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ANNUAL OPERATING REPORT

SALEM GENERATING STATION
PUBLIC SERVICE
ELECTRIC & GAS CO.
FOR 1976

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ANNUAL OPERATING REPORT

OF

SALEM GENERATING STATION

PUBLIC SERVICE ELECTRIC & GAS COMPANY

FOR 1976

DOCKET NO. 50-272

LICENSE NO. DPR-70

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INTRODUCTION

Salem Generating Station No. 1 Unit is a four loop pressurized water reactor of 1090 MWe Net Capacity, owned by Public Service Electric and Gas Company, Philadelphia Electric Company, Atlantic Electric Company, and DelMarva Power and Light Company; located in Lower Alloway Creek Township, Salem County, New Jersey. The nuclear steam supply system was supplied by Westinghouse. The architect/engineer was Public Service Electric and Gas Company, and the constructor was United Engineers and Constructors, Inc. of Philadelphia, Pennsylvania. The condenser cooling method is a once thru cooling system, and the Delaware River is the condenser cooling water source. 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 generation of power began December 25, 1976.

HIGHLIGHTS

Operating License No. DPR-70 was issued for Salem No. 1 Unit on August 13, 1976. This was a limited operating license permitting 1% of rated thermal power (33.38 MWt) and provided for a sequential approach to power, taking into consideration various incomplete construction items, preoperational tests and startup tests.

The initial loading of the core was started on August 17, 1976, and required 55 hours to complete.

On December 1, 1976, the operating license was amended to authorize operation of the reactor at 100% of rated core thermal power (3,338 MWt) with a sequential approach and NRC authorization required prior to proceeding to 20, 40, and 90% power stages.

Hot shutdown testing was completed on December 8, 1976 with initial criticality being attained on December 11, 1976 and hot standby and zero physics power testing being completed on December 17, 1976. Authorization to proceed to Mode 1 (Power Operation), not to exceed 20% of rated core power (667.6 MWt), was received on December 17, 1976.

The unit was synchronized to the electric system for the first time powered by nuclear heat on December 25. The 10% power level test program was in progress at the end of the report period.

SUMMARY OF OPERATING EXPERIENCE

The following is a chronological description of Plant Operations including other pertinent items of interest for the period August 13, 1976 to December 31, 1976.

8-13 Operating license DPR-70 for No. 1 Unit was issued by the Nuclear Regulatory Commission.

8-17 Initial Core Loading was started. The first fuel assembly was placed in position C-4 at 2226 hours.

8-21 Last fuel assembly placed in core to complete the Initial Core Loading at 0456 hours. The total core loading time was approximately 79 hours. Of this total, 24 hours were required for repair of two air-motor failures on the transfer carriage, manipulator crane position selsyn failure, electrical noise interference with portable detectors and other minor difficulties. Actual fuel movement time was approximately 55 hours.

9-23 Received authorization from the Nuclear Regulatory Commission to proceed to Operational Mode 4 (Hot Shutdown) pursuant to Attachment 1 to License DPR-70. This permission was granted based on satisfactory completion of reactor coolant system primary sensors response time testing.

11-25 Received authorization from the Nuclear Regulatory Commission to proceed to Operational Mode 3 (Hot Standby) pursuant to Attachment 1 to License DPR-70. This permission was granted based on satisfactory completion of the following:

1) Testing operation of Residual Heat Removal Pumps recirculation valves 11RH29 and 12RH29.
2) Testing motor winding temperatures of Residual Heat Removal Pump Motors Nos. 11 and 12.
3) Testing four specified snubbers on the Residual Heat Removal System.
4) Testing of the Boron Recycle System.
5) Testing process radiation monitors, excluding those required for fuel loading.
6) Demonstration of beta dosimetry capability.
7) Testing Service Water System.
8) Testing chilled water portion of the Control Room Air Conditioning System.
9) Preparation of three specified radiochemistry procedures.
10) Replacement of existing standby charcoal filters in the Auxiliary Building Ventilation System with charcoal filters capable of removing 90 percent of the organic iodines.

11-30 At 2239 hours, Reactor Trip/Safety Injection was initiated due to high steam line flow in coincidence with low Tavg. Plant was in Hot Standby, 540°F Tavg and 2235 psig reactor coolant pressure. Technicians were working on No. 12 Steam Generator (SG) steam flow Channel 1 which was tripped. With reactor coolant temperature less than 543°F, all four channels of low Tavg were tripped. A premature lifting of a No. 14 safety valve resulted in a high steam flow signal. With No. 12 SG steam flow tripped and a high steam flow signal on No. 14 SG, the required two of four signals were available. This in coincidence with an actual low Tavg caused the Reactor Trip/Safety Injection.

At 2301 hours, while recovering from the first inadvertent safety injection actuation, a second SI actuation occurred. The conditions prior to, cause, and duration of the second ECCS actuation were identical to the first event.

12-1 At 0238, a Reactor Trip/Safety Injection was initiated due to high steam line differential pressure P4. Prior to the event, the unit was in Hot Standby, at 547°F and 2235 psig reactor coolant pressure. Based on a review of recorder traces, a No. 14 SG safety valve again lifted prematurely causing the steam line differential pressure P4 safety injection.

12-3 At 0315, a safety injection occurred. Prior to the event, the unit was in Hot Standby with 537°F Tavg and 2235 psig reactor coolant pressure. No indication of the cause of this event appeared on the status panel. The computer did not print out a sequence of events but did print out "12 Steam Generator ΔP Pressure Reactor Trip SI". Prior to the SI actuation, Technicians were working on No. 12 SG steam flow Channel II. They had hooked up a brush recorder to the Channel II transmitter output, channel output, and steam pressure channel. When hooking up to No. 12 SG steam pressure channel III, the SI took place. After the SI, it was discovered that the Technician mistakenly used grounded test leads when hooking up the brush recorder to the various steam flow and steam pressure channels.

A special test was conducted in order to demonstrate and verify that the inadvertent Safety Injection that occurred was in fact caused by a Technician mistakenly using grounded test leads when hooking up a brush recorder.

These test results coincide with the events that took place during the Safety Injection that occurred. Based on these results, the inadvertent Safety Injection was caused by a Technician mistakenly using grounded leads.

12-5 Received authorization from the Nuclear Regulatory Commission to proceed to Operational Mode 2 (Startup) pursuant to Attachment 1 to License DPR-70. This permission was granted based on satisfactory completion of the following:

1) Testing high temperature alarm on pressurizer relief line.

2) Testing control of steam generator blowdown flow by valves GB8 and GB10.

3) Testing upper motor bearing of No. 14 Reactor Coolant Pump.

4) Testing pump seal of No. 11 Reactor Coolant Pump.

5) Testing five specified RTD's in the Reactor Coolant System.

6) Testing of 45 specified snubbers associated with the pressurizer.

12-11 No. 1 Unit Reactor achieved initial criticality at 1936 hours. Zero power physics testing was then started.

12-17 Zero power physics testing was completed. At 1901 hours, No. 1 Reactor tripped due to No. 12 Steam Generator (SG) low level in conjunction with feedwater/steamflow mismatch. No. 12 SG steam flow Channel 1 was in the tripped position. This was due to condensate formation in the steam flow feeler line due to incorrect slope. On low level of 25% in conjunction with the tripped steam flow channel, a reactor trip occurred.

12-18 No. 1 Reactor taken critical at 0008 hours. However, the reactor was taken subcritical at 0842 hours to install a sandplug over a reactor vessel nozzle that was inadvertently left out of position following a test. Criticality was again achieved at 1952 hours.

12-19 At 0250 hours, No. 1 Reactor tripped when No. 11 Steam Generator Feed Pump (SGFP) tripped. No. 12 SGFP was tripped and the main turbine was tripped. These conditions initiated a reactor trip. At 0640 hours, No. 1 Reactor was again taken critical. Another reactor trip occurred at 2128 hours for the same reason as that on 12-17 at 1901 hours.

12-20 At 0135 hours, No. 1 Reactor was taken critical. At 1056 hours, a reactor trip occurred for the same reason as that on 12-17 at 1901 hours. The plant was then brought to cold shutdown for modification to steam flow feeler lines on No. 12 SG Ch 1 and No. 14 SG Ch 1 to correct slope to eliminate condensate formation.

12-23 Following modification described above for 12-20, reactor was taken critical at 1822 hours.

12-24 No. 1 Turbine-Generator rolled with steam from nuclear heat for the first time at 0030 hours. Experienced numerous SG high-high level turbine trips due to manual control of steam generator level. Turbine-Generator reached synchronous speed (1800 rpm) at 1411 hours. The turbine-generator was tripped manually at 1553 hours due to high temperature in exciter cubicle. The cooling water to the exciter cooler was isolated due to low ambient conditions. Although monitored regularly, the cubicle temperature increased to 180°F before corrective action could be taken. During this shutdown, turbine balance weights were changed to improve vibrations.

12-25 No. 1 Turbine Generator reached synchronous speed at 0059 hours. A reactor-turbine trip occurred at 0124 hours due to lo-lo level in No. 14 Steam Generator. Feedwater control was on manual at the time.

At 0409 hours, No. 1 Reactor was again taken critical and the turbine-generator reached synchronous speed at 0943. The generator

was synchronized to the electric system for the first time powered by nuclear heat at 1342 hours.

At 2113 hours, a reactor-turbine trip occurred due to No. 12 Steam Generator feed flow/steam flow mismatch in conjunction with low level. Reactor power was 17.5%, generator load 70 MW. At 2114 hours, Safety Injection occurred due to high steam flow coincident with low Tavg. Steam dump was in pressure mode, 980 psig setpoint. Steam dump opened on reactor trip which gave high steam flow signals. No. 12 Steam Generator steam flow Channel II was already in tripped position for testing. The high steam flow signal coincident with low Tavg caused the safety injection.

12-26 No. 1 Reactor was again taken critical at 1735 hours.

12-27 No. 1 Generator synchronized at 0701 hours. At 1249 hours, a turbine-reactor trip occurred due to high-high level in No. 11 Steam Generator. Reactor power was 17%, generator load 70 MW. Feedwater control was on manual at the time. Criticality was achieved again at 1414 hours and generator synchronized at 2014 hours. At 2034 hours, a reactor-turbine trip occurred due to lo-lo level in No. 13 Steam Generator caused by loss of suction pressure to No. 11 Steam Generator Feed Pump. Reactor power was 18%, generator load 55 MW. Reactor criticality was again achieved at 2243 hours.

12-29 No. 1 Generator was synchronized at 0811 hours. At 1040 hours, a turbine-reactor trip occurred due to hi-hi level in No. 12 Steam Generator. Reactor power was 12%, generator load 20 MW. Feedwater control was on manual at the time. Criticality was achieved again at 1223 hours. At 2135 hours, No. 12 Main Steam Isolation Valve hydraulic operator oil line broke, wetting the south penetration area with oil. Smoldering of oil soaked insulation occurred. The plant was brought to cold shutdown starting at 2230 hours; reactor was made subcritical at 2250 hours.

12-30 A safety injection due to high steam line differential pressure P2 occurred at 0634. Plant was in hot standby, reactor coolant pressure 1500 psig, Tavg 415°F, all main steam isolation valves were closed. Maintenance personnel were adding oil to the hydraulic operator of No. 12 Main Steam Isolation Valve. The foreman in charge failed to place blocking tags on the hydraulic oil pump motor. The pump was running and as oil was added, the valve cycled open resulting in high steam line differential pressure P2.

12-31 No. 1 Reactor achieved criticality at 0421 hours. There was a delay placing the turbine-generator in service due to condenser circulating water system problems. Specifically, Nos. 12A & B Travelling Screens were inoperable due to severe cold and icing conditions in the river.

At 1600 hours, plant was in startup mode, reactor just critical, when construction personnel working on No. 2 Unit reported water in No. 2 Boric Acid Evaporator room. Survey showed activity

present. Leak was traced to open ended sampling line from boron analyzer in the chemistry lab. Isolation valves were opened in error allowing sample to discharge to No. 2 Unit side. Isolation valves were closed and open line capped. There was no general area radiation. Personnel were checked and no contamination detected.

