

# Environmental Reportable Events Summary



<b>Event Date:</b> February 16, 2023 – February 18, 2023		
<b>Event Title:</b> No. 2 Fluidized Catalytic Cracking Unit (FCCU) Startup Exceedances		
<b>Impacted Media</b> (air, water, or soil): Air		
<b>Operating Unit:</b> Plant 2 No. 2 FCCU		
<p><b>Event Summary:</b>                  During the Plant 2 No. 2 FCCU startup activities from February 16, 2023, to February 18, 2023, opacity and carbon monoxide (CO) limits were exceeded, even though Suncor operators followed protocols to minimize these emissions. The exceedances are typical during startup of the No. 2 FCCU and returned to normal once startup activities were complete.</p> <p>The event began on February 16, 2023, at 3:30 p.m. and ended on February 18, 2023, at 4:00 a.m., once the unit was stabilized.</p> <p>The specific permit terms or conditions exceeded for this event include:</p>		
<b>Permit Term or Condition</b>	<b>Maximum Reported Value</b>	<b>Event Duration</b>
<b>February 16, 2023</b>		
Opacity not to exceed 20% (6-minute average)	<b>33%</b> opacity (6-minute average)	18 minutes
500 ppm CO at 0% O <sub>2</sub> for a 1-hour average	<b>674 ppm</b> CO at 0% O <sub>2</sub> for a 1-hour average	7 hours
<b>February 17, 2023</b>		
Opacity not to exceed 20% (6-minute average)	<b>24%</b> opacity (6-minute average)	30 minutes
500 ppm CO at 0% O <sub>2</sub> for a 1-hour average	<b>2,031 ppm</b> CO at 0% O <sub>2</sub> for a 1-hour average	3 hours
<b>February 18, 2023</b>		
500 ppm CO at 0% O <sub>2</sub> for a 1-hour average	<b>2,031 ppm</b> CO at 0% O <sub>2</sub> for a 1-hour average	4 hours
<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>		

*\*Information in this report is based on the facts known to Suncor Energy (U.S.A.), Inc. at the time of preparation. We may update or change the information contained herein if and to the extent additional facts become available.*

# Environmental Reportable Events Summary



<b>Event Date:</b> February 23, 2023		
<b>Event Title:</b> No. 2 Fluidized Catalytic Cracking Unit (FCCU) Shutdown Exceedances		
<b>Impacted Media</b> (air, water, or soil): Air		
<b>Operating Unit:</b> Plant 2 No. 2 FCCU		
<p><b>Event Summary:</b>                  On February 23, 2023, the Plant 2 No. 2 FCCU was shut down due to a high liquid level in the wet gas compressor knock-out drum. Suncor Operators first attempted to pump out the liquid in the knock-out drum while the No. 2 FCCU was still operating, but ultimately decided to shut down the system to prevent damage to the compressor. The shutdown of the No. 2 FCCU resulted in an opacity exceedance at the No. 2 FCCU and a hydrogen sulfide (H<sub>2</sub>S) exceedance at the Plant 2 flare. H<sub>2</sub>S is combusted at the flare tip, which results in the generation of sulfur dioxide (SO<sub>2</sub>) and water vapor.</p> <p>The event started at 3:00 a.m. and ended at 4:00 p.m. on February 23, 2023, once the No. 2 FCCU was shut down.</p> <p>The specific permit terms or conditions exceeded for this event include:</p>		
<b>Permit Term or Condition</b>	<b>Maximum Reported Value</b>	<b>Event Duration</b>
Opacity not to exceed 20% (6-minute average)	<b>33%</b> opacity (6-minute average)	9 minutes
162 ppm H <sub>2</sub> S in flare gas for a 3-hour average	<b>328 ppm</b> H <sub>2</sub> S in flare gas for a 3-hour average	10 hours
<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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# Environmental Reportable Events Summary



