TC Energy

July 25, 2019

Donelda DeLaronde – Executive Director
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Re: Mainline Valve (MLV) 68+6.5 to 15.7 Pole Line Installation, Municipality of Shuniah – Corrosion Remedial Program

Attention Donelda DeLaronde – Executive Director:

Please be advised that TransCanada will be completing routine maintenance of its natural gas pipeline facilities between Mainline Valve (MLV) 68+6.5 to 15.7 within Township of MacGregor, Municipality of Shuniah, District of Thunder Bay. All work will be contained within the existing right-of-way. Please see attached map for details of the location.

The pipeline maintenance activity that is being proposed is the maintenance and upgrade of cathodic protection facilities within the existing easement. This work will involve the installation of 9.2 km of single conductor pole line along Line 100-1. These facility upgrades will assist in the protection of TransCanada's pipeline facilities from corrosion and will enhance pipeline safety and integrity. This maintenance activity is currently scheduled to commence after August 26, 2019.

For further information, please see the following attached documents; fact sheet entitled 'Cathodic Protection'.

If you have any questions, please feel free to contact me directly by telephone or e-mail.

Sincerely,

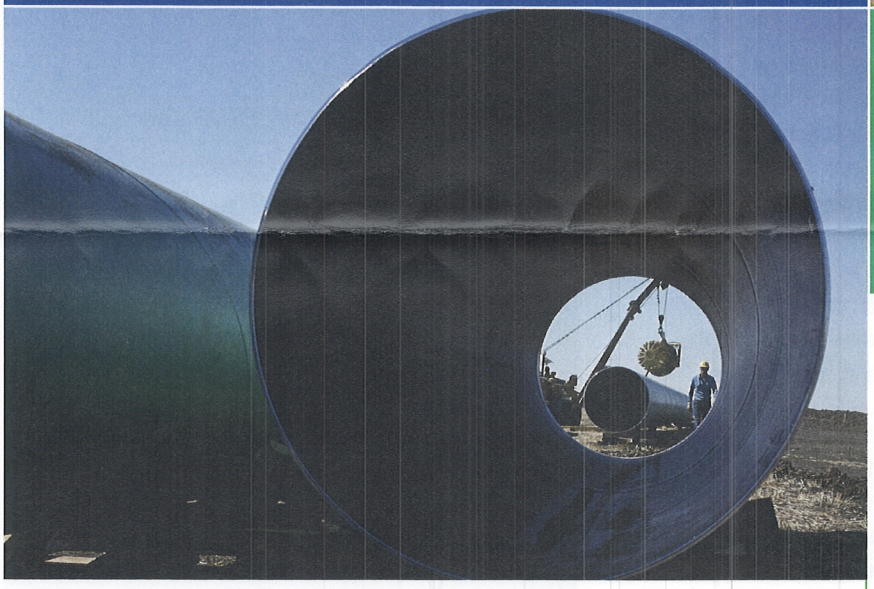
[redacted]

Dan Stencill
Indigenous and Community Relations Liaison
Central Region

/dks

cc: Don Gresch – Land Representative, and James Jamieson – Project Manager

Cathodic Protection



Cathodic protection is a technological application TransCanada uses to ensure the safety and integrity of its pipeline systems.

Cathodic protection is a common method used in various industries to prevent corrosion of metal structures such as pipelines, tanks, steel-pier piles, and offshore oil platforms. For protection of steel pipelines, cathodic protection has been utilized since the 1930s. Over time, it has proven so effective that it is now required as a standard pipeline protective safety measure.

In its simplest form, engineered materials are connected and placed in close proximity to the pipeline. These materials are more susceptible to corrosion than the steel pipe. Corrosion refers to the deterioration or loss of steel due to reaction with its environment. When a low voltage, direct current is applied, the engineered materials (anodes) corrode or are "sacrificed" rather than the steel pipe. The system is isolated from above ground pipeline facilities and does not affect adjacent buildings, fences or other structures and is not hazardous to people or animals.

