

WASHINGTON
UTC
UTILITIES AND TRANSPORTATION
COMMISSION
PIPELINE SAFETY SECTION

ADVISORY BULLETIN

Maintenance of Impressed Current Cathodic Protection Systems

October 25, 2004

WUTC PSS AB 04/01

SUMMARY: The Pipeline Safety Section of the Washington Utilities and Transportation Commission (WUTC) is issuing this advisory bulletin to owners and operators of natural gas and hazardous liquid pipelines in the State of Washington. Owners and operators should review their plans and procedures to determine whether adequate processes are in place to ensure cathodic protection system are configured and labeled correctly.

FOR FURTHER INFORMATION CONTACT: David Lykken, Senior Pipeline Safety Engineer (360) 664-1219

SUPPLEMENTARY INFORMATION:

A recent natural gas incident resulted in a residential home explosion and fire causing the death of the homeowner. Preliminary investigation by the WUTC indicates that corrosion was the cause of the failure and resulting leak. The leak occurred below ground on a 3/4-inch coated steel service line, near the meter riser. The source of ignition has not been determined.

The investigation disclosed that the rectifier providing cathodic protection to the underground piping system serving this residence was incorrectly wired. Apparently the positive lead for the rectifier was connected to the negative terminal and the negative lead was connected to the positive terminal of the rectifier. It has not been determined at this time how long the rectifier had been incorrectly configured. There is also no evidence at this time to conclude that the incorrectly configured rectifier contributed to the corrosion leading to the leak and explosion. It is known however that a change in polarity resulting from the reversal of rectifier leads has the potential to cause accelerated corrosion on pipelines.

RECOMMENDED ACTION: Each owner/operator of a natural gas or hazardous liquid pipeline in the State of Washington should review their plans and procedures to ensure that adequate processes are in place to make certain that impressed current cathodic protection systems are configured correctly. The plans and procedures should have a means to guarantee that the correct polarity of rectifier systems is maintained after each maintenance activity and each rectifier reading is performed on the system. Where identical size and color leads are used, the plans and procedures should also include a means of distinguishing the positive lead from the negative lead. In addition, owner/operators should periodically confirm that personnel, whether employees, contractors, or third-party providers, are adequately skilled in performing work on rectifier systems. Procedures for the periodic monitoring of cathodic protection systems should also be reviewed to ensure that adequate specificity exists to enable personnel to understand different cathodic protection monitoring techniques and the appropriate analysis of acquired readings.

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