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

B545159083

FACILITY: US ECOLOGY ROMULUS		**SRN / ID:** B5451
LOCATION: 36345 VAN BORN RD, ROMULUS		**DISTRICT:** Detroit
CITY: ROMULUS		**COUNTY:** WAYNE
CONTACT: Dan Belisle , EHS Manager		**ACTIVITY DATE:** 07/23/2021
STAFF: C. Nazaret Sandoval	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** MINOR
SUBJECT: FY 2021 Scheduled Inspection		
RESOLVED COMPLAINTS:		

SRN: B5451
SOURCE NAME: US Ecology Romulus Inc.
FACILITY ADDRESS: 36345 Van Born Road, MI 48174
INSPECTOR: Nazaret Sandoval, AQD – Detroit District Office

1 - BACKGROUND INFORMATION AND SITE HISTORY

US Ecology Romulus, Inc. is located at 36345 Van Born Road, Romulus, MI 48174. The site occupies approximately 17 acres and is bounded by Van Born Road to the north, by Trouton Drain to the east, by a vacant, partially wooded field to the south, and by CSX Railroad line to the west. The facility is surrounded by industrial properties to the north and west, commercial property to the east and residential property to the south (refer to the attached Google aerial view). The current operations mainly occurred at the northern section the parcel where processing units, administrative buildings and above-ground storage tank farms are located. Certain areas are unpaved, and a railroad spur line runs in the northwest corner of the site. The southern portion of the site is vacant, partially wooded, and may contain wetlands. The entire site is fenced.

An emission inventory report dated 1995, prepared by a consultant engineering company, evaluated the operations occurring at the site address. The report includes a site history. According to the report, in 1964 the site was first used for solvent recycling by Cam-Chem Company. Cam-Chem operated the site until 1971, when it was sold to Product-Sol, Inc. of Birmingham, Michigan. Product-Sol operated the facility for approximately eleven months, when it was sold to Nolwood Chemical Corporation of Detroit and became Chemical Recovery Systems, Inc, (CRSI) a wholly owned subsidiary of Nolwood Chemical. CRSI was also a solvent reclamation facility. Michigan Recovery Systems, Inc. (MRSI) purchased the facility in February of 1987 and after April 1, 2001, MRSI changed its name to EQ Resource Recovery. More recently, on July 30, 2018, the legal name changed to US Ecology Romulus, Inc. (USE ROM).

Based on historical records and a process flow diagram dated 2001, past operations at the site included fuel blending for energy recovery, hazardous and nonhazardous spent organic solvent recovery, aircraft deicing fluid recovery, recoverable petroleum products and oil-water separation services, as well as wastewater and groundwater treatment. Most emissions from the tank vents and process operations were routed to a main vent header controlled by a Regenerative Thermal Oxidizer (RTO) and/or a flare. However, after a fire incident occurred on August 9, 2005, most of the storage tanks (reclaim tanks, blending tanks and solvent storage tanks) located at the west side tank-farm were destroyed and subsequently removed from the site. That space is vacant with a few empty solvent storage tanks standing at the tank-farm. The operations such as fuel blending, hazardous solvent reclaiming and chemical recycling, were discontinued. The oil-water separation and

recycling service were inoperable due to damage of the facility's infrastructure but were transferred offsite to the former EQ Detroit South – now US Ecology South.
At the present time the storage tanks for non-hazardous waste stream feedstock, wastewater holding tanks, finished product storage, and treated wastewater tanks, are all located in the existing east tank-farm located near the Wastewater Treatment Building.

On the date of the inspection, July 22, 2021, the following process were identified:
1) Rail Car Unloading Operations.
2) Non-hazardous Product Recycling Operations
2) Wastewater and Groundwater Treatment Operations.

Currently, USE ROM's main business includes the recovery of airplane deicing fluid (mostly propylene glycol) and ethylene glycol, into viable products. The aircraft deicing fluid is recycled into a >99% pure material that is sold to various industrial users.
They also operate on-site processing systems at airports across the country. As part of a recycling program USE ROM also process spent solvents (N-Methyl-2-Pyrrolidone or NMP). NMP is a non-hazardous solvent used in the lithium-ion battery manufacturing process. At the battery manufacturing facilities, the NMP is cooled, condensed, and collected as a waste by-product. USE receives spent NMP solvent in bulk and non-bulk packages. The waste NMP distilled into an industrial grade product is marketed and redistributed. In addition, USE ROM operates an industrial wastewater pre-treatment system prior to the discharge to the Great Lakes Water Authority Sewer System (GLWA), and a groundwater treatment system under site remedial requirements of Part 201 of Public Act 451, as amended (Rule 201).

