

Cathodic Protection System: RECTIFIER MAINTENANCE SCHEDULE

Proper maintenance is essential for the operation of all cathodic protection systems.

This PM/Work order should be on a monthly basis

Monthly

1. Inspection of the rectifier equipment.
2. *Record the DC voltage output and DC current output readings.*
3. Records maintained of the DC voltage output and DC current output readings.
4. Create a new work order for any repairs made to this asset.

Annually

1. Examine for physical damage from vandalism, winds lightning, exposure or overheating.
2. Measure and record DC voltage, DC amperage and tap setting on rectifier maintenance sheet.
3. If there are significant changes in output when compared with records of previous visits, further investigation is warranted.
4. Turn the rectifier off. Feel the stacks for uneven heating.
5. If all the plates are not at the same temperature
6. Employ the troubleshooting procedures described in the troubleshooting guide of this manual.
7. While rectifier is still off, check the bolted electrical connections for heat and tightness.
8. Further investigation is warranted. Create a new work order for any repairs made to this asset.
9. Turn the rectifier back on if all condition is good for the operation of all cathodic protection systems.

RECTIFIER – Maintenance Instructions

WARNING! This equipment poses an electrical shock hazard and the following should only be attempted by qualified personnel.

The following procedures should be followed during the yearly detailed survey of rectifier type systems:

- Examine for physical damage from: vandalism, winds lightning, exposure or overheating.
- Measure and record DC voltage, DC amperage and tap setting on rectifier maintenance sheet. If there are significant changes in output when compared with records of previous visits, further investigation is warranted.
- Turn the rectifier off. Feel the stacks for uneven heating. If all the plates are not at the same temperature, employ the trouble shooting procedures described in the trouble shooting guide of this manual.
- While rectifier is still off, check the bolted electrical connections for heat and tightness.

Once the rectifier unit has been inspected and measured, then proceed with a potential survey.

RECTIFIER - MAINTENANCE SCHEDULE

WARNING! This equipment poses an electrical shock hazard and the following should only be attempted by qualified personnel.

Proper maintenance is essential for the operation of all cathodic protection systems.

The rectifier should be inspected on a monthly basis and records maintained of the DC voltage output and DC current output readings.

The complete or partial failure of a cathodic protection system is not usually accompanied by any visible signs. If a power system fails, the machinery using the electrical energy will cease to operate. This will immediately stimulate investigation of the problem. Such is not the case, however, with cathodic protection systems. Very often the only means of detection is noting the change in structure-to-soil potential through the use of instruments. If there is a failure on a cathodic protection system the relatively slow process of corrosion resumes and continues until a leak occurs. At this point, great damage has been done and large expenses will be encountered to make the necessary repairs. Economic and safety considerations require close supervision and maintenance of all cathodic protection systems.

In addition to the change (or increase) in structure-to-soil potential, several other indications of failure may be detected. With impressed current systems, changes in rectifier output may indicate problems. If the system is totally inoperative, a drop in power consumption may be indicated on the monthly power bill.

RECTIFIER - Trouble Shooting Guide

WARNING! This equipment poses an electrical shock hazard and the following should only be attempted by qualified personnel.

A wiring diagram for use by experienced personnel is provided. Only experienced electrical personnel should attempt location and repair of electrical difficulties, should they occur. Some symptoms of elementary trouble and the possible remedy are as follows:

1. NO DC CURRENT OR DC VOLTAGE OUTPUT.
CHECK: AC overload protection for blown fuses or tripped circuit breaker. Check AC power supply.
2. DC VOLTAGE BUT NO DC CURRENT READING.
CHECK: DC ammeter. Check DC, connections and external DC circuit for electrical continuity.
3. DC CURRENT READING BUT NO DC VOLTAGE READING.
CHECK: Check DC Voltmeter.
4. MAXIMUM RATED DC VOLTAGE CANNOT BE ATTAINED.
CHECK: Check AC line voltage. Check voltage adjustment settings for maximum. Check accuracy of DC Voltmeter.
5. MAXIMUM RATED DC CURRENT CANNOT BE OBTAINED AT MAXIMUM DC VOLTAGE.
CHECK: Check load resistance of external DC circuit.