

VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

June 13, 1991

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

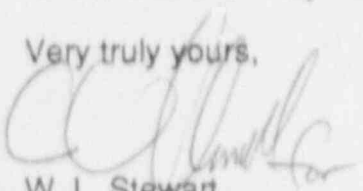
Serial No. 91-332
NL&P/JMJ:jmj
Docket Nos. 50-338
50-339
License Nos. NPF-4
NPF-7

Gentlemen:

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

Enclosed is the Monthly Operating Report for North Anna Power Station Units 1 and 2 for the month of May 1991.

Very truly yours,


W. L. Stewart
Senior Vice President - Nuclear

Enclosures


cc: U.S. Nuclear Regulatory Commission
101 Marietta Street, NW
Suite 2900
Atlanta, GA 30323

Mr. M. S. Lesser
NRC Senior Resident Inspector
North Anna Power Station

VIRGINIA POWER COMPANY
NORTH ANNA POWER STATION
MONTHLY OPERATING REPORT

MONTH: May YEAR: 1991

Approved:



Station Manager

OPERATING DATA REPORT

DOCKET NO.: 50-338
DOCKET NO.: 50-338
DATE: June 3, 1991
COMPLETED BY: C. Mladen
PHONE: (703) 894-2774

OPERATING STATUS

1. Unit Name:.....North Anna 1
2. Reporting Period:.....May 1991
3. Licensed Thermal Power (Mwt):..... 2,893
4. Nameplate Rating (Gross MWe):..... 947
5. Design Electrical Rating (Net MWe):..... 907
6. Maximum Dependable Capacity (Gross MWe):.. 959
7. Maximum Dependable Capacity (Net MWe):.... 911

8. If changes occur in Capacity Ratings (Items No. 3 thru 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	Y-t-D	Cumulative
11. Hours in Reporting Period.....	744.0	3,623.0	113,435.0
12. Number of Hours Reactor was Critical.....	521.0	2,082.6	82,073.5
13. Reactor Reserve Shutdown Hours.....	20.4	42.0	6,645.6
14. Hours Generator On-Line.....	413.5	1,944.4	79,164.4
15. Unit Reserve Shutdown Hours.....	0.0	0.0	0.0
16. Gross Thermal Energy Generated (MWH).....	1,022,552.9	4,820,065.7	209,806,301.7
17. Gross Electrical Energy Generated (MWH).....	327,240.0	1,584,106.0	68,925,444.0
18. Net Electrical Energy Generated (MWH).....	309,106.0	1,500,125.0	65,228,877.0
19. Unit Service Factor.....	55.6%	53.7%	69.8%
20. Unit Availability Factor.....	55.6%	53.7%	69.8%
21. Unit Capacity Factor (using MDC Net).....	45.6%	45.5%	64.2%
22. Unit Capacity Factor (using DER Net).....	45.8%	45.7%	63.4%
23. Forced Outage Rate.....	44.4%	14.5%	12.6%

24. Shutdowns Scheduled Over Next 6 Months (Type, Date, and Duration of Each): None

25. If Shutdown at end of Report Period, estimated time of Startup: N/A

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

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

AVERAGE DAILY UNIT POWER LEVEL

Docket No.: 50-338
 Unit: NA-1
 Date: June 3, 1991
 Completed by: C. Mladen
 Phone: (703) 894-2774

MONTH: May 1991

DAY	AVERAGE DAILY POWER LEVEL (MWe-Net)	DAY	AVERAGE DAILY LEVEL LEVEL (MWe-Net)
1	<u>916</u>	17	<u>0</u>
2	<u>916</u>	18	<u>0</u>
3	<u>915</u>	19	<u>0</u>
4	<u>892</u>	20	<u>0</u>
5	<u>55</u>	21	<u>0</u>
6	<u>0</u>	22	<u>0</u>
7	<u>528</u>	23	<u>197</u>
8	<u>909</u>	24	<u>319</u>
9	<u>916</u>	25	<u>798</u>
10	<u>865</u>	26	<u>879</u>
11	<u>211</u>	27	<u>880</u>
12	<u>50</u>	28	<u>882</u>
13	<u>0</u>	29	<u>889</u>
14	<u>0</u>	30	<u>889</u>
15	<u>0</u>	31	<u>888</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.