PLANT OR PROCEDURE CHANGES, TESTS, EXPERIMENTS, AND SAFETY-RELATED MAINTENANCE

Amendments to Facility License or Technical Specification

Facility or Procedure Changes Requiring NRC Approval

Tests and Experiments Requiring NRC Approval

Other Changes, Tests and Experiments

Corrective Maintenance of Safety-Related Equipment

Amendments to Facility License or Technical Specifications

On September 10, 1976, the Nuclear Regulatory Commission issued Amendment No. 1 to the Facility Operating License for Salem Nuclear Generating Station, Unit No. 1 - DPR-70.

The amendment revises portions of Attachment 1 to License No. DPR-70 and consists of (1) changing the sequence for conducting certain pre-operational tests and startup tests, and (2) deleting the requirement for testing the feedwater snubbers and (3) deleting the requirement for completing certain maintenance procedures for the limited operation for testing permitted by License DPR-70.

On September 29, 1976, the Nuclear Regulatory Commission issued Amendment No. 2 to the Facility Operating License for Salem Nuclear Generating Station, Unit No. 1 - DPR-70. The amendment reads as follows:

"Amendment No. 2 to Facility Operating License No. DPR-70 has been issued to correct typographical errors and inadvertent omissions. The staff has concluded that the changes are editorial corrections which resolve conflicting requirements involving the containment atmosphere radiation monitoring system. We have, therefore, concluded that the changes (1) do not increase the probability or consequences of accidents previously considered; (2) do not involve a decrease in safety margin nor do they involve new hazards considerations; and (3) that there is reasonable assurance that the changes will not endanger the health and safety of the public."

On December 1, 1976, the Nuclear Regulatory Commission issued Amendment No. 3 to the Facility Operating License for Salem Nuclear Generating Station, Unit No. 1 - DPR-70. The amendment reads as follows:

"The Nuclear Regulatory Commission has issued the enclosed Amendment No. 3 to Facility Operating License No. DPR-70. Amendment No. 3 is effective as of the date of issuance. Facility Operating License No. DPR-70, as amended, shall expire at midnight, September 25, 2008.

In accordance with the Commission's Supplemental Statement of General Policy of November 5, 1976 (41 F.R. 49898, November 11, 1976), the staff has determined in the enclosed Environmental Assessment, that use of revised values for reprocessing and waste management would not tilt the cost-benefit balance for Salem Unit No. 1 against issuance of a full power operating license. Accordingly, Amendment No. 3 to License No. DPR-70 authorizes the Public Service Electric and Gas Company to operate the Salem Nuclear Generating Station, Unit No. 1 at a reactor core power level of 3338 megawatts thermal (one hundred percent of the rated core thermal power). However, in accordance with Amendment No. 3 and the revised Attachment 1 to License DPR-70, the amended license is conditioned to provide a sequential approach to full power which takes into account a series of incomplete construction items, preoperational tests, startup tests and other items, and provides for further Commission approval at various stages of these activities.

Other changes include (1) the requirement for a long-term means of providing overpressure protection; (2) the temporary limitation of power operation to twenty percent of rated core power until the ECCS performance is reevaluated by modeling the upper head temperature as the hot leg temperature; (3) the condition that Facility Operating License No. DPR-70 is subject to the outcome of the proceedings in Natural Resources Defense Council v. NRC (D.C. Circuit, July 21, 1976) Nos. 74-1385 and 74-1586, and (4) changes to the Appendix A Technical Specifications, in response to your request dated November 8, 1976. Facility Operating License No. DPR-70 initially contained several conditions relating to environmental matters. Since these conditions are included in the Appendix B Technical Specifications, they have been deleted from the license proper."

Facility or Procedure Changes Requiring NRC Approval

There were no facility or procedure changes during the report year that required prior approval by the Nuclear Regulatory Commission.

Tests and Experiments Requiring NRC Approval

During this reporting period, Public Service Electric and Gas Company received approval from the Nuclear Regulatory Commission to conduct initial core loading and initial criticality, perform zero power physics testing, and perform the power ascension program. A summary report of the tests and test results is contained in the following paragraphs.

1. Initial Core Loading

Core load commenced at 2226 hours on August 17, 1976 and was completed seventy-nine hours later at 0456, August 21, 1976. Though the overall loading effort proceeded smoothly, several short duration delays occurred during the loading. Failure of the transfer system air motor on two occasions caused suspension of loading for a total of 13 hours, while loss of the fuel handling bridge position indication caused an additional 3 hour delay. During various phases of loading, failures of permanent and temporary source range channels, difficulty with gripping a fuel assembly with the manipulator crane mast, and loss of underwater lighting took place with little effect on the total fuel loading time. On completion of loading, a video core scan was performed to verify and document the correct location and orientation of all fuel assemblies.

2. SUP 52 - Postponed Phase II Tests and Retests

The following tests which were scheduled, but not performed, during hot functional testing, were performed as plant conditions permitted during the periods of cold and hot shutdown testing. All results met the specified acceptance criteria.

a. Pressurizer Relief Line High Temperature Alarm
b. Steam Generator Blowdown Flow Control
c. Operation of Nos. 11 and 12RH29 Valves
d. RHR Pump Motors Winding Temperatures
e. No. 11 RCP No. 3 Seal Leakage
f. RCS RTD Cross Calibration
g. Pressurizer and Pressurizer Spray Line Snubber Operation
h. Pressurizer Relief Line Operational Hydrostatic Test
i. Pressure Drop Across Nos. 11 and 12 Mixed Bed Demineralizers

3. SUP 70.1 - Reactor Coolant Leakage Test

Two Operating Department Surveillance Procedures made up this test whereby RCS leak rate and RCP controlled leakage was determined.

With the data accumulated over a three hour period, the calculated RCS leak rate of 0.35 gpm was obtained, well within the 1.0 gpm Technical Specification limit for unknown leakage.

The first measurement of controlled leakage to the Reactor Coolant pumps resulted in an unacceptable value of 50.9 gpm (Technical Specification limit of 40 gpm). After adjustment of the seal injection throttle valves, an acceptable test was performed with controlled leakage calculated to be 37.05 gpm.

4. SUP 70.2 RTD Bypass Flow Verification

During conduct of this test, it was determined that No. 14 hot leg RTD bypass loop flow did not meet the minimum flow requirements of 152.1 gpm, assuming a 0.5 second transport time contribution to the overall RTD response time. Communication with Westinghouse revealed that the latest design assumptions allotted 1.0 seconds, rather than 0.5 seconds, for bypass loop coolant transport time. With this resolution, all test objectives and acceptance criteria were met.

5. SUP 70.3 Reactor Coolant Flow Coastdown Measurements

This test verified the validity of the safety analysis assumptions on the rate of reactor coolant flow changes due to various combinations of reactor coolant pump trips. Flow coastdowns were performed and analyzed for 2/4, 4/4, 2/3 and 3/3 pump trip conditions. In addition, the delay times for low flow, undervoltage, and underfrequency trips, associated with the loss of flow accident, were measured. All testing results met the acceptance criteria.

6. SUP 70.4 Pressurizer Spray and Heater Capability and Continuous Spray Setting

The spray and heater effectiveness tests proved function of the system as designed. The temperature of one of the two continuous spray lines could not be increased above the low temperature alarm point. The alarm point was reset to reflect the lower temperature.

7. SUP 70.5 Reactor Coolant System Flow Measurement

Flow measurements were performed with various combinations of pumps operating. With all pumps operating, loop flows were found to be 99,250, 97,400, 100,000 and 99,050 gpm for loops 11 thru 14 respectively, which is above the design limit of 88,500 gpm/loop.

8. SUP 70.6 Rod Position Indication System

Verification of satisfactory performance of indication, alarm and control functions for each control rod was accomplished through this procedure with acceptance criteria being met.

9. SUP 70.7 Rod Drive Mechanism Timing

Mechanism timing tests were performed at both cold and hot conditions. Test results were as predicted except for the stepping traces of the drive mechanism for rod 2D5 in core location H-8. This drive mechanism is an "add-on", the fifth mechanism to be supplied power from a cabinet basically designed for four drive mechanisms. This irregularity is acceptable for operation but is further being evaluated from a design review by Westinghouse.

10. SUP 70.8 Control Rod Drop Time Measurement

This test was performed at both hot and cold conditions under both no flow and full flow conditions. All drop times were within the acceptance criteria of 2.2 seconds as specified in Technical Specifications.

11. SUP 70.9 Rod Control System Operation

This test demonstrated the operability of the full length rod control system control and indicating functions just prior to performing the approach to initial criticality. No problems were encountered and the acceptance criteria were met.

12. SUP 70.10 Part Length Rod Mechanism Brake Test

Documentation of the actual operation of the mechanism brake arms was accomplished during this test. Two repeatable traces were obtained on each mechanism to prove proper operation of the brake arms with acceptable results.

13. SUP 70.11 Incore Flux Mapping System

Checkout of this system was accomplished under both cold and hot conditions. Numerous mechanical and electrical problems developed during the tests but were expeditiously resolved by site personnel and/or the vendor.

14. SUP 80.2 Initial Criticality

On completion of the cold and hot testing, initial criticality was attained on December 11, 1976 at 1936 hours. The rod withdrawal, deboration and the establishment of criticality was achieved without incident.

15. Zero Power Physics Tests

This portion of the startup test program consisted of performance of the following startup procedures:

80.3 Nuclear Design Check Tests
80.4 Rod and Boron Worth Measurements
80.5 RCCA Pseudo Ejection
80.6 Minimum Shutdown Verification and Stuck Rod Worth

The specific parameters were measured and compared to the predicted values. Technical Specifications and FSAR requirements were minimum shutdown boron concentration, differential boron worth, control bank worths, temperature coefficients, power distributions, worth of the most reactive stuck rod, and worth of the most reactive control rod ejected.

Deviations from procedural acceptance criteria were observed with the measurements of core power distribution, and the measurement of control bank C worth. Neither deviation was of sufficient magnitude as to impact the results of safety analysis calculations nor to limit plant operation and further testing.

16. SUP 80.7 Turbine Control System Checkout and Startup Adjustment of Reactor Control System

Performance of this procedure is accomplished throughout the power escalation program. Data required at the hot zero power condition was obtained.

17. Power Escalation and Testing

The main turbine was brought on the line and the generator placed in service on December 25, 1976 at 1342 hours. A maximum reactor power of 19 percent was attained during this reporting period with no additional reactor testing being performed.

18. SUP 81.13 Radiation Monitoring and Shielding Evaluation

This procedure provides shielding effectiveness data at various power levels during the power escalation program. Data was taken at 0% power and all data was as expected by design. Only 3 data points provided readings above background.

19. SUP 81.14 Effluent Monitoring System Test

This procedure is to provide verification of the calibration and alarm setpoints on the plant effluent monitors. This test requires the actual release of activity from a system and the verification of monitor response. At the 0% power level, no activity was present in the systems and therefore the test was inconclusive. The test is also scheduled for higher power levels.

20. SUP 81.15 Chemistry and Radiochemistry Tests

This test is to verify the water chemistry control requirements of the RCS at the various power levels during power escalation. It was conducted at 0% power and all results were acceptable.

Other Changes, Tests and Experiments

Plant Design Change ED-0004

Plant Design Change ED-0004 entitled "Chilled Water System - Thermowells" has been completed. The completion of this change resulted in the relocation, and a change in the type of thermowells used in three locations within the Chilled Water System. As a result of this change, a reduced chilled water temperature lag time was realized.

The safety evaluation for this change determined that there were no unresolved safety questions involved.

Plant Design Change ED-0008

Plant Design Change ED-0008 entitled "Replacement of RMS Valves 1VC7 Through 1VC14" has been completed. This change was required in order to allow the Radiation Monitoring System to operate within it's design requirements. Specifically, the size of the containment sample valves was changed from 3/4" to 1" thus improving sample flow.

