Operations Summary

DECEMBER 1985

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

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

Unit 1

The unit was in cold shutdown the entire month for the unit's end-of-cycle 6 refueling outage.

Unit 2

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

Unit 3

The unit was in cold shutdown the entire month for the unit's end-of-cycle 6 refueling outage.

This was prepared principally by B. L. Porter.

IE24
1/1

Operations Summary (Continued)

DECEMBER 1985

Fatigue Usage Evaluation

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

Location	Usage Factor		
	Unit 1	Unit 2	Unit 3
Shell at water line	0.00620	0.00492	0.00430
Feedwater nozzle	0.29782	0.21319	0.16133
Closure studs	0.24204	0.17629	0.14326

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

Common System

Approximately 8.14E+05 gallons of waste liquids were discharged containing approximately 7.22E-02 curies of activities

Refueling Information

DECEMBER 1985

Unit 1

Unit 1 was in shutdown for its sixth refueling on June 1, 1985 with a scheduled restart date of March 1989. This refueling will involve loading 8x8R (retrofit) fuel assemblies into the core, replacing recirculation piping, work on "A" and "B" low-pressure turbine, upgrade hangers and anchors, and environmentally qualify instrumentation. The unit was shut down on March 19, 1985, and remained in cold shutdown until June 1, 1985, because of unfinished modifications to meet environmental concerns.

There are 0 assemblies in the reactor vessel. The spent fuel storage pool presently contains 764 EOC-6 assemblies, 252 EOC-5 assemblies, 260 EOC-4 assemblies, 232 EOC-3 assemblies, 156 EOC-2 assemblies, and 168 EOC-1 assemblies. The present fuel pool capacity is 3,471 locations.

Unit 2

Unit 2 was shut down for its fifth refueling outage on September 15, 1984, with a scheduled restart date of June 1, 1986. This refueling outage will involve loading additional 8x8R (retrofit) assemblies into the core, finishing torus modification, turbine inspection, piping inspection, TMI-2 modifications; postaccident sampling facility tie-ins, core spray change-out, and feedwater sparger inspection.

Refueling Information

DECEMBER 1985

There are no assemblies in the reactor vessel. At month end, there were 277 new assemblies, 764 EOC-5 assemblies, 248 EOC-4 assemblies, 352 EOC-3 assemblies, 156 EOC-2 assemblies, and 132 EOC-1 assemblies in the spent fuel storage pool. The present available capacity of the spent fuel pool is 77 locations. All old racks have been removed from the pool and new HDRs are being installed.

Unit 3

Unit 3 started its sixth refueling outage November 30, 1985, with a scheduled restart date of March 1987. This refueling involves loading 8x8R (retrofit) assemblies into the core, and complete reinspection of stainless steel piping. The unit was shutdown on March 9, 1985, and remained in cold shutdown until November 30, 1985, on an administrative hold to resolve various TVA and NRC concerns.

There are 764 assemblies presently in the reactor vessel. there are 248 EOC-5 assemblies, 280 EOC-4 assemblies, 124 EOC-3 assemblies, 144 EOC-2 assemblies, and 208 EOC-1 assemblies in the spent fuel storage pool. The present available capacity of the spent fuel pool is 914 locations.

Significant Operational Events

DECEMBER 1985

Unit 1

12/01	0001	End-of-cycle 6 Refuel outage continues
12/31	2400	End-of-cycle 6 refuel outage continues

Significant Operational Events

DECEMBER 1985

Unit 2

12/01	0001	End-of-cycle 5 Refuel and modifications outage continues
12/31	2400	End-of-cycle 5 Refuel and modifications outage continues

Significant Operational Events

DECEMBER 1985

Unit 3

12/01	0001	End of cycle 6 refuel outage begins (unit has been shut down since March 8, 1985, due to various TVA and NRC concerns.
12/31	2400	End of cycle 6 refuel outage continus.

