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

AUG 13 2015

REPLY TO THE ATTENTION OF:

Mr. Ray Pilapil
Bureau of Air
Illinois Environmental Protection Agency
1021 North Grand Avenue East
Springfield, Illinois 62794-9276

Dear Mr. Pilapil:

The U.S. Environmental Protection Agency has reviewed the draft air pollution control construction permit number 15030013 (Draft Permit) prepared by the Illinois Environmental Protection Agency (IEPA) for Archer Daniels Midland Company (ADM) on 07/26/2015. The Draft Permit authorizes ADM to construct a new natural gas-fired boiler with low-NOx burners to supply steam at its existing soybean oil and extraction plant located in Quincy, Illinois. EPA has the following comments on the Draft Permit:

1. **The Draft Permit does not account for emissions changes at downstream and upstream emission units that are affected by the project.**

   The Project Summary states that the new boiler "will maintain a reliable supply of steam at the plant" while asserting that "ADM is not proposing to increase production at the plant as a consequence of increasing steam production." (emphasis added). Because the project *will* "increas[e] steam production at the plant," EPA believes that certain downstream and/or upstream production equipment could operate more than their baseline operation due to the projected "reliable supply of steam" by the boilers. Consistent with 40 C.F.R. § 52.21 and EPA guidance, the permit record should evaluate the increase in emissions at all associated emission units, including any downstream emission units that will benefit from the projected increase in steam production. *See* Kate Kelly, EPA Region 10, Letter to Alan Prouty, J.R. Simplot Company (August 29, 2013) at 2. If ADM does not intend on increasing production as a result of this project, IEPA must include appropriate production, operational or emission limits in the permit to ensure that this project does not cause an increase in actual emissions from all associated emission units.

2. **The permit record does not show that the emission factor (and emission limit) used to calculate the potential to emit (PTE) of nitrogen oxides (NOx) emissions is**

appropriate, and it does not provide a reasonable assurance that ADM is capable of continuously complying with the NOx limits.

The Draft Permit limits the PTE of the boiler to 38.3 tons per year (tpy) of NOx using an emission factor (and emission limit) of 0.05 lb/mmBtu of NOx; thereby preventing the project from triggering Prevention of Significant Deterioration (PSD) permitting requirements. Based on discussions with the permit writer, EPA has determined that ADM did not submit sufficient documentation in support of its proposed emission limits but simply stated in its permit application that the NOx emission factor of 0.05 lb/mmBtu is "based on Manufacturer Guarantee." ADM has not provided details on how its proposed emission factor represents the projected utilization of the proposed boiler nor included in its application a copy of the referenced "Manufacturer Guarantee" and the limitations of that guarantee. The PTE of the source must represent "the highest possible level of emissions that a facility is capable of releasing in light of its physical design and operational characteristics (considering enforceable restrictions on emission capacity). *See In re Peabody Western Coal Company*, 12 E.A.D. 36-37 (EAB 2005). Further, the PTE limit must meet two central criteria for establishing such limits — technical accuracy and a reliable method of determining compliance. *Id.* at 39. While it is impractical to determine the actual emissions from a unit before it is constructed, the emission limits in the permit must be based on the applicant's credible effort to project what its emissions will be after it completes construction and commences operation. *See EPA Region 10's Response to Petitions for Review, In re Shell Offshore, Inc.*, 13 E.A.D. 357. *Also see* "EPA's Recommended Procedures for Development of Emissions Factors and Use of the WebFIRE Database," EPA-453/D-13-001 (August 2013).

