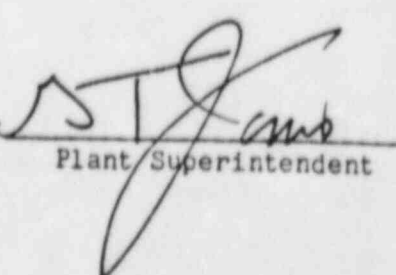


TENNESSEE VALLEY AUTHORITY  
DIVISION OF NUCLEAR POWER  
BROWNS FERRY NUCLEAR PLANT

MONTHLY OPERATING REPORT TO NRC  
March 1, 1984 - March 31, 1984

DOCKET NUMBERS 50-259, 50-260, AND 50-296  
LICENSE NUMBERS DPR-33, DPR-52, AND DPR-68

Submitted by:

  
Plant Superintendent

8405020194 840331  
PDR ADOCK 05000249  
R PDR

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Operations Summary

March 1984

The following summary describes the significant operation activities during the reporting period. In support of this summary, a chronological log of significant events is included in this report.

There were eight reportable occurrences and four revisions to previous reportable occurrences reported to the NRC during the month of March.

Unit 1

There were no scrams on the unit during the month.

Unit 2

There were no scrams on the unit during the month.

Unit 3

The unit was in cold shutdown the entire month for the unit's end-of-cycle 5 refueling outage.

Prepared principally by B. L. Porter.

Operations Summary (Continued)

March 1984

Fatigue Usage Evaluation

The cumulative usage factors for the reactor vessel are as follows:

<u>Location</u>	<u>Usage Factor</u>		
	<u>Unit 1</u>	<u>Unit 2</u>	<u>Unit 3</u>
Shell at water line	0.00598	0.00486	0.00403
Feedwater nozzle	0.28845	0.21103	0.15429
Closure studs	0.23477	0.17236	0.13233

NOTE: This accumulated monthly information satisfies Technical Specification Section 6.6.A.17.B(3) reporting requirements.

Common System

Approximately  $6.98\text{E}+05$  gallons of waste liquids were discharged containing approximately  $3.22\text{E}-01$  curies of activities.

Operations Summary (Continued)

March 1984

Refueling InformationUnit 1

Unit 1 ended its fifth refueling outage on January 2, 1984. Unit 1 is scheduled for its sixth refueling beginning on or about February 8, 1985 with a scheduled restart date of August 27, 1985. This refueling will involve loading 8x8R (retrofit) fuel assemblies into the core, replacing recirculation piping, work on "A" and "B" low-pressure turbine, upgrade hangers and anchors, and environmentally qualify instrumentations.

There are 764 fuel assemblies in the reactor vessel. The spent fuel storage pool presently contains 252 EOC-5 fuel assemblies, 260 EOC-4 fuel assemblies; 232 EOC-3 fuel assemblies; 156 EOC-2 fuel assemblies; and 168 EOC-1 fuel assemblies. The present fuel pool capacity is 3,471 locations.

Unit 2

Unit 2 is scheduled for its fifth refueling beginning on or about August 1, 1984 with a scheduled restart date of November 29, 1984. This refueling outage will involve loading additional 8X8R (retrofit) fuel assemblies into the core, finishing the torus modification, turbine inspection, finishing piping inspection, finishing TMI-2 modifications; post-accident sampling facility tie-ins, core spray change-out, and feedwater sparger inspection.

There are 764 fuel assemblies in the reactor vessel. At the end of the month there were 248 EOC-4 fuel assemblies, 353 EOC-3 fuel assemblies, 156 EOC-2 fuel assemblies, and 132 EOC-1 fuel assemblies in the spent fuel storage pool. The present available capacity of the spent fuel pool is 861 locations.

Operations Summary (Continued)

March 1984

Unit 3

Unit 3 shutdown for its fifth refueling outage on September 7, 1983, with a scheduled restart date of August 1, 1984. This refueling involves loading 8X3R (retrofit) assemblies into the core, finishing the torus modifications, postaccident sampling facility tie-in, core spray change-out, finishing TMI-2 modifications, turbine inspection, piping inspections for cracks, and changeout of jet pump hold-down beams.

There are 0 fuel assemblies presently in the reactor vessel. There are 248 new fuel assemblies, 764 EOC-5 fuel assemblies, 280 EOC-4 fuel assemblies, 124 EOC-3 fuel assemblies, 144 EOC-2 fuel assemblies, and 208 EOC-1 fuel assemblies in the spent fuel storage pool. The present available capacity of the spent fuel pool is 150 locations.

