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

M479656745

FACILITY: Republic Industrial and Energy Solutions, LLC		SRN / ID: M4796
LOCATION: 28470 Citrin Drive, ROMULUS		DISTRICT: Detroit
CITY: ROMULUS		COUNTY: WAYNE
CONTACT: Rick Sauve, Compliance Specialist		ACTIVITY DATE: 01/21/2021
STAFF: Jonathan Lamb	COMPLIANCE STATUS: Non Compliance	SOURCE CLASS: MINOR
SUBJECT: Scheduled, on-site inspection, FY '21		
RESOLVED COMPLAINTS:		

INSPECTED BY: Jonathan Lamb, AQD-Detroit Office
PERSONNEL PRESENT: Rick Sauve, Compliance Specialist – Republic Services; John Frost, Division Manager – Republic Services
FACILITY PHONE NUMBER: 734-946-1000
FACILITY WEBSITE: www.republicservices.com

FACILITY BACKGROUND:

Republic Industrial and Energy Solutions, LLC (RIES), a subsidiary of Republic Services, Inc., is a waste processing facility permitted to treat, store, and dispose of hazardous and nonhazardous aqueous wastes through deepwell injection. The aboveground treatment and storage of hazardous waste is permitted through a Part 111 Operating License issued by EGLE’s Materials Management Division (MMD). The deepwell injection process is permitted through two Underground Injection Control (UIC) permits issued by U.S. EPA for two underground Class I hazardous waste deep wells.

Republic Services purchased the facility in October 2019; previously, the facility operated as Environmental Geo-Technologies, LLC. The facility operates in a mostly industrial area off I-94 near Metro Airport, though there are some residential areas nearby to the east. The facility operates in an area of 5.9 acres but owns an additional adjacent 9 acres which could be used for future expansion. The site first started accepting wastes in November 2013.

RIES receives wastes from 6:30 AM to 7:00 PM, Monday through Friday, though it will occasionally accept waste deliveries on weekends. There are approximately 12 employees on site, including support staff.

COMPLAINT/COMPLIANCE HISTORY:

There is no history of compliance issues or complaints against this facility and there are no outstanding consent orders. However, the site has faced opposition from residents, politicians, and environmental groups over concerns of deep well hazardous waste injection in this area. As such, this facility should be considered a controversial source by AQD if there are any future permitting or enforcement actions.

PROCESS DESCRIPTION AND EQUIPMENT:

Although permitted to treat and dispose of hazardous and nonhazardous liquid wastes, the facility has only been accepting nonhazardous landfill leachate from two Michigan landfills, Carleton Farms in New Boston and CNC Landfill in Marshall, since being acquired by Republic Services and resuming normal operations in April 2020. Prior to April 2020, no wastes had been received by the facility since September 2018. No hazardous wastes are being processed at this time, and the facility does not accept radioactive or fracking waste, nor wastes listed as flammable or reactive. While operating as Environmental Geo-Technologies, the facility accepted hazardous and nonhazardous liquid industrial wastes from a variety of sources for deepwell injection; these wastes included acids, caustics, leachate, and tank washings. Although RIES has no plans in the near term to process anything other than leachate, the facility may consider processing other types of waste streams in the future.

Wastes are received via tanker trucks; based on a review of processing records, the facility receives about four to seven truck loads per day with most loads being in the 10,000-12,000 gallon range. The facility does not currently accept waste via railcar but has the capability to do so.

When the tanker arrives on site, the incoming waste load is sampled and analyzed in the lab to verify that the material matches the description on the manifest and to determine compatibility. All loads are tested for pH and compatibility with one in every six loads undergoing a full fingerprint analysis, per the current agreement with MMD. Once accepted, the material is offloaded from the tanker to the receiving tanks for holding. Since the leachate generally contains minimal solids (<0.1% solids for most loads), the material is usually pumped directly from the receiving tanks through a three-stage cascade filtration system (to remove fine solids) to the secondary storage tanks. If the waste stream contains a higher solid content, the material is pumped from the receiving tanks to the primary settling tanks to be blended and treated by adding reagents to precipitate out any solids in the liquid. The primary settling tanks are equipped with agitators to aid in the mixing of the material. The heavy solids which drop out in the primary treatment tanks are pumped to a filter press while the remaining liquid material is pumped from the primary settling tanks through the cascade filtration system to the secondary storage tanks.

