TENNESSEE VALLEY AUTHORITY

OFFICE OF NUCLEAR POWER
SEQUOYAH NUCLEAR PLANT

MONTHLY OPERATING REPORT

TO THE

NUCLEAR REGULATORY COMMISSION

APRIL 1988

UNIT 1

DOCKET NUMBER 50-327

LICENSE NUMBER DPR-77

UNIT 2

DOCKET NUMBER 50-328

LICENSE NUMBER DPR-79

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OPERATIONAL SUMMARY

PERFORMANCE SUMMARY

April 1988

The following summary describes the significant operational activities for the month of April. In support of this summary, a chronological log of significant events is included in this report.

Unit 1 remained in an administrative shutdown the entire month because of design control review, configuration control updating, and resolution of significant employee concerns. Outage-related maintenance and modifications are being performed. Unit 1 has been off line 982 days. Preparations continue for unit 2 restart and power operation. Unit 2 has been off line 983 days.

SIGNIFICANT OPERATIONAL EVENTS

Unit 1

Date	Time	Event
04/01/88	0001E	The reactor was in mode 5. The administrative shutdown due to design control review, configuration control updating, and resolution of significant employee concerns continues.
04/30/88	2400E	The reactor was in mode 5. The administrative shutdown due to design control review, configuration control updating, and resolution of significant employee concerns continues.

Unit 2

Date	Time	Event
04/01/88	0030E	Mode 3, RCS at 375 degrees, 900 psi. Activities continue for power operation.
	2300E	Maintenance on the pressurizer safety valves is complete.
04/02/88	0325E	Began heatup for pressurizer safety valve testing.
	1616E	RCS at 384 degrees, 1765 psi.
	1723E	Testing begins on pressurizer valve 68-563. Valve inoperable.
	2300E	Begin cooldown, valve failed acceptance criteria.
	2320E	Terminate cooldown, valve meets acceptance criteria.
	2325E	Began heatup.

Unit 2

Date	Time	Event
04/03/88	1635E	RCS at 545 degrees, 2235 psi. Valve activities continue.
	1748E	Testing begins on pressurizer valve 68-564.
	1752E	Valve inoperable.
	2030E	Begin cooldown, valve failed acceptance criteria.
	2301E	Terminate cooldown, valve meets acceptance criteria. RCS at 421 degrees, 1750 psi.
04/04/88	1344E	Testing begins on pressurizer valve 68-565. Valve inoperable.
	1457E	Testing terminated, valve meets acceptance criteria.
	1526E	Begin heatup.
04/05/88	0129E	RCS at 547 degrees, 2235 psi. Activities continue for power operation.
04/06/88	1745E	Primary to secondary leakage based tritium analysis, 435 gallons/day. Within technical specifications.
	1846E	Loop No. 4 isolated for leakage.
	2148E	Loop No. 4 in service.
	2211E	Initiate leak testing on loop No. 3.
04/07/88	0815E	Tube leak on No. 3 S/G, 234 gal/day.
	1740E	Initiated cooldown to repair No. 3 S/G tube leak.
	2323E	Entered mode 4.
04/08/88	1010E	Entered mode 5.
	1615E	RCS at 120 degrees, 250 psi.
	2115E	Draining No. 3 S/G for tube plugging.
04/10/88	1035E	No. 3 S/G drained.
	1659E	RCS at 122 degrees, zero pressure.

Unit 2

Date	Time	Event
04/14/88	0030E	Tube identified in No. 3 S/G. Leak found in row No. 1.
	1800E	The remaining S/Gs will be tested. Row No. 1 of all S/Gs will be plugged.
04/20/88	0600E	Manways off all S/Gs.
04/21/88	0700E	S/G tube plugging in progress.
04/25/88	1448E	All S/G's manways are on and torqued. Maintenance complete.
04/30/88	2400E	RCS at 124 degrees, zero pressure. Activities continue for restart and power operation.

FUEL PERFORMANCE

Unit 1

The core average fuel exposure accumulated during April was 0 MWD/MTU with the total accumulated core average fuel exposure of 0 MWD/MTU.

Unit 2

The core average fuel exposure accumulated during April was 0 MWD/MTU with the total accumulated core average fuel exposure of 8097.51 MWD/MTU.

SPENT FUEL PIT STORAGE CAPABILITIES

The total storage capability in the SFP is 1,386. However, there are five cell locations which are incapable of storing spent fuel. Four locations (A10, A11, A24, and A25) are unavailable due to a suction strainer conflict, and one location (A16) is unavailable due to an instrumentation conflict. Presently, there is a total of 348 spent fuel bundles stored in the SFP. Thus, the remaining storage capacity is 1,033.

PORVs AND SAFETY VALVES SUMMARY

No PORVs or safety valves were challenged in April 1988.

SPECIAL REPORTS

The following special reports were submitted to NRC in April 1988.

1-88-07 On March 20, 1988, at 1200E, all four fire pumps were technically inoperable in accordance with TSs and LCO 3.7.11.1 was entered. Fire pumps 1A-A and 1B-B were removed from service for routine testing of fire pump 1A-A while fire pumps 2A-A and 2B-B were inoperable because of a design deficiency described in LER SQRO-50-327/87042, Revision 1. The design deficiency identified that during a LOCA, the fire pumps could start and potentially degrade the auxiliary power system and overload the standby emergency power source. Even though the fire pumps were technically inoperable, all four pumps were available utilizing operator action. Surveillance testing of fire pump 1A-A was successfully completed on March 20, 1988, and LCO 3.7.11.1 was exited at 1707E with fire pumps 1A-A and 1B-B operable.

On March 23, 1988, at 1403E, all four fire pumps were again inoperable to perform surveillance testing on fire pump 1B-B. Upon successful completion of surveillance testing, LCO 3.7.11.1 was exited at 2034E with fire pumps 1A-A and 1B-B operable.

SPECIAL REPORTS (continued)

2-88-08 Fire door C-14 (to auxiliary instrument room, unit 1, control building elevation 685) was opened and was not returned to operable status within the 7-day limit allowed by TS LCO 3.7.12. It was opened due to a broken door knob. The door was capable of being closed and latched, but could not be opened easily without the knob. The door was opened March 1, 1988, and returned to functional status on March 11, 1988.

LICENSEE EVENT REPORT(S)

The following licensee event reports (LERs) were transmitted to the Nuclear Regulatory Commission in April 1988.

LER	Description of Event
1-88013	On March 14, 1988, at 1200E, it was discovered that four S/G blowdown system RMs had not been adequately functionally tested. They have not been tested to ensure they can provide a close signal to the FCVs and that the FCVs will close upon receipt of a high radiation condition in the S/G blowdown effluent to the cooling tower blowdown line or as a result of a loss of instrument power. The functional tests are required to meet a quarterly TS SR 4.3.3.9. Subsequent to the discovery of this condition, manual valves in series with the FCVs were locked closed and tagged to preclude an inadvertent release via this pathway. The cause of this condition is attributed to an oversight during the implementation of the SI Review Program. This program was implemented, in part, to ensure all SRs are implemented within the Sequoyah SI network. As corrective actions, the unit 2 SI used to functionally test RMs that provide automatic functions was revised to include these functional tests. The tests were satisfactorily completed following the revision, and the unit 2 manual control valve was reopened. The applicable unit 1 SI will also be revised in a similar manner, and the functional tests will be satisfactorily completed before the unit 1 restart.
1-88014	On March 14, 1988, with unit 1 in mode 5, a train "A" CVI occurred at approximately 1110E while maintenance was being performed. Instrument Maintenance (IM) personnel improperly actuated the local start switch for the sample flow pump on containment purge exhaust 1-RM-90-130. The switch actuation caused a spurious high radiation spike that was of sufficient magnitude and duration to trip the associated RM circuitry and initiate a unit 1 CVI. Operations personnel verified that the CVI was not caused by an actual high radiation condition and then reset the CVI.

LER	Description of Event
1-88014 (cont.)	The immediate cause of this event was an EMI-induced high radiation spike. During subsequent investigation, it was determined that actuation of the pump switch induced EMI to the RM sample pump status (on/off) circuitry and resulted in the CVI. The root cause of this event was the failure of IM personnel to comply with applicable configuration control requirements. Following the completion of a postmodification test, the subject switch was not returned to its original configuration. As soon as IM personnel discovered this, they returned the switch to the proper position without notifying Operations and requesting the RM's output signals to be blocked. For immediate corrective action, the CVI was reset and a memorandum was sent to all IM personnel stating that Operations personnel shall be contacted and the RM trip signal blocked before performing any work on RMs capable of actuating ESF equipment. Also, the RM sample pump motor switch will be replaced before unit 1 entry to mode 4. SQN is continuing the investigation of the event and will submit a supplemental report by May 31, 1988, describing actions taken to prevent recurrence of this event.
1-88015	On March 17, 1988, at 1500E, it was discovered that TS SR 4.11.2.1.2 was not completely incorporated into the implementing procedure. TS SR 4.11.2.1.2 is implemented, in part, by SI-410.2, "Containment (Upper, Lower) Purge," which only requires that a sample be taken and analyzed of the compartment to be purged since the containment purge system can be aligned for purging the upper or lower containment compartments. TS SR 4.11.2.1.2 requires an upper and lower containment sample to be taken for radioactivity analysis before all containment purge operations. The cause of SI-410.2 incompletely implementing TS SR 4.11.2.1.2 is attributed to an oversight during the SQN initial SI-1, "Surveillance Program," Appendix F review of SI-410.2. This SI is used to review SIs in order to ensure TS SR are properly implemented. The oversight made during the review was the failure to require that both containment compartments be sampled and analyzed in SI-410.2. SI-1, Appendix F reviews were conducted on all SIs during initial program implementation in 1986. No immediate operator actions were required because a containment purge was not in progress at the time of the discovery. As corrective actions to properly implement TS SR 4.11.2.1.2, SI-410.2 was revised on March 18, 1988, to require that samples be taken from the upper and lower containment compartments before conducting containment purge operations.