Significant Operational Events

Date	Time	Event
		Unit 1
3/1	0001	Reactor in startup after scram at 2311 on February 29, 1984.
	0457	Commenced rod withdrawal.
	1015	Reactor Critical No. 195.
	1310	Increasing reactor power for ST 8407 on Main Steam Line flow transmitter 1-25A.
	1700	Reactor power at 20% for ST 8407.
	1735	ST 8407 complete, reducing thermal power.
3/2	0420	Rolled Turbine/Generator (T/G).
	0443	Synchronized generator, commenced power ascension.
3/3	0700	Commenced PCIOMR from 92% thermal power.
	1100	Reactor thermal power at 93%, 12-hour fuel soak in progress.
	2325	12-hours soak complete, commenced reducing thermal power from 88% for control rod pattern adjustment.
3/4	0100	Rod adjustment complete, commenced power ascension from 70% thermal power.
	0200	Commenced PCIOMR from 80% thermal power.
	1900	Reactor thermal power at 99%, maximum flow, rod limited.
3/8	1610	Commenced power ascension.
	1700	Reactor thermal power at 100%, maximum flow, rod limited.
3/10	1438	Commenced reducing thermal power for RTI-23 (Feedwater Controls).
	1540	Reactor thermal power at 64% for RTI-23.
	2130	RTI-23 complete, holding power at 64% for turbine control valve test and SI's.
	2400	Turbine control valve test and SI's complete, commenced power ascension.
3/11	0200	Commenced PCIOMR from 94% thermal power.
	1200	Reactor thermal power at 100%, maximum flow, rod limited.
	2300	Reactor thermal power at 99%, maximum flow, rod limited.

Significant Operational Events

Date	Time	Event
Unit 1 (Continued)		
3/12	0900	Commenced power ascension from 99%.
	1000	Reactor thermal power at 100%, maximum flow, rod limited.
	2100	Reactor thermal power at 99%, maximum flow, rod limited.
3/13	0700	Commenced power ascension from 99% power.
	0800	Reactor thermal power at 100%, maximum flow, rod limited.
3/17	2232	Commenced reducing thermal power for turbine control valve test and SI's, and control rod pattern adjustment.
3/18	0230	Reactor power at 62% for turbine control valve test SI's and control rod pattern adjustment.
	0325	Turbine control valve test, SI's, and control rod pattern adjustment complete, commenced power ascension.
	0515	Reactor thermal power at 99% holding due to Xenon transient.
	0610	Reducing thermal power due to Xenon transient.
	0640	Reactor thermal power at 97% due to Xenon transient.
	0730	Commenced PCIOMR from 97% thermal power.
	1100	Reactor thermal power at 100%, maximum flow, rod limited.
	1700	Reactor thermal power at 99%, maximum flow, rod limited.
3/20	1500	Reactor thermal power at 100%, maximum flow, rod limited.
3/23	2245	Commenced reducing thermal power to improve "R" factor and perform SI's.
	2325	Reactor thermal power at 88%, "R" factor in limits, increasing thermal power.
	2345	Reactor thermal power at 94% holding for SI 4.3.A.2 (CRD Exercise).
3/24	0122	SI 4.3.A.2 complete, commenced power ascension.
	0200	Reactor thermal power at 96%, holding for Xenon transient.
	0955	Commenced power ascension from 96% thermal power.
	1000	Commenced PCIOMR from 98%, thermal power.
	1300	Reactor thermal power at 100%, maximum flow, rod limited.



Significant Operational Events

<u>Date</u>	<u>Time</u>	<u>Event</u>
		Unit 1 (Continued)
3/26	0555	"B" string low-pressure heaters isolated, reduced thermal power to 87%.
	0558	"B" string low-pressure heater back in service, reactor power at 87%.
	0600	"B" string low-pressure heater isolated, reducing thermal power.
	0900	Reactor thermal power at 85% "B" string low-pressure heater limited.
	0930	"B" string low-pressure heaters back in service, commenced power ascension.
	1030	Commenced PCIOMR from 90% thermal power.
	1430	Reactor thermal power at 100%, maximum flow, rod limited.
3/31	2200	Commenced reducing thermal power for a control rod sequence exchange.
	2400	Reactor thermal power at 57% for control rod sequence exchange.

Significant Operational Events

Date	Time	Event
Unit 2		
3/1	0001	Reactor power at 94%, maximum flow, rod limited.
	0700	Reactor power at 93%, maximum flow, rod limited.
	1112	Commenced reducing thermal power to 60% to extend the fuel cycle into August 1984.
	1300	Reactor thermal power at 61%, derated to extend fuel cycle.
	1600	Reactor thermal power at 62%, derated to extend fuel cycle.
3/3	2300	Reactor thermal power at 63%, derated to extend fuel cycle.
3/9	2300	Reactor thermal power at 64%, derated to extend fuel cycle.
3/12	1500	Reactor thermal power at 63%, derated to extend fuel cycle.
3/27	0700	Reactor thermal power at 62%, derated to extend fuel cycle.
3/31	2400	Reactor thermal power at 62%, derated to extend fuel cycle.

Significant Operational Events

<u>Date</u>	<u>Time</u>	<u>Event</u>
		Unit 3
3/1	0001	End-of-cycle 5 refuel outage continues.
3/31	2400	End-of-cycle 5 refuel outage continues.

10  
AVERAGE DAILY UNIT POWER LEVEL

DOCKET NO. 50-259  
UNIT 1  
DATE 4/1/84  
COMPLETED BY Ted Thom  
TELEPHONE 205/729-0834

MONTH March 1984

DAY	AVERAGE DAILY POWER LEVEL (MWe-Net)
1	-14
2	518
3	962
4	995
5	1078
6	1075
7	1075
8	1083
9	1080
10	939
11	1040
12	1086
13	1101
14	1058
15	1098
16	1082

DAY	AVERAGE DAILY POWER LEVEL (MWe-Net)
17	1075
18	996
19	1068
20	1048
21	1077
22	1081
23	1073
24	1064
25	1077
26	1049
27	1078
28	1082
29	1087
30	1067
31	1047

**INSTRUCTIONS**

On this format, list the average daily unit power level in MWe-Net for each day in the reporting month. Compute to the nearest whole megawatt.

