



United States Environmental Protection Agency
Region 7
Enforcement and Compliance Assurance Division

**Air Branch Inspection Report
Partial Compliance Evaluation
Continental Cement Company, LLC**
10107 Highway 79 South
Hannibal, MO 63401
FRS# 110000595981

Inspection Date(s):
December 14-15, 2022

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INSPECTION OVERVIEW

INSPECTION OBJECTIVE

The objective of the partial compliance evaluation (PCE) inspection was to determine compliance of the facility with the Clean Air Act (CAA), specifically those requirements located in the code of federal regulations at 40 CFR Part 63 Subpart EEE. The inspection was part of the U.S. Environmental Protection Agency's (EPA) Creating Cleaner Air for Communities National Enforcement Compliance Initiative.

Table 1 lists the inspection team members.

Table 1. PROJECT TEAM MEMBERS		
Team Member	Organization	Project Role
Luke Rodriguez	EPA, Region 7, ECAD, Air Branch	Lead Inspector
Dan Brownawell	Missouri Department of Natural Resources (MoDNR), Northeast Region	Field team member

FACILITY CONTACT INFORMATION

Table 2 lists the primary facility contacts.

Table 2. FACILITY CONTACT INFORMATION		
Name, Title	Phone No.	Email Address
Robert Budnik, Environmental Manager	573-221-1740	robert.budnik@continentalcement.com
Dan Carney, Director of Environmental	636-532-7440	dan.carney@continentalcement.com

FACILITY OVERVIEW

Continental Cement Company LLC owns and operates a preheater/precalciner portland cement kiln in Hannibal, Missouri. The facility is a major source of carbon monoxide (CO), hazardous air pollutants (HAPs), nitrogen oxides (NO_x), sulfur oxides (SO_x), and particulate matter smaller than 10 microns (PM₁₀). The facility was issued a renewed Part 70 Permit to Operate on August 11, 2021 – Permit Number OP2021-020. The portland cement kiln is a new hazardous waste burning cement kiln according to the definition in 40 CFR 63 Subpart EEE § 63.1201.

Continental Cement was issued an NOV by MoDNR (Program RNOV No. AP22027) on October 14, 2022 for the failure to meet the PM Standard found in 40 CFR 63.1220(b)(7)(i)

during the July 18, 2022 Performance Test. The emission limit specified by 40 CFR 63.1220(b)(7)(i) is 0.0069 gr/dscf corrected to 7% oxygen. During the July 18, 2022 test, Continental Cement was emitting 0.0164 gr/dscf corrected to 7% oxygen. Mr. Budnik told me that Continental Cement determined that the difficulties encountered meeting the limit were the result of aging related degradation of the Coal Mill Baghouse. The facility purchased a new baghouse which they anticipated will alleviate the issues. The new baghouse was on-site during the inspection but not yet installed. The facility was aware of the requirement to conduct a new performance test following the installation of new control equipment. They planned the installation to be completed concurrent with the next comprehensive performance test. According to Mr. Budnik, Continental Cement conducted a successful performance test November 8, 2022 with the existing baghouse. Continental Cement reported a PM emission rate of 0.0049 gr/dscf corrected to 7% oxygen during this test and the test was submitted to MoDNR on January 5, 2022. According to Josh Vander Veen, the Testing and Emissions Unit Chief at MoDNR, the November 8th, 2022 test was a method 201A test and not a Method 5 test. Therefore, the facility has not, as of the date of this report, completed a test necessary to demonstrate compliance with the 40 CFR 63 Subpart EEE PM emission limit located in § 63.1220(b)(7)(i). Continental Cement was not in compliance with 40 CFR 63.1220(b)(7)(i) from at least July 18, 2022 to the date of this report.

According to the Continental Cement Company LLC Title V operating permit, issued by Missouri Department of Natural Resources, the facility is subject to the following regulations and standards (**Table 3**):

Table 3. APPLICABLE REGULATIONS AND STANDARDS	
Code of Federal Regulation	Standard Name
40 CFR Part 63	Subpart A, General Provisions, Subpart EEE, National Emission Standards for Hazardous Air Pollutants from Hazardous Waste Combustors

FACILITY OPERATIONS SUMMARY

Continental Cement operates a hazardous waste burning cement kiln. The facility burns both solid and liquid hazardous waste. Solid hazardous waste consists primarily of used plastics, containers and construction materials. Liquid hazardous waste consists of paint, ink, solvents, petroleum industry wastes and waste oils including crankcase oil, transmission fluid and coolants. Hazardous waste is fed in two locations – solid hazardous waste is burned in the

calciner, and liquid hazardous waste is burned in the calciner and directly in the kiln. The kiln also utilizes both coal and natural gas depending on the heating requirements and the fuel price and is controlled by the Main Baghouse, Coal Mill Baghouse and the Alkali Bypass Baghouse. Continental Cement has not requested and does not operate under any of the compliance alternatives found in § 63.1206(b)(10).

