

**REGULATORY DOCKET FILE COPY**

**VIRGINIA ELECTRIC AND POWER COMPANY**  
RICHMOND, VIRGINIA 23261

September 13, 1979

Mr. R. A. Hartfield, Acting Director  
Office of Management Information and  
Program Control  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

Serial No. 119  
MAM/DLA:scj  
Docket Nos: 50-280  
50-331  
License Nos: NPS-12  
NPS-17

Dear Mr. Hartfield:

Enclosed is the Monthly Operating Report for Surry Power Station Unit Nos. 1 and 2 for the month of August 1978.

Very truly yours,

*C. M. Stallings*

C. M. Stallings  
Vice President-Power Supply  
and Protection Operations

Enclosures ( ) copies)

cc: Mr. John G. Davis, Acting Director (10 copies) ✓  
Office of Inspection and Enforcement

Mr. James P. O'Reilly, Director (1 copy)  
Office of Inspection and Enforcement - Region II

A008/5 \*

VIRGINIA ELECTRIC AND POWER COMPANY

SURRY POWER STATION

MONTHLY OPERATING REPORT

REPORT NO. 78-08

AUGUST, 1978

D. L. Stewart

Superintendent-Station Operations

APPROVED:

T. B. Bacon

MANAGER

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OPERATING DATA REPORT

DOCKET NO. 50-280
DATE 05 SEP 78
COMPLETED BY O.J. COSTELLO
TELEPHONE 804-357-3184

OPERATING STATUS

1. UNIT NAME SURRY UNIT 1
2. REPORTING PERIOD 0001 780801 - 2400 780831
3. LICENSED THERMAL POWER (MWT) 2441
4. NAMEPLATE RATING (GROSS MWE) 847.5 NOTES
5. DESIGN ELECTRICAL RATING (NET MWE) 822
6. MAXIMUM DEPENDABLE CAPACITY (GROSS MWE) 811
7. MAXIMUM DEPENDABLE CAPACITY (NET MWE) 775
8. IF CHANGES OCCUR IN CAPACITY RATINGS N/A
(ITEMS 3 THROUGH 7) SINCE LAST REPORT, GIVE REASONS

9. POWER LEVEL TO WHICH RESTRICTED, IF ANY N/A
(NET MWE)
10. REASONS FOR RESTRICTIONS, IF ANY N/A

THIS MONTH YR-TO-DATE CUMULATIVE

11. HOURS IN REPORTING PERIOD 744.0 5831.0 49895.0
12. NUMBER OF HOURS REACTOR WAS CRITICAL 736.1 4016.7 33333.6
13. REACTOR RESERVE SHUTDOWN HOURS 0.0 0.0 0.0
14. HOURS GENERATOR ON-LINE 733.0 3938.0 32503.2
15. UNIT RESERVE SHUTDOWN HOURS 0.0 0.0 0.0
16. GROSS THERMAL ENERGY GENERATED (MWH) 1772814.0 9530217.0 74671213.0
17. GROSS ELECTRICAL ENERGY GENERATED (MWH) 558250.0 3121800.0 24481643.0
18. NET ELECTRICAL ENERGY GENERATED (MWH) 530078.0 2968434.0 23235998.0
19. UNIT SERVICE FACTOR 98.5 % 67.5 % 65.1 %
20. UNIT AVAILABILITY FACTOR 98.5 % 67.5 % 65.1 %
21. UNIT CAPACITY FACTOR (USING MDC NET) 91.9 % 65.7 % 60.1 %
22. UNIT CAPACITY FACTOR (USING DER NET) 86.7 % 61.9 % 56.7 %
23. UNIT FORCED OUTAGE RATE 1.5 % 0.2 % 16.3 %
24. SHUTDOWNS SCHEDULED OVER NEXT 6 MONTHS SNUBBER INSPECTION 9/18/78-
(TYPE, DATE, AND DURATION OF EACH) 1 WEEK - STEAM GENERATOR
INSPECTION 1/9/79 - 6 WEEKS

25. IF SHUT DOWN AT END OF REPORT PERIOD, N/A
ESTIMATE DATE OF STARTUP

26. UNITS IN TEST STATUS FORECAST ACHIEVED
(PRIOR TO COMMERCIAL OPERATION)

INITIAL CRITICALITY
INITIAL ELECTRICITY
COMMERCIAL OPERATION

OPERATING DATA REPORT

DOCKET NO. 50-281
DATE 05 SEP 78
COMPLETED BY O.J. COSTELLO
TELEPHONE 804-357-3184

OPERATING STATUS

- 1. UNIT NAME SURRY UNIT 2
2. REPORTING PERIOD 0001 780801 - 2400 780831
3. LICENSED THERMAL POWER (MWT) 2441
4. NAMEPLATE RATING (GROSS MWE) 847.5
5. DESIGN ELECTRICAL RATING (NET MWE) 822
6. MAXIMUM DEPENDABLE CAPACITY (GROSS MWE) 811
7. MAXIMUM DEPENDABLE CAPACITY (NET MWE) 775
8. IF CHANGES OCCUR IN CAPACITY RATINGS (ITEMS 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

