

Safety Alert

Issue # 03-2026

ENERGY
SAFETY
CANADA

Hydrate Release

What Happened?

A pig was ejected through a closed pig barrel door and travelled over 100 metres across a well pad, over process piping.

Approximately one hour after partially clearing a hydrate at a pig receiver, Operations launched a pig from a well pad towards the same pig receiver where the hydrate was just recently thought to be cleared. The remaining hydrate at the pig receiver prevented the pig from entering the pig receiver when it should have arrived later that day.

The pig combined with the remaining hydrate, was sufficient to block flow from the well pad, resulting in a pressure differential of ~2500 kPa across the pig. While Operations was diagnosing the cause of the pressure increase at the pig receiver location, the hydrate released and the pig was ejected through the closed pig barrel door.

Why Did It Happen?

- Conditions at the pig receiver riser were conducive to hydrate formation.
- Targeted methanol injection rates were not clearly or formally documented.
- Hydrate management and pigging procedures allowed for interpretation.
- Actions taken were consistent with the field team's understanding that hydrate risk was being managed.
- Decision points for stopping, depressurizing, or verifying hydrate clearance relied on individual judgment.

What Did They Learn?

- Document when and where hydrates are observed in operational systems so they can be tracked and field supervisors can initiate remedial action as required.
- Strengthen the effectiveness of hydrate field-level assessments.
- Implement controls to ensure hydrate dissipation activities are adequately assessed and planned.
- Document locations where process equipment is in the line of fire of pig receivers and assess mitigation options (e.g., protective barriers).
- Provide minimum methanol injection guidelines for pipelines and review rates following the next set of monthly rounds.

- Investigate and field-test factors contributing to hydrate formation (e.g., methanol rates, piping geometry), and apply learnings and methodology to other hydrate-prone pipelines.
- Document limitations of pig barrel doors in pigging and pipeline hydrate documentation.
- Evaluate the effectiveness of existing pig barrel inspections practices.
- Share pig receiver and process equipment line of fire findings with Operations and Projects teams to ensure pig barrel orientation is considered in new projects and in the siting of temporary trailers and facilities.

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Ask Yourself and the Crew:

- How effective are hydrate controls in your operations?
- Where in your operations are people or assets located that are in the line of fire and what protective barriers need to be in place?
- Are line of fire risks in relation to pig barrel orientation considered during facility design and construction?

Resources:

- Program | [Are You in the Line of Fire?](#)
- Guideline | [Prevention and Safety Management of Hydrates in Process Equipment](#)
- Industry Recommended Practice | [Well Testing and Fluid Handling](#)

Submit Your Safety Alert

Help industry by sharing lessons learned from an incident. [Submit your Safety Alert.](#)

Share and Collaborate

Energy Safety Canada (ESC) works collaboratively with industry to share information aimed at helping companies of all sizes improve safe work performance.

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