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*Via Email and Overnight Mail*

July 14, 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:

On June 27, 2008, Mid-Michigan Energy, LLC (MME) met with the Michigan Department of Environmental Quality (MDEQ) to discuss additional items needed for review of the subject PTI application. This information is summarized below.

1. Supplement and provide additional information identified in a MDEQ letter dated June 26, 2008 for the 112(g) maximum available control technology (MACT) evaluation. – PARTIALLY ADDRESSED IN JULY 14, 2008 LETTER
2. Supplement and provide additional information regarding the best available control technology (BACT) limit for material handling and transfer point baghouses and vent filters. – ADDRESSED IN JULY 11, 2008 EMAIL and LETTER<sup>1</sup>
3. Supplement and provide additional information regarding the particulate matter (PM) BACT analysis for the auxiliary boiler and steam boilers. – ADDRESSED IN JUNE 30, 2008 LETTER
4. Confirm that the project will be defined by fuel heat input and that either boiler technology under consideration (supercritical or ultrasupercritical) can achieve the requested permit limits. – ADDRESSED IN JUNE 30, 2008 LETTER
5. Confirm the reducing agent used for nitrogen oxides (NOx) control. – ADDRESSED IN JUNE 30, 2008 LETTER

The purpose of this letter is to address the remaining item in #1 above. [This submission of a series of sequential responses is consistent with the verbal direction given to MME on how to respond to the MDEQ request.]

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<sup>1</sup> In addition to the email, the letter was sent via overnight mail for delivery the morning of July 14, 2008.

Mr. John Vial  
July 14, 2008

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**MACT determination for each of four natural gas-fired boilers**

Attachment 1 contains the requested case-by-case MACT analysis for the four natural gas fired boilers (three steam generators and an auxiliary boiler) at the Mid-Michigan Energy Station.

With this submittal, MME has addressed all additional items discussed in the June 27, 2008 meeting. Please contact me at (636) 532-2200 or via email at [dmulvey@lspower.com](mailto:dmulvey@lspower.com) if you have questions.

Very truly yours,



Douglas Mulvey, P.E.  
Environmental Engineer

Cc: Ms. Julie Brunner, P.E., MDEQ, with enclosures  
Mr. William Presson, MDEQ, with enclosures  
Ms. Janet Vanderpool, with enclosures  
Mr. Bruce Goodman, with enclosures

Enclosures: as noted

## **ATTACHMENT 1**

# **1. CASE-BY-CASE MACT ANALYSIS: NG BOILERS**

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## **1.1 INTRODUCTION**

Section 112 of the Clean Air Act requires major sources of hazardous air pollutants (HAP) to meet maximum achievable control technology (MACT) standards. Pursuant to 40 CFR §63.2, a major source is defined as one that has the potential to emit 10 tons per year of any HAP or 25 tons per year of any combination of HAPs. The Environmental Protection Agency (EPA) is required to develop categories and subcategories of sources in accordance with a defined schedule, and establish MACT emissions standards for each of the categories and subcategories. However, EPA may not have a final MACT standard for a particular category promulgated at the time a project is being permitted. Pursuant to 40 CFR §63.42(c), the owner of a new major source in a category subject to MACT regulation for which no final MACT standard has yet been promulgated is not allowed to begin actual construction until the permitting authority has made a final and effective case-by-case MACT determination.

On February 26, 2004 the EPA signed a final rule to reduce hazardous air pollutant (HAP) emissions from Industrial, Commercial, and Intentional Boilers and Process Heaters, "Boiler MACT". The final MACT standard was effective September 13, 2004. On July 30, 2007, the United States Court of Appeals for the District of Columbia Circuit issued a mandate vacating the Boiler MACT since "the universe of boilers subject to its standards will be far smaller and more homogenous after all CISWI [Commercial and Industrial Solid Waste Incineration] units ... are removed from its coverage" as well as the potential for the need for a separate subcategory for small municipal utilities.<sup>1</sup>

Since applicability of the MACT regulation remains uncertain, the Michigan Department of Environmental Quality (MDEQ) has requested that Mid-Michigan Energy, LLC (MME) submit a case-by-case MACT analysis for the proposed natural gas (NG) fired boilers (three steam generators and an auxiliary boiler) at the Mid-Michigan Energy Station (MMES) pursuant to 40 CFR §63.43. The following sections present the requested application for a case-by-case MACT determination based on MDEQ's November 2004 "Guidelines for Conducting a 112(g) Analysis." Additionally, information is included to satisfy the case-by-case MACT application requirements of 40 CFR §63.43(e)(2).

