



DEPARTMENT OF NATURAL RESOURCES

MISSOURI AIR CONSERVATION COMMISSION

PERMIT TO CONSTRUCT

Under the authority of RSMo 643 and the Federal Clean Air Act the applicant is authorized to construct the air contaminant source(s) described below, in accordance with the laws, rules and conditions as set forth herein.

Permit Number: **092012-003**

Project Number: 2012-02-038

Installation Number: 173-0001

Parent Company: Continental Cement Company

Parent Company Address: 10107 Highway 79 South, Hannibal, MO 63401

Installation Name: Continental Cement Company

Installation Address: 10107 Highway 79 South, Hannibal, MO 63401

Location Information: Ralls County, S2, T56N, R4W

Application for Authority to Construct was made for:

The addition of an underground limestone mine. This review was conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*.

Standard Conditions (on reverse) are applicable to this permit.

Standard Conditions (on reverse) and Special Conditions are applicable to this permit.

SEP 05 2012

EFFECTIVE DATE

Kyra L. Moore
 DIRECTOR OR DESIGNEE
 DEPARTMENT OF NATURAL RESOURCES

STANDARD CONDITIONS:

Permission to construct may be revoked if you fail to begin construction or modification within two years from the effective date of this permit. Permittee should notify the Air Pollution Control Program if construction or modification is not started within two years after the effective date of this permit, or if construction or modification is suspended for one year or more.

You will be in violation of 10 CSR 10-6.060 if you fail to adhere to the specifications and conditions listed in your application, this permit and the project review. In the event that there is a discrepancy between the permit application and this permit, the conditions of this permit shall take precedence. Specifically, all air contaminant control devices shall be operated and maintained as specified in the application, associated plans and specifications.

You must notify the Department's Air Pollution Control Program of the anticipated date of startup of these air contaminant sources. The information must be made available within 30 days of actual startup. Also, you must notify the Department of Natural Resources Regional office responsible for the area within which you are located within 15 days after the actual startup of these air contaminant sources.

A copy of this permit and permit review shall be kept at the installation address and shall be made available to Department of Natural Resources' personnel upon request.

You may appeal this permit or any of the listed special conditions to the Administrative Hearing Commission (AHC), P.O. Box 1557, Jefferson City, MO 65102, as provided in RSMo 643.075.6 and 621.250.3. If you choose to appeal, you must file a petition with the AHC within 30 days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed. If it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the AHC.

If you choose not to appeal, this certificate, the project review and your application and associated correspondence constitutes your permit to construct. The permit allows you to construct and operate your air contaminant sources(s), but in no way relieves you of your obligation to comply with all applicable provisions of the Missouri Air Conservation Law, regulations of the Missouri Department of Natural Resources and other applicable federal, state and local laws and ordinances.

The Air Pollution Control Program invites your questions regarding this air pollution permit. Please contact the Construction Permit Unit at (573) 751-4817. If you prefer to write, please address your correspondence to the Missouri Department of Natural Resources, Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102-0176, attention: Construction Permit Unit.

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SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

The special conditions listed in this permit were included based on the authority granted the Missouri Air Pollution Control Program by the Missouri Air Conservation Law (specifically 643.075) and by the Missouri Rules listed in Title 10, Division 10 of the Code of State Regulations (specifically 10 CSR 10-6.060). For specific details regarding conditions, see 10 CSR 10-6.060 paragraph (12)(A)10. "Conditions required by permitting authority."

Continental Cement Company
Ralls County, S2, T56N, R4W

1. Particulate Matter (PM) Emissions Limitation
 - A. Continental Cement Company shall emit less than 25.0 tons of PM in any consecutive 12-month period from the underground limestone mine. Equipment and activities of the underground limestone mine are listed below in Table 1.

