CATEGORY 1

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR:9605030187 DOC.DATE: 96/04/26 NOTARIZED: NO DOCKET #
FACIL:50-250 Browns Ferry Nuclear Power Station, Unit 2, Tennessee 05000260
AUTH.NAME AUTHOR AFFILIATION
WETZEL,S.A. Tennessee Valley Authority
MACHON,R.D. Tennessee Valley Authority
RECIP.NAME RECIPIENT AFFILIATION

SUBJECT: LER 96-003-00:on 960328,determined that fuel movement performed w/inoperable refueling interlock.Caused by misinterpretation of TS requirements.Fuel movement activities discontinued.W/960426 ltr.

DISTRIBUTION CODE: IE22T COPIES RECEIVED:LTR 1 ENCL 1 SIZE: 7
TITLE: 50.73/50.9 Licensee Event Report (LER), Incident Rpt, etc.

NOTES:

	RECIPIENT ID CODE/NAME	COPIES LTTR	COPIES ENCL	RECIPIENT ID CODE/NAME	COPIES LTTR	COPIES ENCL
	PD2-3-PD	1	1	WILLIAMS,J.	1	1
INTERNAL:	ACRS	1	1	~~AEOD/SPD/RAB~~	2	2
	AEOD/SPD/RRAB	1	1	~~FILE CENTER~~	1	1
	NRR/DE/ECGB	1	1	NRR/DE/EELB	1	1
	NRR/DE/EMEB	1	1	NRR/DRCH/HHFB	1	1
	NRR/DRCH/HICB	1	1	NRR/DRCH/HOLB	1	1
	NRR/DRCH/HQMB	1	1	NRR/DRPM/PECB	1	1
	NRR/DSSA/SPLB	1	1	NRR/DSSA/SRXB	1	1
	RES/DSIR/EIB	1	1	RGN2 FILE 01	1	1
EXTERNAL:	L ST LOBBY WARD	1	1	LITCO BRYCE,J H	2	2
	NOAC MURPHY,G.A	1	1	NOAC POORE,W.	1	1
	NRC PDR	1	1	NUDOCS FULL TXT	1	1

CATEGORY 1 DOCUMENT

NOTE TO ALL "RIDS" RECIPIENTS:
PLEASE HELP US TO REDUCE WASTE! CONTACT THE DOCUMENT CONTROL DESK, ROOM OWFN 5D-5(EXT. 415-2083) TO ELIMINATE YOUR NAME FROM DISTRIBUTION LISTS FOR DOCUMENTS YOU DON'T NEED!

FULL TEXT CONVERSION REQUIRED
TOTAL NUMBER OF COPIES REQUIRED: LTTR 26 ENCL 26

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

R. D. (Rick) Machon
Vice President, Browns Ferry Nuclear Plant

April 26, 1996

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

10 CFR 50.73

Dear Sir:

BROWNS FERRY NUCLEAR PLANT (BFN) - UNITS 1, 2, AND 3 - DOCKET NOS. 50-259, 260, and 296 - FACILITY OPERATING LICENSE DPR-33, 52, AND 68 - LICENSEE EVENT REPORT 50-260/96003

The enclosed report provides details concerning a condition prohibited by the plant's technical specifications. The event was caused by inadequate reviews of safety assessments for procedure changes made to facilitate refueling outage work.

This report is being submitted in accordance with 10 CFR 50.73(a)(2)(i)(B), as an operation or condition prohibited by the plant's technical specifications. If you have any questions concerning this report, please contact Pedro Salas at (205) 729-2636.

Sincerely,

R. D. Machon

cc: See page 2

030031

IE22

Enclosure
cc (Enclosure):
Mr. Mark S. Lesser, Branch Chief
U.S. Nuclear Regulatory Commission
Region II
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30323

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

Mr. J. F. Williams, Project Manager
U.S. Nuclear Regulatory Commission
One White Flint, North
11555 Rockville Pike
Rockville, Maryland 20852

NRC FORM 366 (4-95) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104
EXPIRES 04/30/98
ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS MANDATORY INFORMATION COLLECTION REQUEST: 50.0 HRS. REPORTED LESSONS LEARNED ARE INCORPORATED INTO THE LICENSING PROCESS AND FED BACK TO INDUSTRY. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (T-6 F33), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001,

LICENSEE EVENT REPORT (LER)

