

M4782
MANILADEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: Scheduled Inspection

M478250029

FACILITY: US ECOLOGY MICHIGAN		SRN / ID: M4782
LOCATION: 49350 N. I 94 SERVICE DR, BELLEVILLE		DISTRICT: Detroit
CITY: BELLEVILLE		COUNTY: WAYNE
CONTACT: Sylwia Scott, Environmental Manager		ACTIVITY DATE: 08/21/2019
STAFF: C. Nazaret Sandoval	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: FY 2019 Scheduled Inspection		
RESOLVED COMPLAINTS:		

SRN: M4782
SOURCE NAME: US Ecology
FACILITY ADDRESS: 49350 North I 94 Service Drive, Belleville, Michigan
INSPECTOR: Nazaret Sandoval, AQD – Detroit District Office
MAIN CONTACT: Sylwia Scott, Environmental Manager (734 699 6294)

The purpose of the inspection was to evaluate the facility's compliance with respect to the requirements of the federal Clean Air Act; Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451), and the conditions of Renewable Operating Permit (ROP) number MI-ROP-M4782-2010a.

The current ROP includes three separate sections, as follows: Section 1 regulates the Michigan Disposal Waste Treatment Plant (MDWTP); Section 2 regulates Wayne Energy Recovery (WER); and Section 3 regulates Wayne Disposal Inc. (WDI). Over the last two years, major changes occurring at the facility have prompted the cessation of some of the process operations/emission units that are listed on Sections 2 and 3 of the ROP. The changes are described in this report as updates under paragraph 4.2 for ROP Sections 2, and paragraph 5.2 for ROP Section 3. The changes will be incorporated into the ROP during the renewal process.

This facility is a Title V source of NO_x, HAPs and CO, and a Synthetic Minor for VOCs. In addition to the requirements of Title V of the Clean Air Act, there are other standards applicable to the operations identified in each section of the ROP.

This report summarizes the evaluation of compliance with the terms and conditions of MI-ROP-M4782-2010a based on the on-site observations, the review of facility records and the analysis of semiannual reports submitted by the facility throughout the year 2018.

1. FACILITY DESCRIPTION

The facility stretches out along the North Interstate 94 Service Drive west of Beck Road and east of Willow Run Creek. Airport Service Drive runs north, along the perimeter, and divides the facility area from the Willow Run Airport. An industrial area lies to the west which includes a wastewater treatment facility and an asphalt plant. A baseball field and a residential neighborhood lies to the east. There is a rest area directly south of the facility and adjacent to I-94 freeway. There are numerous apartment complexes south and across I-94 freeway. This residential area, which is south of South Interstate 94 Service Drive, is surrounded by Belleville Lake.

Here is a synopsis of the unit operations regulated under MI-ROP-M4782-2010a (as of 8/21/2019).

Michigan Disposal Waste Treatment Plant (MDWTP) – ROP SECTION 1

MDWTP is co-located at the same site as Wayne Disposal Site #2 Hazardous Waste Landfill. MDWTP is a hazardous and non-hazardous waste processing facility with operations that include receiving, storage and treatment. Hazardous waste generated off-site is treated to meet land disposal restrictions and buried in a hazardous waste landfill or sent to a Type II landfill, if permissible. The facility operates five days per week, 24 hours per day. The facility processes bulk liquid waste, bulk solid waste, and containerized waste. The waste is processed in two-separate buildings identified as East Bay and West Bay. The buildings are equipped to handle different waste materials, consisting of waste and reagent storage areas, liquid waste tanks and air pollution

control devices.

Wayne Energy Recovery (WER) - ROP SECTION 2

The powerhouse includes four landfill gas-fired spark ignition reciprocating internal combustion engines (RICE) identified as Engines 2,3,4, and 5, used to generate electricity for the power grid. Typically, two or three of the engines operated 24 hours per day seven days per week whenever possible. One of the four engines (Engine 3) had been restricted to be utilized as an emergency "only" engine.

Please note that there have been changes at WER. Refer to ROP Section 2 for updates

Wayne Disposal Inc. (WDI) - ROP SECTION 3

WDI, defined as a hazardous and non-hazardous waste processing facility that includes a series of closed municipal solid waste landfills that once received municipal solid waste and hazardous waste (prior to RCRA), and an active hazardous waste landfill. There is no active disposal at any of the municipal solid waste landfill cells and a passive landfill gas collection system operates at the closed sites.

Please note that there have been changes at WDI. Refer to ROP Section 3 for updates.

2. INSPECTION NARRATIVE

The inspection conducted on 8/21/2019 included the evaluation and general discussion of the permit conditions, operational parameters, preventive maintenance documentation, and the evaluation of the monitoring/recordkeeping requirements cited on the ROP.

The contact information for the facility personnel at US Ecology, Belleville was updated. Stephanie Crocker is the Compliance Coordinator; Jason Campbell is the MDWTP Supervisor, Corey Grider is the Operation Manager for MDWTP and WDI; Cedric Gibson is a Project Manager; and Sylwia Scott is the Environment Manager at the facility.

Facility records were requested on the day of the inspection. Additional records were requested via email on the days following the inspection. Some of the records were handed out and discussed during the meetings, other records were pulled out from the semi-annual reports received by AQD and samples of the most recent operational checklist and preventive maintenance records were collected on the day of the inspection.

The tour started at the MDWTP, East & West Treatment buildings, and ended with the inspection of the power engine house at WER. The landfills (WDI) were not inspected but records pertaining to the handling and tracking of the asbestos-containing material were requested and received via email on 8/28/2019.

Ms. Scott led the inspection and Ms. Crocker facilitated the compilation of the records as she continues assisting Ms. Scott with the tasks associated with ROP compliance.

Mr. Campbell joined us during the walk-through at the East & West Treatment buildings and answered the questions related to the MDWTP. Ms. Scott accompanied us to the WER building. At the conclusion of the site visit we convened to the meeting room to complete the permit and recordkeeping discussions. I left the facility at about 5:00 PM.

The field observations and compliance evaluation have been included separately for each section of the ROP.

3. ROP SECTION 1 - MICHIGAN DISPOSAL WASTE TREATMENT PLANT (MDWTP)

3.1 – Emission Units Description and Field Observations

The following is a brief description of the process operations and the emission units currently listed on ROP Section 1 (MDWTP).

FG EAST - The east side waste treatment processes consist of the following equipment/emission units and control equipment:

A 40,000-gallon sludge tank identified in the ROP as EUSLUDGETANK12 located between the west and east treatment bays.

There are four waste-storage and treatment tanks E, F, G, and H grouped under emission unit EUSTORAGETANK1. The tanks were installed during the period from 7/1/91 to 6/1/97.

The pug mill (EUPUGMILL1), originally installed at FG EAST to blend reagents with the waste and transport the

mixture into the main treatment tanks, was removed on August 2013. Currently, all mixing occurs in the treatment tanks using excavator buckets.

Pollution control at FG EAST includes the following equipment sequence: 1) a baghouse dust collector; 2) a regenerative thermal oxidizer (RTO); 3) a sodium hydroxide packed bed wet scrubber.

The operations occurring at FG EAST can be described as follows:

Waste is received via trucks and it is transferred to the treatment tanks by one of three methods:

- Bulk liquid non-hazardous waste can be off-loaded into EUSLUDGETANK12. The waste contained in the tank is then transferred to one of the treatment tanks.
- Bulk solid waste is brought by truck into the chemical fixation/stabilization process building and it is dumped into one of the treatment tanks.
- Containerized waste (drums) is off-loaded to the waste storage/staging area. After waste is sampled and tested for acceptance/compatibility, the waste is transferred to one of the treatment tanks.

Once the waste has been transferred to one of the treatment tanks, it is stabilized by adding varying amounts of oxidant such as sodium hypochlorite and dolomitic kiln dust for chemical reduction of metals.

The chemical reactions perform several functions: a) pH adjustment for acidic/basic materials, b) exothermic heat to vaporize the more volatile VOC (which then are controlled by the thermal oxidizer in the east side treatment bay), c) locking the remaining hazardous constituents into the waste mass to ensure they don't leach out in the landfill, and d) the physical solidification of the material so that it meets land disposal criteria. After the reactions, the material is sampled. If the confirmatory sampling demonstrates that the material is properly treated, and the waste meets land disposal restriction criteria, the excavator removes the material from the tanks into a truck, which takes the material to a transfer station. Finally, the waste is deposited by dedicated equipment to the active cell of the landfill.

During the plant tour I observed that the rotary valves under the FG EAST baghouse were operational. The baghouse fines disposal system utilizes wheeled bins instead of bags. No housekeeping issues were observed under the baghouse. No visible emissions were observed from the exhaust stack.

FG WEST - The operations occurring at FG WEST are similar to the ones described for FG EAST, but waste subject to 40 CFR Part 63 Subpart DD is not treated in this building. In other words, only wastes with a minimal VOC content (<500 ppm on a monthly average basis, maximum of 0.5% by weight daily average) are permitted to be treated at this side of the plant. The west treatment bay contains a 40,000-gallon sludge tank (EUSLUDGETANK11) located between the west and east treatment bays. There are four waste-storage and treatment tanks designated as A, B, C, and D grouped under the emission unit EUSTORAGETANK2. The pug mill (EUPUGMILL2) that used to be part of the west treatment building was removed from the plant during the first quarter of 2015. The equipment at FG WEST is controlled by a baghouse dust collector. During the inspection, the bay doors of the west treatment building were open. I was told that the operator was cleaning removable residue off the equipment (i.e. mix-excavators) prior to removing the equipment from the building for maintenance/repair.

FLIQWASTETKS - Four 20,000-gallon tanks (Tanks 16, 17, 18 and 19) are used as needed to hold various reagents or liquid wastes. The tanks are housed in the open area located to the east of FG EAST toward the north corner. The liquid wastes have generally consisted of landfill leachate or trench water.

FGSILOS - Each building (east and west) has three identical silos. Silos 1 through 3 serve the west side building, and silos 4 through 6 serve the east side. Trucks offloading hook up to the silos and have a blower on the truck that is used to blow the kiln dust into the silos. The silos store kiln dust for use in stabilizing the wastes. At the time of inspection, the silos were not being filled. Therefore, visible emission observations could not be made. However, it looks like this is an air-tight enclosed system and we minimal dust emissions are expected while loading the silos.

FGTMTFACILITY - For the purpose of the ROP, all the emission units that are part of the waste treatment facility (MDWTP) are grouped under a flexible group identified as FGTMTFACILITY. This flexible group includes all equipment in the east and west process buildings, the reagent silos, the liquid waste storage tanks and the North, East, and Southeast container storage area.

According to the ROP, except for the waste-storage treatment tanks A to H (installed between 7/1/91 and 6/1/97) the rest of the equipment at MDWTP was installed in July 1991.

East side treatment process: Baghouse dust collector, FRC, and wet scrubber in series.

- West side treatment process: Baghouse dust collector.
- Reagent silos: Each treatment reagent silo has its own baghouse.
- Liquid waste storage tanks: The tanks are controlled by two shared carbon adsorption canisters in series.

