NRC FORM 366 (7-77)

U. S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT

UPDATE REPORT
PREVIOUS REPORT DATE: 12-14-80

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

0 1	LICENSEE CODE (2)	M D C C N 2
	LICENSE NUMBER (3)	0 0 - 0 0 0 0 0 - 0 0
	LICENSE TYPE (4)	4 1 1 1 1
	CAT (5)	
CON'T 0 1	REPORT SOURCE (6)	L
	DOCKET NUMBER (7)	0 5 0 0 0 3 1 8
	EVENT DATE (8)	1 2 1 4 8 0
	REPORT DATE (9)	0 1 0 4 8 2

EVENT DESCRIPTION AND PROBABLE CONSEQUENCES (10)

0 2 During the performance of surveillance testing, Control Element Assembly
0 3 (CEA) 38 dropped to the bottom of the core at 0325 (T.S. 3.1.3.1.f).
0 4 CEA 38 was realigned with its group at 0400. All other CEA's remained
0 5 operable during this event. LER 50-318/80-56 and 50-317/80-12 describe
0 6 similar events.
0 7
0 8

0 9	SYSTEM CODE (11)	R B
	CAUSE CODE (12)	X
	CAUSE SUBCODE (13)	X
	COMPONENT CODE (14)	M E C F U N
	COMP SUBCODE (15)	Z
	VALVE SUBCODE (16)	Z
(17) LER/RO REPORT NUMBER	EVENT YEAR	8 0
		—
	SEQUENTIAL REPORT NO.	0 5 7
		/
	OCCURRENCE CODE	0 3
	REPORT TYPE	X
		—
	REVISION NO.	1
	ACTION TAKEN (18)	X
	FUTURE ACTION (19)	X
	EFFECT ON PLANT (20)	Z
	SHUTDOWN METHOD (21)	Z
	HOURS (22)	0 0 0 0
	ATTACHMENT SUBMITTED (23)	Y
	NPRD-4 FORM SUB. (24)	N
	PRIME COMP. SUPPLIER (25)	N
	COMPONENT MANUFACTURER (26)	C 4 9 0

CAUSE DESCRIPTION AND CORRECTIVE ACTIONS (27)

1 0 A possible cause is omission of CEA venting during primary system fill
1 1 evolutions. Due to a lack of justification, CEA venting was discontin-
1 2 ued by the end of the unit's first cycle. Venting is re-established in
1 3 the fill routine as of entry into the fourth cycle. CEA drop rate has
1 4 declined. The exact mechanism resulting in CEA drops is undefined.

1 5	FACILITY STATUS (28)	E
	% POWER (29)	0 6 9
	OTHER STATUS (30)	NA
	METHOD OF DISCOVERY (31)	B
	DISCOVERY DESCRIPTION (32)	Surveillance Test
1 6	ACTIVITY RELEASED (33)	Z
	CONTENT OF RELEASE (34)	Z
	AMOUNT OF ACTIVITY (35)	NA
	LOCATION OF RELEASE (36)	NA
1 7	PERSONNEL EXPOSURES NUMBER (37)	0 0 0
	TYPE (38)	Z
	DESCRIPTION (39)	NA
1 8	PERSONNEL INJURIES NUMBER (40)	0 0 0
	DESCRIPTION (41)	NA
1 9	LOSS OF OR DAMAGE TO FACILITY (43) TYPE (42)	Z
	DESCRIPTION	NA
2 0	PUBLICITY ISSUED (44)	N
	DESCRIPTION (45)	NA
	NRC USE ONLY	

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LER NO. 81-57/3X
DOCKET NO. 50-318
LICENSE NO. DPR-69
EVENT DATE 01-13-81
REPORT DATE 01-04-82
ATTACHMENT

CAUSE AND BACKGROUND

An apparent cause of some previously unexplained Control Element Assembly (CEA) drop events is omission of Control Element Drive Mechanism (CEDM) venting during primary system fill evolutions. The NSSS vendor initially recommended that each CEDM be vented after any outage requiring the primary system to be drained to below the tops of the CEDMs. The purpose of venting CEDMs during the refill of the system was explained to be to wet moving metal parts for lubrication.

Several CEDM venting evolutions were performed during each of the Unit 1 and Unit 2 plant startup test programs. This experience was marked by deficiencies of the venting rigs and fittings (later corrected), delays in each startup due to the length of time of the evolution and realization that personnel were exposed to significant radiation doses during venting.

Plant engineers, during analysis of venting problems, performed calculations which showed that, once fully drained, the free volume of the CEDM internals is nearly filled when the primary system is refilled without venting, then pressurized. Compression of entrapped non-condensables results in primary coolant reaching to approximately one foot from the top of the CEDMs, a level well above the CEDMs moving parts. Plant staff decided, during the first fuel cycle of Unit 2, to forego CEDM venting during succeeding system fill evolutions.

The NSSS vendor agreed with the results of the free-volume calculations, but maintained the recommendation to vent CEDMs for the reason previously stated. An additional vendor concern for the prevention of loose corrosion material formation has proven unnecessary. No evidence of significant loose corrosion product material has been detected in the CEDMs to date.

During Unit 2 Fuel Cycle One, a high rate of CEA drops due to control power electrical failures were experienced. These failures decreased during Fuel Cycle Two after electrical modifications. During this period, however, unexplained CEA drop events gradually increased in frequency in both Unit 1 and 2.

In late 1980 a review of CEA drop events was begun in order to detect similarities in occurrence which would lead to identification of a cause for these unexplained events. Although most of these events occurred during rod movement, no electrical nor mechanical sign of a fault has been evidenced during subsequent testing. The data gathered during the review shows no other common factor. This review was completed in 1981 with no conclusions.

ACTION AND RESULT

During the startup of Unit 2 at the commencement of the Fourth Fuel Cycle, all Unit 2 CEDMs were vented. A sharp decrease in unexplained CEA drop events has been the apparent result. From a previous average rate of nearly one drop per month, Unit 2 has experienced one unexplained CEA drop since March, 1981. Unit 1 has experienced two unexplained drops in 1981, following CEDM venting at commencement of its current Fifth Fuel Cycle in January, 1981.

FUTURE ACTION

CEDMs will continue to be vented during primary system fill operations following draining to below the bottom of the pressurizer. This will be done although the effect of such venting on the mechanism's operation has not been defined. The plant staff has continued to share information on these events with the NSSS supplier.