

# ADAMS DETAILED DISTRIBUTION CODE LISTING

DATE: 11/3/1999 PAGE: 132

DISTRIBUTION CODE: IE22

50.73/50.9 Licensee Event Report (LER), Incident Rpt, etc.

Distribution Type	Distribution Recipient
A	PD
A	PM
I	ACRS
I	FILE CENTER
I	NRR/DIPM/IOLB
I	NRR/DRIP/REXB
I	NRR/DSSA/SPLB
I	RES/DET/ERAB
I	RES/DRAA/OERAB
I	RGN...FILE 01
X	L ST LOBBY WARD
X	LMITCO MARSHALL
X	NOAC POORE,W.
X	NOAC QUEENER,DS
X	NRC PDR



Tennessee Valley Authority, Post Office Box 2000, Decatur, Alabama 35609-2000

November 23, 1999

10 CFR 20.2203

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

Dear Sir:

In the Matter of	)	Docket Nos. 50-259
Tennessee Valley Authority	)	50-260
		50-296

**BROWNS FERRY NUCLEAR PLANT (BFN) - 1981 OVEREXPOSURE OF A MINOR**

The enclosed special report provides details concerning a minor individual who received 140 mrem whole body dose during a calendar quarter in 1981. This dose was in excess of the 125 mrem quarterly limit for minors specified in 10 CFR 20.104(a) which was in effect at the time.

TVA is submitting this 30-day special report in accordance with the provisions of 10 CFR 20.2203. Attachment A provides required information pursuant to 10 CFR 20.2203(b)(2) and should be distributed on a need to know basis. In addition, a copy of this report is being provided to the individual as required by 10 CFR 20.2205.

If there are any questions, please contact me at (256) 729-2636.

Sincerely,

*[Handwritten Signature]*  
T. E. Abney,  
Manager Site Licensing  
and Industry Affairs

cc: See page 2

Add:  
LIRR/DIPM/EPHF  
RES/DRAA/RPER/WMP

*IED2*

Change:

L ST Lobby Ward	
LMITCO MARSHALL	
NOAC POORE, W	
NOAC QUEENER, DS	
LIRR PDR	

to	encl
1	1 w/opp
"	"
"	"
"	"
"	"

U.S. Nuclear Regulatory Commission  
Page 2  
November 23, 1999

Enclosure

cc (Enclosure):

Mr. William O. Long, Senior Project Manager  
U.S. Nuclear Regulatory Commission  
One White Flint, North  
11555 Rockville Pike  
Rockville, Maryland 20852

Mr. Paul E. Fredrickson, Branch Chief  
U.S. Nuclear Regulatory Commission  
Region II  
61 Forsyth Street, S. W.  
Suite 23T85  
Atlanta, Georgia 30303

NRC Resident Inspector  
Browns Ferry Nuclear Plant  
10833 Shaw Road  
Athens, Alabama 35611

**LICENSEE EVENT REPORT (LER)**

(See reverse for required number of digits/characters for each block)

<b>FACILITY NAME (1)</b> Browns Ferry Nuclear Plant	<b>DOCKET NUMBER (2)</b> 05000259	<b>PAGE (3)</b> 1 of 5
--	--------------------------------------	---------------------------

**TITLE (4)**  
An overexposure of a minor in the third quarter of 1981 due to an incorrect year in the date of birth.

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
10	29	99	1999	-- R001	-- 00	11	23	1999	Unit 2	05000260
									Unit 3	05000296

