



August 31, 1994

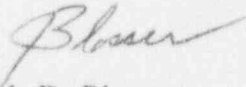
U. S. Nuclear Regulatory Commission  
Document Control Desk  
Washington, D. C. 20555

ULNRC-03059

Gentlemen:

**DOCKET NUMBER 50-483  
CALLAWAY PLANT UNIT 1  
FACILITY OPERATING LICENSE NPF-30  
LICENSEE EVENT REPORT 94-004-00  
FAILURE TO PROPERLY PERFORM SURVEILLANCE OF  
TECH SPEC 4.11.2.6 ON THE TOTAL CURIE CONTENT IN  
'E' GAS DECAY TANK DUE TO A COGNITIVE  
HUMAN PERFORMANCE ERROR**

The enclosed Licensee Event Report is submitted pursuant to 10CFR 50.73(a)(2)(i) concerning a failure to properly perform surveillance of Tech Spec 4.11.2.6 on the Total Curie Content in 'E' Gas Decay Tank due to a cognitive human performance error.

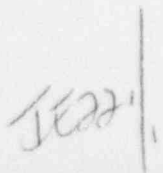
  
J. D. Blosser  
Manager, Callaway Plant

  
JDB/TPS/MAH/lrj

Enclosure

cc: Distribution attached

9409120316 940831  
PDR ADDCK 05000483  
S PDR



cc distribution for 111 ALC-03059

Mr. J. B. Martin  
Regional Administrator  
U. S. Nuclear Regulatory Commission  
Region III  
801 Warrenville Road  
Lisle, Illinois 60532-4351

Mr. L. Raynard Wharton (2 copies)  
Licensing Project Manager  
U. S. Nuclear Regulatory Commission  
OWFN - Mail Stop 13E21  
Washington, D. C. 20555

Manager, Electric Department  
Missouri Public Service Commission  
P. O. Box 360  
Jefferson City, MO 65102

Records Center  
Institute of Nuclear Power Operations  
700 Galleria Parkway  
Atlanta, GA 30339

Mr. Steve Wideman  
Supervisor, Licensing  
Wolf Creek Nuclear Operating Corporation  
P. O. Box 411  
Burlington, KS 66839

Mr. M. J. Farber  
Chief, Reactor Projects Section III A  
U. S. Nuclear Regulatory Commission  
Region III  
801 Warrenville Road  
Lisle, Illinois 60532-4351

Mr. Thomas A. Baxter  
Shaw, Pittman, Potts & Trowbridge  
2300 N. Street N.W.  
Washington, D.C. 20037

NRC Senior Resident Inspector

# LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) <b>Callaway Plant Unit 1</b>	DOCKET NUMBER (2) <b>0 5 0 0 0 4 8 3</b>	PAGE (3) <b>1 OF 6</b>
---	---	---------------------------

TITLE (4) <b>Failure to Properly Perform Surveillance of Tech Spec 4.11.2.6 on the Total Curie Content in 'E' Gas Decay Tank Due to a Cognitive Human Performance Error</b>
--

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)		
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV. NO.	MONTH	DAY	YEAR	FACILITY NAMES		DOCKET NUMBER(S)
0 8	0 1	9 4	9 4	0 0 4	0 0	0 8	3 1	9 4			0 5 0 0 0 0

OPERATING MODE (9) <b>1</b>	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR : (Check one or more of the following) (11)				
POWER LEVEL (10) <b>1 0 0</b>	<input type="checkbox"/> 20.402(b)	<input type="checkbox"/> 20.405(c)	<input type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> 73.71(b)	
	<input type="checkbox"/> 20.405(a)(1)(i)	<input type="checkbox"/> 50.36(c)(1)	<input type="checkbox"/> 50.73(a)(2)(v)	<input type="checkbox"/> 73.71(c)	
	<input type="checkbox"/> 20.405(a)(1)(ii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(vi)	OTHER (Specify in Abstract below and in Text, NRC Form 365A)	
	<input checked="" type="checkbox"/> 20.405(a)(1)(iii)	<input checked="" type="checkbox"/> 50.73(a)(2)(i)	<input type="checkbox"/> 50.73(a)(2)(vii)(A)		
	<input type="checkbox"/> 20.405(a)(1)(iv)	<input type="checkbox"/> 50.73(a)(2)(ii)	<input type="checkbox"/> 50.73(a)(2)(vii)(B)		
	<input type="checkbox"/> 20.405(a)(1)(v)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)		

