



# PSEG

The Energy People

1977 ANNUAL OPERATING REPORT

SALEM GENERATING STATION

UNIT NO. 1

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RECORDS FACILITY BRANCH

ANNUAL OPERATING REPORT  
OF  
SALEM GENERATING STATION  
FOR 1977

DOCKET NO. 50-272

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## TABLE OF CONTENTS

	PAGE
I. INTRODUCTION	1
II. HIGHLIGHTS	2
III. NARRATIVE SUMMARY OF OPERATING EXPERIENCE	3
IV. DESIGN CHANGES, TEST EXPERIMENTS	22
V. PERSONNEL RADIATION EXPOSURE REPORTS	43

## SECTION I INTRODUCTION

Salem Generating Station is a PWR of 3338 MWt rated power, operated by Public Service Electric and Gas Company and located in Salem, New Jersey. The Nuclear Steam Supply System is a Westinghouse 4-loop plant. The architect engineer was PSE&G Co., and the constructor was United Engineers and Constructors. The condenser cooling method is circulating water from the Delaware River. The plant is subject to license DPR-70 issued August 13, 1976, pursuant to Docket Number 50-272. The date of initial reactor criticality was December 11, 1976, and commercial generation of power began June 30, 1977.

This report was prepared by Mr. R. A. Silverio, Assistant to Manager (609-365-7000 Ext. Salem 510). Major personnel changes during the year included the Maintenance Engineer, Mr. R. A. Silverio being designated as the Assistant to Manager while Mr. Stanley LaBruna assumed the position of Maintenance Engineer. Mr. James Gueller replaced Mr. Norman Millis as the Senior Performance Supervisor - Chemistry and HP.

## SECTION II HIGHLIGHTS

Initial criticality was achieved on December 11, 1976. After zero power physics tests were completed, the Unit was synchronized on December 25, 1976 to complete the power escalation program. This program consisted of a combination of physics and plant response tests that were conducted at various power plateaus between 10% and 100% power. This startup program was completed on July 30, 1977 with the generator trip test from 100% power, although the Unit was declared commercial on June 30, 1977.

During the latter six months of the year the Unit operated at a capacity factor of 42.5% for a total of 2,186,310 MWe hours. Unit load decreases were mostly due to the need for cleaning secondary system strainers as described in Section III, Summary of Operating Experience.

An eleven week outage was taken to complete the L-4 stage modification of shrouding on all low pressure turbines.

### SECTION III SUMMARY OF OPERATING EXPERIENCE

The following is a chronological description of plant operations including other pertinent items of interest for the period January 1, 1977 to December 31, 1977:

- 1-1 No. 1 Turbine Generator was synchronized at 1508. The Unit was to run at minimum load in preparation for an overspeed test.
- 1-2 A reactor/turbine trip occurred at 0303 caused by low level in 11 Steam Generator in conjunction with a feed flow/steam flow mismatch. The Unit was at minimum load with feed control in manual.

At 0519 the reactor was taken critical and a series of overspeed tests run as part of the startup test program.

The Unit was synchronized at 1559 and a reactor/turbine trip initiated at 1634 as part of a Loss of Off Site Power Test.

The reactor was taken critical at 2008.

- 1-3 The Unit was synchronized at 0300.

At 0353 a reactor/turbine trip was caused by Hi-Hi level in 14 Steam Generator. The Unit was at minimum load with level control in manual.

The reactor was taken critical at 0512 and the turbine-generator was synchronized at 0833.

At 1016 a reactor/turbine trip was initiated as part of the Shutdown from Outside the Control Room Test. A non-isolable leak was found on the letdown line and an outage was required for repairs. The outage ended on 1-7.

1-7        The reactor was taken critical at 2013.

1-8        The Unit was synchronized at 0219.

At 1504 a reactor/turbine trip occurred caused by low-low level in 14 Steam Generator. The Unit was at minimum load with level control in manual.

The reactor was taken critical at 2140.

1-9        The Unit was synchronized at 0316.

At 1247 the Unit was taken off the line in order to repair a flange leak on 12W Interceptor Valve.

1-10       The Unit was synchronized at 0608.

At 0944 a reactor/turbine trip was caused by low-low level in 14 Steam Generator. The Unit was at minimum load with level control in manual.

The reactor was taken critical at 1212.

At 1604 the reactor was taken subcritical in order to comply with a Technical Specification Action Statement concerning inoperable safety injection valves.

1-11       The reactor was taken critical at 1147 and synchronized at 1513.

At 1844 the Unit was taken off the line to replace failed steam generator feed pump suction strainers. The Unit then remained off the line until 1-18 because of problems with two main steam isolation valves.

- 1-18 The reactor was taken critical at 1518.
- 1-19 The Unit was synchronized at 1511. At 1710 a Hi-Hi level in 11 Steam Generator caused a turbine and feed pump trip. At 1715 a reactor trip was caused by a low-low level in 14 Steam Generator. The Unit was at minimum load with feed control in manual.
- 1-20 The reactor was taken critical at 0057.
- At 0405 the turbine was rolled but a Hi-Hi level in 11 Steam Generator caused a turbine and feed pump trip. The feed control system was in manual.
- The Unit was synchronized at 0623.
- 1-22 At 0602 a reactor/turbine trip occurred following the transfer of full length control rod control power from the regular to the backup supply. The trip was traced to a fault in the backup power supply. The Unit then went to cold shutdown to repair a steam leak in 12 Steam Generator steam flow sensing line.
- 1-23 The reactor was taken critical at 1136.
- The Unit was synchronized at 1444.
- 1-25 With the Unit at 265 MWe gross, the Unit tripped at 1438 due to a loss of excitation. This was the first time the voltage regulator was placed in automatic. The voltage became very unstable; the regulator was taken out of service and voltage manually reduced but due to control sensitivity a value low enough to cause a loss of excitation trip was reached.
- The reactor was taken critical at 1556 and the Unit synchronized at 1727.



1-28 With the Unit at 265 MWe gross, the Unit tripped at 1528 during the course of a regular surveillance test due to a procedural error.

The reactor was taken critical at 1641 and the Unit synchronized at 1836.

At 2209 the Unit was taken off the line due to the loss of five of the six circulating water pumps when river ice caused the loss of the traveling screens due to overload. The reactor tripped even though it was at three percent power due to the freezing of a turbine first stage pressure sensing line which incorrectly indicated turbine power.

After repairs were made the reactor was taken critical at 2336.

1-29 The Unit was synchronized at 0128.

At 0421 a reactor/turbine trip was caused by low-low level in 12 Steam Generator. The low level was caused by the sudden loss of steam generator feed pump suction pressure which was caused by a rapid plugging of the condensate pump suction strainers.

The reactor was taken critical at 0626 and the Unit was synchronized at 0725. Load was restricted to 275 MWe gross since the last series of transients had seriously affected secondary chemistry and time was required to return chemistry to normal.

2-1 At 1319 a reactor/turbine trip was caused by low-low level in 12 Steam Generator which was caused by loss of steam generator feed pump suction pressure. The Unit was at 275 MWe gross.

The reactor was taken critical at 2211.

2-2 The Unit was synchronized at 0406.

At 0748 a reactor/turbine trip was caused by low-low level in 12 Steam Generator level which was caused by a loss of steam generator feed pump suction pressure.

The reactor was taken critical at 0903 and the Unit synchronized at 1031.

At 2253 a reactor/turbine trip was caused by low-low level in 12 Steam Generator due to a loss of 11 Steam Generator Feed Pump when 12 Steam Generator Feed Pump was not in service.

2-3 The reactor was taken critical at 0022 and the Unit synchronized at 0147.

2-6 At 2023 the Unit was removed from service due to river ice causing problems with the Circulating Water System. The Unit was put back in service at 2226.

2-8 With the Unit at 340 MWe gross a ten percent load swing test was conducted. With all controls in automatic load was first decreased 110 MWe (10% of full load) and after the plant stabilized the load was increased the same amount. No major problems were found.

2-10 At 1223 a reactor/turbine trip was caused by low-low level in 12 Steam Generator. The Unit was operating at 180 MWe gross and feedwater control was in automatic. The event was caused by 12 Main Steam Isolation Valve drifting closed which caused an increase in steam generator pressure which prevented adequate feed flow.

The reactor was taken critical at 2033 and the Unit was synchronized at 2234.

2-11 At 0947 a reactor/turbine trip was caused by low-low level in 12 Steam Generator which was caused by 12 Main Steam Isolation Valve closing when a technician removed air from a controller on 12 instead of on 14 Main Steam Isolation Valve. The Unit was at 240 MWe gross.

The reactor was taken critical at 1134 and the Unit was synchronized at 1509.

2-15 The Unit output was increased to 505 MWe gross.

2-20 During the course of a startup physics test, reactor power was reduced from 50% to 30% before being returned to 50%.

2-21 At 0528 load was reduced from 500 MWe gross to 290 MWe gross due to problems in the Circulating Water System. Load was again increased at 0940.

