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R. E. DENTON
GENERAL MANAGER
CALVERT CLIFFS

November 21, 1990

U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

ATTENTION: Document Control Desk

SUBJECT: Calvert Cliffs Nuclear Power Plant
Unit No. 2; Docket No. 50-318; License No. DPR 69
Licensee Event Report 90-001, Revision 00

Gentlemen:

The attached report is being sent to you as required under 10 CFR 50.73 guidelines. Should you have any questions regarding this report, we will be pleased to discuss them with you.

Very truly yours,

RED/DWM/bjd
Attachment

cc: D. A. Brune, Esquire
J. E. Silberg, Esquire
R. A. Capra, NRC
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NRC FORM 366 (6-89) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104
EXPIRES: 4/30/92
ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Calvert Cliffs, Unit 2	0 5 0 0 0 3 1 8	1 OF 0 5

TITLE (4) Inadvertent Engineered Safety Features Actuation Due to Insufficient Communication of Plant Status

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAMES	DOCKET NUMBER(S)
										0 5 0 0 0
1 0	2 2	9 0	9 0	0 0 1	0 0	1 1	2 1	9 0		0 5 0 0 0

OPERATING MODE (9)	6	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
POWER LEVEL (10)	0 0 0	20.402(b)	20.405(c)	X 50.73(a)(2)(iv)	73.71(b)
		20.405(a)(1)(i)	50.36(c)(1)	50.73(a)(2)(v)	73.71(c)
		20.405(a)(1)(ii)	50.36(c)(2)	50.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)
		20.405(a)(1)(iii)	50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	
		20.405(a)(1)(iv)	50.73(a)(2)(ii)	50.73(a)(2)(viii)(B)	
		20.405(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
	AREA CODE
Daniel W. Muth, Compliance Engineer	3 0 1 2 6 0 - 3 5 9 2

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	
X	J E	I M O D	V 1 3 2	Y							

SUPPLEMENTAL REPORT EXPECTED (14)		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE)	X NO				

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

On October 22, 1990 Unit 2 experienced an actuation of the Containment Radiation Signal (CRS), a part of the Engineered Safety Features Actuation System (ESFAS). On October 19, 1990 a spurious CRS signal was found in the ESFAS logic cabinet. When one of the sensor panels was downpowered on October 22, 1990, CRS actuated.

The cause of this event was insufficient communication of plant status. Due to a combination of CRS not being required to be OPERABLE (since defueled) and the operator's knowledge that adequate measures were in place to ensure OPERABILITY prior to REFUELING, he did not communicate CRS status to the Shift Supervisor. An additional cause was the procedure for powering down the cabinets did not require a check of the logic cabinets in addition to the sensor cabinets for actuation indication as a prerequisite for work.

The details of this event will be reviewed with Operations personnel, with particular emphasis on the importance of avoiding unnecessary ESFAS actuations at all times.

The procedure for powering down the sensor cabinets will be revised to require a check for indication on all the sensor and logic cabinets as a prerequisite for working on them. We will re-evaluate the adequacy of operations procedures affecting logic cabinets.

I. DESCRIPTION OF EVENT

On October 22, 1990, at 2120 hours, Calvert Cliffs Unit 2 experienced an actuation of the Containment Radiation Signal (CRS), a part of the Engineered Safety Features Actuation System (ESFAS). Unit 2 was defueled, at atmospheric pressure (Reactor Vessel Head removed) and ambient temperature at the time.

ESFAS is divided into four sensor subsystems (sensor channels ZD, ZE, ZF, and ZG) and two actuation logic subsystems (actuation channels ZA and ZB). These subsystems are located in cabinets oriented and labelled as shown in Figure 1.

On October 19, 1990, operations personnel restored power to the Unit 2 ESFAS cabinets, which had been de-energized for over a year. They noted several problems with the system, one of which involved a CRS signal being received in the actuation cabinets for no apparent reason. A CRS sensor module tripped light was lit on the actuation cabinet but no corresponding trip light was lit on any of the sensor cabinets. A lamp check verified that none of the lights were malfunctioning. The Senior Reactor Operator supervising the ESFAS power restoration wrote a Maintenance Request (MR) to initiate repair of the malfunction. Since CRS was not needed in the defueled condition nor would an inadvertent CRS significantly impact plant safety, he assigned the MR a relatively low priority and did not inform the Shift Supervisor of the particulars of the problem. He placed an MR tag on the ZB actuation cabinet to inform other personnel that CRS was now in a one-out-of-four logic condition.

On October 22, 1990, operations personnel powered down ESFAS sensor cabinet ZF to support some unrelated preventive maintenance work on an inverter. The cabinet was properly downpowered using the appropriate procedure. With power removed from the sensor cabinet, a trip signal was sent to the actuation cabinets, completing the two-out-of-four CRS trip logic, actuating CRS.

Operators in the Control Room verified that CRS had functioned properly and instructed the operators at the ESFAS cabinet to reset the CRS trips, which they did. This event is reportable under 10 CFR 50.73(a)(2)(iv) as an inadvertent ESF actuation. The duration of this event was approximately seven minutes.

II. CAUSE OF EVENT

The cause of the event was insufficient communication of plant status. The senior licensed operator who documented the spurious CRS in an MR did not inform the Shift Supervisor that CRS was in a one-out-of-four logic condition. Thus, this information did not get logged in the shift turnover log, which could have prevented the second group of operators from being sent to power down the sensor cabinet. The operator's reason for assigning a low MR priority and not communicating the CRS status was that CRS was not required in the defueled MODE,

and that adequate measures were in place to ensure restoring CRS to OPERABLE status prior to REFUELING.

An additional cause of this event was that the procedure for powering down the sensor cabinet did not require a check of both the sensor and logic cabinets for actuation indication as a prerequisite for working on them. The procedure contained a caution statement drawing attention only to the sensor cabinets. The operators saw no indication of the spurious signal on any of the sensor cabinets and did not check the logic cabinets, where an indication light was lit.

Contributing to this event was the spurious CRS signal which was caused by a malfunction of the channel ZD CRS sensor module.

III. ANALYSIS OF EVENT

CRS is provided to limit the release of radioactive fission products during refueling and maintenance periods. This is done by closing the containment purge isolation valves and stopping the containment purge air supply and exhaust fans upon receipt of a high radiation signal from two out of four area radiation monitors inside containment.

Operations personnel verified that CRS had stopped the fans and shut the appropriate valves. This challenge to CRS is not indicative of unreliability of ESFAS in performing its design function; did not have an adverse impact on the plant when it occurred; and, is not expected to result in degraded performance of ESFAS or the equipment ESFAS actuates.

Similarly, no other ESFAS actuation in the defueled condition would have had any safety significance. A safety injection actuation signal would have resulted in no water being injected into the Reactor Coolant System since the pumps it actuates were not available. A containment spray actuation signal would not have resulted in actuation of containment spray since the containment spray pumps were not available.

Based on the above, this event is not considered safety significant.

IV. CORRECTIVE ACTIONS

1. The malfunctioning channel ZD CRS sensor module has been replaced.

2. The details of this event will be reviewed with Operations personnel, with particular emphasis on the importance of avoiding potential ESFAS challenges at all times.

3. The procedure for downpowering the sensor cabinets will be revised to require a check for indication on all the sensor and logic cabinets as a prerequisite for working on them.

4. We will re-evaluate the adequacy of Operations procedures affecting logic cabinets.

V. ADDITIONAL INFORMATION

There have been 11 previous ESFAS actuations reported via LER. However, none of these have involved failure to communicate a known ESFAS degraded condition.

	IEEE 803 EIIS Funct	IEEE 805 System ID
Engineered Safety Features	N/A	JE
ESFAS Cabinet	CAB	JE
CRS Sensor Module	MOD	JE
Reactor Coolant System	N/A	AD
Containment Spray Pump	P	BE

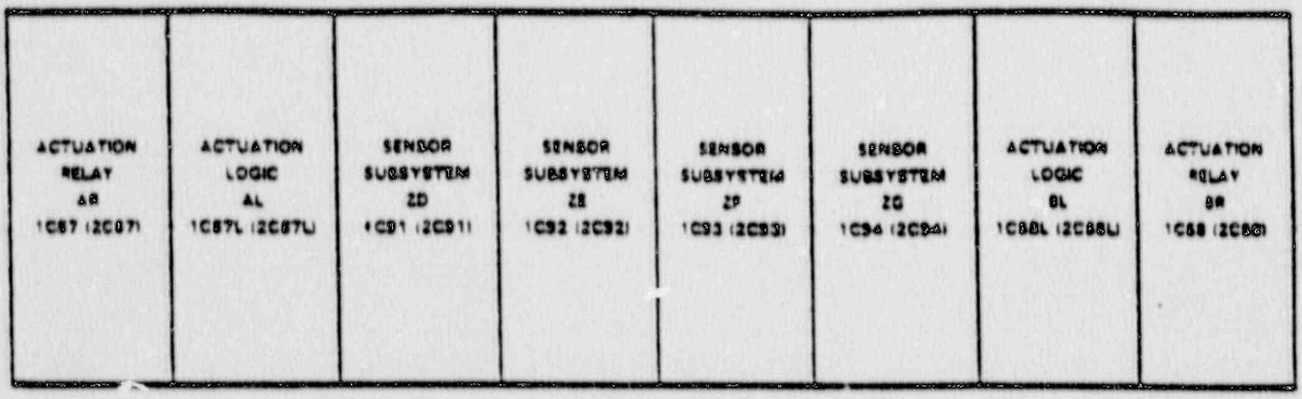

FIGURE 1

ESFAS CABINET ORIENTATION