January 3, 2024

Via e-mail to robert.burrough@dot.gov

Mr. Robert Burrough
Director, Eastern Region
Pipeline and Hazardous Materials Safety Administration
840 Bear Tavern Road
Suite 300
West Trenton, New Jersey 08628

Re: Equitrans Midstream Corporation, CPF No. 1-2023-053-NOPSO
First Quarterly Report

Dear Mr. Burrough,

Mountain Valley Pipeline, LLC (Mountain Valley) is respectfully submitting this quarterly report pursuant to Paragraph 21 of the Consent Agreement in the above-referenced proceeding.

I. Paragraph 16: ACVG/DCVG Surveys

Mountain Valley has performed eleven direct current voltage gradient (DCVG) surveys (130.3 miles) along the Mountain Valley Pipeline. Reviewing the data showed that 28 excavations needed to be completed to either validate the data or remediate the coating. Reports describing the survey results and remedial actions taken are posted to BOX (b) (4))

II. Paragraph 17: Coating

Mountain Valley submitted the Observation and Closeout Letter from KTA Tator, Inc. (KTA), on December 18, 2023. Documents describing the results of KTA's independent third-party review and remedial actions taken are posted on BOX (b) (4)

III. Paragraph 19: ILI Tool Runs

Mountain Valley has completed eleven caliper tool runs (101.6 miles) on various segments along the Mountain Valley Pipeline. Reviewing the data showed that 32 anomalies needed to be excavated for further analysis or remediation. Documents describing the results of these tool runs and remedial actions taken are posted on BOX (b) (4)

Please contact me if you have any questions related to the information provided in this report.

Sincerely,

DocuSigned by:
Robert J. Cooper
F567E38B3BEB42B...

Robert Cooper
Senior Vice President,
Construction Services

December 5, 2023

C.P.F. No. 1-2023-053-NOPSO
Corrective Measure 19A
Low-Resolution Caliper Survey Report
Survey Segment A4

Purpose

This report summarizes the results obtained by Mountain Valley Pipeline, LLC (Mountain Valley) in performing a low-resolution caliper tool survey of Segment A4 of the Mountain Valley Pipeline pursuant to Corrective Measure 14 (Report/Results) of the Consent Agreement. Mountain Valley performed the low-resolution caliper in accordance with Corrective Measure 19 (ILI Runs) of the Consent Agreement in the above-captioned proceeding and the Remedial Work Plan (RWP) submitted on October 20, 2023, pursuant to Corrective Measure 15 (Remedial Work Plan).

Scope

Corrective Measure 19 requires Mountain Valley to:

- Prior to commissioning, conduct a low-resolution caliper tool run, capable of detecting dents and ovalities.
- After completing the survey, remediate any identified imperfection or damage in accordance with the requirements of 49 C.F.R. § 192.309.

Documents

The following documents governed the process for conducting the caliper tool runs, analyzing the resulting data, and performing any necessary excavations or remediation:

- Consent Order, C.P.F. No. 1-2023-053-NOPSO (Oct. 3, 2023)
- Consent Agreement, C.P.F. No. 1-2023-053-NOPSO (Oct. 3, 2023)
- C.P.F. No. 1-2023-053-NOPSO, Remedial Work Plan, Corrective Measure 19(A), Low-Resolution Caliper Tool Run (Oct. 20, 2023)
- MVP Standard 10.2, “Pipeline Construction Standard”
- MVP Pipeline Cleaning and Drying Plan
- MVP Commissioning – Anomaly Evaluation Plan

December 5, 2023

Caliper Tool Run

- Mountain Valley conducted a low-resolution caliper tool run of Segment A4 using Enduro as the vendor on November 22, 2023. The tool run was conducted pursuant to the specifications included in the Remedial Work Plan.
- The run encompassed approximately 7.2 miles of pipe installed on Spread A from milepost (MP) 25.9 to MP 33.2.
- Mountain Valley received the preliminary tool run report on November 22, 2023. Reports are posted to BOX site (b) (4) [redacted]

Anomaly Evaluation and Excavations

- Mountain Valley's analysis of the preliminary tool run report revealed 2 indications, neither of which required further analysis:

Reported Indications	Indications Requiring Further Analysis	Dents >2%	Dents Affecting Weld	Ovality >5%
2	0	0	0	0

Key Contacts

- MVP Integrity Engineer
  Daniel Moore

December 6, 2023

C.P.F. No. 1-2023-053-NOPSO
Corrective Measure 19A
Low-Resolution Caliper Survey Report
Survey Segment A3

Purpose

This report summarizes the results obtained by Mountain Valley Pipeline, LLC (Mountain Valley) in performing a low-resolution caliper tool survey of Segment A3 of the Mountain Valley Pipeline pursuant to Corrective Measure 14 (Report/Results) of the Consent Agreement. Mountain Valley performed the low-resolution caliper in accordance with Corrective Measure 19 (ILI Runs) of the Consent Agreement in the above-captioned proceeding and the Remedial Work Plan (RWP) submitted on October 20, 2023, pursuant to Corrective Measure 15 (Remedial Work Plan).

Scope

Corrective Measure 19 requires Mountain Valley to:

- Prior to commissioning, conduct a low-resolution caliper tool run, capable of detecting dents and ovalities.
- After completing the survey, remediate any identified imperfection or damage in accordance with the requirements of 49 C.F.R. § 192.309.

Documents

The following documents governed the process for conducting the caliper tool runs, analyzing the resulting data, and performing any necessary excavations or remediation:

- Consent Order, C.P.F. No. 1-2023-053-NOPSO (Oct. 3, 2023)
- Consent Agreement, C.P.F. No. 1-2023-053-NOPSO (Oct. 3, 2023)
- C.P.F. No. 1-2023-053-NOPSO, Remedial Work Plan, Corrective Measure 19(A), Low-Resolution Caliper Tool Run (Oct. 20, 2023)
- MVP Standard 10.2, “Pipeline Construction Standard”
- MVP Pipeline Cleaning and Drying Plan
- MVP Commissioning – Anomaly Evaluation Plan

Caliper Tool Run

- Mountain Valley conducted a low-resolution caliper tool run of Segment A3 using Enduro as the vendor on November 27, 2023. The tool run was conducted pursuant to the specifications included in the Remedial Work Plan.

