Operations and Maintenance Procedures

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Section: Maintenance	Revision Date: 09/06/16

Pipe to Soil Reading

SCOPE AND PURPOSE

This procedure is to ensure adequate external corrosion protection for the pipeline systems. It describes cathodic protection inspection practices required to comply with §192.465(a).

RESPONSIBILITY

The System Maintenance Supervisor, or other designee, is responsible to ensure that pipe-to-soil measurements are performed as described in this procedure.

PERSONNEL SAFETY (Where Applicable)

Do not conduct the survey during a lightning storm. Electricity from the lightning could travel onto the pipe and result in death or injury when electrical contact is made with the pipe during the pipe to soil measurement.

EQUIPMENT AND MATERIALS

Copper-copper sulfate electrode
Copper sulfate solution
Water
Ammeter/Voltmeter/Multi-meter
Wire dispensing reel
Other equipment and materials as needed

OPERATOR QUALIFICATION

This activity is a covered task under the Operator Qualification Plan and may only be performed by or directed and observed by an individual who is currently qualified to perform this task. Refer to the OQ Plan for specific qualification requirements.

INSTRUCTIONS

a. Ensure the multi-meter batteries are fully charged
b. Select the proper meter designed only for pipe to soil (PS) readings.
c. Check the survey electrode by connecting the porous plug of the survey electrode with the porous plug of another electrode, by direct contact or in a conductive solution, and measure the potential difference between the electrode terminals. A difference of 5 mV or less is acceptable.
d. Locate and identify the proper test station, or pipe riser to read.
e. Connect the positive lead from the meter to the pipe or test station and the negative lead to the Copper/Copper Sulfate electrode to obtain the correct polarity.
f. Place the electrode in contact with the soil directly over the pipeline. If good electrical contact cannot be made, wet the ground with water.
g. Record the pipe-to-soil potential, exactly as it appears on the meter, including the positive or negative sign and all decimal points.

REPORTING/NOTIFICATION

The SCUD employee shall complete documentation in accordance with the Operation and Maintenance Manual. SCUD utilizes electronic software to record and maintain all PS readings. The proper electronic form for each test station shall be completed.

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Any pipe-to-soil potential less than negative 850 mV (-0.85 V) (or more positive than), should be addressed in accordance with Operation and Maintenance Manual.

ABNORMAL OPERATING CONDITIONS

AOC Main Category (Examples of Specific AOCs)	Reactions to AOC, as appropriate	
Unplanned escape of product from a pipeline • Blowing/Escaping gas/Grade I leak	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Fire or Explosion • Fire on a pipeline • Explosion	➢ Protect life & Property ➢ Prevent accidental ignition ➢ Notify appropriate personnel ➢ Notify Fire/Emergency Responders ➢ Initiate Emergency Plan	➢ Locate source/cause of AOC ➢ Use appropriate PPE ➢ Stop gas flow ➢ Make repairs/eliminate AOC
Unplanned Status Change • Inoperable/failure of a pipeline component (T/S) • Low structure-to-electrolyte potential • Stray current on a pipeline	➢ Protect life & property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC
Inadequate Odorization or Reports of Gas Odor • Low odorization • Over odorization • Odor complaint	➢ Protect life & property ➢ Prevent accidental ignition ➢ Notify appropriate personnel	➢ Locate source/cause of AOC ➢ Make repairs/eliminate AOC

RELATED PROCEDURES

None