UNIT SHUTDOWNS AND POWER REDUCTIONS

REPORT MONTH: May 1991

DOCKET NO.: 50-338
UNIT NAME: NA-1
DATE: June 3, 1991
COMPLETED BY: C. Mladen
PHONE: (703) 894-2774

No.	Date	Type ¹	Duration (hrs)	Reason ²	Method of Shutting Down Reactor ³	Licensee Event Report #	System Code ⁴	Component Code ⁵	Cause & Corrective Action to Prevent Recurrence
91-02	910505	F	0		9	N/A	TB	RLY	Corrective maintenance on Main Generator - maintained reactor power @12% during repairs
91-03	910509	F	0		9	N/A	AB	ISV	Increasing Unidentified RCS Leakage -reduced reactor power to @30% to investigate
91-04	910511	F	330.5		1	N1-91-011	AB	ISV	Reactor shutdown due to RCS Pressure Boundary Leakage

1: Type
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
H=Other (explain)

3: Method
1=Manual
2=Manual Scram
3=Automatic Scram
4=Continuations
5=Load Reduction
9=Other

4:
Exhibit F - Instructions for preparation of Data Entry Sheets for Licensee Event Report (LER) File (NUREG-0161)
5:
Exhibit H - Same Source

UNIT SHUTDOWN AND POWER REDUCTIONS
Explanation Sheet

Docket No.: 50-338

Report Month May Unit Name: NA-1

Year: 1991 Date: June 3, 1991

Completed by: Cathie Mladen

- #91-02 May 5, 1991
Main generator taken off-line at 0431 hours for corrective repairs to the main generator. Reactor power maintained at approximately 12%.
- May 7, 1991
Main generator placed on-line at 0341 hours. Cleared 30% power chemistry hold at 0744 hours. Commenced unit ramp-up at 0.3%/minute at 0808 hours.
- May 8, 1991
Unit stable at 98% power at 0700 hours with all turbine governor valves full open.
- #91-03 May 9, 1991
Commenced unit ramp-down to 30% power at 1925 hours to investigate increasing unidentified RCS leakage.
- May 10, 1991
Unit stable at 30% power at 0033 hours. Investigation of increasing RCS leakage continuing.
- #91-04 May 11, 1991
Commenced unit shutdown at 0500 hours due to RCS pressure boundary leakage. Main generator off-line at 0614 hours. Mode 3 entered at 0632 hours. Mode 4 entered at 1144 hours. Mode 5 entered at 1629 hours.
- May 20, 1991
Entered Mode 4 at 0309 hours. Entered Mode 3 at 0946 hours.
- May 21, 1991
Entered Mode 2 at 1331 hours. Unit stable at 3% power at 1409 hours. Main generator exciter field breaker tripped at 1655 hours. Manually tripped Main turbine at 1819 hours due to corrective maintenance required on Main generator exciter.

UNIT SHUTDOWN AND POWER REDUCTIONS
Explanation Sheet
(Continued)

May 23, 1991

Entered Mode 1 at 0101 hours. Main generator on-line at 0133 hours. Unit stable at 30% power at 0235 hours.

May 24, 1991

Commenced unit ramp-up to full power at 1505 hours.

May 25, 1991

Unit stable at 98% power with all turbine governor valves full open at 1000 hours.

