



Shell Chemical Appalachia LLC
300 Frankfort Rd
Monaca, PA 15061

February 8, 2024

Mark Gorog P.E., Regional Manager Air Quality Program
Pennsylvania Department of Environmental Protection (PADEP)
Southwest Regional Office
400 Waterfront Drive
Pittsburgh, PA 15222

RE: PA-04-00740C Spent Caustic Vent Incinerator (Source ID C206), Storage Tanks (Recovered Oil, Equalization Wastewater, and Spent Caustic) (Source IDs 401 and 402), and WEMCO Depurator (Source ID 505) Excess Emissions Follow Up Report

Dear Mr. Gorog,

Shell Chemical Appalachia LLC (“Shell”) is submitting this follow up report to the Pennsylvania Department of Environmental Protection (PADEP) to update the status of the corrective actions identified in the malfunction report “Spent Caustic Vent Incinerator (Source ID C206), Storage Tanks (Recovered Oil, Equalization Wastewater, and Spent Caustic) (Source IDs 401 and 402), and WEMCO Depurator (Source ID 505) Excess Emissions Malfunction Report and NRC Incident ID #1384863,” which was submitted to the department on November 21, 2023.

- **Name and location of the facility**

Shell Polymers Monaca
300 Frankfort Road, Monaca PA, 15061

- **Restatement of the nature and cause of the incident**

On October 19, 2023 at 20:42, the Spent Caustic Thermal Oxidizer¹ (SCTO) was manually tripped offline. The reason for the manual trip was that operations had discovered that the combustion air blower had tripped offline at 20:02, thus reducing the amount of air flowing to oxidizer. Due to concerns with the fuel rich conditions within the combustion chamber, the decision was made to trip the SCTO.

Leading up to this event, operations noted that the flame arrestors in the SCTO common vent gas line were starting to plug. In order to address this and before it caused inadvertent blower trips due to back-pressure, the decision was made to take the upstream tank blowers offline in order to pull and clean the flame arrestors. This maintenance resulted in the FEOR A/B and Recovered Oil and Spent Caustic tanks and WEMCO Depurator intermittently venting to atmosphere through the relief valves. When operations went to take the blowers offline ahead of the flame arrestor cleaning, the SCTO combustion air blower was inadvertently de-energized at 20:02 on October 19, thus leading to the manual trip described above.

For the last ~5 hours of the SCTO and blowers downtime, the wastewater treatment plant (WWTP) had a slug of hydrocarbon from the Ethane Cracking Unit (ECU). There was inadvertent hydrocarbon carryover from one of the separator vessels while the unit was down for Cracked Gas Compressor (CGC) maintenance. During this time, the WEMCO Depurator vent

¹ Identified as Spent Caustic Vent Incinerator (Source ID C206) in PA-04-00740C

gas became highly concentrated in VOC, which was not being destructed in the SCTO. This 5-hour period contributed to the bulk of malfunction emissions.

- **Status of outstanding corrective actions**

1. Pending as of November 21, 2023: *The site is evaluating potential long-term solutions to the flame arrestor lineup arrangement and/or how to manage/mitigate pipe scale buildup in the line.*
 - a. The site has developed a plan to drain water that builds up in the SCTO combined vent gas header that contributes to both blower backpressure and the potential for rust formation, both of which can lead to blower downtime. The system will be temporary for now and will be in place no later than March 31, 2024. In addition, the vapor outlet lines of the Wemco Depurator and EC-15 induced nitrogen floatation unit have been re-routed to minimize low points that can collect water.
 - b. Related to water buildup in the header, this becomes more prevalent in colder ambient conditions. The points of concern have been fitted with temporary heating enclosures for the winter months.
 - c. Spare flame arrestors were ordered at the end of 2023 and will allow for shorter blower/SCTO downtime when they do plug up.
2. Pending as of November 21, 2023: *In regards to inadvertent hydrocarbon carryover from ECU and resultant elevated emissions, the site is evaluating both procedural and other potential improvements to avoid future similar events.*
 - a. Please reference SPM WWTP Report content submitted on August 20, 2023 in response to May 24, 2023 Consent Order and Agreement.

If you have any questions regarding this matter, please contact me at (724) 709-2825 or william.watson@shell.com.

Sincerely,



William Watson
Operations Manager

CC:

Scott Beaudway, Air Quality Specialist
Kristin Goddard, Environmental Compliance Specialist
Beth Speicher, Environmental Group Manager