3. **To ensure that the PTE limits in the permit are enforceable as a practical matter, the permit should include limits on capacity utilization or hours of operation.**

Condition 6 of the Draft Permit includes emission limits for a number of pollutants, including NOx, carbon monoxide (CO), particulate matter (PM, PM_{10} and $PM_{2.5}$) and volatile organic material (VOM). However, the Draft Permit does not include corresponding limits on capacity utilization (e.g., a fuel usage limit) or hours of operation.[1] An emission limitation alone will only limit the PTE when it reflects the absolute maximum that the source could emit without controls or other operational restrictions. *See* Terrell E. Hunt and John S. Seitz, Guidance on Limiting Potential to Emit in New Source Permitting, June 13, 1989 (Hunt and Seitz Memo). In the present case, the PTE limits take into account emission reductions achieved through the operation of low-NOx burners. Where the emission limitation does not reflect the maximum emissions of the source while operating at full design or achievable capacity (whichever

[1] While Condition 5(b) limits the "nominal rated heat input capacity" of the proposed boiler to no more than 175 mmBtu/hour, we do not interpret this restriction as effectively limiting the annual utilization of the boiler since it only appears to refer to the boiler manufacturer's nameplate rating of the boiler but not the actual firing rate after construction.

is higher) without consideration of control equipment, the permit should generally include a production or operational limitation in addition to the emission limitation. Hunt and Seitz Memo at 5-8.

4. **The permit record does not demonstrate that the required one-time stack test "under representative operating conditions" in combination with on-going work practice requirements are sufficient to assure that the NOx emission limits will not be exceeded.**

Condition 7 of the Draft Permit requires ADM to conduct a stack test "under representative operating conditions" within 365 days after initial startup of the proposed boiler or within 60 days after reaching maximum production rate, whichever is earlier, to determine NOx and CO emissions from the boiler, and to determine if continuous emissions monitoring is required.[2] Continuous monitoring of NOx emissions using a NOx Continuous Emissions Monitoring System (CEMS) or a Predictive Emission Monitoring System (PEMS) would be required if the initial stack test reveals NOx emissions of more than 0.045 lb/mmBtu. However, it is not clear how this one-time stack test conducted "under representative operating conditions" would represent worst case NOx and CO emissions from the boiler. Also, while the required annual boiler tune-ups are critical for on-going compliance, they are not sufficient to establish the worst case emissions from the boiler for purposes of establishing or verifying the PTE. Since ADM must achieve continuous compliance with emissions limits (except where explicitly excused), EPA interprets applicable regulations to require that any stack test that is conducted within the scope of EPA guidance must demonstrate that a facility is capable of complying with the applicable emissions standards at all times. *See* EPA's National Stack Testing Guidance (April 27, 2009) at 14-16. To address our concerns and to provide a reasonable assurance of ADM's future compliance with the NOx emission limits, we request that the initial stack testing be conducted at conditions that represent worst-case emissions. Additionally, we request that IEPA either consider requiring additional periodic stack testing of the boiler under worst-case or normal operating conditions or the operation of continuous parametric or emissions monitoring systems on a permanent basis.

5. **The proposed timeframe of 365 days for the initial stack test for NOx and CO emissions is inconsistent with the 180-day timeframe in EPA regulations and guidance for verifying the emissions performance of a new emission unit.**

The proposed timeframe of 365 days after initial startup of the boiler is inconsistent with the 180-day timeframe in 40 C.F.R. § 63.7 (for units that are subject to the stack testing provisions of 40 C.F.R. Part 63), 40 C.F.R. § 61.13 (for units that are subject to the stack testing provisions of 40 C.F.R. Part 61), or 40 C.F.R. § 60.8 (for units that are subject to

[2] Additional stack testing would be required at the discretion of IEPA.

the stack testing provisions of 40 C.F.R. Part 60). Because the NOx PTE limit in the present case is relatively close to the PSD major source threshold of 40 tpy of NOx, and because the proposed PTE limit is based on an unverified emission factor, a NOx PTE limit should only be considered in conjunction with stringent monitoring and testing. *See In Re Peabody Western Coal Company*, 12 E.A.D. 37-38 (EAB 2005). In this regard, since the purpose of the initial stack test is to verify that the source can comply with its emission limits, we request that the initial stack testing be conducted no later than 180 days after startup of the boiler.

We provide these comments to help ensure that the Draft Permit meets all federal requirements, and that the record provides adequate support for the permit decision. We look forward to working with you to address our comments. If you have any questions, please feel free to contact me at (312) 353-4761 or David Ogulei, of my staff, at (312) 353-0987.

Sincerely,

Genevieve Damico

Genevieve Damico
Chief
Air Permits Section