



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

## H2S Exposure – Failure to Follow Proper Procedure Fatality

**SAFETY ALERT**

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### Enform: Your Partner in Safety

Enform is the upstream oil and gas industry's advocate and leading resource for the continuous improvement of safety performance. Our mission is to help companies achieve their safety goals by providing practices, assessment, training, support, metrics and communication. Our vision is no work-related incidents or injuries in the Canadian upstream oil and gas industry.

### 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.

### Disclaimer

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### Details

Release Date: September 2011  
Incidence Type: Fatality  
Country and Region: Central Alberta, Canada

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### Description of Incident:

A fatality associated with hydrogen sulphide (H2S) exposure occurred at a lease site in Central Alberta. During the task of suspending an 8" pipeline that contained sour hydrates, the supervisor opened up the thief hatch on the 400 barrel fluid tank resulting in H2S gasses being released to atmosphere and causing the fatality. The estimated concentration of H2S was approximately 15% (150,000 PPM).

A second worker on site attempting a rescue was also knocked down as a result of H2S exposure. Neither worker had supplied air at the time of incident. Two other workers on site properly masked up and rescued the first two workers from the danger zone. The second worker who had attempted the rescue was treated and released from hospital the following day.

### What Caused It:

The immediate causes of the incident are:

- **Opening the thief hatch** (inattention to job hazards): all workers on site were made aware of the presence of H2S and that venting to atmosphere or opening up the thief hatch would release large amounts of H2S.
- **Failure to follow procedures:** there were company/ industry standards and training that stressed the hazards and enforced that H2S was not allowed to enter the atmosphere. These procedures were not followed, when the supervisor opened up the thief hatch.

Underlying Causes of the Incident are:

- **Complacency:** It is believed that complacency in routinely working around sour gas is a contributing factor to this incident. The fatally injured supervisor was aware that opening the thief hatch would allow large volumes of H2S to be released to atmosphere.
- **Failure to Refuse Unsafe Work:** The contract workers on site should have refused to perform unsafe work.
- **Insufficient Planning:** This type of work requires equipment to scrub out the toxic gas or contain it. The supervisor and the contract company did not have the proper equipment in place as required by company, industry and regulatory standards.

By industry, for industry



## **Corrective Actions:**

### Increased Supervision and Inspections:

The company has hired additional staff to complete inspections and field audits on all third party contractors and supervisors. These inspections are to ensure that:

1. Proper safety equipment is in place and being used,
2. All workers are aware of hazards and are following the policies and procedures in place,
3. To ensure that no unsafe decisions are made.

### Annual HSE Orientations for Company Representatives:

The goal of this additional program, beyond the company's existing regular annual orientations completed with all workers is to focus on prime representatives or supervisors leading a project for the company in the field.

The company needs to ensure that all those in a supervisory role are aware of the HSE programs in place. These supervisory personnel must also have the knowledge and resources to ensure any work being done on a job site are done to the highest safety standards.

The intent is to prevent unsafe decisions being made in the field.

