

Non-Routine 10-Day Report 75-03
Report of an Unplanned Release of Radioactive Material
Occurring on June 26, 1975

Description of Occurrence

On June 26, between the hours of 0227 and 1529 (thirteen (13) hours and two (2) minutes) inadvertant sporadic releases of radioactive material occurred while adding water to the makeup tank and the reactor coolant bleed tanks. The total time of the releases was seven (7) hours and six (6) minutes. The activity released was low, no alert or alarm conditions on the Radiation Monitoring System occurred at any time during the releases. Therefore, the releases were not discovered until the routine shift check of the Radiation Monitoring System Strip Chart Recorders. Upon investigation it was determined that the releases were coincident with the addition of water to the makeup tank or the reactor coolant bleed tanks. It is postulated that the releases occurred from one of the evaporators which were, at the time of the release, shutdown and valved into the radioactive gas vent header system. The addition of water to the tanks caused a pressure surge which was subsequently transmitted to the shutdown evaporators which, in turn, leaked the radioactive gas to the Auxiliary Building Ventilation Exhaust System. After discovery of the releases, the evaporators were isolated from the vent header system and during similar makeup operations, no further releases occurred.

Apparent Cause of the Occurrence

Equipment malfunction is the apparent cause of the occurrence in that leaks exist in either the Miscellaneous Waste Evaporator, or the associated piping.

Analysis of Occurrence

For the following reasons it is believed that the unplanned release of radioactive material on the 26th of June did not endanger either the health or safety of the public.

- a. None of the limits in the TMI-1 Technical Specifications were exceeded.
- b. None of the maximum permissible concentration limits for non-radiation workers as given in 10 CFR 20 were exceeded at the site boundary.
- c. No individual on site at the time of the release received a radiation dose in excess of the limits for radiation workers specified in 10 CFR 20.

Corrective Action

Immediate corrective action as described above was taken to terminate the release. To determine the exact location of the leak, the evaporator will be purged and leak tested. It should be noted that due to a similar release (Non-Routine Report #75-02) the Miscellaneous Waste Evaporator has previously been leak tested and one significant leak determined and repaired. However, in the

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process of starting up and shutting down the evaporator since that time, another source of leakage has apparently developed.

Failure Data

Not Applicable

Release Data

Note: In no case did any member of the public or any station or contractor personnel receive a radiation dose near the applicable limits given in 10 CFR 20.

The total release consisted of 3.97 Curies of predominantly (>95%) Xe-133, based on Radiation Monitoring System Strip Chart Recordings and samples of the evaporator gas space and vent header system. The maximum instantaneous noble gas release rate during the thirteen hour and two minute period was 1.16×10^3 m³/sec. which is below the Technical Specification limit of 1.2×10^5 m³/sec. The average release rate for the seven hour and six minute period of the release was 4.30×10^2 m³/sec. The 24 hour average concentration in the evaporator cubicle was calculated to be 1.22×10^4 μ Ci/cc (based on the cumulative effect of all the releases), a factor of 407 times the weighted unrestricted area MPC_a of 3×10^{-7} μ Ci/cc. There were no personnel exposures involved in the release, since there were no operational or maintenance functions associated with the Miscellaneous Waste Evaporator during the fourteen hour period of the releases. However, based on the maximum concentration in the cubicle, personnel exposures of up to 32.5 minutes would be allowable without exceeding the restricted area MPC_a for radiation workers as defined in 10 CFR 20.

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