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AVERAGE DAILY UNIT POWER LEVEL

DOCKET NO. 50-259

UNIT One

DATE 1/1/86

COMPLETED BY T. Thom

TELEPHONE 205/729-2509

MONTH December

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

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.

(9/77)

AVERAGE DAILY UNIT POWER LEVEL

DOCKET NO. 50-260
UNIT Two
DATE 1/1/86
COMPLETED BY T. Thom
TELEPHONE 205/729-2509

MONTH December

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

INSTRUCTIONS

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

(9/77)

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AVERAGE DAILY UNIT POWER LEVEL

DOCKET NO. 50-296
UNIT Three
DATE 1/1/86
COMPLETED BY T. Thom
TELEPHONE 205/729-2509

MONTH December

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

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.

(9/77)

OPERATING DATA REPORT

DOCKET NO 50-259
DATE 1/1/86
COMPLETED BY T. Thom
TELEPHONE 205/729-2509

OPERATING STATUS

1. Unit Name: Browns Ferry One
2. Reporting Period: December 1985
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

Notes

8. If Changes Occur in Capacity Ratings (Items Number 3 Through 7) Since Last Report, Give Reasons:
N/A

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

	This Month	Yr.-to-Date	Cumulative
11. Hours In Reporting Period	744	8,760	100,160
12. Number Of Hours Reactor Was Critical	0	1,647.78	59,521.38
13. Reactor Reserve Shutdown Hours	0	512.22	6,997.44
14. Hours Generator On-Line	0	1,626.67	58,267.26
15. Unit Reserve Shutdown Hours	0	0	0
16. Gross Thermal Energy Generated (MWH)	0	4,950,821	168,066,787
17. Gross Electrical Energy Generated (MWH)	0	1,652,650	55,398,130
18. Net Electrical Energy Generated (MWH)	-3,581	1,543,188	53,757,009
19. Unit Service Factor	0	18.6	58.2
20. Unit Availability Factor	0	18.6	58.2
21. Unit Capacity Factor (Using MDC Net)	0	16.5	50.4
22. Unit Capacity Factor (Using DER Net)	0	16.5	50.4
23. Unit Forced Outage Rate	0	55.1	23.6

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: 9/14/86
26. Units In Test Status (Prior to Commercial Operation):

	Forecast	Achieved
INITIAL CRITICALITY		
INITIAL ELECTRICITY		
COMMERCIAL OPERATION		

(9/77)

OPERATING DATA REPORT

DOCKET NO 50-260
DATE 1/1/86
COMPLETED BY T. Thom
TELEPHONE 205/729-2509

OPERATING STATUS

1. Unit Name: Browns Ferry Two
2. Reporting Period: December 1985
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): 106.5

Notes

8. If Changes Occur in Capacity Ratings (Items Number 3 Through 7) Since Last Report, Give Reasons:
N/A

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

	This Month	Yr.-to-Date	Cumulative
11. Hours In Reporting Period	744	8,760	95,047
12. Number Of Hours Reactor Was Critical	0	0	55,860.03
13. Reactor Reserve Shutdown Hours	0	0	14,200.44
14. Hours Generator On-Line	0	0	54,338.36
15. Unit Reserve Shutdown Hours	0	0	0
16. Gross Thermal Energy Generated (MWH)	0	0	153,245,167
17. Gross Electrical Energy Generated (MWH)	0	0	50,771,798
18. Net Electrical Energy Generated (MWH)	-5,459	-37,609	49,265,364
19. Unit Service Factor	0	0	57.2
20. Unit Availability Factor	0	0	57.2
21. Unit Capacity Factor (Using MDC Net)	0	0	48.7
22. Unit Capacity Factor (Using DER Net)	0	0	48.7
23. Unit Forced Outage Rate	0	0	23.0

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

25. If Shut Down At End Of Report Period, Estimated Date of Startup: June 1986
26. Units In Test Status (Prior to Commercial Operation):

