



Shell Chemical Appalachia LLC  
300 Frankfort Rd  
Monaca, PA 15061

January 10, 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 102 Combustion Turbine/Duct Burner Unit #2 NOx Emissions Incidents Report, January 1 and 4, 2022**

Dear Mr. Gorog,

Shell Chemical Appalachia LLC (“Shell”) is submitting this incident 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 January 1 at ~ 10:30 PM Unit #2 SCR Heater “B” tripped and shut down due to reaching a high temperature limit. Ammonia injection was consequently interrupted for approximately 30 minutes. This resulted in one hour of elevated NOx emissions (above 2 ppmvd @ 15% O2) while SCR Heater “A” was activated, ammonia injection was restarted, which brought NOx emissions back under the limit.

On January 4 at ~ 9:00 AM Unit #2 NOx CEMS failed auto-calibration and elevated NOx emissions were observed. Manual calibration and troubleshooting were performed during which frozen vent/drain piping was discovered and corrected. NOx readings remained high and the NOx controller signal remained “bad” after corrections. The combustion turbine was found to have tripped from pre-mix steady state combustion into extended lean-lean combustion. This resulted in four hours of elevated NOx emissions (above 2 ppmvd @ 15% O2) while the analyzer calibration was corrected, combustion turbine returned to pre-mix steady state operation, and NOx emissions brought back under the limit. SCR ammonia injection remained in operation during this time. A long-term correction to the CEMS sample system to prevent free water from entering and freezing in the vent header is being implemented. The cause for the combustion turbine entering extended lean-lean combustion is still under investigation.

- **Time when the incident was first observed**  
January 1, 2022 at ~ 10:30 PM  
January 4, 2022 at ~ 9:10 AM
- **Duration of excess emissions**  
01/01/22 – 1 hour (Unit #2)  
01/04/22 – 4 hours (Unit #2)
- **Estimated rate of excess emissions**  
01/01/22 – NOx rate of 4.00 ppmvd @ 15% O2, and 6.7 lbs total excess emissions over 1 hour.  
01/04/22 – NOx rate between 8.99 and 90.77 ppmvd NOx @ 15% O2, and 444.8 lbs total excess emissions over the 4 hours.

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