



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

Report Title: CAA Inspection for Petroleum Management Inc.
Inspection Date(s): 09/14/2020 – 09/15/2020
Regulatory Program(s): SIP, Title V
Company name: Petroleum Recovery and Remediation Management, Inc. d/b/a Petroleum Management, Inc.
Facility Name: Curtis Avenue Facility
Facility Location: **5218 Curtis Avenue**
Baltimore, MD 21226
Mailing Address: 2138 Priest Bridge Ct., Ste. 10
Crofton, MD 21114
County/Parish: Baltimore
Facility Contact: W. Scott Alexander, Environmental Projects Manager
scott@petromgmt.net, 301-674-4002
AFS Number: FRS ID: 110054130070
Permit Number: no permit available
NAICS: 562211
SIC: 8999 SERVICES, NOT ELSEWHERE CLASSIFIED

Attendees:

Facility Representatives:

W. Scott Alexander, Environmental Projects Manager, 301-674-4002
Dammin Johnson, Operator

EPA Inspectors:

Christopher Williams, HQ-OECA-Air Enforcement Division, 202-564-7889
Bruce Augustine, R3-ECAD-Air, RCRA & Toxics Branch, 215-814-2131
James Riggs, R3-ECAD-Air, RCRA & Toxics Branch, 215-814-2238
Daniel Hoyt, HQ-OECA-Air Enforcement Division, 202-564-7898

State/Local Inspector(s):

Joel Dreessen, MDE-Air Monitoring Program, 410-537-3296

EPA Lead Inspector

Signature/Date	Christopher Williams	Date
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EPA Inspector

Signature/Date	Bruce Augustine	Date
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Supervisor

Signature/Date	Kris Hall	Date
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I. Introduction

On September 14 and 15, 2020, the Environmental Protection Agency (EPA) in cooperation with Maryland Department of the Environment (MDE) conducted a Clean Air Act (CAA) partial compliance evaluation of Petroleum Recovery and Remediation Management, Inc. d/b/a Petroleum Management, Inc. (PMI or the Facility) located at 5218 Curtis Avenue to verify compliance with permitting requirements and applicable State and Federal regulations.

On September 14, 2020 at approximately 2:15 P.M., EPA Inspectors Daniel Hoyt, Bruce Augustine and Christopher Williams were conducting mobile air monitoring in the City of Baltimore near Curtis Bay. While on Curtis Avenue, EPA Inspectors measured concentrations of Volatile Organic Compounds (VOCs) in the air downwind of the Facility fence line. Using optical gas imaging (OGI) camera, Mr. Augustine confirmed that hydrocarbon emissions were emanating from the facility but was unable to determine the source(s) from the fence line. At around 2:30 P.M., Mr. Williams called Mr. James Riggs, an EPA inspector that was working in the office, and asked him to notify MDE of EPA's intent to make entry to determine the source(s) of VOCs measured offsite. At 2:40 P.M., EPA Inspectors Augustine and Williams made entry to the Facility.

On September 15, 2020 at around 11:00 A.M., EPA Inspectors Hoyt, Riggs, Williams and Cary Secrest accompanied by Mr. Joel Dreessen of MDE detected concentrations of VOCs from air downwind of the Facility fence line. At 11:14 A.M, EPA Inspectors Riggs, and Williams and Mr. Dreessen made entry to the Facility to conduct air canister sampling of the headspace of several tanks and containers used in the wastewater treatment process.

No prior notification of entry was provided to PMI on either day.

A. Summary of the Facility-

According to Facility employees Messrs. Scott Alexander and Dammin Johnson, PMI performs a variety of environmental services for the petroleum industry, including petroleum recovery, petroleum waste disposal and cleaning of equipment in petroleum service, e.g. gasoline sumps, storage tanks and day tanks. PMI owns and operates a fleet of vacuum "vac" trucks used for the environmental services. The petroleum waste is transported to the Facility by PMI and industry clients via vac trucks for the purpose of waste recovery and disposal.

B. Inspection Opening Conference-

On September 14, 2020 at 2:40 P.M., EPA Inspectors Augustine and Williams entered the Facility for an unannounced inspection. The EPA Inspectors presented their credentials to Mr. Johnson, an operator for PMI, and explained that EPA had, from near the fence line, measured and observed VOCs emitting from the facility and informed him of their intent to inspect the facility using an OGI camera.

