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DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: On-site Inspection

M454554661

FACILITY: EQ Detroit, Inc. (dba US Ecology - Detroit South)		SRN / ID: M4545
LOCATION: 1923 FREDERICK, DETROIT		DISTRICT: Detroit
CITY: DETROIT		COUNTY: WAYNE
CONTACT: Tabettha Peebles, Environmental Compliance Manager		ACTIVITY DATE: 08/21/2020
STAFF: Jonathan Lamb	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: Scheduled inspection, FY 2020		
RESOLVED COMPLAINTS:		

DATE OF INSPECTION: August 21, 2020

INSPECTED BY: Jonathan Lamb, EGLE-AQD

PERSONNEL PRESENT: Tabettha Peebles, EHS Manager; John Barta, General Manager; Andy Osip, Environmental Manager; Paul Haratyk, Operations Manager – Chem Fix; Jake Danko, Operations Manager – Chem Pre

FACILITY PHONE NUMBER: (313) 923-0080

FACILITY FAX NUMBER: (313) 923-3375

FACILITY WEBSITE: www.usecology.com

SAFETY REQUIREMENTS: Hard hat, steel-toed boots, and hi-visibility vest.**FACILITY BACKGROUND:**

US Ecology - Detroit South is a waste processing facility specializing in the treatment, stabilization, and solidification of various types of industrial wastes, including both hazardous and nonhazardous liquids, solids, sludges, soils, and debris. The facility is licensed by EGLE's Materials Management Division (MMD) to transfer, store, and process hazardous and non-hazardous wastes through Part 111 and Part 115 licenses, respectively.

This facility was previously owned and operated by EQ, until the site was acquired by US Ecology, Inc. in June 2014. The facility is located in a mixed industrial/residential area of Detroit near the I-75/I-94 interchange, across from Detroit Renewable Power. The facility receives waste from 7 AM to 4 PM, Monday through Friday, though processing may occur 24 hours a day/7 days per week. There are currently around 80 employees at this site.

US Ecology, Inc. is a waste management company based in Boise, Idaho, which has facilities throughout North America. The company operates four waste treatment sites in southeast Michigan: Belleville, Romulus, and two in Detroit.

COMPLAINT/COMPLIANCE HISTORY:

The facility has a long history of odor issues dating back to 1995. In recent years, the facility has been a frequent source of odor complaints in the area and AQD has cited the company for nuisance odors in violation of Rule 901 a total of 21 times from 2015 through 2020. Based on the number of complaints and violation notices, US Ecology entered into a Consent Order with EGLE-MMD in September 2020 to address the ongoing odor issues. At the time of inspection, the outstanding violations of Rule 901 remain unresolved and the facility is considered to be in noncompliance with Rule 901.

PROCESS DESCRIPTION AND EQUIPMENT:

Wastes are received in both bulk (via tankers) and drums (via truck or railcar). Each tanker is weighed on the truck scale, and every waste is sampled and analyzed ("fingerprint analysis") upon arrival to verify that the waste matches the waste profile detailed in the manifest before it can be accepted for treatment. Once approved, the waste material will be transferred to the appropriate process. Drums are unloaded at the ChemFix receiving dock while tankers are pumped directly to treatment or storage tanks.

There are two main waste treatment operations at the plant: ChemPre, where oily and non-oily wastes are treated and processed, and ChemFix, where waste stabilization/solidification is performed.

ChemPre:

Chemical precipitation is performed on low VOC-containing non-oily wastewater (both hazardous and nonhazardous) in the Main Building. There are eight tanks located in the Main Building, ranging from 15,000 to 20,000 gallons, used to hold and treat the liquid waste containing some solids. The tanks are labeled T-201 through T-206 and T-305 and T-306 and are loaded directly from tankers with incoming waste. For the chemical precipitation process, additives are put into the tanks and the contents are agitated (using eductors) to mix, causing the solids to precipitate from the liquid, creating a sludge. This sludge is transferred and stored in two 17,000-gallon tanks (T-24 and T-25) for nonhazardous waste or to a 17,000-gallon tank (T-208) for hazardous waste. These tanks are used to process low VOC-containing wastewater and are vented within the Main Building; as such, Tanks T-201 through T-206, tanks T-305 and T-306, tanks T-24 and T-25, and tank T-208 appear to be exempt from permitting requirements per R.285(2)(m)(i). Note: Tanks 204, 205, and 208 were replaced with fiberglass tanks of equivalent capacities in 2020 (previous tanks were carbon steel).