## **1.2 CASE-BY-CASE MACT DETERMINATION PROCEDURES**

The MMES case-by-case MACT determination utilizes procedures consistent with MDEQ's November 2004 "Guidelines for Conducting a 112(g) Analysis." The procedures and requirements set forth in MDEQ's Operational Memorandum No. 15, Attachment D guidelines are summarized as follows:

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<sup>1</sup> June 8, 2007 US Court of Appeals for District of Columbia Circuit No. 04-1385, NRDC, Sierra Club, Environmental Integrity Project v. US EPA, pages 19 and 21.

Step 1) Pollutant Applicability

MACT applies to the proposed source emitting HAPS, and considers all HAP emissions. While it is not required that each HAP emitted be considered independently, different forms of emissions should be considered separately.

Step 2) Process or Production Unit Applicability

Determine all potential process or production units and emission points. Emission sources can be classified as one of five different types. Process vent or stack discharges; equipment leaks; evaporation and breathing losses; transfer losses; and operational losses. These emission source types should be used as a guide in identifying available control options while considering the concentration and type of constituents of a gas stream.

Step 3) Potentially Sensitive Concerns

Identify any potentially sensitive concerns involving energy, economic, and public health and environmental issues.

Step 4) Initial Selection of Available MACT Control Technologies

- a) Identify all available control technology options including transferable and innovative control technologies when appropriate. Control technologies include process changes; substitution of materials or other modifications; collecting, capturing or treating pollutants; or other techniques to reduce the quantity of or eliminate emissions of HAP. Alternative processes that inherently produce less pollution and various configurations of the same technology which achieve different control efficiencies should also be reviewed.
- b) Rank all possible control technology options in descending order based on the most stringent emission limitation achieved in practice by the best controlled similar source.

Step 5) Evaluation and Selection of MACT Control Technologies

MACT cannot be less stringent than the emission limitation which is achieved in practice by the best controlled similar source, unless it has been demonstrated that the emission limitation is not feasible. Identify any non-air quality health and environmental impacts, and energy requirements. If the control technology that achieves the maximum degree of HAP emission reduction is not feasible because of costs, non-air quality health and environmental impacts, and energy requirements, continue evaluating the next most efficient control technologies.

Step 6) Selection of MACT and Establishment of MACT Limits

MACT is the most effective emission limitation, work practice and/or operation standard that has not been eliminated in Steps 4 or 5.

Step 7) Alternative Options

An applicant may recommend a specific design, equipment, work practice or operational standard or a combination thereof as the MACT determination. Such a standard may be

approved, if the agency specifically determines that it is not feasible to prescribe or enforce an emission limitation under the criteria set forth in Section 112(h)(2) of the Clean Air Act.

40 CFR 63.43(d) sets forth the following two principles to be used in the establishment of MACT emission limitations in a case-by-case MACT determination:

“The MACT emission limitation or MACT requirements recommended by the applicant and approved by the permitting authority shall not be less stringent than the emission control which is achieved in practice by the best controlled similar source, as determined by the permitting authority.”

“Based upon available information, ... the MACT emission limitation and control technology ... recommended by the applicant and approved by the permitting authority shall achieve the maximum degree of reduction in emissions of HAP which can be achieved by utilizing those control technologies that can be identified from the available information, taking into consideration the costs of achieving such emission reduction and any non-air quality health and environmental impacts and energy requirements associated with the emission reduction.”

### **1.3 CASE-BY-CASE MACT ANALYSIS**

This section documents the case-by-case MACT analysis for the MMES NG boilers utilizing the procedures and requirements outlined in Section 1.2. Discussions are included for each step delineated in MDEQ’s case-by-case MACT guidance and utilize the vacated Boiler MACT as a primary reference for the analysis.

#### **1.3.1 STEP 1: POLLUTANT APPLICABILITY**

In the proposed 2005 MACT standards, EPA grouped the predominant HAP emissions from industrial boilers into four common categories: mercury, non-mercury metallic HAP, inorganic HAP and organic HAP. Of these four categories, EPA further determined that only organic HAP emissions from NG process heaters and industrial boilers warranted rulemaking. Since the vacature of the Boiler MACT was made as a result of too large of a population of potential best controlled similar sources (thousands of units will be shifted from regulation under section 112 to regulation under section 129)<sup>2</sup> and the potential need for additional subcategorization, such a determination remains valid. This analysis therefore addresses only organic HAP emissions.