The safety evaluation for this change considered it not to be an unreviewed safety question pursuant to Section 10CFR50.59.

Plant Design Change ED-0017

Plant Design Change ED-0017 entitled "1RH26 Extension Yoke" has been completed. This change was made in order to raise the 1RH26 valve operator above the LOCA "flood level" within the reactor containment. A yoke extension was added to raise the valve operator.

The safety evaluation for this change, pursuant to Section 10CFR50.59, did not involve an unreviewed safety question.

Plant Design Change ED-0018

Plant Design Change ED-0018 entitled "Movement of Reactor Vessel Head Access Platform" has been completed. The movement of this platform was only a minor arrangement change. Primarily, the change was made in order to avoid interference with the storage position of the upper internals removal tripod.

The engineering safety evaluation made for this change determined that there was no unreviewed safety question involved.

Plant Design Change ED-0019

Plant Design Change ED-0019 entitled "Service Water Piping - Reactor Containment" has been completed. This change required

the replacement of flexible metal service water connections to the Containment Fan Coil Unit Motor Coolers with a rigid continuous pipe. Replacement of these connection pipes to the motor coolers was made in order to minimize the possibility of rupturing the flexible service water lines, due to pressure transients from a dynamic water hammer observed during certain control valve manipulations.

As this Design Change does not functionally alter the service water piping system, it does not present an unreviewed safety question as defined in 10CFR50.59.

Plant Design Change ED-0020

Plant Design Change ED-0020 entitled "Nuclear Instrumentation - Instrument Power Feed" has been completed. This change replaced a 0.5 KVA type LVR Solatron regulator with a 0.25 KVA Solatron CVS regulator in the power feed for Channel IV nuclear instrumentation. As a result, the interaction between the regulator and the output stage of the nuclear instrument was reduced.

The engineering review of this change determined that as the change is only an equipment change, where functional requirements are unchanged, an unreviewed safety question was not involved.

Plant Design Change ED-0021

Plant Design Change ED-0021 entitled "Service Water System - Hanger Modification" has been completed. This change added restraints to reinforce the control valve 1SW49. These additions were necessary in order to reduce the vibration of an 8" bypass line when 1SW49 was fully opened.

The safety evaluation for this change did not functionally alter the Service Water System; and therefore, an unreviewed safety question was not involved.

Plant Design Change ED-0026

Plant Design Change ED-0026 entitled "Service Water Valves 11 and 12SW49 Replacement" has been completed. This change was performed to increase the reliability of the Service Water System. The two butterfly type valves 11 and 12SW48 were removed and two piston operated control valves, similar to the existing valves 11 and 12SW49, were installed. Thus, the differential pressure seen by the valves 11 and 12SW49 would be reduced and thereby afford better pressure control as a result of decreased air operator loading.

The safety evaluation made for this change only served to improve the system's reliability; and therefore, there was no unreviewed safety question involved.

Plant Design Change ED-0027

Plant Design Change ED-0027 entitled "Service Water Pumps - Motor Alteration" has been completed. This change was recommended by the motor manufacturer, Allis-Chalmers, so as to preclude further possible failures of the pump motor stator windings resulting from cracking end turn insulation. To this end, the stator windings were first cleaned and dried. Then a flow coat of room temperature vulcanizing rubber was applied over the affected areas.

The safety evaluation for this change involved no unreviewed safety questions.

Plant Design Change ED-0047

Plant Design Change ED-0047 entitled "Elimination of Condensate Pocket" has been completed. This change was performed in order to improve the steam flow sensing ability of two steam flow transducers. Prior to this time, the sensing legs of these transducers would develop a condensate "pocket" which caused unreliable readings in main steam flow indicators for two of four sensing channels.

The safety evaluation for this change determined that there was no unreviewed safety question involved.

Plant Design Change MD-0009

Plant Design Change MD-0009 entitled "Chilled Water System - Chillers" has been completed. This change was made in order to minimize the clogging of a refrigerant thermal expansion valve. To this end, dryer filters were installed in the liquid freon lines.

The safety evaluation made for this change found that such a change would only improve the equipment life. Furthermore, no unreviewed safety questions were involved.

Plant Design Change PD-0048

Plant Design Change PD-0048 entitled "Service Water to Turbine Building" has been completed. This change was required to minimize service water system transients. This was accomplished by providing a time delay in the closing of Isolation Valves 11SW20, 13SW20 and 1SW26, upon receipt of an isolation signal.

The safety evaluation for this change did not result in any unreviewed safety questions.

Plant Design Change ED-0024

This Design Change was implemented to correct a design deficiency in the testing circuits of the Solid State Protection System. The safety evaluation indicates there is no unreviewed safety question resulting from this change. It was completed on December 2, 1976.

Plant Design Change PD-0015

This Design Change was implemented to correct a design deficiency in the contact configuration of alarms feeding to Auxiliary Annunciator System. The safety evaluation indicates there is no unreviewed safety question resulting from this change. It was completed on December 12, 1976.

Plant Design Change ED-0031

This Design Change was implemented to correct a design deficiency on the turbine stop valve input to the Solid State Protection System. The old limit switch configuration would not allow the open limit switch to be adjusted consistent with the requirements of the Technical Specifications. The present design corrected this deficiency. The safety evaluation indicates thre is no unreviewed safety question resulting from this change. It was completed on December 6, 1976.

Corrective Maintenance of Safety-Related Equipment

SAFETY RELATED EQUIPMENT

Mechanical and Electrical Maintenance

EQUIPMENT	NATURE OF MAINTENANCE	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
		AUXILIARY FEEDWATER			
NO. 11 AUX FEED PUMP	Corrective SU-231		1A & 1B Diesels Available. SEC had not been reset	#11 Aux. Feed Pump was stopped while under SEC Lockout	Tested Feed Pump SEC Test No Apparent Problem
NO. 11 & NO. 12 AUX FEED PUMPS	Corrective OD-3445		Circuit Malfunction	Feed Pumps could not be started from Control Room	Retested circuit, works as per Schematic
NO. 12 AUX FEED PUMP	Preventative MD-0921		Faulty Original Assembly	Replacement Assembly Installed.	Replaced Rotating Assembly in #12 Feed Pump with the Original Assembly
NO. 13 AUX FEED PUMP TURBINE	Corrective MD-0591		Wiring Error	Turbine Malfunction	Modification of Wire to 13 AFP as per ECN C-16341
11 & 12 AUX FEED 114 11 AUX FEED 117	Corrective OD-2435		System Attempted to be Vented	Vents appeared not to be working	Valves Checked and They Worked. No Obstructions Found.
VALVE 14AF20	Corrective MD-0176		Valve Leaked at Pressure Gaskets	Valve Failed	Valve Disassembled and New Pressure Seal Gaskets Installed.
AUX FEED VALVES 11 & 12AF118	Corrective OD-2434		Stem Rusted	Valve will not Open	Valve Stem was Cleaned.
SPOOL AF-2065	Corrective MD-0343		Arc Strike	Failed Liquid Penetrant Report 1R25168	Blended Pipe and Repainted Same.
		BUILDING & EQUIPMENT DRAINS			
SERVICE WATER SUMP PUMP NO. 3 BAY	Corrective OD-2240		No Apparent Problem	Pump Not Running & Discharge Line Hot	Pump Disassembled & Checked. Pump Reassembled & Tested.

SAFETY RELATED EQUIPMENT

Mechanical and Electrical Maintenance

EQUIPMENT	NATURE OF MAINTENANCE	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
		BORIC ACID RECOVERY			
BORIC ACID EVAPORATOR	Corrective MD-0537 (a)		Elect. Sys. Improperly Wired	Heat Trace did not Work	Modified as per ECN E-1662
PZR CONTROL GROUP HEATERS	Corrective OD-2921		Blown Fuse Caused by Current Surge	Low Amp Reading on One Phase	Replaced Fuse
CVCS BORON RECOVERY HOLDING TANK HEATER (CONC TANK)	Corrective OP-4015		Temp. in Tank not Rising When in Auto	Temperature Remaining Stable	System Checked, Nothing Found Wrong
VALVE 1BR118	Corrective SU-293		Valve Installed Backwards	Improper Operation of System	Valve Cut Out and Rewelded in Proper Position
VALVE 1BR75	Corrective RC-0448		Valve Leaking	Boron-Water Mixture Leaking out of Valve Bonnet	Replaced Valve Diaphragm, O Rings, and Gasket
		CHILLED WATER			
NO. 11 & 12 CHILLED WATER CHILLER UNITS	Preventative MD-1060		Inspection of Condenser Tubes	Tubes Erroded on #11 & #12 Units	No Replacement Parts Available, Will be Modified & Replaced at a Later Date
NO. 11 CHILLER UNIT	Corrective OD-3500		Low Refrigerant Level in Unit	Chiller is Short Cycling	Unit Recharged
NO. 11 CHILLER UNIT	Corrective OD-3499		Faulty Gasket	Oil Leak at Flange	Replace Discharge Flange Gasket
NO. 11 CHILLER UNIT	Corrective OD-2914		Valve 11SW92 Closed	33/CVO open - Circuit open - Chiller Not Running	Valve Opened, Operation Tested

EQUIPMENT	NATURE OF MAINTENANCE	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
		CHILLED WATER			
NO. 13 CHILLED WATER RECIRC MOTOR	Preventative SU-0181	ECN E-1676 (refer to)	Design Change	New Base Line Data	Perform M3C & M11C for Base Line Data
NO. 13 CHILLER UNIT	Corrective OD-2683		Sticking Relay for Solenoid Vlv.	Chiller Cuts In & Out Sporadically	Corrected Relay, Recharged Unit
NO. 11,12, & 13 CHILLER UNITS	Corrective OD-2117		Malfunctioning Switch & Coolant Supply	Trips on Hi Cylinder Head Pressure	Problem Corrected
NO. 11 CHILLER UNIT	Corrective OD-2449		Plug Blew Out	Leak in Chiller	Repaired with New Plug
NO. 12 CHILLER UNIT	Corrective MD-1038		Faulty Mech. Seal	Oil Leak	Replaced Seal & Recharged Compressor
NO. 12 CHILLER UNIT	Corrective OD-4341		Low Oil Level	Compressor Trip	Oil Added & Unit Tested
NO. 13 CHILLER UNIT	Preventative OD-3570		Check for Freon & Oil in Chiller	Complete Overhaul of Compressor	Replaced Condenser, All New Parts for Compressor
NO. 11 CHILLER COND RECIRC PUMP	Corrective OD-3796		Malfunctioning Limit Switch	System Malfunction as Result	Adjusted Limit Switch on Valve 11SW92
NO. 12 RECIRC PUMP	Corrective OD-3781		Malfunctioning Indicator Light Circuitry	Improper Indicator On	Replace Bad Relay Switch

SAFETY RELATED EQUIPMENT

Mechanical and Electrical Maintenance

EQUIPMENT	NATURE OF MAINTENANCE	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
		COMPONENT COOLING			
CC HEAT EXCHANGER #12	Corrective MD-1155		Fouling of Tubes	Loss of Cooling Capacity	Cleaned Debris from Heat Exchanger - SW Side
CC HEAT EXCHANGER #11	Corrective OD-3633		Fouling of Tubes	Loss of Cooling Capacity	Cleaned Debris from Heat Exchanger - SW Side
#11 CC PUMP	Corrective OD-3696		Union on Drain Leaking	Loss of Coolant from System	Union Disassembled - Cleaned - and Reassembled
#11 CC PUMP	Corrective WO-2236		Leaking Shaft Seal	Loss of Coolant from System	Shaft Seal Replaced on Pump
VALVE 1CC187	Corrective OD-2467		Grease Appears Contaminated	Possible Damage may Occur to Gears	Grease Inspected and Found to be in Good Condition
VALVE 1CC190	Corrective MD-0297		Water in Gear Box	Possible Damage to Gears & Electrical Operator	Drained Water - Checked Electrically - Refilled with Grease - Checked Mechanically All Readings Normal
VALVE 1CC118	Corrective OD-2562		Closure Time .2 Sec. Above Norm.	Valve Appears to Take Longer to Close Than Normal	Valve Checked Out - Closure Time 9.6 Sec. Well With Specs
#11 CC PUMP	Corrective OD-2289		Leaking Nipple in Bottom of Pmp.	Loss of Coolant	Nipple Replaced
VALVE 11CC120	Corrective OD-2464		Bad Grease Fitting	Cannot Grease Valve	Cleaned Out Old Dried Grease - Installed New Grease Fitting
VALVE 1CC131	Corrective MD-0198		Present Vlv. Stem was Machined to Allow Proper Operation	Valve Operates Properly with Modified Stem	New Stem was Installed When Received from Manufacturer