- The run encompassed approximately 10.63 miles of pipe installed on Spread A from MP 15.1 to MP 25.9.
- Mountain Valley received the preliminary tool run report on November 27, 2023.
- Tool run was posted to BOX (b) (4) [redacted]

Anomaly Evaluation and Excavations

- Mountain Valley's analysis of the preliminary tool run report revealed 4 indications, 3 of which required further analysis:

Reported Indications	Indications Requiring Further Analysis	Dents >2%	Dents Affecting Weld	Ovality >5%
4	3	2	0	1

- Mountain Valley excavated 2 of the indications requiring further analysis and determined that neither needed to be cutout.
- Mountain Valley engineering determined the additional indication requiring analysis did not require to be excavated due to a statistical and engineering analysis.

Key Contacts

- MVP Integrity Engineer
  Daniel Moore

December 6, 2023

C.P.F. No. 1-2023-053-NOPSO
Corrective Measure 19A
Low-Resolution Caliper Survey Report
Survey Segment I1

Purpose

This report summarizes the results obtained by Mountain Valley Pipeline, LLC (Mountain Valley) in performing a low-resolution caliper tool survey of Segment I1 of the Mountain Valley Pipeline pursuant to Corrective Measure 14 (Report/Results) of the Consent Agreement. Mountain Valley performed the low-resolution caliper in accordance with Corrective Measure 19 (ILI Runs) of the Consent Agreement in the above-captioned proceeding and the Remedial Work Plan (RWP) submitted on October 20, 2023, pursuant to Corrective Measure 15 (Remedial Work Plan).

Scope

Corrective Measure 19 requires Mountain Valley to:

- Prior to commissioning, conduct a low-resolution caliper tool run, capable of detecting dents and ovalities.
- After completing the survey, remediate any identified imperfection or damage in accordance with the requirements of 49 C.F.R. § 192.309.

Documents

The following documents governed the process for conducting the caliper tool runs, analyzing the resulting data, and performing any necessary excavations or remediation:

- Consent Order, C.P.F. No. 1-2023-053-NOPSO (Oct. 3, 2023)
- Consent Agreement, C.P.F. No. 1-2023-053-NOPSO (Oct. 3, 2023)
- C.P.F. No. 1-2023-053-NOPSO, Remedial Work Plan, Corrective Measure 19(A), Low-Resolution Caliper Tool Run (Oct. 20, 2023)
- MVP Standard 10.2, “Pipeline Construction Standard”
- MVP Pipeline Cleaning and Drying Plan
- MVP Commissioning – Anomaly Evaluation Plan

Caliper Tool Run

- Mountain Valley conducted a low-resolution caliper tool run of Segment I1 using Enduro as the vendor on December 4, 2023. The tool run was conducted pursuant to the specifications included in the Remedial Work Plan.

- The run encompassed approximately 5.3 miles of pipe installed on Spread B from MP 253.95 to MP 259.25.
- Mountain Valley received the preliminary tool run report on December 4, 2023.
- Run reports were posted to BOX (b) (4) [redacted]

Anomaly Evaluation and Excavations

- Mountain Valley's analysis of the preliminary tool run report revealed 0 indications.

Key Contacts

- MVP Integrity Engineer
  Daniel Moore

C.P.F. No. 1-2023-053-NOPSO
Corrective Measure 16
Direct Current Voltage Gradient (DCVG) Surveys
DCVG Survey Results – Report 4

Purpose

This document summarizes the results obtained by Mountain Valley Pipeline, LLC (Mountain Valley) during DCVG Survey 6 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 dBµV for ACVG, as provided in 49 C.F.R. § 192.461(h), or severe based on NACE SP 0502-2010.

Survey 6 encompassed 11.9 miles of pipe installed on Spread D between mile post (MP) 65.4 and MP 77.3.

Data Collection

- Mountain Valley conducted DCVG Survey 6 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 8.

Data Analysis

- After completing the initial data collection phase of DCVG Survey 6, the data was analyzed by a NACE Cathodic Protection Specialist (CP-4) 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 6, Mountain Valley performed excavations to validate the survey results and determine the size of the indication. The locations and findings associated with the two excavations performed are contained in Table 1 below.

Excavation C1

- Mountain Valley conducted Excavation C1 on November 22, 2023. 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 39.62% indication was the result of three small holidays on the pipe. Two of these holidays were at the 6:30 position on the bottom of the pipe, each measuring approximately 1 in^2. The third holiday was approximately ½ in^2 at the 1:30 position on the pipe. Additionally, there were some small pinhole holidays in the area of excavation that could not be measured.
- 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 C2

- Mountain Valley conducted Excavation C2 on December 3, 2023. 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 29.49% indication was the result of a bare metal on the body bleed port on the valve body on MLV 08, where the coating most likely chipped off after backfill. The amount of bare metal on the plug was less than 2 in^2.
- 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 6 Calibration Dig Locations

Survey Number	Excavation Number	Latitude	Longitude	Calculated IR Drop	Results
6	C1	(b)(7) (F)		39.62%	Three holidays exposing approximately 2.5 in^2 bare metal. Pinholes also present
6	C2	(b)(7) (F)		29.49%	Bare outer edge of body bleed valve less than exposing less than 2 in^2 bare metal

Further Investigation

- Based on the sizing of the indications for Excavation C1 and C2, Mountain Valley determined that no additional excavations and repairs needed to be completed for this portion of the pipeline since the calculated amount of bare metal is within the conservatisms used during the design of the cathodic protection system for this portion of the pipeline.

Key Contacts

- MVP Coatings SME
  Nickey Zafris
  (412) 235-8806

C.P.F. No. 1-2023-053-NOPSO
Corrective Measure 16
Direct Current Voltage Gradient (DCVG) Surveys
DCVG Survey Results – Report 3

Purpose

This document summarizes the results obtained by Mountain Valley Pipeline, LLC (Mountain Valley) during DCVG Survey 2 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 dBµV for ACVG, as provided in 49 C.F.R. § 192.461(h), or severe based on NACE SP 0502-2010.

Survey 2 encompassed 23.05 miles of pipe installed on Spread A between mile post (MP) 2.75 and MP 25.8.

Data Collection

- Mountain Valley conducted DCVG Survey 2 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 October 23, 2023.

Data Analysis

- After completing the initial data collection phase of DCVG Survey 2, the data was analyzed by a NACE Cathodic Protection Specialist (CP-4) to determine the voltage (IR) drop

associated with each indication identified during the survey. There were two anomalies over 60%.

Excavation and Repair

After completing the data analysis phase of Survey 2, Mountain Valley performed excavations to validate the survey results and determine the size of the indication. The locations and findings associated with the four excavations performed are contained in Table 1 below. Because the pipeline is still in construction and not all contiguous, temporary piping, fittings and welds are present in some of the segments of pipe being surveyed. These materials were installed with the intention of being removed prior to final tie-ins and, therefore, are intentionally left bare as they do not need long-term protection against corrosion. As stated below, this is the cause of the two anomalies greater than 60%.