Following chemical precipitation, the wastewater is then passed through one of two filter presses (designated for either hazardous or nonhazardous waste) to separate the liquid and solid waste. The hazardous solids are sent off-site to another company (currently, Stablex in Montreal, Quebec) for further treatment and disposal, while the nonhazardous solids are treated in the ChemFix Building. The filtered liquid wastewater is stored in two 20,000-gallon tanks (T-1 and T-2) located outside the west side of the Main Building. This waste is then tested to determine if it needs further treatment; if not, it is then discharged to the city sewer system. The filter presses appear to be exempt from permit requirements under R.285(2)(m)(i) and tanks T-1 and T-2 appear to be exempt per R.284(2)(i).

There are also tanks used to store and treat light wastewaters, including leachate, which do not contain solids. Four of these tanks, designated as T-19, T-20, T-21, and T-22, are 78,000 gallons each and are the four big blue tanks located east of the oil processing building. Two 78,000-gallon tanks (T-3 and T-4) are also used as holding tanks for light wastewater. These tanks are located behind (west of) the Main Building next to tanks T-1 and T-2. Tanks T-3, T-4, and tanks T-19 through T-22 are not permitted. Based on previous discussions between AQD and consultants for EQ-Detroit, AQD has accepted the facility's determination that these tanks are exempt from permitting requirements per R.285(2)(m)(i) because of the minimal concentration of VOCs in the waste steam and the purpose of the tanks is for storage and settling, not the treatment of VOCs in the waste stream.

The additives and reagents used in the chemical precipitation process are stored in various tanks, labeled as tanks A-1, C-1, and CST-1 through CST-5. The tanks range in size from 4,150 to 6,000 gallons each except for C-1, which is 14,000 gallons, and are exempt from permitting requirements under R.284(2)(h) and R.284(2)(i).

Inside the Main Building, there are two 8,000-gallon acid neutralization tanks (T-301 and T-302) and two 6,500-gallon acid storage tanks (T-303 and T-304) located in the "Acid Room". These tanks are considered part of the ChemFix process, not ChemPre. Wastes stored in these tanks are disposed of either in the waste stabilization process or sent off-site for deep well disposal. Tanks T-301 and T-302 are exempt from permitting requirements under R. 284(2)(i) and tanks T-303 and T-304 are exempt under R.284(2)(h).

The oil recovery process is used to reclaim fuel oil from oily wastewaters and waste oil. There are six primary treatment tanks (permitted as FGPRIMARYTANKS) located outside which are used for the treatment of oily wastewaters (three 150,000-gallon tanks and three 100,000-gallon tanks). The primary tanks are designated T-13 through T-18 and are also referred to as the "6-Pack". Each tank is heated and holds a different type of oily wastewater, including rag oil, decanted water, and lighter oil.

There are four 15,000-gallon secondary treatment tanks (permitted as FGSECONDARYTANKS) located inside the Oil Treatment Room which are used to treat waste oil and synthetic coolants. The secondary tanks

are designated as T-120 through T-123. Each tank is heated and equipped with an impeller (for agitation) and a temperature gauge, which can be checked from a central computer in the Oil Treatment Room. The separation of oil during secondary treatment can take from three hours to three days. Note: the primary and secondary treatment tanks are separate and individual operations and not part of a sequential process as the terms "primary" and "secondary" normally infer for wastewater treatment.

There are seven 22,000-gallon non-permitted tanks used for storage only. Of the seven non-permitted tanks, five (T-111 through T-115) are used to store pre-treated oily wastes, while two (T-116 and T-117) are used to store treated outbound oil (product), including fuel-grade oil and rag oil. These tanks are exempt from permitting requirements per R.284(2)(d).