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

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Browns Ferry Nuclear Plant (BFN) Unit 2	05000260	1 OF 5

TITLE (4)

Fuel Movement Performed With Inoperable Refueling Interlock

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	28	96	96	003	00	4	26	96	NA	05000
									FACILITY NAME: NA	DOCKET NUMBER: 05000

OPERATING MODE (9)	N
POWER LEVEL (10)	000

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)

	20.2201(b)		20.2203(a)(2)(v)	X 50.73(a)(2)(i)(B)	50.73(a)(2)(viii)
	20.2203(a)(1)		20.2203(a)(3)(i)	50.73(a)(2)(ii)	50.73(a)(2)(x)
	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 or in NRC Form 366A
	20.2203(a)(2)(iv)		50.36(c)(2)	50.73(a)(2)(vii)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
Stewart A. Wetzel, Compliance Engineer	(205) 729-7556

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 15 single-spaced typewritten lines) (16)

On March 28, 1996, at 1540 hours, with Browns Ferry Unit 2 in a refueling outage, fuel movement activities were stopped due to a concern with the operability of the all control rods fully inserted ("all rods in") refueling interlock. Prior to moving fuel, all control rods were verified as fully inserted and the directional control valves for each rod were electrically disconnected. Subsequently, the position indication circuitry for the control rods was bypassed to facilitate refueling outage work. TVA considered that fully inserting the control rods and disconnecting the directional control valves satisfied the intent of the technical specifications (TS) for having an operable "all rods in" refueling interlock. After fuel movement activities were stopped, TVA reevaluated this condition and determined that it was not in literal compliance with TS requirements. This event was caused by a misinterpretation of TS requirements for declaring/maintaining the "all rods in" refueling interlock operable. The immediate corrective action was to stop fuel movement and reconnect the position indication circuitry. Corrective actions include taking appropriate personnel corrective actions with the individuals involved in preparation of the safety assessments for disabling the interlock and in the decision to move fuel with the control rod position inputs disabled. Additionally, the applicable procedures will be revised to prohibit bypassing the position indication circuitry when moving fuel. This event is reportable pursuant to 10 CFR 50.73(a)(2)(i)(B) as any operation or condition prohibited by the plant's TS.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

FACILITY NAME (1)	DOCKET	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Browns Ferry Unit 2	05000260	96	-- 003	-- 00	2 of 5

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

I. PLANT CONDITIONS

At the time of this event, Unit 2 was in a refueling outage with fuel movement activities in progress. Unit 3 was operating at approximately 100 percent power. Unit 1 was shutdown and defueled.

II. DESCRIPTION OF EVENT

A. Event:

On March 23, 1996, at 0200 hours, BFN Unit 2 was manually scrammed to begin the Cycle 8 refueling outage. Following the shutdown all control rods were verified as fully inserted and the directional control valves for each rod were electrically disconnected. Subsequently, and in accordance with approved procedures, the position indication circuitry for the control rods [AA] was bypassed to facilitate refueling outage work. On March 26, 1996, at approximately 0230 hours, fuel movement activities commenced.

On March 28, 1996, at 1540 hours, fuel movement activities were stopped due to a concern with the operability of the all control rods fully inserted ("all rods in") refueling interlock [IEL].[1] TVA considered that fully inserting the control rods and disconnecting the directional control valves satisfied the intent of the technical specifications (TS) for having an operable "all rods in" refueling interlock. However, after fuel movement activities were stopped, TVA reevaluated this condition and determined that bypassing the control rod position indication inputs to the "all rods in" interlock was not in literal compliance with TS requirements.

Accordingly, because fuel was moved with the "all rods in" refueling interlock technically inoperable, this event is reportable pursuant to 10 CFR 50.73(a)(2)(i)(B) as any operation or condition prohibited by the plant's TS.

B. Inoperable Structures, Components, or Systems that Contributed to the Event:

None.

[1] TS 3.10.A.1 states, in part, that "[t]he required refueling equipment interlocks shall be OPERABLE during in-vessel fuel movement with equipment associated with the interlocks . . ." TS 4.10.A.1 states, in part, that "[p]rior to any fuel handling with the head off the vessel, the following required refueling equipment interlocks shall be functionally tested: a. All rods inserted . . ."

