## TENNESSEE VALLEY AUTHORITY

NUCLEAR POWER GROUP SEQUOYAH NUCLEAR PLANT

MONTHLY OPERATING REPORT

### DECEMBER 1989

UNIT 1

DOCKET NUMBER 50-327 LICENSE NUMBER DPR-77

UNIT 2

DOCKET NUMBER 50-328 LICENSE NUMBER DPR-79

.

### OPERATIONAL SUMMARY DECEMBER 1989

### UNIT 1

Unit 1 generated 700,500 MWh (gross) of electrical power during December with a capacity factor of 79.59 percent. A reduction in reactor power level was initiated on December 1, 1989, at 2100 (EST), for the performance of the ice condenser lower inlet door test and system walkdowns. Reactor power increase to 100 percent was delayed when problems occurred with HDT 3 Valves 6-106 A and B. Unit 1 reached 100 percent power level again on December 7, 1989.

On December 10, 1989, with Unit 1 in Mode 1 (100 percent power), a turbine trip/reactor trip occurred at 1047 (EST). The trip resulted from a high-high feedwater level of 75 percent in S/G 3. The trip was preceded by a secondary side transient, which resulted in a turbine runback to approximately 80 percent load.

Unit 1 was tied online on December 12, 1989, at 2257 (EST). The unit again reached 100 percent reactor power level on December 15, 1989, at 0600 (EST).

On December 21, 1989, at O842 (EST), the power level was decreased to approximately 80 percent for ten hours for CBP C maintenance and reached 100 percent reactor power at 1805 (EST), that same day.

Unit 1 operated at 100 percent power from December 21, 1989, at 1805 (EST), until December 29, 1989, at 1706 (EST), when the power level was decreased to extend the life of the core with reduced load demands expected on the grid. Unit 1 was operating at approximately 75 percent reactor power at the end of December.

### UNIT 2

Unit 2 generated 818,580 MWh (gross) of electrical power during December with a capacity factor of 94 percent. The unit continued to operate at 100 percent power level until December 15, 1989, when at 1049 (EST), the shift operations supervisor notified the unit operator to decrease the load to 90 percent until the source of the problem with HDT 3 level was determined. Reactor power reached 100 percent again on December 18, 1989, at 0335 (EST), but was again reduced because of erratic flow on Heater 3 drain system.

On December 20, 1989, with the reactor power level at 55 percent, the unit operator began easing up the load to help meet load demands on the grid. HDT 3 functioned normally, and 100 percent reactor power was reached on December 21, 1989, at 1634 (EST).

Unit 2 continued to operate at 100 percent power level until December 29, 1989, at 2232 (EST), when the power level was decreased to extend the life of the core with reduced load demands expected on the grid. Unit 2 was operating at approximately 75 percent reactor power at the end of December.

### POWER-OPERATED RELIEF VALVES (PORVS) AND SAFETY VALVES SUMMARY

There were no challenges to PORVs or safety valves in the month of December.

### OFFSITE DOSE CALCULATION MANUAL (ODCM) CHANGES

There were no changes to the ODCM in the month of December.

### FUEL PERFORMANCE

### Unit 1

1. 2

The core average fuel exposure accumulated during December was 941.46 MWd/MTU, with a total accumulated core average fuel exposure of 13,690.93 MWd/MTU.

## Unit 2

The core average fuel exposure accumulated during December was 1,111.49 MWd/MTU, with a total accumulated core average fuel exposure of 8,244.63 MWd/MTU.

## SPENT FUEL PIT STORAGE CAPABILITIES

The total storage capability in the SFP is 1,386 bundles. However, there are six cell locations that are incapable of storing spent fuel. Four locations (AlO, All, A24, and A25) are unavailable because of a suction-strainer conflict, and two locations (Al6 and A21) are unavailable because of an instrumentation conflict. Presently, there is a total of 428 spent-fuel bundles stored in the SFP. The remaining storage capacity is 952 bundles.