Table with 4 columns: Item, This Month, Yr-to-Date, Cumulative. Rows include: 11. HOURS IN REPORTING PERIOD, 12. NUMBER OF HOURS REACTOR WAS CRITICAL, 13. REACTOR RESERVE SHUTDOWN HOURS, 14. HOURS GENERATOR ON-LINE, 15. UNIT RESERVE SHUTDOWN HOURS, 16. GROSS THERMAL ENERGY GENERATED (MWH), 17. GROSS ELECTRICAL ENERGY GENERATED (MWH), 18. NET ELECTRICAL ENERGY GENERATED (MWH), 19. UNIT SERVICE FACTOR, 20. UNIT AVAILABILITY FACTOR, 21. UNIT CAPACITY FACTOR (USING MDC NET), 22. UNIT CAPACITY FACTOR (USING DER NET), 23. UNIT FORCED OUTAGE RATE.

24. SHUTDOWNS SCHEDULED OVER NEXT 6 MONTHS (TYPE, DATE, AND DURATION OF EACH) SNUBBER INSPECTION 10/12/78-1 WEEK REFUELING 12/25/78-6 WEEKS

- 25. IF SHUT DOWN AT END OF REPORT PERIOD, ESTIMATE DATE OF STARTUP N/A

- 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 9-1-78  
 COMPLETED BY O. J. Costello  
 TELEPHONE (804) 357-3184

REPORT MONTH Aug. 1978

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
78-2	780814	F	1.6	H	3				(1) Electrical short caused by corrective maintenance on relay during logic testing. (2) Operator manually tripped unit.
78-3	780814	F	4.9	G	1				
78-4	780829	F	4.5	G	3				(3) Turbine runback resulting from spike on electrical system and resultant over boration.

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

<sup>2</sup>  
 Reason:  
 A-Equipment Failure (Explain)  
 B-Maintenance of 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 I - Same Source

(9/77)

# UNIT SHUTDOWNS AND POWER REDUCTIONS

DOCKET NO. 50-281  
 UNIT NAME Surry 2  
 DATE 9-1-78  
 COMPLETED BY O. J. Costello  
 TELEPHONE (804) 357-3184

REPORT MONTH Aug. 1978

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
78-4	780801	S	16.7	II	1				ECCS pump modification shutdown at start of month.
78-5	780814	F	7.3	D	4	78-029/03L-0			Unit Load Reduced > 20% as a result of river water inlet temperature greater than specification. Unit was not shut down.

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

<sup>2</sup>  
 Reason:  
 A-Equipment Failure (Explain)  
 B-Maintenance of 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 I - Same Source



LOAD REDUCTIONS DUE TO ENVIRONMENTAL RESTRICTIONS

UNIT NO. 1

MONTH: AUGUST, 1978

<u>DATE</u>	<u>TIME</u>	<u>HOURS</u>	<u>LOAD, MW</u>	<u>REDUCTIONS, MW</u>	<u>MWE</u>	<u>REASON</u>
NONE DURING THIS REPORTING PERIOD.						
MONTHLY TOTAL					0	

LOAD REDUCTIONS DUE TO ENVIRONMENTAL RESTRICTIONS

UNIT NO. 2

MONTH: AUGUST, 1978

<u>DATE</u>	<u>TIME</u>	<u>HOURS</u>	<u>LOAD, MW</u>	<u>REDUCTIONS, MW</u>	<u>MWH</u>	<u>REASON</u>
NONE DURING THIS REPORTING PERIOD.						
MONTHLY TOTAL					0	

DOCKET NO 50-280  
UNIT SURRY I  
DATE 9-1-78  
COMPLETED BY O J COSTELLO

AVERAGE DAILY UNIT POWER LEVEL

MONTH: AUGUST 1978

DAY	AVERAGE DAILY POWER LEVEL (MWE-NET)	DAY	AVERAGE DAILY POWER LEVEL (MWE-NET)
1	728.0	17	728.7
2	731.8	18	728.4
3	726.1	19	728.6
4	734.8	20	723.9
5	735.2	21	732.5
6	733.0	22	730.4
7	732.7	23	734.1
8	731.8	24	727.3
9	731.3	25	734.0
10	731.5	26	732.5
11	733.5	27	733.0
12	735.0	28	730.4
13	733.8	29	517.1
14	430.8	30	724.6
15	668.8	31	734.1
16	729.0		