The facility has also determined that any tanks exceeding a capacity of 20,000 gallon are not subject to 40 CFR 60, Subpart Subpart Kb because the tanks either contain liquids with vapor pressures below the regulatory thresholds in 40 CFR 60.110b(b) and/or the tanks are considered process tanks, not storage vessels, as defined in 40 CFR 60.110b(a), either of which would exempt the tanks from NSPS Subpart Kb applicability.

Emissions from all tanks in FGPRIMARYTANKS and FGSECONDARYTANKS are controlled by a 5000-cfm scrubber; all other tanks are uncontrolled. The scrubber is equipped with a monitor which shows pH, flow rate, oxidation-reduction potential (ORP), and change in pressure. These operating parameters are checked and manually recorded on a daily basis. There is also a second scrubber on site which is not currently in use.

ChemFix:

Waste stabilization/solidification is performed in the ChemFix Building. The most common waste streams are metals and nonhazardous wastes. There are six vaults (below-ground "pits"), ranging in capacity from 150 to 460 cubic yards, in which wastes are processed. Waste type dictates pre-treatment prior to solidification: acids and bases are neutralized, while characteristic wastes are treated to eliminate the hazardous characteristic prior to solidification. The treated wastes are then allowed to be disposed of as nonhazardous wastes. Listed wastes, however, are simply solidified and then disposed of as hazardous waste. Some non-hazardous sludge waste is also processed in a 144,500-gallon underground storage tank (T-901) located underneath the baghouse. This waste is screw-conveyed directly to the vaults inside the ChemFix Building for treatment. The facility has also determined that Tank T-901 is not subject to 40 CFR 60, Subpart Subpart Kb because the tank either contain liquids with vapor pressures below the regulatory thresholds in 40 CFR 60.110b(b) and/or the tank are considered process tanks, not storage vessels, as defined in 40 CFR 60.110b(a), either of which would exempt the tank from NSPS Subpart Kb applicability.

During processing, compatible wastes are dumped into the vault, treated (if necessary), and then mixed with a solidification agent (fly ash, cement kiln dust, or hazardous waste dust) to solidify the material in the vault.

There are five 5,500-cubic foot silos outside the south side of the ChemFix building. Four of the silos (permitted as EUSILO1 through EUSILO4) store cement kiln dust and lime, while the fifth (EUSILO5) holds hazardous waste dust, which is steel mill baghouse dust. Once the solidification agent is added, the contents of the vault are then mixed and allowed to cure overnight. The following morning, after the waste has cured, the waste is dug out using a front-end loader and loaded into a trailer. The stabilized waste is then tested to make sure it meets federal disposal requirements and then transported to landfill for disposal; currently, nonhazardous wastes are taken to Pine Tree Acres in Lenox, Michigan, while hazardous wastes are sent to US Ecology's Belleville site. Waste streams not treated at this site include biological, radioactive, and oxygen-generating wastes.

Particulate emissions from the ChemFix building are controlled by two identical baghouses operating in parallel. The baghouses were installed in July 2006 and have a combined maximum flow rate of 180,000 scfm. Particulates from processing are captured by collection hoods located near the ceiling over the vaults which are ducted to the baghouses; a flexible plastic "curtain" hangs part way down from the ceiling around the perimeter of the vaults to facilitate collection. Each baghouse contains 1,144 bags and has its own stack

exhausting to atmosphere. Any particulates collected by the baghouses are fed back into the ChemFix process as stabilizing agent, so no off-site disposal is required. The baghouses have a “puffer system” to prevent blockage in the baghouses.

The enclosed drum receiving and storage area is located adjacent to the ChemFix building. The drums are segregated according to waste type, such as acids, flammable liquids, non-hazardous, corrosives and toxics, oils, cyanide, caustics, and characteristic metals. Flammable liquids, corrosives, and toxics are not treated at this site, but are temporarily stored here before being shipped out for off-site treatment and disposal. Drum wastes which can be treated on-site are dumped into the vaults inside the ChemFix building.