Excavation A3

- Mountain Valley conducted Excavation A3 on November 17, 2023. 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 56.05% indication was the result of an uncoated end cap and temporary welds that were installed solely to support hydrotesting and were always intended to be removed as part of final tie-ins. The presence of this uncoated material was known at the time of the survey, but excavations were performed in accordance with the Consent Agreement to ensure no additional bare metal present. This temporary piping and the bare metal associated with it was removed on December 2, 2023.
- 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 A4

- Mountain Valley conducted Excavation A4 on November 17, 2023. 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 79.29% indication was the result of an uncoated end cap and temporary welds installed solely to support hydrotesting and were always intended to be

removed as part of final tie-ins. The presence of this uncoated material was known at the time of the survey, but excavations were performed in accordance with the Consent Agreement to ensure no additional bare metal present. This temporary piping and the bare metal associated with it was removed on December 2, 2023.

- 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 A5

- To obtain a more accurate data point for the coating indications identified elsewhere on the survey, Mountain Valley conducted excavation A5 on November 17, 2023. 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 21.06% indication was the result of an uncoated tap fitting, valve plug, and pig sig extension at MLV-04. This fitting was added after mainline construction so a pig sig could be installed at this location. Because the tap work was not scheduled to be completed until after the survey, the bare metal associated with the fitting and pig sig extension produced the indication. The pig sig installation and coating of the associated material was completed on November 29, 2023.
- The coating was applied in accordance with manufacturer recommendations and checked for holidays 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 A6

- Mountain Valley conducted Excavation A6 for sizing determination on December 1, 2023. 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 62.23% indication was the result of an uncoated temporary weld installed to support hydrotesting activities. The presence of this uncoated weld was known at the time of the survey, but excavations were performed in accordance with the Consent Agreement to ensure additional bare metal was not present. Since the weld was

always intended to be temporary, this uncoated material was removed as part of final tie-ins work on December 2, 2023.

- 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 2 Calibration Dig Locations

Survey Number	Excavation Number	Latitude	Longitude	Calculated IR Drop	Results
2	A3	(b)(7) (F)		56.05%	Bare temporary end cap and weld
2	A4			79.29%	Bare temporary end cap and weld
2	A5			21.06%	Incomplete hot tap fitting and pig sig extension known to be bare
2	A6	(b)(7) (F)		62.23%	Bare temporary weld

Further Investigation

- Based on the sizing of the indications for Excavation A3, A4, A5, and A6, Mountain Valley determined that no additional excavations and repairs needed to be completed for this portion of the pipeline since the calculated amount of bare metal is within the conservatisms used during the design of the cathodic protection system for this portion of the pipeline.

Key Contacts

- MVP Coatings SME
  Nickey Zafris
  (412) 235-8806

C.P.F. No. 1-2023-053-NOPSO
Corrective Measure 16
Direct Current Voltage Gradient (DCVG) Surveys
DCVG Survey Results – Report 5

Purpose

This document summarizes the results obtained by Mountain Valley Pipeline, LLC (Mountain Valley) during DCVG Survey 3 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 dBµV for ACVG, as provided in 49 C.F.R. § 192.461(h), or severe based on NACE SP 0502-2010.

Survey 3 encompassed 7.22 miles of pipe installed on Spread A between mile post (MP) 25.8 and MP 33.02.

Data Collection

- Mountain Valley conducted DCVG Survey 3 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 5.

Data Analysis

- After completing the initial data collection phase of DCVG Survey 3, the data was analyzed by a NACE Cathodic Protection Specialist (CP-4) 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 3, Mountain Valley performed excavations to validate the survey results. The only indication identified in this section of pipe was minor and located within a wetland. Given the amount of disturbance and environmental impact excavation at this location would cause, Mountain Valley determined to use opportunistic digs to meet the requirements of this survey. The locations and findings associated with the two excavations performed are contained in Table 1 below.

Excavation A7

- Mountain Valley conducted Excavation A7 on December 12, 2023. The pipe was exposed and visually inspected to validate the findings of the survey. No coating damage was indicated on the DCVG survey at this location. Upon visual inspection, minor coating damage was located. However, the absence of flash rust and no evidence of corrosion on the substrate supports the conclusion this damage was a result of the excavation process and was not present at the time of the survey.
- The exposed pipe was 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.
- 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.
- This finding demonstrates evaluating DCVG test segments with no appreciable IR drop indications presents a risk of creating coating damage during the excavation process.

Excavation A8

- Mountain Valley conducted Excavation A8 on December 12, 2023. The pipe was exposed and visually inspected to validate the findings of the survey. No coating damage was indicated on the DCVG survey at this location. Upon visual inspection, minor coating damage was located. However, the absence of flash rust and no evidence of corrosion on the substrate supports the conclusion this damage was a result of the excavation process and was not present at the time of the survey.
- The exposed pipe was 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.

- 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.
- This finding demonstrates evaluating DCVG test segments with no appreciable IR drop indications presents a risk of creating coating damage during the excavation process.

Table 1: DCVG Survey 3 Calibration Dig Locations

Survey Number	Excavation Number	Latitude	Longitude	Calculated IR Drop	Results
3	A7	(b)(7) (F)		0%	Coating anomalies the result of excavation activities
3	A8	(b)(7) (F)		0%	Coating anomalies the result of excavation activities

Further Investigation

- Based on the lack of coating damage present at the time of survey and confirmation that the survey equipment was capturing accurate data, it was determined that no additional excavations and repairs needed to be completed for this portion of the pipeline.

Key Contacts

- MVP Coatings SME
  Nickey Zafris
  (412) 235-8806

C.P.F. No. 1-2023-053-NOPSO
Corrective Measure 16
Direct Current Voltage Gradient (DCVG) Surveys
DCVG Survey Results – Report 6

Purpose

This document summarizes the results obtained by Mountain Valley Pipeline, LLC (Mountain Valley) during DCVG Survey 7 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 dBµV for ACVG, as provided in 49 C.F.R. § 192.461(h), or severe based on NACE SP 0502-2010.

Survey 7 encompassed 4.25 miles of pipe installed on Spread C between mile post (MP) 77.3 and MP 81.55.

Data Collection

- Mountain Valley conducted DCVG Survey 7 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 9, 2023.

Data Analysis

- After completing the initial data collection phase of DCVG Survey 7, the data was analyzed by a NACE Cathodic Protection Specialist (CP-4) and a NACE 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 7, Mountain Valley performed excavations to validate the survey results and determine the size of the indication. The locations and findings associated with the two excavations performed are contained in Table 1 below.

