

TENNESSEE VALLEY AUTHORITY

Browns Ferry Nuclear Plant  
Post Office Box 2000  
Decatur, Alabama 35609-2000

August 18, 1989

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

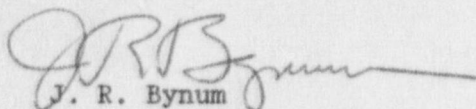
Dear Sir:

TVA - BROWNS FERRY NUCLEAR PLANT (BFN) UNIT 2 - DOCKET NO. 50-260 - FACILITY  
OPERATING LICENSE DPR-52 - REPORTABLE OCCURRENCE REPORT BFRO-50-260/89024

The enclosed report provides details concerning a contract engineer entering a  
high radiation area without proper dose monitoring equipment. This report is  
submitted in accordance with 10 CFR 50.73 (a)(2)(i).

Very truly yours,

TENNESSEE VALLEY AUTHORITY



J. R. Bynum  
Vice President  
Nuclear Power Production

Enclosures

cc (Enclosures):

Regional Administration  
U.S. Nuclear Regulatory Commission  
Office of Inspection and Enforcement  
Region II  
101 Marietta Street, Suite 2900  
Atlanta, Georgia 30303

INPO Records Center  
Suite 1500  
1100 Circle 75 Parkway  
Atlanta, Georgia 30339

NRC Resident Inspector, BFN

8908220383 890818  
FDR ADOCK 05000260  
S FDC

TE22  
11

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) <b>BROWNS FERRY UNIT 2</b>	DOCKET NUMBER (2) <b>0 5 0 0 0 2 6 0</b>	PAGE (3) <b>1 OF 0 4</b>
---	---	-----------------------------

TITLE (4)  
**CONTRACT ENGINEER ENTERED HIGH RADIATION AREA WITHOUT PROPER DOSE MONITORING EQUIPMENT DUE TO PERSONNEL ERROR**

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)
<b>0 7</b>	<b>1 8</b>	<b>8 9</b>	<b>8 9</b>	<b>0 2 4</b>	<b>0 0</b>	<b>0 8</b>	<b>1 8</b>	<b>8 9</b>				<b>0 5 0 0 0</b>
												<b>0 5 0 0 0</b>

OPERATING MODE (9) <b>N</b>	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more of the following) (11)									
POWER LEVEL (10) <b>0 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"/> 50.38(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"/> 50.38(c)(2)	<input type="checkbox"/> 50.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)						
	<input type="checkbox"/> 20.405(a)(1)(iii)	<input checked="" type="checkbox"/> 50.73(a)(2)(ii)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)							
	<input type="checkbox"/> 20.405(a)(1)(iv)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(viii)(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)

NAME <b>Alan W. Gordon, Engineer, and Stephen C. Willard, Engineer, Plant Assessment Section</b>	TELEPHONE NUMBER AREA CODE: <b>2 0 5</b> <b>7 1 2 9 - 1 2 5 3 6</b>
---	---

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)

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

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

On July 18, 1989, at 1820 hours, a contract engineer was found alone inside a high radiation area posted around the Unit 2 fuel pool cooling heat exchangers. Contrary to the high radiation area entry requirements of the radiation work permit (RWP) and Technical Specification 6.8.3.1, the engineer did not have in his possession a dose warning device, a dose rate instrument, nor was he accompanied by anyone who had one of these devices in their possession. The individual received a 30 millirem dose during the entry from 1740 to 1830 hours. Discussion with the individual indicated that he worked in the same area the previous day and had not obtained a dose warning device for that entry either. Subsequently, the individual's TLD was processed and he was assigned a total dose for the quarter of 145 millirems.

Units 1 and 3 were defueled and Unit 2 was in cold shutdown during this event.

The worker failed to pay proper attention and comply with the requirements on the RWP. The area was properly posted, and the RWP contained all the necessary information for the individual to perform his job and not violate any requirements. A new RWP form put into effect on July 17, 1989, may have been a contributing cause. Based upon a random sampling of workers in the radiologically controlled area, there is no indication of a general lack of understanding of RWP requirements. Following this incident, the individual's Health Physics general training and protected area access were revoked to prevent his entry into the radiologically controlled area.



LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)  BROWNS FERRY UNIT 2	DOCKET NUMBER (2)  0   5   0   0   0   2   6   0	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
		8   9	-   0   2   4	-   0   0	0   2	OF 0   4

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

Description of Event

On July 18, 1989 at 1820 hours, a contract engineer was found alone inside a high radiation area posted around the unit 2 fuel pool cooling (FPC) (EIIS code DA) heat exchangers (HX) without a continuous reading dose rate warning device. The unit 2 reactor building elevation 621' FPC heat exchanger area has dose rates in excess of 100 millirems per hour (mR/hr). Browns Ferry Technical Specification (TS) 6.8.3.1, requires that any individual or group of individuals permitted to enter the area shall be provided with, or accompanied by, one or more of the following:

- a. A radiation monitoring device which continuously indicates the radiation dose rate in the areas.
- b. A radiation monitoring device which continuously integrates the radiation dose rate in the area and alarms when a preset integrated dose is received. Entry into such areas with this monitoring device may be made after the dose rate level in the areas has been established and personnel have been made knowledgeable of them.
- c. An individual qualified in radiation protection procedures who is equipped with a radiation dose rate monitoring device. This individual shall be responsible for providing positive control over the activities within the area and shall perform periodic radiation surveillances at the frequency specified by the facility Health Physicist in the Radiation Work Permit (RWP).