Organic HAP emissions can be created during the combustion process due to interactions between carbon, hydrogen, and other trace constituents in natural gas occurring at high temperature. Incomplete combustion also contributes to the emissions of organic HAP. Because carbon monoxide (CO) emissions are an indicator of incomplete combustion, and incomplete combustion is an indicator of the potential for organic HAP emissions, EPA determined that CO was an appropriate surrogate to regulate organic HAP emissions. EPA

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<sup>2</sup> June 8, 2007 US Court of Appeals for District of Columbia Circuit No. 04-1385, NRDC, Sierra Club, Environmental Integrity Project v. US EPA, page 20.

believes that limiting CO emissions will result in reducing organic HAP emissions to an appropriate level.

EPA has previously identified a correlation between CO emission rates and organic HAP emission rates, however, they have also identified that the correlation exists at CO emission rates which are no longer indicative of good combustion. In fact, in the preamble to the Final NESHAP standard for Hazardous Waste Combustors, the relationship between CO and organic HAP is discussed, stating,

*“Nonetheless, many commenters state that EPA’s own surrogate evaluation did not demonstrate a relationship between carbon monoxide or hydrocarbons and nondioxin/furan organic hazardous air pollutants at the carbon monoxide and hydrocarbon levels evaluated...These commenters note that there may be a correlation between carbon monoxide and hydrocarbons and nondioxin/furan organic hazardous air pollutants, but it would be evident primarily when actual carbon monoxide and hydrocarbon levels are higher than the regulatory levels.”<sup>3</sup>*

Later in the preamble EPA discusses the 100 ppm CO floor level that was established as part of the Hazardous Waste Combustors MACT and comments that,

*“Although some sources are achieving carbon monoxide levels below 100 ppm, it is not appropriate to establish a lower floor level because carbon monoxide is a conservative surrogate for organic HAP. Organic HAP emissions may or may not be substantial at carbon monoxide levels greater than 100 ppmv, and are extremely low when sources operate under the good combustion conditions required to achieve carbon monoxide levels in the range of zero to 100 ppmv. As such, lowering the carbon monoxide floor below 100 ppmv may not provide significant reductions in organic HAP emissions.”<sup>4</sup>*

There are also other factors that influence the CO levels achievable for a particular source, such as the use of controls to lower emissions of oxides of nitrogen (NO<sub>x</sub>). NO<sub>x</sub> reduction technologies such as low-NO<sub>x</sub> burners<sup>5</sup> and flue gas recirculation (FGR) necessarily result in increases of CO emission rates. Therefore, one of the parameters that must be taken into account when evaluating CO emissions rates is the use of NO<sub>x</sub> reduction technologies and other add-on controls.

MME notes that although good combustion controls is applicable to the control of volatile organic compound (VOC) emissions as well as CO emissions, VOCs were not used by EPA to be a surrogate for organic HAP emissions since most sources subject to the Boiler MACT already required frequent CO testing including in some cases Continuous Emission Monitoring Systems (CEMS) for CO. However, the NG boilers at the MMES are not proposed to have CEMS for CO as a result of their expected actual operation. VOC emissions are a more direct measure of organic HAP emissions and as such MME believes

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<sup>3</sup> <http://www.epa.gov/fedrgstr/EPA-AIR/2005/October/Day-12/a18824b.pdf>, 70 FR 59461 (October 12, 2005)

<sup>4</sup> <http://www.epa.gov/fedrgstr/EPA-AIR/2005/October/Day-12/a18824b.pdf>, 70 FR 59462 (October 12, 2005)

<sup>5</sup> Low NO<sub>x</sub> burners is used as a generic term to refer to the broad class of devices including various proprietary ultra-low NO<sub>x</sub> variations.

that VOCs would be a good surrogate for organic HAP emissions. The control of VOCs from combustion sources such as NG boilers would also control organic HAPS, and the measurements would likely have less variability as a surrogate than CO.

MME is therefore proposing that MACT for the NG boilers is represented by demonstrating good combustion practices as a work practice method for limiting organic HAP emissions, coupled with a limit on VOC emissions which can be validated using standardized stack test methods for measuring VOCs.

It should be noted that MME is aware of the guidance document developed by the National Association of Clean Air Agencies (NACAA) that addresses the use of CO as a surrogate for organic HAPs, as discussed in Section 1.3.6 of this document.

