

Environmental Reportable Events Summary



January 15, 2025 – February 15, 2025

Emissions violations are determined following review by the Colorado Department of Public Health & Environment (CDPHE); emissions exceedances do not necessarily constitute violations.

Event Date: January 15, 2025	
Event Title: Plant 1 – No. 1 Fluidized Catalytic Cracking Unit (No. 1 FCCU) Malfunction and Shutdown	
Impacted Media: Air	
Operating Unit: No. 1 FCCU	
Event Summary: <p>On January 15, 2025, at approximately 8:12 p.m., the Plant 1 – Emergency Shutdown Device (ESD) for the No. 1 FCCU activated and shut down the No. 1 FCCU. The ESD activation occurred during the warming up of the No. 1 FCCU feed drum (D-3508) in preparation of the No. 4 Hydrodesulfurization Unit restart. D-3508 had water within it that would have normally flashed out, but due to the low temperature of the feed drum, trace amounts of water had accumulated in the offline spare No. 1 FCCU charge pump casing. As the No. 1 FCCU feed drum and associated piping warmed up and exceeded the boiling temperature of water, the accumulated water in the spare pump casing vaporized, and caused vapor-locking of the online charge pump, which then caused a loss of gas oil feed to the No. 1 FCCU and activated the ESD. The restart of the No.1 FCCU resulted in carbon monoxide (CO) exceedances from burning torch oil in the regenerator to achieve the required start-up temperature. The restart of the No. 1 FCCU caused opacity exceedances due to catalyst attrition from increased fluffing steam required to achieve catalyst fluidization and circulation.</p> <p>The relevant permit terms or conditions for this event include:</p>	
Permit Term or Condition	Maximum Reported Value
Title V Operating Permit 96OPAD120, Section II, Condition 22.7– Opacity shall not exceed 20% on a six-minute rolling average.	1/16/2025 5:42 a.m. – 6:24 p.m. (intermittent, 9 hours 36 minutes) Maximum Opacity: 59%
Title V Operating Permit 96OPAD120, Section II, Condition 22.7– Opacity shall not exceed 30% for a period or periods aggregating more than 6 minutes in any 60 consecutive minutes.	1/16/2025 6:14 a.m. – 6:21 p.m. (intermittent, 1 hour 10 minutes) Maximum Opacity: 46%
Title V Operating Permit 96OPAD120, Section II, Condition 22.10 – Shall meet an emission limit of 500 ppmvd Carbon Monoxide (CO) at 0% oxygen (O ₂) on a 1-hour average basis.	1/15/2025 9:00 p.m. – 10:00 a.m. (13 hours) Maximum CO at 0% O ₂ : 2,029 ppmvd
Title V Operating Permit 96OPAD120, Section II, Condition 22.11– Opacity shall not exceed 30% on a six-minute rolling average.	1/16/2025 6:06 a.m. – 6:18 p.m. (intermittent, 1 hour 48 minutes) Maximum Opacity: 59%

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Title V Operating Permit 96OPAD120, Section II, Condition 22.12– Opacity shall not exceed 30% on a 3-hour rolling average.	1/16/2025 6:00 a.m. – 7:00 p.m. (13 hours) Maximum Opacity: 59%
Title V Operating Permit 96OPAD120, Section II, Condition 55.11 – Shall meet an emission limit of 500 ppmvd Carbon Monoxide (CO) on a 1-hour average basis.	1/15/2025 9:00 p.m. – 1/16/2025 6:00 a.m. (9 hours) 1/16/2025 7:00 a.m. – 10:00 a.m. (3 hours) Maximum CO: 1,030 ppmvd

The Commerce City North Denver Air Monitoring network of sensors within a three-mile radius of the refinery did not detect any levels above the acute health reference guidelines during this event. In addition, the refinery's fenceline monitoring system (required by Colorado House Bill 21-1189) did not detect any increased levels of monitored compounds.