Other equipment and dismantled units:

FGTUDU – In late 2009, EQ began the installation of a thermal desorption unit (TDU) process for recovering oils from refinery wastes, which were primarily solid in form. The byproducts of the oil recovery were VOCs, wastewater and solids. The facility began trial operation in 2010, and it was extensively modified soon after. EQ decided to cease the TDU operations in October 2011. The equipment was dismantled on July 2012. The area is currently use for storage.

FGCOLDCLEANERS - Only one cold cleaner unit remains on site in the vehicle maintenance building. The cold cleaner is supplied by VESCO and employs mineral spirits. We did not go to the location of the cold cleaner during the site inspection.

FGRULE290 (EUDRUMSTORAGE) – MDWTP has three container storage locations and can temporarily store containers in the east and west treatment building while operating.

Containerized waste may be staged / stored on-site before and after treatment in one of the following areas: North Container Storage Area (NCSA); East Container Staging Area (ECSA); East and West Loading/Unloading Bays and the Southeast Container Storage Area (SECSA). In the ROP, the North, East and Southeast Container Storage Area are all grouped under emission unit EUDRUMSTORAGE.

The waste drums and dry reagents inside the treatment bays are stored temporarily there, in preparation for treatment. The area is equipped with a ventilation system which is ducted to the west side baghouse.

3.2 – Regulatory Framework

The operations at the East and West Bay are subject to the following National Emissions Standards for Hazardous Air Pollutants (NESHAP) regulations: 40 CFR Part 63 Subpart DD - Offsite Waste and Recovery Operations; 40 CFR Part 61 Subpart FF- Benzene Waste Operations; 40 CFR Part 61 Subpart M – Asbestos; and 40 CFR Part 63 Subpart DDDDD - Industrial, Commercial and Institutional Boilers and Process Heaters (Boiler MACT). Except for the Boiler MACT, all the other applicable requirements for the listed NESHAPs are incorporated into the current ROP. The equipment subject to the Boiler MACT will be added to the ROP during the renewal process. The treatment bays (FG EAST and FG WEST) are subject to Compliance Assurance Monitoring (CAM): FG EAST, for particulate matter and VOC, and FG WEST for particulate matter only.

3.3 – ROP Section 1 – Compliance Evaluation

The following is an evaluation of the facility's compliance with the special conditions (SC) cited on MI-ROP-M4782-2010a for the emission units (EU) and flexible groups (FG) listed under Section 1. For compliance evaluation I have examined the records for year 2018 and the pollutant emission rates from the more recent stack tests conducted at the facility at the time of the inspection. Other records evaluated include samples of: operational daily records, preventive maintenance checklists and copies of recent instrument calibrations. For simplicity, some of the special conditions listed in ROP – Part D, items I to IX, have been re-stated. The compliance status has been identified at the beginning of each subpart (I to IX). However, when further evaluation is needed to determine compliance with a specific condition, it has been identified under the individual condition.

In addition, compliance with PTI 107-14 issued on 7/31/2014 will also be evaluated. PTI 107-14, which has not yet been incorporated into the current ROP, authorizes the modification/clarification of the language cited on the ROP permit condition SC VI.10 for FG WEST.

FG EAST

I. EMISSION LIMIT(S) – In Compliance

The following compares the ROP emission limits specified for FG EAST with the actual records from the facility operations in the evaluated period. The most recent stack test results are also presented in the table.

Pollutant	Limit (in lb/hr or as noted)	Time Period/Method/ Operating Scenario	Records (in lb/hr or as noted)	Compliance
1. VOC	22.85	Stack testing every five years.	0.30	Yes

		Refer to V.1 The most recent test was conducted on 7/12/2017	RTO Avg. Eff. 98.3%	
2. VOC	47.52 tpy	12-month rolling time period*	1.82 tpy	Yes
		Refer to VI.9	max. end of May 2018	
3. Methylene chloride	14.92	Stack testing every five years per V.1 The most recent test was conducted on 7/12/2017	0.02	Yes
4. Benzene	0.71		0.01	Yes
5. 1,1,2,2-Tetrachloroethane	0.16		0.02	Yes
6. Carbon tetrachloride	0.28		0.03	Yes
7. Chloroform	3.02		0.02	Yes
8. Trichloroethene	4.52		0.02	Yes
9. Tetrachloroethene	12.7		0.02	Yes
10. Hydrogen chloride	28.4	Stack testing every five years per V.1 (last test 7/12/2017)	0.55	Yes
11. PM (Instantaneous emissions)	0.028 lb per 1,000 lbs of exhaust air	Monthly records Per Appendix 7-S1 B	see comment under section VI.9	Yes
12. PM-10 (Cumulative emissions)	1.9	Monthly records Per Appendix 7-S1 B	see comment under section VI. 9	Yes
13. PM-10 (Cumulative emissions)	4.0 tpy	12-month rolling time period*, per Appendix 7-S1 B	0.8310 tpy see comment under section VI.9	Yes

(*) shall be based upon a 12-month rolling time period as determined at the end of each calendar month. – Please see attached tables with summary records for year 2018.

II. MATERIAL LIMIT(S) – In Compliance

Material	Limit	Time Period/ Operating Scenario	Monitoring /Testing Method	Compliance
1. VOC in waste	Maximum of 2% by weight for hazardous waste	Daily average for waste accepted for treatment	Records are maintained following NESHAP Subpart DD procedures	According to the records, the facility is in compliance with the cited limits. (For details refer to VI.7 below)
2. VOC in waste	Maximum of 20% by weight for nonhazardous waste			

III. PROCESS/OPERATIONAL RESTRICTION(S) – In Compliance

During the site tour we stopped at the control room located by the east building and I took note of the process / operational conditions showed at the computer screen on the process flow diagram which illustrated the prevailing conditions at the time of the visit. The recorded values, cited on the following paragraphs for SCs III.1, 4, 5, 8 and 9, correspond to reading taken at about 2:36 PM (time showed on the computer screen). All the values are 5-min averages. The operational parameters cited under SCs III.1, 4, 5, 8 and 9 are continuously monitored and recorded during treatment operations occurring at the east treatment building.

Random examination of the records for year 2018 was conducted during the site visit. A sample of a daily record showing the operational parameters monitored on 6/14/2019 was handed out by the facility personnel. The records, and the observations during the plant tour on 8/21/2019 suggest that the facility is operating in substantial compliance with the operational restrictions required by the permit conditions, as specified below:

III. 1 - During normal operation the air flow through FG EAST shall be maintained within 19,500 cfm and 26,400 cfm. Refer to ROP, SC III.1, for the definition of “normal operation”.

The air flow through FG EAST at the time of the reading was 20,500 cfm. Air flow records for year 2018 appeared to be within the permit limits with no deviations reported on the semiannual reports.

III. 2 and 3 - The permittee shall not operate FG EAST unless the baghouse, thermal oxidizer and caustic scrubber are installed and operated properly. The waste treatment building shall be maintained at negative static pressure during normal operation.

All control devices are used during normal operation. It appears as if all control devices were in operation at the time of the facility tour. Compliance with this condition was confirmed by recording the control devices operational variables (i.e. diff. pressure, temperatures, pH, etc.). See values reported below. In addition, routine preventive maintenance is performed every 3-month and the scope of the work performed varies upon the frequency.

During the walkthrough it was observed that the overhead doors appeared to be in good condition and were functioning properly. I was told that the overhead door and the roof of the building have been replaced during the building maintenance conducted on November 2018. Negative static pressures are maintained at the east waste treatment building. This condition is tested annually by determination of the air flow movement and direction. For year 2018, the verification was conducted on 11/18/2016. A copy of the report was inspected during the visit of 4/27/2017. The results demonstrated an inward airflow direction at each natural draft opening within the east treatment building.

III. 4 - The permittee shall not operate FG EAST, unless the treatment building baghouse pressure drop is maintained between 1.5 and 8 inches of water column.

The value of the baghouse pressure drop on the computer screen was 3.1 inches of water. In the past, semiannual reports showed a few records with differential pressures below 1.5 inches of water. Low pressure drops are inherent to the installation of new filter bags.

III. 5 - The permittee shall not operate FG EAST, unless the regenerative thermal oxidizer (RTO) maintains a minimum temperature of 1,500°F.

At the time of the reading, the RTO temperature was 1,637°F. The semiannual reports for year 2018 reported no deviation from the minimum temperature and no exceedance in emissions. Waste is not processed in the treatment building if the RTO temperature is below 1,500 °F. For details about RTO downtime during the 3-month, 6-month and annual preventive routine maintenance refer to the AQD review / comments of the MACT (Part 63) - Subpart DD RTO Semiannual Routine Maintenance.

III. 6 - The permittee shall maintain a VOC capture efficiency of 100 percent in the FG EAST exhaust system, as determined in accordance with SC V.2.

Refer to SC V.2 below for demonstration of compliance.

III. 7 - The permittee shall not process waste with a VOC concentration greater than 500 ppm in FG EAST unless the destruction efficiency of the RTO is a minimum of 95%.

The most recent testing of the RTO to determine the VOC destruction efficiency was on July 12, 2017. For AQD test observations details refer to CA M478240782 in AQD files. RTO inlet and exhaust streams were monitored simultaneously for three (3) one-hour test periods to determine an average destruction efficiency. A report with the testing results, dated 8/29/2017, was received by AQD Detroit office on 9/11/2017. The average VOC destruction efficiency was reported to be 98.3 %. Please note that maintaining a minimum of 95 % destruction efficiency in the RTO is only required if the VOC concentration in the waste is above 500 ppm. Those levels of VOC in the type of waste regularly treated at US Ecology are very rare. During the cited stack test, in July 2017, they had difficulties to get a high volume of waste with elevated concentrations of VOC to be able to maintain the minimum 95% efficiency.

III. 8 - The permittee shall not operate FG EAST unless the caustic scrubber maintains a minimum pH of 7.3.

At the time of the reading, the pH was 8.67. During year 2018 the facility operated at or above the minimum pH. No deviations were reported.

III. 9 - The permittee shall not operate FG EAST unless the liquid flow rate of the caustic scrubber is maintained between 225 and 350 gallons per minute.

At the time of the reading, the flow was 280 gallons per minute. During year 2018 the facility operated within the required range with no reported deviations.

III. 10 - The permittee shall not have more than one waste treatment process building overhead door open at a time.

This condition was verified during the facility tour.

Note: To prevent the recurrence of deviations from the required operational parameters cited in SCs III.1, 4, 5, 8 and 9, US Ecology installed a notification system (i.e. alarm) that alerts the plant personnel when the system is approaching a deviation from the ROP required operational conditions.

IV. DESIGN/EQUIPMENT PARAMETER(S) – In Compliance

IV. 1 to IV. 3 and IV. 5, IV. 6 - The permittee shall install, calibrate, maintain and operate in a satisfactory manner the monitoring devices to monitor: the air flow from FG EAST; the pressure-drop of the treatment building baghouse; the combustion chamber temperature of the thermal oxidizer (RTO); the pH of the caustic scrubber and the liquid flow rate of the caustic scrubber. The parameters shall be monitored in a continuous basis and record five-minute block averages of the monitored parameters.

Here is the evaluation of compliance for the above mentioned SCs:

The parameters are monitored and recorded in accordance with the permit conditions. As indicated earlier, some of the operational parameters were verified by reading the computer screen in the control room during the facility tour. The type of monitoring devices and the frequency of calibration are both cited in the following paragraphs. The most recent device calibration was completed on June 22, 2019. Copies of the Certificate of Calibrations were collected during the inspection and are attached to this report.

