kiln within 60 days after achieving the maximum production rate at which the Replacement Kiln 1 will be operated, but not later than 180 Days after Ash Grove first operates the Replacement Montana City Kiln (Consent Decree and ARM 17.8.749)

3. Ash Grove shall install, operate, and maintain on the kiln stack an SO_2 CEMs (Regional Haze FIP 40 CFR 52.1396, 40 CFR 60 Subpart F, ARM 17.8.340 and ARM 17.8.749).

4. Ash Grove shall install, operate and maintain on the kiln stack a NO_x CEMS (Regional Haze FIP 40 CFR 52.1396, 40 CFR 60 Subpart F, ARM 17.8.340 and ARM 17.8.749).

5. Ash Grove shall install, operate, and maintain on the kiln stack an O_2 analyzer necessary to allow the required oxygen correction to be applied for reference method tests as necessary (ARM 17.8.749).

6. Ash Grove shall install, operate, and maintain on the kiln stack a CO analyzer to demonstrate the kiln is achieving the BACT limit (ARM 17.8.749 and 17.8.752).

7. Ash Grove shall install, operate and maintain on the kiln stack a CO_2 analyzer to demonstrate the kiln is achieving the BACT limit (ARM 17.8.749 and 17.8.752).

8. Ash Grove shall install, operate and maintain on the kiln stack a mercury sorbent trap or CEMs to demonstrate the kiln is achieving the mercury limit (ARM 17.8.749).

9. Ash Grove shall install, operate and maintain on the kiln stack a THC analyzer necessary to demonstrate the kiln is achieving the THC limit (ARM 17.8.749).

10. Ash Grove shall utilize the "work practices" for the kiln identified in 40 CFR 63.1346(f) (40 CFR 63 Subpart LLL, ARM 17.8.342 and ARM 17.8.749).

D. Clinker Cooler Stack Limits and CEM Requirements

1. Ash Grove shall install, operate and maintain on the clinker cooler stack (441.SK720) a PM CPMS (40 CFR 63 Subpart LLL, ARM 17.8.342 and ARM 17.8.749).

2. Upon startup of the Replacement Kiln, Ash Grove shall limit filterable particulate emissions from the kiln stacks (441.SK720) during normal operation to 0.02 pounds per ton (lb/ton) of clinker produced based on an annual Method 5 stack performance test and PM CPMS. Condensable particulate matter is not included in Method 5 reporting (40 CFR 63 Subpart LLL, ARM 17.8.342 and ARM 17.8.749).

3. Ash Grove shall utilize the "work practices" for the clinker cooler identified in 40 CFR 63.1348(b)(9) (40 CFR 63 Subpart LLL, ARM 17.8.342 and ARM 17.8.749).

E. In-line Solid Fuel Mill Stack (461.SK395)

1. Ash Grove shall install, operate, and maintain on the In-line solid fuel mill stack a PM CPMS (40 CFR 63 Subpart LLL, ARM 17.8.342 and ARM 17.8.749).

2. Ash Grove shall install, operate, and maintain on the In-line solid fuel mill stack an SO_2 CEMs (Regional Haze FIP 40 CFR 52.1396, 40 CFR 63 Subpart LLL, ARM 17.8.342 and ARM 17.8.749).

3. Ash Grove shall install, operate, and maintain on the In-line solid fuel mill stack a NO_x CEMS (Regional Haze FIP 40 CFR 52.1396, 40 CFR 63 Subpart LLL, ARM 17.8.342 and ARM 17.8.749).

4. Ash Grove shall install, operate, and maintain on the In-line solid fuel mill stack an O_2 analyzer to allow the required oxygen correction to be applied for concentration corrections (ARM 17.8.749).

5. Ash Grove shall install, operate, and maintain on the In-line solid fuel mill stack a CO analyzer to demonstrate compliance with the BACT limit (ARM 17.8.752).

6. Ash Grove shall install, operate, and maintain on the In-line solid fuel mill stack a CO_2 analyzer necessary to demonstrate the facility is achieving the BACT limit (ARM 17.8.749 and 17.8.752).

7. Ash Grove shall install, operate and maintain on the In-line solid fuel mill stack a mercury sorbent trap or CEMs to demonstrate the facility is achieving the mercury limit (ARM 17.8.749).

8. Ash Grove shall install, operate and maintain on the In-line solid fuel mill stack a THC analyzer necessary to demonstrate the kiln is achieving the THC limit (ARM 17.8.749).

F. Basic Requirements

1. Ash Grove may not cause or authorize emissions to be discharged into the outdoor atmosphere from any source installed after November 23, 1968, that exhibit an opacity of 20% or greater averaged over a 6-minute period (ARM 17.8.304).

2. Ash Grove may not cause or authorize to be discharged into the atmosphere, from any Standards of Performance for New Stationary Source (NSPS)-affected crusher, any visible emissions that exhibit an opacity of 12% or greater averaged over a 6-minute period for crushers that commence construction, modification or reconstruction on or after April 22, 2008 (ARM 17.8.340, ARM 17.8.752, and 40 CFR 60 Subpart OOO).

3. Ash Grove may not cause or authorize to be discharged into the atmosphere from any other NSPS-affected equipment, such as screens or conveyor transfers, any visible emissions that exhibit an opacity of 7% or greater averaged over a 6-minute period for equipment, including screens and conveyors, and other affected equipment that commences construction, modification, or reconstruction on or after April 22, 2008 (ARM 17.8.340, ARM 17.8.752, and 40 CFR 60 Subpart OOO).

4. Ash Grove may not cause or authorize to be discharged into the atmosphere, from any non-NSPS-affected equipment, any visible emissions that exhibit an opacity of 20% or greater averaged over a 6-minute period (ARM 17.8.304 and ARM 17.8.752).

5. Ash Grove may not cause or authorize the use of any street, road, or parking lot without taking reasonable precautions to control emissions of airborne particulate matter (ARM 17.8.308).

6. Ash Grove shall treat all unpaved portions of the haul roads, access roads, parking lots, and the general plant area with water and/or chemical dust suppressant as necessary to maintain compliance with the reasonable precautions limitation (ARM 17.8.752).

7. The amount of post-consumer recycled glass used by Ash Grove Cement Company in the cement kiln shall be limited to 250 tons during any rolling 12-month period (ARM 17.8.752).

8. When process equipment is operating, Ash Grove shall use and maintain, as they were intended, conveyor covers, transfer point covers, or structural enclosures surrounding process equipment (ARM 17.8.749).

9. Ash Grove shall limit kiln production to 2300 tons of clinker per day on a 30-day rolling average (ARM 17.8.749).

10. Ash Grove shall limit kiln production to 750,000 tons of clinker during any rolling-12-month period (ARM 17.8.749).

11. Ash Grove shall be limited to a maximum hourly SO_2 emission rate of 115 lb/hr (equivalent to 1.2 lb/ton clinker at 2300 tpd) based on a 24-hr rolling average from kiln stack 331.SK410 and 461.SK395 (ARM 17.8.749.)

12. Ash Grove shall be limited to maximum hourly NO_x emission rate of 431.25 lb/hr (equivalent to 4.50 lb/ton clinker at 2300 lb/day) based on a 24-hr rolling average from kiln stack 331.SK410 and 461.SK395 (ARM 17.8.749).

13. Ash Grove shall be limited to a maximum hourly CO emission rate of 880 lbs/hr (equivalent to 9.2 lb/ton clinker at 2300 tpd) based on an 8-hr rolling average from kiln stack 331.SK410 and 461.SK395 (ARM 17.8.749 and ARM 17.8.752).

14. Ash Grove shall prepare an inspection and maintenance plan as required by 40 CFR 63.1347(a) (40 CFR 63.1347 ARM 17.8.749 and ARM 17.8.342).

15. Ash Grove shall prepare a startup, shutdown, and malfunction plan as required by 40 CFR 63.6(e) (3) where the owner or operator must operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions (40 CFR 63.6 (e) (3) and ARM 17.8.342).

16. Ash Grove shall startup the kiln on clean fuels only until the kiln reaches a temperature of 1200 degrees Fahrenheit. Clean fuels include natural gas, synthetic natural gas, propane, distillate oil, synthesis gas (syngas), and ultra-low sulfur diesel (ULSD) (40 CFR 63.1346, ARM 17.8.342 and ARM 17.8.749).

17. Ash Grove shall document, by month, records for calibrating, maintaining, and operating a monitor to record the temperature of the exhaust gases from the kiln for monitoring Dioxin/Furan emissions. Ash Grove shall verify, at least once every 3 months, the calibration of all thermocouples and other temperature sensors required by 40 CFR 63.1350 (40 CFR 63.1350, ARM 17.8.342 and ARM 17.8.749).

18. Ash Grove shall prepare an emissions monitoring plan for each continuous monitoring system required by 40 CFR 63 Subpart LLL and submit it to the Department upon request (40 CFR 63.1350 (p) and ARM 17.8.342)).

19. Pursuant to ARM 17.8.322(4), Ash Grove may not burn liquid or solid fuels containing sulfur in excess of 1 pound per million BTU fired, unless otherwise specified by rule or in this permit (ARM 17.8.322 and ARM 17.8.749).

20. Pursuant to ARM 17.8.322(5), Ash Grove may not burn any gaseous fuel containing sulfur compounds in excess of 50 grains per 100 cubic feet of gaseous fuel, calculated as hydrogen sulfide at standard conditions, unless otherwise specified by rule or in this permit (ARM 17.8.322 and ARM 17.8.749).

21. Ash Grove shall limit emergency generator (EG1.SK1) hours to no more than 500 hours per rolling 12-month period and shall be a least a Tier III EPA certified engine (ARM 17.8.749).

22. Ash Grove shall limit the operation of the overland conveyor and associated equipment directly connected to the overland conveyor to no more than 3,200 hours per rolling 12-month period (ARM 17.8.749).

23. Ash Grove shall limit explosive usage to 400 tons/year of anhydrous fuel oil (ANFO) and emulsion per rolling 12-month period (ARM 17.8.749).

G. Testing Requirements – Post Modernization Project Completion

1. PM Testing Requirement on Kiln (331.SK410 and 461.SK395). Ash Grove shall test the kiln stack emissions for PM to demonstrate compliance with Section III.B.1 and III.B.3 (This testing shall also satisfy the testing under III. C. 2– Consent Decree) by conducting an initial, and then annual, Method 5 (or equivalent) performance stack test. Ash Grove shall confirm correlation with the Method 5 tests through operation of a PM CPMS. The initial Method 5 test shall be conducted within 180 days after Replacement Kiln startup. The test methods and procedures shall be conducted in accordance with the Montana Source Test Protocol and Procedures Manual. Condensable particulate matter is not included in Method 5 reporting. All source testing shall occur while Ash Grove is using coal as the fuel unless Ash Grove has transitioned to a clean fuel 100% of the time (ARM 17.8.105, ARM 17.8.106, ARM 17.8.749 and 40 CFR 63 Subpart LLL).

2. PM Testing Requirement on Kiln (331.SK410 and 461.SK395). Ash Grove shall test the kiln stack exhaust emissions for PM with Section III.B.1 by conducting an annual Method 5 performance stack test. The test methods and procedures shall be conducted in accordance with the Montana Source Test Protocol and Procedures Manual with the following exceptions: a test shall consist of three runs with each run at least 120 minutes in duration and each run collecting a minimum sample of 60 dry standard cubic feet. All source testing shall occur while Ash Grove is using coal as the fuel unless Ash Grove has transitioned to a clean fuel 100% of the time (Regional Haze FIP 40 CFR 52.1396, ARM 17.8.105 and ARM 17.8.106).

3. Ash Grove shall monitor the clinker cooler stack (441.SK720) for PM emissions to demonstrate compliance with 0.02 lb/ton of clinker in Section III.D.2 as follows: a Method 5 (or equivalent) performance stack test shall be conducted within 180 days after Replacement Kiln startup and then annually thereafter. The PM CPMS must operate during the compliance tests and use the CPMS to demonstrate continuous compliance... Condensable particulate matter is not included in Method 5 reporting (40 CFR 63 Subpart LLL, ARM 17.8.105, ARM 17.8.106, ARM 17.8.342 and ARM 17.8.749).

4. Ash Grove shall test the clinker cooler stack (441.SK720) for PM emissions to demonstrate compliance with Section III.A.6 limit for PM, PM_{10}, and $PM_{2.5}$. The initial test shall be conducted within 180 days of Replacement Kiln startup. Condensable particulate matter is not included in Method 5 reporting. All source testing shall occur while Ash Grove is using coal as the fuel unless Ash Grove has transitioned to a clean fuel 100% of the time (40 CFR 63 Subpart LLL, ARM 17.8.105, ARM 17.8.106, ARM 17.8.342 and ARM 17.8.749).

5. Ash Grove shall test the Cement Mill Stack (531.SK590) for PM emissions to demonstrate compliance with Section III.A.9 limit for PM, PM_{10}, and $PM_{2.5}$. The initial test shall be conducted within 180 days of Replacement Kiln startup. Condensable particulate matter is not included in Method 5 reporting. All source testing shall occur while Ash Grove is using coal as the fuel unless Ash Grove has transitioned to a clean fuel 100% of the time (40 CFR 63 Subpart LLL, ARM 17.8.105, ARM 17.8.106, ARM 17.8.342 and ARM 17.8.749).

6. Ash Grove shall test the Kiln stack and In-line solid fuel exhaust emissions for SO_2 no later than April 17, 2013, unless Ash Grove is unable to meet the limit with existing control equipment and then the compliance date is extended to October 18, 2017, to demonstrate compliance with the emission limits contained in Section III.B.5. All source testing shall occur while Ash Grove is using coal as the fuel unless Ash Grove has transitioned to a clean fuel 100% of the time (Regional Haze 40 CFR 52.1396, ARM 17.8.105, ARM 17.8.106 and ARM 17.8.749).

7. Ash Grove shall test the Kiln stack and In-line solid fuel exhaust emissions for SO_2, to demonstrate compliance with the emission limits contained in Section III.B.6 and Section III.B.7. Testing shall be conducted within 180 days of Replacement Kiln startup) and then the testing shall be as required by the Department. All source testing shall occur while Ash Grove is using coal as the fuel unless Ash Grove has transitioned to a clean fuel 100% of the time (ARM 17.8.105, ARM 17.8.106 and ARM 17.8.749).

8. Ash Grove shall test the Kiln stack and In-line solid fuel exhaust emissions for NO_x to demonstrate compliance with the emission limits contained in Section III.B.9 no later than April 17, 2013, unless Ash Grove is unable to meet the limit with existing control equipment; in that case, the compliance date is extended to October 18, 2017. Ash Grove shall report the Kiln stack

exhaust emissions for NO_x and CO concurrently to demonstrate compliance with the emission limits contained in this permit. All source testing shall occur while Ash Grove is using coal as the fuel unless Ash Grove has transitioned to a clean fuel 100% of the time (ARM 17.8.105, ARM 17.8.106 and ARM 17.8.749).

9. Ash Grove shall test the Kiln stack exhaust emissions for NO_x to demonstrate compliance with the emission limits contained in Section III.B.10 and Section III.B.11. Testing shall be conducted within 180 days after Replacement Kiln startup) and then the testing shall be as required by the Department. Ash Grove shall report the Kiln stack exhaust emissions for NO_x and CO concurrently to demonstrate compliance with the emission limits contained in this permit. All source testing shall occur while Ash Grove is using coal as the fuel unless Ash Grove has transitioned to a clean fuel 100% of the time (ARM 17.8.105, ARM 17.8.106 and ARM 17.8.749).

10. Mercury Testing Requirements. Ash Grove shall conduct an initial mercury test using Method 23 to demonstrate compliance with Section III.B.13 within 180 days after Replacement Kiln startup. All source testing shall occur while Ash Grove is using coal as the fuel unless Ash Grove has transitioned to a clean fuel 100% of the time (40 CFR 63 Subpart LLL, ARM 17.8.105, ARM 17.8.106, ARM 17.8.342 and ARM 17.8.749).

11. THC. Ash Grove shall conduct an initial THC (Method 25A) test to demonstrate compliance with either Section III.B.14 or Section III.B.15 within 180 days after Replacement Kiln startup. All source testing shall occur while Ash Grove is using coal as the fuel unless Ash Grove has transitioned to a clean fuel 100% of the time (40 CFR 63 Subpart LLL, ARM 17.8.105, ARM 17.8.106, ARM 17.8.342, and ARM 17.8.749).

12. Dioxin/Furan. Ash Grove shall conduct an initial Dioxin/Furan (Method 23 (40 CFR 60, Appendix A)) test to demonstrate compliance with Section III.B.16 within 180 days after Replacement Kiln startup and once during every subsequent 30 months. Ash Grove shall repeat the performance test for the kiln and In-line solid fuel mill stacks within 90 days after initiating any significant change in the feed or fuel from that used during the previous performance test. The test methods and procedures shall be conducted in accordance with the Montana Source Test Protocol and Procedures Manual (40 CFR 63 Subpart LLL, ARM 17.8.105, ARM 17.8.106, ARM 17.8.342, 40 CFR 63.1349).

