

TENNESSEE VALLEY AUTHORITY  
DIVISION OF POWER PRODUCTION  
BROWNS FERRY NUCLEAR PLANT

MONTHLY OPERATING REPORT

December 1, 1981 - December 31, 1981

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

Submitted By:

*JRB*  
Plant Superintendent

8203230395 820108  
PDR ADOCK 05000259  
R PDR

TABLE OF CONTENTS

Operations Summary . . . . .	1
Refueling Information . . . . .	3
Significant Operational Events . . . . .	5
Average Daily Unit Power Level . . . . .	10
Operating Data Reports . . . . .	13
Unit Shutdowns and Power Reductions. . . . .	16
Plant Maintenance . . . . .	19
Outage Summary . . . . .	32
Errata . . . . .	35

Operations Summary

December 1981

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

There were 21 reportable occurrences and four revisions to previous reportable occurrences reported to the NRC during the month of December.

Unit 1

There were no scrams on the unit during the month.

Unit 2

There was one scram on the unit during the month. On December 29, the reactor scrambled on a false low reactor water level signal when a wrong valve was opened on a reactor water level switch during a surveillance instruction which drained the reference leg of the switch and gave the false signal.

Unit 3

The unit was in its EOC-4 refueling outage the entire month.

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	0.00521	0.00424	0.00361
Feedwater nozzle	0.24939	0.18260	0.14108
Closure studs	0.20492	0.14293	0.10977

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

Operations Summary (Continued)

December 1981

Refueling InformationUnit 1

Unit 1 is scheduled for its fifth refueling beginning on or about March 4, 1983, with a scheduled restart date of June 3, 1983. This refueling will involve loading 8 X 8 R (retrofit) fuel assemblies into the core, finishing the torus modifications, turbine inspection, and finishing TMI-2 modifications.

There are 764 fuel assemblies in the reactor vessel. The spent fuel storage pool presently contains 260 EOC-4 fuel assemblies, 232 EOC-3 fuel assemblies, 156 EOC-2 fuel assemblies, and 168 EOC-1 fuel assemblies. The present capacity is 2655 locations.

Unit 2

Unit 2 is scheduled for its fourth refueling beginning on or about July 30, 1982, with a scheduled restart date of January 1, 1983. 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 352 EOC-3 fuel assemblies, 156 EOC-2 fuel assemblies, and 132 EOC-1 fuel assemblies in the spent storage pool. The present available storage capacity of the spent fuel pool is 160 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 and can be used after they are qualified.

Significant Operational Events

## Unit 1

Date	Time	Event
12/01/81	0001	Reactor thermal power at 99%, maximum flow, rod limited.
12/04/81	2300	Commenced reducing thermal power for recirculation pump MG set brush replacement; control rod sequence exchange from "A" to "B" and turbine control valve tests and SI's.
12/05/81	0110	Reactor thermal power at 50%, holding for control rod sequence exchange; recirculation pump MG set brush replacement and turbine control valve tests and SI's.
	0247	Turbine control valve tests and SI's complete, Reactor power at 50%.
	0331	Recirculation pump MG set brush replacement complete, holding at 50% power for control rod sequence exchange from "A" to "B".
	0702	Control rod sequence exchange complete, commenced power ascension.
	1315	Commenced PCIOMR from 89% thermal power (sequence "B").
	2200	Reactor thermal power at 99%, maximum flow, rod limited.
12/12/81	2215	Commenced reducing thermal power for SI 4.7.D.1.b-2 (main steam line valve closure).
	2300	Reactor thermal power at 71%, holding for SI 4.7.D.1.b-2.
12/13/81	0025	SI 4.7.D.1.b-2 main steam line valve closure complete, commenced power ascension.
	0047	Reactor thermal power at 84%, holding for turbine control valve tests and SI's.
	0125	Turbine control valve tests and SI's complete, commenced power ascension.
	0300	Reactor thermal power at 99%, maximum flow, rod limited.
12/19/81	2347	Commenced reducing thermal power for turbine control valve tests and SI's.
	2400	Reactor thermal power at 89%, holding for turbine control valve tests and SI's.

Significant Operational Events

## Unit 2

<u>Date</u>	<u>Time</u>	<u>Event</u>
12/01/81	0001	Reactor thermal power at 99%, maximum flow, rod limited.
12/05/81	2150	Commenced reducing thermal power for control rod pattern adjustment, turbine control valve test and SI's.
	2400	Reactor thermal power at 64%, holding for control rod pattern adjustment and turbine control valve tests and SI's.
12/06/81	0150	Control rod pattern adjustment, turbine control valve tests and SI's complete, commenced power ascension.
	0530	Commenced PCIOMR from 76% thermal power (sequence "B").
12/07/81	0130	Reactor thermal power at 99%, maximum flow, rod limited.
12/13/81	0122	Commenced reducing thermal power for turbine control valve tests and SI's.
	0130	Reactor thermal power at 87%, holding for turbine control valve tests and SI's.
	0155	Turbine control valve test complete, commenced power ascension.
	0230	Reactor thermal power at 95%, holding for SI 4.3.A-2 (CRD Exercise).
	0255	CRD exercise complete, commenced power ascension.
	0300	Reactor thermal power at 99%, maximum flow, rod limited.
12/19/81	0725	Reduced thermal power to 97% due to demeneralizer problems.
	1212	Commenced power ascension from 97% thermal power.
	1300	Commenced reducing thermal power from 98% due to problems with "B" recirculation pump (amps and speed indication swinging).
	1400	Reactor thermal power at 97%, holding due to "B" recirculation pump instability.
	1537	Commenced power ascension from 97% thermal power.
12/20/81	0110	Reduced thermal power from 98% to 82% for turbine control valve tests and SI's.
	0141	Turbine control valve tests and SI's complete, commenced power ascension.

Significant Operational Events

## Unit 3

<u>Date</u>	<u>Time</u>	<u>Event</u>
12/01/81	0001	End-of-cycle 4 refuel outage continues.
12/31/81	2400	End-of-cycle 4 refuel outage continues.

## AVERAGE DAILY UNIT POWER LEVEL

DOCKET NO. 50-259  
 UNIT Brown's Ferry - 1  
 DATE 1-1-82  
 COMPLETED BY Ted Thom  
 TELEPHONE 205 729 6846

MONTH December 1981

DAY	AVERAGE DAILY POWER LEVEL (MWe-Net)	DAY	AVERAGE DAILY POWER LEVEL (MWe-Net)
1	<u>1070</u>	17	<u>1068</u>
2	<u>1070</u>	18	<u>1071</u>
3	<u>1070</u>	19	<u>1067</u>
4	<u>1049</u>	20	<u>1064</u>
5	<u>832</u>	21	<u>1069</u>
6	<u>1062</u>	22	<u>1014</u>
7	<u>1054</u>	23	<u>1056</u>
8	<u>1069</u>	24	<u>1055</u>
9	<u>1067</u>	25	<u>1060</u>
10	<u>1073</u>	26	<u>1072</u>
11	<u>1077</u>	27	<u>1069</u>
12	<u>1047</u>	28	<u>998</u>
13	<u>1043</u>	29	<u>1016</u>
14	<u>1070</u>	30	<u>1067</u>
15	<u>1069</u>	31	<u>1075</u>
16	<u>1069</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. 50-296UNIT Browns Ferry - 3DATE 1-1-82COMPLETED BY Ted ThomTELEPHONE 205 729 6846MONTH December 1981

DAY	AVERAGE DAILY POWER LEVEL (MWe-Net)	DAY	AVERAGE DAILY POWER LEVEL (MWe-Net)
1	<u>-5</u>	17	<u>-3</u>
2	<u>-5</u>	18	<u>-3</u>
3	<u>-3</u>	19	<u>-3</u>
4	<u>-2</u>	20	<u>-3</u>
5	<u>-3</u>	21	<u>-3</u>
6	<u>-3</u>	22	<u>-3</u>
7	<u>-2</u>	23	<u>-3</u>
8	<u>-3</u>	24	<u>-3</u>
9	<u>-3</u>	25	<u>-3</u>
10	<u>-3</u>	26	<u>-2</u>
11	<u>-3</u>	27	<u>-2</u>
12	<u>-3</u>	28	<u>-3</u>
13	<u>-3</u>	29	<u>-3</u>
14	<u>-4</u>	30	<u>-2</u>
15	<u>-3</u>	31	<u>-3</u>
16	<u>-3</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 1-1-82  
 COMPLETED BY Ted Thom  
 TELEPHONE 205 729 6846