Excavation C3

- Mountain Valley conducted Excavation C3 on December 5, 2023. Upon exposure of the pipe, the pipe was 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 8.46% indication was the result of holiday on the longitudinal weld seam of the exposed pipe that was less than 1 sq. inch.
- 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 C4

- Mountain Valley conducted Excavation C4 for sizing determination on December 5, 2023. Upon exposure of the pipe, the pipe was 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 13.04% indication was the result of two small scratches and numerous small holidays near the weld. The entire weld was abrasive blasted and recoated.
- 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 7 Calibration Dig Locations

Survey Number	Excavation Number	Latitude	Longitude	Calculated IR Drop	Results
7	C3	(b)(7) (F) [redacted]		8.46%	Holiday on longitudinal weld seam of pipe – Less than 1 in^2
7	C4			13.04%	Two small scratches and numerous small holidays near the weld.

Further Investigation

- Based on the sizing of the indications for Excavation C3 and C4, it was determined that no additional excavations and repairs needed to be completed for this portion of the pipeline since the calculated amount of bare metal is within the conservatisms used during the design of the cathodic protection system for this portion of the pipeline.

Key Contacts

- MVP Coatings SME
  Nickey Zafris
  (412) 235-8806

December 19, 2023

C.P.F. No. 1-2023-053-NOPSO
Corrective Measure 19A
Low-Resolution Caliper Survey Report
Survey Segment B1

Purpose

This report summarizes the results obtained by Mountain Valley Pipeline, LLC (Mountain Valley) in performing a low-resolution caliper tool survey of Segment B1 of the Mountain Valley Pipeline pursuant to Corrective Measure 14 (Report/Results) of the Consent Agreement. Mountain Valley performed the low-resolution caliper in accordance with Corrective Measure 19 (ILI Runs) of the Consent Agreement in the above-captioned proceeding and the Remedial Work Plan (RWP) submitted on October 20, 2023, pursuant to Corrective Measure 15 (Remedial Work Plan).

Scope

Corrective Measure 19 requires Mountain Valley to:

- Prior to commissioning, conduct a low-resolution caliper tool run, capable of detecting dents and ovalities.
- After completing the survey, remediate any identified imperfection or damage in accordance with the requirements of 49 C.F.R. § 192.309.

Documents

The following documents governed the process for conducting the caliper tool runs, analyzing the resulting data, and performing any necessary excavations or remediation:

- Consent Order, C.P.F. No. 1-2023-053-NOPSO (Oct. 3, 2023)
- Consent Agreement, C.P.F. No. 1-2023-053-NOPSO (Oct. 3, 2023)
- C.P.F. No. 1-2023-053-NOPSO, Remedial Work Plan, Corrective Measure 19(A), Low-Resolution Caliper Tool Run (Oct. 20, 2023)
- MVP Standard 10.2, “Pipeline Construction Standard”
- MVP Pipeline Cleaning and Drying Plan
- MVP Commissioning – Anomaly Evaluation Plan

Caliper Tool Run

- Mountain Valley conducted a low-resolution caliper tool run of Segment B1 using Enduro as the vendor on November 17, 2023. The tool run was conducted pursuant to the specifications included in the Remedial Work Plan.

- The run encompassed approximately 13.24 miles of pipe installed on Spread B from MP 33.2 to MP 46.1.
- Mountain Valley received the preliminary tool run report on November 18, 2023.
- Mountain Valley received the final tool run report on December 12, 2023

Anomaly Evaluation and Excavations

- Mountain Valley's analysis of the preliminary tool run report revealed 14 indications, 11 of which required further analysis:

Reported Indications	Indications Requiring Further Analysis	Dents >2%	Dents Affecting Weld	Ovality >5%
14	11	11	0	0

- Mountain Valley excavated 10 of the indications requiring further analysis and determined that 4 of the indications at Run Stations 112+28, 255+07, 372+13, and 532+25 required remediation via cutouts.
- One indication was remediated using a composite repair at Run Station 624+11.
- One indication was determined to not need an excavation using an engineering and statistical analysis.
- Mountain Valley performed the cutouts on November 25, 2023, and November 26, 2023, pursuant to the Remedial Work Plan.
- Mountain Valley performed the installation of the composite repair on December 15, 2023, pursuant to the Remedial Work Plan.
- Information regarding these cutouts and composite repair will be posted to the Box site.

Key Contacts

- MVP Integrity Engineer
  Daniel Moore

January 5, 2024

C.P.F. No. 1-2023-053-NOPSO
Corrective Measure 19A
Low-Resolution Caliper Survey Report
Survey Segment D1

Purpose

This report summarizes the results obtained by Mountain Valley Pipeline, LLC (Mountain Valley) in performing a low-resolution caliper tool survey of Segment D1 of the Mountain Valley Pipeline pursuant to Corrective Measure 14 (Report/Results) of the Consent Agreement. Mountain Valley performed the low-resolution caliper in accordance with Corrective Measure 19 (ILI Runs) of the Consent Agreement in the above-captioned proceeding and the Remedial Work Plan (RWP) submitted on October 20, 2023, pursuant to Corrective Measure 15 (Remedial Work Plan).

Scope

Corrective Measure 19 requires Mountain Valley to:

- Prior to commissioning, conduct a low-resolution caliper tool run, capable of detecting dents and ovalities.
- After completing the survey, remediate any identified imperfection or damage in accordance with the requirements of 49 C.F.R. § 192.309.

Documents

The following documents governed the process for conducting the caliper tool runs, analyzing the resulting data, and performing any necessary excavations or remediation:

- Consent Order, C.P.F. No. 1-2023-053-NOPSO (Oct. 3, 2023)
- Consent Agreement, C.P.F. No. 1-2023-053-NOPSO (Oct. 3, 2023)
- C.P.F. No. 1-2023-053-NOPSO, Remedial Work Plan, Corrective Measure 19(A), Low-Resolution Caliper Tool Run (Oct. 20, 2023)
- MVP Standard 10.2, “Pipeline Construction Standard”
- MVP Pipeline Cleaning and Drying Plan
- MVP Commissioning – Anomaly Evaluation Plan

Caliper Tool Run

- Mountain Valley conducted a low-resolution caliper tool run of Segment D1 using Enduro as the vendor on December 29, 2023. The tool run was conducted pursuant to the specifications included in the Remedial Work Plan.