<b>OPERATING MODE (9)</b> 5	<b>THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)</b>									
<b>POWER LEVEL (10)</b> 000	<input type="checkbox"/>	20.2201(b)	<input type="checkbox"/>	20.2203(a)(2)(v)	<input type="checkbox"/>	50.73(a)(2)(i)	<input type="checkbox"/>	50.73(a)(2)(viii)		
	<input type="checkbox"/>	20.2203(a)(1)	<input type="checkbox"/>	20.2203(a)(3)(i)	<input type="checkbox"/>	50.73(a)(2)(ii)	<input type="checkbox"/>	50.73(a)(2)(x)		
	<input type="checkbox"/>	20.2203(a)(2)(i)	<input type="checkbox"/>	20.2203(a)(3)(ii)	<input type="checkbox"/>	50.73(a)(2)(iii)	<input type="checkbox"/>	73.71		
	<input checked="" type="checkbox"/>	20.2203(a)(2)(ii)	<input type="checkbox"/>	20.2203(a)(4)	<input type="checkbox"/>	50.73(a)(2)(iv)	<input checked="" type="checkbox"/>	OTHER SPECIAL REPORT	Specify in Abstract below or in NRC Form 366A	
<input type="checkbox"/>	20.2203(a)(2)(iii)	<input type="checkbox"/>	50.36(c)(1)	<input type="checkbox"/>	50.73(a)(2)(v)					
<input type="checkbox"/>	20.2203(a)(2)(iv)	<input type="checkbox"/>	50.36(c)(2)	<input type="checkbox"/>	50.73(a)(2)(vii)					

<b>LICENSEE CONTACT FOR THIS LER (12)</b>										
<b>NAME</b> James E. Wallace Jr., Site Licensing Engineer						<b>TELEPHONE NUMBER (Include Area Code)</b> (256) 729-7874				

<b>COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)</b>										
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS

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

**ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)**  
In accordance with the provisions of 10 CFR 20.2203, TVA is submitting this 30-day special report. On October 29, 1999, a radiation overexposure (15 mrem) to a minor (less than 18 years of age) in excess of the 10 CFR 20.104(a) limit(125 mrem) during the third quarter of 1981, was discovered.

In 1981, the requirements of 10 CFR 20.104 were in effect for exposure to minors. The requirements of 10 CFR 20.101(a) specified, in part, that rem per calendar quarter to whole body, head and trunk, active blood-forming organs, lens of eyes, or gonads should be limited to 1250 mrem for individuals in restricted areas. However, 10 CFR 20.104(a) established how licensees should control licensed material in such a manner as not to cause an individual under 18 years of age to receive in any period of one calendar quarter a dose in excess of 10 percent of the limits specified in 10 CFR 20.101(a). Therefore, no minor was allowed to receive a whole body dose greater than 125 mrem in any calendar quarter.

In the third quarter of 1981, an individual younger than 18 years of age received 140 mrem whole body dose, which is 15 mrem in excess of the 125 mrem limit of 10 CFR 20.104(a). The cause for the overexposure was an incorrect date of birth provided on the inprocessing TLD badge issue report, which depicted the individual's age as 18 years old. Corrective actions to preclude recurrence include: (1) dates of birth will be verified using a picture identification, and (2) Individuals under the age of 18 may not enter the radiological control area. No significant somatic effects are expected from the 15 mrem overexposure.

**LICENSEE EVENT REPORT (LER)**  
**TEXT CONTINUATION**

FACILITY NAME (1)	DOCKET	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION	
Browns Ferry Nuclear Plant	05000259	1999 --	R001 --	00	2 of 5

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

**II. DESCRIPTION OF EVENT**

**A. Event:**

In 1981, the requirements of 10 CFR 20.104 were in effect for exposures to minors. The requirements of 10 CFR 20.101 (a) specified, in part, that rem per calendar quarter to whole body, head and trunk, active blood-forming organs, lens of eyes, or gonads should be limited to 1250 mrem for individuals in restricted areas. However, 10 CFR 20.104(a) established how licensees should control licensed material in such a manner as not to cause an individual under 18 year of age to receive in any period of one calendar quarter a dose in excess of 10 percent of the limits specified in 10 CFR 20.101(a). Therefore, no minor was allowed to receive a dose greater than 125 mrem in any calendar quarter. In the third quarter of 1981, an individual younger than 18 years of age received 140 mrem which is in excess of the 125 mrem limit of 10 CFR 20.104(a).