II. Process Overview

This section summarizes discussions with Messrs. Alexander and Johnson regarding the equipment and operations at the Facility as of the dates of inspection. The Facility has been in operation approximately 10 years and operates 365 days per year. Operations conducted at the Facility include storing, treating and disposing of petroleum waste. The Facility treats 10,000 to 15,000 gallons per day of petroleum contaminated water in batches in an onsite wastewater treatment plant. A diagram (see Figure 1 below) of the Facility was developed by EPA Inspectors for reference in the report. All tanks and containers at the Facility are either uncovered with no roof or partially open, i.e., open hatches and open vents on the roof, allowing any vapors, including VOCs, to emit directly to the atmosphere. There is neither a vapor capture system nor air pollution control device installed at the Facility. As of the dates of inspection, PMI had not obtained a Federal or State air permit covering emissions sources at the Facility.

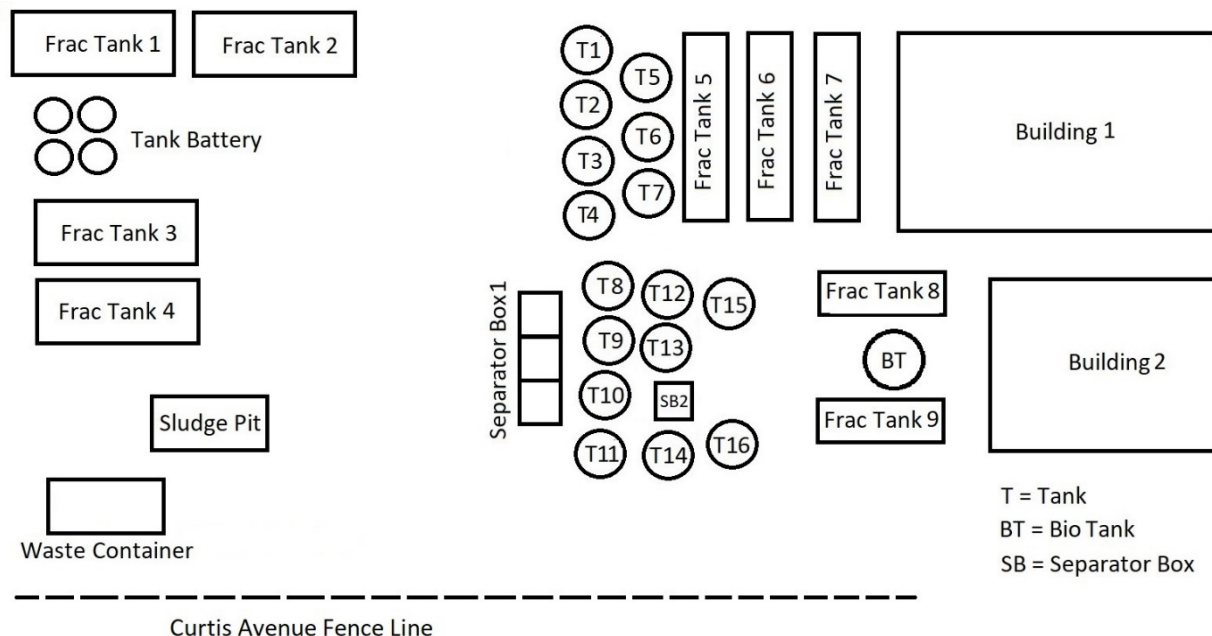


Figure 1: Diagram of the Facility¹

Referring to Figure 1, Frac Tanks 1–9 are aboveground rectangular metal tanks that have a volume of approximately 20,000 gallons. Frac Tanks 1–4, 5 and 7 are green and Frac Tanks 6, 8 and 9 are yellow. Tanks 1–16 are aboveground cylindrical tanks of various volumes ranging from an estimated 5,000 to 15,000 gallons. Tanks 1, 4–16 are black plastic tanks with “WATER ONLY” painted on the exterior. Tanks 2 and 3 are metal tanks with white insulation sleeves surrounding the exterior of the tanks. The Tank Battery consists of four relatively tall aboveground metal cylindrical tanks manifolded together; each tank is estimated to have a volume of 15,000 gallons. The Bio Tank is an aboveground green metal cylindrical tank estimated to have a volume of 20,000 gallons. The Sludge Pit is a partially buried metal rectangular container. The Waste Container is an aboveground metal rectangular container.

¹ Process equipment names and numbers may not represent identification and numbering used by PMI.

Separator Box 1 is a larger rectangular metal container. Separator Box 2 is a smaller metal rectangular container.

Prior to being processed in the wastewater treatment plant, petroleum contaminated water is brought to the Facility via vac trucks and stored in Frac Tanks 1–4 and Tanks 1–7. The wastewater treatment plant consists of Separator Boxes 1–2, Frac Tanks 8–9, Tanks 8–16, Bio Tank, Sludge Pit, and Waste Container. In the wastewater treatment process, petroleum contaminated wastewater is pumped in batches from the storage tanks or vac trucks to Separator Box 1. In Separator Box 1, solids settle out of the liquid phase. The liquid phase, from Separator Box 1, is transported through a sequence of separation tanks (Tank 11 to Tank 10 to Tank 9 to Tank 8 to Tank 12 to Tank 13 to Tank 15 to Tank 16 to Tank 14) that gravity separate the liquid into an aqueous phase and an oil phase. Each of the separation tanks is configured so that the aqueous phase flows to the subsequent separation tank. The aqueous phase from the final separation tank of the sequence, Tank 14, is pumped to Separator Box 2 for settling of any remaining solids. The aqueous phase in Separator Box 2 is then pumped to Frac Tanks 8 and 9 for storage until the Bio Tank has capacity to process the aqueous liquid. Liquids from the Frac Tanks 8 and 9 are fed in batches to the Bio Tank. Microbes in the Bio Tank consume remaining petroleum hydrocarbons in the aqueous phase. The resultant wastewater from the Bio Tank is pumped to Frac Tanks 5–7 for storage and sampling prior to discharge into the Baltimore City sewer system. Petroleum sludge from the wastewater treatment process and vac trucks is pumped to the Sludge Pit, where it is mixed with sawdust and loaded into the Waste Container. The contents of the Waste Container are loaded onto trucks and hauled offsite for disposal. The Tank Battery is used to store petroleum products brought to the Facility, including diesel and “black gas.”

III. Plant Tour/Walkthrough

On September 14 at 2:41 P.M., EPA Inspectors Augustine and Williams walked through the Facility and inspected the process equipment². During the walkthrough, Mr. Augustine used an OGI infrared GF-320 (S/N 44401737) camera manufactured by FLIR Systems to detect and image VOCs. Mr. Williams took pictures of process equipment³ with a digital camera and wrote down the inspectors’ observations in a field notebook. Mr. Hoyt conducted air monitoring at the fence line on Curtis Avenue downwind of the Facility during the period that EPA Inspectors were onsite.

Throughout the duration of the Facility tour, Mr. Williams noted strong odors of petroleum hydrocarbons present around the process area and equipment. Mr. Augustine detected significant amounts of VOCs with the OGI camera and recorded several videos demonstrating the pervasiveness of the VOC emissions emanating from and around the process equipment⁴. At approximately 3:25 P.M., having completed inspecting the outdoor equipment the EPA Inspectors concluded the walkthrough and exited the Facility. Mr. Hoyt measured concentrations as high as 3 parts per million (ppm) VOC as isobutylene downwind of the Facility during the period that EPA Inspectors were onsite.

² No buildings were entered during the walkthrough.

³ Included as Attachment 1 to this report.

⁴ Included as Attachment 2 to this report.

On September 15 at 11:19 A.M., EPA Inspectors Riggs and Williams and Mr. Dreesen met Mr. Johnson in the Facility parking lot. The EPA Inspectors presented their inspector credentials and informed Mr. Johnson that, moments before, EPA had measured concentrations of VOCs emanating from the Facility and that they intended to sample the headspaces of some of the tanks and containers containing petroleum waste. During the sampling effort, Mr. Riggs used a photo ionization detector (PID) ppbRAE 3000 manufactured by RAE Systems (S/N 594-901619) to measure VOC concentrations of the sampled headspaces for compounds with 4 or more carbon atoms (C4+). Mr. Dreesen conducted sampling with air canisters. Mr. Williams used a digital camera to obtain photos of the sample locations⁵ and used a field notebook to record the inspectors' observations. Messrs. Hoyt and Secrest conducted air monitoring at the fence line on Curtis Avenue downwind of the Facility during the period that EPA Inspectors were onsite.

