PSE&G

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

Salem Generating Station

April 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 March 1994 are being sent to you.

Average Daily Unit Power Level
Operating Data Report
Unit Shutdowns and Power Reductions
Safety Related Maintenance
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

200009

The Energy People

AVERAGE DAILY UNIT POWER LEVEL

Docket No.: 50-311
Unit Name: Salem #2
Date: 04-10-94
Telephone: 339-2122

Completed by: Mike Morroni

Month March 1994

Day	Average Daily Power Level (MWe-NET)	Day	Average Daily Power Level (MWe-NET)
1	1031	17	1075
2	1085	18	1074
3	1036	19	1022
4	1087	20	1050
5	1057	21	1073
6	538	22	1069
7	1036	23	1013
8	1069	24	1044
9	1097	25	1012
10	1114	26	1076
11	993	27	1046
12	1079	28	969
13	1058	29	830
14	1102	30	895
15	1061	31	725
16	1060		

OPERATING DATA REPORT

Docket No: 50-311
Date: 04/10/94
Completed by: Mike Morroni
Telephone: 339-2122

Operating Status

1.	Unit Name	Salem No. 2	Notes
2.	Reporting Period	March 1994	
3.	Licensed Thermal Power (MWt)	3411	
4.	Nameplate Rating (Gross MWe)	1170	
5.	Design Electrical Rating (Net MWe)	1115	
6.	Maximum Dependable Capacity(Gross MWe)	1149	
7.	Maximum Dependable Capacity (Net MWe)	1106	

8. If Changes Occur in Capacity Ratings (items 3 through 7) since Last Report, Give Reason None.

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

10. Reasons for Restrictions, if any N/A

	This Month	Year to Date	Cumulative
11. Hours in Reporting Period	744	2160	109273
12. No. of Hrs. Rx. was Critical	744	2083.03	71362.59
13. Reactor Reserve Shutdown Hrs.	0	0	0
14. Hours Generator On-Line	744	1999.25	68888.77
15. Unit Reserve Shutdown Hours	0	0	0
16. Gross Thermal Energy Generated (MWH)	2427636	6193658.4	168656597.8
Gross Elec. Energy Generated (MWH)	788360	2049040	72595558
18. Net Elec. Energy Gen. (MWH)	755352	1955430	69082707
19. Unit Service Factor	100	92.6	63.0
20. Unit Availability Factor	100	92.6	63.0
21. Unit Capacity Factor (using MDC Net)	91.8	81.9	57.2
22. Unit Capacity Factor (using DER Net)	91.1	81.2	56.7
23. Unit Forced Outage Rate	0	7.4	22.3

24. Shutdowns scheduled over next 6 months (type, date and duration of each)

Refueling outage beginning October 15, 1994, lasting approximately 60 days.

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

N/A

REPORT MONTH MARCH 1994

DOCKET NO.: 50-272
UNIT NAME: Salem #2
DATE: 04-10-94
COMPLETED BY: Mike Morroni
TELEPHONE: 339-2122

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
0372	3-6-94	F	1.7	A	5	--------	HF	FILTER	CIRCULATING WATER PUMPS/SCREENS
0431	3-22-94	F	1.47	A	5	--------	HF	FILTER	CIRCULATING WATER PUMPS/SCREENS
0438	3-24-94	F	1.43	A	5	--------	HF	FILTER	CIRCULATING WATER PUMPS/SCREENS
0441	3-28-94	F	6.15	A	5	--------	HF	FILTER	CIRCULATING WATER PUMPS/SCREENS
0440	3-28-94	F	1.42	A	5	--------	HF	FILTER	CIRCULATING WATER PUMPS/SCREENS
0439	3-28-94	F	41.38	A	5	--------	HF	FILTER	CIRCULATING WATER PUMPS/SCREENS
0534	3-30-94	F	41	A	5	--------	HF	FILTER	CIRCULATING WATER PUMPS/SCREENS

1
F: Forced
S: Scheduled

2
Reason
A-Equipment Failure (explain)
B-Maintenance or Test
C-Refueling
D-Requlatory 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

SAFETY RELATED MAINTENANCE
MONTH: - MARCH 1994

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

WO NO	UNIT	EQUIPMENT IDENTIFICATION

This section is being deleted from the report as it is not required by either the Technical Specifications or the Updated Final Safety Analysis Report. Deletion of this section from this and future reports was discussed with the NRC Region Salem Project Manager.

