

MONTHLY OPERATING REPORT
BROWNS FERRY NUCLEAR PLANT
TENNESSEE VALLEY AUTHORITY

APRIL 1988

"Safety and Quality are Paramount"

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

Submitted by:

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John G. Walker
Plant Manager

IE24
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OPERATIONAL
SUMMARY

SIGNIFICANT OPERATIONAL EVENTS SUMMARY

APRIL 1988

Unit 1

04/01/88 0001 Unit remains on administrative hold to resolve various TVA and NRC concerns. Cycle 6 refueling and modifications continue.

04/30/88 2400 Unit remains on administrative hold to resolve various TVA and NRC concerns. Cycle 6 refueling and modifications continue.

Unit 2

04/01/88 0001 Unit remains on administrative hold to resolve various TVA and NRC concerns. Cycle 5 refueling and modifications continue.

04/30/88 2400 Unit remains on administrative hold to resolve various TVA and NRC concerns. Cycle 5 refueling and modifications continues.

Unit 3

04/01/88 0001 Unit remains on administrative hold to resolve various TVA and NRC concerns. Environmental qualification work and modifications continue.

04/30/88 2400 Unit remains on administrative hold to resolve various TVA and NRC concerns. Environmental qualification work and modifications continue.

FUEL PERFORMANCE AND SPENT FUEL STORAGE CAPABILITIES SUMMARY

APRIL 1988

Unit 1

Unit 1 was placed on administrative hold in March 1985 to resolve TVA and NRC concerns. The unit also began its sixth refueling on June 1, 1985, with a scheduled restart date to be determined. The sixth refueling will involve loading 8x8R (retrofit) fuel assemblies into the core. The prior-to-startup unit 1 modifications are environmental qualification of electrical equipment (10CFR50.49), torus modification (NUREG 0661), containment instrumentation modifications (NUREG 0737), fire protection changes (Appendix R 10CFR50 (all), MSIV leak rate reduction modifications, modification of masonry walls (IEB 80-11), evaluation of the vent drain and test connections, (LER 82020), valve leak rate testing modifications (Appendix J), HPCI improvements, modification of PCIS logic (LER 259 85009), replacement of plant process computers, seismic qualifications of piping (IEB 79-02/14), postaccident sampling modifications (NUREG 0737), RPS voltage monitoring modifications H₂O₂ sample line modification (LER 81050), and EECW carbon to stainless pipe change out.

There are 0 assemblies in the reactor vessel. The spent fuel storage pool presently contains 284 new assemblies, 764 EOC-6, 252 EOC-5, 260 EOC-4, 232 EOC-3, 156 EOC-2, and 168 EOC-1 assemblies. The present available capacity of the fuel pool is 1355 locations.

FUEL PERFORMANCE AND SPENT FUEL STORAGE CAPABILITIES SUMMARY (CONT.)

APRIL 1988

Unit 2

Unit 2 was shut down on September 15, 1984, for its fifth refueling outage with a scheduled restart date to be determined. On September 3, 1985, the unit was placed on administrative hold to resolve TVA and NRC safety concerns. The fifth refueling involves loading 8x8R (retrofit) fuel assemblies into the core. The prior-to-startup unit 2 modifications are CRD SDIV piping modification (IEB 80-17), environmental qualification of electrical equipment (10CFR50.49), torus structural modifications (NUREG 0661), containment instrumentation modification (NUREG 0737), fire protection changes (Appendix R 10CFR50), MSIV leak rate reductions modifications, modification of masonry walls (IEB 80-11), addition of feedwater nozzle temperature monitoring (NUREG 0619), evaluation of the vent drain and test connections, (LER 82020), valve leak rate testing modifications (Appendix J), D/G speed sensor installation (LER 81004), HPCI and RCIG testable check valve change out, modification of PCS logic (LER 259 85009), HPCI improvements, various seismic program review, and EECW carbon to stainless pipe change out.

There are 0 assemblies in the reactor vessel. At month end there were 304 new assemblies, 764 EOC-5, 248 EOC-4, 352 EOC-3, 156 EOC-2, and 132 EOC-1 assemblies in the spent fuel storage pool. The present available capacity of the spent fuel pool is 1481 locations. All High Density Racks have been installed in the pool with the exception of two.

FUEL PERFORMANCE AND SPENT FUEL STORAGE CAPABILITIES SUMMARY (CONT.)

APRIL 1988

Unit 3

Unit 3 was shut down on March 9, 1985, and placed on administrative hold to resolve various TVA and NRC concerns with a scheduled restart date to be determined. The sixth refueling outage involves loading 8x8R (retrofit) assemblies into the core and ATWS modifications. The prior-to-startup unit 3 modifications are environmental qualification of electrical equipment (10CFR50.49), containment modifications (NUREG 0737), fire protection changes (Appendix R 10CFR50), MSIV leak rate reduction modifications, modification of masonry walls (IEB 80-11), evaluation of the vent drain and test connections, (LER 82020), valve modifications (Appendix J), HPCI concerns, replacement of plant process computer, seismic qualifications of piping (IEB 79-02/14), postaccident sampling modification (NUREG 0737), addition of redundant drywell control air supply, RPS voltage monitoring modification H₂O₂ sample line modification (LER 81050), replacement of jet pump holddown beam assemblies (IEB 80-07), EECW carbon to stainless pipe change out, and plant design upgrade to seismic qualification.

There are 0 assemblies in the reactor vessel. There are 764 assemblies to finish EOC-6, 248 EOC-5, 280 EOC-4, 124 EOC-3, 144 EOC-2, and 208 EOC-1 assemblies in the spent fuel storage pool. The present available capacity of the fuel pool is 585 locations. All high density racks (HDR) have been installed in the pool with the exception of six.

MSRVs (MAIN STEAM RELIEF VALVE) SUMMARY

APRIL 1988

No MSRVs were challenged during the month.

ISSUANCE OF SPECIAL REPORTS

APRIL 1988

The following special reports are notices of violations issued for the month of April 1988.

87-29-01 During the Nuclear Regulatory Commission (NRC) inspection conducted on July 27-29, 1987, violations of NRC requirements were identified. The licensee did not maintain adequate written material control and accounting procedures to enable the licensee to account for special nuclear material in that at the time of the inspection, Technical Instruction 14 did not provide. Technical Instruction 14 was not followed in that during four (4) separate inventories of special nuclear material (SNM) stored in a wooden box on October 28, 1986, January 30, 1987 and twice on June 16, 1987 an accurate piece count and listing of serial numbers was not obtained. As a result, a radioactive material shipment on June 16, 1987 was improperly documented as a shipment of five (5) Intermediate Range Monitors (IRMs) containing about one milligram of SNM each, as opposed to the actual count of six (6) IRMs contained in the shipment.

These violations have been categorized in the aggregate as a Severity Level IV problem (Supplement III).

87-29-02 10 CFR 70.51(c) requires that each licensee authorized to possess at any one time special nuclear material (SNM) in a quantity exceeding one effective kilogram of SNM shall establish, maintain, and follow written material control and accounting procedures which are sufficient to enable the licensee to account for the SNM in his possession under license.

Section 7.9 of Technical Instruction 14, Special Nuclear Material Control, which was prepared by the licensee to satisfy the requirements of 10CFR 70.51(c), states that all established internal accountability records shall have prepared signature or initial lines, where required, to expedite and promote proper documentation and identification of the responsible individuals. These records should readily yield information about SNM receipts, internal transfers of SNM, and any shipments of SNM. Updates of these records should be completed within a reasonable time after the event necessitating the update.

Contrary to the above, the provision for the update of accountability records within a reasonable time was not met in that Fuel Assembly Transfer Forms for the Unit 3 Core Unload performed between January and February 1987 were not updated in a reasonable time with some being updated as late as four months after physical movement of the fuel.

This is a Severity Level IV Violation, (Supplement III) and is applicable to Unit 3 only.

ISSUANCE OF SPECIAL REPORTS (Continued)

APRIL 1988

88-06-01

On March 17, 1988, the following procedure violations were observed.

- Loose rivets were found on the refueling floor within the control zone and were mistakenly thought to have entered the reactor vessel during a lost item recovery operation.
- Accountability records did not identify what screws or parts were missing on the ultrasonic (UT) scanner used in the vessel.
- Several screws on the UT scanner were intentionally loosened rather than correct a geometric deficiency.
- Screws on the UT scanner were not attached with a lanyard or locking device.
- The UT scanner was inserted and removed from the vessel several times to trouble shoot and repair scanner problems. However, the missing screws and roll pin were never identified even after a lost item recovery occurrence, where this scanner was suspected of having lost the parts observed in the vessel cavity and inspection of the scanner device was suppose to have been thoroughly performed. No one verified or accounted for any of the missing screws or the roll pin.

This is a Severity Level IV Violation (Supplement I).

LICENSEE EVENT REPORT(S)

APRIL 1988

The following licensee event reports (LERs) were reported to the Nuclear Regulatory Commission in April 1988.

Description of EventLER

1-86-024
Rev. 02

Loss of Secondary Containment Caused by Design Oversight

On August 22, 1986, it was determined by TVA design engineers that various nonsafety-related piping systems penetrating the reactor building-turbine building wall are not seismically qualified. This condition, is not consistent with the design description in section 5.3 of the Final Safety Analysis Report (FSAR), which states that secondary containment penetrations are seismically constructed. As a conservative measure, plant management declared the secondary containment inoperable, and plans pending at the time to unload fuel from the unit 3 core were halted.

A TVA design oversight permitted drawings to be insured which did not include any requirements to seismically qualify secondary containment penetrations, as described in the FSAR. A fuel handling accident is the only event that could challenge secondary containment under the present plant conditions. An analysis was performed which found doses resulting from such an event to be well within 10CFR100 guidelines. TVA will demonstrate that the plant is capable of maintaining a negative 1/4-inch of water pressure in secondary containment following a design basis earthquake prior to unit 2 startup.

1-88-011

Engineered Safety Feature Actuation Due to Personnel Error During Returning System to Service

On March 4, 1988, at 1039 hours, with all three units defueled, three emergency equipment cooling water (EECW) pumps were inadvertently started due to pressure drop in the raw cooling water (RCW) system caused by the opening of the temperature control valve (TCV) at the reactor building closed cooling water (RBCCW) heat exchangers. Low RCW pressure is a designed start signal for the EECW pumps. The shift supervisor (SS) discovered that the RBCCW temperature at the pumps was hot.

LER

Upon this discovery the SS opened the TCW to the A RBCCW heat exchanger 20 percent more on unit 2. This caused low RCW pressure on unit 3, and thereby completed the start logic for the EECW pumps. This was an unplanned actuation of an engineered safety feature.

The unit operator then started another RCW pump. Two hours later the three EECW pumps were returned to standby readiness and the additional RCW pump was shutdown to see if the event could be duplicated. The EECW pumps auto started again when the additional RCW pump was shutdown. The unit 2 RBCCW system was removed from service due to finding several valves out of position. These valves were out of position due to a previous SS waiving the restoration checklist in a workplan. After removing RBCCW from service, valve checklists were performed for RCW and RBCCW system. The operators will be provided with a description of this event.

1-88-012

Battery Failure Concurrent With LOP/LOCA Prevents Automatic Start Of Residual Heat Removal Pump

During a review of the 250V dc system a condition was discovered that could prevent the automatic initiation of a residual heat removal (RHR) pump. The failure of a battery supplying logic for one division of RHR would prevent one of the two pumps from starting. The other RHR pump in the division that is supplied with ac power also receives a start signal from the opposite RHR division logic. The battery failure caused the start logic in the other division to sense diesel generator power is available for the RHR pump that lost division logic. This energizes the start relay for the RHR pump and causes the breaker to try and close onto a deenergized electrical board. When this occurs the pump breaker will trip. The pump must then be manually started from the electrical distribution board. This condition was the result of a design error when the RHR logic was modified in 1977. The condition will be evaluated to determine the necessary corrective action. Changes in the TVA design process ensure that modifications receive a thorough review for implementation of design requirements.

LER
1-88-013

Radiation Monitor Spike Initiates Control Room
Emergency Ventilation

On March 28, 1988, at 1430 hours, with all three units defueled, both control room emergency ventilation (CREV) trains inadvertently started due to a high radiation signal from the control room air inlet radiation monitor (RM). A high radiation signal is a designed start signal for the CREV trains. In preparation for installing insulation plant craftsmen were vacuuming near the unit 3 control bay RM. A high radiation signal was received from this RM which resulted in control room ventilation isolation and both CREV trains starting. This is considered an unanticipated actuation of an engineered safety feature (ESF). The Assistant Shift Operations Supervisor verified, by the review of the RM chart recorder, that a spike on RM O-RM-90-259B had caused the ESF actuation. Twelve minutes later the unit operator reset the isolation and returned the CREV to standby readiness.

Instrument and controls personnel will investigate the possibility of a radio frequency tripping O-RM-90-259B using a radio frequency generator and determine if the RM is adequately shielded. The Shift Operations Supervisor requested the modification carpenters place a protective plywood shell around O-RE-90-259B to ensure that affected safety equipment is protected as necessary, when modifications are being performed.

1-88-014

Surveillance Testing Of Liquid Radioactive Waste
Discharge Isolation Valves Incomplete Due To
Inadequate Procedures

As a result of the programmatic upgrade of the Browns Ferry surveillance instructions (SI) it was reported on March 29, 1988, that the SI which tests the automatic isolation logic of the liquid radioactive waste discharge isolation valves did not fully test all operational configurations and that the flow switch on the cooling tower blowdown line was not identified as technical specifications (TS) required instrument and had not been calibrated on a regular schedule. TS 4.8.A.3 requires annual testing of the automatic isolation valves. Failure to test the logic and calibrate the flow switch was a violation of the TS surveillance requirement. No instances of inadvertent discharge due to logic failure have been identified. All three units were defueled at the time of discovery.

LER

Administrative controls were established to ensure improper releases were not permitted until such time as the automatic isolation logic could be tested for each unit respectively. SIs have been prepared which fully test the pump interlock logic. A calibration procedure will be prepared for the flow switch. The discovery of this deficiency is considered a good indication of the quality and capability of the upgraded program, therefore additional recurrence control actions are not considered necessary.

