**CATHODIC PROTECTION ANNUAL SURVEY OF WEST VIRGINIA MIDSTREAM PIPELINE WV-GLP-0001**

**Coastal 1 Lateral**

**Antero Resources Corporation, Midstream Operations**

*Antero Resources Corp.*

*3677 WV RT 18 S*

*West Union, WV 26456*

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**Prepared For:**



**Prepared By:**

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**P.O. Box 794**

**Morgantown, WV 26508**

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**William J. Hudak Jr., PE, Senior Project Manager**

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# Executive Summary

EarthRes performed a cathodic protection survey during the year of 2017 on gas pipelines in Antero Midstream’s West Virginia network. The designated pipeline of the cathodic protection survey is included in Table 1.

Table : Inspected Pipelines

|  |  |
| --- | --- |
| Antero Smart Number | Antero Pipeline Name |
| WV-GLP-0001 | Coastal 1 Lateral |

The Coastal 1 Lateral was inspected on 6/14/2017. Results of the inspection indicate there are two test stations on the 0.42 mile pipeline. Of the two test stations, one was in good condition and one was damaged. Multiple unused anodes are available inside the test stations. There were six total isolation flanges present including three at the pad and three at the interchange. Flange isolation repairs are recommended at the pad and interchange. The cathodic protection readings on the pipeline met acceptance criteria. A further description of the issues and the recommended solutions as well as additional field data is located in Appendix A1.

# Project Background

Antero Midstream requested EarthRes perform a cathodic protection test point survey on several pipelines in West Virginia. This included finding and recording test station locations, numbering and labeling test stations, taking potentials, and noting any damages present. When there was not an adequate number of test stations, direct-to-pipe readings were also recorded. Resistance bonds as well as rectifier data was recorded when present. Finally, isolation flange data was documented whenever present on the pipelines. Field data was collected using a sub-meter or 2-5m accuracy GPS data logger, a high-impedance voltmeter, an insulation checker, and a lab-calibrated Copper-Copper Sulfate reference electrode. EarthRes used this data to determine if the pipelines tested were within the acceptance criteria and to provide a list of issues and recommended solutions.

Priority rankings:

* *High*-Corrosion protection is compromised and timely remedy is necessary
* *Medium­*-Issues that do not affect the immediate integrity of the pipeline
* *Low*-Recommendations for best practice

# Appendix A1: CP Annuals



# Appendix A2: Project Personnel

**William Hudak Jr., P.E.**

Senior Project Manager

**Timothy B. Quetsch, E.I.T.**

Assistant Project Manager

**Jake Westling, E.I.T.**

Staff Engineering

**Ryan King**

Staff Engineering

**Brian O’Neil**

Field Services Technician

**Tom Dodd, Jr.**

Field Services Technician

EarthRes Group, Inc.

[www.earthres.com](http://www.earthres.com/)

(800) 264-4553  
(304) 212-6866