

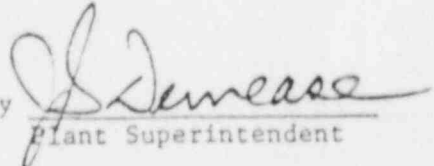
TENNESSEE VALLEY AUTHORITY  
DIVISION OF POWER PRODUCTION  
BROWNS FERRY NUCLEAR PLANT

MONTHLY OPERATING REPORT

September 1, 1978 - September 30, 1978

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

Submitted by

  
Plant Superintendent

7810160109R

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Operations Summary

The following summary describes the significant operational activities during the reporting period. In support of this summary, a chronological log of significant events is included in this report and begins on page 5 .

There were 6 Reportable Occurrences reported to the NRC during the month of September.

Unit 1

Significant operational events for unit 1 are tabulated by date and time beginning on page 5 .

The unit scrambled five times during the month of September. The unit was manually scrambled on September 3 and 9 to investigate high drywell leakage. On September 11 the reactor scrambled on APRM high flux due to a recirculation flow spike caused by an unexplained sudden ramp in "B" recirculation pump speed. The unit was manually scrambled on September 14 due to recirculation flow problems found to be caused by FCV 68-3. On September 20 the unit scrambled with no generator load during turbine warming due to turbine first stage pressure exceeding the 30% power bypass for turbine stop valve closure trip.

From September 23 to September 29 power was limited to 50% thermal power by the technical specifications, awaiting further analysis for single loop operation.

After September 29, power was administratively limited by 50% "B" recirculation pump speed, with "A" loop out of service.

A summary of maintenance work is shown on pages 19 through 30 .

Unit 2

Significant operational events for unit 2 are tabulated by date and time beginning on page 7.

There was one scram during the month. On September 29 the reactor was manually scrambled to investigate drywell leakage and to repair drywell equipment drain sump pumps.

Operations Summary (Con't)

Unit 2 (Con't)

A summary of maintenance work is shown on pages 19 through 30.

Unit 3

Significant operational events for unit 3 are tabulated by date and time beginning on page 9.

The unit scrambled once during the month of September. The reactor was manually scrambled on September 8 to accomodate the scheduled refueling outage.

A summary of maintenance work is shown on pages 19 through 31.

Common Systems

On September 21, a head gasket failed on the radwaste waste filter.

The filter was repaired and returned to service within ~ 12 hours. Approximately  $8.1 \text{ E}+5$  gallons of waste liquid were discharged containing approximately  $6.9 \text{ E}-1$  curies of activity. It is estimated that the use of auxiliary boiler steam during unit outages contributed  $6.0 \text{ E}+5$  gallons of demineralized water to radwaste.

Cooling towers 1, 2, 3 (until September 18) and 6 were operational this month for two lift pump operations. Modifications by the tower vendor were begun on Tower 3 on September 18. None of the towers had significant operational problems.

Operational Data

The average daily unit power level for units 1, 2, and 3 is shown on pages 10 through 12.

The operating data reports for all three units are shown on pages 13 through 15.

Unit shutdowns and power reductions for all three units are shown on pages 16 through 18.

Maintenance

Major electrical, mechanical, and instrument maintenance activities during the month are described on pages 19 through 30. Refueling outage activities for unit 3 are summarized on page 31.

Refueling Information

Unit 1

Unit 1 is scheduled for its second refueling beginning on November 10, 1978, with a restart date of December 20, 1978. Resumption of operation on that date will require a change in technical specifications pertaining to the core thermal limits. Licensing information in support of these changes was submitted in August 1978. This refueling will load additional 8 X 8R (retrofit) fuel assemblies into the core, replacing presently loaded 7 X 7 fuel and will involve installing a new recirculation pump trip (RPT) system.

There are 764 fuel assemblies in the core. The spent fuel storage pool presently contains 168 spent fuel assemblies and 156 new fuel assemblies. The present storage capacity of the spent fuel pool is 1080 assemblies. Present planning is to increase that capacity to 3471 assemblies. With present capacity, the refueling later in 1978 would be the last refueling that could be discharged to the spent fuel storage pool without exceeding that capacity and maintaining full core discharge capability in the pool.

Unit 2

Unit 2 is scheduled for its second refueling beginning on April 22, 1979, with a restart date of July 1, 1979. Resumption of operation on that date will require a change in technical specifications pertaining to the core thermal limits. Present scheduling is to submit licensing information in support of these changes before the refueling. This refueling will involve replacing some more 7 X 7 fuel assemblies with 8 X 8R (retrofit) assemblies.

There are 764 fuel assemblies in the core. At the end of September there were 132 discharged cycle 1 fuel assemblies in the spent fuel storage pool. There are presently 36 new 8 X 8 fuel assemblies in the spent fuel storage pool which were not loaded into the core during this cycle. The present storage capacity of

Refueling Information (Con't)

Unit 2 (Con't)

the spent fuel pool is 1080 assemblies. Present planning is to increase that capacity to 3471 assemblies. With present capacity, the 1979 refueling would be the last refueling that could be discharged to the spent fuel pool without exceeding that capacity and maintaining full core discharge capability in the pool.