- The run encompassed approximately 12.7 miles of pipe installed on Spread D from MP 98.9 to MP 111.4.
- Mountain Valley received the preliminary tool run report on December 31, 2023.
- Run reports were posted to BOX(b) (4) [redacted]

Anomaly Evaluation and Excavations

- Mountain Valley's analysis of the preliminary tool run report revealed 2 indications, neither of which required further analysis:

Reported Indications	Indications Requiring Further Analysis	Dents >2%	Dents Affecting Weld	Ovality >5%
2	0	0	0	0

Key Contacts

- MVP Integrity Engineer
  Daniel Moore

C.P.F. No. 1-2023-053-NOPSO
Remedial Work Plan
Corrective Measure 16
Direct Current Voltage Gradient (DCVG) Surveys

Purpose

This document prescribes the remedial work plan (RWP) that Mountain Valley Pipeline (Mountain Valley) will use to satisfy Corrective Measure 16(B)(ii) of the Consent Agreement in the above-captioned proceeding.

Scope

Corrective Measure 16 requires Mountain Valley to:

- 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
- 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 dBµV for ACVG, as provided in 49 C.F.R. § 192.461(h), or severe based on NACE SP 0502-2010.

Documents

The following documents shall govern the process for conducting the DCVG surveys:

- Consent Order, C.P.F. No. 1-2023-053-NOPSO (Oct. 3, 2023)
- Consent Agreement, C.P.F. No. 1-2023-053-NOPSO (Oct. 3, 2023)
- NACE International Standard Practice 0502-2010, "Pipeline External Corrosion Direct Assessment Methodology," (NACE SP 0502-2010)
- MVP Standard 10.4, "Corrosion Control for Construction"
- MVP Exhibit O, "Corrosion Control Plan"

Surveys

- Mountain Valley will conduct a minimum of fourteen (14) DCVG surveys of the Mountain Valley Pipeline in accordance with NACE SP 0502-2010, "Pipeline External Corrosion Direct Assessment Methodology" using qualified corrosion control personnel.
- A description of Mountain Valley's plan for conducting the DCVG is attached to the Consent Agreement in Appendix I.

Data Collection and Analysis

After completing the field component of each DCVG survey:

- The data collected will be analyzed and reviewed by a NACE Cathodic Protection Specialist (CP-4) or a NACE Cathodic Protection Technologist (CP-3) to determine the voltage (IR) drop associated with each indication identified during the survey.
- The indications identified and corresponding IR drop will be ranked from largest to smallest to determine the corresponding potential corrosion concern associated with each indication.

Excavation and Repair

After completing the data collection analysis for each DCVG survey:

- MVP will excavate and repair any indication with an IR drop of 60% or greater.
- If there are no indications within a survey with an IR drop of 60% or greater, MVP will excavate the indication with one of the largest IR drops, based on accessibility and environmental impacts.
- Once an indication has been exposed, the indication will be visually inspected and measured, if possible.
- If an indication is not visible once exposed, holiday testing will be conducted on the exposed area 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."
- Once identified and sized, all coating holidays identified on the exposed section of pipe will be repaired per the requirements in MVP Standard 10.4, "Corrosion Control for Construction" Section 3.6.3 "Holiday Repair."

Further Investigation

- Once sizing of an indication is complete, the CP-3 or CP-4 will determine if additional indications require further investigation.
- Based on these potential subsequent excavations and the resulting size of the holidays identified, MVP will determine a survey specific IR Drop threshold, below which the indication is within the conservatisms used as part of the cathodic protection system design for that portion of the pipeline, and therefore do not require excavation and repair.
- To the extent required, MVP will perform these additional excavations as soon as practicable, not to exceed six months.

Calibration Digs

- A minimum of two calibration digs will be performed for each survey, External Corrosion Direct Assessment (ECDA) region and survey crew.
- In no indications are classified as severe, one excavation will be performed at the largest accessible indication and an additional location along the survey will be selected to verify the accuracy of the DCVG survey results.
- If there are no additional indications, or the remaining indications are small in comparison to the completed calibration dig, MVP may use opportunistic digs to meet the two dig minimum requirement.

Other

- All coating damage identified during any excavation will be repaired per the MVP Coating repair procedures contained MVP Standard 10.4, “Corrosion Control for Construction”.
- Excavations will be done in accordance with MVP procedures contained in Standard 10.2, “Pipeline Construction Standard” related to excavations near existing pipelines or in service pipelines, whichever is relevant at the time of excavation.
- The exact number, locations, and size (if determined) of indications requiring excavation will be provided in a report submitted to the Director within 15 days as provided in Corrective Measure 16(B)(i) of the Consent Agreement.

Key Contacts

- MVP Coatings SME
  Nickey Zafris
  (412) 235-8806

C.P.F. No. 1-2023-053-NOPSO
Corrective Measure 16
Direct Current Voltage Gradient (DCVG) Surveys
DCVG Survey Results – Report 7

Purpose

This document summarizes the results obtained by Mountain Valley Pipeline, LLC (Mountain Valley) during DCVG Survey 4 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 dBµV for ACVG, as provided in 49 C.F.R. § 192.461(h), or severe based on NACE SP 0502-2010.

Survey 4 encompassed 12.88 miles of pipe installed on Spread B between mile post (MP) 33.02 and MP 45.9.

Data Collection

- Mountain Valley conducted DCVG Survey 4 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 11, 2023.

Data Analysis

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

Excavation and Repair

After completing the data analysis phase of Survey 4, 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 B4

- Mountain Valley conducted Excavation B4 for sizing determination on December 14, 2023. Upon exposure of the pipe, the pipe was 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.
- Due to the presence of a foreign line at this location, the indication could not be accurately sized during the survey as remote readings could not be obtained. Based on test station readings, an anode short was suspected at this location.
- Excavation of the anomaly confirmed this was the case as the insulation on the test leads and anode leads showed damage resulting in all four 17-pound high potential magnesium anodes at this location being in direct contact with the pipe. No coating damage was present on the pipe itself.
- The test leads and anode wire insulation were repaired and removed from direct contact with one another, clearing the short.
- 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 B3

- Mountain Valley conducted Excavation B3 for sizing determination on December 14, 2023. Upon exposure of the pipe, the pipe was 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 0.23% indication was the result of mechanical damage to the pipe and coating at this location.
- The IR drop at this location was smaller than anticipated based on the size of the anomaly due to the proximity of this indication to both a foreign line and the B4 anomaly. Because

of how surveys are performed, large holidays or an electrical short to a bare metal object, such as an anode, can mask or minimize the IR drop of smaller holidays since the survey equipment will continue to be drawn to the larger holiday in the area. The anode short at the B4 excavation had a large influence on the remote readings taken at the indication identified at Excavation B3. As a result, the calculated IR drop was smaller than expected, given the size of the holiday identified during the calibration dig.