2-24 At 1430 the Unit was tripped from 500 MWe gross as part of a startup test. The trip led to a planned maintenance outage, the main purpose of which was to replace a main generator hydrogen cooler. The outage lasted until 3-9.

3-9 At 0436 the reactor was taken critical and at 1005 the Unit was synchronized.

At 1449 a reactor/turbine trip occurred during a scheduled surveillance test. A fault in the Solid State Protection System caused both steam generator feed pumps to trip and the Unit went out on low-low level in 12 Steam Generator.

The reactor was taken critical at 1625 and the Unit synchronized at 1818.

3-12 At 1030 the Unit output reached 850 MWe gross. At 1220 power was reduced to 500 MWe gross to clean feed and condensate pump suction strainers.

3-16 At 0236 while performing a Reactor Coolant System dilution in accordance with a startup test and with the Unit stable at 840 MWe gross, T/AVG suddenly began decreasing. Subsequent investigation revealed inadvertent valve operation at the boric acid evaporator. The load was reduced to 340 MWe gross. At the same time a position indicator for No. 3 Governor Valve broke causing a false indication in the overspeed protection circuit which started to close the governor and interceptor valves. The Unit was manually tripped at 0357.

The reactor was taken critical at 2130.

3-17 The Unit was synchronized at 0444.

3-18 At 1500 a reactor/turbine trip was caused by a loss of reactor coolant flow when power was lost to two operating reactor coolant pumps. Subsequent investigation revealed a spurious opening of a 500kV breaker.

The reactor was taken critical at 2048 and the Unit synchronized at 2316.

3-20 Reactor power varied between 63% and 24% due to problems with the quadrant power tilt ratio.

3-22 Reactor power was maintained at 49% while investigating problems with the quadrant power tilt ratio.

3-23 The Units output was increased to 880 MWe gross.

3-25 With the Unit at 870 MWe gross a ten percent load swing test was conducted. The load was first decreased to 720 MWe and after the plant had stabilized was increased back to 870 MWe.

- 3-27     Reactor power was decreased from 75% to 50% to clean steam generator feed pump suction strainers.
- 3-28     At 0330 Unit output was returned to 880 MWe gross.
- 3-29     At 1359 with the Unit at 870 MWe gross a 50% load rejection was performed as part of a startup test. Load was decreased to 320 MWe. No problems were encountered.
- 3-30     At 1308 with the Unit operating at 870 MWe gross a reactor/turbine trip and safety injection occurred. The incident was traced to the closure of 13 and 14 Main Steam Isolation Valves which caused a large differential pressure to exist between main steam lines. The trip necessitated an outage to add additional packing to the main steam isolation valves. The outage lasted until 4-3.
- 4-3     The reactor was taken critical at 1258 and the Unit synchronized at 2236.
- 4-4     At 1019 the Unit was taken off the line and the reactor taken subcritical due to excessive Reactor Coolant System identified leakage. A containment entry was made and a series of valves checked. Reactor Coolant System identified leakage was then determined to be well within limits and the reactor was taken critical at 1944 and the Unit was synchronized at 2303.
- 4-5     The Unit output was increased to 950 MWe gross.
- 4-6     The load on the Unit was reduced to 620 MWe to allow for the cleaning of feed and condensate pump suction strainers.
- 4-7     The Unit output was increased to 1030 MWe gross.
- 4-9     12 Governor Valve position linkage broke forcing a load reduction to 470 MWe gross for repairs.

- 4-11 At 1133 with the Unit at 1040 MWe gross a reactor/turbine trip was caused by a negative flux rate trip when a control rod fell into the core. A blown fuse was the cause of the dropped rod.
- 4-12 The reactor was taken critical at 0340 and the Unit synchronized at 0832.
- At 1001, power to 14 Reactor Coolant Pump was lost when transferring a bus from the station to auxiliary power transformer.
- At 1032, 14 Reactor Coolant Pump was restarted and the ensuing transient caused a 14 Steam Generator Hi-Hi level turbine/reactor trip followed by a safety injection due to high steam flow and low T/AVG.
- 4-13 The reactor was taken critical at 1721 and the Unit was synchronized at 2000. Power was limited to 560 MWe gross due to repairs required to 12 Condensate Pump upper motor bearing.
- 4-21 Unit output returned to 1030 MWe gross.
- 4-22 Power was reduced to 550 MWe gross for condenser inspections and feed and condensate pump suction strainer cleaning.
- 4-29 At 1052 the reactor was tripped manually from 90% power when the operators noticed the control rods stepping in, 200 MWe on the generator, and the E-H trip light on the E-H energized.
- 4-30 At 0829 the reactor was taken critical and the Unit was synchronized at 1132. Load was limited to 270 MWe due to an inoperable valve in the charging system.

5-4 At 0901 a Unit shutdown was started to repair several valves in the Charging and Letdown System. The outage lasted until 5-7.

At 1100 the reactor tripped from 4% power due to a steam flow/feed flow mismatch in conjunction with a low level in 14 Steam Generator. The trip was caused by a technician working on a steam flow channel.

5-7 The reactor was taken critical at 1613 and the Unit was synchronized at 1828.

5-9 The Unit output was returned to 1030 MWe gross.

5-13 Load was decreased to 550 MWe to clean steam generator feed pump suction strainers.

5-14 The Unit output was returned to 1030 MWe gross.

5-18 The Unit was removed from service to torque up on leaking steam generator manways.

5-19 The Unit was synchronized at 1653.

5-20 The Unit output was increased to 1110 MWe gross.

5-22 Unit load was decreased to 90% to repair 13 Governor Valve position linkage.

5-23 Unit output was increased to rated load of 1136 MWe gross.

5-25 At 0930 reactor power was rapidly decreased to 55% due to a failure of 11 Steam Generator Feed Pump.

6-1 Unit output was returned to 1136 MWe gross.

- 6-4 At 1053, with the Unit at full load, a reactor/turbine trip occurred. An electrical fault in the cable for 14 Reactor Coolant Pump caused the pump to trip and the Unit to trip on loss of reactor coolant flow. Subsequent investigation revealed extensive damage to the reactor coolant pump cable and a pressurizer heater transformer. The repairs necessitated an outage that ended 6-18.
- 6-17 The reactor was taken critical at 1522.
- 6-18 The Unit was synchronized at 0325.
- 6-21 Unit output was returned to 1136 MWe gross. At 1518 a turbine runback occurred from 100% to 92% power. It was caused by a procedural error in a functional test.
- 6-22 At 2013 load was reduced to 70% to clean condensate pump suction strainers.
- 6-24 Three startup tests were run that required load changes. One test involved a slow power decrease from 100% to 80% followed by a slow power increase from 80% to 100%. The second test was a rapid 10% load swing test from 100% to 90% and then after equilibrium had been established a return to 100%. The third and final test was a 50% load rejection test from full power. All tests were run successfully.
- 6-26 As part of the startup test program a generator trip test from 100% power was conducted. The trip was initiated by opening the generator output breakers at 1013. The reactor was taken critical at 1942 and maintained at  $10^{-8}$  amps for a Xenon follow test.



- 6-29 The Unit output was returned to 1136 MWe gross. At 2315 the load was reduced to 50% to clean 12 Steam Generator feed pump suction strainer.
- 6-30 The Unit was declared commercial at 0001.
- 7-4 At 2308 the Unit load was decreased to 70% to clean condensate pump suction strainers.
- 7-5 Unit load returned to 1136 MWe. At 1518 a reactor/turbine trip was caused by an under voltage condition on the reactor coolant pump busses. The undervoltage condition was caused by oscillations in the generator voltage regulator.
- The reactor was taken critical at 2322.
- 7-6 The Unit was synchronized at 0500.
- At 2111 with the Unit at minimum load a reactor/turbine trip occurred. It was caused by a low level in 12 Steam Generator in conjunction with a steam/feed flow mismatch. The event was caused by an oscillation in the feed flow control circuit.
- 7-7 The reactor was taken critical at 0031 and the Unit synchronized at 0403.
- The Unit output was increased to 1080 MWe gross by 1500.
- 7-8 Unit load was reduced to 535 MWe gross in order to clean feed and condensate pump suction strainers.
- At 1327 a shutdown of the Unit was started in order to repack a non-isolable valve in the Charging System. The outage lasted until 7-13.

- 7-13 The reactor was taken critical at 0230 and the Unit was synchronized at 0647.
- 7-14 The Unit output was returned to 1110 MWe gross.
- 7-17 At 2045 the Unit tripped from 100% power due to a faulty auto stop oil pressure switch.
- 7-18 The reactor was taken critical at 0759. The Unit was synchronized at 1116 and was at full load by 2225.
- 7-20 At 0550 a power reduction was started in order to comply with a Technical Specification Action Statement concerning the Boric Acid System.
- At 2025 the Action Statement was terminated and the Unit began increasing load.
- 7-21 At 2028 a rapid load decrease from 100% to 70% power was started when 11 Condensate Pump became inoperable. At 2033 load was 70% and 11 Condensate Pump was out of service.
- 7-22 Reduced load to 30% to clean feed and condensate pump suction strainers.
- 7-25 At 0450 the Unit was removed from service because of high back pressure in the condenser. The cause was a loss of seal water to the vacuum pumps.
- The Unit was returned to service at 0644.
- 7-28 At 2340 the Unit returned to full load.
- 7-30 At 0700 the Unit was tripped from 100% power as part of a required startup test.

