



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

JUN 01 2010

REPLY TO THE ATTENTION OF:  
AR-18J

William Presson  
Acting Permit Section Supervisor  
Michigan Department of Natural Resources and Environment  
Air Quality Division  
P.O. Box 30260  
Lansing, Michigan 48909-7760

Dear Mr. Presson:

Thank you for the opportunity to comment on the draft prevention of significant deterioration (PSD) construction permit No. 93-09 for Detroit Edison – Monroe Power Plant (DTE). The U. S. Environmental Protection Agency has concluded its review and has the following comments:

**Baseline Emission Calculations**

In the Fact Sheet (Appendix 2), the baseline actual emissions of the new emission units are the same as the baseline of the existing units, without any explanation. The baseline actual emissions for a new unit that is under construction/start-up (still in the shakedown period) should be zero. However, we question why the apparent modifications are characterized as new. Such characterization impacts the conclusions drawn in your analysis. Please clarify this discussion and modify any conclusions as appropriate.

In the permit application (Appendix E, revised 9/21/2009), in the calculations of the projected actual emissions for the nonattainment area pollutants, some of the exclusions ("excluded heat input", and "excluded utilization") are related to the increased utilization due to the product demand growth or factors unrelated to the project. Please explain how you arrived to these exclusions.

**Common comments for EU-UNIT3-S1 and EU-UNIT4-S1**

Best Available Control Technology (BACT) is an emission limitation based on the maximum degree of emission reduction. Both the draft permit and the Fact Sheet lack any information on the control efficiency. Please add to the permit.

In order to achieve the maximum degree of reduction in sulfur dioxide (SO<sub>2</sub>) across the range of fuels that may be burned, the permit should set separate SO<sub>2</sub> limits for each type of fuel used, since SO<sub>2</sub> is a function of the fuel (1990 Draft New Source Review Workshop Manual, page B56). Either a percent reduction or separate SO<sub>2</sub> limits for each

fuel would show the maximum degree of SO<sub>2</sub> reduction. The fact sheet states that bituminous coal, sub bituminous coal, and petroleum coke will be used. The control efficiencies are not stated in the permit. EPA has provided comment on many similar permits that BACT cannot assume worst-case (one example is the November 9, 2006 letter from EPA Region 7, to Clark Duffy, Kansas Department of Health & Environment, Re: Holcomb Units 2-4). As proposed, the facility could use a blend with lower sulfur and operate their SO<sub>2</sub> controls at lower control efficiencies than established as BACT, consequently contravening the definition of BACT.

The 0.0036 lb/MMBtu volatile organic compound (VOC) BACT limit is higher than the BACT limits at other sources. The RACT/BACT/LAER Clearinghouse (RBLC) has a handful of similar sources (in terms of size, controls and fuel blend) with a limit lower than DTE's proposed limit - for example, Omaha Public Power District, Permit # 58343c01 has 0.0034 pounds per million British thermal units (lb/MMBtu), on a 3-hour averaging period. Please provide the rationale why a lower BACT limit should not be applied after analyzing the energy, environmental, and economic feasibility of available control technologies. Also, please add the averaging time.

The 0.15 lb/MMBtu (30-day rolling average) carbon monoxide (CO) BACT limit is higher than BACT limits at other similar sources - for example Louisville Gas and Electric, Permit # V-02-043 Rev.2, has a limit of 0.1 lb/MMBtu (30-day averaging period) . Please provide the rationale why a lower BACT limit should not be applied, after analyzing the energy, environmental, and economic feasibility of available control technologies.

CO emission limit is required to show compliance on a 30-day rolling average basis. However, several permits (even RBLC permits used for comparison in the permit application) use the 3-hour average basis or 24-hour rolling average. Please explain why the source shouldn't show compliance on a 3-hour average basis.

As you are aware, BACT requirements must be met at all times. Please explain the purpose for, and proposed use of, the factor of safety (0.01 lb/MMBTU) for the nitrogen oxides (NO<sub>x</sub>) BACT limit as described in the draft permit.

