



Jeremiah W. (Jay) Nixon, Governor • Sara Parker Pauley, Director

DEPARTMENT OF NATURAL RESOURCES

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OCT - 6 2014

Mr. Bruce Hamilton
Senior Environmental Engineer
Harbison-Walker Refractories Company
400 Fairway Drive
Moon Township, PA 15108

RE: New Source Review Temporary Permit Request - Project Number: 2014-10-009
Installation ID Number: 007-0003
Temporary Permit Number: **102014-004**
Expiration Date: July 4, 2015

Dear Mr. Hamilton:

The Missouri Department of Natural Resources' Air Pollution Control Program has completed a review of your request to run a trial on a new mixer to produce 2,000 tons of chrome containing material at Harbison-Walker Refractories Company, located in Vandalia, Missouri. The Air Pollution Control Program is hereby granting your request to conduct this temporary operation at this location in accordance with Missouri State Rule 10 CSR 10-6.060(3).

Harbison-Walker Refractories Company (Harbison-Walker) conducted a trial earlier this year that consisted of a mixer that poured into cardboard forms. Now Harbison-Walker is requesting authority to conduct another trial consisting of portable mixer / pump truck that will mix and pump the mixed chrome slurry material to the cardboard forms. The new trial is performing essentially the same process, but in a slightly different way. The mixer on the previous system had to be elevated on a structure so that the slurry would flow to the forms and the design of the previous system did not allow for the needed batch sizes to make the process efficient.

The purpose of the trial is to test the consistency of the mixed material for final production. Chromic oxide will be mixed with water, poured into a mold and fired in the natural gas fired tunnel kiln #4 (EP-D). The kiln fired products are referred to as dobies. During the previous trial, Harbison-Walker planned to dry the dobies prior to firing. However, during the course of the trial they found that dobies did not have to be dried before firing so there are no added combustion emissions associated with drying for this project.

Harbison-Walker Refractories Company will produce a maximum of 2,000 tons of the final product in this trial run. Upon completion of this 2,000 ton production level or July 4, 2015, whichever comes first, this temporary permit will expire. If the consistency of the dobies produced during this trial is acceptable, then Harbison-Walker Refractories Company will need to apply for authority to construct a full scale operation of the mixer.



Potential particulate emissions were estimated using an emission factor for raw material mixing/weighing for fiberglass manufacturing that was obtained from EPA Technology Transfer Network Clearinghouse for Inventories & Emissions Factors (WebFIRE SCC 3-05-012-23). Potential chromium (III) emissions are based on the molecular weight ratio of chromium to chromic acid multiplied by the total emissions of particulate. The portable mixer will be routed through an existing dust collector (EP-CD-33) at the Vandalia facility. However, since uncontrolled potential emissions are below respective de minimis and Screening Model Action Levels, a special condition requiring its operation were not included. The uncontrolled potential to emit from this trial run are shown in Table 1 and are based on 2,000 tons of final product. The potential emissions due to natural gas combustion are based on emission factors from the EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition, Section 1.4 *Natural Gas Combustion* (July 1998) and continuous operation of the tunnel kiln #4 (EP-D).

In order to retain the mixing process as the bottleneck of the production process, Harbison-Walker Refractories Company shall limit chromium compounds used in mixers that process refractory shapes mixes to 128,800 tons in any consecutive 12-month period expressed as chromic oxide (Cr_2O_3).

Table 1: Uncontrolled Potential Emissions (tons)

Pollutant	De minimis level/SMAL*	Potential to Emit
PM	25.0	1.50
PM ₁₀	15.0	2.41
PM _{2.5}	10.0	2.41
VOC	40.0	0.94
NO _x	40.0	17.18
SO _x	40.0	0.10
CO	40.0	14.43
GHG (mass)	250.0	20,612
GHG (CO ₂ eq)	100,000	20,737
HAPs	10.0/25.0	0.32
Chromium (III)	5.0*	0.31

*Screening model action level

You are still obligated to meet all applicable air pollution control rules, Department of Natural Resources' rules, or any other applicable federal, state, or local agency regulations. Specifically, you should avoid violating 10 CSR 10-6.045 *Open Burning Requirements*, 10 CSR 10-6.220, *Restriction of Emission of Visible Air Contaminants*, 10 CSR 10-6.165 *Restriction of Emission of Odors*, 10 CSR 10-6.170 *Restriction of Particulate Matter to the Ambient Air Beyond the Premises of Origin*, and 10 CSR 10-6.400 *Restriction of Emission of Particulate Matter From Industrial Processes*.

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A copy of this letter should be kept with the unit and be made available to Department of Natural Resources' personnel upon verbal request. If you have any questions regarding this determination, please do not hesitate to contact Susan Heckenkamp at the department's 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



Kyra L. Moore
Director

KLM:shl

c: PAMS File: 2014-10-009
Northeast Regional Office