



Shell Chemical Appalachia LLC
300 Frankfort Rd
Monaca, PA 15061

March 7, 2023

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 Polyethylene Unit (Source ID 202) Multipoint Ground Flaring Event and Low-Pressure (HP) Header System (Source ID 204) NHVvg Malfunction Report

Dear Mr. Gorog,

Shell Chemical Appalachia LLC (“Shell”) is submitting this Malfunction Report to the Pennsylvania Department of Environmental Protection (PADEP) for low net heating value of vent gas to the multipoint ground flare following startup operations.

- **Name and location of the facility**
Shell Polymers Monaca
300 Frankfort Road, Monaca PA, 15061

- **Nature and cause of the incident**

On February 11, 2023 the Polyethylene Unit 3 began to startup its Low Pressure Solvent Recovery (LPSR) Blowers with a nitrogen purge of the system to the Continuous Vent Thermal Oxidizer (CVTO)¹ per procedure. As the volume of purging increased during startup, flow was diverted from the CVTO to its dedicated Multipoint Ground Flare (MPGF)² header through a shear-pin valve. Visible emissions and Net Heating Value of the vent gas (NHVvg) were monitored as gases were combusted in the MPGF, for which no deviations from permit limits were recorded. Supplemental natural gas was added to raise and maintain the NHVvg when flow was diverted to the MPGF. After completing start up the LPSR blowers and vent gas flow returned to pre-startup levels, the shear-pin valve was closed with the installation of a new shear-pin. Closure of the valve was confirmed as console indicators displayed status “closed”. Once flow returned to the CVTO, the use supplemental gas to maintain NHVvg was stopped as it was no longer required.

At 07:30 the next morning (2/12/2023), the day-shift console operator noted irregular flows and temperature swings at the CVTO. During a field investigation operators determined the shear-pin valve was not fully shut, even though console indicators had showed closed since 16:33 on 2/11/23. To correct the issue, the Maintenance Department removed and reinstalled the shear-pin at 09:21. Before the shear-pin valve was repaired, vent gas was routed to the

¹ This is identified as C204A LP Incinerator in PA-04-00740C

² This is identified as C204B LP Multipoint Ground Flare in PA-04-00740C

Mark Gorog

March 7, 2023

CVTO MPGF and NHVvg dropped below the required 500 Btu/scf required to be maintained for the MPGF. NHVvg was below the required 500 Btu/scf for 9 hrs and 15min (23:59 on 2-11-23 until 09:21 on 2-12-23).

To prevent re-occurrence of an identical incident in the future, Shell will do the following:

1. Create a new procedure in for replacing the CVTO shear pin for the shear-pin valve.
 2. Train maintenance technicians on shear-pin replacement procedure when complete.
- **Time when the incident was first observed, and duration of excess emissions**
Deviation from the NHVvg work practice standard occurred from 23:59 on 2-11-23 until 09:21 on 2-12-23 while vent gases were routed to the CVTO dedicated MPGF. No visible emissions or smoke was observed from the MPGF during this event.

The incident referenced above did not pose an imminent and substantial danger to the public health and safety or the environment. There were no injuries, fatalities, or road closures associated with this incident. Off-site air quality monitoring was performed throughout the duration of the event and no detections of hazardous constituents were detected above the OSHA permissible exposure limits. If you have any questions regarding this matter, please contact me at (724) 709-2467 or kimberly.kaal@shell.com.

Sincerely,

Kimberly J. Kaal

Kimberly Kaal
Environmental Manager, Attorney-in-Fact

CC:
Elizabeth Speicher, Environmental Group Manager
Scott Beaudway, Air Quality Specialist