Event Date: January 16 – 17, 2025	
Event Title: Plant 1 – No. 4 Hydrodesulfurization Unit (No. 4 HDS) Compressor (C-1715) Trip	
Impacted Media: Air	
Operating Unit: Compressor (C-1715) and Heater (H-1716)	
Event Summary: On January 16, 2025, at approximately 9:14 p.m., the Plant 1 – No. 4 HDS compressor (C-1715) tripped because of a fault on the variable frequency drive which controls the electric motor. The fault activated the Instrument Shutdown System (ISS), which shut down compressor (C-1715) and heater (H-1716). The shutdown of the compressor required Operations to switch the flow of acid gas from the No.1 Sulfur Recovery Unit (SRU) to the No. 2 SRU. During the switch, acid gas was sent to the tail gas unit incinerator (H-25) which caused an exceedance of SO ₂ . On January 17, 2025, at approximately 11:00 a.m., Heater (H-1716) was operating on low duty during the restart of the heater which may have contributed to the excess emissions of nitrogen oxides (NO _x). The heater's burners have difficulty running efficiently at low rates. The relevant permit terms or conditions for this event include:	
Permit Term or Condition	Maximum Reported Value
Title V Operating Permit 96OPAD120, Section II, Condition 20.1 – SO ₂ from H-25 shall not exceed 15.68 lbs/hr.	1/17/2025 11:00 a.m. – 12:00 p.m. (1 hour) Maximum SO ₂ : 28.36 lbs/hr
Title V Operating Permit 96OPAD120, Section II, Condition 20.5 – SO ₂ from H-25 shall not exceed 250 ppmvd SO ₂ at 0%, on a 12-hour rolling average.	1/17/2025 12:00 p.m. – 10:00 p.m. (10 hours) Maximum SO ₂ : 269 ppmvd at 0% O ₂

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Title V Operating Permit 96OPAD120, Section II, Condition 21.5 – NO _x emissions shall not exceed 0.04 lb/MMBtu on a 3-hour rolling average for Heater H-1716.	1/17/2025 1:00 a.m. – 7:00 a.m. (6 hours) Maximum NO _x : 0.07 lb/MMBtu
The Commerce City North Denver Air Monitoring network of sensors within a three-mile radius of the refinery did not detect any levels above the acute health reference guidelines during this event. In addition, the refinery's fenceline monitoring system (required by Colorado House Bill 21-1189) did not detect any increased levels of monitored compounds.	