# AVERAGE DAILY UNIT POWER LEVEL

DOCKET NO. 50-260

UNIT 2

DATE 4/1/84

COMPLETED BY Ted Thom

TELEPHONE 205/729-0834

MONTH March 1984

DAY	AVERAGE DAILY POWER LEVEL (MWe-Net)
1	<u>1025</u>
2	<u>809</u>
3	<u>657</u>
4	<u>654</u>
5	<u>657</u>
6	<u>657</u>
7	<u>649</u>
8	<u>654</u>
9	<u>660</u>
10	<u>657</u>
11	<u>650</u>
12	<u>663</u>
13	<u>651</u>
14	<u>654</u>
15	<u>655</u>
16	<u>658</u>

DAY	AVERAGE DAILY POWER LEVEL (MWe-Net)
17	<u>658</u>
18	<u>653</u>
19	<u>656</u>
20	<u>657</u>
21	<u>654</u>
22	<u>656</u>
23	<u>655</u>
24	<u>652</u>
25	<u>649</u>
26	<u>648</u>
27	<u>645</u>
28	<u>643</u>
29	<u>648</u>
30	<u>669</u>
31	<u>666</u>

## INSTRUCTIONS

On this format, list the average daily unit power level in MWe-Net for each day in the reporting month. Compute to the nearest whole megawatt.

12  
AVERAGE DAILY UNIT POWER LEVEL

DOCKET NO. 50-296  
3  
 UNIT                       
 DATE 4/1/84  
 COMPLETED BY Ted Thom  
 TELEPHONE 205/729-0834

MONTH March 1984

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

**INSTRUCTIONS**

On this format, list the average daily unit power level in MWe-Net for each day in the reporting month. Compute to the nearest whole megawatt.

## OPERATING DATA REPORT

DOCKET NO. 50-259  
 DATE 4/1/84  
 COMPLETED BY Ted Thom  
 TELEPHONE 205/729-0834

## OPERATING STATUS

1. Unit Name: <u>Browns Ferry - 1</u> 2. Reporting Period: <u>March 1984</u> 3. Licensed Thermal Power (MWt): <u>3293</u> 4. Nameplate Rating (Gross MWe): <u>1152</u> 5. Design Electrical Rating (Net MWe): <u>1065</u> 6. Maximum Dependable Capacity (Gross MWe): <u>1098.4</u> 7. Maximum Dependable Capacity (Net MWe): <u>1065</u> 8. If Changes Occur in Capacity Ratings (Items Number 3 Through 7) Since Last Report, Give Reasons: <u>N/A</u> <hr/> 9. Power Level To Which Restricted, If Any (Net MWe): <u>N/A</u> 10. Reasons For Restrictions, If Any: <u>N/A</u> <hr/>	Notes
---	-------

	This Month	Yr.-to-Date	Cumulative
11. Hours In Reporting Period	<u>744</u>	<u>2,184</u>	<u>84,746</u>
12. Number Of Hours Reactor Was Critical	<u>733.75</u>	<u>1,942.28</u>	<u>51,748.40</u>
13. Reactor Reserve Shutdown Hours	<u>10.25</u>	<u>225.40</u>	<u>6,010.42</u>
14. Hours Generator On-Line	<u>715.28</u>	<u>1,846.38</u>	<u>50,564.02</u>
15. Unit Reserve Shutdown Hours	<u>0</u>	<u>0</u>	<u>0</u>
16. Gross Thermal Energy Generated (MWH)	<u>2,279,594</u>	<u>5,268,558</u>	<u>143,826,237</u>
17. Gross Electrical Energy Generated (MWH)	<u>767,870</u>	<u>1,773,680</u>	<u>47,419,300</u>
18. Net Electrical Energy Generated (MWH)	<u>749,475</u>	<u>1,727,016</u>	<u>46,052,343</u>
19. Unit Service Factor	<u>96.1</u>	<u>84.5</u>	<u>59.7</u>
20. Unit Availability Factor	<u>96.1</u>	<u>84.5</u>	<u>59.7</u>
21. Unit Capacity Factor (Using MDC Net)	<u>94.6</u>	<u>74.2</u>	<u>51.0</u>
22. Unit Capacity Factor (Using DER Net)	<u>93.6</u>	<u>74.2</u>	<u>51.0</u>
23. Unit Forced Outage Rate	<u>3.9</u>	<u>14.2</u>	<u>23.5</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: \_\_\_\_\_  
 26. Units In Test Status (Prior to Commercial Operation):

INITIAL CRITICALITY  
 INITIAL ELECTRICITY  
 COMMERCIAL OPERATION

Forecast	Achieved
_____	_____
_____	_____
_____	_____

## OPERATING DATA REPORT

DOCKET NO. 50-260  
 DATE 4/1/84  
 COMPLETED BY Ted Thom  
 TELEPHONE 205/729-0834

OPERATING STATUS

1. Unit Name: Browns Ferry - 2  
 2. Reporting Period: March 1984  
 3. Licensed Thermal Power (MWt): 3293  
 4. Nameplate Rating (Gross MWe): 1152  
 5. Design Electrical Rating (Net MWe): 1065  
 6. Maximum Dependable Capacity (Gross MWe): 1098.4  
 7. Maximum Dependable Capacity (Net MWe): 1065  
 8. If Changes Occur in Capacity Ratings (Items Number 3 Through 7) Since Last Report, Give Reasons:

