



PSEG

Public Service Electric and Gas Company P.O. Box 236 Hancocks Bridge, New Jersey 08038
Salem Generating Station

September 14, 1994

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

Dear Sir:

MONTHLY OPERATING REPORT
SALEM NO. 2
DOCKET NO. 50-311

In compliance with Section 6.9.1.6, Reporting Requirements for the Salem Technical Specifications, the original copy of the monthly operating reports for the month of August 1994 are being sent to you.

Average Daily Unit Power Level
Operating Data Report
Unit Shutdowns and Power Reductions
10CFR50.59 Evaluations
Operating Summary
Refueling Information

Sincerely yours,

General Manager -
Salem Operations

RH:pc

cc: Mr. Thomas T. Martin
Regional Administrator USNRC
Region I
631 Park Avenue
King of Prussia, PA 19046

Enclosures

8-1-7.R4

200152

The Energy People

9409220193 940831
PDR ADOCK 05000311
R PDR

AVERAGE DAILY UNIT POWER LEVEL

Completed by: Mike Morrioni

Docket No.: 50-311
Unit Name: Salem #2
Date: 09-09-94
Telephone: 339-5142

Month August 1994

Day Average Daily Power Level
(MWe-NET)

Day Average Daily Power Level
(MWe-NET)

1	<u>1010</u>
2	<u>1076</u>
3	<u>1029</u>
4	<u>1039</u>
5	<u>830</u>
6	<u>1063</u>
7	<u>985</u>
8	<u>1068</u>
9	<u>1050</u>
10	<u>1027</u>
11	<u>662</u>
12	<u>768</u>
13	<u>1016</u>
14	<u>1021</u>
15	<u>1028</u>
16	<u>1052</u>

17	<u>993</u>
18	<u>976</u>
19	<u>1019</u>
20	<u>1033</u>
21	<u>1020</u>
22	<u>984</u>
23	<u>1026</u>
24	<u>1028</u>
25	<u>1030</u>
26	<u>1023</u>
27	<u>1060</u>
28	<u>1017</u>
29	<u>1080</u>
30	<u>1067</u>
31	<u>753</u>

OPERATING DATA REPORT

Completed by: Mike Morroni

Docket No: 50-311
 Date: 09/09/94
 Telephone: 339-5142

Operating Status

1. Unit Name	<u>Salem No. 2</u>	<u>Notes</u>
2. Reporting Period	<u>August 1994</u>	
3. Licensed Thermal Power (Mwt)	<u>3411</u>	
4. Nameplate Rating (Gross MWe)	<u>1170</u>	
5. Design Electrical Rating (Net MWe)	<u>1115</u>	
6. Maximum Dependable Capacity (Gross MWe)	<u>1149</u>	
7. Maximum Dependable Capacity (Net MWe)	<u>1106</u>	
8. If Changes Occur in Capacity Ratings (items 3 through 7) since Last Report, Give Reason <u>N/A</u>		

9. Power Level to Which Restricted, if any (Net MWe) N/A

10. Reasons for Restrictions, if any N/A.

	<u>This Month</u>	<u>Year to Date</u>	<u>Cumulative</u>
11. Hours in Reporting Period	<u>744</u>	<u>5831</u>	<u>112944</u>
12. No. of Hrs. Rx. was Critical	<u>744</u>	<u>5467.8</u>	<u>74747.3</u>
13. Reactor Reserve Shutdown Hrs.	<u>0</u>	<u>0</u>	<u>0</u>
14. Hours Generator On-Line	<u>744</u>	<u>5261.1</u>	<u>72150.6</u>
15. Unit Reserve Shutdown Hours	<u>0</u>	<u>0</u>	<u>0</u>
16. Gross Thermal Energy Generated (MWH)	<u>2452857.6</u>	<u>15951585.6</u>	<u>178414525.0</u>
Gross Elec. Energy Generated (MWH)	<u>773360</u>	<u>5106240</u>	<u>75652758</u>
18. Net Elec. Energy Gen. (MWH)	<u>739975</u>	<u>4856438</u>	<u>71983715</u>
19. Unit Service Factor	<u>100</u>	<u>90.2</u>	<u>63.9</u>
20. Unit Availability Factor	<u>100</u>	<u>90.2</u>	<u>63.9</u>
21. Unit Capacity Factor (using MDC Net)	<u>89.9</u>	<u>75.3</u>	<u>57.6</u>
22. Unit Capacity Factor (using DER Net)	<u>89.2</u>	<u>74.7</u>	<u>57.2</u>
23. Unit Forced Outage Rate	<u>0</u>	<u>8.2</u>	<u>21.8</u>

24. Shutdowns scheduled over next 6 months (type, date and duration of each)
Refueling outage scheduled to start October 15, 1994. Duration is to be determined.