Design Considerations

A cathodic protection system is designed in accordance with regulatory requirements and pipeline industry codes and practices giving consideration to:

- Length of pipeline to be protected
- Thickness of the pipeline coating
- Soil characteristics including
  - Type of soil (i.e., sand, clay, loam)
  - Corrosive nature of soil
  - Soil resistance to passage of electrical current
- Water table characteristics
- Parallel routing to other buried pipelines and high-voltage electric transmission lines

These factors help determine the amount of current that must flow through the system, and the voltage required to achieve the required current level. The system is then designed, built and maintained to achieve the required electrical current flow in order to protect the steel pipeline from corrosion.

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Cathodic Protection

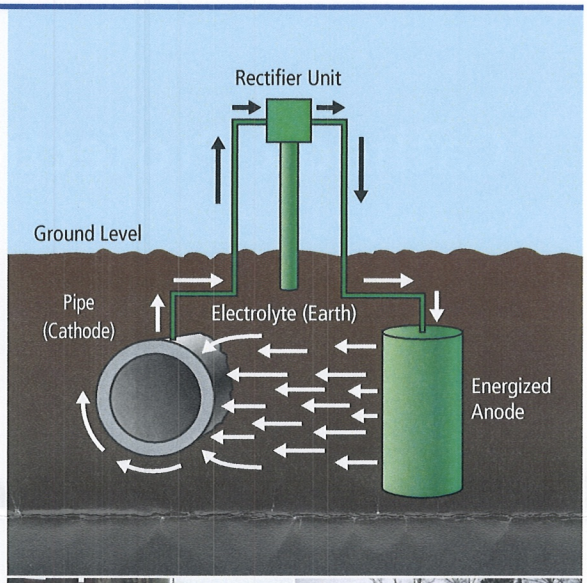
Components of a cathodic protection system include:

- Rectifiers
- Anode ground beds
- Conductive material
- Test leads

Cathodic protection uses a rectifier to convert Alternating Current (AC) power to Direct Current (DC). AC power is generally used in households and carried through power lines throughout North America. DC power is generally found in batteries like those found in your car or used in a flashlight. The rectifier output is electrically connected to the pipe on one side and, on the other side, to anodes (metal rods). The rectifier is usually sited adjacent to existing power lines in the area. Anodes are buried in groups (referred to as ground beds) along the pipeline and are backfilled with a carbon-based conductive material to improve their effectiveness. As long as the electric current flows from the pipeline through the rectifier to the anode bed, as shown in the diagram, exposed pipe metal is protected from corrosion.

The distance between rectifiers units depends on the current requirements of the system. Current requirements are based on different soil types. Typically, a rectifier and anode ground bed can protect 40 or more miles (64 or more kilometres) of pipeline from a single location. Efforts are made to co-locate the equipment at other facility sites such as pumping stations or valve sites.

The effectiveness of the cathodic protection system is measured using test leads. Test leads are essentially monitoring locations that check the cathodic protection voltage levels. They are attached to the pipeline approximately every one to two miles (two to three kilometres) and are typically installed at public road and railroad crossings, and at existing pipeline crossings when approved by the owner of the other pipeline.



Contact Us:

We invite you to contact TransCanada with any questions or comments you have.

Community Relations
Phone: 855.895.8754
Email: community_relations@transcanada.com
www.transcanada.com

or write to TransCanada at:
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450 – 1st Street SW
Calgary, Alberta T2P 5H1

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ORIGINAL BORDER = 260 X 400 & TRIMMED SIZE = 11" X 17"

FORM = BSK-28-120, TYPICAL BORDER B (94-01-26)

MF No.

LOCATION:			
DRN T.L.	DATE 97-06-11	APPROVED	
CHK	DATE		MANAGER
DRFT. SUP.	DES. ENG.	THUNDER BAY SHEET 5	00 REV.
PROJ	SCALE AS SHOWN		

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M000117A DATE LAST SAVED: 97-06-17-15:27 PLOT SCALE: 1=1