13. Ash Grove shall conduct testing of each of the following baghouses within 180 days after Replacement Kiln startup: 111.BF290, 311.BF020, 461.BF045, 531BF.020 to demonstrate compliance with emission limits in Section III A.2. Ash Grove shall then annually test three baghouses from the remaining baghouse list in Section III.A.1 in order of diminishing throughput ratings until all baghouses have been tested for compliance with the limits in Section III.A.2, or on another testing/monitoring schedule as approved by the Department (ARM 17.8.105, ARM 17.8.106 and ARM 17.8.749).

14. All compliance source tests shall conform to the requirements of the Montana Source Test Protocol and Procedures Manual (ARM 17.8.106).

15. Ash Grove shall conduct further testing if required by the Department (ARM 17.8.105).

H. Operational Reporting Requirements – Post Modernization Project Completion

1. Ash Grove shall supply the Department with annual production information for all emission points, as required by the Department in the annual emission inventory request. The request will include, but is not limited to, all sources of emissions identified in the emission inventory summary contained in the permit analysis.

   Ash Grove shall gather production information on a calendar-year basis and submit it to the Department by the date required in the emission inventory request. Information shall be in the units required by the Department. This information may be used to calculate operating fees, based on actual emissions from the facility, and/or to verify compliance with permit limitations (ARM 17.8.505). Ash Grove shall submit the following information annually to the Department by February 15 of each year; the information may be submitted along with the annual emission inventory (ARM 17.8.505).

   a. annual production related information

2. Ash Grove shall notify the Department of any construction or improvement project conducted, pursuant to ARM 17.8.745, that would include ***the addition of a new emissions unit***, change in control equipment, stack height, stack diameter, stack flow, stack gas temperature, source location, or fuel specifications, or would result in an increase in source capacity above its permitted operation. The notice must be submitted to the Department, in writing, 10 days prior to startup or use of the proposed de minimis change, or as soon as reasonably practicable in the event of an unanticipated circumstance causing the de minimis change, and must include the information required in ARM 17.8.745(l)(d) (ARM 17.8.745).

3. Ash Grove shall document, by month, the lb/hr amount of PM emissions discharged into the atmosphere from the kiln and In-line solid fuel mill stacks, and the lb/day of clinker produced. Ash Grove shall maintain and operate a PM CPMS. Total PM emissions and total clinker produced shall be calculated from 12:00 midnight to 12:00 midnight on a daily basis and averaged over rolling 30-day time periods. The PM CPMS must be operated while the kiln is operating and Ash Grove shall keep a record of the PM emissions measure by the CPMS. For clarity, it is noted that 40 CFR 60 Subpart F and 40 CFR 63 Subpart LLL have emission limit calculations excluding startup and shutdown periods whereas the Regional Haze (40 CFR 52.1396) and the Consent Decree limits include startup, shutdown, and malfunction periods. The monthly information will be used to verify compliance with Section III.B.1, III.B.2, III.B.3 and III.B.4 (ARM 17.8.749, Regional Haze FIP 40 CFR 52.1396, 40 CFR 60 Subpart F, 40 CFR 63 Subpart LLL, and Consent Decree).

4. Ash Grove shall document, by month, the lb/hr amount of SO_2 emissions discharged into the atmosphere from the kiln and In-line solid fuel mill stacks, the lbs/day of clinker produced, and million BTUs of fuel fired. Ash Grove shall maintain and operate an SO_2 CEMS monitor. Total SO_2 emissions shall be calculated from 12:00 midnight to 12:00 midnight on a daily basis and averaged over 30-day rolling periods. The CEMS must be operated while the kiln is operating and must measure the SO_2 emissions, including the volumetric flow rate. For clarity, it is noted that 40 CFR 60 Subpart F and 40 CFR 63 Subpart LLL have emission limit calculations excluding startup and shutdown periods, whereas the Regional Haze (40 CFR 52.1396) and the Consent Decree limits include startup, shutdown, and malfunction periods. The monthly information will be used to verify compliance with Section III.B.5, III.B.6, III.B.7 and III.B.8 (ARM 17.8.749, Consent Decree and Regional Haze FIP 40 CFR 52.1396).

5. Ash Grove shall document, by month, the lb/hr amount of NO_x emissions discharged into the atmosphere from the kiln and In-line solid fuel mill stacks and the lb/hr of clinker produced. Ash Grove shall maintain and operate a NO_x CEMs monitor. Total NO_x emissions and total clinker produced shall be calculated from 12:00 midnight to 12:00 midnight on a daily basis and averaged over rolling 30-day periods. The CEMs must be operated while the kiln is operating and must measure the NO_x emissions, including the volumetric flow rate. For clarity it is noted that 40 CFR 60 Subpart F and 40 CFR 63 Subpart LLL have emission limit calculations excluding startup and shutdown periods whereas the Regional Haze 40 CFR 52.1396 and the Consent Decree limits include startup, shutdown, and malfunction periods. The monthly information will be used to verify compliance with Section III.B.9, III.B.10, III.B.11 and III.B.12 (ARM 17.8.749, Consent Decree and Regional Haze FIP 40 CFR 52.1396).

6. Ash Grove shall document, by month, the amount of post-consumer glass used in the kiln. By the 25th day of each month, Ash Grove shall total the amount of post-consumer glass used during the previous month. The monthly information will be used to verify compliance with the rolling 12-month limitation contained in Section III.F.7 above. The information for each of the previous 12 months shall be submitted along with the annual emission inventory (ARM 17.8.749).

7. Ash Grove shall document, by day, the amount of clinker produced in the kiln. By the 25th day of each month, Ash Grove shall total the amount of clinker produced during the previous month. The monthly information will be used to verify compliance with the rolling 12-month limitation contained Section III.F.9 and III.F.10 above. The information for each of the previous 12 months shall be submitted along with the annual emission inventory (ARM 17.8.749).

8. Ash Grove shall document, by hour, the amount of SO_2 discharged into the atmosphere from the kiln and In-line solid fuel mill stacks. The information will be used to verify compliance with the rolling 24-hour limitation contained in Section III.F.11.

9. Ash Grove shall document, by hour, the amount of NO_x discharged into the atmosphere from the kiln and In-line solid fuel mill stacks. The information will be used to verify compliance with the rolling 24-hour limitation contained in Section III.F.12.

10. Ash Grove shall document, by month, the lb/hr of CO discharged into the atmosphere from the kiln. The monthly information will be used to verify compliance with the rolling 8-hr limitation contained in Section III.F.13 (ARM 17.8.749).

11. Ash Grove shall demonstrate compliance with Section III.F.14 above by having available on request the Inspection and Maintenance plan, and shall maintain a log of activities completed according to the Inspection and Maintenance Plan (ARM 17.8.749).

12. Ash Grove shall monitor compliance with Section III.F.15 by maintaining records of its best practices conducted for start-ups and shutdowns, including date, time, and duration of each practice, and the type and quantity of fuel added whenever the temperature is less than 1200 degrees Fahrenheit (40 CFR 63.1346 and ARM 17.8.342).

13. Ash Grove shall monitor compliance with Section III.F.16 by maintaining records during normal operation whenever the temperature is 1200 degrees Fahrenheit or less, the date, time, and duration of each practice, and the type and quantity of fuel added (40 CFR 63.1346 and ARM 17.8.342).

14. Ash Grove shall document the records required under Section III.F.17 (40 CFR 63.1350, ARM 17.8.342 and ARM 17.8.749).

15. Within 60 days after achieving maximum production, but no later than 180 days after initial start-up, an Environmental Protection Agency (EPA) Method 9 opacity test and/or other methods and procedures, as specified in 40 CFR 60.675, must be performed on all NSPS-affected equipment to demonstrate compliance for crushers that commence construction, modification, or reconstruction on or after April 22, 2008, with a 12% opacity limitation. 111.BF290 is the baghouse controlling the crusher building, subject to 40 CFR 60 Subpart OOO. If 111.BF290 is tested within 180 days as required in Section III.G.1, a Method 9 test is not required (ARM 17.8.340, ARM 17.8.749, 40 CFR 60 Subpart A and Subpart OOO).

16. Ash Grove shall document, by month, the ratio of the lb/hr amount of CO_2 emissions discharged into the atmosphere from the kiln and In-line solid fuel mill stacks to the lb/hr of clinker produced. The total CO_2 emissions to the total clinker produced shall be calculated from 12:00 midnight to 12:00 midnight on a daily basis and averaged over rolling 12-month periods (ARM 17.8.749 and ARM 17.8.752).

17. Ash Grove shall document, by month, the lb/hr amount of CO emissions discharged into the atmosphere from the kiln and In-line solid fuel mill stacks. The total CO emissions to the total clinker produced shall be calculated from 12:00 midnight to 12:00 midnight on a daily basis and averaged over rolling 12-month periods (ARM 17.8.749 and ARM 17.8.752).

18. Ash Grove shall document, by month, the ratio of the lb/hr amount of Mercury emissions discharged into the atmosphere from the kiln and In-line solid fuel mill stacks to the lb/hr of clinker produced. The total Mercury emissions to the total clinker produced shall be calculated from 12:00 midnight to 12:00 midnight on a daily basis and averaged over rolling 30-day periods (ARM 17.8.749).

19. Ash Grove shall document, by month, the concentration of THC emissions discharged into the atmosphere from the kiln and In-line solid fuel mill stack. The total THC emission concentration produced shall be calculated from 12:00 midnight to 12:00 midnight on a daily basis and averaged over rolling 30-day periods (ARM 17.8.749).

20. Ash Grove shall document, by month, the total hours of operation of the emergency generator EG1.SK1 to satisfy Section III.F.21 (ARM 17.8.749).

21. Ash Grove shall document by month, the total hours of operation of the overland conveyor to satisfy Section III.F.22 (ARM 17.8.749).

22. Ash Grove shall document, by month, the lbs of ANFO and emulsion usage to satisfy Section III.F.23 (ARM 17.8.749).

23. All records compiled in accordance with this permit must be: (a) maintained by Ash Grove as a permanent business record for at least 5 years following the date of the measurement; (b) available at the plant site for inspection by the Department; and (c) submitted to the Department upon request (ARM 17.8.749).

A. Notification – Post Modernization Project Completion

1. Ash Grove shall provide written notification to the Department within 15 days after the facility begins initial construction of the modernization project (ARM 17.8.340 and ARM 17.8.749).

2. Ash Grove shall provide written notification to the Department within 15 days after the startup date of the Replacement Kiln (ARM 17.8.340 and ARM 17.8.749).

SECTION IV: General Conditions

A. Inspection – Ash Grove shall allow the Department's representatives access to the source at all reasonable times to make inspections or surveys, collect samples, obtain data, audit any monitoring equipment (CEMS, CERMS), observe any monitoring or testing, or otherwise conduct a necessary function related to this permit.

B. Waiver – The permit and the terms, conditions, and matters stated herein shall be deemed accepted if Ash Grove fails to appeal as indicated below.

C. Compliance with Statutes and Regulations – Nothing in this permit shall be construed as relieving Ash Grove of the responsibility for complying with any applicable federal or Montana statute, rule, or standard, except as specifically provided in ARM Title 17, chapter 8, subchapter 7 (ARM 17.8.756).

D. Enforcement – Violations of a limitation, condition, or requirement of this permit may constitute grounds for permit revocation, or for penalties or corrective action or injunctive relief under Title 75, chapter 2, part 4, MCA.

E. Appeals – Any person or persons directly and adversely affected by the Department's decision may request, within 15 days after the Department renders its decision, upon affidavit setting forth the grounds therefore, a hearing before the Board of Environmental Review (Board). A hearing shall be held under the provisions of the Montana Administrative Procedures Act. The filing of a request for a hearing does not stay the Department's decision, unless the Board issues a stay upon receipt of a petition and a finding that a stay is appropriate under Section 75-2-211(11)(b), MCA. The issuance of a stay on a permit by the Board postpones the effective date of the Department's decision until conclusion of the hearing and issuance of a final decision by the Board. If a stay is not issued by the Board, the Department's decision on the application is final after 15 days have elapsed from the date of the Department's decision.

F. Permit Inspection – As required by ARM 17.8.755, Inspection of Permit, a copy of the air quality permit shall be made available for inspection by the Department at the location of the source.

G. Permit Fee – Pursuant to Section 75-2-220, MCA, and rules adopted thereunder by the Board, failure to pay the annual operation fee by Ash Grove may be grounds for revocation of this permit.

H. Duration of Permit – This permit expires unless construction or installation has begun, or contractual obligations that would constitute substantial loss have been entered into, within 18 months after permit issuance. In addition, this permit expires if Ash Grove does not proceed with due diligence until the project is complete. (ARM 17.8.762).

I. Applicability – Once the modernization project is complete, Ash Grove emitting units are subject to the following NSPS 40 CFR 60 Subparts and NESHAP 40 CFR 63 Subparts as noted.

		Significant Emitting Unit	**NSPS:40 CFR 60, Subpart(s)**	**MACT: 40 CFR 63, Subpart(s)**
331.SK410	Kiln Stack / Bypass	Yes	A, F	A, LLL
441.SK720	Clinker Cooler Stack	Yes	A, F	A, LLL
461.SK395	In-Line Solid Fuel Mill Stack	Yes	A, F	A, LLL
531.SK590	Cement Mill	Yes	A, F	A, LLL
EG1.SK1	Emergency Generator	Yes	A, IIII	A, ZZZZ

		Significant Emitting Unit	NSPS:40 CFR 60, Subpart(s)	MACT: 40 CFR 63, Subpart(s)
111.BF290	Limestone - Apron Feeder/Crusher Building	Yes	A, OOO	
121.BF110	Limestone - Quarry Pile Loadout VFeeder Bagfilter	Yes	A, OOO	
121.BF120	Limestone - Quarry Pile Loadout VFeeder Bagfilter	Yes	A, OOO	
121.BF130	Limestone - Quarry Pile Loadout VFeeder Bagfilter	Yes	A, OOO	
121.BF140	Limestone Belt 111BC160 to 121BC100	Yes	A, OOO	
121.BF150	Limestone Belt 121BC100 to Over land BC 1	Yes	A, OOO	
121.BF230	Limestone Over Land BC 1 to Over Land BC 2	Yes	A, OOO	
121.BF290	Limestone Over Land BC 2 to Over Land BC 3	Yes	A, OOO	
121.BF330	Limestone Over Land BC 3 to Over Land BC 4	Yes	A, OOO	
121.BF370	Limestone Over Land BC 4 to 121BC400	Yes	A, OOO	
121.BF410	Limestone 121BC400 to 121BC450	Yes	A, OOO	
121.BF430	Limestone 121BC460 to 121BC470	Yes	A, OOO	
141.BF415	Limestone 141BC400 to 141BC450	Yes	A, OOO	
143.BF340	Additive Hopper 143FY325 & 143BC330 to 143BC355	Yes	A, OOO	
143.BF350	Additive 143BC355 to 143BC400	Yes	A, OOO	
242.BF340	Additive Hopper 232FY325 & 232BC330 to 242BC350	Yes	A, OOO	
242.BF320	Additive 242BC350 to 242BC400	Yes	A, OOO	
232.BF110	Additive Hopper 212FY045/FY055 to 232BC100	Yes	A, OOO	
231.BF160	Solid Fuel Hopper 241AF090 to 241BC150	Yes	A, Y	
311.BF020	Raw Mill Additive Bins	Yes	A, F	A, LLL
311.BF080	Raw Mill Limestone Bins	Yes	A, F	A, LLL
311.BF610	Raw Mill Bins to 311BC600	Yes	A, F	A, LLL
321.BF020	Raw Mill 311BC600 to 321BC010	Yes	A, F	A, LLL
321.BF290	Raw Mill 321BC200 to 321BE220	Yes	A, F	A, LLL
321.BF610	Raw Meal 321AS510 to 341BE050	Yes	A, F	A, LLL
341.BF090	Raw Meal 341BE050 to 341AS060	Yes	A, F	A, LLL

		Significant Emitting Unit	NSPS:40 CFR 60, Subpart(s)	MACT: 40 CFR 63, Subpart(s)
341.BF085	Raw Meal 331VA585 to 341AV080	Yes	A, F	A, LLL
341.BF400	Raw Meal silo South	Yes	A, F	A, LLL
342.BF400	Raw Meal silo North	Yes	A, F	A, LLL
351.BF400	Raw Meal 351BE340 351SA300 351BL100 351AS050	Yes	A, F	A, LLL
351.BF410	Raw Meal 351BE340 to 351AS350	Yes	A, F	A, LLL
351.BF085	Raw Meal 331VA585 to 341AV080	Yes	A, F	A, LLL
441.BF620	Clinker Cooler to 471DB100	Yes	A, F	A, LLL
451.BF610	Other dust 451BE330 to 451BI410 and 451LS495 to Truck	Yes	A, F	A, LLL
461.BF045	Raw Coal/Solid Fuel - 461 BC010 to bins 461BI020 and BI030	Yes	A, Y	
461.BF050	Raw Coal/Solid Fuel - Bins 461BI020 and BI030 to 461BC080	Yes	A, Y	
461.BF560	Pulverized Fuel Bin 461BI550	Yes	A, Y	
461.BF660	Pulverized Fuel Bin 461BI650	Yes	A, Y	
471.BF150	Existing Clinker Silo 1 thru 6 Venting	Yes	A, F	A, LLL
471.BF160	Clinker -471BE110 to 471DB210	Yes	A, F	A, LLL
471.BF620	Clinker - 471DB100 to 471BE110	Yes	A, F	A, LLL
481.BF450	Off Std Clinker 471DB240 to Off Standard Clinker Silo	Yes	A, F	A, LLL
481.BF520	Off Std Clinker Silo to 481BW416 , 481LS430 (truck loadout), and 481BW181	Yes	A, F	A, LLL
481.BF610	Clinker Silos to 481BC150, BC160, BC170 to 481BW181	Yes	A, F	A, LLL
481.BF620	Clinker - 481BW181 to 481BC190	Yes	A, F	A, LLL
511.BF070	Cement Mill Feed - 242BC400 to 511BC150 to 511BI200 and 511BI300	Yes	A, F	A, LLL
531.BF020	Clinker - 531BE220 to 531BC010	Yes	A, F	A, LLL
531.BF290	Clinker - 531BC200 to 531BC210 to 531BE220	Yes	A, F	A, LLL
541.BF050	Cement - 541BE100 to 541 AS110	Yes	A, F	A, LLL
541.BF150	Cement - 541 AS110 to 541AS120 to 541BE200	Yes	A, F	A, LLL
541.BF250	Cement - 541BE200 to 611SI100, SI200, SI300, SI400	Yes	A, F	A, LLL