DAILY UNIT POWER LEVEL FORM INSTRUCTIONS

ON THIS FORM, LIST THE AVERAGE DAILY UNIT POWER LEVEL IN MWE-NET FOR EACH DAY IN THE REPORTING MONTH. THESE FIGURES WILL BE USED TO PLOT A GRAPH FOR EACH REPORTING MONTH. NOTE THAT BY USING MAXIMUM DEPENDABLE CAPACITY FOR THE NET ELECTRICAL RATING OF THE UNIT, THERE MAY BE OCCASIONS WHEN THE DAILY AVERAGE POWER EXCEEDS THE 100 % LINE (OR THE RESTRICTED POWER LEVEL LINE). IN SUCH CASES, THE AVERAGE DAILY UNIT POWER OUTPUT SHEET SHOULD BE FOOTNOTED TO EXPLAIN THE APPARENT ANOMALY.

DOCKET NO 50-281  
UNIT SURRY II  
DATE 9-1-78  
COMPLETED BY O J COSTELLO

AVERAGE DAILY UNIT POWER LEVEL

MONTH: AUGUST 1978

DAY	AVERAGE DAILY POWER LEVEL (MWE-NET)	DAY	AVERAGE DAILY POWER LEVEL (MWE-NET)
1	70.8	17	722.7
2	606.5	18	725.6
3	733.0	19	727.2
4	718.2	20	726.5
5	739.6	21	727.6
6	733.6	22	729.6
7	717.2	23	729.1
8	733.9	24	732.1
9	736.1	25	728.3
10	739.0	26	731.1
11	739.8	27	735.7
12	739.3	28	730.0
13	738.0	29	730.3
14	693.2	30	733.9
15	728.4	31	735.0
16	726.7		

DAILY UNIT POWER LEVEL FORM INSTRUCTIONS

ON THIS FORM, LIST THE AVERAGE DAILY UNIT POWER LEVEL IN MWE-NET FOR EACH DAY IN THE REPORTING MONTH. THESE FIGURES WILL BE USED TO PLOT A GRAPH FOR EACH REPORTING MONTH. NOTE THAT BY USING MAXIMUM DEPENDABLE CAPACITY FOR THE NET ELECTRICAL RATING OF THE UNIT, THERE MAY BE OCCASIONS WHEN THE DAILY AVERAGE POWER EXCEEDS THE 100 % LINE (OR THE RESTRICTED POWER LEVEL LINE). IN SUCH CASES, THE AVERAGE DAILY UNIT POWER OUTPUT SHEET SHOULD BE FOOTNOTED TO EXPLAIN THE APPARENT ANOMALY.

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SUMMARY OF OPERATING EXPERIENCE

AUGUST, 1978

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 1

August 1 - This report period begins with the unit at 100% power.

August 10 - At 2325 power was reduced to 90% to perform Power Coefficient Testing (PT-28.12). At 2355 the unit was returned to 100%.

August 14 - At 1251 the reactor was automatically tripped during Protection Logic Testing. At 1332 the reactor was taken critical and at 1425 the system was paralleled to the system. At 1502 the turbine was manually tripped which resulted in an automatic reactor trip. This trip was the result of operator error when he overreacted to an inappropriate aside comment regarding reactor trip. The reactor startup was prohibited by service water temperature greater than 87°F until 1857. when the reactor was taken critical and at 1958 the turbine was paralleled to the system. A power increase was begun. At 2400 the unit was at 65% power.

August 15 - At 0610 the unit was at 97% and for about 8 hours power was changed about 1% until the F<sub>0</sub> surveillance allowed 100% power operation. At 1500 the reactor attained 100% power.

August 29 - At 1100 a runback of the unit to 70% occurred from a spike on the Electric Control System. The unit was stabilized and a recovery begun at 1105. At 1140 with the unit at 94% approximately 200 gallons of borated water was pumped into the RCS. This was the result of the emergency borate admission valve being inadvertently opened during the first casualty. This condition went unnoticed until a manual boration was attempted during the normal recovery. The result of the boron addition was a rapid drop in average temperature and a reactor trip on Low RCS Pressure at 1227. At 1545 the reactor was taken critical. At 1657 the turbine was paralleled to the system. A load increase was begun. At 2130 the unit was returned to 100% power.

August 31 - This report ends with the unit at 100% power.

UNIT 2

August 1 - This report period begins with the unit heating up as part of a normal recovery. At 0515 the RCS was at hot shutdown condition and at 0655 PT-11 (Overpressure Test) was completed. At 1410 the reactor was taken critical and at 1640 the turbine was paralleled to the system. A power increase was begun. At 2400 the unit was at 48% power.

August 2 - At 1000 the unit was at 100% power.