SAFETY RELATED EQUIPMENT

Mechanical and Electrical Maintenance

EQUIPMENT	NATURE OF MAINTENANCE	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
		COMPONENT COOLING			
VALVE 1CC190	Corrective OD-2361		Packing Gland Leaking	Loss of Coolant	Tightened Packing
VALVE 11CC19	Corrective OD-2363		Packing Gland Leaking	Loss of Coolant	Tightened Packing
CC SW PIPE LEAK	Corrective MD-0615		SW Pipe Failure Due to Corrosion	Pipe Leaking Salt Water	Replaced Pipe with New Pipe
VALVE 1CC131	Corrective MD-593		Leak Rate Test After Repairs	None	Valve was Leak Rate Tested After Replacement of Stem. Tested Satisfactory.
VALVE 1CC131	Corrective PD-1577		Grounded Wire	Controls for Valve Do Not Work	Repaired Pinched Wire
VALVE 1CC190	Corrective MD-0879		General Clean-up of Valve Operator Needed	Motor Operator Does Not Work	Cleaned Electrical Components of Valve, Replaced Damaged Heater Circuit Wire
VALVE 1CC187	Corrective MD-0874		Leak Rate Test After Repairs	None	Valve was Leak Rate Tested After Repacking - Tested Satisfactory
VALVE 1CC187	Corrective MD-0896		Packing Failure	Loss of Coolant	Installed New Packing
VALVE 1CC187	Corrective MD-0873		Water in Valve Operator	Failure of Motor Operator	Installed Motor Operator From Unit #2
VALVES 11CC291, 12CC291, 14CC291, and 13CC310	Corrective MD-0767		Change as per Memo M-8884	None	Nipples and Caps Installed as per Memo

SAFETY RELATED EQUIPMENT

Mechanical and Electrical Maintenance

EQUIPMENT	NATURE OF MAINTENANCE	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
		COMPONENT COOLING			
VALVE 14CC130	Corrective OD-3458		Packing Leak	Loss of Coolant	Tightened Packing
11CC HEADER LOW PRESS. ALARM	Corrective OD-3821		Alarm Not in Calibration	Alarms at 130 Psi	Recalibrated Alarm to Alarm at Proper Point
VALVE 12CC6	Corrective OD-2831		Valve Packing Needs Tightening	Loss of Coolant	Tightened Packing
		PRIMARY WATER RECOVERY			
#11 PRIMARY WTR PUMP	Corrective OD-3597		Relay in Control Circuit Failed	Auto Start Control Does Not Function	Replaced Relay
		CVC - OPERATIONS			
11 SEAL WATER INJECTION SYSTEM	Corrective OD-2786		O Ring Out of Adjustment	Filter Cover Leaking	Cover Taken Apart and O Ring Was Adjusted
BORIC ACID FILTER	Corrective OD-2844		Bonnet Nuts Loose on Valve	Leak	Diaphragm Valve Was Cleaned and Put Back
LETDOWN HEAT EXCHGR.	Corrective SU-218		Loose Flange	Leak	Tighten Flange
11 CHARGING PUMP 4KV BREAKER	Corrective OD-2432		Spring Fails to Latch	Spring Charging Motor Continues to Operate	Repaired Driving Pawl Stop, and Replaced Driving Pawl Spring
12 CHARGING PUMP	Corrective OD-2909		Loose Flange	Spool Piece Flange Leak	Tightened Flange

SAFETY RELATED EQUIPMENT

Mechanical and Electrical Maintenance

EQUIPMENT	NATURE OF MAINTENANCE	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
		CVC - OPERATIONS			
1SJ4 & 5 1SJ12 & 13	Corrective OD-2783		Bonnet Gasket & Valve Seat Malfuntion	Valve Leak	Installed New Bonnet Gaskets and Lapped Valve Seat
VALVE 1CV40	Corrective SU-0202		Motor Malfunction	Valve Does Not Work Remotely	Motor Rewound
VALVE 1CV41	Corrective SU-0179		Motor Malfunction	Handwheel Would Not Disengage. Motor Would Not De-energize	New Motor Installed
ORIFICE FOR FI-150	Corrective SU-332		Inspection of Orifice	Equipment Check	Orifice Check & Reinstalled
#11 BORIC ACID TRANS. PUMP	Corrective OD-2745		Mechanical Seal Malfunction	Pump Leaking Thru Packing Gland	Replace Mechanical Seal and Realigned Motor
BA TRANS. PUMP	Corrective OD-2327		Mechanical Seal Malfunction	Pump Leaking Thru Mech. Seal	Replaced Mech. Seal and Pump Cashing Gasket
#11 & 12 BA TRANS PUMP #11 & 12 SPENT FUEL PIT PUMPS	Preventative SU-0200		Uncouple Pump	Prevent From Working	Uncoupled Pump Until Gaskets Are Replaced
#12 BA PUMP	Corrective OD-2781		Unknown	Leaking Oil From Pump	Repaired Oiler
#11 BA PUMP	Corrective OD-2660		Threads Dirty & Not Doped	Oil Reservoir Leaking	Cleaned and Tefloned Threads
#12 BA TRANS PUMP	Corrective OD-2083		Mech. Seal Set Incorrectly	Leak	Replaced Mech. Seal & Set According to Seal Print
#12 BA TRANS PUMP	Corrective OD-2617		Suction Line Flange Malfunction	Pump Leak	Replaced Gasket

SAFETY RELATED EQUIPMENT

Mechanical and Electrical Maintenance

EQUIPMENT	NATURE OF MAINTENANCE	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
		CVC -	OPERATIONS		
#12 BA TRANS PUMP	Corrective OD-2812		Bearing Seal Malfunction	Oil Leak	Checked and Found Nothing Wrong
#11 CHARGING PUMP BREAKER	Corrective OD-2646		Motor Malfunction	Charging Pump Will Not Charge	Motor Replaced
#13 CHARGING PUMP	Corrective OD-4002		Flexatalic Malfunction	Head Leak #4 Valve	New Flexatalic Replaced
#13 CHARGING PUMP	Preventative MD-0259		Change Crankcase Oil	Clean Oil Added	Drained and Refilled Gearcase and Crankcase
#13 CHARGING PUMP	Corrective OD-2406		Loose Cap	Valve Leak	Tightened Cap
VALVE 11CV163	Corrective OD-4398		Diaphragm Malfunction	Leaking Diaphragm in Valve	Installed New Diaphragm
VALVE 1CV116	Corrective SU-0190		1CV116 Pushbutton Malfunction	Light Will Not Operate Correctly	Realigned Pushbutton
TIC 103 & 107	Corrective SU-0190		Alarm on Bezel Malfunction	Alarm Will Not Clear	Problem is in the Annunciator Changed to Dual Input
VALVES 1CV141,1CV241, and 1SJ10	Preventative MD-0287		New Parts to be Installed	Work Performed	New Washers and Springs were Installed & Valves were Checked
1CV2,1CV4, & 1CV75	Corrective OD-3574		Loose Packing	Leaking Valve	Tighten Packing to Stop Leak

SAFETY RELATED EQUIPMENT

Mechanical and Electrical Maintenance

EQUIPMENT	NATURE OF MAINTENANCE	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
		CVC - OPERATIONS			
VALVE 1CV345	Corrective OD-3459		Loose Packing	Leaking Valve	Tighten Down Packing
VALVE 1CV116	Corrective OD-2813		Valve Malfunction	Motor Trips	Replaced Motor
VALVE 1CV185	Corrective OD-4015		Faulty Diaphragm	Leaking Valve	Diaphragm has been Replaced
		CONTAINMENT SPRAY			
1CS16 BREAKER	Corrective SU-0186		Motor Failure	Breaker Will Not Stay Closed	Rewound Motor
VALVE 11CS2	Corrective SU-223		Thermal Overloads Tripped	Valve Will Not Operate	Reset Overloads
BREAKER 12CS36	Corrective OD-2550		Short in Control Rm. Console & Faulty Relay	Breaker Will Not Close	Installed New Connecting Plug in Control Rm and Installed New Relay
SPRAY ADDITIVE TK. VACUUM BREAKERS: 1CS12 & 1CS13	Corrective OD-3545		Valves Not Seating Properly	Valves Leaking	Cut New Surface on Seats
VALVE 11CS2	Corrective OD-2541		Operator Motor Defective	Breaker Trips	Replace Motor
VALVE 11CS2	Corrective SU-0201		Overload Relay Failure	Breaker Trips	Replaced Overload Relay

SAFETY RELATED EQUIPMENT

Mechanical and Electrical Maintenance

EQUIPMENT	NATURE OF MAINTENANCE	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
		CONTAINMENT SPRAY			
VALVE 11CS2	Corrective SU-386		Test Time of Valve Travel	None	Tested Satisfactory
		CONTROL AIR AUX BLDG			
#2 CAC 2SW107	Preventative MD-0604		Design Change	Job Completed	Modified i/a/w ECN M-7337
		CONTROL AIR PENET. & CONTAIN			
#1 EMERG CONTROL AIR COMP.	Corrective OD-3982		Filter Needs Changing - By-Pass Vlv. Needs Adjusting	Oil Pressure Slow in Reaching Full Pressure on Gage	Changed Filter, Cleaned Oil Line
#1 EMERG CA COMP	Corrective OD-3940		Air Comp. Tripping Out on Low Oil Pressure	Cannot Run Compressor	Readjusted Oil Pressure Relief Valve
#2 EMERG CA COMP	Corrective OD-3621		Compressor Not Wired Correctly	Low Oil Pressure Trip Will Not Reset	Wiring Error Corrected
#1 EMERG CA COMP	Corrective OD-3518		Demand on Sys. Excessive for Comp.	Compressor Runs Continually	Loading and Unloading Points Were Set Satisfactory
#2 EMERG CA COMP	Corrective OD-3496		Contactor Not Adjusted Properly	Compressor Will Not Start	Readjusted Contact

EQUIPMENT	NATURE OF MAINTENANCE	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
		CONTROL AIR PENET. & CONTAIN			
#1 EMERG CA COMP.	Corrective OD-2775		Broken Cooling Water Line	Unable to Operate Comp.	Replaced Union & Soldered Line
#1 & #2 EMER AIR COMP	Corrective SU-366		Recalibrate Oil Temp Setpoint	Compressors Will Now Operate @ 180°F Instead of 150°F Oil Temp.	Readjusted Setpoint for Oil Temp from 150° to 180°F
#2 EMER AIR COMP	Corrective SU-378		Test for Pipe Leaks	Discover Possible Leaks	Pressure Tested Pipe, and Identified Leaks for Repairs
#1 EMER AIR COMP	Corrective SU-377		Test for Pipe Leaks	Discover Possible Leaks	Pressure Tested Pipe, and Identified Leaks for Repairs
#1 EMER AIR COMP	Corrective OD-2686		Header Pressure Will Not Open Cutout Contact	Compressor Operates When Switched to Auto	Compressor Cutouts Adjusted to Required Settings - Compressor Still Operates the Same
EMER AIR COMP	Corrective MD-0338		Header Pressure Will Not Operate Contact	Compressor Operates Continually	Switched Sensing Lines on Compressor
#1 EMER AIR COMP	Corrective SU-639		Switch Orifice in After Condenser	To Aid in Startup Test	For Testing Purposes Orifice was Switched from Inlet to Outlet of After Condenser
#2 EMER AIR COMP	Corrective SU-264		Broken Gage Glass	Compressor Taken Out of Service	Replaced Sight Glass
#1 EMER AIR COMP	Corrective SU-313		Inlet Vlv. Came Apart in Service	Unable to Operate Compressor	Switch Valve from #2 Unit. Repaired Broken Valve & Installed in #2 Unit

