

Operations and Maintenance Procedures

SCUD Procedure # Maint017	Page 1 of 2
O & M Section # 6.1	SCUD TASK # 150
Section: Maintenance	Revision Date: 10-20-16

Install and Maintain Mechanical Electrical Connections

SCOPE AND PURPOSE

This procedure is to ensure when personnel install and maintain mechanical electrical connections that these devices are installed in a manner that provides mechanical security and electrical conductivity.

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
Fittings for wire connections
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. Ensure that the mechanical connection is secure and electrically conductive; continuity may be checked with a volt/ohm meter or locator.
2. A strain loop or some other tension restraint is to be incorporated with the

mechanical electrical wire connection near the connection area.

3. 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.

Crimp Connectors

1. Install the crimp connector using the same gauge of wire into each end of the crimp connector.
2. Make sure that the coating is not inside the crimp.
3. Take care not to over-crimp the connector and wire.

Threaded (screw) Compression Connectors

Ensure that when tightening wire inside a threaded compression connector that the coating is not under the screw and that the screw is not over tightened.

Split Bolt Connectors - Kearns

1. Split bolt connectors function much the same as threaded compression connectors except that wire can be inserted from either or both side of the connector.
2. When tightening the connector nut, make sure the wire insulation is not under the nut.
3. Do not over tighten the nut.

Solder Connections

1. Ensure that wire composition is compatible with the particular solder material to be used to make the connection.
2. Thoroughly clean and apply flux to the wire surfaces to be soldered together.
3. Heat the wire surfaces to be soldered to a temperature that allows solder to flow onto the wire.

Prepared by:

Approved by:

Date:

Operations and Maintenance Procedures

SCUD Procedure # Maint017	Page 2 of 2
O & M Section # 6.1	SCUD TASK # 150
Section: Maintenance	Revision Date: 10-20-16

Install and Maintain Mechanical Electrical Connections

4. Clean all acid flux from the wire after soldering and appropriate cooling time as acid flux can accelerate corrosion.

Wire Nut Connectors

1. Strip the wire ends to a suitable length that is compatible with the wire nut to be used.
2. Twist the solid or stranded wire ends together in a clockwise direction.
3. Twist the wire nut connector onto the stripped wire ends also in a clockwise direction until snug.
4. Do not over tighten the wire nut. Metallic insert wire nuts are preferable to plastic internal threaded wire nuts for added mechanical strength.

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. Mechanical 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:
--------------	--------------	-------