SUMMARY OF OPERATING EXPERIENCE  
(CONTINUED)

UNIT 2

August 14 - At 1510 a rampdown was commenced due to river temperature greater than 87°F. At 1830 the power was at 62% and a change to the river temperature specification was received via Telecon from NRC Licensing, a load increase was commenced. At 2235 the unit was returned to 100%.

August 31 - This report period ends with the unit at 100% power.

AUGUST, 1978

On August 14, 1978, the Nuclear Regulatory Commission issued Amendments No. 43 and 42 to the Operating License for the Surry Power Station Unit Nos. 1 and 2. This amendment which specifies license conditions results from our request to operate with a service water temperature above 87°F. These interim conditions will ensure adequate net positive suction head to the recirculation spray and low head safety injection pumps, in the event of a loss of coolant accident. Of significance, the staff has imposed the following limitations:

The facility shall be operated within the following limits:

Maximum Service Water Temperature	90°F
Containment Temperature Allowable Range	100°F - 125°F
Containment Air Partial Maximum Pressure	
1. For Service Water Temperature $\leq 87^\circ\text{F}$	Air partial pressure shall be maintained in accordance with Figure 3.F.2
2. For Service Water Temperature $> 87^\circ$	Air partial pressure shall be maintained in accordance with Figure 3.F.1
Minimum Refueling Water Storage Tank Volume	385,200 gallons
Outside Recirculation Spray Pump Flow Rate	2250 gpm

FACILITY CHANGES REQUIRING  
NRC APPROVAL

AUGUST, 1978

There were none during this reporting period.

FACILITY CHANGES THAT  
DID NOT REQUIRE NRC APPROVAL

AUGUST, 1978

Design Change Unit

- 1. DC-78-S16 - Auxiliary Building Ventilation Test Holes 1,2  
Description - Forty-nine (49) instrument test holes were installed to permit the use of portable test equipment to measure air velocity and static pressure during the design, testing, and operational stages of NRC imposed modifications.

Summary of Safety Evaluation

This change to the Auxiliary Building Ventilation System will have no effect on station operations or the functioning of safety related equipment since the original design basis criteria are maintained.

Conclusion

This design change does not constitute an unreviewed safety question.

- 2. DC-78-17 - Telephone Computer Room Ventilation N/A  
Description - With the replacement of the PBX telephone system by the ROLM system which utilizes two computers, a need for improved ventilation was created. This design change encompassed directing the flow of cooled air from a nearby duct into this space lowering the temperature approximately 15°F.

Summary of Safety Evaluation

All work involved with this design change was non-safety related.

- 3. DC-78-18 - Emergency Diesel Generators 1,2  
Description - Pressure control switches were so mounted that vibration was causing premature failure. To rectify this the switches were removed from the base plate and relocated on an adjacent cement wall.

Summary of Safety Evaluation

This design change in no way affected the operation of the Emergency Diesel Generators and as such was considered non-safety related.



FACILITY CHANGES THAT  
DO NOT REQUIRE NRC APPROVAL  
(CONTINUED)  
AUGUST, 1978

<u>Design Change</u>	<u>Unit</u>
4. <u>DC-78-S23 - Snubbers - LHSI, Feedwater, and Steam Generator Blowdown System</u>	2

Description - LHSI snubber was discovered to be fully extended during an inspection. To enable this snubber to have free travel, two one inch shim plates were installed between the pipe attachment and the suppressor.

A feedwater system snubber was found fully contracted during cold shutdown conditions. To assure no undue stresses were imposed the rod end was changed from a 4 inch to a 2 inch attachment assuring proper functioning during all phases of operation.

To correct deficiencies noted in the steam generator blowdown system one guide, two lateral/vertical restraints, and one strut were installed.

Summary of Safety Evaluation

This modification which supports a pipe stress review does not increase the probability of occurrence or the consequences of an accident previously postulated. It does not increase the possibility for an accident or malfunction of a different type from those evaluated and the margin of safety defined in Technical Specifications is not reduced.

Conclusion

This design change does not constitute an unreviewed safety question

5. <u>DC-78-S24 - Fire Protection Piping System-Personnel Change Decontamination Building</u>	1,2
---	-----

Description - This fire protection piping was installed to service the new Personnel Change and Decontamination Building. The seismic criteria of the original piping was met and is in accordance with NFPA and Class 1 earthquake criteria.

Summary of Safety Evaluation

The installation of this fire protection piping does not increase the probability of occurrence or the consequences of an accident of equipment important to safety which was previously evaluated, create the possibility for an accident or malfunction of a different type than previously addressed, or reduce the margin of safety as defined in Technical Specifications.

Conclusion

This design change does not create an unreviewed safety question.

TESTS AND EXPERIMENTS REQUIRING  
NRC APPROVAL

AUGUST, 1978

There were none during this reporting period.

TESTS AND EXPERIMENTS THAT  
DID NOT REQUIRE NRC APPROVAL

AUGUST, 1978

There were none during this reporting period.

