

PERMIT BOOK

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: **012010-010** Project Number: 2009-09-005

Parent Company: Buzzi Unicem USA, Inc.

Parent Company Address: 100 Brodhead Road, Bethlehem, PA 18017-8989

Installation Name: River Cement Company, dba Buzzi Unicem USA – Selma Plant

Installation Address: 1000 River Cement Road, Festus, MO 63028

Location Information: Jefferson County, S40, T23, R6E

Application for Authority to Construct was made for:

The modification of existing clinker Silo No. 26 to store dry fly ash and to install a new conveying system to transport the fly ash. 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.

JAN 21 2010

EFFECTIVE DATE


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 Departments' Air Pollution Control Program of the anticipated date of start up of this (these) air contaminant source(s). The information must be made available not more than 60 days but at least 30 days in advance of this date. 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 this (these) air contaminant source(s).

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 source(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."

Buzzi Unicem USA - Selma Plant
Jefferson County, S40, T23, R6E

1. Control Requirements for the Fly Ash Silos and the Fly Ash Silo Conveying System.
 - A. Buzzi Unicem shall control particulate matter less than ten (10) microns in diameter (PM₁₀) emissions from the fly ash silos (3-G-11) and the fly ash silo conveying system (3-G-11A) using baghouses as specified in the permit application.
 - B. The fly ash conveying system (3-G-11A) shall be completely enclosed as specified in the permit application. The enclosure shall be constructed and maintained such that no visible emissions (zero percent (0%) opacity) are allowed to occur from these sources except through the gas exiting the stacks of the baghouses.
 - C. The baghouses specified by special condition no. 1.A. shall be in use at all times when the associated equipment is in operation and shall be operated and maintained in accordance with the manufacturer's specifications. The baghouses 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.
 - D. Buzzi Unicem shall monitor and record the operating pressure drop across the baghouses specified by special condition no. 1.A. at least once in every twenty-four (24) hour period when the associated equipment is in operation.
 - E. Appropriate replacement filters for each baghouse specified by special condition no. 1.A. shall be kept on hand at all times. These replacement filters shall be made of fibers appropriate for operating conditions expected to occur (e.g. temperature limits, acidic and alkali resistance, abrasion resistance and etc.).

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SPECIAL CONDITIONS:

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

- F. Buzzi Unicem shall maintain an operating and maintenance log for each baghouse required by special condition no. 1.A. which shall include the following.
 - 1) Incident of malfunction(s), including the date(s) and duration of the event, the probable cause, any corrective actions taken and the impact on emissions due to the malfunction.
 - 2) Any maintenance activities conducted on the unit, such as parts replacement, replacement of equipment and etc.; and
 - 3) A written record of regular inspection schedule, the date and results of all inspections, including any actions or maintenance activities that results from that inspection.
- 2. PM_{10} Emission Limit and Testing Requirements
 - A. Buzzi Unicem shall not emit more than 0.0085 grains per actual cubic foot (gr/acf) and shall not exceed 500 actual cubic feet per minute (acfm) from the new fly ash conveying system baghouse (3-G-11A).
 - B. The baghouse used on the dry fly ash silos (3-G-11) shall be considered as part of the group specified under special condition 8.E.2) of permit no.122005-005A.
 - C. Buzzi Unicem shall conduct performance testing on the new fly ash conveying system baghouse to ensure compliance with special condition 2.A.
 - D. A completed proposed test plan must be submitted to the Air Pollution Control Program at least thirty (30) days prior to the proposed test date of any such performance test so that a pretest meeting may be arranged, if necessary, and to assure that the test date is acceptable for an observer to be present. The proposed test plan shall include specification of test methods to be used and be approved by the Director prior to conducting the above required emissions testing.
 - E. Within sixty (60) days of achieving the maximum production rate of the new fly ash conveying system, and in any case, no later than 180 days after initial start-up of the system, the owner/operator shall have conducted the required performance tests.
 - F. The tests shall be conducted during periods of representative conditions at the maximum process/production rate or within ten percent (10%) of the rated capacity, not including periods of start-up, shutdown or malfunction. However, if a new performance test is conducted at a production rate

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which is less than 90% of the maximum rated capacity of the equipment, then ten percent (10%) above the production rate at which the performance test was conducted shall become the new maximum allowable hourly production rate for the units.

