Iowa Department of Natural Resources
Air Quality Construction Permit

Permit Holder

Firm: Holnam

Contact:

Cindy M. Garza
Environmental Engineer

(515) 421-3313

1840 N. Federal Avenue
Mason City, IA 50401

Responsible Party:

J. Paul Stewart
Plant Manager

(515) 421-3215

1840 N. Federal Avenue
Mason City, IA 50401

Permitted Equipment

Emission Unit(s): Kiln 2 (90 tons of clinker/hr)

Control Equipment: Baghouse

Emission Point: 22

Equipment Location: 1840 N. Federal Avenue
Mason City, IA 50401

Plant Number: 17-01-009

Permit No.	Proj. No.	Description	Date	Testing
92-A-631	92-237	Original permit.	11/18/92	Yes
92-A-631-S1	97-485	Added PM_{10} emission limit.	9/3/97	Yes
92-A-631-S2	99-511	Amended PM_{10} emission limit.	7/24/01	Yes

Under the Direction of the Director of
the Department of Natural Resources

PERMIT CONDITIONS

The owner or operator of the facility shall assure that the installation, operation, and maintenance of this equipment is in compliance with all of the following conditions.

1. Departmental Review

This permit is issued based on information submitted by the applicant. Any misinformation, false statements or misrepresentations by the applicant shall cause this permit to be void. In addition, the applicant may be subject to criminal penalties according to Iowa Code Section 455B.146A.

This permit is issued under the authority of 567 Iowa Administrative Code (IAC) 22.3. The proposed equipment has been evaluated for conformance with Iowa Code Chapter 455B; 567 IAC Chapters 20-31; and 40 CFR Parts 51, 52, 60, 61 and 63 and has the potential to comply.

No review has been undertaken on the engineering aspects of the equipment or control equipment other than the potential of that equipment for reducing air contaminant emissions. The DNR assumes no liability, directly or indirectly, for any loss due to damage to persons or property caused by, resulting from, or arising out of the design, installation, maintenance or operation of the proposed equipment.

2. Transferability

As limited by 567 IAC 22.3(3)"f", this permit is not transferable from one location to another or from one piece of equipment to another, unless the equipment is portable. When portable equipment for which a permit has been issued is to be transferred from one location to another, the DNR shall be notified in writing at least thirty (30) days prior to transferring to the new location. The owner will be notified at least ten (10) days prior to the scheduled relocation if the relocation will cause a violation of the National Ambient Air Quality Standards. In such case, a supplemental permit shall be required prior to the initiation of construction of additional control equipment or equipment modifications needed to meet the standards.

This permit is for the construction and operation of the specific emission unit(s), control equipment and emission point as described in this permit and in the application for this permit. Any owner or operator of the specified emission unit(s), control equipment or emission point, including any person who becomes an owner or operator subsequent to the date on which this permit is issued, is responsible for compliance with the provisions of this permit. No person shall construct, install, reconstruct or alter this emission unit, control equipment or emission point without the required revisions to this permit.

3. Construction

This permit shall become void if construction on the proposed project has not been initiated within eighteen (18) months after the date of the issuance of this permit and completed within thirty-six (36) months after the date of the issuance of this permit.

It shall be the responsibility of the owner to ensure that construction conforms to the final plans and specifications as submitted and that adequate operation and maintenance is provided to ensure that no condition of air pollution is created. A supplement to this permit shall be obtained if the owner proposes changes to the final submitted plans and specifications.

4. Credible Evidence

As stated in 567 IAC 21.5 and also in 40 CFR Part 60.11(g), where applicable, any credible evidence may be used for the purpose of establishing whether a person has violated or is in violation of any provisions specified in this permit or any provisions of 567 IAC Chapters 20 through 31.

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5. Owner Responsibility

Issuance of this permit shall not relieve the owner or operator of the responsibility to comply fully with applicable provisions of the State Implementation Plan (SIP), and any other requirements of local, state, and federal law.

The owner or operator of any emission unit or control equipment shall maintain and operate the equipment and control equipment at all times in a manner consistent with good practice for minimizing emissions, as required by paragraph 567 IAC 24.2(1) "Maintenance and Repair".

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6. Disposal of Contaminants

The disposal of materials collected by the control equipment shall meet all applicable rules.