25. If shutdown at end of Report Period, Estimated Date of Startup:
N/A

UNIT SHUTDOWN AND POWER REDUCTIONS
 REPORT MONTH AUGUST 1994

DOCKET NO.: 50-311
 UNIT NAME: Salem #2
 DATE: 09-09-94
 COMPLETED BY: Mike Morroni
 TELEPHONE: 339-5142

NO.	DATE	TYPE ¹	DURATION (HOURS)	REASON ²	METHOD OF SHUTTING DOWN REACTOR	LICENSE EVENT REPORT #	SYSTEM CODE ⁴	COMPONENT CODE ⁵	CAUSE AND CORRECTIVE ACTION TO PREVENT RECURRENCE
1622	08-11-94	F	.3	A	5	-----	HA	GENERA	EXCITER FIELD RHEOSTAT
1623	08-11-94	F	4.1	A	5	-----	HF	PUMPXX	CIRCULATING WATER PUMPS
1673	08-22-94	F	2.5	A	5	-----	WG	PUMPXX	OTHER CLOSED COOLING WATER SYST. PROBLEMS
1706	08-31-94	F	17.5	A	5	-----	HF	HTEXCH	CONDENSER TUBE AND WATERBOX CLEAN

¹
 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 (Explain)
 H-Other (Explain)

³
 Method:
 1-Manual
 2-Manual Scram
 3-Automatic Scram
 4-Continuation of Previous Outage
 5-Load Reduction
 9-Other

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

⁵
 Exhibit 1 - Same Source

10CFR50.59 EVALUATIONS
MONTH: - AUGUST 1994

DOCKET NO: 50-311
UNIT NAME: SALEM 2
DATE: SEPTEMBER 10, 1994
COMPLETED BY: R. HELLER
TELEPHONE: (609)339-5162

The following items were evaluated in accordance with the provisions of the Code of Federal Regulations 10CFR50.59. The Station Operations Review Committee has reviewed and concurs with these evaluations.

ITEM

SUMMARY

A. Design Change Packages (DCPs)

- 2EC-3249 Pkg 1 "Cable Protection DCP" - This modification provides improved cable protection of the subject circuits without limiting the load capability and also improves the protection and operability of the equipment. One recommendation of the evaluation which will be implemented in this DCP, is to remove the jumpers from the heater overload circuits that are presently in place on safety related MOVs. The overload relay heaters will be sized in accordance with Calculation ES-18.006. This DCP resolves inadequacies identified in evaluation S-C-ZZ-EEE-0873, by implementing the recommended solutions for the protection of various #12 and #14 AWG safety related cables for Salem Generating Station Unit 2. There is no reduction in the margin of safety as defined in the basis for any Technical Specification. (SORC 94-062)
- 2EC-3286 Pkg 1 "Diesel Generator Combustion Air Modification" - The modifications involve (1) truncating the exhaust piping on the Auxiliary Building roof and enclosing the remaining pipe in a protection shell of larger pipe and concrete wall, for protection from tornado wind loads and missiles, (2) installing a tornado missile proof barrier at the diesel generator air intake opening in the Auxiliary Building wall, (3) installing a pipe support, attached to the Auxiliary Building ceiling, for the exhaust pipe and for the intake pipe to limit pipe movement during an earthquake and (4) installation of a spring hanger attached to the Auxiliary Building ceiling for the exhaust pipe. Analyses of the tornado loads. There is no reduction in the margin of safety as defined in the basis for any Technical Specification. (SORC 94-062)
- 2EC-3230 Pkg 1 "Circulating Water Trash Rake Upgrade" - This modification will: Install a new traversing trash rack rake on the existing rails of the Circulating

10CFR50.59 EVALUATIONS
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TELEPHONE: (609)339-5162

(cont'd)

ITEM

SUMMARY

Water Intake Structure (CWIS). The new rake has improved rack cleaning ability by the use of a clamshell type gripper head. Install a third rail on the deck of the CWIS as a mechanical restraint to prevent the rake from tripping should the load limiters fail. Provide power for the new rake from the existing Unit 2 source. Install a new Unit 2 power source for the existing trash rake. Power connections will be quick disconnect type. Either rake can traverse the intake structure and clean the trash rake on either unit. Install a raised cable tray on the CWIS exterior wall to contain retractable power cables from both rakes. The proposed modifications do not reduce the margin of safety as defined in the basis for any Technical Specification because the CW system and trash rake are not addressed in the Salem Technical Specifications. (SORC 94-062)

