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Via Overnight Mail

April 29, 2008

Mr. D. John Vial, Sr. Environmental Engineer
Michigan Department of Environmental Quality, Air Quality Division
Constitution Hall
525 West Allegan Street
3rd Floor, North Tower
Lansing, MI 48933

Re: Permit to Install (PTI) Application Number 297-07
Mid-Michigan Energy Station
Midland, Michigan

Dear Mr. Vial:

In a letter dated April 10, 2008, you specified several items for which the Michigan Department of Environmental Quality (MDEQ) is requesting additional information in support of the Permit to Install (PTI) application for our proposed Mid-Michigan Energy Station (MMES). With this submittal, Mid-Michigan Energy, LLC (MME) is providing the requested information. One electronic copy and one hard copy of this information is provided. Discussions and documentation for each requested item are provided below.

1. Malfunction Abatement Plan

A draft Malfunction Abatement Plan (MAP) is provided in Attachment 1. The draft MAP provides the information required under Michigan administrative Rule R336.1911(2) to the extent that information is reasonably known at present prior to the selection of equipment vendors.

2. Clean Air Act Section 112 Analysis of Hazardous Air Pollutants

As MDEQ notes, there is uncertainty regarding whether hazardous air pollutant (HAP) emissions from the pulverized coal (PC)-fired boiler will ultimately be regulated under Section 111 or Section 112 of the Clear Air Act. To address the possibility of regulation under Section 112, Attachment 2 provides a case-by-case maximum achievable control technology (MACT) analysis for HAP emissions from the PC-fired boiler.

3. Evaluation of IGCC Technology

The control technology evaluation for integrated gasification combined cycle (IGCC) technology is provided in Attachment 3.

4. Spurlock Unit 4 PM Emission Limits

The particulate matter (PM) emission limits for the East Kentucky Power Cooperative (EKPC) Spurlock Unit 4 are as follows:

"Pursuant to 401 KAR 59:016, Section 3(1)(b), and 401 KAR 51:017, particulate matter (PM, filterable) emissions shall not exceed 0.009 lb/mmBtu based on a 30 day rolling average of the data from the PM CEM, and total particulates (filterable and condensable PM/PM10) shall not exceed 0.012 lb/mmBtu based on a 3 hour performance test. In order to ensure the validity of the NAAQS and increment consumption modeling, PM10 emissions shall not exceed 84 lb/hr on a twenty four-block average. Pursuant to 401 KAR 59:016, Section 6(1), compliance with the 0.009 lb/mmBtu (filterable) emission limitation shall constitute compliance with the 99% reduction requirement contained in 401 KAR 59:016, Section 3(1)(b)."[1]

MDEQ requested that MME address the applicability of these emission limits to our proposed MMES. In brief, and as explained in detail below, neither the filterable nor the total PM limit for Spurlock Unit 4 are applicable to the MMES.

During the permitting process, EKPC strongly objected to the filterable PM emission limit of 0.009 pounds per million British thermal units (lb/MMBtu) on the grounds that 1) EKPC believed a filterable PM/PM10 emission rate of 0.015 lb/MMBtu based on a 24-hour averaging period is BACT for Spurlock 4; 2) 0.015 lb/MMBtu on a 24-hour averaging period reflects the maximum degree of reduction achievable for Unit 4 and was consistent with other recent permitting actions; 3) EKPC's vendor was unwilling to guarantee filterable emissions of 0.009 lb/MMBtu on a 30-day rolling average; 4) A filterable PM limit of 0.009 lb/MMBtu has not been demonstrated to be continuously achievable for the fuel to be burned by Spurlock 4 and would therefore not be considered achievable for BACT purposes; and 5) A filterable PM limit of 0.009 lb/MMBtu would not accommodate the expected emissions variability over the life of the source and would therefore not be continuously achievable. The agency acknowledged this input from EKPC but did not concur, although no justification was provided in the record.[2] It has subsequently been disclosed that the 0.009 lb/MMBtu filterable PM limit was the product of negotiations between EKPC and an environmental group and that although the equipment vendor would not guarantee this low limit, EKPC agreed to the lower limit after conducting stack testing at the identical, existing Spurlock Unit 3 that utilized the same fuel as the proposed Unit 4.[3] Moreover, the Spurlock Unit 4

[1] Kentucky Division for Air Quality, Air Quality Permit No. V-06-007, July 2006.
[2] Kentucky Division for Air Quality, Response to Comments on Draft Air Quality Permit No. V-06-007, June 2006.
[3] Correspondence from Mr. John F. Caudell, P.E., Fishbeck, Thompson, Carr & Huber, Inc., to Ms. Melissa Byrnes, MDEQ, April 4, 2008.

filterable PM emission rate is not applicable to the proposed MMES since the MMES will utilize activated carbon injection for mercury control, representing an additional filterable particulate loading that will not be present at Spurlock Unit 4. Finally, it is not clear that the Spurlock Unit 4 filterable PM emission limit of 0.009 lb/MMBtu on a 30-day average would be any more stringent that the 0.015 lb/MMBtu limit proposed by MMES on a far more stringent 3-hour average, allowing for significantly less emissions variability at the MMES during the compliance demonstration period.

