



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 5  
77 WEST JACKSON BOULEVARD  
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF:

NOV 18 2011

Ed Bakowski  
Bureau of Air  
Illinois Environmental Protection Agency  
1021 North Grand Avenue East  
P.O. Box 19276  
Springfield, Illinois 62794-9276

Dear Mr. Bakowski,

On September 4, 2011, the U.S. Environmental Protection Agency received notification of the Illinois Environmental Protection Agency's (IEPA) intent to issue a Prevention of Significant Determination (PSD) construction permit for Universal Cement, located in Chicago, Illinois. The permit application, number 08120011, is for the proposed construction of a Portland cement manufacturing plant, including a preheater/precalciner kiln, with in-line raw mill, a clinker cooler, a finish mill, and storage and handling of materials.

In order to ensure that the project meets Federal Clean Air Act requirements, that the permit will provide necessary information so that the basis for the permit decision is transparent and readily accessible to the public, and that the permit record provides adequate support for the decision, the EPA has the following comments.

NO2 NAAQS Modeling

Based on a review of the summary information posted with the notice, including portions of the IEPA Air Quality Analysis document, the EPA has concluded that the culpability analysis conducted to determine whether nitrogen oxide emissions from Universal Cement would contribute significantly to modeled violations of the 1-hour nitrogen dioxide (NO<sub>2</sub>) National Ambient Air Quality Standard (NAAQS) is not consistent with Federal modeling guidance. The IEPA statement on page 15 of the summary document indicating that "the probability of Universal Cement exceeding the 1-hour NO<sub>2</sub> significant impact level is insignificant" is based on a very small subset of the receptors showing modeled violations of the NAAQS and fails to provide any conclusive evidence that significant contributions to modeled violations would not occur.

We recognize that the modeling analysis for Universal Cement was submitted prior to EPA's March 1, 2011, additional modeling guidance regarding the 1-hour NO<sub>2</sub> NAAQS and the subsequent release in early April 2011 of an update to the regulatory version of AERMOD that incorporated enhancements to facilitate such culpability analyses. However, we believe that

sufficient time has elapsed to allow for appropriate culpability analyses to have been completed prior to the IEPA's notification of their intent to issue a PSD construction permit for Universal Cement. Prior to making a final permit decision, we therefore request that IEPA provide to EPA an appropriate and adequate demonstration consistent with our Federal permitting requirements that the proposed emissions from Universal Cement will not cause or contribute to modeled violations of the 1-hour NO<sub>2</sub> NAAQS. The new version of AERMOD automates the culpability analysis, and EPA would not expect the additional work to take a substantial amount of effort. Further, the new analysis will give the permitting authority the necessary information on air quality impacts needed to make a final decision on the permit.

### The Kiln System

The kiln system is designed to combust coal, petroleum coke, and scrap whole tires. The permit does not specify the maximum rate at which the kiln can combust tires. As described in the draft PSD permit's technical support document, EPA has a research paper on the use of tire derived fuel (Air Emissions from Scrap Tire Combustion, EPA, 1997). This paper states, "[Tire derived fuel (TDF)] can be used successfully as a 10-20% supplementary fuel in properly designed fuel combustors with good combustion control and add-on particulate controls." Therefore, we strongly recommend that the kiln system be limited to combusting 10-20% scrap whole tires as a supplementary fuel. Please include in the permit a requirement to conduct a stack test while firing the maximum tire feed rate of the kiln system, and a stack test in the 10-20% rate, so the state can determine if any further actions or permit conditions are warranted. Additionally, the permit needs to contain a requirement for the source to maintain records of the firing rate of TDF as a percentage of the fuel combusted.

### Green House Gas (GHG) Best Available Control Technology (BACT)

Page 17 of the draft permit shows a carbon dioxide equivalent (CO<sub>2</sub>e) BACT emission limit of 1,860 pounds of CO<sub>2</sub>e per ton of clinker on an annual basis. Please set the annual limit based on a 12-month rolling average or a 365-day rolling average.

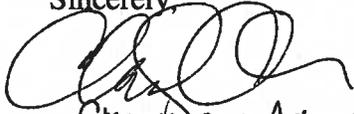
Please add the facility's GHG emission limits to the emission limit summary tables in attachments 1 and 2 of the draft permit.

Page 33 of the Project Summary document has discussion of carbon capture and sequestration (CCS) as a technology for reducing GHG emissions. In the analysis, IEPA concludes that CCS should be rejected in Step 1 of the GHG BACT analysis based on CCS being "in its developmental infancy at this time" and because there are no pipelines near Chicago to transport the CO<sub>2</sub> to viable storage locations. However, EPA generally considers CCS to be both commercially available and technically feasible for cement manufacturing facilities (see page 32 of the March 2011 GHG permitting guidance). This does not necessarily mean CCS should be selected as BACT for the proposed Universal Cement facility, but without a better substantiation, CCS should not be deleted at either step 1 or step 2 of the BACT analysis. EPA notes that cost issues related to CCS implementation may be a valid reason to eliminate CCS for a particular facility, but such a cost analysis should be conducted under Step 4 of the top-down BACT analysis to support that decision. It is in the economic impacts portion of Step 4 that capture,

pipeline construction, and sequestration costs should be considered, along with other impacts of the technology.

We appreciate the opportunity to provide comments on this draft PSD permit. Please feel free to contact me or have your staff contact Constantine Blathras, of my staff, at (312) 886-0671.

Sincerely,

A handwritten signature in black ink, appearing to read 'Charmagne Ackerman', written over a circular stamp or mark.

*Charmagne Ackerman for*  
Genevieve Damico

Chief

Air Permits Section