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

SUBJECT:	CLEAN AIR ACT INSPECTION REPORT Eco Services Operations, Hammond, Indiana
FROM:	Sasa Dunovic, Inspector/Enforcement Officer AECAB (IL/IN)
THRU:	Nathan Frank, Section Supervisor AECAB (IL/IN)
TO:	File

BASIC INFORMATION

Facility Name: Eco Services Operations

Facility Location: 2000 Michigan Street, Hammond, Indiana 46320

Date of Inspection: June 14, 2023

EPA Inspector(s):
1. Sasa Dunovic, Inspector/Enforcement Officer
2. Jason Schenandoah, Environmental Engineer

Other Attendees:
1. Matt Witter, Plant Manager
2. David Garcia, Operations Manager
3. Erick Clay, Maintenance Manager
4. Julie Sheffield, Environmental Specialist – via conference line
5. John Richardson, Director of Environmental Management – via conference line
6. Sarah Ling, Environmental Manager, Indiana Department of Environmental Management
7. Ramelito Biscocho, IDEM Compliance Inspector, Indiana Department of Environmental Management

Contact Email Address: Matt.Witter@eco-services.com

Purpose of Inspection: To inspect the spent sulfuric acid tanks, the closed vent system, and control devices.

Facility Type: A stationary sulfuric acid manufacturing plant.

Regulations Central to Inspection: Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984.

Arrival Time: 9:00 AM
Departure Time: 12:10 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 Mr. Witter unless otherwise noted.

Company Ownership: Two years ago, Eco Services, which was previously under PQ Corporation, became a branch of Ecovyst.

Process Description:
The basic process is the decomposition of spent sulfuric acid in a regeneration furnace. Hydrocarbons that are present in the spent acid provide part of the fuel to maintain furnace operating temperature and maintain the decomposition reaction with the remaining portion being supplied by burning natural gas, molten sulphur, and nonhazardous waste (sulfur-bearing materials). A regeneration furnace is designed to decompose spent sulfuric acid into sulfur dioxide (SO_2) and water (H_2O).

The hot gases leaving the furnace enter a waste heat boiler where high pressure steam is generated. The gases are cooled in a waste heat boiler before entering the gas purification and acid production part of the plant. The purification and production equipment consists of a wet gas scrubber, a wet gas cooler, a wet gas ESP, a gas drying tower with mist filters, a sulfur dioxide (SO_2) to sulfur trioxide (SO_3) reactor/converter, intermediate and final SO_3 absorbers, intermediate and final mist eliminators.

Spent sulfuric acid has been delivered on-site via rail cars and unloaded into storage tanks 46, 47, 56, 57, or 58. Emissions from these tanks are controlled either by the regeneration furnace or by the caustic scrubber and vapor combustor, should the furnace be unavailable.

Staff Interview: Eco Services operates 24 hours per day, 7 days per week and has approximately 40 employees. They have the capacity to produce up to 1190 tons of sulfuric acid every day. According to Mr. Witter, the spent sulfuric acid tanks at the facility can hold up to 6,000 tons of acid, but they only use 400-600 tons per day. He also mentioned that only a small percentage of hydrocarbons can be found in the spent acid and that the tanks are nitrogen blanketed. According to him, the unloading process happens five days a week, with up to ten rail cars being unloaded at the same time, taking up to 6 hours. Additionally, he stated that the caustic scrubber and vapor combustor are only used for a few days a year and for 3 weeks every 18 months during the facility turnaround as control devices.

TOUR INFORMATION

EPA Tour of the Facility: Yes

Data Collected and Observations:
The unloading of rail cars was ongoing during the inspection. Spent sulfuric acid was stored in tanks 46, 47, and 56. Since the regeneration furnace was in service, the caustic scrubber and vapor combustor were not used as control devices. Raw material (nonhazardous materials) storage tanks numbered #70 - #75 were out of service. Two track tankers were being used to supply the furnace with nonhazardous waste directly.

The EPA measured the VOC emissions from components of tanks 46, 47, and 56.

The regeneration furnace was being fed with 46 gallons of spent sulfuric acid per minute, and the sulfur feed rate was 305 lbs/min. This resulted in the production rate of 1084 tons of sulfuric acid per day.

During the inspection, it was noted that the SO_2 emission rate was 60 lbs/hr, which is equivalent to 1.27 lbs per ton of sulfuric acid produced.

Photos and/or Videos: were not taken during the inspection.

Field Measurements: were taken during this inspection.
Method 21 measurements were conducted via two Toxic Vapor Analyzer (TVA) 2020s. Method 21 monitoring observations have been tabulated in Appendix A: Field Measurements.

CLOSING CONFERENCE

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

Requested documents:

- The caustic scrubber and vapor combustor operating plan.
- The most recent performance test of the caustic scrubber and vapor combustor.
- Two (2) years of the caustic scrubber and vapor combustor monitoring data.

Compliance Assistance: The closed vent system shall be designed to collect all VOC vapors and gases discharged from the storage vessel and operated with no detectable emissions as indicated by an instrument reading of less than 500 ppm above background.

Concerns: The Method 21 measurement on the tank 56 plug valve shaft indicated VOC emissions greater than 500 ppm above background.

DIGITAL SIGNATURES

Report Author: Dunovic, Sasa Digitally signed by Dunovic, Sasa Date: 2023.06.28 08:50:07 -05'00'

Section Supervisor: Frank, Nathan Digitally signed by Frank, Nathan Date: 2023.06.28 14:19:48 -05'00'

APPENDICES AND ATTACHMENTS

1. Appendix A: Field Measurements

APPENDIX A: FIELD MEASUREMENT DATA

- EPA used two TVA 2020 models to conduct comparative Method 21 monitoring.
- EPA calibrated TVAs #SL1555 and #B37055 before use with the following calibration gas standards: zero air, 550 ppmv as methane, 2,000 ppmv as methane, and 10,000 ppmv as methane. A drift check was performed upon the conclusion of monitoring.
- During the measurement of the tank 56 plug valve shaft, it was discovered that there were VOC emissions that exceeded 500 ppm above background. Eco Services repaired the leak on the same day of the measurement.

Calibration Check

Calibration Gas Hydrocarbon Concentration (ppmv)	**TVA 2020 Results (ppm)**	
	#B37055	**#SL1555**
550	552	550
2,000	2,060	2,004
10,000	10,000	9,900

Drift Check

Calibration Gas Hydrocarbon Concentration (ppmv)	**TVA 2020 Results (ppm)**	
	#B37055	**#SL1555**
550	612	542
2,000	2,124	2,012
10,000	10,060	9,705

Recorded leaks above 500 ppm:

Equipment Identifier	TVA # B37057 Measurement (ppm)	TVA #SL1555 Measurement (ppm)	Notes
The tank 56 plug valve shaft	2156	1863	Nose and throat irritation