OFFSITE DOSE CALCULATION MANUAL CHANGES

APRIL 1988

No changes were made to the Browns Ferry offsite dose calculation manual during the month.

Radwaste Summary

April 1988

Common

The radwaste system performed as designed. Approximately $1.01\text{E}+06$ gallons of waste liquid were discharged containing approximately $3.19\text{E}-02$ curies of activity.

There were five spent resin shipments and two trash shipment during March. All shipments were to Barnwell, SC.

Solid Radioactive Waste (Continued)
April 1988

Summary

Type of Waste	Shipped to Barnwell During Month	Packaged on Site Awaiting Shipment	Gross Curie Content by Type of Waste	Estimated Generation for Next Month
Compacted Drums	660 Cu.Ft. (2)	135 Cu.Ft.	3.33E-01	600 Cu.Ft. (2)
Boxes	558 Cu.Ft. (2)	465 Cu.Ft.	1.27E+00	800 Cu.Ft. (2)
Uncompacted Drums	0 Cu.Ft. (2)	0 Cu.Ft.	0.00E+00	0 Cu.Ft. (2)
Boxes	800 Cu.Ft. (2)	0 Cu.Ft.	1.46E-01	600 Cu.Ft. (2)
Resins CWPS	820 Cu.Ft. (1)	675 Cu.Ft. (3)	3.86E+01	450 Cu.Ft. (1)
RWCU	0 Cu.Ft. (1)	75 Cu.Ft. (3)	0.00E+00	35 Cu.Ft. (1)
TOTALS	2989 Cu.Ft. (2)	600 Cu.Ft. (4)	4.04E+01	2000 Cu.Ft. (4)

Total volume of waste shipped during the month: 2989 Cu.Ft. (2)
 Total volume of waste shipped year-to-date: 8952 Cu.Ft.
 Unused 1988 burial volume allocation at Barnwell: 73848 Cu.Ft.

- (1) Actual resin volume
- (2) Container burial volume
- (3) Estimated volume in separators
- (4) Does not include resins

Solid Radioactive Waste
April 1988

Dewatered Spent Resin Shipments⁽¹⁾

Volume of condensate/waste resin shipped: 23.37 Cu.M. (820 Cu.Ft.)

Total curies shipped: 38.6421

Volume of reactor cleanup resin shipped: 0 Cu.M. (0 Cu.Ft.)

Total curies shipped: 0

<u>Date Shipped</u>	<u>Disposal Facility</u>	<u>Type of Resin</u>
04/04/88	Barnwell, SC	CWPS
04/08/88	Barnwell, SC	CWPS
04/12/88	Barnwell, SC	CWPS
04/18/88	Barnwell, SC	CWPS
04/22/88	Barnwell, SC	CWPS

Dry Active Waste⁽¹⁾

Number of drums shipped: 88 Volume: 18.7 Cu.M. (660 Cu.Ft.)

Total curies shipped: 0.3326

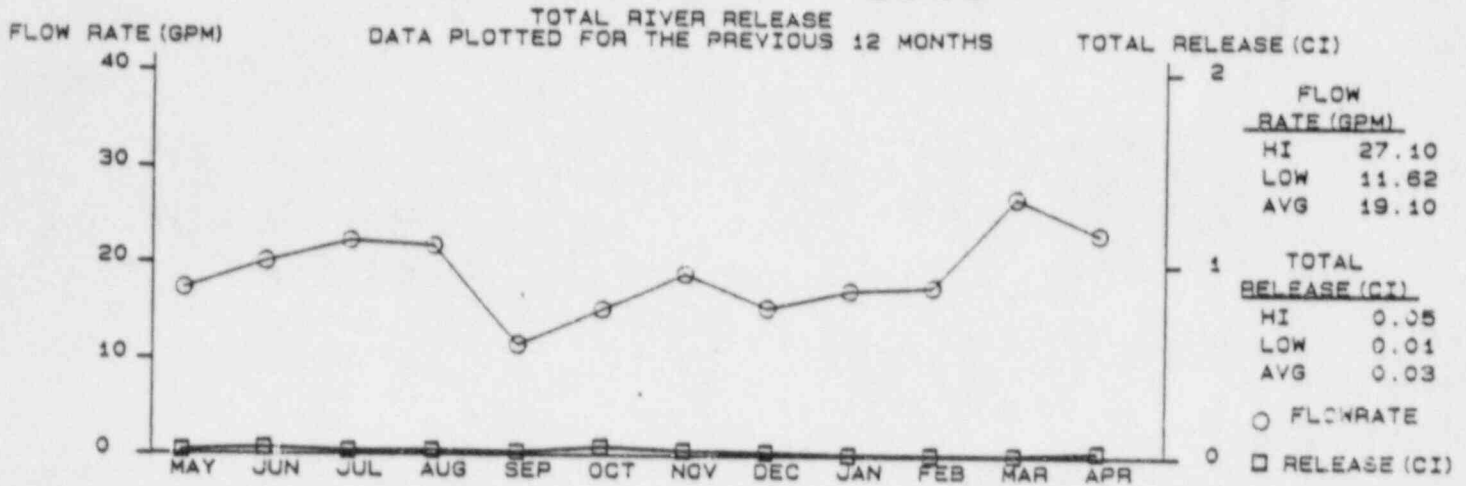
Number of boxes shipped: 14 Volume: 38.49 Cu.M. (1358.4 Cu.Ft.)

Total curies shipped: 1.4178

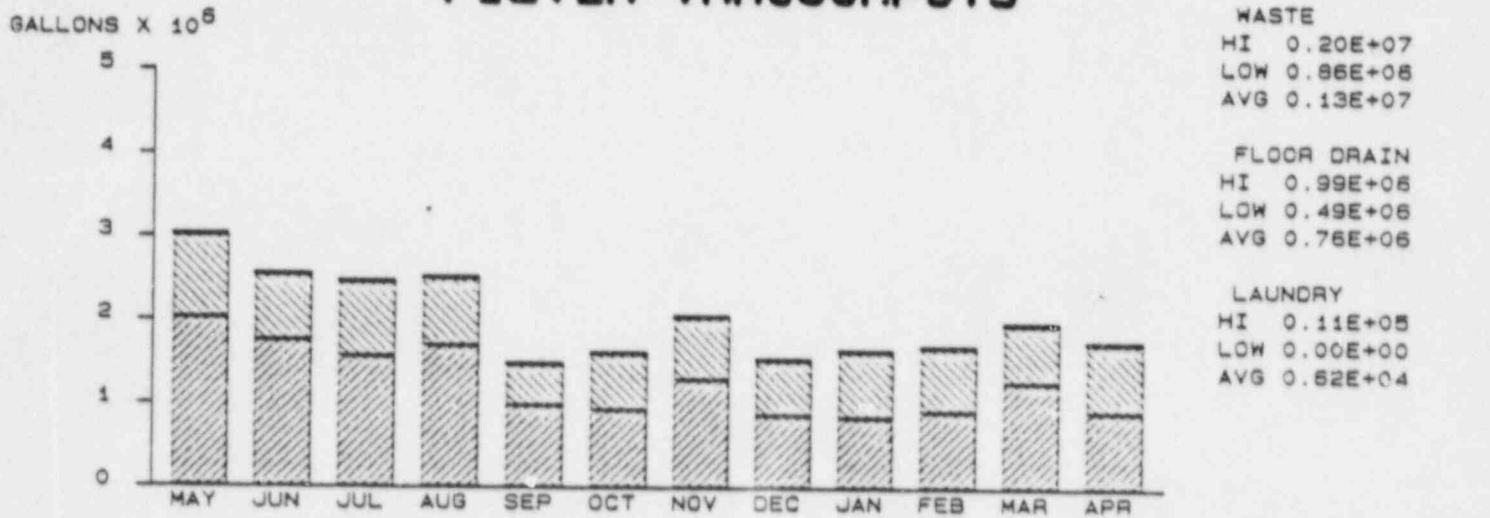
<u>Date Shipped</u>	<u>Disposal Facility</u>	<u>Type of Package</u>
04/20/88	Barnwell, SC	Boxes
04/28/88	Barnwell, SC	Boxes & Drums

(1) All shipments were by Sole-Use Vehicle

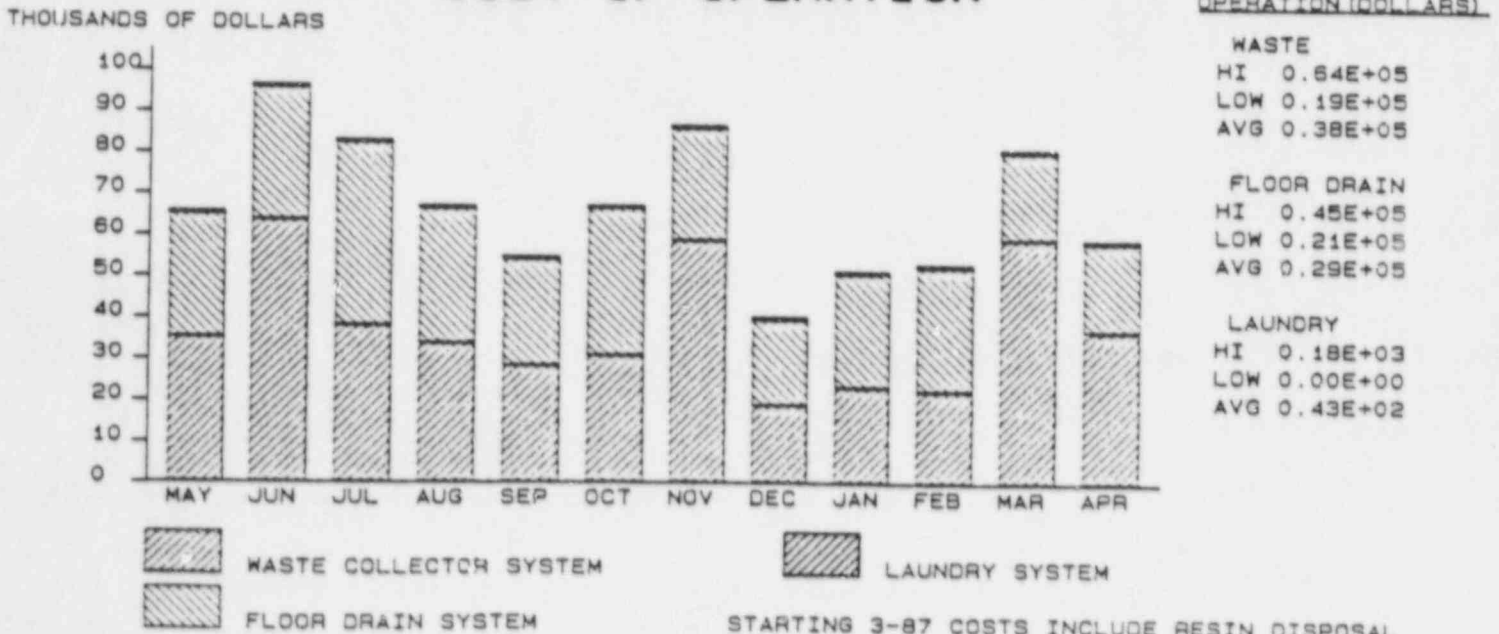
LIQUID RADWASTE MONTHLY OPERATING REPORT APRIL 1988



FILTER THROUGHPUTS



COST OF OPERATION



OPERATING
STATISTICS

OPERATING DATA REPORT

DOCKET NO. 50-259
 DATE 05-01-88
 COMPLETED BY J.D. Crawford
 TELEPHONE (205) 729-2507

OPERATING STATUS

1. Unit Name: Browns Ferry Unit One
2. Reporting Period: April 1988
3. Licensed Thermal Power (MWt): 3293
4. Nameplate Rating (Gross MWe): 1152
5. Design Electrical Rating (Net MWe): 1065
6. Maximum Dependable Capacity (Gross MWe): 1098.4
7. Maximum Dependable Capacity (Net MWe): 1065
8. If Changes Occur in Capacity Ratings (Items Number 3 Through 7) Since Last Report, Give Reasons:
N/A

Notes

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

	This Month	Yr.-to-Date	Cumulative
11. Hours In Reporting Period	719	2903	120,583
12. Number Of Hours Reactor Was Critical	0	0	59,521.38
13. Reactor Reserve Shutdown Hours	0	0	6,997.44
14. Hours Generator On-Line	0	0	58,267.26
15. Unit Reserve Shutdown Hours	0	0	0
16. Gross Thermal Energy Generated (MWH)	0	0	168,066,787
17. Gross Electrical Energy Generated (MWH)	0	0	55,398,130
18. Net Electrical Energy Generated (MWH)	-4606	-9415	53,696,987
19. Unit Service Factor	0	0	48.32
20. Unit Availability Factor	0	0	48.32
21. Unit Capacity Factor (Using MDC Net)	0	0	41.81
22. Unit Capacity Factor (Using DER Net)	0	0	41.81
23. Unit Forced Outage Rate	100	100	42.80
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: To be determined
26. Units In Test Status (Prior to Commercial Operation):

INITIAL CRITICALITY
 INITIAL ELECTRICITY
 COMMERCIAL OPERATION

	Forecast	Achieved
INITIAL CRITICALITY	_____	_____
INITIAL ELECTRICITY	_____	_____
COMMERCIAL OPERATION	_____	_____

OPERATING DATA REPORT

DOCKET NO. 50-260
 DATE 05-01-88
 COMPLETED BY J. D. Crawford
 TELEPHONE (205) 729-2507

OPERATING STATUS

1. Unit Name: Browns Ferry Unit Two
 2. Reporting Period: April 1988
 3. Licensed Thermal Power (MWt): 3293
 4. Nameplate Rating (Gross MWe): 1152
 5. Design Electrical Rating (Net MWe): 1065
 6. Maximum Dependable Capacity (Gross MWe): 1098.4
 7. Maximum Dependable Capacity (Net MWe): 1065
 8. If Changes Occur in Capacity Ratings (Items Number 3 Through 7) Since Last Report, Give Reasons:
N/A