IV. 1 – There has been a change in the airflow meter at the east treatment building after some faulty readings experienced in March 2016. In addition to the existing Pilot Tube flow meter fitted with an ABB 2600T pressure transmitter, the facility installed a Multipoint Air Flow Meter (Ebtron) in April 2016. This device is calibrated annually.

IV. 2 - The east baghouse has an ABB series pressure transmitter calibrated annually.

IV. 3 - The RTO has type k thermocouples that are replaced annually.

IV. 4 - The RTO shall be designed to maintain a minimum retention time of 0.4 seconds. The manufacturer guaranteed a minimum retention time of 0.4 seconds. AQD requested the manufacturer retention time calculations for the permit conditions. Sylwia Scott provided the calculations via email dated 8/3/2017. The results showed values ranging from 0.75 seconds to 0.98 seconds for temperatures varying from 1500 °F to 1800 °F at the permitted airflow ranges.

IV. 5 - The scrubber pH is monitored with a Bailey pH sensor calibrated annually.

IV. 6 - The scrubber liquid flow is measured by an ABB electro-magnetic flow meter. The procedure used to confirm that the scrubber pump is pumping out at a minimum of 225 gallons per minute is as follows: They drain the scrubber tank (of known volume) and measure the time it takes to refill the tank.

IV. 7 - The permittee shall install, maintain and operate limit switches in all overhead doors, to restrict the maximum opening heights to 20 feet except as needed for vehicle or equipment ingress and egress.

East overhead doors incorporate limit switches to control opening height. They are maintained by lubrication on a quarterly basis, verifying the opening height and bottom seal. As indicated earlier, the overhead doors were replaced in 2018.

IV. 8 - Sludge feed and storage tank No. 12 (EUSLUDGETANK12) shall be vented into the FG EAST waste treatment process building.

This condition was verified during the tour of the facility.

V. TESTING/SAMPLING – In Compliance

Records shall be maintained on file for a period of 5 years

V. 1 - Verification of the destruction efficiency of the RTO and demonstration of compliance with the pollutant emission rates from FG EAST specified under SC I.1, and I.3 through I.10 shall be conducted by testing at owner's expense, in accordance with Department requirements at least once every five years, beginning in 2007.

As indicated earlier, the most recent stack test was conducted on July 12, 2017. The test consisted on monitoring, sampling and analysis to determine VOC emission rates and the destruction efficiency of the RTO. The emission rates for the following pollutants were also evaluated during the test: MeCl₂, C₆H₆, 1,1,2,2-TCA, CCl₄, CHCl₃, TCE, PCE and HCl. The results showed compliance with the limits specified in SC I.1 and SC I.3 through SC I.10. The test results were included in the summary table, as part of SC I. For AQD test observation details, refer to activity report CA M478240782 in AQD files.

V. 2 - Verification of the VOC capture efficiency of the exhaust system shall be conducted by testing in accordance with Department requirements. The VOC capture efficiency of the exhaust system shall be determined in accordance with Procedure T, and by visual observation of the air movement and direction. Alternative testing procedures shall be approved by AQD District Supervisor. The verification tests shall be conducted at least once every year and shall notify the department prior to conducting the tests.

As required, the facility notified AQD via email on 9/13/2018 that they were tentatively planning Procedure T and negative static pressure testing at FG EAST and FG WEST. The fieldwork for the East Building was conducted on 9/20/2018. EQ facility personnel verified the air flow direction within the East Building and summarized the results of the field verification activities. A copy of the report was provided and reviewed during the inspection meeting on 8/21/2019. According to the report, the airflow direction observations demonstrate an inward airflow direction at each Natural Draft Openings (NDO) within the East Building. These results, when coupled with the historical calculation of the structural factors supporting the presence of a "permanent total enclosure", indicate that the East Building continues to meet the permanent total enclosure criteria of ROP No. MI-ROP-M4782-2010a, assuring 100% capture efficiency. This procedure is conducted annually, generally during the last months of the year.

VI. MONITORING/RECORDKEEPING – In Compliance

VI. 1 to VI. 4 – The following parameters from FG EAST are monitored on a continuous basis and five-minute block averages of the monitored parameters are recorded: air flow, baghouse pressure-drop, temperature of the RTO, pH and liquid flow rate at the caustic scrubber. Records are maintained on file for a period of 5 years. Excursions from the specified permit requirements are recorded and reported on the semiannual deviation reports submitted to AQD. For details refer to previous paragraphs under SCs III and review comments of the semiannual deviation reports filed at AQD facility files.

VI. 5 and VI. 6 - Written logs are maintained as part of the facility's preventive maintenance procedures and the malfunction abatement program for the air pollution controls system equipment, which consist of: the RTO, the baghouse, the scrubber and the air handling system. The written logs include the date, time and duration of the equipment downtime; the date and description of the maintenance performed on the equipment; and the date and description of repairs performed on the equipment.

Samples of the daily, weekly, monthly, quarterly and annual logs for year 2018 were provided during the inspection. They are attached to the hard copy of this report. The facility submits similar information with comments describing the type of adjustment and/or repairs in the semiannual reports routinely submitted to AQD.

In 2018 the longest period of RTO downtime occurred in June 2018 (about 37 hours) due to the scrubber level-sensor troubleshooting, change-out and programing and during the building maintenance in the month of November (from 10/30/2018 to 11/21/2018). For details on equipment downtime refer to AQD review reports.

VI. 7 and VI. 8 - The facility maintains the following records for FG EAST: a) Monthly volumes of each waste stream treated; b) daily records of VOC content in percent by weight present in each waste stream prior to treatment, based on generator information; c) Average daily VOC content (% by weight) of waste streams. d) monthly and 12-month rolling total VOC emissions according to the method outlined in Appendix 7-S1-A of the ROP.

The cited records are maintained pursuant the National Emission Standards for Hazardous Air Pollutants (NESHAP) from Off-Site Waste and Recovery Operations as specified in 40 CFR Part 63 Subparts A and DD. As such, they are labeled "DD VOHAP WASTE REPORTS" and are submitted to AQD as part of the VOC emissions semiannual reports. The reports identify the building where the waste is treated (east or west) and flag the waste as hazardous or not hazardous.

In addition, the facility prepares monthly report summarizing the amount and the VOC content (in percent by weight) of waste treated and the total VOC input to monitor the cumulative VOC emissions for the preceding 12 months.

An analysis of the semiannual reports for year 2018 shows:

- monthly volumes of waste treated in FG EAST as low as 172,963 gallons recorded at the end of November 2018 to a maximum of 1,389,477 gallons, recorded in May;
- waste treated at FG EAST, calculated as a 12-month rolling, with values around 12 to 13 million gallons;
- daily records with percentage of VOCs in the waste treated varying from 0% to 2% for hazardous waste, and from 0% up to a maximum of 16.7 % for non-hazardous wastes;
- VOC monthly emissions varying from 0.0157 tons in November, to a maximum of 0.2643 tons in March;
- 12-month rolling VOC emissions of 1.0525 tons in August, up to a maximum of 1.8201 tons recorded in May.

To estimate the cumulative VOC emission rates from FG EAST/ RTO exhaust stack, US Ecology uses a procedure similar to the one cited in the ROP Appendix 7-S1-A, but the determination of the VOC weight fraction in the waste stream follows a more comprehensive evaluation. The procedure includes the evaluation of the Michigan Toxic Air Constituents (TAC), HAPS, as well as volatile and semi-volatile constituents listed on ASTM 8260 and ASTM 8270. For details of the calculation methodology please refer to a document titled "VOC Concentration Determination" dated August 14, 2015 submitted by Sylwia Scott (US Ecology) and filed in the AQD files. According to the document, US Ecology uses a monitoring/reporting database that collects extensive information about the properties of waste to be treated. The data is incorporated into the calculation/ methodology to estimate the VOC concentration in the waste and the estimate of VOC emissions.

A 100% VOC capture efficiency and a conservative 95 % control device efficiency is used for the calculations of the VOC emission rate. Please note that the stack test result in 7/12/2017 showed 98.3% RTO efficiency. The emission factor for VOC released from waste during treatment process and delivered to the RTO continues to be as it is indicated in appendix 7-S1-A, which establishes 60% evaporation rate by weight for calculation and compliance purposes. According to AQD records, this evaporation rate was approved when the RTO was first permitted. It seems to be based on the results documented in the "Air/Superfund National Technical Guidance, Study Series, Emission Factors for Superfund Remediation Technologies," EPA-450/1-901-001, March 1991. US Ecology incorporates in their calculations the daily average for waste accepted for treatment in FG EAST, which is limited to a maximum of 2% by weight for hazardous waste and 20% by weight for non-hazardous waste.

VI. 9 - On a monthly basis, the facility maintains the following records for FG EAST: a) PM concentration in pounds per thousand pounds of exhaust gas according to the method outlined in Appendix 7-S1 B of the ROP; b) hourly PM-10 emission rate according to the method outlined in Appendix 7-S1 B of the ROP; c) monthly and 12-month rolling total PM-10 emissions according to the method outlined in Appendix 7-S1 B of the ROP.

To show compliance with the permit limit requirements for PM and PM10 (SC. I.11 and SC.I.12) the facility uses the worse-case scenarios proposed by the calculation method outlined in Appendix 7-S1 B of the ROP. When using the equation in Appendix 7-S1-B the resulting estimated emissions are constant values every year because the plug-in values are design data and not actual monitoring data, testing results and/or operational values.

The only particulate matter emission rate estimated based on actual conditions is the PM-10 emissions in tons per year. For their annual emission inventory report on the Michigan Air Emission Report System (MAERS), the facility estimates PM-10 emissions in tons per year at FG EAST based on the tons of PM-10 per weight of waste treated, in combination with the amount of waste treated at FG EAST. The emission factor (EF) seems to be derived from a stack test conducted on September 26, 2007 at FG EAST, which resulted in an emission of 0.19 lbs./hour. For calendar year 2018, the PM-10 emissions in MAERS report were estimated to be 0.8310 tons per year; which are below the ROP emission limit of 4 tons per year.

VI. 10 – The VOC and PM and PM-10 emissions from FG EAST are calculated according to the methods outlined in Appendix 7-S1-A and B. Refer to VI. 7 and VI. 8 for VOC emissions and VI. 9 for particulate matter emissions.

VI. 11 and VI. 12 - The startup, shutdown and malfunction plan operating procedures are met. Upon detecting a deviation on the RTO combustion temperature or differential pressure, the facility ceases the treatment on FG EAST and restores operations to its normal or usual manner of operation as expeditiously as practicable in

accordance with good air pollution control practices.

The following comments were provided by the facility in 2015 in response to AQD's request in reference to procedures used to identify deviations, maintenance logs and/or during start up or shut down and they are still valid.

These comments apply to both, FG EAST and FG WEST: The east and west side monitoring is done by a data logging program. The facility compares the information to the requirements of the ROP to determine if there was a deviation. The daily checklist is completed each morning prior to beginning waste processing. This is to ensure the equipment is functioning properly. If maintenance needs to be done, notes will be placed on the maintenance forms. Then, periodically throughout the day, an operator checks the function of the pollution control devices to make sure everything is running properly.