- Coating damage at this location was evaluated per the requirements set forth in the Consent Agreement. Because mechanical damage was also present, Mountain Valley remediated the location in accordance with the requirements of 49 C.F.R. § 192.309 and cut out the damaged section. This pipe was replaced with pre-tested pipe.
- After the cut-out and prior to backfill, the pipe was again holiday tested per the specifications and standards identified above to ensure no holidays existed.

Table 1: DCVG Survey 4 Calibration Dig Locations

Survey Number	Excavation Number	Latitude	Longitude	Calculated IR Drop	Results
4	B3	(b)(7) (F)		0.23%	Approximately 1 sq. ft area impacted
4	B4			Could not be determined	High potential magnesium anodes shorted to pipe

Further Investigation

- Because of the masking effect created by the anodes shorted to the pipe at excavation B4 and the size of the indication at excavation B3 with respect to the associated IR drop, Mountain Valley decided to resurvey this segment to determine if additional coating anomalies were masked by the presence of the anode short. The data collection portion of this follow-up survey was completed on December 27, 2023.

- Five indications were identified during the follow-up survey. Of these, one was over 60% IR drop. Two additional anomalies were excavated for sizing.

- The Metal IR Coupon Test station present in this segment was used to validate that the equipment used as part of the survey was working properly.

Excavation B5

- Mountain Valley conducted Excavation B5 for sizing determination on December 20, 2023. Upon exposure of the pipe, the pipe was 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 0.21% indication was the result of coating damage on the longitudinal seam, as well as a large scratch on the surrounding coating, exposing approximately 4 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 B6

- Based on the amount of bare metal present on Excavation B5, Mountain Valley conducted Excavation B6 at mainline valve (MLV) 5 for sizing determination on December 21, 2023. Upon exposure of the pipe, the pipe was 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 3.91% indication was the result of a 1-square-inch coating holiday. Additionally, the standpipe for the sonotube used to support the valve controls was in direct contact with the pipe at this location causing an electrical short. Therefore, the bare metal of the standpipe, as well as the grounding system to protect the equipment, were all common with the pipeline, resulting in an elevated reading at this location compared to the amount of coating damage located.
- 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 B7

- Once the short was cleared from the B6 Excavation, an additional anomaly was located within the MLV5 fence. Mountain Valley conducted Excavation B7 for sizing determination on December 21, 2023. Upon exposure of the pipe, the pipe was 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 no coating damage at this location but revealed another standpipe and conduit in contact with the pipeline. The 68.8% indication was the result of the bare metal of the standpipe, as well as the grounding system to protect the equipment, being common with the pipeline, resulting in an elevated reading at this location.
- 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.

Conclusion

Based on the results of the excavations performed it was determined the two remaining indications identified during the additional survey did not require excavation and repair, as the expected amount of bare metal is well within the conservatisms used in the design of the cathodic protection groundbed for this section of the pipeline.

These excavations also validated the accuracy of the Metal IR Drop coupon test stations used by Mountain Valley to both verify test equipment is working correctly and provide a standard to use when determining the amount of bare metal potentially exposed at a holiday.

Although the initial excavations resulted in a larger area of bare metal than anticipated based on the calculated % IR drop, review of the data from previous surveys and calibration digs validated the results of all previous surveys. If a similar situation were present in conducting the other surveys, the minor indications identified during data collection and later sized during the calibration digs would not have been detected by the equipment since they would have been masked by the presence of the larger anomaly. Additionally, an anomaly with a very large (likely greater than 80%) IR drop or one that could not be properly sized, as in Excavation B4, would have been detected and excavated as required by the Consent Agreement.

Key Contacts

- MVP Coatings SME
  Nickey Zafris
  (412) 235-8806

November 22, 2023

C.P.F. No. 1-2023-053-NOPSO
Corrective Measure 19A
Low-Resolution Caliper Survey Report
Survey Segment A2

Purpose

This report summarizes the results obtained by Mountain Valley Pipeline, LLC (Mountain Valley) in performing a low-resolution caliper tool survey of Segment A2 of the Mountain Valley Pipeline pursuant to Corrective Measure 14 (Report/Results) of the Consent Agreement. Mountain Valley performed the low-resolution caliper in accordance with Corrective Measure 19 (ILI Runs) of the Consent Agreement in the above-captioned proceeding and the Remedial Work Plan (RWP) submitted on October 20, 2023, pursuant to Corrective Measure 15 (Remedial Work Plan).

Scope

Corrective Measure 19 requires Mountain Valley to:

- Prior to commissioning, conduct a low-resolution caliper tool run, capable of detecting dents and ovalities.
- After completing the survey, remediate any identified imperfection or damage in accordance with the requirements of 49 C.F.R. § 192.309.

Documents

The following documents governed the process for conducting the caliper tool runs, analyzing the resulting data, and performing any necessary excavations or remediation:

- Consent Order, C.P.F. No. 1-2023-053-NOPSO (Oct. 3, 2023)
- Consent Agreement, C.P.F. No. 1-2023-053-NOPSO (Oct. 3, 2023)
- C.P.F. No. 1-2023-053-NOPSO, Remedial Work Plan, Corrective Measure 19(A), Low-Resolution Caliper Tool Run (Oct. 20, 2023)
- MVP Standard 10.2, “Pipeline Construction Standard”
- MVP Pipeline Cleaning and Drying Plan
- MVP Commissioning – Anomaly Evaluation Plan

November 22, 2023

Caliper Tool Run

- Mountain Valley conducted a low-resolution caliper tool run of Segment A2 using Enduro as the vendor on November 8, 2023. The tool run was conducted pursuant to the specifications included in the Remedial Work Plan.
- The run encompassed approximately 13 miles of pipe installed on Spread A from MP 2.85 to MP 15.35.
- Mountain Valley received the preliminary tool run report on November 9, 2023.

Anomaly Evaluation and Excavations

- Mountain Valley's analysis of the preliminary tool run report revealed 3 indications, 1 of which required further analysis:

Reported Indications	Indications Requiring Further Analysis	Dents >2%	Dents Affecting Weld	Ovality >5%
3	1	1	0	0

- Mountain Valley excavated the indication requiring further analysis and determined that no remediation was necessary.

Key Contacts

- MVP Integrity Engineer
  Daniel Moore

November 22, 2023

C.P.F. No. 1-2023-053-NOPSO
Corrective Measure 19A
Low-Resolution Caliper Survey Report
Survey Segment B2/B3

Purpose

This report summarizes the results obtained by Mountain Valley Pipeline, LLC (Mountain Valley) in performing a low-resolution caliper tool survey of Segment B2/B3 of the Mountain Valley Pipeline pursuant to Corrective Measure 14 (Report/Results) of the Consent Agreement. Mountain Valley performed the low-resolution caliper in accordance with Corrective Measure 19 (ILI Runs) of the Consent Agreement in the above-captioned proceeding and the Remedial Work Plan (RWP) submitted on October 20, 2023, pursuant to Corrective Measure 15 (Remedial Work Plan).