OTHER CHANGES, TESTS AND EXPERIMENTS

AUGUST, 1978

There were none during this reporting period.

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SURRY POWER STATION

CHEMISTRY REPORT

AUGUST,     , 1978

T.S.6.6.A.11

PRIMARY COOLANT ANALYSIS	UNIT NO. 1			UNIT NO. 2		
	MAXIMUM	MINIMUM	AVERAGE	MAXIMUM	MINIMUM	AVERAGE
Gross Radioact., $\mu\text{Ci/ml}$	3.67E-1	1.68E-1	2.63E-1	2.39E-1	1.21E-1	1.67E-1
Suspended Solids, ppm	0.2	0.1	0.1	0.2	0.1	0.1
Gross Tritium, $\mu\text{Ci/ml}$	2.02E-1	1.35E-1	1.61E-1	1.85E-1	3.04E-2	1.07E-1
Iodine-131, $\mu\text{Ci/ml}$	2.58E-2	9.48E-4	3.09E-3	4.88E-4	1.41E-4	3.08E-4
I-131/I-133	0.1943	0.0677	0.1434	0.1659	0.0298	0.0871
Hydrogen, cc/kg	49.1	26.9	38.8	47.8	11.3	30.1
Lithium, ppm	2.68	2.10	2.38	0.95	0.53	0.83
Boron-10, ppm +	169.3	149.7	155.4	217.6	55.7	67.4
Oxygen-16, ppm	0.000	0.000	0.000	0.000	0.000	0.000
Chloride, ppm	0.05	0.05	0.05	0.05	0.05	0.05
pH @ 25°C	7.03	6.75	6.91	7.15	6.59	7.02

+ Boron-10 = Total Boron x 0.196

NON-RADIOACTIVE CHEMICAL  
RELEASES, POUNDS  
T.S. 4.13.A.8

Phosphate	<u>0.0</u>	Boron	<u>650</u>
Sulfate	<u>278</u>	Chromate	<u>0.005</u>
50% NaOH	<u>350</u>	Chlorine	<u>0.0</u>

Remarks: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

DESCRIPTION OF ALL INSTANCES WHERE  
THERMAL DISCHARGE LIMITS WERE EXCEEDED

AUGUST, 1978

On August 14, 1978 and August 29, 1978, Unit 1 tripped resulting in a change in river temperature greater than 3°F/hr. Due to impairment to the circulating water system on the following days the thermal discharge limits were exceeded as noted.

August 2, 1978	Exceeded 15°F ΔT across station
August 3, 1978	Exceeded 17.5°F ΔT across station
August 4, 1978	Exceeded 17.5°F ΔT across station
August 5, 1978	Exceeded 15°F ΔT across station
August 6, 1978	Exceeded 15°F ΔT across station
August 7, 1978	Exceeded 15°F ΔT across station
August 8, 1978	Exceeded 15°F ΔT across station
August 9, 1978	Exceeded 15°F ΔT across station
August 10, 1978	Exceeded 15°F ΔT across station
August 11, 1978	Exceeded 15°F ΔT across station
August 12, 1978	Exceeded 15°F ΔT across station
August 13, 1978	Exceeded 15°F ΔT across station
August 14, 1978	Exceeded 15°F ΔT across station
August 15, 1978	Exceeded 15°F ΔT across station
August 16, 1978	Exceeded 15°F ΔT across station
August 16, 1978	Exceeded 103°F at groin
August 17, 1978	Exceeded 15°F ΔT across station
August 17, 1978	Exceeded 103°F at groin
August 18, 1978	Exceeded 15°F ΔT across station
August 18, 1978	Exceeded 103°F at groin
August 19, 1978	Exceeded 15°F ΔT across station
August 19, 1978	Exceeded 103°F at groin
August 20, 1978	Exceeded 15°F ΔT across station
August 20, 1978	Exceeded 103°F at groin
August 21, 1978	Exceeded 15°F ΔT across station
August 22, 1978	Exceeded 15°F ΔT across station
August 23, 1978	Exceeded 15°F ΔT across station
August 24, 1978	Exceeded 15°F ΔT across station
August 25, 1978	Exceeded 15°F ΔT across station
August 26, 1978	Exceeded 15°F ΔT across station
August 27, 1978	Exceeded 15°F ΔT across station
August 28, 1978	Exceeded 15°F ΔT across station
August 29, 1978	Exceeded 17.5°F ΔT across station
August 30, 1978	Exceeded 15°F ΔT across station
August 31, 1978	Exceeded 15°F ΔT across station

These ΔT excursions as well as the high discharge temperatures were allowable under Technical Specifications 4.14.B.1 or 2. There were no reported instances of significant adverse environmental impact.