SAFETY RELATED EQUIPMENT

Mechanical and Electrical Maintenance

EQUIPMENT	NATURE OF MAINTENANCE	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
		CONTROL AIR PENET. & CONTAIN			
#1 & #2 EMER AIR COMP	Corrective MD-0397		Time Delay Improperly Set	Compressors Do Not Operate as per Spec	Reset Time Delay to Specs.
CONTROL AIR PIPING	Corrective MD-0653		Relocate 1" Control Air Line	Line Relocated as per Instructions	Line Was Relocated as per Instructions
CONTROL AIR PIPING	Corrective MD-0680		Failure of Vent Valves	Valves Must be Replaced	(4) Vent Valves were Replaced
VALVE 12CA360	Corrective SO-0139		Check Valve Leaking	Possible Source of Return Flow	Disc of Valve Lapped and Tested
#1 EMER AIR COMP	Corrective MD-0589		Movement of Sensor Bulb to New Location	Better Operation of Comp.	Bulb was Moved to New Location
VALVE 11CA330	Corrective MD-600A		Leak Test After Valve Repair	Valve Tested Satisfactory	Perform Leak Test on Valve
VALVE 11CA330	Corrective SU-390		Pressure Test Valve	Valve Tested Satisfactory	Perform Press. Test on Valve
VALVE 11CA330	Corrective MD-0447		Cut on Valve Seat	Valve Leaks Thru Seat	Valve was Disassembled and the Seat Repaired
CONTROL AIR PIPING	Corrective MD-0868		Test of Piping	Tested Satisfactory	Performed Press. Test on Piping Between 11CA330 & 543

SAFETY RELATED EQUIPMENT

Mechanical and Electrical Maintenance

EQUIPMENT	NATURE OF MAINTENANCE	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
			FIRE PROTECTION		
#1 CO_2 FP SYS KEY INTERLOCK	Preventative MD-0260		Change Key Interlock Switches in DG Area	Design Change as in ECN C-3967	System was Changed & Tested
			FLOOR DRAINS CONTAMINATED		
11 RHR SUMP PUMP	Corrective OD-2591		Level Detector Failed	Pump Will Not Shut Off in Auto Mode	Replaced and Calibrated Level Detector
11 RHR SUMP PUMP	Corrective OD-2513		Actuating Arms on Pump Switch Out of Calibration	Pump Will Not Shut Off in Auto Mode	Readjusted Micro Switch Actuating Arms
12 RHR SUMP PUMPS	Corrective MD-0588		Found No Problem	Pump Operates as Designed	Check Out Pump & Motor Found Nothing Wrong
RV SUMP PUMP	Corrective OD-2429		Level Switch Failed	Pump Will Not Start on High Level	Replaced Faulty Switch
11 RHR SUMP PUMP	Corrective MD-0642		Manufacturing Defect	Pump Failed	Replaced with Pump From #2 Unit
11 RHR SUMP PUMP	Corrective OD-2326		Float Level Need Adjustment	Pump Will Not Shut Off at Low Level	Readjusted Float Level & Limit Switch
11 RHR SUMP PUMP	Corrective OD-2430		Level Switch Out of Adjustment	Pump Will Not Start at High Level	Readjusted Level Switch

SAFETY RELATED EQUIPMENT

Mechanical and Electrical Maintenance

EQUIPMENT	NATURE OF MAINTENANCE	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
		FUEL HANDLING & TRANSFER EQUIP			
UPENDER CABLE PULLERS	Corrective SU-392		Correct Pins Not Installed in Upender Cable Pullers	Improper Operation of Upender Cable Pullers	Installed Proper Pins
AIR MOTOR	Corrective OD-2785		Motor Failed	Unable to Operate System	Replaced With Motor From #2 Unit
FUEL TRANSFER CAR	Corrective RE-0006		Improper Location	Idler Wheel Binding	Add Shims to Correct Alignment
FUEL TRANSFER UPENDER	Corrective SU-0216		Upender Needs Stiffening	Possible Failure if Operated as Fabricated	Added Plates to Increase Strength
FUEL ELEVATOR	Corrective OD-2425		Manufacturing Fault	Failure of Pulley if Used in This Condition	Fabricated and Installed New Bushings in Pulleys
FUEL ELEVATOR	Corrective SU-317		Manufacturing Fault	Pulleys Will Not Operate Correctly	Smoothed & Scraped Bearings - Aligned & Reinstalled
FUEL TRANSFER SHEAVES	Corrective SU-0180		No Grease Fittings	Possible Failure Because of Lack of Lubrication	Fabricated New Pins Containing Grease Fittings & Installed
CONTAINMENT UPENDER	Corrective OD-2759		Loose Coupling Nut Jamming Shaft	Upender Stuck in Up Position	Tightened Coupling Nut & Installed New Cotter Pin

SAFETY RELATED EQUIPMENT

Mechanical and Electrical Maintenance

EQUIPMENT	NATURE OF MAINTENANCE	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
		FUEL HANDLING & TRANSFER EQUIP			
CONTAINMENT UPENDER	Corrective RE-0011		Check of Alignment	Alignment Satisfactory	Made Check of Alignment Prior to Operation
HOIST	Corrective SU-0167		Frayed Cable	Possible Failure if Used in This Condition	Replaced Cable With One From Unit #2
TRANSFER TUBE BLANK FLANGES	Corrective MD-0410		Installed Improperly	Bolts were Stripped	Fabricate and Install Two New Brass Bolts
		CRANES & HOISTS			
#1 CASK HANDLING	Preventative MD-0245		Inspection	Completed Inspection	Reported for Deficiencies & Action Taken
AUX HOOK	Corrective MD-0192		Hook Radiographed	Cable Disconnected	Hook Checked Out and Reconnected
CASK HANDLING	Preventative MD-0823		No Limit Switches	Crane Can Go Slamming into Wall	Installed Limit Switches
FUEL HANDLING CRANE	Preventative OD-2280		Testing	Slow Response to Control	Inspection of Crane Showed No Unusual Operation
CRANE	Preventative MD-0197		Inspection	Find Method of Cable to Drum Connections	Report File With Work Order
FUEL HANDLING CRANE	Corrective OD-0339		Limit Switch Malfunction	Crane Would Not Stop til it Hit the Bumpers	Repaired Snap Cock Switch on Gantry Leg

SAFETY RELATED EQUIPMENT

Mechanical and Electrical Maintenance

EQUIPMENT	NATURE OF MAINTENANCE	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
			CRANES & HOISTS		
FUEL HANDLING CRANE	Corrective MD-0270		Weight Limt Switch Malfunction	Switch Would Bind	Made New Pivot Pin and Removed Weld Splatter
FUEL HANDLING CRANE	Corrective OD-2615		Wire Reconnection Error	Crane Malfunction	Test OK after Adjusting Actuating Arm
CASK HANDLING CRANE	Preventative MD-0625		Limit Switches (None)	Crane Could Go Slamming into Wall	Installed and Wired as per Schematic
GRIPPER	Preventative SU-0173		Gripper Binding	Lubricate all Gripper Binding Parts	Disassembled & Lubricated
HOIST JOG CONTROL	Corrective OD-2509		Bad Contact	Down Button Not Always Operative	Cleaned All Contacts
MANIPULATOR	Preventative SU-0278		General Maint.	Put Crane in Good Operational Condit.	Replace Limit Switch, Installed Brackets on Fan, No Problem With Overload
MANIPULATOR/FUEL TRANSFER	Preventative SU-0273		General Maint.	Prevent Breakdown	Replaced Manipulator Hose, Dowell Upender Lifting Cranes, Tack Weld Nuts & Bolts, Install Set Screws
MANIPULATOR CRANE	Preventative SU-0266		Gripper Rod Out of Adjustment	Gripper Binds	Connecting Rod - From Air to Gripper Needs Adjustment
MANIPULATOR	Preventative SU-0329		Power Cable Damage	No Power to Crane	Replace Cable and Inspected

SAFETY RELATED EQUIPMENT

Mechanical and Electrical Maintenance

EQUIPMENT	NATURE OF MAINTENANCE	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
		CRANES & HOISTS			
MANIPULATOR CRANE	Preventative SU-0268		Reverse Bumper in Wrong Place	They Hit the Wall	Bumpers were Repositioned under Westinghouse Supervision
MANIPULATOR CRANE	Corrective RE-5		Limit Switch Malfunction	Reverse Doesn't Work	Limit Switch and Control Circuit for Proper Operation
SELSYN MOTOR	Preventative OD-2782		Last Indication	Gear Check	Motor Work Performed
POLAR CRANE	Preventative MD-0244		Inspection	Inspection Complete	Report That Told of Deficiencies
#1 POLAR CRANE	Corrective MD-0239		Drum Gear Out of Alignment	Crane Did Not Function Properly	Drum Gear Was Realigned
#1 POLAR CRANE	Corrective MD-0826		Broken Shaft on Limit Switch	No Limit Switch	New Shaft Made & Installed
FUEL HANDLING CRANE	Corrective OD-2336		Excess Weight on Crane	Improper Function of Crane	No Work Needed
		RESIDUAL HEAT REMOVAL			
#11 RHR HEAT EXCHANGER	Corrective OD-3695		Bad Gasket	Leaking Head	Installed Gasket, Lower Head
PUMP MOTORS	Preventative MD-0809		Memorandum	Checking of Pumps	Inspected Pumps and Found OK
PIPE SPOOL LRH-47	Corrective QA-0008		Indentation on Pipe Spool	Not Given	The Indentation Was Smoothed Out and Tested
0° ELBOWS	Corrective QA-0010		Investigation	Report & Maint.	Costing Flashing Removed
PIPE SPOOL RH-178	Corrective QA-0007		Arc Strike	Blemish on Pipe	The Arc Strike was Blended in With a Grinder

SAFETY RELATED EQUIPMENT

Mechanical and Electrical Maintenance

EQUIPMENT	NATURE OF MAINTENANCE	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
		RESIDUAL HEAT REMOVAL			
RHR	Corrective MD-0733		Loose Suction Spool	Must be Welded to the Floor Pad	Spool was Welded to Floor Plan
#2 RHR SUCTION LINE	Preventative OD-3740		Removal of Temp Gage	To be Replaced by Pipe Cap	Removed Valve and Reducer, Installed SS Cap
SUCTION FLANGE	Corrective OD-3678		Suction Flange Malfunction	Leak	Replace Flexitalic Gasket
RHR, CHARGING & SAFETY INJ.	Corrective OD-2569		Removal of Strainer & Temp Gages	Strainer Removed & Temp Gage Holes Were Capped	RHR Suction Pipe Flushed with DM Water
#12 RHR MOTOR SNUBBER	Preventative QA-0012		Check for Binding	Removal of Snubber	Snubber was Replaced After Inspection
#12 RHR PUMP DISCH FLANGE	Corrective OD-3772		Gasket Failure	Flange Leak	Installed New Gasket
12RH-4 VALVE	Corrective MD-0333		Nut Untightened	Loose Valve	Tightened Locking Nut and Staked Nut
11RH19	Corrective MD-0347		Loose Valve	Untightened Valve	Tightened Valve
1RH26	Corrective MD-0927		Design Change	AP8-ED0017	Replace Yoke & Stem
11RHR9	Corrective OD-3703		Packing Gland Failure	Pack Gland is Down all the Way	Repacked Gland
11RHR38	Corrective OD-3704		Packing Gland Failure	Removed Old Packing	Replace with (6) Layers of New Packing