		Significant Emitting Unit	NSPS:40 CFR 60, Subpart(s)	MACT: 40 CFR 63, Subpart(s)
611.BF610	Cement - 611SI100 to Cement Silo	Yes	A, F	A, LLL
612.BF610	Cement - 611SI200 to Cement Silo	Yes	A, F	A, LLL
613.BF610	Cement - 611SI300 to Cement Silo	Yes	A, F	A, LLL
614.BF610	Cement - 611SI400 to Cement Silo	Yes	A, F	A, LLL
611.BF560	Cement - 611AS500 to 611TK550	Yes	A, F	A, LLL
621.BF162	Cement - 611TK550 to Truck	Yes	A, F	A, LLL
621.BF142	Cement - 611TK550 to Rail	Yes	A, F	A, LLL
612.BF560	Cement - 612AS500 to 612TK550	Yes	A, F	A, LLL
622.BF162	Cement - 612TK550 to Truck	Yes	A, F	A, LLL
622.BF142	Cement - 612TK550 to Rail	Yes	A, F	A, LLL
613.BF560	Cement - 613AS500 to 613TK550	Yes	A, F	A, LLL
623.BF162	Cement - 613TK550 to Truck	Yes	A, F	A, LLL
623.BF142	Cement - 613TK550 to Rail	Yes	A, F	A, LLL
614.BF560	Cement - 614AS500 to 614TK550	Yes	A, F	A, LLL
624.BF162	Cement - 614TK550 to Truck	Yes	A, F	A, LLL
624.BF142	Cement - 614TK550 to Rail	Yes	A, F	A, LLL
DA-12	Valve House	Yes		A, LLL
DA-13	Silo Tops (CDC)	Yes		A, LLL
DA-14	South Packer (SLA)	Yes		A, LLL
DA-15	North Packer (SLB)	Yes		A, LLL
DA-16	Specialty Bin	Yes		A, LLL
DA-17	Silo #13 Bottom (Rail loading)	Yes		A, LLL
DA-18	Silo #11 Top (Rail loading)	Yes		A, LLL
416.BF3	Lime Silo	No		
416.BF4	Dust Bin	Yes	A,F	A, LLL
416.BF5	Dust Master	Yes	A,F	A, LLL
416.BF6	Loadout Spout	Yes	A,F	A, LLL
Q1	Drilling	No		
Q2	Blasting - Limestone dust	No		
Q3	Blasting - ANFO combustion	No		
Q4	Truck loading in Pit	No		
Q5	Truck Unloading to Crusher (111.FY050)	No		
Q6	111.BC200 transfer to Limestone Pile	No		

		Significant Emitting Unit	NSPS:40 CFR 60, Subpart(s)	MACT: 40 CFR 63, Subpart(s)
212.FY045/55	Truck Unloading - Additive to RMS Hoppers (Gyp, Sand, Slag, Clay, etc.)	No		
DL1	Truck Loading - CKD	No		
DL2	Truck Unloading - CKD	No		
FT1	X-fer Solid Fuel Railcar to hopper	No		
FT2	X-fer Solid Fuel hopper to CB-22	No		
FT3	X-fer Solid Fuel CB-22 to RS-1	No		
FT4	X-fer Solid Fuel RS-1 to pile	No		
241.FY090	X-fer Solid Fuel pile to 241AF090	No		
SANDLOAD	Truck loading - sand, etc.	No		
CTOWER	Cooling Tower	No		
RMS	Raw Material Storage Building Haul Roads	No		
CKD	CKD Haul Roads	No		
SAND	Sand Haul Roads	No		
NCEM	New Cement Silo Haul Roads	No		
CEM	Existing Cement Silo Haul Roads	Yes		
QR	Quarry Haul Roads	Yes		
LOADER	Solid Fuel Pile to Hopper	No		

Montana Air Quality Permit (MAQP) Analysis
Ash Grove Cement Company
MAQP #2005-10

I. Introduction

A. Facility Description

Ash Grove Cement Company (Ash Grove) operates a Portland cement manufacturing facility located approximately 5 kilometers south of East Helena and approximately 1.8 kilometers east of the Highway 518 and I-15 interchange near Montana City, Montana. The plant's legal location is Sections 12 and 13, Township 9 North, Range 3 West in Jefferson County. The old quarry and silos are located in Sections 7 and 18 of Township 9 North, Range 2 West in Jefferson County. The quarry is located in Sections 9, 10, 15, and 16 of Township 9 North, Range 3 West in Jefferson County. With the issuance of this permit, an overland conveyor will transport raw materials on the conveyor through Sections 9, 10, and 11 in Township 9 North, Range 2 West.

B. Facility History

MAQP #2005-00 was issued to Kaiser Cement & Gypsum Company for a coke/coal-fired cement kiln on July 11, 1986. Shortly thereafter, Kaiser Cement & Gypsum Company was purchased by Ash Grove.

On July 13, 1991, Ash Grove applied for **MAQP #2005-01** to allow the facility to use hazardous waste-derived fuel in the kilns. This application was subsequently withdrawn on November 15, 1995.

On June 16, 1996, Ash Grove was issued **MAQP #2005-02** for several construction projects at the facility. This MAQP allowed Ash Grove to alter their existing primary crusher by replacing the 1962 Traylor, Blake-Type jaw component rated at 345 tons per hour (ton/hr) with a 1988 Hazemag horizontal impact component rated at 300 ton/hr. During this project, Ash Grove also proposed to upgrade their dust collector DA-1. This upgrade would consist of replacing the existing Norblo reverse air shakerless dust collector with a BHA pulse jet conversion package. The flow through the baghouse would increase from approximately 5500 cubic feet per minute (cfm) to 11,000 cfm as a result of this upgrade. In addition, Ash Grove also proposed to alter the crusher discharge belt system during this project. A channel from belt conveyor designated FB-1 would be installed to transport material leaving the primary crusher to the existing BC-1 conveyor. Drag conveyor #1 had been abandoned and removed. Emissions from both the primary crusher and FB-1 are controlled by dust collector DA-1.

Ash Grove upgraded the finish mill dust collection system (DA-9). This project replaced the existing Norblo DA shakerless dust collector with a BHA pulse jet conversion package. Two of the five compartments of this dust collection system had been dedicated to providing dust control to auxiliary equipment (DA-9 East), while the three remaining compartments had been dedicated to controlling emissions

from the mill sweep function (DA-9 West). The existing 9200-cfm booster fan had been utilized as the DA-9 East discharge fan while an existing 14,300-cfm fan had been retained, modified, and used as the DA-9 West discharge fan. This modification resulted in a flow increase of 9200 cfm.

Ash Grove installed a new mixing system for cement kiln dust (CKD) management. This project was known as the turbulator project. This project consisted of a 5-ton/hr turbulator that was used to wet CKD prior to its transport to the CKD monofill. This project would result in a decrease in emissions because the CKD would now be wet prior to transport and the number of vehicle trips to the monofill per day would decrease.

Ash Grove modified the petroleum coke feed system. This project involved installation of a 50-ton/hr Gundlach lump breaker in the existing coke hopper. The Gundlach lump breaker did not crush the coke, but rather it contained rollers that would separate the aggregated coke into individual coke nodules. There would not be an increase in emissions as a result of this project.

Ash Grove installed a second cement cooler in a parallel configuration to the existing cooler. This unit would provide the facility with 100% standby capability if the primary cooler failed or was out of service for extended maintenance. The cooler system was sized so that either cooler #1 or cooler #2 could handle the entire process throughput of the upstream air separator independently. Both coolers are operated, simultaneously, at reduced rates, to improve product cooling efficiency. There would not be an increase in production or emissions as a result of this project and both coolers are controlled by mill room dust collector DA-9 East.

Ash Grove installed a bucket elevator (BE-6) as a stand-by clinker transport method in the event drag conveyor DC-3 or apron conveyor AC-4 failed. BE-6 may also be used for railcar loading of clinker in response to production shortages to other Ash Grove plants. In addition, BE-6 may be used to transfer clinker to outdoor clinker storage piles in the winter during low shipping periods. BE-6 is capable of operating at 55 ton/hr and would be controlled by a new dust collector. The new dust collector would be called DA-19 and is a W.W. Sly model with a BHA pulse jet conversion. DA-19 would be operated at 2500 cfm. This project would result in a slight increase in emissions of approximately 0.18 tons/yr.

In addition, this permitting action incorporated **MAQP #853**, originally issued to Kaiser Cement and Gypsum Corporation for the renewal of the permit for the coal grinding plant at the facility, into MAQP #2005-02. MAQP #2005-02 replaced MAQP #853 and MAQP #2005-00.

On August 10, 1996, Ash Grove was issued **MAQP #2005-03** to install a 1980 belt conveyor (BC-0) rated at 200 ton/hr to remove clinker or crushed limestone from existing Storage Bin #3 or #5. Crushed limestone transported on this conveyor would be loaded into trucks for in-plant usage or customer sale. Clinker transported on this conveyor would either be loaded into trucks for stockpiling outside or loaded into railcars for customer shipments. A 1000-cfm pulse jet baghouse (DA-20) would be used to control particulate emissions from the conveyor-to-truck material transfer point. This alteration would result in an increase in particulate emissions of 0.75 tons per year (TPY). MAQP #2005-03 replaced MAQP #2005-02.

On July 25, 1996, Ash Grove applied for **MAQP #2005-04** to install a portable crusher at their Clark's Gulch Quarry. On September 12, 1996, Department of Environmental Quality (Department) staff met with Ash Grove to discuss the application. The Department had prepared an emission inventory for this project and the initial determination by the Department indicated that the proposal increased emissions of particulate matter in an amount that appeared to exceed the PSD significance levels. The application was withdrawn on July 15, 1997.

On July 22, 1997, Ash Grove was issued **MAQP #2005-05** to use 250 TPY of post-consumer recycled container glass as a raw material substitute in the cement kiln. Ash Grove cannot use more than 250 TPY of the glass because it may cause quality problems with the cement product. The Department determined that this activity met the statutory definition of an incinerator contained in Montana Code Annotated 75-2-103 and the intent of House Bill 380; therefore, Ash Grove was required to demonstrate that this activity posed no more than a negligible risk to human health and the environment. This permitting action resulted in an increase in minor amounts (<2 pound per year (lb/year)) of hazardous air pollutants emitted from the kiln.

In addition, as part of this permitting action, the Department identified the Standards of Performance for New Stationary Sources (NSPS) notification requirements for BC-0 and BE-6. These requirements were inadvertently left out of the previous MAQP. MAQP #2005-05 replaced MAQP #2005-03.

On November 11, 1998, **MAQP #2005-06** was issued to Ash Grove. The permit allowed the replacement of the existing Raymond air separator in the finish cement circuit with a new high efficiency separator. A 35,850 dry cubic feet per minute (dscfm) pulse jet dust collector was added to control particulate emissions from the separator and to collect "on-spec" product. The product is forwarded on to cement cooler #2. The controlled emission rate from the air separator is approximately 6.75 tons per year of particulate matter with an aerodynamic diameter of 10 microns or less (PM_{10}). MAQP #2005-06 replaced MAQP #2005-05.

Ash Grove submitted a complete permit application on December 20, 2000, for the installation and operation of seven temporary, diesel-fired generators at their facility. This application was assigned **MAQP #2005-07**. These generators were necessary because the high cost of electricity forced Ash Grove to curtail operations at their facility. The operation of the generators did not occur beyond 2 years and was not expected to last for an extended period of time, but rather only for the length of time necessary for Ash Grove to acquire a permanent, more economical supply of power.

Because these generators were only to be used when commercial power is too expensive to obtain, the amount of emissions expected during the actual operation of these generators was minor. In addition, the installation of these generators qualified as a "temporary source" under the Prevention of Significant Deterioration (PSD) permitting program because the permit limited the operation of these generators to a time period of less than 2 years. Therefore, Ash Grove did not need to comply with Administrative Rule of Montana (ARM) 17.8.804, 17.8 820, 17.8.822, and 17.8.824. Even though the portable generators were considered temporary, the Department required compliance with Best Available Control Technology (BACT)

and public notice requirements; therefore, compliance with ARM 17.8.819 and 17.8.826 was ensured. In addition, Ash Grove was responsible for complying with all applicable ambient air quality standards. MAQP #2005-07 replaced MAQP #2005-06.

Ash Grove submitted an application for an administrative amendment to MAQP #2005-07 for the replacement of the existing reverse-air type Dust Collector DA-2 to a pulse-jet cleaning style. The proposed dust collector will reduce particulate matter emissions by half. The project was part of a Supplemental Environmental Project (SEP) required by Administrative Order on Consent Docket Number AQ-07-10. The Department determined the change could be accomplished under the provisions of ARM 17.8.745(1) because the project did not cause or contribute to a violation of any ambient air quality standard and the potential emissions of the project were less than the 15 tons per year de minimis threshold. The dust collector is an insignificant emitting unit listed in Ash Grove's Title V Operating Permit #OP2005-05. **MAQP #2005-08** replaced MAQP #2005-07.

On April 21, 2005, the Department received a request from Ash Grove for an administrative amendment to MAQP #2005-08. Ash Grove requested the removal of the hourly crusher throughput limit and to identify that the crusher has a maximum rated throughput of 400 ton/hr. Because the potential to emit (PTE) was calculated based on emissions from the baghouse operated continuously for 8760 hours per year, and the baghouse operation will not change, removal of the limit will not result in a change to the PTE of the facility. In addition, when using updated AP-42 emission factors, the uncontrolled PTE for the primary crusher is significantly lower at 400 ton/hr than when originally permitted at 300 ton/hr. **MAQP #2005-09** replaced MAQP #2005-08.

C. Current Permit Action

On December 16, 2013, the Department received a permit application from Ash Grove for a modification to MAQP #2005-09. Ash Grove requested a production increase to the existing facility, achieved through modernization of the existing plant including a conversion from a "wet" process to a "dry" process for the manufacture of Portland cement. Additional information was received after December 16, 2013, up until May 19, 2014, at which time the Department determined the application "complete". The permit action includes information to process the MAQP application for both New Source Review and Prevention of Significant Deterioration (PSD) requirements. This permit action will include language for the existing facility up to the time where the new equipment begins operation and also all of the conditions that become effective after the modernization project is completed.

MAQP #2005-10 replaces MAQP #2005-09.

D. Additional Information

This permit attempts to include most of the language required in Consent Decree 2:13-cv-02299-JTM-DJW. It also incorporates the Regional Haze Requirements, PC MACT requirements and New Source Performance Standards. These documents each have different requirements but are often overlapping. Where similar

requirements appear to be repetitious, they are included to highlight that the specifics of each regulation were reviewed and included. Compliance with the most stringent condition shall also indicate compliance with less restrictive conditions, whether noted as such or not.

II. Applicable Rules and Regulations

The following are partial explanations of some applicable rules and regulations that apply to the facility. The complete rules are stated in the ARM and are available, upon request, from the Department. Upon request, the Department will provide references for location of complete copies of all applicable rules and regulations or copies where appropriate.

A. ARM 17.8, Subchapter 1 – General Provisions, including but not limited to:

1. ARM 17.8.101 Definitions. This rule includes a list of applicable definitions used in this chapter, unless indicated otherwise in a specific subchapter.

2. ARM 17.8.105 Testing Requirements. Any person or persons responsible for the emission of any air contaminant into the outdoor atmosphere shall, upon written request of the Department, provide the facilities and necessary equipment (including instruments and sensing devices) and shall conduct tests, emission or ambient, for such periods of time as may be necessary using methods approved by the Department.

3. ARM 17.8.106 Source Testing Protocol. The requirements of this rule apply to any emission source testing conducted by the Department, any source or other entity as required by any rule in this chapter, or any permit or order issued pursuant to this chapter, or the provisions of the Clean Air Act of Montana, 75-2-101, *et seq*., Montana Code Annotated (MCA).

   Ash Grove shall comply with the requirements contained in the Montana Source Test Protocol and Procedures Manual, including, but not limited to, using the proper test methods and supplying the required reports. A copy of the Montana Source Test Protocol and Procedures Manual is available from the Department upon request.