The reactor was taken critical at 1604 and the Unit was synchronized at 1808.

7-31 Load was limited to 80% due to two circulating water pumps out of service.

8-3 At 1624 a reactor/turbine trip occurred from 100% power during the performance of a required surveillance procedure. A technician failed to block the intermediate range channels prior to placing a switch to normal.

The reactor was taken critical at 2246.

8-4 At 0111 the Unit was synchronized.

8-5 Unit operating at full load.

At 2305 power was reduced to 60% to clean feed pump suction strainers.

8-8 Unit operating at full load.

8-12 At 2102 power was reduced to 60% to clean feed pump suction strainers.

8-13 At 1324 a reactor/turbine trip occurred from 54% power caused by a low level in 12 Steam Generator in conjunction with a steam flow/feed flow mismatch.

The reactor was taken critical at 1540 and the Unit was synchronized at 1949.

At 2311 a reactor/turbine trip occurred from 39% power caused by a loss of hydraulic oil pressure. The oil pressure switches were calibrated and found acceptable.

- 8-14 The reactor was taken critical at 0646. The Unit was synchronized at 0850 and full power was reached at 2150.
- 8-16 Unit load reduced to 70% to clean condensate pump suction strainers.
- 8-17 Unit load reduced to 53% to clean feed pump suction strainers.
- 8-18 Unit operating at full load.
- 8-20 Unit load reduced to 50% to clean feed pump suction strainers.
- 8-21 Unit operating at full load.
- 8-26 Reduced load to 50% to run a load capability test with one feed pump and one condensate pump out of service.
- 8-27 Unit operating at full load.
- 8-30 Reduced load to 55% to clean feed pump suction strainers and then returned the Unit to full power.
- 9-1 The Unit operated at essentially full load until 9-13.
- 9-13 Unit load reduced to 60% to clean condensate and feed pump strainers.
- 9-14 Unit operating at full load.
- 9-15 Unit load reduced to 54% to clean condensate and feed pump strainers.
- 9-16 Unit operating at full load.

A power reduction was started at 1830 to remove Unit from service for a maintenance outage.

At 2345 a reactor/turbine trip occurred. It was caused by a low-low level in 12 Steam Generator. Prior to the trip, 12 Steam Generator Feed Pump had blown a gasket on the suction strainer cleanout flange. The pump had been tripped and isolated but 11 Steam Generator Feed Pump did not pick up speed either in automatic or manual.

9-17 Began maintenance outage. The main purpose of the outage was to modify the L-4 stage, shrouding on all low pressure turbines. The modification was proposed by the turbine manufacturer to minimize harmonic induced vibration in the L-4 rows of turbine blades. The modification will reduce the probability of vibration induced fatigue cracking at the blade roots. The work was done under the turbine manufacturer's warranty. The outage ended 11-24.

11-23 The reactor was taken critical at 1211. The remainder of the day was spent rolling the turbine at various speeds to check vibration.

At 2311 while increasing turbine speed to 1020 RPM the Unit tripped on high vibration. The turbine was then placed on the turning gear to allow the shaft to straighten.

11-24 The turbine remained on the turning gear until 1100. The turbine was then rolled to 1800 RPM. No balancing was necessary.

The Unit was synchronized at 1718 and load was increased to 140 MWe gross for turbine stretching prior to the overspeed test.

11-25 At 0525 the Unit was removed from service in preparation for the overspeed test.

At 2143 the Unit was synchronized.

11-26 At 1856 the Unit was taken out of service to repair a non-isolable failed steam pressure tap on the turbine.

11-27 The Unit was synchronized at 0230 and load was limited to 270 MWe gross.

At 2215 a reactor/turbine trip occurred due to a loss of auto-stop oil. No definite reason was found.

11-28 At 0519 the reactor was taken critical and the Unit was synchronized at 0939. Power escalations were limited to 3% per hour because of fuel warranty restrictions.

11-29 At 1000 the Unit output reached 500 MWe gross. Load was restricted to 50% while cleaning steam generator feed pump suction strainers.

At 2100 a load reduction was initiated to take the Unit off the line to repair the steam generator feed pump suction valves. The outage lasted until 12-3.

12-3 The reactor was taken critical at 2030 and the Unit synchronized at 2331.

12-4 Unit output increased to 60% load.

12-5 At 1831 a reactor/turbine trip occurred. The Unit tripped because of low-low level in 12 Steam Generator. The low level was caused by loss of feed pump suction pressure.

12-6 The reactor was taken critical at 0240 and the Unit was synchronized at 0518.

At 2034 a reactor/turbine trip occurred. The Unit tripped because of low-low level in 12 Steam Generator. The low level was caused by loss of feed pump suction pressure.

The reactor was taken critical at 2204.

12-7 The Unit was synchronized at 0016.

At 1600 the Unit output was 640 MWe gross.

12-8 At 0637 a turbine runback occurred reducing load from 860 MWe to 610 MWe gross. It was caused by a turbine first stage pressure channel failing high. The run back was stopped by placing both reactor and turbine control in manual.

12-9 The Unit reached full load of 1135 MWe gross.

12-10 Power was reduced to 70% at 2026 for cycling of heater drain pumps as part of a program to clean the Feed and Condensate System.

12-12 Unit output returned to full load of 1136 MWe and remained at full power until 12-16.

12-16 Reduced load to 70% to clean condensate pump strainers.

12-17 The Unit output returned to full load.

Power was reduced to 70% at 2011 for cycling of heater drain pumps as part of a program to clean the Feed and Condensate System.

12-19 Unit output was returned to full load of 1136 MWe and remained at full power until 12-22.

12-22 Power was reduced to 70% for cycling of heater drain pumps and cleaning of condensate pump suction strainers.

- 12-23 Unit output was returned to full load of 1136 MWe and remained at full power until 12-25.
- 12-25 Reduced load to 50% to cycle heater drain pumps and to clean steam generator feed pump suction strainers.
- 12-26 At 2135 Unit output was returned to full load.
- 12-27 Reduced load to 70% to clean condensate pump suction strainers. Returned to full load.
- 12-28 Reduced load to 70% to clean condensate pump suction strainers. Returned to full load.
- 12-29 At 1330 a reactor/turbine trip occurred caused by 14 Steam Generator steam flow/feed flow mismatch in conjunction with a low level. This was caused by a spurious trip of 11 Steam Generator Feed Pump.
- The reactor was taken critical at 2151 and the Unit was synchronized at 2338.
- 12-30 At 1830 the Unit output was returned to full load.
- 12-31 Reduced load to 70% to clean condensate pump suction strainers.



SECTION IV  
SALEM GENERATING STATION  
COMPLETED DESIGN CHANGE REQUESTS

DCR NO.	SYST CODE	PRINCIPAL SYSTEM	SUBJECT	SAFETY EVALUATION
ED-0004	M915	CHILLED WATER	THERMOWELL MODIFICATION TO INCREASE SENSITIVITY	EQUIP.PERFORMS SAME FUNCT. & MEETS APPLICABLE REQUIREMENTS.
ED-0006	G000	EQUIP. DRAINS	CHANGE SEVERAL 2" EQUIP. DRAINS FROM #2 UNIT EQUIP. DRAINS TO #1 UNIT FLOOR DRAINS	NOT SAFETY RELATED
ED-0007	F700	FEEDWATER	REPLACE SOLENOIDS FOR VALVES BF-19 AND BF-40	CHANGED TO MEET ORIG.DESIGN COMMITTMENT FOR RESPONSE TIME.
ED-0008	C900	RAD. MONITORING	REPLACEMENT OF VALVES 1VC-7 THRU 1VC-14 WITH NEW TYPE	VALVE CHANGE MAKES SYS.OPERATE AS ORIGINALLY DESIGNED.
ED-0012	F700	FEEDWATER	VIBRATION DAMPENER FOR RECIRC. LINE	NOT SAFETY RELATED
ED-0013	M530	WASTE DISPOSAL- LIQUID	INSTALLATION OF STEAM TRAPS IN BORIC ACID AND WASTE EVAP. CONDENSATE RETURN LINES	NOT SAFETY RELATED
ED-0016	W100	CHEM. TREATMENT	MOVE PANEL	NOT SAFETY RELATED
ED-0018	M000	PLATFORMS	RELOCATION OF PLATFORM TO AVOID INTERFERENCES	NOTE 1
ED-0020	R400	PWR. TO N.I.S.	SOLATRON REPLACEMENT	NOTE 2
ED-0021	M600	SERVICE WATER	VIBRATION RESTRAINTS FOR 8" BYPASS	NOTE 3
ED-0022	M910	AUX.BLDG.VENT.	SETPOINT CHANGE-EXHT.FLANGE INLET GUIDE VANES	NOT SAFETY RELATED