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Event Date: January 18 – 20, 2025									
Event Title: Plant 1 – No. 4 Hydrodesulfurizer Unit (No. 4 HDS) Startup									
Impacted Media: Air									
Operating Unit: Tail Gas Unit Incinerator (H-25)									
Event Summary: <p>On January 18, 2025, at approximately 2:00 a.m. the No. 4 Hydrodesulfurization (HDS) Unit underwent a planned startup. During startup, hydrocarbons from Tank 52 (T-52) transferred to the No. 2 sour water stripper water feed which feeds into the No. 2 Sulfur Recovery Unit. The hydrocarbons reduced the efficiency of the No. 2 SRU and decreased the sulfur recovery, which caused an imbalance in the H₂S to SO₂ ratio in the No. 2 SRU. The H₂S gases were sent to the Tail Gas Unit Incinerator (H-25) which caused an exceedance of SO₂. Also during startup, the NO_x concentrations in the No. 4 HDS Heater (H-1716) exceeded the Title V permit limit due to the heater running at low rates. The heater's burners have difficulty running efficiently at low rates.</p> <p>The relevant permit terms or conditions for this event include:</p> <table border="1"> <thead> <tr> <th>Permit Term or Condition</th><th>Maximum Reported Value</th></tr> </thead> <tbody> <tr> <td>Title V Operating Permit 96OPAD120, Section II, Condition 20.1 – SO₂ from H-25 shall not exceed 15.68 lbs/hr.</td><td>1/19/2025 4:00 p.m. – 6:00 p.m. (2 hours) 1/19/2025 8:00 p.m. – 9:00 p.m. (1 hour) Maximum SO₂: 61.24 lbs/hr</td></tr> <tr> <td>Title V Operating Permit 96OPAD120, Section II, Condition 20.5 – SO₂ from H-25 shall not exceed 250 ppmvd SO₂ corrected to 0%, on a 12-hour rolling average.</td><td>1/19/2025 5:00 p.m. – 1/20/2025 5:00 a.m. (12 hours) Maximum SO₂: 341 ppmvd corrected to 0% O₂</td></tr> <tr> <td>Title V Operating Permit 96OPAD120, Section II, Condition 21.5 – NO_x emissions shall not exceed 0.04 lb/MMBtu on a 3-hour rolling average for Heater H-1716.</td><td>1/18/2025 4:00 p.m. – 6:00 p.m. (2 hours) 1/19/2025 5:00 a.m. – 9:00 a.m. (4 hours) Maximum NO_x: 0.05 lb/MMBtu</td></tr> </tbody> </table> <p>The Commerce City North Denver Air Monitoring network of sensors within a three-mile radius of the refinery did not detect any levels above the acute health reference guidelines during this event. In addition, the refinery's fenceline monitoring system (required by Colorado House Bill 21-1189) did not detect any increased levels of monitored compounds.</p>		Permit Term or Condition	Maximum Reported Value	Title V Operating Permit 96OPAD120, Section II, Condition 20.1 – SO ₂ from H-25 shall not exceed 15.68 lbs/hr.	1/19/2025 4:00 p.m. – 6:00 p.m. (2 hours) 1/19/2025 8:00 p.m. – 9:00 p.m. (1 hour) Maximum SO ₂ : 61.24 lbs/hr	Title V Operating Permit 96OPAD120, Section II, Condition 20.5 – SO ₂ from H-25 shall not exceed 250 ppmvd SO ₂ corrected to 0%, on a 12-hour rolling average.	1/19/2025 5:00 p.m. – 1/20/2025 5:00 a.m. (12 hours) Maximum SO ₂ : 341 ppmvd corrected to 0% O ₂	Title V Operating Permit 96OPAD120, Section II, Condition 21.5 – NO _x emissions shall not exceed 0.04 lb/MMBtu on a 3-hour rolling average for Heater H-1716.	1/18/2025 4:00 p.m. – 6:00 p.m. (2 hours) 1/19/2025 5:00 a.m. – 9:00 a.m. (4 hours) Maximum NO _x : 0.05 lb/MMBtu
Permit Term or Condition	Maximum Reported Value								
Title V Operating Permit 96OPAD120, Section II, Condition 20.1 – SO ₂ from H-25 shall not exceed 15.68 lbs/hr.	1/19/2025 4:00 p.m. – 6:00 p.m. (2 hours) 1/19/2025 8:00 p.m. – 9:00 p.m. (1 hour) Maximum SO ₂ : 61.24 lbs/hr								
Title V Operating Permit 96OPAD120, Section II, Condition 20.5 – SO ₂ from H-25 shall not exceed 250 ppmvd SO ₂ corrected to 0%, on a 12-hour rolling average.	1/19/2025 5:00 p.m. – 1/20/2025 5:00 a.m. (12 hours) Maximum SO ₂ : 341 ppmvd corrected to 0% O ₂								
Title V Operating Permit 96OPAD120, Section II, Condition 21.5 – NO _x emissions shall not exceed 0.04 lb/MMBtu on a 3-hour rolling average for Heater H-1716.	1/18/2025 4:00 p.m. – 6:00 p.m. (2 hours) 1/19/2025 5:00 a.m. – 9:00 a.m. (4 hours) Maximum NO _x : 0.05 lb/MMBtu								

