

VIRGINIA ELECTRIC AND POWER COMPANY

SURRY POWER STATION

MONTHLY OPERATING REPORT

REPORT 88-10

APPROVED: *David L Benson*  
STATION MANAGER

8811180036 881031  
PDR ADOCK 05000280  
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OPERATING DATA REPORT

DOCKET NO. 50-280  
 DATE 11/08/88  
 COMPLETED BY L. A. Warren  
 TELEPHONE 804-357-3184

OPERATING STATUS

1. Unit Name: Surry Unit # 1
2. Reporting Period: October 01-31, 1988
3. Licensed Thermal Power (Mwt): 2441
4. Nameplate Rating (Gross MWe): 847.5
5. Design Electrical Rating (Net MWe): 788
6. Maximum Dependable Capacity (Gross MWe): 820
7. Maximum Dependable Capacity (Net MWe): 781
8. If Changes Occur in Capacity Ratings (Items Number 3 Through 7) Since Last Report, Give Reasons: \_\_\_\_\_

Notes

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

	This Month	Yr.-to-Date	Cumulative
11. Hours In Reporting Period	745.0	7320.0	139032.0
12. Number of Hours Reactor Was Critical	0	3755.2	88478.6
13. Reactor Reserve Shutdown Hours	0	0	3774.5
14. Hours Generator On-Line	0	3634.2	86605.4
15. Unit Reserve Shutdown Hours	0	0	3736.2
16. Gross Thermal Energy Generated (MWH)	0	8451045.6	201171267.0
17. Gross Electrical Energy Generated (MWH)	0	2828500.0	65203673.0
18. Net Electrical Energy Generated (MWH)	0	2685027.0	61840403.0
19. Unit Service Factor	0	49.7	62.3%
20. Unit Available Factor	0	49.7	65%
21. Unit Capacity Factor (Using MDC Net)	0	47%	57.5%
22. Unit Capacity Factor (Using DER Net)	0	46.6%	56.5%
23. Unit Forced Rate	100%	26.1%	17.4%

24. Shutdowns Scheduled Over Next 6 Months (Type, Date, and Duration of Each):  
Forced Maintenance Outage on 09/13/88 to 12/15/88

25. If Shut Down At End Of Report Period Estimated Date of Startup: \_\_\_\_\_

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

OPERATING DATA REPORT

DOCKET NO. 50-281  
 DATE 11/08/88  
 COMPLETED BY L. A. Warren  
 TELEPHONE 804-357-3184

OPERATING STATUS

1. Unit Name: Surry Unit # 2
2. Reporting Period: October 01-31, 1988
3. Licensed Thermal Power (MWt): 2441
4. Nameplate Rating (Gross MWe): 847.5
5. Design Electrical Rating (Net MWe): 788
6. Maximum Dependable Capacity (Gross MWe): 820
7. Maximum Dependable Capacity (Net MWe): 781
8. If Changes Occur in Capacity Ratings (Items Number 3 Through 7) Since Last Report, Give Reasons: \_\_\_\_\_

Notes

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

	This Month	Yr.-to-Date	Cumulative
11. Hours In Reporting Period	<u>745.0</u>	<u>7320.0</u>	<u>135912.0</u>
12. Number of Hours Reactor Was Critical	<u>0</u>	<u>5028.3</u>	<u>89694.3</u>
13. Reactor Reserve Shutdown Hours	<u>0</u>	<u>0</u>	<u>328.1</u>
14. Hours Generator On-Line	<u>0</u>	<u>4994.7</u>	<u>88293.0</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>11570100.4</u>	<u>206740463.1</u>
17. Gross Electrical Energy Generated (MWH)	<u>0</u>	<u>3763420.0</u>	<u>67136244.0</u>
18. Net Electrical Energy Generated (MWH)	<u>0</u>	<u>3570901.0</u>	<u>63647378.0</u>
19. Unit Service Factor	<u>0</u>	<u>68.2%</u>	<u>65%</u>
20. Unit Available Factor	<u>0</u>	<u>68.2%</u>	<u>65%</u>
21. Unit Capacity Factor (Using MDC Net)	<u>0</u>	<u>62.5%</u>	<u>60.1%</u>
22. Unit Capacity Factor (Using DER Net)	<u>0</u>	<u>62%</u>	<u>59.4%</u>
23. Unit Forced Rate	<u>0</u>	<u>24%</u>	<u>15%</u>