OPERATING STATUS

1. Unit Name: <u>Browns Ferry - 1</u>	Notes
2. Reporting Period: <u>December 1981</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>NA</u>	
9. Power Level To Which Restricted, If Any (Net MWe): <u>NA</u>	
10. Reasons For Restrictions, If Any: <u>NA</u>	

	This Month	Yr.-to-Date	Cumulative
11. Hours In Reporting Period	<u>744</u>	<u>8,760</u>	<u>65,042</u>
12. Number Of Hours Reactor Was Critical	<u>744</u>	<u>4,508.23</u>	<u>39,314.8</u>
13. Reactor Reserve Shutdown Hours	<u>0</u>	<u>116.33</u>	<u>5,215.20</u>
14. Hours Generator On-Line	<u>744</u>	<u>4437.35</u>	<u>38,430.17</u>
15. Unit Reserve Shutdown Hours	<u>0</u>	<u>0</u>	<u>0</u>
16. Gross Thermal Energy Generated (MWH)	<u>2,404,219</u>	<u>13,582,546</u>	<u>106,874,907</u>
17. Gross Electrical Energy Generated (MWH)	<u>802,000</u>	<u>4,529,160</u>	<u>35,292,450</u>
18. Net Electrical Energy Generated (MWH)	<u>782,219</u>	<u>4,405,092</u>	<u>34,268,909</u>
19. Unit Service Factor	<u>100</u>	<u>50.7</u>	<u>59.1</u>
20. Unit Availability Factor	<u>100</u>	<u>50.7</u>	<u>59.1</u>
21. Unit Capacity Factor (Using MDC Net)	<u>98.7</u>	<u>47.2</u>	<u>49.5</u>
22. Unit Capacity Factor (Using DER Net)	<u>98.7</u>	<u>47.2</u>	<u>49.5</u>
23. Unit Forced Outage Rate	<u>0</u>	<u>3.7</u>	<u>27.1</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	<u>      </u>	<u>      </u>
INITIAL ELECTRICITY	<u>      </u>	<u>      </u>
COMMERCIAL OPERATION	<u>      </u>	<u>      </u>

OPERATING DATA REPORT

DOCKET NO. 50-296  
 DATE 1-1-82  
 COMPLETED BY Ted Thom  
 TELEPHONE 205 729 6846

OPERATING STATUS

1. Unit Name: Browns Ferry - 3
2. Reporting Period: December 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>744</u>	<u>8,760</u>	<u>42,408</u>
12. Number Of Hours Reactor Was Critical	<u>0</u>	<u>6,495.71</u>	<u>32,466.98</u>
13. Reactor Reserve Shutdown Hours	<u>0</u>	<u>330.64</u>	<u>2,141.53</u>
14. Hours Generator On-Line	<u>0</u>	<u>6,360.78</u>	<u>31,750.78</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>19,493,592</u>	<u>93,858,620</u>
17. Gross Electrical Energy Generated (MWH)	<u>0</u>	<u>6,459,160</u>	<u>30,998,190</u>
18. Net Electrical Energy Generated (MWH)	<u>0</u>	<u>6,264,623</u>	<u>30,088,946</u>
19. Unit Service Factor	<u>0</u>	<u>72.6</u>	<u>74.9</u>
20. Unit Availability Factor	<u>0</u>	<u>72.6</u>	<u>74.9</u>
21. Unit Capacity Factor (Using MDC Net)	<u>0</u>	<u>67.1</u>	<u>66.6</u>
22. Unit Capacity Factor (Using DER Net)	<u>0</u>	<u>67.1</u>	<u>66.6</u>
23. Unit Forced Outage Rate	<u>0</u>	<u>7.1</u>	<u>9.2</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: March 1982

26. Units In Test Status (Prior to Commercial Operation):	Forecast	Achieved
INITIAL CRITICALITY	<u>      </u>	<u>      </u>
INITIAL ELECTRICITY	<u>      </u>	<u>      </u>
COMMERCIAL OPERATION	<u>      </u>	<u>      </u>

UNIT SHUTDOWNS AND POWER REDUCTIONS

DOCKET NO. 50-259  
 UNIT NAME Browns Ferry - 1  
 DATE 1-1-82  
 COMPLETED BY Ted Thom  
 TELEPHONE 205 729 6846

REPORT MONTH December

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
193	12-04-81	F		B					Derated for recirculation pump MG set brush replacement, control rod sequence exchange (A to B), turbine control valve tests and SI's.
194	12-12-81	S		B					Derated for main steam line valve closure (SI 4.7.D.1.b-2)..
195	12-22-81	F		H					Derated for control rod pattern adjustment.

