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 (1) (PLEASE PRINT OR TYPE ALL REQUIRED INFORMATION)

EVENT DESCRIPTION AND PROBABLE CONSEQUENCES (10)

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CAUSE DESCRIPTION AND CORRECTIVE ACTIONS (27)

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078-116 045

TOLEDO EDISON COMPANY
DAVIS-BESSE NUCLEAR POWER STATION UNIT ONE
SUPPLEMENTAL INFORMATION FOR LER NP-32-83-03

DATE OF EVENT: July 8, 1983

FACILITY: Davis-Besse Unit 1

IDENTIFICATION OF OCCURRENCE: Inadequate tornado missile protection for Chlorine Detectors AE4863A and B

Conditions Prior to Occurrence: The unit was in Mode 1, with Power (MWt) = 2026 and Load (Gross MWe) = 667.

Description of Occurrence: As a result of an analysis on the tornado missile protection for the Chlorine Detection System, it was determined on July 8, 1983, at 1150 hours that Chlorine Detectors AE4863A and B, which are housed in a concrete structure located near the chlorine tank car, are not adequately protected against all types of missiles. The analysis has shown that the largest credible tornado missile striking the top of the structure at a corner could possibly rotate the structure approximately 2-3 degrees, shearing the detector conduit. Both chlorine detectors could possibly become inoperable under these circumstances only if the detector cables were shorted. This mode of failure would prevent the detectors from failing in the safe direction.

It has also been determined from this analysis that the entrance way to the chlorine detector structure does not have adequate missile protection.

In Section 15.4.8 of the Final Safety Analysis Report/Updated Safety Analysis Report (FSAR/USAR), the accident analysis for this event assumes that Chlorine Detectors AE4863A and B are available to isolate the Control Room Ventilation System in the event of a chlorine tank car rupture accident. Because of the possibility of a tornado missile rendering these detectors inoperable, this occurrence is being reported in accordance with Technical Specification 6.9.1.8.i. This Technical Specification requires prompt notification for events involving the performance of structures, systems, or components that require remedial action or corrective measures to prevent operation in a manner less conservative than assumed in the accident analysis in the Safety Analysis Report or Technical Specification bases.

Designation of Apparent Cause of Occurrence: The cause of this occurrence was a design error by Bechtel, in that the chlorine detector structure was not originally designed in accordance with General Design Criteria 2 of 10CFR50 Appendix A and Reg Guide 1.95.

Analysis of Occurrence: There was no danger to the health and safety of the public or station personnel. The function of Chlorine Detectors AE4863A and B is to isolate the Control Room Ventilation System in the event of the worst case chlorine release accident, that being a complete rupture of the chlorine tank car. Only a tornado missile having a kinetic

energy of at least 2.7×10^5 ft-lbs striking the structure at a top corner could possibly damage the structure in such a manner that both detector cables are shorted to render both detectors inoperable. The probability of a chlorine tank car rupture occurring simultaneously with a tornado missile damaging the structure such that both detector cables are shorted, thereby, rendering both detectors inoperable is extremely small.

Corrective Action: Since the chlorine detectors are still capable of performing their intended function, they have not been declared inoperable. A procedure modification has been made to AD 1827.00, Tornado Procedure to instruct the operators to isolate the Control Room air intake and place the Control Room Ventilation System in the recirculation mode in the event of a threatening tornado. Toledo Edison is currently investigating possible design changes to the chlorine detector structure.

Failure Data: There have been no previous similar occurrences.

LER #83-031



July 21, 1983

Log No. K83-1045
File: RR2 (NP-32-83-03)

Docket No. 50-346
License No. NPF-03

Mr. James G. Keppler
Regional Administrator, Region III
Office of Inspection and Enforcement
U. S. Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, Illinois 60137

Dear Mr. Keppler:

LER No. 83-031
Davis-Besse Nuclear Power Station
Date of Occurrence: July 8, 1983

Enclosed are three copies of Licensee Event Report 83-031 which are being submitted in accordance with Technical Specification 6.9 to provide 14 day written notification of the subject occurrence.

Yours truly,

A handwritten signature in cursive script that reads 'Terry D. Murray'.

Terry D. Murray
Station Superintendent
Davis-Besse Nuclear Power Station

TDM/ljk

Enclosures

cc: Mr. Richard DeYoung, Director
Office of Inspection and Enforcement
Encl: 40 copies

Mr. Norman Haller, Director
Office of Management and Program Analysis
Encl: 3 copies
2 copies telecopy

Mr. Walt Rogers
NRC Resident Inspector
Encl: 1 copy

JUL 25 1983

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