24. Shutdowns Scheduled Over Next 6 Months (Type, Date, and Duration of Each):  
Refueling Outage 09/09/88 to 12/20/88

25. If Shut Down At End Of Report Period Estimated Date of Startup: \_\_\_\_\_

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

UNIT SHUTDOWNS AND POWER REDUCTIONS

DOCKET NO. 50-280  
 UNIT NAME Surry Unit # 1  
 DATE 11/08/88  
 COMPLETED BY L. A. Warren  
 TELEPHONE 804-357-3184

REPORT MONTH OCTOBER 1988

NO.	DATE	Type <sup>1</sup>	Duration (Hours)	Reason <sup>2</sup>	Method of Shutting Down Reactor <sup>3</sup>	LICENSEE EVENT REPORT #	System Code <sup>4</sup>	Component Code <sup>5</sup>	CAUSE & CORRECTIVE ACTION TO PREVENT RECURRENCE
88-11	10/01/88	F	745.0	F	1				Unit shutdown due to emergency diesel generator operability concerns.

<sup>1</sup> F: Forced  
 S: Scheduled

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

<sup>3</sup> Method:  
 1 - Manual  
 2 - Manual Scram.  
 3 - Automatic Scram.  
 4 - Other (Explain)

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

<sup>5</sup> Exhibit 1 - Same Source

UNIT SHUTDOWNS AND POWER REDUCTIONS

DOCKET NO. 50-281  
 UNIT NAME Surry Unit # 2  
 DATE 11/8/88  
 COMPLETED BY L. A. Warren  
 TELEPHONE 804-357-3184

REPORT MONTH OCTOBER 1988

NO.	DATE	Type <sup>1</sup>	Duration (Hours)	Reason <sup>2</sup>	Method of Shutting Down Reactor <sup>3</sup>	LICENSEE EVENT REPORT #	System Code <sup>4</sup>	Component Code <sup>5</sup>	CAUSE & CORRECTIVE ACTION TO PREVENT RECURRENCE
88-19	10/01/88	S	745.0	C	1,3				Unit shutdown for refueling outage, automatic reactor trip.

<sup>1</sup> F: Forced  
S: Scheduled

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

<sup>3</sup> Method:  
 1 - Manual  
 2 - Manual Scram.  
 3 - Automatic Scram.  
 4 - Other (Explain)

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

<sup>5</sup> Exhibit 1 - Same Source

## AVERAGE DAILY UNIT POWER LEVEL

DOCKET NO. 50-280  
 UNIT Surry Unit # 1  
 DATE 11/08/88  
 COMPLETED BY L. A. Warren  
 TELEPHONE 804-357-3184

MONTH OCTOBER 1988

DAY	AVERAGE DAILY POWER LEVEL (MWe-Net)
1	0
2	0
3	0
4	0
5	0
6	0
7	0
8	0
9	0
10	0
11	0
12	0
13	0
14	0
15	0
16	0

DAY	AVERAGE DAILY POWER LEVEL (MWe-Net)
17	0
18	0
19	0
20	0
21	0
22	0
23	0
24	0
25	0
26	0
27	0
28	0
29	0
30	0
31	0

## 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. 50-281  
 UNIT Surry Unit # 2  
 DATE 11/08/88  
 COMPLETED BY L. A. Warren  
 TELEPHONE 804-357-3184

MONTH OCTOBER 1988

DAY	AVERAGE DAILY POWER LEVEL (MWe-Net)	DAY	AVERAGE DAILY POWER LEVEL (MWe-Net)
1	<u>0</u>	17	<u>0</u>
2	<u>0</u>	18	<u>0</u>
3	<u>0</u>	19	<u>0</u>
4	<u>0</u>	20	<u>0</u>
5	<u>0</u>	21	<u>0</u>
6	<u>0</u>	22	<u>0</u>
7	<u>0</u>	23	<u>0</u>
8	<u>0</u>	24	<u>0</u>
9	<u>0</u>	25	<u>0</u>
10	<u>0</u>	26	<u>0</u>
11	<u>0</u>	27	<u>0</u>
12	<u>0</u>	28	<u>0</u>
13	<u>0</u>	29	<u>0</u>
14	<u>0</u>	30	<u>0</u>
15	<u>0</u>	31	<u>0</u>
16	<u>0</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.

(9/77)



**SUMMARY OF OPERATING EXPERIENCE****MONTH/YEAR OCTOBER 1988**

Listed below in chronological sequence by unit is a summary of operating experiences for this month which required load reductions or resulted in significant non-load related incidents.

