

National Energy
Board



Office national
de l'énergie

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To: All companies under National Energy Board jurisdiction,
Canadian Energy Pipeline Association, Canadian Association
of Petroleum Producers and provincial regulators

National Energy Board Safety Advisory

Attached is a safety advisory regarding the need to predict and control hydrate formation in pipeline systems. This advisory should be given wide circulation to technical personnel involved with pipeline operation and maintenance within your organization.

If you have questions concerning this initiative, please call Karen Duckworth at (403) 299-3669.

Yours truly,

A handwritten signature in black ink, appearing to read 'Mantha'.

Michel L. Mantha
Secretary

444 Seventh Avenue SW
Calgary, Alberta T2P 0X8

444, Septième Avenue S.-O.
Calgary (Alberta) T2P 0X8

Canada

Telephone/Téléphone : (403) 292-4800
Facsimile/Télécopieur : (403) 292-5503
<http://www.neb-one.gc.ca>



Hydrates

Incident Description

On 15 May 2002, an 18-inch-diameter natural gas transmission pipeline ruptured near Fort St. John, B.C. releasing sour gas (0.41 % H₂S). The escaping gas did not ignite. The diffusion of the plume required the evacuation of residents downwind of the release. The rupture occurred at an S-bend section of pipe where the pipe descends underground between a sending barrel and an isolation valve. A company employee was working on the sending barrel when the rupture occurred. The force of the rupture knocked the worker to the ground, but he was otherwise unhurt.

Cause of the Incident

The ensuing investigation revealed that the likely cause of the pipeline failure was a shock wave or impact created after a hydrate or ice plug blockage was released by a differential pressure. Though the pipe ruptured at an area of pipe weakened by a manufacturing defect, the increase in pressure would have caused a rupture of the pipe somewhere between the isolation valve and the barrel door.

Preventive Actions

Companies can generally predict and control hydrate formation and can anticipate potential problem areas within pipeline systems. Great care is required to dissolve hydrates that have formed as ruptures and other damage to pipeline components can occur. Gas gathering and transmission companies should develop an increased awareness amongst their pipeline operations and maintenance staff regarding the hazards and control of hydrate formation in at risk pipeline systems, and should have procedures in place to disintegrate hydrates once they have formed.

Measures for the prevention, control and handling of hydrates are outlined in the Canadian Association of Petroleum Producers (CAPP) Guideline for Prevention and Safe Handling of Hydrates – January 1994. [Publication #1994-0002] http://www.capp.ca/default.asp?V_DOC_ID=763&PubID=67103

For further information on the pipeline rupture of 15 May 2002, refer to http://www.neb-one.gc.ca/safety/PipelineRuptureData/DukePLIncident15May2002_e.pdf