DCR NO.	SYST CODE	PRINCIPAL SYSTEM	SUBJECT	SAFETY EVALUATION
ED-0023A	M600	SERVICE WATER	INSTALL NEEDLE VALVES TO VARY CLOSING TIME OF VALVE SW-58	NOTE 4
ED-0024	R120	SOLID STATE PROTECTION	CIRCUIT MODIFICATION - DIODES	NOTE 5
ED-0025	N620	CONT.SPRAY	REPLACE ORIFICE PLATE FE-930	EQUIP.PERFORMS SAME FUNCT.
ED-0026	M600	SERVICE WATER	MODIFICATION TO BYPASS VALVING SW-48	NOTE 6
ED-0027	M600	SERVICE WATER	MOTOR MODIFICATIONS	NOTE 7
ED-0029	M600	SERVICE WATER	PROVIDE CATHODIC PROT. FOR SW PUMPS	NOT SAFETY RELATED
ED-0030	M250	SECURITY SYSTEM	REPLACEMENT OF EXISTING PUSHBUTTONS FOR DOOR EGRESS WITH MICROWAVE MOTION DETECTORS	FUNCTION NOT CHANGED. NOT SAFETY RELATED
ED-0031	T100	ELECTRO-HYDRAULIC CONTROL (EHC)	CHANGE OF TURB.TRIP-REACTOR TRIP SETPOINT FOR TURB.STOP VALVE CLOSURE	CHANGE MADE TO MEET TECH. SPEC. REQUIREMENT.
ED-0032	C900	RAD.MONITORING	REPLACEMENT OF SAMPLE PUMP WITH NEW TYPE	FUNCTION NOT CHANGED. NEW PUMP MORE RELIABLE.
ED-0034	W200	DEMIN.WATER	COATING OF FLANGE TO PREVENT CORROSION	NOT SAFETY RELATED
ED-0036	M600	CONTROL AIR	REMOVAL OF SEAL-IN CONTACT FROM CONTROL AIR CONT.ISOL. VALVE SOLENOID CIRCUIT	INCREASES SYSTEM RELIABILITY ONLY.
ED-0037	M250	SECURITY SYSTEM	ADDITION OF LOGIC MODULES TO REDUCE WIND-GENERATED FENCE ZONE ALARMS	NOT SAFETY RELATED
ED-0039	M915	CHILLED WATER	REDUCE SIZE OF SERVICE WATER RECIRC.PUMP IMPELLER FOR CHILLER-COND. 8.75 TO 6.5"	NOTE 8

DCR NO.	SYST CODE	PRINCIPAL SYSTEM	SUBJECT	SAFETY EVALUATION
ED-0043	M600	SERVICE WATER	ADD SILT SETTLING CHAMBER TO AVOID PLUGGING OF INSTR.LINE	NOT SAFETY RELATED
ED-0044	R400	NIS	REPLACE CHANNEL I,II AND III 0.5kVA SOLATRON WITH 0.25kVA UNITS	NOT SAFETY RELATED
ED-0045	R500	ROD CONTROL	INSTALL FILTER ON EXISTING SOLATRON	NOT SAFETY RELATED
ED-0047	G210	MAIN STEAM	ELIMINATE CONDENSATE POCKET IN F1542	SATISFIES ORIG.FUNCTIONAL REQUIREMENT.
ED-0047A	G210	MAIN STEAM	ELIMINATE CONDENSATE POCKET IN LOW PRES.LEG OF F1522 & F1542	SATISFIES ORIG. FUNCTIONAL REQUIREMENT.
ED-0048	E130	4kV	REVISE 4kV GROUP BUS CIRC.TRIP SETPOINT AND TEST POINTS	NOT SAFETY RELATED
ED-0049	C900	RAD.MONITORING	CHANGE THE HIGH ALARM SETPOINT FOR CHANNELS 1R21 & 1R34 FROM 15MR/HR TO 1R/HR	NOT SAFETY RELATED
ED-0051	E154	COMP. & INVERTER	REPLACE COMPUTER-INVERTER POWER SUPPLY TO ELIMINATE DC OVERSHOOT	NOT SAFETY RELATED
ED-0052A	T100	TURB. E.H.C.	CHANGE TERM'N PTS FOR TURB.SPEED COMPUTER INPUT CABLE 1CP90FO TO PROVIDE CORRECT SIGNAL TYPE	NOT SAFETY RELATED
ED-0053	E500	GEN.PROTECTION	INSTALL AN "A CONTACT" OF EXCITER BREAKER TO INTERLOCK T-G TRIP DURING TURB.TRIP CHECKS	NOT SAFETY RELATED
ED-0055	N100	CVC	RPR.3/4" VENT CONN. ON LTDWN LINE	NOTE 9

DCR NO.	SYST CODE	PRINCIPAL SYSTEM	SUBJECT	SAFETY EVALUATION
ED-0056	F800	MISC.CONDENSATE	BLANK OFF ORIFICE IN BYPASS AROUND VALVE 1MC4	NOT SAFETY RELATED
ED-0057	T000	LP TURBINE	LP TURB. SHROUD WELDING L-4 ROW	NOT SAFETY RELATED
ED-0058	G220	MAIN STEAM	TURNING VANE MODIFICATION- COLD & HOT REHEAT PIPING	NOT SAFETY RELATED
ED-0059	T000	MAIN TURBINE	ADDITION OF TURB.VIBRATION MONITOR	NOT SAFETY RELATED
ED-0063	F130	MAIN GEN.& TRANSFORMER	CHANGE REGULAR OVER-EXITATION STV RELAY PICKUP VOLTAGE FROM 110% TO 115%	NOT SAFETY RELATED
ED-0064	F700	STM.GEN.FW AND CONDENSATE	REMOVE MIN.STOPS FROM FW HEATER INLET VALVES 11,12,13CN22 & CN27. CHG VALVE SERV.PRESS.RATING TO 710 PSIG FROM 585 PSIG 13CN22 & CN27 CHANGES.	NOT SAFETY RELATED
ED-0065	M200	FIRE PROT.	PROVIDE HORNS IN ROOMS ON ELEV. 100' ABOVE PENET.AREA THAT WILL ALARM CO <sub>2</sub> RELEASE	NOT SAFETY RELATED
ED-0066	W100	CHEM.TREATMENT	MODIFY SAMPLE PIPING	NOT SAFETY RELATED
ED-0072	F700	STM.GEN.FEED & CONDENSATE	REDUCE CONDENSER SPARGER OPEN AREA FOR LOW LOAD RECIRC.LINE ON COND.PUMPS	NOT SAFETY RELATED
ED-0075	G210	SAFETY INJ.	ADD VIBRATION ELIMINATORS TO LINE	ENABLES PIPING TO PERFORM ITS DESIGN FUNCTION.
ED-0076	F600	HTR.VENTS & DRAINS	ADD ADDITIONAL PIPE SUPPORT	NOT SAFETY RELATED

DCR NO.	SYST CODE	PRINCIPAL SYSTEM	SUBJECT	SAFETY EVALUATION
ED-0077	F700	HTG.STM. & COND.	ADD ATMOSPHERIC VENT TO COND. RECEIVER TK-AIR BYPASS TO COND.RETURN LINE & VACUUM BKR.TO BORIC ACID EVAP.& BATCH TANKS	NOT SAFETY RELATED
ED-0078	M000	CONTROL AIR	REROUTE HDR.TO AVOID INTER- FERENCE (SECT.ON UNIT 2 SIDE UNISOLABLE FROM UNIT 1)	NOTE 10
ED-0080	R120	SOLID STATE PROT. (SSPS)	MODIFY THE TEST CIRCUITS FOR THE SSPS K RELAYS TO PROVIDE THE REQUIRED BLOCKING FUNCTIONS	ENABLES SYSTEM TO MEET ORIG.DESIGN FUNCTION.
ED-0083	T800	CIRC.WATER	FAB.& INSTALL CONCENTRIC COLUMN STABILIZERS FOR ALL SCREEN WASH BEARING LUBE PMPS.	NOT SAFETY RELATED
ED-0090A		PIPING SPEC. 61-6200	REVISE ADDENDA I & IA TO ELIM. SUPERFLOUS NDE REQ. ON 2" & SMALLER PIPING	NOT SAFETY RELATED
ED-0092	N100	CVCS	REVISE 11 & 12 CHG.PMP.AUX.LUBE OIL PMP CIRCUITRY TO ELIM.START & STOP WITH CHARGING PMPS.	NOTE 11
ED-0093	E154	INVERTERS	ADD BLOWN FUSE INDICATORS	NOTE 12
ED-0096	G210	MAIN STEAM	ADD CONTACT FROM SOLID STATE PROT.SYS.TO PREVENT OPR.HYDRAULIC PROBLEMS IF VA.IS TRIPPED COINCIDENT WITH TESTING	EQUIP.PERFORMS SAME FUNCTION.
ED-0098	M600	SERVICE WATER	PIN SPLINE ADAPTER TO DRIVE SLEEVE IN OPERATOR OF VALVES 11,12SW21 USING SET-SCREW	NOTE 13
ED-0099	C300	OVERHEAD ANNUNCIATOR	TEMP.CHANGE OF INPUT TYPE FROM NO TO NC FOR WINDOW C-28 SPENT FUEL PIT LOW LEVEL TO BLOCK SIGNAL NOW AS PIT IS EMPTY	NOT SAFETY RELATED

DCR NO.	SYST CODE	PRINCIPAL SYSTEM	SUBJECT	SAFETY EVALUATION
ED-0104	T800	CIR.WATER	ADD ENTRAINMENT SAMPLERS TO BAYS 11A AND 12A	NOT SAFETY RELATED
ED-0105	G220	MOISTURE-SEP. REHTR.-STM & DRAINS	INTERCHANGE INSTR.TUBING FOR MAIN STM COIL DRN.TK LOW & HIGH LVL CONTROLLER	NOT SAFETY RELATED
ED-0107	G210	MAIN STEAM	REMOVE CLAMPING CIRCUITS FROM CONTROLLERS ON ALL MS-10 VALVES TO PREVENT MISOPERATION	WILL ELIMINATE SPURIOUS VALVE OPERATION AS ORIG.DESIGNED.
ED-0110	M940	CONT.VENT.	MODIFY SUPPORT OF CRDM.VENT. FAN & THERMOWELL	NOT SAFETY RELATED
ED-0116	E160	#1 AUX. TRANSFORMER	REVERSE W4M AND WM CURRENT CONNECTIONS	NOT SAFETY RELATED
ED-0117	F700	SG FW	ADD ELBOW STRAINERS TO SGFP SUCTION	NOT SAFETY RELATED
ED-0120	M100	CVCS	ALTER AIR SUPPLY TO CV172 TO PERMIT CLOSURE DURING DILUTE- BORATE MODE OF OPERATION	EQUIP.PERFORMS SAME FUNCT. AS DESIGNED.
ED-0121	T800	CIRC.WTR.	CHANGE ALRM SETPOINT OF CIRC. WTR.SCREEN WASH & BEARING LUBE PMP STR.HIGH DIFF.PRESS. TO .12 PSI	NOT SAFETY RELATED
ED-0122	R120	NUCLEAR INSTR.- SOLID STATE PROT. SYS.	MODIFY O.H.ANN.ALARM CIRCUITRY OF WINDOW D5 & D21 TO BLOCK ALARMS AT POWER	NOT SAFETY RELATED
ED-0123	W100	CHEM.TREATMENT	ADD TIME DELAY RELAY TO ALARM CIRCUIT OF KA-3279 IN ORDER TO MAINTAIN ALARM WHEN SCANNING FROM POINT TO POINT	NOT SAFETY RELATED

DCR NO.	SYST CODE	PRINCIPAL SYSTEM	SUBJECT	SAFETY EVALUATION
ED-0124	M600	SAFETY INJ.	STIFFEN BASEPLATE OF #12 SAFETY INJ.PMP.MOTOR	NOTE 14
ED-0125	C900	RAD.MONITORING	REPLACE GM TUBES FOR R14 (TRACER LAB)WITH JOHNSON BLUE TUBE	EQUIP.PERFORMS SAME FUNCT.AS ORIG. DESIGNED
ED-0126	T300	TURB.GLAND SEALING STM & LEAKOFF	CORRECT PRESSURE REGULATION PROBLEM	NOT SAFETY RELATED
ED-0128	C900	RAD.MONITORING	SETPOINT CHANGE - R18 MONITOR	NOT SAFETY RELATED
ED-0136	P100	FRESH WATER	REVISE OPERATING SEQUENCE OF PUMPS 2 AND 3	NOT SAFETY RELATED
ED-0145	R200	RX COOLANT	CHANGE RCP SEAL SHIMPACK THK.	NOT SAFETY RELATED
ED-0148	R200	RX COOLANT	ADD AUTOMATIC CONTROL SYS.& ALM.TO LIMIT RX COOLANT SYS. OVERPRESSURIZATION	NOT SAFETY RELATED
ED-0149	M510	WASTE DISPOSAL	CHANGE SOLENOID VALVE SV398 & SV402 TO ASCO TYPE FT8321A2 TO INCREASE VALVE 1WL99 & 1WL108 RESPONSE TIME	EQUIP.PERFORMS SAME FUNCT. AS ORIGINALLY DESIGNED
ED-0152	M100	FRESH WATER	PROVIDE TIE-IN POINT FOR PRETREATMENT PLANT	NOT SAFETY RELATED
ED-0153		SWITCHGEAR VENTIL.	CHANGE SCALE ON CONTROLLER TA-9539-1C FROM 0-100 TO 0-200	NOT SAFETY RELATED
ED-0155	G216	STM.GEN.DRNS.& BLOW DOWN	RESET pH ALARM FROM 8.5-9.0 TO 8.4-9.1	NOT SAFETY RELATED

DCR NO.	SYST CODE	PRINCIPAL SYSTEM	SUBJECT	SAFETY EVALUATION
ED-0156	E130	4KV VITAL BUS	CHANGE 1B4D & 1C4D 4160/480V TRANSFORMER OVERCURRENT RELAY SETTING TO PREVENT TRIPPING DURING START	REVISED SETPT.DOES NOT COMPROMISE PROT.OF EQUIP.AS DESIGNED.
ED-0157	F200	CONDENSATE	MODIFY CONDENSATE PMP MTR. TO COMPLY WITH PRESENT MFG.STDS.	NOT SAFETY RELATED
ED-0164	F200	CONDENSATE	RESET CATION CONDUCTIVITY ALARM 0.9 TO 0.5 MICROMHOS	NOT SAFETY RELATED
ED-0165	G216	S.GEN.DRNS.& BLWDN	ADD 1.5" OF CONVENTIONAL INSUL. TO UNINSUL.SGD&B LINES TO REDUCE HEAT IN NORTH PENE.BLDG.	NOT SAFETY RELATED
ED-0171	T800	CIRC.WTR.	MODIFY TRAVELING SCREENS TO ACCEPT CONTINUOUS OPERATION	NOT SAFETY RELATED
ED-0173	N100	CVCS	REVISE VIBRATION ELIMINATOR DESIGN ON 13 CHG PMP SUCT.LINE FROM LEAF SPRING TO TORSION PLATE TYPE	NOTE 15
ED-0174	G216	SG BLDWN	ALTER HANGERS STEEL FOR ACCESS TO 14GB4	NOTE 15
ED-0176	MC00	CONTROL AIR	RELOCATE INST.TRAYS T-2017C & T-2018C DUE TO PIPE INTERFERENCE	FUNCT.ASPECTS OF SYS. ARE NOT CHANGED.
ED-0178	E160	#11 & 12 STA.PWR TRANSFORMERS	CHANGE 11 & 12 STA.PWR.XFMER. INTERLOCK FROM 52/ST OF BS2-3 & BS5-6 TO 52 AUX.CONTACT	NOT SAFETY RELATED
ED-0179	C900	RAD.MONITORING	RECALCULATION OF R18 (LIQ.RAD WASTE)WARNING & ALARM SETPTS.	NOT SAFETY RELATED
ED-0180	M400	FENCE LIGHTING	LOCATE FIXTURE INSIDE FENCE LINE NEAR BARGE SLIP	NOT SAFETY RELATED



DCR NO.	SYST CODE	PRINCIPAL SYSTEM	SUBJECT	SAFETY EVALUATION
ED-0181		CONDENSERS	ADD 4 BAFFLES TO 4 CONDENSER CONNECTIONS TO MIN.DAMAGE TO CONDENSER TUBES	NOT SAFETY RELATED
ED-0184	F600	HTR.DRN.PMP MOTORS	ENCAPSULATE END TURN INSUL.	NOT SAFETY RELATED
ED-0187	T800	CIRC.WTR.	MODIFY FISH COUNTING POOL TO COMPLY WITH REQ. OF ETS APP. D	NOT SAFETY RELATED
ED-0188	R600	1EP PZR.XFMR.	DISCONNECT XFMR.TEMP.ALARM SETPT OF 190°C-THIS IS NOT ABOVE DES.CONDITIONS	NOT SAFETY RELATED
ED-0190	G216	STM.GEN.DRNS & BLDWN.	REPLACE GAGES TL-6233,TL-6997 & TL-6998 WITH A NEW RANGE TO COMPLY WITH DES.SPECS.	NOT SAFETY RELATED
ED-0192	W240	NON-RAD.WASTE	INSTALL MICRO TYPE LIMIT SWITCH ON VALVES 11LW26, 11LW9 & 12LW9 DUE TO EXCESSIVE MAINT.	NOT SAFETY RELATED
ED-0200A	P250	SECURITY	UPGRADING & ADDITIONS OF SECURITY SYS.EQUIP.INSIDE PLANT STA.BLDGS. TO COMPLY WITH 10CFR73.55 REQ.	NOT SAFETY RELATED
ED-0211	M910	AUX.BLDG.VENT.	CHANGE CONNECTION OF PRESS SWITCH PD7540 INPUT FROM OUTPUT TO INPUT OF TA7539-1C CONTROLLER	MARGIN OF SAFETY NOT REDUCED IMPROVE SYSTEM OPERATION.
ED-0212	E110	FLASHOVER PROT. OF 500kv GEN. BKR.	WITHDRAW N4C RELAY & DISABLE PJCI1AV RELAY TARGET	NOT SAFETY RELATED
ED-0225	N100	CVCS	REVISE SUCTION PIPING TO #13 CHG.PMP.TO ELIMINATE GAS POCKETS	DESIGN CRITERIA NOT CHANGED.
ED-0226	G210	MAIN STEAM	MODIFY MAIN STM.COIL DRN. TK. PIPING HANGERS TO REDUCE MAGNITUDE OF VIBRATION	NOTE 16