Notes

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

	This Month	Yr.-to-Date	Cumulative
11. Hours In Reporting Period	<u>7.9</u>	<u>2903</u>	<u>115,470</u>
12. Number Of Hours Reactor Was Critical	<u>0</u>	<u>0</u>	<u>55,860.03</u>
13. Reactor Reserve Shutdown Hours	<u>0</u>	<u>0</u>	<u>14,200.44</u>
14. Hours Generator On-Line	<u>0</u>	<u>0</u>	<u>54,338.36</u>
15. Unit Reserve Shutdown Hours	<u>0</u>	<u>0</u>	<u>0</u>
16. Gross Thermal Energy Generated (MWH)	<u>0</u>	<u>0</u>	<u>153,245.167</u>
17. Gross Electrical Energy Generated (MWH)	<u>0</u>	<u>0</u>	<u>50,771.798</u>
18. Net Electrical Energy Generated (MWH)	<u>-1924</u>	<u>-7666</u>	<u>49,176.167</u>
19. Unit Service Factor	<u>0</u>	<u>0</u>	<u>47.06</u>
20. Unit Availability Factor	<u>0</u>	<u>0</u>	<u>47.06</u>
21. Unit Capacity Factor (Using MDC Net)	<u>0</u>	<u>0</u>	<u>39.99</u>
22. Unit Capacity Factor (Using DER Net)	<u>0</u>	<u>0</u>	<u>39.99</u>
23. Unit Forced Outage Rate	<u>100</u>	<u>100</u>	<u>42.10</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: To be determined

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 05-01-88
 COMPLETED BY J.D. Crawford
 TELEPHONE (205) 729-2507

OPERATING STATUS

1. Unit Name: Browns Ferry Unit Three
2. Reporting Period: April 1988
3. Licensed Thermal Power (MWt): 3293
4. Nameplate Rating (Gross MWe): 1152
5. Design Electrical Rating (Net MWe): 1065
6. Maximum Dependable Capacity (Gross MWe): 1098.4
7. Maximum Dependable Capacity (Net MWe): 1065
8. If Changes Occur in Capacity Ratings (Items Number 3 Through 7) Since Last Report. Give Reasons:
N/A

Notes

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

	This Month	Yr.-to-Date	Cumulative
11. Hours In Reporting Period	<u>719</u>	<u>2903</u>	<u>97,895</u>
12. Number Of Hours Reactor Was Critical	<u>0</u>	<u>0</u>	<u>45,306.08</u>
13. Reactor Reserve Shutdown Hours	<u>0</u>	<u>0</u>	<u>5,149.55</u>
14. Hours Generator On-Line	<u>0</u>	<u>0</u>	<u>44,194.76</u>
15. Unit Reserve Shutdown Hours	<u>0</u>	<u>0</u>	<u>0</u>
16. Gross Thermal Energy Generated (MWH)	<u>0</u>	<u>0</u>	<u>131,868,267</u>
17. Gross Electrical Energy Generated (MWH)	<u>0</u>	<u>0</u>	<u>43,473,760</u>
18. Net Electrical Energy Generated (MWH)	<u>-1763</u>	<u>-10,530</u>	<u>42,030,618</u>
19. Unit Service Factor	<u>0</u>	<u>0</u>	<u>45.14</u>
20. Unit Availability Factor	<u>0</u>	<u>0</u>	<u>45.14</u>
21. Unit Capacity Factor (Using MDC Net)	<u>0</u>	<u>0</u>	<u>40.31</u>
22. Unit Capacity Factor (Using DER Net)	<u>0</u>	<u>0</u>	<u>40.31</u>
23. Unit Forced Outage Rate	<u>100</u>	<u>100</u>	<u>45.57</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: To be determined
 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> |

AVERAGE DAILY UNIT POWER LEVEL

DOCKET NO. 50-259

UNIT One

DATE 05-01-88

COMPLETED BY J.D. Crawford

TELEPHONE (205) 729-2507

MONTH April 1988

DAY AVERAGE DAILY POWER LEVEL
(MWe-Net)

1	<u>6</u>
2	<u>-7</u>
3	<u>-7</u>
4	<u>-7</u>
5	<u>-7</u>
6	<u>-7</u>
7	<u>-7</u>
8	<u>-7</u>
9	<u>-2</u>
10	<u>-5</u>
11	<u>-7</u>
12	<u>-7</u>
13	<u>-7</u>
14	<u>-6</u>
15	<u>-7</u>
16	<u>-6</u>

DAY AVERAGE DAILY POWER LEVEL
(MWe-Net)

17	<u>-6</u>
18	<u>-5</u>
19	<u>-7</u>
20	<u>-7</u>
21	<u>-7</u>
22	<u>-8</u>
23	<u>-5</u>
24	<u>-7</u>
25	<u>-6</u>
26	<u>-7</u>
27	<u>-6</u>
28	<u>-6</u>
29	<u>-7</u>
30	<u>-6</u>
31	<u></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. 50-260UNIT TWODATE 05-01-88COMPLETED BY J.D. CrawfordTELEPHONE (205)729-2507MONTH April 1988

DAY	AVERAGE DAILY POWER LEVEL (MWe-Net)	DAY	AVERAGE DAILY POWER LEVEL (MWe-Net)
1	<u>-2</u>	17	<u>-2</u>
2	<u>-2</u>	18	<u>-2</u>
3	<u>-2</u>	19	<u>-1</u>
4	<u>-2</u>	20	<u>-3</u>
5	<u>-2</u>	21	<u>-2</u>
6	<u>-2</u>	22	<u>-4</u>
7	<u>-2</u>	23	<u>-1</u>
8	<u>-2</u>	24	<u>-3</u>
9	<u>-3</u>	25	<u>-2</u>
10	<u>-3</u>	26	<u>-4</u>
11	<u>-3</u>	27	<u>-5</u>
12	<u>-3</u>	28	<u>-2</u>
13	<u>-3</u>	29	<u>-3</u>
14	<u>-3</u>	30	<u>-2</u>
15	<u>-2</u>	31	<u></u>
16	<u>-6</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 Three
 DATE 05-01-88
 COMPLETED BY J.D. Crawford
 TELEPHONE (205)729-2507

MONTH April 1988

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

INSTRUCTIONS

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

DOCKET NO. 50-259

UNIT NAME One

DATE 05-01-88

COMPLETED BY J.D. Crawford

TELEPHONE (205) 729-2507

UNIT SHUTDOWNS AND POWER REDUCTIONS

REPORT MONTH April

No.	Date	Type ¹	Duration (Hours)	Reason ²	Method of Shutting Down Reactor ³	Licensee Event Report #	System Code ⁴	Component Code ⁵	Cause & Corrective Action to Prevent Recurrence
315	04/01/88	F	719	F	4				Administrative hold to resolve various TVA and NRC concerns.

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 (NURRG-0161)
Exhibit I - Same Source

UNIT SHUTDOWNS AND POWER REDUCTIONS

DOCKET NO. 50-260
 UNIT NAME Two
 DATE 05-01-88
 COMPLETED BY J.D. Crawford
 TELEPHONE (205) 729-2507

REPORT MONTH April

N	Date	Type	Duration (Hours)	Reason	Method of Shutting Down Reactor	License Event Report #	System Code	Component Code	Cause & Corrective Action to Prevent Recurrence
305	04/01/88	F	719	F	4				Administrative hold to resolve various TVA and NRC concerns.

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 C - Instructions for Preparation of Data Entry Sheets for License Event Report (LER) File (NURIG-0161)
 Exhibit I - Same Source

(9/77)

UNIT SHUTDOWNS AND POWER REDUCTIONS

DOCKET NO. 50-296
 UNIT NAME Three
 DATE 05-01-88
 COMPLETED BY J.D. Crawford
 TELEPHONE (205) 729-2507

REPORT MONTH April

No.	Date	Type	Duration (Hours)	Reason ¹	Method of Shutting Down Reactor ²	Licensee Event Report #	System Code ⁴	Component Code ⁴	Cause & Corrective Action to Prevent Recurrence
157	04-01-88	F	719	F	4				Administrative hold to resolve various TVA and NRC concerns.

- 1 1 Forced
 2 Scheduled
- 3 Reason
 A Equipment Failure (Explain)
 B Maintenance or Test
 C Relucting
 D Regulatory Restriction
 E Operator Training & Unclear Examination
 F Administrative
 G Operational Error (Explain)
 H Other (Explain)
- 4 Method
 1 Manual
 2 Manual Scram
 3 Automatic Scram
 4 Other (Explain)
- 5 Exhibit G - Instructions for Preparation of Data Entry Sheets for Licensee Event Report (LER) File (NURIG 0161)
 Exhibit I - Same Source

Browns Ferry Nuclear Plant

Period Hours 719

Month April 19 88

Item No.	Unit No.	UNIT 1	UNIT 2	UNIT 3	PLANT		
Generation	1	Average Hourly Gross Load, kW	0	0	0	0	
	2	Maximum Hour Net Generation, MWh	0	0	0	0	
	3	Core Thermal Energy Gen., GWD (t) ²	0	0	0	0	
	4	Steam Gen. Thermal Energy Gen., GWD (t) ²					
	5	Gross Electrical Gen., MWh	0	0	0	0	
	6	Station Use, MWh	4606	1924	1763	8293	
	7	Net Electrical Gen., MWh	-4606	-1924	-1763	-8293	
	8	Station Use, Percent	0	0	0	0	
	9	Accum. Core Avg. Exposure, MWD/Ton ¹	0	0	0	0	
	10	CTEG This Month, 10 ⁶ BTU	0	0	0	0	
	11	SGTEG This Month, 10 ⁶ BTU	0	0	0	0	
	12						
Factors & Use	13	Hours Reactor Was Critical	0	0	0	0	
	14	Unit Use, Hours-Min.	0	0	0	0	
	15	Capacity Factor, Percent	0	0	0	0	
	16	Turbine Avail. Factor, Percent	0	0	0	0	
	17	Generator Avail. Factor, Percent	0	0	0	0	
	18	Turbogen Avail. Factor, Percent	0	0	0	0	
	19	Reactor Avail. Factor, Percent	0	0	0	0	
	20	Unit Avail. Factor, Percent	0	0	0	0	
	21	Turbine Startups	0	0	0	0	
	22	Reactor Cold Startups	0	0	0	0	
	23						
Efficiency	24	Gross Heat Rate, Btu/kWh	0	0	0	0	
	25	Net Heat Rate, Btu/kWh	0	0	0	0	
	26						
	27						
Temp & Press	28	Throttle Pressure, psig	0	0	0	0	
	29	Throttle Temperature, °F	0	0	0	0	
	30	Exhaust Pressure, inHg Abs.	0	0	0	0	
	31	Intake Water Temp., °F	0	0	0	0	
	32						
Flows	33	Main Feedwater, M lb/hr					
	34						
	35						
	36						
Misc.	37	Full Power Capacity, EFPD (3)	(4)	(4)	(4)		
	38	Accum. Cycle Full Power Days, EFPD	(4)	(4)	(4)		
	39	Oil Fired for Generation, Gallons				13360	
	40	Oil Heat Value, Btu/Gal.				139900	
	41	Diesel Generation, MWh				75.6	
	42						
Station Data	Max. Hour Net Gen.		Max. Day Net Gen.		Load Factor, %	X	
	MWh	Time	Date	MWh			Date
	0			0			
Remarks: ¹ For BFNP this value is MWD/STU and for SQNP and WBNP this value is MWD/MTU.							
² (t) indicates Thermal Energy.							
³ Information furnished by Reactor Analysis Group, Chattanooga							
⁴ Administrative Hold							

Date Submitted _____ Date Revised _____

John Walker
Plant Superintendent

UNIT OUTAGE AND AVAILABILITY

Browns Ferry Nuclear Plant

Licensed Reactor Power 3293 MW(e)

Generator Rating 1152 MW(e)

Monthly/Year April 1988

Design Gross Electrical Rating 1998.4 MW

Period Hours 719

Day	Total Unit Available						Time Not Available						Unit	Time Out	Time In	Outage Cause	Method of Shutting Down Reactor	Unit Status During Outage	Corrective Action Taken to Prevent Recurrence
	Gen		Reactor		Total		Gen		Reactor		Total								
	Days	Hours	Days	Hours	Days	Hours	Days	Hours	Days	Hours	Days	Hours							
1																			
2																			
3																			
4																			
5																			
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30																			
31																			
Total																			

UNIT OUTAGE AND AVAILABILITY

Browns Ferry Nuclear Plant

Licensed Reactor Power 329.3 MW(e)

Generation Rating 1152 MW(e)

Month/Year April 1988

Design Gross Electrical Rating 1098.4 MW

Period Hours 719

Day	Time Unit Available				Time Unit Available				Unit			OUTAGE CAUSE	METHOD OF SHUTTING DOWN REACTOR	UNIT STATUS DURING OUTAGE	CORRECTIVE / ACTION TAKEN TO PREVENT REPELITION	
	Total		Gen		Turbine		Gen		Reactor		Time Out					Time In
	hrs	Min	hrs	Min	hrs	Min	hrs	Min	hrs	Min						
1																
2																
3																
4																
5																
6																
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Total																

UNIT OUTAGE AND AVAILABILITY

Browns Ferry Nuclear Plant

Unit No. Three

Licensee Electric Facility 3291 MW(e)

Generator Rating 1152 MW(e)