SAFETY RELATED EQUIPMENT

Mechanical and Electrical Maintenance

EQUIPMENT	NATURE OF MAINTENANCE	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
		RESIDUAL HEAT REMOVAL			
11RHR12 12RHR12	Corrective OD-3701		Gasket Failure	Sys. Malfunction	Inspection of Valve - Installed New Gasket
1RH64	Corrective OD-3794		Cap Leaks	Gets the Floor Wet	Resealed Cap with Teflon
1RH26	Corrective MD-1034		Valve Repair	Leakoffs	Installed Leakoffs as Directed
		SPENT FUEL COOLING & SKIMMING			
PUMPS 11 & 12 BA TRANS 11 & 12 SPENT FUEL PIT	Preventative SU-0200		Check for Alignment	Alignment Satisfactory	Check Alignment of Pumps
		STEAM GENERATOR DRAIN & BLOWDOWN			
VALVE 13GB3	Corrective OD-2145		Faulty Packing	Valve Leaking @ Packing Gland	Repacked Valve
		STEAM GEN FEED & CONDENSATE			
HEADER 1EP3X BREAKER	Corrective OD-3542		Possible Faulty Breaker	Headers Trip Out	Check Out Circuit for Shorts & Grounds Found None - Breaker Working Satisfactory
#12 PRESS BACKUP HEATER	Corrective OD-2918		Transformer Area Needs Cleaning	Heaters Go Off Due to Hot Spot	Cleaned and Vacuumed Transformer Area
#11 STM GENERATOR	Corrective OD-3037		Unions Loose	Oil Leak	Tightened Unions on Snubbers

SAFETY RELATED EQUIPMENT

Mechanical and Electrical Maintenance

EQUIPMENT	NATURE OF MAINTENANCE	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
		MAIN STEAM, REHEAT TURB BYPASS STEAM			
STEAM FLOW TRANSMITTER PIPING	Corrective MD-1170		Design Change	Piping Changed as per ED-0047	Design Change ED-0047
1-MS-52 STRAINER	Corrective SU-0155		Normal Procedure	Strainer Changed	Removed Startup Strainer - Installed Permanent Strainer
HANGER "F" CROSS UNDER PIPE	Corrective SU-0198		Checking for Proper LOading	Load was Set at Proper Loading	Reset Loading of Hanger @ 4300#
SUPPORT COLUMNS	Corrective MD-0929		Improper Bolting	Possible Failure if Not Corrected	Support Columns were Rebolted and Torqued
VALVE 12MS35	Corrective MD-1267	Work Done in 1977	Leaking Gasket	Steam Leaking	Repaired by Changing Gasket
LEAKOFF VALVE 12MS7	Corrective OD-4019		Improper Assemble	Valve Leaking	Disassembled Valve Cleaned & Reassembled
VALVE 13MS45	Corrective OD-4076		Gasket Leak	Steam Leaking	Replaced Bonnet Gasket - Repacked Valve
VALVE 11MS36	Corrective MD-1194		Manufacturing	Valve Leaking	Welded Valve Body
MSR SAFETY VALVES	Corrective SU-0170		Lock Wire Missing	Possible Unauthorized Tampering	Installed Lock Wires on Missing Valves
MAIN STEAM STOP VALVES	Corrective OD-2341		Valves Operating as Designed	Did Not Trip After Test Because no Stm Present	Valves Were Jumpered and Closed
HYDRAULIC OIL SNUBBER VALVE 13MS167	Corrective SU-204		No Leak Found	Oil Level Low	Refilled Oil Sump to Proper Level

SAFETY RELATED EQUIPMENT

Mechanical and Electrical Maintenance

EQUIPMENT	NATURE OF MAINTENANCE	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
		MAIN STEAM, REHEAT TURB BYPASS STEAM			
VALVE 13MS167	Corrective OD-2868		Relay Needed Resetting	Indication of Valve Position Not Shown on 1PR4	Reset Relay (Put in Operate Mode)
STM GEN STABILIZER	Corrective SS-205		Unions Need Tightening	Oil Leakage	Tightened Unions on Oil Lines
VALVES 14MS137 13MS144 13MS177	Corrective SU-485		Removing Test Conn.	Returning Valves to Drawing Configuration	Test Connections Removed & Caps Installed on Valves
VALVE 1MS909	Corrective SU-488		Improper Tag	Possible Misapplication of Valve	Improper Tag Removed & Proper Tag Installed
VALVE 14MS167	Corrective OD-3945		Solenoid Burned Out	Valve Will Not Function	Replaced Solenoid
MAIN STM SLIDE SUPPORT	Corrective SU-480		Improper Installation	Improper Fitup	Installed Washers as Necessary
VALVE 14MS167	Corrective OD-4062		Seat Needs Lapping	Valve Leaking	Lapped Seat & Disc - Reassembled Valve
VALVE 11MS28	Corrective PD-1641		Limit Arm Out of Adjustment	Valve Won't Operate Properly	Readjusted Limit Arm
		MAIN TURBINE & AUX.			
STOP VALVES #11,12, 13, & 14MS167	Preventative SU-0143		No Sight Glass in Hydrolic Reservoir	Cannot Visually Check Hydrolic Fluid	Glass Windows Installed

SAFETY RELATED EQUIPMENT

Mechanical and Electrical Maintenance

EQUIPMENT	NATURE OF MAINTENANCE	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
		RADIATION MONITORING SYSTEM			
AIR SAMPLE PUMPS	Corrective PD-1473		No Spare Pumps	Reassemble (2) Vacuum Pumps	One was Reassembled on the Other
1VC7 - 1VC14	Preventative MD-0834		Design Change as per AP8ED0008	Valve Change	Replaced Existing Valves with Copes-Valcan Valves
1VC7 - 1VC14	Preventative MD-0836		Tech - Spec Surveillance	Check For Leaks	All Valves Tested Satisfactorily
13 FCV	Preventative MD-0703		Incorporate ECN C-16829	Design Change	Installed 3/4" Cement Lined Pipe From Valves as Directed
SAMPLE PUMP MOTOR	Corrective PD-1851		Wiring Error	Motor Malfunction	Wiring Corrected
SAMPLE PUMP	Corrective PD-1779		Pump Breakdown	Pump Inoperative	Rebuilt Pump
MONITOR RA3909	Preventative MD-0661		Design Change	Execution of IAW ECN M-7683	Relocation of 13SW243
ANNUNCIATOR PANEL 104	Corrective PD-1809		High Pressure Alarm Malfunction	It Will Not Reset	Replaced Panalarm Model ACS-82
		EMERGENCY DIESEL & AUXILIARIES			
NO. 1B DIESEL GOV'N BOOSTER (LINKAGE)	Corrective SU-203		Malfunctioning Throttle Linkage	Improper Operation of Governor	Lubricated Throttle Linkage

SAFETY RELATED EQUIPMENT

Mechanical and Electrical Maintenance

EQUIPMENT	NATURE OF MAINTENANCE	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
		EMERGENCY DIESEL & AUXILIARIES			
No. 11B DIESEL STARTING AIR COMP	Corrective OD-2229		Valve to Press Device Shut	Prevention of Shut-down of Compressor	Valve Open
No. 11 TURBO BOOST AIR COMPRESSOR	Corrective OD-2676		Dirty Intake & Exhaust Valves	Compressor Will Not Load	Valves Cleaned, Lapped & Reinstalled With New Gaskets
No. 11 TURBO BOOST AIR COMPRESSOR	Corrective MD-0167		Faulty Gasket	Air Leaks at Discharge Flange	Replaced Gasket
No. 1A DIESEL FREQ TRANSDUCERS	Corrective SU-233		Polarity Reversed on Outputs A,B,C	Frequency Ind. Reversal	Reversed Polarity to Correct Arrangement
No. 1A DIESEL GEN JACKET WTR HEATER	Corrective MD-0621		Old Heater Burnt Out	Heater Not Operational	New Heater Installed & Tested OK
No. 1A DIESEL GEN JACKET WTR HEATER & PRELUBE PUMP	Corrective OD-2762		Jacket Wtr Heater Leak Into Pre Lube Oil Pump Elect. Box	Shock Hazard	Replaced Jacket Water Heaters Motor Repaired & Grounded
No. 1B DIESEL GEN ENGINE	Corrective OD-3719		Loose Valve Rocker Box	Leaking Around Gasket	Cleaned Gasket Surface & Tightened Valve Cover
No. 1B DIESEL GEN JACKET WATER	Corrective OD-2223		Various Cooling Water Leaks	Loss of Jacket Cooling Water	Replaced Gaskets
No. 1B DIESEL GEN CRANKCASE EXHAUSTERS	Corrective OD-2560		Solenoid Valves Hanging Up	Poor Starting Time (Out of Spec)	Valves Cleared of Mag. Rust Particles & Tested OK
No. 1B DIESEL GEN LUBE OIL SYSTEM	Corrective OD-3681		Faulty Pipe Nipple	Lube Oil Leak	Replaced Nipple & Resealed Threaded Fittings
No. 1A,1B,1C DIESEL GENERATORS	MD-0190				ECN C-16169, 16170, and 16171 Rev. 1

SAFETY RELATED EQUIPMENT

Mechanical and Electrical Maintenance

EQUIPMENT	NATURE OF MAINTENANCE	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
		EMERGENCY DIESEL & AUXILIARIES			
o. 1A & 1C DIESEL ACKET WTR HEATERS	Corrective MD-0656		Jacket Water Leak	Loss of Jacket Cooling Water	Cleaned & Retaped Threads on Heater Connections
o. 1C DIESEL TURBO OOST AIR SYSTEM	Corrective SU-0081		Bad Fittings	Failure of Pressure Test DR #0735	Replaced Fittings
o. 1C DIESEL AIR TART SYS VALVES	Corrective SU-0079		Malfunctioning Valves	Failure of Pressure Test DR #SS0997	Replaced Valves
ONTROL BEZEL 1B	Corrective OD-2371		Bulbs Burnt Out	Could Not See Lights	Replaced Burnt Out Bulbs
MERG DIESEL GEN TARTING AIR	MD-0569			Replaced Diesel Starting Air Shuttle Valve & Retested	ECN M-15290
TARTING AIR SYS ALVE 12DA6A	Corrective SU-0214		Fouled Internals	Leaking	Cleaned Deposits From Inside & Tested OK
MERG DIESEL GEN TARTING AIR COMP	MD-704			Wired Control Circuits & Tested on all Start Air Comp	ECN C-16364
o. 11B STARTING AIR OMPRESSOR	Corrective PD-1189		Pressure Switch PD6477 Malfunction	Starting Air Comp. Did Not Cut Out	Changed Pressure Switch & Calibrated as per M3I
o. 1A DIESEL WATER EATER DEVICES	Corrective OD-2884		Temperature Device Out of Calibration	Contactor Does Not Pick Up	Recalibrated Devices 7333, 7343, 6463, & 6464

SAFETY RELATED EQUIPMENT

Mechanical and Electrical Maintenance

EQUIPMENT	NATURE OF MAINTENANCE	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
		EMERGENCY DIESELS & AUXILIARIES			
No. 1C DIESEL ENGINE	Corrective SU-232		Sticking Throttle Linkage	Starting Time Over 10 Sec.	Lubricated Throttle Linkage & Tested OK
No. 1A DIESEL ENGINE	Corrective OD-3810		No. 5L Cylinder Fuel Linkage Locked Out	Cylinder Not Firing	Corrected Problem & Tested OK
No. 1B DIESEL ENGINE JACKET WTR HEATER CKT	Corrective OD-3590		Malfunctioning Temperature Control	Trouble Alarm For System Operation	Recalibrated Temp Control Device & Installed
No. 1C DIESEL ENGINE LUBE OIL HTR	Corrective OD-2465		Defective Temp Device	Lube Oil Heater Failure Alarm	Recalibrated TD-7319 & Installed New Temp Device
CRANKCASE H.P. IND & ALARM	Corrective SU-339		Defective Press Device	Malfunction	Replaced & Recalibrated Press. Device
		SAMPLING SYSTEM			
MISC VALVES	Corrective su-130		Bad Seal In Vlvs	Failed Leak Test	Disassembled, Lapped, & Reassembled
		REACTOR COOLANT PRESS & RELIEF			
13 STM GEN	Corrective OD-2837		Union Leaking	Oil Loss	Repaired Coupling & Reassembled
14 STM GEN	Corrective MD-0291		Design Change	Removal Insul. Pad & Drill (4) Fixture Positioning Holes	Work Done as per Westinghouse Instructions
14 STM GEN	Corrective MD-0280		Inspection	Internals Satisfactory	Opened Up #14 Stm Gen for Westinghouse Inspection