### 1.3.2 STEP 2: PROCESS OR PRODUCTION UNIT APPLICABILITY

The emission units subject to case-by-case MACT requirements at MME are the NG boilers. The boilers consist of one 400 MMBtu/hour heat input auxiliary boiler and three steam boilers, each rated at 350 MMBtu/hour heat input. These emission sources are most appropriately classified as a process vent under MDEQ guidance since emissions from the NG boilers are products of the combustion process within the boilers.

### 1.3.3 STEP 3: POTENTIALLY SENSITIVE CONCERNS

Environmental, energy, and economic impacts associated with VOC and CO controls are documented in the BACT analysis in Appendix D of the MMES PTI Application and were found not to preclude the use of combustion controls. Therefore, there are no specific potentially sensitive concerns involving energy, economic, or public health and environmental issues.

### 1.3.4 STEP 4: INITIAL SELECTION OF AVAILABLE MACT CONTROL TECHNOLOGIES

The available MACT control technologies which have been shown to be technically feasible for each pollutant type are to be listed and ranked by overall removal efficiency (highest to lowest). **Table 1-1** below provides such detail for organic HAP. The control technologies listed as available below have been demonstrated in practice and operated at a full-scale installation for similar sized emission units.

**Table 1-1. Available MACT Control Technologies**

<b>Pollutant</b>	<b>Control Technology and Ranking</b>
Organic HAP	<ol style="list-style-type: none"><li>1. Combustion Controls – Good Combustion Practices</li><li>2. Combustion Controls – Pre or Post-Combustion Add-on Controls</li></ol>

#### **1.3.4.1 COMBUSTION CONTROLS – GOOD COMBUSTION PRACTICES**

Optimization of the design, operation, and maintenance of the NG boilers and combustion system is the primary mechanism available for lowering organic HAP emissions. This process is often referred to as combustion controls and is also applicable to the control of volatile organic compound (VOC) emissions.

The furnace/combustion system design on modern NG boilers provides all of the factors required to facilitate almost complete combustion of organic HAP emissions. These factors include continuous mixing of air and fuel in the proper proportions, extended residence time, and consistent high temperatures in the combustion chamber. As a result, a properly designed combustion system is effective at limiting organic HAP formation by maintaining the optimum furnace temperature and amount of excess oxygen.

Proper operation and maintenance of the furnace/combustion system helps to minimize the potential for formation and emission of organic HAP by ensuring that the furnace/combustion system operates as designed. This includes maintaining the air/fuel ratio at the specified design point, having the proper air and fuel conditions at the burner, and maintaining the fans and dampers in proper working condition.

#### **1.3.4.2 COMBUSTION CONTROLS – PRE OR POST-COMBUSTION ADD-ON CONTROLS**

As reflected in the VOC and CO BACT analyses in Appendix D of the MMES PTI Application (September 2007), other potentially applicable CO or VOC control technologies, such as flares, afterburners or catalytic oxidizers are not technically and/or economically feasible due to the high exhaust flow rates and low exhaust heating value associated with the NG boilers. Thus, other add-on controls are not considered available for organic HAP control.

#### **1.3.5 STEP 5: EVALUATION AND SELECTION OF MACT CONTROL TECHNOLOGIES**

Pursuant to MDEQ policy and EPA requirements, MACT cannot be less stringent than the emission limitation achieved in practice by the best controlled similar source. This section documents the emission rates achieved by the best controlled similar source and the environmental, energy, and economic impacts associated with the various available control options.

##### **1.3.5.1 MACT STANDARD DETERMINATION**

###### **Organic HAPs.**

In the preamble to the Boiler MACT standard, EPA states that all good combustion practice information was reviewed in the boiler population database and it was determined that no floor level of control exists. For this reason, the MACT floor for CO does not reflect an emission limitation (e.g., pounds CO per million Btu heat input) but rather the work practice of achieving good combustion practices. Further discussion on the availability of emission data for determination of the MACT floor is provided below.

EPA's February 2004 memorandum, "Revised MACT Floor Analysis for the Industrial, Commercial, and Institutional Boilers and Process Heaters National Emission Standards for Hazardous Air Pollutants Based on Public Comments",<sup>6</sup> discusses the development of the MACT floor<sup>7</sup>, the assumptions used for the analysis, the data sources, and the resulting MACT floor for new and existing sources. As part of its analysis, EPA found that "[n]o existing units in the gaseous fuel-fired subcategories were using control technologies that achieve consistently lower emission rates than uncontrolled sources for any of the pollutant groups of interest."<sup>8</sup> Accordingly, as there were no natural gas-fired sources utilizing control technologies that substantially reduced HAP emission rates, neither post nor pre-combustion add-on control technology is appropriate for MACT.

As further support for this position, it should be noted that the permit issued by Arizona DEQ for the Tucson Electric Power Company Springerville Generating Station did not include MACT standards for any organic compounds. For MidAmerican Energy's Council Bluffs project, the Iowa DNR found that good combustion practices are the MACT floor for organic HAP emissions based on the lack of units with any type of add on control. The Kentucky DEP permit for the Thoroughbred project provided an annual limit for organic HAPs, but only required compliance with the BACT CO emissions limit to assure use of combustion controls and compliance with the organic HAPs. While these permits represent organic HAP emission MACT for pulverized coal fired boilers, it is very reasonable to presume that the MACT floor for NG boilers would not be more stringent.

Thus, the best controlled similar source MACT technology determination for the NG boilers is the use of good combustion practices, which will minimize both VOC and CO emissions. The best controlled similar source VOC emission limit was identified to be 0.004 lb/MMBtu based on a search of the RBLC database (see Table 1-2).

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<sup>6</sup> <http://www.epa.gov/ttn/atw/boiler/mactflrmemo.pdf>

<sup>7</sup> In this memo, EPA uses the term "MACT Floor" to identify the best controlled similar source for new sources. For existing sources it uses the term to mean the average of the top 12 sources.

<sup>8</sup> <http://www.epa.gov/ttn/atw/boiler/mactflrmemo.pdf> Page 15.

**Table 1-2. U.S. EPA RBLC Results**

RBLC ID	Date	Facility	Description	VOC Limit (lb/MMBtu)
OH-307	4/4/06	South Point Biomass Generation	247 MMBtu/hr Natural Gas Auxiliary Boiler	0.0040
NV-0035	8/16/05	Sierra Pacific Power Co.	159 MMBtu/hr Natural Gas Boiler	0.0050
NM-0050	12/14/07	Navajo Refining LLC	337 MMBtu/hr Natural Gas Heater	0.0050
IA-0088	6/29/07	Archer Daniels Midland Corn Processing	292.5 MMBtu/hr Natural Gas Boiler	0.0054
AL-0230	8/17/07	ThyssenKrupp Steel	169 MMBtu/hr Natural Gas Furnace	0.0055

**1.3.6 STEP 6: SELECTION OF MACT AND ESTABLISHMENT OF MACT LIMITS**

MDEQ guidance indicates that MACT is the most effective emission limitation, work practice, and/or operation standard that has not been eliminated in Steps 5 or 6. The proposed case-by-case MACT determination for organic HAPs is the use of good combustion practices to minimize VOC emissions. VOC emissions will be minimized through good combustion practices, and maintaining compliance with the proposed VOC limit of 0.004 lb/MMBtu. This limit will represent a numerical standard by which to demonstrate that a low organic-HAP emission rate is maintained.

MME understands that the National Association of Clean Air Agencies (NACAA) published a study intended for use as Model Permit Guidance when addressing case-by-case MACT for industrial boiler and process heaters. The guidance suggested CO levels as MACT limits which were significantly different than those originally contained within the Boiler MACT standard.

MME is concerned with relying solely on the proposed NACAA guidance for several reasons. First, specific fuels utilized and boiler rated capacities were not considered separately. Second, there is no indication that the use of low NO<sub>x</sub> burners, NO<sub>x</sub> controls, or other factors that affect CO emissions were evaluated. Third, and perhaps most importantly, MME knows that while good combustion is an effective control of HAP emissions, there is currently no scientific data which specifically shows the correlation of low CO levels with respect to HAP emissions. In fact, as mentioned in Section 1.3.1, in the preamble to the Hazardous Waste Combustor MACT EPA states that lowering CO emissions to levels below 100 ppm do not likely provide significant reductions in organic HAP.

Based on EPA comments in the preamble to the Hazardous Waste Combustor MACT, there is a point where lower CO emissions cannot provide a reasonable indication of decreased organic HAP emission levels. Furthermore, CO emissions can be greatly

impacted by other factors, such as the use of low-NO<sub>x</sub> burners, in an effort to reduce collateral emissions. Since these organic HAPs are also VOCs, and for the reasons set out above, MME is utilizing VOC emissions as a surrogate for MACT on the basis that VOCs will provide a more direct indication of organic HAP emissions.