Notes

N/A

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>744</u>	<u>2,184</u>	<u>79,687</u>
12. Number Of Hours Reactor Was Critical	<u>744</u>	<u>1,893.84</u>	<u>51,858.02</u>
13. Reactor Reserve Shutdown Hours	<u>0</u>	<u>290.16</u>	<u>14,190.52</u>
14. Hours Generator On-Line	<u>744</u>	<u>1,849.14</u>	<u>50,341.98</u>
15. Unit Reserve Shutdown Hours	<u>0</u>	<u>0</u>	<u>0</u>
16. Gross Thermal Energy Generated (MWH)	<u>1,574,676</u>	<u>5,034,528</u>	<u>145,179,573</u>
17. Gross Electrical Energy Generated (MWH)	<u>511,890</u>	<u>1,651,170</u>	<u>48,248,458</u>
18. Net Electrical Energy Generated (MWH)	<u>499,613</u>	<u>1,606,188</u>	<u>46,864,791</u>
19. Unit Service Factor	<u>100</u>	<u>84.7</u>	<u>63.2</u>
20. Unit Availability Factor	<u>100</u>	<u>84.7</u>	<u>63.2</u>
21. Unit Capacity Factor (Using MDC Net)	<u>63.1</u>	<u>69.1</u>	<u>55.2</u>
22. Unit Capacity Factor (Using DER Net)	<u>63.1</u>	<u>69.1</u>	<u>55.2</u>
23. Unit Forced Outage Rate	<u>0</u>	<u>11.2</u>	<u>24.4</u>
24. Shutdowns Scheduled Over Next 6 Months (Type, Date, and Duration of Each):	<u>July 1984 - Refuel</u>		

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

26. Units In Test Status (Prior to Commercial Operation):

Forecast

Achieved

INITIAL CRITICALITY  
 INITIAL ELECTRICITY  
 COMMERCIAL OPERATION

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



## OPERATING DATA REPORT

DOCKET NO. 50-296  
 DATE 4/1/84  
 COMPLETED BY Ted Thom  
 TELEPHONE 205/729-0834

## OPERATING STATUS

1. Unit Name: Browns Ferry 3  
 2. Reporting Period: March 1984  
 3. Licensed Thermal Power (MWt): 3293  
 4. Nameplate Rating (Gross MWe): 1152  
 5. Design Electrical Rating (Net MWe): 1065  
 6. Maximum Dependable Capacity (Gross MWe): 1098.4  
 7. Maximum Dependable Capacity (Net MWe): 1065  
 8. If Changes Occur in Capacity Ratings (Items Number 3 Through 7) Since Last Report, Give Reasons:

N/A

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>744</u>	<u>2184</u>	<u>62,112</u>
12. Number Of Hours Reactor Was Critical	<u>0</u>	<u>0</u>	<u>43,087.80</u>
13. Reactor Reserve Shutdown Hours	<u>0</u>	<u>0</u>	<u>3,878.13</u>
14. Hours Generator On-Line	<u>0</u>	<u>0</u>	<u>42,193.71</u>
15. Unit Reserve Shutdown Hours	<u>0</u>	<u>0</u>	<u>0</u>
16. Gross Thermal Energy Generated (MWH)	<u>0</u>	<u>0</u>	<u>126,307,711</u>
17. Gross Electrical Energy Generated (MWH)	<u>0</u>	<u>0</u>	<u>41,597,620</u>
18. Net Electrical Energy Generated (MWH)	<u>0</u>	<u>0</u>	<u>40,375,256</u>
19. Unit Service Factor	<u>0</u>	<u>0</u>	<u>67.9</u>
20. Unit Availability Factor	<u>0</u>	<u>0</u>	<u>67.9</u>
21. Unit Capacity Factor (Using MDC Net)	<u>0</u>	<u>0</u>	<u>61.0</u>
22. Unit Capacity Factor (Using DER Net)	<u>0</u>	<u>0</u>	<u>61.0</u>
23. Unit Forced Outage Rate	<u>0</u>	<u>0</u>	<u>16.4</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:

26. Units In Test Status (Prior to Commercial Operation):

Forecast

Achieved

INITIAL CRITICALITY  
 INITIAL ELECTRICITY  
 COMMERCIAL OPERATION

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

## UNIT SHUTDOWNS AND POWER REDUCTIONS

DOCKET NO. 50-259

UNIT NAME 1

DATE 4/1/84

COMPLETED BY Ted Thom

TELEPHONE 205/729-0834

REPORT MONTH March 1984

No.	Date	Type <sup>1</sup>	Duration (Hours)	Reason <sup>2</sup>	Method of Shutting Down Reactor <sup>3</sup>	Licensee Event Report #	System Code <sup>4</sup>	Component Code <sup>5</sup>	Cause & Corrective Action to Prevent Recurrence
274	3/1/84	F	28.72	H	3				Reactor scram due to possible bumping of panel 25-6A
275	3/10/84	S		B					Derated for RTI 23 (Feedwater Control) and turbine CV tests and SI's.
276	3/17/84	S		B					Derated for turbine control valve tests and SI's, control rod pattern adjustment.