For example, at FG_EAST, they have a light outside the control room that turns on if the RTO is down which signals all processing to stop. Once the data is reviewed and it is determined that there has been a deviation, the maintenance logs are reviewed, and the deviation is discussed with the maintenance personnel that worked on the issue. They populate the RTO maintenance log with the deviation comments to have the information available in a convenient format.

Throughout start up, shutdown and malfunction activities the parameter requirements may not meet the requirements of the ROP, however, waste is not processed until the ROP operational parameters are in place.

VII. REPORTING – In Compliance

Deviations are reported pursuant to ROP Part A, General Conditions 21 and 22.

The reporting requirements cited below have been evaluated earlier in this report but are provided here as a summary. With the exception of SC VII .4, the following conditions are applicable to both, FG EAST and FG WEST.

VII. 1 - Semiannual reports of monitoring and deviations pursuant to General Condition 23 of Part A were received by AQD Detroit district office on 9/14/2018 for reporting period January 1 to June 30, 2018; and received on 3/15/2019 for reporting period July 1 to December 31, 2018. No deviations were reported. However, during the records review conducted for this inspection, AQD noticed the reporting of an "odd" quantity recorded on December 21, 2018 as the volume of waste received by FGWEST. The facility was contacted to clarify the record. Please refer to FGTMTFACILITY for details about this issue.

VII. 2 - Annual certification of compliance pursuant to General Conditions 19 and 20 of ROP Part A. Reports were received by AQD Detroit district office on 3/15/2019 for calendar year 2018.

VII. 3 - The permittee submits, on a semi-annual basis, the monthly VOC reports in order to monitor the cumulative VOC emissions for the preceding 12 months. Reports were received on 9/14/2018 for reporting period January 1 to June 30, 2018, and on 3/15/2019 for reporting period July 1 to December 31, 2018.

VII. 4 - Results of stack tests have been submitted to the department in the format prescribed by the applicable reference test method and within the 60-days timeframe required by the ROP. The most recent stack test required under FG East was conducted on July 12, 2017. The report with test results, dated 8/29/2017, was received by AQD Detroit on 9/11/2017.

VII. 5 - Each semiannual report of monitoring deviations includes summary information on the number, duration and cause of excursions and/or exceedances and the corrective actions taken. If there were no excursions and/or exceedances in the reporting period, the report includes a statement that there were no excursions and/or exceedances. The semiannual reports of monitoring deviations indicated no deviations, excursions or exceedances for year 2018.

VII. 6 - Each semiannual report of monitoring deviations includes a summary information on monitor downtime. If there were no periods of monitor downtime in the reporting period, the report includes a statement that there were no periods of monitor downtime. During 2018 the facility reported periods of downtime. For details, refer to the AQD review comments of the 2018 semiannual reports which were summarized in the FCE report.

VIII. STACK/VENT RESTRICTION(S) – In Compliance

The design of the stack at FG EAST has not been modified since the last re-issuance of the ROP. According to the ROP, the maximum diameter for the exhaust stack shall be 54 inches in diameter and the maximum height above the ground shall be 75 feet. The system has been designed so that the exhaust gases from the stack discharge unobstructed vertically upwards to the ambient air. Visible emissions from the stack were not detected during the tour of the facilities.

IX. OTHER REQUIREMENTS – For compliance status refer to the individual items cited below

IX. 1 - The facility complies with the applicable provisions of the National Emission Standards for Benzene Waste Operations as specified in 40 CFR Part 61 Subparts A and FF.

Compliance with the provisions of the above cited regulation is analyzed later in this report under a separate section identified as "Benzene Waste NESHAP requirements".

IX. 2 – Not Evaluated - The emissions of asbestos, the filter fabric, the operation of the fabric filter baghouse dust collectors and the process and disposal of all asbestos containing waste shall comply with the specifications found in the NESHAP (National Emission Standards for Hazardous Air Pollutants) for Asbestos in 40 CFR Part 61 Subpart M.

IX. 3 –The permittee complies with the applicable provisions of the National Emission Standards for Hazardous Air Pollutants from Off-Site Waste and Recovery Operations as specified in 40 CFR Part 63 Subparts A and DD. Refer to section VI.7 and VI.8.

IX. 4 - The permittee implements the "Preventive Maintenance and Malfunction Abatement Program, Air Pollution Control Systems." Refer to comments cited under section VI. 5 and VI. 6 and VI. 11 and VI.12.

IX. 5 and IX. 6 - The permittee shall notify the AQD for the need to modify the Compliance Assurance Monitoring (CAM) plan if the approved monitoring is found to be inadequate and shall submit a proposed modification to the plan if appropriate. The permittee shall comply with all requirements of 40 CFR Part 64 (CAM)

No changes have been made at the facility; therefore, the CAM requirements remain the same.

FG WEST

I. EMISSION LIMIT(S) – In Compliance

I. 1 to I.9 – With the exception of HCl and VOC, the type of pollutants and the corresponding emission rates limits listed on the ROP for FG WEST under SC I.1 and SC I.3 to SC I.9 are the same as those cited for FG EAST, including the time periods and operating scenarios. The 12-month rolling VOC emission limit for FG WEST is 40.2 tpy per condition SC I.2. Stack testing is not required at FG WEST to evaluate the listed pounds per hour VOCs and HAPs emission rates limits. Instead, the facility uses accepted procedures cited later in sections V.1 and VI.5 to VI.8 of this report. For accepted calculations, reporting and compliance demonstration please refer to those sections.

I. 10 and I. 12 – The particulate matter limits for FG WEST are: PM = 0.028 pounds per 1,000 pounds of exhaust air; PM10 = 9.6 pounds per hour, and 20 tons per year [12-month rolling time period]. According to the ROP, the emissions rates should be estimated based on the procedure cited in Appendix 7-S1B or other alternative method approved by AQD.

Refer to the comments cited under FG EAST – VI.9 for particulate matter emission calculations using Appendix 7-S1B; the comments are also valid for FG WEST. Similarly, for their annual emission submittal on MAERS, the facility estimates PM-10 emissions in tons per year at FG WEST based on the tons of PM-10 per weight of waste treated, in combination with the amount of waste treated at FG WEST. The emission factor (EF) seems to be derived from a stack test conducted on September 26, 2007 at FG WEST, which resulted in an emission of 0.98 lbs. per hour. For calendar year 2018, the PM-10 from FG WEST was about 4.3 tons per year; which is below the ROP emission limit of 20 tons per year.

II. MATERIAL LIMIT(S) – In Compliance

Material	Limit	Time Period/ Operating Scenario	Compliance
1. VOC in waste	Maximum of 500 ppm	Monthly average	YES - Refer to "Monitoring/Recordkeeping" under VI.5
2. VOC in waste	Maximum of 0.5% by weight	Daily average for waste accepted for treatment	YES - Refer to "Monitoring/Recordkeeping" under VI.5
3. VOC	VOC evaporation rate from the waste treatment process shall not exceed 60% by weight.	Per ROP - SC V.1	YES - Refer to V.1
4. Volatile Organic HAP in waste	Less than 500 ppmw based on the HAP content of the off-site material stream at the point-of-delivery	Annual average per off-site material stream	YES - Refer to the evaluation of SCs VI.8 / VI. 9

III. PROCESS/OPERATIONAL RESTRICTION(S) – In Compliance

A screen-shot examination of the operational records was done during the inspection, on 8/21/2019. A sample of a daily record with the operational parameters for 6/14/2019 was handed out during the meeting.

III. 1 - During normal operation defined (as defined in the ROP). The required airflow through FG WEST shall be maintained between 80,000 cubic feet per minute (cfm) and up to a maximum of 110,000 cfm.

According to the semiannual reports for 2018, the airflow through FG WEST has been maintained within the permitted operational ranges with no deviations reported. On 8/21/2019 the value on the screen was 83,903 CFM.

III. 2, III. 3 and III. 4 - The facility shall operate the baghouse dust collector 24 hours a day and maintain negative static pressure in the waste treatment building at all times during normal operation. The west bag differential pressure shall be maintained between 1.5 and 8.0 inches of water column (wc).

Negative static pressures are maintained in the building at all times during treatment. Not more than one waste treatment process building overhead door is open at a time. Refer to paragraph V.3 comments for verification of the negative static pressure.

According to the semiannual reports for 2018, the differential pressure at FG WEST has been maintained within the permitted operational ranges with no deviations reported. The west bag house differential pressure on the collected record on 6/14/2019 was 3.6 inches wc and on the day of the inspection the screen value was 3.3 inches wc.

III. 5, III. 6 and V. 2 - No waste subject to the control requirements of Benzene NESHAP is treated at FG WEST or stored in FGLIQWASTETKS. No wastes containing any of the prohibited compounds listed on Section 1, FGWEST, SC III.6 (replicated under section 1, FGLIQWASTETKS, SC III.2) are treated at FG WEST or FGLIQWASTETKS. Each waste stream for the compounds listed in SC III.6 are screened using a method acceptable to the AQD.

Benzene concentration and Total Annual Benzene (TAB) quantity for MDWTP are calculated in accordance to 40 CFR 61, subpart FF (see detailed evaluation under section "Benzene Waste NESHAP requirements"). To assure that permit conditions III.5, III.6 and V.2 are met, the facility screens the type of waste that is accepted for treatment. Their clients shall provide a waste profile/waste characterization to US Ecology before a waste is brought to the treatment site. US Ecology takes about two days to review the paperwork before accepting or rejecting the waste. AQD has not received any notification of new compounds to be added to the list of prohibited compounds cited in SC III.6.

IV. DESIGN/EQUIPMENT PARAMETER(S) – In Compliance

IV.1 & 2 and VI.1 & 2 (records) -- -The permittee shall install, calibrate, maintain and operate in a satisfactory manner the monitoring devices to monitor on a continuous basis, and record five-minute block averages of: the air flow through FG WEST and the pressure drop of the treatment building baghouse dust collector.

The parameters are monitored and recorded in accordance with the permit conditions. During the visit on 8/21/2019 AQD inspector observed the screen in the control room and verified continuous monitoring of the operational parameters. The device calibration for year 2018 was completed on 6/22/2019. The monitoring devices and the frequency of calibration are both cited on the following paragraphs.

The former west airflow meter (Pitot Tube style flowmeter fitted with an ABB 600 T series smart pressure transmitter) is still used but in addition there is a multipoint flow meter that is calibrated annually. (IV .1)

The west bag house has an ABB 600T series pressure transmitter calibrated annually. (IV.2)

IV. 3 - The permittee shall install, maintain and operate limit switches in all overhead doors, so as to restrict the maximum operation opening heights to 20 feet except as needed for vehicle or equipment ingress and egress.

The west overhead doors incorporate limit switches to control opening height. They are maintained by lubrication on a quarterly basis, verifying the opening height and bottom seal.

IV. 4 - Sludge feed and storage tank No. 11 (EUSLUDGETANK11) shall be vented into the FGWEST waste treatment process building.

The installation was built to accommodate this venting.

V. TESTING/SAMPLING – In Compliance

V. 1 – As for FG EAST, the VOC evaporation rate from the waste treatment process in FG WEST is also established at 60% by weight. To establish an alternate evaporation rate, the facility could use site specific data, based on testing, with the approval of the AQD District Supervisor. The facility has not requested alternate evaporation rate.

