

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)
Sequoyah, Unit 2

DOCKET NUMBER (2)

0 5 0 0 0 3 2 8 1 OF 0 3

PAGE (3)

TITLE (4)

Reactor Trip

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(S)	
0	8	3	0	8	4	8	4	0	1	4	0 0 0 9 2 8 8 4	0 5 0 0 0

OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5: (Check one or more of the following) (11)									
POWER LEVEL (10)	01215	20.402(b)	20.406(c)	50.73(a)(2)(iv)	73.71(b)						
		20.406(a)(1)(i)	50.36(c)(1)	50.73(a)(2)(v)	73.71(c)						
		20.406(a)(1)(ii)	50.36(c)(2)	50.73(a)(2)(vi)	OTHER (Specify in Abstract below and in Text, NRC Form 365A)						
		20.406(a)(1)(iii)	50.73(a)(2)(i)	50.73(a)(2)(vii)(A)							
		20.406(a)(1)(iv)	50.73(a)(2)(ii)	50.73(a)(2)(vii)(B)							
		20.406(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(x)							

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
Glenn B. Kirk, Compliance Section Engineer	6115 81701-6146

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDs	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDs										
B	S	J	C	N	T	R	A	4	9	2	Yes								

SUPPLEMENTAL REPORT EXPECTED (14)

SUPPLEMENTAL REPORT EXPECTED (14)		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR			
<input checked="" type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)	<input type="checkbox"/> NO		1	2	2	8	8	4

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

On 08/30/84 unit 2 experienced a lo-lo steam generator reactor trip. During the event a main feedwater isolation valve failed to close due to a stuck contact and the "B" main feedwater pump reset itself due to an incorrect solenoid valve.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104

EXPIRES: 8/31/85

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
Sequoyah, Unit 2	0500032884	—	014	—	00	02	OF 03

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

During a normal startup on 08/30/84, unit 2 was in mode 1 (2235 psig, 558°F) at 25 percent reactor power with the "A" main feedwater pump in operation. The balance of plant operator was controlling steam generator levels with the main feedwater regulator valves in manual control. During switchover of the steam generator level controls from manual to automatic, steam generator #1 was overfed. The #1 steam generator high-high level trip setpoint was exceeded resulting in a turbine trip and feedwater isolation. The reactor operator immediately (with increasing level in the #1 steam generator) reduced reactor power in attempt to prevent an anticipated automatic reactor trip. With reactor power at approximately 5 percent the steam generator level shrink due to the feedwater isolation resulted in a lo-lo level in the #3 steam generator which tripped the reactor. The unit stabilized at 547°F following the reactor trip.

Following the reactor trip it was discovered that the "B" main feedwater pump (which had its steam supply isolated) had received a trip signal, had reset itself, but did not start in conjunction with the reset. In addition, feedwater isolation valve 2-FCV-3-47 to steam generator #2 had failed to close.

An investigation into the failure of the feedwater isolation valve 2-FCV-3-47 to close resulted in discovery that an auxiliary contact in the motor starter interlocks had stuck in an incorrect position preventing the contactor from operating to close the valve after receiving an isolation signal. Further inspection of the contact revealed that a gummy, sticky substance on the auxiliary contact(s) which appeared to be a lubricant had caused the contact to stick in the open position, thus preventing the valve from closing. The contacts were cleaned, the starter functionally tested, and the valve returned to service on 08/30/84.

A visual inspection of 1750 Arrow Hart breaker compartments was performed, which involved 28 safety-related and 30 nonsafety-related boards. This inspection revealed that 90 to 95 percent of the contactors had a lubricant on them which could be a potential problem. Three contacts were found in a mid-position but would still perform their safety-related function. These three contactors were also cleaned. Research into operational experience information (INPO, I&E Bulletins, I&E Notices, etc.) revealed no similar occurrences.

Discussions with the vendor of the contactors, Arrow Hart, revealed that a lubricant had been used during manufacturing of these contactors. The lubricant was identified as Cosmolub #102, manufactured by E. F. Houghton Company. Discussion with E. F. Houghton personnel identified the lubricant as a high temperature grease made of benton clay and oil. E. F. Houghton personnel stated that over a long (not defined by vendor) period of time the clay and oil may separate and possibly become sticky.

Two contactors which had unusual amounts of the lubricant which was in a gummy state have been removed from the plant. One has been sent to Arrow Hart for analysis and the other sent to a TVA laboratory for analysis along with a sample of the Cosmolub #102 lubricant. This information is being evaluated for reportability under 10 CFR 21 and a final determination will be made when the results of the analyses are received. A supplemental LER will be provided when the results of the analyses are received.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104

EXPIRES: 8/31/85

FACILITY NAME (1) Sequoyah, Unit 2	DOCKET NUMBER (2) 0 5 0 0 0 3 2 8	LER NUMBER (6)			PAGE (3)		
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TEXT (If more space is required, use additional NRC Form 365A's) (17)

The 1750 breaker compartments inspected involved inspection of approximately 7000 contacts. Since only four contacts were found stuck, the failure rate is estimated to be .05 percent. Based on this substantially low failure rate no additional immediate corrective action is considered necessary. When the analyses are completed, decisions as to (1) whether the contactors required lubrication, (2) if the contactors require lubrication then what kind of lubricant should be used, and (3) what solvent should be used to remove the old lubricant and gummy substance will be made. Other TVA plants; Watts Bar, Browns Ferry, and Bellefonte have been notified of this occurrence.

Investigation into the "B" main feedwater pump self reset resulted in discovery that the overspeed trip reset solenoid valve was leaking through. This caused the pump to reset itself without a reset command from the main control room or local control station. Further research revealed that the solenoid valve was not the proper solenoid for the application. The solenoid had been replaced on 08/23/84 with an ASCO Model 8320A179, which has a maximum operating differential pressure rating of 12 psi. Maintenance personnel had used nameplate data which had an obliterated model number to obtain a replacement solenoid. With the model number on the nameplate unreadable, the differential pressure rating shown on the nameplate was used to find a replacement, but the differential pressure rating was incorrectly labeled as 20 psi on the nameplate. Maintenance personnel were unable to locate a 20 psi differential pressure rated solenoid and contacted Westinghouse to determine if a 12 psi rated solenoid was acceptable as a replacement for the 20 psi rated solenoid. Westinghouse personnel agreed that the 12 psi solenoid would be an acceptable replacement for the 20 psi rated solenoid. Maintenance personnel also questioned Westinghouse representatives on the fact that a 20 psi rated solenoid was being used in an application where the operating differential pressure was approximately 160 psi. Westinghouse personnel responded that an orifice was in the line to reduce the differential pressure. The 12 psi rated solenoid was installed and satisfactorily functionally tested on 08/23/84 with no leakage. With an actual operating differential pressure across the solenoid of approximately 160 psi, the 12 psi rated solenoid did not prevent the subsequent leakage and the main feedwater pump self reset.

The proper solenoid is an ASCO Model 8320A182. The proper solenoid was installed on 09/05/84. The solenoid valves on the other three feedwater pump turbines have been checked and are correct. A revision to the vendor manual is being initiated to reference the proper ASCO model number of this valve.

All other equipment and personnel performed as expected during and after the reactor trip. There was no effect on public health or safety. For 1984 this has been the second automatic reactor trip for unit 2 and the second automatic reactor trip on lo-lo steam generator level for unit 2. (Reference SQRO-50-328/84008).

TENNESSEE VALLEY AUTHORITY

Sequoyah Nuclear Plant
Post Office Box 2000
Soddy Daisy, Tennessee 37379

September 28, 1984

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

Gentlemen:

TENNESSEE VALLEY AUTHORITY - SEQUOYAH NUCLEAR PLANT UNIT 2 - DOCKET NO.
50-328 - FACILITY OPERATING LICENSE DPR-79 - REPORTABLE OCCURRENCE REPORT
SQRO-50-328/84014

The enclosed licensee event report provides details concerning an automatic reactor trip on lo-lo steam generator level. This event is reported in accordance with 10 CFR 50.73, paragraph a.2.iv.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

P. R. Wallace
P. R. Wallace

Plant Manager

Enclosure
cc (Enclosure):

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NRC Inspector, NUC PR, Sequoyah

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