16

<sup>1</sup>  
F: Forced  
S: Scheduled

<sup>2</sup>  
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)

<sup>3</sup>  
Method:  
1-Manual  
2-Manual Scram.  
3-Automatic Scram.  
4-Other (Explain)

<sup>4</sup>  
Exhibit G - Instructions  
for Preparation of Data  
Entry Sheets for Licensee  
Event Report (LER) File (NUREG-  
0161)

<sup>5</sup>  
Exhibit I - Same Source

(9/77)

## UNIT SHUTDOWNS AND POWER REDUCTIONS

REPORT MONTH March 1984DOCKET NO. 50-260UNIT NAME 2DATE 4/1/84COMPLETED BY Ted ThomTELEPHONE 205/729-0834

No.	Date	Type <sup>1</sup>	Duration (Hours)	Reason <sup>2</sup>	Method of Shutting Down Reactor <sup>3</sup>	Licensee Event Report #	System Code <sup>4</sup>	Component Code <sup>5</sup>	Cause & Corrective Action to Prevent Recurrence
292	3/1/84	S		H					Derated to extend fuel cycle into August 1984.

<sup>1</sup>  
F: Forced  
S: Scheduled

<sup>2</sup>  
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)

<sup>3</sup>  
Method:  
1-Manual  
2-Manual Scram.  
3-Automatic Scram.  
4-Other (Explain)

<sup>4</sup>  
Exhibit G - Instructions  
for Preparation of Data  
Entry Sheets for Licensee  
Event Report (LER) File (NUREG-  
0161)

<sup>5</sup>  
Exhibit I - Same Source

## UNIT SHUTDOWNS AND POWER REDUCTIONS

REPORT MONTH March 1984

DOCKET NO. 50-296  
 UNIT NAME 3  
 DATE 4/1/84  
 COMPLETED BY Ted Thom  
 TELEPHONE 205/729-0834

No.	Date	Type <sup>1</sup>	Duration (Hours)	Reason <sup>2</sup>	Method of Shutting Down Reactor <sup>3</sup>	Licensee Event Report #	System Code <sup>4</sup>	Component Code <sup>5</sup>	Cause & Corrective Action to Prevent Recurrence
140	3/1/84	S	744	C	4				EOC-5 refuel outage continues (Controlled shutdown 9/7/83)

<sup>1</sup>  
 F: Forced  
 S: Scheduled

<sup>2</sup>  
 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)

<sup>3</sup>  
 Method:  
 1-Manual  
 2-Manual Scram.  
 3-Automatic Scram.  
 4-Other (Explain)

<sup>4</sup>  
 Exhibit G - Instructions  
 for Preparation of Data  
 Entry Sheets for Licensee  
 Event Report (LER) File (NUREG-  
 0161)

<sup>5</sup>  
 Exhibit I - Same Source

CSSC EQUIPMENT

MECHANICAL MAINTENANCE SUMMARY

For the Month of March 19 84

DATE	SYSTEM	COMPONENT	NATURE OF MAINTENANCE	EFFECT ON SAFE OPERATION OF THE REACTOR	CAUSE OF MALFUNCTION	RESULTS OF MALFUNCTION	ACTION TAKEN TO PRECLUDE RECURRENCE
2-20-84	Off-Gas System	Sample Pump B	Change Filters		Normal Usage	N/A	MR-A-155543

CSFC EQUIPMENT

MECHANICAL MAINTENANCE SUMMARY

For the Month of March 19 84

DATE	SYSTEM	COMPONENT	NATURE OF MAINTENANCE	EFFECT ON SAFE OPERATION OF THE REACTOR	CAUSE OF MALFUNCTION	RESULTS OF MALFUNCTION	ACTION TAKEN TO PRECLUDE RECURRENCE
3-8	HPCI	Hanger #110	Tightened turnbuckle		Vibration	N/A	MS-A-173733

USSNS Jerry Lewis Light Unit 1

CMSC EQUIPMENT

MECHANICAL MAINTENANCE SUMMARY

For the Month of March 19 84

DATE	SYSTEM	COMPONENT	NATURE OF MAINTENANCE	EFFECT ON SAFE OPERATION OF THE REACTOR	CAUSE OF MALFUNCTION	RESULTS OF MALFUNCTION	ACTION TAKEN TO PRECLUDE RECURRENCE
2-29	RPCL	RPCL Gland Seal Condenser Exhauster	Removed exhauster for electrical to perform work.		None	N/A	MR-A-251883

CSSC EQUIPMENT

MECHANICAL MAINTENANCE SUMMARY

For the Month of March 19 84

DATE	SYSTEM	COMPONENT	NATURE OF MAINTENANCE	EFFECT ON SAFE OPERATION OF THE REACTOR	CAUSE OF MALFUNCTION	RESULTS OF MALFUNCTION	ACTION TAKEN TO PRECLUDE RECURRING
3-9	HPCT	Level Switch	Lubricate and adjust float linkage.		Lack of Lubricant	N/A	MB-A-155948
3-8	Fire protection	HCN-26-1158	Tighten or replace packing		Normal Usage	N/A	MB-A-269775



CSSC EQUIPMENT

## ELECTRICAL MAINTENANCE SUMMARY

For the Month of March 19 84

Date	System	Component	Nature of Maintenance	Effect on Safe Operation of The Reactor	Cause of Malfunction	Results of Malfunction	Action Taken To Preclude Recurrence
1984 2/25	High-pressure coolant injection	Gland seal exhaustor	Replaced motor per EMI-33	None	FCV 73-16 not fully closed causing steam to flow on motor	Motor grounded HPCI taken out of service to repair	None
3/2	Standby diesel generator	Diesel generator "D"	Adjusted RPM meter	None	Drift	Meter inaccurate	None
3/2	Standby diesel generator	Diesel generator "D" motor-operated potentiometer	Replaced defective micro-switch	None	Bad switch	Operator unable to achieve maximum speed	None
3/7	High pressure coolant injection	HPCI steam supply valve	Torque switch was adjusted per EMI-18	None	Unknown	Valve not fully closed	None
3/10	Control rod drive	HS-85-47 CRD notch override	Replaced springs	None	Overwork of switch	Notch override inoperable	None
3/14	Unit Preferred 120V AC	Unit preferred mg set	Remove annunciator wires for relay 13K per TACF 1-84-080-252	None	Undetermined	Unit preferred supply abnormal alarm was masked	None
3/3	Containment inerting	Oxygen Analyzer sample inlet pump	Pump and motor replaced	None	Suspected bearing problems	Oxygen analyzer inoperable	None

CSSC EQUIPMENT

## ELECTRICAL MAINTENANCE SUMMARY

For the Month of March 19 84

Date	System	Component	Nature of Maintenance	Effect on Safe Operation of The Reactor	Cause of Malfunction	Results of Malfunction	Action Taken To Preclude Recurrence
1984 3/24	Neutron monitoring	IRM-E select switch	Replaced switch per EMI-23	None	Cyclic fatigue	None	None
3/24	4kV shut-down boards and busses	4kV breaker	Changed capacitor on charging motor	None	Open capacitor from normal use	Breaker did not operate properly in test position	None
3/25	Radiation monitoring	Radiation monitor 90-251	Reversed rotation on CAM motor	None	Undetermined	Monitor blowing fuses	None

CSSC EQUIPMENT

## ELECTRICAL MAINTENANCE SUMMARY

For the Month of March 19 84

Date	System	Component	Nature of Maintenance	Effect on Safe Operation of The Reactor	Cause of Malfunction	Results of Malfunction	Action Taken To Preclude Recurrence
1984 3/9	Annunciator & sequential events recorder	Annunciator horn relay panel 9-5	Replaced sounder card	None	Card relay sticking	Horn sticking	None
3/14	Reactor building heating & ventilation	Relay R1B panel 9-36	Replaced relay	None	Bad relay	N/A	None
3/22	Core spray cooling	2B core spray pump	Added oil to lower bearing per EMI-64	None	N/A	N/A	None
3/24	4kV shut-down boards & busses	4kV breaker	Tightened, cleaned and lubricated mechanical linkage	None	Loose trip mechanical linkage	Breaker trip free on first closing	None
3/27	Reactor building closed cooling water	Surge tank low level switch	Cleaned and lubricated level switch mechanism	None	Environmental conditions	Switch failed to pick up on low level	None

CSSC EQUIPMENT

## ELECTRICAL MAINTENANCE SUMMARY

For the Month of March 19 84

Date	System	Component	Nature of Maintenance	Effect on Safe Operation of The Reactor	Cause of Malfunction	Results of Malfunction	Action Taken To Preclude Recurrence
1984 3/6	Residual heat removal	HFA relay 10A-K5B	Replaced coil assembly	None	Cracked coil spool	N/A	Used different type replacement
3/6	Residual heat removal	HFA relay 10A-K18B	Replaced coil assembly per SEMI-40	None	Cracked coil spool	N/A	Used different type coil as replacement
3/7	CO <sub>2</sub> storage, fire protection & purging	CO <sub>2</sub> storage tank at U3 diesel	Added freon	None	Slow leak	None	Expansion valve ordered
3/8	Residual heat removal	HFA relay 10A-K15B	Replaced coil assembly per SEMI-40	None	Cracked coil spool	N/A	Used a different type coil as replacement
3/10	Reactor protection	SCRAM reset switch	Cleaned and repaired switch position handle assembly	None	Dried grease and dirt in switch position handle	Switch sticks in group 1/4 reset position	None
3/14	Reactor building heating & ventilation	Relay 1B panel 9-36	Replaced relay per EMI-23	None	N/A	N/A	None
3/18	Fuel oil	Isolation valve ISV 18-653	Adjusted operating arm on limit switch	None	Broken spring in limit switch	N/A	None

CSSC EQUIPMENT

## ELECTRICAL MAINTENANCE SUMMARY

For the Month of March 19 84

Date	System	Component	Nature of Maintenance	Effect on Safe Operation of The Reactor	Cause of Malfunction	Results of Malfunction	Action Taken To Preclude Recurrence
1984 3/24	Reactor water recirculation	3A recirc pump suction valve FCV 68-001	Replaced motor per EMI-18	None	B phase open	Suction valve would not close	None
3/26	Reactor building closed cooling water	RBCCW 3B motor	Installed in-board and out-board bearings	None	N/A	N/A	None

CSSC EQUIPMENT

## ELECTRICAL MAINTENANCE SUMMARY

For the Month of March 1984

Date	System	Component	Nature of Maintenance	Effect on Safe Operation of The Reactor	Cause of Malfunction	Results of Malfunction	Action Taken To Preclude Recurrence
1984 3/19	4kV shut-down boards and busses	Auxiliary relay board C	Replaced relay coil mechanism	None	Material defect	N/A	None
3/20	CO <sub>2</sub> storage fire protection & purging	Pump station kiddie panel 25-296	Replaced printed circuit card	None	Bad printed circuit card	Trouble alarm XA-39-72A2 stayed in	None
3/29	High-pressure fire protection	Diesel fire pump voltage sensor relay	Replaced 12v sensor with 24v sensor	None	Improper sensor	Alarm stayed in while attempting to start pump from control room	Installed correct sensor

OUTAGE MAINTENANCE & MAJOR MODIFICATION MANAGEMENT  
MARCH 1984

A. Critical Path Activities

1. P0392 CRD Scram Discharge Header Modification piping weld joint summary:

- a. Of 205 required 3/4-inch welds, 150 are complete (73%).
- b. Of 28 required 1-inch welds, 16 are complete (57%).
- c. Of 76 required 2-inch welds, 37 are complete (49%).
- d. Of 4 required 3-inch welds, 3 are complete (75%).
- e. Of 24 required 4-inch welds, 16 are complete (67%).
- f. Of 10 required 6-inch welds, 6 are complete (60%).

2. ECN P0392 Hanger/Support summary:

- a. Forty-seven locations require removal only; 25 of these are complete.
- b. Eighteen locations required removal and (new) reinstallation; none complete (2 started).
- c. Thirty-eight locations require new hangers; 6 of these are complete.
- d. Four locations require modification to the existing hanger; none complete.
- e. Twelve locations require inspection of the existing hangers; none are complete.
- f. Total number of hangers affected by P0392 work is 119.

3. P0538 - All welds have been completed and are undergoing x-ray.



OUTAGE MAINTENANCE & MAJOR MODIFICATION MANAGEMENT  
MARCH 1984

B. Refuel Floor:

A cold proof test was run on the overhead crane on March 1. In-vessel visual inspection was completed on March 5. An ultrasonic test inspection was completed on March 7 on the jet pump hold-down beams. This inspection revealed no problems and resulted in the deferment of the changeout modification, PO450. MMI-34 was completed on the bridge crane on March 26.

C. Balance of Plant

All work was completed on "B" and "D" Residual Heat Removal (RHR) heat exchangers. Loop II of RHR was released to Operations on March 30 in order to change loops and allow for maintenance on Loop I components. Maintenance work on A, B, and C condensers continued. Probolog work continued on various equipment. Probolog work was completed on all six waterboxes with a total of 14 tubes requiring plugging. Probologging of 3B steam jet air ejector was completed with 4 tubes required plugging. "A" and "C" string feedwater heaters were closed with "B" string being opened in preparation for work.

D. Turbine

On "C" low-pressure turbine, #1 through four couplings were aligned and are complete. The thrust bearings were assembled. Pinch checks were performed and bearing caps were installed on #4, 6, and 8. The #4 exciter coupling was aligned.

The auxiliary oil pumps on A, B, and C reactor feedpump turbine (RFPT) were run. "A" RFPT was also aligned.



OUTAGE MAINTENANCE & MAJOR MODIFICATION MANAGEMENT  
MARCH 1984

E. IHSI

IHSI began on March 13, 1984. By the end of the March report period, nine core spray and 13 RWCU identified welds were completed. Treatment of the recirculation system welds is continuing with 29 of 96 identified welds complete. Of the 147 identified welds, a total of 51 are complete at present.

F. Other Mechanical Work

1. EECW wall thickness measurements were made and completed. Analysis found no minimum wall thickness problems to exist. This information allows the piping replacement modification to be deferred.
2. Repair work on valve 3-74-67 was completed. The stem was found broken in two places. A segment of break area was cut for analysis. This analysis showed that the reason for the break was a result of overload, not fatigue. The valve was repaired and reassembled. EMI 18 was run on March 25. The valve passed Local Leak Rate Test (LLRT) on March 26.
3. P0547 Replacement of Recirculation Valves - Work continued during the month. All work is complete except for one hanger that had not been previously addressed. Completion of work is awaiting the revision of the work plan to address the new hanger.
4. Main Steam Relief Valves (MSRV's) - Parts list arrived from Target Rock. Five valves are onsite from Wyle Labs. Wyle is to begin steam tests on three more. Installation of MSRV valves is being deferred until completion of IHSI due to interferences.

OUTAGE MAINTENANCE & MAJOR MODIFICATION MANAGEMENT  
MARCH 1984

F. Other Mechanical Work

5. Main Steam Isolation Valves (MSIV's) - Four valves require maintenance. These valves are "A" and "D" inboard and "A" and "C" outboard. This work is continuing and is approaching critical path.
6. P0686 Control Rod Drive (CRD) rebuild room drain line - This work was put on hold until material delivery.
7. P0666 Install 1" Bypass Line - This work was completed.
8. L1970 EECW piping replacement on diesel-generator prefabrication work is continuing. Prefabrication on units 1 and 2 diesel generator is 100-percent complete and prefabrication on unit 3 is 80-percent complete.
9. P0684 torus vacuum breaker work is continuing.
10. P0501 Modify hanger support for RFWS-48 - All work completed except for insulation reinstallation.
11. P0612 Install 1/2" Stainless Steel Flex Line - MSRV breaker installation will be required to complete hanger designs.
12. Work is continuing on the functional test of the hydraulic snubbers.
13. P0689 Stainless Steel Overlay to 64-Series Valves - Work is continuing but moving slow due to manpower limitations.
14. P0691 Modify 64-Series Valves - Work is continuing but moving slow due to manpower limitations.
15. P3130 Replace Flow Solenoid Valves - Work is continuing.

OUTAGE MAINTENANCE & MAJOR MODIFICATION MANAGEMENT  
MARCH 1984

G. Electrical/Instrumentation:

1. Recirculation Motors - "A" motor was run satisfactorily on March 1.  
"B" motor was run satisfactorily on March 5.
2. P0533 Torus Temperature Monitoring Devices - Work is continuing and is 87-percent complete excluding work on sequential events recorder.  
Work plan is lacking on the recorder.
3. P0415 Temperature Instrumentation - Reactor feedwater nozzles. Work is 46-percent complete excluding thermocouple removal of STEAR 82-03.
4. P0322/323 Containment Pressure/Torus Level Transmitter Replacement -  
Work is 60-percent complete and continuing.
5. P0392 (Instrument portion) - Work is 20-percent complete and continuing.
6. P0422 Provide Redundant Class IE Protection - Work is 60-percent complete and continuing.
7. TIP Maintenance - Taken off schedule on March 4 until materials that are lacking arrive.
8. P0479 Emergency Lighting - Work is 45-percent complete and continuing.  
The previous mentioned work does not identify the new seismic hanger requirements on conduit.
9. P0672 Removal of associated wiring from Panels 25-5A, 6A, etc. - This work is 100-percent complete.

H. Torus

Torus sandblasting by Williams Contractor was completed on March 22. Other work was as follows:

OUTAGE MAINTENANCE & MAJOR MODIFICATION MANAGEMENT  
MARCH 1984

H. Torus (Continued)

1. Torus internal modifications - Painting work was completed and heat cure treating began. Heat cure is complete in 7 of 13 bays, bays 6 thru 12.
2. Attached piping and prefabrication work continued during March. The scope of work increased from 377 supports to 454 with the receipt of additional drawings. At present, 228 supports are complete.
3. The floor was stripped and painted in the new turbine decontamination facility. Work was halted awaiting a work plan revision and due to lack of manpower.

I. Planning and Scheduling

1. The main thrust of the planning and scheduling effort this report period has been the implementation of the unit 3 cycle 5 outage schedule that reflects the remaining outage work activities. Work is still being stalemated in some areas due to lack of work plan approval.
2. An effort is continuing on the preparation and scoping of work for unit 2 cycle 5 refueling outage.

J. ALARA

1. Provided continuous health physics coverage for radiography.
2. Decontaminated 74-67 valve and stem.
3. Cleaned and deconned RWCU pump access areas.
4. Installed shielding on RWCU lines and risers in drywell.
5. Decontaminated "B" and "D" RHR heat exchangers.

OUTAGE MAINTENANCE & MAJOR MODIFICATION MANAGEMENT  
MARCH 1984

J. ALARA (Continued)

6. Placed shielding on 28-inch recirculation suction lines and 12-inch risers to reduce exposure level.
7. Installed lead shielding in drywell at recirculation pumps and valves on Elev. 550'.
8. Held pre-job briefing on IHSI.

K. Administrative

The overtime percentage for the month of February was 12-percent with 85,873 straight time hours and 11,650 overtime hours. As of February 28, 1984, year-to-date overtime percentage was 20-percent, 699,966 straight time hours and 173,850 overtime hours. The overall goal of the overtime percentage is 17-percent.

The Outage & Maintenance budget for February was \$2,962,184 and the expenditures were \$1,285,749 with year-to-date budget being \$13,802,614 and actual year-to-date expenditures being \$14,220,763. The capital budget was \$6,718,542 and the expenditures were \$2,416,086 with year-to-date budget being \$18,874,300 and actual year-to-date expenditures being \$10,581,087. Overall budget was \$9,680,726 and the overall expenditures were \$3,781,835 with year-to-date budget being \$32,676,914 and actual year-to-date expenditures being \$24,801,850.

TENNESSEE VALLEY AUTHORITY

Browns Ferry Nuclear Plant

P. O. Box 2000

Decatur, Alabama 35602

APR 10 1984

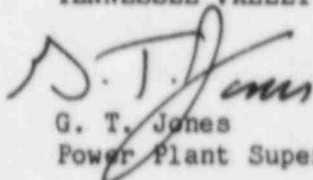
Nuclear Regulatory Commission  
Office of Management Information  
and Program Control  
Washington, DC 20555

Gentlemen:

Enclosed is the March 1984 Monthly Operating Report to NRC for Browns Ferry Nuclear Plant Units 1, 2, and 3.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

  
G. T. Jones  
Power Plant Superintendent

Enclosures

cc: Director, Region II  
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