



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

Air Branch

Air Branch Inspection Report
Unannounced Full Compliance Evaluation
Lehigh Cement Company – Mason City
700 25th Street NW
Mason City, Iowa, 50401
FRS# 10000767705

Inspection Date(s):
December 6, 2022

Sean Bergin, Inspector, ECAD, Air Branch

SEAN BERGIN

Digitally signed by SEAN
BERGIN
Date: 2023.02.27 09:59:42
-06'00'

Authorized for Release by:

TRACEY CASBURN

Digitally signed by TRACEY CASBURN
Date: 2023.03.01 07:40:20 -06'00'

Tracey Casburn Air Branch Chief, ECAD

11201 Renner Boulevard
Lenexa, Kansas 66219

CONTENTS

INSPECTION OVERVIEW	3
INSPECTION OBJECTIVE.....	3
FACILITY CONTACT INFORMATION	3
FACILITY OVERVIEW	3
FACILITY OPERATIONS SUMMARY	4
FIELD ACTIVITIES SUMMARY	5
INSPECTION OBSERVATIONS AND POTENTIAL FINDINGS	7

TABLES

Table 1. PROJECT TEAM MEMBERS	3
Table 2. FACILITY CONTACT INFORMATION	3
Table 3. APPLICABLE REGULATIONS AND STANDARDS	3

APPENDICES

- A Confidential Business Information (1 page)
- B Records received from Lehigh (pages)
- C Receipt for Documents (2 pages)
- D Field Photographs (34 pages)

**This Contents page shows all the sections contained in this report
and provides a clear indication of the end of this report.**

INSPECTION OVERVIEW

INSPECTION OBJECTIVE

The objective of the full compliance evaluation (FCE) inspection was to determine the compliance of the facility with the Clean Air Act (CCA), Section 111, New Source Performance Standards (NSPS), and Section 112, Hazardous Air Pollutants (HAP), and implementing regulations in the code of federal regulations (CFR). The inspection was part of the U.S. Environmental Protection Agency's (EPA) Creating Cleaner Air for Communities National Enforcement and Compliance Initiative.

Table 1 lists the inspection team members.

Table 1. PROJECT TEAM MEMBERS		
Team Member	Organization	Project Role
Sean Bergin	EPA, Region 7, ECAD, Air Branch	Lead Inspector
David Knoll	Iowa Department of Natural Resources (IDNR), Field Office 2, Air Quality	Inspector

FACILITY CONTACT INFORMATION

Table 2 lists the primary facility contacts.

Table 2. FACILITY CONTACT INFORMATION		
Name, Title	Phone No.	Email Address
Rachel Glaza, Environmental Manager	(641) 421-3459	rachel.glaza@lehighhanson.com
Wendy Kraus, MW Area Director, Environment & Sustainability	(317) 819-1632	wendy.krause@lehighhanson.com
Dave Melcher, Senior Manager Process Support		dave.melcher@lehighhanson.com

FACILITY OVERVIEW

Lehigh Cement Company - Mason City (Lehigh) operates under a Title V operating permit issued by IDNR on November 19, 2017. A permit renewal application was reviewed by IDNR and deemed complete on November 30, 2021, but a final permit has not been issued. According to the 2017 Lehigh Title V operating permit, 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 60	Subpart A: General Provisions Subpart F: Standards of Performance for Portland Cement Plants.

Table 3. APPLICABLE REGULATIONS AND STANDARDS	
Code of Federal Regulation	Standard Name
40 CFR Part 60	Subpart Y: Standards of Performance for Coal preparation Plants.
40 CFR Part 60	Subpart DDDD: Standards of Performance for Commercial and Industrial Solid Waste Incineration Units that Commenced Construction on or before November 30, 1999.
40 CFR Part 60	Subpart IIII: Standards of Performance for Stationary Compression Ignition Internal Combustion Engines.
40 CFR Part 63	Subpart A: General Provisions. Subpart LLL: National Emission Standards for Hazardous Air Pollutants from the Portland Cement Manufacturing Industry.
40 CFR Part 63	Subpart ZZZZ: National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

Lehigh is a Portland cement manufacturer and a major source of HAP. The facility consists of a mine, an open pit quarry, and a Portland cement manufacturing plant. Establishments involved in the manufacture of Portland cement have a Standard Industrial Classification (SIC) number 3241 and a North American Industrial Classification System (NAICS) number 327310.

Currently, Lehigh is not in compliance with the Particulate Matter (PM) standards of 40 C.F.R. Part 63, Subpart LLL. Lehigh entered a 2019 Judicial Consent Decree with the EPA and the Department of Justice for emissions of sulfur dioxide (SO₂) and nitrogen oxides (NO_x) by undertaking remedial measures and operational improvements. Lehigh also entered a 2021 Consent Agreement and Final Order with the EPA for failure of numerous recordkeeping, reporting and PM stack testing issues during 2018 and 2019.

