BALTIMORE GAS AND ELECTRIC

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May 21, 1990

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

Docket No. 50-317
License No. DPR 53

Dear Sirs:

The attached LER 90-16, Revision 0, is being sent to you as required under 10 CFR 50.73.

Should you have any questions regarding this report, we would be pleased to discuss them with you.

Very truly yours,

R. E. Denton

JV/kn

cc: Thomas T. Martin
Director, Office of Management Information
and Program Control
Messrs: G. C. Creel
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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 1	0 5 0 0 0 3 1 7	1 OF 0 5

TITLE (4)

Waste Gas Decay Tank Mistakenly Discharged without Prior Sampling

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 4	2 1	9 0	9 0	0 1 6	0 0	0 5	2 1	9 0	Calvert Cliffs, Unit2	0 5 0 0 0 3 1 8
										0 5 0 0 0

OPERATING MODE (9)	1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
POWER LEVEL (10)	0 6 5	20.402(b)	20.405(c)	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)	X 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
John Volkoff, Compliance Engineer	AREA CODE 3 0 1 2 6 0 - 3 6 4 9

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	

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)

At 0030, on April 21, 1990, during shift change, an operator determined that Waste Gas Decay Tank (WGDT) #13 was being discharged instead of WGDT #11, for which a discharge permit had been issued. The discharge was stopped and #13 WGDT sampled to calculate the amount of radiological material released. It was determined that the release was within Technical Specifications. It was also determined that in the event of the limiting waste gas incident occurring, dose at the nearest exclusion area boundary would be within the 10CFR100 guideline value. At the time Unit-1 was operating (MODE 1) at 65% power, a temperature of 540 degrees F and a pressure of 2250 psia.

Inadequate communications between the Unit-1 (U-1) Control Room Operator and the U-1 Auxiliary Building Operator was the root cause of the event. Inadequate specific directions of Calvert Cliffs Instruction (CCI)-309, Locked Valves, contributed to the event.

Training will be performed for operators on this event emphasizing the importance of the use of formal communications. CCI-309 will be revised to provide more stringent administrative control of locked valve operation. An evaluation will be performed to determine if site wide requirements governing formality in communications are adequate.

I. DESCRIPTION OF EVENT

At 0030 on April 21, 1990, during shift change, an operator determined that Waste Gas Decay Tank (WGDT) #13 was being discharged instead of WGDT #11, for which a discharge permit had been issued. The discharge was stopped and #13 WGDT sampled to calculate the amount of radiological material released. We determined that the release was within TSs. At the time Unit-1 (U-1) was operating (MODE 1) at 65% power, a temperature of 542 degrees F, and a pressure of 2250 psia.

II. BACKGROUND

The WGDTs store waste gas from the plant to allow time for the radionuclides to decay. A WGDT is taken off service when the pressure in the tank reaches approximately 140 psia. The gas is discharged after the WGDT has been sampled and the activity of the gas has been determined. At 1800 on April 20, 1990, WGDT #11 was at 138 psia and WGDT #13 was at 142 psia.

At approximately 1800 on April 20, 1990, the supervisor, Plant Chemistry, delivered a waste gas release permit to the Operations Shift Supervisor. The permit was for the release of the contents of WGDT #11. The Shift Supervisor gave the permit to the Control Room Supervisor (CRS). The CRS gave it to the U-1 Control Room Operator (CRO) and directed him to discharge # 11 WGDT. At this time, #11 and #13 WGDTs were isolated and #12 WGDT was in service.

At 1830, the U-1 Auxiliary Building Operator (ABO) reported to the U-1 Reactor Operator that #13 WGDT pressure was at 142 psig, 2 psi above the high limit on the ABO logs. The ABO also reported that #12 WGDT was verified in service and asked that the information be passed on to the CRO.

At approximately 1915, the U-1 ABO called the U-1 CRO to verify that he had received the report about WGDT #12 being verified in service. During this conversation, the CRO noted that a release permit had been received for #11 WGDT and that the discharge would be done as time permitted. After the event, the ABO did not remember the specific WGDT to be discharged being mentioned in the conversation. The ABO believed that #13 WGDT was to be discharged based on its higher pressure which was greater than the maximum specified in his log. The WGDT to be discharged was not specified again in communications subsequent to this conversation.

At approximately 2145 the line up to discharge a WGDT was begun. The U-1 ABO reported to the U-1 CRO that he was ready to begin the line-up. The CRO directed the ABO to perform the applicable steps in Operating Instruction (OI)-17, Waste Gas System, for release, but the CRO thought that WGDT #11 was being discharged, while the ABO thought that WGDT #13 was to be discharged.

The step in OI-17B that opens the last valve in the line-up, starting the discharge, contains 3 valves. Each valve corresponds to a different WGDT. The U-1 ABO reported back to the CR that he had completed the step in OI-17B beginning the discharge, but did not specify which valve had been opened or which WGDT was being discharged. The U-1 ABO monitored the discharge locally to ensure the discharge was proceeding as he expected, which was for WGDT #13 pressure to decrease, which it did.

A valve deviation sheet was not used prior to the operation of the locked valves operated in OI-17B. This was procedurally permissible due to a weakness in Calvert Cliffs Instruction (CCI)-309, Locked Valves.

The WGDT pressure was not monitored in the Control Room (CR) because the U-2 Plant Computer, which provides the only signal to CR instruments that provide indications of WGDT pressures, was Out-of-Service (OOS).

At approximately 2325, the U-2 ABO, who was assisting the U-1 ABO, checked to see if a valve deviation sheet had been filled out for the locked valves operated in the discharge procedure. The U-2 ABO discovered that no sheet had been filled out and completed one for two of the valves operated in the procedure. The CRO checked the valve deviation sheet and found that one of the valves operated had not been entered on the sheet. He entered and initialed for the valve. However, he entered the valve for discharging from #11 WGDT. The U-1 ABO did not initial the valve deviation sheet.

While the next shift was taking the watch from the U-1 ABO, the oncoming ABO noted that at the shift briefing, #11 WGDT was reported as being discharged. The oncoming ABO determined that #13 WGDT was being discharged and informed the CR.

The release was terminated at 0030 and the Plant Chemistry Unit was notified. A release permit for #13 WGDT was completed based on sample results of the contents remaining in the #13 WGDT.

III. CAUSES

The root cause of this event was inadequate communications. The U-1 CRO identified that #11 WGDT was to be discharged during the shift in a conversation with the U-1 ABO. However, the identity of the WGDT to be discharged was never restated in subsequent communications relating to the release. The ABO did not repeat the order back when he received direction regarding which WGDT was to be discharged. The ABO assumed that the CRO wanted to discharge #13 WGDT, which he had previously reported as having a pressure above the normal limit. The CRO assumed that the ABO would discharge #11 WGDT based on the conversation that took place earlier in the shift.

CCI-309 governs the operation of locked valves to prevent their inadvertent operation. However, the procedure is primarily designed to ensure that locked valves are returned to their normal position. The procedure does not provide effective controls for positioning locked valves out of their normal position. CCI-309 is unclear as to when and how a valve deviation sheet should be used when taking locked valves out of their normal positions. As a result, a valve deviation sheet was not used prior to valve operation and the U-1 ABO did not initial the valve deviation sheet.

Contributing to the event was the lack of the WGDT pressure monitor in the Control Room because the U-2 computer was not operational.

IV. ANALYSIS

This event is reportable under 10 CFR 50.73(a)(2)(i)(B), an operation prohibited by the plants Technical Specifications (TS). TSs require that a sample be drawn from a WGDT prior to its discharge. A sample was not drawn prior to discharging #13 WGDT.

Based on calculations of the amount of radioactive gas released, the release was within TS limits.

Chapter 14.22 of the updated Final Safety Analysis Report analyzes a rupture of the waste gas decay tank to define the limit of the hazard that could result in any malfunction in the radioactive waste gas system. The maximum activity in any WGDT is assumed to occur shortly after a cold start up of one unit near the end of an operating cycle. It is also assumed that this unit has been operating for an extended period with one percent defective fuel and that all of the coolant is let down. The noble gases from one reactor coolant system volume are stored in one WGDT.

In the unlikely event of a rupture of the WGDT, the dose at the nearest exclusion zone boundary is a factor of 50 less than the 10CFR100 guideline value. Therefore, a WGDT rupture does not represent undue hazard to the public health or safety.

Under normal circumstances, the activity of the waste gas released from the WGDTs is at least two or three orders of magnitude less than the activity considered in the analyzed event. In accordance with Technical Specifications, the main vent radiation monitoring system was operating and readings were recorded every 15 minutes during this release. The main vent monitor alarm setpoints were set based on the discharge permit prepared for a WGDT #11. If the alarm setpoint had been reached, the release would have been secured. Thus, if a WGDT containing a substantially higher activity had been released by mistake, the alarm setpoint would have been reached and the release secured. These factors further mitigate the safety significance of this event.

V. CORRECTIVE ACTIONS

Shift Supervisors will review this event with their shifts, emphasizing the importance of formality in communications. Specifically, according to Operations Section policy, when communicating, directions given shall be clear, precise and component specific. The directions are to be repeated back in sufficient detail to ensure that they were understood.

An evaluation will be performed to determine if site wide requirements at Calvert Cliffs governing formality in communications are adequate.

CCI-309 will be revised to provide more stringent administrative control of locked valve operation.

OI-17B will be revised to require that during WGDT discharge either WGDT pressure be monitored in the Control Room or an alternate method be used to verify that the correct WGDT is being discharged.

VI. ADDITIONAL INFORMATION

A. Previous similar event.

No previous similar events involving inadvertent discharge of a WGDT have been noted at Calvert Cliffs.

B. Affected component identification.

Component	IEEE 805 System ID	IEEE 803 Component
WGDT	WE	TK
Valve	WE	VTV