FUEL HANDLING

AUGUST, 1978

On 08-29-78 an audit was conducted of the fuel assembly annual accountability audit of our SNM accountability records and procedures. No significant discrepancies were discovered during this audit. No fuel handling was done during this month.







PROCEDURE REVISIONS THAT CHANGED THE  
OPERATING MODE DESCRIBED IN THE FSAR

AUGUST, 1978

There were none during this reporting period.

-22-  
DESCRIPTION OF PERIODIC TESTS WHICH WERE NOT  
COMPLETED WITHIN THE TIME LIMITS  
SPECIFIED IN TECHNICAL SPECIFICATIONS

AUGUST, 1978

The following Periodic Tests were not completed within the time limits specified in the Technical Specifications.

- PT-14.1      Main Steam Line Trip Valve 3° stroke was not completed on Unit 1. See Licensee Event Report 78-027-03-L-0 for further information.
- PT-24.2      High Pressure CO<sub>2</sub> System was not completed on scheduled date for Unit 1. See Station Deviation 78-116 for more information.
- PT-28.4      The T+480 axial flux distribution surveillance for Unit 2, was inadvertently missed on 08-15-78. This was the last in the transient series which began at 2140 hours on 08-14-78. A scheduled F<sub>0</sub> Surveillance was performed satisfactorily 2 hours and 20 minutes after this PT was missed.
- PT-49        On August 31, 1978, it was discovered that a census of animals producing milk for human consumption, required per Technical Specification 4.9.2F at the beginning and at the middle of the grazing season, was not performed. Until August, 1978 there was no procedure for conducting such a census, however, a procedure to perform the census now exists and will be utilized.

INSERVICE INSPECTION

AUGUST, 1978

NONE DURING THIS REPORTING PERIOD.

REPORTABLE OCCURRENCES PERTAINING TO  
ANY OUTAGE OR POWER REDUCTIONS

AUGUST, 1978

There were no reportable occurrences pertaining to any outage or power reductions for the month of August.

Maintenance of Safety Related Systems During  
Outage or Reduced Power Periods

UNIT #1

Mechanical Maintenance

DEPT=MECH

1 SEP 78 \* 12:48 PM PAGE 2

UNIT 1 AUGUST 1978  
(MAINTENANCE OF SAFETY RELATED SYSTEMS DURING OUTAGE OR REDUCED POWER PERIODS)

REFSERVDT	SYS	COMP	MARKNO	SUMMARY	WKPERF	U	MR	TOTIMNTM
08/15/78	CV	PUMP	1-CV-P-1A	DOES NOT PUMP	VOID	1	807261215	0
08/15/78	CV	VALVE	1-CV-26	CHECK AND REPLACED IF NEEDED	REPLACED DIAPHRAGM	1	808120120	56
08/29/78	DR	VALVE	1-DR-203	VALVE BODY LEAKING	RENEWED VALVE DONNETT+DIAPHRAGM	1	808241030	17
DEPT TOTAL								75

Maintenance of Safety Related Systems During  
Outage or Reduced Power Periods

UNIT #2

Mechanical Maintenance

UNIT 2-AUGUST 1978  
(MAINTENANCE OF SAFETY RELATED SYSTEMS DURING OUTAGE OR REDUCED POWER PERIODS)

RETSEVDT	SYS	COMP	MARKNO	SUMMARY	WKPERF	U	MR	TOTDWTM
OR/01/78	CH	PIPING	2-CH-P-2D	LEAK AT DISCHARGE FLANGE	REPLACED FLANGE GASKET	2	807191746	43
OR/01/78	SI	VALVE	2-SI-A2	BODY TO BONNET BOLTSS DETERIORATED	VOID	2	807271020	0
DEPT TOTAL								43



Maintenance of Safety Related Systems During  
Outage or Reduced Power Periods

UNIT #1

Electrical Maintenance

Electrical Maintenance

Unit #1

There was none during this reporting period.

Maintenance of Safety Related Systems During  
Outage or Reduced Power Periods

UNIT #2

Electrical Maintenance

Electrical Maintenance

Unit #2

There was none during this reporting period.

Maintenance of Safety Related Systems During  
Outage or Reduced Power Periods

UNIT #1

Instrument Maintenance

Instrument Maintenance

Unit #1

There was none during this reporting period.

