

**VIRGINIA ELECTRIC AND POWER COMPANY**  
**RICHMOND, VIRGINIA 23261**  
May 8, 2000

U. S. Nuclear Regulatory Commission  
Attention: Document Control Desk  
Washington, D.C. 20555-0001

Serial No. 00-253  
SPS Lic/JSA R0  
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**

The Monthly Operating Report for Surry Power Station Units 1 and 2 for the month of April 2000 is provided in the attachment.

If you have any questions or require additional information, please contact us.

Very truly yours,



E. S. Grecheck, Site Vice President  
Surry Power Station

Attachment

Commitments made by this letter: None

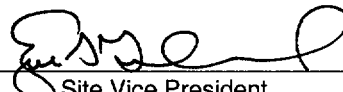
cc: United States Nuclear Regulatory Commission  
Region II  
Atlanta Federal Center  
61 Forsyth Street, SW, Suite 23 T85  
Atlanta, Georgia 30303-8931

Mr. R. A. Musser  
NRC Senior Resident Inspector  
Surry Power Station

TE24

**VIRGINIA ELECTRIC AND POWER COMPANY  
SURRY POWER STATION  
MONTHLY OPERATING REPORT  
REPORT NO. 00-04**

Approved:

  
\_\_\_\_\_  
Site Vice President

5/8/2000

\_\_\_\_\_  
Date

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**OPERATING DATA REPORT**

Docket No.: 50-280

Date: 05/02/00

Completed By: R. Stief

Telephone: (757) 365-2486

1. Unit Name: ..... Surry Unit 1
2. Reporting Period: ..... April 2000
3. Licensed Thermal Power (MWt):..... 2546
4. Nameplate Rating (Gross MWe):..... 847.5
5. Design Electrical Rating (Net MWe):..... 788
6. Maximum Dependable Capacity (Gross MWe): ... 840
7. Maximum Dependable Capacity (Net MWe): ..... 801

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

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9. Power Level To Which Restricted, If Any (Net MWe):

10. Reasons For Restrictions, If Any:

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	<u>This Month</u>	<u>Year-To-Date</u>	<u>Cumulative</u>
11. Hours in Reporting Period	719.0	2903.0	239807.0
12. Hours Reactor Was Critical	360.0	2544.0	172620.5
13. Reactor Reserve Shutdown Hours	0.0	0.0	3774.5
14. Hours Generator On-Line	359.6	2543.6	170075.0
15. Unit Reserve Shutdown Hours	0.0	0.0	3736.2
16. Gross Thermal Energy Generated (MWH)	718827.5	6112966.6	402553215.0
17. Gross Electrical Energy Generated (MWH)	239246.0	2032922.0	132178255.0
18. Net Electrical Energy Generated (MWH)	229116.0	1961069.0	126063872.0
19. Unit Service Factor	50.0%	87.6%	70.9%
20. Unit Availability Factor	50.0%	87.6%	72.5%
21. Unit Capacity Factor (Using MDC Net)	39.8%	84.3%	67.4%
22. Unit Capacity Factor (Using DER Net)	40.4%	85.7%	66.7%
23. Unit Forced Outage Rate	0.0%	0.0%	13.6%

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

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Type and duration of scheduled shutdowns are no longer provided.

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[Reference: Letter S/N 00-069, dated February 7, 2000]

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25. If Shut Down at End of Report Period, Estimated Date of Start-up: Estimated start-up dates are no longer provided. [Reference: Letter S/N 00-069, dated February 7, 2000]

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

	<u>FORECAST</u>	<u>ACHIEVED</u>
INITIAL CRITICALITY	_____	_____
INITIAL ELECTRICITY	_____	_____
COMMERCIAL OPERATION	_____	_____

**OPERATING DATA REPORT**

Docket No.: 50-281  
 Date: 05/02/00  
 Completed By: R. Stief  
 Telephone: (757) 365-2486

1. Unit Name: ..... Surry Unit 2
2. Reporting Period: ..... April 2000
3. Licensed Thermal Power (MWt): ..... 2546
4. Nameplate Rating (Gross MWe): ..... 847.5
5. Design Electrical Rating (Net MWe): ..... 788
6. Maximum Dependable Capacity (Gross MWe): ... 840
7. Maximum Dependable Capacity (Net MWe): ..... 801

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

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9. Power Level To Which Restricted, If Any (Net MWe):

