

# Environmental Reportable Events Summary



<b>Event Date:</b> 03/17/2022
<b>Event Title:</b> Tier 2 Event – Electrical Substation Arc Flash and Power Failure
<b>Impacted Media</b> (air, water, or soil): Air
<b>Operating Unit:</b> Multiple Units
<b>Event Summary:</b> <p>While under normal operation, an electrical arc flash occurred at the refinery from an onsite Power Distribution Center (PDC) in Plant 2, which resulted in multiple refinery operating units shutting down. These units shutting down caused the gases normally processed in the units to be sent to the Plant 1 Main Plant Flare for safe combustion. H<sub>2</sub>S is combusted at the flare, which results in the generation of SO<sub>2</sub> and water vapor. The refinery plant alarm system was sounded which, per procedure, activated the Suncor Emergency Operations Center (EOC) and the Refinery Emergency Response Team (ERT). All refinery operating units were brought to a safe state by refinery operations personnel and no injuries were reported.</p> <p>More details regarding this event will be included in a separate summary report that will be posted online.</p> <p>This event began 03/17/2022 at 1:00 a.m. and ended on 03/17/2022 at 12:00 p.m. once all affected units were stabilized.</p> <p>The specific permit exceedances for this event were:</p> <ul style="list-style-type: none"><li>• 162 ppm H<sub>2</sub>S in flare gas for a 3-hour average (Plant 1 Main Plant Flare)<ul style="list-style-type: none"><li>• Reported at <b>300 ppm</b> H<sub>2</sub>S in flare gas for a 3-hour average</li></ul></li><li>• Emergency Planning and Community Right-to-Know Act (EPCRA) reportable quantity (RQ) exceedance for SO<sub>2</sub> – 500 lbs within any 24-hour period (Plant 1 Main Plant Flare)<ul style="list-style-type: none"><li>• Reported at <b>1,174 lbs</b> of SO<sub>2</sub> within a 24-hour period</li></ul></li><li>• 15.68 lb/hr of SO<sub>2</sub> 1-hour average from the tail gas incinerator (H-25)<ul style="list-style-type: none"><li>• Reported at <b>156 lb/hr</b> of SO<sub>2</sub> for a 1-hour average (maximum)</li></ul></li><li>• 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)<ul style="list-style-type: none"><li>• Reported at <b>2,212 ppm</b> SO<sub>2</sub> at 0% O<sub>2</sub> for a 12-hour average</li></ul></li><li>• 0.060 lb of CO per MMBtu for a 24-hour period (average) (Boiler B8)<ul style="list-style-type: none"><li>• Reported at <b>0.240</b> lb of CO per MMBtu for a 24-hour period (average)</li></ul></li><li>• 500 ppm CO at 0% O<sub>2</sub> for a 1-hour average (Plant 1 Fluidized Catalytic Cracking Unit – FCC)<ul style="list-style-type: none"><li>• Reported at <b>2,030 ppm</b> CO at 0% O<sub>2</sub> for a 1-hour average</li></ul></li><li>• Opacity not to exceed 20% for a 3-hour average (Plant 1 FCC)<ul style="list-style-type: none"><li>• Reported at <b>33%</b> opacity for a 6-min block average (maximum)</li></ul></li></ul> <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.*

