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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

# LICENSE NO. DPR-70

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## 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 conjuncton 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 SOLATRONS 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 $CO_2$ 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 SAFEEY 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 1LW26, 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 PJC11AV 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 $H_2$ 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 $N_2$ 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 | $N_2$ SUPPLY-GASEOUS RADWASTE | ENLARGE $N_2$ 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 W 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 $N_2$ 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 CAPACILITY 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 168, HANCOCKS BRIDGE, NEW JERSEY 08038
NO PERSONNEL & MAN-MREM BY JOB FUNCTION REPORT
REPORT PERIOD 1/ 1/77 TO 12/31/77

| | TOTAL PERSONNEL EXCEEDING 100 MREM | | | NUMBER OF MAN-MREM | | |
|---|---|---|---|---|---|---|
| | STATION | UTILITY | CONTRCT | STATION | UTILITY | CONTRCT |
| REACTOR OPERATIONS & SURVEILLANCE | | | | | | |
| MAINTENANCE PERSONNEL | 0 | 0 | 0 | 496 | 15 | 157 |
| OPERATING PERSONNEL | 35 | 0 | 0 | 10833 | 0 | 331 |
| HEALTH PHYSICS PERSONNEL | 2 | 0 | 53 | 1123 | 10 | 21570 |
| CHEMISTRY PERSONNEL | 11 | 0 | 0 | 3981 | 5 | 50 |
| SUPERVISORY PERSONNEL | 1 | 0 | 0 | 1747 | 50 | 330 |
| ENGINEERING PERSONNEL | 0 | 0 | 0 | 0 | 189 | 10 |
| I & C PERSONNEL | 1 | 0 | 0 | 473 | 10 | 10 |
| SECURITY PERSONNEL | 0 | 0 | 0 | 5 | 0 | 905 |
| ROUTINE MAINTENANCE | | | | | | |
| MAINTENANCE PERSONNEL | 2 | 0 | 3 | 4217 | 290 | 3076 |
| OPERATING PERSONNEL | 2 | 0 | 1 | 1036 | 0 | 30 |
| HEALTH PHYSICS PERSONNEL | 0 | 0 | 0 | 25 | 0 | 75 |
| CHEMISTRY PERSONNEL | 0 | 0 | 0 | 125 | 0 | 5 |
| SUPERVISORY PERSONNEL | 1 | 0 | 0 | 1312 | 45 | 463 |
| ENGINEERING PERSONNEL | 0 | 1 | 0 | 10 | 110 | 108 |
| I & C PERSONNEL | 3 | 0 | 0 | 2716 | 6 | 20 |
| SECURITY PERSONNEL | 0 | 0 | 0 | 5 | 10 | 70 |
| INSERVICE INSPECTION | | | | | | |
| MAINTENANCE PERSONNEL | 2 | 0 | 38 | 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 | 35 | 15 |
| SECURITY PERSONNEL | 0 | 0 | 0 | 0 | 5 | 0 |
| SPECIAL MAINTENANCE | | | | | | |
| MAINTENANCE PERSONNEL | 26 | 3 | 126 | 16045 | 2170 | 52530 |
| OPERATING PERSONNEL | 5 | 0 | 0 | 1190 | 10 | 35 |
| HEALTH PHYSICS PERSONNEL | 0 | 0 | 0 | 25 | 10 | 60 |
| CHEMISTRY PERSONNEL | 0 | 0 | 0 | 125 | 20 | 135 |
| SUPERVISORY PERSONNEL | 2 | 1 | 3 | 1360 | 219 | 3887 |
| ENGINEERING PERSONNEL | 0 | 0 | 0 | 0 | 45 | 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 | 30 | 30 |
| 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 |

PUBLIC SERVICE ELECTRIC & GAS COMPANY
SALEM NUCLEAR GENERATING STATION
P.O. BOX 168, HANCOCKS BRIDGE, NEW JERSEY 08038
NO PERSONNEL & MAN-MREM BY JOB FUNCTION REPORT
REPORT PERIOD 1/ 1/77 TO 12/31/77

| | TOTAL PERSONNEL EXCEEDING 100 MREM | | | NUMBER OF MAN-MREM | | |
|---|---|---|---|---|---|---|
| | STATION | UTILITY | CONTRCT | STATION | UTILITY | CONTRCT |
| TOTAL | | | | | | |
| MAINTENANCE PERSONNEL | 30 | 3 | 167 | 21157 | 2975 | 67310 |
| OPERATING PERSONNEL | 44 | 0 | 1 | 13144 | 10 | 441 |
| HEALTH PHYSICS PERSONNEL | 2 | 0 | 53 | 1198 | 20 | 21710 |
| CHEMISTRY PERSONNEL | 11 | 0 | 2 | 4241 | 25 | 688 |
| SUPERVISORY PERSONNEL | 4 | 1 | 3 | 5070 | 404 | 1967 |
| ENGINEERING PERSONNEL | 0 | 2 | 16 | 10 | 576 | 10313 |
| I & C PERSONNEL | 13 | 0 | 0 | 8034 | 26 | 140 |
| SECURITY PERSONNEL | 0 | 0 | 0 | 10 | 15 | 975 |
| GRAND TOTAL | 104 | 6 | 242 | 52914 | 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 |