Unit 3

Unit 3 began its first refueling on September 8, 1978, with a scheduled restart date of October 31, 1978. Resumption of operation on that date will require a change in technical specifications pertaining to the core thermal limits. Licensing information in support of these changes was submitted in July, 1978. This refueling involves replacing some of the present 8 X 8 fuel assemblies with 8 X 8R (retrofit) assemblies, modifying the main steam relief valves to increase simmer margin, and installing a new recirculation pump trip (RPT) system.

There are 764 cycle 1 fuel assemblies in the spent fuel storage pool. There are 208 new 8 X 8R (retrofit) assemblies present in the spent fuel storage pool. The present licensed storage capacity of the spent fuel pool is 1132 assemblies.

Significant Operational Events

<u>Date</u>	<u>Time</u>	<u>Event</u>
		<u>Unit 1</u>
9/1	0000	Reactor thermal power at 86%, sequence B, holding CPR limited.
	2230	Reduced thermal power from 86% to 73% for removal of "B" recirculation pump MG set from service for brush replacement and turbine CV tests and SI's.
9/2	0015	Turbine C.V. tests and SI's completed, holding at 73% thermal power for "B" recirculation pump MG set brush replacement.
	0115	"B" recirculation pump MG set brushes replaced and pump placed in service.
	0125	"A" recirculation pump MG set removed from service for brush replacement.
	0250	"A" recirculation pump MG set brushes replaced and pump placed in service.
	0255	Commenced power ascension from 73% thermal power.
	1500	Reactor thermal power at 85%, CPR limited.
9/3	2200	Commenced reducing thermal power from 85% for removal of unit from service for drywell maintenance to valve FCV-69-1 (excessive drywell leakage).
	2245	Reactor scram no. 97 (manual) from 40% thermal power to accomodate drywell maintenance to FCV-69-1.
9/5	2210	Maintenance to valve FCV-69-1 completed, commenced rod withdrawal.
	2335	Reactor critical no. 109.
9/6	0200	Reactor made subcritical with RPV at 1000 psi, holding for drywell entry for leak checks.
	0340	Leak checks completed, resumed startup.
	0355	Reactor critical no. 110.
	0725	Rolled T/G.
	0757	Synchronized generator, commenced power ascension sequence "B".



Significant Operational Events

<u>Date</u>	<u>Time</u>	<u>Event</u>
		<u>Unit 1 (continued)</u>
9/7	1230	Reduced thermal power from 72% to 66% due to "B" recirculation pump trip during valve backseating operations.
	1255	"B" recirculation pump returned to service commenced power ascension from 66% thermal power.
9/8	0930	Commenced PCIOMR from 75% thermal power.
9/9	1945	Commenced reducing thermal power from 86% for shutdown due to excessive drywell leakage. FCV 68-77 leaking.
	2115	Reactor scram no. 98 (manual) from 42% thermal power to accommodate maintenance.
9/10	1630	Maintenance completed, commenced rod withdrawal.
	1759	Reactor critical no. 111.
	2008	Rolled T/G.
	2022	Synchronized generator, commenced power ascension, sequence "B".
9/11	0530	Commenced PCIOMR from 67% thermal power.
	1226	Reactor scram <sup>(1)</sup> no. 99 from 73% thermal power on APRM hi hi flux. Recirculation pumps ramped up.
	1415	Commenced rod withdrawal.
	1515	Reactor critical no. 112.
	1702	Rolled T/G
	1725	Synchronized generator, commenced power ascension sequence "B".
9/12	0015	Commenced PCIOMR from 66% thermal power.
	1703	Reduced thermal power from 90% to 80% due to "A" recirculation pump run back.
	2332	Commenced reducing thermal power from 80% for shutdown due to flow problems on recirculation pump loop "A" (valve FCV 68-3 broken disc).

Significant Operational Events

<u>Date</u>	<u>Time</u>	<u>Event</u>
		<u>Unit 1 (continued)</u>
9/14	0041	Reactor scram no. 100 (manual) from 40% thermal power to accommodate maintenance.
	2020	Unit at cold shutdown.
9/20	0545	Maintenance outage completed, commenced rod withdrawal.
	0625	Reactor critical no. 113.
	0700	Reactor subcritical due to rod block.
	0820	Rod block cleared, commenced rod withdrawal.
	0835	Reactor critical no. 114.
	1542	Reactor scram <sup>(2)</sup> no. 101 30% power/pressure setpoint inadvertently reached during turbine steam chest warmup from 5% thermal power
	1655	Commenced rod withdrawal.
	1740	Reactor critical no. 115.
9/21	0030	Rolled T/G.
	0102	Synchronized generator, commenced power ascension.
9/23	1500	Reactor thermal power at 50%, holding due to "A" recirculation loop out of service (pump discharge valve 68-3 inoperable).
9/29	1825	Commenced power ascension from 50% thermal power with rods.
9/30	0900	Reactor thermal power at 56%.
	2400	Reactor thermal power at 56%, holding due to "A" recirculation loop out of service.
		<u>Unit 2</u>
9/1	0000	Reactor thermal power at 95% sequence "A" core flow limited.
	2355	Reduced thermal power from 95% to 90% for turbine C.V. tests and SI's.