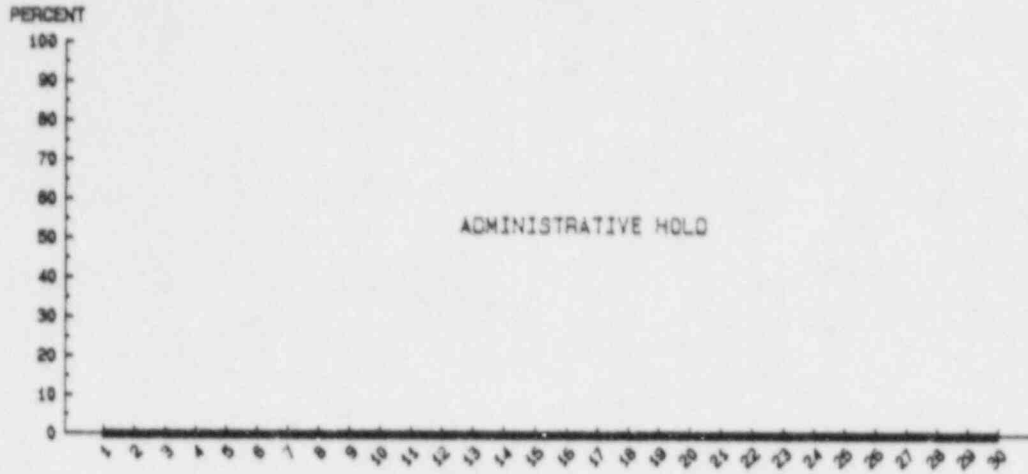
Month/Year Apr 11 1988

Design Gross Electrical Rating 1098.4 MW

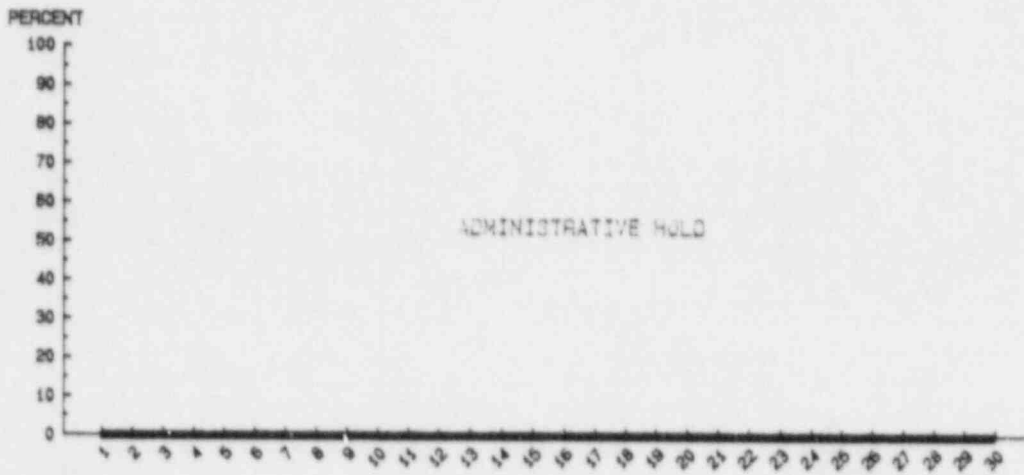
Period Hours 719

Day	Year Unit Available				Time Not Available				Unit			CORRECTIVE ACTION TAKEN TO PREVENT REPEITION
	Gen		Reactor		Gen		Reactor		Time Out	Time In	CAUSE CAUSE	
	hrs	Min	hrs	Min	hrs	Min	hrs	Min	hrs	Min		
1					24	00	24	00	24	00		Administrative hold continues
2					24	00	24	00	24	00		
3					23	00	23	00	23	00		
4					24	00	24	00	24	00		
5												
6												
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Total					719	00	719	00	719	00		

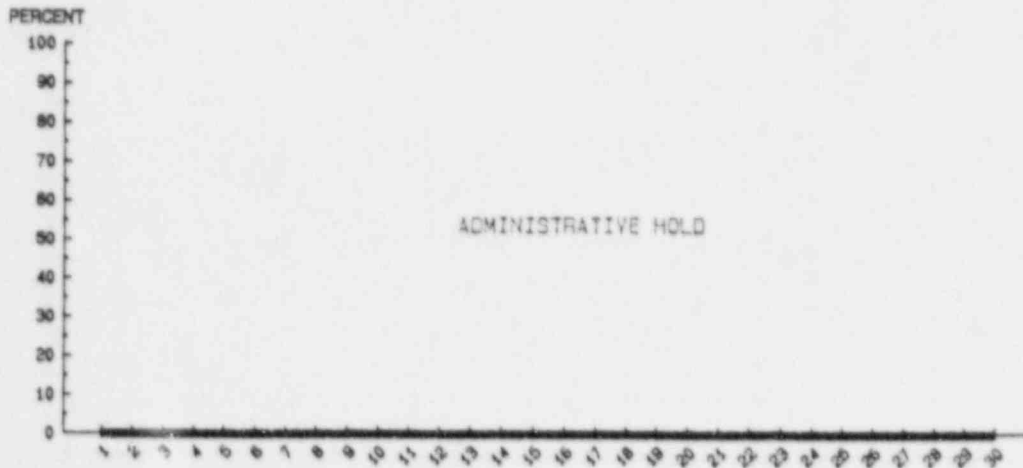
REACTOR POWER PERCENT
APRIL 1988
UNIT 1



UNIT 2



UNIT 3



MAINTENANCE
SUMMARY

ELECTRICAL TECHNICAL SECTION
MONTHLY REPORT
APRIL, 1988

Unit Common

Major Routine Activities --

CIRCUIT BREAKER REBUILDS:	<u>4160V</u>	<u>480/250V</u>
Total Number of Breakers To Be Rebuilt	303	493
Total Number of Breakers Rebuilt	9	17
Completed This Month	0	0

Reviewed several surveillance instructions and maintenance procedures for the month of April, 1988.

Power Service Shop crews are onsite for the replacement of Unit 2 main generator T70 stator bar. The generator is disassembled. General Electric personnel will be on site May 3, 1988.

HFA relay database is one-third complete.

Forty eight technical reviews were done in April 1988. Secondary containment was established to permit fuel handling activities

Five out of tolerance investigations and dispositions were completed for measuring and testing equipment returned from the central labs after calibration.

A database file has been set up to include forty (40) sump pump level switches.

ELECTRICAL EQUIPMENT LIST: 515 drawings were received in April, 1988. 203 drawings were reviewed in April, 1988. 4,669 drawings are in backlog.

FUSE CONTROL PROGRAM:

Drawing review continues, unit 2 is 95% complete and unit 0 is 30% complete. Fuse input sheets are being put into EQIS. All 500 are expected to be entered by May 4, 1988. Information and most materials needed for operations to replace fuses was given to them in early April, 1988.

The fuse engraving report, revision "C" fuse relabeling effort is complete for unit 2. Unit 1 and unit 3 were held up due to lack of craft support. However, unit 1 is 90% complete. Unit 3 has not been started.

EBASCO's first calculation for fuse evaluations given to DNE on April 29, 1988. The Electrical Technical Section is scheduled to review the information of the first calculation from DNE on May 6, 1988.

Failure Investigation 88-3, 88-4 and 88-7 were completed. The unit 3 MMG set has been made functional. QMDS has been divided and responsibilities determined between Electrical Technical, I&C and Mechanical.

2

Electrical Technical Section
Monthly Report

SBGT cables were meggered for damage in conduit duct. No cables displayed any damage. One cable was not tested and the Electrical Technical Section has contacted Design to determine if the test is still required. No response has been received from Design.

Revisions for EMI-53 and EMI-58.3 have been completed.

Preventive maintenance for the replacement of coils or relays for CR120A relays have been completed for safety related relays.

A technical review has been done for GI-4.9.A.3.a (Unit 1 and 2) and ECI-0-000-RLY003.

DNE work to return charger SD-B to service is complete. Waiting for receipt of materials.

Repairs complete on D/G 3C Charger "A". Charger is back in service.

Restart testing and corrective maintenance complete on charger SB spare.

Discharge testing of D/G 3D battery for required surveillance and restart testing was completed satisfactorily. The battery is at 91.6% capacity.

ECN E-2-P7010, Workplan 2149-88 was written and revised to install/test thermal overloads on various unit 2 breaker compartments. 34 unit 2 flow control valves are affected by this workplan.

DCN H00110A, WP 2180-88. This workplan was written to set the open and closed thrust valves on 2-FCV 73-81 and provide margins for setting limit switch #4 to prevent inadvertent backseating.

DCN W0144A, WP 2181-88 was written to set the open/closed thrust valves on the following unit 2 valves: 23-FCV 71-34, 2-FCV 68-01, 03, 77, 79 and also provide margins for setting limit switch LS-4 to prevent inadvertent backseating.

WP 2231-84 was revised during April 1988 to add the steps necessary to install a new termination box on 2-FCV 74-66.

WP 2227-84 was revised during April 1988 to add the steps necessary to install new breakers and thermal overload elements on 2-FCV 74-60, 61 and to add steps necessary to install a new termination box on 2-FCV 74-52.

Electrical Technical Section
Monthly Report

Oil in main tank of unit station service transformer 2A was treated with the Purivac unit during April 1988 because of hydrogen generation determined from a gas-in-oil lab analysis.

The interruptor head of 5214 was opened and inspected for internal damage caused by the crane accident. Head is now disassembled and waiting on parts.

Oil treatment continued during April 1988 on 500KV main transformers 2A and 2B. The oil was salvaged by circulating it through the Purivac. Unit 2 main 500KV transformer bank was returned to service on the week-end of April 9, 1988. A minor leak was repaired on 500KV main 2B at the end of April 1988.

A week-end outage was executed on main buss 1 (Buss 1, Section 1) so as to test the main buss potential transformers. Minor maintenance was also performed on the junction box at the potential transformers. A burned potential transformer pressure relay caused an unwanted extension of the buss 1 outage. All work and testing was complete in April 1988. Did same to buss 2 potential transformer. All three 500KV shunt reactors were flushed and had oil purified by the Purivac unit during April 1988.

VALVE GROUP:

Field Work Completed: Up 12 to 63 total.
Final Inspections: Up 19 to 43 total.
MOVAT's Test Complete: Up 10 to 23 total.

Processed approximately 15 drawing discrepancies in support of field work.

Processed ITC's on EMI 18, 18.1 and 105.

Closed CAQR BFP880308 written against 3-FCV-67-26 and provided documentation for closure on three additional CAQR's issued by the CEG group.

Shipped seven motors to the Power Service Shop for repair and restocking in Power Stores.

ELECTRICAL TECHNICAL SECTION
MONTHLY REPORT
APRIL 1988

I. WORK TIME SCHEDULE

	<u>Received/ Assigned</u>	<u>Completed</u>	<u>Open</u>
Red Folders	4	3	12
Orange Folders	2	2	10
Yellow Folders	0	1	1
Blue Folders	4	6	4
Purple Folders	1	0	3
Active Engineering Assignments	6	2	20
Engineering Backlog	5	5	65
New Engineering Assignments	0	0	0
Completed Engineering Assignments	0	0	0

II. COMMITMENT TRACKING

Licensing Issues (NCO & SLT)			
NCO	0	2	18
SLT	2	1	4
PORS Tracking Items (BFC)	0	0	3
CAQRs	1	4	8
Average Age of CAQRs	Five Months		
Employee Concerns	0	0	1
Safety Issues List	0	0	0

III. STAFFING LEVELS AND TRAINING

<u>Personnel</u>	<u>Approved Headcounts</u>	<u>Current Headcounts</u>
ASP	36	31
ATL	4	4
HTL	0	0
Contractors	<u>5</u>	<u>4</u>
TOTAL	45	39

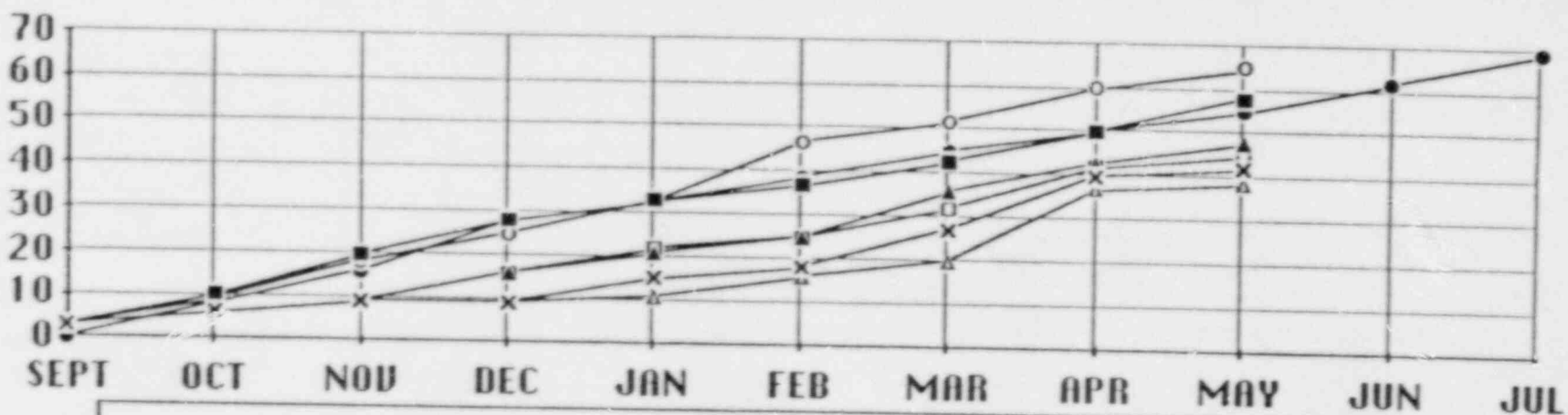
IV. OVERTIME 13.6%

V. PROCEDURES

16 procedures PORC approved
10 procedures sent to Word Processing

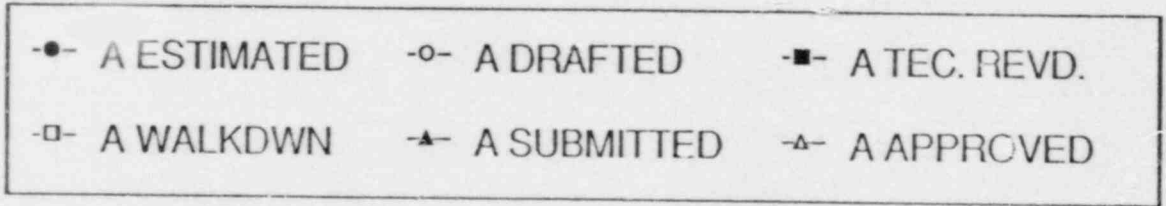
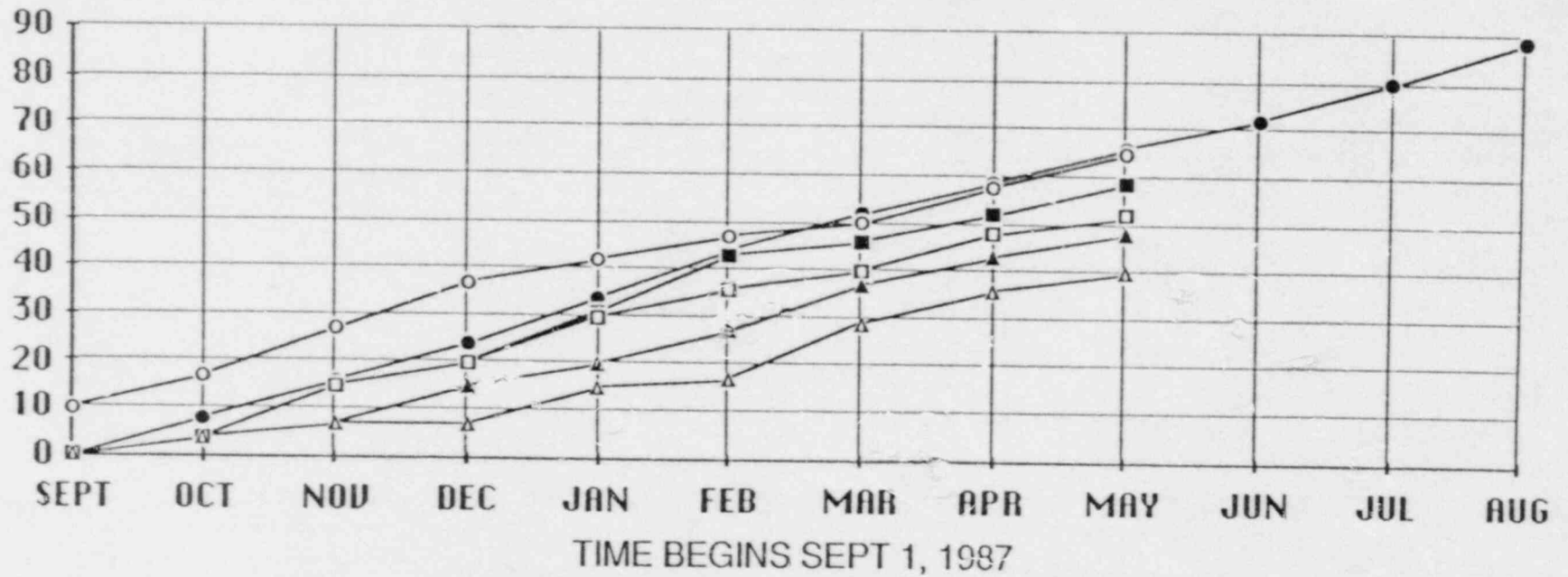
VI. 226 Outstanding Status "H" MRs
0 OUTSTANDING STATUS "Q" MRs

ELECTRICAL'S REQUIRED U-2 START-UP SURVEILLANCE INSTRUCTIONS STARTING SEPT 1, 1987



-●- B ESTIMATED	-○- B DRAFTED	-■- B TEC REVD	-□- B INDP REVD
-▲- B WALKDWN	-△- B APPROVED	-x- B SUBMITTED	

ELECTRICAL'S REQUIRED U-2 START-UP MAINTENANCE INSTRUCTIONS



I&C TECHNICAL
APRIL 1988

I. Work Item Schedule

	Received/ Assigned	Completed	Open
Red Folders	1	1	1
Orange Folders	0	1	7
Yellow Folders	0	0	0
Blue Folders	0	0	3
Purple Folders	2	0	1
Total Assignments			
Active Engineering Assignments	7	14	28
Engineering Backlog			11
MRs (Status "H" and "Q")	70H		70

II. Commitment Tracking

Licensing Issues(NCO & SLT)			
NCO	2	2	12
SLT	0	0	3
PORS Tracking Items(BFC)	0	0	2
CAQR (Onsite)	0	2	8
CAQR (Off-site)	0	0	0
Average Age of CAQRs	4.5 months		
Employee Concerns	0	2	0
Safety Issues List	0	0	0

III. Staffing Levels and Training

<u>Personnel</u>	<u>Approved Headcounts</u>	<u>Current Headcounts</u>
ASP	17	13
ATL	4	3
HTL	0	0
Contractors	-	4
TOTAL	21	20

IV. Overtime 8.70%

V. Procedures

40 procedures were sent to Word Processing

I&C TECHNICAL
APRIL 1988

VI. Maintenance Improvement Plan Items

ITEM	Description	% Complete
III.H.1	M&TE	60%
IV.E.3	M&TE	60%
IV.C.1	Maint. Instructions	1) 100% 2) 90% 3) 33%
IV.C.2	Maint. Instructions	0%
IV.C.3	Maint. Instructions	34%
V.B.2	Spares Parts	0%
V.B.3	Spares Parts	0%
VI.G.2	PM	70%
VIII.B.10	Technical Issues	52%
VIII.D.	Employee Concerns	33%

SUMMARY

The major activities of the month involved preparation of instructions to support the retest schedule and the War Room SI schedule. Scaling and Setpoint Documents to support these instructions are also being issued.

MECHANICAL TECHNICAL SECTION MONTHLY REPORT
COMMON UNIT ONLY (UNIT 0)
APRIL 1988

Common

No major nonroutine activities.

1. Closed the following commitments.

- a. INPO SOER 83-009 - Report on motor-operated valve performance
- b. INPO OER 88-2427 - Generator shaft jacking device failure
- c. NCO 850171002 - HCV 71-32 and HCV 73-24
- d. BFC 861084001 - Inspection of springs of all Atwood & Morrill MSIVs
- e. SLT 850925011 - Revised pinion gear in Limitorque operator
- f. SLT 861072002 - CST tunnel pipe hangers
- g. R35 880404 334 - MS-CEB-008 - Miscellaneous structural steel supports
- h. G-29(R0) - PS 3.M.3.1 Add. 4(R3)
- i. G-29(R0) - PS 3.M.3.1 Add. 5(R1)
- j. G-29(R0) - PS 1.M.1.2 Add. 3(R5)
- k. G-29(R0) - PS 1.M.1.2 Add. 1(R5)
- l. G-29(R0) - DWG-PS 1.M.1.2-15 Sheet 6(R3)
- m. G-29(R0) - DWP-TB 103.103-2(R0)
- n. G-29(R0) - DWP-SM-U-2(R6)
- o. G-29(R0) - DWP-GT11-B-1(R1)
- p. G-66(R2) - Inspection and testing of maxibolt undercut anchors
- q. NQAM, II, 5.3A(R5) - Training and certification program for QC inspectors
- r. SRN-G-3-2 - G-spec. for installing electrical conduit systems
- s. SRN-G-39-13 - Cleaning during fabrication of fluid handling components revision
- t. SRN-G-4-2 - Installing insulated cables rated up to 15,000 volts
- u. Tech Spec - Amendment 138, 134, and 109
- v. TS-228 - Tech. Spec. review

MECHANICAL TECHNICAL SECTION MONTHLY REPORT
COMMON UNIT ONLY (UNIT 0)
APRIL 1988

2. The following instructions were approved, revised, or cancelled.
- a. O-SI-4.3.B.2 - Control Rod Drive Housing Support
 - b. O-SI-4.5.B.2A - Residual Heat Removal System Drywell Spray Header Air Test
 - c. O-SI-4.5.B.2B - Torus Nozzle Test
 - d. O-SI-4.C.H.1 - Visual Examination of Hydraulic and Mechanical Snubbers
 - e. O-SI-4.7.A.4.B - Drywell Pressure Suppression Chamber Vacuum Breaker Inspection
 - f. BF-3.10 - Cleanliness of Fluid Systems
 - g. MCI-0-001-VLV013 - Reactor Feedwater Pump Turbine Low-Pressure Control Valves FCV-1-129A, FCV-1-137A, and FCV-1-140A; Disassembly, Inspection, Rework, and Reassembly
 - h. MCI-0-003-PMP003 - Reactor Feedwater Pump Auxiliary Oil Pump; Disassembly, Inspection, Rework, and Reassembly
 - i. MCI-0-003-PMP005 - Reactor Feedwater Pump Main Oil Pump and Governor; Disassembly, Inspection, Rework, and Reassembly
 - j. MCI-0-018-PMP004 - Fuel Oil Transfer Pump for Standby Diesel Generator; Disassembly, Inspection, Rework, and Reassembly
 - k. MCI-0-026-PMP001 - Motor Driven Fire Pump; Disassembly, Inspection, Rework, and Reassembly
 - l. MCI-0-070-PMP001 - Reactor Building Closed Cooling Water Pump; Disassembly, Inspection, Rework, and Reassembly
 - m. MCI-0-071-VLV002 - RCIC Turbine Governor Valve FCV-71-10; Disassembly, Inspection, Rework, and Reassembly
 - n. MCI-0-071-VLV003 - Reactor Core Isolation Cooling (RCIC) Turbine Trip Throttle Valve FCV-71-9; Disassembly, Inspection, Rework, and Reassembly
 - o. MCI-0-075-PMP001 - Core Spray Pump, Bingham Centrifugal 12x16x14-1/2, One-Stage; Disassembly, Inspection, Rework, and Reassembly
 - p. MCI-0-075-VLV004 - Core Spray Testable Check Valves FCV-75-26 and FCV-75-54; Disassembly, Inspection, Rework, and Reassembly

MECHANICAL TECHNICAL SECTION MONTHLY REPORT
COMMON UNIT ONLY (UNIT 0)
APRIL 1988

- q. MCI-0-082-CLR001 - Standby Diesel Engine Water Coolers; Disassembly, Inspection, Rework, and Reassembly
- r. MCI-0-082-CLR002 - Standby Diesel Engine Lube Oil Cooler; Disassembly, Inspection, Rework, and Reassembly
- s. MCI-0-082-CLR003 - Standby Diesel Engine Aftercooler; Disassembly, Inspection, Rework, and Reassembly
- t. MCI-0-082-ENG005 - Standby Diesel Engine Fuel Injector; Disassembly, Inspection, Rework, and Reassembly
- u. MCI-0-082-ENG006 - Standby Diesel Engine Fuel Injector Test Stand Inspections
- v. MCI-0-082-ENG007 - Standby Diesel Engine Crank Shaft; Disassembly, Inspection, Rework, and Reassembly
- w. MCI-0-082-ENG009 - Standby Diesel Engine Cylinder Head and Valve Assembly; Disassembly, Inspection, Rework, and Reassembly
- x. MCI-0-082-ENG012 - Standby Diesel Engine Camshaft Drive Housing; Disassembly, Inspection, Rework, and Reassembly
- y. MCI-0-082-ENG013 - Standby Diesel Engine Camshaft Gear Train; Disassembly, Inspection, Rework, and Reassembly
- z. MCI-0-082-ENG014 - Standby Diesel Engine Generator Removal and Installation
- aa. MCI-0-082-ENG015 - Standby Diesel Engine Ring Gear and Coupling Disc; Disassembly, Inspection, Rework, and Reassembly
- bb. MCI-0-082-FLT001 - Standby Diesel Engine Lube Oil Strainer, Disassembly, Inspection, Rework, and Reassembly
- cc. MCI-0-082-FLT002 - Standby Diesel Engine Lube Oil Filter; Disassembly, Inspection, Rework, and Reassembly
- dd. MCI-0-082-FLT003 - Standby Diesel Engine Auxiliary Turbo Lube Oil Filter; Disassembly, Inspection, Rework, and Reassembly
- ee. MCI-0-082-FLT004 - Standby Diesel Engine Mounted Turbo Oil Filter; Disassembly, Inspection, Rework, and Reassembly
- ff. MCI-0-082-FLT005 - Standby Diesel Engine Fuel Transfer Filters; Disassembly, Inspection, Rework, and Reassembly

MECHANICAL TECHNICAL SECTION MONTHLY REPORT
COMMON UNIT ONLY (UNIT 0)
APRIL 1988

- gg. MCI-3-082-FLT006 - Standby Diesel Engine Fuel Filters; Disassembly, Inspection, Rework, and Reassembly
- hh. MCI-0-082-FLT007 - Standby Diesel Engine Fuel Oil Filter; Disassembly, Inspection, Rework, and Reassembly
- ii. MCI-0-082-GOV001 - Diesel Engine Governor, Woodward Model EGB-10, Removal and Installation
- jj. MCI-0-082-GOV002 - Standby Diesel Engine Governor Drive Assembly; Disassembly, Inspection, Rework, and Reassembly
- kk. MCI-0-082-PMP003 - Standby Diesel Engine Water Pump; Disassembly, Inspection, Rework, and Reassembly
- ll. MCI-0-082-PMP005 - Standby Diesel Engine Lube Oil Circulating Pump; Disassembly, Inspection, Rework, and Reassembly
- mm. MCI-0-082-TCH001 - Standby Diesel Engine Turbo-Charger, Removal and Installation
- nn. MCI-0-082-VLV002 - Standby Diesel Engine Thermostatic Valve; Disassembly, Inspection, Rework, and Reassembly
- oo. MMI-3 - Removal, Replacement, and Inspection of Permalin Neutron Shielding at Sacrificial
- pp. MMI-6 - Scheduled Maintenance Standby Diesel Generator
- qq. MMI-14 - Inspection of Secondary Containment Relief Panels
- rr. MMI-23 - High-Pressure Coolant Injection (HPCI) System Maintenance
- ss. MMI-25 - Jet Pump Beam and/or Pump Removal and Replacement
- tt. MMI-46 - Liquid Penetrant Examination of Piping and Piping Components Which Were Exposed to Residue from Plant Fire - Units 1 and 2
- uu. MMI-105 - Leak Testing of the Drywell Torus Delta P Air System
- vv. MMI-109 - Isolation and Cleaning of the Raw Water Head Tanks
- ww. MMI-147 - Surface Indication Removal - Units 1, 2, and 3
- xx. MMI-153 - Temporary Ventilation for the Electrical Equipment Rooms
- yy. MMI-154 - Repairs using Belzona Molecular and Similar Metals

MECHANICAL TECHNICAL SECTION MONTHLY REPORT
COMMON UNIT ONLY (UNIT 0)
APRIL 1988

- zz. MMI-156 - Inspection and Maintenance of Stack Gas Sample Pumps
 - aaa. MMI-159 - Sampling Inspection Program for Verifying Correct Installation of Concrete Expansion Shell Anchors
 - bbb. MMI-170 - Fuel Pool Cooling (FPC) Pump Maintenance - Units 1, 2, and 3
 - ccc. MMI-187 - Installation and Removal of BWR-6 Control Rod Drives
 - ddd. MMI-190 - Control Rod Uncoupling GE Tool
3. The following CAQRs (Conditions Adverse to Quality Reports) were closed.
- a. BFQ 87-1160 - G-39 Flushing and Cleaning Criteria
4. The Mechanical Technical Section devoted 300 hours of training during the month of April.

MODIFICATIONS MONTHLY REPORT

APRIL 1988

MAJOR WORK PERFORMEDECNNARRATIVE

Appendix R

P0808 Continued conduit and cable work on control power circuits (workplan 2048-87, 2091-87, and 2047-87).

P0879 Continued work on fire door upgrade (work plans 2068-87 and 2212-87).

P0883 Field completed changeout of fuses and fuse blocks (workplan 2111-87, 2112-87, and 2089-87).

P0885 Continued conduit and support work on RB fire detectors (workplans 2012-87, 2013-87, 2014-87, and 2015-87).

P0887 Started work on conduit reroute (workplan 2182-86).

P0889 Continued reroute of conduit for separation (workplans 2053-87, 2054-87, 2221-87, 2050-87, 2052-87, and 2044-87).

P0913 Field completed unit 1, 250V DC, trip circuit fuse protection modifications (workplans 1022-86 and 1023-86)

P0914 Continued craft work on fuse and fuse block replacement (workplans 3027-86 and 3028-86). Field completed workplan 3026-86.

Environmental Qualification

P3145 Continued electrical conduit sealing activities (workplans 2074-85, 2070-85, and 2078-85).

P3148 Started removal of interim SDBR HVAC piping and supports (workplan 2110-84).

P3205 Continued small piping and support work on H₂O₂ analyzer lines (workplans 2158-87, 2159-87, 2199-87, 2200-87, 2160-87, 2161-87, 2162-87, 2201-87, 2202-87, and 2163-87).

<u>MAJOR WORK PERFORMED</u>	<u>ECN</u>	<u>NARRATIVE</u>
Environmental Qualification (Continued)	P7032	Continued cable replacement in steam tunnel (workplan 2069-88).
	P7039	Started preliminary work on shutdown transformer 2A replacement (workplan 2076-88, 2077-88, and 2078-88). Field completed workplans 2073-88 and 2075-88.
Seismic Issues	B0005A	Started replacement of EECW sectionalizing valves (workplan 0027-88).
	B0019A	Started field work on control room panel anchoring (workplan 1039-87).
	B0033	Field completed SBT support rework (workplan 3003-88).
	P0289	Started work on EECW dresser coupling replacement (workplan 2137-88).
	P0361	SMMI rework of torus attached piping and drain supports continued. Workplan 2158-84 was field completed.
	P0370	Continued structural work on seismic qualification and designation of block walls (workplans 1030-87, 2092-87, 3024-87, and 3036-87).
	P0859	Continued work on catwalks R9 and 13 (workplans 2066-87 and 2209-86, and 2143-87).
	P0944	Continued work on seismic qualification of U2, RB conduit (workplan 3040-87).
	P0945	Restarted work on unit 1 seismic conduit qualification (workplan 1037-87).
	P0946	Started craft work on seismic qualification of unit 3 RB conduit (workplan 3038-87).
	P0998	Drywell catwalk upper elevation work reached 99% complete. (workplans 2146-87, 2147-87, and 2148-87). Field completed workplan 2145-87).
	P2036	Continued additional 79-14 support fixes to CRD return piping (workplan 1036-87).
	F2042	Continued RHR support rework (workplan 1035-87).
	P2044	Completed craft work on unit 1 RB drain and sump pump 79-14 modifications (workplan 1033-87).

<u>MAJOR WORK PERFORMED</u>	<u>ECN</u>	<u>NARRATIVE</u>	
Seismic Issues (Continued)	P2088	Continued field work on additional 79-14 fixes to fuel pool cooling system (workplan 2274-87).	
	P2090	Started additional 79-14 fixes on radwaste sump pump discharge system (workplan 2273-87).	
	P2154	Started field work on RHRSW and EECW trains B and D outage fixes (workplans 0028-88 and 0023-88).	
	P7018	Continued work on drywell HVAC seismic qualification (workplans 2282-87, 2281-87, 2280-87, 2279-87, and 2278-87).	
	P7029	Continued repair of lower drywell structural steel (workplan 2234-87).	
	P7083	Continued craft work on common area tubing seismic qualification (workplans 0007-88, 0008-88, 0009-88, and 0010-88).	
	P7085	Continued craft work on unit 2 tubing seismic qualification (workplans 2058-88, 2059-88 and 2060-88).	
	P7115	Started craft work on unit common tubing seismic qualification (workplan 0025-88).	
	TMI Mods	P0354	Continued electrical and sample line work on stack radiation monitor (workplans 2142-85, 2156-85, and 2086-85).
		P5451	Started work on stack radiation monitor pressure and temperature compensation mod (workplan 0028-87).
Other	M0075A	Continued tube removal on unit 2 condenser--removed 39,000 of 54,000 tubes.	
	P0085	Continued reroute of conduit on drywell pressure and temperature upgrade (workplan 2192-87).	
	P0286	Continued work on yard security lighting (workplan 0022-86).	
	P0384	Continued tubing and electrical work on containment purge valves (workplan 2049-86).	
	P0392	Continued SMMI rework of scram discharge volume supports.	
	P0422	Continued work on RPS class 1E protection (workplans 2144-84 and 2143-84).	
	P0547	Continued replacement of recirculation system check valves (workplan 2050-85).	

<u>MAJOR WORK PERFORMED</u>	<u>ECN</u>	<u>NARRATIVE</u>
Other (Continued)	P0569	Continued support work on RPV vent line (workplans 2051-84 and 2204-84).
	P0720	Continued work of jet pump instrumentation lines (workplan 2109-85).
	P0956	Continued installation of duct and duct supports for new shutdown board room HVAC (workplans 2228-87, 2229-87, 2256-87, 2257-87, 2258-87, 2253-87, 2254-87, 2262-87, 2263-87, and 2249-87).
	P0968	Field completed last workplan to allow LLRT of FCV-84-8A, B, and C (workplan 2128-87).
	P0984	Continued work on upgrade of site microwave telemetry system (workplans 0036-87 and 0037-87).
	P0990	Started work on unit 1 turbine building crane safety improvements (workplan 1031-87).
	P1001	RHR, RWCU, and Recirculation System support work continued (workplans 2283-87, 2284-87, 2285-87, 2286-87, 2009-88, and 2008-88). Field completed workplan 2018-88.
	P5269	Installation of supports for uninterruptable demineralized water connection for torus water level transmitters continued (workplans 2292-87, 2065-86, and 2293-87).
	P5291	Continued reactor water level instrument sense line modification (workplans 2153-87, 2154-87, and 2232-86).
	P5480	Installation of vessel drain supports continued (workplan 2218-87).
	P7002	Continued field work on hydrogen water chemistry modifications (workplans 2088-84, 2087-88, and 2092-88).
	P7006	Started work on ATU inverter replacement (workplans 2066-88 and 2081-88).
	P7037	Began craft work on installation of quick disconnect couplings on testable check valves (workplans 2107-88, 2105-88, 2109-88, and 2110-88).
	P7045	Continued valve and support modifications for ATWS/ARI (workplan 2115-88).

<u>MAJOR WORK PERFORMED</u>	<u>ECN</u>	<u>NARRATIVE</u>
Other (Continued)	P7048	Started craft work on reactor water level instrumentation sense line modification (workplan 2003-88, 2085-88, and 2084-88).
Drywell Fire Recovery	B00061A	Continued replacement of damaged system 70 conduit and cable (workplan 2112-88).
	B00062A	Started replacement of damaged system 68 conduit and cable (workplans 2135-88 and 2139-88).
	M00067A	Started replacement of damaged system 92 conduit and cable (workplan 2117-88).
	P3163	Continued drywell cable replacement (workplan 2237-87).
	P3180	Continued electrical work associated with containment penetration replacement (workplans 2036-87, 2105-87, 2022-87, and 2083-88). Field completed workplan 2083-88.

Monthly Report

April 1988

Major Activities:

- 1) Reassembled valves FCV-23-46 and 52 and performed EMI-18 on each.
- 2) Installed LPCI M-G set 1EA and 1EN. Lack cycling valve FCV-74-73 to complete testing.
- 3) Replaced Turbine Building Exhaust Fan 1B motor.
- 4) Coupled 1B and 1D RHR pumps to motor.
- 5) Installed new turbo-charger and realigned diesel engine and generator on 1B D/G.
- 6) Completed testing of cables to SBGT Trains A, B, and C.
- 7) Worked various MRs in support of EECW south header outage.
- 8) Removed motor from 1A CRD pump and installed on 1B CRD pump.
- 9) Walked down SBGT, D/G, Off-gas, stack and all unit 1 buildings to verify deficiency tags.
- 10) Closed Green Folder NCO 860326179 (R35880412618).
- 11) Worked various U2 Restart MRs.

1097B

OTHER
REPORTS

CHEMISTRY SUMMARY

APRIL 1988

Primary Coolant ChemistryUnit 1

The conductivity of the reactor coolant remained within technical specification and fuel warranty limits during the month. Chloride concentration and pH of the reactor coolant remained within technical specification and fuel warranty limits during the month. This calendar year, the technical specification and fuel warranty limits for conductivity and chloride have not been exceeded.

Unit 2

The conductivity of the reactor coolant remained within technical specification and fuel warranty limits during the month. Chloride concentration and pH of the reactor coolant remained within technical specification and fuel warranty limits during the month. This calendar year, the technical specification and fuel warranty limits for conductivity and chloride have not been exceeded.

Unit 3

The conductivity of the reactor coolant remained within technical specification and fuel warranty limits during the month. Chloride concentration and pH of the reactor coolant remained within technical specification and fuel warranty limits during the month. This calendar year, the technical specification and fuel warranty limits for conductivity and chloride have not been exceeded.

PRIMARY COOLANT CHEMISTRY
APRIL 1988

<u>Parameter</u>	<u>Unit 1</u>	<u>Unit 2</u>	<u>Unit 3</u>
1. <u>Gross Radioactivity</u>			
a. <u>Crud (filter) (mci/ml)</u>			
High	N/A	N/A	N/A
Low	N/A	N/A	N/A
Average	N/A	N/A	N/A
b. <u>Filtrate (mci/ml)</u>			
High	N/A	N/A	N/A
Low	N/A	N/A	N/A
Average	N/A	N/A	N/A
2. <u>Milipore Iron (Fe,ppb)</u>			
High	N/A	N/A	N/A
Low	N/A	N/A	N/A
Average	N/A	N/A	N/A
3. <u>Tritium (mci/ml)</u>			
High	5.593E-5	5.619E-5	1.385E-4
Low	5.186E-5	4.677E-5	1.195E-4
Average	5.392E-5	5.157E-5	1.33E-4
4. <u>Iodine-131 (mci/ml)</u>			
High	<2.89E-6	<1.24E-6	<1.49E-6
Low	<7.75E-7	<1.03E-6	<2.40E-7
Average	<1.49E-6	<1.14E-6	<6.30E-7
5. <u>Iodine-131:Iodine-133 Ratio</u>			
High	N/A	N/A	N/A
Low	N/A	N/A	N/A
Average	N/A	N/A	N/A

PRIMARY COOLANT CHEMISTRY (Continued)

APRIL 1988

<u>Parameter</u>	<u>Unit 1</u>	<u>Unit 2</u>	<u>Unit 3</u>
6. <u>Chloride (ppb)</u>			
High	<20	<20	<20
Low	<10	<10	<10
Average	<20	<20	<20
7. <u>pH@25°C</u>			
High	6.4	6.2	6.2
Low	5.7	5.8	5.8
Average	6.0	6.0	6.0
8. <u>Conductivity (mmho/cm@25°C)</u>			
High	0.23	0.79	0.30
Low	0.14	0.51	0.11
Average	0.18	0.61	0.20

CHEMISTRY SUMMARY (Continued)

APRIL 1988

Environmental Technical Specification Requirements

The ambient upstream river temperatures (24-hr. avg max) averaged 64.5°F ranging from 67.8°F on April 24 to 61.3°F on April 01. The downstream temperature varied from 67.9°F on April 24 to 60.9°F on April 01. The greatest temperature change was 1.6°F on April 6.

The sewage lagoon (DSN 111) remained locked out for the entire month and there was no discharge.

The sedimentation pond (DSN 102) remained out of service for the entire month. Modification of the pond has been initiated to include a synthetic liner.

An unpermitted discharge of sodium nitrite from a leak in the unit 1 Control Bay chillers was identified on April 6. The sodium nitrite was discharged to the Tennessee River via unit 1 and 2 office building drain (DSN 110). A total of 25 pounds of sodium nitrite was added to the chillers from March 31 to April 4.

The plant did not experience any other compliance problems during the month.

AIRBORNE RELEASES(1)

APRIL 1988

<u>SUMMATION OF ALL RELEASES</u>	<u>UNIT</u>	<u>THIS MONTH</u>
A. FISSION AND ACTIVATION GASES		
1. TOTAL RELEASE	CI	< 8.63E 01
2. AVERAGE RELEASE RATE FOR PERIOD	UCI/SEC	< 3.57E 01
3. PERCENT OF TECH. SPEC. LIMIT(0.05 CI/SEC)	%	0.00E-01
B. IODINES		
1. TOTAL IODINE - 131	CI	< 2.39E-05
2. AVERAGE RELEASE RATE FOR PERIOD	UCI/SEC	< 9.90E-06
3. PERCENT OF TECH. SPEC. LIMIT(0.4 UCI/SEC)	%	0.00E-01
C. PARTICULATES		
1. PARTICULATES WITH HALF-LIFES > OR = TO 8 DAYS	CI	< 1.13E-04
2. AVERAGE RELEASE RATE FOR PERIOD	UCI/SEC	< 4.67E-05
3. PERCENT OF TECH. SPEC. LIMIT(0.4 UCI/SEC)	%	0.00E-01
4. GROSS ALPHA RADIOACTIVITY	CI	< 6.14E-07
D. TRITIUM		
1. TOTAL RELEASE	CI	6.79E-02
2. AVERAGE RELEASE RATE FOR PERIOD	UCI/SEC	2.81E-02
3. PERCENT OF TECHNICAL SPECIFICATION LIMIT	%	5.87E-02
4. GROUND LEVEL RELEASE	CI	6.77E-02
5. ELEVATED RELEASE	CI	1.95E-04

(1) REPORTING PERIOD 28 DAYS

AIRBORNE RELEASES (CONTINUED)

APRIL 1988ELEVATED RELEASES

A.	FISSION GASES	UNIT	THIS MONTH
	-----	-----	-----
	KR-85M	CI	< 6.68E-02
	KR-85	CI	< 2.87E 01
	KR-87	CI	< 2.84E-01
	KR-88	CI	< 2.53E-01
	XE-133	CI	< 1.39E-01
	XE-135M	CI	< 1.30E-01
	XE-135	CI	< 7.36E-02
	XE-138	CI	< 7.02E-01
	OTHERS (SPECIFY)		

	TOTAL FOR PERIOD		
	-----	CI	< 3.04E 01
B.	IODINES		

	I-131	CI	< 1.61E-06
	I-133	CI	< 3.08E-05
	I-135	CI	< 3.26E-02
	TOTAL FOR PERIOD		
	-----	CI	< 3.26E-02

AIRBORNE RELEASES (CONTINUED)

 APRIL 1988

ELEVATED RELEASES

C. PARTICULATES

SR-89

CI

< 4.04E-07

SR-90

CI

< 1.33E-07

CS-134

CI

< 1.38E-06

CS-137

CI

< 3.28E-06

BA-140

CI

< 7.49E-06

LA-140

CI

< 6.45E-11

OTHERS (SPECIFY)

TOTAL FOR PERIOD

CI

< 1.27E-05

D. TRITIUM

CI

1.95E-04

AIRBORNE RELEASES (CONTINUED)

APRIL 1988

GROUND RELEASES

A. FISSION GASES

	UNIT	THIS MONTH
KR-85M	CI	< 2.21E-01
KR-85	CI	< 5.12E 01
KR-87	CI	< 6.49E-01
KR-88	CI	< 5.99E-01
XE-133	CI	< 2.10E-01
XE-135M	CI	< 8.58E-01
XE-135	CI	< 7.47E-02
XE-138	CI	< 2.14E 00

OTHERS(SPECIFY)

TOTAL FOR PERIOD

CI < 5.60E 01

B. IODINES

I-131	CI	< 2.23E-05
I-133	CI	< 2.04E-04
I-135	CI	< 1.85E-01

TOTAL FOR PERIOD

CI < 1.85E-01

AIRBORNE RELEASES (CONTINUED)

APRIL 1988

GROUND RELEASES

C. PARTICULATES

UNIT

THIS MONTH

SR-89	CI	< 3.03E-06
SR-90	CI	< 1.10E-06
CS-134	CI	< 2.04E-05
CS-137	CI	< 2.22E-05
BA-140	CI	< 4.47E-05
LA-140	CI	< 8.81E-06

OTHERS (SPECIFY)

TOTAL FOR PERIOD

CI < 1.00E-04

D. TRITIUM

CI 6.77E-02

BROWNS FERRY NUCLEAR PLANT
MONTHLY REPORT CALCULATIONS
LIQUID RELEASES
APRIL 1988

RADIOACTIVE LIQUID EFFLUENTS

1.	GROSS RADIOACTIVITY -----	UNITS -----	
	a) TOTAL RELEASE	CURIES	3.19E-02
	b) AVERAGE DILUTED CONCENTRATION RELEASED	UCI/ML	1.90E-09
	c) PERCENT OF APPLICABLE LIMIT (1E-7 UCI/ML)	%	1.90E 00
2.	TRITIUM -----		
	a) TOTAL RELEASE	CURIES	1.39E-01
	b) AVERAGE DILUTED CONCENTRATION RELEASED	UCI/ML	8.24E-09
	c) PERCENT OF APPLICABLE LIMIT (3E-03 UCI/ML)	%	2.75E-04
3.	DISSOLVED NOBLE GASES -----		
	(1)		
	a) TOTAL RELEASE	CURIES	< 8.35E-04
	b) AVERAGE DILUTED CONCENTRATION RELEASED	UCI/ML	< 4.96E-11
	c) PERCENT OF APPLICABLE LIMIT (2E-04 UCI/ML)	%	< 2.48E-05
4.	GROSS ALPHA RADIOACTIVITY -----		
	a) TOTAL RELEASE	CURIES	1.51E-05
	b) AVERAGE DILUTED CONCENTRATION RELEASED	UCI/ML	8.94E-13
5.	VOLUME OF LIQUID WASTE TO DISCHARGE CANAL -----	LITERS	3.92E 06
6.	VOLUME OF DILUTION WATER -----	LITERS	1.68E 10

(1) INCLUDES XE-133, XE-135, AND OTHERS

BROWNS FERRY NUCLEAR PLANT
MONTHLY REPORT CALCULATIONS
LIQUID RELEASES
APRIL 1988

ISOTOPE3 RELEASED -----	UNITS ----- CI
CR-51	< 2.76E-03
MN-54	< 2.93E-04
CO-58	< 2.67E-04
FE-59	< 5.58E-04
CU-60	3.30E-03
ZN-65	1.24E-03
NB-95	< 2.37E-04
ZR-95	< 4.31E-04
MOTC-99M	< 2.36E-04
I-131	< 3.61E-04
XE-133	< 6.48E-04
CS-134	5.57E-03
XE-135	< 1.87E-04
CS-137	2.18E-02
BA-140	< 1.33E-03
LA-140	< 1.09E-04
CE-141	< 4.26E-04
SR-89	< 1.46E-04
SR-90	< 7.85E-05
FE-55	< 1.33E-03

BROWNS FERRY NUCLEAR PLANT
MONTHLY REPORT CALCULATIONS
LIQUID RELEASES
APRIL 1988

OTHERS

UNITS

CI

SB-125

2.35E-05

BROWNS FERRY NUCLEAR PLANT
MONTHLY REPORT CALCULATIONS
LIQUID RELEASES
APRIL 1988

LAUNDRY DRAIN VOLUME RELEASED:	0.0	GALLONS
FLOOR DRAIN VOLUME RELEASED:	856059.4	GALLONS
WASTE SAMPLE TANK VOLUME RELEASED:	178587.2	GALLONS
DISTILLATE TANK VOLUME RELEASED:	0.0	GALLONS
LOCATION OTHER THAN RADWASTE VOLUME RELEASED:	0.0	GALLONS
TOTAL VOLUME RELEASED TO THE RIVER:	1034643.6	GALLONS
HIGHEST BATCH ACTIVITY RELEASED FOR MONTH:	4.03E-09	UCI/ML A/D
LONGEST RELEASE TIME FOR MONTH:	455	MINUTES
SHORTEST RELEASE TIME FOR MONTH:	20	MINUTES
TOTAL TIME OF RELEASES FOR MONTH:	11120	MINUTES
AVERAGE TIME FOR BATCH RELEASES:	301	MINUTES

NUMBER OF BATCHES RELEASED:	37
NUMBER OF ADMINISTRATIVE LIMIT VIOLATIONS:	0
NUMBER OF TECHNICAL SPECIFICATION VIOLATIONS:	0

RESIN USAGE REPORT
APRIL 1988
RESIN CONSUMED (CU.FT.)

	<u>% of</u>						
	<u>Total</u>	<u>Bead</u>	<u>POWDEX</u>	<u>ECODEX</u>	<u>ECOSORB</u>	<u>EPIFLOC</u>	<u>Total</u>
<u>Radwaste</u>							
Floor Drain Filter	34.1	0	80	0	5	33	118
Waste Demineralizer	0	0	0	0	0	0	0
Waste Filter	56.0	0	159	0	21	4	194
Fuel Pool Demins	3.5	0	12	0	0	0	12
<u>Reactor Water Cleanup</u>							
Unit 1	0	0	0	0	0	0	0
Unit 2	0.6	0	2	0	0	0	2.0
Unit 3	0	0	0	0	0	0	0
<u>Cond. Demins</u>							
Unit 1	0	0	0	0	0	0	0
Unit 2	5.8	0	20	0	0	0	20
Unit 3	0	0	0	0	0	0	0
Totals	100	0	283	0	26	37	346

FUEL CLADDING INTEGRITY PARAMETERS
APRIL 1988

Unit 1

Reactor Water Iodines (uci/sec.)

<u>Date</u>	<u>I-131</u>	<u>I-132</u>	<u>I-133</u>	<u>I-134</u>	<u>I-135</u>
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Unit in Outage

Fission Gases at Discharge of SJAE (uci/sec)

<u>Date</u>	<u>Flow</u>	<u>Mwt</u>	<u>Xe-138</u>	<u>Kr-87</u>	<u>Kr-88</u>	<u>Kr-85m</u>	<u>Xe-135</u>	<u>Xe-133</u>
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Unit in Outage

Unit 2

Reactor Water Iodines (uci/sec.)

<u>Date</u>	<u>I-131</u>	<u>I-132</u>	<u>I-133</u>	<u>I-134</u>	<u>I-135</u>
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Unit in Outage

Fission Gases at Discharge of SJAE (uci/sec)

<u>Date</u>	<u>Flow</u>	<u>Mwt</u>	<u>Xe-138</u>	<u>Kr-87</u>	<u>Kr-88</u>	<u>Kr-85m</u>	<u>Xe-135</u>	<u>Xe-133</u>
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Unit in Outage

Unit 3

Reactor Water Iodines (uci/sec.)

<u>Date</u>	<u>I-131</u>	<u>I-132</u>	<u>I-133</u>	<u>I-134</u>	<u>I-135</u>
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Unit in Outage

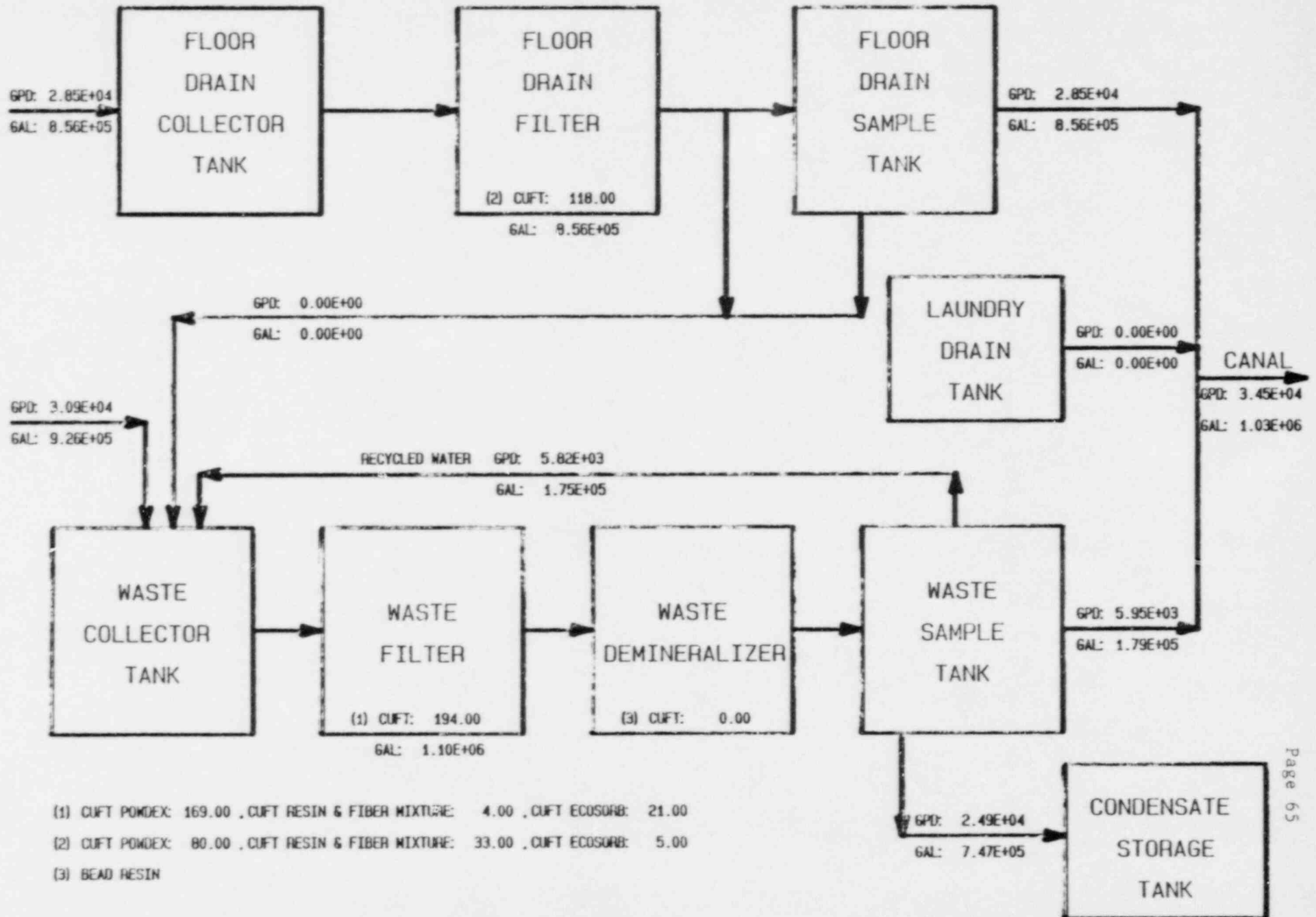
Fission Gases at Discharge of SJAE (uci/sec)

<u>Date</u>	<u>Flow</u>	<u>Mwt</u>	<u>Xe-138</u>	<u>Kr-87</u>	<u>Kr-85m</u>	<u>Xe-135</u>	<u>Xe-133</u>
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Unit in Outage

WASTE TREATMENT SYSTEM THROUGHPUTS

APRIL 1988



TESTING SUMMARY

APRIL 1988

Surveillance Testing

Unit 0

A total of 137 surveillance tests were completed per 34 different test instructions.