On June 18, 1981, an individual (Contractor) was issued a visitor TLD badge (81804) and monitoring of the individual's dose began. At the end of the month the individual's TLD badge was processed and his deep (whole body) dose was 0.000 mrem (in 1981, it was TVA's practice to issue TLDs monthly). On July 1, 1981, he was issued another TLD. On July 18, 1981, the individual lost the issued TLD. An investigation report (81347) was performed. Since the TLD was lost, the individual's accrued dose was estimated based on recorded pocket chamber values. The pocket chamber values indicated a dose of 50 mrem. He was issued another TLD. This TLD was processed at the end of July and indicated a dose of 56 mrem. A new TLD was issued. On August 8, 1981, the individual terminated employment at BFN. His TLD was processed with a dose of 34 mrem recorded.

On August 1, 1982, the individual was rehired at BFN. At this time, records show his date of birth to be June 13, 1964. On August 17, 1982, the individual again terminated employment at BFN. His TLD was processed with a dose of 72 mrem recorded.

The first three TLDs issued to the individual were apparently issued in 1981 by three different security officers. There was a block on the TLD issue forms to include the individual's date of birth. On all three forms, the birth year was recorded as 1963 and not 1964 (later determined to be the correct birth year). Consequently, the individual was presumed to be 18 years of age (an adult).

**Dates and Approximate Times of Major Occurrences:**

June 18, 1981

A contractor individual was issued a visitor TLD badge (81804) and monitoring began. Birth date on TLD issue form was recorded as . . . . .

July 18, 1981

The individual lost issued TLD. An investigation report (81347) was performed. Dose was estimated based on recorded pocket chamber values. A new TLD was issued.

**LICENSEE EVENT REPORT (LER)**  
**TEXT CONTINUATION**

FACILITY NAME (1)	DOCKET	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION	
Browns Ferry Nuclear Plant	05000259	1999	RO01	00	3 of 5

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

August 8, 1981	The individual terminated employment at BFN.
August 1, 1982	The individual was rehired at BFN. At this time, records show date of birth
August 17, 1982	The individual again terminated employment at BFN.
October 29, 1999	TVA discovered that an overexposure to a minor occurred in 1981.

**E. Method of Discovery**

In October 1999, during an ongoing TVA exposure record reconciliation project, the exposure to this individual was discovered.

**III. CAUSE OF THE EVENT**

**A. Immediate Cause**

An incorrect date of birth year (1963 instead of 1964) was recorded on forms prior to issuing a TLD on three separate occasions. The initial birth date recorded indicated that the individual was over 18 years of age in 1981. His radiation exposure was controlled under the requirements for an adult, when, in fact, the individual was a minor.

**B. Root Cause**

The root cause of this overexposure was a failure to verify the individual's date of birth.

**IV. ANALYSIS OF THE EVENT**

The average annual natural background dose from different types of radiation sources to an individual in the U.S. population is 295 mrem. This dose far exceeds the overexposure of 15 mrem to the individual described in this event. Therefore, this event did not have a significant somatic effect on the individual.

**V. CORRECTIVE ACTIONS**

**A. Immediate Corrective Actions**

A problem evaluation report was initiated to investigate the individual's overexposure and to track identified corrective actions.

**LICENSEE EVENT REPORT (LER)**  
**TEXT CONTINUATION**

FACILITY NAME (1)	DOCKET	LER NUMBER (6)			PAGE (3)
Browns Ferry Nuclear Plant	05000259	YEAR	SEQUENTIAL NUMBER	REVISION	4 of 5
		1999 --	R001 --	00	

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

**B. Corrective Actions to Prevent Recurrence**

Corrective action to preclude recurrence is to verify date of birth. In addition, Standard Programs and Process (SPP)-5.1, Step 3.4.1.6.D. states 'individuals under the age of 18 may not enter radiologically controlled areas.'

**VI. ADDITIONAL INFORMATION**

Attachment A provides required information pursuant to 10 CFR 20.2203(b)(2) and should be distributed on a need to know basis.

**VII. COMMITMENTS**

None.