Maintenance of Safety Related Systems During  
Outage or Reduced Power Periods

UNIT #2

Instrument Maintenance

DEPT=INST

1 SEP 78 \* 12:52 PM PAGE 1

UNIT 2-AUGUST 1978  
(MAINTENANCE OF SAFETY RELATED SYSTEMS DURING OUTAGE OR REDUCED POWER PERIODS)

RETSERVD	SYS	COMP	MARKNO	SUMMARY	WKPERF	U	HR	TOTDWNTH
08/01/78	CH	INST	PI-2151	CALIBRATE OR REPLACE AS NECESSARY	CALIBRATED GAUGE	2	007251000	96
08/01/78	RC	VALVE	ICV-2455B	DOES MODULATE PROPERLY	CHECKED STROKE+STARTING POINT-SAT	2	007310759	16
								-----
DEPT TOTAL								112



HEALTH PHYSICS

AUGUST, 1978

There was no single release of radioactivity or radiation exposure specifically associated with an outage that accounted for more than 10% of the allowable annual values in 10CFR20.

REPORT OF RADIOACTIVE EFFLUENTS

PAGE 1

Facility: Surry Power Station

DOCKET: 50-280 and 50-281

YEAR: 1978

1. LIQUID RELEASES

	UNITS	JULY	AUGUST						
1. Gross Radioactivity (Bq)									
(a) Total Release	Curies	1.99E-1	2.05E-1						
(b) Avg. Concentration Released	µCi/ml	1.07E-9	8.78E-10						
(c) Maximum Concentration Released	µCi/ml	1.95E-9	1.47E-9						
2. Tritium									
(a) Total Released	Curies	1.13E+2	1.41E+1						
(b) Avg. Concentration Released	µCi/ml	6.11E-7	6.04E-8						
3. Dissolved Noble Gases									
(a) Total Release	Curies	4.17E-2	1.39E-1						
(b) Avg. Concentration Released	µCi/ml	2.25E-10	5.95E-10						
4. Gross Alpha Radioactivity									
(a) Total Released	Curies	2.04E-5	4.36E-6						
(b) Avg. Concentration Released	µCi/ml	1.10E-13	1.86E-14						
5. Vol. of Liquid to Disch. Canal	Liters	3.90E+7	3.64E+7						
6. Vol. of Dilution Water	Liters	1.85E+11	2.34E+11						
7. Isotopes Released MPC µCi/ml	Curies								
I-131	3 x 10 <sup>-7</sup>	7.52E-5	6.08E-4						
I-132	8 x 10 <sup>-6</sup>	*	*						
I-133	1 x 10 <sup>-6</sup>	*	1.47E-4						
I-134	2 x 10 <sup>-5</sup>	*	*						
I-135	4 x 10 <sup>-6</sup>	3.74E-5	*						
Cs-134	9 x 10 <sup>-6</sup>	3.15E-2	1.64E-1						
Cs-136	6 x 10 <sup>-5</sup>	*	*						
Cs-137	2 x 10 <sup>-5</sup>	8.27E-2	2.73E-1						
Cs-138	-	*	*						
Cu-57	4 x 10 <sup>-4</sup>	3.95E-4	4.03E-5						
Co-58	9 x 10 <sup>-5</sup>	5.33E-1	1.54E-1						
Co-60	3 x 10 <sup>-5</sup>	3.62E-1	1.11E-1						
Mn-54	1 x 10 <sup>-4</sup>	1.05E-2	4.21E-3						
Na-24	3 x 10 <sup>-5</sup>	7.74E-4	3.69E-2						
Cr-51	2 x 10 <sup>-3</sup>	4.13E-2	3.18E-3						
Fe-59	5 x 10 <sup>-5</sup>	4.44E-4	*						
Nb-95	1 x 10 <sup>-4</sup>	6.13E-3	3.68E-4						
Ba-La-140	2 x 10 <sup>-5</sup>	*	3.44E-5						
Rb-88	-	*	*						

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REPORT OF RADIOACTIVE EFFLUENTS

PAGE 2

FACILITY: Surry Power Station

DOCKET: 50-280 and 50-281

YEAR: 1978

I. LIQUID RELEASES (CON'T)

		UNITS	JULY	AUGUST				TOTAL	± Error
7.	Isotopes Released $\mu$ MPC CI/ml	Curies							
	Ce-141		9 x 10 <sup>-5</sup>	*	*				
	Ce-144		1 x 10 <sup>-5</sup>	2.79E-4	*				
	Xe-133		3 x 10 <sup>-6</sup>	2.28E-2	4.96E-2				
	Xe-135		3 x 10 <sup>-6</sup>	4.09E-3	1.93E-2				
	Ar-41		3 x 10 <sup>-6</sup>	6.56E-5	1.40E-4				
	Sr-89		3 x 10 <sup>-6</sup>						
	Sr-90		3 x 10 <sup>-7</sup>						
	C-14		8 x 10 <sup>-4</sup>						
8.	Percent of 10CFR20	Percent	1.90E-2	3.74E-2					
11.	AIRBORNE RELEASES								
1.	Total Noble Gases	Curies	3.92E+1	1.41E+1					
2.	Total Halogens	Curies	2.16E-7	2.79E-5					
3.	Total Particulate Gross Radio-activity (By)	Curies	2.80E-3	5.71E-5					
4.	Total Tritium	Curies	1.63E+1	2.34E+1					
5.	Total Particulate Gross Alpha Radioactivity	Curies	2.91E-5	3.71E-6					
6.	Maximum Noble Gas Release Rate	$\mu$ CI/sec	1.06E+3	1.59E+1					
7.	Percent of Applicable Limit for Technical Specifications								
	(a) Noble Gases	Percent	2.99E-2	1.17E-2					
	(b) Halogens	Percent	1.80E-6	2.99E-6					
	(c) Particulates	Percent	6.93E-2	6.07E-4					
8.	Isotopes Released:	Curies							
	(a) Particulates								
	Cs-134		2.40E-6	1.01E-10					
	Cs-135		*	*					
	Cs-137		1.09E-5	4.47E-6					
	Cs-138		3.48E-5	2.11E-5					
	Co-58		5.19E-3	3.74E-5					
	Co-60		9.46E-4	1.23E-5					
	Mn-54		2.47E-5	*					
	Fe-59		*	*					
	Rb-88		*	*					

