

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1): Sequoyah, Unit 1 DOCKET NUMBER (2): 0 5 0 0 0 3 2 1 7 1 PAGE (3): 1 OF 0 6

INaccurate Computer Database Causes Technical Specification Surveillance Intervals To Be Exceeded Resulting In Inoperable Diesel Generators And Boron Injection Flow Paths

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 (5)
01	11	88	88	001	01	02	18	88	Sequoyah, Unit 2		0 5 0 0 0 3 2 8
THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more of the following) (11):											

OPERATING MODE (9): <u>5</u>	20.402(b)	20.405(d)	50.73(a)(2)(iv)	73.71(b)
POWER LEVEL (10): <u>0 0 0</u>	20.405(a)(1)(iii)	50.36(a)(1)	50.73(a)(2)(v)	73.71(c)
	20.405(a)(1)(iv)	50.36(a)(2)	50.73(a)(2)(vi)	OTHER (Specify in Abstract below and in Text, NRC Form 306A)
	20.405(a)(1)(v)	XX 50.73(a)(2)(iii)	50.73(a)(2)(vii)(A)	
	20.405(a)(1)(vi)	50.73(a)(2)(iv)	50.73(a)(2)(vii)(B)	
	20.405(a)(1)(vii)	50.73(a)(2)(v)	50.73(a)(2)(viii)	

LICENSEE CONTACT FOR THIS LER (12): K. W. Fenn, Plant Operations Review Staff TELEPHONE NUMBER: 615 870-6511

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13):

CAUSE	SYSTEM	COMPONENT	MANUFAC TURE	REPORTABLE TO NRC	CAUSE	SYSTEM	COMPONENT	MANUFAC TURE	REPORTABLE TO NRC

SUPPLEMENTAL REPORT EXPECTED (14): YES (If yes, complete EXPECTED SUBMISSION DATE: XX NO) EXPECTED SUBMISSION DATE (15): MONTH DAY YEAR

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

This report is being revised to include an additional deficiency found and to provide additional corrective actions. On January 11, 1988, with units 1 and 2 in mode 5 (cold shutdown) all four emergency diesel generators (D/Gs) were declared inoperable because the interval for Technical Specification (TS) Surveillance Requirement (SR) 4.8.1.2 (chemical analysis of D/G fuel oil) was exceeded. In addition, because the high pressure fire pumps use the D/Gs as an emergency power source, the plant fire suppression system was also declared inoperable, and a backup fire suppression system was established. Because of an oversight during the recent conversion to a new computer program used to schedule surveillance instructions (SIs), SI-116, "Quarterly Chemistry Requirements on Diesel Generator Fuel Oil," was not performed within the time interval required by the TS. Immediately upon discovery of the event, a special SI-116 package was issued and performed, and all D/Gs and fire suppression pumps were returned to operable status on January 12, 1988. In addition, an immediate review of all SIs was initiated to ensure that the mode requirements in the scheduling program were consistent with the applicability section in the SIs. Four additional deficiencies were found; however, only one of these caused a TS SR to be exceeded (SR 4.0.5) and involved SI-166.17, "CVCS and SI (Safety Injection) Check Valve Test During Cold Shutdown," not being performed in the required time interval. A special SI performance package was subsequently issued and successfully performed. To prevent recurrence of this event, TVA is upgrading the overall Sequoyah Nuclear Plant surveillance program by implementing recommendations derived from an independent assessment of the SI program. These actions will ensure the technical adequacy of completed SI packages, decrease the potential for scheduling errors, and improve the overall efficiency of the SI program. These actions are expected to be completed by June 1, 1988.

8802240270 880218
PIR ADOCK 05000327
S DCD

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) Sequoyah, Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 3 2 7 8 8	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
		8 8	0 0 1 1	0 1	0 2	OF 0 6

TEXT (if more space is required, use additional NRC Form 306A's) (17)

This LER is being revised to include a unit 1 surveillance instruction (SI) that was not performed within the time interval required by the technical specifications (TSs) and to provide additional information relating to the corrective actions TVA is implementing to prevent the recurrence of this event.

