



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

Report Title: Clean Air Act Inspection of Quarantine Road Sanitary Landfill
Inspection Date(s): 03/18/2022
Regulatory Program(s): Title V, NSPS, MACT
Company Name: Quarantine Road Sanitary Landfill
Facility Name: Quarantine Road Sanitary Landfill
Facility Location: 6100 Quarantine Road
Curtis Bay, MD 21226
Latitude: 39.20588 **Longitude:** -76.55933
County/Parish: Baltimore
AFS Number: 110013980406
Permit Number: MD0000002451002293
NAICS Code: 562212 **SIC:** N/A
Unique Project #: 3E22CA075A

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I. Introduction

The United States Environmental Protection Agency (EPA) conducted a Clean Air Act (CAA) inspection at the Quarantine Road Sanitary Landfill (Quarantine Road Landfill, QRL or the Facility) to verify compliance with applicable State and Federal regulations. The Maryland Department of the Environment (MDE) was notified of the inspection on February 23, 2022, via email. On March 16, 2022, EPA notified the Facility of the planned inspection via phone and email. EPA emailed a list of records for review to James Rohrbach, Chief Solids Waste Disposal, prior to the inspection (see Attachment 1). These records are listed in the Records Review section of the report.

A. Summary of the Facility

The Facility is located at 5701 Quarantine Road, Baltimore, MD 21226. This is a 149-acre municipal solid waste (MSW) landfill owned and operated by the City of Baltimore Department of Public Works. The landfill began accepting MSW in 1985 and waste is received from commercial and industrial companies, the Department of Transportation, small haulers, as well as from a waste to energy facility and the general public. The design capacity of the landfill is 21.43 million tons (Mtons), which is above the threshold of the 2.75 million tons required for Title V permits. About 90% the waste comes from the city and about 10% from elsewhere. The landfilled waste is typically 44% ash and 56% MSW.

QRL's current waste acceptance operational hours are from 8:00am to 4:00 pm Mondays to Saturdays. There are currently 20 full time employees, including laborers, equipment operators, managers, and contractors.

The Facility received a Title V permit #24-510-02293 from MDE which expired on November 30, 2018, MDE received a permit renewal application on November 30, 2017, and granted the Facility an administrative completeness review on December 11, 2017, thereby granting the Facility an application shield.

The Facility is subject to, or potentially subject to the following federal regulations:

- 40 CFR Part 63: Subpart AAAA- National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills
- 40 CFR Part 62: Subpart OOO – Federal Plan Requirements for Municipal Solid Waste Landfills that Commenced Construction on or Before July 17, 2014, and have not been Modified or Reconstructed Since July 17, 2014
- 40 CFR Part 60: Subpart WWW – Standards of Performance for Municipal Solid Waste Landfills That Commenced Construction, Reconstruction, or Modification on or After May 30, 1991, but Before July 18, 2014

B. Inspection Opening Conference

At 8:45 am on March 18, 2022, EPA inspectors arrived at the Facility for a CAA Inspection and conducted a brief opening conference. Quarantine Road Landfill was represented by James Woods - Engineer, Jeaneen Maxwell - Assistant Solicitor, James Rohrbach - Chief Solid Waste, and Sean Sullivan - Consultant. Also, Eno Umoh - Inspector from MDE was present. EPA inspectors, Bruce Augustine and Stafford Stewart, presented their credentials and explained the purpose of the visit was to conduct a CAA Inspection to determine compliance with their permit and any applicable regulations. Additionally, EPA informed the Facility representatives of their right to claim any material obtained during the inspection as confidential business information (CBI). At the time of the inspection, the Facility did not claim any photos or documentation as CBI.

Bruce Augustine explained to the Facility that the inspection was part of a National Compliance Initiative (NCI) and that the inspection would include an opening meeting, a facility walkthrough, and a records review. The Facility was also informed by Bruce Augustine that during the walkthrough, photographs would be taken, and that monitoring would be performed using an FLIR camera. The Facility was also advised that a review of their responses to the questions sent on March 16, 2022, would be completed at the inspection closeout conference.

The opening conference concluded at 10:05 am.

II. Site Activity/Process Description

James Rohrbach stated that the Facility is owned and operated by the City of Baltimore, and that they began operations on this 149-acre location in 1985. The current design capacity of the facility is 21.43 Mtons, while there is currently about 18.5 Mtons of waste in place. The Facility is planning an expansion by adding another 5.2 Mtons of potential waste capacity by the year 2026. James Rohrbach stated that they are currently in Phase 3 of the application review and approval process for the expansion request. James Rohrbach also stated that Phase 3 is the longest part of the process since it deals with reviews of the detailed design proposals, including the landfill cells and the landfill monitoring strategies. Without the expansion, the landfill has approximately six to eight years of remaining permitted capacity.

