



C.P.F. No. 1-2023-053-NOPSO
Corrective Measure 16
Direct Current Voltage Gradient (DCVG) Surveys
DCVG Survey Results – Report 10

Purpose

This document summarizes the results obtained by Mountain Valley Pipeline, LLC (Mountain Valley) during DCVG Survey 10 in compliance with Corrective Measures 14 (Reports/Results) and 16 (ACVG/DCVG Surveys) of the Consent Agreement in the above-captioned proceeding.

Scope

Corrective Measure 16 requires Mountain Valley to:

- Prior to commissioning, conduct direct current voltage gradient (DCVG) surveys, alternating current voltage gradient (ACVG) surveys or other comparable inspections, tests, or surveys to assess the condition of coating on all installed pipe segments of the Mountain Valley Pipeline, except for those installed and tested after January 1, 2023; and
- After completing the survey, remediate any damaged coating indications found during the assessments that are classified as severe indications with voltage (IR) drop greater than 60 percent for DCVG or 70 dB μ V for ACVG, as provided in 49 C.F.R. § 192.461(h), or severe based on NACE SP 0502-2010.

Survey 10 encompassed 11.65 miles of pipe installed on Spread D between mile post (MP) 98.6 and MP 110.25.

Data Collection

- Mountain Valley conducted DCVG Survey 10 in accordance with NACE SP 0502-2010, “Pipeline External Corrosion Direct Assessment Methodology” using Roberts Corrosion Services (RCS) as the qualified corrosion control personnel conducting the data collection and analysis.
- One survey crew from RCS conducted the entirety of this DCVG survey.
- The initial data collection phase of this effort was completed on November 28, 2023.

Data Analysis

- After completing the initial data collection phase of DCVG Survey 10, the data was analyzed by a NACE Cathodic Protection Specialist (CP-4) and Cathodic Protection

Technologist (CP-3) to determine the voltage (IR) drop associated with each indication identified during the survey. There were no anomalies over 60%.

Excavation and Repair

After completing the data analysis phase of Survey 10, Mountain Valley performed excavations to validate the survey results and determine the size of the indications. The locations and findings associated with the two excavations performed are contained in Table 1 below.

Excavation D1

- Mountain Valley conducted Excavation D1 on January 24, 2024. The pipe was exposed and visually inspected to locate the coating anomalies. The pipe was also holiday tested in accordance with the requirements in MVP Standard 10.4, "Corrosion Control for Construction" Section 3.6.2, "Holiday Detection", MVP Exhibit O, "Corrosion Control Plan", which are consistent with NACE Standard SP 0188-2006, "Discontinuity (Holiday) Testing of New Protective Coatings on Conductive Substrates," to ensure all anomalies were located on this region of pipe.
- Inspection showed the 38.72% indication was the result of several scratches on the surface of the coating along the sides of the pipe, as well as a holiday on the bottom of the pipe. The total surface area of bare metal exposed was less than 10 square inches.
- The coating was repaired per the requirements in MVP Standard 10.4, "Corrosion Control for Construction" Section 3.6.3 "Holiday Repair."
- Prior to backfill, the pipe was again holiday tested per the specifications and standards identified above to ensure no holidays existed on the exposed portion of pipe.

Excavation D2

- Mountain Valley conducted Excavation D2 on February 6, 2024. The pipe was exposed and visually inspected to locate the coating anomalies. The pipe was also holiday tested in accordance with the requirements in MVP Standard 10.4, "Corrosion Control for Construction" Section 3.6.2, "Holiday Detection", MVP Exhibit O, "Corrosion Control Plan", which are consistent with NACE Standard SP 0188-2006, "Discontinuity (Holiday) Testing of New Protective Coatings on Conductive Substrates," to ensure all anomalies were located on this region of pipe.
- Inspection showed the 15.86% indication was the result of several scratches along the surface of the coating, as well as numerous small pinholes along the top of the pipe. The total surface area exposed was less than 10 square inches.
- The coating was repaired per the requirements in MVP Standard 10.4, "Corrosion Control for Construction" Section 3.6.3 "Holiday Repair."
- Prior to backfill, the pipe was again holiday tested per the specifications and standards identified above to ensure no holidays existed on the exposed portion of pipe.

Table 1: DCVG Survey 10 Calibration Dig Locations

Survey Number	Excavation Number	Latitude	Longitude	Calculated IR Drop	Results
10	D1	(b) (7)(F)	(b) (7)(F)	38.72%	Less than 10 sq. in
10	D2	(b) (7)(F)	(b) (7)(F)	15.86%	Less than 10 sq. in

Further Investigation

Based on the amount of exposed metal present at the excavations performed, analysis shows any exposed metal at the remaining locations is well within the conservatisms used in the design of the cathodic protection system for this section of the pipeline. Therefore, additional analysis and excavations are not required for the remaining indications identified during the survey.

Key Contacts

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