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John T. Herron
Vice President, Browns Ferry Nuclear Plant

May 30, 2000

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

10 CFR 50.73

Gentlemen:

In the Matter of)
Tennessee Valley Authority)

Docket No. 50-296

**BROWNS FERRY NUCLEAR PLANT (BFN) - UNIT 3 - DOCKET NO. 50-296 -
FACILITY OPERATING LICENSE DPR-68 - LICENSEE EVENT REPORT (LER)
50-296/2000004**

The enclosed report provides details of an event which resulted from a failure to fulfill the requirements of a Limiting Condition for Operation specified by the plant's Technical Specifications for an inoperable control rod.

This report is submitted in accordance with 10 CFR 50.73 (a)(2)(i)(B) as a condition prohibited by the plant's Technical Specifications.

Sincerely,


John T. Herron

cc: See page 2

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Enclosure

cc (Enclosure):

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NRC FORM 366 (6-1998)		U.S. NUCLEAR REGULATORY COMMISSION		APPROVED BY OMB NO. 3150-0104 08/30/2001 Estimated burden per response to comply with this mandatory information collection request: 50 hrs. Reported lessons learned are incorporated into the licensing process and fed back to industry. Forward comments regarding burden estimate to the Records Management Branch (T-6 F33), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, and to the Paperwork Reduction Project (3150-0104), Office of Management and Budget, Washington, DC 20503. If an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.								
LICENSEE EVENT REPORT (LER) (See reverse for required number of digits/characters for each block)					EXPIRES 08/30/2001							
FACILITY NAME (1) Browns Ferry Nuclear Plant Unit 3				DOCKET NUMBER (2) 05000296		PAGE (3) 1 of 5						
TITLE (4) Missed Control Rod LCO												
EVENT DATE (5) MONTH DAY YEAR			LER NUMBER (6) YEAR SEQUENTIAL NUMBER REVISION NUMBER			REPORT DATE (7) MONTH DAY YEAR						
04 30 00			2000 004 000			05 30 00						
OPERATING MODE (9) 5			OTHER FACILITIES INVOLVED (8) FACILITY NAME DOCKET NUMBER NA									
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) <input checked="" type="checkbox"/>		50.73(a)(2)(i)(B)					
			20.2203(a)(1)		20.2203(a)(3)(i)		50.73(a)(2)(ii)					
			20.2203(a)(2)(i)		20.2203(a)(3)(ii)		50.73(a)(2)(iii)					
			20.2203(a)(2)(ii)		20.2203(a)(4)		50.73(a)(2)(iv)					
			20.2203(a)(2)(iii)		50.36(c)(1)		50.73(a)(2)(v)					
			20.2203(a)(2)(iv)		50.36(c)(2)		50.73(a)(2)(vii)					
LICENSEE CONTACT FOR THIS LER (12)												
NAME Anthony T. Rogers, Senior Licensing Project Manager						TELEPHONE NUMBER (Include Area Code) (256) 729-2977						
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)												
<p>On April 30, 2000, Operations personnel were performing Control Rod Drive (CRD) System Testing and Troubleshooting in conjunction with a surveillance requirement, CRD Coupling Integrity Check After Refueling or Maintenance. When control rod 42-55 was withdrawn, the full-in position indication remained illuminated. Subsequently, additional control rods were withdrawn prior to recognizing that all the required Limiting Condition for Operation actions for control rod 42-55, which had been considered inoperable, had not been completed.</p> <p>The root cause of this event was failure of the Senior Reactor Operator (utility, licensed), acting as Reactivity Manager, to ensure appropriate Technical Specifications Required Actions were taken upon recognition that the control rod was not functioning as expected. This was attributed to the mindset that the priority was to identify collectively all problems with CRDs and position indicators. Also, the pre-test brief did not adequately address the TS criteria and actions to be taken on any unexpected response. All Operations personnel will be briefed on management expectations for pre-evolution briefings including actions to take when unexpected responses occur.</p> <p>TVA is reporting this event in accordance with 10 CFR 50.73 (a)(2)(i)(B) as a condition prohibited by the plant's Technical Specifications.</p>												

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

I. PLANT CONDITIONS

At the time of the event, Unit 2 was operating at 100 percent power and Unit 3 was in Mode 5, during cycle 9 refueling outage. Unit 1 was shutdown and defueled.

II. DESCRIPTION OF EVENT**A. Event:**

On April 30, 2000, Operations personnel were performing Control Rod Drive (CRD) [AA] System Testing and Troubleshooting in conjunction with a surveillance requirement, CRD Coupling Integrity Check After Refueling or Maintenance. When control rod 42-55 was withdrawn, the full-in position indication remained illuminated. Subsequently, additional control rods were withdrawn prior to recognizing that all the required Limiting Condition for Operation (LCO) actions for control rod 42-55, which had been considered inoperable, had not been completed.

TVA is reporting this event in accordance with 10 CFR 50.73 (a)(2)(i)(B) as a condition prohibited by the plant's Technical Specifications (TS).

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

None.

C. Dates and Approximate Times of Major Occurrences:

April 29, 2000, at 2023 hours CDT	Operations performing CRD System Testing and Troubleshooting when Control Rod 42-55 full-in indication failed to extinguish during its withdrawal.
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April 30, 2000, at 0042 hours CDT	CRD 42-55 tagged for maintenance and conditions of LCO met.
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D. Other Systems or Secondary Functions Affected:

None.

E. Method of Discovery:

The Unit Supervisor, Senior Reactor Operator (utility, licensed), recognized the failure to take the required TS actions upon notification of the failed acceptance criteria.

F. Operator Actions:

The event was caused by a cognitive error on the part of the Reactivity Manager. Subsequent operator actions were appropriate when CRD testing was suspended upon recognition of the failure to meet the TS Required Action and the appropriate TS actions were completed.

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G. Safety System Response:

No safety systems were required to operate.

III. CAUSE OF THE EVENT**A. Immediate Cause:**

The immediate cause was failure of the Senior Reactor Operator (utility, licensed), acting as Reactivity Manager, to ensure appropriate TS Required Actions were taken upon recognition that the control rod was not functioning as expected.

B. Root Cause:

The root cause was attributed to the mindset that the priority was to identify collectively all problems with CRDs and position indicators. Also, the pre-test brief did not adequately address the TS criteria and actions to be taken on any unexpected response.

C. Contributing Factors:

None.

IV. ANALYSIS OF THE EVENT

During control rod testing per 0-TI-20, CRD System Testing and Troubleshooting, with concurrent performance of Surveillance Instructions 3-SR-3.1.3.5(B), CRD Coupling Integrity Check After Refueling or Maintenance, and 0-SR-3.9.4.1, Mode 5 Control Rod Not Full In Verification, the green background indication (full-in indication) remained illuminated during withdrawal of control rod 42-55. This was noted as not meeting 0-SR-3.9.4.1 acceptance criteria but not recognized as an entry condition to TS 3.9.4 LCO Condition A. Additional control rods were withdrawn and documented per 0-TI-20 and 0-SR-3.9.4.1 prior to the required LCO actions for the inoperable control rod 42-55 being taken.

0-SR-3.9.4.1 was performed starting at 0605 on April 29, 2000. This SR and 3-SR-3.1.3.5(B), were performed concurrently with performance of 0-TI-20. 0-TI-20 was being performed to identify any CRD or RPIS problems that would require maintenance prior to drywell close-out and subsequent restart of Unit 3. In addition to the two reactor operators (one for control rod manipulations and one as a peer checker) and the Reactivity Manager, a reactor engineer, and representatives from Instrument Maintenance(IM) and Site Engineering were also present to promptly identify CRD and RPIS problems and coordinate their prompt resolution.