DESCRIPTION OF EVENT

On January 11, 1988, units 1 and 2 of the Sequoyah Nuclear Plant (SQN) were in mode 5 (0 percent power, 4 psig, 128 degrees F and 0 percent power, 140 psig, 125 degrees F, respectively) when at approximately 1330 EST, all four emergency diesel generators (D/Gs) (EIIS Code KP), servicing both units 1 and 2, were declared inoperable. The D/Gs were declared inoperable because the interval for TS Surveillance Requirement (SR) 4.8.1.2 (92 days) plus extension was exceeded.

TS SR 4.8.1.2 requires each D/G set (a D/G set consists of D/Gs 1A-A and 2A-A or D/Gs 1B-B and 2B-B) to be demonstrated operable at least once every 92 days or before the addition of new fuel oil to the 7-day fuel oil tanks, by verifying that a fuel oil sample obtained in accordance with ASTM-D270-1975 has a water and sediment content of less than or equal to 0.05 volume percent and a kinematic viscosity at 100 degrees F of greater than or equal to 1.8 but less than or equal to 5.8 centistokes when tested in accordance with ASTM-D975-77. Further, the fuel oil sample is required to have an impurity level of less than 2 milligrams of insolubles per 100 milliliters when tested in accordance with ASTM-D2274-70. Since the above described TS SR had not been performed since September 10, 1987, and the due date including the allowable TS extension was December 30, 1987, both D/G sets were declared inoperable.

The following systems use the D/Gs as an emergency power source and are required in mode 5; therefore, these systems were also declared inoperable, and the appropriate TS Limiting Condition for Operation (LCO) actions were complied with.

- All four motor-driven high pressure fire pumps (EIIS Code KP), LCO 3.7.11.1.
- Both trains (common to units 1 and 2) of the Auxiliary Building gas treatment system (EIIS Code BH), LCO 3.9.12.
- All four (2 per unit) centrifugal charging pumps (EIIS Code BQ), LCOs 3.1.2.1 and 3.1.2.3.

The actions for the above described equipment required (1) the establishment of a backup fire suppression system within 24 hours, (2) the suspension of all operations involving core alterations or positive reactivity changes, and (3) the suspension of all operations involving movement of fuel within the spent fuel pit or crane operations with loads over the spent fuel pit. The control room emergency ventilation system (EIIS Code VI) also uses the D/Gs as an emergency power source; however, both trains of this system were already inoperable because of previous deficiencies.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) Sequoyah, Unit 1	DOCKET NUMBER (2) 0500032788	LER NUMBER (8)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
		88	001	0	103	OF 06

TEXT (If more space is required, use additional NRC Form 366A's) 7)

On January 23, 1988, following a generic review of all SQN SIs to determine if the mode requirements listed in the SI scheduling program were consistent with the applicability section listed in the specific SIs, an additional performance deficiency was identified that resulted in a unit 1 TS SR being exceeded. SI-166.17, "CVCS and SI [Safety Injection] Check Valve Test During Cold Shutdown," was not performed within the time interval required by TSs. This SI verifies the operability of check valves 62-504 and 63-502 by ensuring that 62-504 will open when pressure is applied to open it, and that 63-502 will close when pressure is applied to close it.

Check valve 63-502 is in the residual heat removal (RHR) pump suction line from the refueling water storage tank (RWST) and is required to be operable only when the RHR loops are used as emergency core cooling system (ECCS) subsystems (i.e., modes 1, 2, 3, and 4). Therefore, the missed performance of the SI-166.17 did not cause an operation prohibited by TSs for the 63-502 valve. However, check valve 62-504 is required to be operable during all modes of plant operation since it is in the centrifugal charging pumps (CCPs) suction line from the RWST (modes 1 through 4 for ECCS path modes 1 through 6 for boron injection path). Since SQN unit 1 was crediting the boration flow path from the RWST through the CCPs at the time (mode 5) of this event, the action statement to TS 3.1.2.1 was entered. This action statement required the suspension of all operations involving core alterations or positive reactivity changes.