Scope

Corrective Measure 19 requires Mountain Valley to:

- Prior to commissioning, conduct a low-resolution caliper tool run, capable of detecting dents and ovalities.
- After completing the survey, remediate any identified imperfection or damage in accordance with the requirements of 49 C.F.R. § 192.309.

Documents

The following documents governed the process for conducting the caliper tool runs, analyzing the resulting data, and performing any necessary excavations or remediation:

- Consent Order, C.P.F. No. 1-2023-053-NOPSO (Oct. 3, 2023)
- Consent Agreement, C.P.F. No. 1-2023-053-NOPSO (Oct. 3, 2023)
- C.P.F. No. 1-2023-053-NOPSO, Remedial Work Plan, Corrective Measure 19(A), Low-Resolution Caliper Tool Run (Oct. 20, 2023)
- MVP Standard 10.2, “Pipeline Construction Standard”
- MVP Pipeline Cleaning and Drying Plan
- MVP Commissioning – Anomaly Evaluation Plan

Caliper Tool Run

- Mountain Valley conducted a low-resolution caliper tool run of Segment B2/B3 using Enduro as the vendor on October 28, 2023. The tool run was conducted pursuant to the specifications included in the Remedial Work Plan.
- The run encompassed approximately 19.91 miles of pipe installed on Spread B from MP 45.59 to MP 65.4.
- Mountain Valley received the preliminary tool run report on October 29, 2023.

Anomaly Evaluation and Excavations

- Mountain Valley's analysis of the preliminary tool run report revealed 15 indications, 13 of which required further analysis:

Reported Indications	Indications Requiring Further Analysis	Dents >2%	Dents Affecting Girth Weld	Ovalities >5%
15	13	11	4	1

- Mountain Valley excavated all 13 of the indications requiring further analysis and determined that three of the indications at MP 61.5, MP 56.6, and MP 56.6 required remediation via cutouts.
- Mountain Valley performed the cutouts on November 4, 2023, pursuant to the Remedial Work Plan.
- Additional information regarding these cutouts will be posted to the Box site.

Key Contacts

- MVP Integrity Engineer
  Daniel Moore

November 22, 2023

C.P.F. No. 1-2023-053-NOPSO
Corrective Measure 19A
Low-Resolution Caliper Survey Report
Survey Segment C1/C2

Purpose

This report summarizes the results obtained by Mountain Valley Pipeline, LLC (Mountain Valley) in performing a low-resolution caliper tool survey of Segment C1/C2 of the Mountain Valley Pipeline pursuant to Corrective Measure 14 (Report/Results) of the Consent Agreement. Mountain Valley performed the low-resolution caliper in accordance with Corrective Measure 19 (ILI Runs) of the Consent Agreement in the above-captioned proceeding and the Remedial Work Plan (RWP) submitted on October 20, 2023, pursuant to Corrective Measure 15 (Remedial Work Plan).

Scope

Corrective Measure 19 requires Mountain Valley to:

- Prior to commissioning, conduct a low-resolution caliper tool run, capable of detecting dents and ovalities.
- After completing the survey, remediate any identified imperfection or damage in accordance with the requirements of 49 C.F.R. § 192.309.

Documents

The following documents governed the process for conducting the caliper tool runs, analyzing the resulting data, and performing any necessary excavations or remediation:

- Consent Order, C.P.F. No. 1-2023-053-NOPSO (Oct. 3, 2023)
- Consent Agreement, C.P.F. No. 1-2023-053-NOPSO (Oct. 3, 2023)
- C.P.F. No. 1-2023-053-NOPSO, Remedial Work Plan, Corrective Measure 19(A), Low-Resolution Caliper Tool Run (Oct. 20, 2023)
- MVP Standard 10.2, “Pipeline Construction Standard”
- MVP Pipeline Cleaning and Drying Plan
- MVP Commissioning – Anomaly Evaluation Plan

November 22, 2023

Caliper Tool Run

- Mountain Valley conducted a low-resolution caliper tool run of Segment C1/C2 using Enduro as the vendor on November 8, 2023. The tool run was conducted pursuant to the specifications included in the Remedial Work Plan.
- The run encompassed approximately 12.3 miles of pipe installed on Spread C from MP 66.3 to MP 77.5.
- Mountain Valley received the preliminary tool run report on November 9, 2023.

Anomaly Evaluation and Excavations

- Mountain Valley's analysis of the preliminary tool run report revealed 7 indications, 5 of which required further analysis:

Reported Indications	Indications Requiring Further Analysis	Dents >2%	Dents Affecting Weld	Ovality >5%
7	5	5	0	0

- Mountain Valley excavated 4 of the indications requiring further analysis and determined that 2 of the indications at MP 72.3 and MP 74.9 required remediation via cutouts.
- Mountain Valley performed the cutouts on November 17, 2023, and November 19, 2023, pursuant to the Remedial Work Plan.
- Additional information regarding these cutouts will be posted to the Box site.
- The remaining excavation at MP 70.9 is scheduled to be completed November 24, 2023. Any necessary remediation or repairs at that location will be conducted pursuant to the Remedial Work Plan and information posted to the Box site.

Key Contacts

- MVP Integrity Engineer
  Daniel Moore

November 22, 2023

C.P.F. No. 1-2023-053-NOPSO
Corrective Measure 19A
Low-Resolution Caliper Survey Report
Survey Segment I2

Purpose

This report summarizes the results obtained by Mountain Valley Pipeline, LLC (Mountain Valley) in performing a low-resolution caliper tool survey of Segment I2 of the Mountain Valley Pipeline pursuant to Corrective Measure 14 (Report/Results) of the Consent Agreement. Mountain Valley performed the low-resolution caliper in accordance with Corrective Measure 19 (ILI Runs) of the Consent Agreement in the above-captioned proceeding and the Remedial Work Plan (RWP) submitted on October 20, 2023, pursuant to Corrective Measure 15 (Remedial Work Plan).

Scope

Corrective Measure 19 requires Mountain Valley to:

- Prior to commissioning, conduct a low-resolution caliper tool run, capable of detecting dents and ovalities.
- After completing the survey, remediate any identified imperfection or damage in accordance with the requirements of 49 C.F.R. § 192.309.