The above listed operations will be described with more details under the inspection narrative.

2 - PERMIT HISTORY AND AQD ACTIVE PERMITS
AQD permit database shows that the facility has four active Permit to Install (PTI) identified as follows:

PTI No.	Received Date	Approved Date	Remarks
231-06	8/2/2006	8/31/2006	New Shallow Tray Air Stripper with Larger Capacity
191-00E	5/10/2006	8/23/2006	Deicing Fluid Process – Flex Grouping and Operating Limits
6-99	2/9/1999	8/9/2000	Scrubber for Odor Control
282-98	8/6/1998	3/6/2000	Installation of a Drum Emptying and Pumping System (DES)

The review of AQD historical files for this facility provided details about the equipment and processes that were proposed to be installed as part of the above cited permits.

PTI 6-99

The proposed scrubber to be built under PTI 6-99 was a single stage packed unit with a maximum operating capacity of 10,000 cfm that would control potential odor emissions from an offsite generator of spent fermentation broth (water, sugar, starches, fermentation remnants) to be installed downstream of the existing Wastewater Treatment Plant (WWTP). The system identified in PTI 6-99 as EUTreatmentProcess included a filter pressroom, tanks 300 and 301, and a 34-inch diam exhaust stack at an exit point not less than 45 feet above ground level. However, after the inspection of the site on July 22, 2021, and per follow-up conversations with Dan Belisle (EHS Program Manager at USE ROM), it appears as if the proposed odor control system was never built. However, I could not locate a letter from the company requesting to void PTI 6-99. We both concluded that PTI 6-99 should be voided, and Mr. Belisle will take care of this item as a follow-up action item.

PTI 282-98

With respect to PTI 282-98, the permit evaluation in AQD files indicates that the Drum Emptying and Pumping System consisted of three primary parts: a drum auger, a screw conveyor and a hydro pulper vessel; all combined in one emission unit (EUDES). The purpose of the system was to remove waste from drums and combine it with liquid waste to produce a pumpable slurry mixture that was transferred to a tank for fuel blending. There were 22 chemicals identified in the permit evaluation that could potentially be processed at DES. The emissions from the system were controlled with carbon adsorption canisters. The permit established maximum mass emission rates for methylene chloride and trichloroethylene as well as volumetric fraction in the drum‘s liquid phase. VOC and acetone mass emission rates were also limited. There are no records in AQD files about the time when the system was disconnected or a request from the facility to void the permit. No equipment of this nature was observed during the inspection of the facility. In a follow-up phone conversation that I had with Mr. Belisle he indicated that USE ROM currently don’t process the type of waste described above and the equipment permitted by PTI 282-98 is not at the site. We both concluded that PTI 282-98 should be voided, and Mr. Belisle will take care of this item as a follow-up action item.

In conclusion:

There are only two active permits, PTI 231-06 and PTI 191-00E; which will be evaluated as part of this inspection. There are also various emission units with no associated AQD permits which seem to be exempt from the permit requirements of Part 201; those will be addressed in a separate section of the report.

State Regulations for Waste

USE ROM operates under a Hazardous Waste Management Facility Operating License (License) No. MID 060 975 844 issued by EGLE’s Material Management Division (MMD); pursuant to Part 111, Hazardous Waste Management, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. The license with an effective date of issuance of September 30, 2015, expires 10 years from the date of issuance and specifies the hazardous waste activities that USE ROM can perform at the facility. Under the MMD license the facility can accept a variety of hazardous waste, generally used solvents for reclamation. Past usage of the middle one-third of the property has included solid/hazardous waste storage.

The facility is also regulated under the Liquid Industrial By-Product (formerly Liquid Industrial Waste) Part 121 of 1994, PA 451, as amended.

3 - INSPECTION NARRATIVE

On 7/22/2021, at about 10:00 AM, I arrived at USE ROM to conduct an announced scheduled inspection. I met with Dan Belisle, EHS Program Manager at USE ROM. At the opening meeting I explained the objective of the inspection. I also asked Mr. Belisle to show me a process diagram of the facility and to describe the process units and its operation. Later, the plant operator accompanied us during the plant walkthrough and he explained some of the process operations at the facility.

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 stipulated in the active PTIs 231-06 and 191-00E.
Here is a summary of the information provided on the day of the inspection, which I have complemented with additional details and material found during my research of AQD historical records, and follow-up communications with the facility personnel.