CAUSE OF EVENT

The failure to perform SI-116, "Quarterly Chemistry Requirements on Diesel Generator Fuel Oil," within the required time interval was caused by an oversight during a recent revision of the computer program that is used by the SQN Maintenance and Surveillance Scheduling (M&S) department to schedule SIs. In this case, SI-116 was incorrectly classified "HA" (i.e., SI on hold until applicable mode is reached) in the scheduling program. As a result, M&S did not issue an SI package to the responsible section (Chemistry), and the SI was not performed within the required TS time interval. The oversight which caused the event occurred during the recent (November 1987) conversion to a new M&S computer program. During this conversion, the mode requirements for the performance of SI-116 were incorrectly changed from "all modes" to "modes 1-4."

The failure to perform SI-166.17 within the required time interval was caused by Operations personnel not realizing that the subject SI was partially applicable (i.e., applicable to one of the two valves) during all modes of operation. As a result, Operations returned SI packages stating that performance was not required until mode 4. Also during the conversion to the new M&S computer program as noted above, the applicability of this SI was inadvertently changed from "all modes" to "modes 1 through 4." A contributing cause to both events was the failure of the M&S department to perform an adequate review of the new computer program before implementation.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) Sequoyah, Unit 1	DOCKET NUMBER (2) 0500032788	LER NUMBER (6)			PAGE (3) 4 OF 6
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
		88	001	01	

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

ANALYSIS OF EVENT

This event is being reported in accordance with 10 CFR 50.73, paragraph a.2.i.B, as an operation that is prohibited by the plant's TS. This report also satisfies the special report requirement of action statement (b) to LCO 3.7.11.1.

Although the D/Gs were declared inoperable, they were not "tagged out" or isolated from their respective emergency power busses because there was no evidence that the D/Gs would not be able to perform their designed safety function. The ability of the D/Gs to operate following the expiration of the required surveillance interval was confirmed when the results of the fuel oil analysis were acceptable for all four 7-day fuel oil tanks, and the D/Gs were returned to operable status. Thus, the D/Gs could have supplied emergency AC power, if required, despite the fact that they were administratively declared inoperable.

The ability of unit 1 check valve 62-504 to open is required to ensure the availability of a boration flow path from the RWST to the reactor coolant system (RCS). During mode 5 operation, sufficient boration capability must be available to ensure that the reactivity excursion associated with an uncontrolled cooldown from 200 degrees F to 140 degrees F will not result in the loss of required shutdown margin. Since SQN unit 1 has typically been operating with RCS boron concentrations of approximately 2000 ppm, adequate shutdown margin is available to withstand the reactivity excursion described above even without additional boration from the RWST. In addition, if the boration flow path through valve 62-504 could not be established, plant operators could line up an alternative boration flow path from the boric acid tanks to the suction of the CCPs. Thus, there were no significant consequences associated with the failure to test check valve 62-504. Since the 63-502 check valve is only required in modes 1 through 4, the missed performance of SI-166.17 did not cause an operation prohibited by TS for the RHR system and did not affect the operability of the RHR system for mode 5.

CORRECTIVE ACTION

In compliance with action statement (b) to TS 3.7.11.1, a backup fire suppression system was established within 24 hours of declaring the D/Gs inoperable. The backup system was on site and connected to the SQN fire suppression header by 1100 EST on January 12, 1988.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) Sequoyah, Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 3 2 7 8 8 - 0 0 1 - 0 1	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
					0 5	OF 0 6

TEXT (If more space is required, use additional NRC Form 306A's) (17)

Immediately upon discovery of the failure to perform SI-116, M&S personnel issued a special performance package for the subject SI and revised the computer program used for SI scheduling to ensure SI-116 was applicable in all modes. In addition, M&S personnel immediately reviewed all SIs currently classified as "HA" and verified that no other SIs were incorrectly placed in that category. Similarly, following the discovery of the failure to perform SI-166.17, M&S personnel issued a special performance package of the subject SI and revised the computer program to ensure SI-166.17 was applicable in all modes. The subject SI was successfully completed on January 24, 1988.