Downstream of the cascading filtration system, hydrochloric acid (to prevent scaling) and a dispersant (a biological inhibitor) are injected in-line into the waste stream as it is pumped into the secondary storage tanks. Material in the secondary storage tanks is tested to make sure it meets specifications for injection. Once the waste in the secondary storage is approved for injection, it is pumped from the secondary storage tanks through a polishing filter (to further remove fine solids) and is injected into one of two underground storage wells using "rotojet" injection pumps, which pump the material to a depth of around 4500-4650 feet below ground in a geologic area known as the Mt. Simon Sandstone Formation.

Solid material collected by the filter press, cascade canister filtration system, and polishing filter is sent to landfill for disposal; currently, any solid waste generated is sent to Clean Harbors Landfill in Sarnia, Ontario. Since the current leachate waste stream has minimal solid content, the filter press has not been used since the facility restarted operations.

Since restarting operations as RIES, the facility has discontinued the processing of brines and incompatible wastes and has repurposed some of the tanks and pumps to adapt to the current leachate treatment and processing operations.

There are eight receiving tanks currently in use: Receiving Tanks 1 through 8 (EU RT-1 through EU RT-8). The receiving tanks have a capacity of 16,500 gallons each. Receiving Tank 9 (EU RT-9) has been repurposed as a secondary storage tank. Receiving Tank 10 (EU RT-10) is currently not in use and has a capacity of 7,500 gallons.

There are six primary settling tanks: Primary Settling Tanks 1 through 6 (EU PST-1 through EU PST-6), though PST-1 is currently not in use and has been disconnected. The primary settling tanks have a capacity of 6,770 gallons each.

There are two secondary storage tanks. Secondary Storage Tank 1 has a capacity of 16,950 gallons and is permitted as EU SST-1. As mentioned, Receiving Tank 9 (originally permitted as EU RT-9) has recently been repurposed as Secondary Storage Tank 2 (designated as SST-2 in the facility's naming system) and has a capacity of 16,500 gallons.

There are two sludge storage tanks (EU ST-1 and EU ST-2), each with a capacity of 20,000 gallons. Since the current leachate waste streams have minimal solid content, the sludge tanks are used infrequently.

The facility installed two heated 104,000-gallon leachate receiving tanks in December 2020. The tanks are located outside the west wall of the processing building and are not yet in operation. The facility claims the tanks are exempt from air permitting requirements but are working with a consultant to determine which exemption best applies. Since the tanks have yet to be put into operation, the compliance status of the tanks will be re-evaluated when AQD receives additional information or during the next compliance inspection.

The hydrochloric acid (HCl) used to prevent scaling is at 35% concentration and stored in totes. The facility recently installed a 5,000-gallon tank which will replace the totes once it is approved for use under its Part 111 license; this tank replaced an equivalently sized tank which had previously stored sulfuric acid. The facility

believes the tank is exempt from permitting requirements, though R.284(2)(h)(iv) cannot be used since the HCl has a concentration greater than 11%. Since the tank has yet to be put into operation, the compliance status of the tank will be re-evaluated when AQD receives additional information or during the next compliance inspection.

There is a small diesel-fired emergency generator on site which is used in case of power outage. The unit is tested for approximately one hour per month but has otherwise not been used. The unit appears to meet the definition of an emergency generator and should be exempt per R.285(2)(g), but the facility was unable to provide generator specifications during the inspection. The regulatory status was not evaluated at this time but will be evaluated during the next inspection.