Contrary to the high radiation area entry requirements of the RWP and TS 6.8.3.1, the engineer did not have in his possession a digital alarming dosimeter (DAD), a dose rate instrument, nor was he accompanied by anyone who had one of these devices in their possession. A plant Radiation Control (RADCON) technician (utility, non-licensed) passing near the unit 2 FPC heat exchanger area noted that the worker was standing between the heat exchangers and asked what his DAD was reading. When the worker replied that he did not have a DAD, the technician knew he was in violation of the RWP requirements. The individual was immediately directed to leave the contaminated zone and subsequently the radiologically controlled area. The individual was properly signed on the RWP timesheet from 1740 hours to 1830 hours, and he received a 30 millirem dose during this entry.

Units 1 and 3 were defueled and unit 2 was in cold shutdown during this event.

Cause of Event

The contract engineer failed to pay proper attention to and comply with the requirements stated on the RWP. The RWP contained the requirement of individuals entering posted high radiation areas to have a "dose warning device."

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)  BROWNS FERRY UNIT 2	DOCKET NUMBER (2)  0 5 0 0 0 2 6 0	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		8 9	- 0 2 4	- 0 0	0 3	OF	0 4

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

Cause of Event (continued)

The worker, who had entered the area for structural inspections, did not use the high radiation area posting at the FPC heat exchanger area boundary nor the RWP to determine the requirement for the dose warning device. He instead, indicated that the dose rate fields greater than 100 mR/hr, marked on the radiological survey map, were used as his guidance. Additionally, a new RWP form put into effect on July 17, 1989, presented requirements in a different format which may have added to his confusion. The same individual entered the same area earlier in the month and used a DAD on that occasion.

The entire unit 2 FPC heat exchanger area was properly posted as a high radiation area. Based upon a random sampling of workers in the radiologically controlled area, there is no indication of a general lack of understanding of RWP requirements for work in high radiation areas or of RWP survey maps. The RWP form contained all the necessary information for the individual to perform his job and not violate the RWP or TS requirements.

Corrective Action

Upon exit from the high radiation area the worker's pocket chamber dosimeter reading was recorded. After properly processing through a Beta Max frisker (RA) and getting dressed, the worker reported to the RADCON lab to review the RWP requirements.

An incident investigation was conducted, and a radiological incident report was prepared for the event. The individual's thermoluminescent dosimeter (TLD) badge was pulled and read. The individual's Health Physics general training and protected area access were revoked to prevent his entry into the radiologically controlled area. Site management does not expect to reinstate security clearance for the worker.

RADCON shift coverage is amply provided to resolve any confusion about RWP requirements before entering radiation or contaminated areas. No further corrective actions are planned.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)  BROWNS FERRY UNIT 2	DOCKET NUMBER (2)  0 5 0 0 0 2 6 0	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		8 9	- 0 2 4	- 0 0	0 4	OF	0 4

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

Analysis of Event

The unit 2, elevation 621' FPC heat exchanger area is a high radiation area with the maximum whole body dose rate of 110 mR/hr. Under the criteria of 10 CFR 50.73(a)(2)(i)B, this event is reportable as a violation of plant TS 6.8.3.1. Although this event violated RWP and TS requirements, the individual did not approach any dose limits. The individual's exposure time was less than one hour and his pocket dosimeter indicated that he received 30 millirems while in the area. Subsequent to this incident the individual's TLD was processed and he was assigned a total dose for the quarter of 145 millirems.

Previous Similar Events

It was subsequently determined that the same individual worked in the unit 2 FPC heat exchanger area the previous evening also without a DAD. The last similar event occurred in 1983 when a RADCON technician carrying a survey meter strayed from other individuals in the group he accompanied. The corrective action for that event was the requirement for individual DADs for each person.

Commitments

All corrective actions were completed by July 24, 1989. There are no commitments.



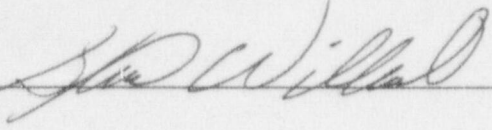
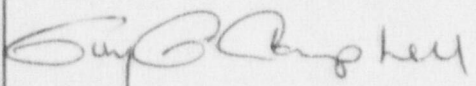
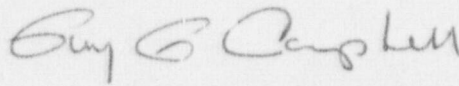

CONCURRENCE SHEET

DOCUMENT NAME: LER 260/89024

ORIGINATING ORG: Browns Ferry Nuclear Plant

DOCUMENT PREPARED BY: Stephen C. Willard DATE: \_\_\_\_\_

ACCESSION NO.: \_\_\_\_\_

CONCURRENCES		
NAME	SIGNATURE - COMMENT	DATE
Preparer <u>Steve Willard</u>		<u>8-10-89</u>
Reviewer <u>Larry Newman</u>	<u>Larry Newman</u>	<u>8/11/89</u>
PORC Chairman		<u>8/14/89</u>
Plant Manager		<u>8/14/89</u>
Site Director		<u>8/15/89</u>

Instructions

- After each individual concurs, check a or b.  
 a. forward to next individual  
 b. contact this person \_\_\_\_\_ EXTENSION \_\_\_\_\_
- When concurrences are complete, forward to \_\_\_\_\_  
 EXTENSION \_\_\_\_\_
- Other instructions.

8/15/89