- G. Two (2) copies of a written report of the performance test results shall be submitted to the Director within ninety (90) days of the completion of the performance tests. The report must include legible copies of the raw data sheets, analytical instrument laboratory data and complete sample calculations from the required EPA method for at least one (1) sample run.
 - H. The above timeframes associated with the performance testing condition may be extended upon request by Buzzi Unicem and approval by the Director.
3. Processing Rate Restrictions
- A. Buzzi Unicem shall not process more than 169,396 tons of fly ash at the installation in any consecutive 12-month period.
 - B. Buzzi Unicem shall maintain an accurate record of the quantity of fly ash processed at the installation. The installation shall record the monthly and running 12-month totals of fly ash processed at the installation.
4. Reporting Requirements
- A. Buzzi Unicem shall report to the Air Pollution Control Program's Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, no later than ten (10) days after the day in which emissions exceed the limits established by this permit.
 - B. Buzzi Unicem shall report to the Air Pollution Control Program's Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, no later than ten (10) days after the day in which operation of equipment at this installation is not in accordance with any operational limitation or condition established by this permit.
 - C. Buzzi Unicem shall comply with the requirements of 10 CSR 10-6.050 with regard to start-up, shutdown and malfunction conditions.
5. Record Retention Requirements
- Buzzi Unicem shall maintain all records required by this permit, on-site, for the most recent sixty (60) months of operation and shall make such record available immediately to any Missouri Department of Natural Resources' personnel upon request.

REVIEW OF APPLICATION FOR AUTHORITY TO CONSTRUCT AND OPERATE

SECTION (5) REVIEW
Project Number: 2009-09-005
Installation ID Number: 099-0002
Permit Number:

River Cement Company
dba Buzzi Unicem USA - Selma Plant
1000 River Cement Road
Festus, MO 63028

Complete: September 2, 2009

Parent Company:
Buzzi Unicem USA
100 Brodhead Road
Bethlehem, PA 18017-8989

Jefferson County, S40, T23, R6E

REVIEW SUMMARY

- Buzzi Unicem USA - Selma Plant has applied for authority to modify existing clinker Silo No. 26 to store dry fly ash and to install a new conveying system to transport the fly ash.
- Hazardous Air Pollutant (HAP) emissions are not expected from the proposed equipment.
- Subpart F, *Standards of Performance for Portland Cement Plants*, of the New Source Performance Standards (NSPS), 40 CFR Part 60, apply to the proposed equipment.
- The Maximum Achievable Control Technology (MACT) standard, 40 CFR Part 63, Subpart LLL, *National Emission Standards for Hazardous Air Pollutants From the Portland Cement Manufacturing Industry*, applies to the proposed equipment. None of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) apply to the proposed equipment.
- Baghouses are being used to control PM₁₀ 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 PM₁₀ for this project are below de minimis levels.
- This installation is located in Jefferson County, a nonattainment area for 8-hour ozone (O₃) and PM_{2.5} and an attainment area for all other criteria air pollutants.
- This installation is on the List of Named Installations [10 CSR 10-6.020(3)(B), Table 2, number 3, *Portland Cement Plants*].

- Ambient air quality modeling was not performed because potential emissions of the application are below de minimis levels.
- Emissions testing is required for the new fly ash conveying baghouse.
- Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

Buzzi Unicem currently operates a Portland cement manufacturing installation in Festus, MO, that performs quarrying and crushing of raw materials, and processing of these materials into Portland cement. This installation is considered to be an existing major source for construction permits and a Part 70 source for operating permits. A Part 70 Operating Permit renewal was submitted by the facility in April of 2005 and is currently undergoing review.

The following construction permits have been issued to Buzzi Unicem USA - Selma Plant from the Air Pollution Control Program.

Table 1: New Source Review Permits and Amendments

Permit Number	Description
0687-013	A Section (5) permit issued on June 29, 1987 for construction of storage tanks associated with the burning of hazardous waste fuel D001 [ignitable, nonlisted hazardous waste], (Ref. J.Pintor, RC, letter to M.Stansfield, MDNR, 1/22/87). Construction of ten (10) 30,000 gallon tanks for storage of hazardous waste fuel.
1288-004	A Section (5) permit issued on December 9, 1988, to allow River Cement Company to burn hazardous waste fuel D001 [ignitable, nonlisted hazardous waste]. This submittal covers the physical burning of the fuel. (Ref. J.Pintor, RC, letter to M.Stansfield, MDNR, 1/29/87) "Peripherals necessary to allow a cement kiln to burn hazardous waste fuel. These include a fuel supply system and an oxygen monitor in the kiln stack."
0687-013A	An amendment issued to modify Permit No. 0687-013 to allow the installation and operation of three (3) 22,000 gallon and six (6) 39,000 gallon storage tanks in place of the ten (10) 30,000 gallon storage tanks originally permitted.
1288-004A	An amendment issued to modify the hazardous waste combustion Permit No. 1288-004.
0687-013B	An amendment to Permit No. 0687-013A issued for the modification of a waste fuel storage permit.
0293-006	A Section (5) permit issued to increase the cement storage capacity by one (1) silo with the addition of a reclaim conveyor and five (5) dust collectors.
0693-008	A Section (5) permit issued for the modifications of fuel storage permit 0687-13A and fuel utilization permit 1288-004A. This permit was issued in order to allow for a change in the total number and volume of tanks, for an increase in the annual fuel storage and utilization quantity, for the addition of a vacuum operated truck, railcar, and on site container cleaning facility and for the addition of another burner system to each kiln for the direct burning of a high viscosity liquid (HVL) waste fuel.
1299-018	A temporary permit issued to conduct a test program of oxygen enrichment to the combustion zone of the cement kiln.
052002-013	A Section (5) permit issued for the replacement of four (4) existing air separators at Finish Mill Number 1 and Finish Mill Number 2 with two (2) air separators of a slightly larger capacity.
122003-008	A Section (5) permit issued for the replacement of the direct-fired solid fuel systems used on the existing cement kilns with an indirect-fired solid fuel mill/feed system.
122005-005	A section (8) permit issued for the replacement of two (2) existing long-dry clinker production system and associated raw mills systems with a single clinker production line that will operate with an in-line raw mill and preheater/precalciner kiln system. Finish grinding capacity was also added through this permit.
122005-005A	An amendment to the section (8) permit no. 122005-005 that added and modified emission points.

Currently, there are two (2) other projects from this installation being evaluated by the Air Pollution

Control Program. In one application (project 2009-04-073), Buzzi Unicem seeks approval for the use of alternative fuel in the cement kiln. In the other application (project 2009-10-047), Buzzi Unicem requests a temporary permit to operate four (4) rented natural gas heaters to dry wet slag that was created when process equipment were temporarily out of service. Neither of these applications is connected to this project and will be evaluated separately.

PROJECT DESCRIPTION

Buzzi Unicem is proposing to modify its dry fly ash operation to provide greater operational and storage flexibility. Currently, the plant is permitted to operate clinker Silo No. 26, with a capacity of 1,750 tons. This silo was permitted to store raw material until a recent modernization project converted it to a clinker silo. The installation would now like to store dry fly ash in this silo. A new conveying system will be constructed to handle fly ash from this silo. The facility also operates two (2) existing fly ash silos, each with 600 tons capacity, which are each controlled by a 2,000 actual cubic feet per minute (acfm) baghouses. The installation proposes to remove the two (2) 2,000 acfm baghouses and replace them with a 5,000 acfm baghouse (3-G-11) that will control PM₁₀ emissions from all three (3) dry fly ash silos. The new conveying system will be controlled by a 500 acfm baghouse (3-G-11A).

Up to four trucks will be able to off-load dry ash at one time into any of the three silos. Dry fly ash will also be conveyed from the two (2) existing dry fly ash silos to Silo No. 26 and then from Silo No. 26 by the new conveying system to the existing roller mill. The maximum off-loading was previously 40 tons per hour but will now increase to 125 tons per hour. Although the facility is increasing the fly ash storage capacity and the maximum hourly design rate, the facility is not increasing the annual throughput rate that was previously permitted (169,396 tons per year).

Previously, the two existing fly ash silos were given emission point numbers 3-G-11 and 3-G-11A. After this project, the three fly ash silos will operate under emission point number 3-G-11 and the new fly ash conveying system will operate under emission point number 3-G-11A.

In amendment 122005-005A, no changes to emissions were made to the converted clinker silos (5-L-16). However, two additional baghouses (7,500 ACFM each) were added to the battery of baghouses that control the discharge into the silos. Special condition 8.E. of permit no. 122005-055A required that 10% of baghouses with flowrates between 3,001 and 7,500 acfm be performance tested to ensure that the PM₁₀ emissions from these baghouses do not exceed 0.0085 gr/acf. With this project, two silos will not be converted to clinker silos. One silo, No. 25, will not be used and the other, Silo No. 26, will be converted to fly ash as described above. Therefore, one of the two original baghouses will still be used to control emissions on the converted clinker silos while the other will now be used to control emissions from Silo No. 26. In addition, the flowrate through the baghouse has changed from 7,500 acfm to 5,000 acfm. Since the baghouse that will be used to control Silo No. 26 after this modification will still have a flowrate between 3,001 and 7,500 acfm, it will still be considered as part of the group mentioned in special condition 8.E. The smaller 500 acfm baghouse used to control the new conveying system has not been included in any previous permits. Therefore, performance testing will be required for this small baghouse to ensure that the PM₁₀ emissions do not exceed 0.0085 gr/acf.