4. ARM 17.8.110 Malfunctions. (2) The Department must be notified promptly by telephone whenever a malfunction occurs that can be expected to create emissions in excess of any applicable emission limitation or to continue for a period greater than 4 hours.

5. ARM 17.8.111 Circumvention. (1) No person shall cause or permit the installation or use of any device or any means that, without resulting in reduction of the total amount of air contaminant emitted, conceals or dilutes an emission of air contaminant that would otherwise violate an air pollution control regulation. (2) No equipment that may produce emissions shall be operated or maintained in such a manner as to create a public nuisance.

B. ARM 17.8, Subchapter 2 – Ambient Air Quality, including, but not limited to the following:

1. ARM 17.8.204 Ambient Air Monitoring
2. ARM 17.8.210 Ambient Air Quality Standards for Sulfur Dioxide
3. ARM 17.8.211 Ambient Air Quality Standards for Nitrogen Dioxide
4. ARM 17.8.212 Ambient Air Quality Standards for Carbon Monoxide
5. ARM 17.8.213 Ambient Air Quality Standard for Ozone
6. ARM 17.8.214 Ambient Air Quality Standard for Hydrogen Sulfide
7. ARM 17.8.220 Ambient Air Quality Standard for Settled Particulate Matter
8. ARM 17.8.221 Ambient Air Quality Standard for Visibility
9. ARM 17.8.222 Ambient Air Quality Standard for Lead
10. ARM 17.8.223 Ambient Air Quality Standard for PM_{10}
11. ARM 17.8.230 Fluoride in Forage

Ash Grove must maintain compliance with the applicable ambient air quality standards.

C. ARM 17.8, Subchapter 3 – Emission Standards, including, but not limited to:

1. ARM 17.8.304 Visible Air Contaminants. This rule requires that no person may cause or authorize emissions to be discharged into the outdoor atmosphere from any source installed after November 23, 1968, that exhibit an opacity of 20% or greater averaged over 6 consecutive minutes.

2. ARM 17.8.308 Particulate Matter, Airborne. (1) This rule requires an opacity limitation of less than 20% for all fugitive emission sources and that reasonable precautions be taken to control emissions of airborne particulate matter. (2) Under this rule, Ash Grove may not cause or authorize the use of any street, road, or parking lot without taking reasonable precautions to control emissions of airborne particulate matter.

3. ARM 17.8.309 Particulate Matter, Fuel Burning Equipment. This rule requires that no person shall cause, allow, or permit to be discharged into the atmosphere particulate matter caused by the combustion of fuel in excess of the amount determined by this rule.

4. ARM 17.8.310 Particulate Matter, Industrial Process. This rule requires that no person shall cause, allow, or permit to be discharged into the atmosphere particulate matter in excess of the amount set forth in this rule.

5. ARM 17.8.322 Sulfur Oxide Emissions--Sulfur in Fuel. (4) Commencing July 1, 1972, no person shall burn liquid or solid fuels containing sulfur in excess of 1 pound of sulfur per million Btu fired. (5) Commencing July 1, 1971, no person shall burn any gaseous fuel containing sulfur compounds in excess of 50 grains per 100 cubic feet of gaseous fuel, calculated as hydrogen sulfide at standard conditions.

6. ARM 17.8.324 Hydrocarbon Emissions--Petroleum Products. (3) No person shall load or permit the loading of gasoline into any stationary tank with a capacity of 250 gallons or more from any tank truck or trailer, except through a permanent submerged fill pipe, unless such tank is equipped with a vapor loss control device as described in (1) of this rule.

7. ARM 17.8.340 Standard of Performance for New Stationary Sources and Emission Guidelines for Existing Sources. This rule incorporates, by reference, 40 CFR Part 60, Standards of Performance for New Stationary Sources (NSPS). Ash Grove is considered an NSPS affected facility under 40 CFR Part 60 and is subject to the requirements of the following subparts.

   a. 40 CFR 60 Subpart A – General Provisions apply to all equipment or facilities subject to an NSPS Subpart as listed below:

   b. 40 CFR 60 Subpart F – Standards of Performance for Portland Cement Plants applies to emitting units as noted in Section IV (General Conditions)(I) of MAQP #2005-10.

   c. 40 CFR 60 Subpart Y – Standards of Performance for Coal Preparation Plants and Processing Plants applies specifically to the coal fuel process units as noted in Section IV (General Conditions)(I) of MAQP #2005-10.

   d. 40 CFR 60 Subpart OOO – Standards of Performance for Nonmetallic Mineral Processing Plants applies to emitting units as noted in Section IV (General Conditions)(I) of MAQP #2005-10.

   e. 40 CFR 60, Subpart IIII – Standards of Performance for Stationary Compression Ignition Combustion Engines applies to emitting unit EG1.SK1.

8. ARM 17.8.341 Emission Standards for Hazardous Air Pollutants. This source shall comply with the standards and provisions of 40 CFR Part 61, as appropriate.

   a. 40 CFR 61, Subpart A – General Provisions apply to all equipment or facilities subject to a NESHAP Subpart as listed below:

9. ARM 17.8.342 Emission Standards for Hazardous Air Pollutants for Source Categories. The source, as defined and applied in 40 CFR Part 63, shall comply with the requirements of 40 CFR Part 63, as listed below:

   a. 40 CFR 63, Subpart A – General Provisions apply to all equipment or facilities subject to an NESHAP Subpart as listed below:

   b. 40 CFR 63 Subpart LLL –NESHAPs from the Portland Cement Manufacturing Industry. Ash Grove must comply with all applicable requirements of this Subpart as noted in Section IV (General Conditions)(I) of MAQP #2005-10.

   c. 40 CFR 63, Subpart ZZZZ – National Emissions Standards for Hazardous Air Pollutants For Stationary Reciprocating Internal Combustion Engines applies to emitting unit EG1.SK1.

D. ARM 17.8, Subchapter 4 – Stack Height and Dispersion Techniques, including, but not limited to:

1. ARM 17.8.401 Definitions. This rule includes a list of definitions used in this chapter, unless indicated otherwise in a specific subchapter.

2. ARM 17.8.402 Requirements. Ash Grove must demonstrate compliance with the ambient air quality standards with a stack height that does not exceed Good Engineering Practices (GEP). Ash Grove included an analysis in their application using the U.S. EPA Building Profile Input Program (BPIP) to calculate the GEP. The modeled stack heights were consisted with ARM 17.8.401(2)(b)(ii).

E. ARM 17.8, Subchapter 5 – Air Quality Permit Application, Operation, and Open Burning Fees, including, but not limited to:

1. ARM 17.8.504 Air Quality Permit Application Fees. This rule requires that an applicant submit an air quality permit application fee concurrent with the submittal of an air quality permit application. A permit application is incomplete until the proper application fee is paid to the Department. Ash Grove submitted the appropriate permit application fee for the current permit action.

2. ARM 17.8.505 Air Quality Operation Fees. An annual air quality operation fee must, as a condition of continued operation, be submitted to the Department by each source of air contaminants holding an air quality permit (excluding an open burning permit) issued by the Department. The air quality operation fee is based on the actual or estimated actual amount of air pollutants emitted during the previous calendar year.

   An air quality operation fee is separate and distinct from an air quality permit application fee. The annual assessment and collection of the air quality operation fee, described above, shall take place on a calendar-year basis. The Department may insert into any final permit issued after the effective date of these rules, such conditions as may be necessary to require the payment of an air quality operation fee on a calendar-year basis, including provisions that prorate the required fee amount.

F. ARM 17.8, Subchapter 7 – Permit, Construction, and Operation of Air Contaminant Sources, including, but not limited to:

1. ARM 17.8.740 Definitions. This rule is a list of applicable definitions used in this chapter, unless indicated otherwise in a specific subchapter.

2. ARM 17.8.743 Montana Air Quality Permits--When Required. This rule requires a person to obtain an air quality permit or permit modification to construct, modify, or use any air contaminant sources that have the potential to emit (PTE) greater than 25 tons per year of any pollutant. Ash Grove has the PTE greater than 25 tons per year of carbon monoxide (CO), oxides of nitrogen (NO_x), PM_{10}, particulate matter (PM), and sulfur oxides (SO_x); therefore, an air quality permit is required.

3. ARM 17.8.744 Montana Air Quality Permits--General Exclusions. This rule identifies the activities that are not subject to the Montana Air Quality Permit program.

4. ARM 17.8.745 Montana Air Quality Permits--Exclusion for De Minimis Changes. This rule identifies the de minimis changes at permitted facilities that do not require a permit under the Montana Air Quality Permit Program.

5. ARM 17.8.748 New or Modified Emitting Units--Permit Application Requirements. (1) This rule requires that a permit application be submitted prior to installation, modification, or use of a source. Ash Grove submitted the required permit application for the current permit action. (7) This rule requires that the applicant notify the public by means of legal publication in a newspaper of general circulation in the area affected by the application for a permit. Ash Grove submitted an affidavit of publication of public notice for the December 21, 2013, issue of the *Helena Independent Record*, a newspaper of general circulation in the City of Helena in Lewis and Clark County, as proof of compliance with the public notice requirements.

6. ARM 17.8.749 Conditions for Issuance or Denial of Permit. This rule requires that the permits issued by the Department must authorize the construction and operation of the facility or emitting unit subject to the conditions in the permit and the requirements of this subchapter. This rule also requires that the permit must contain any conditions necessary to assure compliance with the Federal Clean Air Act (FCAA), the Clean Air Act of Montana, and rules adopted under those acts.

7. ARM 17.8.752 Emission Control Requirements. This rule requires a source to install the maximum air pollution control capability that is technically practicable and economically feasible, except that BACT shall be utilized. The required BACT analysis is included in Section III of this permit analysis.

8. ARM 17.8.755 Inspection of Permit. This rule requires that air quality permits shall be made available for inspection by the Department at the location of the source.

9. ARM 17.8.756 Compliance with Other Requirements. This rule states that nothing in the permit shall be construed as relieving Ash Grove of the responsibility for complying with any applicable federal or Montana statute, rule, or standard, except as specifically provided in ARM 17.8.740, *et seq*.

10. ARM 17.8.759 Review of Permit Applications. This rule describes the Department's responsibilities for processing permit applications and making permit decisions on those permit applications that do not require the preparation of an environmental impact statement.

11. ARM 17.8.760 Additional Review of Permit Applications. This rule describes the Department's responsibilities for processing permit applications and making permit decisions on those applications that require an environmental impact statement.

12. ARM 17.8.762 Duration of Permit. An air quality permit shall be valid until revoked or modified, as provided in this subchapter, except that a permit issued prior to construction of a new or modified source may contain a condition providing that the permit will expire unless construction is commenced within the time specified in the permit, which in no event may be less than 1 year after the permit is issued.

13. ARM 17.8.763 Revocation of Permit. An air quality permit may be revoked upon written request of the permittee, or for violations of any requirement of the Clean Air Act of Montana, rules adopted under the Clean Air Act of Montana, the FCAA, rules adopted under the FCAA, or any applicable requirement contained in the Montana State Implementation Plan (SIP).

14. ARM 17.8.764 Administrative Amendment to Permit. An air quality permit may be amended for changes in any applicable rules and standards adopted by the Board of Environmental Review (Board) or changed conditions of operation at a source or stack that do not result in an increase of emissions as a result of those changed conditions. The owner or operator of a facility may not increase the facility's emissions beyond permit limits unless the increase meets the criteria in ARM 17.8.745 for a de minimis change not requiring a permit, or unless the owner or operator applies for and receives another permit in accordance with ARM 17.8.748, ARM 17.8.749, ARM 17.8.752, ARM 17.8.755, and ARM 17.8.756, and with all applicable requirements in ARM Title 17, Chapter 8, Subchapters 8, 9, and 10.

15. ARM 17.8.765 Transfer of Permit. This rule states that an air quality permit may be transferred from one person to another if written notice of intent to transfer, including the names of the transferor and the transferee, is sent to the Department.

16. ARM 17.8.770 Additional Requirements for Incinerators. This rule specifies the additional information that must be submitted to the Department for incineration facilities subject to 75-2-215, Montana Code Annotated (MCA).

17. ARM 17.8.771 Mercury Emission Standards for Mercury-Emitting Generating Units. This rule identifies mercury emission limitation requirements, mercury control strategy requirements, and application requirements for mercury-emitting generating units. Ash Grove is subject to new mercury emission limits under 40 CFR 63 Subpart LLL.

G. ARM 17.8, Subchapter 8 – Prevention of Significant Deterioration of Air Quality, including, but not limited to:

1. ARM 17.8.801 Definitions. This rule is a list of applicable definitions used in this subchapter.

2. ARM 17.8.818 Review of Major Stationary Sources and Major Modifications--Source Applicability and Exemptions. The requirements contained in ARM 17.8.819 through ARM 17.8.827 shall apply to any major stationary source and any major modification, with respect to each pollutant subject to regulation under the FCAA that it would emit, except as this subchapter would otherwise allow. A public notice will be published in the Helena Independent Record on or about Friday, June 13, 2014.

   Ash Grove is defined as a "major stationary source" because it is a listed source and does have the potential to emit more than 100 tons of any pollutant.

   This permitting action is considered a PSD. The net emission changes are as follows:

Pollutant	Future Plantwide Potential to Emit (tpy)	Baseline (two year avg. actual emissions for sources remaining) (tpy)	Project Emissions Increase prior to netting[1] (tpy)	Contem - poraneous Increases[2] (tpy)	Contem - poraneous Decreases[3] (tpy)	Net Emissions Increase (tpy)	Significant Emission Increase Threshold (tpy)	PSD Triggered
PM	197.90	93.99	103.91	-	139.55	(35.64)	25	No
PM_{10}	137.92	31.17	106.75	-	123.53	(16.77)	15	No
$PM_{2.5}$	106.27	8.05	98.22	-	115.00	(16.78)	10	No
SO_2	150.96	0.12	150.84	-	399.98	(249.14)	40	No
NOx	571.26	0.99	570.27	-	1,388.42	(818.15)	40	No
CO	477.31	3.90	473.41	-	24.37	449.03	100	**Yes**
VOC	117.85	0	117.85	-	3.92	113.92	40	**Yes**
Lead	0.04	0	0.04	-	0.01	0.03	0.6	No
GHGs								
CO2	717,385	0	717,385	-	337,268	380,117	75,000	**Yes**
CH4	42	0	42	-	18	23.94	75,000	No
N2O	6	0	6	-	3	3.49	75,000	No
CO2e	720,256	0	720,256	-	338,500	381,756	75,000	**Yes**

[1] Difference between Potential Emissions and Baseline Emissions (two year avg actual of existing sources remaining after project).

[2] Actual emission increases from projects in the Contemporaneous Period (2008 - thru project completion)

[3] Actual emission decreases from sources shut down in the Contemporaneous Period (2008 - thru project completion).

H. ARM 17.8, Subchapter 12 – Operating Permit Program Applicability, including, but not limited to:

1. ARM 17.8.1201 Definitions. (23) Major Source under Section 7412 of the FCAA is defined as any source having:

   a. PTE > 100 tons/year of any pollutant;

   b. PTE > 10 tons/year of any one hazardous air pollutant (HAP), PTE > 25 tons/year of a combination of all HAPs, or lesser quantity as the Department may establish by rule; or

   c. PTE > 70 tons/year of particulate matter with an aerodynamic diameter of 10 microns or less (PM_{10}) in a serious PM_{10} nonattainment area.

2. ARM 17.8.1204 Air Quality Operating Permit Program. (1) Title V of the FCAA Amendments of 1990 requires that all sources, as defined in ARM 17.8.1204(1), obtain a Title V Operating Permit. In reviewing and issuing MAQP #2005-10, the following conclusions were made:

   a. The facility's PTE is greater than 100 tons/year for several pollutants.

   b. The facility's PTE is less than 10 tons/year of any one HAP and less than 25 tons/year of all HAPs.

   c. This source is not located in a serious PM_{10} nonattainment area.

d. This facility is subject to a current NSPS standard (40 CFR 60 Subpart A, Subpart F, Subpart IIII, Subpart Y and Subpart OOO).

e. This facility is subject to a current NESHAP standard (40 CFR 63, Subpart A , Subpart LLL and Subpart ZZZZ).

f. This source is not a Title IV affected source.

g. This source is an EPA designated Title V source.

Based on these facts, the Department has determined that Ash Grove is a major source of emissions as defined under Title V. Title V Operating Permit #OP2005-08 will need to be revised to include new requirements included in this MAQP.

III. BACT Determination

A BACT determination is required for each new or modified source. Ash Grove shall install on the new or modified source the maximum air pollution control capability which is technically practicable and economically feasible, except that BACT shall be utilized.

A BACT analysis was submitted by Ash Grove in air quality permit application #2005-10, addressing available methods of controlling emissions from the proposed modernization project. The Department reviewed these methods, as well as previous BACT determinations. The following process equipment has been reviewed relative to the pollutants noted to determine BACT for the Ash Grove modernization project. All of this information, as presented by Ash Grove is summarized below.