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Event Date: January 19, 2025					
Event Title: Plant 1 – GBR Flare					
Impacted Media: Air					
Operating Unit: GBR Flare					
Event Summary: <p>On January 19, 2025, at approximately 7:15 a.m., the restart of the No. 4 Boiler required steam balancing of the Gasoline Benzene Reduction (GBR) Unit. The steam flow was increased to the GBR which caused the Net Heating Value of the GBR flare to briefly drop below the 270 Btu/scf limit for a 15-minute period. The net heating value during this 15-minute period was 268 Btu/scf.</p> <p>The relevant permit terms or conditions for this event include:</p> <table border="1"> <thead> <tr> <th>Permit Term or Condition</th> <th>Reported Value</th> </tr> </thead> <tbody> <tr> <td>Title V Operating Permit 96OPAD120, Section II, Condition 53.91 – The net heating value in the combustion zone (NHV_{cz}) of the flare shall remain at or above 270 Btu/scf on a 15-minute block period.</td> <td>1/19/2025 7:15 a.m. – 7:30 a.m. (15 minutes) NHV_{cz} was 268 Btu/scf</td> </tr> </tbody> </table> <p>The Commerce City North Denver Air Monitoring network of sensors within a three-mile radius of the refinery did not detect any levels above the acute health reference guidelines during this event. In addition, the refinery's fenceline monitoring system (required by Colorado House Bill 21-1189) did not detect any increased levels of monitored compounds.</p>		Permit Term or Condition	Reported Value	Title V Operating Permit 96OPAD120, Section II, Condition 53.91 – The net heating value in the combustion zone (NHV _{cz}) of the flare shall remain at or above 270 Btu/scf on a 15-minute block period.	1/19/2025 7:15 a.m. – 7:30 a.m. (15 minutes) NHV _{cz} was 268 Btu/scf
Permit Term or Condition	Reported Value				
Title V Operating Permit 96OPAD120, Section II, Condition 53.91 – The net heating value in the combustion zone (NHV _{cz}) of the flare shall remain at or above 270 Btu/scf on a 15-minute block period.	1/19/2025 7:15 a.m. – 7:30 a.m. (15 minutes) NHV _{cz} was 268 Btu/scf				

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Event Date: January 25, 2025	
Event Title: Plant 1 – No. 1 Sulfur Recovery Unit (No. 1 SRU) shutdown	
Impacted Media: Air	
Operating Unit: No. 1 SRU	
Event Summary: <p>On January 25, 2025, at approximately 7:00 a.m., during the Plant 1 – No. 1 Sulfur Recovery Unit (SRU) planned shutdown, the No. 1 SRU was switched from acid gas to supplemental city gas. This process followed normal shutdown procedures. During the switch to supplemental city gas, the No. 1 SRU tripped. During No. 1 SRU trip, valves malfunctioned and remained open which sent acid gas to the Tail Gas Incinerator (H-25). This resulted in excess emissions of sulfur dioxide (SO₂). The total excess SO₂ emissions from this event were approximately 881 lbs.</p> <p>The cause of this malfunction is still under review and more details will be provided as they are determined.</p> <p>The relevant permit terms or conditions for this event include:</p>	
Permit Term or Condition	Maximum Reported Value
Title V Operating Permit 96OPAD120, Section II, Condition 20.1 – SO ₂ from H-25 shall not exceed 15.68 lbs/hr.	1/25/2025 7:00 a.m. – 3:00 p.m. (8 hours) Maximum H ₂ S: 392 lbs/hr.
Title V Operating Permit 96OPAD120, Section II, Condition 20.5 – SO ₂ from H-25 shall not exceed 250 ppmvd SO ₂ at 0%, on a 12-hour rolling average.	1/25/2025 7:00 a.m. – 1/26/2025 12:00 a.m. (17 hours) Maximum SO ₂ : 1,749 ppmvd at 0% O ₂
Title V Operating Permit 96OPAD120, Section II, Condition 20.12.2 - SO ₂ from H-25 shall not exceed 500 lbs on a 24-hour average.	1/25/2025 9:00 a.m. to 1/26/2025 9:00 a.m. (24 hours) Maximum SO ₂ : 883 lbs
<p>The Commerce City North Denver Air Monitoring network of sensors within a three-mile radius of the refinery did not detect any levels above the acute health reference guidelines during this event. In addition, the refinery's fenceline monitoring system (required by Colorado House Bill 21-1189) did not detect any increased levels of monitored compounds.</p>	