Lab De-Pack/Transfer and Processing:

The Lab De-Pack Building, now known as “Detroit Service Station”, is located at the northeast corner of the property (near Ferry St. and St. Aubin St.) and is considered a separate entity from the Detroit South facility. This area is used for storage and de-packaging of small-quantity wastes and household hazardous waste drop-off. These wastes are consolidated and shipped off for disposal at another site. Consolidation is performed by either grouping smaller containers together in their original containers to ship off site, or by transferring the contents of smaller containers into a larger container, such as a drum, prior to shipping off site. Outside the Lab De-Pack Building is the Transfer and Processing Area, where drums and other containers are stored on a short-term basis. This area is permitted through its Part 111 license for 10-day storage. The facility previously provided a demonstration which shows that the Lab De-Pack and Transfer and Processing areas are exempt from air permitting requirements per R.290(2)(a). Records are maintained to show that emissions are below R.290(2)(a) limits and all materials processed have screening levels above the threshold limits allowed in R.290(2)(a). The exemption demonstration shows VOC emissions to be less than 10 pounds per year.

APPLICABLE RULES/ PERMIT CONDITIONS:

Permit to Install No. 269-04H was issued on February 5, 2018. This permit kept the limits on VOCs and HAPs below major source thresholds which maintained the facility’s synthetic minor status, allowing it to opt out of Title V permitting requirements. Records from October 2018 through July 2020 were reviewed to determine compliance during this inspection.

PTI No. 269-04H, Special Conditions:

EUTREATMENT – Enclosed waste stabilization/solidification operation which processes hazardous and nonhazardous off-site waste using chemical stabilization and controlled by two baghouses.

I. Emission Limits

Pollutant	Limit	Reported Emissions	Compliance Status
1. PM	0.002 gr/dscf	0.0005 gr/dscf ¹	IN COMPLIANCE
2. PM	4.3 pph	0.75 pph ¹	IN COMPLIANCE
3. VOC	25.0 pph	7.32 pph ²	IN COMPLIANCE

¹ Based on the results of stack testing performed on November 8 and 9, 2006.

² Based on the results of stack testing performed on June 26, 2007.

II. Material Limits

1. IN COMPLIANCE. Facility does not process hazardous liquid waste with a VOC content greater than 500 ppm, as received. Facility monitors and records the VOC content of all loads of hazardous liquid wastes received prior to processing to demonstrate compliance with this condition.

2. IN COMPLIANCE. Facility does not process nonhazardous liquid waste with a VOC content greater than 5.0%, as received. Facility monitors and records the VOC content of all nonhazardous liquid wastes received prior to processing to demonstrate compliance with this condition.

3a. through x. IN COMPLIANCE. Facility does not process any waste streams in EUTREATMENT which contain any of the compounds listed in a. through x. of this condition in excess of 500 ppm. Facility monitors and records the concentrations of all components in every waste stream received and processed in EUTREATMENT to demonstrate compliance with this condition.

III. Process/Operational Restrictions

1. IN COMPLIANCE. Facility implements and maintains an approved fugitive dust plan. A wet sweeper is used on site daily, except during rain, snow, or freezing conditions. Daily sweeping records were reviewed on site during the inspection. No issues with fugitive dust were observed while I was on site and fugitive dust issues have not been noted during AQD's frequent surveillance of the facility during the past two years.

2. IN COMPLIANCE. Facility keeps no more than one bay door to EUTREATMENT open during normal operation except during unloading, at which time two bay doors may be open. During the inspection, I observed no more than one bay door open at a time during normal operation, except while observing the negative pressure testing.

3. IN COMPLIANCE. Facility maintains negative pressure in EUTREATMENT during normal operation. Based on my visible observations, EUTREATMENT was under negative pressure at the time of inspection and the facility. During this inspection, I observed the facility perform testing to verify that EUTREATMENT was under negative static pressure with two bay doors open, which demonstrated compliance with this condition. The facility also performs daily visible observations each operating day to monitor that negative pressure is maintained in EUTREATMENT.

