Environmental Technology & Engineering Corp

May 8, 2014

Attn: Compliance Tracker, AE-17J
Air Enforcement & Compliance Assurance Branch
US Environmental Protection Agency - Region 5
77 W. Jackson Boulevard
Chicago, Illinois 60604

cc: Mr. Michael Griffin, Wisconsin DNR - Southeast Region
Mr. Ryan Bergh, Wisconsin DNR - Southeast Region
Mr. Scott Swowinski, Mid-America Steel Drum Company
Ms. Amy Litscher, Saga Environmental & Engineering

STACK TEST NOTIFICATION & PLAN

Source: **Mid-America Steel Drum Company, Inc. (FID 241021220)**
8570 South Chicago Road
Oak Creek, Wisconsin 53154

Source Contact: Mr. Scott Swowinski, Vice President of Operations
(414-762-1114)

Envir. Consultant: Ms. Amy Litscher, President (920-945-0601)
Saga Environmental & Engineering, Inc.
110 E. Lake Street #1
Lake Mills, WI 53551

Test Team Contact: Michael Huenink, ETE Corp (262-784-2434)

Proposed Test Date: **Friday, June 6, 2014;**
approx. test start time of 9:30 AM

Test Purposes/Emissions Limitations: The purpose of the testing will be to respond to an EPA Region 5 letter to Mid-America Steel Drum Company (dated March 5, 2014) requesting emission information. Specifically, the testing will be performed to meet the requirements of Appendix B, Item 8 - determination of total particulate emissions from the Drum Reclamation Furnace and VOC destruction efficiency for the afterburner for that operation.

These operations are regulated under Wisconsin DNR Air Pollution Control Permit No. 241021220-P20 (P30, C30, S10). The process is subject to the following emission limits contained in that permit:

Particulate Matter - 3.3 lb/hr (including condensable particulates)

VOCs - 85 percent control (or greater)

Process Descriptions/Test Conditions: The Mid-America Steel Drum Company (MASD) is involved in the reclamation and refurbishing of industrial steel drums. The operations targeted in this inquiry are the Drum Reclamation Furnace (Balboa Pacific), installed in 1995. The unit consists of a mechanical conveyor belt, combustion chamber and afterburner. The combustion chamber and afterburner are both natural gas-fired. The combustion chamber is equipped with 12 burners, while the afterburner is equipped with 4 burners. The combined fuel burning capacity of the combustion chamber is 19.5 mmBtu/hr, while the combined fuel burning capacity of the afterburner is 6.5 mmBtu/hr. In addition to an afterburner, the entrance to the combustion chamber is equipped with a steam curtain. The exhaust ventilation system to the furnace is constructed so part of the exhaust stream, after the afterburner, can be diverted to a nearby boiler (Waste Heat Boiler).

Drums are fed through the reclamation furnace at an average rate of 200 drums per hour. During the test efforts, every effort will be made to maintain a drum processing rate at, or above, that level. Since the amount of residual material in the drums varies, operators continually select the drums to be processed in order to achieve a relatively constant level of waste material through the process. The furnace is typically operated at an internal temperature of 1300-1400 °F. The afterburner is operated at a combustion zone setpoint of 1700 °F (permit requirements have the minimum setpoint limit of 1650 °F).

The following production parameters will be recorded by MASD personnel (or their representative) during the testing:

- Number of drums processed during each test
- Afterburner temperature every 15 minutes, during each test

Test Parameters and Methods

The test methods proposed in this project have been approved and used during previous WDNR compliance tests on similar operations. Every attempt will be made to perform all of the testing during the same common test periods. A brief description/ discussion of each of the test methods proposed is included below:

Particulate Matter - Testing to determine total particulate emissions from S10 will be performed using an isokinetic sampling train as described in EPA Methods 5 and 202. Exhaust gas will be drawn from 24 sampling points in the final stack. Three separate 60 minute tests will be performed. It is proposed that a stainless steel probe tip and heated probe be utilized to perform the testing. The sample trains will be analyzed for both filterable (EPA Method 5) and condensable (EPA Method 202) particulate fractions.

The S10 stack configuration and proposed sample point locations for the test location are shown on an attached sketch.

VOC Levels - The VOC levels before and after the afterburner will be sampled simultaneously using EPA Method 25A. This EPA method utilizes on-site analyzers which are equipped with flame ionization detectors (FIDs) to monitor the VOC levels on a real-time

basis. The VOC data is electronically integrated and reported each minute. The instruments will be calibrated using EPA Protocol gas standards (propane in nitrogen). Methane and ethane levels will be determined (from integrated bag samples) and subtracted from the VOC levels since they are exempt from the definition of photo-reactive VOCs.

It should be noted that the sampling locations immediately before and after the afterburner do not meet the EPA Method 2 criteria for proper location of air flow measurement (see attached sketch). Further, additional outside air is drawn into the final exhaust stack, following the afterburner, which would prevent that test location from being utilized for VOC destruction efficiency determination. For that reason, it is proposed that the concentration of VOCs at each afterburner test location be used to determine the VOC destruction efficiency of the afterburner.

Static pressure measurements at the inlet and outlet of the drum reclamation furnace will verify that the operation remains negative to the outside air from a ventilation standpoint. Provided that the furnace remains negative, the capture efficiency of the furnace will be assumed to be 100 percent and the control efficiency of the afterburner will then be interpreted to be the same as the VOC destruction efficiency.

Exhaust Gas Flow Rates - Flow rates will be measured at the final S10 sampling location, during each hour of testing, using EPA Methods 1 through 4. Such measurements are normally made as an integral part of particulate testing. Velocity measurements are made at the required number of points using an S-type pitot tube along with inclined manometers and calibrated magnehelic gauges.

Integrated Tedlar bag samples will be taken during each test and the contents will be analyzed for combustion gas constituents (percent oxygen and carbon dioxide) using an Orsat analyzer. Percent moisture of the gas stream will be determined from condensed water collected in the sample trains. Temperatures will be taken throughout the tests using calibrated thermometers and/or K-type thermocouples. All of these measurements will be used to calculate both actual and standard exhaust gas flow rates for each test. Such flow rates will be used to calculate emissions on a “pounds per hour” basis.

Please contact me if you have any questions regarding the test strategy or methods.

Respectfully,

Michael J. Huenink
Test Team Leader