

STATE OF MISSOURI



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: **092013-017** Project Number: 2013-06-065
Installation Number: 173-0001

Parent Company: Continental Cement Company, LLC

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

Installation Name: Continental Cement Company, LLC

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

Location Information: Ralls County, S2, T56N, R4W

Application for Authority to Construct was made for:

Addition of an engineered fuel production process. 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 27 2013

EFFECTIVE DATE

Handwritten signature of Kyrá L. Moore in black ink.

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 start up 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 start up 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, LLC
Ralls County, S2, T56N, R4W

1. Haul Road Control – Documented Watering or Chemical Dust Suppressants
 - A. Continental Cement Company, LLC (CCC) shall control dust from the new unpaved waste fuel road (SF-53UP) by using either documented watering or the application of chemical dust suppressant consistently and correctly at all times to prevent visible fugitive emissions from entering the ambient air beyond the property boundary.
 - B. The following conditions apply to documented haul road watering.
 - 1) Water shall be applied in accordance with a recommended application rate of at least 100 gallons per day per 1,000 square feet of surface area.
 - 2) Meteorological precipitation of any kind (e.g. a quarter inch or more rainfall, sleet, snow, and/or freeze thaw conditions) which is sufficient in the amount or condition to achieve control of fugitive emissions from the haul road while the haul road is in use, may be substituted for water application until such time as conditions warrant application of water.
 - 3) Watering may also be suspended when the ground is frozen, during periods of freezing conditions when watering would be inadvisable for traffic safety reasons, or when there will be no traffic on the road.
 - 4) CCC shall maintain a log that documents daily water applications. The log shall include, but is not limited to, date and volumes (e.g., number of tanker applications and/or total gallons used) of water application. The log shall also record times when the haul road is not in use or rationale for not applying water on days the haul road are in use (e.g. meteorological situations, precipitation events, freezing, etc.)
 - C. The following conditions apply to chemical dust suppressants.
 - 1) The suppressants (such as magnesium chloride, calcium chloride,

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SPECIAL CONDITIONS:

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

- lignofulfonates, etc.) shall be applied in accordance with the manufacturer's suggested application rate and re-applied as necessary to achieve control of fugitive emissions from the haul road.
 - 2) CCC shall keep records of the date, time, and amount of material applied for each application of chemical dust suppressant on these areas.
2. Control Device Requirement- Enclosed Building Equipped with Baghouse and Carbon Filter.
- A. CCC shall control emissions from all equipment in the engineered fuel production process using an enclosed building equipped with a baghouse and carbon filter as specified in the permit application.
 - B. Building Requirements
 - 1) The building shall be maintained under negative pressure and exhausted to a baghouse followed by a carbon filter.
 - 2) CCC shall demonstrate negative pressure in the building by using visual indicators, such as negative pressure gauges, streamers, talc puff test, etc. at each building openings that are not closed during normal operations.
 - 3) CCC shall perform a visual indicator check at least once every 24-hour period while the equipment in the engineered fuel building are in operation.
 - 4) CCC shall maintain a log for the building which shall include the date and results of the visual indicator check required in Special Condition 2.B.3).
 - C. Baghouse and Carbon Absorber Requirements
 - 1) The baghouse and carbon absorber shall be operated and maintained in accordance with the manufacturer's specifications. The baghouse shall be equipped with a gauge or meter, which indicates the pressure drop across the control device. These gauges or meters shall be located such that the Department of Natural Resources' employees may easily observe them.
 - 2) Replacement filters for the baghouses shall be kept on hand at all times. The bags shall be made of fibers appropriate for operating conditions expected to occur (i.e. temperature limits, acidic and alkali resistance, and abrasion resistance).
 - 3) CCC shall monitor and record the operating pressure drop across

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SPECIAL CONDITIONS:

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

- the baghouses at least once every 24 hours. The operating pressure drop shall be maintained within the design conditions specified by the manufacturer's performance warranty.
- 4) CCC shall maintain a copy of the baghouse and carbon filter manufacturer's performance warranty on site.
- 5) CCC shall maintain an operating and maintenance log for the baghouse and carbon filter which shall include the following:
 - a) Incidents of malfunction, with impact on emissions, duration of event, probable cause, and corrective actions; and
 - b) Maintenance activities, with inspection schedule, repair actions, and replacements, etc.
- 3. Operational Requirement
CCC shall only haul and process solid, non-hazardous wastes, as defined in 40 CFR 261, in the engineered fuel production process.
- 4. Record Keeping Requirements
CCC 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. These records shall include MSDS for all materials used.