Table 1: Underground Limestone Mine Equipment/Activities List

Emission Point	Description
LS-01	Drilling
LS-02	Truck Loading
LS-03	Truck Unloading
LS-04	Crusher
LS-05	Conveyor
LS-06	Conveyor
LS-07	Conveyor
LS-08	Conveyor
LS-09	Conveyor
LS-10	Conveyor
LS-11	Conveyor
LS-12	Conveyor
LS-13	Hauling

- B. Attachment A or equivalent forms, such as electronic forms, approved by the Air Pollution Control Program shall be used to demonstrate compliance with Special Conditions 1.A.
2. Haul Road Dust Control
 - A. Continental Cement Company shall control dust from all haul roads at this site using water or surfactant spray consistently and correctly at all times to prevent visible fugitive emissions from entering the ambient air beyond

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SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

the property boundary. The following conditions apply to haul road watering:

- 1) The water application rate shall be 100 gallons per 1,000 square feet at least once every day.
 - 2) A quarter inch or more rainfall during the preceding 24 hours shall substitute for one daily water application
 - 3) Water/surfactant application shall not be required when the ground is frozen or when there will be no traffic on the roads.
- B. Continental Cement Company shall keep the following records on file and available for inspection:
- 1) A daily log initialed by the responsible facility operator of roads watered and quantity of water/chemical application used, or notation that there was a quarter inch or greater rainfall within the past 24 hours or that the facility was not in operation.
 - 2) Water tank size, total area of roads to be watered, and the resultant number of fills necessary to accomplish the required application rate.
 - 3) Records of watering equipment breakdowns and repairs.
3. Inherent Moisture Content Testing Requirement
- A. Continental Cement Company shall conduct periodic moisture content tests to confirm that the inherent moisture content in the processed limestone is greater than 1.5% by weight.
 - B. Testing shall be conducted according to the method prescribed by the American Society for Testing Materials (ASTM) D-2216, C-566 or another method approved by the Director.
 - C. The initial test shall be conducted no later than 45 days after the start of operation of the underground mine. Thereafter, Continental Cement Company shall conduct the moisture content test at least once every year, during the months of June through September.
 - D. Rock samples shall be obtained at the end of the process after they have been processed by all of the equipment at the underground mine.
 - E. Two (2) copies of the written report of the moisture content tests shall be submitted to the Director within 30 days of the completion of the required tests and shall include, at a minimum, the wet weight, the dry weight, the

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SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

drying time, the moisture content of each rock sample, the test date and the name and title of the individual performing the moisture content analysis. Continental Cement Company shall maintain a record of the above testing information and make it available upon request to Department of Natural Resources personnel.

- F. If any tests required in Special Condition 3.A and 3.C. should indicate that the inherent moisture content of the limestone is less than 1.5% by weight, Continental Cement Company may conduct a second test within fifteen (15) days. If the result of the second test also shows a moisture content less than 1.5% by weight, Continental Cement Company shall apply for a new permit to account for the revised information within 30 days after the second noncompliant test.
4. Record Keeping and Reporting Requirements
- A. Continental Cement Company shall maintain all records required by this permit for not less than five years and shall make them available to any Missouri Department of Natural Resources' personnel upon request.
 - B. Continental Cement Company shall report to the Air Pollution Control Program's Compliance/Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, no later than ten days after the end of the month during which any record required by this permit show an exceedance of a limitation imposed by this permit.

REVIEW OF APPLICATION FOR AUTHORITY TO CONSTRUCT AND OPERATE
SECTION (5) REVIEW

Project Number: 2012-02-038
Installation ID Number: 173-0001
Permit Number:

Continental Cement Company
10107 Highway 79 South
Hannibal, MO 63401

Complete: February 14, 2012

Parent Company:
Continental Cement Company
10107 Highway 79 South
Hannibal, MO 63401

Ralls County, S2, T56N, R4W

REVIEW SUMMARY

- Continental Cement Company has applied for authority to construct an underground limestone mine consisting of a crusher and eight (8) conveyors.
- Hazardous Air Pollutant (HAP) emissions are not expected from the proposed equipment.
- 40 CFR 60 Subpart OOO, "Standards of Performance for Nonmetallic Mineral Processing Plants" of the New Source Performance Standards (NSPS) does not apply to underground equipment but does apply to equipment on the surface.
- 40 CFR 60 Subpart F, "Standards of Performance for Portland Cement Plants" does not apply to the conveyor transfer points. According to a memo from the Environmental Protection Agency (EPA) issued in 1995 (Control Number 9600050), the first conveyor transfer point subject to Subpart F is the transfer point associated with the conveyor transferring material from the raw material storage to the grinding operations.
- None of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) apply to this installation.
- 40 CFR 63, Subpart LLL, "National Emission Standards for Hazardous Air Pollutants from the Portland Cement Manufacturing Industry," applies to the conveyor transfer points.
- Documented watering or surfactant spray will be used to control the particulate emissions from the haul roads.
- This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of all

pollutants are conditioned below *de minimis* levels.