<b>Event Date:</b> February 24, 2023 – February 26, 2023		
<b>Event Title:</b> No. 2 Fluidized Catalytic Cracking Unit (FCCU) Startup Exceedances		
<b>Impacted Media</b> (air, water, or soil): Air		
<b>Operating Unit:</b> Plant 2 No. 2 FCCU		
<p><b>Event Summary:</b>                  During Plant 2 No. 2 FCCU startup activities from February 24, 2023, to February 26, 2023, opacity and carbon monoxide (CO) limits were exceeded at the No. 2 FCCU and the hydrogen sulfide (H<sub>2</sub>S) limit was exceeded at the Plant 2 flare. The flare gas H<sub>2</sub>S limit was exceeded during the feed introduction to the No. 2 FCCU. These exceedances are typical during startup activities for the No. 2 FCCU. Suncor Operators followed protocols to minimize opacity and CO emissions at the No. 2 FCCU and flaring at the Plant 2 flare. H<sub>2</sub>S is combusted at the flare tip, which results in the generation of sulfur dioxide (SO<sub>2</sub>) and water vapor. Emissions were brought back to normal operating conditions after the unit was stabilized following startup activities.</p> <p>The event began on February 24, 2023, at 9:42 a.m. and ended on February 26, 2023, at 3:00 p.m., once the unit was stabilized.</p> <p>The specific permit terms or conditions exceeded for this event include:</p>		
<b>Permit Term or Condition</b>	<b>Maximum Reported Value</b>	<b>Event Duration</b>
<b>February 24, 2023</b>		
Opacity not to exceed 20% (6-minute average)	<b>45%</b> opacity (6-minute average)	12 minutes
<b>February 25, 2023</b>		
Opacity not to exceed 20% (6-minute average)	<b>83%</b> opacity (6-minute average)	153 minutes
Opacity not to exceed 30% (6-minute average)	<b>83%</b> opacity (6-minute average)	33 minutes
Opacity not to exceed 20% (3-hour average)	<b>35%</b> opacity (3-hour average)	3 hours
500 ppm CO at 0% O <sub>2</sub> for a 1-hour average	<b>2,031 ppm</b> CO at 0% O <sub>2</sub> for a 1-hour average	20 hours
<b>February 26, 2023</b>		
500 ppm CO at 0% O <sub>2</sub> for a 1-hour average	<b>2,031 ppm</b> CO at 0% O <sub>2</sub> for a 1-hour average	9 hours
162 ppm H <sub>2</sub> S in flare gas for a 3-hour average	<b>198 ppm</b> H <sub>2</sub> S in flare gas for a 3-hour average	4 hours
<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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# Environmental Reportable Events Summary



<b>Event Date:</b> February 27, 2023								
<b>Event Title:</b> Sanitary Sewer Line Leak								
<b>Impacted Media</b> (air, water, or soil): Soil								
<b>Operating Unit:</b> Oil Movements Division 1 (OMD-1)								
<p><b>Event Summary:</b>                  On February 27, 2023, a Suncor operator discovered a leak in an above ground sanitary sewer line located within a storage tank containment area. The leak, which is believed to have been caused by a crack due to freezing temperatures, resulted in the spillage of approximately 50 gallons of liquid over a period of 2-4 hours. Suncor operations immediately notified the Suncor Environmental and Safety departments and isolated and stopped the leak within two hours of discovery by turning off the lift station pump.</p> <p>On February 28 and March 1, 2023, a cleanup crew applied lime to the impacted soil for treatment and tilled it to a depth of 3-6 inches. During the week of February 27, 2023, a plumbing contractor replaced the damaged piping, reinstalled insulation, and installed additional pipe supports to minimize the potential for future pipe damage.</p> <p>The leak remained within the containment area and did not reach any surface water or groundwater. The cleanup was completed within two days.</p>								
<b>Event Date:</b> March 1, 2023 – March 2, 2023								
<b>Event Title:</b> Plant 1 Tail Gas Incinerator Startup Exceedance								
<b>Impacted Media</b> (air, water, or soil): Air								
<b>Operating Unit:</b> Plant 1 Tail Gas Incinerator (H-25)								
<p><b>Event Summary:</b>                  On March 1 and 2, 2023, the startup of the Plant 1 tail gas unit incinerator (H-25) resulted in an exceedance of the 250-ppm sulfur dioxide (SO<sub>2</sub>) (corrected to 0% oxygen) 12-hour average limit at H-25. This exceedance was due to the presence of small amounts of residual sulfur compounds that were present in the piping, base, burner, and stack of H-25. As part of the normal start-up of H-25, these compounds were pushed through the system, resulting in a high concentration of SO<sub>2</sub> being emitted from the stack. H-25 was started in preparation for the startup of other Plant 1 process units. No acid gas was being sent to the tail gas unit at the time of the exceedance.</p> <p>The event began on March 1, 2023, at 8:00 p.m. and ended on March 2, 2023, at 5:00 a.m., once the unit was stabilized.</p> <p>The specific permit terms or conditions exceeded for this event include:</p>								
<table border="1"> <thead> <tr> <th>Permit Term or Condition</th> <th>Reported Value</th> <th>Event Duration</th> </tr> </thead> <tbody> <tr> <td>250 ppm SO<sub>2</sub> at 0% O<sub>2</sub> for a 12-hour rolling average from the tail gas incinerator (H-25)</td> <td>358 ppm SO<sub>2</sub> at 0% O<sub>2</sub> for a 12-hour average</td> <td>9 hours</td> </tr> </tbody> </table>			Permit Term or Condition	Reported Value	Event Duration	250 ppm SO <sub>2</sub> at 0% O <sub>2</sub> for a 12-hour rolling average from the tail gas incinerator (H-25)	358 ppm SO <sub>2</sub> at 0% O <sub>2</sub> for a 12-hour average	9 hours
Permit Term or Condition	Reported Value	Event Duration						
250 ppm SO <sub>2</sub> at 0% O <sub>2</sub> for a 12-hour rolling average from the tail gas incinerator (H-25)	358 ppm SO <sub>2</sub> at 0% O <sub>2</sub> for a 12-hour average	9 hours						
<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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# Environmental Reportable Events Summary