Unit 1

A total of 111 surveillance tests were completed on unit 1 per 44 different test instructions.

Unit 2

A total of 167 surveillance tests were completed on unit 2 per 44 different test instructions.

Unit 3

A total of 90 surveillance tests were completed on unit 3 per 37 different test instructions.

TESTING SUMMARY (Continued)

APRIL 1988

Changes, Test, and Experiments Requiring Authorization

From the NRC Pursuant to 10 CFR 50.59(a)

There were two revisions for unit 1, 2, and 3 technical specifications.

Changes, Tests, and Experiments not Requiring

Authorization from NRC Pursuant to 10 CFR 50.59(a)

There were no special tests completed for this month.

REACTOR VESSEL FATIGUE USAGE EVALUATION

APRIL 1988

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	0.00620	0.00492	0.00431
Feedwater nozzle	0.29782	0.21319	0.16139
Closure studs	0.24204	0.17629	0.14360

CHANGE IN PROCEDURE

APRIL 1988

There were 406 revisions to plant instructions during the month; 405 instructions were changed primarily for correction, and the remaining 1 revisions related to safe operation of the plant.

PLANT INSTRUCTION REVISIONS

APRIL 1988

<u>Category</u>	<u>Instruction</u>	<u>Reason for Request</u>
Change in Response to LER, IE Bulletin, NRC Inspection Report, OPQA	SDSP 9.8 BFEP Walkdown Program and Constructability Surveys	To upgrade the walkdown procedure to include a planning review by a person with integrated plant knowledge when physical work is required. Per LER 259/88005

CHANGE IN FACILITY DESIGN

APRIL 1988

<u>Package Number</u>	<u>Description</u>
	Safety Related
ECN P0671 - High Pressure Fire Protection System Common (U2)	(WP&IR 2016-87) Modified sprinkler connections and piping in Battery Room 2 and Battery Board Room 2. The ECN was not completed. This workplan only covered a small portion of the mechanical work.
ECN P1001 - Reactor Recirculating System - Unit 2	(WP&IR 2018-88) - Reinspection of dimensions and welds of miscellaneous steel ladders, U2, Reactor Building, elevation 584'-9.5", At 45, 135, 225, and 315. All existing welds determined unacceptable were reworked using DWP SM-P-1. The ECN was not completed.
ECN B0033A - Standby Gas Treatment System - Unit 3	(WP&IR 3003-88) - Performed fabrication, installation, and inspection of seismic restraints for Standby Gas Treatment Fan C. The DCN was totally completed. The operational and functional requirements of the system were not affected by the modification. Therefore, the margin of safety was not reduced.
ECN L2079 - H ₂ O ₂ Valves Unit 2	(WP 2024-85) Cut out existing valves 76-49A & B, 51A & B, and 61A & B. Installed, new valves and reducers. The ECN was not completed for unit 2. A very small portion of the work was covered by WP 2024-85.
ECN P0957 - Reactor Recirculating System - Unit 2	(WP&IR 2243-87) - Reinstalled the Bio-Shield bars which were removed to facilitate the installation of the shielding frame for the safe end replacement. The ECN was not completed.
ECN L2053 - Cooling Towers - Common	(WP 8227) - Provided a local hand switch for each tower lift pump to over-ride the 94.75° temperature trip and allow flushing the hot water away from the temperature probe to enable restarting the towers. The ECN was totally completed.

CHANGE IN FACILITY DESIGN (Continued)

APRIL 1988

<u>Package Number</u>	<u>Description</u>
	Safety Related
	The modification did not adversely affect the operating of the cooling tower. No Technical Specifications or Environmental Technical Specification requirements were affected.
ECN P0968 - CAD System Unit 2	(WP&IR 2128-87) - Installed block and test valves to allow forward flow LLRT testing of CAD System FSV Valves 84-8A, 8B, 8C, and 8D. The ECN was completed as it only covered unit 2. The CAD system is not affected by the additional valves during normal operation. The tests are only conducted during refueling outages. The manual block valves will be open and the test connections will be closed during CAD system operation. Therefore, the margin of safety was not reduced.
ECN P0362 - Torus Modification - Unit 2	(WP 2060-86) - Modified MSR/V struts and clamps inside the unit 2 torus. A very small portion of the work covered by the ECN was completed.
ECN P5327 - Chilled Water Circulating Pumps - Common	(WP 0024-87) - The work plan was written for documentation only to as-construct drawings and remove TACF 0-85-028-031. The drawings now reflect the modifications made on raised face flanged joints on the chilled water circulating pumps for the units 1 and 2 control bay. The ECN was only partially completed. Physical work remaining to be implemented.
ECN P0883 - 4KV Unit Board - Unit 2	(WP&IR 2110-87) - Replaced the 30A fuseblocks with 15A fuseblocks on the 4KV Unit Board 2C, Turbine Building, elevation 604'. A small portion of the work covered by the ECN was completed.

CHANGE IN FACILITY DESIGN (Continued)

APRIL 1988

Package NumberDescription

Safety Related

ECN P5366 - HPCI System -
Unit 2

(WP 2015-86) - (HPCI Support R23) - Removed six existing lugs and replaced with larger lugs. Also added two lugs to achieve symmetry. Added gussets to two main baseplates. The ECN was completed as it only covered unit 2.

The modifications should reduce the anticipated fatigue and transient damage to the HPCI discharge piping and supports. Based on this, the margin of safety was not reduced.

DCN P00069A - Diesel
Generator System -
Units 1 & 2

(WP&IR 1007-88) - Corrected Diesel Generators KVAR sharing problem by rolling conductors in the electrical control cabinets. The DCN was totally completed.

The modifications did not affect Technical Specifications or involve a USQ. System function operability was not affected. The modification did not involve a change to the FSAR or Design Criteria which would alter general system requirements or operational limits or system.

ECN P00086A - RHR Service
Water - Common

(WP&IR 0033-88) - Documentation only - Revised drawings to reflect changes in setpoints for RHRSW compartment sump pump switches. The switches are O-LS-23- 81A & B, 82A & B, 83A and B, and 84A & B. The ECN was completed.

The sump pumps and level switches are not active or passive components required for reactor safe shutdown or maintaining reactor in safe shutdown conditions. The switches do not serve any safety function and are not addressed in any Technical Specifications.

ECN P3219 - Control Bay
HVAC - Unit 2

(WP&IR 2259-87) - Removed air-conditioning equipment in the Unit 2 Board Room D and the Unit 2 Vent Tower. A very small portion of the work covered by the ECN was completed.

CHANGE IN FACILITY DESIGN (Continued)

APRIL 1988

<u>Package Number</u>	<u>Description</u>
	Safety Related
ECN P0859 - CRD System - Unit 2	(WP&IR 2086-87) - Installed supports for conduits over CRD structures, Unit 2, Reactor Building, elevation 565'. A very small portion of the work covered by the ECN was completed.
ECN L1937 - EECW System - Unit 2	(WP 2073-87) - Installed screwed connections for back washing Core Spray and RHR coolers. The ECN was completed for unit 2. Work is remaining to be implemented on units 1 and 3. The ECN provided a means of removing silt from cooling supply and return lines. The modification did not adversely affect the ability of the EECW system but improved reliability of the system. Thus, the margin of safety was not reduced.
ECN P0827 - Reactor Recirculation System - Unit 1	(WP&IR 1009-87) - Installed coordinating fuses downstream of main circuit fuses in the negative polarity of the protective relay circuits (4KV Reactor Recirc Pumps 1A and 1B MG sets). The ECN was totally completed. The addition of the fuses did not change the function or operation of the system circuitry. LNE calculations show that the fuses are properly sized to not spuriously open for normal operation and startup loading transients as well as provide adequate coordination upon a fault. Based upon this, the margin of safety was not reduced.
ECN P0883 - 4KV Bus Tie Boards - Units 2 & 3	(WP&IR 2108-87) - Replaced 35A fuseblocks with 15A fuseblocks, unit 3, Bus Tie Board, compartments 106, 103, 104, 105, 101; breakers 1632, 1642, 1732, 1742, and 1934 (WP&IR 2112-87) - Replaced/added 15A fuseblocks in 480V Shutdown Board 2A. The ECN was not completed. A small portion of the work covered by the ECN was implemented by these two WP&IRs.

CHANGE IN FACILITY DESIGN (Continued)

APRIL 1988

<u>Package Number</u>	<u>Description</u>
	Safety Related
ECN P2146 - Drywell - Torus Purge Piping - Unit 2	(WP&IR 2287-87) - Removed one support on the drywell torus purge piping system, Unit 2, Reactor Building, elevation 621'3". The ECN was completed. Analysis were performed and determined that the support change did not adversely affect the system's safety functions or safety analysis. The margin of safety as defined in the basis for any Technical Specification was not reduced.
ECN P0126 - P3145 Reactor Bldg. Ventilation and Reactor Feedwater Systems - Unit 2	(WP 2235-87) - Replaced pressure transmitters and terminated shield wire of cables 2R971 and 2R2339 on T.B. GG in JB101, panel 25-6A. A small portion of the work covered by the ECNs was completed.
ECN P3204 - CAD System - Unit 2	(WP&IRs 2185-87, 2294-87) - Replaced internal position switches for Target Rock solenoid valves 2-FSV-84-8A, B, C, and D. Insulation was repaired on cable going to position switch on 2-FSV-84-8A. The ECN was not totally completed.
ECN P5523 - Radwaste/ Radiation Monitoring - Common	(WP&IR 1029-87) - This modification added two automatic isolation signals, downscale and inoperative, to radiation monitor R-90-130 to isolate liquid radwaste discharge valves FCV-77-58A and B. The ECN was completed. The modification fulfills an NRC commitment for Radiological Environmental Technical Specifications (TS-221, R1) implementation. The release flow rate of radwaste discharge was increased which in turn improved radwaste system operations. The margin of safety was not reduced.
ECN P0362 - Torus Modification - Unit 2	(W.P. 2037-87) - Added 13 ring supports to SRV lines next to jet deflectors in drywell basement. A very small portion of the work covered by the ECN was completed by this workplan.

CHANGE IN FACILITY DESIGN (Continued)

APRIL 1988

<u>Package Number</u>	<u>Description</u>
	Safety Related
ECN P0653 - Main Steam - Unit 2	(W.P. 2013-84) - Changed bumper springs, inspected and repaired bushings on the MSR/V tailpipe vacuum breaker valves. The major portion of the field work covered by the ECN was completed. Paperwork remaining to be closed for one workplan which will complete the ECN for unit 2.
ECN P0533 - Torus Temperature Monitoring System Unit 2	(WP 2178-84) - Removed old and installed new Sequential Events Recorder in panel 9-37, unit 2, auxiliary instrument room. Only a portion of the work covered by the ECN was completed.
ECN P5379/P5380 - Reactor Protection System - Units 1 & 2	(WP&IR 0040-87) - The workplan was written for documentation only to as-construct drawings and lift TACFs 1-85-029-99, 1-85-28-99; 2-85-52-99 and 2-85-53-99. The modifications covered replacing the #6 AWG with #2 AWG from the 100 amp circuit breaker to the CR bus, panels 9-15 and 9-17 in the auxiliary instrument room. The ECNs were completed.

CHANGE IN FACILITY DESIGN (Continued)

APRIL 1988

Package NumberDescription

Non Safety Related

DCN B0007A -
Security - Common

(WP&IR 0022-87) - Replaced the existing (ION Track Instruments Model 75) with new ION Track Instrument Model 85 at the west gatehouse. The DCN was totally completed.

ECN P7052 -
Door Interlock
and Alarm System
Unit 1 & 2

(WP&IR 1013-88) - Installed a microswitch in series with push buttons on doors 221 and 236 to prevent breach of containment. The workplan was written for documentation to lift TACF 1-86-19-260 and to as-construct drawings. The ECN was totally completed.

ECN P7053 -
Door Interlock
and Alarm System -
Unit 3

(WP&IR 3013-88) - Installed a microswitch in series with push buttons on doors 244 and 249 to prevent breach of secondary containment. The workplan was written for documentation to remove TACF 3-86-19-260 and to as-construct drawings. The ECN was totally completed.

CHANGES IN PLANT ORGANIZATION

APRIL 1988

There was one change in plant staff for those positions designated as key supervisory positions, Gary T. McChristian, Assistant Manager to Plant Manager.

ACCIDENTS

APRIL 1988

There were three loss-of-time accidents during the month.

Browns Ferry Nuclear Plant
Post Office Box 2000
Decatur, Alabama 35602

MAY 16 1988

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

Attention: Office of Management Information and Program Control

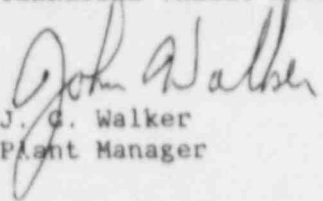
In the Matter of the) Docket Nos. 50-253
Tennessee Valley Authority) 50-260
50-296

BROWNS FERRY NUCLEAR PLANT (BFN) - MONTHLY OPERATING REPORT - APRIL 1988

Enclosed is the APRIL 1988 Monthly Operating Report to NRC for Browns Ferry Nuclear Plant units 1, 2, and 3.

Very truly yours,

TENNESSEE VALLEY AUTHORITY


J. G. Walker
Plant Manager

Enclosure

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