V. 2 – Screening of prohibited compounds – This condition was evaluated above under III.6.

V. 3 - Once a year, the facility is required to verify the negative static pressure in the waste treatment building by testing in accordance with the permit requirements. AQD has to be notified prior to conducting the test.

The facility conducts the negative static pressure verification test once every year. The smoke test was performed on 9/20/2018 and AQD was notified via email on 9/13/2018. The smoke test and airflow direction observations demonstrated a negative static pressure condition within the west building, and consequently indicate that the west building continues to meet the negative static pressure criteria.

VI. MONITORING/RECORDKEEPING – In Compliance

Compliance with VI.1 and VI.2 was evaluated earlier under IV.1 and IV.2.

VI. 3 - Written logs are maintained as part of their Preventive Maintenance Procedures, Malfunction Abatement Program, Air Pollution Control Systems Samples. Excursions from the specified permit limits are recorded and reported on the semiannual deviation reports submitted to AQD.

Samples of their daily, weekly, monthly, and quarterly maintenance logs were provided during the inspection and they are attached to the hard copy of this report. For FG WEST the records include: the date, time and duration of baghouse downtime (if any); the description of maintenance performed on the baghouse (if any) and the date and description of repairs performed on the baghouse (if any).

VI. 4 and VI. 6 - For monitoring/recordkeeping and compliance evaluation with PM and PM-10 emission limits, refer to comments under FG WEST - SC I.10 to I.12

VI. 5 and VI. 7 - The facility prepares monthly reports summarizing the volume of waste stream treated at FG WEST, the VOC content in the waste (daily % by weight) and the monthly and 12-month rolling total VOC emissions. The "DD VOHAP WASTE REPORTS" are submitted to AQD as part of the VOC emissions semiannual reports.

An analysis of the semiannual reports for year 2018 shows:

- monthly average volume of waste treated in FG WEST varying from 916,639 gallons recorded in October to a maximum of 1,521,112 million gallons, recorded in May;
- waste treated at FG WEST calculated as a 12-month rolling varying from 14.48 to 15.65 million gallons;
- daily records showing percentage of VOCs in the waste treated varying from 0% to under 0.03056 %, the

highest value was reported on 5/1/2018 at 0.03056 %; consequently, daily averages are less than the limit of 0.5% VOC in waste

- VOC monthly average concentrations in waste are less than the maximum 500 ppm (0.05%) limit - based on the values of daily VOC concentrations in waste cited above;
- 12-month rolling VOC emissions varied from 0.1028 tons in May, up to a maximum of 0.1538 tons recorded in April. The maximum is significantly below the 40.2 tpy limit.

VI.8 - The facility conducted an initial determination of the average Volatile Organic HAP (VOHAP) concentration for each off-site material stream using the procedures specified in §63.694(b) prior to the first time any portion of the off-site material stream was treated in FG WEST. Thereafter, the facility reviews and updates, as necessary, this determination at least once every 12 months following the date of the initial VOHAP determination.

VI. 9 - The facility keeps records of the VOHAP concentration of each off-site material stream processed in FG WEST for each month and 12-month rolling time period. The records submitted under the titled "DD VO HAP WASTE REPORTS" received with the semiannual reports seem to satisfy this condition.

VI.10 - In compliance with PTI 107-14, the facility maintains records for each waste stream treated in FG WEST sufficient to demonstrate that the waste was not subject to the controls requirements of the National Emission Standard for Benzene Waste Operations (NESHAP) 40 CFR Part 61 Subpart FF. For compliance details refer to "Benzene NESHAP requirements" in this report.

VI. 11 - The facility develops and maintains written operating procedures to assure that the operational parameters required per S.C. III.1 are met before the air flow through FG WEST is reduced below the minimum air flow specified in S.C. III.1, or before the permittee no longer maintains negative static pressure as specified in S.C. III.2. Records are maintained indicating the time, date and duration of air flow reduction and/or non-negative static pressure, to assure the operating procedures are being met as specified in the startup, shutdown and malfunction plan. Samples of those records are included in the semiannual reports submitted to AQD. Samples of the daily, weekly, monthly, quarterly and annual logs for year 2018 were provided during the inspection. They are attached to the hard copy of this report.

VI. 12 - Upon detecting an excursion or exceedance through the parametric monitoring of the pressure drop, the operators restore operation of FG WEST to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions. Refer to the comments applicable to both FG EAST and FG WEST, which were included earlier under FG EAST VI.11 /VI.12.

VII. REPORTING – In Compliance

The requirements listed under this section of the ROP for FG WEST were addresses earlier under FG EAST, paragraph VII.

VIII. STACK/VENT RESTRICTION(S) – In Compliance

The design of the stack at FG WEST has not been modified since the last re-issuance of the ROP. According to the ROP, the maximum diameter for the exhaust stack shall be 54 inches in diameter and the maximum height above the ground shall be 75 feet. The system has been designed so that the exhaust gases from the stack discharge unobstructed vertically upwards to the ambient air. Visible emissions from the stack were not detected during the tour of the facilities.

IX. OTHER REQUIREMENT(S) – In Compliance

This section of the ROP contains the same special conditions cited for FG EAST. Refer to FG EAST for compliance evaluation.

BENZENE WASTE NESHAP REQUIREMENTS

These requirements are applicable to the following flexible groups and ROP Special Conditions (SC): FG EAST (SC IX.1), FG WEST (SC III.5, VI.10 and IX.1), FGLIQWASTETKS (SC III.1 and VI.5) and FGTMTFACILITY (SC IX.3)

The following analysis refers to the National Emission Standards for Benzene Waste Operations (BWON) specified in 40 CFR Part 61 Subparts A and FF as they apply to the MDWTP facility at US Ecology. Compliance status with the applicable provisions of the cited regulation is evaluated here.

MDWTP is a Treatment, Storage and Disposal Facility (TSDF) that receives hazardous waste from offsite facilities (i.e. petroleum refinery, chemical manufacturing plants) listed under section 61.340(a) of Subpart FF. The listed offsite facilities are subject to BWON. Per section 61.340(b), a TSDF that receives/manages benzene-containing hazardous waste streams generated at the listed offsite facilities is also subject to the specific provisions of Subpart FF as they apply to TSDFs.

The main parameter that defines the applicability of the management, treatment and control standards identified in BWON is the value of the Total Annual Benzene (TAB) quantity from the facility waste. The TAB is the total annual mass of benzene contained in certain wastes determined at the point of waste generation. For the MDWTP the TAB is determined in accordance with section 61.342(a). If the TAB is more than 10 Megagrams per year (Mg/yr) (11 ton/yr), the waste is subject to the control requirements specified under section 61.342 (c).

For the specific case of MDWTP, there are two TABs associated with the facility; the generator's TAB (which is the TAB of the waste generated at the offsite facility) and the TAB for the TSDF. The determination of the TAB for wastes that are received from offsite facilities is made at the point where the waste enters the TSDF. For TAB calculations, US Ecology uses the procedure cited on 61.355 (a). The determination of the flow-weighted average benzene concentration is based on the criteria cited on 61.355 (c) (1) (i) (C) in combination with the "Knowledge of the waste" (records of chemical waste analysis) per 61.355 (c) (2).

Based on the TAB value (TAB > 10 Mg/yr.), which is updated annually by US Ecology and submitted to AQD as part of the reporting requirements cited on 61.357, the storage and treatment of benzene-containing hazardous waste streams subject to the emission controls of Subpart FF is restricted to the East Treatment Building - flexible group FG EAST in the ROP. However, the facility must still comply with the recordkeeping requirements of 61.356 and the reporting requirements of 61.357(d) (7) (iv) for both FG EAST and FG WEST.

The facility maintains records for each waste stream treated at FG WEST and FG EAST. The identification of the waste is done in accordance with the procedure cited on 61.355 (c) (2) [Knowledge of the Waste].

Permit conditions within FGWEST and FGLIQWASTETKS prohibit waste stream subject to the control requirements of BWON from being processed in the process units associated with the cited flexible groups. The 2018 annual report submitted by US Ecology on March 15, 2019 (pursuant to section 61.357) summarizes the regulatory status of each waste stream subject to the control requirements of BWON. The report only listed tanks E, F, G and H (located in East Building), demonstrating that benzene-containing wastes are not processed in FG WEST or in FGLIQWASTETKS.

MDWTP is exempt from the reporting requirements cited on 40 CFR 357 (d)(7) (i-ii) for the following reasons: 1) It complies with 40 CFR 348(d)(3) by treating waste streams to a level that meets benzene-specific treatments standards in accordance with the Land Disposal Restrictions (LDR), under 40 CFR Part 268. 2) The treatment process is designed and operated with a closed-vent system and control device meeting the requirements of 61.349 by operating an enclosed combustion device – the RTO-at a minimum temperature of 1,500 °F and a minimum residence time of 0.5 seconds.

Per 40 CFR 357(d)(7)(iv)(A) – The RTO is what this subpart defines as a Thermal Vapor Incinerator. Continuous monitoring records for the RTO, which includes temperature, are maintained on-site.

Per 40 CFR 357(d)(7)(v) – At all times, FGEAST is operated with negative static pressure in the treatment building and negative air pressure is maintained except when the system is not operating. Procedure T, to demonstrate "Permanent Total Enclosure" and explained earlier in this report, has been performed annually and records are on site.

The 2018 annual report was reviewed by AQD. The reports included the updated Total Annual Benzene (TAB) from 01/01/2018 to 12/31/2018 as required per 40 CFR 61.357 (d)(2). The summary tables list the hazardous waste streams identifying: the waste generator and the Standard Industrial Code (SIC), the average water content (%), the receipt date, the disposal date, the transship location if the waste is disposed on-site, the waste quantity in Kgs., the benzene concentration in ppm, the generator's TAB and US Ecology's TAB at the point of waste receipt and whether or not the waste is control exempt.

Based on AQD review of the annual report for year 2018, US Ecology appears to be substantially in compliance with the applicable requirements pertaining to the Benzene Waste NESHAP.

FGLIQWASTETKS

This flexible group includes four 20,000-gallon liquid waste holding tanks: EULIQWASTETK16, EULIQWASTETK17, EULIQWASTETK18, EULIQWASTETK19.

I. EMISSION LIMITS – In Compliance

I.1 to I.5 - There are hourly, monthly and yearly (12-month rolling time period) emission rates limits for VOC and halogenated VOC but there are not testing requirements associated with the listed emission limits. Proper operation and maintenance of the control equipment connected to the process tanks (i.e. carbon adsorption canister) as well as proper monitoring and recordkeeping, are indicators of compliance with the cited limits. Those requirements are addressed under section IV and VI.1 below.

II. MATERIAL LIMITS – In Compliance

II.1 - The holding tanks can be used to store waste containing "Volatile Organic HAP" (VOHAP) up to less than 500 ppmw based on the HAP content of the off-site material stream at the point-of-delivery. The monitoring requirements and compliance status with the cited limit are evaluated under section VI.3 and VI.4.

III. & V. PROCESS /OPERATIONAL RESTRICTIONS and TESTING/SAMPLING – In Compliance

III.1, III.2 and V. – Waste subject to the control requirements of BWON or waste containing any of the prohibited compounds listed in special condition III.2, is not stored in FGLIQWASTETKS.