FIELD ACTIVITIES SUMMARY

I arrived at the facility on December 14, 2022 at 10:00 AM and completed a drive by surveillance inspection. I made entry at the front gate and introduced myself and members of the inspection team, presented my credentials, and provided my business card to Mr. Budnik. I conducted an opening conference during which I explained that the purpose of the visit was to conduct an inspection to determine compliance with the Clean Air Act, specifically to determine compliance with the conditions listed in Table 3. I explained that after asking for some general business information, I would observe work practices, process units, emission units, control equipment and review associated records demonstrating compliance with the 40 CFR 63 Subpart EEE. I explained to Mr. Budnik that the facility could make a claim of business confidentiality and provided him with a Confidential Business Information form (Appendix A). Mr. Budnik did not make a claim of confidentiality at the time of the inspection but later claimed that the records of the operating parameter limits submitted electronically contained confidential business information.

I was given a facility tour by Mr. Budnik and Mr. Carney. I wore steel toed boots and a hard hat during the facility tour per my site health and safety plan.

On December 14th and 15th, I reviewed the condition of emission units regulated under 40 CFR 63 Subpart EEE, the operating status of that equipment, and any required record keeping for the equipment for compliance with the regulations and permit conditions noted in Table 3 only. I obtained copies of the records as indicated on the Receipt for Documents (Appendix B). This inspection report reviewed only those records and compliance activities associated with the identified requirements listed below in the Investigation Observations and Potential Findings Section of this report.

I conducted a closing conference with Mr Budnik and Mr. Carney on December 15, 2022. I provided the facility with copies of the Confidential Business Information claim form and a Receipt for Documents form.

INVESTIGATION OBSERVATIONS AND POTENTIAL FINDINGS

Ambient weather, site conditions and activities were documented in field records. All photographs are attached as Appendix C. I the following observations during the inspection. I discussed all observations with facility representatives during the closeout meeting unless otherwise noted in the observation description.

These observations are not final compliance determinations. The EPA Region 7 Air Branch case review team will make the final compliance determinations based on its review of this report and other technical, regulatory, and facility information.

§ 63.1206 Standards and operating requirements

§ 63.1206(b)(5) Changes in design, operation, or maintenance

63.1206(b)(5) identifies the obligations for an owner or operator which arise from making changes to the design, operation or maintenance of equipment regulated under 40 CFR 63 Subpart EEE. For the purposes of paragraph (b)(5) of section 63.1206, a change is defined as:

“change in design, operation, or maintenance practices that were documented in the comprehensive performance test plan, Notification of Compliance, or startup, shutdown, and malfunction plan.”

In 2020, Continental Cement LLC, made an alteration to their operation by adding equipment to allow the direct injection of liquid hazardous waste to the Kiln burn area. Previously the facility only burned liquid waste in the calciner. The facility submitted information to MoDNR including a calculation of the potential to emit before and after the change. MoDNR determined that this change would not result in any increase in emissions or fuel usage and that the change was therefore de minimis under the Missouri Code of Regulations. Grounded in MoDNR’s review of the project, Continental Cement determined that the change was a “change that will not affect compliance” under § 63.1206(b)(5)(ii). The facility considers the application material and the correspondence with MoDNR permitting to be the documentation of the change in the operating

record. I reviewed the 2020 comprehensive test plan, the initial Notification of Compliance and the startup, shutdown and malfunction plan for explicit references to the location of liquid waste firing and did not see any section of the plans which needed revision as a result of the change. The start startup, shutdown and malfunction plan is attached as Appendix D.

§ 63.1206(b)(11) Calculation of hazardous waste residence time.

The information required by § 63.1206(b)(11) was included in the Documentation of Compliance under § 63.1211(c) and the Notification of Compliance under §§ 63.1207(j) and 63.1210(d).

§ 63.1206(b)(13) Cement kilns and lightweight aggregate kilns that feed hazardous waste at a location other than the end where products are normally discharged and where fuels are normally fired.

Continental Cement does not feed hazardous waste at a location other than the end where products are normally discharged and where fuels are normally fired. Continental Cement feeds hazardous waste to the Calciner and the end of the Kiln where products are discharged. Both locations are consistent with industry standard fuel firing locations.

