

SAFETY & HEALTH HAZARDS ALERT

Assistant Secretary for Environment, Safety & Health | U.S. Department of Energy | Washington, D.C. 20585

DOE/EH-0526

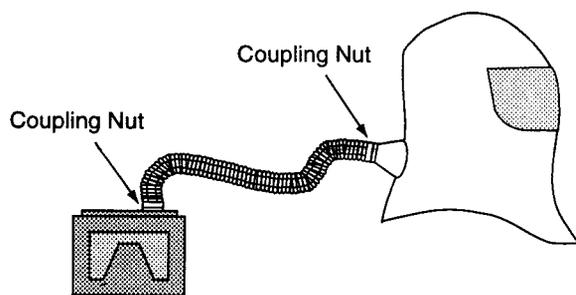
Issue No. 96-2

June 1996

Respirator Protection System Coupling Nuts Fail

A T-Plant nuclear process operator reported three recent discoveries of fractured Mine Safety Appliance (MSA) coupling nuts on 19-inch hood breathing tubes on April 26, 1996, at Hanford. The tubes have plastic coupling nuts on both ends that connect powered air-purifying respirators (PAPRs) to MSA replaceable hood shells. The Westinghouse respiratory protection coordinator suspended use of the respirators until long-term corrective actions are taken to eliminate the coupling nut problem. Failure of the nuts could result in a radiological uptake. (ORPS Report RL--WHC-TPLANT-1996-0030)

The three nuts fractured at the horizontal shoulder of the nut. Two failed at the blower unit connection, and the other failed at the hood shell tube connection. The model number of the MSA coupling nut is 467175.



MSA OptimAir 6 PAPR

On December 11, 1995, a T-Plant operator in the Canyon Operating Gallery experienced reduced air flow through his replaceable hood shell, connected to a hood breathing tube and a PAPR. He had inspected his personal protective equipment and detected no deficiencies before entering the Canyon. He checked the coupling nut and found that it rotated freely. The operator and a co-worker tried unsuccessfully to tighten the coupling nut. The operator decided to exit the Canyon; however, before he reached the air-lock, the hose disengaged from

the hood. The operator held his breath, entered the air-lock and exited. (ORPS Report RL--WHC-TPLANT- 1995-0030)

Initially, Hanford investigators thought the December 11 failure was caused by over-tightening the nut. On February 26, 1996, MSA quality assurance examiners stated that the failure was a result of over-tightening. On March 4, at the request of the DOE facility representative, Hanford investigators tested the coupling nuts and found some nuts did not fail when they were over-tightened and other nuts failed without over-tightening. On March 20, MSA quality assurance representatives sent a letter to Westinghouse Hanford stating that the problem appeared to be a deficiency in their manufacturing process; and they had taken corrective actions to prevent recurrence. T-Plant investigators determined that the failures continue to occur on replacement coupling nuts supplied by MSA. Hanford investigators contacted MSA and requested that a representative visit Hanford and assist in resolving the problem.

For more information, contact Cliff Ledford, Westinghouse Hanford Company at (509) 373-5214.



This Safety & Health Note is one in a series of publications issued by EH to share occupational safety and health information throughout the DOE complex. To be added to the Distribution List or to obtain copies of the publication, call 1-800-473-4375 or (301) 903-0449.