- This installation is located in Ralls County, an attainment area for all criteria pollutants.
- This installation is on the List of Named Installations found in 10 CSR 10-6.020(3)(B), Table 2. The installation is classified as item number 3. Portland Cement Plants. The installation's major source level is 100 tons per year and fugitive emissions are counted toward major source applicability.
- Ambient air quality modeling was not performed since the conditioned potential emissions of the application are below *de minimis* levels.
- Emissions testing is not required for the equipment.
- A modification to the facility's Part 70 Operating Permit is required for this installation within 1 year of equipment startup.
- Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

Continental Cement Company, LLC currently operates a wet process rotary cement kiln on a 3,300-acre site three miles south of the city of Hannibal in Ralls County. The plant operates as a hazardous waste combustor while producing Portland cement. In addition to the kiln system, the installation operates a syngyp process (synthetic gypsum mixed with cement kiln dust) and has an ongoing artificial soils project to support the production of trees as a renewable alternative fuel source.

The existing installation is considered a major source for both construction and operating permits. The following construction permits have been issued to the installation from the Air Pollution Control Program.

Table 2: Permit History

Permit Number	Description
0686-002	A Section (5) permit issued on October 7, 1986 for a new waste fuels storage facility.
1086-004	A Section (5) permit issued on December 24, 1986 to add the capability to burn waste fuel in the kiln.
1086-004A	An amendment to Permit No. 1086-004 issued on February 15, 1990 for the use of a substitute raw material.
1086-004B	An amendment to Permit No. 1086-004 to alter a beryllium emission limit.
0890-008	A Section (5) permit issued on August 21, 1990 for the addition of two new 75,000 gallon above ground tanks for liquid fuel storage and one 200 ton capacity dry fuel storage tank and one 50 ton capacity dry fuel surge tank.
1086-004C	An amendment to Permit No. 1086-004A issued on June 11, 1996 to allow the installation to accept and burn 5,000 BTU/pound or greater solid wastes in combination with other liquid waste fuels and coal, as fuel.
0198-014	A Section (5) permit issued on January 13, 1998 to install a syngyp process to manufacture synthetic gypsum and mix it with cement kiln dust.
122001-014	A Section (5) permit issued on December 21, 2001, to utilize a mixture of waste materials to create an artificial soil to support the production of trees as a renewable alternative fuel source.
092009-022	A Section (5) permit issued on October 2, 2002 for the replacement of the existing kiln system with a new kiln. This new kiln was never built. Permit 072006-003 replaced this project.
1086-004D	An amendment to Permit No. 1086-004 issued on August 6, 2003 to allow alternate feed rate limits base don future compliance testing.
072006-003	A section (8) permit issued on July 11, 2006 to install a new PH/PC kiln system and underground mine.
072007-008	A Section (8) permit issued on July 24, 2007 for the elimination of Saverton Quarry, the development of a new onsite quarry and the increase of daily clinker production.
072007-008A	An amendment to the PSD permit (072007-008) to change permit rate limits and to add new emission sources.
032009-002	Addition of a temporary clinker storage pile.
072007-008B	An amendment to the PSD permit (072007-008) to change permit rate limits, to add new emission sources and to relocate existing emission sources.
072007-008C	An amendment to change permit rate limits and raw material allowance.

PROJECT DESCRIPTION

Continental Cement Company plans to construct an underground limestone mine consisting of a crusher and eight (8) conveyors. Limestone will be drilled and hauled to the crusher. After crushing, the limestone will be transported to a storage building on the surface through the eight (8) conveyors. The underground mine will eventually be the sole source of limestone for the cement plant. The addition of the mine will not increase the clinker production rate because the previous permit (No. 072008-008C) has raw material usage and clinker production limits. The maximum hourly design rate (MHDR) of the operation is 1,250 tons per hour.

