
UMR-MEC Conference on Energy

26 Apr 1974

Radiation Testing Under Simulated Loca Conditions


Kenneth G. Mayhan
Missouri University of Science and Technology

D. R. Edwards
Missouri University of Science and Technology

W. F. Oberbeck

J. F. Montle

Follow this and additional works at: <https://scholarsmine.mst.edu/umr-mec>

 Part of the [Chemical Engineering Commons](#), [Chemistry Commons](#), and the [Nuclear Engineering Commons](#)

Recommended Citation

Mayhan, Kenneth G.; Edwards, D. R.; Oberbeck, W. F.; and Montle, J. F., "Radiation Testing Under Simulated Loca Conditions" (1974). *UMR-MEC Conference on Energy*. 8.
<https://scholarsmine.mst.edu/umr-mec/8>

This Article - Conference proceedings is brought to you for free and open access by Scholars' Mine. It has been accepted for inclusion in UMR-MEC Conference on Energy by an authorized administrator of Scholars' Mine. This work is protected by U. S. Copyright Law. Unauthorized use including reproduction for redistribution requires the permission of the copyright holder. For more information, please contact scholarsmine@mst.edu.

RADIATION TESTING UNDER SIMULATED LOCA CONDITIONS

By

K. G. Mayhan, D. R. Edwards & W. F. Oberbeck
University of Missouri-Rolla

J. F. Montle
Carboline Co., St. Louis, Missouri

The purpose of this evaluation is to gather data to determine whether or not radiation during a simulated Loss of Coolant Accident would have any effect upon the coatings being used. Because of the concern in industry regarding the safety of nuclear power generating stations and the strong actions of the various environmentalist clubs and agencies clubs and agencies, the utilities have been required to prove the safety of the power facilities to extraordinary degrees before licensing can be obtained to operate. One of the areas regarding the safety is the necessity of proving that the coatings will remain intact during a Loss of Coolant Accident, which could occur if the main steamline were to rupture. We have designed and built apparatus to test the performance of coatings under the conditions that might exist under such an accident criteria in order to assure ourselves and the AEC in the various utilities that the coatings currently being used or proposed will be adequate for this service.

Since under these conditions the coatings would also be exposed to some radiation, the question has arisen whether or not the radiation will have any effect upon the coating during this accident condition. Tests have been run showing that radiation before or after an accident condition has no effect on the performance, but because of the difficulty in testing, little work has been done with simultaneous loss of coolant and radiation. The problem is further compounded by the variety of water chemistries that are involved with various reactor designs, and the fact that many of the time-temperature criteria are so vastly different. Preliminary test results will be reported.