Therefore, specifically for the NG boilers proposed for the MMES, the Applicant proposes that compliance with the maximum achievable control technology proposed for the Facility for organic HAP emissions should be a dual-component approach, as follows:

- A VOC limit of 0.004 lb/MMBtu heat input
- Demonstration of good combustion practices to minimize VOC (and CO) emissions.

MMES is proposing to conduct an initial VOC stack test, additional stack sampling at a minimum frequency of once every five years (i.e., once during each Renewable Operating Permit term), and maintenance of fuel use records (natural gas firing only) to demonstrate compliance with the proposed MACT. Further monitoring of the boilers is not required or beneficial because good combustion indicators are considered standard design factors for all modern boilers.

It should further be noted that in the PTI application a specific limit of 0.035 pounds CO/MMBtu heat input is proposed as BACT. This limit is equivalent to approximately 30 ppm CO at 3% oxygen. The MMES proposed BACT CO limit therefore equates to a CO emission limit that is roughly 13 times less than the CO emission rate of 400 ppm proposed in the now vacated Boiler MACT, and less than one third the 100 ppmv standard in the Hazardous Waste Combustors MACT.

### **1.3.7 STEP 7: ALTERNATIVE OPTIONS**

Although MDEQ policy allows applicants to recommend a specific design, equipment, work practice, or operational standard or a combination thereof as an alternative MACT determination, MME does not propose such an alternative. The proposed MACT determinations are as provided in Step 6 above.

## **1.4 INFORMATION REQUIRED BY 40 CFR §63.43(e)(2)**

Table 1-3 is included to satisfy the case-by-case MACT application requirements specified in 40 CFR §63.43(e)(2).

**Table 1-3. Required Case-by-Case MACT Information**

Item	Required Information in Response
(i) The name and address (physical location) of the major source to be constructed or reconstructed;	Mid-Michigan Energy, LLC South Saginaw Road and Waldo Avenue Midland, Michigan 48640
(ii) A brief description of the major source to be constructed or reconstructed and identification of any listed source category or categories in which it is included;	There are four proposed sources, three natural gas fired boilers for the purpose of generating steam in the event that the PC boiler is down and a natural gas fired auxiliary boiler. All four boilers were previously subject to Subpart DDDDD.
(iii) The expected commencement date for the construction or reconstruction of the major source;	Expected to commence construction in 2009
(iv) The expected completion date for construction or reconstruction of the major source;	Expected to complete construction in 2013
(v) the anticipated date of start-up for the constructed or reconstructed major source;	Initial startup expected in 2012
(vi) The HAP emitted by the constructed or reconstructed major source, and the estimated emission rate for each such HAP, to the extent this information is needed by the permitting authority to determine MACT;	Refer to Section 1.3.1 and 1.3.6 of this case-by-case MACT analysis. Also see Appendix C of the MMES PTI Application (“Air Emissions Calculations”)
(vii) Any federally enforceable emission limitations applicable to the constructed or reconstructed major source;	Federally enforceable emission limitations are proposed in the MMES PTI Application and this case-by-case MACT analysis and will be included in the PTI issued by MDEQ.
(viii) The maximum and expected utilization of capacity of the constructed or reconstructed major source, and the associated uncontrolled emission rates for that source, to the extent this information is needed by the permitting authority to determine MACT;	8,760 hours per year. For uncontrolled emission rates, where known, refer to Appendix C of the MMES PTI Application (“Air Emissions Calculations”).
(ix) The controlled emissions for the constructed or reconstructed major source in tons/yr at expected and maximum utilization of capacity, to the extent this information is needed by the permitting authority to determine MACT;	Refer to Appendix C of the MMES PTI Application (“Air Emissions Calculations”)

<b>Item</b>	<b>Required Information in Response</b>
(x) A recommended emission limitation for the constructed or reconstructed major source consistent with the principles set forth in paragraph (d) of this section;	Refer to Section 1.3.6 of this case-by-case MACT analysis
(xi) The selected control technology to meet the recommended MACT emission limitation, including technical information on the design, operation, size, estimated control efficiency of the control technology (and the manufacturer's name, address, telephone number, and relevant specifications and drawings, if requested by the permitting authority);	Refer to Sections 1.3.5 and 1.3.6 of this case-by-case MACT analysis
(xii) Supporting documentation including identification of alternative control technologies considered by the applicant to meet the emission limitation, and analysis of cost and non-air quality health environmental impacts or energy requirements for the selected control technology; and	Refer to Sections 1.3.4 and 1.3.5 of this case-by-case MACT analysis
(xiii) Any other relevant information required pursuant to subpart A.	Refer to the previous text