

Safety Alert

Notice No. 17
July 23, 2003

ELECTRICAL WIRING INSPECTION AND MAINTENANCE

Recently, there were two fires on Pacific OCS Region platforms, both involving electrical wiring.

The first fire involved deteriorated insulation on electrical wiring. Platform personnel had started a generator located in an electrical room, to provide power for a workover rig. Personnel smelled smoke, shut down the generator, and notified other personnel. The workers inspected the electrical room area but could not find the source of the odor. About half an hour later, the generator was restarted. Within a few minutes, flames were seen coming from under a control panel door. The generator was then turned off and the flames extinguished themselves.

The cause of the accident was determined to be an electrical short in the wiring in a control panel supplying power from a generator to the workover rig and other equipment. The insulation was cracked. The deteriorated wiring has since been replaced. Other than the wiring, there was no damage and there were no injuries as a result of the fire.

The second fire was the result of a wiring failure in a generator. During a planned electrical shutdown, the platform was operating under diesel generator power when the generator stopped running. After the generator was restarted, personnel entered the generator room a few minutes later and noticed flames coming from the electrical generation portion of the generator. The generator was then shut down, and the fire was extinguished with a Halon fire extinguisher.

Analysis of the incident indicated that the fire was caused by a short in the main rotor. The rotor had been randomly wound with round wire which failed over time, causing the unit to overheat and the grease at the bearings to catch fire. After the fire, the operator had the generator repaired by replacing and rewinding all the damaged components in accordance with factory specifications. There were no injuries involved.

Most of the platforms in the Pacific OCS Region are decades old; even the newest platforms were installed in the 1980's. Some of the equipment and wiring on the platforms are quite old and require heightened vigilance to preclude accidents and fires. Minerals Management Service regulations at 30 CFR 250.114 in part require proper classification of areas and proper installation of electrical systems in accordance with American Petroleum Institute Recommended Practices, but follow-up maintenance is not specifically addressed.

In the interest of safety, we recommend that operators consider using the following inspection procedures to help prevent problems due to deteriorated wiring, with necessary maintenance performed in case any problems are detected:

1. Periodic visual inspections of electrical wiring, which at times may include wiring that is not readily accessible without opening up equipment.
2. Periodic megging, a testing procedure applying voltage across the stator windings of motors and generators to verify that there are no shorts or deterioration in the insulation. A megohmmeter is used to calculate resistance by measuring amperage and voltage drop due to resistance in stator windings. A decrease in the insulation's resistance can be an indicator of hot spots, winding failure, or deterioration of the cable insulation.
3. Use of heat-sensing imaging to help detect hotspots in electrical equipment and wiring.