§ 63.1206(c) Operating requirements

§ 63.1206(c)(1)(i) requires operation only under the operating requirements specified in the Documentation of Compliance under § 63.1211(c) or the Notification of Compliance under §§ 63.1207(j) and 63.1210(d). These operating conditions are identified in the Title V Operating Permit. I requested records of all operating limits used by the facility to demonstrate compliance with the emission standards in 63.1220 from January 1, 2019 through October 31, 2022. I requested these emails to be submitted by email by January 13, 2023 and I reviewed these records following the inspection. My review uncovered no additional exceedances which the facility failed to report. The facility is tracking all operating limits in their Citech software.

Table 4 lists all operating parameter limits (OPLs) which were collected and reviewed as part of this inspection.

Table 4. OPERATING PARAMETER LIMITS	
OPL	Regulatory Citation
Minimum combustion chamber temperature.	§ 63.1209(j)(1), § 63.1209(k)(2)

Maximum production rate.	§ 63.1209(j)(2), § 63.1209(k)(3), § 63.1209(m)(2), § 63.1209(o)(2)
Maximum hazardous waste feedrate.	§ 63.1209(j)(3), § 63.1209(k)(4)
Gas temperature at the inlet to a dry particulate matter control device.	§ 63.1209(k)(1)
Carbon feedrate	§ 63.1209(k)(6)(i)
Feedrate of mercury.	§ 63.1209(l)(1)(iii)
Maximum inlet temperature to dry particulate matter air pollution control device	§ 63.1209(n)(1)
Maximum feedrate of semivolatile and low volatile metals.	§ 63.1209(n)(2)
LVM limits for pumpable wastes.	§ 63.1209(n)(2)(vi)
Maximum total chlorine and chloride feedrate.	§ 63.1209(n)(4)
Feedrate of total chlorine and chloride.	§ 63.1209(o)(1)

§ 63.1206(c)(2) Startup, shutdown, and malfunction plan.

I reviewed the facility SSM Plan on site. The plan was submitted to the administrator for review and approval in 2008 as required by § 63.1206(c)(2)(ii)(B). Mr. Budnik said that the facility has not made any changes that may significantly increase emissions, as described under § 63.1206(c)(2)(ii)(C) and therefore has not requested approval in writing or made changes to the startup, shutdown, and malfunction plan. The plan did not identify the oxygen correction factor based on normal operations to use during periods of startup and shutdown. Mr. Budnik told me that the oxygen correction factor of 7% was included wherever appropriate during periods of startup and shutdown for the purposes of reporting compliance and emissions.

§ 63.1206(c)(2)(v)(A)(3)

§ 63.1206(c)(2)(v)(A)(3) requires that for each set of 10 exceedances of an emission standard or operating requirement while hazardous waste remains in the combustion chamber (i.e., when the hazardous waste residence time has not transpired since the hazardous waste feed was cutoff) during a 60-day block period, an investigation be conducted, and the results documented. Mr. Budnik told me that the facility has not had 10 exceedances of an emission standard or operating requirement in a 60-day block period and has not conducted any investigations. A review of the operating limit records confirmed that this has not occurred.

§ 63.1206(c)(2)(v)(B)

§ 63.1206(c)(2)(v)(B) Compliance with automatic waste feed cut-off (AWFCO) requirements when burning hazardous waste during startup and shutdown. Waste feed restrictions are included in the startup, shutdown and malfunction plan as required by § 63.1206(c)(2)(v)(B)(1).

§ 63.1206(c)(3) Automatic waste feed cutoff (AWFCO)

I reviewed records of the automatic waste feed cutoff system on site. The AWFCO system is set up to cut off feeding hazardous waste when any operating parameter limit or the CO emission limit hits 80% of the relevant standard over the averaging period. This is controlled by Citech Software and will alarm and notify Operators when the 80% threshold is reached. Since 2018, there have been no exceedances of the operating limits. I reviewed records of the testing requirements for the AWFCO. Tests are required at least monthly [§ 63.1206(c)(3)(vii)] and **Continental Cement** conducts the tests weekly.

§ 63.1206(c)(4) Emergency safety vent (ESV) openings

Mr. Budnik told me that the Calciner and Kiln at Continental Cement do not have ESV openings. They therefore are not required to have an ESV Operating Plan.

§ 63.1206(c)(5) Combustion system leaks.

The Continental Cement Calciner and Kiln have sealed combustion zones in accordance with § 63.1206(c)(5)(i)(A).

§ 63.1206(c)(6) Operator Training and Certification.