To assure compliance with SC III.1, SC III.2 and SC V, the facility implements controls for the screening and approval of waste to be treated at the site (for details see item III.6 under FG WEST in previous section of this report).

IV. DESIGN/EQUIPMENT PARAMETER(S) – In Compliance

IV.1 Vents of the tanks are routed through two activated carbon canisters (Siemens Vent Scrub-TM) connected in series and properly operated.

IV.2 The canisters were not inspected in this inspection, but I was told that they are equipped with saturation indicators as required by this ROP permit condition. The indicators are monitored as part of the facility's daily preventive maintenance checklist. Examples of preventive maintenance forms were collected during the inspection and the list showed monitoring the saturation indicators as an item to be evaluated within their daily routine.

IV.3 The replacement of the carbon canisters should be done when the activated carbon is spent (70 percent used). They achieve compliance by implementing proper maintenance procedures. The canisters are replaced annually even if the carbon bed doesn't show 70% saturation in a year of usage.

IV.4 The tanks are sealed to prevent VOC emissions to the ambient air. They are connected to carbon canisters that capture VOCs through carbon adsorption. The carbon canister can't be bypassed. AQD did not request records to verify if "bypass conditions" have occurred. It is assumed that the tanks have been operated properly since the facility has not reported such condition in their routine semi-annual ROP reporting.

V. TESTING /SAMPLING – In Compliance

This condition was addressed earlier under together with SC III.2.

VI. MONITORING/RECORDKEEPING – In Compliance

The following records are maintained for a 5-year period:

VI.1 – The facility keeps written logs for maintenance and replacement of the activated carbon from the carbon canisters. The logs include: the date of observation, saturation status, and the activated carbon replacement date. Template formats used for the collection of maintenance records were provided during the inspection; however, the actual maintenance records for year 2018 were not collected.

VI.2 – The facility calculates and maintains records of VOC and halogenated VOC emission rates from FGLIQWASTETKS. According to the report submitted by US Ecology under the Michigan Emission Report

System (MAERS) the combined throughput (waste processed in all four holding tanks) in 2018 was 19,960 gallons. The VOC annual emission rate was reported as zero for all tanks except for TK 19 and the halogenated VOCs are not listed. The absence of VOC emissions from these tanks is common. Based on the information provided by facility personnel and supported by MAERS historical records, the waste material handled in tanks 16, 18, and 19 have typically been storm water and leachate waste with non-detectable quantities of VOC. Tank 17 has been the only tank used to store VOC containing material. From 7/2007 to 6/2008, tank 17 stored leachate with a VOC contain of less than 500 ppmw and from 5/2013 to 6/2013, the tank accepted Marathon waste with less than 500 ppmw. Since 2013, the facility had not reported VOC emissions from cited holding tanks until year 2018.

VI.3 to VI.5 –The requirements listed under SC VI. 3 to SC VI.5 for FGLIQWASTETKS are the same requirements that were evaluated earlier in this report for FG WEST under sections VI.8 to VI.10. Please refer to those sections for details.

VI.6, VI.7 – Further evaluation is needed to determine compliance with these conditions.

These two ROP conditions require the facility to keep the following records for all storage tanks subject to 40 CFR Part 60 Subpart Kb: 1) operating plan and the measured values of the parameters monitored in accordance with the plan; 2) dimensions of the storage vessel and an analysis showing the capacity of the storage vessel. The second set of records should be kept for the life of the source.

It appears that when the storing operations were first evaluated/permitted, it was determined that the holding tanks (No. 16 to No. 19) were subject to subpart Kb because each tank has a design capacity above 71 cubic meters (18,756 gallons) and the tanks would be holding VOL that, as stored, has a maximum true vapor pressure equal to or greater than 27.6 kPa but less than 76.6 kPa. Therefore, the tanks were equipped with control device (carbon adsorption canisters) meeting the specifications cited on 60.112b (3): "A closed vent system designed to collect all VOC vapors and gases discharged from the storage vessel and operated with no detectable emissions as indicated by an instrument reading of less than 500 ppm above background". However, as it was noted in section VI.2, it seems like the tanks have not been used to store VOL containing waste. Therefore, for a better understanding of the current storage operations and to evaluate the applicability of subpart Kb (cited in SC VI.6 and VI.7) to the tanks, AQD needs to review additional records such as; the type of waste, true vapor pressures of the stored liquid wastes, maintenance of the control device, as well as the procedures in place for general monitoring and recordkeeping.

VII. REPORTING – In Compliance

The requirements listed under this section of the ROP for FGLIQWASTETKS were addresses earlier under FG EAST, paragraph VII.

VIII. STACK/VENT RESTRICTIONS - In Compliance

The discharge of exhaust gases is through carbon canister installed at each tank.

IX. OTHER REQUIREMENTS – Refer to cited sections for compliance status (as applicable)

IX.1 – Refer to VI.6 and VI.7 for FGLIQWASTETKS.

IX.2 – The facility keeps records of the VOHAP concentration of each off-site material stream processed in FGLIQWASTETKS for each month and 12-month rolling time period. The records submitted under the titled "DD VO HAP WASTE REPORTS" received with the semiannual reports seem to satisfy this condition.

IX.3 – The Preventive and Malfunction Abatement Plan was not requested during this inspection.

FGSILOS

EUSILO1-3 and EUSILO4-6 are used to store reagent, including (but not limited to) fly ash, lime, and cement kiln dust. Silos 1 through 3 serve the west side treatment plant, and silos 4 through 6 serve the east.

I to IX - In Compliance

All special conditions listed for FGSILOS are evaluated here:

The ROP SC I.1 and SC I.2 specifies a PM limit of 0.028 lb per 1,000 lbs of exhaust air and PM10 emission limit of 0.12 pph. Each silo is equipped with a baghouse dust collector that should be properly installed and operated to minimize visible emissions.

To demonstrate compliance with the cited emission limits the facility is required to monitor and record visible emission observations (as described in Appendix 3-S1) of each reagent silo baghouse exhaust once per calendar month during a period when that silo is being filled. The activities shall be recorded in accordance with the air pollution control system written procedures stated in the Preventive Maintenance and Malfunctioning Abatement Plan (MAP). Deviations from the cited requirements, as well as corrective measures, are to be reported to AQD in the semi-annual reports.

In compliance with SC III.1, SC V. 1 and SC VI.1 and as it is described in Appendix 3-S1 of the ROP, the operators conduct visible emissions observations once per calendar month during a period when each silo is being loaded. They keep monthly logs of their observations (per SC VI.1). Records are kept for a period of five years. A monthly log with the collected visual observations was provided during the inspection. The log indicated the absence of visible emissions for all readings during the month. Semi-annual reports were submitted with no reported deviations for year 2018. AQD did not request/review the MAP during the inspection.

The 2018 MAERS reported a total throughput of 20,188 tons of material stored in the silos and an estimated PM emission rate of 179.67 pounds on that year. The estimate was based on a controlled emission factors of 0.0089 pounds of PM per ton of material loaded to the silos - obtained from AP-42, Table 11.12-2 (year 2011 edition). For compliance purposes, this PM rate of emission seems to be less than the permit limit of 0.12 pph.

FGTMTFACILITY

II. MATERIAL LIMITS - In Compliance

The overall requirements on the treatment facility (FGTMTFACILITY) limit the waste throughput to 576,000 gallons per calendar day and to 210,240,000 gallons per 12-month rolling time period. The 12-month rolling total VOC in waste is limited to 1,584 tons per year (tpy).

According to the AQD analysis of the semi-annual reports for year 2018, although the highest rates of waste processed at the facility were shown for the months of May and June, the highest daily volume received at the facility was recorded for the month of December, on 12/21/2018, and totaled 183,480 gallons, representing about 32% of the ROP calendar day waste throughput limit. A more detailed review of the December's records showed that on 12/21/2018 the facility received a single waste at FGWEST-Tank C with a considerable high volume (52,007 gallons) when it was compared with the historical range of volumes reported for a single waste manifest. That volume contributed to the substantial increase in the quantities of waste received on that particular day.

I contacted Ms. Scott (US Ecology) on September 5, 2019 to verify what it seemed to be a questionable value. In her response, Ms. Scott indicated that in fact, there had been an error in the data entry. A receipt adjustment was made on January 8, 2019 and they changed the recorded volume from 52,007 gallons to actual value of 3,633 gallons for the waste received on December 21, 2018. I requested a copy of the revised report and the revised manifest. We received the revised documents on the same day and the issue was discussed with Ms. Scott. In her email she indicated that they run the monthly reports at the beginning of the month in order to review volumes for compliance with the ROP permit conditions. Mainly, their review consists of a compliance verification of the daily waste throughput capacity (576,000 gal/day) and a 12-month rolling of 210.24MM gallons/year. If the records show compliance with the cited permit limits, no further investigation is conducted.

She added that receipt adjustments are not an uncommon occurrence and they can take some time to resolve. Apparently, there is an entire set of rules within RCRA that revolves around discrepancies, manifest changes and how to manage them. In some instances, they may learn about manifest changes weeks or months later when the generator disputes an invoice. Therefore, adjustment may occur even after the semiannual reports are submitted to AQD. Per AQD analysis, that's what seemed to have occurred more than once in December 2018. A review of the revised records revealed that there were additional entries of waste processed in that month which were not recorded on the original submittal of March 15, 2019. The original report for December 2018 had been printed in early January 2019 prior to the receipt adjustment. The facility was asked to ensure that AQD received records of such adjustments in the future. The cited change did not result in violation of the facility's material and/or emission limits; therefore, the facility is considered to be in compliance. For details about this discussion refer to the email communications saved in AQD files with this inspection report. AQD will address the

“adjustment” situation during the ROP renewal.

For the compliance analysis in this report, I used the original records reported on the semiannual report received on 3/15/2019.

The highest 12-month rolling total for 2018 was 28,150,947 gallons recorded at the end of June. This figure is about 13% of the limit set for FGTMTFACILITY in SC. II.2. Additionally, as indicated in previous sections of this report, the facility maintains (daily, monthly, and 12-month rolling -as determined at the end of each calendar month) records of the type of waste (hazardous & nonhazardous) and the amount of waste processed, as well as the VOC concentrations of the waste. Most of the information is included in the semi-annual reports submitted to AQD.

To minimize errors and to ensure accuracy in the calculations, the facility doesn't use waste densities to calculate the tons of VOC in the waste treated and the VOC emitted (as it is suggested in Appendix 7-S1. A of the ROP). Instead, they use the actual weights in pounds of bulk loads. Therefore, conversion from gallons or yard to pounds is unnecessary. In addition, when calculating VOC weights of waste received in containers, the facility assumes that all containers are full and standard weights are assigned to each container size as follows:

<u>Container Type</u>	<u>Weights in Pounds</u>	<u>Container Type</u>	<u>Weight in Pounds</u>
cubic yard boxes	2,000	20-gallon buckets	168
275-gallon totes	2,295	10-gallon buckets	84
85-gallon containers	709	5-gallon buckets	42
55-gallon containers	409		

These equivalents-weights in pounds were established during the discussions that took place when the permit to install the RTO was issued in 1998.

