



C.P.F. No. 1-2023-053-NOPSO  
Corrective Measure 16  
Direct Current Voltage Gradient (DCVG) Surveys  
DCVG Survey Results – Report 11

## Purpose

This document summarizes the results obtained by Mountain Valley Pipeline, LLC (Mountain Valley) during DCVG Survey 16 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 $\mu$ V for ACVG, as provided in 49 C.F.R. § 192.461(h), or severe based on NACE SP 0502-2010.

Survey 16 encompassed 10.8 miles of pipe installed on Spread F between mile post (MP) 171.6 and MP 182.4.

## Data Collection

- Mountain Valley conducted DCVG Survey 16 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 December 14, 2023.

## Data Analysis

- After completing the initial data collection phase of DCVG Survey 16, 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 16, 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 F1

- Mountain Valley conducted Excavation F1 on February 8, 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 25.65% indication was the result of small holidays on a weld seam and on the bottom of the pipe. The total surface area of bare metal exposed was less than 2 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 F2

- Mountain Valley conducted Excavation F2 on February 8, 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 10.00% indication was the result of two small holidays and one small scratch. The scratch was tested using an ultrasonic testing (UT) gauge to confirm no metal loss occurred. The total surface area exposed by the coating anomalies was less than 2 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 16 Calibration Dig Locations**

Survey Number	Excavation Number	Latitude	Longitude	Calculated IR Drop	Results
16	F1	(b) (7)(F)	(b) (7)(F)	25.65%	Less than 2 sq. in
16	F2	(b) (7)(F)	(b) (7)(F)	10.00%	Less than 2 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 with indications 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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