§ 63.1206(c)(6)(i) requires the establishment of a training program for all categories of personnel whose activities may reasonably be expected to directly affect emissions of hazardous air pollutants from the source. Such persons include, but are not limited to, chief facility operators, control room operators, continuous monitoring system operators, persons that sample and analyze feedstreams, persons that manage and charge feedstreams to the combustor, persons that operate emission control devices, and ash and waste handlers.

Continental Cement provides training and certification tests for all control room operators, their supervisors, production managers and those electrical employees who maintain the CEMS equipment. Initial training is completed during each employee's orientation prior to their working independently in the control room or on CEMS equipment. Annual training and

certification are completed in December. I reviewed the coursework for both the operators and CEMs maintenance personnel on-site and the course materials met the requirements in § 63.1206(c)(6)(v). I reviewed records of the Certification Tests completed by each of the employees and the record of their most recent examinations as required by § 63.1206(c)(6)(v)(B). Mr. Budnik or one of his direct reports serves as the instructor and grades the exam. The initial training and annual refresher training use the same course materials.

§ 63.1206(c)(7) Operation and maintenance plan

Continental Cements operates in accordance with an Operation and Maintenance Plan, last revised January 2021. The plan is attached as Appendix E. This plan describes the manner of operation for the combustor and associated air pollution control equipment. I reviewed the most recent annual maintenance which occurred in December of 2022 for the Main Baghouse in Maximo, the facility's maintenance management software. The preventative maintenance work order for 2022 is attached as Appendix F. The annual maintenance work order was consistent with the activities outlined in the Operation and Maintenance Plan.

§ 63.1206(c)(8) Bag leak detection system requirements.

The facility has 3 baghouses subject to this requirement: the Main Baghouse, the Coal Mill Baghouse and the Alkili Bypass Baghouse.

§ 63.1206(c)(8)(i)

A combustor equipped with a fabric filter must continuously operate either a bag leak detection system or a particulate matter detection system. Continental Cement has elected to operate a bag leak detection system.

§ 63.1206(c)(8)(ii) Bag leak detection system specification and requirements.

§ 63.1206(c)(8)(ii)(A)

The facility was able to produce documentation that the system was certified by the manufacturer to meet the standards in § 63.1206(c)(8)(ii)(A).

§ 63.1206(c)(8)(ii)(B)

The bag leak detection system provides a relative output of particulate matter loadings.

§ 63.1206(c)(8)(ii)(C)

The system is equipped with an alarm that will sound when the relative particulate loading exceeds 60% of the standard.

§ 63.1206(c)(8)(iii) Bag leak detection system corrective measures requirements.

The facility complies with this requirement by maintaining a bag leak detection system corrective measures plan. This written plan meets all the requirements under § 63.1206(c)(8)(iii). The corrective measures plan is attached as Appendix G. I reviewed records of the bag leak detection system onsite. According to Mr. Budnik, there were no bag leak alarms during the time period from Jan 1, 2019 to October 31, 2022. This period includes the time period in which the facility conducted a Method 5 test which resulted in PM emissions above the limit located in § 63.1220(b)(7)(i).

§ 63.1206(c)(8)(iv) Excessive exceedances notification.

No alarms occurred during the period from Jan 1, 2019 to October 31, 2022. The bag leak detection response did not exceed the alarm set-point more than 5% of the time during any 6-month block period from the time period from Jan 1, 2019 to October 31, 2022 so no notifications under § 63.1206(c)(8)(iv) were required or submitted. The information required under § 63.1206(c)(8)(iv)(A) is maintained by the facility in their Citech System. The information required under § 63.1206(c)(8)(iv)(B) this information is maintained by the facility in their Citech System and submitted as part of the quarterly monitoring performance reports.

§ 63.1206(c)(9) Particulate matter detection system requirements.

The facility is not subject to the requirement to operate a Particulate Matter Detection System as it maintains a Bag Leak Detection System.

§ 63.1209 Monitoring requirements

§ 63.1209(a)(1)(i)

The facility uses a carbon monoxide CEMs and an oxygen CEMs to continuously correct the carbon monoxide level to 7% oxygen as specified.

§ 63.1209(a)(1)(ii)(B)

Continental Cement uses a bag leak detection system under § 63.1206(c)(8), so they are not required to operate a COMs to monitor compliance with the opacity standard under § 63.1220(a)(7) and (b)(7).

§ 63.1209(a)(1)(iii)

The CO CEMS has been installed, calibrated and maintained as required. I reviewed records of the most recent calibrations on the system. The calibration was consistent with the requirements in the QA/QC Manual and 40 CFR 60 Appendix B.

§ 63.1209(a)(1)(iv)

The facility does not have multiple stacks and is therefore not required to comply with this requirement.

