

Investigation Findings and Responsive Actions

Commerce City Refinery December 2022 Cold Weather and Shutdown Events

Overview

- In December 2022, the Denver area experienced an extreme and record-setting rapid temperature drop. The temperature fell from about 50 degrees Fahrenheit (“°F”) on the afternoon of December 21, 2022, to -24 °F on the morning of December 22, 2022. This was the second-largest two-day temperature swing in Denver history. The temperature in Commerce City remained below freezing until the morning of December 24, 2022.
- Consistent with Suncor’s emphasis on safe operating practices, on December 24, 2022, the refinery’s leadership team determined that the entire facility would be shut down and put into safe mode to allow for inspecting all units and repairing the damaged equipment.
- We have completed a thorough investigation into the events leading to the temporary shutdown of the refinery. Our investigation covered a series of freezing, thawing and shutdown events that occurred between December 21, 2022 and January 3, 2023 across a substantial portion of refinery and impacted all of the facility’s major processing units.
- We have completed repairs to the refinery and have taken significant steps to be better prepared for this and future winter seasons.

Our Response

- The response of refinery operations staff and other Suncor personnel mitigated additional potential impacts of the unique cold-weather events.
- A comprehensive investigation was conducted and early learnings were used in the refinery repair process that began immediately after the temporary shutdown.
- Immediately after the events, through April 2023, Suncor conducted an extensive repair and restart process.
- Equipment that was damaged by the extreme cold-weather events was repaired or replaced, as appropriate, to ensure a safe, compliant, and reliable restart.

Responsive Actions Resulting from the Investigation

After completing the investigation, these responsive actions have been taken, or are planned to be taken:

1. Complete winterization repairs and upgrades to improve the refinery's resilience during extreme weather conditions.
2. Update process for managing risks of short-term dead-legs created during temporary modes of operation.
3. Improve boiler cold weather reliability by evaluating improvements to boiler solenoid valves and fuel gas supply system.
4. Improve sewer management and communication by updating preventative maintenance plans and operational procedures.

Additional Investments

Ahead of the 2023/2024 winter season, Suncor spent an additional \$11.5 million on extensive winterization work including:

- Completed repairs to the refinery's steam tracing system.
- Completed upgrades and repairs to insulation to piping, pumps, and other equipment.
- Commissioned an upgraded wireless system to monitor the performance of electrical heat tracing systems (with alarms that alert refinery personnel to issues).
- Installed temporary enclosures for critical instruments and equipment during the winter.