10. Reasons For Restrictions, If Any:

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	<u>This Month</u>	<u>Year-To-Date</u>	<u>Cumulative</u>
11. Hours in Reporting Period	719.0	2903.0	236688.0
12. Hours Reactor Was Critical	719.0	2903.0	170432.1
13. Reactor Reserve Shutdown Hours	0.0	0.0	328.1
14. Hours Generator On-Line	719.0	2903.0	168291.4
15. Unit Reserve Shutdown Hours	0.0	0.0	0.0
16. Gross Thermal Energy Generated (MWH)	1832631.2	7389979.0	399417972.2
17. Gross Electrical Energy Generated (MWH)	617455.0	2490059.0	131122957.0
18. Net Electrical Energy Generated (MWH)	596183.0	2406145.0	125103002.0
19. Unit Service Factor	100.0%	100.0%	71.1%
20. Unit Availability Factor	100.0%	100.0%	71.1%
21. Unit Capacity Factor (Using MDC Net)	103.5%	103.5%	67.5%
22. Unit Capacity Factor (Using DER Net)	105.2%	105.2%	67.1%
23. Unit Forced Outage Rate	0.0%	0.0%	10.8%

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

October 2000

Type and duration of scheduled shutdowns are no longer provided.

[Reference: Letter S/N 00-069, dated February 7, 2000]

25. If Shut Down at End of Report Period, Estimated Date of Start-up: Estimated start-up dates are no longer provided. [Reference: Letter S/N 00-069, dated February 7, 2000]

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

	<u>FORECAST</u>	<u>ACHIEVED</u>
INITIAL CRITICALITY	_____	_____
INITIAL ELECTRICITY	_____	_____
COMMERCIAL OPERATION	_____	_____

**UNIT SHUTDOWN AND POWER REDUCTION  
(EQUAL TO OR GREATER THAN 20%)**

**REPORT MONTH: April 2000**

Docket No.: 50-280  
Unit Name: Surry Unit 1  
Date: 05/02/00  
Completed by: R. Stief  
Telephone: (757) 365-2486

Date	(1) Type	Duration Hours	(2) Reason	(3) Method of Shutting Down Rx	LER No.	(4) System Code	(5) Component Code	Cause & Corrective Action to Prevent Recurrence
04/16/00	S	359H 36M	C	1	N/A	N/A	N/A	Refueling Outage

(1)  
F: Forced  
S: Scheduled

(2)  
REASON:  
A - Equipment Failure (Explain)  
B - Maintenance or Test  
C - Refueling  
D - Regulatory Restriction  
E - Operator Training & Licensing Examination  
F - Administrative  
G - Operational Error (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 1 - Same Source

**UNIT SHUTDOWN AND POWER REDUCTION  
(EQUAL TO OR GREATER THAN 20%)**

**REPORT MONTH:** April 2000

Docket No.: 50-281  
Unit Name: Surry Unit 2  
Date: 05/02/00  
Completed by: R. Stief  
Telephone: (757) 365-2486

None during the Reporting Period

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(1)  
F: Forced  
S: Scheduled

(2)  
REASON:  
A - Equipment Failure (Explain)  
B - Maintenance or Test  
C - Refueling  
D - Regulatory Restriction  
E - Operator Training & Licensing Examination  
F - Administrative  
G - Operational Error (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 1 - Same Source

**AVERAGE DAILY UNIT POWER LEVEL**

Docket No.: 50-280  
 Unit Name: Surry Unit 1  
 Date: 05/02/00  
 Completed by: R. Stief  
 Telephone: (757) 365-2486

MONTH: April 2000

Day	Average Daily Power Level (MWe - Net)	Day	Average Daily Power Level (MWe - Net)
1	681	17	0
2	648	18	0
3	669	19	0
4	665	20	0
5	660	21	0
6	655	22	0
7	646	23	0
8	642	24	0
9	638	25	0
10	630	26	0
11	629	27	0
12	622	28	0
13	611	29	0
14	615	30	0
15	536		
16	1		

**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.: 50-281

Unit Name: Surry Unit 2

Date: 05/02/00

Completed by: R. Stief

Telephone: (757) 365-2486

**MONTH:** April 2000

Day	Average Daily Power Level (MWe - Net)	Day	Average Daily Power Level (MWe - Net)
1	830	17	828
2	796	18	829
3	824	19	828
4	829	20	828
5	829	21	828
6	828	22	829
7	829	23	830
8	829	24	831
9	829	25	831
10	829	26	830
11	829	27	830
12	830	28	831
13	834	29	831
14	830	30	830
15	829		
16	822		

**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.

## SUMMARY OF OPERATING EXPERIENCE

MONTH/YEAR: April 2000

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

### UNIT ONE:

04/01/00	0000	Unit started the month at 83.7% / 710 MWe. Unit on coastdown for Spring Refueling Outage.
04/16/00	0037	Unit offline.
04/16/00	0059	Reactor manually tripped.
04/30/00	2400	Unit finished the month at 0% / 0 MWe.