DCR NO.	SYST CODE	PRINCIPAL SYSTEM	SUBJECT	SAFETY EVALUATION
ED-0227	R200	REACTOR COOLANT	CHANGE ALLOWABLE SEAL WATER INJ.TEMP.FOR RCP FROM 130 TO 140°F	NOTE 17
ED-0232	N520	SOLID RADWASTE	INSTALL SAMPLE CONN IMMED. UPSTR.OF VA.1WS8 ON EVAP. BOT.XFER PMP.RECIRC.LINE	NOT SAFETY RELATED
ED-0237	P200	REACTOR COOLANT	REPLACE PZR.HTR.400A FUSES WITH 450 A FUSES	NOT SAFETY RELATED
ED-0238	F500	GEN.PROT.	INSTALL JUMPER BETWEEN TERM. 15 & 16 OF NEG.SEQUENCE RELAY 1NC77B	NOT SAFETY RELATED
ED-0241	M200	FIRE PROT.	ADD 6" GATE VALVES TO SUPPLY HDRS. FOR FUTURE MODIF.	NOT SAFETY RELATED
ED-0242	T900	TURB.AUX. COOLING	CHANGE SETPT.ON H <sub>2</sub> COLD GAS EXCITER COLD GAS & STATOR COOLING WTR. TO W RFC.	NOT SAFETY RELATED
ED-0246	R200	PRESSURIZER	REPLACE POSITIONERS AND I/P TRANSDUCERS FOR THE PZR SPRAY VALVES PS1 AND PS3	FUNCT.IS NOT CHANGED.
ED-0256	F700	FEEDWATER	CHANGE SGFP MIN.SUCT.PRESS. SETPT. TO 215 PSIG	NOT SAFETY RELATED
ED-0265	M600	SERVICE WATER	CHANGE MTL. OF TUBE SHEETS TO S.S.	SAFETY ANALYSES OF SYSTEM NOT AFFECTED BY CHANGE.
ED-0268	MC00	SERVICE WATER	REVISE PIPING TO COIL BANKS IN #12 FCV DUE TO REPLACEMENT WITH UNIT 2 COIL BANK	SAFETY ANALYSES OF SYSTEM NOT AFFECTED BY CHANGE.
ED-0269	G100	BLEED STM.	REMOVE LAGGING ON #11 & 12 FW HTR. & PIPING INSIDE CONDENSER NECK TO PRECLUDE CONDENSER TUBE DAMAGE	NOT SAFETY RELATED

DCR NO.	SYST CODE	PRINCIPAL SYSTEM	SUBJECT	SAFETY EVALUATION
ED-0270	MC00	CONTROL AIR	ADD UNIONS TO LINES WHICH ARE INSTALLED WITHIN THE PULL SPACE OF THE FAN COIL UNIT COIL BANKS #11,12,13 & 14 FAN COILS	SAFETY ANALYSES OF SYS. NOT AFFECTED.
ED-0276	W300	NON-RADIOACTIVE WASTE	CHANGE SETPT OF HA1468 & VALVE 1LW15 FROM pH 6.5-8.5 TO 6-9	NOT SAFETY RELATED
ED-0280	C900	RAD.MONITORING	REVISE SETPT OF R-18	NOTE 18
ED-0290	T100	EHC	REPL. SOLIDSTATE CONTROLS INC PWR.SUPPLIES WITH LAMBDA ELECTRONICS COPR.PWR.SUPPLIES	NOT SAFETY RELATED
ED-0303	N110	REACTOR COOLANT	REVISED PGS.FOR CRD INST.BOOK	NOT SAFETY RELATED
MD-0009	M915	CHILLED WTR.	INSTALL DRYER-FILTERS IN LIQ. FREON LINE	NOTE 19
MD-0010	N100	CVCS	ADD VALVING & PIPING TO FACILITATE N2 PURGE OF PWST	NOT SAFETY RELATED
MD-0018	M400	LIGHTING	INSTALL 3 LGTN.FIXTURES ON PANEL "T11D" CB #13	NOT SAFETY RELATED
MD-0021	N220	RHR SYS	MACH.RHR PMP UPPER BEARING ADAP.PLATE TO PREV.OIL BUILDUP	SYS.FUNCT.NOT CHANGED.
MD-0023	M600	SERVICE WATER	MOVE WTR.LINES TO 1115 SERVICE	SYS.FUNCT.NOT CHANGED.
MD-0026	G216	STM.GEN/BLDWN	CHANGE OVERLOAD PROT.RELAYING FOB-3PH TO B.D.TRANS.PMP.MTR.	NOT SAFETY RELATED
MD-0035	T300	TURB.GLAND SEAL STM.& LEAKOFF	INSTALL FLANGES IN INTERCEPT VALVE LEAKOFF LINES TO FACILIT. TURB.COVER REMOVAL	NOT SAFETY RELATED
MD-0037	E170	PWR.SYS. METERING	REVISE FEED TO BILLING METERING FROM #12-MAC-CAB TO #14-MAC-CAB	NOT SAFETY RELATED

DCR NO.	SYST CODE	PRINCIPAL SYSTEM	SUBJECT	SAFETY EVALUATION
MD-0038	N510	N <sub>2</sub> SUPPLY-GASEOUS RADWASTE	ENLARGE N <sub>2</sub> SUPPLY	NOT SAFETY RELATED
MD-0040	MB00	COMPRESSED AIR	ADD ADDITIONAL SUPPLY TO T.G. AREA	NOT SAFETY RELATED
MD-0042	M400	T.G. AREA LIGHTING	PROVIDE FEED FOR WELDING ROD OVENS	NOT SAFETY RELATED
MD-0053	M940	CONT.-PERSONNEL ACCESS HATCH	REVISE CIRCUITRY TO GIVE BETTER INDICATION OF DOOR STATUS	NOT SAFETY RELATED
MD-0061	F200	STM.GEN.FEEDPUMPS 11 & 12	PROVIDE ACCESS HOLE IN BASEPLATE	NOT SAFETY RELATED
MD-0075	G000	MAIN TURB.	INSPECT & MODIFY TURB. BLADES PER <u>W</u> AIB 7703	NOT SAFETY RELATED
MD-0084	-	PERSONNEL ACCESS HATCH-CONT.	PROVIDE PROBE INPUT TO OVERHEAD ANN. DISPLAY C-43	NOT SAFETY RELATED
MD-0089	M810	HSE.HTG.BOILER	INSTALL MECH.SEAL IN BOOSTER FEED & FEED PMP DUE TO PACKED PMPS EXCESSIVE LEAKAGE	NOT SAFETY RELATED
MD-0090	N100	CVCS PRI.WTR. RECOVERY	REPLACE TEMP.INSUL.ON 2 & 4" OUTLET LINES FROM PWST.INSTALL PERM.INSUL.UP TO AUX.	NOT SAFETY RELATED
MD-0105	M530	WASTE DISP. LIQ.	PROVIDE TRK.CONN ON WASTE MON. TK.PMP.DISCH.LINE FOR USE WHEN CIRCULATORS ARE OUT	NOT SAFETY RELATED
MD-0107	MB00	COMP.AIR	TIE IN FOR PORTABLE AIR COMPRESSOR	NOT SAFETY RELATED