At 11:20 A.M., a PMI operator was loading liquid from Frac Tank 4 into Separator Box 1 and stopped loading the liquid into the separator box upon arrival of the EPA Inspectors. At 11:22 A.M., Mr. Dreesen sampled the headspace of Separator Box 1 with an air canister (tag ID# 4578), and Mr. Riggs measured a concentration of 120 ppm VOC as isobutylene. At 11:24 A.M., Mr. Dreesen sampled the headspace of the Sludge Pit using an air canister (tag ID #21034) and Mr. Riggs measured a concentration of 66.45 ppm VOC as isobutylene. At 11:29 A.M., Mr. Dreesen sampled the headspace of Separator Box 2 using an air canister (tag ID #4561), and Mr. Riggs measured a concentration of 605 ppb VOC as isobutylene. At 11:29 A.M., Mr. Dreesen sampled the headspace of Frac Tank 4 using an air canister (tag ID #210520), and Mr. Riggs measured a concentration of 2,026 ppm VOC as isobutylene. At approximately 11:45 A.M., Mr. Alexander arrived at the Facility and Mr. Williams conducted a brief closing conference, before exiting at 12:00 P.M. Mr. Hoyt measured concentrations around 2 ppm VOC as isobutylene downwind of the Facility during the period that EPA Inspectors were onsite.

IV. Records Review

On September 15, during the closing conference, the following records were requested from the Facility:

1. An example of a waste manifest obtained by PMI after receiving waste for disposal (see Attachment 4); and,
2. An example of water sample analyses report for the wastewater effluent samples collected by the City of Baltimore prior to discharge (see Attachment 5).

V. Closing Conference

On September 15 at 11:45 A.M., EPA Inspectors Riggs and Williams conducted a brief closing conference with Messrs. Alexander and Johnson. During the closing conference, the EPA Inspectors were joined for approximately 5 minutes by Mr. Richard Hofstader, co-owner of PMI. Mr. Williams explained to the PMI representatives that EPA's purpose for being at the Facility was to locate and characterize emissions source(s) of VOCs that EPA had measured beyond the

⁵ Included as Attachment 3 to this report.

fence line of the Facility. Mr. Alexander briefly described the company and the Facility operations. During the discussion, Mr. Alexander acknowledged, saying “it makes sense”, that the Facility operations result in VOC emissions that may require an air permit. Mr. Alexander also described that the Facility “oil operations” were going to be moved to a recently purchased location close by on Patapsco Avenue because the Facility traditionally was setup to handle “water only”. Mr. Williams explained that EPA would be in touch with Mr. Alexander if EPA had any further questions and would notify him if inspectors wished to gain entry to the Facility. At approximately 12:00 P.M., the EPA inspectors concluded the inspection and exited the Facility.

VI. Areas of Concern

The following have been identified as potential issues resulting from the inspection. These issues may require further investigation by EPA or additional information or explanation by PMI.

1. Air monitoring measurements from beyond the fence line exhibit relatively high concentrations of VOCs that originate at the Facility are conveyed off-site by winds. VOCs are precursors to ozone, which is a criteria pollutant regulated under the Clean Air Act (CAA). Petroleum products also contain concentrations of benzene, toluene, ethylbenzene, and xylene (BTEX) which are hazardous air pollutants (HAPs) regulated under CAA. The air monitoring measurements of VOCs performed by EPA include BTEX.
2. The amount of VOC emissions from the tanks at the Facility may exceed the threshold to require an air permit from the MDE. As of the dates of inspection, the Facility had not obtained an air permit covering emission sources at the Facility.
3. As of the dates of inspection, there was neither a vapor capture system nor air pollution control device, e.g. combustion device or vapor recovery unit, installed to capture or reduce VOC vapors generated by operations and equipment onsite at the Facility.

VII. List of Attachments

1. Photo log from September 14, 2020
2. Video log from September 14, 2020
3. Photo log from September 15, 2020
4. An example of a waste manifest
5. An example of water sample analyses report