

Environmental Reportable Events Summary



Event Date: 07/18/2022							
Event Title: Hydrogen Sulfide Release from Sour Water Stripper							
Impacted Media (air, water, or soil): Air							
Operating Unit: Plant 1 Sour Water Stripper (SWS)							
<p>Event Summary: During normal operations, facility personnel received an alarm from a hydrogen sulfide (H₂S) monitor in the control room. Operations personnel investigated the area and were able to identify a location along the piping in the unit where the leak was likely occurring. Operators shut down the SWS to stop the leak. Once the unit was shut down, insulation was removed from piping to find and repair the leak. A small hole was found, and the pipe was repaired. The SWS was brought back online without any further issue. The duration of the leak was estimated to be around 12 hours. Based on the hole size, chemical composition of the process steam, and duration of the leak, is estimated that 573 pounds of H₂S was released.</p> <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>							
Event Date: 07/26/2022							
Event Title: No. 2 Fluidized Catalytic Cracking Unit (FCC) Startup Exceedance							
Impacted Media (air, water, or soil): Air							
Operating Unit: Plant 2 FCC							
<p>Event Summary: On July 26, while bringing a slurry pump online after maintenance activities, a check valve on the pump circuit failed, causing a loss of slurry flow in the FCC. This loss of slurry flow activated an automatic shutdown device that shutdown the FCC with no safety issues or environmental exceedances. While starting up the Plant 2 FCC, torch oil was introduced to the unit, causing elevated carbon monoxide (CO) emissions. Elevated H₂S in the flare system was also present as the unit was brought online. At the flare tip, and in the refinery fuel gas system, H₂S is combusted, which results in the generation of SO₂ and water vapor. The CO and H₂S in the flare emissions were brought under control after the unit was stabilized following startup activities.</p> <p>This event began on 07/26/2022 at 11:00 a.m. and ended on 07/26/2022 at 11:00 p.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> </tr> </thead> <tbody> <tr> <td>162 ppm H₂S in flare gas for a 3-hour average</td> <td>222 ppm H₂S in flare gas for a 3-hour average</td> </tr> <tr> <td>500 ppm CO at 0% O₂ for a 1-hour average</td> <td>2,031 ppm CO at 0% O₂ for a 1-hour average</td> </tr> </tbody> </table>		Permit Term or Condition	Reported Value	162 ppm H ₂ S in flare gas for a 3-hour average	222 ppm H ₂ S in flare gas for a 3-hour average	500 ppm CO at 0% O ₂ for a 1-hour average	2,031 ppm CO at 0% O ₂ for a 1-hour average
Permit Term or Condition	Reported Value						
162 ppm H ₂ S in flare gas for a 3-hour average	222 ppm H ₂ S in flare gas for a 3-hour average						
500 ppm CO at 0% O ₂ for a 1-hour average	2,031 ppm CO at 0% O ₂ for a 1-hour average						
<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



Event Date: 08/07/2022					
Event Title: Plant 1 Fluidized Catalytic Cracking Unit (FCC) Carbon Monoxide (CO) Exceedance					
Impacted Media (air, water, or soil): Air					
Operating Unit: Plant 1 Fluidized Catalytic Cracking Unit (FCC)					
<p>Event Summary: During normal operation, a heavy storm came through the facility with significant rain and lightning. During the storm, one of the refinery boilers briefly reduced its steam production due to large amounts of rain over a short amount of time causing the Plant 1 FCC blower to reduce output, causing a reduction in the temperature inside the unit. To keep the temperatures in the unit stable, torch oil was introduced into the unit, which resulted in elevated carbon monoxide (CO) emissions.</p> <p>This event began on 08/07/2022 at 08:00 p.m. and ended on 08/07/2022 at 09:00 p.m. once torch oil was removed from the FCC and boiler operation was stabilized.</p> <p>The specific permit terms or conditions exceeded for this event include:</p>					
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500 ppm CO at 0% O ₂ for a 1-hour average	2,031 ppm CO at 0% O ₂ for a 1-hour average				
<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>					
Event Date: 08/08/2022					
Event Title: Tier 2 Event – Excess Smoke and Flames from Plant 1 Flare					
Impacted Media (air, water, or soil): Air					
Operating Unit: Plant 1 Main Plant Flare, Plant 1 Fluidized Catalytic Cracking Unit (FCC)					
<p>Event Summary: As part of normal operating procedure, operations personnel began transferring lubricating oil from an oil storage tote to the reservoir in the FCC wet gas compressor. During the transfer of oil, the lubrication oil filter became plugged, causing a pressure drop which resulted in the wet gas compressor shutting down as part of the emergency shutdown device to protect the equipment. This caused the gases normally processed by the compressor to be routed to the Plant 1 Main Plant Flare. Operations personnel stabilized the unit and were able to determine that water intrusion from the recent heavy rainstorm was the likely cause of the lubrication oil filter being plugged. Operations personnel drained and filled the oil reservoir with fresh oil and began the restart of the FCC.</p> <p>This event began on 08/08/2022 at 02:44 a.m. and ended on 08/08/2022 at 02:56 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> </tr> </thead> <tbody> <tr> <td>Flares shall be operated with no visible emissions except for periods not to exceed a total of 5 minutes during any 2 consecutive hours.</td> <td>For the duration of the event, there was a period of 12 minutes when the flare operated with visible emissions.</td> </tr> </tbody> </table>		Permit Term or Condition	Reported Value	Flares shall be operated with no visible emissions except for periods not to exceed a total of 5 minutes during any 2 consecutive hours.	For the duration of the event, there was a period of 12 minutes when the flare operated with visible emissions.
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<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



Event Date: 08/16/2022	
Event Title: Plant 2 Sulfur Recovery Unit (SRU) Exceedance	
Impacted Media (air, water, or soil): Air	
Operating Unit: Plant 2 Sulfur Recovery Unit (SRU)	
Event Summary: During normal operation, the Plant 2 SRU tripped offline when one of the instruments on the equipment reported loss of flame in the incinerator. The loss of flame was found to be related to moist air in the instrument air system, which caused the SRU gas control valve to trip. The SRU treats refinery fuel gas and flare gas to reduce H ₂ S concentrations. While the unit was offline, H ₂ S concentrations remained elevated but were combusted at the flare tip and in the refinery fuel gas system. At the flare tip, and in the refinery fuel gas system, H ₂ S is combusted, which results in the generation of Sulfur Dioxide (SO ₂) and water vapor. and water vapor. This event began on 08/15/2022 at 11:00 p.m. and ended on 08/16/2022 at 8:00 a.m. once the liquid was drained from the air lines and the unit was stabilized. The specific permit terms or conditions exceeded for this event include:	
Permit Term or Condition	Reported Value
162 ppm H ₂ S in fuel gas for a 3-hour average	300 ppm H ₂ S in fuel gas for a 3-hour average
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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