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Event Date: February 11, 2025	
Event Title: Plant 1 – Main Flare freeze event	
Impacted Media: Air	
Operating Unit: Plant 1 – Main Flare	
Event Summary: <p>On February 11, 2025, at approximately 11:00 a.m., the Plant 1 – Main Plant Flare system skid experienced abnormal flow due to freezing in the Flare Gas Recovery Unit first stage suction piping, which prevented the flare skid from pulling in and treating the main flare header gas. The blockage caused the main flare header to increase in pressure and push hydrogen sulfide (H₂S) through the main flare seal drum which resulted in excess concentrations of hydrogen sulfide (H₂S) in the Plant 1 Main Flare gas. Operations steamed the Flare Gas Recovery Unit (FGRU) compressor's first stage suction line back to the main flare to unfreeze the line. The total excess SO₂ emissions from this event was approximately 47 lbs.</p> <p>The relevant permit terms or conditions for this event include:</p>	
Permit Term or Condition	Maximum Reported Value
Title V Operating Permit 96OPAD120, Section II, Condition 29.9 – H ₂ S from Plant 1 – Main Flare shall not exceed 162 ppmv on a 3-hour rolling average.	2/11/2025 11:00 a.m. – 5:00 p.m. (6 hours) Maximum H ₂ S: 276 ppmv.
<p>The Commerce City North Denver Air Monitoring network of sensors within a three-mile radius of the refinery did not detect any levels above the acute health reference guidelines during this event. In addition, the refinery's fenceline monitoring system (required by Colorado House Bill 21-1189) did not detect any increased levels of monitored compounds.</p>	

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Emissions violations are determined following review by the Colorado Department of Public Health & Environment (CDPHE); emissions exceedances do not necessarily constitute violations.

Event Date: February 13, 2025	
Event Title: Plant 1 – Main Flare freeze event	
Impacted Media: Air	
Operating Unit: Plant 1 – Main Flare	
Event Summary: On February 13, 2025, at approximately 2:00 a.m. the Plant 1 – Main Plant Flare system skid experienced abnormal flow due to freezing in the Flare Gas Recovery Unit first stage suction piping, which prevented the flare skid from pulling in and treating the main flare header gas. The blockage caused the main flare header to increase in pressure and push hydrogen sulfide (H ₂ S) through the main flare seal drum which resulted in excess concentrations of H ₂ S in the Plant 1 Main Flare gas. Operations steamed the Flare Gas Recovery Unit (FGRU) compressor's first stage suction line back to the main flare to unfreeze the line. The total excess SO ₂ emissions from this event was approximately 24 lbs. The relevant permit terms or conditions for this event include:	
Permit Term or Condition	Maximum Reported Value
Title V Operating Permit 96OPAD120, Section II, Condition 29.9 – H ₂ S from Plant 1 – Main Flare shall not exceed 162 ppmv on a 3-hour rolling average.	2/13/2025 2:00 a.m. – 3:00 a.m. (1 hour) Maximum H ₂ S: 190 ppmv.
The Commerce City North Denver Air Monitoring network of sensors within a three-mile radius of the refinery did not detect any levels above the acute health reference guidelines during this event. In addition, the refinery's fence line monitoring system (required by Colorado House Bill 21-1189) did not detect any increased levels of monitored compounds.	

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