**UNIT ONE**

10-01-88	0000	This reporting period begins with the unit at CSD.
10-23-88	0000	Unit at RSD.
10-31-88	2400	This reporting period ends with the unit at RSD.

**UNIT TWO**

10-01-88	0000	This reporting period begins with the unit at CSD.
10-03-88	0000	Unit at RSD.
10-31-88	2400	This reporting period ends with the unit at RSD.

FACILITY CHANGES REQUIRING NRC APPROVAL

MONTH/YEAR OCTOBER 1988

NONE DURING THIS PERIOD

FACILITY CHANGES THAT DID NOT REQUIRE NRC APPROVAL  
MONTH/YEAR                      OCTOBER 1988

TM S1-88-145      TEMPORARY MODIFICATION                      10/10/88

An air agitator was used in the place of the mechanical agitator for mixing boric acid in the Boric Acid Batch Tank.

This does not constitute an unreviewed safety question nor does it present any safety concerns since the use of the air agitation for mixing boric acid is an acceptable alternative to the mechanical agitation.

TOP-2043              TEMPORARY OPERATING PROCEDURE                      10/10/88

Exposed resin will be flushed to demineralizer 1-CH-I-3A from pipe 3"-RW-111-152 while the spent resin catch tank 1-LW-TK-1 is being modified. This is to reduce radiation levels.

The procedure was reviewed for the effect on accident analyses and associated equipment operability/function. Since this will reduce radiation levels by removing the spent resin from the pipe, an unreviewed safety question will not be created.

2-OP-51.5.4              OPERATING PROCEDURE                      10/10/88

This procedure allows running a charging/high head safety injection pump with service water flow isolated to both intermediate seal coolers and with the charging pump component cooling pump either running or shutdown.

The charging pump may run without seal cooling if the refueling water storage tank or volume control tank is used as a suction, charging pump temperatures are monitored by the P250, and the charging pump component cooling system is filled with the intermediate seal coolers isolated at least on the service water side (RWST or VCT temperatures must be kept less than 115°F to function as a source of water.) Both units will be in cold shutdown. Therefore, an unreviewed safety question does not exist.

SCAFFOLDING REQUEST                      10/12/88

Erection of temporary scaffolding located in Unit 2 containment to repair lights.

Installation of this temporary scaffolding was reviewed for effect on accident analyses and equipment operability/function. Conclusion is that assumptions, bases and probabilities of accident analyses and equipment malfunctions are not affected.

FACILITY CHANGES THAT DID NOT REQUIRE NRC APPROVAL  
MONTH/YEAR      OCTOBER 1988

**2-TMOP-2013      TEMPORARY MAINTENANCE OPERATING PROCEDURE      10/13/88**

This temporary procedure includes measures to fill 'C' reactor coolant loop; remove interlocks which prevent the opening of MOV-2595; open MOV-2595; remove the modification to MOV-2595 interlocks and close MOV-2595. This TMOP is to be performed to evaluate MOV-2595 which is presently leaking excessively.

This TMOP was reviewed for any effect on accident analyses and equipment operability/function. It was concluded that probabilities of accident analyses and equipment malfunctions are not affected because the hot leg loop stop valve will remain closed, the unit is shut down greater than 20% $\Delta$ k/k and the 'C' reactor coolant pump is disabled and cannot be started.

**AC 88-10-13      ADMINISTRATIVE CONTROL      10/13/88**

Administrative control was placed on valve 3-EG-15 when the valve was opened. This valve is the cross-tie between the two air bottle banks.

Since administrative control of the emergency diesel generator air start bottle banks will ensure air-start circuitry redundancy, an unreviewed safety question is not created.

**EWR 88-390      ENGINEERING WORK REQUEST      10/14/88**

This engineering work request details the re-location of the cap screws as required. In addition, concurrence from engineering shows which caps screws may be omitted to resolve fit-up problem.

There is no impact to safety from this change request. The cavity seal ring assembly will continue to perform its design function.

**1-OP-4.1      PROCEDURE DEVIATION      10/15/88**

The manipulator crane area radiation monitor (RM-RMS-162) will be turned off to allow restoration of the containment purge with high radiation levels. High radiation levels are due to the reactor head being removed. No refueling operations will be performed in this mode. Containment particulate and gas radiation monitors are fully functional.