LICENSEE CONTACT FOR THIS LER (12)		TELEPHONE NUMBER
NAME <b>T. P. Sharkey, Supervising Engineer, Site Licensing</b>		AREA CODE <b>3 1 4</b>
		<b>6 7 6 - 8 3 3 6</b>

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

SUPPLEMENTAL REPORT EXPECTED (14)				EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)				<input checked="" type="checkbox"/> NO			

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

On 8/15/94, the Radwaste Supervisor reviewing the Total Curie Content analysis result for the in-service 'E' Gas Decay Tank (GDT) taken that day, noted that the activity had steadily decreased over the last three weekly samples. Chemistry supervision was notified. On 8/16/94, a Chemistry Supervisor found that the three Chemistry technicians who had sampled the 'E' GDT on the sample dates had not opened HA-V-0109 (GDT Sample Header Bypass Throttle Valve) as required by the sampling procedure. Thus, Technical Specification surveillance 4.11.2.6, sampling of the in-service GDT, was improperly performed on 8/1/94, 8/8/94, and 8/15/94. The plant was in Mode 1 - Power Operations at 100% reactor power at the time of discovery.

A plant modification, performed in April 1992, changed the configuration of the GDT sample lines from requiring HA-V-0109 closed to open while taking a sample. A review of the GDT data was conducted back to the time of modification. Six additional sample surveillances were identified to be potentially in error due to their documented low activity levels. It is not possible to determine absolutely if these samples were correct due to the impact of variable plant conditions on the activity within the GDTs.

The root cause of this event is a cognitive human performance error. Corrective actions include: 1) counseling of the supervisors and technicians; 2) review of the event and appropriate sampling requirements by all Chemistry technicians; 3) moving the sole responsibility for the surveillance to Chemistry; 4) consolidating sample guidance into one procedure; and 5) evaluating the use of a device on the line to verify flow to the sample container.

# LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="3">LER NUMBER (6)</th> <th colspan="2">PAGE (3)</th> </tr> <tr> <td style="width: 10%;">YEAR</td> <td style="width: 10%;">SEQUENTIAL NUMBER</td> <td style="width: 10%;">REV NO.</td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> </tr> </table>	LER NUMBER (6)			PAGE (3)		YEAR	SEQUENTIAL NUMBER	REV NO.			
LER NUMBER (6)			PAGE (3)										
YEAR	SEQUENTIAL NUMBER	REV NO.											
Callaway Plant Unit 1	0   5   0   0   0   4   8   3	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>9   4</td> <td>-</td> <td>0   0   4</td> <td>-</td> <td>0   0</td> </tr> </table>	9   4	-	0   0   4	-	0   0	0   2 OF 0   6					
9   4	-	0   0   4	-	0   0									

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

## BASIS FOR REPORTABILITY:

Technical Specification (T/S) weekly surveillance 4.11.2.6, sampling of the in-service 'E' Gas Decay Tank (GDT)<sup>(1)</sup>, was improperly performed three times between 8/1/94 and 8/15/94. The surveillance ensures that an on-line tank does not exceed 2.5 E05 Curies (Ci) noble gases. This event is reportable per 10CFR50.73(a)(2)(i)(B) as a condition prohibited by the plant's T/Ss.

## PLANT CONDITION AT TIME OF DISCOVERY:

Mode 1 - Power Operations.

100% Reactor Power

## DESCRIPTION OF EVENT:

On 8/15/94, the Radwaste Supervisor reviewing the Total Curie Content analysis result for the in-service 'E' GDT (THA01E) taken that day, noted that the activity had steadily decreased over the last three weekly samples (7/25/94 - 72 Ci, 8/1/94 - 9 Ci, 8/8/94 - 4 Ci, and 8/15/94 - 3 Ci). This information was given to the Hot Lab Chemistry Supervisor who concluded that steadily decreasing activity in an in-service GDT over a three week period was indicative of improper sampling.

On 8/16/94, the Chemistry Supervisor asked the three Chemistry technicians who had sampled the 'E' GDT on 8/1/94, 8/8/94, and 8/15/94 if they had opened HA-V-0109 (GDT Sample Header Bypass Throttle Valve)<sup>(2)</sup> as required by CTP-ZZ-01114, "Sampling of Primary and Radwaste Bomb Sample Points." Each technician stated that the valve is normally open and they did not verify the valve to be open when sampling. HA-V-0109 was found in the closed position on 8/16/94. When a valid sample was drawn, 62 Ci of activity was found in the 'E' GDT. This sample confirmed that HA-V-0109 had been closed for the samples taken on 8/1/94, 8/8/94, and 8/15/94, and thus the 'E' GDT had not been sampled correctly.

# LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;">YEAR</td> <td style="width: 10%;">SEQUENTIAL NUMBER</td> <td style="width: 10%;">REV NO.</td> </tr> <tr> <td>94</td> <td>004</td> <td>00</td> </tr> </table>	YEAR	SEQUENTIAL NUMBER	REV NO.	94	004	00	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;">PAGE (3)</td> <td style="width: 10%;">OF</td> <td style="width: 10%;">OF</td> </tr> <tr> <td>03</td> <td>0</td> <td>6</td> </tr> </table>	PAGE (3)	OF	OF	03	0	6
YEAR	SEQUENTIAL NUMBER	REV NO.													
94	004	00													
PAGE (3)	OF	OF													
03	0	6													
Callaway Plant Unit 1	05000483														

TEXT (If more space is required, use additional NRC Form 388A's)(17)

A plant modification (#91-1027), performed in April 1992, replaced the GDT common sample header with individual sample lines to each of the tanks. Valve HA-V-0109 was required to be closed while taking the sample before the modification (Figure 1). After the modification, the valve was required to be open to obtain a representative sample (Figure 2). A review of the sample data was performed since the modification. Six sample surveillances were identified to be potentially in error due to their documented low activity levels. The sample dates identified are: 7/27/92 - 9 Ci, 8/11/92 - 18 Ci, 8/17/92 - 9 Ci, 2/21/94 - 6 Ci, 3/14/94 - 52 Ci, and 3/21/94 - 49 Ci. It is not possible to determine absolutely if these samples were correct due to the impact of variable plant conditions on the activity within the GDTs.

## ROOT CAUSE:

The root cause of this event is a cognitive human performance error. The Chemistry technicians failed to follow procedure in that isolation valve HA-V-0109 was not opened or verified open per step 4.3.6 of procedure CTP-ZZ-01114, due to assuming the valve was already open.

## CONTRIBUTING FACTORS:

1. These technicians were conditioned to expect the valve to be open because the sample procedure, CTP-ZZ-01114, does not close the valve upon completion of the sample and because it had been open on previous samples. With HA-V-0109 open, the sample header is connected to the suction of the waste gas compressor which discharges back to the gas decay tanks.
2. The Chemistry and Radwaste Supervisors responsible for reviewing the 8/1/94 sample analysis data failed to recognize anomalous sample results and properly investigate.
3. The surveillance is a joint effort by both Chemistry and Radwaste. The required use of multiple procedures and departments (three Chemistry procedures and two Radwaste procedures) contributed to the discrepancy in valve line-up. The lack of complete ownership of the surveillance by the Chemistry Department led to a less sensitive data review by the responsible supervisor. The unlikely potential of approaching the T/S Limiting Condition for Operation (LCO) of 2.5 E05 Ci, led the Radwaste Supervisor to being less sensitive to changes in the magnitude of tank activity.
4. This sample is unique due to the fact that there is no mechanism to verify proper collection of the sample. There is no flow indication on the sample line to confirm sample.

# LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)		
Callaway Plant Unit 1	0 5 0 0 0 4 8 3 9 4 - 0 0 4 - 0 0	YEAR	SEQUENTIAL NUMBER	REV NO.	PAGE	OF	PAGES
					0 4	0 6	

TEXT (If more space is required, use additional NRC Form 365A's)(17)

## CORRECTIVE ACTIONS:

1. The responsible technicians will be counseled on their failure to follow procedure and lack of attention to detail. This event and appropriate sampling requirements will be reviewed with all Chemistry technicians. The incident has been reviewed with the Chemistry Supervisors.
2. Responsibility for this surveillance will be assigned to the Chemistry Department. Procedure guidance will be consolidated into one procedure. Results will be trended to ensure early identification of problems.
3. Chemistry will evaluate use of a flow indicator, or other device on the line to verify flow to the sample container.

## SAFETY SIGNIFICANCE:

The GDTs receive waste gas from the Reactor Coolant System (RCS) via the Volume Control Tank<sup>(3)</sup>. Samples of the reactor coolant gas are taken three times a week. Activity in the in-service GDT is a function of RCS activity. No spikes or abnormal increases in RCS activity occurred during the period of the missed samples. In addition, the maximum activity previously contained in a GDT has never been more than 2455 Ci. This in combination with the results of the properly collected follow-up samples indicate that radioactivity contained in the tanks never exceeded a small fraction (approximately .98%) of the T/S LCO (2.5 E05 Ci). Samples for discharge of GDT's were not affected by the circumstances of this event since different procedural steps and a different sample rig with an installed flowmeter are used for sampling before the gas is released to the environment. Based on this, there was no threat to the public health or safety.

## PREVIOUS OCCURRENCES:

None.

# LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REV NO.			
Callaway Plant Unit 1	0 5 0 0 0 4 8 3	9 4	- 0 0 4	- 0 0	0 5	OF	0 6

TEXT (If more space is required, use additional NRC Form 366A's)(1-7)

## FOOTNOTES:

The system and component codes listed below are from IEEE Standard 805-1984 and 803A-1984, respectively.

- (1) System - WE, Component - TK
- (2) System - WE, Component - V
- (3) System - CB, Component - TK



# LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)

DOCKET NUMBER (2)

LER NUMBER (6)

PAGE (3)

Callaway Plant Unit 1

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

0 5 0 0 0 4 8 3 9 4 0 0 4 0 0 0 6 0 6

YEAR  
SEQUENTIAL  
NUMBER

REV  
NO.

## AFTER MODIFICATION

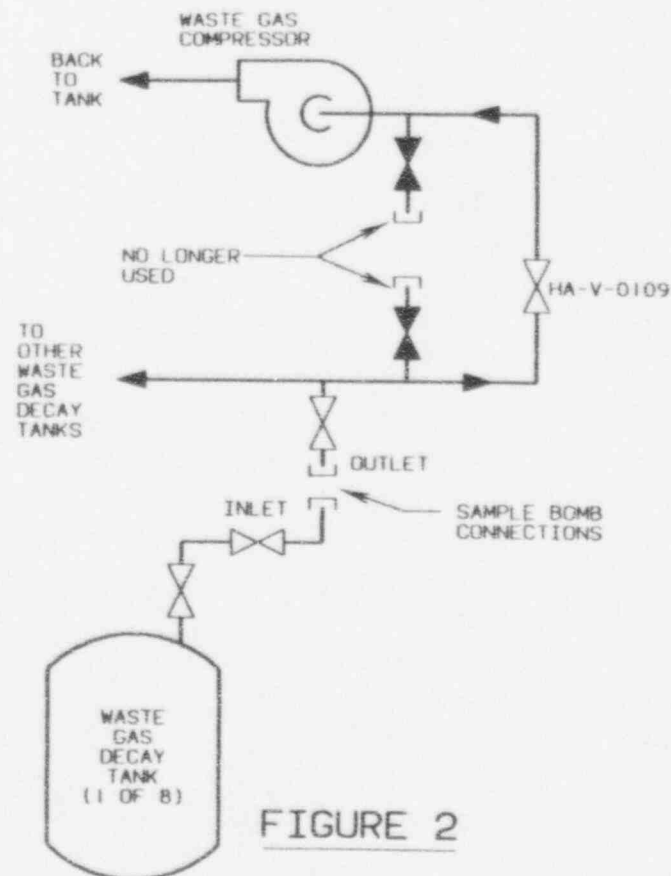


FIGURE 2

## PRIOR TO MODIFICATION

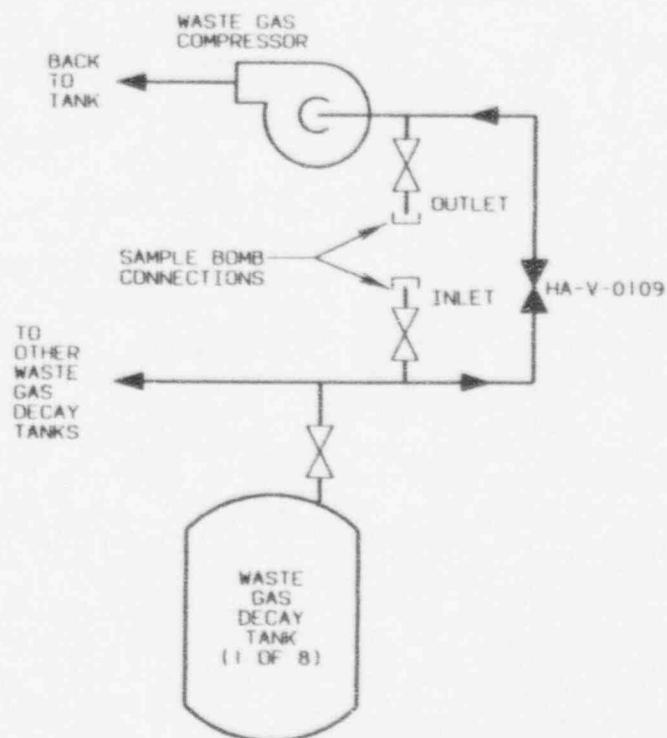


FIGURE 1