

## **PROCEDURES**

### **RECTIFIERS**

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#### **4.0 PURPOSE**

The purpose of this section is to identify appropriate procedures for installation and testing of impressed current cathodic protection systems, or rectifiers.

#### **4.1 IMPRESSED CURRENT / RECTIFIER INSTALLATION**

- A. Impressed current / rectifier systems are designed and installed to provide cathodic protection for steel and other metallic gas piping systems.
- B. The rectifier converts AC to DC power and is installed in conjunction with a groundbed of anodes in either a deep well or horizontal trench.
- C. Impressed current / rectifier cathodic protection systems will be designed by the engineer for the specific situation.

#### **4.2 RECTIFIER TESTING**

Each cathodic protection rectifier must be inspected to ensure that it is operating properly. The following steps should be followed:

Rectifiers shall be tested six times each calendar year at intervals not exceeding two and one half months.

- A. Check rectifier using appropriate tic tracer to ensure it is not shorted before beginning.
- B. Turn off power at the breaker.
- C. Feel each stack for temperature variations witch may indicate necessary replacement.
- D. Turn power back on.
- E. Read the direct current (DC) voltage and the DC amperage on the output of the rectifier. These reads can be measured using either the meter on the rectifier or an external meter.
- F. Read both ON and OFF to verify proper meter operation.
- G. Check for correct polarity.

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- H. Adjust as necessary to achieve desired DC amp output.
- I. Measure the pipe-to-soil potential at structure and nearest test point.
- J. Read and record the kilowatt-hour meter, if one is present.
- K. Note any repairs, replacement parts and necessary remedial action on appropriate form.
- L. Ensure rectifier is reconnected and working properly before leaving.

#### 4.3 INSTALLING CURRENT INTERRUPTER

- A. Turn off the rectifier using the rectifier circuit breaker.
  - 1. Method A

To install in the AC Circuit, disconnect the tap bar on the coarse side. Remember to note what setting the tap is connected to.

    - a) Connect one side of the current interrupter to the coarse setting and the other connection to the tap bar center connection.
    - b) Set the interrupter for the proper time you wish the interrupter to turn “on” and “off”.
    - c) Turn on the interrupter.
    - d) Turn on the rectifier using the rectifier circuit breaker.
  - 2. Method B (alternate method)

To install in the D.C. Circuit, disconnect the D.C. fuse or anode cable.

    - a) Connect one lead wire of the current interrupter to the anode cable and the other connections to the positive rectifier terminal.
    - b) Set the interrupter for the proper time you wish the interrupter to turn “on” and “off”.
    - c) Turn on the interrupter.
    - d) Turn on the rectifier using the rectifier circuit breaker.