The 0.012 lb/MMBtu total (filterable plus condensable) PM emission limit for Spurlock Unit 4 is not applicable to the MMES since Spurlock Unit 4 will use bituminous coal, which typically has a lower volatile fraction than the subbituminous coal that will be used at the MMES. The higher volatile fraction in Powder River Basin (PRB) coal creates the potential for increased generation of unburned condensable organic particulate compared to lower-volatile bituminous coal; thus, total PM emission limits for units firing bituminous coal are not typically applicable to units firing subbituminous coal. Additionally, inconsistencies in the Spurlock Unit 4 emission limits call into question whether the Spurlock Unit 4 condensable emission rate is achievable. With a total PM emission limit of 0.012 lb/MMBtu and a filterable emission limit of 0.009 lb/MMBtu, the implied condensable emission rate for Spurlock Unit 4 would be 0.003 lb/MMBtu. Since allowable emissions of sulfuric acid mist and volatile organic compounds (both of which would be measured in the Method 202 condensable PM stack testing) total 0.007 lb/MMBtu, emissions of these species alone could exceed the implied condensable PM emission rate for the unit. Therefore, the available information does not support that the total PM (filterable plus condensable) emission limit for Spurlock Unit 4 is applicable to the proposed MMES or even achievable for Spurlock Unit 4 itself.

5. Fugitive Dust Emissions – Active and Inactive Coal Piles

Although the proposed MMES is not a surface mining operation, the AP-42 Table 11.19-1 active storage pile emission factors are appropriate for the MMES active coal piles because the operations at the MMES active coal piles (that is, pushing coal via bulldozers from the stackout conveyor transfer points into piles above the active pile reclaim area where it is conveyed for further processing) are functionally identical to corresponding operations conducted at surface mining operations and described in AP-42 Section 11.19.1:

"If the mine has open storage piles, the crushed coal passes through a coal stacker onto the pile. The piles, usually worked by bulldozers, are subject to wind erosion. From the storage area, the coal is conveyed to a train loading facility and is put into rail cars."[4]

Since the operations at the MMES active piles are functionally identical to the corresponding operations at surface mines, the active pile emission factors in AP-42 Table 11.19-1 are considered appropriate for estimating emissions from these sources. The equations from AP-42 Section 13.2.5 are used to calculate wind erosion emissions from the inactive storage piles

[4] AP-42, Section 11.19.1, p. 11.19-1, October 1998.

since emissions from these piles are created by wind erosion only instead of a combination of bulldozer coal transport and wind erosion as is the case at the active piles.

6. Fugitive Dust Emissions – Material Handling Control Efficiencies

The following provides an explanation of the basis for the assumed control efficiencies used to estimate potential emissions from the material handling activities:

- 80% Control efficiency for partial enclosures in material handling activities. Enclosures that surround material handling activities serve to minimize emissions by blocking the flow of wind through the material handling activity and limiting the amount of dust that leaves the enclosure area. In all instances where 80% control is assumed for "partial enclosure" in the MMES, the emissions unit in question is either a drop operation occurring inside an underground enclosure or an enclosed belt conveyor. In our experience, neither of these operations creates visible emissions, and actual emissions are expected to be negligible; however, in the interest of providing a conservatively high set of emission rates, maximum emissions from these operations are estimated and disclosed. For the underground drop point emission units, 80% control efficiency is assumed based on the 80% control efficiency listed for loadout to an under-pile conveyor on page 105 of the Texas Commission on Environmental Quality's (TCEQ's) Coal Handling Emissions Evaluation Roundtable (CHEER) Workshop manual (June 1996). For the conveyors, 80% control efficiency is assumed based on the full enclosure ("ventilated, no dust collection") control efficiency range of 50 to 90% listed on page 34 of the TCEQ's CHEER Workshop manual.
- 50% Control efficiency for stacking tubes in drop point emission estimates. Staking tubes serve to minimize drop point emissions by blocking the flow of wind through the drop point and limiting the amount of dust that exits the stackout tube. For the stacking tubes, 50% control efficiency is assumed based on the 75% control efficiency listed for loadout via "telescopic chute with dust suppressant carryover from storage pile" listed on page 105 of the TCEQ's CHEER Workshop manual. The control efficiency is reduced to 50% to account for the absence of dust suppressant.
- 60% Control efficiency for wind screens for active storage piles. Wind screens serve to minimize wind erosion emissions by reducing the speed of the wind blowing across the pile. A control efficiency of 60% is assumed based on the wind screen control efficiency range of 60 to 80% listed on page 27 of the TCEQ's CHEER Workshop manual. The lower end of the control efficiency range is used to ensure that estimated emissions are conservatively high.

The relevant pages from the CHEER Workshop manual have already been provided to MDEQ in separate correspondence dated January 9, 2008.

7. Fugitive Dust Emissions – Coal Moisture Content

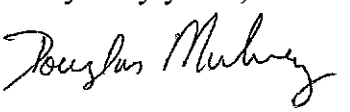
Coal from the Powder River Basin contains approximately 30% moisture by weight. Although some drying occurs in transit, the moisture content on an "as-received" basis remains high.[5] AP-42 Table 13.2.4-1 lists the moisture content for a generic "coal-fired power plant" with an average moisture content of 4.5%. However, the more refined data that is consistent with the fuel to be used at the MMES (i.e., PRB coal) for western surface coal mining in the same table reflects an average moisture content of 6.9%. Considering the high moisture content of the "as-received" PRB coal (typically in the range of 30%), a value of 6.9% is considered conservatively low for the purposes of air emission estimates.

8. BACT Analysis for Total Particulate Matter

Per MDEQ's previous request, the Best Available Control Technology (BACT) analysis has been updated to include proposed BACT limits for total (filterable plus condensable) particulate matter. The updated particulate BACT analysis pages are included in Attachment 4.

Please contact me at (636) 532-2200 or via email at dmulvey@lspower.com if you have questions on this submittal.

Very truly yours,



Douglas Mulvey, P.E.
Environmental Engineer

Attachments: as noted

[5] See for example the Louisiana Energy and Power Authority PRB coal supply contract that specifies an "as-received" typical moisture content of 28.4% (http://www.lafayettela.gov/pdf/council/agenda/122005/lppa/R-331-2005.CONT.pdf).