<b>Event Date:</b> March 10, 2023 – March 14, 2023		
<b>Event Title:</b> Plant 1 Startup Exceedances		
<b>Impacted Media</b> (air, water, or soil): Air		
<b>Operating Unit:</b> Plant 1 Process Units		
<b>Event Summary:</b> From March 10, 2023 to March 14, 2023, the startup of multiple process units in Plant 1 resulted in permit exceedances. During the startup of the No. 1 sulfur recovery unit (No. 1 SRU), sulfur dioxide (SO <sub>2</sub> ) exceedances occurred in the tail gas unit incinerator (H-25) as the unit warmed up and until it stabilized. During this time, gases with elevated concentrations of hydrogen sulfide (H <sub>2</sub> S) were routed to the Plant 1 main plant flare, resulting in H <sub>2</sub> S exceedances at flare. H <sub>2</sub> S is combusted at the flare tip, which results in the generation of SO <sub>2</sub> and water vapor. Flaring of process gases during unit startup activities is necessary at times to maintain safe refinery operations. Additionally, the startup of the No. 1 fluidized catalytic cracking unit (No. 1 FCCU) resulted in a 6-minute opacity exceedance.  The event began on March 10, 2023, at 10:00 a.m. and ended on March 14, 2023, at 9:54 p.m.  The specific permit terms or conditions exceeded for this event include:		
<b>Permit Term or Condition</b>	<b>Reported Value</b>	<b>Event Duration</b>
<b>March 10, 2023</b>		
250 ppm SO <sub>2</sub> at 0% O <sub>2</sub> for a 12-hour rolling average from the tail gas incinerator (H-25)	<b>761 ppm</b> SO <sub>2</sub> at 0% O <sub>2</sub> for a 12-hour average	14 hours
15.68 lb/hr SO <sub>2</sub> from the Plant 1 Tail Gas Incinerator	<b>29 lb/hr</b> SO <sub>2</sub> from the Plant 1 Tail Gas Incinerator	2 hours
162 ppm H <sub>2</sub> S in flare gas for a 3-hour average	<b>307 ppm</b> H <sub>2</sub> S in flare gas for a 3-hour average	5 hours
<b>March 11, 2023</b>		
250 ppm SO <sub>2</sub> at 0% O <sub>2</sub> for a 12-hour rolling average from the tail gas incinerator (H-25)	<b>253 ppm</b> SO <sub>2</sub> at 0% O <sub>2</sub> for a 12-hour average	5 hours
162 ppm H <sub>2</sub> S in flare gas for a 3-hour average	<b>320 ppm</b> H <sub>2</sub> S in flare gas for a 3-hour average	12 hours
500 lb SO <sub>2</sub> Refinery-wide on 24-hr rolling period (EPCRA RQ)	<b>837 lbs</b> SO <sub>2</sub>	21 hours
<b>March 13, 2023</b>		
250 ppm SO <sub>2</sub> at 0% O <sub>2</sub> for a 12-hour rolling average from the tail gas incinerator (H-25)	<b>303 ppm</b> SO <sub>2</sub> at 0% O <sub>2</sub> for a 12-hour average	15 hours
<b>March 14, 2023</b>		
250 ppm SO <sub>2</sub> at 0% O <sub>2</sub> for a 12-hour rolling average from the tail gas incinerator (H-25)	<b>303 ppm</b> SO <sub>2</sub> at 0% O <sub>2</sub> for a 12-hour average	7 hours
Opacity not to exceed 20% (6-minute average) from the Plant 1 Fluidized Catalytic Cracking Unit	<b>27%</b> opacity (6-minute average) from the Plant 1 Fluidized Catalytic Cracking Unit	6 minutes
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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