<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-0101)

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

(9/77)

UNIT SHUTDOWNS AND POWER REDUCTIONS

DOCKET NO. 50-296  
 UNIT NAME Browns Ferry - 3  
 DATE 1-1-82  
 COMPLETED BY Ted Thom  
 TELEPHONE 205 729 6846

REPORT MONTH December

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
93 (Cont)	12-01-81	S	744	C	2				Reactor scram to accommodate EOC-4 refuel outage.

<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)

Date	System	Component	Nature of Maintenance	Effect on Safe Operation of The Reactor	Cause of Malfunction	Results of Malfunction	Action Taken To Preclude Recurrence
11/27/81	Fire Protection	Smoke detector XA-39-66XM located in reactor bldg. El. 565 R7, N line	The smoke detector initiated a false alarm and would not clear	None	Water in the smoke detector from a undetermined source	Received a false alarm which would have masked signals from detectors which are required to be operable	Replaced the smoke detector, performed SI4.11.C.1&5. The detector operated properly. TR #282106 LER#BFRO-50-259/8187
12/3/81	RHRSW	2A RHRSW pump motor	Excessive vibration	None	Bad top motor bearings	Excessive vibration	Replaced the top pump motor bearings and changed oil per EMI 64. 91 The pump motor operated properly. TR #267706
12/6/81	Fire Protection	Smoke detector (XS-39-66YD)	During normal operation the smoke detector initiated a false alarm and would not clear	None	Increased detector sensitivity due to normal, natural aging	Received a false alarm which would have masked signals from detectors which are required to be operable	Replaced the smoke detector, performed SI4.11.C.1&5. The detector operated properly. TR #226528 LER#BFRO-50-259/8188

## CSSC EQUIPMENT

## ELECTRICAL MAINTENANCE SUMMARY

FOR THE MONTH OF December 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
12/20/81	Air Conditioning (cooling/heating)	(FCO 31-152) 'B' emergency pressurization modutrol motor	FCO 31-152 would not open during the performance of SI4.2.G-2	None	Bad modutrol motor	FCO 31-152 failed to open	Replaced the modutrol motor and the SI was successfully completed. TR #281516 LER#BFRO-50-259/8191
12/22/81	Radiation Monitoring	RA 90-259 A or B annunciation circuitry	During the performance of SI4.2.G-2 alarm for RA 90-259 A or B failed to annunciate	None, the protective function of the radiation monitors was operable	Bad annunciator card	RA 90-259 annunciator circuitry was inoperable	Replaced the annunciator circuitry card, the alarm operated properly. TR #281217
12/24/81	Fire Protection	Fire protection batteries in panel 0-25-296 cells 7-12 and panel 1-25-303 cells 7-12	Weekly battery check (EMI 4A)	None	Low specific gravity	The batteries would not maintain a proper charge	Replaced the bad batteries per EMI 4. TR #250523 TR #250524 TR #257930

Date	System	Component	Nature of Maintenance	Effect on Safe Operation of The Reactor	Cause of Malfunction	Results of Malfunction	Action Taken To Preclude Recurrence
12/2/81	RCIC	RCIC tachometer	Verify operation of RCIC speed control circuitry	None	The tachometer was out-of-calibration	The tachometer was reading approximately 250 RPM low	Adjusted the tachometer per EMI 37A TR #282236
12/3/81	Fire Protection	Smoke detector (XA-39-87WB)	The smoke detector was initiating inadvertent alarms	None	Bad detector	The detector was initiating false alarms	Replaced the detector and performed SI 4.11.C.1&5. The detector operated properly. TR #281899

Date	System	Component	Nature of Maintenance	Effect on Safe Operation of The Reactor	Cause of Malfunction	Results of Malfunction	Action Taken To Preclude Recurrence
12/7/81	Fire Protection	U-3 auxiliary instrument room smoke detector	Smoke detector failed to annunciate in the control room during the performance of SI 4.11.C.2	None	Un-determined, during the course of trouble shooting the problem cleared	Did not receive a annunciation for one zone detector	Performed SI4.11.C.1&5 and the detector operated properly. TR #250681 TR #200634
12/8/81	CRD	Westside CRD accumulator monitoring circuitry	The west side monitor continually blowing fuse	None, the unit was tagged out for EMI 50	During the performance of EMI 50 a scram accumulator level switch wires were twisted and insulation broken	CRD accumulator monitoring circuitry was shorted and blowing fuse	Insulated the accumulator level switch wires, the ground cleared. TR #280651
12/8/81	CRD	'3A' CRD pump feeder breaker closing circuitry	The breaker closing circuit fuses were blowing	None, the unit was in refueling outage	A closing circuit diode was shorted	The breaker would not electrically close	Replaced the shorted diode and the breaker operated properly. TR #280650