EMISSIONS/CONTROLS EVALUATION

In 2005, the facility was issued a Prevention of Significant Deterioration (PSD) permit (122005-005) in which a netting analysis was performed for PM₁₀. In subsequent permitting projects (i.e. projects 2007-07-121 and 2008-12-001), the netting analysis was revised based on the modifications requested by the company. Therefore, it was determined that, in order to be conservative, the emissions associated with this project should be included in the netting analysis as well. The result of the new netting analysis is given below in Table 2. The results show that the net PM₁₀ emissions increase is still below the significance level of 15.0 tons per year.

Table 2: New PM₁₀ Netting Analysis

Result of the previous netting analysis (Project 2008-12-001)	-706.4 tons
Net Emissions Increase for the Current Project (2009-09-005)	0.48 tons
Post project netting analysis	-705.92 tons

Net emissions increase for the current project was calculated by subtracting the potential emissions from the current fly ash storage system from the potential emissions of the new fly ash system. The post project netting analysis was calculated by adding the net emissions increase for the current project to the most recent netting analysis result.

The PM₁₀ emissions from the baghouses (3-G-11 & 3-G-11A) of the fly ash silos and fly ash conveying were calculated using the manufacturer's guarantee of 0.01 gr/acf of particulate matter (PM) and assuming that 85% of the emissions are PM₁₀. In Environmental Protection Agency (EPA) document, AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition, Appendix B.2., Table B.2.2, Category 4, the percentage of PM that is PM₁₀ is listed as 85% for processed ore and nonmetallic minerals processing and the installation suggested using this number. Since the PM₁₀ emission factor for pneumatic fly ash silo loading given in AP-42, Section 11.12, *Concrete Batching* (June 2006), is only 55% of the PM emission factor, it was decided that using the 85% would be a conservative assumption. The 85% is also used because the company agreed to use 0.0085 gr/acf as the stack test emissions limit.

No HAPs emissions are expected from the proposed equipment. However, MACT subpart LLL, *National Emission Standards for Hazardous Air Pollutants from the Portland Cement Manufacturing Industry*, does apply to the equipment. This subpart contains a 10% opacity limit for raw material silos and conveying systems.

Table 3: Emissions Summary (tons per year)

Pollutant	Regulatory <i>De Minimis</i> Levels	Existing Potential Emissions	Existing Actual Emissions (2008 EIQ)	¹ Potential Emission of the Project
PM ₁₀	15.0	Major	630.01	1.76
SO _x	40.0	Major	2,758.03	N/A
NO _x	40.0	Major	2,608.15	N/A
VOC	40.0	Major	195.65	N/A
CO	100.0	Major	302.96	N/A
HAPs	10.0/25.0	Major	72.97	N/A

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

Note 1: Potential emissions of the project are the emissions from the three (3) fly ash silo and the new fly ash conveying system. Emissions from the two (2) fly ash silos that are not being modified were included because the company asked to use manufacturer's guarantee (in gr/dscf) for the baghouse to calculate emissions and all three (3) fly ash silos are controlled by the same baghouse.

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 pollutant are below de minimis levels.

APPLICABLE REQUIREMENTS

Buzzi Unicem USA - Selma Plant 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.

GENERAL REQUIREMENTS

- *Submission of Emission Data, Emission Fees and Process Information*, 10 CSR 10-6.110
The emission fee is the amount established by the Missouri Air Conservation Commission annually under Missouri Air Law 643.079(1). Submission of an Emissions Inventory Questionnaire (EIQ) is required June 1 for the previous year's emissions.
- *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 10-3.090

SPECIFIC REQUIREMENTS

- *Restriction of Emission of Particulate Matter From Industrial Processes*, 10 CSR 10-6.400
- *Maximum Achievable Control Technology (MACT) Regulations*, 10 CSR 10-6.075, *National Emission Standards 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
Environmental Engineer

Date

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated August 21, 2009, received September 2, 2009, designating River Cement Company as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.
- St. Louis Regional Office Site Survey, dated September 15, 2009.

Ms. Kathryn Jost
Environmental Engineer
Buzzi Unicem USA - Selma Plant
1000 River Cement Road
Festus, MO 63028

RE: New Source Review Permit - Project Number: 2009-09-005

Dear Ms. Jost:

Enclosed with this letter is your permit to construct. Please study it carefully. 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 Departments' Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102, or by telephone at (573) 751-4817. Thank you for your time and attention to this matter.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Kendall B. Hale
New Source Review Unit Chief

KBH:cyk

Enclosures

c: St. Louis Regional Office
PAMS File: 2009-09-005

Permit Number: