UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, ILLINOIS 60604

SUBJECT:	CLEAN AIR ACT INSPECTION REPORT Valicor Environmental Services LLC, Dayton, Ohio
FROM:	David Sutlin, Environmental Engineer AECAB (MN/OH)
THRU:	Brian Dickens, Section Supervisor AECAB (MN/OH)
TO:	File

BASIC INFORMATION

Facility Name: Valicor Environmental Services LLC

Facility Location: 300 Cherokee Drive, Dayton, Ohio 45417

Date of Inspection: May 3, 2023

EPA Inspector(s):
1. David Sutlin, Environmental Engineer
2. Tess Russell, Environmental Engineer

Other Attendees:
1. Jennifer Riley, Regional Air Pollution Control Agency (RAPCA)
2. Jay Hanna, Regional Vice President of Operations, Valicor
3. Mitch George, General Manager, Valicor
4. Nick Holden, Site-specific EHS Manager, Valicor

Contact Email Address: Jhanna@valicor.com

Purpose of Inspection: To inspect for leaks from the facility's closed vent system and determine compliance with NESHAP Subpart DD standards for closed-vent systems and related conditions in the facility's Title V permit

Facility Type: Industrial wastewater treatment and recycling

Regulations Central to Inspection: 40 C.F.R. Part 63, Subpart DD - National Emission Standards for Hazardous Air Pollutants from Off-Site Waste and Recovery Operations (Subpart DD)

Arrival Time: 9:45 AM
Departure Time: 3:30 PM

Inspection Type:
☒ Unannounced Inspection
☐ Announced Inspection

OPENING CONFERENCE

☒ Presented Credentials
☒ Stated authority and purpose of inspection
☐ Provided Small Business Resource Information Sheet
☒ Small Business Resource Information Sheet not provided. Reason: Not a Small Business
☒ Provided CBI warning to facility

The following information was obtained verbally from Jay Hanna and Mitch George unless otherwise noted.

Company Ownership: Valicor purchased the facility from Clean Water Environmental, LLC on December 22, 2022.

Process Description:
The facility operates multiple treatment and recycling processes:

- Oily water – wastewater from the W and S Tanks is fed to the Dissolved Air Filtration (DAF) system in Building B or Building G. In the DAFs, controlled by the closed vent system (CVS), pH is raised and chemical floc is added to precipitate solids. Sludge removed from the DAF is pumped to storage tanks, controlled by the CVS, that feed sludge presses. The sludge press in Building B operates continuously while the sludge press in Building G operates as a batch process. The solids from the presses go into roll-off containers, typically kept covered, until ready for shipping off to a landfill. The DAF liquid effluent is stored in storage tanks before going to the feed tank of the biological plant. The DAF liquid effluent tank in Building G is uncontrolled.
- Wastewater from the DAF is fed to the biological plant. It is first stored in the feed tank, which is uncontrolled but has a pressure/vacuum relief valve, and from there it is fed to the 125,000 gallon Sequencing Batch Reactor (SBR) and the 425,000 gallon Variable Depth Reactor (VDR) that both vent to the CVS. Air is blown into each of these tanks to support aerobic microbial digestion. The treated water is sent to the municipal wastewater plant once per day, in the morning.

- Solidification - Nonhazardous waste liquid is fed into pits inside Building G where it is mixed with an absorbant. Before entering the solidification pit, material is tested for BTEX and metals, and may be treated in a separate process or rejected depending on any test results over acceptable limits. Resulting solids are transported to landfills.
- High Organic Waste System (HOW) / also referred to as "lean water system" – Water is removed from mainly hazardous wastewater through heat and evaporation. The steam produced is used to heat the next incoming wastes, and the volatile organic compound (VOC) vapors mixed with the steam are separated by a distillation column and then condensed and sold to cement kilns as fuel. The remaining concentrate of high-boiling point material (and non-volatiles) is sent to another facility for further processing or to a hazardous waste deep well, and the water is treated in the biological plant before discharging to the municipal sewer system.
- Drum room (Building E) – Containers up to a maximum of 330 gallons, with similar waste profiles, are consolidated into tankers using an air diaphragm pump in an enclosed system where displaced vapors in the tanker are routed to the CVS. These wastes are sent off via trucker for hazardous waste incineration. Other drums containing gas/water mixtures can be pumped into intermediate tank S71 for consolidation before entering the W and S Tanks for on-site oily water processing. Valicor does not perform any drum cleaning.

Staff Interview:

- EPA asked about overflows from sludge tanks and staff acknowledged that they have occurred in the past, but that the facility has made the elimination of overflow events a priority. The current system for preventing overflows is passive, and relies on a visual indicator of the tank level, involving a reverse cantilever system that does not include alarms.
- The HOW has been operational since August 2021.
- Sludge from the presses is sent to a landfill approximately every 2-3 days.
- The biological plant's reactors are equipped with an emergency bypass system in case the RTO cannot handle the surge from the reactors. The system uses a poppet valve that releases gases to the atmosphere in such cases. The valve is not equipped with an alarm, though staff can sometimes visibly observe from the ground when the valve is open.
- A new biological plant is currently under construction to replace the two bio reactors sometime this calendar year. The new system will be continuous, more efficient, be able to handle higher strength waste, and will not require an emergency bypass vent nor will cause surges to the RTO. The continuous nature of the new process will also prevent anoxic situations from arising during "sitting" periods. The new biological plant is permitted to handle an increase in volume.

TOUR INFORMATION

EPA Tour of the Facility: Yes

Data Collected and Observations:

- EPA observed several of the pressure gauges used to check for negative pressure at points along the CVS furthest away from the exhaust fan, such as near tank vents in Building B. The T2 Tank (Sludge Settling Tank in Building B) gauge was broken. At another gauge in Building B, the needle was near zero, and it was difficult to determine if pressure was slightly negative or slightly positive. Staff indicated that all terminal gauges were being replaced with ones with greater resolution. The facility is required to monitor the terminal points of the CVS to ensure that negative pressure is maintained, in compliance with Subpart DD and a federal 2018 Amended Consent Decree.
- The TVA detected one reading above the standard 500 ppm leak threshold, through a 3-inch hole in the DAF Shock Tank in Building B (See Appendix B). The facility's air permit states that the components of the DAF are vented to the CVS. The facility's air permit and Subpart DD require that regular inspection and repair of holes and other defects in components of the DAF be carried out.
- A floor mat with cut-outs was being used to cover openings in the DAF effluent tank. TVAs detected high readings, though below leak threshold (See Appendix B).
- Though the main repairs to the RTO and ductwork were complete and the RTO was up and running, many of the facility's operations were down in order to facilitate the installation of the new LEL alarm system. Also in progress was installation of a new fresh air damper to allow fresh air into the CVS to keep readings below 20% of LEL.
- EPA measured RTO inlet and outlet concentrations and, at the time of the inspection, verified sufficient control efficiency for the RTO and an acceptable RTO outlet concentration of below 20 ppm.
- EPA observed the newly installed condensation knock-out pot. EPA also learned that staff had installed a new condensate drop leg downstream of the RTO fan, to prevent liquid level from leaking through the poppet valves, as occurred in an April incident. EPA observed above-baseline TVA readings at these knock-out pots, though below leak thresholds.
- Using the FLIR camera, EPA observed potential VOC emissions at the VDR pressure relief poppet valve.
- EPA was advised not to walk onto the top of the biological plant feed tank for safety reasons, and could not check the PRV for potential leaks.
- EPA observed a stockpile of material received from a pulp mill, used as absorbant in the solidification process in Building G.
- Using the FLIR camera, EPA observed potential VOC being emitted through an open hatch of the "day tank" (holding DAF liquid effluent) inside Building G. This tank is uncontrolled. Staff stated that any additional condensate collected along the CVS gets transferred to this day tank.
- EPA observed the Building G Sludge Press Roll-Off container. It contained some sludge placed on top of the temporary liner/cover. The facility's air permit and Subpart DD require that this container meet Container Level 2 standards.
- EPA took a TVA reading through a test port in the CVS, downstream of Building B but well upstream of Building G. The reading was greater than at the inlet to the RTO, indicating loss of organic gases from the CVS, possibly through condensation drop legs and the new condensation knock-out pot.

Photos and/or Videos: were taken during the inspection.

Field Measurements: were taken during this inspection.

- EPA used TVAs to test for leaks mainly in the CVS, including at the tops of process tanks in Buildings B and G, at the tops of the two bioreactors, along the main duct out of Building B and into Building G, and near the RTO.

CLOSING CONFERENCE

☒ Provided U.S. EPA point of contact to the facility

Requested documents: N/A

Compliance Assistance:

- EPA indicated the fresh air damper before the RTO, if considered a bypass, would require certain locks and preventative leakage measures according to the facility's permit.