CSSC EQUIPMENT

MECHANICAL MAINTENANCE SUMMARY

For the Month of December 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
- 2-81	Off-Gas	A #1 Stack Sample Pump	Pump doesn't develop adeqt. disch. press.	None	Copper line to breather off	Disch. press. too low	Made new gasket & installed line TR# 226876
-10-81	HPCI	Press. Contr. Valve	Faulty diaphragm.	None	Worn diaphragm	Bad diaphragm caused oil leak	Replaced diaphragm TR# 250671
-10-81	HPCI	Valve 73-200-A 73-202A	Steam Leak	None	Worn bonnet	Packing leak	Replaced bonnet TR# 182348
- 7-81	Core Spray Cooling	HCV-75-551B	Test Valve Leaking	None	Unknown	Leakage	Installed cap TR# 318712
-24-81	LPCI	1EN MG	Coupling. needs greasing	None	Leaking seals	Seals leaking grease	Aligned motor & gen. Replaced seals & greased. TR# 316279

CSSC EQUIPMENT

## MECHANICAL MAINTENANCE SUMMARY

For the Month of December 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
8-81	RHR	3 FCV 74-75	Valve Stuck	None	Gear Broken	Valve stuck 1/2 way open	Replaced gear TR# 203741
0-8-81	D/G	#1 Comp. 3-D Diesel	Blown Gasket	None	Unknown	Blown gasket on HP head	Replaced head gasket, valve and valveplate TR# 227774
2-25-81	LPCI	3EA MG Set	Coupling Sheared	None	Lock Rings had come out	Sheared coupling	Installed new lock rings & lub. coupling TR# 203719
2-24-81	Rx. water clean-up	FCV-69-2	Handwheel broken	None	Unknown	Sheared pin on handwheel	Installed new motor pinion gear & handwheel gear and shaft TR# 203766
2-2-81	Main Steam	FCV-1-156,153, 167	Check packing	None	Worn O'rings	Valves not functioning properly	Changed O'rings & added packing TR# 316289
2-4-81	CRD	HCV-85-600 Module 14-39	Valve will not close	None	Faulty bonnet & stem	Valve will not close off	Replaced bonnet & stem assembly. Torqued bolts to 220 in/lbs. TR# 280497
2-5-81	CRD	Isolation Valve Modules 54-31 38-39 54-43	Leak	None	Worn Packing	Valve Leaking	Replaced packing TR# 232931

## INSTRUMENT MAINTENANCE SUMMARY

CSSC EQUIPMENT

FOR THE MONTH OF December 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 1							
2-3	84	FT-84-7	Calibration	None	Instrument Drift	False Indication	None
2-13	65	TI-65-46	Replace	None	Random failure	False Indication	None
Unit 2							
2-15	56	TR-56-2	Repair	None	Obsolete Recorder	Loss of Record	DCR In To Replace Recorders
2-29	3	LR-3-53	Repair	None	Random failure	Invalid Alarm	None
Unit 3							
2-4	3	LIS-3-184	Replace Switches	None	Done to Improve Reliability	N/A	N/A
2-5	3	LIS-3-185	Replace Switches	None	Done to Improve Reliability	N/A	N/A
2-6	3	LIS-3-56C	Replace Switches	None	Done to Improve Reliability	N/A	N/A
2-7	3	LIS-3-56A	Replace Switches	None	Done to Improve Reliability	N/A	N/A
2-7	3	LIS-3-56D	Replace Switches	None	Done to Improve Reliability	N/A	N/A
2-8	3	LIS-3-56B	Replace Switches	None	Done to Improve Reliability	N/A	N/A
2-9	3	LIS-3-58A	Replace Switches	None	Done to Improve Reliability	N/A	N/A
2-12	3	LITS-3-58B	Replace Switches	None	Done to Improve Reliability	N/A	N/A
2-12	3	LIS-3-58C	Replace Switches	None	Done to Improve Reliability	N/A	N/A
2-14	3	LITS-3-58D	Replace Switches	None	Done to Improve Reliability	N/A	N/A
2-16	3	LITS-3-62	Replace Switches	None	Done to Improve Reliability	N/A	N/A
2-18	3	LITS-3-52	Replace Switches	None	Done to Improve Reliability	N/A	N/A

FIELD SERVICES SUMMARY

December 1981

The major event during the month of December was the completion of security modifications required to be complete before January 2, 1982. This was completed when ECN P0488 and ECN P0500 were completed December 29, 1981. A number of others were previously completed.