Refueling operations will be performed, containment particulate and gas radiation monitors are fully functional and area radiation levels will be monitored locally by Operations or Health Physics personnel. Therefore, an unreviewed safety question does not exist.

FACILITY CHANGES THAT DID NOT REQUIRE NRC APPROVAL  
MONTH/YEAR      OCTOBER 1988

**TM-SI-88-149      TEMPORARY MODIFICATION      10/18/88**

This temporary modification installed a flexible hose from 1-DG-74 to 1-CH-413 maintaining the following valves shut: MOV-1381, 1-DG-TV-108B, HCV-1522A,B,C and HCV-1523.

Since the installation will be verified for leaktightness, and the design specifications for the hose used will exceed expected pressure and temperature, possible leakage paths will be contained and possible dilution paths will be isolated. Therefore, no unreviewed safety question is created.

**SP-88-11A      SETPOINT CHANGE      10/18/88**

This change provides the specific setpoints for the low temperature overpressure protection.

The review consisted of a RETRAN Code analysis of the heatup and cooldown of the reactor coolant system and the cold overpressurization of the reactor to prevent non-ductile pressurization or overstressing of the reactor vessel. Based on the review, the revision to the heatup and cooldown and the cold overpressurization setpoint does not constitute an unreviewed safety question.

**EWR 88-240      ENGINEERING WORK REQUEST      10/19/88**

This engineering work request to install temporary level indicators that will be periodically monitored (2-STP-25.2A) to check service water level in service water piping to unit 2 recirculation spray heat exchanger.

A new surveillance test will be implemented which will require two temporary level gauges to monitor service water levels in service water piping to recirculation spray heat exchangers. Therefore, an unreviewed safety question is not created.

**PC-DB-E/R1      ELECTRICAL PREVENTIVE MAINTENANCE SCHEDULE      10/28/88**

This deviation allowed the defeat of the automatic reactor trips by jumpering out relay contacts affecting the closed reactor trip breakers. While the change is in effect, all power to the control rods will be physically disconnected and control rods fully inserted.

While this jumper is installed, the reactor will remain at cold shutdown with all rods inserted and all sources of power to the control rod drive mechanisms removed. The reactor trip breakers shall be opened upon the completion of the work. There is no method for an uncontrolled rod withdrawal with all power removed from the control rod drive mechanisms. Therefore, this change does not represent an unreviewed safety question.

PROCEDURE OR METHOD OF OPERATION  
THAT DID NOT REQUIRE NRC APPROVAL  
MONTH/YEAR OCTOBER 1988

2-OP-51.5.1

The charging pump cooling system will be placed in service with only 12 gpm flow through the cooler instead of 30 gpm as directed in the procedure.

It has been previously determined that even without flow to the seal coolers, charging pump seals will not be adversely affected. Therefore, 12 gpm flow will not adversely affect charging pumps and no unreviewed safety question is created. The Technical Specifications does not require operable charging pumps with both units in cold shutdown.

PROCEDURE OR METHOD OF OPERATION  
THAT DID REQUIRE NRC APPROVAL

MONTH/YEAR OCTOBER 1988

NONE DURING THIS PERIOD

TESTS AND EXPERIMENTS REQUIRING NRC APPROVAL

MONTH/YEAR OCTOBER 1988

NONE DURING THIS PERIOD



TESTS AND EXPERIMENTS THAT DID NOT REQUIRE NRC APPROVAL  
MONTH/YEAR      OCTOBER 1988

2-ST-221      SPECIAL TEST      09/23/88

This special test governed the movement and placement of a weight on the straddle ring surrounding the reactor. The ring is cantilevered by design. This test provided information on behavior under hydrostatic loads.

It was determined that an unreviewed safety question does not exist because the special test had no potential to affect safety related equipment. The cavity was not flooded during performance of this test.

1/2-ST-220      SPECIAL TEST      09/28/88

The special test collected data associated with the control room envelope air conditioning system. The data will be used to evaluate system performance.

The test was conducted with the system operating as described in the UFSAR and Technical Specification. Therefore, an unreviewed safety question was not created or was a Technical Specification change required.

1-ST-224      SPECIAL TEST      10/19/88

This special test was performed to demonstrate the leak limiting capabilities of the J-seal component of the reactor cavity seal assembly. The leakage has been evaluated and determined to be acceptable.

