ENFORM The Safety Association for Canada's Upstream Oil and Gas Industry

Snubbing Operations Gas Release

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Enform
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An Industry Product
This document was developed by industry for industry. Working collaboratively, Enform works with the submitting organization representative in developing these documents to improve the industry's hazard awareness. Canada's leading oil and gas industry trade associations support the use of shared information to help companies of all sizes improve performance.

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For more information on this event, please contact: safety@enform.ca

Description of Incident:

A snubbing crew rigged up on a producer location in Northern Alberta. Set-up operations were completed for the wellhead stabilizer, snubbing jack, catwalk, pipe racks, pumping unit and primary accumulator.

The crew was in the process of installing the snubbing unit equalizer line and the pumping unit flow line. The snubbing unit operator was installing the equalizer crossover into the production casing valve. The casing valve handle was in what was assumed to be a fully closed position, and the downstream piping assembly was depressurized and removed.

Upon removal, the snubbing operator noticed an ice build-up inside the casing valve. The snubbing operator sprayed methanol to attempt removal of the blockage, but was not successful.

The snubbing operator then used a steel chisel to break up the blockage. At this time, the snubbing supervisor entered the well head area near the affected production casing valve.

When the ice plug within the casing valve was removed, a high pressure flow of wellbore gas and fluid was released.

The snubbing operator and crew evacuated the area and gathered at the safety meeting point. A head count revealed that the snubbing supervisor was not present and was still lying in the wellhead area near the crane outrigger. The crew retrieved the snubbing supervisor and controlled the well by fully closing the production casing valve.

What Caused It:

- Winter temperatures allowed fluid to freeze and form an ice plug within the production casing valve.
- When the production casing valve was functioned to the close position, it only went six turns before it appeared to seat. The valve was not reopened or reclosed to confirm the starting position of the valve and whether the correct number of turns had been achieved to fully close the valve.
- When the ice plug in the production casing was discovered, crew members failed to report the out-of-scope condition to the snubbing supervisor/well site supervisor.
- The task was not suspended and nor was a pre-job hazard assessment completed prior to attempting removal of the ice plug.
- Crew members failed to use proper tools or techniques to remove the ice plug from the valve.

Corrective/Preventive Actions:

Investigation provided the following recommendations:

- Be extremely aware of potential for ice plug/hydrate build-up in piping systems, and the associated trapped pressure hazards.
- When functioning gate-style valves, ensure the number of turns to open/close are known, and that the proper number of turns can be achieved to confirm the valve is closed.
- Always assume that an ice plug within a piping system will contain trapped pressure.
- When out-of-scope operations are encountered during routine tasks, STOP the task and report the condition. DO NOT PROCEED WITH THE TASK.
- Always ensure that a site specific hazard assessment is completed to determine a safe course of action and the control measures required to mitigate the out-of-scope conditions.