Rail Car Unloading
These operations are located at the west/central side of the property. This is a separate business not associated with USE ROM operations, but it is affiliated to another USE facility. Rail cars come from off-site into the facility and bring solid waste or hazardous waste. The material is then transferred from the rails cars to hauler trucks which transport the waste to USE Belleville to be treated at Belleville's Waste Treatment Facility or to be disposed at Belleville's Wayne Disposal Landfill. The current operations include six to eight hauler trucks that run about six cycles a day to and from USE Belleville, depending on the demand. The waste received by rails cars is from remediation projects across the country, with the majority of the waste coming from the eastern U.S. and with lesser amounts coming from the south and west. The area has a covered two-story structure with two excavators set up on top platforms and the rest is open space. There's no storage and/or processing of the waste at USE ROM and there's no air permit associated with this rail transfer facility. According to a letter found in AQD files, dated November 17, 1998, signed by Maria Majer (Wayne County, Air Quality Engineer), the railcar unloading operations were accepted to be exempt from the Rule 201 permit requirements under Rule 290. The estimated VOC emissions were approximately 5.3 pounds per month. The permit application No. 119-98 received by AQD on 6/19/1998 for the installation of railcar unloading operations was voided on 9/13/1999 as recorded in a letter signed AQD Permit Section. Rule 290 requires the facility to maintain records as long as the process is active. AQD will further evaluate this item in the next inspection cycle.

Product Recovery Operations (Recycling Services) PTI 191-00E
USE Romulus has historically processed used solvents and airplane deicing fluid to recover valuable products that are marketed. The current operations are limited to the reclaiming of propylene glycol (PG), ethylene glycol (EG) and n-methyl pyrrolidone (NMP). Spent organic material is received via tanker trucks or containers and it is stored in holding tanks to be processed at the solvent recovery system. The main components of the recovery system are an evaporator and a fractional distillation column. The other components of the system include a separator; a product condenser; feedstock, residue, and product pumps; a vacuum system and control and instrumentation.

Currently, the bulk of their operations is primarily PG recovery. For PG recovery, the inbound spent aircraft deicing fluid is received at the facility, and it is stored in a feedstock holding tank prior to pretreatment. The holding tank is a dark-blue 200,000-gallon tank located at the eastern tank-farm. Before recovery, the PG is pre-treated in tanks where the

water goes through demineralization, softening and coarse filtration. From there, the pretreated fluid is pumped into a Thermal Vapor Recompression (TVR) Evaporator (herein "TVR evaporator"), and thereafter to the reboiler and fractional distillation column to further separate the PG product from water.

The TVR evaporator is located at the LUWA building. LUWA refers to the manufacturer of two thin-film evaporators that were used for general solvent recovery before the 2005 fire. Those activities ceased after the fire and, though the two evaporators remain installed, they are not in operation and have been disconnected ever since.

In the TVR evaporator the fluid gains concentration as water is removed. The inbound spent PG is introduced above the heated zone and is evenly distributed over the evaporator, volatile components are rapidly evaporated via conductive heat transfer. Vapors flow either counter-currently or co-currently through the unit, depending on the application requirements. In both cases, vapors are ready for condensing (or subsequent processing in the fractional distillation column) after exiting the vapor discharge section. The evaporator uses non-contact steam for indirect heating. The steam is produced in a natural gas-fired boiler located in a separate building. Solvent vapors are created in the evaporation of the waste liquid, leave the evaporator, and pass into a separator which permits only dry vapors to pass into the condenser. Following evaporation but prior to distillation, the clean liquid concentrated product formed in the condenser, which is generally about 50% PG, is pumped to intermediate tanks known as mid-cut tanks or "frac tanks" (horizontal tanks). The intermediate product is held in those tanks until it is further processed in the fractional distillation column for additional purification to get to 99% PG. The heat supply to the reboiler is provided by a closed-circuit heat transfer fluid which is pre-heated in a separate natural gas-fired process heater, identified as the thermal fluid heater. Prior to storage and distribution, the concentrated PG recovered from distillation is pumped into three vertical vessels equipped with activated carbon for a polished stage. The vessels are located at the most south-eastern area of the tank-farm and were covered with a blue tarp to maintain temperature, indirect steam heating is also used to keep the PG in a fluid state. The final purified product is stored in product tanks, and it is filtered before it is distributed to the customers. Four vertical white tanks of approximated 20,000 gallons, located near the PG feedstock tank, are used for final PG storage.

The process water removed during evaporation and distillation is sent to holding tanks and the stream is treated by reverse osmosis (RO) at the wastewater treatment system. After RO treatment, the water is placed into storage tanks T-107 and T-108 before it is discharged to the GLWA wastewater treatment system. The reject from the RO is returned to the treatment system upstream of the evaporator.

The solvent recovery system is a closed system, and it appears as if there are no emission vents from the evaporator/fractional distillation column. However, a technical report dated 5/9/2006 submitted to AQD during the permit modification approved in year 2006 for the current active permit (PTI 191-00E), reported three venting points to the atmosphere which were modeled during the permit evaluation. One vent is associated with the fractional column operations and the other two with storage tanks. Potential PG emissions were estimated for the worst-case scenarios, using throughput data, operational parameters, basic thermodynamic principles, tank specifications, turnovers, and US EPA TANKS software. The total PG emissions were estimated to be 1,259 pounds per year (0.63 tons per year). From that total, the emissions associated with the fractional distillation column (EUFRAC) represented 97.22% with estimated PG emissions of 1,224 pounds per year

(0.61 tons per year). The worst case PG emissions from EUFRAC was calculated based upon the concentration of PG in EUFRAC - assumed 100%- , the operating temperature and pressure, and the flowrate of the vaccumm pump. The vent point for EUFRAC was described as a 2-inch diameter, horizontal pipe opening located along the east wall of the LUWA building at an elevation of 23.3 ft above the ground surface. Mr. Belisle was contacted to clarify this information and he confirmed what had been reported in the AQD files. The emissions the report was referring to are those from the fractional distillation column's vacuum pump vent which only occur during column purging when changing from PG to NMP or EG. The other two emission points venting to the atmosphere (each described as 10- inch diameter horizontal pipe openings) were associated with breathing and working losses from storage tanks. The report assumes that tanks 105/106 (holding condensate water from deicing fluid process at 30% PG) and tanks 107/108 (holding GLWA wastewater discharge) would vent near the southeast corner of TK-108 at an elevation of 24 feet above the ground. Tanks 300 and 301 (holding condensate water from deicing fluid process at 30% PG) would vent near tank 300 at an elevation of 27.3 feet from the ground. The estimated total VOC emission from the cited tanks account for the balance of the total (0.02 tons per year).

In conclusion, the total VOCs emission from the PG processing operations were estimated to be less than one ton per year.

During the inspection, Mr. Belisle indicated that it appears as if tanks 300 and 301 are currently used for another service and not the one listed on the technical report. Tank 300 stores the reboiler bottoms from PG processing, and tank 301 holds a solution with low PG concentration that is used in airplanes lavatories. Similarly, tanks 105 and 106 are currently used for the storage of miscellaneous fluids depending on the needs (such as PG or EG intermediate products, feedstocks, etc.). Tanks 107 and 108 continue to be used for wastewater storage. According to Mr. Belisle tanks 105 to 107 have capacities in the range of (60,000 to 65,000 gallons). According to the technical report in AQD files, the data input entered to run the TANKS software show tanks 300 and 301 with shell capacities of 11,000 gallons. Given the discrepancy with respect to the type of fluids that are currently stored in the above cited tanks, AQD will request that USE ROM evaluate if these changes represent a modification to the process or process equipment.

The recovery of NMP and EG from incoming feedstocks do not require the usage of the TVR evaporator. During NMP and EG processing the fluids are pumped directly into the fractional distillation column and the sequence of operation is similar to the one described for PG recovery. There are transfer tanks that are used for the temporary storage of the streams generated during transition from one product recovery to the other, as well as during reboiler cleaning. The fractional distillation column reclaims one fluid type at a time. The light blue vertical tanks identified as tanks number TK 1 to TK 5 are associated with NMP: Tanks 1 and 2 are for NMP feedstock, tanks 3 and 4 for NMP Product, and tank 5 is for distillation bottoms when processing NMP.

All product tanks use nitrogen blanket to keep the products dry

Stormwater Collection Process and Wastewater Treatment Building

The wastewater to be treated is stored in above-ground storage tanks near the WWTP building. From the tanks the water flows through a treatment bay where the heavy metals precipitate and the water is filtered.

The stormwater from the plant site, wash water, process water, cooling water and condensate from the deicing fluid process is collected in one of two storage tanks in a batch fashion. Once one storage tank is filled, influent flow is transferred to the second tank. Water is held in the full tank waiting receipt of analytical results prior to discharge to GLWA. The final treated water is stored in tanks TK 107 and TK 108, before discharging to GLWA.

Groundwater Treatment (PTI 231-06)

The site has a history of groundwater contamination from past industries preceding the current operations. Therefore, groundwater (GW) remediation has been required to comply with the standards for GW discharge. There is an underground barrier to stop the GW from leaving the property. The GW collected in the underdrain system is extracted and treated, as subsequently described, prior to discharge to the GLWA Wastewater System. Historically, an Air Stripper Process has been used as the GW treatment system. Various modifications for improvement have been implemented over the years. The latest records indicate that on 8/2/2006 a permit application was submitted with a modification to replace the former existing shallow tray stripper with one of larger capacity. PTI 236-06, issued on 8/31/2006 approved the installation of an Air Stripper with a maximum treatment capacity of 125 gallon per minute (GPM) of water, but the maximum flow rate of the air stripper feed pump was set up at 65 GPM. The GW flow at the facility varies seasonally; therefore, GW extraction rates necessary to meet the remedial requirements also vary seasonally. According to the records, the typical flowrate is about 12 to 15 GPM; but in the worst- case scenario could be up to 30 GPM.

The process starts with the collection of the GW by underdrain lines that run down the property and discharge into a holding underground concrete underdrain collection basin located near the WWTP. The underdrain pump sits on the bottom of the basin and pumps the water to four parallel bag filters for coarse filtration. A chemical feed pump and static mixer is used to add a descaling agent to the GW to a resultant concentration of about 200 PPM. GW enters a tank for flow equalization prior to being pumped by the air stripper feed pump to the air stripper tank. During the inspection, Mr. Belisle indicated that after the implementation of water conditioning before feeding it to the Air Stripper, the operation of the system has improved, and the cleaning maintenance routine is less labor-intense. Some of the treatment include the addition of sequester agents to maintain iron in suspension to prevent build-up and the possibility of obstruction of the air stripper system. Sodium Hypochlorite is also added to prevent biological activity and the formation of slime. The shallow-tray air stripper uses forced air, in the form of bubbles, to strip VOCs from contaminated water. The shallow-tray air stripper uses a 600 cubic feet per minute blower equipped with a mist eliminator to minimize emissions of aerosols. As the contaminated water flows down through a series of five vertically stacked trays, air bubbles are forced upwards through the trays and the contaminated water. The air bubbles increase the surface area of the contaminated water. This increases the rate of volatilization of the VOCs in the contaminated groundwater. After the stripped water has passed through the system, the water is subject to polishing treatment through liquid-phase activated carbon and PFAS removal in resins tanks; prior to storage, sampling, and discharge to GLWA (SL2). After the forced air passes through the system, it vents to the atmosphere.

4 - EXEMPT EQUIPMENT

Natural Gas-Fired Equipment

There are two natural gas-fired heating equipment, a steam boiler and a process heater that appear to be exempt from AQD permit requirements per Rule 282(2)(b)(i) – indirect heating

equipment that burns only natural gas and has a rated heat input capacity of not more than 50,000,000 Btu per hour-.
According to the boiler plate, the equipment is a Cleaver Brooks CB Packaged Boiler, model No. CB-439-600, with a heat input capacity equal to 25,106,000 BTU/HR. The installation or construction date on the plate reads 2/4/69. There is also another plate from the Michigan Department of CIS - Bureau of Construction Codes, identifying the boiler with a State Number M392115M. According to Cleaver Brooks model number nomenclature's guide, the three unique identifiers separated by a dash, refer to: the product model, the fuel configuration, and the horsepower; in that order. Therefore, CB is the product model, 400 means that the burner was originally configured to alternative burn heavy oil or natural gas, and 600 is the output capacity in horsepower. According to Dan Belisle, the boiler only uses natural gas to produces non-contact steam serving the fractional distillation column for indirect heating.
The process heater was identified as a thermal fluid heater that burns natural gas. The metal plate identifies a unit heater from Thermal System Inc., with an input capacity of 6,040,000 BTU/HR. This unit burns natural gas and produces steam that heats up the thermal fluid that is inside the pipes. Thereafter, the thermal fluid is pumped and piped over to the fractional distillation column for temperature control. It provides heat to the reboiler with a fair degree of control.
Gas-fired boilers are not subject to NESHAP, Part 63, Subpart 6J. Natural gas-fired steam generating units are not subject to NSPS, Part 60, Subpart Dc if constructed prior to June 9, 1989 (Cleaver Brooks boiler).

NMP and EG Processing and Product Recovery Operations
As indicated earlier in this report, USE ROM is currently processing NMP and EG waste to recover valuable products. For these operations USE ROM is using the distillation column and the supporting equipment that is covered by PTI 191-00E. PTI 191-00E does not make any reference to the reclaiming of NMP or EG at USE ROM. Mr. Belisle was consulted, and he indicated that before making the decision of processing the cited fluids, USE ROM hired a consultant to do a Rule 278 analysis to demonstrate that the reclaiming operations were exempt form AQD permitting. I asked him to provide copies of that documentation as a follow-up item to this inspection. This issue will be evaluated in the next inspection cycle.