	Forecast	Achieved
INITIAL CRITICALITY		
INITIAL ELECTRICITY		
COMMERCIAL OPERATION		

(9/77)

OPERATING DATA REPORT

DOCKET NO. 50-296
DATE 1/1/86
COMPLETED BY T. Thom
TELEPHONE 205/729-2509

OPERATING STATUS

1. Unit Name: Browns Ferry Three
2. Reporting Period: December 1985
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	744	8,760	77,472
12. Number Of Hours Reactor Was Critical	0	1,517.65	45,306.08
13. Reactor Reserve Shutdown Hours	0	508.05	5,149.55
14. Hours Generator On-Line	0	1,496.96	44,194.76
15. Unit Reserve Shutdown Hours	0	0	0
16. Gross Thermal Energy Generated (MWH)	0	4,649,840	131,868,267
17. Gross Electrical Energy Generated (MWH)	0	1,572,770	43,473,760
18. Net Electrical Energy Generated (MWH)	-4,603	1,468,012	42,133,773
19. Unit Service Factor	0	17.1	57.0
20. Unit Availability Factor	0	17.1	57.0
21. Unit Capacity Factor (Using MDC Net)	0	15.7	51.1
22. Unit Capacity Factor (Using DER Net)	0	15.7	51.1
23. Unit Forced Outage Rate	0	81.3	26.4

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 1987

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

	Forecast	Achieved
INITIAL CRITICALITY		
INITIAL ELECTRICITY		
COMMERCIAL OPERATION		

(9/77)

UNIT SHUTDOWNS AND POWER REDUCTIONS

DOCKET NO. 50-259
UNIT NAME One
DATE 1/1/86
COMPLETED BY T. Thom
TELEPHONE 205/729-2509

REPORT MONTH December

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 (Cont)	12/1/85	S	744	C	2				End of Cycle 6 Refuel Outage Continues

1 2 3 4

F-Forced
S-Scheduled

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)

Method:
1-Manual
2-Manual Scram
3-Automatic Scram
4-Other (Explain)

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

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Exhibit 1 - Same Source

UNIT SHUTDOWNS AND POWER REDUCTIONS

REPORT MONTH December

DOCKET NO. 50-260
UNIT NAME Two
DATE 1/1/86
COMPLETED BY T. Thom
TELEPHONE 205/729-2509

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
305 (Cont)	12/1/85	S	744	C	4				EOC-5 Refuel Outage (Controlled Shutdown 9/15/84)

1
F: Forced
S: Scheduled

2
Reason:
A-Equipment Failure (Explain)
B-Maintenance or Test
C-Refueling
D-Regulatory Restriction
E-Operator Training & License Examination
F-Administrative
G-Operational Error (Explain)
H-Other (Explain)

3
Method:
1-Manual
2-Manual Scram.
3-Automatic Scram.
4-Other (Explain)

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

5
Exhibit I - Same Source

(9/77)

UNIT SHUTDOWNS AND POWER REDUCTIONS

DOCKET NO. 50-296
UNIT NAME Three
DATE 1/1/86
COMPLETED BY T. Thom
TELEPHONE 205/729-2509

REPORT MONTH December

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
157	12/1/85	S	744	C	4				EOC-6 Refuel Outage Begins. (Unit shut down since March 9, 1985, due to various TVA and NRC concerns)

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BROWNS FERRY NUCLEAR PLANT UNIT 0

BF EMSIL 30
Appendix B
9/29/82

CSSC EQUIPMENT

ELECTRICAL MAINTENANCE SUMMARY

For the Month of December 1985

Date	System	Component	Nature of Maintenance	Effect on Safe Operation of The Reactor	Cause of Malfunction	Results of Malfunction	Action Taken To Preclude Recurrence
1985 12/3	4kV common board	BKR-203-A/03 alternate breaker 1118	Routine transfer	None	Bad SBM switch (52 STA) located in bkr compt	Breaker took about 5 seconds to close	Replaced SBM switch MR 591355
12/16	Standby diesel generator	BKR-211-B/004 tie breaker to D/G "B" (1822)	Performing SI 4.9.A.1.a D/G monthly operability	None	Bad SBM switch (52 STA) located in bkr compt	D/B "B" failed to fast start during SI. Declared inoperable	Replaced SBM switch MR 645028 LERD 85-12-311
12/19	Control bay heat, vent & AC	CHR-31-13 1A control bay chiller	Troubleshoot chiller	None	Sticking pressure switch	Chiller tripped on low refrigerant pressure & would not reset	Reset pressure swi MR 645046
12/28	Diesel 125V DC	ECAB-254-C alarm bell, 1C diesel engine control cabinet	Replace alarm bell	None	Broken contact on bell alarm	Bell alarm defective	Replace alarm bell assembly MR 569323

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BROWNS FERRY NUCLEAR PLANT UNIT 1

BF EMSIL 30
Appendix B
9/29/82

CSSC EQUIPMENT

ELECTRICAL MAINTENANCE SUMMARY

For the Month of December 19 85

ıte	System	Component	Nature of Maintenance	Effect on Safe Operation of The Reactor	Cause of Malfunction	Results of Malfunction	Action Taken To Preclude Recurrence
35							
/5	Fire protection	Fire protection battery No. 1	Performing EMI-4-B	None	Unknown	Cell #11 found bad	Replaced cell #11 MR 571865
/9	Condensate	MTR-2-14 condensate hotwell pump motor 1C	Remove motor and send to Power Service Shop	None	Open winding	Motor taken out of service for repairs	Removed motor MR 578257 - Sent to PSS

BROWNS FERRY NUCLEAR PLANT UNIT 2

BF EMSIL 30
Appendix B
9/29/82

CSSC EQUIPMENT

ELECTRICAL MAINTENANCE SUMMARY

For the Month of December 1985

Date	System	Component	Nature of Maintenance	Effect on Safe Operation of The Reactor	Cause of Malfunction	Results of Malfunction	Action Taken To Preclude Recurrence
1985 4/8	Condensate system	MTR-2-14 condensate hot-well pump motor 2C	Remove motor & send to Power Service Shop	None	Open winding on motor	Motor taken out of service for repairs	Removed motor MR 578254 - Sent to PSS
11/5	Fire protection	Fire protection battery No. 2	Performing EMI-4-B	None	Unknown	Cell #6 found bad	Replaced cell #6 MR 571864
12/5	Control room annunciation	Annunciation panel 9-3	Troubleshoot and repair	None	Bad card	Panel would not test	Replaced card MR 643392
12/10	Core spray cooling	MVOP-75-2 CS pump A suction valve	Troubleshoot valve	None	Closing circuit torque switch setting too low	Valve failed low leak rate test	Set close torque switch up to max setting 3 MR 637675
12/11	Fire protection	XS-39-92NB smoke detector Rx bldg - 593	Replace smoke detector	None	Unknown	Smoke detector not operable	Replaced smoke detector MR 569325
12/17	Cranes & hoists	Refuel platform main hoist	Repair or replace amphenol connector	None	Connector was loose and dirty	Grapple latched light was intermittent before reaching the full up position	Cleaned & tightene amphenol connecto MR 639309

ARKANSAS NUCLEAR PLANT UNIT 3

CSSC EQUIPMENT

ELECTRICAL MAINTENANCE SUMMARY

For the Month of December 19 85

te	System	Component	Nature of Maintenance	Effect on Safe Operation of The Reactor	Cause of Malfunction	Results of Malfunction	Action Taken To Preclude Recurrence
5	Fire protection	Fire protection battery No. 3	Performing EMI-4-B	None	Unknown	Cell Nos. 6 & 8 found bad	Replaced cell Nos. 6 & 8 MR 566849
10	Fire protection	Fire protection battery No. 3	Performing EMI-4-B	None	Unknown	Cell Nos. 1, 2, 3, 10, 11, & 12 found bad	Replaced cell Nos. 1, 2, 3, 10, 11 & 12 MR 640627
29	Fire protection	XS-39-68ZH smoke detector Rx bldg - 565	Performing SI 4.11.C.1&5	None	Bad detector	Would not pass SI	Replaced smoke detector 68ZH MR 571872
29	Fire protection	XS-39-68YA smoke detector Rx bldg - 565	Performing SI 4.11.C.1&5	None	Detector failed sensitivity test	Would not pass SI	Replaced smoke detector 68YA