Inline Raw Mill/Preheater/Precalciner – CO Emissions

Possible control technologies for CO emissions from cement kilns can be achieved using thermal oxidation, catalytic incineration, excess air and good combustion practices (GCP). Catalytic incineration has not been used on cement kilns due to the risk of poisoning the catalyst and high replacement costs that would occur due to general fouling. Thermal oxidation is technically feasible but with little or no fuel in the exhaust stream, the thermal oxidation operating costs would be prohibitive. A supplemental fuel would be required to fire the thermal oxidizer generating additional emissions to convert the CO to CO_2.

A Thermal Oxidizer (TO) can be used for CO control in certain industries, although they are more typically employed to control VOC emissions. Thermal oxidation is performed with devices that use an open flame or combustion within an enclosed chamber to oxidize pollutants. Thermal oxidizers typically operate at temperatures that range from 1,200°F to 2,000°F, with a residence time of up to 2 seconds. By raising the temperature, the residence time for complete combustion can be reduced, or, alternatively, by increasing the residence time, the temperature can be reduced.

The three types of thermal oxidizers most commonly used in industrial plants are regenerative, recuperative, and open-flame (flare). The most energy-efficient is the regenerative thermal oxidizer (RTO), which can recover up to 95 percent of the heat used during oxidation under ideal conditions, thereby reducing fuel costs. In practice, at a cement manufacturing operation, maximum heat recovery would not be expected due to fouling of the heat transfer media in the RTO.

The recuperative thermal oxidizer is less thermally efficient than the RTO. Heat from the treated gas is transferred to the untreated gas using a gas-to-gas heat exchanger. The open-flame is the least energy-efficient thermal oxidizer since it does not recover any heat. It is uncommon to use either of these two oxidizers as tail pipe controls in large-scale processes such as cement kiln systems. All three technologies require the combustion of additional fuel to treat the kiln gas. Since the RTO is the most energy efficient and is applicable to large-scale processes, the BACT analysis considered only the regenerative thermal oxidizer.

The exhaust gas to be treated enters the RTO system through a forced-draft fan. The inlet heat transfer bed of ceramic media preheats the gas stream prior to the combustion phase. In the combustion chamber that is equipped with a natural gas burner, up to 98 percent of CO is oxidized to CO_2. The purified exhaust gas preheats a second heat transfer bed and exits through the diverter valve. The control efficiency that can be achieved by the RTO depends on the inlet pollutant concentration. A 98 percent control efficiency was considered for this analysis.

There are two (2) cement plants in the U.S. that have RTOs installed: the TXI plant in Midlothian, Texas, and the Holcim plant in Dundee, Michigan. The Holcim plant installed the RTO as a result of a consent order regarding odors from the volatile organic matter emissions as a result of kiln feed with high organic material content. The RTO/scrubber combination at Holcim has not operated continuously because of operational problems and is shut down.

It should be pointed out that both of these installations rely solely on natural gas for supplemental fuel.

The addition of another source of combustion emissions to the kiln could also result in an increase in criteria pollutant emissions and would result in increased energy consumption. Although RTOs are technically feasible, site-specific engineering assessments would need to be completed to fully verify the technical feasibility of an RTO at the Montana City facility. For purposes of this BACT screening analysis, the economic feasibility was completed for an RTO.

The fully completed economic analysis submitted by Ash Grove concluded that removal of 459.4 tons of CO annually would result in a total cost per ton of pollutant removed of $11,072. This is considered above a level considered economically feasible for Ash Grove.

Adding excess air is technically feasible to help convert CO to CO_2 but would also generate additional NO_x. Therefore, excess air is not technically feasible when attempting to minimize NO_x formation. A properly designed and operated cement kiln minimizes CO formation from fuel combustion. Excess CO in the exhaust stream indicates unutilized thermal energy potential which results in increased operating costs. The RBLC indicates GCP is the predominant BACT technology used for control of CO emissions. A RLBC summary of permitted CO limits indicates a wide range from 1.05 lb/ton clinker up to 11.3 lb/ton. The 1.05 lb/ton clinker unit has not been constructed; therefore this limit has not been demonstrated as BACT. The majority of the most RBLC recent projects are shown with limits between 2 and 4 lb/ton clinker. Ash Grove has proposed a BACT limit of 1.225 lb/ton of clinker on a 30-day rolling average which is accepted as a BACT limit. Short term hourly limits are accepted at 7.5 times the 30-day rolling average limit but the rolling averaging period has been reduced to a 24-hr period. Since the short term emission rates used for modeling purposes are higher than the BACT emission rates, these permit conditions have been added under ARM 17.8.749 as they are not BACT conditions.

Inline Raw Mill/Preheater/Precalciner – VOC Emissions

As for the above Inline Raw Mill/Preheater/Precalciner equipment, three of the control technologies are reviewed for VOC control. A fourth option is available and that is selective quarrying as the source of the VOCs is primarily the raw materials mined from the quarry. Catalytic incineration is again not technically feasible given the risk of catalyst poisoning. Thermal oxidation is feasible but again would require supplemental fuel and create additional emissions. Selective quarrying is not feasible, as the material variability is naturally occurring at the site. A properly designed and operated cement kiln minimizes VOC formation because VOC indicates unutilized thermal energy potential which results in minor increases in operating costs. The RBLC indicates GCP is the predominant BACT technology used for control of VOC emissions. A RLBC summary of permitted VOC limits indicates a wide range from 0.1 lb/ton clinker up to 1.24 lb/ton. The majority of the most recent RBLC projects had VOC limits between 0.12 and 0.55 lb/ton clinker. Ash Grove proposed a BACT limit of 0.304 lb/ton of clinker on an annual 12-month rolling average which is accepted as the annual BACT limit. Given the VOC limits are a function of organic material in the raw materials, a BACT limit falling within the range of recently permitted cement facilities is selected as BACT.

Inline Raw Mill/Preheater/Precalciner – GHG Emissions

GHGs are generally defined as an aggregate of six pollutants, including: carbon dioxide (CO_2), nitrous oxide (N_2O), methane (CH_4), hydrofluorocarbons (HFC), perfluorocarbons (PFC) and sulfur hexafluoride (SF_6). Each of these pollutants has a subsequent global warming potential (GWP) that is then used to calculate the CO_2 equivalent (CO_2e). The sum of the applicable pollutants determines whether the permit is major for GHGs, or not.

Portland cement manufacturers are considered a "listed source" category and a modification would be considered major for GHGs with a CO_2e of 75,000 TPY, or greater. Ash Grove estimates the expansion project's CO_2e at 381,000 TPY which would be major for GHG.

It has been well documented that CO_2 is the predominant GHG emitted by cement manufacturers, accounting for almost all GHG emissions. Given this, the GHG BACT analysis primarily focuses on CO_2 emissions. In October 2010, U.S. EPA published a white paper on reducing GHG emissions from the Portland cement industry and BACT guidance for new or reconstructed cement facilities. Ash Grove has incorporated a number of these recommendations into their proposed design for the "dry" cement process. The recommendations brought forth by EPA essentially identify those processes within a cement facility which allow for maximizing energy efficiency and therefore reduce fuel usage per ton of cement produced. The recommendations incorporated from the EPA white paper into the Ash Grove modernization project include: (1) an in-line raw mill preheater/precalciner kiln with five stage preheater, (2) a new clinker cooler with modern grate design and long service life refractory to ensure high insulating capacity, and (3) incorporating a kiln seal management program to minimize excess air intake to reduce fuel usage. Each of these designs allows maximum energy efficiency and serves to reduce the CO_2 emissions. There are few examples of new Portland cement plants to examine for BACT review. The most recent permitted plants are not yet operating but range from 0.91 to 0.95 tons CO_2e/ton clinker. Given that the new plants are not yet constructed and have not demonstrated compliance with these limits, Ash Grove has proposed a CO_2e emission limit of 0.95 ton CO_2e/ton on a 12-month rolling average. This limit is accepted as the CO_2e BACT limit.

Pyroprocesssing System Kiln, Raw Mill, Preheater, Precalciner, Bypass, and Clinker Cooler – PM, PM_{10}, $PM_{2.5}$

Baghouse technology to control particulate matter including PM, PM_{10} and $PM_{2.5}$ is recognized as the best technically feasible control technology available. Ash Grove has proposed to install baghouse control technology; therefore, no further analysis is required and baghouse control technology for particulate control is accepted as BACT. Neither 40 CFR 60 Subpart F nor 40 CFR 63 Subpart LLL regulate the condensable portion of PM, PM_{10} or $PM_{2.5}$, but for regulatory applicability purposes and ambient air quality analyses both filterable and condensable portions are included. Ash Grove proposes achieving a filterable particulate limit of 0.02 lb/ton clinker on a 30-day rolling average.

Baghouses planned for both new emitting units and existing units with their associated nominal design rates are shown below.

New Emitting Units

Baghouse Emitting Unit	Description	Design Rate SCFM
111BF290	Limestone - Apron Feeder/Crusher Building	14828
121BF110	Limestone - Quarry Pile Loadout VFeeder Bagfilter	2779
121BF120	Limestone - Quarry Pile Loadout VFeeder Bagfilter	2779
121BF130	Limestone - Quarry Pile Loadout VFeeder Bagfilter	2779
121BF140	Limestone Belt 111BC160 to 121BC100	4663
121BF150	Limestone Belt 121BC100 to Over land BC 1	4663
121BF230	Limestone Over Land BC 1 to Over Land BC 2	7043
121BF290	Limestone Over Land BC 2 to Over Land BC 3	7043
121BF330	Limestone Over Land BC 3 to Over Land BC 4	7043
121BF370	Limestone Over Land BC 4 to 121BC400	7043
121BF410	Limestone 121BC400 to 121BC450	7043
121BF430	Limestone 121BC460 to 121BC470	8328
141BF415	Limestone 141BC400 to 141BC450	3709
143BF340	Additive Hopper 143FY325 & 143BC330 to 143BC355	2779
143BF350	Additive 143BC355 to 143BC400	3709
242BF340	Additive Hopper 232FY325 & 232BC330 to 242BC350	2779
242BF320	Additive 242BC350 to 242BC400	5806
232BF110	Additive Hopper 212FY045/FY055 to 232BC100	2779
231BF160	Solid Fuel Hopper 241AF090 to 241BC150	2779
311BF020	Raw Mill Additive Bins	14828
311BF080	Raw Mill Limestone Bins	3709
311BF610	Raw Mill Bins to 311BC600	9921
321BF020	Raw Mill 311BC600 to 321BC010	9921
321BF290	Raw Mill 321BC200 to 321BE220	9921
321BF610	Raw Meal 321AS510 to 341BE050	1944
341BF090	Raw Meal 341BE050 to 341AS060	1944
341BF085	Raw Meal 331VA585 to 341AV080	2593
341BF400	Raw Meal silo South	1944
342BF400	Raw Meal silo North	1944
351BF400	Raw Meal 351BE340 351SA300 351BL100 351AS050	3261
351BF410	Raw Meal 351BE340 to 351AS350	1944
351BF085	Raw Meal 331VA585 to 341AV080	2593
441BF620	Clinker Cooler to 471DB100	5527
451BF610	Other dust 451BE330 to 451BI410 and 451LS495 to Truck	2952
461BF045	Raw Coal/Solid Fuel - 461 BC010 to bins 461BI020 and BI030	9080
461BF050	Raw Coal/Solid Fuel - Bins 461BI020 and BI030 to 461BC080	5634
461BF560	Pulverized Fuel Bin 461BI550	100
461BF660	Pulverized Fuel Bin 461BI650	100

471BF150	Existing Clinker Silo 1 thru 6 Venting	4674
471BF160	Clinker -471BE110 to 471DB210	1845
471BF620	Clinker - 471DB100 to 471BE110	5527
481BF450	Off Std Clinker 471DB240 to Off Standard Clinker Silo	3853
481BF520	Off Std Clinker Silo to 481BW416 , 481LS430 (truck loadout), and 481BW181	5527
481BF610	Clinker Silos to 481BC150, BC160, BC170 to 481BW181	9840
481BF620	Clinker - 481BW181 to 481BC190	3095
511BF070	Cement Mill Feed - 242BC400 to 511BC150 to 511BI200 and 511BI300	9840
531BF020	Clinker - 531BE220 to 531BC010	9840
531BF290	Clinker - 531BC200 to 531BC210 to 531BE220	7532
541BF050	Cement - 541BE100 to 541 AS110	1845
541BF150	Cement - 541 AS110 to 541AS120 to 541BE200	3095
541BF250	Cement - 541BE200 to 611SI100, SI200, SI300, SI400	3095
611BF610	Cement - 611SI100 to Cement Silo	2461
612BF610	Cement - 611SI200 to Cement Silo	2461
613BF610	Cement - 611SI300 to Cement Silo	2461
614BF610	Cement - 611SI400 to Cement Silo	2461
611BF560	Cement - 611AS500 to 611TK550	2472
621BF162	Cement - 611TK550 to Truck	848
621BF142	Cement - 611TK550 to Rail	848
612BF560	Cement - 612AS500 to 612TK550	2472
622BF162	Cement - 612TK550 to Truck	848
622BF142	Cement - 612TK550 to Rail	848
613BF560	Cement - 613AS500 to 613TK550	2472
623BF162	Cement - 613TK550 to Truck	848
623BF142	Cement - 613TK550 to Rail	848
614BF560	Cement - 614AS500 to 614TK550	2472
624BF162	Cement - 614TK550 to Truck	848
624BF142	Cement - 614TK550 to Rail	848

Existing Emitting Units

Baghouse Emitting Unit	Description	Design Rate SCFM
DA12	Valve House	4300
DA14	South Packer (SLA)	3300
DA17	Silo #13 Bottom (Rail loading)	6000
DA18	Silo #11 Top (Rail loading)	6000
416BF3	Lime Silo	1000
416BF4	Dust Bin	2200
416BF5	Dust Master	125
416BF6	Loadout Spout	1400

Ash Grove has also presented the following Filterable PM limits as BACT for the respective baghouses and shall not exceed: (Applies to all new baghouses noted in the above tables).

a. Particulate matter (PM) in excess of 0.0055 grains per dry standard cubic feet (gr/dscf)
b. Particulate matter (PM_{10}) in excess of 0.005 gr/dscf
c. Particulate matter ($PM_{2.5}$) in excess of 0.004 gr/dscf

The In-line Solid Fuel Mill Stack (461.SK395) limits are presented as:

a. Particulate matter (PM) in excess of 0.008 gr/dscf
b. Particulate matter (PM_{10}) in excess of 0.006 gr/dscf
c. Particulate matter ($PM_{2.5}$) in excess of 0.004 gr/dscf

The Clinker Cooler Stack (441.SK720) limits are presented as:

a. Particulate matter (PM) in excess of 0.0055 gr/dscf
b. Particulate matter (PM_{10}) in excess of 0.005 gr/dscf
c. Particulate matter ($PM_{2.5}$) in excess of 0.004 gr/dscf

The Cement Mill (531.SK590) limits are presented as:

a. Particulate matter (PM) in excess of 0.0055 gr/dscf
b. Particulate matter (PM_{10}) in excess of 0.005 gr/dscf
c. Particulate matter ($PM_{2.5}$) in excess of 0.004 gr/dscf

The Kiln Stack/Bypass (331.SK410) Total PM including condensable PM limits are presented as:

a. Particulate matter (PM Total including condensable) in excess of 0.14 lb/ ton clinker
b. Particulate matter (PM_{10} Total including condensable) in excess of 0.11 lb/ ton clinker
c. Particulate matter ($PM_{2.5}$ Total including condensable) in excess of 0.11 lb/ ton clinker

The emitting unit limits with their respective baghouses are accepted as BACT.

Pyroprocesssing System Kiln, Raw Mill, Preheater, Precalciner, Bypass, and Clinker -NO_x
NSPS Subpart F limits emissions of NO_x for new and reconstructed kiln to less than 1.5 lb/ton clinker, based on a 30-day rolling average. Ash Grove is planning to comply with the NO_x limit by installing SNCR in combination with staged combustion which provides inherent control. SNCR is the most efficient NO_x reduction technology demonstrated on U.S. cement kilns. A review of the recent BACT determinations for cement kilns indicates that 1.5 lb/ton clinker (30-day rolling average) is equivalent to or lower than recent NO_x BACT determinations. The proposed 1.5 lb/ton clinker on a 30-day rolling average is accepted as BACT for NO_x control. The proposed vendor of the kiln system, FLS, indicated that they will not guarantee that the kiln system can achieve the NSPS limit of 1.5 lb NO_x/ton limit on a 30-day rolling average basis while operating on natural gas with SNCR for NO_x control. Therefore, while the facility will be designed to operate on natural gas and may do so for periods of time, the NSPS limit of 1.5 lb NO_x/ton on a 30-day rolling average basis precludes the facility from being able to consider continuous operation on natural gas at this time. A short term emission limit of 3.0 times the 30-day rolling average limit for NO_x has also been incorporated into the permit resulting in a 4.5 lb NO_x/ton on a 24-hr rolling average. Since the short term emission rate is higher than the BACT emission rate, the short term limit has been added under ARM 17.8.749 as it is not a BACT condition.