Miscellaneous Permanent Storage Tanks and Seasonal Portable Frack Tanks
There are several "frack" tanks (horizontal-rectangular tanks) that are used at the plant to store unfinished PG product "mid cut streams", PG feedstocks or other fluids in 'as needed bases. The size of the frack-tanks are about 18,000 to 20,000 gallons and most of them are seasonal. AQD requires USE ROM to demonstrate if the loading and unloading operations taking place at those tanks are exempt from permitting. It seems like there could be breathing and working losses. Similarly, any permanent storage or holding tank involved in transfer/loading/unloading operations that is not listed in PTI 191-00E should be evaluated for permit exemption applicability. A table that listed the current emission units included in PTI 191-00E was provided to Mr. Belisle for him to update. This issue will be evaluated in the next inspection cycle.

5. COMPLIANCE EVALUATION

PTI 231-06

PTI 231-06 includes VOC emission limits, process operating conditions, monitoring and recordkeeping requirements that are paraphrased and evaluated in this section of the report.

There is only one emission unit identified as EUGROUNDWATER.

Emission Unit ID	Emission Unit Description	Stack Identification
EUGROUNDWATER	Air stripping tower and ancillary equipment	SVSTRIP
Changes to the equipment described in this table are subject to the requirements of R336.1201, except as allowed by R336.1278 to R336.1290.		

The following conditions apply to: EUGROUNDWATER

Emission Limits – *In Compliance*

	Pollutant	Equipment	Limit	Time Period	Testing/Monitoring Method	Compliance Yes or No?
1.1	VOC	EUGROUNDWATER	9 tpy	12-month rolling time period as determined at the end of each calendar month.	SC 1.3	**Yes**

Monthly records for the period 1/2020 to 5/2021 were collected during the inspection and the values showed compliance with the above cited VOC limits. Refer to SC 1.3 to 1.5 for details.

Process/Operational Limits - *In Compliance*

1.2 The permittee shall not treat more than 65 gallons per minute (gpm) of groundwater. According to the records provided by USE ROM for years 2020 and part of 2021, the typical flowrate is within 12 -15 gallons per minute. Maximum flows could reach up to 30 gpm.

Monitoring – *In Compliance*

1.3 The permittee shall monitor, in a satisfactory manner, the flow rate and the total VOC concentration of the air stripper influent groundwater stream. This shall be done on a monthly basis. The permittee shall determine the total VOC concentration using standard MDEQ groundwater analytical scans for VOCs. The permittee shall submit any request for a change in the sampling frequency to the AQD District Supervisor for review and approval.

USE ROM has field meters that monitor the GW flowrate in a daily basis. The VOC concentration of the air stripper influent GW stream is determined by sampling the stream in a monthly basis. According to the records, the analytical results range from 14 to 48 PPM. The sampling results and the monthly GW flowrate are used to calculate the monthly VOC concentration of the stream entering the air stripper.

Recordkeeping/Reporting/Notification – *In Compliance*

1.4 The permittee shall complete all required calculations in a format acceptable to the AQD District Supervisor by the 15th day of the calendar month, for the previous calendar

month, unless otherwise specified in any recordkeeping, reporting or notification special condition.

1.5 The permittee shall record the flow rate and total VOC concentration of the air stripper influent groundwater stream in a manner consistent with Appendix 1. This shall be done on a monthly basis. The permittee shall keep all records on file for a period of at least five years and make them available to the Department upon request.

1.6 The permittee shall keep, in a satisfactory manner, monthly and 12-month rolling time period calculations of VOC emission rates for EUGROUNDWATER, as required by SC 1.1. The permittee shall keep all records on file for a period of at least five years and make them available to the Department upon request.

Mr. Belisle showed me the excel sheet in his computer screen and I verified that the facility maintains the required calculations in acceptable format. In a monthly basis, the raw water sample date and the analytical results for the VOC concentration of the GW influent stream are recorded. To evaluate compliance with the VOC permit emission limit of 9 tons per year, the VOC emissions are calculated with the formula in Appendix 1, using a maximum flowrate of 30 gallons per minute, and assuming 100% removal efficiency in the Air Stripper. In other words, it is assumed that the VOCs are trapped in the water stream treated in the air stripper and the exhaust from the air stripper stack is free of VOC. Monthly, and 12-month rolling time period calculations are maintained on file for at least five years and are available for review. A sample record was collected for the period 1/24/2020 to 5/18/2021. The estimated VOC concentrations for the GW discharge stream were below the permit limit of 9 tpy, with a maximum value of 1.7 tpy. from November 2020 to March 2021.