Testing of the CRDs per 0-TI-20, 3-SR-3.1.3.5(B), and 0-SR-3.9.4.1 continued on April 29, 2000, when the night shift Operations crew assumed the shift. Shortly thereafter control rod 42-55 was withdrawn (fourth control rod manipulated after assumption of shift by this operating crew). The operators recognized that control rod 42-55 maintained a green background as it was being withdrawn and that this did not meet the acceptance criteria of 0-SR-3.9.4.1.

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V. ANALYSIS OF THE EVENT (continued)

This condition was brought to the attention of the Reactivity Manager and was communicated to the IM and Site Engineering representatives to coordinate the necessary repairs. Once this was noted, the operators continued with the evolution of withdrawing the remaining control rods per 0-TI-20, 0-SR-3.9.4.1, and 3-SR-3.1.3.5(B) to identify any further problems. Operations completed the initial testing in accordance with 0-TI-20 at 2245, on April 29, 2000.

At approximately 2305 on April 29, 2000, the problem with control rod 42-55 was brought to the attention of the Unit 3, Unit Supervisor since the acceptance criteria of 0-SR-3.9.4.1 was not met. At this time, he directed that all subsequent control rod movement be discontinued and entered the appropriate LCO. All appropriate TS Required Actions were verified complete at 0042 on April 30, 2000.

V. ASSESSMENT OF SAFETY CONSEQUENCES

The full-in position indication for each control rod provides necessary information to the refueling interlocks to prevent inadvertent criticality during refueling operations. During refueling, the refueling interlocks use the full-in position indication to limit the operation of the refueling equipment and the movement of the control rods. The absence of the full-in position indication signal for any control rod removes the all-rods-in permissive for the refueling equipment interlocks and prevents fuel loading. Also, this condition causes the refuel position one-rod-out interlock to prevent withdrawal of any other control rod.

The LCO requires that each control rod full-in position indication be operable to provide the required input to the refueling interlocks. A full-in position indication is operable if it provides correct position indication to the refueling interlock logic. During Mode 5, the control rods must have full-in position indication to ensure the applicable refueling interlocks are operable.

The full-in position indications provide input to the one-rod-out interlock and other refueling interlocks that require an all-rods-in permissive. The interlocks are actuated when the full-in position indication for any control rod is not present, since this indicates that all control rods are not fully inserted. Therefore, testing of the full-in position indications is performed to ensure that when a control rod is withdrawn, the full-in position indication is not present. The full-in position indication is considered inoperable even with the control rod fully inserted, if it would continue to indicate full-in with the control rod withdrawn. Performing the SR each time a control rod is withdrawn is considered adequate because of the procedural controls on control rod withdrawals and the visual and audible indications available in the control room to alert the operator to control rods not fully inserted.

Since no more than one control rod was ever withdrawn at one time, the intent of the specification was met by administrative controls by the procedures in use at the time. Therefore, this event did not adversely affect the safety of plant personnel or the public.

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VI. CORRECTIVE ACTIONS

A. Immediate Corrective Actions:

All control rod movements stopped and the appropriate LCO entered.

B. Corrective Action to Prevent Recurrence:

The responsible employee will receive personnel corrective action in accordance with TVA policy.¹

Operations personnel will be briefed on management expectations for pre-evolution briefs including actions to be taken when unexpected responses occur.¹

Operations Training will revise the appropriate lesson plans to include specific TS Required Actions to be taken when a RPIS indication is found to be inoperable.¹

The procedure used for CRD System Testing will be revised to refer to specific TS Sections and Required Actions to be taken when RPIS functions are found to be non-functional during performance of the procedure.¹

VII. ADDITIONAL INFORMATION

A. Failed Components:

None.

B. Previous Similar Events:

None.

C. Additional Information:

None.

D. Safety System Functional Failure:

This event did not result in a safety system functional failure in accordance with draft NEI 99-02, Rev. 0.

VIII. COMMITMENTS

None.

¹TVA does not consider this corrective action a regulatory commitment. The completion of this item will be tracked in TVA's Corrective Action Program.