FACILITY NAME (1)	DOCKET	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Browns Ferry Unit 2	05000260	96	-- 003	-- 00	3 of 5

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

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

March 23, 1996, at 0200 CST	Unit 2 was shutdown for the Cycle 8 refueling outage.
March 24, 1996	Control rod position indication circuitry inputting to the "all rods in" refueling interlock disabled.
March 26, 1996, at 0230 CST	Fuel movement activities commenced.
March 28, 1996, at 1540 CST	Fuel movement activities stopped.
March 28, 1996, at 1850 CST	Control rod position indication circuitry inputting to the "all rods in" refueling interlock reconnected.
March 28, 1996, at 2230 CST	Fuel movement activities recommenced.

D. **Other Systems or Secondary Functions Affected:**

None.

E. **Method of Discovery:**

This event was discovered when NRC resident inspectors questioned the operability of the "all rods in" refueling interlock.

F. **Operator Actions:**

Operator actions taken during this event were as expected. Fuel movement activities were stopped when the concern was identified.

G. **Safety System Responses:**

None.

III. CAUSE OF THE EVENT

A. **Immediate Cause:**

The immediate cause of this event was movement of fuel with an inoperable refueling interlock.

FACILITY NAME (1)	DOCKET	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Browns Ferry Unit 2	05000260	96	-- 003	-- 00	4 of 5

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

B. Root Cause:

This event was caused by a misinterpretation of TS requirements for declaring/maintaining the "all rods in" refueling interlock operable. Plant personnel believed that fully inserting all control rods and electrically disconnecting their directional control valves satisfied the intent of the TS for having an operable "all rods in" interlock. Additionally, the TS require that control rods whose position cannot be positively determined shall be considered inoperable. Inoperable control rods are inserted and electrically disarmed per TS. These conditions were verified as being met prior to bypassing the full-in position switches for the control rods. Plant personnel did not consider this interlock inoperable since all 185 control rods were fully inserted and prevented from being withdrawn from the core. As a result, plant personnel failed to recognize that disabling the control rod position inputs to the "all rods in" refueling interlock functionally disabled the interlock.

IV. ANALYSIS OF THE EVENT

The BFN Updated Final Safety Analysis Report (UFSAR) states that the refueling interlocks are designed to back up procedural core reactivity controls during refueling operations to prevent an inadvertent criticality. In this event, one of the interlocks was technically inoperable; however, the remaining required refueling interlocks were operable. Additionally, all control rods were fully inserted with their directional control valves electrically disconnected. These other interlocks and fully inserted control rods, combined with established procedural controls, prevented any inadvertent movement of control rods or inadvertent criticality. Therefore, this event did not affect the safety of the plant or the health and safety of the public.

V. CORRECTIVE ACTIONS

A. Immediate Corrective Actions:

The immediate corrective action was to discontinue fuel movement activities and reconnect the control rod position inputs to the "all rods in" refueling interlock.

B. Corrective Actions to Prevent Recurrence:

Appropriate personnel corrective actions will be taken with the individuals involved in the preparation of the safety assessments for disabling the interlock and in the decision to move fuel with the control rod position inputs disabled. Additionally, the two procedures that were revised to allow the interlock to be

FACILITY NAME (1)	DOCKET	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Browns Ferry Unit 2	05000260	96	-- 003	-- 00	5 of 5

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

disabled will be revised to discontinue this practice.[2]

In addition to the above actions, TVA has identified several programmatic enhancements as a result of investigation of this event. For example, TVA plans to develop a briefing paper that discusses this event, the lessons learned, management expectations for preparation of safety assessments and safety evaluations, and the need for literal compliance with TS requirements. TVA plans to distribute this briefing paper to 50.59 qualified individuals at BFN. TVA also plans to include discussion of this event, the lessons learned, and other relevant information in the licensed operator requalification training program. TVA expects to complete these actions by July 25, 1996.[3]

VI. ADDITIONAL INFORMATION

A. Failed Components:

None.

B. Previous LERs on Similar Events:

None.

VII. COMMITMENTS

Appropriate personnel corrective actions will be taken with the individuals involved in the preparation of the safety assessments for disabling the interlock and in the decision to move fuel with the control rod position inputs disabled. TVA expects to complete this action by May 29, 1996.

Energy Industry Identification System (EIIS) system and component codes are identified in the text with brackets (e.g., [XX]).

[2]This action (i.e., procedure revisions) is not a regulatory commitment.

[3]These additional actions are considered enhancements and are not commitments.