Pyroprocesssing System Kiln, Raw Mill, Preheater, Precalciner, Bypass, and Clinker –SO_2

The new Portland cement plants being installed incorporate many features which act to scrub SO_2 from the kiln exhaust. Designs which provide for SO_2 scrubbing typically include preheaters, precalciners and in-line raw mills which are all planned for the proposed Ash Grove Modernization project. The recently revised 40 CFR 60 Subpart F Standards of Performance for Portland Cement Plants requires 0.4 lb/ton clinker on a 30-day rolling average. While the NSPS itself does not necessarily determine BACT for a given process, this NSPS has just recently been issued and there has only been one cement plant permitted since the NSPS became effective. The permitted limit for that cement plant was set at 0.4 lb/ton clinker on a 30-day rolling average. Therefore, the proposed permit limit of 0.4 lb/ton clinker on a 30-day rolling average is accepted as BACT for SO_2.

Short term hourly limits are accepted at 3.0 times the 30-day rolling average limit but the rolling averaging period has been reduced to a 24-hr period. Since the short term emission rate is higher than the BACT emission rate, the short term limit has been added under ARM 17.8.749 as it is not a BACT condition.

Solid Fuel Mill and Controlled Handling

The solid fuel mill (461.CK395) will be subject to the particulate matter standards from NESHAP subpart LLL and will need to comply with 0.02 lb/ton clinker for filterable PM. Ash Grove is proposing a baghouse to meet this emission limit. Baghouse control technology is the most efficient control device for controlling filterable PM.

Three controlled transfer points (231.BF160, 461.BF045, 461.BF050) associated with the solid fuel mill also are subject to NSPS subpart Y and are limited to 0.01 gr/dscf of filterable PM. Ash Grove is proposing to install baghouse control technology to meet this limit and is proposing the following PM, PM_{10}, and $PM_{2.5}$ limits.

PM = 0.0055 gr/dscf
PM_{10} = 0.005 gr/dscf
$PM_{2.5}$= 0.004 gr/dscf

Pulverized Bin Vents are also subject to Subpart Y but since the bin vents are not mechanical, the 0.01 gr/dscf does not apply but must meet a limit of ten percent opacity. Ash Grove proposes the ten percent opacity limit as BACT for the pulverized bin vents.

The BACT limits proposed for the solid fuel mill and controlled handling operations are accepted as BACT.

Crusher, Finish Mill, Bins and Controlled Transfer Points Including Those on Overland Conveyor

These new emission sources will be subject to NESHAP Subpart LLL and accordingly are subject to ten percent opacity. Ash Grove proposes to use baghouse control to control filterable PM, as well as PM_{10} and $PM_{2.5}$. Ash Grove proposes to meet the opacity limit through the use of baghouse control and meeting the 10 percent opacity over a 6-minute block average for the cement mill, storage bins, and controlled transfer points downstream of the raw material storage bins.

Particulate matter emission sources including the new quarry crusher building (111.BF290), controlled transfer points associated with the limestone pile (121.BF110, 121.BF120, 121.BF130, 121.BF140, 121.BF150), transfer points associated with the overland conveyor (121.BF230, 121.BF290, 121.BF330, and 121.BF370), transfer points associated with the raw material storage building (121.BF410, 121.BF430, and 141.BF415), and transfer points associated with the additive hoppers (143.BF340, 143.BF350, 242.BF340, 242.BF320, and 232.BF110) are subject to NSPS OOO. NSPS OOO imposes a stack PM emission limit of 0.014 gr/dscf for these sources.

Particulate matter emission sources, including the new finish mill, storage bins, and controlled transfer points, after the raw material feed bins will be subject to NESHAP Subpart LLL and/or NSPS F which limits the sources to an opacity of 10 percent. Ash Grove is planning to comply with the NSPS OOO and NSPS F/NESHAP LLL limits by installing baghouses. A baghouse is the most efficient control device for controlling filterable PM, as well as PM_{10} and $PM_{2.5}$.

A summary of recent PM BACT determinations for non-kiln material handling sources was provided by Ash Grove. There were no RBLC entries for $PM_{2.5}$ in the Portland cement industry. The most recent PSD permit for Universal Cement provided a general limit for particulate matter of 0.004 gr/dscf from enclosed material handling and storage controlled by dust collectors. (The plant has not yet been constructed). The RBLC search yielded a 0.01 lb/ton total PM limit and PM_{10} limit for the Universal Cement Clinker Cooler. Cemex Southeast, Finish Mill was limited to 0.01 gr/scf PM filterable and 0.0085 gr/dscf total PM_{10}, and an Arizona Portland Cement, Clinker Cooler was limited to PM filterable of 0.005 gr/dscf, but no specific limit for PM condensable. As there is a lack of data upon which to compare specific limits for PM_{10} and $PM_{2.5}$, Ash Grove proposes basing the future PM_{10} limits on what is anticipated to be achievable based on historical tests for PM_{10} alone, and $PM_{2.5}$ limits based on an engineering estimate that $PM_{2.5}$ will be 80 percent or less of the total PM_{10}. Thus, Ash Grove proposed the following stringent grain loadings as BACT for dust collectors (other than those associated with main kiln and in-line solid fuel mill stacks):

PM = 0.0055 gr/dscf
PM_{10} = 0.005 gr/dscf
$PM_{2.5}$ = 0.004 gr/dscf

Finish Mill Air Heater

The Finish Mill heater will serve to dry the clinker, gypsum and other additives in the finish mill. The Finish Mill heater has potential emissions less than 8.5 tons per year. Ash Grove proposes to use only natural gas and good combustion practices for the finish mill heater. The finish mill heater will result in minor CO_2 emissions compared to the kiln system GHG emissions.

Quarry Fugitives

Drilling and blasting activities will generate minor fugitive particulate emissions in the quarry. These activities are predicted to generate less than 1 ton per year of PM_{10} emissions. Ash Grove proposes to use dust curtains and water sprays to control the emissions from drilling, and proposes to prevent overshooting, provide stemming of holes and minimize the area to be blasted to minimize emissions from blasting.

Raw Material, Cement Kiln Dust (CKD), Solid Fuel Unloading and Pile Transfer

There are numerous unloading activities associated with raw materials, additives, cement kiln dust and solid fuel which will occur from both trucks and railcars. Once unloaded these materials are transferred directly to the process and result in one ton per year of PM_{10} emissions. Due to the small contribution from these unloading activities, Ash Grove has proposed the inherent moisture content of the raw materials, additives and solid fuel as BACT. The processes associated with these transfers are as follows.

Q4	Truck Loading in Pit
Q6	Truck Unloading to Crusher (111.FY050)
Q7	111.BC200 Transfer to Limestone Pile
212FY045	Truck Unloading- Additive to RMS Hoppers (Gyp, Silica, Slag, Clay)
DL1	Truck Loading CKD
DL2	Truck Unloading CKD
FT1	Transfer Solid Fuel Railcar to Hopper
FT2	Transfer Solid Fuel Hopper to CB-22
FT3	Transfer Solid Fuel CB-22 to RS-1
FT4	Transfer Solid Fuel RS-1 to pile
241FY090	Transfer Solid Fuel Pile to 241AF090
SANDLOAD	Truck Loading Silica

Cooling Tower

A cooling tower will be used to cool plant water. Normal cooling tower operation results in the build-up of total dissolved solids (TDS) within the cooling tower water cycle. As water evaporates, providing the cooling effect, water droplets can be carried into the atmosphere and be a source of particulate matter. Drift is the common measure of the effectiveness of the design of a cooling tower to reduce emissions. A drift eliminator will be used as the control measure to reduce drift. A drift of 0.005 %, as specified by the vendor, is being identified as BACT.

Haul Roads

The application of water and or/chemical dust suppressants represents the most common and readily available method for controlling fugitive dust from haul roads. Ash Groves proposes to use these methods to comply with the reasonable precaution requirements prescribed within ARM 17.8.308 for particulate control.

Solid Fuel Storage Piles

The open coal storage piles will be subject to NSPS Subpart Y. According to 40 CFR 60.254(c), an affected facility must prepare and submit to the Administrator a fugitive coal dust plan appropriate for the site conditions. Accordingly, the control plan must require that one or more of the following control measures be used to minimize to the greatest extent practicable:

Locating the source inside a partial enclosure
Installing and operating a water spray or fogging system
Applying the appropriate chemical dust suppressions agents on the source
Use of a wind barrier, compaction or use of a vegetative cover.

Ash Grove has proposed to comply with any of the noted control measures and that are accepted as BACT for solid fuel storage piles.

Emergency Generator

An emergency generator is proposed to run critical process equipment during power outages. The 448 kW emergency generator will run the auxiliary kiln drive, burner pipe emergency fan and other sensitive equipment. According to NSPS Subpart IIII, a new 448 kW generator manufactured later than 2006 is required to be a Tier 3 certified engine.

BACT Determination – Diesel-fired Emergency Engines/Generators

Because of the limited amount of emissions produced by this diesel engine/generator based on the hourly limitation of 500 hours per rolling 12-month period per engine/generator and the lack of readily available and cost effective add-on controls, add-on controls would be cost prohibitive for this facility. Therefore, the Department determined that proper operation and maintenance in addition to compliance with the applicable MACT and NSPS standards with no additional controls constitutes BACT for the diesel engine/generator in this case. Ash Grove has proposed an engine with Tier 3 certification.

The control options and permit limits selected have controls and control costs comparable to other recently permitted similar sources and are capable of achieving the appropriate emission standards. A full BACT analysis submitted by Ash Grove is on file with the Department including pertinent references to the RBLC data base and permit determinations associated with Portland cement plants as part of their permit application. Additionally, Ash Grove must meet opacity limits that are established both in ARM rules and as applicable in NSPS standards that may require ten percent opacity limits.

IV. Emission Inventory

Project - Net Emissions Change Calculations - Criteria Pollutants
Ash Grove Cement, Montana City, Montana

Pollutant	Future Plantwide Potential to Emit (tpy)	Baseline (two year avg. actual emissions for sources remaining) (tpy)	Project Emissions Increase prior to netting[1] (tpy)	Contem - poraneous Increases[2] (tpy)	Contem - poraneous Decreases[3] (tpy)	Net Emissions Increase (tpy)	Significant Emission Increase Threshold (tpy)	PSD Triggered
PM	197.90	93.99	103.91	-	139.55	(35.64)	25	No
PM_{10}	137.92	31.17	106.75	-	123.53	(16.77)	15	No
$PM_{2.5}$	106.27	8.05	98.22	-	115.00	(16.78)	10	No
SO_2	150.96	0.12	150.84	-	399.98	(249.14)	40	No
NOx	571.26	0.99	570.27	-	1,388.42	(818.15)	40	No
CO	477.31	3.90	473.41	-	24.37	449.03	100	**Yes**
VOC	117.85	0	117.85	-	3.92	113.92	40	**Yes**
Lead	0.04	0	0.04	-	0.01	0.03	0.6	No
GHGs								
CO2	717,385	0	717,385	-	337,268	380,117	75,000	**Yes**
CH4	42	0	42	-	18	23.94	75,000	No
N2O	6	0	6	-	3	3.49	75,000	No
CO2e	720,256	0	720,256	-	338,500	381,756	75,000	**Yes**

[1] Difference between Potential Emissions and Baseline Emissions (two year avg actual of existing sources remaining after project).

[2] Actual emission increases from projects in the Contemporaneous Period (2008 - thru project completion)

[3] Actual emission decreases from sources shut down in the Contemporaneous Period (2008 - thru project completion).

The complete emission inventory submitted with the application is on file with the Department

Plantwide Future PTE - Gaseous Pollutant & HAP Sources Ash Grove Cement, Montana City, Montana					
Pollutant	Kiln System and Solid Fuel Mill System tpy	Cement Mill / Air Heater (531.SK590) tpy	Emergency Generator (EG1.SK1) tpy	Blasting - ANFO Combustion (Q3) tpy	Totals (tpy)
SO_2	150.00	0.03	0.53	0.40	150.96
NOx	562.50	4.37	0.99	3.40	571.26
CO	459.38	3.67	0.86	13.40	477.31
VOC	114.00	3.76	0.09		117.85
Lead	0.04				0.04
H2SO4	N/A				-
GHGs					-
CO2	712,500	4,713.67	171.29		717,385
CH4	41.87	0.09	0.01		41.97
N2O	6.10	0.01	0.00		6.11
CO2e	715,366	4,718.53	171.87		720,256
HAPs regulated by Portland Cement NESHAP					-
HCl	11.94				11.94
D/F	N/A				-
Hg	0.01				0.01

The emission inventory for other hazardous air pollutants not specifically regulated by the Portland Cement NESHEP standard is provided below.

Pollutant	Kiln System and Solid Fuel Mill System tpy	Emergency Generator (EG1.SK1) tpy	Blasting - ANFO Combustion (Q3) tpy	Totals (tpy)
HAPs not specifically regulated by Portland Cement NESHAP				
Arsenic (HAP is Arsenic Compounds)	0.00			0.00
Beryllium (HAP is Beryllium Compounds)	0.00			0.00
Cadmium (HAP is Cadmium Compounds)	0.00			0.00
Chromium (HAP is Chromium Compounds)	0.00			0.00
Manganese (HAP is Manganese Compounds)	0.01			0.01
Lead (HAP is Lead Compounds)	0.00			0.00
Selenium (HAP is Selenium Compounds)	0.00			0.00
acetaldehyde			0.00	0.00
acrolein			0.00	0.00
Benzene	1.25		0.00	1.25
Benzo(a)anthracene (POM)	0.00			0.00
Benzo(a)pyrene (POM)	0.00			0.00
Benzo(b)fluoranthene (POM)	0.00			0.00
Benzo(g,h,i)perylene (POM)	0.00			0.00
Benzo(k)fluoranthene (POM)	0.00			0.00
Biphenyl	0.00			0.00
Bis(2-ethylhexyl)phthalate	0.04			0.04
Bromomethane (methyl bromide)	0.02			0.02
Carbon Disulfide	0.04			0.04
Chlorobenzene	0.01			0.01
Chloromethane (Methyl chloride)	0.14			0.14
Di-n-butylphthalate	0.02			0.02
Ethylbenzene	0.01			0.01
Formaldehyde	0.80		0.00	0.80
hexane		0.08		0.08
Methyl Ethyl Ketone	0.01			0.01
Methylene Chloride	0.18			0.18
Naphthalene	0.64		0.00	0.64
Phenol	0.04			0.04
Polycyclic aromatic hydrocarbons (PAH)			0.00	0.00
Styrene	1.99			1.99
Toluene	0.72		0.00	0.72
Dibenzofurans	0.00			0.00
Xylenes	2.14		0.00	2.14
Other Toxics				
Sulfur Trioxide	5.25			5.25
Silver	0.00			0.00
Barium	0.17			0.17
Copper	1.99			1.99
Acenaphthylene	0.05			0.05
Acetone	0.14			0.14
Benzaldehyde	0.01			0.01
Fluoranthene	0.00			0.00
Fluorene	0.01			0.01
Phenanthrene	0.15			0.15
Pyrene	0.00			0.00

V. Existing Air Quality

This permit is for an increase in the cement production capacity at the existing Ash Grove facility by installing new equipment to convert from a "wet" to a "dry" manufacturing process. The new equipment will be located on property owned by Ash Grove primarily located in Township 9 North, Range 3 West, in Sections 10, 11, 12 and 13 in Jefferson County, Montana, which is designated attainment with all criteria pollutants. It should be noted there are still both lead and SO_2 non-attainment areas located north of the Ash Grove facility. The lead and SO_2 designations are artifacts of the ASARCO Smelter which is no longer in existence. Ash Grove is not required to obtain a Non-attainment New Source Review (NSR) permit because it is not locating within either the lead or SO_2 non-attainment areas. Additionally, the Ash Grove project is not considered "major" for either lead or SO_2.

Currently, Ash Grove is in an area designated as "Unclassifiable/Attainment" for all air quality criteria pollutants (40 CFR 81.327). There are two nonattainment areas near the main Ash Grove facility. The East Helena, Montana (MT), lead and sulfur dioxide (SO_2) nonattainment area (NAA) boundaries are about 1.8 miles and 1.9 miles north, respectively, of Ash Grove. The NAA address the primary 1978 lead National Ambient Air Quality Standard (NAAQS), and the primary (24-hour and annual) and secondary (3-hour) SO_2 NAAQS.

Ash Grove is located about 1.5 km (0.9 mi) east of the Interstate 15 (I-15) interchange at Montana City on Highway 518. The main facility is located in the Southeast ¼ of Section 12 and Northeast ¼ of Section 13, Township 9 North, Range 3 West, Jefferson County. The old quarry and silos are located in Sections 7 and 18 of Township 9 North, Range 2 West in Jefferson County. The current quarry is located in Sections 10 and 15, Township 9 North, Range 3 West, Jefferson County. The closest Class I area is the Gates of the Mountains Wilderness Area which is about 19 miles north of the main Ash Grove facility. Class I areas were created by the Clean Air Act of 1977 and are provided the highest level of air quality protection by USEPA and include areas such as wilderness areas and national parks (http://www.epa.gov/visibility/class1.html).

Ash Grove was also required to conduct pre-construction monitoring for ozone and include the information as part of the application materials. Pursuant to ARM 17.8.818 (7)(a)(vi), a source is required to perform an ozone ambient impact analysis for any project resulting in a net increase of 100 tpy or more of VOCs or NO_X emissions. For the proposed project, the increase in VOCs was predicted at 118 tpy.

