



Shell Chemical Appalachia LLC
300 Frankfort Rd
Monaca, PA 15061

July 15, 2022

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

**RE: PA-04-00740C Source ID 206 Spent Caustic Vent Header System Visible Emissions
Malfunction Report, July 4, 2022**

Dear Mr. Gorog,

Shell Chemical Appalachia LLC (“Shell”) is submitting this malfunction report to the Pennsylvania Department of Environmental Protection (PADEP).

- **Name and location of the facility**

Shell Polymers Monaca
300 Frankfort Road, Monaca PA, 15061

- **Nature and cause of the incident**

On July 4 at 8:00AM visible emissions were observed which lasted ~30 seconds from the Spent Caustic Vent Thermal Oxidizer (SCTO) stack. Visible emissions were observed to periodically reoccur for ~15 to 30 seconds starting at this time. It was determined that visible emissions coincided with activation of the vent blower pulling vapor space from both flow equalization and oil removal (FEOR) tanks and the recovered oil tank¹². The decision was made to shutdown the blower as the immediate cause of visible emissions. No further visible emissions were observed after shutdown of the blower.

Further investigation has determined methane to be present in the vapor space of the FEOR tanks and recovered oil tank. Periodic activation of the vent blower for 1 to 2 minutes at a time pulled the methane and nitrogen to the SCTO for combustion in combination with the SCTO fuel natural gas. Partially incomplete combustion resulted in short term visible emissions.

Investigation into the event is ongoing for further details and corrective actions. Corrective action may include but is not limited to reducing vent blower speed, reduction of fuel gas, increase to combustion air (O₂), and reduction or elimination of the presence of methane in the tank vapor space.

¹ Identified as Storage Tanks (Recovered Oil, Equalization Wastewater), Source ID 401 in PA-04-00740C.

² Spent caustic is not currently being generated at the facility.

- **Time when the incident was first observed, and duration of excess emissions**
July 4, 2022 beginning at 08:00 and ending at 12:42. Visible emissions were observed for ~15 to 30 seconds each time the FEOR and Recovered Oil Tank blower activated. Visible emissions did not exceed 0% for greater than five (5) minutes during any consecutive 2-hour period, which is the permit condition.
- **Estimated rate of excess emissions**
Visible emissions did not exceed 0% for greater than five (5) minutes during any consecutive 2-hour period.

Emissions Summary (total lbs/event) ^a	
CO2e	1,220.1
CO2	1,207.4
Methane (CH4)	0.43
CO	0.85
NOx	0.70
N2O	0.01
SO2	0.01
PM (filterable)	0.02
PM (10/2.5)	0.08
VOC	0.06
HAP (Total)	0.02

^a From minutes when VE was observed

If you have any questions regarding this matter, please contact me at (724) 709-2467 or kimberly.kaal@shell.com.

Sincerely,

Kimberly Kaal

Kimberly Kaal
Environmental Manager, Attorney-in-Fact

CC:
Scott Beaudway, Air Quality Specialist
Anna Fabrizi, District Supervisor