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**Regulatory Docket File**

BBS Ltr. #105-75

Dresden Nuclear Power Station  
 R.R. #1  
 Morris, IL 60450

February 20, 1975



James G. Keppler, Regional Director  
 Directorate of Regulatory Operations - Region III  
 U.S. Nuclear Regulatory Commission  
 799 Roosevelt Road  
 Glen Ellyn, IL 60137

**SUBJECT: REPORT OF ABNORMAL OCCURRENCE PER SECTION 6.6.A OF THE TECHNICAL SPECIFICATIONS**  
FAILURE OF DRAIN VALVE (363M6) FROM "1A" CONTAMINATED DEMIN TANK

- References: 1) Regulatory Guide 1.16 Rev. 1 Appendix A
- 2) Notification of Region III of U.S. Nuclear Regulatory Commission  
 Telephone: P. Johnson, 1000 hrs, 13 Feb 75  
 Telegram: J. Keppler, 1451 hrs, 13 Feb 75

Report Number: 50-10/1975-1

Report Date: February 20, 1975

Occurrence Date: February 13, 1975

Facility: Dresden Nuclear Power Station, Morris, IL

IDENTIFICATION OF OCCURRENCE

This letter is a report of the unplanned release of liquid radioactive material from Unit 1 "A" contaminated demineralized water storage tank (T-105 A).

CONDITIONS PRIOR TO OCCURRENCE

Prior to and during the occurrence Dresden Unit 1 was operating at steady state power, 585 Mwt and 168 MWe. No testing was being performed on the unit during the period.

DESCRIPTION OF OCCURRENCE

During an inspection of T-105A, it was noted that water was leaking from the drain valve (363M6) due to a crack on the bottom of the valve. This water was draining to the storm drain. After reporting the leak to the Shift Engineer, operations began lowering the level of the tank by transferring water to the hotwell and pumping it to the liquid waste storage tank (T-114).

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In addition, the scheduled laundry tank discharge to the discharge canal was secured to prevent further radioactive discharge to the river. Leakage was minimized by installing a temporary repair consisting of a 4" nipple with a pipe cap held on by two "C" clamps. At 1300 hours the drain was plugged from the inside of the tank which stopped all leakage.

#### DESIGNATION OF APPARENT CAUSE OF OCCURRENCE (Equipment Failure)

During the early part of February, up to and including the 13th of the month, the Dresden area experienced continuous sub-freezing temperatures. It appeared that ice formed on the inside of the valve, expanded, and cracked the valve.

#### ANALYSIS OF OCCURRENCE

At the time of discovery, the leakage rate was approximately six gallons per minute. Maintenance capped the leak at 0215 hours and the leakage was reduced to .16 gallon per minute. Radiation protection sampled and analyzed the tank water for radioactivity concentration. This analysis indicated a gross beta-gamma radioactivity concentration of  $2.4 \times 10^5$  pCi/l. Results of gamma isotopic analysis performed on a water sample from the Condensate Demin Storage Tanks were as follows:

<u>Radionuclide</u>	<u>Ci/MI</u>
Mn <sup>54</sup>	$3.2 \times 10^{-6}$
Ce <sup>58</sup>	$1.1 \times 10^{-5}$
Co <sup>60</sup>	$2.2 \times 10^{-5}$
Il <sup>131</sup>	$5.0 \times 10^{-6}$
Cs <sup>134</sup>	$5.2 \times 10^{-5}$
Cs <sup>137</sup>	$8.2 \times 10^{-5}$
Unidentified	$6.5 \times 10^{-5}$

Using the measured leak rate of 6 gpm, and a dilution flow of 128,000 gpm, it was determined that the concentration of gross beta-gamma radioactivity in the discharge canal due to the leak was 11.3 pCi/l. A review of controlled liquid waste discharges from Unit 1 during the month of February up to and during the detection of the leak revealed the maximum gross radioactivity in the discharge canal to be 24 pCi/l. The contribution of 11.3 pCi/l due to the leak, when added to the maximum controlled discharge, results in a maximum gross radioactivity concentration of  $\sim 36$  pCi/l. This result is less than the Technical Specification Limit of 100 picocuries per liter in the discharge canal.

Since the maximum concentration of radioactive materials in the discharge canal was well within the Technical Specification Limit there was no hazard to the public due to this occurrence.

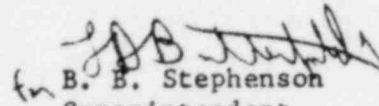
#### CORRECTIVE ACTION

The immediate corrective action taken to terminate the incident was to clamp, then plug the valve. Further corrective action taken was to replace the cracked valve with an insulated valve which will prevent future freezing. A plant modification presently in the Engineering Evaluation Phase is in progress that will help prevent discharges to river by directing the normal drain and over flow from T-105A to the 2/3 Equipment Drains.

FAILURE DATA

There had been no prior occurrence of this type on the contaminated Demineralized Water Storage Tanks. The new valve is a 4" Walworth Gate Valve. In light of corrective action and the plant modification in progress we believe that sufficient action has been taken to prevent recurrence of this problem.

Sincerely,



B. B. Stephenson  
Superintendent  
Dresden Nuclear Power Station

BBS:GJH:slb

cc: File/AEC