



## Operations and Maintenance Procedures

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O & M Section # 6.1	SCUD Task # 510
Section: Maintenance	Revision Date: 10-20-16

### Installation of Wire on Steel Pipe

#### SCOPE AND PURPOSE

This procedure is to ensure when personnel install and maintain electrical connections on steel pipe, that these connections are made in a manner that provides electrical conductivity. It describes practices required to comply with § 192.471.

#### RESPONSIBILITY

SCUD supervisors and foremen or other designees, are responsible to ensure when installing and maintaining mechanical electrical connections that this work is performed as described in this procedure.

#### PERSONNEL SAFETY

Ensure that the work zone/area is setup to protect the SCUD employee and the public from danger.

Ensure that all applicable safety equipment is being utilized as per company policy.

#### EQUIPMENT AND MATERIALS

System maps and records  
Hose clamp  
Cad Weld Kit  
Hand tools

#### 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.

#### INSTALLATION INSTRUCTIONS

##### General

1. Cad welding is the preferred method on connecting wire to steel pipe but using a hose clamp is an acceptable option.

2. Ensure that the mechanical connection is secure and electrically conductive; continuity may be checked with a volt/ohm meter or locator.
3. A strain loop or some other tension restraint is to be incorporated with the mechanical electrical wire connection near the connection area.
4. All mechanical electrical connections must be sealed using gel filled fittings or weather proof electrically insulating wrap that is compatible with pipe coating and wire insulation.

#### Cad Welding – Exothermic Connection

1. Clean the coating off the pipe in the area the wire is to be connected.
2. File or buff and clean the pipe in that area.
3. Strip the section of coating from the wire where it will be connected to the pipe.
4. Place the bare wire on the bare pipe and cad weld it to the pipe.
5. Pull on the wire to check that the weld is secure to the pipe.
6. Seal the pipe area and wire where the coating was removed.

#### Hose Clamps

1. Remove the coating all around the pipe where the clamp is to be installed. No coating can be under the clamp.
2. File or buff and clean the pipe in the area that the wire will be installed.
3. Strip the coating from the wire where it will be under the clamp
4. Install the bare wire between the clamp and the pipe.
5. Tighten the clamp until the wire cannot be moved under the clamp.
6. Seal the area of the pipe where the coating was removed including the clamp and wire.

Prepared by:

Approved by:

Date:



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#### MAINTENANCE INSTRUCTIONS

1. Additional future maintenance requirements are commonly due to damage by outside forces and may not always be avoided, but can be remedied when the operator has knowledge of such damage.
2. Electrical connections that are installed for the purpose of monitoring cathodic protection systems can be electrically tested for discontinuity indicating separated connections.

#### REPORTING/NOTIFICATION

Complete documentation in accordance with Operation and Maintenance Manual.

#### RELATED PROCEDURES

Prepared by:	Approved by:	Date:
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