### UNIT TWO:

04/01/00	0000	Unit started the month at 100% / 861 MWe.
04/30/00	2400	Unit finished the month at 100% / 861 MWe.

**FACILITY CHANGES THAT DID NOT REQUIRE NRC APPROVAL**

**MONTH/YEAR:** April 2000

DCP 96-041  
FS 97-020

**Design Change Package  
UFSAR Change Request**  
(Safety Evaluation 97-048 Rev. 1)

03/30/00

Design Change Package 96-041, "CW 96" Rubber Expansion Joint Spray Shields/Surry 1&2", replaces the existing Circulating Water expansion joint carbon steel spray shields with stainless steel spray shields. Revision 1 of Safety Evaluation 97-048 allows the use of 12 gauge sheet to lower the stress to 72% of the maximum allowable if subjected to a pressure of 25 psi.

FS 00-011

**UFSAR Change Request**  
(Safety Evaluation 00-039)

03/30/00

As a result of the Integrated Configuration Management Project review, UFSAR Change Request FS 00-011 contains corrections and clarifications to the UFSAR sections that discuss Surry's Instrument Air System. They include clarification of component activities, correct description of components, and more accurate reflection of current design. These changes are to enhance accuracy and do not affect any Instrument Air system or structures, or any of its component's operation or performance.

ET S-00-0057

**Engineering Transmittal**  
(Safety Evaluation 00-040)

03/30/00

Engineering Transmittal S-00-0057 allows the Fire Protection compensatory actions for Fire Doors 1-BS-DR-46 and 2-BS-DR-50 to be revised to change from a continuous fire watch to placement of the doors on the CO<sub>2</sub> blowoff chains and an hourly fire watch.

DCP 99-097  
FS 00-017

**Design Change Package  
UFSAR Change Request**  
(Safety Evaluation 00-043)

04/06/00

Design Change Package 99-097, "Reactor Cavity Water Seal/Surry 1&2", replaces the existing Inflatable Cavity Seal Ring with a new Segmented Reactor Cavity Seal.

TM S1-00-010

**Temporary Modification**  
(Safety Evaluation 00-044)

04/13/00

Temporary Modification S1-00-010 installs additional pressure gauges to the Charging System in order to obtain additional data to trouble shoot head/flow problems.

FS 00-022

**UFSAR Change Request**  
(Safety Evaluation 00-045)

04/13/00

As a result of the Integrated Configuration Management Project review, UFSAR Change Request FS 00-022 corrects the statements in the UFSAR that discuss Surry's reactor coolant system cold shutdown low level alarm setpoint and the auxiliary feedwater flow loop indication accuracy for normal operating conditions. These changes are to enhance accuracy and do not involve any physical changes to the facility or any of its component's operation or performance.