Significant Operational Events

<u>Date</u>	<u>Time</u>	<u>Event</u>
		<u>Unit 2 (continued)</u>
9/2	0100	Turbine C.V. tests and SI's completed, commenced power ascension.
	0400	Reduced thermal power from 96% to 35% for brush replacement of both recirculation pump MG sets and control rod sequence exchange from "A" to "B".
	0716	Brush replacement of both recirculation pump MG sets completed, holding for control rod sequence exchange.
	0800	Control rod sequence exchange from "A" to "B" completed, commenced power ascension.
	1500	Commenced PCIOMR from 68% thermal power.
9/5	0600	Reactor thermal power at 97%, core flow limited.
9/6	1500	Reactor thermal power at 96%, core flow limited.
9/7	1500	Reactor thermal power at 96%, core flow limited.
9/11	1620	Reduced thermal power from 96% to 92% due to one-half isolation on "B" main steam line while performing SI.
	1640	One-half isolation on "B" main steam line cleared and reset, commenced power ascension.
	2300	Reactor thermal power at 96% core flow limited.
	2320	Reduced thermal power from 96% to 70% for turbine C.V. tests and SI's.
9/12	0144	Turbine C.V. tests and SI's completed commenced power ascension.
	0255	Reactor thermal power at 96% core flow limited.
9/16	2325	Reduced thermal power from 96% to 70% for turbine C.V. tests and SI's.
9/17	0045	Turbine C.V. tests and SI's completed commenced power ascension from 70% thermal power.
	0330	Commenced PCIOMR from 90% thermal power.
	2300	Reactor thermal power at 95%, core flow limited.

Significant Operational Events

<u>Date</u>	<u>Time</u>	<u>Event</u>
<u>Unit 2 (continued)</u>		
9/22	2235	Reduced thermal power from 95% to 90% for turbine C.V. tests and SI's.
9/23	0100	Turbine C.V. tests and SI's completed, commenced PCIOMR from 90% thermal power.
	1800	Reactor thermal power at 97% core flow limited.
9/24	1350	Reduced thermal power from 97% to 90% for removal of "B" string high pressure feedwater heaters from service for leak checks.
9/25	2/20	Leak checks completed on "B" string high pressure heaters.
	2130	Commenced PCIOMR from 90% thermal power.
9/26	1645	Reactor thermal power at 97% core flow limited.
9/29	2100	Commenced reducing thermal power from 97% for scheduled outage.
	2315	Reactor scram no. 71 (manual) from 40% thermal power for scheduled outage.
9/30	2400	Reactor shutdown in hot standby mode.
<u>Unit 3</u>		
9/1	0000	Reactor thermal power at 67%, administrative hold due to vacuum switch grounding problems of T/G.
9/7	0545	Commenced power ascension from 67% thermal power.
	1500	Reactor thermal power at 77%.
9/8	2200	Commenced reducing thermal power for shutdown for refueling outage.
	2300	Reactor scram no. 65 (manual) from 40% thermal power to accommodate refueling outage.
9/14	1945	Commenced removing fuel assemblies from reactor vessel to fuel pool storage.
9/25	1400	Completed removing fuel from reactor vessel to fuel pool storage
9/30	2400	Refueling outage in progress with all fuel assemblies in the fuel pool storage.

- (1) Equipment malfunction.
- (2) Operator error.

AVERAGE DAILY UNIT POWER LEVEL

DOCKET NO. 50-250  
UNIT Browns Ferry I  
DATE 10/5/78  
COMPLETED BY Don Green  
TELEPHONE 205/729-6846

MONTH September, 1978

DAY	AVERAGE DAILY POWER LEVEL (MWe-Net)	DAY	AVERAGE DAILY POWER LEVEL (MWe-Net)
1	<u>894</u>	17	<u>-8</u>
2	<u>801</u>	18	<u>-11</u>
3	<u>821</u>	19	<u>-11</u>
4	<u>-13</u>	20	<u>-10</u>
5	<u>-11</u>	21	<u>324</u>
6	<u>237</u>	22	<u>465</u>
7	<u>653</u>	23	<u>468</u>
8	<u>772</u>	24	<u>477</u>
9	<u>744</u>	25	<u>477</u>
10	<u>43</u>	26	<u>473</u>
11	<u>464</u>	27	<u>486</u>
12	<u>763</u>	28	<u>487</u>
13	<u>859</u>	29	<u>503</u>
14	<u>6</u>	30	<u>549</u>
15	<u>-7</u>	31	<u></u>
16	<u>-7</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.

AVERAGE DAILY UNIT POWER LEVEL

DOCKET NO. 50-260  
UNIT Browns Ferry II  
DATE 10-5-78  
COMPLETED BY Don Green  
TELEPHONE 205/729-6846

MONTH September 1978

DAY	AVERAGE DAILY POWER LEVEL (MWe-Net)	DAY	AVERAGE DAILY POWER LEVEL (MWe-Net)
1	<u>1031</u>	17	<u>1030</u>
2	<u>681</u>	18	<u>1032</u>
3	<u>829</u>	19	<u>1024</u>
4	<u>991</u>	20	<u>1019</u>
5	<u>1003</u>	21	<u>1013</u>
6	<u>1020</u>	22	<u>1037</u>
7	<u>1041</u>	23	<u>1008</u>
8	<u>1012</u>	24	<u>1002</u>
9	<u>1031</u>	25	<u>961</u>
10	<u>1043</u>	26	<u>1030</u>
11	<u>1010</u>	27	<u>1058</u>
12	<u>1005</u>	28	<u>1055</u>
13	<u>1011</u>	29	<u>991</u>
14	<u>1016</u>	30	<u>-10</u>
15	<u>1028</u>	31	<u></u>
16	<u>1010</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.

AVERAGE DAILY UNIT POWER LEVEL

DOCKET NO. 50-296  
UNIT Browns Ferry III  
DATE 10/5/78  
COMPLETED BY Don Green  
TELEPHONE 205/720-6846

MONTH September, 1978

DAY	AVERAGE DAILY POWER LEVEL (MWe-Net)	DAY	AVERAGE DAILY POWER LEVEL (MWe-Net)
1	<u>673</u>	17	<u>-7</u>
2	<u>684</u>	18	<u>-8</u>
3	<u>678</u>	19	<u>-8</u>
4	<u>685</u>	20	<u>-8</u>
5	<u>685</u>	21	<u>-9</u>
6	<u>659</u>	22	<u>-7</u>
7	<u>742</u>	23	<u>-8</u>
8	<u>772</u>	24	<u>-8</u>
9	<u>-11</u>	25	<u>-6</u>
10	<u>-11</u>	26	<u>-3</u>
11	<u>-11</u>	27	<u>-3</u>
12	<u>-10</u>	28	<u>-3</u>
13	<u>-9</u>	29	<u>-5</u>
14	<u>-9</u>	30	<u>-5</u>
15	<u>-9</u>	31	<u></u>
16	<u>-9</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 10/5/78  
 COMPLETED BY Don Green  
 TELEPHONE 205/720-6846

OPERATING STATUS

1. Unit Name: Browns Ferry I
2. Reporting Period: September 1978
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
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

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

	This Month	Yr.-to-Date	Cumulative
11. Hours In Reporting Period	<u>720</u>	<u>6551</u>	<u>36529</u>
12. Number Of Hours Reactor Was Critical	<u>492.42</u>	<u>5885.83</u>	<u>18865.71</u>
13. Reactor Reserve Shutdown Hours	<u>225.76</u>	<u>352.33</u>	<u>4,399.13</u>
14. Hours Generator On-Line	<u>466.35</u>	<u>5649.33</u>	<u>18325.46</u>
15. Unit Reserve Shutdown Hours	<u>0</u>	<u>0</u>	<u>0</u>
16. Gross Thermal Energy Generated (MWH)	<u>944,359</u>	<u>15,778,415</u>	<u>48,151,644</u>
17. Gross Electrical Energy Generated (MWH)	<u>291,740</u>	<u>5,171,870</u>	<u>15,989,890</u>
18. Net Electrical Energy Generated (MWH)	<u>280,607</u>	<u>5,012,892</u>	<u>15,501,239</u>
19. Unit Service Factor	<u>64.8</u>	<u>86.7</u>	<u>50.2</u>
20. Unit Availability Factor	<u>64.8</u>	<u>86.7</u>	<u>50.2</u>
21. Unit Capacity Factor (Using MDC Net)	<u>36.6</u>	<u>71.9</u>	<u>39.8</u>
22. Unit Capacity Factor (Using DER Net)	<u>36.6</u>	<u>71.9</u>	<u>39.8</u>
23. Unit Forced Outage Rate	<u>35.2</u>	<u>7.4</u>	<u>41.9</u>

24. Shutdowns Scheduled Over Next 6 Months (Type, Date, and Duration of Each):  
Refuel outage November, 1978.

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. 50-260  
 DATE 10/5/78  
 COMPLETED BY Don Green  
 TELEPHONE 205/729-6846

OPERATING STATUS

1. Unit Name: Browns Ferry II
2. Reporting Period: September 1978
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
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

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

	This Month	Yr.-to-Date	Cumulative
11. Hours In Reporting Period	720	6551	31,440
12. Number Of Hours Reactor Was Critical	695.25	4,004.78	14,573.01
13. Reactor Reserve Shutdown Hours	24.75	213.22	11,412.99
14. Hours Generator On-Line	695.25	3900.55	13,933.91
15. Unit Reserve Shutdown Hours	0	0	0
16. Gross Thermal Energy Generated (MWH)	2,143,937	10,737,187	36,910,324
17. Gross Electrical Energy Generated (MWH)	715,420	3,500,060	12,097,010
18. Net Electrical Energy Generated (MWH)	696,458	3,388,119	11,730,923
19. Unit Service Factor	96.6	59.5	44.3
20. Unit Availability Factor	96.6	59.5	44.3
21. Unit Capacity Factor (Using MDC Net)	90.8	48.6	35.0
22. Unit Capacity Factor (Using DER Net)	90.8	48.6	35.0
23. Unit Forced Outage Rate	3.4	4.9	49.2

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	_____	_____

OPERATING DATA REPORT

DOCKET NO. 50-296  
 DATE 10/5/78  
 COMPLETED BY Don Green  
 TELEPHONE 205/720-6846

OPERATING STATUS

1. Unit Name: Browns Ferry III
2. Reporting Period: September 1978
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
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

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

	This Month	Yr.-to-Date	Cumulative
11. Hours In Reporting Period	<u>720</u>	<u>6551</u>	<u>13,895</u>
12. Number Of Hours Reactor Was Critical	<u>191.0</u>	<u>5,503.25</u>	<u>12,198.92</u>
13. Reactor Reserve Shutdown Hours	<u>49.33</u>	<u>499.08</u>	<u>1087.49</u>
14. Hours Generator On-Line	<u>191.0</u>	<u>5415.34</u>	<u>11914.65</u>
15. Unit Reserve Shutdown Hours	<u>0</u>	<u>0</u>	<u>0</u>
16. Gross Thermal Energy Generated (MWH)	<u>422,988</u>	<u>15,421,038</u>	<u>34,062,732</u>
17. Gross Electrical Energy Generated (MWH)	<u>137,690</u>	<u>5,044,430</u>	<u>11,078,300</u>
18. Net Electrical Energy Generated (MWH)	<u>129,637</u>	<u>4,886,896</u>	<u>10,737,802</u>
19. Unit Service Factor	<u>26.5</u>	<u>82.7</u>	<u>85.7</u>
20. Unit Availability Factor	<u>26.5</u>	<u>82.7</u>	<u>85.7</u>
21. Unit Capacity Factor (Using MDC Net)	<u>16.9</u>	<u>70.0</u>	<u>72.6</u>
22. Unit Capacity Factor (Using DER Net)	<u>16.9</u>	<u>70.0</u>	<u>72.6</u>
23. Unit Forced Outage Rate	<u>0</u>	<u>9.5</u>	<u>9.7</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: November 1978
  26. Units In Test Status (Prior to Commercial Operation):
- |                      | Forecast | Achieved |
|----------------------|----------|----------|
| INITIAL CRITICALITY  | _____    | _____    |
| INITIAL ELECTRICITY  | _____    | _____    |
| COMMERCIAL OPERATION | _____    | _____    |

UNIT SHUTDOWNS AND POWER REDUCTIONS

REPORT MONTH September 1978

DOCKET NO. 50-250  
 UNIT NAME Browns Ferry I  
 DATE 10/5/78  
 COMPLETED BY Don Green  
 TELEPHONE 205/7729-6846

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
50	780903	F	57.2	A	2				Maintenance Outage to repair FCV-69-1 and identify leakage of FCV-68-77.
51	780909	F	23.12	A	2				Maintenance Outage to identify leakage into drywell (FCV-68-77).
52	780911	F	4.98	A	3				Rx scram due to hi hi APPM flux.
53	780914	F	159.02	A	2				Reirc. flow problems due to trouble with FCV-68-3.
54	780920	F	9.33	G	3				Rx scram on turbine stop valve closure signal (pressure setpoint inadvertently reached during turbine chest warming).

<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 September 1978

DOCKET NO. 50-260  
 UNIT NAME Browns Ferry II  
 DATE 10-5-78  
 COMPLETED BY Don Green  
 TELEPHONE 205/720-6846

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
61	780902	S							Derated for control rod sequence exchange from A to B.
62	780911	S							Derated for turbine control valve test and SI's.
63	780916	S							Derated for turbine control valve test and SI's.
64	780929	F	24.75	A	2				Investigation of unidentified leakage into drywell and repair to drywell equipment drain sump pump.

<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 September 1978

DOCKET NO. 50-296  
 UNIT NAME Browns Ferry III  
 DATE 10/5/78  
 COMPLETED BY Don Green  
 TELEPHONE 205-729/6846

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
64	780908	S	529	C	2				

<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)

BROWNS FERRY NUCLEAR PLANT UNIT COMMON

MECHANICAL MAINTENANCE SUMMARY

CSSC EQUIPMENT

For the Month of SEPTEMBER 1978

DATE	SYSTEM	COMPONENT	NATURE OF MAINTENANCE	EFFECT ON SAFE OPERATION OF THE REACTOR	CAUSE OF MALFUNCTION	RESULTS OF MALFUNCTION	ACTION TAKEN TO PRECLUDE RECURRENCE
-8-78	Fuel pool cooling & deminilizing system	Air motors unit one	Air motor slow operating	None	Unknown	None	Cleaned air motor
-15-78	Fuel pool cooling & deminilizing system	"C" fuel pool demin.	Blow head gasket, manway gasket & leaks on pipe flange underneath vessel	None	Unknown	None	H.P. survey, replaced lead gasket, manway inspect, hole gaskets and pipe flange gasket, inspect with 40 PSI. No leaks at 40 PSI.
-20-78	RHR service water sys.	Air relief valve on C1 RHRSW pump	Float and seat was bad	None	Unknown	None	Installed new air relief valve
-25-78	RHR service water sys.	D-3 RHRSW pump	Packing leak	None	Unknown	None	Repaired and adjust packing
-25-78	RHR service water sys.	A-1 RHRSW pump	Packing leak	None	Unknown	None	Replaced packing
-27-78	Diesel gen sys.	"B" air compressor on 3A diesel	Head gasket blown	None	Operation	None	Replaced head gasket

BROWNS FERRY NUCLEAR PLANT UNIT 1

MECHANICAL MAINTENANCE SUMMARY

CSSC EQUIPMENT

For the Month of SEPTEMBER 1978

DATE	SYSTEM	COMPONENT	NATURE OF MAINTENANCE	EFFECT ON SAFE OPERATION OF THE REACTOR	CAUSE OF MALFUNCTION	RESULTS OF MALFUNCTION	ACTION TAKEN TO PRECLUDE RECURRENCE
-5-78	Station Drainage	Drywell floor drain sump pump "B"	Pump bearings bad	None	Operation	None	Replaced pump bearings
-5-78	High pressure fire protection system	FCV 1-26-79N	Deluge valve open	None	Unknown	Would not reset valve	Reset deluge valve
-5-78	Reactor bldg vent system	FCO 64-9	Diaphragm leaking	None	Unknown	None	Installed rebuilt air cylinder
-6-78	Elevators system sys no 203	Drywell doors	Doors will not pass air test	None	Unknown	None	Replaced O-rings
-7-78	Elevator system sys no 203	Equipment access door 2	Patch leaking	None	Unknown	None	Installed new patch on 2 door air seal equipment tunnel Rx building
-10-78	Control rod system	Scram discharge	Valves were leaking through	None	Unknown	None	Adjusted stroke on valve
-13-78	Standby liquid control sys	SLC 1A pump	Intake & discharge valve leaking	None	Unknown	None	Machined and lapped valves

BRUNSWICK FERRY NUCLEAR PLANT UNIT 1

MECHANICAL MAINTENANCE SUMMARY

CSSC EQUIPMENT

For the Month of SEPTEMBER 1978

DATE	SYSTEM	COMPONENT	NATURE OF MAINTENANCE	EFFECT ON SAFE OPERATION OF THE REACTOR	CAUSE OF MALFUNCTION	RESULTS OF MALFUNCTION	ACTION TAKEN TO PRECLUDE RECURRENCE
-13-78	Control rod drive system	CRD Accum. 42-43	Accumulator leaking	None	Unknown	None	Replaced accumulator
-14-78	Standby liquid control system	Valve 63-518	Packing gland loose	None	Operation	None	Tightened packing gland
-16-78	Reactor water recirc. system	Equalizing valves FCV-68-33 FCV-68-35	Packing leak	None	Unknown	None	Replaced valves
-19-78	Reactor water recirc. system	FCV-68-77 FCV-68-79	Bad packing leak	None	Unknown	None	Repacked valves
-19-78	RWR system	68-3 & 68-1 68-33	Loose packing	None	Unknown	None	Tightened packing installed lamp on 68-1 & 68-33
-25-78	Control rod drive system	Valve #2-85-539B	Packing leak	None	Unknown	None	Tightened packing nuts
-27-78	Control rod drive system	FCV-85-8	Packing gland too tight & pulled crooked	None	Packing too tight	Bent packing gland	Straightened packing gland



MECHANICAL MAINTENANCE SUMMARY

CSSC EQUIPMENT

For the Month of SEPTEMBER 1978

DATE	SYSTEM	COMPONENT	NATURE OF MAINTENANCE	EFFECT ON SAFE OPERATION OF THE REACTOR	CAUSE OF MALFUNCTION	RESULTS OF MALFUNCTION	ACTION TAKEN TO PRECLUDE RECURRENCE
9-1-78	Fuel pool cooling system	2A fuel pool cooling pump	Packing leak	None	Operation	None	Adjusted packing
9-7-78	Control rod drive system	CRD pump motor "A"	1/4 nipple broke off	None	Unknown	None	Replaced 1/4 nipple with new one
9-13-78	HPCI system	HPCI steam exhaust	Collar out of adjustment	None	Operation	None	Collar adjusted
9-15-78	HPCI system	Valve 73-16	Packing leak	None	Unknown	None	Tightened packing
9-15-78	RHR service water system	RHR SW outlet valve 46B	Packing blown out	None	Operation	None	Repacked valve
9-21-78	Fire protection system	2-26-1119 F.P. header	Packing leak	None	Unknown	None	Tightened packing
9-21-78	Control rod drive system	A-CRD pump	Dirty filters	None	Operation	None	Changed filters

CSSC EQUIPMENT

## MECHANICAL MAINTENANCE SUMMARY

For the Month of SEPTEMBER 1978

DATE	SYSTEM	COMPONENT	NATURE OF MAINTENANCE	EFFECT ON SAFE OPERATION OF THE REACTOR	CAUSE OF MALFUNCTION	RESULTS OF MALFUNCTION	ACTION TAKEN TO PRECLUDE RECURRENCE
9-26-78		Air Con. in "C" shutdown room	Line stopped up	None	Unknown	Water dripping on shutdown board	Used nitrogen to unstop drain.
-30-78	Station Drainage	2A drywell equip. drain sump pump	Pump no good	None	Operation	Pump would not pump	Rebuilt pump completely
-31-78	Station Drainage	Drywell FDSP	Coupling spider worn out on "A" pump	None	Operation	None	Installed new spider & adjusted impeller
-30-78	Station Drainage	Drywell equip. drain sump pump	Coupling spider worn out	None	Operation	None	Installed new spider, impeller, brushing, coupling, & bearing.

CSSC EQUIPMENT

MECHANICAL MAINTENANCE SUMMARY

For the Month of SEPTEMBER 1978

DATE	SYSTEM	COMPONENT	NATURE OF MAINTENANCE	EFFECT ON SAFE OPERATION OF THE REACTOR	CAUSE OF MALFUNCTION	RESULTS OF MALFUNCTION	ACTION TAKEN TO PRECLUDE RECURRENCE
-8-78	Vent. syst.	Control bay	Dirty filters	None	Operation	None	Changed filters
-15-78	Control rod drive system	3A CRD suction filter	Suction filters need changing	None	Operation	None	Changed filters
-19-78	Rx water recirc. system	FT 68-10	Line stopped up	None	Operation	None	Unstopped line

Date	System	Component	Nature of Maintenance	Effect on Safe Operation of The Reactor	Cause of Malfunction	Results of Malfunction	Action Taken To Preclude Recurrence
9/4	Fire Protection	Fire Protection Panel 1-25-287	Smoke Alarm in on Panel 1-25-287	None	Smoke detector full of water due to inadvertent initiation of system while troubleshooting another problem	Failure of smoke detector	Replaced smoke detector Performed SI 4.11.C.1 and .5. TR 102148
9/4	Fire Protection	Fire Protection Panel 25-311	Trouble alarm in and will not clear	None	Bad control module	Trouble circuit defective	Replaced control module Performed SI 4.11.C.3 and .4 on Panel. TR 114447
9/5	Diesel Generator	D/G D	Lube oil heater overload assembly and wires burned	None	Loose wire	Lube oil heater not working	Replaced overload assembly and wires heater operated correctly. TR 114443
9/7	Radiation Monitoring	XS 90-135A	Switch failed to operate properly	None	Bad switch contact	Switch didn't operate properly	Replaced switch. Verified proper operations TR 63696
9/10	4-kV Shut-down board	ACB 1716	Breaker will not trip	None	Mechanical linkage to trip coil out of adjustment Test pushbutton doesn't operate	Breaker would not trip	Adjusted mechanical linkage and repaired test pushbutton. Tested o.k. TR 114408
9/14	SLC	SLC pump motor 1A	Motor heaters do not operate	None	Bad motor heaters	Heaters did not heat motor	Replaced heaters Checked out o.k. TR 84143 and 84173
9/15	Control Bay Ventilation	Control Bay Chiller A	Not cooling chilled water	None	Bad tubes in controller	Cooling water to only 51 or 52° F.	Replaced tubes. Cooling water properly. TR 105251

## BROWNS FERRY NUCLEAR PLANT UNIT

CSSC EQUIPMENT

## ELECTRICAL MAINTENANCE SUMMARY

For the Month of September 1978

PAGE 2 of 2

Date	System	Component	Nature of Maintenance	Effect on Safe Operation of The Reactor	Cause of Malfunction	Results of Malfunction	Action Taken To Preclude Recurrence
9/19	Recirc	FCV 68-35	No indicating lights	None	Coil burned up in relay	No indicating lights	Replaced coil, tested o.k. TR 105221
9/19	Raw Service water	PA 25-31	Alarm wouldn't clear	None	Level switch out of adjustment	Alarm wouldn't clear. Tank periodically running over and 2A RSW pump not shutting off	Adjusted level switch. Verified proper operation. TR 105225

BROWNS FERRY NUCLEAR PLANT UNIT 2

ELECTRICAL MAINTENANCE SUMMARY

For the Month of September 1978

CSSC EQUIPMENT

Date	System	Component	Nature of Maintenance	Effect on Safe Operation of The Reactor	Cause of Malfunction	Results of Malfunction	Action Taken To Preclude Recurrence
9/7	SLC	2B motor heaters	Motor heaters not heating	None	Motor heaters defective	Motor heaters not heating	Replaced motor heaters 88357, 98143, 74718, 83667, 92769, 92834, 101839, 101587 and 115080
9/12	Control Bay Ventilation	Flow switch 31-174A	Alarm will not clear	None	Blow switch stuck	Alarm would not clear	Cleared and adjusted flow switch. Alarm cleared. TR 101721
9/19	Fire Protection	XS 39-67XA	Bad detector	None	Bad detector	Defective detector	Replaced detector. Performed SI 4.11.C.1 and .5. TR 87785
9/26	Radiation Monitoring	RM 90-55	Pump motor blowing fuses	None	Bad bearings of pump motor	Blown fuse	Replaced motor and verified proper operation. TR 110204
9/30	RHR	HCV 74-55	Position light doesn't burn	None	Limit out of adjustment	No position indicating light	Adjusted limit switch. Indicating light working PROPERLY
9/30	Main Steam	FCV 1-14	Limit switch dropping out 5AK-3A	None	Limit switch out of adjustment	Received half scram with valve greater than 90% open	Adjusted limit switch. Verified proper operation. TR 109119, 102109
9/30	RPS	RPS MG Set 2A	Failure to trip MG set when testing overvoltage relay	None	Bad overvoltage relay card	MG Set won't trip on overvoltage	Replace overvoltage relay card. Completed EMI 13. TR 66600
9/30	RPS	RPS MG Set 2B	Failure to trip MG Set when testing overvoltage relay	None	Bad overvoltage relay card	MG Set won't trip on overvoltage	Repaired overvoltage relay card. Complete EMI 13. TR 106661
9/30	Main Steam	MSRV 1-23	Bellows leakage alarm comes in intermittently	None	Connector to pressure switch bad	Intermittent alarm. Ground on battery board	Replaced connector. Checked out o.k. ground cleared. TR 106656, 109101 and 115412

BROWNS FERRY NUCLEAR PLANT UNIT 3

CSSC EQUIPMENT

ELECTRICAL MAINTENANCE SUMMARY

For the Month of September 1978

Date	System	Component	Nature of Maintenance	Effect on Safe Operation of The Reactor	Cause of Malfunction	Results of Malfunction	Action Taken To Preclude Recurrence
8/19, 9/2, 9/4, 9/5	Fire Protection	Smoke detector 39-19B	Smoke detector bringing in alarm	None	Age and dust accumulation on detector	Alarm would not clear	Cleaned detector and eventually replaced. Performed SI 4.11.C.1 and .5. TR 114893, 114804, 114631, 114698, BFRO-50-296/7823
9/8	HPCI	FCV 73-23	No indication in control room	None	Limit switch loose and out of adjustment	No open indication in control room	Tightened and adjusted limit switch. Checked o.k. TR 114237
9/11	Fire Protection	XS-39-26G Smoke detector	Spurious Alarm	None	Age and dust accumulation on detector	Alarm would not clear	Changed out detector and performed SI 4.11.C.1 and .5 TR 114243 & 67475
9/24	Fire Protection	XS-39-93KB	Detector alarms without reason	None	Age and dust accumulation on detector	Intermittent alarm	Changed out detector Performed SI 4.11.C.1 and .5. TR 91438 BFRO-50-296/7826
9/29	Core Spray	HCV 75-1	Limit switch for valve position indicating lights not working	None	Limit switch sticking	Improper position indication	Cleaned limit switch. Verified proper operation. TR 91498

BROWNS FERRY NUCLEAR PLANT UNIT 1&2  
 INSTRUMENT MAINTENANCE SUMMARY  
 FOR THE MONTH OF SEPT., 1978

CSSC EQUIPMENT

Date	System	Component	Nature of Maintenance	Effect on Safe Operation of the reactor	Cause of Malfunction	Results of Malfunction	Action Taken to preclude recurrence
<u>Init 1</u>							
1-1	Recirc flow control	SC-90-3A	Repair	None	Faulty manual control potentiometer	Erratic Control	Periodic replacement
1-6	Recirc	FY-68-49B	Repair	None	Capicitor shorted to terminal strip	Total core flow less than actual	None
1-15	Recirc flow control	SC-96-3B PIC-96-1	Repair	None	Faulty manual control potentiometer	Erratic Control	Periodic replacement
1-15	Feedwater control	SC-46-8A,9A,10A	Repair	"	" " "	" " "	"
<u>Init 2</u>							
1-11	N.M.S	IRM B	Repair	None	Dirty contacts	Erratic Indication	None
1-15	Feedwater Control	SC-46-8A,9A,10A	Periodic Replacement	None	Faulty manual control potentiometer	Erratic control	Periodic Replacement
	Recirc Flow Control	SC-96-3A,3B PIC-96-1	" " "	"	"	"	"
1-22	RWCU	TS-69-30E	Replacement	None	Faulty switch	High alarm would not clear	None
1-30	RPIS	Probe 10-23	" "	None	Bad probe buffer card	Super imposed O <sub>2</sub> in units	None
	Radwaste	FS-77-14	" "	None	Defective Level switch	D.W. equipment drain sump pump would not start	None



BROWNS FERRY NUCLEAR PLANT UNIT 3  
 INSTRUMENT MAINTENANCE SUMMARY  
 FOR THE MONTH OF Sept., 1978

ISC EQUIPMENT

Date	System	Component	Nature of Maintenance	Effect on Safe Operation of the reactor	Cause of Malfunction	Results of Malfunction	Action Taken to preclude recurrence
Unit 3							
9-1	Primary containmen	LI-64-54B	Calibration	None	Zero Shift	Indication did not agree	None
9-1	Rad. monitor	RM-90-133B	Repair	None	Bad Detector	High radiation Indication	None
9-19	FCIC	PDIS-71-1B	Calibration	None	Instrument Drift	Indicated flow with unit shutdown	None

Outage Summary

(BFNP - Unit 3)

September 1978

The drywell and reactor pressure vessel have been disassembled in order to allow unloading of fuel for remaining RPV vibration instrumentation and conducting a major inspection and repair of the CRD nozzle. The CRD return to the vessel will be capped and rerouted to the reactor water cleanup system return. The fuel was unloaded in eight days instead of the scheduled nine days. Neutron sources and holders have been removed, and 43 local power range monitors are being replaced with longer-life models. Other major work included leak check and eddy current testing of the feedwater heaters and condenser water boxes. The major containment isolation valve testing has shown an initial testing failure rate of approximately 50 percent, including six of eight main steam isolation valves requiring repair. Major motor testing was completed with one drywell blower motor failing the inspection. Cleanup and inspection of electrical boards is approximately 50 percent complete, and the contact retainer arms are being changed out on CSSC system breakers. The inspection and testing of mechanical and hydraulic snubbers is complete. To date, four control rod drives have been changed out and will continue for two additional drives after LPRM work is complete. Prefabrication and piping work on the CRD reroute and scram discharge header are underway. There are several major modifications requiring electricians, including the off-line radiation monitoring, diesel driven fire pump, recirculation pump trip modification and standby gas treatment modifications.

The main steam relief valves have been sent to the service shop for bore modification, while the valve base assemblies were rebuilt onsite. The major turbine inspection of the low pressure "A" turbine, all reactor feed pump turbines and intercept and control valves were completed.