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INTERIM REPORT

MONTHLY HIGHLIGHTS
July 1982

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This work was performed under the auspices of the United States Nuclear Regulatory Commission.

The loss-of-cooling tests were continued for Hastelloy-X. In these, the effect of a 24 h thermal excursion to 871°C (1600°F) on the 760°C (1400°F) high-cycle fatigue strength is being evaluated. No failures have occurred over this reporting period due to the long term, low stress, conditions being used. However, the thermal excursion, which simulates a loss-of-cooling accident, continues to show that a significant strength loss at 760°C (1400°F) is to be expected.

A new series of thermal transient tests was initiated for Hastelloy X specimens loaded to 20.7 MPa (3.0 ksi) at 815°C (1500°F). This loading condition is expected to cause a 1% total strain in 250,000 hours according to linear extrapolation.

Work is proceeding on the diffusion of multi-component systems in H451 graphite at very high temperatures. The system Ru-Rh-Y-Zr-Ce-La-Nb, run last month, will be analyzed (excepting cerium) via Atomic Absorption Spectroscopy. The necessary hollow cathode lamps are now in hand for all but one of the elements.

Our analyses of early primary loop thermohydraulic transients during UCHA indicate that relatively fast times to depressurization, of the order of 1 to 2 hours could be possible. These results are currently being written up for distribution to all members of the siting study. For further depressurization runs with prior cooldown, several improvements in the RATSAM code have been made, including some simple modeling of the secondary side heat transfer. Our analysis of long term core and PCRV transients using the CORCON code has been initiated. The Super-CORCON 3000 MW version received from GA is operational and is currently being modified to represent the 2240 MW reactor with PCRV.

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