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

Project Number: 2013-06-065
Installation ID Number: 173-0001
Permit Number:

Continental Cement Company, LLC
10107 Highway 79 South
Hannibal, MO 63401

Complete: June 24, 2013

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

Ralls County, S2, T56N, R4W

REVIEW SUMMARY

- Continental Cement Company, LLC (CCC) has applied for authority to construct an engineered fuel production process.
- HAP emissions are expected from the proposed equipment, but only in amounts less than their respective Screening Model Action Levels (SMAL).
- None of the New Source Performance Standards (NSPS) apply to the proposed equipment.
- 40 CFR Part 63, Subpart LLL, *National Emission Standards for Hazardous Air Pollutants From the Portland Cement Manufacturing Industry*, of the MACT regulations applies to some of the proposed equipment.
- None of the NESHAPs apply to the proposed equipment.
- A baghouse and carbon absorber are being used to control the emissions from the equipment in this permit.
- 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 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 potential emissions of the application are below de minimis levels.
- Emissions testing is not required for the equipment.
- An amendment to the facility's Part 70 Operating Permit application is required for this installation within one (1) year of equipment startup.
- Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

CCC currently operates a wet process rotary cement kiln on a 3,300 acre site three (3) 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 by both the Construction and Operating Permit Units.

The following New Source Review permits have been issued to the facility from the Air Pollution Control Program.

Table 1: 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 2 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.
092002-022	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 based on 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 emissions sources.
072007-008B	An amendment to the PSD permit (072007-008) and its amendment (072007-008A) to change permit limits, to add new emissions sources and to relocate existing emission sources.
072007-008C	An amendment to the PSD permit (072007-008) and its amendments (072007-008A, 072007-008B) to change permit limits.
072007-008D	An amendment to the PSD permit (072007-008C) to re-evaluate the BACT limit.
102012-003	Addition of limestone hauling from an outside quarry and other equipment.
092012-003	Addition of underground limestone mine.

PROJECT DESCRIPTION

CCC proposes to construct an engineered fuel processing facility to produce non-hazardous waste fuel. Non-hazardous waste materials currently being landfilled will be transported to the facility where they will be tested, blended and shredded into fuel. Some examples of non-hazardous waste materials that will be used are charcoal, demolition wood wastes, cornstarch, alcohol wipes, shingles, plastics, inks, greases, and wastewater sludge. The fuels that meet the EPA legitimacy requirements, as defined in 40 CFR 241.3, will be shipped offsite to be used for other facilities. Fuels that do not meet the legitimacy requirements will be shipped to the existing kiln at the plant to be burned. The alternative waste fuels have already been permitted for use in the CCC cement kiln in previous permits (072007-008 and its subsequent amendments A, B, C, and D), and CCC will not be increasing the amount permitted for use in the kiln. Subpart DDDD, *Emissions Guidelines and Compliance Times for Commercial and Industrial Solid Waste Incineration Units*, of the NSPS does not apply to the cement kiln because the kiln is considered a hazardous waste combustion unit as defined under this subpart in 40 CFR §60.2555(g)

The engineered fuels processing facility will be owned by Green America Recycling but is considered part of the same installation as the CCC plant. The facility expects to haul in no more than 200 tons per day (73,000 tons per year) of the non-hazardous material to the Engineered Fuels Processing Facility. The Engineered Fuels Processing Building will be maintained under negative pressure. Particulate and VOC emissions will be controlled by a baghouses and a carbon filter, respectively.

Equipment and activities related to the engineered fuel production process are given below in Table 2.

Table 2: Equipment List

Emission Point	Description
SF-33/34	Haul Road from Offsite to Fuel Building
SF-70	Truck Unloading
SF-71	Drum Dumping
SF-74	Blend Pit 1
SF-75	Blend Pit 2
SF-76	Hopper Loading
SF-77	Belt Conveyor
SF-78	Shredder
SF-79	Belt Conveyor
SF-80	Screen

SF-81	Belt Conveyor
SF-82	Belt Conveyor
SF-83	Magnetic Separation
SF-84	Belt Conveyor
SF-85	Product Pile
SF-86	Hopper Loading
SF-87	Belt Conveyor
SF-88	Truck/Cart Loading
SF-53UP	Haul Road from Fuel Building to Kiln
SF-53	Haul Road from Fuel Building to Kiln

The haul roads labeled SF-33, SF-34 and SF-53 are existing haul roads that will be used by the engineered fuel production process. SF-53UP is a new section of haul road that connects the engineered fuel building to existing haul road SF-53.

EMISSIONS/CONTROLS EVALUATION

Particulates, VOCs and HAPs are expected to be emitted from the engineered fuel production process. There are no known emission factors from equipment involved in the engineered fuel production process. For particulates, emission factors from similar processes were used to calculate emissions. PM_{2.5}, PM₁₀ and PM from load-in, conveying, shredding and screening were calculated using aggregate load-in, conveying, crushing and screening emission factors from EPA document AP-42, *Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources*, Fifth Edition, Chapter 11.19.2, *Crushed Stone Processing and Pulverized Mineral Processing*, (8/04). All equipment is located inside a building that will be kept under negative pressure. Therefore, a 100% capture efficiency was used for baghouse, along with the default device control efficiency of 99%. Emissions from the unpaved haul roads were calculated using emission factors calculated from equations in Chapter 13.2.2, *Unpaved Roads*, (11/06). 90% control was given for the application of water or chemical suppressants. Emissions from paved haul roads were calculated using emission factors calculated from equations in Chapter 13.2.1, *Paved Roads*, (1/11).