Through approximately 60 outage days the torus internal and external modifications were approximately 4 days behind the original 127 day schedule. Major work started in the month of December included vent header reinforcement, MSR/V tailpipe routing, box beam installation, catwalk installation, downcomer cutting and bar installation and dummy ramshead installation. Torus work on elevation 519 has been light this month.

Developments of larger growth rate cracks on spindle shrunk-on-wheels at other utilities have prompted the addition of UT inspections of the low pressure B and C spindles. The work to get A low pressure and the high pressure turbine back together has been expedited.

Other major modification work underway includes the generator breaker installation which is, overall, approximately 45% complete, Unit Station Service Transformer installation (40%), security modifications on going (ECN P0289, ECN P0498, ECN P0487, ECN P0463), MSR/V tailpipe tee (50%), and RHR and RHRSW modifications. Loop II RHR maintenance and modification work was completed this month including replacement of the RHR pump motor seal heat exchanger and eddy current inspection and cleaning of 3B RHR heat exchanger.

A major effort is being made to complete valve maintenance on the main steam isolation valves (outboard) so that the maintenance on the stop and bypass valves can begin in early January. Approximately 125 of 150 leak rate test valves have been tested with radwaste, hydrogen and oxygen analyzer, and RWCU valves remaining to be tested. The feedwater check valves and ventilation valves

FIELD SERVICES SUMMARY (Continued)

December 1981

Quadrex continued to decontaminate scrap unit 1 torus steel this month, being approximately 75% complete. The removal of contamination has allowed about 90% of the steel to be sold as scrap with the remaining 10% going to radwaste. The operation is expected to be completed by the end of January 1982.

ERRATA

Replace page 21 with attached pages 21 and 21A in the October report.

Replace page 16 with the attached page in the November report.

UNIT SHUTDOWNS AND POWER REDUCTIONS

DOCKET NO. 50-259  
 UNIT NAME Browns Ferry - 1  
 DATE 1-1-82  
 COMPLETED BY Ted Thom  
 TELEPHONE 205 729 6846

REPORT MONTH October

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 Codes <sup>5</sup>	Cause & Corrective Action to Prevent Recurrence
172	10-01-81	S	3.27	C	2				Refuel outage continues (EOC-4)
173	10-01-81	S	0.15	B					Turbine overspeed trip test (no scram)
173A	10-01-81	F	6.08	A	3				Reactor scram when MSIVs isolated on low pressure during turbine overspeed trip test.

<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 (NU REG-0161)

Exhibit I - Same Source

(9/77)

## OPERATING DATA REPORT

DOCKET NO. 50-260  
 DATE 12-1-81  
 COMPLETED BY Ted Thom  
 TELEPHONE 205 729 6846

OPERATING STATUS

1. Unit Name: Browns Ferry - 2
2. Reporting Period: November 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	720	8,016	59,239
12. Number Of Hours Reactor Was Critical	720	7,022.05	37,765.66
13. Reactor Reserve Shutdown Hours	0	965.58	13,419.06
14. Hours Generator On-Line	720	6,774.83	36,515.79
15. Unit Reserve Shutdown Hours	0	0	0
16. Gross Thermal Energy Generated (MWH)	2,255,743	20,900,821	104,471,464
17. Gross Electrical Energy Generated (MWH)	759,970	6,960,380	34,697,568
18. Net Electrical Energy Generated (MWH)	738,451	6,755,754	33,706,061
19. Unit Service Factor	100	84.5	61.6
20. Unit Availability Factor	100	84.5	61.6
21. Unit Capacity Factor (Using MDC Net)	96.3	79.1	53.4
22. Unit Capacity Factor (Using DER Net)	96.3	79.1	53.4
23. Unit Forced Outage Rate	0	9.8	29.5
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  | _____    | _____    |