



Shell Chemical Appalachia LLC
300 Frankfort Rd
Monaca, PA 15061

February 19, 2026

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 HP Ground Flares #1 and #2 (Source IDs C205A and B) Visible and Flaring Emissions and National Response Center Incident ID # 1441130 Follow Up Report

Dear Mr. Gorog,

Shell Chemical Appalachia LLC (“Shell”) is submitting this follow up to the Pennsylvania Department of Environmental Protection (PADEP) to provide a status update for outstanding items in the malfunction report associated with visible emissions (VE) from the HP Ground Flares (TEGFs) on August 29, 2025, following an Ethane Cracking Unit’s (ECU) compressor trip that required venting to the HP flare system.

For clarity, please see Attachment A for a table summary of 2025 TEGF VE malfunctions.

- **Name and location of the facility**
Shell Polymers Monaca
300 Frankfort Road, Monaca PA, 15061
- **Summary of incident**
On August 28, 2025, at approximately 14:33, the ECU Ethylene Refrigeration and Propane Refrigerant Compressors tripped, which required venting to the HP flare system to stabilize the unit. The trips were due to a loss of pressure of the compressors’ lube oil system. The flaring resulted in the release of 1,3-Butadiene above the reportable quantity (RQ 10 lbs), prompting a notification to the National Response Center. On August 29, 2025, flaring to the HP flare system continued as ECU was establishing normal operations and, starting at 7:32, VE were observed at TEGF A and B and exceeded 5 minutes in a consecutive 2-hour period.

It was determined that the TEGF VE originated from stages 7, 10, and 11. Based on the visual appearance of the smoke and a comparison of the smoke timestamps against the opening/closing times of the stages, it was concluded that some of the burner tips on stages 7, 10, and 11 did not have flames anchored to the burners upon and following stage opening. When the flame does not anchor to the burner, vent gas combusts higher in the chamber, but VOC is still combusted as intended because the temperatures inside the flares were above vent gas auto-ignition during this event (as confirmed by temperature instruments). Combustion higher in the chamber can yield VE due to improper mixing.

- **Status of outstanding items**

Pending as of malfunction report submission on September 25, 2025 (TBD items):

Stages	Root Cause	Corrective Action	Timing
10 and 11	Flames not anchored to all burner tips (due to inadequate combustion air or improper mixing)	Stage 10-11 alarms when stage(s) open and console guidance (temporary)	Complete
		Higher staging pressure MOC	Complete
7	Flames not anchored to all burner tips (due to TBD- See update below) 2/19/26 Update: It has been concluded that the burner flame anchoring issue was likely due to lack of adequate combustion air and/or improper mixing with available combustion air for the vent gas to ignite on the impacted burners of stage 7.	Stage 7 alarm when stage opens and console guidance (temporary)	Complete
		TBD- See update below 2/19/26 Update: The investigation identified that increasing the staging pressure of stage 7 will improve stage performance. Staging pressure is the flare header pressure at which a stage opens- higher pressure will provide more driving force for the stage burners to induce the required combustion air and/or proper mixing at the burner tips.	TBD -See update below 2/19/26 Update: Complete

- **To the extent that investigations of the causes and/or possible corrective action(s) still are underway on the due date of the report, a statement of the anticipated date by which a follow-up report will be submitted**
This is the final report for this malfunction.

If you have any questions regarding this matter, please don't hesitate to contact Lauren Uffelman at lauren.uffelman@shell.com.

Sincerely,



Martin Padilla, Attorney-in-Fact

CC:
Scott Beaudway, Air Quality Specialist

Attachment A- 2025 TEGF VE Malfunction Summary

Malfunction	Date	Root Cause	Impacted Stages	Corrective Actions	Date Malfunction Report Submitted to Dept.	Follow Up Report (Yes/No)	Date Follow Up Report(s) sent to Dept.
TEGF A/B VE during ECU Maintenance Activities	3/13/2025	Low vent gas flow paired with high ethylene concentrations not able to produce enough natural turbulence at stage 1 burner tips to yield proper mixing with available combustion air	1	- Console operator guidance - Console alarm triggered on similar process conditions	4/10/2025	Yes	6/10/2025
TEGF A/B VE during ECU Startup	4/25/2025	Flames not anchored to some burner tips	8, 9, 10	- Temporary mitigations including taking stages out of service and console alarms/operator guidance - MOC to change staging sequence	5/23/2025	No	NA
TEGF A VE during PE3 Trip	5/12/2025	Low vent gas flow paired with high ethylene concentrations yielded stage burner velocities that were not high enough to induce the amount of air required for smokeless combustion	4	- Console operator guidance - MOC to change stage sequencing	6/10/2025	No	NA
TEGF A/B VE during ECU Acetylene Reactor Feed Quality Shift	8/3/2025	Flames not anchored to some burner tips	6, 7, 10, 11	- Console alarms (temporary) - MOC to increase stage 10 and 11 staging pressure	9/2/2025	No	NA
TEGF A/B VE following ECU Compressor Trip (subject malfunction)	8/29/2025	Flames not anchored to some burner tips	7, 10, 11	- Console alarms (temporary) - MOC to increase stage 7, 10, and 11 staging pressure	9/25/2025	Yes	11/20/2025 and subject report