

PIPELINES AND HIGH VOLTAGE POWER LINES

The Myth:

Overhead high voltage power lines pose no danger to buried pipelines.

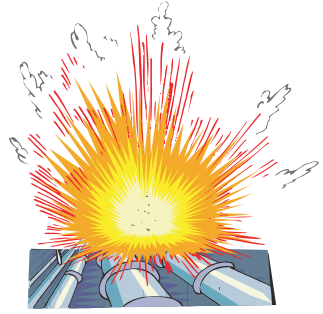
The Facts:

- Induced AC voltages on pipelines produced by overhead high voltage power lines pose significant safety concerns and present a serious hazard (Bonds 1999, Dawalibi et al. undated, Kirkpatrick 1997, NACE 2005). People have been killed by contacting a pipeline energized by an overhead high voltage line (Kirkpatrick 1997).
- When lightning strikes a power line or tower, an electrical fault current flows through the tower and into the ground. The current is accentuated by nearby pipelines, thereby creating a very significant hazard to the pipeline and/or its coating (Bonds 1999, Dawalibi et al. undated, Kirkpatrick 1997). A direct arc can occur from the tower base to a pipeline which results in a very high AC current flowing into the pipeline anywhere there is a minor defect in the pipeline coating. The resulting heat can melt the pipe and rupture the pipeline wall, thereby causing a leak of a highly flammable liquid that is both hot and loaded with high voltage. Consequent fires and explosions could be deadly for nearby residents or school children. The arc distance for a 500kV overhead power line is up to 50m from the base of a power line tower.



even if they are not touching a pipeline or above-ground pipeline structure (Kirkpatrick 1997, NACE 2005).

- AC induced corrosion caused by overhead high voltage power lines is also a significant threat to pipeline integrity, and has resulted in metal loss of more than 1mm per year (Corrpro 2008, Ellis 2001).
- The severity of the effect of an overhead power line on a pipeline is directly related to the pipeline's continuous length that parallels the power line (Bonds



1999). Where a high voltage power line parallels a pipeline for more than several kilometers, a significant voltage can easily be induced on the pipeline.

- Power line rights-of-way (ROWs) must be vacated if thunderstorms come within 16km of a pipeline and nearby overhead high voltage power line because of the potential for a lightning strike. People on the ROW are in danger

- An overhead Heartland line in the Sherwood Park Greenbelt would parallel many pipelines carrying flammable liquids for many kilometres and pose a major hazard. This risk is even more significant considering that EPCOR's and AltaLink's preferred route for the Heartland transmission line runs so close to schools and homes along the Sherwood Park Greenbelt.

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