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7. Excess Emissions

Excess emissions during a period of startup, shutdown, or cleaning of control equipment are not a violation of the emission standard if it is accomplished expeditiously and in a manner consistent with good practice for minimizing emissions except when another regulation applicable to the unit or process provides otherwise. Cleaning of control equipment, which does not require the shutdown of process equipment, shall be limited to one six-minute period per one-hour period. An incident of excess emissions other than the above is a violation and may be subject to criminal penalties according to Iowa Code 455B.146A. If excess emissions are occurring, either the control equipment causing the excess shall be repaired in an expeditious manner, or the process generating the emissions shall be shutdown within a reasonable period of time, as specified in 567 IAC 24.1.

An incident of excess emissions shall be orally reported to the appropriate DNR field office within eight (8) hours of, or at the start of, the first working day following the onset of the incident. A written report of an incident of excess emissions shall be submitted as a follow-up to all required oral reports within seven (7) days of the onset of the upset condition.

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8. Notification, Reporting and Recordkeeping

A. The owner shall furnish the DNR the following written notifications:
   1. The date construction, installation, or alteration is initiated postmarked within thirty (30) days following initiation of construction, installation, or alteration;
   2. If the equipment or control equipment is subject to a New Source Performance Standard (see Condition 13), the date of intended startup, at least ten (10) days before the equipment or control equipment involved is placed into operation;
   3. The actual date of startup, postmarked within fifteen (15) days following the start of operation;
   4. The date of each compliance test required by Permit Condition 12, at least thirty (30) days before the anticipated compliance test date;

8. Notification, Reporting and Recordkeeping (Continued)

5. The date of each pretest meeting, at least fifteen (15) days before the proposed meeting date. The owner shall request a proposed test plan protocol questionnaire at least sixty (60) days prior to each compliance test date. The completed questionnaire shall be received by the DNR at least fifteen (15) days before the pretest meeting date;
6. Transfer of equipment ownership, within 30 days of the occurrence;
7. Portable equipment relocation, at least thirty (30) days before equipment relocation.

B. The owner shall furnish DNR with the following reports:
1. Oral excess emissions reports, in accordance with 567 IAC 24.1;
2. Indicator opacity reports in accordance with Opacity Policy 3-b-08;
3. A written compliance demonstration report for each compliance testing event, whether successful or not, postmarked not later than forty-five (45) days after the completion of the test period unless other regulations provide for other notification requirements. In that case, the more stringent reporting requirement shall be met;
4. Operation of this emission unit(s) or control equipment outside of those limits specified in Permit Conditions 10 and 14 and according to the schedule set forth in 567 IAC 24.1.

C. The owner shall send correspondence regarding this permit to the following addresses:

Mr. David Phelps
Construction Permit Supervisor
Air Quality Bureau
Iowa Department of Natural Resources
7900 Hickman Road, Suite 1
Urbandale, IA 50322
Telephone: (515) 281-8189
Fax: (515) 242-5094

D. The owner shall send correspondence concerning stack testing to:

Stack Testing Coordinator
Air Quality Bureau
Iowa Department of Natural Resources
7900 Hickman Road, Suite 1
Urbandale, Iowa 50322
Telephone: (515) 242-6001
FAX: (515) 242-5127

5. The owner shall send reports and notifications to:

Mr. Chuck Corell Compliance Unit Supervisor Air Quality Bureau Iowa Department of Natural Resources 7900 Hickman Road, Suite 1 Urbandale, IA 50322 Telephone: (515) 281-8448 Fax: (515) 242-5127	DNR Field Office 2 PO Box 1443 2300 15th Street SW Mason City, IA 50401 Telephone: (641) 424-4073 Fax: (641) 424-9342

F. All data, records, reports, documentation, construction plans, and calculations required under this permit shall be available at the plant during normal business hours for inspection and copying by federal, state, or local air pollution regulatory agencies and their authorized representatives, for a minimum of two (2) years from the date of recording.

9. Permit Violations

Knowingly committing a violation of this permit may carry a criminal penalty of up to $10,000 per day fine and 2 years in jail according to Iowa Code Section 455B.146A.