Pursuant to ARM 17.8.822(5), with respect to any such pollutant (other than nonmethane hydrocarbons) for which such a standard does exist (ozone in this case), the analysis shall contain continuous air quality monitoring data gathered for purposes of determining whether emissions of that pollutant would cause or contribute to a violation of the standard or any maximum allowable increase. As allowed under ARM 17.8.822(6), the minimum pre-construction monitoring period allowed is four months corresponding to Montana's ozone season which runs from the beginning of June through September of each year.

Ash Grove conducted ozone and meteorological monitoring from June 1, 2013, through October 14, 2013, near East Helena, Montana, at the following location:

Longitude: 111.857067 °W
Latitude: 46.587783 °N
Elevation: 1,211 meters (3,972 feet)

Additionally, Ash Grove also conducted on-site meteorological monitoring at the Ash Grove facility from June 25, 2013, to October 14, 2013. The meteorological tower was located at the following location:

Longitude: 111.908011 °W
Latitude: 46.549595 °N
Elevation: 1,309 meters (4,294 feet)

The pre-construction ambient and ozone monitoring analysis concluded that the current levels of emissions from the facility were not causing or contributing to any violation of any existing National Ambient Air Quality Standard or Montana Ambient Air Quality Standard for ozone. The proposed project would result in a decrease in NO_x emissions which is a precursor to ozone and therefore, based on projected NO_x reductions, the ozone would not be expected to increase due to the proposed project. Additionally, the highest contribution of VOCs in the geographic area is from mobile sources. Therefore, the proposed increase of approximately 118 tpy of VOCs, when compared to the VOCs from mobile sources is a minor contribution and would not be expected to result in a measurable increase in ozone.

VI. Ambient Air Impact Analysis

Ash Grove will exceed the significant net emissions increase under PSD for the predicted increases in VOCs, CO and greenhouse gases (CO_2e) and accordingly was required to conduct an Air Quality Analysis specific to these pollutants.

The Ash Grove facility is a listed Prevention of Significant Deterioration (PSD) major source as defined in ARM 17.8.801(22)(c)(iii) under Portland cement plants; as a "major stationary source", the facility has the potential to emit (PTE) more than 100 tons of any pollutant and fugitive emissions can be included in the PTEs (ARM17.8.801(22)(a)(i)).

The project is subject PSD review for carbon monoxide (CO), volatile organic compounds (VOCs), and greenhouse gases (GHGs). Particulate matter, sulfur dioxide, and nitrogen oxides were eliminated from the modeling demonstration through facility netting analysis with Department consensus. Table 1 lists the modeled CO short-term (hourly) emissions from the four facility CO emission sources; the emissions in parenthesis in this table are the proposed hourly application CO emissions; annual emissions are also included for completeness purposes.

Table 1. Ash Grove Modeled Hourly and Annual CO Emissions.

Model ID	Source	Modeled CO Emissions	
		Pounds per Hour	Tons per Year
331.SK410	Kiln Stack	880.00 (880.00)[1]	459.38 (BACT limit 30 day rolling average: CO CEMS)[2]
461.SK395	In-Line Solid Fuel Mill Stack (11% of the Kiln Stack emissions)	97.00	
531.SK590	Cement Mill Stack	0.84 (0.84)	3.67
EMERGEN	Emergency Generator	3.46 (3.46)	0.86
Total		981.12 (981.31)	815.44

[1] 880.00 pounds per hour (lb/hr) is the proposed combined CO lb/hr for both 331.SK410 and 461.SK3959 stacks.

As shown in Table 1, the modeled CO emissions were overestimated by 11% since the 880.0 pounds per hour noted for the Kiln Stack is the proposed total from both the Kiln and In-Line Solid Fuel Mill Stacks.

Review of Modeling Inputs: Modeling was conducted according to the following guidance:

- Appendix W, 40 CFR 51, Guideline on Air Quality Models, USEPA, November 2005 (http://www.epa.gov/ttn/scram/guidance/guide/appw_05.pdf)
- New Source Review Workshop Manual, Prevention of Significant Deterioration and Nonattainment Area Permitting, October 1990, Draft (http://www.epa.gov/NSR/ttnnsr01/gen/wkshpman.pdf)

AERMOD Dispersion Modeling and Associated Programs: The air dispersion modeling demonstration was conducted using latest versions of AERMOD and auxiliary support programs at the time of the application submittal (early spring 2014); specifically, the following models were applied:

- AERMOD version 13350: primary air dispersion model
- AERMET version 13350: processes the hourly surface and upper air meteorological (met) data for input into AERMOD
- AERMAP version 11103: processes the terrain data and determines the elevations of the AERMOD receptors for AERMOD input; receptors are locations where AERMOD calculates the pollutant concentrations
- BPIPPRM version 04274: characterizes building downwash effects for AERMOD
- AERSURFACE version 13016: extracts land use data to calculates surface characteristics surrounding the surface met site(s) for AERMET
- AERMINUTE version 11325: develops hourly wind data containing very low hourly wind speeds or highly variable wind directions for AERMET input; under these conditions, AERMOD cannot process the met data which results in zero air pollutant concentration(s) for that hour; uses more recent met data called one-minute ASOS (Automated Surface Observing System) located at National Weather Stations (NWS) that due to continuous data collection lacks the undesirable wind characteristics

More current versions of AERMOD and AERMET (versions 13350) are available, but the application modeling was submittal prior to the release of these versions.

The AERMOD air dispersion modeling was conducted using the U.S. Environmental Protection Agency (USEPA) default options:

- Stack-tip downwash
- Accounts for elevated terrain effects
- Use calms processing routine
- Use missing data processing routine
- No exponential decay

Urban/Rural Status: This classification accounts for the dispersive nature of the "convective-like" boundary layer that forms during nighttime conditions from urban heat island effects. All of Montana is classified as rural so the rural dispersion coefficients were selected.

Land Use: The surrounding surface characteristic around the surface met site(s) is required input into AERMET. The most important parameter is the surface roughness length which determines the magnitude of the mechanical turbulence and stability of the boundary layer (where air quality dispersion occurs). A land cover file is required for input into AERSURFACE; the National Land Cover Data 1992 (NLCD92) file was obtained from the U.S. Geological Survey website in World Geodetic System 1984 for AERMAP input (http://edcftp.cr.usgs.gov/pub/data/landcover/states/); AERSURFACE only supports NLCD92 at this time.

Source, Structure, and Receptor Elevation/Location Determinations: The facility fenceline location was determined by importing a scaled property line diagram into an AERMOD software interface with graphic abilities (GUI) and receptors at 50 meters (m) spacings were placed on the fenceline. A Cartesian receptor grid system was added:

- 50 m receptor spacing within 500 m of the main Kiln Stack

The following grids were established relative to the Kiln Stack:

- 100 m receptor spacing extending from 500 m to 1 kilometer (km)
- 250 m receptor spacing from 1 to 3 km
- 500 m receptor spacing from 3 to 10 km

National Elevation Dataset (NED) files were obtained from the U.S. Geological Survey website in World Geodetic System 1984 (WGS84), Zone 12, the projected coordinate system of this modeling demonstration, for AERMAP input to determine the receptor elevations (http://www.mrlc.gov/); WGS84 is essentially identical to the North American Datum 1983 coordinate system. The NED files had a 1/3 arc-second (about 10 m) horizontal resolution and provided in Geographic Tagged Image File Format.

A hot spot receptor grid was developed due to the modeled high 8-hour CO concentration which occurred in an area with 250 m receptor spacing. In this case, a Cartesian grid with 50 m spacing was created to ensure the maximum 8-hour CO concentration was identified. A total of 4,347 receptors with 357 receptors defining the main facility boundary were used in the modeling demonstration including the hot spot receptor grid. Receptors extended to about 9 to 10 km beyond the main Ash Grove facility boundary.

The building locations, length, and widths were determined by importing a scaled site diagram into the AERMOD GUI software and the structures were manually traced. Corresponding heights and elevations were determined by detailed site elevation diagrams.

Meteorology (Met): Five years, 2008 – 2012, of Helena Regional Airport National Weather Service (NWS) surface met was obtained from the following website: The corresponding latitude/longitude coordinate, elevation, and anemometer height were 46.604N/-111.989W, 1180 m, and 10 m, respectively; this airport is about 4.4 miles north of the main facility. The surface coordinates were determined using Google Earth and Bing maps. The Helena Regional Airport one-minute data used with AERMINUTE was obtained from the following website: ftp://ftp.ncdc.noaa.gov/pub/data/asos-onemin. The Great Falls International Airport upper air data was applied as the upper air data (47.45N latitude, -111.38W longitude) and these data were obtained from http://esrl.noaa.gov/raobs/ website for the same year; this airport is about 72 miles northeast of Ash Grove. This coordinate for the upper air site was obtained from the data files.

Ash Grove Modeled Source Parameters: The four Ash Grove CO emission stacks were modeled using the following parameters listed in Table 2.

Table 2. Ash Grove Modeled Source Parameters.

Modeled ID	UTM WGS84 Zone 12[1] (mE)[2]	(mN)[3]	Elevation (m)[4]	Stack Height (m)	Stack Inside Diameter (m)	Stack Gas Exit Temperature (K)[5]	Stack Gas Exit Velocity (m/s)[6]
331SK410	429,409.2	5,154,963	1,240.5	106.68	3.35	433.15	17.78
461SK395	429,349.6	5,154,905	1,237.5	44.20	1.07	353.15	17.68
531SK590	429,282.7	5,154,761	1,234.4	40.77	2.01	373.15	10.70
EMERGEN	429,433.5	5,154,937	1,240.5	2.87	0.22	750.93	35.64

[1] UTM WGS84 = Universal Transverse Mercator World Geodetic System 1984.
[2] mE = meters Easting.
[3] mN = meters Northing.
[4] m = meters.
[5] K = degrees Kelvin.
[6] m/s = meters per second.

Building Downwash: The USEPA-developed Building Profile Input Program – Plume Rise Model Enhancement (BPIP-PRIME) was used to determine any building downwash effects and to ensure no stack in the facility had a modeled height that exceeded good engineering practice (GEP). GEP means that the modeled stack height was not used as an air dispersion technique to reduce air pollutant concentrations at ground-level (Administrative Rules of Montana 17.8 Subchapter 4: Stack Heights and Dispersion Techniques). A total of sixty-nine (69) structures including twenty-four (24) silos were included in the analysis and the results indicated no facility stack height exceeded GEP. It should be noted that structure heights are limited to 420 feet in northern Jefferson County by industrial zoning law (http://jeffersoncounty-mt.gov/forms/planning/NorthZoningRegulations.pdf).

AERMOD Significant Impact Analysis Results: The first modeling demonstration in an air quality dispersion modeling analysis is the significant impact analysis which determines whether a cumulative impact modeling is necessary; a cumulative impact analysis includes other off-site emission sources. The highest modeled concentrations were selected for comparison to the relevant Class II significant impact levels (SILs) for the 1-hour and 8-hour CO averaging periods; Class II areas are all areas in U.S. not designated as Class I. Also listed in this table for comparison purposes are the corresponding National Ambient Air Quality Standards (NAAQS) and Montana Ambient Air Quality Standards (MAAQS).

Table 3. Ash Grove CO SIL Modeling Results.

Pollutant	Averaging Period	SIL[1] (µg/m³)[2]	Modeled Concentration (µg/m³)	Percent of SIL (%)	NAAQS[3] (µg/m³)	Percent of NAAQS (%)	MAAQS (µg/m³)	Percent of MAAQS (%)
CO	1-Hour	2,000	1,724	86.2	40,000	4.3	26,450	6.5
	8-Hour	500	461	92.2	10,000	4.6	10,000	4.6

[1] SIL = significant impact level.
[2] µg/m³ = micrograms per cubic meter.
[3] NAAQS = National Ambient Air Quality Standards.
[4] MAAQS = Montana Ambient Air Quality Standards.

As shown, the Ash Grove carbon monoxide emissions from the Kiln, In-Line Solid Fuel Mill, Cement Mill, and the Emergency Generator stacks will not cause or contribute to a NAAQS or MAAQS violation and no further modeling was necessary.

Increases in VOCs, CO and CO_2 would occur but these increases would not create significant impacts. Pre-construction ozone monitoring was completed as required for this application, and the ozone monitoring site indicated the current levels of emissions from the site are not contributing to ozone NAAQS exceedances. This permit contains conditions and limitations that would protect air quality for the site and surrounding area. Furthermore, this facility expansion would result in a major decrease in NO_x and SO_2 with moderate decreases in PM, PM_{10} and $PM_{2.5}$. Larger decreases in NO_x emissions are predicted versus the increase in VOCs, suggesting the overall impact of the project would be beneficial versus the current facility emission levels. Dispersion modeling was conducted by Ash Grove using AERMOD Version 12345 to model the CO increase associated with the proposed project. The modeling results show that the proposed increases in CO are below the significant impact levels (concentrations) for the 1-hr and 8-hr averaging periods and therefore no further NAAQS modeling demonstration was necessary. Additionally, the 8-hr CO concentrations were below the "Monitoring De Minimis level" and no monitoring was required. Finally, the conversion from the "wet" to the new "dry" process triggers additional regulatory requirements with much more stringent emission limits for a new kiln and associated equipment than are currently in place. There are approximately 110 Portland cement plants operating in the United States and the BACT levels under this permit for particulates, SO_2 and NO_x associated with the 30-day rolling averages will require and provide for some of the lowest emission levels among operating Portland cement plants. The larger capacity and modernized plant will have much lower NO_x and SO_2 emissions than if the current facility continued to operate under its present design.

The Department determined, based on the air dispersion modeling and qualitative analysis for the proposed project, that the impacts from this permitting action will be minor. The Department believes it will not cause or contribute to a violation of any ambient air quality standard and the overall emissions from the project will result in an improvement in air quality versus the current operating condition.

VII. Additional Impacts Analysis

In addition to the Ambient Air Impacts Analysis, additional analysis incorporating soils and vegetation, consideration for Class I Area Impacts and a Growth Analysis was also conducted. As the project does not trigger PSD review for any visibility impairing pollutants (PM, PM_{10}, $PM_{2.5}$, NO_x and SO_2) a visibility analysis was not required.

Primary NAAQS for criteria pollutants were developed to provide adequate protection of human health while the secondary standards were designed to protect general welfare including soils and vegetation. Within the New Source Review Draft Workshop Manual, EPA indicates "For most types of soils and vegetation, ambient concentrations of criteria pollutants below the secondary NAAQS will not result in harmful effects". Therefore, a review of criteria pollutants relative to any secondary NAAQS should demonstrate any additional impacts to soils and vegetation. CO, ozone, and VOC do not have secondary NAAQS thresholds, so Ash Grove has reviewed CO and ozone relative to concentrations identified in the "A Screening Procedure for Impact of Air Pollution Sources on Plants, Soil and Animals, EPA, December 12, 1980". Ash Grove demonstrated that both CO and ozone are below the sensitive concentration level for vegetation when compared to the screening procedure noted. The CO concentration used was developed from the PSD CO modeling while the ozone data used for comparison was taken from the maximum 8-hr ozone concentration measured during the pre-construction ozone monitoring.

VOCs can also have a direct impact on vegetation when the source is in close proximity to the vegetation. However, the primary sources of VOCs from the project will be from the main kiln stack and solid fuel mill stack. The main concentration of VOCs in these plumes is in the range of 20 ppm and at ground level the VOC concentration would be negligible.

Green House Gas Impacts

The proposed project will have potential significant increases in CO_2e attributed to the capacity increase with the modernization project. However, the proposed "dry" process is considered to be much more energy efficient than the current "wet" process and the conversion to the dry process is considered to provide a minimum negative impact with the CO_2 increase. Presumably, the expanded production at this facility may replace production at other less efficient Portland cement facilities, providing a net decrease in CO_2. By applying BACT to the new dry process, Ash Grove has minimized any potential negative consequences associated with the proposed action.

Class I Area Impacts Analysis

A Class I Area impact analysis is required whenever there is a PSD permitting action associated with a significant emission rate increase. A significant emission increase or any net emission increase is defined as one where a major stationary source undergoes construction or a modification within 10 kilometers of a Class I Area and has a modeled impact on the Class I area of equal to 1 ug/m^3 or greater. The Ash Grove facility is approximately 30 kilometers from the nearest Class I Area (Gates of the Mountains, Wilderness Area) and thus is not obligated to conduct the Class I Area impact analysis.

Air Quality Related Values

No air quality related value analysis was required as the project is not PSD for PM, PM_{10}, $PM_{2.5}$, NO_x or SO_2. Additionally, since the project was not PSD for PM or NO_x, a plume impairment analysis was not required.

Growth Analysis

The proposed project would require a large temporary construction force but upon project completion, the overall employee headcount is not expected to significantly change. The project will provide for long term job retention but is not expected to have negative growth impacts resulting from the project.

VIII. Taking or Damaging Implication Analysis

As required by 2-10-105, MCA, the Department conducted the following private property taking and damaging assessment.

