September 17, 2002

PRELIMINARY NOTIFICATION OF EVENT OR UNUSUAL OCCURRENCE -- PNO-IV-02-048

This preliminary notification constitutes EARLY notice of events of POSSIBLE safety or public interest significance. The information is as initially received without verification or evaluation, and is basically all that is known by the Region IV staff on this date.

**Facility**
Texas Engineering Experiment Station/Texas A&M University System
Nuclear Science Center Reactor Facility
College Station, Texas
Docket: 50-128
License No.: R-83

**Licensee Emergency Classification**
_X_ Notification of Unusual Event
___ Alert
___ Site Area Emergency
___ General Emergency
___ Not Applicable

SUBJECT: LEAK FROM FAILURE OF REACTOR POOL DIFFUSER PIPING SYSTEM

DESCRIPTION:

At 8:25 a.m. (EDT) on September 17, 2002, the licensee reported an unusual event at their 1 megawatt TRIGA research reactor. In accordance with the NRC-approved emergency plan, the licensee reported an unusual event when the pool level went below the alarm set point (approximately 23.5 feet above core level). This unusual event occurred due to a leak in the pool nitrogen-16 diffuser discharge piping joint connection. The leak was secured, pool level regained by addition of water, and the unusual event terminated by 9:20 a.m. (EDT).

The licensee has estimated that the total leakage from the pool was 7700 gallons. This leakage went to the sump and then was automatically pumped to a radioactive liquid waste storage tank system. The leakage exceeded the capacity of this tank system. The licensee estimates that less than 1000 gallons overflowed from the tank onto the tank pad and to the surrounding ground. Analysis of the tank contents measured about 4 percent of NRC's limit for yearly effluent concentration of sodium-24 to the environment.

On shut down of the reactor the previous night, licensee staff disconnected the discharge line of the diffuser system from the pool, which blocked discharge flow. A combination of an unusual system lineup and operator error resulted in the diffuser pump not being shut down. The diffuser pump remained running without a discharge path and caused vibration in the system. The vibration resulted in loosening of a coupling on the system, which allowed the pump to discharge the pool water to the sump. The design of the system ensures that the core could not be uncovered. Pool level went from about 26 feet above the core to a minimum of about 23.5 feet during the event.

The licensee will determine the root cause and provide the information in a required written 30-day report. The licensee does not plan a press release, but is planning to prepare for media inquiries.

Region IV has informed the RIV public affairs officer and plans to inform the State. An NRC research reactor inspector from the Office of Nuclear Reactor Regulation (NRR) will be on site September 18, 2002, to review this event. This information is current as of 2:15 p.m. (EDT), September 17, 2002.

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