§ 63.1209(a)(1)(v)

The facility does not exhaust through a Monovent and is therefore not required to comply with this requirement.

§ 63.1209(a)(2)

I reviewed the QA/QC plan for the CEMS on site, the plan was consistent with the requirements in Appendix B of Part 60 of Title 40. The CEMS QA/QC Plan is attached as Appendix H. I reviewed the September 28, 2022 calibration report for the CO CEMS. The calibration was conducted in accordance with the measures specified in the QA/QC Plan. There have been no exceedances of the CO standard since January 1, 2019.

§ 63.1209(b)(2)(ii)

I reviewed the calibration record for the activated carbon injection systems. § 63.1209(b)(2)(ii) requires calibrations be completed at least quarterly and the facility conducts calibrations monthly. The log of monthly calibrations is attached as Appendix I.

§ 63.1209(c) Analysis of feedstreams

The facility maintains a Feedstream analysis plan, included as Appendix J. The plan meets the requirements in § 63.1209(c)(2). The plan was initially submitted for review and approved in 2008 in accordance with § 63.1209(c)(3). The facility submitted data of the feedrate from

January 1, 2019 to October 31, 2022. The facility did not exceed the feedrate limit established by the most recent comprehensive compliance performance test during that period.

§ 63.1209(k)(5) Particulate matter operating limit.

All Continental Cement particulate matter control devices are fabric filters and are therefore not subject to the requirements of paragraph (m)(1).

§ 63.1209(k)(6)(i) Carbon feedrate

Continental Cement monitors the frequency (Hz) of the system which is correlated to 30 lbs/hr. When the Hz drops below 45, an alarm is activated. I reviewed records of this parameter from January 1, 2019 through October 31, 2022. I reviewed records of the calibration for the activated carbon system which were consistent with § 63.1209(b)(2)(ii) as noted above.

§ 63.1209(k)(6)(ii) carrier fluid.

Continental Cement monitors the minimum blower and minimum eductor pressure to comply with this requirement. The facility provided records to demonstrate compliance for each averaging period which occurred from January 1, 2019 through October 31, 2022.

§ 63.1209(k)(6)(iii) Carbon specification.

Continental Cement uses Calgon brand FluepacPRMAXX carbon. Continental Cement has not changed the brand or product since the system start up.

§ 63.1209(l)(3) Activated carbon injection.

Continental Cement complies with § 63.1209(k)(5) and § 63.1209(k)(6) as noted above.

§ 63.1209(p) maximum chamber pressure.

Continental Cement complies with § 63.1209(p) by having a sealed combustion zone.

§ 63.1209(q) Operating under different modes of operation.

Continental Cement operates under 2 modes – raw mill on and raw mill off. The change of operating mode is specified in the record and calculations are completed by the software in accordance with § 63.1209(q)(2)(iii).

Potential Finding 1: Facility not in compliance with PM emission limit in 40 CFR 63.1220(b)(7)(i) from at least July 18, 2022 to the date this report was signed.
Observation Summary: Continental Cement failed to meet an emission limit on a July 18, 2022 test.
Citation: § 63.1220(b)(7)(i)
Evidence: July 18, 2022 Stack Test Report
Description of Observation: Continental Cement was issued an NOV by MoDNR (Program RNOV No. AP22027) on October 14, 2022 for the failure to meet the PM Standard found in 40 CFR 63.1220(b)(7)(i) during the July 18, 2022 Performance Test required under 40 CFR 63 Subpart EEE. Continental Cement submitted a new performance test report on January 5, 2023 for a test which occurred on November 8, 2022, but that test was not the appropriate method for demonstrating compliance with § 63.1220(b)(7)(i). A compliant test has not been completed as of the date this report was signed.

Potential Finding 2: Bag Leak Detection system may not be appropriately set up or calibrated.
Observation Summary: Continental Cement failed to meet an emission limit on a July 18, 2022 test. There are no records of any bag leak detection system alarms.
Citation: § 63.1206(c)(8)(ii)(C)
Evidence: July 18, 2022 Stack Test Report and Statement from Mr. Budnik.
Description of Observation: Continental Cement was issued an NOV by MoDNR (Program RNOV No. AP22027) on October 14, 2022 for the failure to meet the PM Standard found in 40 CFR 63.1220(b)(7)(i) during the July 18, 2022 Performance Test required under 40 CFR 63 Subpart EEE. The bag leak detection system is required to alarm when particulate loadings are above a preset level. This would presumably be at a level below the emission rate of an exceedance of the PM standard. Mr. Budnik told me there have been no alarms of the system in the past three years. I did not confirm with Mr. Budnik whether the alarm was activated during the test.