**FACILITY CHANGES THAT DID NOT REQUIRE NRC APPROVAL**

**MONTH/YEAR:** April 2000

SE 00-046	<p><b>Safety Evaluation</b></p> <p>Safety Evaluation 00-046 evaluates the 2000 Unit 1 Refueling Outage against current industry guidelines and Virginia power administrative requirements for shutdown risk management including NUMARC 91-06 and Nuclear Engineering Technical Report 865, Rev. 3. The schedule provides a plan for safely and efficiently accomplishing refueling, maintenance, modification, and testing activities.</p>	04/13/00
NE-1234	<p><b>Reload Safety Evaluation Technical Report</b> (Safety Evaluations 00-049)</p> <p>Technical Report NE-1234, Rev. 0, "Reload Safety Evaluation Surry 1 Cycle 17", examines refueling and operation of Surry Unit 1 Cycle 17 including using 135.5 inch burnable poison (BP) rods and replacement removable top nozzles on twenty-nine fuel assemblies.</p>	04/13/00
TM S1-00-011	<p><b>Temporary Modification</b> (Safety Evaluation 00-052)</p> <p>Unit shutdown requires the 1A Main Feedwater Pump (MFWP) motor breakers to be placed in the test position and closed in order to open MFWP discharge MOV 1-FW-MOV-150A and recirc valve 1-FW-FCV-150A. This allows the Steam Generators to be fed by the condensate pump. When the Unit 1 "A" MFWP motor breakers were being closed, recirc valve 1-FW-FCV-150A had failed closed and the MFWP breakers tripped and would not remain closed. Temporary Modification (TM) S1-00-011 disabled the low flow and recirc valve position trips for the MFWP breakers enabling the MFWP breakers to remain closed in the test position. This TM will be removed and the recirc valve repaired prior to startup of the pump following the current refueling outage.</p>	04/17/00
ET S-00-0050	<p><b>Engineering Transmittal</b> (Safety Evaluation 00-053)</p> <p>Engineering Transmittal S-00-0050 directs the mounting of a man-lift on top of the Polar Crane Trolley for the inspection, and repairing if needed, of the Containment Dome liner plating. Safety Evaluation 00-053 evaluates the mounting of the lift.</p>	04/19/00
DCP 00-016 FS 00-029	<p><b>Design Change Package</b> <b>UFSAR Change Request</b> (Safety Evaluation 00-054)</p> <p>Design Change Package 00-016, "Replacement of 1-BC-TCV-101 and 2-BC-TCV-201 with Manual Valves", removes the existing malfunctioning temperature control valves (TCV) from the Bearing Cooling System and replaces them with manual globe valves that allow local flow operation.</p>	04/20/00
TM S2-00-002	<p><b>Temporary Modification</b> (Safety Evaluation 00-058)</p> <p>Temporary Modification S2-00-002 installs jumpers to replace the failed relay AST1-XB for Train "B" Auto Stop Oil in the Unit 2 train "B" reactor protection circuit.</p>	04/24/00

**FACILITY CHANGES THAT DID NOT REQUIRE NRC APPROVAL**

**MONTH/YEAR:** April 2000

FS 00-007	<b>UFSAR Change Request</b> (Safety Evaluation 00-060)	04/27/00
As a result of the Integrated Configuration Management Project review, UFSAR Change Request FS 00-007 corrects the statements in the UFSAR that discuss Surry's high energy lines. These changes are to enhance accuracy and do not affect any high energy line systems or structures, or any of its component's operation or performance.		
TM S1-00-015	<b>Temporary Modification</b> (Safety Evaluation 00-062)	04/28/00
Temporary Modification S1-00-015 allows the installation of a temporary jumper to maintain the operation of the intrusion and tamper alarms for a security zone until a defective cable can be replaced.		
TM S1-00-014	<b>Temporary Modification</b> (Safety Evaluation 00-063)	04/30/00
Temporary Modification S1-00-014 installs jumpers to replace the Unit 1 degraded relay FC-424-XB for Reactor Coolant Flow Loop-2 in the Unit 1 train "B" reactor protection circuit.		

**PROCEDURE OR METHOD OF OPERATION CHANGES  
THAT DID NOT REQUIRE NRC APPROVAL**

**MONTH/YEAR:** April 2000

1-MOP-EP-401 1-MOP-EP-402	<b>Maintenance Operating Procedures</b> (Safety Evaluation 00-038)	03/30/00
Maintenance Operating Procedures 1-MOP-EP-401, "Unit 1 Generator Tagout" and 1-MOP-EP-402, "Return to Service of Unit 1 Main Generator", were revised to bypass the Robertshaw Fire Detection alarm for the Low Pressure CO <sub>2</sub> Fire Suppression systems in Hazard Zones 15,13,11 due to maintenance work on the turbine and generator during the Refueling Outage.		
1-MOP-DG-002	<b>Maintenance Operating Procedure</b> (Safety Evaluation 00-041)	03/31/00
Maintenance Operating Procedure 1-MOP-DG-002, "Removal and Return to Service of the PDTT Inlet PCV", was written to fail the Primary Drain Transfer Tank (PDTT) Pressure Control Valve, 1-DG-PCV-100, in the open position in order to provide a flow path for RCS loop drains and other drains to the PDTT during the Refueling Outage.		
1-OPT-CT-210 2-OPT-CT-210	<b>Operations Periodic Test Procedures</b> (Safety Evaluation 00-042)	04/06/00
Operations Periodic Test Procedures 1 & 2-OPT-CT-210, "Refueling Containment Integrity" were revised to allow certain manual valves, used to provide refueling containment integrity, to be secured closed by the use of substitute locks or tamper seals instead of requiring tagging which increases radiation exposure.		
0-MPM-0300-01	<b>Mechanical Preventive Maintenance Procedure</b> (Safety Evaluation 00-047)	04/13/00
Mechanical Preventive Maintenance Procedure 0-MPM-0300-01, "Limitorque Operator Type SB, SBD, SMB, and HBC Lubrication and Inspection", was revised to provide administrative controls to assure the capability to meet design basis for non-essential Service Water (SW) isolation safety function when one of the valves is taken out of service for testing or maintenance. Failure of the out of service valve to close in response to a non-essential SW isolation signal is addressed by 0-AP-12.01 and isolation can be accomplished within the required 1 hour via manual isolation valves.		
GMP-011	<b>General Maintenance Procedure</b> (Safety Evaluation 00-048)	04/13/00
General Maintenance Procedure GMP-011, "Installation and Removal of Stop Logs", was revised to prevent the level differential auto start functions for the screen wash pump and strainer from automatically starting when the Circulating Water bays are de-watered for maintenance.		