LER	Description of Event
1-88016	On March 24, 1988, at approximately 1021E, a main steam line isolation signal occurred when an inadvertent actuation of a high steam flow bistable (1-FS-1-10B) occurred. At the time of this event, another high steam flow bistable (1-FS-1-21A) was already in the tripped condition because of ongoing maintenance work. Also, the lo-lo T_{avg} (RCS temperature average below 540 degrees F) and low steam line pressure (below 600 psig) signals were present because of the plant being in mode 5. Therefore, all the required logic was completed (high steam flow in two out of four loops coincident with lo-lo T_{avg} or low steam line pressure in two out of four loops) to give the ESF actuation signal. The SI signal also generated from this logic was blocked as allowed by TS 3.3.2.1 below permissive P-12 (T_{avg} below 540 degrees F). Therefore, since the MSIVs were already closed for mode 5 and the automatic SI circuitry was blocked, no equipment was actuated. An immediate investigation was initiated into the root cause of the inadvertent bistable actuation (1-FS-1-10B), but no root cause has been determined. An investigation is continuing into the root cause of this event. A supplemental report will be submitted by May 31, 1988, to provide details of this investigation and any necessary recurrence control actions.
1-88017	On March 31, 1988, at 1946E, a train "A" CVI occurred on unit 1. While performing routine auxiliary building rounds, an AUO noticed that the abnormal flow alarm light for the containment purge exhaust RM (1-RM-90-130) was illuminated on the local panel. In order to clear the abnormal flow indicator, the AUO jogged the RM sample pump switch. Upon depressing the pump switch stop button, the AUO received indication of an increased radiation count rate that exceeded the monitor's trip values, resulting in a trip alarm. The AUO then notified the unit 1 UO of his actions and observations. Upon receiving the AUO's report, the UO checked the status of the containment ventilation systems by review of the MCR associated isolation valves' indicator lights and found that a train "A" CVI had occurred. The UO verified that a high containment radiation condition did not exist by reviewing the 1-RM-90-130 trace recording in the MCR, then proceeded to return the containment ventilation system to normal in accordance with SOI-30.2B, "Containment Ventilation System Isolation." The root cause of this event is attributed to improperly controlling the operation of the sample pump local switch after it had been identified as an immediate cause of a previous CVI. When the RM pump switch was found to have worn contacts during the investigation of a previous CVI (reference LER 50-327/88014), the pump switch should have been tagged to ensure another switch actuation would not occur before replacement of the switch. For interim corrective actions, an HO was placed on the local sample pump switch to prevent operation. As permanent corrective actions to prevent recurrence, the local sample pump switch will be replaced before unit 1 enters mode 4.

Description of Event

LER	
1-86022 Rev. 1	This revision updates the corrective action section to accurately reflect the recurrence control.
1-87078 Rev. 2	This revision provides information on long-term corrective action.
1-88010 Rev. 1	This revision updates the corrective action.
1-88011 Rev. 1	This revision provides additional information regarding the corrective actions taken to prevent the recurrence of this event.
1-88S02	On March 28, 1988, at approximately 1300E, two plant laborers who were cleaning overhead pipe hangers in the unit 1 MOV board room (elevation 749 of the auxiliary building--a vital area) discovered a paper wrapper enclosed in a cellophane bag suspected to contain a small quantity of a controlled substance. The laborers were using a vacuum to clear out the pipe hangers, which were hollow hangers approximately eight feet off of the floor, when the substance was found. Upon this discovery, NSS was immediately notified. The NSS removed the substance from the vital area for examination and to conduct a field test. The substance had probably been placed in the hanger some time during the construction phase of the plant, as the paper in the bag was very brittle and had turned to a yellow color. At approximately 1420E, the field test confirmed that the substance found was marijuana. At this time, a one-hour phone call was made to NRC in accordance with 10 CFR 73.71 requirements. A followup search was conducted of the remaining pipe hangers in the area with negative results. A narcotics dog was also used to check the area. This search also did not produce any additional findings. The cause of this event is unknown. The marijuana found in the pipe hanger had obviously been in the hanger for quite a long time, possibly since construction timeframes. Thus, it would be almost impossible to determine who brought the substance into the plant.
NOTE:	Beginning with this LER, the numbering system for safeguard LERs is being changed to be consistent with guidance in NUREG 1304 issued in February 1988. The numbering system will change from LERs with "500" numbers (i.e., 1-88-501) to numbers with an "S00" (i.e., 1-88S01).

Description of Event

LER

2-88011 At 2030E on March 6, 1988, with unit 2 in mode 3 (1600 psig, 450 degrees F), the unit 2 cold leg accumulator 3 was declared inoperable due to the failure to perform SR 4.5.1.1.1.b, which requires verification of the boron concentration within six hours after each solution volume increase for greater than or equal to one percent of the tank's volume. The RCS inventory at 1600 psig was leaking into the cold leg accumulator 3 at 400 psig; therefore, the accumulator had to be drained periodically. After draining the accumulator, it was refilled with RCS inventory. The Operations shift crews did not consider the increase due to the fact that the RCS leak was a filling operation; hence, the Radiochemistry Laboratory was not notified to verify the boron concentration in cold leg accumulator 3.

The cold leg accumulators are designed to ensure a sufficient volume of borated water will be forced into the core in the event of a large line break. At the time of this event, the RCS boron concentration was above 2000 ppm; thus, the inleakage into the accumulator would not have caused a dilution of the accumulator below TS limits. The missed SR did not have an adverse affect on the safety of the plant.

The causes and corrective action sections of this report will be revised by May 15, 1988, to detail the results of the investigation of this event.

2-88012 On March 5, 1988, at approximately 2230E, with unit 2 in mode 3, it was discovered that 2-LCV-3-175, which supplies AFW from the turbine-driven AFW pump to number 4 S/G, could not be opened from the MCR. However, the Operations shift crew did not immediately enter LCO 3.7.1.2 because it was believed that a previous TS interpretation involving LCOs 3.0.5 and 3.7.1.2 allowed this condition to exist without entering the LCO. Following a subsequent evaluation of this event, SQN determined that action statement (b) to LCO 3.7.1.2 had been applicable during this event and a late entry was made into the subject LCO. A similar event occurred on March 6, 1988, at approximately 2120E. In this case, Instrument Maintenance personnel were backfilling an instrument sensing line to correct a deviation in S/G 4 level indicator LI-3-107. Since this level indicator shares a common sensing line with level transmitter LT-3-175, which controls 2-LCV-3-175 position, the backfilling procedure required the subject LCV to be placed in manual. At this time, the Operations shift crew did not declare the valve inoperable because it was known that an automatic AFW signal would override the manual control mode. However, because the sensing line for 2-LCV-3-175 was inoperable, it could not be assured that the subject valve could properly control the level. Thus, the valve should have been declared inoperable, and LCO 3.7.1.2 should have been entered. The events were caused by an inadequate and improperly utilized TS interpretation. In addition, the procedure that was used to backfill the common sensing line of the subject level instrumentation did not adequately address the applicability of LCO 3.7.1.2. In order to prevent the recurrence of this event, plant procedures have been revised and operator training increased, and a formal review of all TS interpretations currently in use was performed.

LER	Description of Event
2-88013	This summary described three events in which a manual reactor trip was initiated in accordance with the action statement of TS LCO 3.1.3.3. On March 16 and 17, 1988, with unit 2 in mode 3, rod control system testing was being performed in preparation for entry into mode 2. At two different times during the performance of this testing, it was determined that the rod group demand position indication was not within ± 2 steps of the actual demand position as required by TS LCO 3.1.3.3. As a result, plant operators complied with the action statement of the subject LCO and opened the reactor trip breakers. On March 19, 1988, unit 2 was maintaining mode 3 conditions while additional testing of the rod control system was performed. During this testing, rod group movement for shutdown bank "B" was out of sequence by three steps. Although the demand step counters accurately indicated rod position, the operator conservatively assumed that LCO 3.1.3.3 was applicable and opened the reactor trip breakers. The first event was caused by a failure of the demand step counter circuitry, and the second event was caused by internal binding of the step counter itself. In both of these events, the rod groups moved as designed. The third event was caused by an open switch to the rod lift coils that precluded movement of one group of rods. As a result, a shutdown bank was withdrawn out of sequence, and the operator conservatively tripped the reactor, even though the rod demand position indication was accurate. To prevent recurrence of these events, various components have been replaced in the rod control system, and procedures will be implemented to clean and test the rod control circuitry on a periodic basis. Also, LCO 3.1.3.3 will be evaluated to determine if a change to this LCO is appropriate.
2-88014	On March 20, 1988, at 0702E, with unit 2 in mode 3 (547 degrees F, 2235 psig), an ESF signal was generated while placing the "A" string intermediate pressure heaters in service for filling and deaerating portions of the condensate system. A pressure anomaly in the condensate system occurred while opening 2A intermediate heater isolation valve from the MCR. The condensate piping downstream of the intermediate heaters was at low pressure due to vacuum in the main condenser and the 2B main MFWP recirculation valve to the condenser being partially open. The pressure change in the condensate system caused MFWP gland seal injection water pressure to drop below the MFWP trip setpoint. Since only one gland seal injection pump was in service, the pressure drop could not be compensated for and subsequently tripped both MFWPs. This condition generated an AFW pump start signal as designed. Since both motor-driven AFW pumps were in service at the time of the event (as part of normal plant operation during mode 3), only the turbine-driven feedwater pump started (ESF actuation). The immediate cause of the event was concluded to be the balance of plant system perturbation. The root cause of the event was that the MFWP trip bus was not deenergized during filling and deaerating the condensate

Description of Event

LER

2-88014 (cont.) system. At 0703E, the seal injection water pressure returned to normal, the MCR operators stopped the turbine-driven AFW pump, removed the auto start signal, and stabilized the plant condition. As a corrective action, appropriate plant procedures will be revised to deenergize MFWP trip bus while filling and deaerating the condensate system and reenergize the trip bus before entry into mode 2.

2-88015 On March 24, 1988, while unit 2 was in mode 3, Electrical Maintenance (EM) personnel were performing maintenance on train "A" reactor trip bypass breaker in accordance with an approved maintenance instruction (MI). At approximately 0130E, during the performance of the bypass breaker cell switch inspection, an inadvertent train "A" MFI occurred. This was the result of a reactor trip breaker "open" signal concurrent with a low RCS average temperature. A subsequent evaluation of this event revealed that the trip breaker "open" signal was the result of EM personnel operating the cell switch in the train "A" bypass breaker compartment as required by MI-10.9.2. All maintenance activities on the reactor trip bypass breakers were halted and actions were taken to stabilize the plant.

A review of the procedure revealed that it did not have the necessary steps to preclude an MFI when more than one reactor trip breaker was "racked out" or completely removed from its compartment. In addition, an evaluation that had been performed to assess the impact of MI-10.9.2 on plant operation was inadequate. To prevent recurrence of this event, instruction change forms were issued to permanently change the MIs for the reactor trip breakers as well as the bypass breakers. Also, a review of the content of this LER will be performed with the personnel responsible for reviewing the plant impact evaluation associated with the performance of the MIs. In addition, TVA will review this event with individuals involved in the field validation of the subject MIs.

2-88016 During in-service pressurizer code safety valve lift pressure setpoint testing conducted on April 2-4, 1988, with unit 2 in hot standby, all three relief valves exceeded the TS lift setting. Upon this discovery, each valve was declared inoperable, the appropriate action statement of TS was entered, setpoint adjustments were made, and subsequent testing was conducted to ensure compliance with TS. The in-service testing performed on April 2-4, 1988, determined the valve lift settings through calculations based on measured parameters using a lift assist assembly (Trevitest). The previous testing and adjustments of these lift settings were made during a bench test at a contract laboratory using hot nitrogen pressure as the lifting medium.

On April 8, 1988, unit 2 was returned to cold shutdown in order to locate and repair S/G tube leaks. At this time, the relief valves were removed and sent to the same contract laboratory for additional bench testing. The bench testing was conducted using water as the lifting medium. Test pressure was controlled by regulating the nitrogen pressure which was loaded on the water system. During this

LER	Description of Event
2-88016 (cont.)	testing, the valve lift settings did not meet the TS required setpoint until adjustments were made. The lift settings determined by this bench test were below the TS limit. Sequoyah chose to recognize these bench test results for the lift settings. With this position, the valves were rendered inoperable during the performance of the in-service testing. The cause of this event was attributed to several factors: 1) different methodology used to determine the valves' lift settings between the in-service and bench tests, 2) the replacement of valve parts made before the most recent bench test was conducted, and 3) the different environmental conditions between the in-service and bench testing. As corrective actions to prevent recurrence, a consistent method will be used to determine the pressurizer code safety valve lift settings.
2-88017	On April 1, 1988, an inadvertent reactor trip signal was generated on unit 2 when Operations personnel attempted to secure a control power fuse on the source range (Neutron Flux Channel N-31). The fuse locks into position by a metal connector that has two metal tabs that lock into the fuse holder as the connector is inserted and rotated. Attached to the outer portion of the fuse connector is a plastic cover that is used to facilitate removal/installation of the fuse. The plastic cover has two flat surfaces that are normally in the horizontal position when the fuse connector is locked into position correctly. Before this event, the plastic cover was observed to be rotated slightly such that the flat surfaces were not horizontal. Thus, the fuse appeared to be in a condition such that the potential existed for the fuse to disconnect at any time and generate a reactor trip signal. When Operations personnel attempted to lock the fuse in place, control power was interrupted momentarily and, subsequently, the reactor trip signal generated. No reactor trip occurred because the reactor trip breakers were open and the rods inserted. The fuse was left in place with control power restored and the trip signal reset; but the flat surfaces on the plastic cover still did not line up. The fuse assembly was subsequently replaced on April 13, 1988, and the only deviation found, as compared with other similar fuse connectors, was that the outer plastic cover was rotated slightly. This is a cosmetic condition only and has no effect on the function of the fuse. The cause of this event is attributed to the lack of a work document being initiated before manipulating the fuse and a misunderstanding of the fuse connector construction. To prevent recurrence, this event will be reviewed with Operations shift personnel by May 31, 1988, to emphasize the need for proper work package preparation before work and to provide an awareness of the construction of this type fuse assembly.

Description of Event

LER

2-88018 On March 30, 1988, at 1440E while unit 2 was in hot standby, it was discovered that a threaded cap was installed on a tube fitting tee in the sense line to a local pressure gauge (2-PI-63-74). The gauge is installed between the inboard and outboard containment isolation valves in a test system line used to measure RCS boundary valve seat leakage. Due to the location of the cap, it serves as a boundary required to satisfy containment integrity requirements. When Operations personnel were made aware of the pipe cap finding, the action statement of TS LCO 3.6.1.1 was entered for appropriate compensatory measures. This event was caused by an inadequate review by SQN of the penetration which had a threaded cap following receipt of the NRC position. This review has since been verified to be complete. No additional penetrations were found to have inadequate containment integrity devices.

2-88019 At 1215E on April 7, 1988, with unit 2 in mode 3, it was determined that TS LCO 3.0.3 had been in effect since approximately 1156E that morning. This LCO was applicable because the handswitches for the "B" train RHR pump and the "A" train CCP had both been placed in the "pull-to-lock" position, thereby rendering both pumps inoperable. As a result, two independent trains of ECCS subsystems were not available, and unit 2 was not in compliance with either the LCO or the action requirements of TS 3.5.2. At 1226E, CCP 2A-A was returned to service and LCO 3.0.3 was exited.

The immediate cause of this event was a personnel error that resulted from the high level of activity in the MCR. The root cause of this event was inadequate work control. The handswitches for both pumps were placed in the "pull-to-lock" position in accordance with approved plant procedures; however, these procedures should not have been allowed to be performed concurrently. To ensure that the activity in the MCR is maintained at a reasonable level during the restart of unit 2, the shift operations advisor will assist the shift supervisor in monitoring the activity level in the MCR and recommend that activities be slowed or stopped when, in his opinion, too many activities are in progress simultaneously. In addition, SQN will revise the plant procedure for work control to ensure that activities controlled by Operations are adequately considered during the work impact evaluation.

2-88003 Rev. 1 This revision updates the cause and corrective action sections of this report.

2-88005 Rev. 1 This revision provides an update of completed corrective actions and a restated event analysis.

ABBREVIATIONS
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1.	ABGTS	-	Auxiliary Building Gas Treatment System
2.	ABSCE	-	Auxiliary Building Secondary Containment Enclosure
3.	ABI	-	Auxiliary Building Isolation
4.	AFW	-	Auxiliary Feedwater
5.	AOI	-	Abnormal Operating Instruction
6.	AUO	-	Assistant Unit Operator
7.	BAT	-	Boric Acid Storage Tank
8.	BIT	-	Boron Injection Tank
9.	CAQR	-	Condition Adverse To Quality Report
10.	CCP	-	Centrifugal Charging Pump
11.	CCW	-	Component Cooling Water
12.	CRI	-	Control Room Isolation
13.	CREVS	-	Control Room Emergency Ventilation System
14.	CSS(CS)	-	Containment Spray System
15.	CVI	-	Containment Ventilation Isolation
16.	D/G(s)	-	Diesel Generator(s)
17.	DCR	-	Design Change Request
18.	DNE	-	Division of Nuclear Engineering
19.	ECCS	-	Emergency Core Cooling System
20.	ECN	-	Engineering Change Notice
21.	EGTS	-	Emergency Gas Treatment System
22.	EMI	-	Electromagnetic Interference
23	EQ	-	Environmentally Qualified/Environmental Qualification
24.	ERCW	-	Essential Raw Cooling Water
25.	ESF(A)	-	Engineered Safety Feature (Actuation)
26.	FCV	-	Flow Control Valve
27.	FSAR	-	Final Safety Analysis Report
28.	FWI	-	Feedwater Isolation
29.	GOI	-	General Operating Instruction
30.	GPM	-	Gallons Per Minute
31.	HO	-	Hold Order
32.	IMI	-	Instrument Maintenance Instruction
33.	LCV	-	Level Control Valve
34.	LCO	-	Limiting Condition for Operation
35.	LOCA	-	Loss Of Coolant Accident
36.	MAST	-	Maximum Allowable Stroke Time
37.	MFI	-	Main Feedwater Isolation
38.	MFP	-	Main Feedwater Pump
39.	MOV	-	Motor Operated Valve
40.	MSI	-	Main Steam Isolation
41.	MSIV	-	Main Steam Isolation Valve
42.	MCR	-	Main Control Room
43.	NSS	-	Nuclear Security Service
44.	NSSS	-	Nuclear Steam Supply System
45.	PORC	-	Plant Operation Review Committee
46.	PRO	-	Potential Reportable Occurrence
47.	RCS	-	Reactor Coolant System
48.	RHR	-	Residual Heat Removal
49.	RM	-	Radiation Monitor (RAD Monitor/RAD MON)
50.	RWST	-	Refueling Water Storage Tank

51. SCR - Significant Condition Report
52. SFP - Spent Fuel Pit
53. S/G(s) - Steam Generator(s)
54. SI - Surveillance Instruction/or Safety Injection
55. SMI - Special Maintenance Instruction
56. SOI - System Operating Instruction
57. SQN - Sequoyah Nuclear Plant
58. SR - Surveillance Requirement
59. SSPS - Solid State Protection System
60. TACF - Temporary Alteration Control Form
61. TI - Technical Instruction
62. TS(s) - Technical Specification(s)
63. UO - Unit Operator
64. WP - Workplan
65. WR - Work Request

OFFSITE DOSE CALCULATION MANUAL CHANGES

No changes were made to the SQN Offsite Dose Calculation Manual (ODCM) in April 1988.

RADWASTE SUMMARY

April 1988

1. Total volume of solid waste shipped offsite:

   A. Dry active waste: 936 ft.^{3}, Activity: 3.9067 curies

   B. Spent resins, sludges, bottoms: 94 ft.^{3}, Activity: 2.5595 curies

   Shipped: April 22, 1988 Chem-Nuclear, Inc.

2. Radwaste on site and awaiting shipment:

   A. Resin in storage: 109 ft.^{3}

   B. Estimate resin that will be generated: 148 ft.^{3}

   C. Dry active waste: Number of drums - 32

      Number of boxes - 6

OPERATING STATISTICS
(NRC REPORTS)

OPERATING DATA REPORT

DOCKET NO. 50-327
DATE MAY 05, 1988
COMPLETED BY D.C.DUPREE
TELEPHONE (615)870-6722

OPERATING STATUS

1. UNIT NAME: SEQUOYAH NUCLEAR PLANT, UNIT 1 NOTES:
2. REPORT PERIOD: APRIL 1988
3. LICENSED THERMAL POWER(MWT): 3411.0
4. NAMEPLATE RATING (GROSS MWE): 1220.6
5. DESIGN ELECTRICAL RATING (NET MWE): 1148.0
6. MAXIMUM DEPENDABLE CAPACITY (GROSS MWE): 1183.0
7. MAXIMUM DEPENDABLE CAPACITY (NET MWE): 1148.0
8. IF CHANGES OCCUR IN CAPACITY RATINGS(ITEMS NUMBERS 3 THROUGH 7)SINCE LAST REPORT, GIVE REASONS: _____
9. POWER LEVEL TO WHICH RESTRICTED, IF ANY(NET MWE): _____
10. REASONS FOR RESTRICTIONS, IF ANY: _____

	THIS MONTH	YR.-TO-DATE	CUMULATIVE
11. HOURS IN REPORTING PERIOD	719.00	2903.00	59904.00
12. NUMBER OF HOURS REACTOR WAS CRITICAL	0.00	0.00	24444.91
13. REACTOR RESERVE SHUTDOWN HOURS	0.00	0.00	0.00
14. HOURS GENERATOR ON-LINE	0.00	0.00	23781.13
15. UNIT RESERVE SHUTDOWN HOURS	0.00	0.00	0.00
16. GROSS THERMAL ENERGY GENERATED (MWH)	0.00	0.00	77060971.91
17. GROSS ELECTRICAL ENERGY GEN. (MWH)	0.00	0.00	25976386.00
18. NET ELECTRICAL ENERGY GENERATED (MWH)	-4239.00	-23140.00	24831183.00
19. UNIT SERVICE FACTOR	0.00	0.00	39.70
20. UNIT AVAILABILITY FACTOR	0.00	0.00	39.70
21. UNIT CAPACITY FACTOR(USING MDC NET)	0.00	0.00	36.11
22. UNIT CAPACITY FACTOR(USING DER NET)	0.00	0.00	36.11
23. UNIT FORCED OUTAGE RATE	100.00	100.00	53.33

24. SHUTDOWNS SCHEDULED OVER NEXT 6 MONTHS (TYPE, DATE, AND DURATION OF EACH): _____

25. IF SHUTDOWN AT END OF REPORT PERIOD, ESTIMATED DATE OF STARTUP: STARTUP IS DETERMINED AT THIS TIME PENDING DESIGN CONTROL REVIEW, CONFIGURATION CONTROL UPDATING, AND RESOLUTION OF SIGNIFICANT EMPLOYEE CONCERNS.

NOTE THAT THE THE YR.-TO-DATE AND CUMULATIVE VALUES HAVE BEEN UPDATED.

SEQUOYAH NUCLEAR PLANT
AVERAGE DAILY POWER LEVEL

DOCKET NO. : 50-327
UNIT : ONE
DATE : MAY 02,1988
COMPLETED BY : D.C.DUPREE
TELEPHONE : (615)870-6722

MONTH: APRIL 1988

DAY	AVERAGE DAILY POWER LEVEL (MWe Net)	DAY	AVERAGE DAILY POWER LEVEL (MWe Net)
01	0	16	0
02	0	17	0
03	0	18	0
04	0	19	0
05	0	20	0
06	0	21	0
07	0	22	0
08	0	23	0
09	0	24	0
10	0	25	0
11	0	26	0
12	0	27	0
13	0	28	0
14	0	29	0
15	0	30	0

UNIT SHUTDOWNS AND POWER REDUCTIONS

DOCKET NO. 50-327
UNIT NAME Sequoyah One
DATE May 2, 1988
COMPLETED BY D. C. Dupree
TELEPHONE (615) 870-6722

REPORT MONTH April 1988

No.	Date	Type[1]	Duration (Hours)	Reason[2]	Method of Shutting Down Reactor[3]	Licensee Event Report #	System Code[4]	Component Code[5]	Cause & Corrective Action to Prevent Recurrence
1	880101	F	719	F	4				Design Control, Configuration Updating, and Employee Concerns.

[1]F: Forced
S: Scheduled

[2]Reason:
A-Equipment Failure (Explain)
B-Maintenance or Test
C-Refueling
D-Regulatory Restriction
E-Operator Training & License Examination
F-Administrative
G-Operational Error (Explain)
H-Other (Explain)

[3]Method:
1-Manual
2-Manual Scram.
3-Automatic Scram.
4-Cont. of Existing Outage
5-Reduction
9-Other

[4]Exhibit G-Instructions for Preparation of Data Entry Sheets for Licensee Event Report (LER) File (NUREG-0161)

[5]Exhibit I-Same Source

OPERATING DATA REPORT

DOCKET NO. 50-328
DATE MAY 05, 1988
COMPLETED BY D.C.DUPREE
TELEPHONE (615)870-6722

OPERATING STATUS

1. UNIT NAME: SEQUOYAH NUCLEAR PLANT, UNIT 2 NOTES:
2. REPORT PERIOD: APRIL 1988
3. LICENSED THERMAL POWER(MWT): 3411.0
4. NAMEPLATE RATING (GROSS MWE): 1220.6
5. DESIGN ELECTRICAL RATING (NET MWE): 1148.0
6. MAXIMUM DEPENDABLE CAPACITY (GROSS MWE): 1183.0
7. MAXIMUM DEPENDABLE CAPACITY (NET MWE): 1148.0
8. IF CHANGES OCCUR IN CAPACITY RATINGS(ITEMS NUMBERS 3 THROUGH 7)SINCE LAST REPORT, GIVE REASONS: _____
9. POWER LEVEL TO WHICH RESTRICTED, IF ANY(NET MWE): _____
10. REASONS FOR RESTRICTIONS, IF ANY: _____

	THIS MONTH	YR.-TO-DATE	CUMULATIVE
11. HOURS IN REPORTING PERIOD	719.00	2903.00	51864.00
12. NUMBER OF HOURS REACTOR WAS CRITICAL	0.00	0.00	21984.54
13. REACTOR RESERVE SHUTDOWN HOURS	0.00	0.00	0.00
14. HOURS GENERATOR ON-LINE	0.00	0.00	21494.22
15. UNIT RESERVE SHUTDOWN HOURS	0.00	0.00	0.00
16. GROSS THERMAL ENERGY GENERATED (MWH)	0.00	0.00	69127977.22
17. GROSS ELECTRICAL ENERGY GEN. (MWH)	0.00	0.00	23536780.00
18. NET ELECTRICAL ENERGY GENERATED (MWH)	-9153.00	-51751.00	22456394.60
19. UNIT SERVICE FACTOR	0.00	0.00	41.44
20. UNIT AVAILABILITY FACTOR	0.00	0.00	41.44
21. UNIT CAPACITY FACTOR(USING MDC NET)	0.00	0.00	37.72
22. UNIT CAPACITY FACTOR(USING DER NET)	0.00	0.00	37.72
23. UNIT FORCED OUTAGE RATE	100.00	100.00	54.23

24. SHUTDOWNS SCHEDULED OVER NEXT 6 MONTHS (TYPE, DATE, AND DURATION OF EACH): _____

25. IF SHUTDOWN AT END OF REPORT PERIOD, ESTIMATED DATE OF STARTUP: THE RESTART OF UNIT-2 IS MAY 1988.

NOTE THAT THE THE YR.-TO-DATE AND CUMULATIVE VALUES HAVE BEEN UPDATED.

SEQUOYAH NUCLEAR PLANT
AVERAGE DAILY POWER LEVEL

DOCKET NO. : 50-328
UNIT : TWO
DATE : MAY 02,1988
COMPLETED BY : D.C.DUPREE
TELEPHONE : (615)870-6722

MONTH: APRIL 1988

DAY	AVERAGE DAILY POWER LEVEL (MWe Net)	DAY	AVERAGE DAILY POWER LEVEL (MWe Net)
01	0	16	0
02	0	17	0
03	0	18	0
04	0	19	0
05	0	20	0
06	0	21	0
07	0	22	0
08	0	23	0
09	0	24	0
10	0	25	0
11	0	26	0
12	0	27	0
13	0	28	0
14	0	29	0
15	0	30	0

UNIT SHUTDOWNS AND POWER REDUCTIONS

DOCKET NO. 50-328
UNIT NAME Sequoyah Two
DATE May 2, 1988
COMPLETED BY D. C. Dupree
TELEPHONE (615) 870-6722

REPORT MONTH April 1988

No.	Date	Type[1]	Duration (Hours)	Reason[2]	Method of Shutting Down Reactor[3]	Licensee Event Report #	System Code[4]	Component Code[5]	Cause & Corrective Action to Prevent Recurrence
1	880101	F	185	F	4				Design Control, Configuration Updating, and Employee Concerns.
2	880407	F	513.2	F	9				Repair No. 3 S/G tube leak.
3	880430	F	20.8	F	9				Maintenance of the pressurizer safety valves.

[1]F: Forced
S: Scheduled

[2]Reason:
A-Equipment Failure (Explain)
B-Maintenance or Test
C-Refueling
D-Regulatory Restriction
E-Operator Training & License Examination
F-Administrative
G-Operational Error (Explain)
H-Other (Explain)

[3]Method:
1-Manual
2-Manual Scram.
3-Automatic Scram.
4-Cont. of Existing Outage
5-Reduction
9-Other

[4]Exhibit G-Instructions for Preparation of Data Entry Sheets for Licensee Event Report (LER) File (NUREG-0161)

[5]Exhibit I-Same Source

OPERATING STATISTICS
(TVA REPORTS)

TVA 7382A (DNP-6-81)

NUCLEAR PLANT OPERATING STATISTICS

SEQUOYAH NUCLEAR Plant

Period Hours 719 Month APRIL 19 88

	Item No.	Unit No.	UNIT 1		UNIT 2		PLANT
Generation	1	Average Hourly Gross Load, kW	0		0		0
	2	Maximum Hour Net Generation, MWh	0		0		0
	3	Core Thermal Energy Gen, GWD (t)[2]	0		0		0
	4	Steam Gen. Thermal Energy Gen., GWD (t)[2]	0		0		0
	5	Gross Electrical Gen., MWh	0		0		0
	6	Station Use, MWh	4,239		9,153		13,392
	7	Net Electrical Gen., MWh	-4,239		-9,153		-13,392
	8	Station Use, Percent	N/A		N/A		N/A
	9	Accum. Core Avg. Exposure, MWD/Ton[1]	0		0		0
	10	CTEG This Month, 10^6 BTU	0		0		0
	11	SGTEG This Month, 10^6 BTU	0		0		0
	12						
Factors & Use	13	Hours Reactor Was Critical	0.0		0.0		0.0
	14	Unit Use, Hours-Min.	0:00		0:00		0:00
	15	Capacity Factor, Percent	0.0		0.0		0.0
	16	Turbine Avail. Factor, Percent	0.0		0.0		0.0
	17	Generator Avail. Factor, Percent	0.0		0.0		0.0
	18	Turbogen. Avail. Factor, Percent	0.0		0.0		0.0
	19	Reactor Avail. Factor, Percent	0.0		0.0		0.0
	20	Unit Avail. Factor, Percent	0.0		0.0		0.0
	21	Turbine Startups	0		0		0
	22	Reactor Cold Startups	0		0		0
	23						
Efficiency	24	Gross Heat Rate, Btu/kWh	N/A		N/A		N/A
	25	Net Heat Rate, Btu/kWh	N/A		N/A		N/A
	26						
	27						
Temp & Press	28	Throttle Pressure, psig	N/A		N/A		N/A
	29	Throttle Temperature, °F	N/A		N/A		N/A
	30	Exhaust Pressure, InHg Abs.	N/A		N/A		N/A
	31	Intake Water Temp., °F	N/A		N/A		N/A
	32						
Flows	33	Main Feedwater, M lb/hr	N/A		N/A		N/A
	34						
	35						
	36						
Misc.	37	Full Power Capacity, EFPD	404.86		363.65		768.51
	38	Accum. Cycle Full Power Days, EFPD	0.0		210.8416		210.8416
	39	Oil Fired for Generation, Gallons					1,518
	40	Oil Heating Value, Btu/Gal.					138,000
	41	Diesel Generation, MWh					23
	42						

Station Data		Max. Hour Net Gen.			Max. Day Net Gen.		Load Factor, %
		MWh	Time	Date	MWh	Date	
	43	N/A	N/A	N/A	N/A	N/A	N/A

Remarks: [1]For BFNP this value is MWD/STU and for SQNP and WBNP this value is MWD/MTU.
[2](t) indicates Thermal Energy.

Date Submitted MAY 12 1988 Date Revised

Plant Superintendent

TVA 6560C (PP 3-76)

UNIT OUTAGE AND AVAILABILITY

Sequoyah Nuclear Plant

Licensed Reactor Power 3411 MW(th)

Unit No. 1

Generator Rating 1220.6 MW(e)

Month/Year April 1988

Design Gross Electrical Rating 1182 MW

Period Hours 719

Day	Time Unit Available			Time Not Available				Unit		OUTAGE CAUSE	METHOD OF SHUTTING DOWN REACTOR	UNIT STATUS DURING OUTAGE	CORRECTIVE ACTION TAKEN TO PREVENT REPETITION
	Total	Gen.	Not Used	Turbine	Gen.	Reactor	Unit	Time Out	Time In				
	Hrs Min	Hrs Min	Hrs Min	Hrs Min	Hrs Min	Hrs Min	Hrs Min	Hrs Min	Hrs Min				
1	00 00	00 00		24 00	24 00	24 00	24 00			Design Control, Configuration	N/A	Mode 5	
2	00 00	00 00		24 00	24 00	24 00	24 00			Updating, and Employee			
3	00 00	00 00		23 00	23 00	23 00	23 00			Concerns			
4	00 00	00 00		24 00	24 00	24 00	24 00						
5	00 00	00 00		24 00	24 00	24 00	24 00						
6	00 00	00 00		24 00	24 00	24 00	24 00						
7	00 00	00 00		24 00	24 00	24 00	24 00						
8	00 00	00 00		24 00	24 00	24 00	24 00						
9	00 00	00 00		24 00	24 00	24 00	24 00						
10	00 00	00 00		24 00	24 00	24 00	24 00						
11	00 00	00 00		24 00	24 00	24 00	24 00						
12	00 00	00 00		24 00	24 00	24 00	24 00						
13	00 00	00 00		24 00	24 00	24 00	24 00						
14	00 00	00 00		24 00	24 00	24 00	24 00						
15	00 00	00 00		24 00	24 00	24 00	24 00						
16	00 00	00 00		24 00	24 00	24 00	24 00						
17	00 00	00 00		24 00	24 00	24 00	24 00						
18	00 00	00 00		24 00	24 00	24 00	24 00						
19	00 00	00 00		24 00	24 00	24 00	24 00						
20	00 00	00 00		24 00	24 00	24 00	24 00						
21	00 00	00 00		24 00	24 00	24 00	24 00						
22	00 00	00 00		24 00	24 00	24 00	24 00						
23	00 00	00 00		24 00	24 00	24 00	24 00						
24	00 00	00 00		24 00	24 00	24 00	24 00						
25	00 00	00 00		24 00	24 00	24 00	24 00						
26	00 00	00 00		24 00	24 00	24 00	24 00						
27	00 00	00 00		24 00	24 00	24 00	24 00						
28	00 00	00 00		24 00	24 00	24 00	24 00						
29	00 00	00 00		24 00	24 00	24 00	24 00						
30	00 00	00 00		24 00	24 00	24 00	24 00						
31													
Total	00 00	00 00		719 00	719 00	719 00	719 00						

TVA 6MMC (PP 3-76)

UNIT OUTAGE AND AVAILABILITY

Sequoyah Nuclear Plant

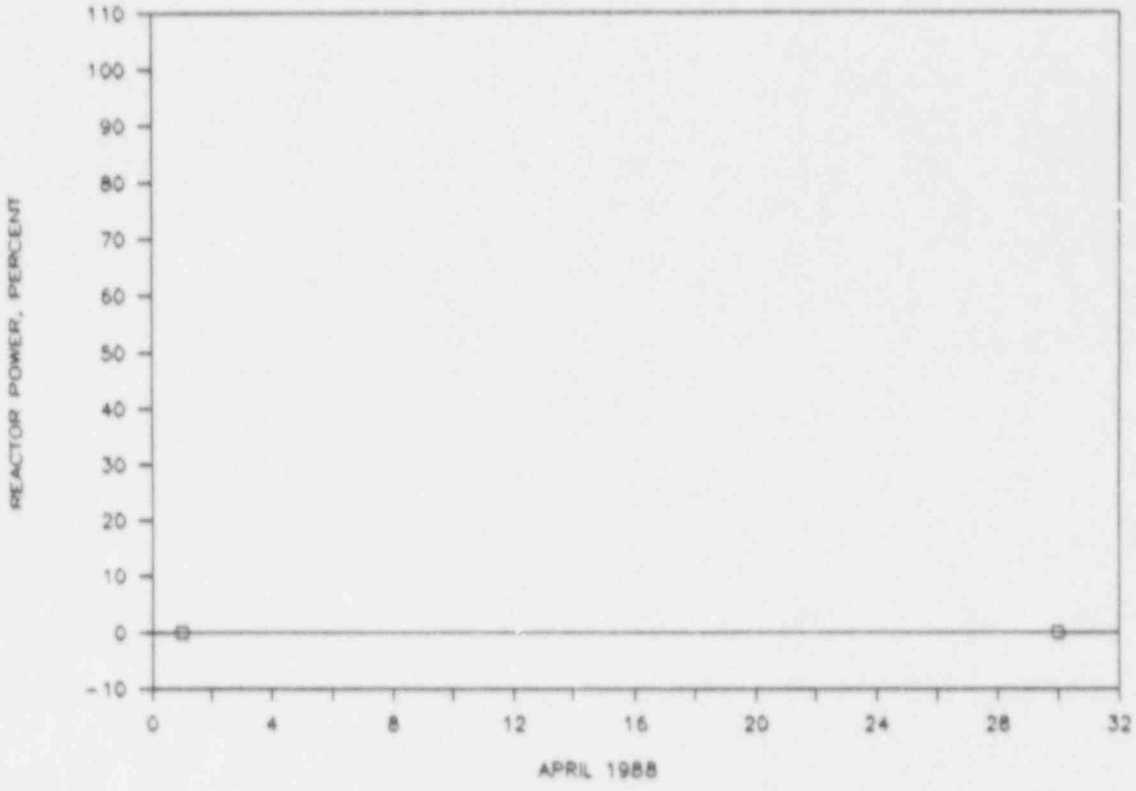
Licensed Reactor Power 3411 MW(th) Unit No. 2

Generator Rating 1220.6 MW(e) Month/Year April 1988

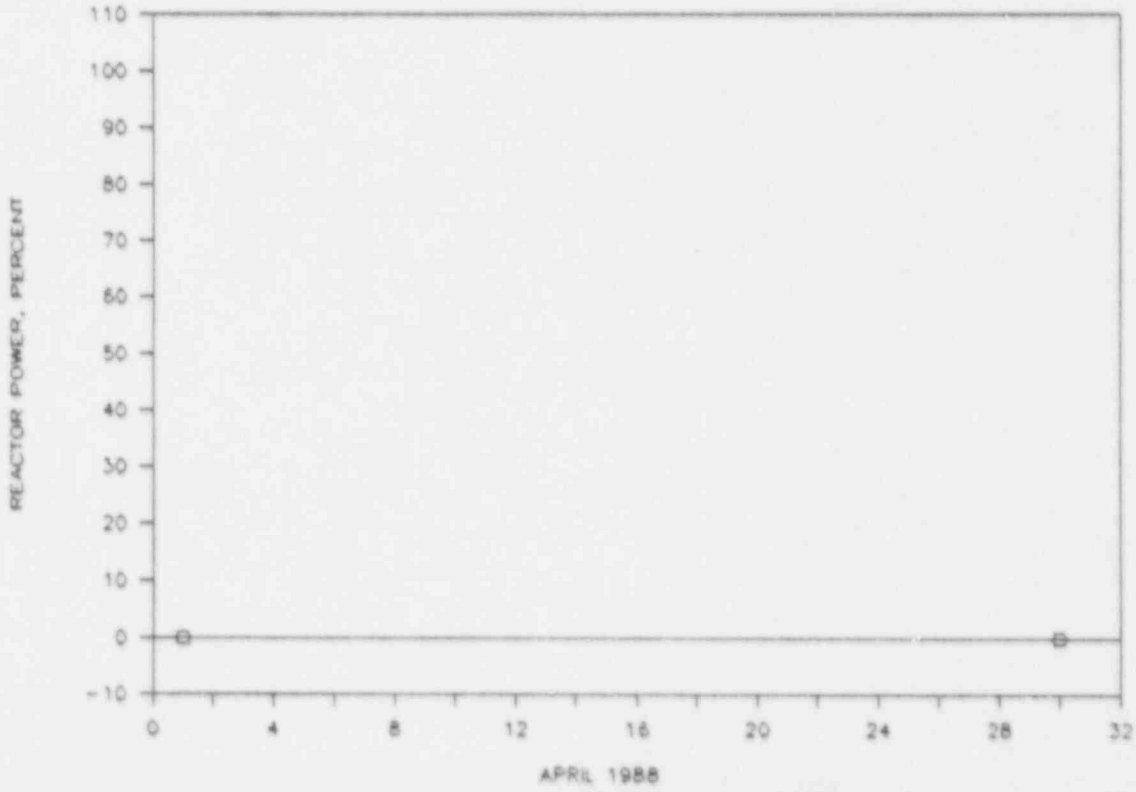
Design Gross Electrical Rating 1183 MW Period Hours 719

Day	Time Unit Available						Time Not Available						Unit					
	Total		Gen.		Not Used		Turbine		Gen.		Reactor		Unit		Time Out		Time In		OUTAGE CAUSE	METHOD OF SHUTTING DOWN REACTOR	UNIT STATUS DURING OUTAGE	CORRECTIVE ACTION TAKEN TO PREVENT REPETITION
	Hrs.	Min.	Hrs.	Min.	Hrs.	Min.	Hrs.	Min.	Hrs.	Min.	Hrs.	Min.	Hrs.	Min.	Hrs.	Min.	Hrs.	Min.				
1	00	00	00	00			24	00	24	00	24	00	2400						Design Control, Configuration	N/A	Mode 3	
2	00	00	00	00			24	00	24	00	24	00	2400						Updating, and Employee			
3	00	00	00	00			23	00	23	00	23	00	2300						Concerns			
4	00	00	00	00			24	00	24	00	24	00	2400									
5	00	00	00	00			24	00	24	00	24	00	2400									
6	00	00	00	00			24	00	24	00	24	00	2400									
7	00	00	00	00			24	00	24	00	24	00	2400						Tube Leak in #3 S/G	N/A	Mode 3/4	
8	00	00	00	00			24	00	24	00	24	00	2400								Mode 5	
9	00	00	00	00			24	00	24	00	24	00	2400									
10	00	00	00	00			24	00	24	00	24	00	2400									
11	00	00	00	00			24	00	24	00	24	00	2400									
12	00	00	00	00			24	00	24	00	24	00	2400									
13	00	00	00	00			24	00	24	00	24	00	2400									
14	00	00	00	00			24	00	24	00	24	00	2400									
15	00	00	00	00			24	00	24	00	24	00	2400									
16	00	00	00	00			24	00	24	00	24	00	2400									
17	00	00	00	00			24	00	24	00	24	00	2400									
18	00	00	00	00			24	00	24	00	24	00	2400									
19	00	00	00	00			24	00	24	00	24	00	2400									
20	00	00	00	00			24	00	24	00	24	00	2400									
21	00	00	00	00			24	00	24	00	24	00	2400									
22	00	00	00	00			24	00	24	00	24	00	2400									
23	00	00	00	00			24	00	24	00	24	00	2400									
24	00	00	00	00			24	00	24	00	24	00	2400									
25	00	00	00	00			24	00	24	00	24	00	2400									
26	00	00	00	00			24	00	24	00	24	00	2400									
27	00	00	00	00			24	00	24	00	24	00	2400									
28	00	00	00	00			24	00	24	00	24	00	2400									
29	00	00	00	00			24	00	24	00	24	00	2400									
30	00	00	00	00			24	00	24	00	24	00	2400						Maintenance on the pressurizer safety valves	N/A	Mode 5	
31																						
Total	00	00	00	00			719	00	719	00	719	00	719	00								

SEQUOYAH ONE REACTOR HISTOGRAM



SEQUOYAH TWO REACTOR HISTOGRAM



SUMMARY OF MAINTENANCE ACTIVITIES

MAINTENANCE SUMMARY
(INSTRUMENTATION)

INSTRUMENT MAINTENANCE MONTHLY REPORT FOR APRIL 1988

COMMON

1. Completed corrective action for CAQR SQP880159. This involved training for the Instrument Maintenance employees on the proper use of "information only" drawings.

2. Completed remaining documentation requirements for Workplans (WP) 7343-02 (unit 1) and WP-7344-02 (units 0 and 2) that added seal-in relays to various radiation monitors to reduce the effects of electromagnetic interference. This was needed to satisfy NRC commitments identified in CCTS-NCO8602229003, NCO870362003, and NCO870362004.

3. Completed and issued the trending evaluations for component failure reports identified by the NPRDS, EQIS, and 10 CFR 50.49 databases. Initiated proposed corrective actions to resolve potential equipment reliability problems.

UNIT 1

1. Completed a revision to SI-281 (functional test of RMs with automatic actuations) to incorporate quarterly functional testing which verifies the automatic isolation actuations of radiation monitors, 1-RM-90-120 AND -121. This was an NRC commitment item identifed in CCTS-NCO880080001.

UNIT 2

1. Installed pulsation dampeners in the sense lines for the turbine-driven AFW pump pressure switches, 2-PS-3-121A, -121B, and -121D. This was needed to help prevent system pressure pulsations from continuosly actuating the switches and causing spurious alarms and damage to associated electrical relays. This work was authorized by TACF 88-2008 and will be made a permanent modification when ECN 7118 is implemented.

2. Installed temporary RCS level instrumentation for use by the operators during draindown of the RCS for steam generator repair work. This involved installation of a transmitter to a sense line connected to the RCS loop 1 hotleg. The level signal was routed to an existing recorder in the main control room as a diverse means of mid-loop level monitoring.

3. Replaced defective RCS wide-range temperature detector, 2-TE-68-65, as a result of data collected during performance of SI-488, RCS RTD cross-calibration.

4. Repaired nuclear instrumentation system source range detecor, N31, as needed to clear electrical grounds (reference CAQR SQP880265).

5. During heatup, Operations reported loop 1 steam flow indication (loop 2-F-1-3A) reading higher than other channels. Investigation revealed two problems:

   A. A section of the S/G insulation had split apart, which caused the transmitted sense line condensate pot to overheat and stop functioning properly.

   B. The condensate pot elevations were two inches different than assumed in the transmitter scaling. The insulation was repaired and the transmitter rescaled and recalibrated appropriately.

MAINTENANCE SUMMARY
(MECHANICAL)

MECHANICAL MAINTENANCE MONTHLY REPORT FOR APRIL 1988

COMMON

1. Completed SI-181.1, "Fire Hose Hydrostatic Test (Annual)," on fire protection system.
2. Completed repair on control room emergency vent dampers 31-9 and -11.
3. Completed work on auxiliary boiler.

UNIT 1

1. Completed repair on 1B-B boric acid transfer pump.
2. Completed repair on 1A-A and 1B-B speed increaser.
3. Completed repair on 1-VLV-012-0713.
4. Installed terry turbine governor valve.
5. Rebuilt 1B-B CCP vent valve (1-VLV-062-0513).
6. Completed SI-102 (Diesel Generator Inspection) on diesel generator 1A-A.
7. Replaced diaphragm in 1-LCV-003-0164A.
8. Completed repair on various valves during RHR outage.
9. Completed SI-648, "Test of Door Play on Containment Personnel Airlocks," on airlock doors.
10. Installed new valves at locations 1-VLV-012-0776, -0501, and -0713.
11. Completed workplan on thermal barrier booster pump.

UNIT 2

1. Completed repairs on 2-FCV-003-0081.
2. Rebuilt 2-RM-090-0100 rad monitor pump.
3. Gagged/ungagged valves 2-FSV-068-0563 and -0564.
4. Completed repairs on 2-HEX-035-0094A.
5. Completed repair on 2A-A main feed pump governor speed changer.
6. Supported tube leak repair on unit 2 steam generator No. 3.

UNIT 2 (Cont.)

7. Pulled, repaired, and replaced pressure safety valves 63-563, -564, and -565.

8. Replaced bearings in 2A-A MDAFP.

9. Rebuilt 2A-A boric acid transfer pump.

10. Supported uncoupling, realignment, and recoupling of RCP No. 1.

11. Completed SI-102 MM (D/G monthly mechanical inspection) on diesel generator 2A-A.

12. Rebuilt hydrogen side of seal oil pump.

13. Repaired various hangers on condensate system.

14. Recoupled RCP No. 2.

15. Completed repair on SIS test valves 63-24, -79, -121, -158, -165, -167, and -174.

16. Replaced trim in 2-FCV-1-114.

17. Completed repair on 2-FCV-1-18.

18. Cleaned ERCW check valves 67-562A and C.

19. Repacked main steam check valve 1-624.

20. Completed SI-648, "Test of Door Play on Containment Personnel Airlocks," on airlock doors.

21. Closed unit 2 steam generator manways.

22. Completed work on "A" boric acid evaporator.

23. Completed workplan on thermal barrier booster pumps.

OTHER

1. Continued closure of various CAQRs, CARs, DRs, etc.

MAINTENANCE SUMMARY
(MODIFICATIONS)

SUMMARY OF WORK COMPLETED

MODIFICATIONS - CURRENT STATUS

APRIL 1988

Major Capital Projects:

PN7101: ECN 6388 - 500-kVA Switchyard Current Transformer Heaters

Workplan (WP) 12223 is in progress pending safe access to current transformers.

PN7102: ECN 5938 - Replace Feedwater Heaters 3 and 4

No work in progress at this time.

PN7105: ECN 5009 - Essential Raw Cooling Water (ERCW) Piping Changeout From Carbon Steel to Stainless Steel

Insulation of new stainless steel piping has been completed. No additional pipe replacement is scheduled in the near future.

PN7108: ECN 6720 - Crane Consistency Program

Unit 2 polar crane modification is complete. Postmodification testing (PMT) by Electrical Maintenance is not complete. Unit 1 polar crane work started on Ju 6, 1987 and is approximately 98 percent complete. Pa ing of blocks and limit switch weights remain to be completed. Auxiliary Building crane WP 12596 is in the approval cycle. Drawings have not been issued on the remaining cranes. WP 12596 is in nonwork status. Work is stopped pending resolution of budgetary problems.

PN7115: ECN 6719 - Volumetric Intrusion Detection System

ECN 6719 is still on hold. Security is dissatisfied with system operation. Security and DNE have not concluded discussions on resolution. Design is working on making the system functional. Lighting is not finished. Workplan change for drainage is being written. Field Change Request (FCR) 6645 for DNE changes is approved. Work is stopped pending resolution of budgetary problems.

PN7122: DCR 1373 Secondary Side

Steam Generator Preservation

ECN 5657 - Installation of Moisture Separator Reheater (MSR) Drain Valves

Work is essentially complete on all the ECNs. Some minor insulation installation activities are in progress as resources permit.

Major Capital Projects (cont.):

ECN 5841 - Hot Shop Fire Protection/Evacuation Alarm - WP 12637

All fieldwork for evacuation alarm is complete. Awaiting Work Request (WR) B240406 to be worked to restart fans to do functional test on fire protection.

PN7123: ECNs 5938, 6305, 6571 - Replace Feedwater Heaters 1 and 2, Units 1 and 2 and Eroded Pipe

Modifications Group B is supporting PMT on heaters 1 and 2 on both units as requested. Insulation work on unit 1 continues.

PN7130: DCR 1156 - Post Accident Monitoring

This work is now scheduled for unit 1 by unit 1 cycle 4 (U1C4) and unit 2 by unit 2 cycle 4 (U2C4).

PN7132: DCN 0026 - Sewage Treatment Facility and Civil Upgrade

City of Soddy-Daisy will be responsible for interface work on site, lift station, and pipeline between Sequoyah Nuclear Plant and Highway 27. WP 0026-01 is in approval cycle. DCN is being revised to include the Solar Building discharge effluent to Soddy-Daisy interface.

PN7136: ECN 6259 - MSR Tube Bundle Replacement

ECN is complete except for PMT and inservice leak test. Leak checks will be performed during system heatup.

PN7161: ECN 5855 - Replacement of Doors A56 and A57

Functional testing is in process.

PN7181: DCR 1898 - ECNs 6832 and 6596 - Dry Active Waste (DAW) Building

Electrical interface work is complete. Workplan closure held for Instrument Maintenance (WP 12478) and Electrical Maintenance (WP 12612) checks and update of SOIs by Operations.

Major Capital Projects (cont.):

PN7199: Miscellaneous Activities Under $100,000

This is for various work orders prepared for work under $100,000 total site cost. This work is done as manpower resources are available that will not impact unit 2 restart effort.

Significant Items:

The following major significant items are under Operation and Maintenance Expense (O&M) and will continue to be until restart of unit 2.

1. Fuse Program Work

ECN 5880 - Work complete for class IE unit 1 and 2 and non-IE fuses associated with unit 2 restart. Remaining work is non-class IE unit 1 and non-class IE unit 2. WP 5880-02 is being written for non-IE checklist for unit 1 and is scheduled to be in work May 13, 1988.

2. Cable Ampacity Program

Unit 1 Cable Ampacity Program is complete.

Other Items:

ECN 5111 - Provide Permanent Power to Manholes 42-46

Electrical conduit and wiring installation for manholes 44-46 is complete according to WP 12262. Manholes 42 and 43 are being held for information from DNE on power cable routing and terminations. FCR 4572R1 was sent to DNE and was logged in, but it was not sent to the responsible engineer. Manholes 42-46 will be worked by FCR 4572R1. This item is not considered unit 2 restart by DNE, and they will not authorize the engineer to do the necessary work to obtain pull cards or drawings for manholes 42-46. FCR 4572R2 will be written to supersede 4572R1 for conduit and cable routing for manholes 42-46.

ECN 5435 - Fire Doors

No work is in progress at this time.

ECN 5503 - Evacuation Alarms O&PS/Fire Detection O&PS

No work in progress at this time.

WP 12664 - Work is in progress and is approximately 95 percent complete. Remainder restrained by CAQR SQP 871616 (evacuation alarm O&PS).

ECN 5552 - Condensate Demineralizer Modifications and High Crud Filter

Upgrade to higher range instrumentation for condensate demineralizer system neutralization and nonreclaimable waste pumps. A mode 2 restart item.

WP 5552-01 - Work is complete.

WP 5552-02 - Install flow recorder, on hold for material.

ECN 5609 - Evacuation Alarm/Fire Detection Valve 26-290

WP 12387 is in work and is 90 percent complete. Workplan change is needed to allow local testing of alarm horn.

ECN 5609 - Alteration to the Makeup Water Treatment Plant

WP 12576 - Work is in process and approximately 95 percent complete.

Other Items (cont.):

WP 12633 - Work is in process and approximately 75 percent complete. WP is being held for material on WP 12665 (Mechanical).

WP 12731 - WP is in work.

WP 12684 - WP in work, approximately 70 percent complete.

WP 12665 - WP is being worked, and is 30 percent complete.

WP 12682 - WP is being worked, and is 30 percent complete.

ECN 5626 - Containment Ladders, Unit 1

A workplan is being written to incorporate this ECN. Modifications needs additional design information to complete. DNE needs to issue all drawings listed on this ECN. Work has not begun because of this holdup.

ECN 5726 - CAQR SQP870478 - Reroute Sense Line Piping for Train Separation to Panels 2-L-58 and 2-L-68

Fieldwork is complete. In-service leak check will be performed during heatup.

ECN 5841 - Hot Shop Fire Detection

WP 12360 is 98 percent complete.

ECN 5935 - Correct Power Block Lighting Deficiencies

WP 12437 has been approved and is complete. WP 12275 is written. Modifications needs DNE to provide light mounting detail for refueling water storage tanks and estimate design date after unit 2 restart. WP 5935-01 has been written to install security grills and gratings. All work is currently held for manpower.

ECN 6005 - Replacement of AFW Steam Ejector, Unit 2

In-service leak check performed and reinstallation of piping insulation is complete.

ECN 6057 - Cable Tray Covers

This activity is complete for the unit 2 restart. The only remaining work is the unit 1 annulus and this will be completed prior to June 15, 1988.

Other Items (cont.):

ECN 6082 - Vent for Boric Acid Tank (BAT)

Work complete except final inspections and painting on duct supports and performance of SI on High Efficiency Particulate Air. Work is nearing completion.

ECN 6196 - Pressurizer Hangers and Valves

PMT is scheduled for unit 1 restart. Remaining unit 2 work is scheduled for U2C3 refueling outage.

ECN 6205 - Replacement of Instrument Loop Power Supply Fuses

Unit 2 and unit 0 work is complete except for spares. WP 12447 has been turned in to Document Control for partial completion. WP 12611 initiated to perform unit 1 work. Unit 1 work is progressing.

ECN 6357 - Essential Raw Cooling Water (ERCW) Roof Access and Rails for Security Equipment

WP 12238 is in work and is approximately 20 percent complete.

ECN 6380 - Replacement of Barton Pressure Transmitters

Unit 2 fieldwork is complete. Final closure awaiting instruction revision by Instrument Maintenance.

ECN 6388 - Hydrogen Monitors in Switchyard

Workplan 12223 has insufficient craft support available for installation of hydrogen analyzers at 500-kV switchyard and is 75 percent complete.

ECNs 6402 (Unit 1) and 6439 (Units 1 and 2) - Pressurizer Instrumentation Relocation

Inservice tests will be performed when the system is brought up to temperature and pressure.

ECN 6429 - Component Cooling Heat Exchanger B Replacement

DNE to procure piping, hanger, and plate heat exchanger frame material. DNE to issue hanger drawings. Workplans are in work to fabricate and weld piping and fabricate and install new plate heat exchanger. Estimated completion date for outage is during the month of June 1988.

Other Items (cont.):

ECN 6455 - Upgrade CU-3 Box Battery Packs

WP 12295 has been issued. Modifications are complete for all CU-3 boxes. Site Security still needs to perform some PMT before the workplan can be closed out.

ECNs 6491 and 6534 - Essential Raw Cooling Water (ERCW) Supports

All restart work is complete. A workplan to remove previously installed piping was approved and will be worked as resources permit.

ECN 6543 - Install Public Safety Access Portals and Modify Entrance Road

Work is being held pending the release of drawings from DNE.

ECN 6601 - Removal of Unit 1 Emergency Gas Treatment System (EGTS) Backdraft Dampers

PMT remains to be completed by the Mechanical Test Section. Fieldwork is complete.

ECN 6610 - Modify Air Return Fan Supports

Unit 1 work is incomplete.

ECN 6631 - Modify Snubbers

Unit 2 work is complete.

ECN 6689 - Relocation of Main Steam Power Operated Relief Valves (PORV)

All work is complete for unit 2. Work on unit 1 has started.

ECN 6698 - Repull 120-Volt Cables

Unit 2 is complete. Unit 1 is 90 percent complete and held by ECN 6742. This ECN should be completed prior to unit 1 restart.

ECN 6706 - 79-14 Support Enhancement/Lost Calculations

Repairs continue on unit 1. This project has been combined with the calculation regeneration project for unit 1. Unit 2 work is complete and workplans are closed. There are 25 modifications in work with 46 having been completed. In addition, 82 maintenance items are in progress with 293 complete.

Other Items (cont.):

ECN 6739 - Alternate Analysis

All unit 1 modification work has been completed. Review and closure has begun. Work is in progress on the maintenance items.

ECN 6742 - Install Fuses in Radiation Monitor Power Supply Circuits

The workplan is complete for unit 2. Unit 1 is in work.

ECN 6761 - East Valve Room (EVR) Blowout Panels

Implementation of unit 1 work is progressing as resources are available. Unit 2 work is complete.

ECN 6784 - Documentation to Show Pipe Class Breaks

Final closure is awaiting a revision to AI-19 deleting requirements to mark shift supervisor drawings.

ECN 6815 - Installation Power Circuit Breaker

Install 500-kV power circuit breaker and associated equipment for bay 1. Retire 161-kV PCB and associated equipment. A total of eight workplans will be required. Foundations and conduit installation are complete. WP 12740 for lighting, drain pipe, and surface ground mat is in work. WP 12739 for the structural steel installation is in work. WP 6815-02 has been written and is in work. WP 6815-01 is in work.

ECN 6860 - Control Room Bullet Resistivity - DCR 2268 - ECN 6860

WPs 12602 and 12604 are field complete. WP 12603 is held for disposition of CAQR 880183. WPs 12605 and 6860-01 are held for material on Contract 74014A. Essentially all work is complete except for pull handles, replacement of door closures, rework of one lockset and replacement of one electric hinge. Estimated date of completion is June 30, 1988.

ECN 7000 - Addition of Support to Main Steam Dump Header

Fieldwork is complete. Workplan 12217 is closed.

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TENNESSEE VALLEY AUTHORITY
Sequoyah Nuclear Plant
P. O. Box 2000
Soddy-Daisy, Tennessee 37379

May 12, 1988

Nuclear Regulatory Commission
Office of Management Information
and Program Control
Washington, DC 20555

Gentlemen:

Enclosed is the April 1988 Monthly Operating Report to NRC for Sequoyah Nuclear Plant.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

S. J. Smith
Plant Manager

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