

Incident Investigation Findings Summary



Incident Date(s): February 25, 2022
Incident Title: Plant 1 Flare Gas Recovery Unit (FGRU) Vapor Release
Executive Summary <p>On the morning of February 25, 2022 operators around the Plant 1 Flare Gas Recovery Unit (FGRU) noted the smell of hydrogen sulfide gas (H₂S) within the refinery. Refinery personnel activated the plant alarm system indicating a vapor release in the area which, per procedure, activated the Suncor Emergency Operations Center (EOC) and Emergency Response Team (ERT). The initial response led to the conclusion that there was a leak at the FGRU and that gases going to the FGRU were routed to the flare to stop the release of any process gases. Operations personnel quickly routed the gases in the units, including Plant 3 gases, to the Plant 1 Main Plant flare which stopped the release at the FGRU.</p>
Incident Summary <p>On the morning of February 25, 2022 operators around the Plant 1 Flare Gas Recovery Unit (FGRU) noted the smell of hydrogen sulfide gas (H₂S) in the area. An initial investigation of the area resulted in identifying the leak as coming from the FGRU on the inlet to the second stage of the compressor. Personnel activated the plant alarm system indicating a vapor release which also activated the refinery EOC and ERT.</p> <p>ERT personnel began removing insulation on the FGRU piping which showed that holes in the piping had developed and were the source of the H₂S in the area. To prevent any further release, operations personnel routed all gases normally going to this section of the FGRU out of the system and to the refinery main plant flare for safe combustion. Once all gases were routed out of the unit, the release was stopped, and personnel were able to begin the investigation and repair of the piping.</p>
Incident Investigation Summary <p>Based on visual observation of the inside and outside of the leaking pipe, it was concluded that the most likely cause of the holes was related to internal acidic water corrosion. The likely mechanism for the creation of acidic water corrosion conditions is the combination of acidic sour water in the piping over time and potential dead leg conditions. Over time, acidic water conditions in piping can result in corrosion.</p>
Recommended Actions to Prevent Recurrence <p>To reduce the likelihood of recurrence, the following actions were recommended:</p> <ol style="list-style-type: none">1. Replace the pipe at the location of the leak, which at the time of writing has been completed.2. Complete inspection of similar service locations in the FGRU to identify potential corrosion.3. Revise inspection strategy on newly installed pipe to include specific focus around dead legs and acidic water corrosion.4. Redesign the pipe to reduce the dead leg potential and install at a future turnaround event.

**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.*