Stack/Vent Restrictions – *In Compliance*

	Stack & Vent ID	Maximum Diameter (inches)	Minimum Height Above Ground Level (feet)	Compliance
1.7	SVSTRIP	6	37.5	Yes.
	The exhaust gases shall be discharged unobstructed vertically upwards to the ambient air.			

It appears as if there have not been changes to the stack dimensions.

PTI 191-00E

As indicated earlier, due to the damage to the solvent recovery process the current operations at USE ROM are limited to the deicing fluid process and wastewater storage. During the permit evaluation the estimated VOC emissions from the cited activities were minimal (below 1 ton per year); consequently, the former operations of the RTO and flare system were not economically feasible for controlling less than a ton of VOCs emitted from the deicing fluid process. Therefore, this permit allowed the facility to vent emissions to the ambient air without controls. In addition, the toxics analysis showed that the annual predicted impact from PG (VOC) emissions were determined to be well below the annual screening level. Key aspects of the permit conditions include:

- Removed emission units that no longer exist at the facility and removed emission units that are now exempt because they are no longer used for hazardous waste storage and/or treatment but will only be used for storage of condensate water from the deicing fluid process.
- Added a flexible group for the deicing fluid process (FGDEICE)
- Removed operational requirements for the deicing fluid process so that the process no longer is required to vent to the RTO and flare.
- Removed throughputs for processes that no longer exist at the facility.
- Allowed for flexibility for hazardous waste treatment at the facility by highlighting the emission units that are associated with the deicing fluid process that might also be used for hazardous waste treatment and including conditions that require USE ROM to keep records of when these emission units are in service for the deicing fluid process and when they are in service for hazardous waste treatment.

The emission units and flexible groups identified in PTI 191-E are listed on the following tables:

Emission Unit ID	Tank Shell Capacity (gallons)	Emission Unit Description	Status	Stack ID
EUFRAC		Fractional Distillation Column/Reboiler	In Service	N/A
EUWW5		Storage of Wastewater		SV001
EUTANK500		Recoverable Fuel Tank		N/A
EUTANK501		Recoverable Fuel Tank		N/A
EUTANK502		Recoverable Fuel Tank		N/A
EUWW7		Storage of Wastewater		SV001
EUWW100		Storage of Wastewater		SV001
EUWW101		Storage of Wastewater		SV001
EUWW102		Storage of Wastewater		SV001
EUWW103		Storage of Wastewater		SV001
EUWW104		Storage of Wastewater		SV001
EUWW105		Storage of Wastewater	In Service	N/A
EUWW106		Storage of Wastewater	In Service	N/A
EUWW107		Storage of Wastewater	In Service	N/A
EUWW108		Storage of Wastewater	In Service	N/A
EUWW300		Wastewater Treatment Tank	In Service	N/A
EUWW301		Wastewater Treatment Tank	In Service	N/A
EUWW6		Storage of Wastewater		SV001
EUWW9		Storage of Wastewater		SV001
EUWW10		Storage of Wastewater		SV001
EUAIRSTRIPPER		Shallow Tray Air Stripper	In Service	SVAIRSTRIP

EUPRESSROOM		Filter Press Following Waste Water Treatment	Removed	N/A – Fugitive emissions

Flexible Group ID	Emission Units Included in Flexible Group		Stack ID
FGDEICE	EUWW300 EUWW 301 EUFRAC	EUWW105 EUWW106	N/A
FGCOMMONVENTHDR	EUWW300* EUWW301* EUWW107*	EUWW108* EUFRAC* FGWASTEWATER	SV001
Note: Changes to the equipment described in this table are subject to the requirements of R336.1201, except as allowed by R336.1278 to R336.1290. *** Emission units are subject to the requirements of flexible group FGCOMMONVENTHDR when EUWW300, EUWW301, and/or EUFRAC are in hazardous waste service.**			

NOTE: The table has been modified to identify the EUs that were in-service at the time of the inspection, the ones that were not-in-service, and those EUs that have been removed. As a follow-up action item, AQD asked Mr. Belisle to complete the table indicating the capacity of the tanks, as well as the specific type of fluid stored in each tank. Also, requested was the addition of EU that are not listed on the table that are currently used (i.e. the four tanks that are used for NMP storage final product, feedstock and/or intermediate product, reboiler bottoms storage tanks etc). This completion of this action item will be evaluated in the next inspection cycle.
The majority of the permit conditions were written to allow the flexibility for hazardous waste treatment at the facility to recycle solvent with the equipment on-site. However, those operations have not been reactivated. Therefore, only a few conditions of PTI 191-00E are applicable to the current operations at USE ROM. Those conditions and requirements have been selected from the permit and evaluated below.