2EC-3272 Pkgs 1-3

"2A, 2B, 2C 460V and 230V Transformer Ammeter Installation" - The permanent installation of an individual ammeter for each of the 2A, 2B and 2C 460V and 230V transformers, thus allowing routine monitoring of the transformer loads by the station operators. These ammeters would be located at the 2B4D 4KV switchgear cubicle on El. 64 of Unit 2. Monitoring of the current supported by each of the transformers listed above requires the services of electricians, at present, to take manual measurements (in the absence of permanently installed ammeters). It is important to monitor the loading of these safety-related transformers, as was brought out in the 1993 NRC EDSFI (Item Nos. H39 and H40). Reference EWR NO. 62-93-9169. The addition of the 460V and 230V ammeters has no control function and will be utilized by the operators during routine surveillance procedures to monitor vital transformer loading. Therefore, the indication benefit of the ammeters has no affect on any operability/safety margins utilized in plant operations. (SORC 94-062)

2EC-3219 Pkgs 1&2

"2A & 2B 460V Vital Bus Transformer Replacement" - These DCPs replace the 2A & 2B-480V Vital Bus

10CFR50.59 EVALUATIONS
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TELEPHONE: (609)339-5162

(cont'd)

ITEM	SUMMARY
	<p>transformers with ones of the same type, but with increased capacity, and the replacement transformers will have additional insulation between the middle layers of the high voltage coils. The original transformers were rated 750/1000 KVA at 150 degrees C temperature rise, and the replacements will be rated 1000/1333 KVA at 80 degrees C temperature rise. There are no changes in the types of insulation or its temperature ratings. The six ventilating fans furnished with the transformers will be essentially the same as the originals. The temperature control relays will be reset to start the fans at 120 degrees C, and the alarm set points at 130 degrees C and 140 degrees C consistent with the 80 degrees C temperature rise ratings of the transformers. These modifications actually increase the margin of safety since the replacement transformers have greater capacity, lower temperature rise, and more insulation to protect against internal transformer failure. (SORC 94-062)</p>
2EC-3178 Pkg 1	<p>"Analog Feedwater Control System Replacement" - The purpose of this DCP is to convert the existing Salem Unit 2 analog feedwater control system to a microprocessor based digital feedwater control system. Specifically, provide automatic control of steam generator water level over the range of power operation, add signal validation algorithms for input signals, eliminate the steam/feedwater flow mismatch coincident with low steam generator water level reactor trip function, incorporate the atmospheric relief valves (MS10s) in to the digital feedwater control system. A review of the Technical Specifications did not identify any safety limits, limiting safety system settings, setpoint, operational limit or design limit whose margin of safety are impacted by this modification. (SORC 94-063)</p>
2EC-3229 Pkg 1	<p>"Small Bore Piping Replacement" - This DCP primarily entails the replacement of safety related and non-safety related small bore piping (2 inch and smaller) for portions of various plant systems. In addition, a small quantity of non-safety related</p>

10CFR50.59 EVALUATIONS
MONTH: - AUGUST 1994

DOCKET NO: 50-311
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(cont'd)

ITEM	SUMMARY
2EC-3252 Pkgs 1&2	<p>large bore piping will also be replaced. In general, the existing piping is schedule 40, A-106 carbon steel, which is being replaced with schedule 80 A-335, P22 chrome-moly. In certain areas, alternate piping materials such as 316 stainless steel will be installed for severe erosion/corrosion conditions. Replacement piping will follow the original routing wherever possible, and the existing pipe supports will also be re-used wherever possible. Piping design and pipe supports will only be modified where necessary. Existing carbon steel globe valves and gate valves in the affected lines will be replaced with new globe valves of improved design, having chrome-moly bodies. Existing insulation on the affected lines will be demolished and scrapped. Replacement piping will be reinsulated using new calcium silicate material with stainless steel lagging. During the review of the Technical Specifications, it was found that no details for either the small bore piping and components or the three inch feedwater heater piping are addressed. Therefore, there is no reduction in the margin of safety as defined in the basis for any Technical Specification. (SORC 94-063)</p> <p>"21 CCHX Control System Upgrade" - This Design Change Package removes the existing CCHX flow controller 2FA3891C and temperature controller 2TA9286C for valves 21SW122 and 21SW127 respectively, and replaces them with a single pneumatic cascade type control system. The cascade control system will utilize both temperature and flow as input and will modulate each valve simultaneously by providing a single control air signal to the valve positioners. This will result in a more even distribution of pressure drop, and will reduce the potential for damage caused by cavitation. The new cascade control system as well as the interim installation and test conditions associated with this modification will not impact the ability of the Service Water or Component Cooling Water systems to perform their intended safety functions, and will be in full compliance</p>

10CFR50.59 EVALUATIONS
MONTH: - AUGUST 1994

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(cont'd)