DCR NO.	SYST CODE	PRINCIPAL SYSTEM	SUBJECT	SAFETY EVALUATION
MD-0108	N520	SOLID RADWASTE	ADD TRK CONN.ON SPENT RESIN STG.TK.DISCH.LINE TO SOLID RADWASTE SYST.	NOT SAFETY RELATED
MD-0109	M530	WASTE DISPOSAL	INSTALL TRK.CONN.FOR WASTE EVAP.BOTTOMS	NOT SAFETY RELATED
OD-0006	M600	SERVICE WATER	CHANGE "AUTO START"SETPT ON SERV.WTR.PMP.FROM 90 TO 80 PSIG	NOTE 20
OD-0019	N120	CUC-BORIC ACID RECOVERY	INSTALL ONE 1" CHK.VALVE TO PREVENT BACKFLOW INTO PRIMARY SYSTEM	NOT SAFETY RELATED
OD-0020	M530	WASTE DISPOSAL LIQUID	INSTALL ONE 2" CHK.VALVE TO PREVENT BACKFLOW INTO PRI.SYS.FROM 11 OR 12WL147	NOT SAFETY RELATED
OD-0027	F320	CONDENSATE	INSTALL A LINE & BY-PASS VALVE AROUND 11CN32 & 12CN32 VALVES TO PREVENT DAMAGE TO PMP AFTER ITS ISOLATION	NOT SAFETY RELATED
PD-0007	N100	CVCS	ADDITION OF A TIME DELAY INTO CONTROL FOR VALVE CV172	EQUIP.PERFORMS SAME FUNCT.& MEETS ORIG.DESIGN REQ.
PD-0011	P120	SOLID STATE PROT.SYS.	MODIF.OF PWR.SUPPLY WIRING TO PREVENT INADVERTENT REACTOR TRIPS	NOTE 21
PD-0013	R120	SOLID STATE PROT.SYS.	ADDITION OF RELAYING TO PREV. DESTRUCTION OF SOURCE RANGE DETECTORS UPON PWR.LOSS	FUNCT.SAFETY REQ.NOT ALTERED. CHANGE ENSURES EQUIP.PROT.& RELIABILITY.
PD-0014	R400	NIS	PROVIDE IMPROVED CONT.EVAC.	NOT SAFETY RELATED

DCR NO.	SYST CODE	PRINCIPAL SYSTEM	SUBJECT	SAFETY EVALUATION
PD-0015	R120	SOLID STATE PROT.SYS.	REPOSITIONING OF RELAYS TO PROVIDE NORMALLY CLOSED CONTACTS	NOTE 22
PD-0017	C900	RAD.MONIT.SYS.	REPL.OF ALL W TYPE "BF" RELAYS IN RMS THAT ARE SAFETY RELATED	FUNCT.NOT CHANGED
PD-0021	E550	#1 & 2 UNIT METERING PWR.	CHG.CURRENT SOURCE FROM PHASE 3 TO 2 AS REQ.BY PWR.FACT.	NOT SAFETY RELATED
PD-0028	R600	SMPL.SYS.& PZR.RELIEF SYS.	CHANGE SNAP-LOK LIMIT SWITCH TO MICROSWITCH TYPE IN ORDER TO CUT MAINT.MAN-HOURS	NOT SAFETY RELATED
PD-0029	CA000	METEOROLOGICAL COL.SYS.	CHG.LABEL ON INSTR.XA-8495 TO READ "WIND SPEED/DIRECT. ELEV.33" INSTEAD OF EL.30	NOT SAFETY RELATED
PD-0035	R120	SSPS	PROV.BLOCKING FNCT.FOR TEST CIRC.K-6031K-610(TRA.A) & K-6021K-6091K-610(TRA.B)	CHANGED TO MEET ORIG. DESIGN.
PD-0036	C300	AUX.ANNUN.	REVISE NOMENCLATURE FOR POINTS #573 & 594 TO DELETE REF. TO 11SW20 & 13SW20 DELETE PT#650 FOR 1SW26	NOT SAFETY RELATED
PD-0040	M500	SOUND PWR. PHONE	PROVIDE JACK AT EL.194 ON CONT.PLANT VENT	NOT SAFETY RELATED
PD-0041	M600	SERVICE WATER	PROVIDE PERM.HTR.IN PENET. AREA EL.78 VLV.ROOMS TO PREVENT FREEZE-UP	NOT SAFETY RELATED

DCR NO.	SYST CODE	PRINCIPAL SYSTEM	SUBJECT	SAFETY EVALAUTION
PD-0043	M510	WST.DISP.GAS	INSTALL 0-3000 PSIG GAGE AT N <sub>2</sub> TRK.FILL TO AUX.BLDG. NEAR 1NT70	NOT SAFETY RELATED
PD-0045	C900	RAD.MONIT.	ADD AUDIBLE ALM.TO PARTICULATE MONT.1R6B & 1R20A	NOT SAFETY RELATED
PD-0048	M600	SERVICE WATER	PROVIDE 30 SEC.DELAY TO CLOSE 11SW20,13SW20,1SW26 UPON RECEIPT OF ISO.SIGNAL FROM SEC	NOTE 23
PD-0049	M600	SERVICE WATER	REVISE CONT.FOR VLV.11,12,13,14 & 15SW57 TO ASSURE SYS.OPER.AT 750 GPM WHEN REQ.	NOTE 24
PD-0053	G220	MAIN STEAM	MODIF.SLOPE OF ALL FLOW TAPS FROM M.S.FLOW NOZZLE TO PRECLUDE POCKETING SEE ED-0047	SATISFIES ORIG.FUNCT. REQUIREMENTS.
PD-0054	R400	NIS	CHG.NR41,42,43,44 TO INDICATE UPPER & LOWER FLUX ON THE SAME RECORDER	NOT SAFETY RELATED
PD-0059	M915	CHILLED WTR.	ADD SUCT.PRESS.GAGES TO 11 & 12 CHILLED WTR.PMPs.TO MEET ISI REQ.	NOT SAFETY RELATED
PD-0065	C900	RAD.MONIT.	ADD 4 TWO PEN RECORDERS TO RMS RACKS TO IMPROVE PRESENTATION OF INFORMATION	NOT SAFETY RELATED
PD-0066	P400	NIS	REPLACE N45 RECORDER WITH MORE RELIABLE TYPE MAINT.FREQ.TOO HIGH	NOT SAFETY RELATED
PD-0068	F320	COND.AIR	INSTALL VAC.GAGE ON EACH AIR HDR	NOT SAFETY RELATED
PD-0076	T800	CIRC.WTR.	RELOCATE CONDR.OUTLET RTD'S TO GIVE MORE ACCURATE READINGS	NOT SAFETY RELATED
PD-0090	C900	RAD.MONIT.	MODIFY CHANNEL ALARM TO MAKE IT LOCK IN AN ALM.CONDITION REQ.MANUAL RESET	NOT SAFETY RELATED

DCR NO.	SYST CODE	PRINCIPAL SYSTEM	SUBJECT	SAFETY EVALUATION
PD-0093	T100	MAIN TURB.EHC	ADD 5.0 MFD 50V PWER W RECOMMENDATION INSTALL FLOW METER IN CHILLED WATER	NOT SAFETY RELATED
PD-0094	T900	TURB.AUX. COOLING	TO IMPROVE OPERATING CAPACITY OF TAC PMPS INSTALL GAGES TO SUCTION SIDE	NOT SAFETY RELATED
PD-0108	R500	FULL LGTH.ROD CONTROL	MODIFY WIRING ERROR TO PREVENT INJECTION OF LINE NOISE INTO CONTROL CIRCUIT PER W RECOMM.	NOT SAFETY RELATED
PD-0109	R500	FULL LGTH.ROD CONTROL	REPL.CHASE-SHAWMUT FUSES IN CRDM CIRCUITS WITH BUSSMANN FUSES TO PRECLUDE ROD DROPS PER W RECOMM.	NOT SAFETY RELATED
PD-0117	W200	DM PLANT	INSTALL TEFLON LINED PIPE AT DILUTION WTR.MIXING TEE DUE TO FREQ.LINE LEAKS	NOT SAFETY RELATED
PD-0121	R400	NUC.INSTR.	W RECOMM.A BEAD OF RTV TO TOP & BOTTOM OF GSKTS.FOR NEUTRON DETECTOR WELLS TO IMPROVE SEALING	NOT SAFETY RELATED
SS-0003	M200	FIRE PROT. CODE D ALARM	CHANGE ALM.ON WET PIPE SPRINK. IN BAILING AREA TO MATCH LOCAL PULL STATION	NOT SAFETY RELATED



## SAFETY EVALUATION NOTES

(Referenced in Preceeding Tables, pg. 22-37)

### SECTION IV

1. This design change is only a minor arrangement change to avoid interferences. It does not affect the function of the item or alter any possible interactions of the item with other safety related equipment. An unreviewed safety question is not involved.
2. In replacing the 0.5 kVA Solatron LVR Regulator with a 0.25 kVA Solatron CVS Regulator to reduce the interaction between the regulator and the output stage of the 1D Inverter, it is only an equipment change, it is NOT an unreviewed safety question since function requirements are unchanged.
3. This design change does not functionally alter the Service Water Piping System. The hangers added meet the present piping design criteria for the system and does not present an unreviewed safety question as defined in 10CFR50.59.
4. The installation of the needle valve on the "E" port of solenoids is to slow down the opening of Service Water Valve SW58 to eliminate the water hammer. The system will operate properly as required by FSAR.
5. Change required to correct testing deficiency to the Solid State Protection System general warning/reactor trip circuit as per NRC and safety requirements.
6. This change is being made to increase system reliability only. System failure analyses are not adversely affected. An unreviewed safety question does not exist in that addition of a series valve identical to the one already installed does not create a possibility for an accident of a type previously reviewed, nor does it increase the probability of a presently reviewed accident or malfunction.