Material Usage Limits
1.3 The throughput of material through tanks which comprise the following flexible groups or emission units shall not exceed the following volumetric rates:

Flexible Group/Emission Unit	Gallons per Day
FGDEICE	60,000
EUWW107 and EUWW108 combined throughput	500,000
FGWASTEWATER	500,00

Recordkeeping/Reporting/Notification
1.25 The permittee shall keep a written record of the amount of material treated on a daily basis and on a monthly basis. All records shall be kept on file for a period of at least five years and made available to the Department upon request.

1.29 The permittee shall keep, in a satisfactory manner, monthly records of the quantities and composition of all materials processed in FGWASTEWATER, and FGDEICE. All

records shall be kept on file for a period of at least five years and made available to the Department upon request.

1.30 The permittee shall keep records as required to demonstrate compliance with the emission limits of this permit. Emission totals shall be calculated using the methods described in Appendix 1. A monthly summary of these emissions shall be kept on file for at least five years and made available to the Air Quality Division upon request. Within 30 days following the end of each calendar month, the applicant shall calculate and record emissions from the process for the previous calendar month to demonstrate compliance with the 12-month rolling time period emission totals specified in this permit.

1.31 The permittee shall maintain a written record of the change in service from deicing fluid treatment to hazardous waste storage/treatment for emission units EUWW300, EUWW301, and EUFRAC. When these emission units are in deicing fluid service EUWW300, EUWW301, and EUFRAC are subject to the requirements for flexible group FGDEICE. When EUWW300, EUWW301, and/or EUFRAC are in hazardous waste service, then EUWW300, EUWW301, EUWW107, EUWW108, and EUFRAC are subject to the requirements for flexible group FGCOMMONVENTHDR.

Compliance Evaluation PTI 191-00E (all above listed applicable conditions)
During the inspection, Mr. Belisle showed me on the computer screen the daily and monthly records of the amount of material treated. The records seem to be kept for at least five years. I asked for a sample of the records and Mr. Belisle provided an excerpt from a data log that records daily volumes of deicing fluid through the distillation column for the month of November of 2021. The values reported volumes that ranged from 11,728 to 14,358 gallons per day. It appears as if the throughput of material through EUFRAC is below the permit limit of 60,000 gallons per day. Tanks 300, 301, 105 and 106, which comprise FGDEICE, are not currently used for the storage of deicing fluid process related streams. It is assumed that all the PG treated at the facility is accounted for in the distillation column. With respect to the combined throughput for tanks 107 and 108, Mr. Belisle provided sample records showing daily and monthly water discharge volumes as monitored by Meter 1 for year 2021. The discharge to GLWA identified as (SL3). The daily record excerpt corresponded to the month of December 2021. According to the records for 2021, the highest monthly discharge volume was about 1,400,000 gallons, reported for the month of in August. That value represents a daily average of 45,000 gallon per day. The daily records for December showed much lower values, with the highest being around 23,250 gallons per day. Using 45,000 gallons per day, as the highest for the year, it appears as if the throughputs from the combined tanks (107 and 108) are below the permit limit of 500,000 gallons per day.
This permit only applies to PG recovery; therefore, we are dealing with different concentration of PG, ranging from diluted waste solutions at 5 to 10 % to the reclaimed product that could be at >90 % purity. I did not request information about the specific composition of the material processed in FGDEICE and FGWASTEWATER, as it is cited in SC 1.29.
There are no emission limits associated with the operations of the equipment included in the flexible groups FGDEICE and FGWASTEWATER, or emission units EUWW107 and EUWW108.
There has not been a change in service from deicing fluid treatment to hazardous waste storage/treatment for emission units EUWW300, EUWW301, and EUFRAC.

6 - CONCLUSION

As a result of this inspection AQD concludes that the facility (USE ROM) is in substantial compliance with the requirements of the federal Clean Air Act and the conditions stipulated in the PTI 231-06 and PTI 191-00E.

As referenced throughout the report, there are a few items that require attention and further evaluation. Those aspect require additional information from the facility and will be evaluated during the next inspection cycle.

NAME C Sandoval DATE 1/26/2022 SUPERVISOR JK