YES	NO	
X		1. Does the action pertain to land or water management or environmental regulation affecting private real property or water rights?
	X	2. Does the action result in either a permanent or indefinite physical occupation of private property?
	X	3. Does the action deny a fundamental attribute of ownership? (ex.: right to exclude others, disposal of property)
	X	4. Does the action deprive the owner of all economically viable uses of the property?
	X	5. Does the action require a property owner to dedicate a portion of property or to grant an easement? [If no, go to (6)].
		5a. Is there a reasonable, specific connection between the government requirement and legitimate state interests?
		5b. Is the government requirement roughly proportional to the impact of the proposed use of the property?
	X	6. Does the action have a severe impact on the value of the property? (consider economic impact, investment-backed expectations, character of government action)
	X	7. Does the action damage the property by causing some physical disturbance with respect to the property in excess of that sustained by the public generally?
	X	7a. Is the impact of government action direct, peculiar, and significant?
	X	7b. Has government action resulted in the property becoming practically inaccessible, waterlogged or flooded?
	X	7c. Has government action lowered property values by more than 30% and necessitated the physical taking of adjacent property or property across a public way from the property in question?
	X	Takings or damaging implications? (Taking or damaging implications exist if YES is checked in response to question 1 and also to any one or more of the following questions: 2, 3, 4, 6, 7a, 7b, 7c; or if NO is checked in response to questions 5a or 5b; the shaded areas)

Based on this analysis, the Department determined there are no taking or damaging implications associated with this permit action.

VIII. Environmental Assessment

An environmental assessment, required by the Montana Environmental Policy Act, was completed for this project. A copy is attached.

Analysis Prepared By: Craig Henrikson
Date: June 10, 2014

DEPARTMENT OF ENVIRONMENTAL QUALITY
Permitting and Compliance Division
Air Resources Management Bureau
P.O. Box 200901, Helena, Montana 59620
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DRAFT ENVIRONMENTAL ASSESSMENT (EA)

Issued To: Ash Grove Cement Company

Montana Air Quality Permit Number: #2005-10

Preliminary Determination Issued: June 13, 2014
Department Decision Issued:
Permit Final:

1. *Legal Description of Site*: All existing sources of emissions at Ash Grove's Portland cement manufacturing facility located approximately 5 kilometers south of East Helena and approximately 1.8 kilometers east of the Highway 518 and I-15 interchange near Montana City, Montana. The plant's legal location is Sections 12 and 13, Township 9 North, Range 3 West in Jefferson County. The old quarry and silos are located in Sections 7 and 18 of Township 9 North, Range 2 West in Jefferson County. The quarry is located in Sections 9, 10, 15, and 16 of Township 9 North, Range 3 West, in Jefferson County.

2. *Description of Project*: Under the proposed project, Ash Grove plans to modify its cement plant in Montana City, by constructing a modern 2,300 standard tons per day preheater/precalciner dry process cement line to replace the existing wet process line. The existing mining operations will continue to be used, with the addition of a new crushing system located in the Clark Gulch Quarry. Material from the quarry will be transferred to the main facility using a new overland conveyor. At the intersection with Interstate 15, the conveyor will go underground and emerge on the opposite site of the interstate. The new process line would include a new "dry kiln", precalciner/calciner and supporting equipment mostly located in a new building. The entire project is referenced as the "modernization project" throughout the rest of the environmental analysis. The process design of the dry process incorporates heat recovery to provide for a much more energy efficient process.

3. *Objectives of Project*: Modernize the Ash Grove Facility to provide increased cement production while reducing production costs.

4. *Alternatives Considered*: In addition to the proposed action, the Department also considered the "no-action" alternative. The "no-action" alternative would deny issuance of the air quality preconstruction permit to the proposed facility. However, the Department does not consider the "no-action" alternative to be appropriate because Ash Grove demonstrated compliance with all applicable rules and regulations as required for permit issuance. Therefore, the "no-action" alternative was eliminated from further consideration.

5. *A Listing of Mitigation, Stipulations, and Other Controls*: A list of enforceable conditions, including a BACT analysis, would be included in MAQP #2005-10

6. *Regulatory Effects on Private Property*: The Department considered alternatives to the conditions imposed in this permit as part of the permit development. The Department determined that the permit conditions are reasonably necessary to ensure compliance with applicable requirements and demonstrate compliance with those requirements and do not unduly restrict private property rights.

7. *The following table summarizes the potential physical and biological effects of the proposed project on the human environment. The "no-action" alternative was discussed previously.*

		Major	Moderate	Minor	None	Unknown	Comments Included
A	Terrestrial and Aquatic Life and Habitats			X			Yes
B	Water Quality, Quantity, and Distribution			X			Yes
C	Geology and Soil Quality, Stability and Moisture			X			Yes
D	Vegetation Cover, Quantity, and Quality			X			Yes
E	Aesthetics			X			Yes
F	Air Quality			X			Yes
G	Unique Endangered, Fragile, or Limited Environmental Resources			X			Yes
H	Demands on Environmental Resource of Water, Air and Energy			X			Yes
I	Historical and Archaeological Sites			X			Yes
J	Cumulative and Secondary Impacts			X			Yes

SUMMARY OF COMMENTS ON POTENTIAL PHYSICAL AND BIOLOGICAL EFFECTS: The following comments have been prepared by the Department.

A. Terrestrial and Aquatic Life and Habitats

The operation of new equipment at the existing Ash Grove site would have minor impacts upon the terrestrial and aquatic life and habitats in areas where the facility would operate. Although air pollutant deposition would occur in the areas where the equipment would operate, the size and nature of the operation, dispersion characteristics of pollutants, and conditions placed in MAQP #2005-10 would result in minor impacts as the site is an existing quarry and manufacturing site for Portland cement. Most criteria pollutants associated with the proposed project would decrease but increases in CO_2, CO, and VOCs would occur. Therefore, the operation of the equipment would present minor impacts on terrestrial and aquatic life present in the area of potential operation.

B. Water Quality, Quantity, and Distribution

Although there would be an increase in potential air emissions in the area where the crushing equipment would operate, there would only be minor impacts on water quality, quantity, and distribution because of the nature, size, operational requirements, and conditions placed in MAQP #2005-10 for the facility. The crushing equipment located at the quarry would be vented to a new baghouse. Further, as described in Section 7.F. of this EA, the Department determined that any impacts from deposition of pollutants would be minor. In addition, any accidental spills or leaks from equipment would be required to be handled according to the appropriate environmental regulations in an effort to minimize any potential adverse impact on the immediate and surrounding area. Overall, the operation of the equipment would have minor impacts to water quality, quantity, and distribution in the area of operations.

C. Geology and Soil Quality, Stability, and Moisture

As a result of the operation of proposed facility modernization project, there would be minor impacts to the geology and soil quality, stability, and moisture near the equipment's operational area. As explained in Section 7.F. of this EA, the facility's size, operational requirements, nature of the operation being located near on the existing facility site, and conditions placed in MAQP #2005-10 would minimize the impacts from deposition.

D. Vegetation Cover, Quantity, and Quality

The operation of the crusher at the quarry site would result in minor impacts to the vegetative cover, quantity, and quality, because the proposed operation would be located at the existing quarry site. As explained in Section 7.F. of this EA, the Department determined that, due to the nature of the operation, conditions placed in MAQP #2005-10, and dispersion characteristics of the emissions, minor impacts from deposition would be expected. In addition, because the water usage would be limited to use in particulate control (as described in Section 7.B. of this EA) and presence at an existing quarry and existing industrial site(as described in Section 7.C. of this EA), corresponding vegetative impacts from water and soil disturbance would be minor.

E. Aesthetics

Portions of the new planned equipment including the conveyor and new kiln stack and others would be visible and would create noise in the areas where it would operate. MAQP #2005-10 would include conditions to control emissions (including visible emissions) from the equipment and the surrounding work area. The proposed project site is on existing facility property with the exception of the conveyor going under I-15, but this will not likely be readily visible and therefore, any aesthetic impact would be minor.

F. Air Quality

Air quality impacts from the operation of the proposed modernization project would be minor because most emissions will decrease with the replacement of the older equipment. SO_2, NO_x and all particulate matter species emissions decrease while moderate increases may occur for CO, VOCs and CO_2. Dispersion and deposition of pollutants would occur from the operation of the new equipment; however, the

Department determined that any air quality impacts from the pollutants would be minor due to dispersion characteristics (from factors such as stack height, wind speed and wind direction) and conditions placed in MAQP #2005-10.

MAQP #2005-10 would include conditions limiting opacity from the crushing equipment at the quarry and equipment at the main plant and would require that reasonable precautions be taken to control emissions from haul roads, access roads, parking lots, or the general work area. In addition, the permit would also limit total emissions from the entire facility and any additional equipment operated at the same site to 250 tons per year or less. Further, because the facility has more than 100 tons per year of potential emissions for several pollutants generated, the facility will also be required to revise their existing Title V Operating Permit. The Title V Operating Permit will further identify permit conditions, compliance demonstration, recordkeeping and reporting requirements which will further ensure no more than minor impacts to air quality.

G. Unique Endangered, Fragile, or Limited Environmental Resources

In an effort to identify species of special concern that may be present in the proposed areas of operation, the Department contacted the Montana Natural Heritage Program (MNHP) for a review of species of special concern. Two species of concern were identified within the area for the proposed modernization project. These include the Veery and the Wolverine. Issuance of this permit would allow for an increase in some pollutants to the atmosphere but a decrease in others. However, as explained in Section 7.F. of this EA, because of the nature of the additional baghouse controls and emission control equipment, and conditions placed in MAQP #2005-10, any impacts to unique endangered, fragile, or limited environmental resources from the deposition of pollutants would be minor given the location of the proposed facility at the existing facility site.

H. Demands on Environmental Resource of Water, Air, and Energy

Water would be used on particulate emissions at equipment transfer points, haul roads, access roads, parking lots, or the general plant property, as necessary, to control dust resulting from all material handling operations. Additionally, cooling water is needed for the cement processing equipment. The proposed project would convert the existing plant from a wet to a dry process, which requires approximately half the energy so with the completion of the project; it will be more energy efficient. Therefore, any impacts on the demands of the environmental resources of water, air, and energy would be minor.

I. Historical and Archaeological Sites

According to correspondence with the Montana State Historic Preservation Office (SHPO), there have been previously recorded sites in the general area of the proposed site location. Since the area is known as having potential historic information, SHPO recommended a cultural inventory be conducted at locations where ground disturbance is planned. A visual survey of the areas proposed for ground disturbance was commissioned by Ash Grove to physically inspect the surface of the proposed conveyor route as well as a perpendicular distance from the proposed centerline of the conveyor. The survey area included a corridor 11,975 feet long and 300 feet wide for a total of approximately 82 acres. The spacing of supports for the conveyor would vary according

to the structural design requirements and therefore the entire corridor was inspected rather than just those sites where supports are anticipated. Two historic sites, two prehistoric sites and two prehistoric isolated finds were identified and recorded during the inventory. The survey was provided to SHPO and they concluded the survey followed industry standards. The Montana Department of Transportation (DOT) was also consulted regarding any federally-triggered requirements due to the boring under Interstate 15. However, it appears that the land under the interstate is actually county property and therefore, fully under state authority for review. Additionally, it was pointed out that the areas immediately adjacent to highways are often some of the more disturbed areas due to the nature of disturbance required for constructing a major roadway. Therefore, it is unlikely that the project would have significant impacts to any historic or archaeological sites. If additional evidence were found during construction, mitigation efforts and consultation with appropriate agencies would be expected to occur to determine any necessary actions. Any impacts on historical and archaeological sites are considered minor.

J. Cumulative and Secondary Impacts

The operation of the proposed modernization project would cause minor effects to the physical and biological environment because the facility is considered a major stationary source of emissions. However, future changes associated with this facility would have to apply for and receive the appropriate permits in addition to this MAQP prior to operation. The permits would address the environmental impacts associated with the operations at the proposed site.

8. *The following table summarizes the potential economic and social effects of the proposed project on the human environment. The "no-action" alternative was discussed previously.*

		Major	Moderate	Minor	Non e	Unknow n	Comme nts Included
A	Social Structures and Mores				X		Yes
B	Cultural Uniqueness and Diversity				X		Yes
C	Local and State Tax Base and Tax Revenue			X			Yes
D	Agricultural or Industrial Production			X			Yes
E	Human Health			X			Yes
F	Access to and Quality of Recreational and Wilderness Activities				X		Yes
G	Quantity and Distribution of Employment			X			Yes
H	Distribution of Population			X			Yes
I	Demands for Government Services			X			Yes
J	Industrial and Commercial Activity			X			Yes
K	Locally Adopted Environmental Plans and Goals			X			Yes
L	Cumulative and Secondary Impacts			X			Yes

SUMMARY OF COMMENTS ON POTENTIAL ECONOMIC AND SOCIAL EFFECTS: The following comments have been prepared by the Department.

A. Social Structures and Mores

The operation of the proposed facility expansion would not likely alter or disrupt any local lifestyles or communities (social structures and mores) in the area of operation because Ash Grove currently operates a cement manufacturing facility in the area. Expanded production at the existing facility is unlikely to change the social structures and mores.

B. Cultural Uniqueness and Diversity

The operation of the proposed facility expansion would have no impact on the cultural uniqueness and diversity because the expanded equipment operations would be at a site which is an existing industrial site.

C. Local and State Tax Base and Tax Revenue

The proposed operation of the expanded facility would have at least a minor impact on local and state tax base and tax revenue as the expanded operation would initially provide new construction jobs and once construction is complete, likely return to approximately the current level of employment.

D. Agricultural or Industrial Production

The proposed project would expand the current production of cement and modify the material handling from primarily trucks to an overland conveyor. No impact on agricultural production would occur as the proposed project is already an industrial site. The increased industrial production could also benefit other secondary industrial services.

E. Human Health

MAQP #2005-10 would incorporate conditions to ensure that the proposed expansion would be operated in compliance with all applicable rules and standards. These rules and standards are designed to be protective of human health. As described in Section 7.F. of this EA, the Department determined that any impacts from deposition of pollutants would be minor due to dispersion characteristics and conditions placed in MAQP #2005-10. The air emissions from this facility would be minimized by opacity limitations as well as new regulatory requirements associated with a new kiln. Any demolition project where asbestos is identified must also follow the Montana DEQ Asbestos Control Program. Ash Grove has previously completed a portion of asbestos removal and will need to continue to manage covered projects accordingly.

F. Access to and Quality of Recreational and Wilderness Activities

This plant will be located on previously disturbed property, and in a previously used industrial area and does not impact access to recreational and wilderness activities.

G. Quantity and Distribution of Employment

During the construction portion of the project, new construction related jobs would be expected to be created. Following project completion, a return to approximately the same work force would be expected. Although the plant production capacity would increase, it is expected the new facility would operate more efficiently.

H. Distribution of Population

Given the expectation that construction jobs would be temporary, it is not expected that the activities from the proposed facility expansion would disrupt the normal population distribution of any given area. No secondary activities are identified to move to the current proposed area as a result of the current project.

I. Demands of Government Services

Government services may be required for acquiring the appropriate permits and ensuring compliance with the permits that are issued; however, the government services required would be minor.

J. Industrial and Commercial Activity

The operation of the proposed facility expansion may represent a minor increase in the industrial activity in any given area. Additional production capacity could require additional transportation resources to transfer final product as well as initially require additional transportation resources to ship raw materials to the site. These resources could include additional truck and rail capacity as well as resources specifically connected to new equipment at the facility including continuous emission monitor maintenance and service. Currently unidentified other activities/services could be possible related to the facility production expansion.

K. Locally Adopted Environmental Plans and Goals

The Department is unaware of any locally adopted environmental plans or goals near the site that would impact the facility under MAQP #2005-10. The conditions identified in MAQP #2005-10 would apply to all permitted activities for the Ash Grove facility. Ash Grove is located near the East Helena Lead and SO_2 Non-Attainment Areas with the proposed kiln stack approximately 3 km south of these boundaries. The Ash Grove project results in net emissions decreases of SO_2 of greater than 200 tons, and a net emissions increase of lead of approximately 0.03 tons. ARM 17.8.904 requires any new major stationary source or major modification which would locate in an area designated as non-attainment, obtain a Non-Attainment New Source Review permit. Ash Grove is not located within either non-attainment area and is subject to PSD rules. Either a net improvement to air quality (SO_2) or no discernible change to air quality (lead) are anticipated.

L. Cumulative and Secondary Impacts

Overall, the cumulative and secondary social and economic impacts from this project would be minor because the proposed facility expansion would occur at the existing privately owned site with the same product being produced. Some new minor contract and service support occupations are possible from the expansion. Social and economic impacts that are created would be minor because of the similar nature of the proposed project with the existing facility.

Recommendation: No Environmental Impact Statement (EIS) is required.

If an EIS is not required, explain why the EA is an appropriate level of analysis: The current permitting action is for the modification of an existing Portland cement facility. MAQP #2005-10 includes conditions and limitations to ensure the facility will operate in compliance with all applicable rules and regulations. In addition, there are no significant impacts associated with this proposal.

Other groups or agencies contacted or which may have overlapping jurisdiction: Montana Historical Society – State Historic Preservation Office, Natural Resource Information System – Montana Natural Heritage Program, Montana Department of Transportation.

Individuals or groups contributing to this EA: Department of Environmental Quality – Air Resources Management Bureau, Department of Environmental Quality – Environmental Impact Specialist, MEPA, Department of Environmental Quality – Major Facility Siting Act, Montana Historical Society – State Historic Preservation Office, Natural Resource Information System – Montana Natural Heritage Program

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