Documents

The following documents governed the process for conducting the caliper tool runs, analyzing the resulting data, and performing any necessary excavations or remediation:

- Consent Order, C.P.F. No. 1-2023-053-NOPSO (Oct. 3, 2023)
- Consent Agreement, C.P.F. No. 1-2023-053-NOPSO (Oct. 3, 2023)
- C.P.F. No. 1-2023-053-NOPSO, Remedial Work Plan, Corrective Measure 19(A), Low-Resolution Caliper Tool Run (Oct. 20, 2023)
- MVP Standard 10.2, “Pipeline Construction Standard”
- MVP Pipeline Cleaning and Drying Plan
- MVP Commissioning – Anomaly Evaluation Plan

November 22, 2023

Caliper Tool Run

- Mountain Valley conducted a low-resolution caliper tool run of Segment I2 using Enduro as the vendor on November 10, 2023. The tool run was conducted pursuant to the specifications included in the Remedial Work Plan.
- The run encompassed approximately 5.8 miles of pipe installed on Spread I from MP 259.1 to MP 264.8
- Mountain Valley received the preliminary tool run report on November 10, 2023.

Anomaly Evaluation and Excavations

- Mountain Valley's analysis of the preliminary tool run report revealed 1 indication, 1 of which required further analysis:

Reported Indications	Indications Requiring Further Analysis	Dents >2%	Dents Affecting Weld	Ovality >5%
1	1	1	0	0

- Mountain Valley excavated the indication requiring further analysis and determined that no remediation was necessary.

Key Contacts

- MVP Integrity Engineer
  Daniel Moore

December 1, 2023

C.P.F. No. 1-2023-053-NOPSO
Corrective Measure 19A
Low-Resolution Caliper Survey Report
Survey Segment B1

Purpose

This report summarizes the results obtained by Mountain Valley Pipeline, LLC (Mountain Valley) in performing a low-resolution caliper tool survey of Segment B1 of the Mountain Valley Pipeline pursuant to Corrective Measure 14 (Report/Results) of the Consent Agreement. Mountain Valley performed the low-resolution caliper in accordance with Corrective Measure 19 (ILI Runs) of the Consent Agreement in the above-captioned proceeding and the Remedial Work Plan (RWP) submitted on October 20, 2023, pursuant to Corrective Measure 15 (Remedial Work Plan).

Scope

Corrective Measure 19 requires Mountain Valley to:

- Prior to commissioning, conduct a low-resolution caliper tool run, capable of detecting dents and ovalities.
- After completing the survey, remediate any identified imperfection or damage in accordance with the requirements of 49 C.F.R. § 192.309.

Documents

The following documents governed the process for conducting the caliper tool runs, analyzing the resulting data, and performing any necessary excavations or remediation:

- Consent Order, C.P.F. No. 1-2023-053-NOPSO (Oct. 3, 2023)
- Consent Agreement, C.P.F. No. 1-2023-053-NOPSO (Oct. 3, 2023)
- C.P.F. No. 1-2023-053-NOPSO, Remedial Work Plan, Corrective Measure 19(A), Low-Resolution Caliper Tool Run (Oct. 20, 2023)
- MVP Standard 10.2, “Pipeline Construction Standard”
- MVP Pipeline Cleaning and Drying Plan
- MVP Commissioning – Anomaly Evaluation Plan

Caliper Tool Run

- Mountain Valley conducted a low-resolution caliper tool run of Segment B1 using Enduro as the vendor on November 17, 2023. The tool run was conducted pursuant to the specifications included in the Remedial Work Plan.

- The run encompassed approximately 13.24 miles of pipe installed on Spread B from MP 33.2 to MP 46.1.
- Mountain Valley received the preliminary tool run report on November 18, 2023.

Anomaly Evaluation and Excavations

- Mountain Valley's analysis of the preliminary tool run report revealed 10 indications, 9 of which required further analysis:

Reported Indications	Indications Requiring Further Analysis	Dents >2%	Dents Affecting Weld	Ovality >5%
10	9	9	0	0

- Mountain Valley excavated all 9 of the indications requiring further analysis and determined that 4 of the indications at Run Stations 11560.71, 25507.85, 37213.44, and 53225.58 required remediation via cutouts.
- Mountain Valley performed the cutouts on November 25, 2023, and November 26, 2023, pursuant to the Remedial Work Plan.
- Information regarding these cutouts will be posted to the Box site.

Key Contacts

- MVP Integrity Engineer
  Daniel Moore

January 22, 2024

C.P.F. No. 1-2023-053-NOPSO
Corrective Measure 19A
Low-Resolution Caliper Survey Report
Survey Segment H6

Purpose

This report summarizes the results obtained by Mountain Valley Pipeline, LLC (Mountain Valley) in performing a low-resolution caliper tool survey of Segment H6 of the Mountain Valley Pipeline pursuant to Corrective Measure 14 (Report/Results) of the Consent Agreement. Mountain Valley performed the low-resolution caliper in accordance with Corrective Measure 19 (ILI Runs) of the Consent Agreement in the above-captioned proceeding and the Remedial Work Plan (RWP) submitted on October 20, 2023, pursuant to Corrective Measure 15 (Remedial Work Plan).

Scope

Corrective Measure 19 requires Mountain Valley to:

- Prior to commissioning, conduct a low-resolution caliper tool run, capable of detecting dents and ovalities.
- After completing the survey, remediate any identified imperfection or damage in accordance with the requirements of 49 C.F.R. § 192.309.

Documents

The following documents governed the process for conducting the caliper tool runs, analyzing the resulting data, and performing any necessary excavations or remediation:

- Consent Order, C.P.F. No. 1-2023-053-NOPSO (Oct. 3, 2023)
- Consent Agreement, C.P.F. No. 1-2023-053-NOPSO (Oct. 3, 2023)
- C.P.F. No. 1-2023-053-NOPSO, Remedial Work Plan, Corrective Measure 19(A), Low-Resolution Caliper Tool Run (Oct. 20, 2023)
- MVP Standard 10.2, “Pipeline Construction Standard”
- MVP Pipeline Cleaning and Drying Plan
- MVP Commissioning – Anomaly Evaluation Plan

Caliper Tool Run

- Mountain Valley conducted a low-resolution caliper tool run of Segment H6 using Enduro as the vendor on January 15, 2024. The tool run was conducted pursuant to the specifications included in the Remedial Work Plan.

- The run encompassed approximately 4.63 miles of pipe installed on Spread H from milepost (MP) 249.6 to MP 254.2.
- Mountain Valley received the preliminary tool run report on January 16, 2024.
- Run reports were posted to BOX (b) (4) [redacted]

Anomaly Evaluation and Excavations

Mountain Valley's analysis of the preliminary tool run report revealed no indications.

Key Contacts

- MVP Integrity Engineer
  Daniel Moore