

CONDITION ASSESSMENT OF THE FIRE SUPPRESSION LEAD-IN LINES AT THE NEVADA TEST SITE DEVICE ASSEMBLY FACILITY

ABSTRACT

The lead-in lines for the Fire Protection System (FPS) at the Device Assembly Facility (DAF) are fabricated from 4-in. and 6-in. diameter steel pipes lined with coal tar enamel (CTE). Particles and flakes of the CTE lining have appeared in water used to flush lead-in lines since the installation of the system. Screens have been installed to prevent these flakes from clogging sprinkler heads should their use be required. The Defense Nuclear Facility Safety Board (DNFSB) recently expressed concerns about the continuing degradation of the underground lead-in lines. In August 2008, the lead-in lines were examined to determine why the CTE lining continues to delaminate, assess the corrosion implications of the loss of the lining, and identify possible solutions for mitigating these issues. In-line inspections were performed on a representative population of lead-in lines using a borescopic camera and a unique, water-propelled, inline, remote field eddy current (RFEC) instrument. Water from these lines was also tested for the presence of microbes associated with microbiologically induced corrosion (MIC). This approach provided information on both corrosion mechanism and wall thickness loss (both internal and external) without exhuming the deeply buried lines. This paper summarizes the inspection techniques and findings of the inspection.

This paper would probably fit best as a Technical Paper Topic.

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