

Environmental Reportable Events Summary



November 15, 2023 – December 15, 2023

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

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| Event Date: November 19, 2023 | |
| Event Title: Plant 1 – No. 4 Hydrodesulfurization (HDS) Unit Malfunction and Main Flare H ₂ S Flaring Event | |
| Impacted Media (air, water, or soil): Air | |
| Operating Unit: Plant 1 – No. 1 Fluidized Catalytic Cracking Unit (FCCU), No. 4 HDS and Main Flare | |
| <p>Event Summary: On November 19, 2023, at approximately 4:00 a.m. the No. 4 HDS experienced a malfunction that led to the No. 1 FCCU shutting down and gases with elevated hydrogen sulfide (H₂S) concentrations being sent to the Plant 1 Main Plant Flare. The H₂S is combusted at the flare tip, resulting in the generation of SO₂ and water vapor. The cause of the No. 4 HDS malfunction is being investigated.</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, Condition 22.10 – Carbon Monoxide (CO) shall not exceed 500 part per million by volume (ppmv) at 0% O ₂ on an hourly average. | No. 1 FCCU exceedance: 11/19/23 4:00 a.m. - 6:00 p.m. (14 hours) Maximum CO concentration was 2,029 ppmv. |
| Title V Operating Permit 96OPAD120, Condition 29.9– Plant 1 flare gas shall not exceed 162 ppmv H ₂ S averaged over a 3-hour period. | Plant 1 Flare exceedance: 11/19/23 5:00 a.m. – 7:00 a.m. (2 hours) Maximum H ₂ S concentration was 209 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.</p> | |

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| Event Date: November 23-27, 2023 | |
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| Event Title: Plant 1 – No. 1 Fluidized Catalytic Cracking Unit (FCCU) Regenerator and Main Flare Startup | |
| Impacted Media (air, water, or soil): Air | |
| Operating Unit: Plant 1 – No. 1 FCCU and Main Flare | |
| Event Summary: On November 23, 2023, at 7:00 a.m. the No. 1 FCCU was started up after being off-line due to a malfunction on November 19, 2023. During startup activities for the No. 1 FCCU, opacity and carbon monoxide (CO) and the Plant 1 Main Plant Flare hydrogen sulfide (H ₂ S) limits were exceeded. These emissions are typical during startup and returned to normal once startup activities were completed. | |
| The relevant permit terms or conditions for this event include: | |
| Permit Term or Condition | Maximum Reported Value |
| Title V Operating Permit 96OPAD120, Condition 22.7 – Opacity shall not exceed 20% on a six-minute rolling average | No. 1 FCCU exceedance: Opacity permit limit was exceeded from 11/23/23 through 11/27/23 for a total of 20.4 hours. Maximum opacity was 73%. |
| Title V Operating Permit 96OPAD120, Condition 22.12 – Opacity not to exceed 20% on a 3-hour rolling average | No. 1 FCCU Opacity exceedance: 11/27/23 1:59 a.m. – 10:59 p.m. (21 hours) Maximum opacity was 60% |
| Title V Operating Permit 96OPAD120, Condition 22.10 – Shall meet an emission limit of 500 ppmvd Carbon Monoxide (CO) at 0% O ₂ on a 1-hour average basis | No. 1 FCCU CO exceedance: 11/26/23 2:00 p.m. – 11/27/23 12:00 p.m. (22 hours) Maximum CO was 2,000 ppmvd |
| Title V Operating Permit 96OPAD120, Condition 35.2 – Opacity shall not exceed 30% on a six-minute rolling average | No. 1 FCCU Opacity exceedance: Opacity permit limit was exceeded from 11/23/23 through 11/27/23 for a total of 14.4 hours. Maximum opacity was 73%. |
| Title V Operating Permit 96OPAD120, Condition 29.2 – Plant 1 flare gas shall not exceed 162 ppmv H ₂ S averaged over a 3-hour period. | Plant 1 Flare H ₂ S in flare gas exceedance: 11/23/23 7:59 a.m. – 10:59 a.m. (3 hours) 11/23/23 11:59 p.m. – 11/24/23 3:59 a.m. (4 hours) Maximum H ₂ S concentration was 245 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. | |

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| Event Date: November 27, 2023 | |
| Event Title: Plant 2 – Cooling Towers | |
| Impacted Media (air, water, or soil): Air | |
| Operating Unit: Plant 2 – Cooling Towers | |
| Event Summary: On November 27, 2023, at 4:37 p.m., a heat exchanger leak within Plant 2 was identified that may have resulted in Volatile Organic Compound (VOC) emissions being emitted at the Plant 2 Cooling Towers. The cause of the leak and the exact VOC mass emissions are currently under investigation. It has not yet been determined whether this event resulted in an exceedance of an applicable permit limit. | |
| The relevant permit terms or conditions for this event include: | |
| Permit Term or Condition | Maximum Reported Value |
| Title V Operating Permit 95OPAD108, Condition 4.4 – Annual VOC emissions shall not exceed 23.1 tons per year. | VOC emissions may have been over the permitted emissions limitation but are still under investigation. |
| 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. | |

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| Event Date: December 1, 2023 | |
| Event Title: Plant 1 – No. 4 Hydrodesulfurization (HDS) Unit trip/shutdown | |
| Impacted Media (air, water, or soil): Air | |
| Operating Unit: Plant 1 – No. 4 HDS Unit | |
| Event Summary: On December 1, 2023, at 7:00 a.m. the No. 4 HDS experienced a malfunction that caused the unit to shut down and resulted in hydrogen sulfide (H ₂ S) concentrations in the Plant 1 Main Flare gas to exceed the 162 ppm 3-hour rolling average limit for 2 hours. The cause of the shut down is still being investigated. | |
| The relevant permit terms or conditions for this event include: | |
| Permit Term or Condition | Maximum Reported Value |
| Title V Operating Permit 96OPAD120, Condition 29.9 – Plant 1 flare gas shall not exceed 162 ppmv H ₂ S averaged over a 3-hour period. | Plant 1 Flare gas H ₂ S exceedance: 12/1/23 7:00 a.m. – 9:00 a.m. (2 hours) Maximum H ₂ S was 174 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. | |

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| Event Date: December 14, 2023 | |
| Event Title: Plant 1 – H-25 Incinerator SO ₂ Release to Atmosphere | |
| Impacted Media (air, water, or soil): Air | |
| Operating Unit: Plant 1, H-25 Incinerator | |
| <p>Event Summary: On December 14, 2023, at 9:00 a.m., the tail gas unit incinerator (H-25) continuous emissions monitoring system (CEMS) recorded an exceedance of the sulfur dioxide (SO₂) lb/hr permit limit. The cause of the exceedance is still being investigated.</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, Condition. 20.1: H-25 SO ₂ Hourly Permit Limit – Hourly pounds (lbs) 15.68. | Plant 1 H-25 SO ₂ exceedance: 12/14/23 9:00 a.m. – 10:00 a.m. (1 hour) Maximum SO ₂ was 30.5 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.</p> | |

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