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J. L. Wilson
Vice President, Sequoyah Nuclear Plant

March 10, 1992

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

Gentlemen:

TENNESSEE VALLEY AUTHORITY - SEQUOYAH NUCLEAR PLANT UNIT 1 - DOCKET NO. 50-327 - FACILITY OPERATING LICENSE DPR-77 - LICENSEE EVENT REPORT (LER) 50-327/92006

The enclosed LER provides details concerning a failure to properly verify reactor coolant system flow. This event is being reported in accordance with 10 CFR 50.73(a)(2)(i) as an operation prohibited by technical specifications.

Sincerely,

J. L. Wilson

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Enclosure
cc: See page 2

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cc (Enclosure):
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NRC Form 366 (6-89) | U.S. NUCLEAR REGULATORY COMMISSION | Approved OMB No. 3150-0104 Expires 4/30/92

LICENSEE EVENT REPORT (LER)

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TITLE (4)

Failure to Properly Verify Reactor Coolant System Flow Above Technical Specification Limits

EVENT DAY (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)
0 2	0 9	9 2	9 2	0 0 6	0 0	0 3	1 0	9 2		0 5 0 0 0

OPERATING MODE (9)	1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following)(11)			
POWER LEVEL (10)	1 0 0	20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)
		20.405(a)(1)(i)	50.36(c)(1)	50.73(a)(2)(v)	73.71(c)
		20.405(a)(1)(ii)	50.36(c)(2)	50.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)
		20.405(a)(1)(iii)	XX 50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	
		20.405(a)(1)(iv)	50.73(a)(2)(ii)	50.73(a)(2)(viii)(B)	
		20.405(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (AREA CODE)
Jan Bajraszewski, Compliance Licensing	6 1 5 8 4 3 - 7 7 4 9

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 fifteen single-space typewritten lines) (16)

On February 9, 1992, at approximately 1752 Eastern standard time, with Unit 1 in power operation at 100 percent, an operator trainee performing a surveillance instruction (SI) determined reactor coolant system (RCS) indicated flow, as read from the main control room (MCR) panel gauges, was below the minimum required by technical specification (TS). Limiting Condition for Operation (LCO) 3.2.5 was entered. RCS flow was further evaluated by obtaining loop flow data directly from the reactor protection system (RPS) racks and found to be within TS limits. LCO 3.2.5 was exited. A review of Unit 1 MCR shift log SI performances from December 27, 1991 through February 10, 1992, identified numerous occurrences where the MCR shift log SI was inadequately performed relative to RCS flow data. The SI did not contain acceptance criteria on the data sheet. Operators had previously memorized the acceptance criteria and did not reference a supporting procedure, unaware of the change, incorrectly believing that the acceptance criteria would only change if the related TS changed. Subsequent performances of the revised SI, after February 10, 1992, have shown RCS flow above TS limits. Units 1 and 2 SIs were revised to include the acceptance criteria and to obtain direct flow verification using RPS rack data if the criteria was not met by MCR gauges.

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

I. PLANT CONDITIONS

Unit 1 was in power operation at approximately 100 percent.

II. DESCRIPTION OF EVENT

A. Event:

At approximately 1752 Eastern standard time (EST) on February 9, 1992, an operator trainee performing the main control room (MCR) shiftly surveillances, 1-SI-OPS-000-002.0, "Shift Log," determined Unit 1 reactor coolant system (RCS) flow, as determined from the MCR panel gauges, to be below the minimum allowed by a supporting technical instruction (TI). The TI contained the acceptance criteria to ensure technical specification (TS) compliance with Limiting Condition for Operation (LCO) 3.2.5. The action provision of LCO 3.2.5 was entered at 1752 EST.

In accordance with administrative procedures, a deficiency notice was entered on the test deficiency log for the surveillance instruction (SI) performance and a problem evaluation report (PER) was initiated for resolution of the deficiency. The RCS flow was then further evaluated by obtaining loop flow data from the reactor protection system (RPS) (Eagle-21 man-machine-interface and analog test points) in accordance with the SI methodology for reactor coolant flow verification. The results of this evaluation indicated that the RCS flow was within TS limits, and LCO 3.2.5 was exited at 2041 EST.

Records of previous Unit 1 MCR shift log SI performances from December 27, 1991 through February 10, 1992, were obtained. Evaluation of the data identified numerous occurrences where the MCR shift log SI was inadequately performed relative to RCS flow data, i.e., data accepted which did not meet procedurally established criteria. Further, the TI had not contained the correct criteria from December 27, 1991 to January 18, 1992. Ten cases were identified where recorded flow did not meet currently established limits.

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

None. However, inherent inaccuracies of reading indicated RCS flow from MCR panel gauges contribute to variations in recorded RCS total flow.

C. Dates and Approximate Times of Major Occurrences:

December 27, 1991 SI for RCS flow verification was performed by Technical Support personnel in accordance with TS Surveillance Requirement (SR) 4.2.5.2 for the Unit 1 Cycle 6 period. A decision not to respan control room indicators resulted in a change to RCS flow acceptance criteria.

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January 18, 1992 — An attachment to a TI was revised, promulgating the revised RCS flow acceptance criteria.

February 9, 1992 1752 EST — During routine performance of the MCR shift log SI for compliance with SR 4.2.5.1, an operator trainee identified that RCS flow did not meet acceptance criteria contained in the referenced TI. LCO 3.2.5 was entered.

February 9, 1992 2110 EST — RCS flow was further evaluated and found acceptable. LCO 3.2.5 was exited.

February 10, 1992 — The acceptance criteria for RCS flow was revised and incorporated in the MCR shift log SI.

D. Other Systems or Secondary Functions Affected:

None.

E. Method of Discovery:

The failure to properly perform the MCR shift log SI was discovered during investigation of the indicated RCS low flow occurrence.

F. Operator Actions:

Operators immediately entered LCO 3.2.5. Additionally, operators pursued verification of adequate RCS flow.

G. Safety System Responses:

Non applicable - no safety system responses were required.

III. CAUSE OF THE EVENT

A. Immediate Cause:

Operators failed to properly perform the SI.

B. Root Cause:

Unit operators in the performance of the MCR shift log SI routinely did not refer to the RCS flow acceptance criteria contained in the referenced procedure.

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C. Contributing Factors:

The operators believed that they knew the acceptance criteria, that it would not change without a TS change and, therefore, did not consider that it was necessary to refer to the TI for performance of the MCR shift log SI each shift.

The TI was revised three weeks after the new flow limit was determined by the RCS flow verification SI. This limit is used for compliance with SR 4.2.5.1, and the revision to the TI should have been processed immediately.

No procedural guidance was provided in the RCS flow verification SI to provide the tie between the procedures.

IV. ANALYSIS OF THE EVENT

RCS flow is one of the parameters used in accident analysis (Final Safety Analysis Reports 15.2.5 and 15.3.4) as an initial condition for other accidents in departure from nucleate boiling (DNB) analysis. The limits on the DNB-related parameters assure that each of the parameters are maintained within the normal steady-state envelope of operation assumed in the transient and accident analysis.

Flow verification using more accurate RPS rack data verified flow was geater than TS. Subsequent SI performances, after February 10, 1992, have also shown RCS flows above TS limits. Recognizing the potential inaccuracies in the past readings on MCR panel gauges and that nothing within the RCS flow path could have changed to increase flows to currently observed values, it is believed by engineering judgement, that RCS flows have always been above TS limits.

V. CORRECTIVE ACTIONS

A. Immediate Corrective Actions:

1. Revisions to the Units 1 and 2 MCR shift log SIs were made to place the RCS flow acceptance criteria directly on the SI data sheet. The revision also provided guidance for the operator to request performance of a conditional RCS flow verification SI if the control board gauges indicated that the TS flow limit was not met.

B. Corrective Action to Prevent Recurrence:

1. Each shift operations supervisor (SOS) will discuss this event with his crew reinforcing the expectation of procedural compliance. The Operations manager will communicate the expectation that operators are responsible for identification of inappropriate procedures and for requesting revision of those procedures.

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2. SIs will be reviewed to identify procedures that contain a reference to another document for acceptance criteria. These procedures will be evaluated for revision.

VI. ADDITIONAL INFORMATION

A. Failed Components:

None.

B. Previous Similar Events:

A review of previous events identified LERs associated with missed SIs because of scheduling or personnel error, e.g., 327/90007, 90018, 90029, 328/89009, 89010. Additionally, LERs associated with inadequately performed SIs because of improper use of data, failure to follow procedures, or inadequate procedures were reviewed, e.g., 327/89032, 90011, 328/89004, 89011, 90009. The corrective actions of these LERs would not have prevented the occurence of the event described in this LER.

VII. COMMITMENTS

1. Each SOS will discuss this event with his crew reinforcing the expectation of procedural compliance. The Operations manager will communicate the expectation that operators are responsible for identification of inappropriate procedures and for requesting revision of those procedures. This action will be completed by April 1, 1992.

2. SIs will be reviewed to identify procedures that contain a reference to another document for acceptance criteria. The SI procedures referencing other documents for acceptance criteria will be evaluated for revision by May 15, 1992.