# GLOSSARY OF VARIOUS ABBREVIATIONS Page 1 of 3

	ADUIS	- Auxiliary Building Gas Treatment System
2.	ABSCE	- Auxiliary Building Secondary Containment Enclosure
3.	AB(I)	- Auxiliary Building (Isolation)
4.	AFW	- Auxiliary Feedwater
5.	AFWPT	- Auxilairy Feedwater Pump Turbine
6.	IOA	- Abnormal Operating Instruction
7.	ASOS	- Assistant Shift Operations Supervisor
8.	AUO	- Assistant Unit Operator
9.	BAE	- Boric Acid Evaporator
10.	BAT	- Boric Acid Storage Tank
11.	BIT	- Boron Injection Tank
12.	CAQR	- Condition Adverse to Quality Report
13.	CAR	- Corrective Action Report
14.	CBP	- Condensate Booster Pump
15.	CCP	- Centrifugal Charging Pump
16.	CCS	- Component Cooling System
17.	CCW	- Component Cooling Water
18.	CDWE	- Condensate Demineralizer Waste Evaporator
19.	CM	- Corrective Maintenance
20.	CRI	- Control Room Isolation
21.	CREVS	- Control Room Emergency Ventilation System
22.	CSS(CS)	- Containment Spray System
23.	CVCS	- Chemical Volume and Control System
24.	CVI	- Containment Ventilation Isolation
25.	D/G(s)	- Diesel Generator(s)
26.	DCN	- Design Change Notice
27.	DCR	- Design Change Request
28.	DI	- Demineralizer
29.	DR	- Discrepancy Report
30.	ECCS	- Emergency Core Cooling System
31.	ECN	- Engineering Change Notice
32.	EGTS	- Emergency Gas Treatment System
33.	EM	- Electrical Maintenance
34.	EMI	- Electromagnetic Interference
35.	EQ	- Environmentally Qualified/Environmental Qualification
36.	ERCW	- Essential Raw Cooling Water
37.	E/ES	- Emergency Instruction
38.	ESF	- Engineered Safety Feature
39.	ESFA	- Engineered Safety Feature Actuation
40.	FCR	- Field Change Request
41.	FCV	- Flow Control Valve
42.	FDCT	- Floor Drain Collector Tank
43.	FDS	- Flow Differential Switch
44.	FIC	- Flow Indicating Controllers
45.	FSAR	- Final Safety Analysis Report
46.	FS	- Flow Switch
47.	FWI	- Feedwater Isolation
48.	FY	- Fiscal Year
49.	GOI	- General Operating Instruction
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# GLOSSARY OF VARIOUS ABBREVIATIONS Page 2 of 3

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51	HDT(P)	- Heater Drain Tank (Pumn)
52	HO	- Hold Order
53	IM	- Instrument Mechanic/Instrument Maintenance
54	IMI	- Instrument Maintenance Instruction
55	ICV	- Invel Control Value
56	LER	- Licensing Event Penort
57	100	- Limiting Condition for Operation
58	LOCA	- Loss-of-Coolant Accident
59	IS	- Level Switch
60	I TA	- Lost-Time Arcident
61	MRTE	- Measuring and Test Equipment
62	mA	- Milliampere
63	MAST	- Mavimum Allowable Stroke Time
64	MCR	- Main Control Room
65	MDAFWP	- Motor-Driven Auviliary Feedwater Pump
66	MEI	- Main Feedwater Isolation
67	MFW	- Main Feedwater
68	MEWRV	- Main Feedwater Regulating Valves
69	MEP	- Main Feedwater Dump
70	MT	- Maintenance Instruction
71	MODS	- Modifications
72	MOV	- Motor Operated Value
73	MR/MREM	- Man-rem
74	MSI	- Main Steam Isolation
75	MSTV	- Main Steam Isolation Value
76.	MSR	- Moisture Separator Repeators
77.	MWP	- Menawatte electric
78	MWt	- Megawatts thermal
79.	NE	- Nuclear Engineering (formerly Division of Nuclear Engineering)
80.	NIS	- Nuclear Instrumentation System
81.	NMUDT	- New Makeun Dejonized System
82.	NSS	- Nuclear Security Service
83.	NSSS	- Nuclear Steam Supply Systems
84.	O&PS	- Office and Power Stores Building
85.	PDS	- Pressure Differential Switch
86.	PDIS	- Pressure Differential Indicator Switch
87.	PM	- Preventive Maintenance
88.	PMT	- Postmodification Test
89.	PORC	- Plant Operations Review Committee
90	PORV	- Power-Operated Poliof Valvo
91	PRO	- Potential Reportable Occurrence
92	PRT	- Prossure_Paliof Tank
93	OMDS	- Qualification Maintenance Data Sheet
94	RCS/(P)	- Reactor Coolant System/(Peactor Coolant Dur )
95	RCPM	- Reactor Coolant System (Reactor Coolant Pum, :
96	RETS	- Re jological Effluent Technical Specification
97	RHP	- Re idual Heat Removal
98	RM	- Padiation Monitor (DAD Monitor (DAD HOW)
99	RPI	- Pod Position Indicator
00	RWST	Pofueling Water Storage Teel
AA 1	unar	nervering haver storage lank

# GLOSSARY OF VARIOUS ABBREVIATIONS Page 3 of 3

<pre>102. S/D - Shutdown 103. SFP - Spent Fuel Pit 104. S/G(s) - Steam Generator(s) 105. SI - Surveillance Instruction/or Safety Injectio 106. SMI - Special Maintenance Instruction 107. SOS - Shift Operations Supervisor 108. SOI - System Operating Instruction 109. SQN - Sequoyah Nuclear Plant 110. SR - Surveillance Requirement/Source Range 111. SSPS - Solid State Protection System</pre>	
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112. TACE - Temporary Alteration Control Form	
113. TDAFWP - Turbine-Driven Auxiliary Feedwater Pump	
114. TI - Technical Instruction	
115. TS(s) - Technical Specification(s)	
116. TSC - Technical Support Center	
117. TVA - Tennessee Valley Authority	
118. uCi/G - Microcuries Per Gram	
119. U1 + Unit 1	
120. U2 - Unit 2	
121. UHI - Upper Head Injection	
122. UO/(S)RO - Unit Operator/(Senior) Reactor Operator	
123. VLV - Va'	
124. WP - (an	
125. WR - Asta Request	

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# CLOSSARY OF VARIOUS SYSTEMS OF SEQUOYAH NUCLEAR PLANT

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SYSTEM CODE	SYSTEM TITLE	
1	Main Steam System (Turpine) (MSR)	
2	Condensate System (FW Heaters)	
3	Main and Auxiliary Feedwater System	
5	Extraction Steam System	
6	Heater Drains and Vents System	
14	Condensate Demineralizer	
15	Steam Generator Blowdown System	
24	Raw Cooling Water System	
27	Condenser Circulating Water System	
30	Ventilating System	
35	Generator Cooling Systems	
36	Feedwater/Secondary Treatment System	
37	Gland Seal Water System	
46	Main/Auxiliary Feedwater Control System	
47	Turbogenerator Control System	
54	Injection Water System	
58	Generator Bus Cooling System	
61	Ice Condenser System	
62	Chemical and Volume Control System	
63	Safety Injection System	
64	Ice Condenser Containment System	
65	Emergency Gas Treatment System	
67	Essential Raw Cooling Water System	
68	Reactor Coolant System (Steam Generator)	
70	Component Cooling System	
74	Residual Heat Removal System	
82	Standby Diesel Generator System	
87	Upper Head Injection System	
90	Radiation Monitoring System	
250	AC/DC Low Voltage Power	
268	Hydrogen Mitigation System	

## RADWASTE SUMMARY

#### December 1989

1. Total volume of solid waste shipped offsite:

1

- A. Dry active waste: 1422.2 ft<sup>3</sup> activity: 1.5699 curies
- B. Spent resins, sludges, bottoms, oil: <u>214.9 ft</u><sup>3</sup> Activity: <u>1.0605</u> curies

Shipped: Barnwell, S.C. - December 4, 1989 (1)(3)
 December 6, 1989 (1)(3)
 December 13, 1989 (1)(3)
 December 19, 1989 (1)
 December 21, 1989 (1)(2)
 December 28, 1989 (1)(3)
 December 29, 1989 (1)(3)
 December 29, 1989 (1)(3)
 December 30, 1989 (1)(3)

December 30, 1989 (1)(3)

## 2. Radwaste maite and awaiting shipment:

- A. Resin in storage: 260 ft<sup>3</sup>
- B. Estimaced resin that will be generated: 100 ft<sup>3</sup>
- C. Dry active waste awaiting shipment: \_\_\_\_O ft<sup>a</sup>
  - 1 Dry active waste
  - 2 Spent resin, sludges, bottoms, oil
  - 3 Waste shipped from Quadrex volume reduction facility
  - 4 Waste shipped from SEG volume reduction facility

# UNIT 1 REACTOR HISTOGRAM ANALYSIS

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Unit 1

## UNIT 2 REACTOR HISTOGRAM ANALYSIS

## Unit 2

- Unit operating at 75 percent power. Began load decrease for repair head-vent valves.
- 2. Reactor power at 45 percent.

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- 3. Reactor power at 38 percent.
- 4. Reactor power at 28 percent.
- 5. Reactor power at 20 percent, still decreasing load.
- 6. Reactor power at 0 percent.
- 7. Began increase to 1 percent reactor power.
- 8. Approximately 2 percent reactor power, entered Mode 1.
- 9. Reactor power at 14 percent.
- 10. Began power increase to 30 percent.
- 11. Reactor power at 30 percent.
- 12. Reactor power at 45 percent.
- 13. Resumed power increase.
- 14. Terminated power increase at 84 percent reactor power, 964 MWe.
- 15. Maintaining 85 percent reactor power to extend life of core.
- 16. Started power increase to 100 percent to meet load demands.
- Reactor power at 100 percent. Continued at 100 percent through end of month.

GLOSSARY

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## UNIT 1 DECEMBER

# CAPACITY LOSS (Generation)

PERCENT MW. /1183

River Temperature	- 0.20
High Throttle Pressure	- 0.34
Auxiliary Steam Loads	+ 0.05
Leaking Valves	+ 0.04
New MSR Tubes	- 0.07
Unaccounted	+ 0.44
Not at 100 Percent Power	<u>+20.70</u>
	+20.62

# AVAILABILITY LOSS (Time Online)

Unit 1 tripped on 12/10/89 at 8.09 1047 (EST), and returned to service on 12/12/89 at 2257 (EST).

# UNIT 2 DECEMBER

# CAPACITY LOSS (Generation)

PERCENT MW. /1183

River Temperature	- 0.19
Turbine Inefficiencies While at Low Power	+ 0.46
Dirty Condenser Tubes	+ 0.06
High Throttle Pressure	- 0.26
Improved MSR Performance	- 0.03
Leaking Valves	+ 0.19
Not at 100 Percent	+ 5.78
Auxiliary Steam Load	+ 0.19
Unaccounted	$\frac{+0.80}{+7.00}$

AVAILABILITY LOSS (Time Online)

None