NRC FORM 366
(7-77)

U. S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT

CONTROL BLOCK: | | | | | | | (1) (PLEASE PRINT OR TYPE ALL REQUIRED INFORMATION)

0	1	O H D B S 1 (2)	0 0 - 0 0 0 0 0 - 0 0 (3)	4 1 1 1 1 (4)	(5)
		LICENSEE CODE	LICENSE NUMBER	LICENSE TYPE	CAT

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0 1	REPORT SOURCE	L (6)	0 5 0 0 0 3 4 6 (7)	1 2 1 0 8 3 (8)	0 1 1 0 8 4 (9)
			DOCKET NUMBER	EVENT DATE	REPORT DATE

EVENT DESCRIPTION AND PROBABLE CONSEQUENCES (10)

0 2 (NP-33-83-99) At 0845 hours on 12/10/83, a routine analysis of the Reactor Coolant
0 3 System (RCS) sample indicated 0.20 ppm chloride (Cl) which exceeds Technical Specifi-
0 4 cation (T.S.) 3.4./ limit of 0.15 ppm Cl. The maximum measured value was 0.26 ppm
0 5 Cl at 1430 hours. The chlorides exceeds T.S. limits for only approximately 22 hours
0 6 and was below transient limits. There was no danger to the public or station person-
0 7 nel due to the fact that operation above steady state but below transient limits for
0 8 less than 24 hours will not significantly affect the structural integrity of the RCS.

0 9	SYSTEM CODE	CAUSE CODE	CAUSE SUBCODE	COMPONENT CODE	COMP. SUBCODE	VALVE SUBCODE
	C B (11)	A (12)	X (13)	D E M I N X (14)	Z (15)	Z (16)

(17) LER/RO REPORT NUMBER	EVENT YEAR		SEQUENTIAL REPORT NO.		OCCURRENCE CODE	REPORT TYPE		REVISION NO.
	8 3	—	0 7 0	/	0 3	X	—	2

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ACTION TAKEN	FUTURE ACTION	EFFECT ON PLANT	SHUTDOWN METHOD	HOURS (22)	ATTACHMENT SUBMITTED	NPRD-4 FORM SUB.	PRIME COMP. SUPPLIER	COMPONENT MANUFACTURER
X (18)	Z (19)	Z (20)	Z (21)	0 0 0 0	Y (23)	N (24)	Z (25)	D 1 5 5 (26)

CAUSE DESCRIPTION AND CORRECTIVE ACTIONS (27)

1 0 Purification Demineralizer 1-1 was exhausted on chlorides. The type of resin that
1 1 exhausted was ARM-9390. With a weak-base resin such as this, demineralized water
1 2 hydrolizes the chloride, and the chloride comes off as a weak-acid. Purification
1 3 Demineralizer 1-2 was placed in service to remove the chlorides. The RCS was within
1 4 limits by 0700 hours on 12/11/83. Resin in Purification Demineralizer 1-1 was replaced.

1 5	FACILITY STATUS	% POWER	OTHER STATUS (30)	METHOD OF DISCOVERY	DISCOVERY DESCRIPTION (32)
	E (28)	0 9 9 (29)	NA	B (31)	Routine Sampling

1 6	ACTIVITY RELEASED	CONTENT OF RELEASE	AMOUNT OF ACTIVITY (35)	LOCATION OF RELEASE (36)
	Z (33)	Z (34)	NA	NA

PERSONNEL EXPOSURES

1 7	NUMBER	TYPE	DESCRIPTION (39)
	0 0 0 (37)	Z (38)	NA

PERSONNEL INJURIES

1 8	NUMBER	DESCRIPTION (41)
	0 0 0 (40)	NA

LOSS OF OR DAMAGE TO FACILITY (43)

1 9	TYPE	DESCRIPTION
	Z (42)	NA

8410220165 841011
PDR ADOCK 05000346
S PDR

PUBLICITY

2 0	ISSUED	DESCRIPTION (45)	NRC USE ONLY
	N (44)	NA	

DVR 83-180

NAME OF PREPARER David W. Briden PHONE: 419-259-5000 ext. 224

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TOLEDO EDISON COMPANY
DAVIS-BESSE NUCLEAR POWER STATION UNIT ONE
SUPPLEMENTAL INFORMATION FOR LER NP-33-83-99

DATE OF EVENT: December 10, 1983

FACILITY: Davis-Besse Unit 1

IDENTIFICATION OF OCCURRENCE: Chlorides exceeded Technical Specification limit

Conditions Prior to Occurrence: The unit was in Mode 1, with Power (MWt) = 2769 and Load (Gross MWe) = 919.

Description of Occurrence: At 0845 hours on December 10, 1983, a routine analysis of the Reactor Coolant System sample indicated 0.20 ppm chloride which exceeds Technical Specification 3.4.7 limit of 0.15 ppm chlorine. After the routine chloride analysis indicated 0.20 ppm, the analysis required verification since Purification Demineralizer 1-1 had only been in service since November 8, 1983. Further analysis at 0930 hours, 1030 hours, 1230 hours, and 1430 hours confirmed the results. The maximum measured value in the reactor coolant was 0.26 ppm chloride at 1430 hours, while the maximum at the Purification Demineralizer 1-1 effluent was 0.28 ppm chloride.

Designation of Apparent Cause of Occurrence: Purification Demineralizer 1-1 was exhausted on chlorides. The breakthrough on chlorides was premature since it had only been in service about a month; the expected life should be a full fuel cycle.

The type of resin that exhausted was Diamond Shamrock Mixed Bed H/OH Resin ARM-9390 which is a strong-acid, weak-base resin. A weak-base resin does not hold chlorides as well as strong-base resins. With weak-base resin, demineralized water hydrolyzes the chloride, and the chloride comes off as a weak acid. A failure to recognize that ARM-9390 contained a weak base resin was made at the time that it was selected as the replacement resin for the demineralizer. The specifications for ARM-9390 as supplied by the technical representative and the resin data literature stated that the resin was applicable for use in demineralizers for reactor coolant system water. Had the information for the resin been verified for compliance with the specifications in station procedure LI-4782.00, the ARM-9390 would have been unacceptable. 2

Analysis of Occurrence: There was no danger to the health and safety of the public or station personnel. The chlorides exceeded the Technical Specifications steady state limit for only approximately 22 hours and was well below the transient limit. Corrosion studies show that operation may continue with concentration levels in excess of the steady state limits, up to transient limits, for the specified limited time intervals (24 hours) without having a significant effect on the structural integrity of the Reactor Coolant System.

Corrective Action: The immediate corrective action was to place Purification Demineralizer 1-2 in service to remove chloride. The Reactor Coolant System was within the Technical Specification limit of 0.15 ppm chloride by 0700 hours on December 11, 1983. Further corrective steps were to replace the resin in Purification Demineralizer 1-1 with Rohm & Haas Resin

2 IRN-150LC. To prevent the weak-base resin from being purchased, reactor coolant system demineralizer resin will be purchased, receipt inspected, and stored under the Toledo Edison Company Nuclear Quality Assurance Program.

Failure Data: This is the first time that ARM-9390 resin was loaded into purification demineralizers. Previous mixed bed resins have been strong-acid/strong-base resin which provides a longer period of operation prior to exhaustion.

LER #83-070

TOLEDO EDISON

October 11, 1984

Log No. K84-1284
File: RR 2 (NP-33-83-99)
Rev. 2

Docket No. 50-346
License No. NPF-3

U. S. Nuclear Regulatory Commission
Document Control Desk
Washington, D. C. 20555

Gentlemen:

LER No. 83-099 Rev.2
Davis-Besse Nuclear Power Station Unit 1
Date of Occurrence: December 10, 1983

Enclosed is Licensee Event Report 83-099, Rev.2, which is being submitted in accordance with 10CFR50.73, to provide 30 day written notification of the subject occurrence.

Yours truly,

Stephen M. Quennoz

Stephen M. Quennoz
Plant Manager
Davis-Besse Nuclear Power Station

SMQ/bec

Enclosure

cc: Mr. James G. Keppler,
Regional Administrator,
USNRC Region III

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DB-1 NRC Resident Inspector

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