NORTH ANNA POWER STATION

UNIT NO.: 1
MONTH: May

Page 1 of 2

SUMMARY OF OPERATING EXPERIENCE

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

<u>Date</u>	<u>Time</u>	<u>Data</u>
May 01, 1991	0000	Began month with unit at 100%, 960MWe.
May 04, 1991	2100	Commenced unit ramp-down due to need to perform corrective maintenance on Main generator.
May 05, 1991	0431	Main generator off-line. Reactor power maintained at approximately 12%.
May 07, 1991	0341	Main generator on-line commencing unit ramp-up.
	0744	Cleared 30% chemistry hold.
	0808	Commenced unit ramp-up at 0.3%/minute.
May 08, 1991	0700	Unit stable at 98% with all turbine governor valves full open.
May 09, 1991	1925	Commenced unit ramp-down to 30% to investigate increasing unidentified RCS leakage.
May 10, 1991	0033	Unit stable at 30% power with investigations into source of RCS leakage continuing.
May 11, 1991	0500	Commenced unit shutdown due to RCS pressure boundary leakage.
	0614	Main generator off-line.
	0632	Mode 3 entered.
	1144	Mode 4 entered.
	1629	Mode 5 entered.
May 20, 1991	0309	Mode 4 entered.
	0946	Mode 3 entered.

NORTH ANNA POWER STATION

UNIT NO.: 1

MONTH: May

Page 2 of 2

SUMMARY OF OPERATING EXPERIENCE

<u>Date</u>	<u>Time</u>	<u>Data</u>
May 21, 1991	1331	Mode 2 entered.
	1409	Unit stable at 3% power.
	1655	Main generator exciter field breaker tripped.
	1819	Manually tripped Main turbine due to need for corrective maintenance on the Main generator exciter.
May 23, 1991	0101	Mode 1 entered.
	0133	Main generator on-line.
	0235	Unit stable at 30% power.
May 24, 1991	1505	Commencing unit ramp-up to full power.
May 25, 1991	1000	Unit at 98% power with all turbine governor valves full open.
May 29, 1991	0002	Reactor power at 100% due to performance of 1-TOP-31.3 which bypasses a portion of feedwater to the 1st point heaters.
May 31, 1991	2400	Ended month with unit at 100%, 936 MWe.

OPERATING DATA REPORT

DOCKET NO.: 50-339
 DATE: June 3, 1991
 COMPLETED BY: C. Mladen
 PHONE: (703) 894-2774

OPERATING STATUS

1. Unit Name:.....North Anna 2
2. Reporting Period:.....May 1991
3. Licensed Thermal Power (MWt):..... 2893
4. Nameplate Rating (Gross MWe):..... 947
5. Design Electrical Rating (Net MWe):..... 907
6. Maximum Dependable Capacity (Gross MWe):.. 957
7. Maximum Dependable Capacity (Net MWe):.... 909

8. If changes occur in Capacity Ratings (Items No. 3 thru 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	Y-t-D	Cumulative
11. Hours in Reporting Period.....	744.0	3,623.0	91,703.0
12. Number of Hours Reactor was Critical.....	744.0	3,623.0	74,757.3
13. Reactor Reserve Shutdown Hours.....	0.0	0.0	5,949.6
14. Hours Generator On-Line.....	744.0	3,623.0	73,857.3
15. Unit Reserve Shutdown Hours.....	0.0	0.0	0.0
16. Gross Thermal Energy Generated (MWH).....	2,148,226.1	10,474,923.7	197,724,037.1
17. Gross Electrical Energy Generated (MWH).....	704,321.0	3,470,821.0	64,773,407.0
18. Net Electrical Energy Generated (MWH).....	669,930.0	3,305,588.0	62,121,068.0
19. Unit Service Factor.....	100.0%	100.0%	80.5%
20. Unit Availability Factor.....	100.0%	100.0%	80.5%
21. Unit Capacity Factor (using MDC Net).....	99.1%	100.4%	75.3%
22. Unit Capacity Factor (using DER Net).....	99.3%	100.6%	74.7%
23. Forced Outage Rate.....	0.0%	0.0%	6.0%

24. Shutdowns Scheduled Over Next 6 Months (Type, Date, and Duration of Each): _____ None _____

25. If Shutdown at end of Report Period, estimated time of Startup: _____ N/A _____

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

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

AVERAGE DAILY UNIT POWER LEVEL

Docket No.: 50-339
 Unit: NA-2
 Date: June 3, 1991
 Completed by: C. Mladen
 Phone: (703) 894-2774