M&S personnel also initiated an immediate review of all TS SIs to ensure all applicable mode requirements listed in the scheduling program were consistent with the applicability section in the SIs. All SI procedures that are common to units 1 and 2 or applicable to unit 2 only, have been reviewed. Three other instances, as listed below, were discovered where the mode applicability was incorrect; however, a review by M&S has shown that none of these instances had resulted in any TS SR being exceeded.

SI	Title	SR
162.1	Snubber Visual Inspection (Hydraulic and Mechanical)	4.7.9
162.2	Snubber Functional Testing (Hydraulic and Mechanical)	4.7.9
26.2B	Loss of Offsite Power with Safety Injection D/G 2B-B Test	4.8.1.1.2

All three of these instances involved the scheduling program indicating applicable modes "1-4" but the SRs required applicable modes of "1-6," and all of these errors were made during the conversion to the new scheduling program. All three of these instances have now been corrected on the scheduling program.

Immediately upon receiving the special performance package for SI-116, Chemistry personnel sampled and analyzed the fuel oil in the 7-day fuel oil tanks. Chemistry personnel also performed an immediate and comprehensive review of all other SIs under their cognizance and verified that there were no other discrepancies in the M&S database for Chemistry SIs. On January 12, 1988, following the successful completion of the D/G fuel oil analysis in accordance with SI-116, the D/Gs were returned to operable status (D/G 1A-A at 1205 EST, D/G 1B-B at 1330 EST, and D/Gs 2A-A and 2B-B at 1415 EST), and all D/G-related LCO action statements were exited.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) Sequoyah, Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 3 2 7	LER NUMBER (5)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
		8 8	0 0 1	0 1	0 6	OF 0 6

TEXT (If more space is required, use additional NRC Form 365A's) (17)

To prevent recurrence of these events and to improve SQN's overall surveillance program, TVA is implementing the following measures:

1. A review to evaluate all aspects of the acquisition and utilization of data used to schedule SIs. This review will include an evaluation of the methods used to update the SI scheduling computer program as well as the current performance of the computer program itself.
2. SQN Quality Assurance (QA) personnel will revise their regularly scheduled audits of the surveillance program to include expanded reviews which will verify the accuracy of the computer program's data base and ensure that established change control measures are being followed.
3. An "SI Coordinator" will be established within each SI performance organization. This individual will be technically qualified with that organization and will be responsible for interacting with M&S personnel for scheduling or updating SI packages, as well as ensuring SI test packages are adequately reviewed and returned to M&S in a timely manner.
4. For TS implementing SIs, approval to postpone, delete, or reschedule a scheduled performance must be obtained by the SQN plant manager or his designee.

The above described actions will ensure the technical adequacy of completed SI packages, decrease the scheduling errors, and improve the overall efficiency of the SQN surveillance program. These actions are expected to be implemented by June 1, 1988.

ADDITIONAL INFORMATION

There have been 5 previous occurrences of TS surveillance intervals that were exceeded due to scheduling errors - SQRO-327/85001, 85003, 85004, 85049, and 86013.

0835Q

TENNESSEE VALLEY AUTHORITY
Sequoyah Nuclear Plant
Post Office Box 2000
Soddy-Daisy, Tennessee 37379

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

Gentlemen:

TENNESSEE VALLEY AUTHORITY - SEQUOYAH NUCLEAR PLANT UNIT 1 - DOCKET NO.
50-327 - FACILITY OPERATING LICENSE DPR-77 - REPORTABLE OCCURRENCE REPORT
SQRO-50-327/88001 REVISION 1

The enclosed licensee event report is being revised to include an additional deficiency found in the surveillance instruction scheduling computer program and to provide additional corrective actions. This event was previously reported in accordance with 10 CFR 50.73, paragraph a.2.i.B, on January 23, 1988.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

S. J. Smith
Plant Manager

Enclosure
cc (Enclosure):

J. Nelson Grace, Regional Administrator
U. S. Nuclear Regulatory Commission
Suite 2900
101 Marietta Street, noncompliance
Atlanta, Georgia 30323

Records Center
Institute of Nuclear Power Operations
Suite 1500
1100 Circle 75 Parkway
Atlanta, Georgia 30339

NRC Inspector, Sequoyah Nuclear Plant

JE22
11