PROCESS CONTROLS:

The receiving tanks and primary settling tanks are controlled through carbon adsorption using two carbon canister filtration systems. One carbon canister filtration system controls emissions from Receiving Tank 10 (EU RT-10) and Primary Settling Tank 1 (EU PST-1); since neither tank is currently in use, this carbon canister system is also not currently in use. A second carbon canister system controls emission from all the other receiving tanks and primary settling tanks, including Receiving Tank 9/Secondary Storage Tank 2. Emissions from the Secondary Storage Tank 1 and two sludge tanks are not controlled.

The facility is required to perform ambient air monitoring as a condition of its Part 111 license. Per an agreement with AQD and MMD, the facility is only performing ambient air monitoring when receiving wastes with a VOC content over 25 pounds, based on past ambient air monitoring data and low VOC content of waste streams processed at the facility.

APPLICABLE RULES/ PERMIT CONDITIONS:

Republic Industrial and Energy Solutions is a minor source operating under PTI No. 539-97F, issued on March 19, 2015.

Since wastes were not received from September 2018 through April 2020, production and emission records from April 2020 through December 2020 were reviewed to determine compliance during this inspection. These records can be found in the orange facility file.

PTI No. 539-97B, Special Conditions:

FGTANKS – Tanks and process vessels for treating wastewater that may be regulated as hazardous waste. Associated Emission Unit IDs: EU RT-1, EU RT-2, EU RT-3, EU RT-4, EU RT-5, EU RT-6, EU RT-7, EU RT-8, EU RT-9, EU RT-10, EU PST-1, EU PST-2, EU PST-3, EU PST-4, EU PST-5, and EU PST-6

I. EMISSION LIMITS

1. IN COMPLIANCE. Testing for VOC emission rate from FGTANKS performed on April 21, 2014, showed an average VOC emission rate of 0.008 lb/hour, below the permit limit of 4.3 lb/hour.
2. IN COMPLIANCE. Facility was well below the permit limit of 9.4 tons of VOC per 12-month rolling time period. The VOC content of the leachate waste processed in FGTANKS minimal; the 12-month rolling total VOC emissions for the time period January 2019 through December 2020 was only 0.06 pounds.

IV. DESIGN/EQUIPMENT PARAMETERS

1. IN COMPLIANCE. The tanks in FGTANKS are equipped with conservation vents and a nitrogen blanket system which are installed, maintained, and operated in a satisfactory manner.
2. IN COMPLIANCE. All tank emissions are exhausted through an activated carbon adsorption system.
3. NOT IN COMPLIANCE. The carbon canisters are not currently equipped with a saturation indicator to measure breakthrough and the facility is not performing daily monitoring to verify that breakthrough has not occurred. The facility does replace the carbon filters on an annual basis; the carbon filters were most recently replaced on December 17, 2020.

V. TESTING/SAMPLING

1. IN COMPLIANCE. Testing of VOC emission rates from FGTANKS was performed on April 21, 2014, and the results were reported to AQD on May 29, 2014. Test results demonstrated a control efficiency of 99.98% for the carbon adsorption system and a VOC emission rate of 0.008 lb/hour, in compliance with the permit limit of 4.3 lb/hour.

VI. MONITORING/RECORDKEEPING

1. IN COMPLIANCE. All required calculations and records are maintained on a daily, monthly, and 12-month rolling time period basis.
2. IN COMPLIANCE. Facility maintains records of VOC emissions on a daily, monthly, and 12-month rolling time period basis and maintains the required calculations for determining VOC content of the waste streams and emissions. These records are submitted to AQD on a quarterly basis, per FGFACILITY, SC VII.1.

VII. STACK/VENT RESTRICTIONS

- 1 and 2. IN COMPLIANCE. According to facility documentation, stacks SVCOMPATIBLES and SVINCOMPATIBLES appear to meet permit specifications.