10CFR50.59 EVALUATIONS
MONTH: - MARCH 1994

DOCKET NO: 50-311
UNIT NAME: SALEM 2
DATE: APRIL 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

2EC-3269 Pkg 1 "Auxiliary Building Ventilation System Modification" - This project provides design enhancements which will improve ABV system performance and reliability and reduce auxiliary building pressure and temperature problems. The enhancements simplify the way the system operates which will facilitate balancing and also reduce maintenance requirements. The revised system will continue to modulate exhaust air flow in response to building pressure; however, the supply fan inlet guide vane dampers, which currently modulate based on temperature, will be revised to provide two position operation. In addition, the different air flow requirements to the ECCS pump cubicles between normal and emergency system operation will be eliminated to allow for stabilization of building pressures. The operation of the supply fans inlet guide vane controls and the pump room damper actuators do not perform a safety function discussed in any technical specification. The requirements of Technical Specification 3/4.7.7 (operability of the exhaust fans) are not impacted by this modification and will be adhered to during the performance of this modification. A partial turnover may be required where the exception is the performance of the final air balance of the ABV system. This does not reduce the margin of safety for the ABV system or the systems it serves since the open/close dampers for the pump rooms are only being placed in their open position and the design flows of the system are not exceeded. The plant margin of safety, as defined in the Technical Specifications, will not be reduced. (SORC 94-021)

2EX-2137 Pkg 1 "Caldon Ultrasonic Flowmeter Installation - Test & Experiment" - This is a test and experiment DCP which will install a Caldon Ultrasonic Leading Edge Flowmeter (LEFM) model 8300 system to more accurately measure the feedwater flow at the Salem Unit 2 Generating Station. The installation

ITEM		SUMMARY
		involves installing an assembly containing eight ultrasonic transducers externally to each of four feedwater pipes in a location of straight pipe upstream of the existing flow nozzles. Since the Caldon system is mounted externally it does not affect the operation of the feedwater system. This DCP will also install a temporary data logging device which will be connected to the plant process computer to collect plant performance data. It is suspected that the feedwater flow nozzles have degraded and are causing a slightly incorrect feedwater flow indication that is lower than the actual value. Installing the Caldon Ultrasonic LEFM, which is an externally mounted device not susceptible to the same degradation as the flow nozzles, will provide an alternative measurement that is highly accurate. This DCP will provide a means to collect data to determine if and how much flow nozzle degradation has occurred. The Unit 2 Technical Specifications are primarily concerned with steam flow and feed flow mismatch with respect to the steam generator water level control. This proposal is nonintrusive to the feedwater mechanical and controls systems and only provides data retrieval, storage and analysis. There are no changes introduced in this testing modifications which would alter the performance of the feedwater system as described in the Technical Specifications. As such, the margin of safety has not been reduced. (SORC 94-023)
2EC-3257	Pkg 1	"Main Steam Flow Instrument Sensing Line Modifications" - This DCP replaces the sixteen (16) Main Steam Flow Instrumentation Sensing Lines, located on Main Steam Lines 21 through 24, from flow elements 2FE512, 2FE522, 2FE532 and 2FE543 up to their respective Panels 445-2A through 2H (Safety Related). This DCP also replaces the eight (8) sensing lines to the respective Panels 837-2A through 2D (Non-safety Related). These lines tee off of the sensing lines to Panels 445-2B, 2D, 2F and 2H. DCP 2EC-3257 is implemented in order to meet PSE&G's commitment to the Nuclear Regulatory Commission to modify the Main Steam Flow