10. Emission Limits

Pollutant	Lb/Hr	Tons/day	Tons/Yr	Additional Limits	Reference (567 IAC)
Particulate Matter (PM)	NA	NA	NA	0.3 lb/ton of feed[1]	23.1(4)"bl"[2]
PM_{10}	107.8[3]	NA	NA	NA	NAAQS
Opacity	NA	NA	NA	20%[4]	23.1(4)"bl"[2]
Sulfur Oxides (SO_x)	2960.4[5]	2339[5]	21,170.3[5]	5 lb/MMBTU	23.3(3)"a"
Nitrogen Dioxide (NO_2)	NA	NA	NA	NA	NA
Volatile Organic Compounds	NA	NA	NA	NA	NA
Carbon Monoxide (CO)	NA	NA	NA	NA	NA
Lead (Pb)	NA	NA	NA	NA	NA
Dioxins and Furans (D/F)	NA	NA	NA	0.4 ng/dscm (TEQ)[6]	23.1(4)"bl"[2]
(Total HAP)	NA	NA	NA	NA	NA

[1] This is equivalent to 0.15 kg/metric ton of feed (dry basis).
[2] See also NESHAP Subpart LLL (40 CFR §63.1340 – 40 CFR §63.1359).
[3] Emission rate used in the facility-wide SIP (State Implementation Plan) maintenance plan dispersion modeling to demonstrate no exceedences of the National Ambient Air Quality Standards (NAAQS).
[4] If opacity greater than that observed in the initial performance test is viewed other than startup, shutdown, or malfunction, a stack test may be required to demonstrate compliance with the particulate standard.
[5] Emission rate used in facility-wide dispersion modeling to demonstrate no exceedences of the National Ambient Air Quality Standards (NAAQS).
[6] 0.4 ng/dscm = 1.7×10^{-10} grains/dscf. Limit is corrected to 7% O_2 and 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. If the average of the performance test run average temperatures at the inlet to the particulate matter control device is greater than 204 °C (400 °F) then the D/F standard is 0.2 ng/dscm (8.7×10^{-11} grains/dscf) (TEQ) corrected to 7% O_2.

11. Emission Point Characteristics

This emission point shall conform to the specifications listed below.

Parameter	Value
Stack Height, (ft, from the ground)	158.3
Discharge Style	Unobstructed vertical
Stack Opening, (inches, dia.)	156
Exhaust Temperature (^{0}F)	420
Exhaust Flowrate (scfm)	210,800

It shall be the owner's responsibility to ensure that construction conforms with the emission point characteristics stated above. If it is determined that any of the emission point characteristics are different than stated above, the owner must notify the Department and obtain a permit amendment, if required.

12. Initial Performance Testing Requirements

Pollutant	Testing Required	Test Method
PM	Yes	40 CFR 60, Appendix A, Method 5
PM_{10}	Yes	40 CFR 51, Appendix M, 201A with 202
Opacity	Yes	40 CFR 60, Appendix A, Method 9
SO_x	Yes	40 CFR 60, Appendix A, Method 6C
NO_2	No	40 CFR 60, Appendix A, Method 7E
VOC	No	40 CFR 60, Appendix A, Method 25A
CO	No	40 CFR 60, Appendix A, Method 10
Pb	No	40 CFR 60, Appendix A, Method 12
Dioxins/Furans (D/F)	Yes[1]	40 CFR 60, Appendix A, Method 23

[1] Test shall be done in order to meet compliance as outlined in NESHAP Subpart LLL (See 40 CFR §63.1349).

If specified above, the owner shall verify compliance with the emission limitations contained in Permit Condition 10 within ninety (90) days after the issuance of this permit. The unit(s) being sampled should be operated in a normal manner at it maximum continuous output as rated by the equipment manufacturer, or the rate specified by the owner as the maximum production rate at which this unit(s) will be operated. In cases where compliance is to be demonstrated at less than the maximum continuous output as rated by the manufacturer, and it is the owner's intent to limit the capacity to that rating, the owner may submit evidence to the department that this unit(s) has been physically altered so that capacity cannot be exceeded, or the department may require additional testing, continuous monitoring, reports of operating levels, or any other information deemed necessary by the department to determine whether this unit(s) is in compliance.

Each emissions compliance test must be approved by the DNR. Unless otherwise specified by the DNR, each test shall consist of three separate runs. The duration of each run shall be established by the DNR at the pretest meeting. The arithmetic mean of three acceptable test runs shall apply for compliance, unless otherwise indicated by the DNR. The test methods to be used are those stated above unless otherwise approved by the DNR.

A pretest meeting shall be held at a mutually agreeable site no less than fifteen (15) days prior to the date of each test. Representatives from the DNR shall attend this meeting, along with the owner and the testing firm, if any. It shall be the responsibility of the owner to coordinate and schedule the pretest meeting. The owner shall be responsible for the installation and maintenance of test ports. The DNR shall reserve the right to impose additional, different, or more detailed testing requirements.

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13. NSPS and NESHAP Applicability

This emission unit is not subject to the New Source Performance Standards at this time.

This emission unit is subject to Subpart A (General Provisions, 40 CFR §63.1 through 40 CFR §63.15) and Subpart LLL (National Emission Standards for Hazardous Air Pollutants from the Portland Cement Manufacturing Industry) of the National Emission Standards for Hazardous Air Pollutants (NESHAP).

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14. Operating Limits

Operating limits for this emission point are:

A. The kiln is limited to firing on natural gas, coke, coal, and tire derived fuel (TDF).

B. The kiln shall be operated such that the temperature of the gas at the inlet to the kiln particulate matter control device (PMCD) and alkali bypass PMCD, if applicable, meets the requirements of 40 CFR §63.1344 (Subpart LLL - National Emission Standards for Hazardous Air Pollutants from the Portland Cement Manufacturing Industry).

C. In accordance with 40 CFR §63.1349(c), PM performance tests shall be repeated every 5 years.

D. In accordance with 40 CFR §63.1349(d), D/F performance tests shall be repeated every 30 months.

E. In accordance with 40 CFR §63.1349(e), D/F performance tests shall be repeated within 90 days of initiating any significant change in the feed or fuel from that used in the previous performance test.

F. In accordance with 40 CFR §63.1350(i), the facility shall conduct an inspection of the components of the combustion system of each kiln or in-line raw mill at least once per year.

G. Within 6 months of the issuance of this permit, the facility (plant number 17-01-009) shall submit facility-wide NO_x dispersion modeling that demonstrates no exceedences of the National Ambient Air Quality Standards (NAAQS).

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15. Operating Condition Monitoring

All records as required by this permit shall be kept on-site for a minimum of two (2) years and shall be available for inspection by the DNR. Records shall be legible and maintained in an orderly manner. The records shall show the following:

A. The sulfur content (in lb/MMBTU) of all individual fuels and the total sulfur (in lb/MMBTU) of any combination of fuels that are fired in the kiln. The fuel analysis sent with the fuel shipment can be an adequate demonstration for this record.

B. Determine the total SO_2 emissions for each operating day. An operating day is defined as a 24-hour period between 12:00 midnight and the following midnight during which any clinker is produced at any time in the kiln. It is not necessary for clinker to be produced continuously by the kiln for the entire 24-hour period.

C. For the first twelve (12) months of operation after the issuance of this permit, calculate the cumulative SO_2 emissions for each month of operation.

D. After the first twelve (12) months of operation after the issuance of this permit, calculate the total SO_2 emissions on a rolling-12-month total for each month of operation.

E. Copies of the excess emissions reports required per NSPS Subpart F and NESHAP Subpart LLL.

F. Monitoring for NESHAP Subpart LLL at the facility (plant number 17-01-009) shall be done per 40 CFR §63.1350.

G. Recordkeeping for NESHAP Subpart LLL at the facility (plant number 17-01-009) shall be done per 40 CFR §63.1355.

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16. Continuous Emission Monitoring

In accordance with NESHAP Subpart LLL, the facility (plant number 17-01-009) shall install, calibrate, maintain, and operate a continuous opacity monitoring system (COMS) for measuring the opacity of the emissions discharged to the atmosphere and record the output of the system. The system shall be designed to meet the 40 CFR 60, Appendix B, Performance Specification 1 (PS1).

In accordance with NESHAP Subpart LLL [40 CFR §63.1350(f)], the facility (plant number 17-01-005) shall install, calibrate, maintain, and continuously operate a continuous monitor to record the temperature of the exhaust gases from the kiln at the inlet to or upstream of the kiln particulate matter control device. Per 40 CFR §63.1350(f), the following shall be done:

The recorder response range must include zero and 1.5 times either of the average temperatures established according to the requirements in 40 CFR §63.1349(b)(3)(iv).
The reference method must be a National Institute of Standards and Technology calibrated reference thermocouple-potentiometer system or alternate reference, subject to approval by the Administrator.
The three-hour average temperature shall be calculated as the average of 180 successive one-minute average temperatures.
Periods of time when one-minute averages are not available shall be ignored when calculating three-hour rolling averages. When one-minute averages become available, the first one-minute average is added to the previous 179 values to calculate the three-hour rolling average.
The calibration of all thermocouples and other temperature sensors shall be verified at least once every three months.

Compliance with the sulfur dioxide emission limit of this permit shall be continuously demonstrated by the owner/operator through the use of a continuous emission monitoring system (CEMS). Therefore, the facility (plant number 17-01-009) shall install, calibrate, maintain, and operate a CEMS for kiln 2 for measuring sulfur dioxide emissions discharged to the atmosphere and record the output of the system. The system shall be designed to meet the 40 CFR 60, Appendix B, Performance Specification 2 (PS2) and Performance Specification 6 (PS6) requirements. The specifications of 40 CFR Appendix F (Quality Assurance/Quality Control) shall apply. Appendix F requirements shall be supplemented with a quarterly notice to the Department with the dates of the quarterly cylinder gas audits and annual relative accuracy test audit.

The CEMS required by this permit shall be operated and data recorded during all periods of operation of the kiln except for CEM breakdowns and repairs. Data must be recorded during calibration checks, and zero and span adjustments.

The 1-hour average sulfur dioxide emission rate measured by the CEMS required by this permit shall be used to calculate compliance with the emission standard of this permit. At least 2 data points must be used to calculate each 1-hour average.

16. Continuous Emission Monitoring (Continued)

For each hour of missing sulfur dioxide emission data, the owner or operator shall substitute data by:

A. If the monitor data availability is equal to or greater than 95.0%, the owner or operator shall calculate substitute data by means of the automated data acquisition and handling system for each hour of each missing data period according to the following procedures:
   i) For the missing data period less than or equal to 24 hours, substitute the average of the hourly SO_2 concentrations recorded by an SO_2 pollutant concentration monitor for the hour before and the hour after the missing data period.
   ii) For a missing data period greater than 24 hours, substitute the greater of:
      (a) The 90^{th} percentile hourly SO_2 concentration recorded by an SO_2 pollutant concentration monitor during the previous 720 quality-assured monitor operating hours; or
      (b) The average of the hourly SO_2 concentrations recorded by an SO_2 pollutant concentration monitor for the hour before and the hour after the missing data period.

B. If the monitor data availability is at least 90.0% but less than 95.0%, the owner or operator shall calculate substitute data by means of the automated data acquisition and handling system for each hour of each missing data period according to the following procedures:
   i) For a missing data period of less than or equal to 8 hours, substitute the average of the hourly SO_2 concentrations recorded by an SO_2 pollutant concentration monitor for the hour before and the hour after the missing data period.
   ii) For the missing data period of more than 8 hours, substitute the greater of:
      (a) The 95^{th} percentile hourly SO_2 pollutant concentration recorded by an SO_2 pollutant concentration monitor during the previous 720 quality-assured monitor operating hours; or
      (b) The average of the hourly SO_2 concentrations recorded by an SO_2 pollutant concentration monitor for the hour before and the hour after the missing data period.

C. If the monitor data availability is less than 90.0%, the owner or operator shall obtain actual emission data by an alternate testing or monitoring method approved by the Department.

17. Descriptions of Terms and Acronyms

acfm	Actual cubic foot per minute
Applicant	The owner, company official or authorized agent
CFR	Code of Federal Regulations
Department	Iowa Department of Natural Resources
DNR	Iowa Department of Natural Resources
gr/dscf	Grains per dry standard cubic foot
HAP	Hazardous Air Pollutant(s)
IAC	Iowa Administrative Code
MMBtu	One million British thermal units
NA	Not Applicable
NAAQS	National Ambient Air Quality Standards
NO_2	Nitrogen Dioxide, a criteria pollutant measured as NO_x
Owner	The owner or authorized representative
Permit	This document including permit conditions and all submitted application materials
PM_{10}	Particulate Matter equal to or less than 10 microns in aerodynamic diameter
scfm	Standard cubic foot per minute
SIP	State Implementation Plan
SO_2	Sulfur Dioxide, the measured surrogate for SO_x
SO_x	Sulfur Oxides, a criteria pollutant
VOC	Volatile Organic Compound

END OF PERMIT CONDITIONS