SAFETY RELATED EQUIPMENT

Mechanical and Electrical Maintenance

EQUIPMENT	NATURE OF MAINTENANCE	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
		REACTOR COOLANT PRESS & RELIEF			
INCORE INST.	Corrective MD-0427		Cleaning & Installation of Drive Unit Boxes & Thimbles Not Complete	Parts Cleaned Thimbles Installed	Work Was Completed
REACTOR INTERNALS	Corrective MD-0284		Improper Manufacturing	Clevis Insert Bolt Holes Do Not Line Up With Holes in Reactor Vessel Clevis	Clevis Insert Remachined to Fit
#11 RCP SEALS	Corrective OD-3350		Seal Not Seated	3rd Seal Leaking	Pump Operated to Seat Seal
#11 RCP BEARING COOLER	Corrective SU-417		Improper Solder Job	Leaking Joint	Repaired By Resoldering
#11 RCP LOWER BEARING	Corrective SU-415		Union Leaking	Loss of Water Thru Union	Made Repairs to Union Seating Surface
PRZ	Corrective MD-807		Weld Test	Weld Tested Satisfactory	Weld Was Tested, and Inspected
1 SEAL RETURN LINE	Corrective OD-2870		Loose Flange Bolts	Leak On Seal Return Line	Tightened Flange Bolts
11 RCP FLEX LINES	Corrective MD-0802		Improper Installation	Possible Failure	Lines Relocated as per Engineering Drawing
IPE SPOOL 1RC75	Corrective QA-0006		Improper Installation	Possible Defect	Ground Out Arc Strike on Spool Piece

SAFETY RELATED EQUIPMENT

Mechanical and Electrical Maintenance

EQUIPMENT	NATURE OF MAINTENANCE	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
		REACTOR COOLANT PRESS & RELIEF			
1PS4 REMOTE OPERATOR	Corrective OD-2539		Travel of Valve May Be Wrong	Travel of Valve Was According to Specs	Checked Travel With Specs
PRESSURIZER	Corrective MD-0184		Inspection	Manway Opened & Closed After Inspection	New Gasket Installed and Manway Closed Up
TM GEN & PRESSURIZER	Corrective MD-0281		Inspection	Manways Opened & Closed After Inspection	New Gaskets Installed and Manways Closed Up
PRESSURIZER HEATER	Corrective OD-3886		Faulty Breaker	Pressurizer Heater Will Not Operate	Installed New Breaker
#11 & #14 RCP MOTORS	Corrective SU-406		Improper Location of Flex Hoses	Possible Failure Due to Chafing	Relocated Hoses as per Engineering Dwg.
#11 RCP OIL COOLER	Corrective MD-0764		Valve Leaking Due to Poor Seat	Vent Valve Leaking	Lapped In Valve
#14 RCP	Corrective SU-416		Unions Not Made Up Properly	Leakage of Water	Took Unions Apart, Cleaned & Reassembled
1PR5	Corrective MD-0179		Improper Assemble	Valve Assembled Without Washer	Installed Missing SS Washer on Stud
LVS 1PR6 & 1PR7	Corrective SU-0164		Faulty Motor on 1PR6	Operation of Valves Slow	Rewound Motor on 1PR6
LVS PR3 & PS1	Corrective MD-0286		Possible Under-Torque of Valve	Possible Leakage	Retorqued Valves as per Specs

SAFETY RELATED EQUIPMENT

Mechanical and Electrical Maintenance

EQUIPMENT	NATURE OF MAINTENANCE	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
		REACTOR COOLANT PRESS & RELIEF			
VALVE 1PS3	Corrective PD-1663		Plug Jammed	Valve Did Not Operate	Rebuilt Valve
VLVS 11RC9, 11RC11	Corrective OD-8358		Valves Need Repacking	Packing Glands Leak	Repacked Valves
VALVE 1PR25	Corrective SU-0137		Valve Does Not Close Tight	Will Not Pass Leak Test	Reseated & Lapped Valve - Passed Leak Test
VLVS 1PR6 & 1PR7	Corrective MD-0595		Faulty Couplings on Leakoff Lines	Couplings Leak	Fabricated & Installed New Couplings
		SAFETY INJ.			
#12 ACCUMULATOR VENT VALVE 12SJ28	Corrective OD-2919		Faulty Valve	Leaky Valve	New Replacement Valve FA-15
#13 ACCUMULATOR VLVS 13SJ22,24,171 172,320	Corrective OD-3612		Faulty Valve	Leaky Valve	Replaced Valves
VALVE 1SJ67	Corrective SU-195		Malfunctioning Position Ind.	No Indication of Valve Status	Rewired & Energized
VALVE 11SS54	Corrective OD-2295		Malfunctioning Position Ind.	No Indication of Valve Status	Rewired & Engergized
VALVE 12SJ33	Corrective SU-171		Water in Motor Operator	Motor Would Not Operate Valve	Rewound Motor So It Will Operate Valve
VALVE 1SJ1	Preventative SU-224		Motor Operator Burnt Out	Break Power Feed to Operator	Power Leads Lifted & Marked

SAFETY RELATED EQUIPMENT

Mechanical and Electrical Maintenance

EQUIPMENT	NATURE OF MAINTENANCE	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
			SAFETY INJ.		
#12 SI PUMP LUBE OIL COOLER	Corrective MD-1120		Fouled By Grass in Head	Inspection	Removed Head & Cleaned - Installed New Gasket
#11 SI PUMP LUBE OIL COOLER	Preventative MD-1163		Fouled By Grass in Head	Inspection	Removed Head & Cleaned Out Grass
#12 SI PUMP	Corrective MD-632		Misalignment & Out of Balance	Excessive Vibration Out of Spec.	Sent Pump to Mfg. for Repair Replace with No. 2 Unit
#12 SI PUMP	Preventative MD-811				Modification of Baseplate
BIT HEATERS	Corrective OD-2209		Wiring Error	Does Not Operate	Rewired Heater at Tank
SAFETY INJECTION	MD-543				Install Power Lockout For ECCS Valves (ECN E-1672 Rev 2)
VALVE 1SJ30	Corrective OD-2408		Defective Oper. Motor	Will Not Operate Remotely	Removed Defective Motor - Installed Rewound Motor
VALVE 1SJ1	Corrective SU-231		Defective Oper. Motor & Water in Clutch Assembly	Will Not Stop Running or Drive Valve	New Motor Installed - Readjusted Clutch Assembly
VALVE 11SJ54	Corrective OD-2821		Rotted Packing	Packing Gland Leak	Removed Old Packing & Repacked - Also Changed Nuts
VALVES 1SJ1 & 2	Corrective OD-4243		Faulty Motor Operators	Breakers Tripping Out	Replaced Motors & Retested
VALVES 11 & 12SJ44	Corrective OD-2420		Dirty - Bad Gaskets	Leaking into Cont Sump	Disassembled, Cleaned, & Reassembled with New Gaskets

SAFETY RELATED EQUIPMENT

Mechanical and Electrical Maintenance

EQUIPMENT	NATURE OF MAINTENANCE	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
			SAFETY INJ.		
#14 ACCUMULATOR LEVEL TRANSMITTER	Corrective PD-1029		Faulty Level Transmitter	Replacement Needed	Removed Old Capillary Tubes & Ballasts & Put In New as per PCS
#12 SI 4KV BREAKER	Corrective OD-2440		Damaged Shutter & Rod Elevator	Breaker Cannot Be Pulled Out From Bus	Replaced Shutter Mech. & Elevating Mech. Rod
VALVE 12SJ49	Corrective SU-149		Incomplete Circuit	Valve Inoperable from Remote	Installed Relay & Reloaded Coil of Contactor
ISOLATION VALVES HEAT TRACING	Preventative MD-825		Insufficient Heat Tracing	Refer Memo E-403 & AP8	Installed Additional H.T.
			SERVICE WATER NUCLEAR AREA		
#12 SW STRAINER	Corrective OD-3537		Diff. Device Needs Calibration & Cleanup	Strainer Runs Continuously	Cleaned and Recalibrated Diff. Device PD286
#12 SW AUTO STRAINER	Corrective MD-1209		Strainer Jammed	Shear Key Broken	Replaced Shear Key
#14 AUTO STRAINER	Corrective MD-0889		Strainer Jammed	Shear Key Broken	Replaced Shear Key & Thrust Brg.
#15 SW BREAKER	Corrective OD-2577		Closing Coil Failure	Breaker Trips	Replaced Closing Coil
#16 SW PUMP AUTO STRAINER	Corrective OD-4099		Strainer Jammed	Shear Key Broken	Replace Shear Key & Buildup Shoes
SW PUMP MOTORS	Corrective MD-1118		Modification IAW AP8 ED0027	To Improve Operation	Replaced Motors With Modified Ones

SAFETY RELATED EQUIPMENT

Mechanical and Electrical Maintenance

EQUIPMENT	NATURE OF MAINTENANCE	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
		SERVICE WATER NUCLEAR AREA			
12 SW 4KV BREAKER	Corrective OD-3563		Failure of Closing Relay, Closing Coil, & Close Latch Monitor Switch	Pump Does Not Operate	Replaced Defective Parts
12 SW PUMP	Corrective OD-3644		Level Device Not Connected	Pump Runs Continuously	Reattached Displacer to Level Device
13 SW PUMP MOTOR	Corrective MD-0641		Tubes of Bearing Cooler Plugged With Silt	Bearing Cooler Needs Cleaning	Clean Out Cooler
14 SW PUMP	Corrective OD-2255		Control Power Deion Failed	Pump Will Not Operate	Replaced Control Power Deion
15 SW PUMP	Corrective OD-2535		Defective Closing Relay & Closing Coil	Pump Will Not Operate	Replaced Defective Closing Relay & Breaker Closing Coil
15 SW PUMP	Corrective OD-2547		Improper Adjustment	Pump Will Not Operate	Adjusted 52HL Switch
16 SW PUMP	Corrective OD-2511		SMLS Jammed	Pump Will Not Run	Repaired Jammed SMLS
16 SW PUMP	Corrective OD-3472		Motor Grounded	Motor Trips	Replaced Motor
5 SW PUMP	Corrective OD-2737		Loose Tube Tension Assembly	Excessive Leakoff of Coolant	Tightened Tube Tension Assembly

SAFETY RELATED EQUIPMENT

Mechanical and Electrical Maintenance

EQUIPMENT	NATURE OF MAINTENANCE	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
		SERVICE WATER NUCLEAR AREA			
VALVE 12SW127	Corrective OD-2392		Roll Pin Wrong Size	Excessive Play in Operator	Installed New Roll Pin in Operator
SW49 PIPING	Corrective MD-1056		Revision of Piping	Piping Held By New Hanger	Installed New Hanger as per Instructions
#15 SW PUMP	Corrective MD-1110		Improper Installation	Expansion Joint Distorted	Replaced Expansion Joint
STRAINER BACKWASH LINES	Corrective MD-1121		Reinstall Orifices	System Returned to Normal	Reinstalled Orifices With New Gaskets
SW PUMPS	Corrective OD-2101		Vents Not High Enough	Spill on Startup	Extended Vents
SW PUMPS	Corrective MD-0651		Install Orifices	Restrict Flow	Installed Orifices
#11 & #12 CHILLER COND WTR RECIRC PMP	Corrective MD-1089		Coupling Worn	Possible Failure	Replaced Flexible Coupling
#11 SW PUMP	Corrective MD-0893		Faulty #11 SW Pump	Switch With #21	Replaced #11 With #21 SW Pump
#12 SW PUMP	Corrective MD-0890		Pump Malfunction	Switch With #22	Replaced #12 With #22
#12 SW PUMP 4KV BREAKER	Corrective OD-3490		Motor Malfunction	Springs Didn't Change When Breaker Tripped	Changed Motor and Adj. Latch