The records for year 2018 showed a maximum VOC in waste of 121.7 tpy 12-moth rolling total at the end of May 2018, which represents only a 7.7 % of the limit 1,584 tons per year of VOC in Waste.

III. PROCESS/OPERATIONAL RESTRICTIONS – In Compliance

III. 1 - The required fugitive dust emission control measures are maintained; sweeping logs and dust suppressant applications are routinely recorded.

IV. DESIGN/EQUIPMENT PARAMETERS – In Compliance

IV.1 - The applicable paragraphs of 40 CFR Part 63 Subparts A and DD identified in this condition were evaluated earlier in this report under the specific emission units and/or flexible groups described in ROP Section 1.

IV.2 – The applicable paragraphs of 40 CFR Part 61 Subpart A and FF identified in this condition are evaluated earlier in this report, under Benzene Waste NESHAP requirements.

V. TESTING/SAMPLING – This requirement is analyzed under section VI.4 to VI.7.

VI. MONITORING/RECORDKEEPING – In Compliance

The records cited below are maintained on file for a 5-year period

VI.1 and VI.2 - These two conditions were evaluated earlier under the monitoring and recordkeeping section for each flexible group (FG) or emission unit (EU).

VI.3 - A written daily log of the wetting or sweeping of all paved roads and parking lots is kept on file. AQD did

not request a sample of this record during the inspection.

VI.4 to VI.7 (Also V.1 and V.2 and IX.1 to IX.3)– For the evaluation of compliance with the applicable testing, inspections, monitoring and recordkeeping requirements of Part 61 Subpart FF, refer to “Benzene Waste NESHAP requirements”. For the evaluation of compliance with the applicable NESHAP regulations from Off-Site Waste and Recovery Operations (40 CFR Part 63 Subparts A and DD) grouped under this ROP condition, refer to the individual emission units discussed earlier in this report.

FGTDU

All units listed on this flexible group have been dismantled and any building that is still standing in that area, is used as storage.

FGCOLDLEANERS

The concentration of halogenated compounds in the cleaning solvent used at the facility for parts-washing is limited to 5% by weight. The VESCO cold cleaner located in the vehicle maintenance building employs mineral spirits. Maintenance procedures, as recommended by VESCO, are regularly conducted. According to MAERS, the facility only used 15 gallons of solvent in 2018. VOC emission were reported to be 98.4 pounds.

AQD did not visit the area of the cold cleaner, so the equipment design parameters and operating procedures (i.e. presence of device for draining clean parts, cover open or close, written operating procedures posted) were not evaluated.

FGRULE 290 - Not Evaluated

EUDRUMSTORAGE

Rule 290 limits the total emissions of air pollutants as follows,

Up to 1,000 pounds per month of uncontrolled emissions and up to 500 pounds per month for controlled emissions:

For noncarcinogenic VOC and noncarcinogenic materials listed in Rule 122(f) [compounds not contributing appreciably to ozone formation].

For noncarcinogenic air contaminants with initial threshold screening levels (ITSL) equal to or greater than 2 mg per cubic meter - excluding noncarcinogenic VOC and noncarcinogenic materials listed in Rule 122(f).

The emission limit drops to 20 pounds per month (uncontrolled emissions) and to 10 pounds per month (controlled emissions):

For noncarcinogenic air contaminants with ITSL greater or equal to 0.04 mg per cubic meter and less than 2 mg per cubic meter - excluding noncarcinogenic VOC and noncarcinogenic materials listed in Rule 122(f).

For carcinogenic air contaminants with IRSL greater than or equal to 0.04 mg per cubic meter.

Zero emissions.

For air contaminants with IRSL of less than 0.04 mg per cubic meter - excluding noncarcinogenic VOC and noncarcinogenic materials listed in Rule 122(f).

MAERS report for year 2018 recorded a total annual throughput of 28,653 closed containers as part of EUDRUMSTORE and the VOC emissions totaled 58.11 pounds per year, which would translate into an average of 5 pounds per month or 0.16 pounds per day.

Further information is needed about the carcinogenic levels of the waste stored in the drum storage area to evaluate compliance with Rule 290. The facility would be in compliance with the cited emission limits if the drums contain noncarcinogenic materials.

In future inspections AQD will request records identifying the air contaminants that are emitted with information about the quality, nature, and quantity of the air contaminant emissions in sufficient detail to demonstrate that the actual emissions from EUDRUMSTORAGE meet the emission limits outlined in Rule 290.

4. ROP SECTION 2 – Wayne Energy Recovery (WER)

Although the WER plant is currently inoperable at the current conditions (see “Field Observations” -Update), the information in paragraphs 4.1 and 4.2 is included in this inspection report because the emission units listed in ROP Section 2 are still part of the current ROP. It also provides background for future actions (i.e. retrofit/conversion of some of the existing equipment to process natural gas). The information is written as if the WER system was still in operation.

4.1 – Regulatory Framework

The processing/control equipment that treats and collects landfill gas for subsequent use in the engines has been subject to the requirements of Part 62 Subpart GGG (The Federal Plan) and involved the applicability of 40 CFR Part 60 Subpart WWW (Landfill NSPS) by reference. Having accepted a limit of 190 tons/year for NOx emissions, the prevention of significant deterioration (PSD) regulations under Michigan Part 18 rules did not apply. As of October 19, 2013, Engines 2 and 5, 4-stroke, rich burn landfill gas fueled engines rated at 500 horsepower are subject to the RICE MACT under 40 CFR Part 63 Subpart ZZZZ. Engine 3, the emergency engine, is subject to the work or management practice cited on Table 2c and Table 6 (item 9) of Part 63 - Subpart ZZZZ. The current ROP does not include the SI RICE MACT requirements for the cited engines. Engine 4 is not subject to the SI RICE MACT requirements pursuant to 63.6590 (b) (3) (v), because the BHP is above 500 hp. None of the emission units at WER are subject to CAM.

4.2 – Emission Units Descriptions and Field Observations

The following is a brief description of the process operations and the emission units currently listed on ROP Section 2 (WER).

WER, the first plant built in Michigan using landfill gas (LFG) to generate electricity began operations in 1986. The LFG supplied by numerous wells located in six master cells operated by WDI, is treated before its usage as a combustible in the reciprocate engines. The treatment system identified in the ROP as EUTREATMENTSYS was installed as part of the controls for the LFG. All the reciprocate engines are grouped under the flexible group FGENGINEs with emission units identified as EUENGINE2, EUENGINE3, EUENGINE4 and EUENGINE5. The permit lists an open flare, EUOPENFLARE, as an open combustor without enclosure or shroud. The facility never had an operational open flare; therefore, the standard conditions included in the ROP for EUOPENFLARE never applied.

EUTREATMENTSYS - This system removes particulate to at least the 10-micron level, compressed the landfill gas and removes enough moisture to ensure good combustion of gas for subsequent use. A 12-inch header connected the gas collection systems on each master cell. A rotary vane compressor is used to produce up to 30 inches water column vacuum in the collection system and to compress the gas to 20 psig. A gas to air heat exchanger cools down the compressed LFG. The LFG passes through two coalescing filters to remove any LFG condensate and compressor oil. An automated valve controls the compressor discharge pressure by bleeding excess gas back to the compressor inlet. At that point, the gas pressure, temperature and flow rate are measured and recorded. The system could compress up to 600 cfm of LFG; however, production of LFG dramatically decreased in the last years.

FGENGINEs – LFG is piped to the engines room where it passes through another coalescing filter before feeding the engines. The engines are Caterpillar G-398s, with 12 cylinders and 48-liter displacement. Engines No. 2, 3 and 5 are naturally aspired engines rated at 500 hp (actual 350 kW). Engine No. 4, rated at 710 hp (actual 500 kW) is turbocharged. Electricity was generated and sold to Detroit Edison. WER only operated two of the engines at any given time. Engine 3 was used as an emergency engine. Engine 2 had little to no in operations during the last three years. Significant decrease in production of landfill gas and the age of the engines seemed to be the cause of the reduced operating schedules. Although the facility is permitted to burn natural gas, only LFG has been burned in the engines. The engines were installed in late 1980s (except for engine 5 – installed circa 2001). The combustion technology is rudimentary compared to modern engines and there have been various modifications to comply with stricter exhaust emission requirements.

Engines 2 and 5 were modified to comply with stricter emission regulations required by NESHAP SI RICE engines controlling CO emissions. They operated as rich-burn engines with a catalyst using an air/fuel ratio controller. The air/fuel ratio controller monitors the amount of O2 in the exhaust stream, compared it with a

desired set point, and then changed the air/fuel ratio accordingly. When the air/fuel ratio of an engine is controlled and held at an ideal setting, the chemical reaction occurring inside the catalyst is maximized.

Field Observations (8/21/2019) - UPDATE

During the inspection of the WER building I verified the conditions of the equipment and unit operations at the plant. The landfill gas compressor has been dismantled, the landfill gas feeding valve is red-tagged, shut and locked-out with a lock-chain. All four engines remain at their original location, but they are all shut down and disconnected from the LFG feeding source. The monitors connected to the kilowatt meter on each engine, which continuously monitored and recorded the electrical output, showed zeros, indicating no electrical power generation for the grid. Therefore, at the current conditions, the plant is inoperable.

According to Ms. Scott, the shutdown of engine operations at WER occurred on 12/28/2017, after the decommissioning of the LFG control system (GCCS). For more details about the approval of the GCCS decommissioning refer to ROP Section 3.

4.3 – ROP Section 2 - Compliance Evaluation

This inspection covers a compliance evaluation period from 8/21/2018 to 8/21/2019, which falls after the date of the WER plant shutdown (12/28/2017). Therefore, the special conditions and requirements cited on Section 2 of the ROP for the emission units (EUs) described in section 4.2 of this report are no longer applicable. The facility could request modification/changes to the ROP during the ROP renewal process.

The ROP underlined applicable requirements cited for EUTREATMENTSYS in ROP Section 2 were part of the regulatory frame covered under the Landfill Federal Plan which was always enforced by USA EPA and AQD did not have authorization to enforce.

5. ROP SECTION 3 – WAYNE DISPOSAL Inc. (WDI)

The following information is included in this inspection report because the emission units listed in ROP Section 3 are still part of the current ROP.

5.1 – Regulatory Framework

The landfills have been regulated under the Federal Plan Requirements for MSW Landfills at 40 CFR Part 62, Subpart GGG (Landfill Federal Plan - promulgated on November 8, 1999) since they commenced construction, reconstruction or modification before May 30, 1991, and were existing MSW landfills. The Landfill Federal Plan requires owners and operators of existing MSW landfills with design capacity equal to or greater than 2.5 Million megagrams (Mg) and 2.5 million cubic meters of solid waste to calculate the non-methane organic compound (NMOC) emission rate using the procedures in 40 CFR 60.754. If the NMOC emission rate is greater than 50 Mg/year for the entire landfill, the landfill must install and operate a Gas Collection and Control System, (GCCS) in accordance with the requirements in the New Source Performance Standards for MSW Landfills at 40 CFR, Part 60, Subpart WWW (Landfill NSPS). WDI calculated a NMOC emission rate for the Landfills greater than 50 Mg/year and was required to install a GCCS.

