

PETER E. KATZ
Plant General Manager
Calvert Cliffs Nuclear Power Plant

Baltimore Gas and Electric Company
Calvert Cliffs Nuclear Power Plant
1650 Calvert Cliffs Parkway
Lusby, Maryland 20657
410 495-4101

*A Member of the
Constellation Energy Group*



April 28, 2000

U.S. Nuclear Regulatory Commission
Washington, DC 20555

ATTENTION: Document Control Desk

SUBJECT: Calvert Cliffs Nuclear Power Plant
Unit No. 1; Docket No. 50-317; License No. DPR 53
Licensee Event Report 2000-004
Containment Radiation Signal Bypassed During Core Alterations

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

Very truly yours,

A handwritten signature in black ink that reads 'Peter Katz'. The signature is written in a cursive style with a large, prominent 'P' and 'K'.

PEK/DJM/bjd

Attachment

cc: R. S. Fleishman, Esquire
J. E. Silberg, Esquire
Director, Project Directorate I-1, NRC
A. W. Dromerick, NRC

H. J. Miller, NRC
Resident Inspector, NRC
R. I. McLean, DNR
J. H. Walter, PSC

Handwritten initials in black ink, possibly 'Katz', written in a cursive style.

NRC FORM 366 (6-1998)	U.S. NUCLEAR REGULATORY COMMISSION	APPROVED BY OMB NO. 3150-0104 EXPIRES 06/30/2001 Estimated burden per response to comply with this mandatory information collection request: 50 hrs. Reported lessons learned are incorporated into the licensing process and fed back to industry. Forward comments regarding burden estimate to the Records Management Branch (T-6 F33), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, and to the Paperwork Reduction Project (3150-0104), Office of Management and Budget, Washington, DC 20503. If an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.
LICENSEE EVENT REPORT (LER) (See reverse for required number of digits/characters for each block)		

FACILITY NAME (1) Calvert Cliffs Nuclear Power Plant, Unit 1	DOCKET NUMBER (2) 050000 317	PAGE (3) 1 OF 03
--	--	----------------------------

TITLE (4)
Containment Radiation Signal Bypassed During Core Alterations

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 NAME	DOCKET NUMBER
03	31	2000	2000	- 004	- 00	04	28	2000		050000
										050000

OPERATING MODE (9)	6	THIS REPORT IS SUBMITTED PURSUANT O THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)								
POWER LEVEL (10)	0		20.2201(b)		20.2203(a)(2)(v)	X	50.73(a)(2)(i)		50.73(a)(2)(viii)	
			20.2203(a)(1)		20.2203(a)(3)(i)		50.73(a)(2)(ii)		50.73(a)(2)(ix)	
			20.2203(a)(2)(i)		20.2203(a)(3)(ii)		50.73(a)(2)(iii)		73.71	
			20.2203(a)(2)(ii)		20.2203(a)(4)		50.73(a)(2)(iv)		OTHER	
			20.2203(a)(2)(iii)		50.36(c)(1)		50.73(a)(2)(v)		Specify in Abstract below	
			20.2203(a)(2)(iv)		50.36(c)(2)		50.73(a)(2)(vii)		or in NRC Form 366A	

LICENSEE CONTACT FOR THIS LER (12)	
NAME D. J. Moeller, Senior Engineer	TELEPHONE NUMBER (Include Area Code) 410-495-2061

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)										
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX

SUPPLEMENTAL REPORT EXPECTED (14)						EXPECTED SUBMISSION DATE (16)			
YES (If yes, complete EXPECTED SUBMISSION DATE).				X	NO		MONTH	DAY	YEAR

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

On March 31, 2000, during core alterations, a condition was discovered at Calvert Cliffs that is prohibited by Technical Specifications. Specifically, during Unit 1 core alterations, it was discovered that one containment radiation monitor sensor module was bypassed. The Technical Specifications require that if one radiation monitor sensor module or associated measurement channel is inoperable, the affected sensor module shall be placed in the trip condition within four hours. Core alterations were suspended in accordance with the Technical Specifications when the condition was discovered. The sensor module was restored to operable status before re-commencement of core alterations. Corrective actions included an immediate procedure change to require a check of the bypass switches for these sensors and a description of this event has been distributed to all licensed operators for required reading.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

FACILITY NAME (1)	DOCKET	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Calvert Cliffs Nuclear Power Plant, Unit 1	05000 317	00	- 004 -	00	02 OF 03

TEXT (If more space is required, use additional copies of NRC Form 366A) (17)

I. DESCRIPTION OF EVENT

On March 27, 2000, maintenance was performed on the Calvert Cliffs Unit 1 containment high range radiation monitoring system. The tag-out boundary required for the performance of this maintenance de-energized both the containment high range radiation monitoring system and 1-RI-5316C, containment area radiation monitor. Operations bypassed the "ZF" Engineered Safety Feature Actuation System (ESFAS) containment radiation signal (CRS) sensor module (associated with 1-RI-5316C), prior to the tag-out being done to support this maintenance. On March 30, 2000, the tag-out was modified to restore the power supply to 1-RI-5316C, containment radiation monitor. On March 31, 2000, Operations completed the Core Alterations Preparations checklist, which includes verification that the CRS is operable or meets the requirements of the Technical Specifications. The Technical Specifications require that if one radiation monitor sensor module or associated measurement channel is inoperable, the affected sensor module shall be placed in the trip condition within four hours. On March 31, 2000, at approximately 0920, core alterations were started. At approximately 1825, during a walk down of the ESFAS cabinets, a licensed operator discovered the "ZF" CRS was bypassed. Core alterations were immediately suspended in accordance with Technical Specification 3.3.7, Containment Radiation Signal (CRS). Core alterations were re-commenced at approximately 1945 after the "ZF" ESFAS CRS sensor module was restored to service.

II. CAUSE OF EVENT

The cause of the event has been determined to be human error. When the operator performed the operability verification of the four CRS containment radiation monitor sensor modules, the indications for the associated ESFAS CRS sensors showed all four were energized and indicating normally. The operator failed to notice that the "ZF" CRS sensor module was bypassed. The bypass feature essentially prevents a bypassed sensor channel's function logic input from changing to a trip signal input. Therefore, even though the input loop as displayed on the "ZF" CRS ESFAS sensor module indicated normally, this did not ensure that the Technical Specification 3.3.7 requirements were met.

III. ANALYSIS OF EVENT

The CRS provides protection from radioactive contamination in the Containment, in the event an irradiated fuel assembly should be severely damaged during handling. The CRS is designed to detect abnormal amounts of radioactive material in the Containment and will close the purge valves to limit the release of radioactivity to the environment. The CRS is actuated on a two-out-of-four coincidence from four containment radiation sensor channels. If one channel fails during core alterations and the purge valves are open, the Technical Specification requires that the affected channel be placed in the trip condition. With one channel in the trip condition, a single trip input to the CRS logic from any of the three remaining redundant channels monitoring containment radiation would provide the automatic mitigation of a radiation release. The affect of having "ZF" ESFAS sensor module in bypass during core alterations modified the system to actuate on a two-out-of-three coincidence.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

FACILITY NAME (1)	DOCKET	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Calvert Cliffs Nuclear Power Plant, Unit 1	05000 317	00	- 004 -	00	03 OF 03

TEXT (If more space is required, use additional copies of NRC Form 366A) (17)

If a fuel handling event had occurred when this sensor was bypassed, it is likely that two of the remaining three sensors would have actuated the CRS and closed the containment purge valves. If a fuel handling event had occurred with the purge valves open and the purge fans running, sufficient margin exists in the current fuel handling accident analysis to ensure that the offsite and Control Room doses would have remained within the current regulatory limits. In addition, if a fuel handling event had occurred, communication between the Control Room Operators and containment personnel would have alerted the operator to turn off the containment purge fans and close the purge valves. During the time the sensor was in bypass, no fuel handling event occurred.

Based on the above, we have concluded that this event had no actual adverse consequences to the health and safety of the public or plant personnel.

This event is considered reportable in accordance with 10 CFR 50.73(a)(2)(i)(B), any operation or condition prohibited by the plant's Technical Specifications.

IV. CORRECTIVE ACTIONS

- A. An Issue Report was initiated to document the Technical Specification violation.
- B. An immediate procedure change was made to the Core Alterations Preparations Checklist to require a check of the bypass switch.
- C. A description of the event has been distributed to all licensed operators for required reading.

V. ADDITIONAL INFORMATION

A. Affected Component Identification:

Component or System	IEEE 803 EIIIS Funct	IEEE 805 System ID
Containment Radiation Signal	RA	IK

B. Previous similar events:

A review of Calvert Cliffs' licensee event reports over the past several years was performed. The review did not identify any similar reportable events where the containment radiation signal was in bypass during core alterations.