Field Data Collection
(2011Standard Inspection)

Company: Kinder Morgan Canada Inc.
Trans Mountain Pipeline (Puget Sound) LLC

Unit: Trans Mountain Pipeline (Puget Sound) LLC

Pipe-to-Soil Potential Readings, Rectifiers, and Mainline Valves (MLV)

Date	Location	Pipe (Volts) Power On	Pipe (Volts) Power Off	Casing (Volts)	Comments
8/24/2011	Mainline Valve (MLV) MU-14 north of Nooksak River on Sumas to Laurel segment Rectifier R-68 MU-14 valve stem	 -1.640	 -1.223		The MLV was inspected & partially operated by Rick Axelson and was fine. Rectifier DC output: 16.14 V; 4.8A Potential readings were acceptable.
8/24/2011	Mainline Valve (MLV) MU-15 south of Nooksak River on Sumas to Laurel segment				This block valve station has a check valve and both valves were inspected and were fine.
8/24/2011	North Pass Road CP test station MU 12.660	-2.193		-0.594	The casing was not shorted.
8/24/2011	MLV ML-6 on the Laurel to Ferndale segment next to I-5 Freeway.				The MLV was inspected and was partially operated by Rick Axelson and was fine.
8/24/2011	CP test site 1L-5.647 Next to I-5 Freeway	-1.434	N/A	-1.179	The casing vent was damaged by highway mowing crew and the space between the casing and carrier pipe was most likely partially filled with water. The operator intends to purge the water by injecting gel or wax.

8/24/2011	MLV ML-8 of the Laurel to Ferndale segment				This MLV and a check valve were inspected. The MLV was not partially operated as it would require a confined space entry permit.
8/24/2011	Northwest Drive, Bellingham CP test station UL 4.664	-1.974		-0.572	The casing was not shorted.
8/24/2011	Ferndale Station				
	Tank rectifier R-87				Rectifier DC output: 33.84 V; 0.13 A
	Pipeline rectifier R-60				Rectifier DC output: 20.46 V; 4.98 A
	CP test site 1L-11.250	-1.064	N/A	N/A	Potential reading was acceptable.
	Tank T-130				
	North side of chime	-0.880	N/A	N/A	Potential reading was acceptable.
	South side of chime	-1.371	N/A	N/A	Potential reading was acceptable.
	Buried half-cell at the center of the tank bottom plate	-2.113	N/A	N/A	Potential reading was acceptable.
8/24/2011	Laurel Station				
	Rectifier R-34 for pipeline				Rectifier DC output: 40.3 V; 4.8 A
	Rectifier R-16 for tanks				Rectifier DC output: 8.01 V; 4.89 A
	CP test station MU-20.595	-2.400	-1.046		Potential readings were acceptable.
8/24/2011	Breakout Tank T-170 at Laurel Station				
	Bottom plate chime				
	South side	-3.200	-2.876	N/A	Potential readings
	North side	-4.310	-4.260	N/A	were acceptable.
8/24/2011	Breakout Tank T-180				

	at Laurel Station Bottom plate chime South side	-2.117	-0.970	N/A	Potential readings were acceptable.
8/25/2011	Anacortes Meter Station 16" line downstream of Shell Refinery custody valve	-2.135	-0.900		The casing on reading was -1.369 V, and off reading was -0.914 V. A new anode was installed near the casing and somehow the casing was polarized. This casing will be removed next month when the city installs a new water line under the street.
	12" surge relief line to T-7 in Shell Refinery, test station UB-8.982	-1.290	-1.050	N/A	Potential readings were acceptable.
	Rectifier R-76				Rectifier DC output: 23.15 V; 6.8 A
	Breakout tank T-7 inside Shell Refinery				T-7 was inspected and there was one probable violation concerning disbonded coating and potential atmospheric corrosion at the soil/air interface of the 12" surge relief line to the tank.
8/25/2011	Burlington Scraper Trap Station Rectifier R-40				Rectifier DC output: 8.96 V; 3.45 A
	CP test station MU-47.883	-1.505	-0.950	N/A	Potential readings were acceptable.
8/25/2011	MLV at MU-43	-0.483	-0.406	N/A	The native potential was -0.340 volts. It did not meet the 100 mv shift criterion

					during this field inspection. The soil resistivity was high due to very dry soil. The pipe or valve was most likely shorted with electrical conduits or other components for the MOV. Post inspection notes: On September 8, 2011 the operator's technicians identified a ½" temperature probe as the source of the short. An insulating union has been ordered and will be installed within a week.
8/25/2011	Quarry at Nulle Road CP test station MU-35.448	-1.116	-0.290		The native potential was +0.11 established in 9/2009. The instant off reading met 100 mv shift criterion.
8/25/2011	Nulle Road Rectifier R-59 CP test station 34.777 At Nulle Road crossing	 -2.049	 -1.135	 -0.566	 Rectifier DC output: 72.2 V; 5.1 A Potential readings were acceptable. Casing was not shorted.
8/25/2011	Manley Road CP test sites 1A-34.233 1A-34.196 1A-34.059 1A-33.916 1A-33.882	 -1.594 -1.392 -1.579 -1.236 -1.127	 -0.675 -0.469 -0.843 -0.380 -0.204	 -0.407 N/A N/A N/A N/A	 Most of the instant off potentials did not meet the -850 mv criterion. However, they did meet the 100 mv shift criterion.

	1A-33.813 1A-33.764 1A-33.397	-1.570 -1.132 -1.863	-0.650 -0.300 -1.145	N/A N/A N/A	
8/25/2011	MLV at MU-27				This MLV is located in a residential area in Bellingham and is about 10 feet deep. The valve was inspected.
8/25/2011	Whatcom Creek check valve at MU-26				This check valve is located near City of Bellingham's water treatment plant and was inspected.