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<b>Event Date:</b> 03/19/2022
<b>Event Title:</b> Startup Emissions Exceedances
<b>Impacted Media</b> (air, water, or soil): Air
<b>Operating Unit:</b> Multiple Plant 1 Units
<b>Event Summary:</b> <p>While starting up the Plant 1 operating units after a power failure on 03/17/2022, there were multiple permit exceedances as the units were being stabilized. Many of the exceedances were related to instrumentation issues which required recalibration or replacement after power was restored.</p> <p>This event began 03/19/2022 at 12:00 a.m. and ended on 03/29/2022 at 5:00 p.m. once all units were operational and running stably.</p> <p>The specific permit exceedances for this event were:</p> <ul style="list-style-type: none"><li>• 162 ppm H<sub>2</sub>S in flare gas for a 3-hour average (Plant 1 Main Plant Flare)<ul style="list-style-type: none"><li>• Reported at <b>300 ppm</b> H<sub>2</sub>S in flare gas for a 3-hour average</li></ul></li><li>• Emergency Planning and Community Right-to-Know Act (EPCRA) reportable quantity (RQ) exceedance for SO<sub>2</sub> – 500 lbs within any 24-hour period (Plant 1 Main Plant Flare)<ul style="list-style-type: none"><li>• Reported at <b>624 lbs</b> of SO<sub>2</sub> within a 24-hour period</li></ul></li><li>• Heat content of the flare shall not drop below 270 btu/scf (Plant 1 Main Plant Flare)<ul style="list-style-type: none"><li>• Reported at <b>258 btu/scf</b></li></ul></li><li>• 15.68 lb/hr of SO<sub>2</sub> 1-hour average from the tail gas incinerator (H-25)<ul style="list-style-type: none"><li>• Reported at <b>23 lb/hr</b> of SO<sub>2</sub> for a 1-hour average (maximum)</li></ul></li><li>• 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)<ul style="list-style-type: none"><li>• Reported at <b>561 ppm</b> SO<sub>2</sub> at 0% O<sub>2</sub> for a 12-hour average</li></ul></li><li>• 0.060 lb of CO per MMBtu for a 24-hour period (average) (Boiler B6)<ul style="list-style-type: none"><li>• Reported at <b>0.078</b> lb of CO per MMBtu for a 24-hour period (average)</li></ul></li><li>• 0.060 lb of CO per MMBtu for a 24-hour period (average) (Boiler B8)<ul style="list-style-type: none"><li>• Reported at <b>0.170</b> lb of CO per MMBtu for a 24-hour period (average)</li></ul></li><li>• 500 ppm CO at 0% O<sub>2</sub> for a 1-hour average (Plant 1 Fluidized Catalytic Cracking Unit – FCC)<ul style="list-style-type: none"><li>• Reported at <b>2,030 ppm</b> CO at 0% O<sub>2</sub> for a 1-hour average</li></ul></li><li>• Opacity not to exceed 20% for a 3-hour average (Plant 1 FCC)<ul style="list-style-type: none"><li>• Reported at <b>73%</b> opacity for a 6-min block average (maximum)</li></ul></li></ul> <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> 03/29/2022
<b>Event Title:</b> Plant 2 Flare Pilots Out
<b>Impacted Media</b> (air, water, or soil): Air
<b>Operating Unit:</b> Plant 2 Flare
<b>Event Summary:</b> <p>While relieving pressure from the Plant 2 Reformer Unit, the Plant 2 Flare pilots and flame were inadvertently snuffed when the steam output exceeded the gas output from the Reformer. Operations personnel reduced the Reformer pressure relief and worked quickly to re-light the flare and the pilots.</p> <p>This event began 03/29/2022 at 1:34 a.m. and ended on 03/29/2022 at 2:57 a.m. when the flare and pilots were re-lit.</p> <p>The specific permit exceedances for this event were:</p> <ul style="list-style-type: none"><li>• The flare shall be operated with a flame present at all times (Plant 2 Flare)</li></ul> <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>
<b>Event Date:</b> 04/02/2022
<b>Event Title:</b> Startup Emissions Exceedances
<b>Impacted Media</b> (air, water, or soil): Air
<b>Operating Unit:</b> Plant 2 Fluidized Catalytic Cracking Unit (FCC)
<b>Event Summary:</b> <p>While starting up the Plant 2 FCC, torch oil was introduced to the unit which caused elevated carbon monoxide (CO) emissions. Additionally, while starting up the main air blower for the FCC, an opacity spike was measured at the FCC stack above the permit limit. During the startup, elevated H<sub>2</sub>S in the flare system was also present as the unit was brought online. At the flare tip, and in the refinery fuel gas system, H<sub>2</sub>S is combusted, which results in the generation of SO<sub>2</sub> and water vapor. The CO emissions were brought under control after the unit was stabilized following startup activities.</p> <p>This event began 04/02/2022 at 11:00 p.m. and ended on 04/05/2022 at 06:00 a.m. once the unit was operating stably.</p> <p>The specific permit exceedances for this event were:</p> <ul style="list-style-type: none"><li>• 500 ppm CO at 0% O<sub>2</sub> for a 1-hour average<ul style="list-style-type: none"><li>• Reported at <b>2,031 ppm</b> CO at 0% O<sub>2</sub> for a 1-hour average</li></ul></li><li>• 162 ppm H<sub>2</sub>S in flare gas for a 3-hour average<ul style="list-style-type: none"><li>• Reported at <b>177 ppm</b> H<sub>2</sub>S in flare gas for a 3-hour average</li></ul></li><li>• Opacity not to exceed 20% for a 6-minute average<ul style="list-style-type: none"><li>• Reported at <b>28%</b> opacity for a 6-minute average (intermittent)</li></ul></li></ul> <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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