AQD has not had jurisdiction over the Landfills because the EPA has not delegated authority to Michigan to implement and/or enforce the requirements of the Federal Plan cited under 40 CFR Part 62, Subpart GGG. Please note that Part 62, Subpart GGG does not explicitly cite the provisions and regulatory requirements applicable to landfills; instead, it refers to the provisions included in Part 60, Subpart WWW - "Standards of Performance for MSW Landfills". Likewise, Section 3 of the Title V permit for US Ecology, cites the regulatory requirements for WDI and the language refers to the provisions in Part 60, Subpart WWW.

The Landfills are subject to 40 CFR Part 61 Subpart M, the Asbestos NESHAP. Under the authority of R 336.1942, the Air Quality Division (AQD) has adopted the National Emission Standards for Asbestos (40 CFR Part 61 Subpart M), by reference in R 336.1902.

For details about enforcement/compliance issues related to Section 3 of the ROP please refer to the AQD files for WDI MSW landfills. The revised Final Control Plan (FCP) submitted to EPA on February 4, 2004 for MSW landfills was approved by EPA on April 26, 2004. Additional revisions to the FCP, as well as EPA enforcement actions and updates are also in AQD files.

5.2 – Emission Units Description and Field Observations

The four municipal solid waste (MSW) landfill sites, identified as Old Wayne, Fons, Site No. 1 and Site No. 2 are in a contiguous geographical space. Old Wayne, Fons, and Site 1 had passive gas control systems consisting of continuously sparking solar flares. Site No. 2, consisting of Master Cells I, IV, IX and XI, had an active landfill gas collection system.

Part C of Section 3 outlines the terms and conditions that are specific to the individual emission units described below:

EULANDFILLS: This emission unit represents the general Municipal Solids Waste (MSW) Landfills; four contiguous sites in which municipal waste was co-disposed with hazardous waste. Site 2 used an active landfill gas collection and control system. Site 1, Old Wayne, and Fons, had a passive landfill gas collection and passive vent flares. The control plan was approved by the U.S. EPA.

EUALGCS: Active Landfill Gas Collection System - This emission unit represents the active landfill gas collection system at the landfill that used gas mover equipment to draw landfill gas from the wells and moved the gas to the treatment equipment.

EUASBESTOS: Any active or inactive asbestos disposal site.

EUPLGCS: Passive Landfill Gas Collection System - a landfill gas collection system that solely used positive pressure within the landfill to move the landfill gas rather than using gas mover equipment.

EUVENTFLARE: Self-igniting (solar powered) flares - open combustor without enclosure or shroud.

Field Observations (8/21/2019) - UPDATE

Although I did not tour the landfill area corresponding to WDI, I have collected information about the operational and recordkeeping procedures used by US Ecology to handle asbestos-containing waste materials. The records are discussed under EUASBESTOS in section 5.3. There are portions of Subpart M cited under EUASBESTOS that are enforced by the asbestos program within the AQD.

5.3 – ROP Section 3 – Compliance Evaluation

EULANDFILLS, EUALGCS, EUPLGCS, EUVENTFLARE

As indicated earlier in this section of the report, in compliance with the applicable requirements, WDI had installed and operated a Gas Collection and Control System, (GCCS) at the landfills. The GCCS could be removed after all the conditions specified in subparagraphs A, B and C of 60.752(b)(2)(v) were met, which included a minimum of 15 years of GCCS operation. In 2017, WDI submitted a request to EPA for the approval of the decommissioning of the GCCS indicating they had satisfied all the requirements. A copy of the EPA approval letter dated May 16, 2017 was received by AQD Detroit office for the decommissioning of the active and passive landfill gas collection control systems (GCCS). The letter explained in detail that WDI had satisfied the three criteria and reporting requirements specified in the applicable regulations. The EPA established October 6, 2017 as the approval date for the removal of the GCCS. However, for Master Cell IV in Site 2, EPA approved the decommissioning at an earlier date (May 2017) to allow for the construction of a new hazardous waste cell overlaying the current Cell IV. EPA's approval required WDI to place a liner (with the specifications cited on the letter) on top of the current Cell IV before the construction of the new Subtitle C (Hazardous Waste - HW) landfill cell. After numerous discussions and email exchange involving US Ecology officials, the EPA, AQD permit section and Detroit district staff, it was concluded that a Permit to Install from AQD was not required for the activities involving the construction of the new landfill cell (please refer to the facility records in AQD files).

The new cell is being constructed in phases and will continue for several years. Construction activities for the first phase occurred after May 2017. This consisted of installation of a leachate collection pipe in Master Cell IV. Portions of the cell that were not impacted by the construction activities continued to be managed through the active gas collection system until the shut down on December 28, 2017.

In conclusion, with the final decommissioning of the active and passive GCCS and consequent cessation of the operations at WDI,

the special conditions and requirements cited on Section 3 of the ROP for the above identified emission units (EUs) are no longer applicable; except for EUASBESTOS, which is evaluated herein.

EUASBESTOS

There are no emission or material limits specified, therefore sections I and II are not applicable to this emission unit.

The following sections were briefly discussed with Ms. Scott during the inspection of 8/21/2019; however, I requested additional information on 8/23/2019 and I received responses via email on the same date. Ms. Scott's responses are transcribed below for each one of the special conditions evaluated.

III. PROCESS/OPERATIONAL RESTRICTION(S) – In Compliance

III.1- The facility must meet the operational requirements cited on SC III.1 (a), (b), (c) or (d) or a combination of the cited options, to guarantee no visible emissions to the outside air from any active waste disposal site where

asbestos-containing waste material has been deposited; and to deter access by the general public to the waste disposal site.

The facility has operational procedures in place that transfer friable asbestos that could cause visible emissions directly into the active face of the landfill instead of the transfer box. Additionally, most of the friable asbestos received is packaged in what they referred to as a burrito wrap. It is basically a plastic liner that lines the truck and wraps around the waste entirely. When this is dumped out of the truck it slides right out without ever exposing the waste. Both actions allow them to operate with no visible emissions. They meet the requirements of 40 CFR 61.154 (c) by covering the asbestos waste with at least 6 inches of non-asbestos material at the end of the operating day. However, they also have natural barriers (perimeter berms) along the south property and a secure perimeter fence around the entire property. Access gates are locked or manned by personnel or contractors in order to prevent unauthorized access. They also have warning signs.

IV. DESIGN/EQUIPMENT PARAMETER(S) – Not Applicable

IV.1 and IV.2 – These conditions seem to refer to gas collection devices in MSW cells that controlled the gas production areas and how the area of asbestos should be excluded from collection.

The regulations cited under IV.1 and IV.2 are not applicable because of the decommissioning authorization. In addition, the regulations seem to apply to MSW and not to the current active landfill, which is a hazardous/no-hazardous waste landfill. Furthermore, most if not all the MSW cells were closed prior to the promulgation of the cited regulation.

V. TESTING/SAMPLING – Not applicable

VI. MONITORING/RECORDKEEPING – In Compliance

Records shall be maintained on file for a period of 5 years.

VI.1 - For all asbestos-containing waste material received, the permittee of the active waste disposal site shall:

- a. Maintain waste shipment records that include the following information:
 - i. The name, address, and telephone number of the waste generator.
 - ii. The name, address, and telephone number of the transporter(s).
 - iii. The quantity of the asbestos-containing waste material in cubic meters (cubic yards).
 - iv. Report in writing, by the following working day, the presence of improperly enclosed or uncovered waste, or any asbestos-containing waste material not sealed in leak-tight containers to the local, State, or EPA Regional office responsible for administering the asbestos NESHAP program (for the waste generator and for the disposal site). Submit a copy of the waste shipment record along with the report.
 - v. The date of the receipt.

Their treatment and disposal permits require shipping documents/records for all waste received. Also, because asbestos is considered a DOT hazardous material, and transporters must have a shipping document, most waste accepted comes in on a hazardous waste manifest. However, asbestos-containing materials can also be shipped on a non-hazardous manifest or bill of lading. These documents include all the information cited on SC V.1.a. Two examples of waste shipment records were provided with the email.

The individual electronic receipts are tied to the generator and transporter information and the volume received is recorded there. The shipping documents are also scanned into the receipt.

With respect to condition VI.1.a.iv, the facility reported that they have not had any improperly enclosed or uncovered asbestos waste.

- b. As soon as possible and no longer than 30 days after receipt of the waste, send a copy of the signed waste shipment record to the waste generator.

When a waste stream arrives, they sign off on the receipt of the material on the shipping document. In most cases the documents are carbon-copied so a copy goes to the transporter and another goes to the generator. This typically happens within a week or two of receipt, so they do not come close to the 30-day mark.

- c. Upon discovering a discrepancy between the quantity of waste designated on the waste shipment records and the quantity actually received, attempt to reconcile the discrepancy with the waste generator. If the discrepancy is not resolved within 15 days after receiving the waste, immediately report in writing to

the local, State, or EPA Regional office responsible for administering the asbestos NESHAP program for the waste generator (identified in the waste shipment record)

Quantity discrepancies are common as most generators are estimating the weights because they do not have access to a scale. However, when these discrepancies do occur, they are able to reconcile them with the generators prior to 15 days. Therefore, they have not had any 15-day notifications within the last 5 years.

VI.2 and VI.3 - The permittee shall maintain, until closure, records of the location, depth and area, and quantity in cubic meters (cubic yards) of asbestos-containing waste material within the disposal site on a map or diagram of the disposal area storage. The permittee shall keep readily accessible documentation of the nature, date of deposition, amount, and location of asbestos-containing or nondegradable waste and nonproductive areas excluded from collection.

The cited requirements are also required by the permits issued by the EGLE Materials Management Division. The coordinates of the active waste disposal face (area in within the landfill in which waste is placed) are tracked via GPS coordinates/survey of the disposal area. The waste receipt records track what is disposed of within that day. When combined, the two pieces of information allows them to locate the asbestos waste within the landfill. An example of an aerial map showing a daily survey record for waste disposed at WDI on 8/23/2019 was provided.

VII. REPORTING – In Compliance

VII. 1 to VI.3 – Semiannual and annual certification reports were submitted for ROP Section 3 and no deviations for EUASBESTOS were reported in year 2018. Refer to ROP Section 1 for details of dates of submittals.

VI.4 - The permittee shall submit to the AQD District Supervisor, upon closure of the facility, a copy of records of asbestos waste disposal locations and quantities.

Not- Applicable. The facility is currently operating.

VI.5 - The permittee shall furnish upon request and make available during normal business hours for inspection by the AQD, all records required by 40 CFR Part 61.

Some records were requested and were provided.

VI.6 - Notify the AQD Detroit District Office in writing at least 45 days prior to excavating or otherwise disturbing any asbestos-containing waste material that has been deposited at a waste disposal site and is covered. The notice shall include the information listed on SC VI.6 a. – d.

The facility has not excavated or disturbed asbestos-containing waste material that have been already deposited and covered at a waste disposal site.

VIII. STACK/VENT RESTRICTION(S) - Not Applicable

Not applicable.

6. COMPLIANCE DETERMINATION

Based upon the on-site inspections and the review of the monitoring/reporting records and semiannual reports for year 2018, the facility appears to be in substantial compliance with the special conditions and requirements cited on the ROP No. MI-ROP-M4782-2010a as well as the federal applicable requirements evaluated during this inspection.

NAME Handoval

DATE 9/17/2019

SUPERVISOR JK