FGFACILITY – All process equipment source-wide, including equipment covered by other permits, grandfathered equipment, and exempt equipment.

I. EMISSION LIMITS

1. IN COMPLIANCE. Visible emissions from roads and lots do not exceed 5% opacity. No fugitive emissions were observed during the inspection. All truck roadways and lots are paved and there are no material storage piles.

II. MATERIAL LIMITS

1. IN COMPLIANCE. Facility does not receive more than 400,000 gallons of material per calendar day. Facility maintains records of the date and quantity of each individual waste load received and reports these totals to AQD on a quarterly basis. During the compliance period, the most waste received in a day was 86,458 gallons on November 5, 2020.
2. IN COMPLIANCE. VOC content of material received does not exceed more than 0.2 percent by weight based on a monthly average. Facility calculates the maximum VOC content of each waste load received and reports these results to AQD on a quarterly basis. During the compliance period, the highest monthly average VOC content of material received was 0.0006 percent by weight, most recently in November 2020.
3. IN COMPLIANCE. Facility screens all materials received to assure that no material received exceeds 10.0 percent by weight of the compounds listed in this condition. The facility does not accept any waste streams containing the compounds listed in this condition and is not approved to process hexachlorobenzene (D032) in its Part 111 operating license.

III. PROCESS/OPERATIONAL RESTRICTIONS

1. IN COMPLIANCE. The fugitive dust plan specified in Appendix A of PTI No. 539-97F is implemented and maintained.
2. IN COMPLIANCE. Facility only accepts and processes waste streams as approved in the facility's Part 111 operating license.

VI. MONITORING/RECORDKEEPING REQUIREMENTS

1. IN COMPLIANCE. Facility calculates and records all records on a monthly basis, as required.
2. IN COMPLIANCE. Facility monitors and records the date and quantity of each load of material received on a per load, daily, and monthly basis.
3. IN COMPLIANCE. Facility monitors and records data to demonstrate the content of all materials received. Facility has yet to accept any waste streams containing the compounds listed in FGFACILITY, SC II.3.
4. IN COMPLIANCE. Facility maintains a written log of all maintenance performed on the carbon adsorption system and dates of replacement of the carbon filters for the carbon adsorption units.
5. IN COMPLIANCE. Facility maintains records demonstrating compliance with the fugitive dust plan, as specified in Appendix A of PTI 539-97F. Since the areas of truck traffic are paved and there are no aggregate piles, it is not necessary to perform daily sweeping as fugitive dust impacts are minimal.

VII. REPORTING

1. IN COMPLIANCE. Facility submits quarterly reports to AQD on a timely basis with the following information:

- a. Date each shipment received;
- b. Quantity of each shipment received;
- c. Weight percent of VOC for each shipment received;
- d. Average monthly VOC content of material received;
- e. VOC emission rate on a monthly and 12-month rolling time period basis.

2. NOT EVALUATED. Facility has not reported any releases of cyanide gas to the AQD. The AQD is unaware of any instance wherein the facility released cyanide gas and thereafter failed to report the event to the PEAS.

3. NOT APPLICABLE. There have been no changes in land use for property classified as industrial or as a public roadway, so no notification has been required.

Fugitive Dust Control Plan: Facility follows the fugitive dust control plan. Lots and roadways are paved, so there is minimal occurrence of track out. There are no material storage piles outside. There were no fugitive dust problems observed during the inspection.

FINAL COMPLIANCE DETERMINATION:

At the time of inspection, Republic Industrial and Energy Solutions was determined to be in noncompliance with PTI No. 539-97F. Specifically, the facility is in noncompliance with the following Special Condition:

FGTANKS, IV.3: Carbon adsorption system was not equipped with a saturation indicator capable of detecting breakthrough of the carbon.

As a result, a Violation Notice will be issued to Republic Industrial and Energy Solutions.

NAME Shaw DATE 2-26-21 SUPERVISOR JK