ITEM		SUMMARY
		Instrumentation System. The modification is required due to irregularities associated with the main steam flow measurement, resulting in instrument drift. This modification reduces gas entrainment and instrument drift. This modification reduces gas entrainment and condensate buildup within the Main Steam system. The reduction is intended to minimize the amount of instrument drift which satisfies instrument recalibration criteria for a longer duration, and is intended to reduce the frequency of the related spurious control room alarms and main steam line isolations which are reportable incidents. The modified sensing line installation is equal to or better than the previous sensing line installation under all conditions. There is no change to the instrument process variable spans. Therefore, there is no impact to the margin of safety as defined in the basis for any Technical Specification. (SORC 94-024)
2EC-3267	Pkg 1	"Replacement Of Degraded Pipe And Fittings" - This change package replaces selected carbon steel fittings and pipe segments with chrome alloy and carbon steel materials, and in some cases heavier wall materials. Fitting replacements will be processed as emergent items as they develop. In cases where upgraded material is not available within the schedule constraints, replacement with carbon steel material will be implemented. The replacement of worn fittings and pipe segments will restore the plant to its analyzed configuration. The replacement of the subject fittings and pipe segments does not reduce the margin of safety as defined in the bases for any Technical Specification. (SORC 94-024)
2EC-3263	Pkg 1	"Boron Injection Tank (BIT) Thermal Relief Valve" - This design change package involves the addition of a thermal expansion relief valve in the Boron Injection Tank (BIT) piping. This modification is required to satisfy PSE&G's licensing commitment regarding resolution of NRC Bulletin 88-08. This bulletin addresses the potential for piping stresses resulting from thermal stratification or

ITEM	SUMMARY
	oscillations (that is induced by leaking isolation valves) in unisolable sections of piping connected to the Reactor Coolant System (RCS). The Charging Safety Injection (SI) System piping, downstream of the Boron Injection Tank (BIT) check valves (SJ17) was determined to be within the scope of the NRC bulletin. The proposed changes do not affect the operability or availability of the ECCS subsystem or the ECCS in general. The subsystem operability will be maintained by ensuring operability of each component, including the new thermal relief valve, by surveillance requirements. The piping integrity will be maintained by precluding the potential for thermal stratification and cyclic fatigue concerns. The acceptance criteria for design basis accidents will continue to be met, and the existing margins of safety established by UFSAR safety analysis will not be affected. There is no reduction in the margin of safety as defined in the basis for any Technical Specification. (SORC 94-024)
2EC-3258 Pkg 1	"RG 1.97 - Neutron Flux Recorder Installation" - This DCP will install one dual pen recorder in main control room panel 2RP1 to provide recording capability to Neutron Flux Channel C. Installation of this recorder will meet the requirements of RG 1.97 for this variable by installing a recording device on at least one channel (channel C) of Variable #1 (Neutron Flux). The installed recorder will meet the Seismic Category I and Class 1E requirements for this installation; Unistrut will be added to 2RP1 to provide the support required by the vendor (PSBP 312351) for seismic installation. During the installation, the installer will ensure that any holes created in panel 2RP1 will be filled or covered in a timely manner in order to avoid any impact on the SGS Technical Specifications concerning the main control room area Emergency Air Conditioning System boundary. Purchase and labeling of the new recorder will be in accordance with existing SGS Human Factors standards and procedures. The reason for this change is to meet the Regulatory Guide 1.97 requirement for this variable. This DCP will not make any changes which

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(cont'd)