ITEM	SUMMARY
2EC-3299 Pkg 1	with the Technical Specifications. Therefore, this DCP does not reduce the margin of safety as defined in the basis for any Technical Specification. (SORC 94-064)
2EC-3299 Pkg 1	"Rod Control Timing Change" - The purpose of this DCP is to change the rod control timing such that no single failure can result in asymmetric rod withdrawal. This is a PSE&G commitment to the NRC in PSE&G's response to Generic Letter 93-04, as detailed in NLR-N93152. This DCP also incorporates rod control surveillances as recommended by the Westinghouse Owner's Group. The proposed timing changes do not affect the margin of safety as defined in the basis for any Technical Specification. A generic safety evaluation has been performed by WOG which concluded that all safety limits continue to be met. The timing change in combination with the rod control surveillance tests increase the reliability of the rod control system. (SORC 94-065)
2EC-3307 Pkg 1	"Polar Crane Trolley Understructure Strengthening and Load Derating" - A steel plate stiffener and two gusset plates shall be added underneath the plate deck of the polar crane trolley. The addition of the member near the external reduction gear bearing and limiting the crane capacity will enable the crane to be used without overstressing the sheave nest bolts and the trolley understructure. No Technical Specifications were found referencing the polar crane, its support structure, or its capacity. This proposal does not reduce the margin of safety as defined in the basis for any Technical Specification. (SORC 94-065)
2EE-0059 Pkg 1	"No. 24 Service Water Pump Discharge Check Valve (24SW2) Replacement" - The proposed modification entails the replacement of No. 24 Service Water Pump Discharge Check Valve 24SW2. The existing valve is a C&S Valve Co. Dual Plate, soft seat, aluminum bronze valve, which has a history of erosion problems due to the soft seat becoming separated

(cont'd)

ITEM	SUMMARY
2EC-3271 Pkg 1	<p>from the valve body and allowing the valve to leak by. The replacement valve is a C&S Valve Co. Dual Plate, hard seat, 6% molybdenum stainless steel valve, which has excellent erosion/corrosion characteristics, and is the selected equivalent valve of choice. The seat material for the new valve is the same as the valve body and should exhibit the same excellent erosion/corrosion resistance. The replacement valve is dimensionally the same, no piping modifications are required. The form, fit and function of the replacement valve remain the same. There is no reduction in the margin of safety as defined in the basis for any Technical Specification. (SORC 94-067)</p>
	<p>"2F 230V Transformer Replacement" - This modification replaces the 2F 230V non-vital transformer with a transformer having the same capacity of 750KVA and a future rating of 1000KVA at 80°C temperature rise. The replacement transformer will have an added layer of insulation between the middle layers of the high voltage winding of each coil, which is an area where failures have occurred on some of the original transformers. These modifications actually increase the margin of safety since the replacement transformer has greater capacity, lower temperature rise, and more insulation to protect against internal transformer failure. (SORC 94-068)</p>
B. Temporary Modifications (T-Mods)	
T-Mod 93-140	<p>"Upgrade Hoisting Capacity of the Fuel Handling Crane From 5 Tons to 20 Tons" - The purpose of this modification is to increase the capacity of the spent fuel pool. The existing nine Exxon racks will be removed and replaced with nine new Holtec racks. Also, three Exxon racks will be relocated in the SFP. This T-Mod will install a new trolley and hoist for the removal and installation of racks. The existing trolley and hoist will be used for removing the spent fuel. There is no reduction in the margin of safety as defined in the basis for any Technical Specification. (SORC 94-068)</p>

SALEM GENERATING STATION
MONTHLY OPERATING SUMMARY - UNIT 2
AUGUST 1994

SALEM UNIT NO. 2

The Unit began the period shutdown as investigations into the June 29, 1994 reactor trip continued. On July 3, 1994, the Unit was cooled down to Mode 5, "Cold Shutdown," due a flange leak on 22 Reactor Coolant Pump. The repairs were completed and startup activities commenced. On July 13, 1994, during the power escalation, power was briefly held at 90% for resolution of a heater drain pump control valve problem. Power was increased to 100% on July 14, 1994, and the Unit continued to operate at essentially full power throughout the remainder of the period.

REFUELING INFORMATION
MONTH: - AUGUST 1994

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MONTH AUGUST 1994

1. Refueling information has changed from last month:
YES X NO
2. Scheduled date for next refueling: OCTOBER 15, 1994
3. Scheduled date for restart following refueling: DECEMBER 13, 1994
4. a) Will Technical Specification changes or other license amendments be required?:
YES NO
NOT DETERMINED TO DATE X
- b) Has the reload fuel design been reviewed by the Station Operating Review Committee?:
YES NO X
If no, when is it scheduled?: OCTOBER 94
5. Scheduled date(s) for submitting proposed licensing action:
 N/A
6. Important licensing considerations associated with refueling:

7. Number of Fuel Assemblies:
 - a. Incore 193
 - b. In Spent Fuel Storage 556
8. Present licensed spent fuel storage capacity: 1170
Future spent fuel storage capacity: 1170
9. Date of last refueling that can be discharged to the spent fuel pool assuming the present licensed capacity: March 2003