



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5

77 WEST JACKSON BOULEVARD

CHICAGO, IL 60604-3590



REPLY TO THE ATTENTION OF:

Mr. Matthew Stuckey
Chief
Permits Branch
Office of Air Quality
Indiana Department of Environmental Management
100 North Senate Avenue
Indianapolis, Indiana 46204

Dear Mr. Stuckey:

The U.S. Environmental Protection Agency has reviewed the draft prevention of significant deterioration and draft part 70 operating permit, permit number T129-33576-00059, for Midwest Fertilizer Corporation, located in Mount Vernon, Indiana. To ensure that the source meets Federal Clean Air Act requirements, that the permit will provide necessary information so that the basis of the permit decision is transparent and readily accessible to the public, and that the permit record provides adequate support for the decision, EPA has the following comments:

1. The Greenhouse Gas (GHG) Best Available Control Technology (BACT) analyses for the combustion turbines and auxiliary boilers do not include a statement explaining why Carbon Dioxide (CO₂) serves as a sufficient surrogate for total CO₂ equivalent (CO₂e) emissions. For the combustion turbines and auxiliary boilers, the permit should either address GHG limits in CO₂e or on an individual gas mass basis (i.e., for CO₂, methane, and Nitrous Oxide (N₂O)), or provide an explanation of why CO₂ emissions sufficiently represent CO₂e emissions.
2. The permit indicates that Selective Catalytic Reduction (SCR) will be installed to control N₂O emissions from the nitric acid plant (page 94 of Appendix B to the Technical Support Document (TSD) and permit condition D.4.4(b)). However, according to the EPA's December 2010 guidance document titled "Available and Emerging Technologies for Reduction Greenhouse Gas Emissions from the Nitric Acid Production Industry¹," SCR is not an effective control technology for N₂O emissions (yielding roughly a 5% reduction in N₂O). We note that other recent BACT determinations listed in the BACT analysis applied catalytic decomposition to control N₂O. In addition, the December 2010 EPA guidance document lists Nonselective Catalytic Reduction as an effective N₂O control option. Based on discussions with your staff, it is our understanding that the statement in the draft permit that SCR has been selected to control N₂O is not accurate. Please clarify, in the final permit, which BACT control has been selected for reducing

¹ <http://www.epa.gov/nsr/ghgdocs/nitricacid.pdf>

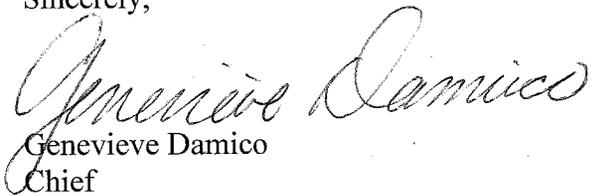
N₂O emissions from the nitric acid plant.

3. The BACT analysis for the CO₂ purification process says that sale of captured CO₂ was evaluated for the entire source and was determined to be not technically feasible because the technology is not available or applicable (page 31 of Appendix B to the TSD). Please include an explanation of how Indiana Department of Environmental Management reached the conclusion that captured CO₂ cannot be sold.
4. The NO_x BACT emission limits for the reformer furnace (permit condition D.1.4(a)(5)) and the nitric acid plant (permit condition D.4.4(a)) exclude periods of startup and shutdown. The N₂O BACT emission limit for the nitric acid plant (permit condition D.4.4(c)) also excludes periods of startup and shutdown. According to the TSD, potential Startup, Shutdown, and Malfunction (SSM) emissions from this source will be 215.53 tons per year (tpy) of NO_x, 9.91 tpy of Volatile Organic Compounds, 679.55 tpy of CO₂, and 214,890 tpy of GHGs. The permit should include a BACT analysis and limits for the SSM emissions from this source. In discussions regarding this draft permit, your staff stated that the SSM emissions from the reformer furnace are controlled by the front end flare (permit condition D.5). In the final permit, please clarify which SSM emissions are controlled by the front end flare and assure that all SSM emissions are included in a BACT analysis.
5. Permit condition D.1.9 limits hexane emissions from the reformer furnace, startup heater, and auxiliary boilers to 9.83 tons per twelve consecutive month period. Compliance with this limit is intended to limit source-wide emissions of a single Hazardous Air Pollutant (HAP) to less than 10 tpy and source-wide total HAP emissions to less than 25 tpy so that the requirements of 326 IAC 2-4.1 do not apply. The permit includes hexane emission calculations in permit condition D.1.12 based on fuel usage and an AP-42 emission factor² of 1.8 lb/mmcf “or as determined by testing.” However, the permit does not otherwise specify or require testing requirements for hexane emissions. Since the AP-42 emission factor for hexane is rated “E” and the hexane emission limit is 0.17 tpy below the HAPs major source threshold, a testing requirement to determine the accuracy of the emission factor would be appropriate for this source.
6. Permit documentation (page 6 of the TSD and page 9-10 of Appendix A to the TSD) lists potential HAP emissions from the CO₂ purification process as 8.98 tpy of methanol. Please ensure that the final permit includes the basis for the 0.018594 lb/ton methanol emission factor that is used to calculate potential methanol emissions in Appendix A of the TSD.

² AP-42, Chapter 1.4, Table 1.4-3

We appreciate the opportunity to provide comments on this permit. If you have any questions, please feel free to contact Sam Portanova, of my staff, at (312) 886-3189.

Sincerely,

A handwritten signature in cursive script that reads "Genevieve Damico". The signature is written in black ink and is positioned above the printed name and title.

Genevieve Damico

Chief

Air Permits Section