The landfill receives approximately 250,000-275,000 tons of waste per year on average. Approximately 50% of that total is received in the form of ash from a waste to energy facility located in Baltimore, while the remaining waste received is a combination of MSW and construction debris. James Rohrbach stated that this year they have seen about a 5% increase in waste received, mostly Construction and Demolition (C&D) waste made up of gypsum boards from a local facility. Bruce Augustine asked whether any of the waste received is sampled, the Facility representative, James Rohrbach stated that they do not sample waste received. The Facility was asked by EPA inspector Bruce Augustine about the number of cells on site, the type of liner used and when waste was initially placed in each of the cells. James Rohrbach stated that there are six cells which are permitted to receive waste, not all of which are final grade. He also stated that he would have to check for information on the initial use of the cells since the history

of when each cell was opened and information on the type of liner used were not immediately available to him. The Facility is currently placing waste in Cell 6. Cell 6 is comprised of two separate phases; Phase 1 opened in the early 2000's while Phase 2 opened in 2007. Cell 6 was constructed with a composite liner of 60 mil geo-membrane, all the other cells are most likely lined with clay.

The Facility operates a Gas Collection and Control System (GCCS) to collect landfill gas generated by the degradation of waste in the landfill. According to James Rohrbach, the GCCS is operated in all areas of the landfill, except perhaps the newer sections of Cell 6. James Rohrbach further stated that the GCCS was voluntarily installed and is not required under applicable regulation or permit requirement. The GCCS is a collaboration between the Facility and the adjacent Coast Guard facility. The US Coast Guard currently pays the Facility a nominal fee for the purchase of landfill gas while the City of Baltimore pays for the maintenance of the GCCS. The GCCS was initially installed in 2009 with 30 gas wells. SCS Engineers currently maintains the operation of the GCCS on behalf of the Facility, however, SCS did not design or install the system.

EPA inspectors asked the Facility about the status of their non-methane organic compounds (NMOC) which was listed as ≤ 50 Mg/yr in May 2017. James Rohrbach stated that the Facility does not expect their NMOC numbers to vary significantly this year since they anticipate handling the same types and amounts of waste, which comprises of approximately 50,000 tons of residential waste, 10,000 tons of DOT waste, 20,000 tons of C&D waste, 2000 tons of Baltimore City waste, and 10,000 tons from smaller haulers that typically deliver waste with pick-up trucks. The only anticipated changes could be the receipt of more wall boards from US Gypsum, however the current calculated NMOC level of 12.9 Mg/yr is still well below the 34 Mg/yr threshold required for the installation and operation of a GCCS under 40 CFR Part 62, Subpart OOO.

Using the site layout provided by the Facility, EPA inspectors inquired about the age of the GCCS wells. James Rohrbach stated that some of these wells first began operating in 2009, while others were placed into service a few years later; between 2014 and 2015. James Rohrbach also stated that some of the areas identified for the planned expansion of about 5.2 million cubic yards of MSW are devoid of GCCS wells. EPA Inspector Bruce Augustine asked if cell #6 in Phase 2 had been receiving waste since 2007, James Rohrbach answered in the affirmative. The GCCS uses two blowers to pull gas from the landfill into the gas collection header. EPA inspectors asked if the blowers are variable or fixed speed and James Rohrbach stated that he would have to check with the Operations and Maintenance group. Mr. Woods stated that the gas ejection rate to the Coast Guard is monitored by two flow meters, one measures the total flow rate, and one measures the flow rate of the gas to the Coast Guard, the difference between the two represents the amount of gas that is sent to an open flare located onsite for destruction. Approximately 300 cubic feet per minute (CFM) of gas is sent to the Coast Guard. The existing contract requires the Coast Guard to pay a fee based on the amount of BTU they take in landfill

gas. The Coast Guard takes as much gas as needed at their facility for steam generation and the remainder is combusted in the flare. The Facility was asked by EPA Inspector Bruce Augustine if the gas flow rate was real time and if the content of the gas is treated in any way, James Rohrbach stated that they are in the process of establishing such an automatic real time system. Landfill gas is being sent to the Coast Guard as is, there is no treatment of the gas. Bruce Augustine also asked if there has been a decline in the amount of gas generated at the landfill, Mr. Rohrbach stated that he would have to check.

EPA inspector Bruce Augustine asked if positive pressure is ever used in the GCCS process, James Rohrbach said that it is unlikely, but he will check, he also stated that this information is contained in the data that will be provided to EPA. EPA inspectors asked about the frequency of surface emissions monitoring (SEM) and if it was possible for SEM to be conducted during the facility tour, James Rohrbach stated that monitoring is done quarterly and that it would not be possible because the company contracted to perform this test was not on site at that time. Quarterly SEM is conducted by Bay Environmental. In addition, the temperature, pressure, and oxygen content are monitored monthly at each wellhead. EPA inspectors asked whether TVAs were used to conduct the SEM, James Rohrbach said that that information is contained in Title V annual report and that EPA inspectors should check there. Eno Umoh from MDE stated that in his experience there is always positive pressure at landfills, but they must constantly monitor the gas condition and tune the process, the goal is to avoid pulling too much oxygen and to optimize the amount present to avoid fires. The Facility was then asked by EPA inspectors when was the last well put into service, what was the material of construction of the well heads and how the leachate generated at the landfill is managed. James Rohrbach stated that the last wells were placed into service in 2015 and in 2016, the well heads are probably made of PVC or HDPE, but he would have to check. James Rohrbach also stated that all leachate is piped to a collection pond on site and then pumped to a waste treatment plant (WTP), Patapsco, in the City of Baltimore. The volume of leachate sent to the WTP is about 26,000 gallons per day. Eno Umoh from MDE stated that reports show that the profile of some of the emissions are not typical of that seen in other landfills, for example the CO₂, and O₂ levels are relatively much lower while the N₂ levels are relatively much higher than values seen in comparable landfills. Eno Umoh stated that this was possibly due to the high ash content in the waste received at this landfill.

James Rohrbach was asked if the methane content of the landfill gas was constant, he stated that the methane content of the landfill gas is constant now at 58% but in the past, it was variable and of a much lower value.

III. Observations

EPA inspectors were led on a walkthrough of the Facility at 10:15 am by James Woods, James Rohrbach and Jeaneen Maxwell of QRL, Sean Sullivan, a consultant from SCS Engineers and Eno Umoh from MDE were also present for the walkthrough. EPA inspectors noted photos would be taken during the Facility walkthrough (Attachment 2).

EPA inspector, Bruce Augustine explained to the Facility that the tour would involve inspection of the leachate pond, inspection of several wells, an inspection of the flare unit and a tour of several “active” areas.

The Facility tour began with an inspection of the flare unit, this is the area where the landfill gas is delivered to the Coast Guard and the excess gas is flared. The inspection team observed two blowers used to extract gas collected in the gas header. The blowers create a negative pressure in the well field to transfer the gas to the flare station. Blower 301 was operating during the inspection at a rate of 31.8Hz. QRL does not need to operate both blowers at the same time. The total flow of gas to the control system during the inspection was 260scfm. The existing flare is a PEI Energy flare and was operating at a temperature of 1266°F during the inspection. The methane content of the gas was observed on the collection header control panel to be 58%. The metering station transfer point where gas is sent to the Coast Guard was also observed. The inspection team also observed the condensate collection sump or knockout which collects any liquids in the gas header. The condensate is pumped through the collection header to a central collection facility or leachate pond for treatment and disposal. The flare and components on the gas collection header were observed using the FLIR camera.

Adjacent to the flare and gas transfer point, QRL operates two leachate collection ponds. The area is equipped with a truck loading rack used to pump leachate into trucks for removal offsite. The leachate ponds were observed using the FLIR camera.

The EPA inspection team and QRL proceeded to drive onto the landfill surface to inspect a closed section of the landfill. The inspection team walked on the surface and observed several gas wells. These wells were monitored for the presence of fugitive emissions using the FLIR camera. Wellheads EW15, EW9, 20A, 20B, 38A, 39A were observed with the FLIR camera.

The inspection team then proceeded to conduct a perimeter tour of the landfill, stopping at locations along the perimeter road to observe the landfill. EPA inspectors asked the Facility about the frequency of monitoring for subsurface migration, the Facility representative, James Rohrbach stated that monitoring is conducted monthly. The EPA inspection team observed the CFC collection area. All material containing CFC is placed in an area where a third-party contractor (Maryland Environmental Services) removes CFC’s prior to being sent to a scrap yard for recycling.

The facility walkthrough concluded at 11:46 am.

