



Shell Chemical Appalachia LLC  
300 Frankfort Rd  
Monaca, PA 15061

December 19, 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 Ethane Cracking Unit (Source ID 201) Off-Spec Ethylene Upset Event and High-Pressure (HP) Header System (Source ID 205) Excess Emission Report**

Dear Mr. Gorog,

Shell Chemical Appalachia LLC (“Shell”) is submitting this Malfunction Report to the Pennsylvania Department of Environmental Protection (PADEP) for excess flaring emissions at the high-pressure ground flares (HPGF) due to a process upset.

- **Name and location of the facility**

Shell Polymers Monaca  
300 Frankfort Road, Monaca PA, 15061

- **Nature and cause of the incident**

During a process unit upset on November 20, 2022, process flows were diverted from the Ethane Cracking Unit (ECU) to the HP Ground Flares until the ECU recovered and was returned back to on specification. Flaring resulting from routing ethane from the C2 Splitter bottom (C-14301) occurred from 02:59 to 03:35 and ethylene from the Ethylene Refrigerant Compressor occurred several times between 04:58 to 07:17 until the unit recovered from the event.

- **Time when the incident was first observed, and duration of excess emissions**

Excess emission from ECU process upset occurred on November 20, 2022, beginning at 02:59 and ended at 07:17, approximately 4.3 hours.

The flaring was limited to the HP Ground Flares and no visible emissions or smoke was noted from the flares during this event.

- **Estimated rate of excess emissions**

Based on the event timing and meter readings, the estimated excess emissions for this flaring event have been calculated using the gas composition and emission factors as:

CO<sub>2</sub>e: 93.387 tons  
CO: 0.198 tons  
NO<sub>x</sub>: 0.049 tons  
SO<sub>2</sub>: 0.00 tons  
PM(filt): 0.001 tons  
PM<sub>10</sub>: 0.005  
PM<sub>2.5</sub>: 0.005  
VOC: 0.208 tons  
HAP: 0.001 tons

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

Sincerely,

*Kimberly Kaal*

Kimberly Kaal  
Environmental Manager, Attorney-in-Fact

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