Concerns:

- EPA expressed concern over the FLIR videos of potential VOC from Building G's DAF liquid effluent "day tank", through the open hatch. Staff said they would close the open hatch. Staff and RAPCA also mentioned considering the possibility that this condensate tank produces more VOCs than previously thought and may require attachment to the CVS and RTO.
- EPA expressed general concern with various openings where our instruments detected relatively high readings compared to the background facility reading. While not all the readings are defined by Subpart DD as a "leak", higher readings indicate fugitive emissions and where maintenance may be helpful to reduce fugitives, thus EPA informed the company. Some of these locations include at Building B's DAF effluent tank and DAF Shock Tank, Building G's sludge tank, and the hatch on the top of the VDR. *See* Appendix B, Tables 2 and 3 for complete list. Staff said they would address these issues.
- EPA expressed general concern that the feed tank to the biological plant was not attached to the CVS and RTO.
- EPA expressed concern with additional condensate collection downstream of the RTO fan, even after installation of the new condensate knock-out pot. EPA stated that Valicor's need for liquid removal after the RTO inlet means considerable liquid is still entering the RTO. Excessive moisture in the RTO has been one of the main causes of past air pollution control deviations.
- EPA expressed concern with the broken and/or hard to read negative pressure gauges.

DIGITAL SIGNATURES

Report Author: DAVID SUTLIN Digitally signed by DAVID SUTLIN Date: 2023.06.01 11:30:46 -05'00'

Section Supervisor: Brian Dickens Digitally signed by Brian Dickens Date: 2023.06.01 13:23:13 -05'00'

APPENDICES AND ATTACHMENTS

Appendix A: Digital Image Log
Appendix B: Field Measurement Data

APPENDIX A: DIGITAL IMAGE LOG

1. **Inspector Name:** Tess Russell	2. **Archival Record Location:** Region 5 Electronic Records System (ERC)

Image Number	File Name	Date and Time (incl. Time zone and DST)	Description of Image
1	MOV_2908.mp4	5/3/2023 9:18	Top of S9 Tank
2	MOV_2909.mp4	5/3/2023 9:37	RTO stack
3	MOV_2910.mp4	5/3/2023 9:54	Connection near base of RTO
4	MOV_2911.mp4	5/3/2023 10:59	Poppet valve on top of SBR
5	MOV_2912.mp4	5/3/2023 11:00	Poppet valve on top of VDR
6	MOV_2914.mp4	5/3/2023 11:41	Building G, "Day Tank", from ground
7	MOV_2915.mp4	5/3/2023 11:43	Building G, "Day Tank", from above platform
8	MOV_2916.mp4	5/3/2023 11:50	Tanks in Building G
9	MOV_2917.mp4	5/3/2023 0:04	Drip from the CVS, boardwalk outside of Building B

APPENDIX B: FIELD MEASUREMENT DATA

- EPA used Toxic Vapor Analyzer (TVA) 2020s to conduct monitoring at the Valicor facility.
- EPA calibrated the TVA 2020s the morning of the inspection, before use, with the following calibration gas standards: Zero Air, 500 ppmv as methane, 2,000 ppmv as methane, and 10,000 ppmv as methane. The table below summarizes the calibration checks results:

Table 1: Instrument Calibration Check, Pre-Inspection, ~ 9:00 AM		
FID Instrument	TVA 2020: B37057	TVA 2020: SL1555
Initial Check, 9:00 AM		
500 ppm	497 ppm	506 ppm
2000 ppm	2014 ppm	1990 ppm
10000 ppm	10000 ppm	9976 ppm
Bump Check, 3:40 PM		
500 ppm	637 ppm	465 ppm
2000 ppm	2280 ppm	1870 ppm
10000 ppm	11500 ppm	9432 ppm

Facility background = 0 ppm

Table 2: Leaks Detected (readings above 500 ppm)	
Location	Reading
3" dia hole on top of DAF Shock Tank, Building B	1200 ppm @ 12:15 pm

Table 3: Additional TVA readings	
Location	Reading
Hatch of Tank T2 - Sludge Settling Tank, Building B	192 ppm @ 12:06 pm
Mat used to cover open pump well of Building B's DAF effluent tank	282 ppm @ 12:28 pm
Hose leading into floor drain, Building B (staff connected both ends of the open hose to close it during the inspection)	45 ppm
RTO inlet	209 ppm
RTO outlet	5 ppm (75 ppm during bed switch)[1]
Opening in RTO fan bearing box	60 ppm @ 12:54 pm
Cover and cover flange of VDR (larger bio reactor)	200-350 ppm
Cover of SBR (smaller bio reactor)	300 ppm
Collection container for the new condensate knock out pot	30 ppm

[1] Bed switching occurred approximately every 2 minutes and lasted for 4 seconds.

Collection container for newly added drop leg downstream of fan	10 ppm
Hatch of Tank G4	300 ppm (inspector had to pull back before completing reading, due to strong odor)