The facility may either ship the fuel offsite or to the existing kiln onsite. Emissions for both scenarios were calculated and the highest emissions were used. It would be difficult to calculate an accurate VOC and HAPs emissions from the engineered fuel production process due to the numerous types of raw material used and the lack of any known emission factors. However, the materials are taken from landfills and most VOC and VHAPs would have been released by the time the company receives them. Furthermore, the building will be maintained under negative pressure and air will be exhausted through a baghouse followed by a carbon filter, which would capture most of the particulate HAP, VOC and VHAP that might be released. Therefore, the VOC and HAPs emissions from the process can be considered negligible.

The following table provides an emissions summary for this project. Existing potential emissions were calculated by adding the existing installation-wide potential emissions after Permit 072007-008D was issued and project emissions from Permits 102010-003 and 092012-003. Existing actual emissions were taken from the installation's 2012 EIQ. Potential emissions of the application represent the potential of the new equipment and activities, assuming continuous operation (8760 hours per year).

Table 2: Emissions Summary (tons per year)

Pollutant	Regulatory <i>De Minimis</i> Levels	Existing Potential Emissions	Existing Actual Emissions (2012 EIQ)	Potential Emissions of the Application	New Installation Conditioned Potential
PM	25.0	Major	N/D	3.67	N/A
PM ₁₀	15.0	523.87	166.69	0.94	N/A
PM _{2.5}	10.0	N/D	112.20	0.13	N/A
SO _x	40.0	1,165.35	377.00	N/A	N/A
NO _x	40.0	645.27	1,215.01	N/A	N/A
VOC	40.0	199.06	53.77	N/D	N/A
CO	100.0	2,168.62	1,086.80	N/A	N/A
HAPs	10.0/25.0	109.78	62.12	N/D	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 below de minimis levels.

APPLICABLE REQUIREMENTS

CCC 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

- *MACT Regulations, 10 CSR 10-6.075
National Emission Standards for Hazardous Air Pollutants From the Portland Cement Manufacturing Industry, 40 CFR Part 63, Subpart LLL*

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
New Source Review Unit

Date

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated June 19, 2013, received June 24, 2013, designating Continental Cement Company, LLC as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.

APPENDIX A

Abbreviations and Acronyms

%	percent	m/s	meters per second
°F	degrees Fahrenheit	Mgal	1,000 gallons
acfm	actual cubic feet per minute	MW	megawatt
BACT	Best Available Control Technology	MHDR	maximum hourly design rate
BMPs	Best Management Practices	MMBtu	Million British thermal units
Btu	British thermal unit	MMCF	million cubic feet
CAM	Compliance Assurance Monitoring	MSDS	Material Safety Data Sheet
CAS	Chemical Abstracts Service	NAAQS ...	National Ambient Air Quality Standards
CEMS	Continuous Emission Monitor System	NESHAPs National Emissions Standards for Hazardous Air Pollutants
CFR	Code of Federal Regulations	NO_x	nitrogen oxides
CO	carbon monoxide	NSPS	New Source Performance Standards
CO₂	carbon dioxide	NSR	New Source Review
CO_{2e}	carbon dioxide equivalent	PM	particulate matter
COMS	Continuous Opacity Monitoring System	PM_{2.5}	particulate matter less than 2.5 microns in aerodynamic diameter
CSR	Code of State Regulations	PM₁₀	particulate matter less than 10 microns in aerodynamic diameter
dscf	dry standard cubic feet	ppm	parts per million
EQ	Emission Inventory Questionnaire	PSD	Prevention of Significant Deterioration
EP	Emission Point	PTE	potential to emit
EPA	Environmental Protection Agency	RACT	Reasonable Available Control Technology
EU	Emission Unit	RAL	Risk Assessment Level
fps	feet per second	SCC	Source Classification Code
ft	feet	scfm	standard cubic feet per minute
GACT	Generally Available Control Technology	SIC	Standard Industrial Classification
GHG	Greenhouse Gas	SIP	State Implementation Plan
gpm	gallons per minute	SMAL	Screening Model Action Levels
gr	grains	SO_x	sulfur oxides
GWP	Global Warming Potential	SO₂	sulfur dioxide
HAP	Hazardous Air Pollutant	tph	tons per hour
hr	hour	tpy	tons per year
hp	horsepower	VMT	vehicle miles traveled
lb	pound	VOC	Volatile Organic Compound
lbs/hr	pounds per hour		
MACT	Maximum Achievable Control Technology		
µg/m³	micrograms per cubic meter		

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

RE: New Source Review Permit - Project Number: 2013-06-065

Dear Mr. Rosenkrans:

Enclosed with this letter is your permit to construct. Please study it carefully and refer to Appendix A for a list of common abbreviations and acronyms used in the permit. Also, note the special conditions, if any, 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: 2013-06-065

Permit Number: