

TENNESSEE VALLEY AUTHORITY

Browns Ferry Nuclear Plant  
P. O. Box 2000  
Decatur, Alabama 35602

AUG 10 1981

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

Gentlemen:

Enclosed is the July 1981 Monthly Operating Report for Browns Ferry Nuclear Plant Units 1, 2, and 3.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

H. L. Abercrombie  
Plant Superintendent

Enclosure

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TENNESSEE VALLEY AUTHORITY  
DIVISION OF POWER PRODUCTION  
BROWNS FERRY NUCLEAR PLANT

MONTHLY OPERATING REPORT  
July 1, 1981 - July 31, 1981

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

Submitted By:

*Hubert M. Humeant*  
Plant Superintendent

*Date  
8108200157*

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Operations Summary

July 1981

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.

There were 25 reportable occurrences and five revisions to previous reportable occurrences reported to the NRC during the month of July.

Unit 1

Unit 1 was in its EOC-4 refueling outage the entire month.

Unit 2

There were three scrams on the unit during the month. On July 7, the reactor was manually scrammed to repair an EHC oil leak on turbine control valve 2A. The reactor scrammed on July 28 when a turbine trip was initiated by high gas accumulation and sudden pressure on the "A" phase main transformer. On July 30, the reactor was manually scrammed to place the unit on the spare transformer after the main turbine tripped again on sudden pressure on "A" phase main transformer after maintenance was completed following the July 28 scram.

Unit 3

There was one scram on the unit during the month. On July 30, the reactor was manually scrammed so that a transformer could be spared out to Unit 2 and for maintenance on an inoperative torus  $H_2O_2$  sample valve.

Operations Summary (Continued)

July 1981

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	0.00503	0.00415	0.00349
Feedwater nozzle	0.24411	0.17675	0.13559
Closure studs	0.19865	0.14092	0.10482

NOTE: This accumulated monthly information satisfies technical specification section 6.6.A.17.B(3) reporting requirements.

Common System

Approximately  $4.29\text{E}+05$  gallons of waste liquid were discharged containing approximately  $1.46\text{E}-01$  curies of activities.

Operations Summary (Continued)

June 1981

Refueling InformationUnit 1

Unit 1 began its EOC-4 refueling outage on April 11, with a scheduled restart date of September 6, 1981. This refueling will involve loading additional 8 X 8 R (retrofit) fuel assemblies into the core, the final fix on the sparger modification, power supply on LPCI modification, generator breaker and unit station transformer tie-in (requires Unit 2 to be shutdown) and torus modifications.

There are 140 fuel assemblies in the reactor vessel. The spent fuel storage pool presently contains 624 EOC-4 fuel assemblies, 550 spent 7 X 7 fuel assemblies, five spent 8 X 8 fuel assemblies, 260 new 8 X 8 R fuel assemblies, and one spent 8 X 8 R fuel assembly. Because of modification work to increase spent fuel pool capacity to 3471 assemblies, present available capacity is limited to 524 locations.

Unit 2

Unit 2 is scheduled for its fourth refueling beginning on or about March 26, 1982, with a scheduled restart date of August 13, 1982. This refueling outage will involve completing relief valve modifications, torus modifications, "A" low pressure turbine inspection, MG set installation for LPCI modification, and loading additional 8 X 8 fuel assemblies into the core.

There are 764 fuel assemblies in the reactor vessel. At the end of the month, there were 132 discharged cycle 1 fuel assemblies, 156 discharged cycle 2 fuel assemblies, and 352 discharged cycle 3 fuel assemblies in the spent storage

Operations Summary (Continued)

June 1981

Refueling InformationUnit 2 (Continued)

pool. The present available storage capacity of the spent fuel pool is 167 locations. With present capacity, the 1979 refueling was 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. However, 949 new high density storage locations have been installed.

Unit 3

Unit 3 is scheduled for its fourth refueling beginning on or about October 16, 1981, with a scheduled restart date of February 13, 1982. This refueling involves loading additional 8 X 8 R (retrofit) assemblies into the core, relief valve modification, turbine inspections, generator breaker and unit station transformer tie-in, and torus modifications.

There are 764 fuel assemblies presently in the reactor vessel. There are 124 discharged cycle 3 fuel assemblies, 144 discharged cycle 2 fuel assemblies, and 208 discharged cycle 1 fuel assemblies in the spent fuel storage pool. The present available storage capacity of the spent fuel pool is 1052 locations.

Significant Operational Events

## Unit 1

<u>Date</u>	<u>Time</u>	<u>Event</u>
7/01/81	0001	End of Cycle 4, refuel outage continues.
7/28/81	2345	Commenced fuel loading.
7/31/81	2400	Fuel reload continues.



Significant Operational Events

## Unit 2

Date	Time	Event
7/01/81	0001	Reactor thermal power at 99%, maximum flow, rod limited (sequence "B").
	1140	Commenced reducing thermal power due to high condenser back pressure.
	1300	Reactor thermal power at 93%, holding due to high condenser back pressure.
	1405	Commenced power ascension from 93% thermal power.
	1500	Reactor thermal power at 97%, holding due to high condenser back pressure (C2 waterbox out of service).
7/02/81	2030	C2 waterbox back in service, commenced power ascension from 97% thermal power.
	2100	Reactor thermal power at 99%, maximum flow, rod limited.
7/03/81	2200	Commenced reducing thermal power to remove "C" RFWP from service for maintenance (leaks).
	2235	Reactor thermal power at 73%, holding for maintenance on "C" RFWP.
7/04/81	0545	"C" RFWP back in service, commenced power ascension from 73% thermal power.
	0700	Commenced PCLOMR from 97% thermal power (sequence "B").
	0900	Reactor thermal power at 99%, maximum flow, rod limited.
	2240	Commenced reducing thermal power for control rod pattern adjustment.
7/05/81	0200	Reactor thermal power at 72%, holding for control rod pattern adjustment.
	0230	Control rod pattern adjustment complete, commenced power ascension.
	0330	Commenced PCLOMR from 77% thermal power (sequence "B").
7/06/81	0215	Reactor thermal power at 99%, maximum flow, rod limited.
7/07/81	0110	Commenced reducing thermal power due to Xenon burn up.
	1103	Reduced reactor thermal power from 98% to 95% due to high condenser back pressure when unit was placed on cooling towers.
	1135	Commenced power ascension from 95% thermal power.
	2200	Commenced reducing thermal power from 98% for shutdown for maintenance on EHC system, "2A" control valve leak.
	2347	Reactor Scram, Manual, No. 121 from 45% thermal power to accommodate maintenance of EHC "2A" control valve.

Significant Operational Events

## Unit 2

Date	Time	Event
7/08/81	0740	EHC maintenance completed, commenced rod withdrawal for startup.
	1027	Reactor Critical No. 134.
	1558	Rolled T/G.
	1632	Synchronized generator, commenced power ascension.
7/09/81	0510	Commenced PCIOMR from 62% thermal power.
7/10/81	2255	Commenced reducing thermal power from 97% for control rod pattern adjustment.
7/11/81	0030	Reactor thermal power at 64%, holding for control rod pattern adjustment.
	0145	Control rod pattern adjustment completed, commenced power ascension.
	2200	Commenced PCIOMR from 86% thermal power (sequence "B").
	2240	Commenced reducing thermal power from 87% thermal power to remove "C" RFWP from service for maintenance on non-return valve.
7/12/81	0150	Reactor thermal power at 79%, holding for maintenance on "C" RFWP non-return valve.
	0845	"C" RFWP back in service, commenced power ascension.
	1001	Commenced PCIOMR from 94% thermal power (sequence "B").
	2200	Reactor thermal power at 99%, maximum flow, rod limited.
7/15/81	0100	Commenced reducing thermal power for cooling tower operation.
	0125	Reactor thermal power at 87%, removed Unit 2 from cooling towers.
	0140	Commenced power ascension from 87% thermal power.
	0400	Reactor thermal power at 99%, maximum flow, rod limited.
7/18/81	2150	Commenced reducing thermal power for control rod pattern adjustment.
	2300	Reactor thermal power at 70%, holding for control rod pattern adjustment.
7/19/81	0100	Control rod pattern adjustment complete, commenced power ascension.
	0230	Commenced PCIOMR from 83% thermal power (sequence "B").
	2040	Reactor thermal power at 99%, maximum flow, rod limited.
7/20/81	1400	"B" recirculation pump tripped (maintenance error), reduced thermal power to 59%.
	1425	"B" recirculation pump back in service, commenced power ascension.

Significant Operational Events

## Unit 2

Date	Time	Event
7/20/81	2200	Reactor thermal power at 99%, maximum flow, rod limited
7/25/81	0025	Commenced reducing thermal power for turbine control valve tests and SI's.
	0100	Reactor thermal power at 85%, holding for turbine control valve tests and SI's.
	0135	Turbine control valve tests and SI's complete, commenced power ascension.
	0230	Commenced PCIOMR from 95% thermal power (sequence "B").
	0500	Reactor thermal power at 99%, maximum flow, rod limited.
	2300	Reactor thermal power at 98%, limited by high condenser back pressure.
7/28/81	0328	Reactor Scram No. 122 <sup>(1)</sup> from 98% thermal power due to "2A" main transformer sudden high pressure.
	1545	Commenced rod withdrawal for startup.
	1820	Reactor Critical No. 135, holding for "2A" transformer maintenance completion (brushing change out).
7/29/81	0700	Reactor thermal power at 10%, holding for turbine maintenance.
7/30/81	1300	Reactor thermal power at 16%, holding for transformer maintenance.
	1715	Rolled T/G.
	1801	Synchronized generator. Main turbine tripped from sudden pressure on "A" main transformer.
	2156	Reactor Scram, manual, No. 123 <sup>(1)</sup> from 16% thermal power for maintenance on "2A" main transformer and to place the unit on spare transformer.
7/31/81	1232	Commenced rod withdrawal for startup.
	1330	Reactor Critical No. 136.
	2145	Rolled T/G.
	2219	Synchronized generator, turbine tripped, PCB 3244 tripped - "2A and 2B" main transformer differential relays operated. (Reactor thermal power holding at 14%).
	2400	Unit remained off line due to main transformer problems. (Reactor thermal power at 14%).

Significant Operational Events

## Unit 3

Date	Time	Event
7/01/81	0001	Reactor thermal power at 93%, control rod pattern adjustment in progress.
	0330	Control rod pattern adjustment complete, commenced power ascension.
	2300	Reactor thermal power at 99%, maximum flow, rod limited.
7/05/81	0248	Commenced reducing thermal power for turbine control valve tests and SI's.
	0300	Reactor thermal power at 95%, holding for turbine control valve tests and SI's.
	0340	Turbine control valve tests and SI's complete, commenced power ascension.
	0700	Reactor thermal power at 99%, maximum flow, rod limited.
7/07/81	0045	Commenced reducing thermal power for control rod pattern adjustment.
	0100	Reactor thermal power at 92%, holding for control rod pattern adjustment.
	0230	Control rod pattern adjustment completed, commenced power ascension.
	0700	Reactor thermal power at 99%, maximum flow, rod limited.
7/09/81	0201	Commenced reducing thermal power due to a limiting condition for operation on 3C RHR pump. Apparent low breakdown voltage between phases on pump motors.
	0230	Reactor thermal power at 97%, holding due to 3C RHR pump problems.
	0305	Commenced power ascension from 97% thermal power.
	0400	Reactor thermal power at 99%, maximum flow, rod limited.
7/15/81	0100	Commenced reducing thermal power when cooling towers number 3 and 4 tripped on high temperature.
	0110	Reactor thermal power at 82%, holding due to cooling tower problems.
	0240	Commenced power ascension from 82% thermal power.
	0700	Reactor thermal power at 99%, maximum flow, rod limited.
7/17/81	2140	Commenced reducing thermal power for control rod pattern adjustment.
	2200	Reactor thermal power at 84%, holding for control rod pattern adjustment.

Significant Operational Events

## Unit 3

Date	Time	Event
7/18/81	0030	Control rod pattern adjustment complete, commenced PCIOMR (control cell core).
	1500	Reactor thermal power at 99%, maximum flow, rod limited.
7/24/81	2240	Commenced reducing thermal power for turbine control valve tests and SI's.
	2400	Reactor thermal power at 85%, holding for turbine control valve tests and SI's.
7/25/81	0100	Turbine control valve tests and SI's complete, commenced power ascension.
	0500	Reactor thermal power at 99%, maximum flow, rod limited.
7/30/81	2200	Commenced reducing thermal power for shutdown to take the unit off of the spare transformer for use on Unit 2.
	2350	Reactor Scram, Manual, No. 100 from 35% thermal power to swap transformers and for maintenance on torus H <sub>2</sub> O <sub>2</sub> sample valve.
7/31/81	2400	Unit remains down for maintenance to torus H <sub>2</sub> O <sub>2</sub> sample valve.

(1) Equipment malfunction

## AVERAGE DAILY UNIT POWER LEVEL

DOCKET NO. 50-259  
 UNIT Browns Ferry -  
 DATE 8-1-81  
 COMPLETED BY Mike Chapman  
 TELEPHONE 205-729-6846

MONTH July

DAY	AVERAGE DAILY POWER LEVEL (MWe-Net)
1	-5
2	-6
3	-6
4	-6
5	-6
6	-6
7	-7
8	-8
9	-7
10	-7
11	-7
12	-7
13	-9
14	-8
15	-7
16	-7

DAY	AVERAGE DAILY POWER LEVEL (MWe-Net)
17	-7
18	-7
19	-7
20	-8
21	-8
22	-8
23	-7
24	-7
25	-8
26	-9
27	-8
28	-10
29	-8
30	-7
31	-8

## 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. 50-260UNIT Browns Ferry - 2DATE 8-1-81COMPLETED BY Mike ChapmanTELEPHONE 205-729-6846MONTH JulyDAY AVERAGE DAILY POWER LEVEL  
(MWe-Net)

1	1031
2	1034
3	1033
4	954
5	910
6	1048
7	993
8	104
9	792
10	989
11	848
12	965
13	1038
14	1050
15	1037
16	1044

DAY AVERAGE DAILY POWER LEVEL  
(MWe-Net)

17	1032
18	1021
19	987
20	1018
21	1044
22	1045
23	1043
24	1045
25	1024
26	1032
27	1030
28	129
29	-15
30	-16
31	-16

## 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. 50-296UNIT Browns Ferry - 3DATE 8-1-81COMPLETED BY Mike ChapmanTELEPHONE 205-729-6846MONTH JulyDAY AVERAGE DAILY POWER LEVEL  
(MWe-Net)

1	<u>1034</u>
2	<u>1051</u>
3	<u>1073</u>
4	<u>1045</u>
5	<u>1047</u>
6	<u>1052</u>
7	<u>1045</u>
8	<u>1049</u>
9	<u>1040</u>
10	<u>1038</u>
11	<u>1033</u>
12	<u>1034</u>
13	<u>1036</u>
14	<u>1032</u>
15	<u>1011</u>
16	<u>1030</u>

DAY AVERAGE DAILY POWER LEVEL  
(MWe-Net)

17	<u>1012</u>
18	<u>1005</u>
19	<u>1020</u>
20	<u>1030</u>
21	<u>1033</u>
22	<u>1034</u>
23	<u>1033</u>
24	<u>1035</u>
25	<u>1023</u>
26	<u>1029</u>
27	<u>1031</u>
28	<u>1034</u>
29	<u>1020</u>
30	<u>982</u>
31	<u>-13</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 8-1-81  
 COMPLETED BY Ted Thom  
 TELEPHONE 205-729-6846

## OPERATING STATUS

1. Unit Name: Browns Ferry - 1
2. Reporting Period: July 1981
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:  
NA

Notes

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

	This Month	Yr.-to-Date	Cumulative
11. Hours In Reporting Period	744	5,087	61,363
12. Number Of Hours Reactor Was Critical	0	2,384.4	37,190.97
13. Reactor Reserve Shutdown Hours	0	16.42	5,115.29
14. Hours Generator On-Line	0	2,380.77	36,373.59
15. Unit Reserve Shutdown Hours	0	0	0
16. Gross Thermal Energy Generated (MWH)	0	7,425,495	100,717,856
17. Gross Electrical Energy Generated (MWH)	0	2,474,200	33,237,490
18. Net Electrical Energy Generated (MWH)	0	2,407,849	32,271,666
19. Unit Service Factor	0	46.8	59.3
20. Unit Availability Factor	0	46.8	59.3
21. Unit Capacity Factor (Using MDC Net)	0	44.4	49.4
22. Unit Capacity Factor (Using DER Net)	0	44.4	49.4
23. Unit Forced Outage Rate	0	0.8	28.0
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: September 6, 1981

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 8-1-81  
 COMPLETED BY Mike Chapman  
 TELEPHONE 205-729-6846

OPERATING STATUS

1. Unit Name: Browns Ferry - 2  
 2. Reporting Period: July 1981  
 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:  
NA

Notes

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

	This Month	Yr.-to-Date	Cumulative
11. Hours In Reporting Period	744	5,087	56,280
12. Number Of Hours Reactor Was Critical	702.92	4,460.53	35,204.14
13. Reactor Reserve Shutdown Hours	41.08	598.40	13,051.58
14. Hours Generator On-Line	634.72	4294.51	34,035.47
15. Unit Reserve Shutdown Hours	0	0	0
16. Gross Thermal Energy Generated (MWH)	1,966,354	13,189,418	97,665,327
17. Gross Electrical Energy Generated (MWH)	654,140	4,402,870	32,140,058
18. Net Electrical Energy Generated (MWH)	631,506	4,273,003	31,223,310
19. Unit Service Factor	85.3	84.4	60.5
20. Unit Availability Factor	85.3	84.4	60.5
21. Unit Capacity Factor (Using MDC Net)	79.7	78.9	52.1
22. Unit Capacity Factor (Using DFR Net)	79.7	78.9	52.1
23. Unit Forced Outage Rate	14.7	6.3	30.3
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: 8-18-81

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

INITIAL CRITICALITY  
 INITIAL ELECTRICITY  
 COMMERCIAL OPERATION

Forecast

Achieved

## OPERATING DATA REPORT

DOCKET NO. 50-296  
 DATE 8-1-81  
 COMPLETED BY Mike Chapman  
 TELEPHONE 205-729-6846

## OPERATING STATUS

1. Unit Name: Browns Ferry - 3  
 2. Reporting Period: July 1981  
 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:  
NA

Notes

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

	This Month	Yr.-to-Date	Cumulative
11. Hours In Reporting Period	<u>74</u>	<u>5,087</u>	<u>38,735</u>
12. Number Of Hours Reactor Was Critical	<u>719.83</u>	<u>4401.71</u>	<u>30,372.98</u>
13. Reactor Reserve Shutdown Hours	<u>24.17</u>	<u>229.39</u>	<u>2040.28</u>
14. Hours Generator On-Line	<u>719.83</u>	<u>4,308.75</u>	<u>29,698.75</u>
15. Unit Reserve Shutdown Hours	<u>0</u>	<u>0</u>	<u>0</u>
16. Gross Thermal Energy Generated (MWH)	<u>2,352,434</u>	<u>13,223,592</u>	<u>87,588,620</u>
17. Gross Electrical Energy Generated (MWH)	<u>767,230</u>	<u>4,388,470</u>	<u>28,927,500</u>
18. Net Electrical Energy Generated (MWH)	<u>742,482</u>	<u>4,255,097</u>	<u>28,079,420</u>
19. Unit Service Factor	<u>96.8</u>	<u>84.7</u>	<u>76.7</u>
20. Unit Availability Factor	<u>96.8</u>	<u>84.7</u>	<u>76.7</u>
21. Unit Capacity Factor (Using MDC Net)	<u>93.7</u>	<u>78.5</u>	<u>68.1</u>
22. Unit Capacity Factor (Using DER Net)	<u>93.7</u>	<u>78.5</u>	<u>68.1</u>
23. Unit Forced Outage Rate	<u>3.2</u>	<u>7.6</u>	<u>9.5</u>
24. Shutdowns Scheduled Over Next 6 Months (Type, Date, and Duration of Each):	<u>Maintenance September 1981</u>		

25. If Shut Down At End Of Report Period, Estimated Date of Startup: 8-2-81

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

Forecast

Achieved

INITIAL CRITICALITY

INITIAL ELECTRICALITY

COMMERCIAL OPERATION

## UNIT SHUTDOWNS AND POWER REDUCTIONS

REPORT MONTH July

DOCKET NO. 50-259  
 UNIT NAME Browns Ferry - 1  
 DATE 8-1-81  
 COMPLETED BY Mike Chapman  
 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
172 (Continued)	7/01/81	S	744	C	2				EOC-4 Refuel Outage

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-Other (Explain)

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

5  
 Exhibit I - Same Source

## UNIT SHUTDOWNS AND POWER REDUCTIONS

DOCKET NO. 50-260  
 UNIT NAME Browns Ferry - 2  
 DATE 8-1-81  
 COMPLETED BY Mike Chapman  
 TELEPHONE 205-729-6846

REPORT MONTH July

No.	Date	Type <sup>1</sup>	Duration <sup>3</sup> (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
195	7/03/81	F		B					Derated for "C" RFWP maintenance (leak)
196	7/04/81	S		B					Derated for control rod pattern adj.
197	7/07/81	F	16.75	B	2				Reactor scram to accommodate maintenance on "2A" EHC control valve.
198	7/18/81	S		B					Derated for control rod pattern adj.
199	7/20/81	F		G					Derated because "B" recirculation pump tripped (maintenance error).
200	7/28/81	F	66.46	A	3				Reactor scram due to "2A" main transformer high pressure.
201	7/28/81	F	26.07	A	2				Reactor scram for maintenance on "2A" transformer and to place unit on spare transformer. An attempt to start resulted in a turbine trip at 2219/7-31.

1  
 F: Forced  
 S: Scheduled

2  
 Reason:  
 A-Equipment Failure (Explain)  
 B-Maintenance of 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-Other (Explain)

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

5  
 Exhibit I - Same Source

## UNIT SHUTDOWNS AND POWER REDUCTIONS

REPORT MONTH July

DOCKET NO. 50-296  
 UNIT NAME Browns Ferry - 3  
 DATE 8-1-81  
 COMPLETED BY Mike Chapman  
 TELEPHONE 205-729-6846

No.	Date	Type <sup>1</sup>	Duration (Hour)	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
84	7/30/81	F	24.17	B	2				Reactor scram to swap transformers and maintenance on torus H <sub>2</sub> O <sub>2</sub> sample valve.

<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 1, 2

## INSTRUMENT MAINTENANCE SUMMARY

CSCC EQUIPMENTFOR THE MONTH OF July 1981

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>Unit 1</u>							
7-3	Residual Heat Removal	TE-74-95	Replace	None	Faulty RTD	Alarm Would Not Clear	None
7-3	Reactor Water Cleanup	FT-69-60	Calibrate	None	Zero Shift	False Flow Ind.	None
7-7	Control Rod Drive	3A-PS6	Replace	None	Faulty Power Supply	Fuse Blew	None
7-14	Control Rod Drive	PI-85-66A	Replace	None	Gage Damaged	Would Not Indicate Correct Pressure	None
7-14	Rod Position Information	Probe 02-77 06-23 18-31 22-39 26-31 26-39 34-23 34-47 38-27 42-23 46-55 50-55 58-19	Replace	None	Faulty Reed Switch	Incorrect Rod Position Indication	None
<u>Unit 2</u>							
7-2	Primary Containment	PDT-64-138	Calibrate	None	Zero Shift	Did Not Agree with Redundant	None

DROWNS FERRY NUCLEAR PLANT UNIT 3

INSTRUMENT MAINTENANCE SUMMARY

CSSC EQUIPMENT

FOR THE MONTH OF July 19 81

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							
7-9	Emergency Equipment Cooling Water	FT-67-6B	Replace	None	Water in Trans- mitter	False Flow Indication	None
7-16	Reactor Feedwater	LI-3-58B	Replace	None	Bad Bearings	Did Not Agree with Redundant	None



Common

## MECHANICAL MAINTENANCE SUMMARY

For the Month of July 19 81

BROWNS FERRY NUCLEAR PLANT UNIT 1CSSC EQUIPMENT

## MECHANICAL MAINTENANCE SUMMARY

For the Month of July 19 81

DATE	SYSTEM	COMPONENT	NATURE OF MAINTENANCE	EFFECT ON SAFE OPERATION OF THE REACTOR	CAUSE OF MALFUNCTION	RESULTS OF MALFUNCTION	ACTION TAKEN TO PRECLUDE RECURRENCE
7-15-81	Recir.	FCV-68-1	Shaft binding	None	Unknown	Binding shaft	Oiled and stroked valve. TR# 187180
7-19-81	Control Bay Heat Vent & Air Con.	1-31-5.5	Water Leak	None	Line broken at joint	Water Leakage	Solder valve & shortened line. TR# 235863
6-20-81	D/G	1-B Diesel Gen.	Faulty starters	None	Bad starters	Unknown	Changed left bank starters TR# 240987
7-7-81	RX Feed-water	PS-3-204D LIS-3-203,A,B,C, 25-5-1, 25-6-1	Worn valves	None	Valves worn out	Unknown	Replaced Valves TR# 228377
7-9-81	Sec. Containment	Door 235	Missing locking device	None	No lock on door	Door would not lock	Installed new lock TR# 232811
7-1-81	CRD	CRD-50-31-1-85 588	Broken wedge on valve	None	Wedge broken off of stem	Unknown	Replaced wedge TR# 189967
6-26-81	CRD	1A CRD Pump	Leakage	None	Seal needed resetting	Seal was leaking	Seal was reset TR# 235946
7-13-81	Sec. Containment	Door 635	Door will not close	None		Door would not close	Adjusted closer & tighten screws & hinges. TR# 234512
6-28-81	HPCI	PL 25-63 FT-73-33	Leakage	None	Flow transmitter is bent	Leak on fitting	Tighten fitting & strengthen tubing. TR# 225635

## 1

## MECHANICAL MAINTENANCE SUMMARY

For the Month of July 19 81

24

## 2

## MECHANICAL MAINTENANCE SUMMARY

For the Month of July 19 81

DATE	SYSTEM	COMPONENT	NATURE OF MAINTENANCE	EFFECT ON SAFE OPERATION OF THE REACTOR	CAUSE OF MALFUNCTION	RESULTS OF MALFUNCTION	ACTION TAKEN TO PRECLUDE RECURRENCE
7-23-81	CRD	2-85-588 Module 42-51	Charging water Iso.	None	Unknown	Handwheel missing	Replaced handwheel TR# 239215
7-20-81	Sec. Con- tainment	Door 238	Door out of alignment with latching mechanism	None	Lock on door out of alignment	Unknown	Aligned door & frame to lock mechanism TR# 188051
7-20-81	HPCI	Condenser	Top head seal blown	None	Unknown	Blown head seal	Changed seal on top head TR# 233025
7-12-81	Sec. Con- tainment	Equip. Access Doors TB & RX	Lock was sticking & door was bent	None	Bent door & lock sticking	Prevents interlock from working	Repaired lock adjusted closure & straightened door TR# 224893
7-2-81	Sec. Con- tainment	Door 240	Broken door	None	Door had been hit and broke bolts & hold open arm.	Broke flush bolts & hold open arm	Replaced flush bolts & repaired hold open arm & tighten weather stripping TR# 218600

BROWNS FERRY NUCLEAR PLANT UNIT 3CSSC EQUIPMENT

## MECHANICAL MAINTENANCE SUMMARY

For the Month of July 19 81

DATE	SYSTEM	COMPONENT	NATURE OF MAINTENANCE	EFFECT ON SAFE OPERATION OF THE REACTOR	CAUSE OF MALFUNCTION	RESULTS OF MALFUNCTION	ACTION TAKEN TO PRECLUDE RECURRENCE
7-22-81	Main Steam	Pdis-1-50 D	Valve bad	None	Bad Valve	Valve would not close off	Replace valve TR# 240885
6-15-81	D/G	3D D/G Air Compressor	Blown head gasket	None	Unknown	Blown head gasket	Replaced head gaskets TR# 205373
7-13-81	D/G	3C D/G Air Compressor #1	Leak off air cylinder	None	Check valve needs replacing	Leaking through	Installed check valve TR# 205170
7-14-81	RHR	3A & 3C RHR Pump Motors	Replace air duct	None	3C RHR Pump Motor Bad	To facilitate 3C Motor Change-out	Installed duct TR# 233071
6-27-81	Rx Bld. HVAC	FCV-64-140	Busted seal	None	Seal busted	Leak	Replaced bad seal TR# 205056
7-1-81	EECW	3A RHR Cooler	Vent connection broken	None	Unknown	Unknown	Silver soldered connection TR# 232144
6-26-81	Control Bay HVAC	Board room supply fans 3A & 3B	Dampers out of adjustment	None	Unknown	3A running with damper closed-3B not running & damper is open	Adjusted damper TR# 235076

CSSC EQUIPMENT

## ELECTRICAL MAINTENANCE SUMMARY

For the Month of July 19 81

Date	System	Component	Nature of Maintenance	Effect on Safe Operation of The Reactor	Cause of Malfunction	Results of Malfunction	Action Taken To Preclude Recurrence
7/1/81	CRD	Scram accumulator low pressure/high level alarm circuitry	Panel 25-4 blowing fuses	Non-reactor was unloaded	Wire insulation damaged causing a short circuit	Scram accumulator low pressure/high level alarm annunciation for CRD set 1 and set 2 inoperable	Repaired wire insulation, replaced fuses, system returned to service. TR #236556
7/3/81	Fire protection	Annunciation circuit on panel 9-8	While performing SI 4.11.C 3&4 the inverter for alarm panel XA-55-8E became inoperable.	None	Bad inverter card	Alarm panel XA-55-8E panel 9-8 inoperable	The inverter control card was tightened in its slot and began to operate. The next day while performing SI 4.11.C 3&4 it again became inoperable. The control card was replaced, successfully tested and returned to service. TR #223407 TR #189950 LFR#BFRO-50-259/813
7/3/81	CRD	Rod position indication for CRD 46-23	Lost indication for rod 46-23	None-reactor was unloaded	Broken connection at penetration connector	Partial loss of position indication	Replaced connector, instrument circuitry operated properly. TR #228381

CSSC EQUIPMENT

## ELECTRICAL MAINTENANCE SUMMARY

For the Month of July 1981

Date	System	Component	Nature of Maintenance	Effect on Safe Operation of The Reactor	Cause of Malfunction	Results of Malfunction	Action Taken To Preclude Recurrence
7/4/81	RCIC	FCV-71-2	Broken terminal block on valve motor	None-reactor in cold shut-down	Broken terminal block	FCV-71-2 was inoperable	Reterminated motor leads, performed EMI 58, 81 and 18, valve returned to service. TR #187971
7/9/81	Reactor control bay panels	Panel 9-5 reactor scram reset switch	Broken switch	None (this doesn't make the switch inoperable)	Switch operator spring broken	The switch would not automatically return to normal	Replaced switch operator, switch operated properly. TR #223411
7/10/81	Secondary containment	Air lock door 235	Door would not open	None	Door watch was out of adjustment	The door would not open	Cleaned, adjusted and lubricated latch, performed EMI 8 door operated properly. TR #241280 TR #223297 TR #235445
7/13/81	RHRSW	A2-RHRSW pump running annunciator	Running annunciator would not operate	None	Annunciator switch was out of adjustment	Received a running annunciation when the pump was off	Adjusted switch, the annunciator operated properly. TR #239056



BROWNS FERRY NUCLEAR PLANT UNIT 1 & Common

## ELECTRICAL MAINTENANCE SUMMARY

CSSC EQUIPMENTFor the Month of July 19 81

Date	System	Component	Nature of Maintenance	Effect on Safe Operation of The Reactor	Cause of Malfunction	Results of Malfunction	Action Taken To Preclude Recurrence
7/14/81	Air conditioning (cooling-heating)	1B control bay chiller	Chiller would not cool properly	None	Proportional controller was out of adjustment	Control bay chiller would not cool properly	Adjusted proportional controller per EMI 60, chiller operated properly. TR #224905
7/17/81	250 volt DC system	250 main battery #1	Cell 98 cracked	None	Crack in battery cell 98	Required battery to be removed from service in order to jumper around cell 98	Jumpered out cell 98, adjusted battery charger, battery returned to service. TR #179952 LER#BFRO-50-259/8142
7/18/81	Core spray cooling	HCV 75-27	"Open" indicating light on panel 9-3 inoperable	None	Limit switch was out of adjustment	"Open" indicating light was inoperable	Adjusted limit switch, indicating light operated properly. TR #189979
7/26/81	Core spray cooling	1B core spray pump breaker	Breaker would not rack in properly	None-reactor was unloaded	Jack nut mounting bracket was bent	Breaker would not rack in. 1B core spray pump inoperable	Replaced jack nut mounting bracket, the breaker racked in properly. TR #189919



CSSC EQUIPMENT

## ELECTRICAL MAINTENANCE SUMMARY

For the Month of July 19 81

Date	System	Component	Nature of Maintenance	Effect on Safe Operation of The Reactor	Cause of Malfunction	Results of Malfunction	Action Taken To Preclude Recurrence
7/7/81	Fire protection	smoke detector (XS-39-29A)	An alarm for smoke detectors in the relay room was received and would not clear	None	Possible ground in smoke detector due to a pinched wire	Received an inadvertent alarm	Replaced smoke detector, alarm cleared and operated properly. TR #224880 TR #187159 LEF BFRO-50-260/8136
7/8/81	4kV unit boards	4kV unit board alternate feeder breaker	While attempting to transfer station service back to start bus, 4kV-2B unit board failed to transfer	None	Breaker "B" finger contacts failed to make contact	4kV shutdown bus was lost for a few seconds	The breaker contacts were cleaned and the breaker successfully operated. TR #239172
7/9/81	Associated electrical	250V reactor MOV board 2A undervoltage alarm circuitry	Alarm actuated and would not clear	None	Bad coil on relay 27B	Undervoltage alarm inoperable	Replaced relay, performed EMI 23 and EMI 15, annunciation operated properly. TR #205760 TR #236943

Date	System	Component	Nature of Maintenance	Effect on Safe Operation of The Reactor	Cause of Malfunction	Results of Malfunction	Action Taken To Preclude Recurrence
7/16/81	Air conditioning (cooling-heating)	Flow switch for 250V battery board room ventilation	Received annunciation XA-31-174	None	Bad flow switch 31-174	Flow switch inoperable, vent fans operated abnormal	Replaced flow switch flow switch operated properly. TR #239224
7/26/81	RHR	Limit switch on HCV 74-11	Indicating light circuitry inoperable	None	Loose limit switch actuator	Indicating light circuitry to panel 9-3 inoperable	Tightened switch actuator, indicating lights operated properly TR #239205
7/27/81	RHR	Local control switch	Local control switch inoperable	None	Water in switch housing corroded contacts	Local push button control switch inoperable	Cleaned and dried switch and housing, valve operated properly. TR #239073

CSSC EQUIPMENT

ELECTRICAL MAINTENANCE SUMMARY

For the Month of July 19 81

Date	System	Component	Nature of Maintenance	Effect on Safe Operation of The Reactor	Cause of Malfunction	Results of Malfunction	Action Taken To Preclude Recurrence
7/1/81	RHRSW	Annunciator circuitry card	A3 RHRSW pump running annunciator was actuated with pump off	None	Circuitry card relay bad	Received a false "running" annunciation	Replaced card relay, annunciation operated properly. TR #205600
7/6/81	Diesel generator	D/G 3, SFD1 relay	During performance of redundant start test (EMI 3) relay SFD1 tested out too long.	None	Relay timing was slightly out of tolerance	Relay SFD1 tested out too long.	SFD1 relay was recalibrated and successfully tested. SFD1 was changed out by mistake, calibrated and successfully tested. TR #183840 TR #186847 BFRO-50-296/8133

CSSC EQUIPMENT

ELECTRICAL MAINTENANCE SUMMARY

For the Month of July 19 81

Date	System	Component	Nature of Maintenance	Effect on Safe Operation of The Reactor	Cause of Malfunction	Results of Malfunction	Action Taken To Preclude Recurrence
7/9/81	RHR	RHR pump motor 3C	RHR pump 3C tripped on ground overcurrent	Unit in limiting condition for operation (TS 3.5.B.3)	Motor failure. Stator resistance and high potential tests failed. Cause of failure will be investigated upon motor repairs.	RHR heat exchanger C inoperable	The motor was replaced and successfully tested. TR #204460 TR #186901 TR #190658 TR #186902 LER#BFRO-50-296/8134
7/15/81	Annunciator & sequential events	A D/G annunciator panel	Receiving false annunciation	None	Bad annunciation card relays	Received a false 3-A RHRSW pump running and D/G 3A engine lube oil trouble annunciation	Replaced relays on annunciator cards for both D/G lube oil and RHRSW pump, annunciators operated properly. TR #205153 TR #205171
7/23/81	Containment atmosphere monitoring	FSV-76-67	H <sub>2</sub> O <sub>2</sub> analyzer B inoperable	Placed unit in limited operating condition	FSV 76-67 solenoid assembly was grounded	H <sub>2</sub> O <sub>2</sub> analyzer B inoperable	The solenoid assembly was replaced on FSV 76-67 and the H <sub>2</sub> O <sub>2</sub> analyzer returned to service. TR #204456 TR #204937 TR #204938 TR #129379 BFRO-50-296/8137

OUTAGE SUMMARY

July 1981

The maintenance and modification activities for the month of July included continuing the Unit 1, Cycle 4 refueling/torus outage with major emphasis concentrated on the following:

1. Torus internal and external modifications.
2. LPCI modification.
3.  $H_2O_2$  analyzer/sample pump modification.
4. HP turbine reassembly.
5. Reactor feedpump turbine maintenance.
6. Generator breaker modification (P0214).
7. 1B reactor feed pump reassembly. (Complete).
8. Core reload.
9. Local leak rate testing on selected valves.
10. Main steam isolation valve maintenance (repair of 1D damaged stud still required.) (Complete).
11. Condenser grating installation (P0379).
12. Control bay fire doors (P0464).
13. Unit station service transformer modification.
14. Oil flush on the HP and LP turbines (Completed July 27, 1981).
15. Recirculation MG set and pump maintenance (Completed July 6, 1981).
16. PCIS modification (P0291).
17. Condensate short cycle modification (P0434).
18. CRD cross tie installation (P0353).

The duration for the unit 1 cycle 4 refueling outage has been revised to 148 days based on completing torus internal modifications which delays the return of service date until September 6, 1981. Fuel reloading was approximately 18 percent completed with 140 of 764 bundles placed in the RPV core at the end of the month.

OUTAGE SUMMARY (Continued)

July 1981

The only cooling tower modification work done during this month involved the closure of the fan tip seals on cooling tower 1. This work was not completed as cooling tower 1 was required to be returned to service as a result of weather conditions.

Began ultrasonic examination of the unit 1 offgas system piping. The examination will look for possible cracks caused by acidic compounds resulting from the decomposition of demineralizer resin in the reactor vessel.