



H₂S Hazard Reminder

In northeastern B.C., there have recently been three serious incidents involving hydrogen sulfide (H₂S). All of them could have been fatal — and one of them was.

Incident 1

An operator was called out to a pumpjack that had gone down. He parked directly adjacent to the wellhead to use a hose connected to the exhaust of his truck to thaw out a pressure transmitter that had been freezing. He bypassed the pressure control switch that was shutting the unit down by closing the isolation/test valve under it, then restarted the jack. The control room indicated normal pipeline pressure readings from the SCADA (Supervisory, Control, And Data Acquisition) system. There was no pressure gauge on the tubing.

A hydrate had formed between the wellhead and the pressure transmitter, and now the pressure control switch, although working correctly, was bypassed. With the jack operating, without high pressure shut-down, and an ice plug in the piping immediately adjacent to the wellhead, the radigan end cap blew out of the body. It struck the operator's truck, parked at the wellhead, and the ensuing oil and gas spray enveloped the truck. The operator, at the truck, was overcome by H₂S and died.

Incident 2

An operator was called out very early one morning when a compressor went down. He responded on his own, with a check-in system to an answering service. He arrived on site to find that the plant was down due to low instrument air. As he attempted to restart the plant, a recently installed separator began dumping fluid into a water tank positioned near his truck, parked there to enable the use of 12-volt electric lights.

The tank vent system could not handle the amount of gas entering the tank with the water, so some gas began venting through the thief hatch. As the alarm on the operator's personal H₂S monitor began to sound, he attempted to evacuate the area by running upwind. He was overcome by H₂S and fell to the ground. After an undetermined amount of time, he regained consciousness and was able to get to his truck and call his supervisor.

Incident 3

Several workers were masked up to install a blind in a flanged connection of an existing pipeline. Another worker, attempting to retrieve a bolt, entered the area without putting on respiratory protection and was overcome by H₂S. He was dragged to a safe area and resuscitated.

Don't let incidents like this happen to you or your workers!

Complacency can kill!

What can be done to prevent exposure to H₂S?

1. Properly instruct, train, and supervise workers:

- Ensure that all workers are adequately instructed in the hazards of H₂S and trained to know what to do in case of a release.
- Co-ordinate all activities on the work site, providing adequate supervision and clear communication, to ensure that workers are aware of all potential hazards.

2. Don't be complacent when working with H₂S:

- Always consider potential hazards and escape routes in case of an emergency.
- If at all possible, park vehicles in a safe zone so that they can be used for escape or to get help in case of an emergency.
- Consider having two workers, instead of just one, respond to an abnormal situation like a call-out or "unit down" alarm.

3. Implement preventive procedures and monitoring:

- Whenever possible, purge pipelines and systems with an inert gas and provide monitoring before workers are required to work on equipment to avoid the need for SCBA or SABA.
- Establish procedures to identify potential hydrate formation and take steps to prevent formation.
- Ensure adequate procedures and monitoring equipment are in place so workers are readily able to determine the internal atmosphere before entering any building that contains gas systems.

- Ensure that accurate gauges are installed to monitor pressure when work is being done – do not rely on SCADA readings alone.
- To reduce potential exposure to carbon monoxide and to allow parking at a safe distance, consider alternatives to vehicle exhaust for providing heat or removing ice plugs. Have adequate administrative controls, including written procedures, in place and make sure they are followed when vehicle exhaust must be used. Ensure that carbon monoxide monitoring is provided for this type of work.

4. Consider equipment and engineering:

- Eliminate or securely lock safety bypasses. Have in place adequate administrative controls, including written procedures, and make sure workers are aware of and well trained in the use of bypasses.
- When facilities are modified, ensure that new equipment is engineered to work with existing equipment and that existing equipment is adequate to handle the modified capacity.
- Ensure that all gas vented from containers such as tanks or instruments is safely diverted to an adequate flare or vapour recovery system.
- Ensure that fluid dump systems are well engineered and valve trim is sized to prevent overwhelming tank vent systems.



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