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  DIRECTOR OR DESIGNEE
EFFECTIVE DATE  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.
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,
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.

   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
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

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**

<table>
<thead>
<tr>
<th>Permit Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0686-002</td>
<td>A Section (5) permit issued on October 7, 1986, for a new waste fuels storage facility.</td>
</tr>
<tr>
<td>1086-004</td>
<td>A Section (5) permit issued on December 24, 1986, to add the capability to burn waste fuel in the kiln.</td>
</tr>
<tr>
<td>1086-004A</td>
<td>An amendment to Permit No. 1086-004 issued on February 15, 1990 for the use of a substitute raw material.</td>
</tr>
<tr>
<td>1086-004B</td>
<td>An amendment to Permit No. 1086-004 to alter a beryllium emission limit.</td>
</tr>
<tr>
<td>0890-008</td>
<td>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.</td>
</tr>
<tr>
<td>1086-004C</td>
<td>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.</td>
</tr>
<tr>
<td>0198-014</td>
<td>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.</td>
</tr>
<tr>
<td>122001-014</td>
<td>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.</td>
</tr>
<tr>
<td>092002-022</td>
<td>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.</td>
</tr>
<tr>
<td>1086-004D</td>
<td>An amendment to Permit No. 1086-004 issued on August 6, 2003, to allow alternate feed rate limits based on future compliance testing.</td>
</tr>
<tr>
<td>072006-003</td>
<td>A Section (8) permit issued on July 11,2006, to install a new PH/PC kiln system and underground mine.</td>
</tr>
<tr>
<td>072007-008</td>
<td>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.</td>
</tr>
</tbody>
</table>
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

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

- 8 -
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$_{2.5}$, PM$_{10}$ 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)

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>PM</td>
<td>25.0</td>
<td>Major</td>
<td>N/D</td>
<td>3.67</td>
<td>N/A</td>
</tr>
<tr>
<td>PM$_{10}$</td>
<td>15.0</td>
<td>523.87</td>
<td>166.69</td>
<td>0.94</td>
<td>N/A</td>
</tr>
<tr>
<td>PM$_{2.5}$</td>
<td>10.0</td>
<td>N/D</td>
<td>112.20</td>
<td>0.13</td>
<td>N/A</td>
</tr>
<tr>
<td>SOx</td>
<td>40.0</td>
<td>1,165.35</td>
<td>377.00</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>NOx</td>
<td>40.0</td>
<td>645.27</td>
<td>1,215.01</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>VOC</td>
<td>40.0</td>
<td>199.06</td>
<td>53.77</td>
<td>N/D</td>
<td>N/A</td>
</tr>
<tr>
<td>CO</td>
<td>100.0</td>
<td>2,168.62</td>
<td>1,086.80</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>HAPs</td>
<td>10.0/25.0</td>
<td>109.78</td>
<td>62.12</td>
<td>N/D</td>
<td>N/A</td>
</tr>
</tbody>
</table>

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  Date
New Source Review Unit

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.

APPENDIX A

Abbreviations and Acronyms

% ............. percent
°F ............. degrees Fahrenheit
acfm .......... actual cubic feet per minute
BACT ......... Best Available Control Technology
BMPs ......... Best Management Practices
Btu .......... British thermal unit
CAM .......... Compliance Assurance Monitoring
CAS .......... Chemical Abstracts Service
CEMS ........ Continuous Emission Monitor System
CFR .......... Code of Federal Regulations
CO .......... carbon monoxide
CO₂ .......... carbon dioxide
CO₂e ........ carbon dioxide equivalent
COMS .......... Continuous Opacity Monitor System
CSR .......... Code of State Regulations
dscf .......... dry standard cubic feet
EIQ ........ Emission Inventory Questionnaire
EP .......... Emission Point
EPA .......... Environmental Protection Agency
EU .......... Emission Unit
fps .......... feet per second
ft .......... feet
GACT .......... Generally Available Control Technology
GHG .......... Greenhouse Gas
gpm .......... gallons per minute
gr .......... grains
GWP .......... Global Warming Potential
HAP .......... Hazardous Air Pollutant
hr .......... hour
hp .......... horsepower
lb .......... pound
lbs/hr ........ pounds per hour
MACT .......... Maximum Achievable Control Technology
µg/m³ .......... micrograms per cubic meter
m/s .......... meters per second
Mgal ........ 1,000 gallons
MW .......... megawatt
MHDR .......... maximum hourly design rate
MMBtu .......... Million British thermal units
MMCF .......... million cubic feet
MSDS .......... Material Safety Data Sheet
NAAQS .......... National Ambient Air Quality Standards
NESHAPs ........ National Emissions Standards for Hazardous Air Pollutants
NOₙ .......... nitrogen oxides
NSPS .......... New Source Performance Standards
NSR .......... New Source Review
PM .......... particulate matter
PM₂.₅ .......... particulate matter less than 2.5 microns in aerodynamic diameter
PM₁₀ .......... particulate matter less than 10 microns in aerodynamic diameter
ppm .......... parts per million
PSD .......... Prevention of Significant Deterioration
PTE .......... potential to emit
RACT .......... Reasonable Available Control Technology
RAL .......... Risk Assessment Level
SCC .......... Source Classification Code
scfm .......... standard cubic feet per minute
SIC .......... Standard Industrial Classification
SIP .......... State Implementation Plan
SMAL .......... Screening Model Action Levels
SOₓ .......... sulfur oxides
SO₂ .......... sulfur dioxide
tph .......... tons per hour
tpy .......... tons per year
VMT .......... vehicle miles traveled
VOC .......... Volatile Organic Compound
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: