ADDITIONAL TECHNICAL INFORMATION FOR WASTE OIL-FIRING EQUIPMENT

The following information will be used for the technical review of a permit to install application for **waste oil-firing equipment.** This information is in addition to the general requirements outlined in the AQD document "Information for an Administratively Complete Permit to Install Application", Part 2 - Additional Supporting Information, Items A through F. All of the information may not be needed for each application. Also, this document may not be all inclusive. Additional information beyond that identified may be necessary to complete the technical review of any individual application. In the event a determination is made that new additional information is needed for a technical review, this document will be updated.

All referenced guidance documents are available at http://www.deq.state.mi.us/aps or you may contact the Permit Section at 517-373-7023.

A. Process Description

1. Describe each waste oil-fired unit. Include the number of units to be installed, the make and model number and a copy of any available literature. For each unit, include the following:
   a) Whether the fuel is atomized or vaporized before burning, and how residues will be disposed.
   b) The maximum heat input rate, in Btu per hour, and the fuel firing rate, in gallons per hour.
   c) The thermal efficiency, the fuel combustion efficiency, the minimum combustion temperature, and the retention time in the combustion zone.
   d) A description of any fuel filtering prior to burning.
   e) A description of the combustion controls, such as flame out sensor and air and fuel control.
   f) The refractory thickness and internal furnace volume.
   g) If the unit is considered a boiler or industrial furnace (BIF) under Act 451 of 1994, Natural Resources and Environmental Protection Act, Part 111 Hazardous Waste Management, provide a copy of any determination to that effect from the Department.
2. Describe the type and source of oil which will be burned. Include whether waste oils or any other liquid wastes that are not generated on site will be received and burned. Include the maximum and average amounts of each waste that are generated and/or collected, in a day, month and year, and the on site storage capacity (including any planned expansion) for each waste.
3. Provide an analysis of each oil or other waste which will be burned, including flash point, specific gravity or API gravity, higher heating value (Btu per pound), and concentrations of the following substances in the oil:
   a) Arsenic
   b) Cadmium
   c) Chromium
   d) Lead
   e) Polychlorinated biphenyls (PCBs)
   f) Total halogens (maximum concentration not to exceed 4,000 ppm unless the unit is a BIF)
   g) Ash
   h) Moisture
   i) Sulfur
4. Describe the procedures to be used to ensure that no other materials are added to the fuel.
   NOTE: Adding other materials to the fuel may result in the fuel being classified as a hazardous waste.

B. Regulatory Discussion

The following state air pollution control regulations may be applicable. Please review these regulations carefully to determine if they apply to your process and summarize the results in the application. The Air Pollution Control Rules may be viewed and downloaded from the AQD website at www.michigan.gov/deqair.

1. State of Michigan, Department of Environmental Quality, Act 451 of 1994, Natural Resources and Environmental Protection Act, Part 55 Air Pollution Control and the following promulgated rules:

   a) Rules 215 and 216 apply to an existing facility which has a current Renewable Operating Permit (ROP). A Permit to Install issued for the installation of new equipment or modifications to existing equipment is incorporated into an ROP pursuant to Rules 215 and 216.

   b) Rule 220 applies to a major source and/or a major modification at a source which is located in a non-attainment area. A non-attainment area is one where the National Ambient Air Quality Standards (NAAQS) are not being met. Rule 220 requires compliance with the lowest achievable emission rate (LAER) and an emission reduction (offset) for each non-attainment air contaminant emitted in significant quantities as defined by Rule 119(e). However, a source may choose to "net out" of the requirements of Rule 220. Refer to "Guidelines for a Netting Demonstration" for additional detailed information.

   c) If the process or equipment was installed or modified after April 17, 1992, Rules 224 – 230 apply. Rule 224 requires the application of Best Available Control Technology for toxics (T-BACT) for all non VOC toxic air contaminants (TACs). T-BACT does not apply to emissions of VOCs. Rule 225 limits the emission impacts of TACs and requires a demonstration that the proposed emission of each TAC complies with a health-based screening level. Compliance can be demonstrated using any of three methods described in Rule 227(1) including the use of computerized dispersion modeling. Refer to "Guidelines for Conducting a Rule 224 T-BACT Analysis," "TACs-Demonstrating Compliance with Rule 225," and "Dispersion Modeling Guidance" for additional detailed information.

   d) Rule 301 specifies a process or process equipment shall not discharge visible emissions of a density greater than the most stringent of a 6-minute average of 20% opacity, or a limit specified by an applicable federal NSPS or as a condition of a Permit to Install.

   e) Rule 331 specifies a maximum allowable particulate emission rate for fuel burning equipment if no federal limit applies.

   f) If the process or equipment was installed or modified after August 1, 1979, Rule 702 applies. This rule requires Best Available Control Technology (BACT) for new sources of volatile organic compounds (VOCs). Refer to "Instructions for Conducting a BACT Analysis" for additional detailed information.

   g) Rule 901 prohibits emissions of an air contaminant in quantities that cause either a) injurious effects to human health or safety, animal life, plant life of significant economic value, or property; or b) unreasonable interference with the comfortable enjoyment of life and property. Submit the following to address this rule:

      A description of the continuous fugitive dust control program used to control dust from the plant, roads, and yard during construction and operation of the facility.

   h) Rule 911 allows the Department to request a person to submit preventative maintenance and malfunction abatement program(s) for the process, emission control system(s), and monitoring system(s).

   i) Rule 912 requires the process to operate in a manner consistent with good air pollution control practices for minimizing emissions during start-up and shutdown.

2. State of Michigan, Department of Environmental Quality, Act 451 of 1994, Natural Resources and Environmental Protection Act, Part 111 Hazardous Waste Management.

   Used oil management may be subject to requirements of other agencies including, but not limited to the Federal Standards for the Management of Used Oil, 40 CFR Part 279, the U.S. Department of Transportation, the Michigan Department of Consumer and Industry Services, and the local fire authorities. Information concerning applicable regulations may be obtained from the MDEQ Environmental Science and Services Division, Clean Air Assistance Program at (800) 662-9278.

3. Federal Prevention of Significant Deterioration (PSD), 40 CFR Part 52.21. The federal PSD regulations apply to a major source and/or a major modification at a source which is located in an attainment area. An attainment area is one where all the NAAQS are being met. However, as with the non-attainment

permitting, a source subject to the PSD regulations may choose to "net out" of the requirements. Refer to "Federal PSD Requirements," "Instructions for Conducting a BACT Analysis," and "Guidelines for a Netting Demonstration" for additional detailed information.

- The Clean Unit test is an alternate method for determining PSD applicability. It encourages industries to invest in control equipment by providing greater operational flexibility after the control equipment is installed. Refer to "Federal PSD Requirements" and the "PSD Workbook" which is available on the Internet at http://www.deq.state.mi.us/aps/downloads/permits/PSD%20Workbook.pdf.

4. The PSD increments (40 CFR 52.21 (c)) and the NAAQS (40 CFR 52.21(d)) apply to all sources throughout the United States, regardless of size. Compliance with these air quality standards can be demonstrated using computerized dispersion modeling. An applicant for a PSD permit is required to submit PSD increment modeling for PM-10, SO_2 and NOx, and NAAQS modeling for PM-10, SO_2, NOx, CO, Ozone, and Lead as part of the application. Modeling for sources not subject to PSD may be done by the AQD. Refer to "Dispersion Modeling Guidance" for additional detailed information.

5. Federal Standards of Performance for New Stationary Sources (NSPS), 40 CFR Part 60 may contain requirements related to specific combustion processes such as waste combustors and fossil fuel-fired steam generators. These federal regulations should be consulted carefully to determine applicability to your process.

6. National Emission Standards for Hazardous Air Pollutants (NESHAP), 40 CFR Part 63, Subpart DDDDD, Industrial, Institutional and Commercial Boilers, and Process Heaters.

7. If a specific MACT does not apply: Section 112(g) regulations of the federal Clean Air Act require any constructed or reconstructed major source of Hazardous Air Pollutants (HAPs) be equipped with Maximum Achievable Control Technology (MACT) for individual and total HAPs greater than 10 and 25 tons per year, respectively. Refer to "Guidelines for Conducting a 112(g) Analysis" for additional detailed information.

C. Control Technology Analysis

1. Describe the scrubber, fabric filter collector or electrostatic precipitator collector for particulate control. Provide all of the information requested on the information sheets for scrubbers, fabric filter collectors and electrostatic precipitators (available separately).
2. Describe any other emission control equipment for the process, including both the expected efficiency and the guaranteed efficiency (in percent) for each pollutant controlled.
3. Describe the plan for periodic characterization of the used oil to ensure compliance with the specifications identified in Section A, Item 3 of this document.
4. Rule 702 BACT applies to all sources of VOCs proposed to be installed within the State of Michigan. A Rule 702 BACT analysis is very similar to a PSD top-down BACT analysis. Michigan's air pollution control rules also define BACT as an emission limit. Rule 702 BACT should be applied on a flexible grouping of equipment – subdivisions of emission units and/or groupings of emission units – as long as it is logical to do so. Logical means that the principles on which the groupings (or subdivisions) are made are consistent with federal guidance and sound engineering practices. Refer to "Instructions for Conducting a BACT Analysis" for additional detailed information.
5. Best Available Control Technology for Toxics (T-BACT) means the maximum degree of emission reduction which the Department determines is reasonably achievable for each process that emits toxic air contaminants (TACs) taking into account energy, environmental and economic impacts, and other costs. T-BACT does not apply to VOCs. The analysis must be specific to the process and the TACs subject to a T-BACT review. T-BACT limits can be expressed as an emission limit, control equipment requirements, and/or work practice standards. Refer to "Guidelines for Conducting a Rule 224 T-BACT Analysis" for additional detailed information.
6. Lowest achievable emission rate (LAER) applies to a major source and/or a major modification at a source located in a non-attainment area. Currently the only two pollutants which may be subject to LAER in Michigan are VOCs and NOx. LAER is defined as the lowest emission limitation contained in any State Implementation Plan (SIP) or the lowest emission limitation achieved in practice. Such an emission limit is presumed to be LAER for that source class and category. If an applicant proposes to meet this presumptive

LAER, no site-specific control technology determination will be necessary. When an applicant believes the presumptive LAER limit is not achievable, a site-specific determination is required. This determination should include consideration of raw material changes, process changes, and add-on control equipment. The cost of these changes is not considered. Raw material and process changes should be evaluated through technology transfer (i.e., the likelihood that such a change will transfer from one industry to another), based on the manufacture of similar products or use of similar raw materials or fuels. Add-on controls should be evaluated based on the physical and chemical characteristics of the pollutant-bearing exhaust stream.

D. Emissions Summary and Calculations

Estimate the maximum uncontrolled and controlled emission rates of each of the following pollutants, in pounds per hour and tons per year. Provide all assumptions, calculations, stack tests, and other documentation used to derive these estimates.

a) Particulate matter as total suspended particulate
b) Particulate matter as PM10 (particulate diameter less than 10 microns)
c) Sulfur dioxide
d) Nitrogen oxides, expressed as NO_2
e) Carbon monoxide
f) VOCs
g) Lead
h) TACs for all fuels except natural gas and propane - Please contact the Thermal Process Unit, Permit Section, AQD for further information with respect to toxic air contaminants prior to application submittal.

E. Stack Parameters

Provide all assumptions, calculations, and other documentation used to derive the following:

1. The exhaust gas flow rate corrected to 50 percent excess air.
2. The typical percentage of excess air at which the process will operate, the percentage of air applied as overfire air and the percentage of air applied as underfire air.
3. The percentages of carbon dioxide, moisture, excess air, and oxygen in the exhaust gases when operating at maximum design conditions and under normal operating conditions.