MONTH: May 1991

DAY AVERAGE DAILY POWER
 LEVEL (MWe-Net)

1	<u>914</u>
2	<u>914</u>
3	<u>898</u>
4	<u>903</u>
5	<u>912</u>
6	<u>911</u>
7	<u>915</u>
8	<u>917</u>
9	<u>906</u>
10	<u>899</u>
11	<u>900</u>
12	<u>899</u>
13	<u>876</u>
14	<u>848</u>
15	<u>880</u>
16	<u>890</u>

DAY AVERAGE DAILY LEVEL
 LEVEL (MWe-Net)

17	<u>890</u>
18	<u>887</u>
19	<u>901</u>
20	<u>908</u>
21	<u>908</u>
22	<u>906</u>
23	<u>906</u>
24	<u>906</u>
25	<u>904</u>
26	<u>904</u>
27	<u>903</u>
28	<u>901</u>
29	<u>902</u>
30	<u>903</u>
31	<u>904</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.

REPORT MONTH: May 1991

DOCKET NO.: 50-339
UNIT NAME: NA-2
DATE: June 3, 1991
COMPLETED BY: C. Mladen
PHONE: (703) 894-2774

No.	Date	1 Type	Duration (hrs)	2 Reason	3 Method of Shutting Down Reactor	Licensee Event Report #	4 System Code	5 Component Code	Cause & Corrective Action to Prevent Recurrence
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*No entry this month

1: Type	2: Reason	3: Method	4:
F=Forced	A=Equipment Failure (explain)	1=Manual	Exhibit F - Instructions
S=Scheduled	B=Maintenance or Test	2=Manual Scram	for preparation of Data
	C=Refueling	3=Automatic Scram	Entry Sheets for Licensee
	D=Regulatory Restriction	4=Continuations	Event Report (LER) File
	E=Operator Training & License Examination	5=Load Reduction	(NUREG-0161)
	F=Administrative	9=Other	
	G=Operational Error		5:
	H=Other (explain)		Exhibit H - Same Source

UNIT SHUTDOWN AND POWER REDUCTIONS
Explanation Sheet

Docket No.: 50-339

Report Month May Unit Name: NA-2

Year: 1991 Date: June 3, 1991

Completed by: Cathie Mladen

*No entry this month

NORTH ANNA POWER STATION

UNIT NO.: 2
MONTH: May

Page 1 of 2

SUMMARY OF OPERATING EXPERIENCE

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

<u>Date</u>	<u>Time</u>	<u>Data</u>
May 01, 1991	0000	Began month with unit at 100%, 960MWe.
May 03, 1991	0900	Commenced unit ramp-down to 880MWe for TVFT.
	1040	TVFT completed satisfactorily.
	1130	Commenced unit ramp-up to 100%.
	1238	Unit stable at 100%.
	1547	Removed "C" high pressure heater drain pump from service for corrective maintenance.
	2116	Returned "C" high pressure heater drain pump to service.
	2217	Removed "A" high pressure heater drain pump from service for corrective maintenance.
May 04, 1991	1241	Returned "A" high pressure heater drain pump to service.
May 09, 1991	0906	Removed "C" high pressure heater drain pump from service due to high vibrations.

NORTH ANNA POWER STATION

UNIT NO.: 2
MONTH: May

Page 2 of 2

SUMMARY OF OPERATING EXPERIENCE

<u>Date</u>	<u>Time</u>	<u>Data</u>
May 13, 1991	1225	Removed "A" high pressure heater drain pump due to fire at pump.
	1250	Commenced unit ramp-down to 900 MWe due to low Main feedwater pump suction pressure.
	1341	Unit stable at 900 MWe.
May 15, 1991	0423	Returned "A" high pressure heater drain pump to service.
	0538	Commenced unit ramp-up to 100% power.
	0810	Unit stable at 100% power.
May 19, 1991	0823	Returned "C" high pressure heater drain pump to service.
May 31, 1991	2400	Ended month with unit at 100%, 951 MWe.