The change has no effect on the probability of occurrence of the accidents evaluated in the UFSAR. The consequences of the accidents discussed are not significantly increased as a result of this change. The possibility of an accident or equipment malfunction of a different type is not created. The margin of safety as described in the basis section of the UFSAR is not reduced.

**VIRGINIA POWER  
SURRY POWER STATION  
CHEMISTRY REPORT**

OCTOBER                      19 88

PRIMARY COOLANT ANALYSIS	UNIT NO. 1			UNIT NO. 2		
	MAX.	MIN.	AVG.	MAX.	MIN.	AVG.
Gross Radioact., $\mu\text{Ci/ml}$	2.88 <sup>E-2</sup>	8.31 <sup>E-4</sup>	1.35 <sup>E-2</sup>	3.18 <sup>E-2</sup>	6.02 <sup>E-3</sup>	1.83 <sup>E-2</sup>
Suspended Solids, ppm	20.0	0.0	8.3	0.2	0.0	0.1
Gross Tritium, $\mu\text{Ci/ml}$	N/A	N/A	---	N/A	N/A	---
Iodine <sup>131</sup> , $\mu\text{Ci/ml}$	6.03 <sup>E-4</sup>	1.30 <sup>E-5</sup>	2.63 <sup>E-4</sup>	3.20 <sup>E-5</sup>	3.20 <sup>E-5</sup>	3.20 <sup>E-5</sup>
$\text{I}^{131} / \text{I}^{131}$	N/A	N/A	---	N/A	N/A	---
Hydrogen, cc/kg	N/A	N/A	---	N/A	N/A	---
Lithium, ppm	N/A	N/A	---	N/A	N/A	---
Boron-10, ppm*	419.2	358.1	412.8	415.9	389.6	403.4
Oxygen, (DO), ppm	3.5	1.0	2.0	3.5	2.5	3.0
Chloride, ppm	0.016	0.002	0.009	0.014	0.005	0.009
pH @ 25 degree Celsius	5.65	4.73	5.16	5.28	4.64	5.01

\* Boron-10 = Total Boron X 0.196

**UNIT ONE:**        The month started with the unit at CSD preparing for refueling. On 10-02 at 1600, started to detension the reactor head and on 10-15 at 0300, started to lift the reactor head and flood the cavity. On 10-21 at 0352, the RL system was put into service and shortly thereafter, the Chemistry department detected an increase in total suspended solids and turbidity. Operation started a purification line-up using the letdown filter, 'B' mixed bed, 'A' deborator and the reactor coolant filter. By 10-27 at 1310, all sample points were showing  $\leq 0.5$  ppm turbidity. The month ended with 'B' mixed bed and 'A' deborator in service.

**UNIT TWO:**        The month started with the unit at CSD waiting to refuel. On 10-6 at 0030, 'A' mixed bed was put into service and removed from service at 1645. On 10-10 at 1700 'A' mixed bed was put back in service to reduce activity and was removed from service on 10-17 at 1205. On 10-19 at 1000, started to detension the reactor head. Ended the month with no beds in service and the cavity not flooded.





DESCRIPTION OF PERIODIC TEST WHICH WERE NOT COMPLETED  
WITHIN THE TIME LIMITS SPECIFIED IN TECHNICAL SPECIFICATIONS

MONTH/YEAR OCTOBER 1988

NONE DURING THIS PERIOD

VIRGINIA ELECTRIC AND POWER COMPANY  
RICHMOND, VIRGINIA 23261

November 15, 1988

U. S. Nuclear Regulatory Commission  
Attention: Document Control Desk  
Washington, D. C. 20555

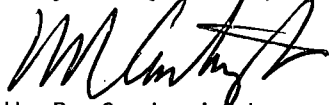
Serial No. 88-752  
NO/RPC:vlh  
Docket Nos. 50-280  
50-281  
License Nos. DPR-32  
DPR-37

Gentlemen:

VIRGINIA ELECTRIC AND POWER COMPANY  
SURRY POWER STATION UNITS 1 AND 2  
MONTHLY OPERATING REPORT

Enclosed is the Monthly Operating Report for Surry Power Station Units 1 and 2 for the month of October 1988.

Very truly yours,



W. R. Cartwright  
Vice President - Nuclear

Enclosure

cc: U. S. Nuclear Regulatory Commission  
Region II  
101 Marietta Street, N. W.  
Suite 2900  
Atlanta, Georgia 30323

Mr. W. E. Holland  
NRC Senior Resident Inspector  
Surry Power Station

*EPA*  
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