IV. Design/Equipment Parameters

1. IN COMPLIANCE. The baghouse for EUTREATMENT is maintained and operated in a satisfactory manner. I checked the baghouse operating parameters during the inspection and the baghouse appeared to be operating properly at that time; the combined pressure drop was 4.9" and the flow rates for each baghouse was 57,317 scfm and 65,969 scfm, respectively. I did not observe any visual emissions coming from the baghouse stacks. Per the Preventative Maintenance Plan, the facility performs inspections of the baghouse weekly with daily checks for visible emissions. The facility replaces all the bags in the baghouse at least every five years, or if any leaks are detected during inspections. The facility most recently replaced all the bags in both baghouses in February 2020. Records of all inspection and maintenance activities were reviewed on site during the inspection and did not indicate any operational issues of concern.

V. Testing/Sampling

1. IN COMPLIANCE. Testing to demonstrate negative pressure in EUTREATMENT using smoke tubes is performed on an annual basis. The most recent tests were performed on August 21, 2020, and on May 10, 2019. Each test was observed by AQD staff and verified that the building was under negative pressure during normal operating conditions. The testing was performed using every combination of two open bay doors and negative pressure was verified in each scenario. Note: The permit requires testing to be performed within 12 months of the previous test; however, testing in 2020 was delayed at the request of AQD due to safety concerns related to COVID-19.

VI. Monitoring/Recordkeeping

1. IN COMPLIANCE. Facility records and maintains the following records in an acceptable manner;

a. VOC content of each waste stream received for treatment in EUTREATMENT;

b. Daily and cumulative monthly total records of the type (by waste code) and amount of waste processed in EUTREATMENT;

c. Calculations of VOC emission rates from EUTREATMENT for each month and 12-month rolling time period, using the method in Appendix A or an alternate method approved by the District Supervisor. After discussions between US Ecology and the AQD Detroit Office, AQD has accepted US Ecology's alternate methodology for calculating and reporting VOC emissions for the EUTREATMENT process. This alternate method may be reevaluated if it is later determined to be insufficient in accurately reporting VOC emissions.

VIII. Stack/Vent Restrictions

1 and 2. IN COMPLIANCE. According to facility documentation and visible observation, baghouse stacks SVTREAT1 and SVTREAT2 appear to meet permit specifications.

FGOILRECOVERY – Oil recovery process controlled by a packed bed scrubber. Associated Emission Unit IDs: EUOILRECOVERY, FGPRIMARYTANKS, and FGSECONDARYTANKS

II. Material Limits

1. IN COMPLIANCE. The highest 12-month rolling total of oily waste processed in FGPRIMARYTANKS during the compliance period was 14,522,287 gallons in the 12-month rolling time period ending in February 2020, which is below the permit limit of 73,000,000 gallons per 12-month rolling time period. 12-month rolling total in July 2020 was 12,846,806 gallons.

2. IN COMPLIANCE. Highest 12-month rolling total of oily waste processed in FGSECONDARYTANKS was 4,066,240 gallons in the 12-month rolling time period ending in February 2020, which is below the permit limit of 36,500,000 gallons per 12-month rolling time period. 12-month rolling total in July 2020 was 3,597,106 gallons.

III. Process/Operational Restrictions

1. IN COMPLIANCE. FGPRIMARYTANKS are kept below 190°F. Primary tanks are not heated. A review of the daily tank logs showed tank temperatures ranged from 55°F to 80°F, well below the permit limit of 190°F.

2. IN COMPLIANCE. FGSECONDARYTANKS are kept below 210°F. A review of the daily tank logs showed tank temperatures ranged from 70°F to 150°F, well below the permit limit of 210°F.

IV. Design/Equipment Parameters

1. IN COMPLIANCE. Tanks in FGOILRECOVERY are controlled by a scrubber. FGOILRECOVERY was not operating during the inspection, so I was unable to check the scrubber operating parameters while on site, but based on a review of recent daily operating records the scrubber appeared to be operating within the following operating parameters:

- a. pH maintained at 5.0 or higher.
- b. ORP maintained at 350 mV or higher.
- c. Flow rate maintained between 100-135 gpm.
- d. Pressure drop maintained between 4" and 6.5" wg.

V. Testing/Sampling

1. NOT EVALUATED. Odor testing has not been formally requested by AQD. However, US Ecology hired RWDI AIR, Inc. to perform an odor study in October 2018 and shared the results with AQD in April 2019.