### **Comments on Modeling Methodology**

There was no analysis in the permit for the particulate matter less than 2.5 micrometers in diameter (PM<sub>2.5</sub>). A March 23, 2010 memorandum entitled "Modeling Procedures for Demonstrating Compliance with PM<sub>2.5</sub> NAAQS", issued from EPA's Office of Air Quality Planning and Standards details the history of the particulate matter less than 10 micrometers in diameter (PM<sub>10</sub>) surrogate policy and the recent actions to repeal it. The memo describes the requirements for State Implementation Plan -approved States who wish to continue using the PM<sub>10</sub> surrogate policy in the interim. As stated in the memo, the PM<sub>10</sub> surrogate may continue to be relied upon as long as "(1) the appropriateness of the PM<sub>10</sub>-based assessment for determining PM<sub>2.5</sub> compliance has been adequately demonstrated based on the specifics of the project; and (2) the applicant can show that a

PM2.5 analysis is not technically feasible.” Absent such demonstrations, applicants would need to submit a PM2.5-based assessment.

The modeling analysis includes an examination of 1-hour nitrogen dioxide (NO<sub>2</sub>) impacts as required by the new standard. The 1-hour NO<sub>2</sub> analysis includes operating restrictions on the five diesel generators. The generators are limited to seven calendar days of operation, either individually or in combination. Due to this limit, the diesel generators were excluded from the NO<sub>2</sub> modeling. The NO<sub>2</sub> modeling with all other NO<sub>2</sub> sources results in an 8th high value of 97.7 ug/m<sup>3</sup>, which is then combined with a background value and compared to the National Ambient Air Quality Standards (NAAQS). The peak modeled value from all other sources is 227 ug/m<sup>3</sup>. It is not clear that the seven calendar day limit on the diesel generators, and their exclusion from the modeling, is an appropriate approach to calculating the 1-hour NO<sub>2</sub> design value. However, it does seem clear that excluding the diesel generators and then comparing the 8th high value from all other sources to the NAAQS is inappropriate. Comparing the peak 1-hour value from all other sources to the NAAQS may be an acceptable approach but currently shows a violation.

The NO<sub>2</sub> modeling incorporated the use of Plume Volume Molar Ratio Method (PVMRM). The information used to execute PVMRM needs to be justified and supported in the record. While a 10% in-stack NO<sub>2</sub>/NO<sub>x</sub> ratio is listed as a default in the AERMOD User's Guide, its use for 1-hour NO<sub>2</sub> should not be considered a default and it, or another value, should be justified. Additionally, the equilibrium value of 75% should be justified and supported as to why it is more appropriate than the model default value of 90%. Also, it is unclear what ozone monitor was used for input into PVMRM. Additionally, the 40 parts per billion (ppb) OZONEVAL background/substitute value seems low. This value should be justified or a higher value or different methodology for determining missing values should be used to reflect hourly ozone values during more ozone-conducive conditions.

The surface meteorological data includes about 20% calm hours per year. This is a significant number of hours that are not being considered in the AERMOD modeling. This bias can result in much lower impacts when compared to modeling conducted with a lower percent of calm hours, depending on the source characteristics. It can be particularly important when evaluating short-term standards. The impact of the meteorological data on this source should be evaluated in terms of compliance with the NAAQS and increments, or another representative meteorological data set could be examined.

It was unclear from the documentation provided how the background values for use in the NAAQS analysis were determined. Information related to the background values should be provided for review.

There was some discussion of fugitive emission sources in the Public Participation Document. However, it was unclear from the documentation if, and how, fugitive

emissions were characterized in the dispersion modeling. That information should be provided for review.

We look forward to continuing to work with you in resolving these issues. If you have any further questions about this letter, please contact Laura Cossa, of my staff, at 312-886-0661 or [cossa.laura@epa.gov](mailto:cossa.laura@epa.gov).

Sincerely,

A handwritten signature in black ink that reads "Sam Portomola". The signature is written in a cursive, slightly slanted style.

For Pamela Blakley, Chief  
Air Permits Section