7. Proposed design change will not affect equipment operating characteristics. The proposed repair is based on manufacturers recommendation to improve operating reliability per Allis Chalmers letter dated 10-20-76. Therefore, this modification does not involve any of the criteria of an unreviewed safety question per 10CFR50.59.
8. The smaller size impeller will reduce the total pressure head and will reduce the erosion on chiller condenser tubes. This smaller size impeller will also meet the system requirements.
9. Engineering re-evaluation of the system shows that the vent is not essential for continued safe operation of the system. Deletion of the vent will not detrimentally effect system operation. The definition of an unreviewed safety question is not satisfied, the vent is not required for safe shutdown of the system.
10. This change will not increase the chance of an accident or malfunction as evaluated in the Safety Analysis Report or as evaluated by considering any other criteria. Margins of safety as defined in the Tech. Spec. will not be reduced. The aforementioned comments are accurate since this change only involves relocating small bore pipe in order to avoid interferences.
11. New design has been reviewed and determined not to create new potential malfunctions or increase the probability of previously analyzed malfunctions or accidents.
12. This change does not modify functional operation, it only adds monitoring circuitry. Additional circuitry cannot increase the probability of failures.
13. Modification does not degrade any safety related equipment, aggravate any previously analyzed accident, or change the basis of any Technical Specification.

14. Change will reduce vibration but will not affect other performance characteristics. Performance of motors safety function will not be not be affected by this change. Therefore, no criteria of an unreviewed safety question are involved.
15. This design change does not affect any presently performed safety analysis nor does it create any new safety hazards. The basis of the Technical Specifications are not affected.
16. Actually, there is no change, it is only recognition of slight differences of instrumentation between the Salem plant and the Westinghouse RCP Manual. There is no unreviewed safety question.
17. The functional operation of the Pressurizer Spray Control Loop remains unchanged. Instruments are to be replaced to improve system reliability.
18. Revision of Radiation Channel R18 setpoint based upon result of radiochemical analysis of waste holdup and/or monitoring tanks, setpoint shall be in accordance with the Salem Environmental Technical Specifications.
19. Will remove foreign material from liquid Freon and as such will prolong the life of the equipment. This item not discussed in FSAR, or Technical Specifications. No new failure modes for the system are introduced, nor are any present modes aggravated.
20. Nonconservative direction setpoint change has been analyzed and determined to not reduce safety margins required by Technical Specifications basis.
21. No change in system function and no failure modes would be created which could cause or increase the potential for accidents or malfunctions. Change will improve operational reliability.

22. These circuits do not have any safety function. DCR was checked safety related due to interface with SSPS Test Cabinets. Change ensures proper system operation consistent with original design criteria.
23. The change improves system operability and does not affect the safety analysis for containment pressure/temperature transients. The additional relay does not add the potential for other failures which would negate the safety function of isolating service water to the Turbine Building.
24. Improves system operation by reducing transient pressures at Fan Cooler Units. Operational requirements are not affected.

# SECTION V PERSONNEL RADIATION EXPOSURE

PUBLIC SERVICE ELECTRIC & GAS COMPANY  
SALEM NUCLEAR GENERATING STATION

P.O. BOX 148, HANCOCKS BRIDGE, NEW JERSEY 08038

NO PERSONNEL & MAN-HREM BY JOB FUNCTION REPORT

REPORT PERIOD 1/ 1/77 TO 12/31/77

	TOTAL PERSONNEL EXCEEDING 100 MREM			NUMBER OF MAN-MREM		
	STATION UTILITY CONTACT			STATION UTILITY CONTACT		
REACTOR OPERATIONS & SURVEILLANCE						
MAINTENANCE PERSONNEL	0	0	0	106	15	157
OPERATING PERSONNEL	35	0	0	10833	0	331
HEALTH PHYSICS PERSONNEL	2	0	53	1177	10	21570
CHEMISTRY PERSONNEL	11	0	0	3981	5	50
SUPERVISORY PERSONNEL	1	0	0	1747	50	320
ENGINEERING PERSONNEL	0	0	0	0	189	10
I & C PERSONNEL	1	0	0	473	10	40
SECURITY PERSONNEL	0	0	0	5	0	905
ROUTINE MAINTENANCE						
MAINTENANCE PERSONNEL	2	0	3	4217	290	3074
OPERATING PERSONNEL	2	0	1	1036	0	30
HEALTH PHYSICS PERSONNEL	0	0	0	25	0	75
CHEMISTRY PERSONNEL	0	0	0	105	0	7
SUPERVISORY PERSONNEL	1	0	0	1312	45	463
ENGINEERING PERSONNEL	0	1	0	10	110	108
I & C PERSONNEL	3	0	0	2716	4	20
SECURITY PERSONNEL	0	0	0	5	10	70
INSERVICE INSPECTION						
MAINTENANCE PERSONNEL	2	0	79	174	140	11461
OPERATING PERSONNEL	2	0	0	85	0	45
HEALTH PHYSICS PERSONNEL	0	0	0	15	0	5
CHEMISTRY PERSONNEL	0	0	0	10	0	0
SUPERVISORY PERSONNEL	0	0	0	581	90	283
ENGINEERING PERSONNEL	0	1	16	0	232	9960
I & C PERSONNEL	0	0	0	20	75	15
SECURITY PERSONNEL	0	0	0	0	5	0
SPECIAL MAINTENANCE						
MAINTENANCE PERSONNEL	24	3	126	16045	2170	52530
OPERATING PERSONNEL	5	0	0	1190	10	75
HEALTH PHYSICS PERSONNEL	0	0	0	25	10	40
CHEMISTRY PERSONNEL	0	0	0	105	20	175
SUPERVISORY PERSONNEL	2	1	3	1360	219	3887
ENGINEERING PERSONNEL	0	0	0	0	15	270
I & C PERSONNEL	9	0	0	4620	25	45
SECURITY PERSONNEL	0	0	0	0	0	0
WASTE PROCESSING						
MAINTENANCE PERSONNEL	0	0	0	15	70	20
OPERATING PERSONNEL	0	0	0	0	0	0
HEALTH PHYSICS PERSONNEL	0	0	0	0	0	0
CHEMISTRY PERSONNEL	0	0	2	0	0	500
SUPERVISORY PERSONNEL	0	0	0	30	0	0
ENGINEERING PERSONNEL	0	0	0	0	0	5
I & C PERSONNEL	0	0	0	0	0	0
SECURITY PERSONNEL	0	0	0	0	0	0
REFUELING						
MAINTENANCE PERSONNEL	0	0	0	0	0	0
OPERATING PERSONNEL	0	0	0	0	0	0
HEALTH PHYSICS PERSONNEL	0	0	0	0	0	0
CHEMISTRY PERSONNEL	0	0	0	0	0	0
SUPERVISORY PERSONNEL	0	0	0	0	0	0
ENGINEERING PERSONNEL	0	0	0	0	0	0
I & C PERSONNEL	0	0	0	0	0	0
SECURITY PERSONNEL	0	0	0	0	0	0

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REPORT PERIOD 1/ 1/77 TO 12/31/77

	TOTAL PERSONNEL EXCEEDING 100 MREM			NUMBER OF MAN-MREM		
	STATION UTILITY CONTACT			STATION UTILITY CONTACT		
TOTAL						
MAINTENANCE PERSONNEL	30	3	147	21157	2975	47310
OPERATING PERSONNEL	44	0	1	13144	10	441
HEALTH PHYSICS PERSONNEL	2	0	53	1188	20	21710
CHEMISTRY PERSONNEL	11	0	2	4241	25	688
SUPERVISORY PERSONNEL	1	1	7	5070	101	1947
ENGINEERING PERSONNEL	0	2	16	10	576	10313
I & C PERSONNEL	17	0	0	8034	74	140
SECURITY PERSONNEL	0	0	0	10	15	975
GRAND TOTAL	104	6	242	57914	4101	104540

PUBLIC SERVICE ELECTRIC & GAS COMPANY  
ANNUAL WHOLEBODY EXPOSURES FOR THE CALENDAR YEAR 1977

ANNUAL DOSE RANGES (REM) =====	NUMBER OF INDIVIDUALS IN EACH RANGE =====
NO MEASURABLE EXPOSURE	203
MEASURABLE EXPOSURE LESS THAN .100	982
.100 - .250	167
.250 - .500	111
.500 - .750	40
.750 - 1.000	14
1.000 - 2.000	8
2.000 - 3.000	1
3.000 - 4.000	0
4.000 - 5.000	0
5.000 - 6.000	0
6.000 - 7.000	0
7.000 - 8.000	0
8.000 - 9.000	0
9.000 - 10.000	0
10.000 - 11.000	0
11.000 - 12.000	0
12.000+	0