CSSC EQUIPMENT

MECHANICAL MAINTENANCE SUMMARY

For the Month of December 19 85

DATE	SYSTEM	COMPONENT	NATURE OF MAINTENANCE	EFFECT ON SAFE OPERATION OF THE REACTOR	CAUSE OF MALFUNCTION	RESULTS OF MALFUNCTION	ACTION TAKEN TO PRECLUDE RECURRENCE
12/4	26	Emergency Fire Fire Pump 'C' Screens	Fabricate mesh screens for 'C' fire pump motor	None	New fabrication	None	Fabricated mesh scre as requested
5	84	Relief valve 0-84-507 CAD tank "A"	Bench test relief valve 0-84-507 at 140 PSI ±3%	None	Defective gage used on previous bench test	Potentially inaccurate relief setting	Removed and tested valve at 142 PSIG

CASC EQUIVALENT

MECHANICAL MAINTENANCE SUMMARY

For the Month of December 1985

#	SYSTEM	COMPONENT	NATURE OF MAINTENANCE	EFFECT ON SAFE OPERATION OF THE REACTOR	CAUSE OF MALFUNCTION	RESULTS OF MALFUNCTION	ACTION TAKEN TO PRECLUDE RECURRENCE

CSSC EQUIPMENT

For the Month of December 19 85

DATE	SYSTEM	COMPONENT	NATURE OF MAINTENANCE	EFFECT ON SAFE OPERATION OF THE REACTOR	CAUSE OF MALFUNCTION	RESULTS OF MALFUNCTION	ACTION TAKEN TO PRECLUDE RECURRENCE
12/5	80	Torus bracket	Reinstall the torus dynamic restraints bracket to the original configuration	None	Snubber pens gaulded when removing pens to test snubbers	none	Installed torus brackets

CSSC EQUIPMENT

MECHANICAL MAINTENANCE SUMMARY

For the Month of December 19 85

.TE	SYSTEM	COMPONENT	NATURE OF MAINTENANCE	EFFECT ON SAFE OPERATION OF THE REACTOR	CAUSE OF MALFUNCTION	RESULTS OF MALFUNCTION	ACTION TAKEN TO PRECLUDE RECURRENCE

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

JAN 15 1986

Nuclear Regulatory Commission
Office of Management Information
and Program Control
Washington, D.C. 20555

Gentlemen:

Enclosed is the December 1985 Monthly Operating Report to NRC for Browns Ferry Nuclear Plant Units 1, 2, and 3.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

Robert L. Lewis

Robert L. Lewis
Plant Manager

Enclosure
cc: Director, Region II
Nuclear Regulatory Commission
Office of Inspection and Enforcement
101 Marietta Street
Atlanta, Georgia 30303 (1 copy)

Director, Office of Inspection
and Enforcement
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Atlanta, Georgia 30389

IE 24
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TENNESSEE VALLEY AUTHORITY

POWER & ENGINEERING (NUCLEAR)

BROWNS FERRY NUCLEAR PLANT

MONTHLY OPERATING REPORT TO NRC

DECEMBER 1, 1985 - DECEMBER 30, 1985

DOCKET NUMBERS 50-259, 50-260, AND 50-296

LICENSE NUMBERS DPR-33, DPR-52, AND DPR-68

Submitted by: Robert L Lewis

Plant Manager

TABLE OF CONTENTS