EMISSIONS/CONTROLS EVALUATION

Emissions from the crusher and conveyors were calculated using emission factors from Environmental Protection Agency (EPA) document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition, Chapter 11.19.2, *Crushed Stone Processing and Pulverized Mineral Processing*, (8/04). The controlled emission factors were used because the company claimed that the inherent moisture content of the limestone is greater than 1.5% by weight. The facility will be required to perform periodic moisture content tests to substantiate this claim. Emissions from the haul road were calculated using the predictive equation from AP-42, Section 13.2.2, *Unpaved Roads*, (11/06). For the use of documented watering/surfactant spray, a 90% control efficiency was applied for particulate matter (PM) and particulate matter less than ten (10) microns in diameter (PM₁₀) and a 40% control efficiency was applied for particulate matter less than two-and-a-half microns in diameter (PM_{2.5}).

The following table provides an emissions summary for this project. Existing actual emissions were taken from the installation's 2011 Emission Inventory Questionnaire (EIQ). Potential emissions of the application represent the potential of the new equipment, assuming continuous operation (8760 hours per year).

Table 3: Emissions Summary (tons per year)

Pollutant	Regulatory <i>De Minimis</i> Levels	Existing Potential Emissions	Existing Actual Emissions (2011 EIQ)	Potential Emissions of the Application	New Installation Conditioned Potential
PM	25.0	Major	N/D	61.71	<25.0
PM ₁₀	15.0	Major	81.75	14.46	5.86
PM _{2.5}	10.0	N/D	N/D	9.35	3.79
SO _x	40.0	Major	101.18	N/A	N/A
NO _x	40.0	Major	788.33	N/A	N/A
VOC	40.0	Major	82.50	N/A	N/A
CO	100.0	Major	467.94	N/A	N/A
HAPs	10.0/25.0	Major	46.29	N/A	N/A

N/A = Not Applicable; N/D = Not Determined

PERMIT RULE APPLICABILITY

This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of all pollutants are conditioned below *de minimis* levels.

APPLICABLE REQUIREMENTS

Continental Cement Company shall comply with the following applicable requirements. The Missouri Air Conservation Laws and Regulations should be consulted for specific record keeping, monitoring, and reporting requirements. Compliance with these emission standards, based on information submitted in the application, has been verified at the time this application was approved. For a complete list of applicable requirements for your installation, please consult your operating permit.

GENERAL REQUIREMENTS

- *Submission of Emission Data, Emission Fees and Process Information*, 10 CSR 10-6.110
- *Operating Permits*, 10 CSR 10-6.065
- *Restriction of Particulate Matter to the Ambient Air Beyond the Premises of Origin*, 10 CSR 10-6.170
- *Restriction of Emission of Visible Air Contaminants*, 10 CSR 10-6.220
- *Restriction of Emission of Odors*, 10 CSR 10-6.165

SPECIFIC REQUIREMENTS

- *New Source Performance Regulations*, 10 CSR 10-6.070 – *New Source Performance Standards (NSPS) for Nonmetallic Mineral Processing Plants*, 40 CFR Part 60, Subpart OOO

STAFF RECOMMENDATION

On the basis of this review conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*, I recommend this permit be granted with special conditions.

Chia-Wei Young
Environmental Engineer

Date

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated February 9, 2012, received February 14, 2012, designating Continental Cement Company as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.

Mr. Leonard Rosenkrans
Environmental Specialist
Continental Cement Company
10107 Highway 79 South
Hannibal, MO 63401

RE: New Source Review Permit - Project Number: 2012-02-038

Dear Mr. Rosenkrans:

Enclosed with this letter is your permit to construct. Please study it carefully. Also, note the special conditions on the accompanying pages. The document entitled, "Review of Application for Authority to Construct," is part of the permit and should be kept with this permit in your files. Operation in accordance with these conditions, your new source review permit application and with your amended operating permit is necessary for continued compliance. The reverse side of your permit certificate has important information concerning standard permit conditions and your rights and obligations under the laws and regulations of the State of Missouri.

If you have any questions regarding this permit, please do not hesitate to contact Chia-Wei Young, at the Department of Natural Resources' Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102 or at (573) 751-4817. Thank you for your attention to this matter.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Susan Heckenkamp
New Source Review Unit Chief

SH:cyl

Enclosures

c: Northeast Regional Office
PAMS File: 2012-02-038

Permit Number: