



Tennessee Valley Authority, Post Office Box 2000, Soddy-Daisy, Tennessee 37379

March 15, 1991

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

Gentlemen:

In the Matter of)	Docket Nos. 50-327
Tennessee Valley Authority)	50-328

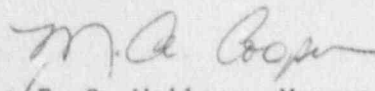
SEQUOYAH NUCLEAR PLANT (SQN) - FEBRUARY 1991 MONTHLY OPERATING REPORT

Enclosed is the February 1991 Monthly Operating Report as required by SQN Technical Specification 6.9.1.10.

If you have any questions concerning this matter, please call
M. A. Cooper at (615) 843-8422.

Very truly yours,

TENNESSEE VALLEY AUTHORITY


for E. G. Wallace, Manager
Nuclear Licensing and
Regulatory Affairs

Enclosure
cc: See page 2

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U.S. Nuclear Regulatory Commission

March 15, 1991

cc (Enclosure):

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TENNESSEE VALLEY AUTHORITY

NUCLEAR POWER GROUP
SEQUOYAH NUCLEAR PLANT

MONTHLY OPERATING REPORT

TO THE

NUCLEAR REGULATORY COMMISSION

FEBRUARY 1991

UNIT 1

DOCKET NUMBER 50-327

LICENSE NUMBER DPR-77

UNIT 2

DOCKET NUMBER 50-328

LICENSE NUMBER DPR-79

OPERATIONAL SUMMARY
FEBRUARY 1991

UNIT 1

Unit 1 generated 585,650 megawatt hours (MWh) (gross) electrical power during February, with a capacity factor of 75.0 percent. Unit 1 operated at approximately 100 percent reactor power level until February 18, 1991, at 1601 Eastern standard time (EST), when a shutdown was initiated in accordance with technical specifications 3.1.2.4 and 3.5.2 for an inoperable centrifugal charging pump (CCP). The actual pump failure, i.e., the inability of the CCP to develop adequate flow and discharge pressure, was the result of high recirculation flow caused by excessive wear of the wear rings and balance drum. A crack was also found in the pump shaft. The cause of the crack and the excessive wear could not be determined, however the crack is considered to have been initiated months to years before the actual failure of the CCP because of the oxidation present in the crack. Propagation of the crack was most probably a long term effect of high static and dynamic hydraulic loading of the shaft. The unit was taken offline at 1927 EST, entered Mode 3 at 1955 EST, and entered Mode 4 at 0128 EST on February 19, 1991. On February 23, 1991, at 1454 EST, CCP 1B-B was declared operable following repair and testing. At 1502 EST on February 23, 1991, heatup to Mode 3 was initiated. Unit 1 entered Mode 3 at 1555 EST on February 23, 1991, entered Mode 2 at 0614 EST on February 24, 1991, and entered Mode 1 at 1346 EST on February 24, 1991. After resolving a problem with a voltage regulator, Unit 1 was tied online at 0110 EST on February 25, 1991. Unit 1 reached 100 percent reactor power at 0253 EST on February 26, 1991. At 0259 EST, Unit 1 received a balance of plant runback from 100 percent to 75 percent power as a result of opening of the level control valve 1-LCV-6-105B on the No. 3 heater drain tank (HDT) back to the condenser. At 0854 EST, further power level reduction was initiated to allow maintenance on the pressure differential indicator switch (PDIS) 1-PDIS-6-106A since investigation discovered that PDIS-6-106A initiated closure of 1-LCV-6-106B, resulting in a high tank level and the opening of 1-LCV-6-105B which initiated the runback. At 1015 EST, Unit 1 reached 65 percent reactor thermal power (RTP) to perform a calibration check on the PDIS. The PDIS setpoint was determined to be 15 to 20 pounds per square inch high. The PDIS was recalibrated and power level increase was initiated at 2017 EST. Unit 1 reached 100 percent reactor power level on February 27, 1991, at 0120 EST.

On February 28, 1991, at 1856 EST, numerous alarms were received on the main feedwater pump turbine (MFPT) along with turbine electro hydraulic control (EHC) and moisture separator reheater (MSR) panels. The problem was identified as a loss of the No. 1 preferred inverter. The electrical board was transferred to its alternate feeder, and plant conditions returned to normal. Losing the preferred inverter caused the MSR valves to close, which resulted in a loss of efficiency.

Unit 1 was operating at approximately 99 percent RTP at the end of February.

OPERATIONAL SUMMARY
FEBRUARY 1991
(CONTINUED)

UNIT 2

Unit 2 generated 784,070 MWh (gross) electrical power during February, with a capacity factor of 100.4 percent. Unit 2 operated at approximately 100 percent reactor power level the entire month.

POWER-OPERATED RELIEF VALVES (PORVs) AND SAFETY VALVES SUMMARY

There were no challenges to PORVs or safety valves in February.

OFFSITE DOSE CALCULATION MANUAL (ODCM) CHANGES

There were no changes to the ODCM during February.

AVERAGE DAILY UNIT POWER LEVEL

DOCKET NO. 50-327 UNIT No. One DATE: 03-07-91
 COMPLETED BY: T. J. Hollomon TELEPHONE: (615) 843-7528
 MONTH: FEBRUARY 1991

DAY	AVERAGE DAILY POWER LEVEL (MWe-Net)	DAY	AVERAGE DAILY POWER LEVEL (MWe-Net)
1	1132	17	1134
2	1135	18	866
3	1136	19	-35
4	1137	20	-37
5	1136	21	-35
6	1135	22	-30
7	1135	23	-28
8	1134	24	-28
9	1135	25	373
10	1136	26	825
11	1136	27	1132
12	1136	28	1132
13	1136	29	N/A
14	1136	30	N/A
15	1134	31	N/A
16	1134		

1337h

AVERAGE DAILY UNIT POWER LEVEL

DOCKET NO. 50-328 UNIT No. Two DATE: 03-07-91
 COMPLETED BY: T. J. Hollomon TELEPHONE: (615) 843-7528
 MONTH: FEBRUARY 1991

DAY	AVERAGE DAILY POWER LEVEL (MWe-Net)	DAY	AVERAGE DAILY POWER LEVEL (MWe-Net)
1	<u>1129</u>	17	<u>1131</u>
2	<u>1126</u>	18	<u>1131</u>
3	<u>1129</u>	19	<u>1130</u>
4	<u>1129</u>	20	<u>1130</u>
5	<u>1131</u>	21	<u>1129</u>
6	<u>1132</u>	22	<u>1129</u>
7	<u>1131</u>	23	<u>1131</u>
8	<u>1132</u>	24	<u>1130</u>
9	<u>1132</u>	25	<u>1131</u>
10	<u>1132</u>	26	<u>1133</u>
11	<u>1133</u>	27	<u>1132</u>
12	<u>1132</u>	28	<u>1132</u>
13	<u>1130</u>	29	<u>N/A</u>
14	<u>1131</u>	30	<u>N/A</u>
15	<u>1132</u>	31	<u>N/A</u>
16	<u>1132</u>		

OPERATING DATA REPORT

DOCKET NO. 50-327
 DATE Mar. 7, 1991
 COMPLETED BY T. J. Hollomon
 TELEPHONE (615) 843-7528

OPERATING STATUS

- | | Notes |
|---|-------|
| 1. Unit Name: <u>Sequoyah Unit One</u> | |
| 2. Reporting Period: <u>February 1991</u> | |
| 3. Licensed Thermal Power (MWt): <u>3411.0</u> | |
| 4. Nameplate Rating (Gross MWe): <u>1220.6</u> | |
| 5. Design Electrical Rating (Net MWe): <u>1148.0</u> | |
| 6. Maximum Dependable Capacity (Gross MWe): <u>1162.0</u> | |
| 7. Maximum Dependable Capacity (Net MWe): <u>1122.0</u> | |
| 8. If Changes Occur in Capacity Ratings (Items Number 3 Through 7) Since Last Report, Give Reasons: | |

9. Power Level To Which Restricted, If Any (Net MWe): N/A
 10. Reasons For Restrictions, If Any: N/A

	This Month	Yr-to-Date	Cumulative
11. Hours in Reporting Period	<u>672</u>	<u>1,416</u>	<u>84,721</u>
12. Number of Hours Reactor Was Critical	<u>541.30</u>	<u>1,285.3</u>	<u>41,357</u>
13. Reactor Reserve Shutdown Hours	<u>0</u>	<u>0</u>	<u>0</u>
14. Hours Generator On-Line	<u>522.3</u>	<u>1,256.3</u>	<u>40,362.3</u>
15. Unit Reserve Shutdown Hours	<u>0.0</u>	<u>0</u>	<u>0</u>
16. Gross Thermal Energy Generated (MMH)	<u>1,717,351.7</u>	<u>4,253,841.1</u>	<u>131,539,908</u>
17. Gross Electrical Energy Generated (MMH)	<u>585,650</u>	<u>1,457,130</u>	<u>44,577,716</u>
18. Net Electrical Energy Generated (MMH)	<u>562,375</u>	<u>1,403,056</u>	<u>42,699,932</u>
19. Unit Service Factor	<u>77.7</u>	<u>89.4</u>	<u>47.6</u>
20. Unit Availability Factor	<u>77.7</u>	<u>89.4</u>	<u>47.6</u>
21. Unit Capacity Factor (Using MDC Net)	<u>74.6</u>	<u>88.3</u>	<u>44.9</u>
22. Unit Capacity Factor (Using DER Net)	<u>72.9</u>	<u>86.3</u>	<u>43.9</u>
23. Unit Forced Outage Rate	<u>22.3</u>	<u>10.6</u>	<u>44.6</u>
24. Shutdowns Scheduled Over Next 6 Months (Type, Date, and Duration of Each):			

25. If Shut Down At End Of Report Period, Estimated Date of Startup: N/A

OPERATING DATA REPORT

DOCKET NO. 50-328
DATE Mar. 7, 1991
COMPLETED BY T. J. Hollomon
TELEPHONE (615) 843-7528

OPERATING STATUS

- | | Notes |
|---|-------|
| 1. Unit Name: <u>Sequoyah Unit Two</u> | |
| 2. Reporting Period: <u>February 1991</u> | |
| 3. Licensed Thermal Power (MWt): <u>3411.0</u> | |
| 4. Nameplate Rating (Gross MWe): <u>1220.6</u> | |
| 5. Design Electrical Rating (Net MWe): <u>1148.0</u> | |
| 6. Maximum Dependable Capacity (Gross MWe): <u>1162.0</u> | |
| 7. Maximum Dependable Capacity (Net MWe): <u>1122.0</u> | |
| 8. If Changes Occur in Capacity Ratings (Items Number 3 Through 7) Since Last Report, Give Reasons: | |

9. Power Level To Which Restricted, If Any (Net MWe): N/A
10. Reasons For Restrictions, If Any: N/A

	This Month	Yr-to-Date	Cumulative
11. Hours in Reporting Period	<u>672</u>	<u>1,416</u>	<u>76,681</u>
12. Number of Hours Reactor Was Critical	<u>672.0</u>	<u>1,416.0</u>	<u>41,887</u>
13. Reactor Reserve Shutdown Hours	<u>0</u>	<u>0</u>	<u>0</u>
14. Hours Generator On-Line	<u>672.0</u>	<u>1,379.0</u>	<u>40,939.4</u>
15. Unit Reserve Shutdown Hours	<u>0.0</u>	<u>0</u>	<u>0</u>
16. Gross Thermal Energy Generated (MMB)	<u>2,287,530.1</u>	<u>4,604,190.4</u>	<u>126,878,641</u>
17. Gross Electrical Energy Generated (MMB)	<u>784,070</u>	<u>1,575,220</u>	<u>43,063,436</u>
18. Net Electrical Energy Generated (MMB)	<u>756,687</u>	<u>1,518,862</u>	<u>41,144,940</u>
19. Unit Service Factor	<u>100.0</u>	<u>97.4</u>	<u>53.4</u>
20. Unit Availability Factor	<u>100.0</u>	<u>97.4</u>	<u>53.4</u>
21. Unit Capacity Factor (Using MDC Net)	<u>100.4</u>	<u>95.6</u>	<u>47.8</u>
22. Unit Capacity Factor (Using DER Net)	<u>98.1</u>	<u>93.4</u>	<u>46.7</u>
23. Unit Forced Outage Rate	<u>0.0</u>	<u>2.6</u>	<u>39.6</u>
24. Shutdowns Scheduled Over Next 6 Months (Type, Date, and Duration of Each):			

25. If Shut Down At End Of Report Period, Estimated Date of Startup: N/A

UNIT SHUTDOWNS AND POWER REDUCTIONS

REPORT MONTH: February 1991DOCKET NO: 50-327UNIT NAME: OneDATE: 03/07/91COMPLETED BY: T. J. MollomonTELEPHONE: (615) 843-7528

No.	Date	Type ¹	Duration (Hours)	Reason ²	Method of Shutting Down Reactor ³	Licensee Event Report No.	System Code ⁴	Component Code ⁵	Cause and Corrective Action to Prevent Recurrence
1	910218	F	149.7	A	1	50-327/ 91003	BQ	P	Unit 1 was taken offline at 1927 EST on 2/18/91 in accordance with TSs 3.1.2.4 and 3.5.2 for inoperable CCP. On 2/23/91 at 1454 EST, CCP 1B-B was declared operable after maintenance and testing. The actual pump failure was the result of high recirculation flow caused by excessive wear of the wear rings and balance drum. A crack was also found in the pump shaft. The cause of crack and excessive wear could not be determined. The crack is considered to have been initiated months to years before the actual failure of the CCP. Propagation of the crack was most probably a long term effect of high static and dynamic hydraulic loading on the shaft. The pump was repaired and returned to service. At 1502 EST on 2/23/91, permission was given to begin heatup to Mode 3. Unit 1 was critical at 0614 EST on 2/24/91, and reached 100 percent reactor power level at 0253 EST on 2/26/91.

¹F: Forced
S: Scheduled

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

³Method:
1-Manual
2-Manual Scram
3-Automatic Scram
4-Continuation of Existing Outage
5-Reduction
9-Other

⁴Exhibit G-Instructions
for Preparation of Data
Entry sheets for Licensee
Event Report (LER) File
(NUREG-1022)

⁵Exhibit I-Same Source

UNIT SHUTDOWNS AND POWER REDUCTIONS

REPORT MONTH: February 1991DOCKET NO: 50-328UNIT NAME: OneDATE: 03/07/91COMPLETED BY: T. J. HollomanTELEPHONE: (615) 843-7528

No.	Date	Type ¹	Duration (Hours)	Reason ²	Method of Shutting Down Reactor ³	Licensee Event Report No.	System Code ⁴	Component Code ⁵	Cause and Corrective Action to Prevent Recurrence
2	910226	F		A	5		IT	LC	On 2/26/91 at 0259 EST, the unit received a balance of plant runback from 100 percent to 75 percent reactor power because 1-LCV-6-105B on the No. 3 HDT opened. Further power reduction was initiated at 0854 EST to allow maintenance on 1-PDIS-6-106A since investigation discovered that PDIS-6-106A initiated closure of 1-LCV-6-106B closed resulting in a high tank level and opening 1-LCV-6-105B which initiated the runback. The PDIS setpoint was found to be 15 to 20 psig higher than normal. It was recalibrated and power level increase was initiated at 2017 EST. Unit 1 was again at 100 percent reactor level on 2/27/91 at 0120 EST.

¹F: Forced
S: Scheduled

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

³Method:
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⁵Exhibit I-Same Source

UNIT SHUTDOWNS AND POWER REDUCTIONS

REPORT MONTH: February 1991DOCKET NO: 50-328UNIT NAME: TwoDATE: 03/07/91COMPLETED BY: T. J. HollomanTELEPHONE: (615) 843-7528

No.	Date	Type ¹	Duration (Hours)	Reason ²	Method of Shutting Down Reactor ³	Licensee Event Report No.	System Code ⁴	Component Code ⁵	Cause and Corrective Action to Prevent Recurrence
									No activities during February 1991.

¹F: Forced
S: Scheduled

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

³Method:
1-Manual
2-Manual Scram
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