FACILITY OPERATIONS SUMMARY

Lehigh typically operates 24 hours per day, seven days per week. Lehigh employs greater than 100 people.

Lehigh obtains the primary raw material (limestone) from an open pit mine adjacent to the cement plant. The limestone is crushed and transported via conveyor belts into a storage area for blending with other materials and homogeneity. The material is then transported to the preheater tower where it is fed to a riser duct at the first stage of the preheater/precalciner. The rising exhaust gases heat the kiln feed as it descends through each of the succeeding stages to the kiln. Drying and decarbonization occur in the preheater/precalciner section.

The clinkering process occurs in the rotary kiln. As the kiln rotates, clinker is discharged to the clinker cooler. The hot air exiting the clinker cooler is used for secondary combustion. Clinker exits the clinker cooler and is conveyed to the finish-mill feed bins. From the feed bins clinker is

conveyed to a ball mill for pulverization. The cement product discharged from the mill passes through a separation process and is then conveyed to storage silos. From the storage silos the cement can be shipped via rail or truck.

Emissions (mainly carbon dioxide, mercury, PM, SO₂, and NO_x) are produced during operations. Control equipment consists of numerous baghouses throughout the facility. Selective Non-Catalytic Reduction for NO_x, an electrostatic precipitator and a wet scrubber for SO₂ are used for emissions control of the kiln.

FIELD ACTIVITIES SUMMARY

I arrived at the facility on December 6, 2022, and completed a drive by surveillance inspection. I met with the IDNR inspector Mr. Knoll in the parking lot, and we went into the administration building and contacted Ms. Glaza. Ms. Glaza escorted us to her office where we introduced ourselves, and I presented my credentials, and provided my business card to Ms. Glaza. 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 CAA specifically, to determine compliance with the conditions listed in Table 3. I explained that after asking for some general business information, I would observe and photograph work practices, emission units and control equipment and review associated records demonstrating compliance with the permit and regulations. I explained to Ms. Glaza that the facility could make a claim of business confidentiality (Appendix A). Ms. Glaza did not make a claim of confidentiality at the time of the inspection. I provided Ms. Glaza with a list of requested records that I wanted Lehigh to send to me for review (Appendix B). The following day, December 7, 2022, I sent Ms. Glaza a link to a secure folder where she could submit the requested documents. All records submitted by Lehigh in response to the records request can be found in Appendix C. The receipt for documents can be found in Appendix D.

I reviewed the monitoring and recordkeeping requirements of the permit and regulations during the inspection. Most of the recordkeeping requirements in the Lehigh Title V permit are contained in requested records list that I gave Ms. Glaza during our introductions. With each requirement that I asked about Ms. Glaza would show me the report or spreadsheet on her monitor for me to review. A list of the requested records can be found below.

Requested Records:

1. Schematic diagrams of facility.
2. Emission points subject to Consent Agreement and process throughput limits (Material Transfer Fugitive Emission Sources Subject to Administrative Consent Order 1999-AQ-32 and the Fugitive Dust Rule. Throughput and throughput rates. 3 years.

3. Haul Roads daily/monthly trip totals and suppressant use (56, 57, 63B, 80, paved road to hwy 65). 3 years.
4. Conveying System Transfer Points\Raw and Finish Mills\ Storage Bins\ Bulk Loading and Unloading Units Subject to 40 CFR 63 Subpart LLL. Hours of operation, transfers, maximum throughput. Daily and tons per year. 3 years.
5. BACT Affected Conveying System. Transfer Points\ Raw and Finish Mills\ Storage Bins\ Bulk Loading and Unloading Units Subject to 40 CFR 63 Subpart LLL. Total amount of reagent handled through units 87 and 88 each day, Number of hours operated, hourly amount of reagent handled by each unit, total amount of secondary fuels processed. 3 years.
6. Visible emissions results of the mill sweep and air separator dust collectors. Method 22 observations. 3 years.
7. Non-Fugitive Sources Subject to 40 CFR Part 60 Subpart F. (EP 8, 9, 10, 12, 15). Operating hours for each unit 12-month rolling. 3 years.
8. Weekly opacity results EU15 (Method 22). 3 years.
9. Weekly pressure drops EU 15. 3 years.
10. Daily production rate and kiln feed. 3 years.
11. Kiln Temperatures. 3 years.
12. Dates and duration of use of EP 25 as a bypass. 3 years.
13. NOx/SO2 emissions rolling 12-month. 2020, 2021 years.
14. PM CPMS opacity test results. 3 years.
15. EP 26 log of 1 hour opacity averages, dates and times of exceedances and dates of compliance testing. 3 years.
16. Hours of operation for engines 101 and 102. 3 years.
17. Results of the last 2 annual equipment maintenance inspections from O&M Plan:
 - a. SYSTEM: In-Line Kiln/ Raw Mill
EQUIPMENT: Preheater Kiln, Ball Mill, Alkali-Bypass, and Coal Mill
 - b. SYSTEM: In-Line Kiln/ Raw Mill
EQUIPMENT: Preheater Kiln, Ball Mill, Alkali-Bypass, and Coal Mill
 - c. SYSTEM: Finish Grinding Systems
EQUIPMENT: Finish Mills 3, 4, 5, and 6.

The facility response to the requested records can be found in Appendix C. Ms. Glaza had originally agreed to submit the requested documents by January 13, 2023. However, Ms. Glaza contacted me on January 13, 2023, to request more time for some of the records that she had trouble finding. At the time of completing this report, the review of the Lehigh response to the records request has not concluded.

Mr. Knoll and I were given a facility tour by Ms. Glaza. Prior to the facility tour Ms. Glaza asked Mr. Knoll and me to view a safety video. Personal protective equipment for the facility tour consisted of hard hats, ear protection, eye protection and steel toed boots. During the facility tour we observed emission points, particularly emission points where periodic Method 22 tests are required, equipment, and control equipment.

I conducted a closing conference with Ms. Glaza, Ms. Kraus, and Mr. Melcher. I provided Ms. Glaza with copies of the Receipt for Documents, small business information, and provided her with a Confidential Business Information form.

INSPECTION OBSERVATIONS AND POTENTIAL FINDINGS

Ambient weather, site conditions and activities were documented in field records. All photographs are attached as Appendix D. The following information was related to me or observed by me 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.

Lehigh did not complete the following required EPA Method 22 fugitive emissions tests in the first half of 2022 as reported in the January through June 2022 Semi-Annual report:

- 40 CFR 63.1350(f) requires 10-minute Method 22 visible emission monitoring to be conducted on all PC MACT affected sources monthly, semiannually, or annually. The Plant has 14 sources that it is conducting monthly monitoring for in 2022. January, February, March, and April 2022 tests were not conducted.
- 40 CFR 63.1350(f) requires 6-minute Method 22 visible emission monitoring to be conducted on all finish mills. Review of Plant records determined that the required monitoring had not been documented for 10 days in the first half of 2021 for all Finish Mill 3, 4, 5, and 6 sources.
- Per Operating Permit 04-TV-011R2 Page 22 Monitoring Requirements, the Plant shall conduct weekly opacity observations on EP8, EP9, and EP10 to ensure that no visible

emissions occur during material handling operations. Weekly testing was not documented from January 1 through April 30, 2022.

- The Compliance Assurance Monitoring Plan requires the Plant to conduct weekly Method 22 opacity observations on the baghouse exhausts associated with EP2, EP3, EP5, and EP6. Weekly testing was not documented from January 1 through April 30, 2022.

Corrective actions were taken for the above excursions. Plant personnel were retrained on test Method 22 and recordkeeping requirements. A tracking spreadsheet was put in place and a mobile application has been employed.

The following are updates on the operating status of the equipment and observations made during the inspection.

- The Facility was operating at full production according to Ms. Glaza. Ms. Glaza added that they were having trouble finding parts for equipment.
- Ms. Glaza told me that the alternative fuels permit is currently on hold because extra testing has to be done. Lehigh is currently using corn seed and soybeans as primary sources of fuel. Lehigh uses natural gas for start-up with 10 percent corn seed and soybeans. No plastics, oil, or coal are being used as fuel. Lehigh is planning to use coal as a fuel source in 2023 and plans to start testing as early as January 2023 if possible. Lehigh has been cleaning up the coal piles in preparation by removing vegetation that has grown in the piles. Ms. Glaza said that Lehigh ran the coal transfer in 2015 and 2018. The coal transfer is not operating now. Additional testing must be conducted before it can operate.
- Lehigh has not failed a calibration test since August 2022. Ms. Glaza told me that the facility tilted the probe and insulated the lines which seems to have helped pass the calibration tests.
- Three PM compliance tests have been conducted in response to the CAFO entered in 2021. Lehigh has failed the tests and is not in compliance with the PM limits established in subpart LLL.
- The kiln was shut down at approximately 10:00 am the day of the inspection. An F-K pump on the ESP had gone down and needed to be replaced.
- Lehigh does not use sorbent for emission control technique for Dioxin/Furan control.
- A PM₁₀ Sweeper (permitted) was added at the silos to reduce fugitive emissions in that area.

Potential Finding 1: Lehigh is not in compliance with the PM emission limit.
Observation Summary: Lehigh has not passed PM emissions tests conducted in the 2019 through 2023 time period.
Citation: 40 CFR 63 Subpart 63.1349(b)(1).
Evidence: Stack test results from 2019 to present.
Description of Observation: Lehigh was issued a Consent Agreement and Final Order on November 17, 2021, for failure of numerous stack tests in 2019 and 2020. Three PM tests were conducted in 2022 and Lehigh did not pass the tests.