IV. Records Review

The records review commenced immediately after a lunch break at 12:50 pm. EPA inspectors reviewed documents requested in the March 16, 2022, email to James Rohrbach (see Attachment

1). Below are the records requested followed by a discussion on what was provided:

1. QRL provided a copy of the Facility plot plan depicting the landfill footprint and GCCS;
2. The most recent Title V permit was issued by MDE on December 1, 2018. QRL provided a copy of the permit;
3. QRL provided copies of annual reports sent to MDE for the years 2018-2020 which include the amount of waste in place;
4. QRL provide a copy of the Tier 2 report prepared by SCS Engineers ion 2017. This report provides calculations showing the site specific NMOC emissions;
5. QRL provided emission statements sent to MDE for the years 2018-2020;
6. QRL indicated that the only combustion source onsite is the flare. There are no other boilers or heaters onsite. QRL agreed to provide manufacturer data for the flare after the inspection;
7. QRL representatives stated that no performance tests have been conducted at the site;
8. QRL does not maintain records of GCCS downtime. QRL does maintain periods when the gas blowers on the collection header are down for a malfunction or maintenance. They indicated there are approximately 2-3 periods per year when they lose power. They are in the process of installing a SCADA system for tracking for the GCCS and leachate pumping system for better recordkeeping;
9. QRL provided monthly wellhead monitoring data for the calendar years 2018-2022. EPA reviewed a portion of the records during the inspection. EPA noted that some of the monitoring indicated that the well is closed. QRL indicated that when the monitoring indicates "closed" then there is no gas flow from the landfill into the header;
10. QRL does not maintain flare temperature data at this time. Gas flow data is available from 2019 to the present. In the case of an outage, the flare is not equipped with a notification system or remote alarm;
11. QRL provided a copy of the Initial Design Capacity and NMOC Emission Rate Report for 40 CFR Part 62, Subpart OOO dated 9/17/2021;
12. QRL provided copies of the SEM quarterly monitoring from 2018-2021;
13. QRL indicated that they have received NOV's from other media and would provide them at a later date.

EPA Inspector, Bruce Augustine followed up with the following additional questions on 3/22/22.

1. Provide manufacturer information for the flare used to control landfill gas.
2. A list of enforcement actions issued by either EPA or MDE for all media since 2018. This should include the date of the action and the violation.
3. In the Tier 2 summary report from 2017, can you confirm that SCS excluded all waste other than MSW in the waste in place totals used to calculate the NOMC.
4. For the years 2017-2020, provide the amount of MSW received and disposed at the landfill.
5. Provide the date each cell first accepted solid waste and the date of the last permitted landfill capacity expansion.

The Facility representative, James Rohrbach sought clarifications via email on April 7, 2022, on some of the questions EPA sent on March 17, 2022, he also provided responses to the additional records request of 3/22/22. A response to item 5, involving the dates of the first accepted solid waste and the date of the last permitted landfill capacity expansion is still outstanding.

V. Closing Conference

After the records review, EPA inspectors, Bruce Augustine, Stafford Stewart and MDE State Inspector Eno Umoh had a brief closing conference to ask additional questions and discuss observations. The EPA inspectors noted that the investigation is on-going, and any areas of concern identified in the final reports do not necessarily reflect a violation or deviation, rather, they are areas that will require further investigation. EPA also noted that they would issue an inspection report within in 60 days, with a copy to the State. Simultaneously, EPA will perform a detailed review of records and may have additional questions. The Facility representative, James Rohrbach asked if anything was seen with the FLIR camera, Inspector Bruce Augustine stated that no FLIR videos were recorded while onsite. Mr. Rohrbach stated that they would welcome any feedback to improve their operations. The inspection concluded at 1:55 pm.

The following have been identified as *potential* issues during the inspection. They are issues that require either further investigation by EPA or additional information or explanation by the Facility.

- EPA needs to review and verify the annual NMOC emission rate calculations provided in the Tier 2 report and September 2021 Subpart OOO.
- Monthly well monitoring indicates several closed wells. It is not clear if these wells are not producing any gas or if they are closed to prevent the intrusion of oxygen into the landfill.
- The number of wells being monitored on a monthly basis appear to vary based on a review of the records provided by QRL.
- In the first quarter of 2020, QRL changed the third party conducting quarterly SEM from SCS Engineers to Bay Environmental Services (BES). In their quarterly reports, BES indicates that they are using a SEM5000 methane gas monitor to conduct monitoring. It is not clear from the information provided if this device meets the requirements of §62.16720(d). In addition, calibration records are not provided to verify the instrument was calibrated prior to each use.
- Records identifying when the GCCS is not operational are not being maintained. The Facility representative, James Rohrbach stated that they are not aware that these records are to be generated and kept.
- NMOC emission rate report due by November 1 each year, as required in Section IV- Plant Specific Conditions – Reporting Requirements 1.5B of the Facility’s Title V Permit, is currently being submitted by April 1.

VI. List of Attachments

Attachment 1: Email correspondence sent on March 16, 2022, to James Rohrbach of records requested to review

Attachment 2: Photo Log: Photos RIMG0088 - RMG0094