ITEM	SUMMARY
	affect the availability or operability of this instrument channel. No LCO or surveillance requirements will be changed as a result of this DCP. Installation and testing of this instrument channel will be performed in accordance with existing PSE&G procedures; at no time will the margin of safety as currently defined in the SGS Technical Specifications be reduced. The final installation will not reduce the margin of safety as defined in the Technical Specifications. (SORC 94-025)
2EC-3258 Pkg 2	"RG 1.97 - Insulator Replacement" - This DCP will install new signal isolation devices in Class 1E instrument loops within instrument racks which contain various monitoring and protection channels. The new isolators will be manufactured by NUS and will comprise two types: (a) direct replacement for the Hagan isolators currently in use within the protection racks, and (b) stand-alone encapsulated isolators for use within the process racks and SPDS cabinet. The Hagan replacement isolators will fit in the existing rack spaces and will provide class 1E isolation between input and output. The new isolators will provide four outputs instead of the one output currently provided by the Hagan modules. Field connectors for the inputs and outputs will be the same as used by the Hagan isolators. The encapsulated isolators will be installed within the process racks. Each four-channel isolator will provide four independent isolated channels. One channel isolator will be used within the SPDS cabinet to provide isolation for several temperature loop inputs. Each of the selected isolators has been fully tested by NUS for seismic and performance requirements (including surge withstand and fault testing) to ensure its acceptability for use in class 1E applications at Salem Generating Station. The reason for the change is to provide Class 1E signal isolation between RG 1.97 Class 1E instrument loops and non-safety related components. This DCP will make no changes to the functional, operational, or design requirements of any of the affected loops, including instrument ranges,setpoints, and

ITEM		SUMMARY
		protection channel response times as noted in the SGS Technical Specifications. No changes will be made to any Limiting Conditions for Operation nor to any surveillance requirements. No functional changes will be made to any computer inputs which may be used by the Operators. The margin of safety as defined in the bases of the SGS Technical Specifications, will not be reduced by this change. (SORC 94-025)
2EC-3258	Pkg 6	"RG 1.97 Containment Isolation Valve Indication and Control Modifications" - This design change package modifies the Regulatory Guide (RG) 1.97 Containment Isolation Valve (CIV) control and indication circuits to separate the Non-Safety Related (NSR) and Safety Related (SR)/ Non-EQ (located in a harsh area) loads from RG 1.97 CIV control and indication circuits. This design change package was developed to provide electrical separation of RG 1.97 CIV control and indication circuits from Non-Safety Related (NSR) and Safety Related (SR)/Non-EQ (located in a harsh area) loads. This separation will ensure compliance with the necessary requirements delineated in the design basis and licensing commitments relative to electrical separation and RG 1.97. The bases for the Technical Specifications applicable to the containment isolation valves, require the containment isolation valves to be operable so that the containment atmosphere will be isolated from the outside environment in the event of a release of radioactive material to the containment atmosphere or pressurization of the containment. The proposed changes will modify the control and indication circuits for the subject containment isolation valves in accordance with the recommendations of Reg. Guide 1.97. Therefore, the proposed changes will improve the overall system reliability. There is no reduction in the margin of safety as defined in the basis for any Technical Specification. (SORC 94-025)
2EC-3256	Pkg 1	"Main Steam Flow Instrumentation Modifications" - This DCP is being implemented to modify the Main

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MONTH: - MARCH 1994

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(cont'd)

ITEM	SUMMARY
	Steam flow input signals to the Reactor Protection Cabinets. A new summator will be added to each of the eight steam flow loops. Existing square root extractors will be removed from the Reactor Protection Cabinets to provide room for the new summator modules. To account for the removed square root extractors, existing multipliers will be re-wired to provide a dual function of multiplier and square root extraction. The addition of the summator cards will provide calibration capabilities from the Reactor Protection Cabinets, which reduces the need to perform instrument calibration inside the Containment. Post modification operability tests will be performed to demonstrate the ability of the modified instrument loops to operate the same as prior to the modification and be within the limits of the Technical Specification requirements. Table 7.5-2 of the UFSAR will be updated to reflect the instrument accuracies as calculated by calculation SC-CN-007-01. Although the indication accuracy is larger than the existing UFSAR value, no decrease in the margin of safety will result. Calculation SC-CN-007-01 acceptably analyzes the existing steam flow Technical Specification allowable value. Therefore, neither the signal summator addition nor the document only indication accuracy revision decrease the margin of safety. (SORC 94-026)
2EC-3220 Pkg 1	"Pressurizer Spray Valve Upgrade" - Pressurizer Spray Valves 2PS1 and 2PS3 are being retrofitted with a new trim, upgraded valve bonnet bolts, nuts and gaskets, valve packing and actuator spring. The new valve trim and other material upgrades will eliminate problems of seat leakage, body to bonnet leakage and valve body to bonnet bolting corrosion. This will reduce the corrective maintenance work in the pressurizer enclosure which is a high radiation and heat stress area. The modification to the pressurizer spray control valves does not affect the Technical Specifications and their bases. The proposed test may impose a pressurizer cooldown rate of 16 degrees F in two minutes (8 degrees F/min). Technical specification 3.4.10.2b limits the