**PROCEDURE OR METHOD OF OPERATION CHANGES  
THAT DID NOT REQUIRE NRC APPROVAL**

**MONTH/YEAR: April 2000**

1-MOP-EP-206  
1-MOP-EP-207

**Maintenance Operating Procedures**  
(Safety Evaluation 00-055)

04/20/00

Maintenance Operating Procedures 1-MOP-EP-206, "Removing 4160V Bus 1J, 480V Buses 1J and 1J1, and 480V MCC 1J1-1 and 1J1-2 from Service" and 1-MOP-EP-207, "Returning 4160V Bus 1J, 480V Buses 1J and 1J1, and 480V MCC 1J1-1 and 1J1-2 to Service", were revised to provide administrative controls to assure the capability to meet design basis for non-essential Service Water (SW) isolation safety function when one of the valves is taken out of service for testing or maintenance. Failure of the out of service valve to close in response to a non-essential SW isolation signal is addressed by O-AP-12.01 and isolation can be accomplished within the required 1 hour via manual isolation valves.

1-MOP-EP-212

**Maintenance Operating Procedure**  
(Safety Evaluation 00-061)

04/27/00

Maintenance Operating Procedure 1-MOP-EP-212, "Removal From and Return to service of 4160/480 Feeder 1-EP-BKR-15G", was revised to operate water well pump "A" on temporary power while breaker 1-EP-BKR-15G5 is out of service.

**TESTS AND EXPERIMENTS THAT DID NOT REQUIRE NRC APPROVAL**

**MONTH/YEAR:** April 2000

None during the Reporting Period



**CHEMISTRY REPORT**

**MONTH/YEAR:** April 2000

Primary Coolant Analysis	Unit No. 1			Unit No. 2		
	Max.	Min.	Avg.	Max.	Min.	Avg.
Gross Radioactivity, $\mu\text{Ci/ml}$	5.11E-1	6.99E-4	8.95E-2	1.82E-1	1.19E-1	1.43E-1
Suspended Solids, ppm	0.050	0.010	0.022	-	-	-
Gross Tritium, $\mu\text{Ci/ml}$	3.68E-2	3.48E-2	3.58E-2	8.62E-1	8.32E-1	8.40E-1
$I^{131}$ , $\mu\text{Ci/ml}$	5.16E-4	1.63E-4	3.21E-4	$\leq 1.04\text{E-}4$	$\leq 6.80\text{E-}5$	$\leq 8.71\text{E-}5$
$I^{131}/I^{133}$	0.09	0.06	0.07	$\leq 0.19$	$\leq 0.12$	$\leq 0.16$
Hydrogen, cc/kg	36.2	0.8	18.3	40.2	34.7	36.9
Lithium, ppm	0.76	0.15	0.64	2.31	2.09	2.20
Boron - 10, ppm*	481.4	0.2	310.3	106.2	88.6	97.9
Oxygen, (DO), ppm	7	0.005	4.1	$\leq 0.005$	$\leq 0.005$	$\leq 0.005$
Chloride, ppm	$\leq 0.05$	$\leq 0.001$	$\leq 0.004$	$\leq 0.05$	$\leq 0.001$	$\leq 0.007$
pH @ 25 degree Celsius	9.65	4.61	5.88	7.08	6.97	7.02

\* Boron - 10 = Total Boron x 0.196

Comments:

None

**FUEL HANDLING  
UNITS 1 & 2**

**MONTH/YEAR:** April 2000

New Fuel Shipment or Cask No.	Date Stored or Received	Number of Assemblies per Shipment	Assembly Number	ANSI Number	Initial Enrichment	New or Spent Fuel Shipping Cask Activity
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None during the Reporting Period

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

**MONTH/YEAR:** April 2000

None during the Reporting Period