REPORT OF RADIOACTIVE EFFLUENTS

PAGE 3

FACILITY: Surry Power Station

YEAR: 1978

DOCKET: 50-280 and 50-281

II. AIRBORNE RELEASES (CON'T)

		UNITS	JULY	AUGUST					
8.	Isotopes Released (con't)	Curies							
	(b) Halogens								
	I-131		1.61E-7	2.67E-5					
	I-132		*	*					
	I-133		5.55E-8	1.15E-6					
	I-134		*	*					
	I-135		*	*					
	(c) Gases								
	Xe-133		3.76E+1	1.21E+1					
	Xe-133m		3.90E-6	*					
	Xe-135		4.08E-1	1.72E+0					
	Kr-85m		*	9.14E-2					
	Kr-85		*	*					
	Kr-87		*	9.44E-4					
	Kr-88		*	*					
	Ar-41		1.25E+0	*					
III.	SOLID RADIOACTIVE WASTE DISPOSAL								
1.	(a) Total Amount Solid Waste Packaged	FT <sup>3</sup>	3.25E+3	3.09E+3					
	(b) Estimated Total Activity	Curies	9.19E+1	9.23E+0					
	(c) Date of Shipment and Disposition		Barnwell, S.C.	Barnwell, S.C.					

7-6-78	8-2-78
7-9-78	8-4-78
7-15-78	8-7-78
7-17-78	8-15-78
7-22-78	8-25-78
7-22-78	
7-25-78	
7-27-78	
7-27-78	
7-31-78	

1. Minimum Detectable Activity

- a. Gross Alpha;  $5.27E-9$   $\mu\text{Ci/ml}$
- b. Tritium;  $4.0E-6$   $\mu\text{Ci/ml}$
- c. Strontium-89; less than  $3.0E+1$  pCi per total filter composite.
- d. Strontium-90; less than  $2.0E+0$  pCi per total filter composite.
- e.  $\text{CO}_2$ -14; less than  $7.0E-10$   $\mu\text{Ci/ml}$ .
- f. Strontium-89; less than  $9.0E-9$   $\mu\text{Ci/ml}$ .
- g. Strontium-90; less than  $8.0E-10$   $\mu\text{Ci/ml}$ .

2. Multichannel Analyzer - GaLi

a. Liquid and/or Radiogases - 100cc

Ba-La-140	$2.0E-7$
I-131	$5.1E-8$
Xe-133	$5.4E-8$
Xe-135	$2.9E-8$
Cs-137	$9.2E-8$
Cs-134	$7.2E-8$
Co-60	$1.5E-7$
Co-58	$9.8E-8$
Cr-51	$3.8E-7$
Mn-54	$1.0E-7$
Fe-59	$2.4E-7$
Ar-41	$1.6E-7$
I-134	$1.1E-7$
I-132	$1.0E-7$
Na-24	$1.7E-7$
I-133	$6.9E-8$
I-135	$4.5E-7$
Kr-85	$1.36E-5$
Kr-88	$5.5E-8$
Kr-87	$5.3E-8$
Kr-85m	$2.3E-7$
Xe-138	$4.7E-9$
Xe-135m	$5.8E-8$
Xe-133m	$1.7E-7$
Rb-88	$8.5E-7$

b. Radiiodines

I-131	$2.3E-6$
I-133	$3.1E-6$
I-132	$4.7E-6$
I-134	$4.8E-6$
I-135	$2.0E-5$

PROCEDURE DEVIATIONS REVIEWED BY STATION NUCLEAR  
SAFETY AND OPERATING COMMITTEE AFTER TIME LIMITS  
SPECIFIED IN TECHNICAL SPECIFICATIONS

AUGUST, 1978

There were none during this reporting period.