ITEM	SUMMARY
	pressurizer cooldown rate to 200 degrees F/hr (which on a per minute basis is 3.3 degrees F/min). "General Pressurizer Vessel Assembly" E-specification 676440 Revision 4, dated 9/16/71 and its addenda, 67230 Revision 4, dated 7/8/75 were reviewed. These documents support the interpretation that the Technical Specification cooldown rate of 200 degrees F/hr is for normal plant cooldown and it should not be construed as prohibiting a transient cooldown rate in excess of 3.33 degrees F/min. Therefore, there is no reduction in the margin of safety as defined in the bases for any Technical Specification. (SORC 94-026)
B. Deficiency Reports	
DR 94-017	"2A-125VDC Bus UV Relay" - This deficiency report addresses the "USE-AS-IS" disposition of DR SMD 94-017. DR disposition allows continued operation of the 2A-125 VDC Bus with the unavailability of Overhead Annunciator (OHA) window B2 alarm "2A 125VDC CNTRL BUS VOLT LO". During a routine System Engineer's (SE) walkdown of Control Room Recorder Panel 2RP9, 2A-125 VDC Bus Undervoltage (UV) alarm relay 2-UD-M398 was found not installed, leads lifted, associated input power fuses removed and stored at the bottom of 2RP9 Panel without red blocking tags, OHA window B2 was clear, and 2A-125 VDC Bus voltage was normal. The 2A-125 VDC bus voltmeter is still available for the NCO to verify that bus voltage is $\geq$ 125 VDC. The 2A-125 VDC bus voltmeter and ammeter on 2RP9 panel are now being monitored every hour instead of every shift while OHA window B2 is out of service. If the primary battery charger fails and the NCO does not notice that the 2A-125 VDC battery was supplying the 2A-125 VCD bus for approximately one hour, and a LOPA plus LOCA then occurs, the 2A-125VDC battery voltage will drop from 120 VDC to 119.04 VDC after the one hour discharge to supply normal 2A-125 VDC bus loads, and then the battery voltage will reduce further after the two hour accident discharge such that all loads will have adequate voltage to operate in accordance with design calculation ES-4.003. Also, the battery

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ITEM	SUMMARY
	will have adequate capacity for this postulated three hour discharge profile in accordance with design calculation ES-4.003. If required, the backup battery charger 2A2 can be placed in service as supplied from the 2C Diesel Generator. The additional 43.465 KW battery charger load on 2C Diesel Generator will not exceed the 2000 diesel generator rating of 2750 KW in accordance with design calculation ES-9.002. Therefore, this DR disposition does not reduce the margin of safety as defined in the basis for any Technical Specification. (SORC 94-025)

SALEM GENERATING STATION
MONTHLY OPERATING SUMMARY - UNIT 2
MARCH 1994

SALEM UNIT NO. 2

The Unit began the period in a power escalation. On March 1, 1994, the reactor achieved 100% power. Reactor power varied during the period as a precautionary measure due to the continuous challenges of heavy grass at the circulator inlet area. On March 5, 1994, power was reduced to approximately 42% for condenser water box cleaning due to heavy grass conditions. The Unit was restored to 100% power on March 7, 1994, and, with the exception of minor load reductions due to heavy grass conditions, continued to operate at essentially full power until March 28, 1994. On March 28, 1994, a Unit shutdown was initiated due to an inoperable reactor trip breaker. The breaker was returned to operable status, however, power was further reduced (to 80%) to support a scheduled maintenance outage on 22A circulator. The Unit continued to operate at 80% power throughout the remainder of the period.

REFUELING INFORMATION
MONTH: - MARCH 1994

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COMPLETED BY: R. HELLER
TELEPHONE: (609)339-5162

MONTH MARCH 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 492

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

8-1-7.R4