VI. Monitoring/Recordkeeping

1. IN COMPLIANCE. Temperatures of the tanks in FGOILRECOVERY are monitored continuously and manually recorded periodically throughout the day.

2. NOT IN COMPLIANCE. Based on a review of records, the ORP and pH meters did not appear to be in proper operation from January 28 through March 18, 2020, and the flow meter was not in operation from October 15, 2018, through March 27, 2019. Based on maintenance records, the ORP and pH probes were replaced on March 17, 2020, and the flow meter was replaced on March 29, 2019. All three meters appeared to be in proper operation at the time of inspection based on a review of recent daily logs.

3a-c. IN COMPLIANCE. The following records are maintained in a format acceptable to AQD:

- a. Daily records of oil/water waste processed in FGPRIMARYTANKS and FGSECONDARYTANKS.

b. Temperature of the tanks in FGOILRECOVERY is recorded at least once per day.

c. Date and amount of additions to the scrubber liquid.

3d. NOT IN COMPLIANCE. Facility failed to accurately record ORP and pH from January 28 through March 18, 2020, and failed to accurately record flow rate from October 15, 2018, through March 27, 2019.

VIII. Stack/Vent Restrictions

1. IN COMPLIANCE. According to facility documentation and visual observation, scrubber stack SVSCRUBBER appears to meet permit specifications.

FGFACILITY – All process equipment at the facility, including equipment covered by other permits, grandfathered equipment, and exempt equipment. Associated Emission Unit IDs: EUTREATMENT, EUOILRECOVERY, EUSILO1, EUSILO2, EUSILO3, EUSILO4, EUSILO5, FGPRIMARY TANKS, and FGSECONDARYTANKS.

I. Emission Limits

Pollutant	Limit	Highest Reported Emissions	Compliance Status
1. VOC	89.9 tons per 12-month rolling time period	8.54 tons for 12-month rolling time period ending September 2019; 6.74 tons for 12-month rolling time period ending July 2020	IN COMPLIANCE
2. Individual HAP	Less than 9 tons per 12-month rolling time period	1.1 tons of triethylamine for 12-month rolling time period ending September 2019; 0.5 tons each of triethylamine and acetaldehyde for the 12-month rolling time period ending July 2020	IN COMPLIANCE
3. Total HAPs	Less than 22.5 tons per 12-month rolling time period	4.42 tons for 12-month rolling time period ending September 2019; 3.96 tons for 12-month rolling time period ending July 2020	IN COMPLIANCE

III. Process/Operational Restrictions

1. IN COMPLIANCE. Malfunction Abatement Plan (MAP) was submitted to AQD and is maintained and implemented by the facility. Records of all preventative maintenance and repair activities are maintained and were reviewed on site during the inspection. Monitors for the baghouse and scrubber are calibrated annually. All tanks in service are inspected every 2-5 years.

VI. Monitoring/Recordkeeping

1. IN COMPLIANCE. Monthly and 12-month rolling time period calculations of VOC, Aggregate HAP, and Individual HAP emissions from FGFACILITY are maintained, as required.

FINAL COMPLIANCE DETERMINATION

At the time of inspection, US Ecology - Detroit South was determined to be in noncompliance with the PTI No. 269-04E. Specifically, the facility is in noncompliance with the following Special Conditions:

- FGOILRECOVERY, VI.2: Facility failed to maintain and operate the scrubber with meters to accurately measure ORP and pH from January 28 through March 18, 2020. Facility failed to maintain and operate the scrubber with a meter to measure flow rate from October 15, 2018, through March 27, 2019.
- FGOILRECOVERY, VI.3d: Facility failed to accurately record ORP and pH from January 28 through March 18, 2020, and failed to accurately record flow rate from October 15, 2018, through March 27, 2019. As a result of these violations, a Violation Notice will be issued to US Ecology – Detroit South.

In addition, the facility remains in noncompliance with Rule 901 and General Condition 6 of PTI No. 269-04E due to ongoing nuisance odors. These violations have already been cited in previous Violation Notices.

NAME Shan DATE 6-10-21 SUPERVISOR JK