SAFETY RELATED EQUIPMENT

Mechanical and Electrical Maintenance

EQUIPMENT	NATURE OF MAINTENANCE	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
		SERVICE WATER NUCLEAR AREA			
#12 SW PUMP	Corrective MD-1107		Expansion Joint Malfunction	Pump Failure	Replaced Expansion Joint
#13 SW PUMP	Corrective MD-0815		Pump Malfunction	Switch With #23	Replaced #13 With #23
#13 SW PUMP	Preventative OD-2549		Signs of Malfunction	Starting to Show Wear	Will Be Replaced By The One on Unit #2 Side
#13 PUMP SCREEN DRIVE	Corrective OD-3442		Screen Will Not Work In Auto	Screen Returns to Inch Position	Replaced Device PD2733
#14 SW PUMP #15 SW PUMP	Corrective MD-0832		Pumps Rusted Out	Switch with 24 & 25	Replaced 14 & 15 with 24 & 25 Respectfully
#16 SW PUMP	Corrective MD-0816		Pumps Rusted Out	Switch with #26	Replaced 16 with 26
#16 SW PUMP	Corrective OD-3349		Shaft Vibrating	Excess Noise in Motor	Pump Will Be Replaced with One From Unit #2 Side
#16 SW PUMP	Corrective OD-2624		Packing Seal Blown	Leak	Repaired Seal and Leak as per ECN M-7232 Rev. 1
#16 SW PUMP	Corrective MD-0335		Broken Seal	Leak	Replaced Packing Ring Underlock Nut Tube Assembly
#16 SW PUMP	Corrective OD-3691		Broken Expansion Joint	Leak	Replaced Expansion Joint
#16 SW PUMP	Corrective MD-1191		No Bell Ring	Bell Ring Must Be Installed	Installed Suction Bell Ring

SAFETY RELATED EQUIPMENT

Mechanical and Electrical Maintenance

EQUIPMENT	NATURE OF MAINTENANCE	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
		SERVICE WATER NUCLEAR AREA			
#15 TRAVEL SCREEN	Corrective OD-3513		Device Out Of Calibration	Screen Press Switch N.G.	Recalibrate per M3I
#11 SW STRAINER	Corrective OD-2162		Repack Needed	Inspection Made	Repacking Done After Inspection
STRAINER	Corrective MD-1102		Orifices Should Be Removed	Orifices Will Be Removed	Orifices Removed and Flex Gaskets Installed
#14 & #15 SW STRAINER	Corrective 14-OD-2516 15-OD-2862		Broken Shear Pin	Failure	Installed New Shear Pin Key
#15 SW STRAINER	Corrective OD-4343		Breaker Won't Close	It Won't Get Any Juice	Repaired Bent Interlock
#16 SW STRAINER	Corrective OD-3805		Broken Shear Key	Failure	Replace Shear Pin Key
NO. 1 EAC	Corrective MD-1148		Intercooler Tube	Inspection	Tubes In Good Condition
#12 CHG PUMP	Preventative MD-1161		Inspection	Cooler Lubes OK	Removed Grass
VALVE 12SW21	Corrective D-3661		Sheared Shaft	Failure	Reinstalled Gear On Stem
12SW23	Corrective OD-3345		Valve Position Hitting Insulation	Broken	Removed Insulation
13SW223	Corrective OD-2784		Gasket Malfunction	Blew Out	Repaired

SAFETY RELATED EQUIPMENT

Mechanical and Electrical Maintenance

EQUIPMENT	NATURE OF MAINTENANCE	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
		SERVICE WATER NUCLEAR AREA			
11SW222	Corrective OD-3371		Valve Stem Malfunction	Broken Valve	Replaced
#13 CONT FAN COOLER	Corrective OD-3417		Gasket Malfunction	Blown Gasket	Replaced
15SW223	Corrective PD-1588		Valve Malfunction	Jammed Closed	Replaced Valve
15SW69	Corrective PD-1589		Valve Malfunction	Stem Won't Turn	Repaired
12SW50	Corrective OD-3344		Position Ind. Missing	No Indication	Pointer Installed
CONTROL VALVES SW 72's	Preventative SU-0172		Needs New Liners	Inspection	New Liners Installed
12SW23 & 12SW22	Corrective 23-OD-3686 22-OD-3685		Mech. Operator Malfunction	Won't Work	New One Installed
11SW23	Corrective OD-3748		Manual Operator Failure	Valve Won't Open	Installed New Gear and Proper Gaskets
12SW22	Corrective OD-3801		Valve Works Only Electrically	Valve Does Not Work Manually	Valve Operator Fixed & Installed - Added New Grease Fitting
12SW49	Corrective PD-1656		Inspection	Fixed Some Valves	Replaced Teflon Seat, Installed Valve

SAFETY RELATED EQUIPMENT

Mechanical and Electrical Maintenance

EQUIPMENT	NATURE OF MAINTENANCE	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
		SERVICE WATER NUCLEAR AREA			
13SW223	Corrective OD-2472		Gasket Failure	Blown Gasket	Gasket Replaced
11 & 12SW48 VALVE	Preventative MD-1064		Switch	Design Change	11 & 12SW48 Valves Switched with 21 & 22SW48 Valves
FC-1-31 FLEX COUPLING	Corrective MD-0623		Misplaced Control Rod	Control Rod Missing	Replace Control Rod as per ECN M-7684
		SERVICE WATER TURBINE AREA			
No. 11 CHG. SUMP LUBE OIL COOLER	Corrective MD-1143		Grass in Tubes of Cooler	Inspection	Replaced Pipe Eng Plugs & Cleaned Out Tubes
		STRUCTURAL (CONTAINMENT)			
ACCESS HATCH E1.100	Corrective OD-2604		Misaligned Door	Door Leaks	Aligned Door & Connected Inner Door Leakage
PERSONNEL HATCHES	Corrective PD-1269		Hatch Door Gaskets Failure	Door Leaks	Door Gaskets Reversed, and Adjusted Doors
CONTAIN EQUIP HATCH DOOR	Corrective MD-572		Hatch Door Gaskets Failure	Door Leaks	Replaced all the Gaskets
LOCK DEVICE PERSONNEL HATCH	Corrective MD-0785		Door Broken	Does Not Open Properly	Installed Bearing
EL. 100 AIR LOCK	Corrective OD-3385		Door Does Not Lock Properly	Door Leaks	Adj. Door Closing Chain
EL. 130 AIR LOCK	Corrective OD-3385		Door Wheel Spins Too Freely	Dangerous	Adj. Door Closing Lock

SAFETY RELATED EQUIPMENT

Mechanical and Electrical Maintenance

EQUIPMENT	NATURE OF MAINTENANCE	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
		STRUCTURAL (CONTAINMENT)			
EL. 130 AIR LOCK	Corrective OD-3005		Malfunctioning Gasket	Gasket Blowout of Groove when Opening Door	Cleaned Gasket and Replaced Gasket
100' CONTAINMENT DOOR	Corrective MD-0933		Broken Roller	Door Malfunction	Replaced Roller
CONTAINMENT PLATFORM	Preventative MD-1119		Design Change	AP8-ED0018	New CRDM Vent Fan & Parts
PERSONNEL HATCH	Corrective OD-3936		Bad Gasket	Door Leak	New Gasket Reinstalled and Tested
100' & 130' INNER AIRLOCK DOOR	Corrective OD-4074 OD-4063		Latch Malfunction	Leaky Door	Adj. Lock Strike Bar - Tested OK
PERSONNEL HATCH	Corrective MD-1223		Door Out of Adjustment	Leaking Door	Door Adj. and New Set Screw & Bolts Installed
		VENTILATION AUX BLDG EQUIPMENT			
No. 11 AUX BLDG EXHAUST FAN	Corrective MD-915		Adjusting Snap Rings Came Loose	Coupling Adjusted Past Stops	Pully Repaired & Reinstalled
No. 12 AUX BLDG EXHAUST FAN	Corrective OD-0919		Bad Outboard Bearing	Excessive Noise	Replaced Outboard Bearing
CHARCOAL FILTERS	Corrective MD-797		Paint on Filter Unit Boxes	Filters Need Changing	Replaced Filters
No. 11 FILTER UNIT	Corrective OD-2558		Temporary Filter & Debris in Unit	RF Filters Has High Diff Press Across Them	Replaced Filters & Vacuumed Out

SAFETY RELATED EQUIPMENT

Mechanical and Electrical Maintenance

EQUIPMENT	NATURE OF MAINTENANCE	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
		VENTILATION AUX BLDG EQUIPMENT			
No. 11 & 12 SUPPLY BLOWERS	Preventative MD-326		Equipment Deficiency	Grease Fittings Not Installed	Installed Grease Fittings
LOUVER COVER PLATE	Corrective MD-456		Equipment Problem	Relief Doors Blocking Back Draft Dampers	Removed Doors
		VENTILATION - AUX BLDG, PENETRATION, (CONTROL AREA) & SWITCH GEAR RM			
No. 11 AUX BLDG EXHAUST FAN	Corrective MD-892		Cracked Adj Nut	Cannot Adjust	Replaced Adjusting Nut
No. 11 AUX BLDG EXHAUST FAN	Corrective OD-2693		Belts Loose	Contact Ground	Replaced Belts
No. 11 EXHAUSTER HEPA FILTERS ALL	Corrective SU-422		Replacement Needed	Replacement Required	Replacement Made
No. 11,12,13 EXH FILTERS	Corrective SU-356		Replacement Needed	Replacement Required	Replacement Made
SUPPLY & EXHAUST BLOWER MOTOR SHEAVE	Corrective MD-766		Replacement Needed	Replacement Required	Replacement Made
No. 13 ROLL-O-MATIC FILTER	Corrective SU-271		Scaffold Placed Up Against Roll	Would Not Permit Roll to Roll	Removed Scaffold
DAMPER IND	MD-201	ECN C-16233			Changed 2 Amp Breaker to 5 Amp Breaker
CONTROL AREA SUPPLY FAN DAMPERS	Corrective OD-2488		Limit Switches Not Operating	No Start Lights - No Stop Lights	Adjustment of Limit Switches

SAFETY RELATED EQUIPMENT

Mechanical and Electrical Maintenance

EQUIPMENT	NATURE OF MAINTENANCE	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
		VENTILATION - DIESEL & FUEL HANDLING BLDG			
No. 11 FUEL HANDLING BLDG EXH FAN	Corrective OD-2484		Loose Fan Belt Cover	Sounds Like Loose Fan Belt	Belt Cover Tightened
No. 11 & 12 EXH FILTERS	Corrective SU-423		Damaged	Need Replacing	Replaced FHB Exhaust HEPA Filters
No. 12 FHB EXH FAN	Corrective OD-4143		Drive Belts Shot	Belts Came Loose & Tore Up	Replaced with New Belts
No. 12 FHB EXH FAN	Corrective OD-3824		Low Setpoint on Trip	Causes Trip on Overload	Reset Overload Trip Point to Higher Amp
		VENTILATION REACTOR CONTAINMENT			
FILTER	Preventative MD-1169		Design Change	AP8-ED0045	Filter Installation
15 FAN COOLER	Corrective OD-2519		Stripped Nut	Unable to Position Vanes	Welded Nut
11 FCU MOTOR COOLER	Corrective OD-3689		Missing Bonnet Nut	Leak	Replaced Bonnet Nut
11,12,13,14, & 15 FCU's	Preventative MD-1044 MD-1045 MD-0923 MD-1046 MD-0922		Design Change	AP8-ED0019	Replace Flexible Hose with Piping
11,12,13,15 FCU's	Corrective MD-0392		High Vibration	Investigation	Balance Fans

SAFETY RELATED EQUIPMENT

Mechanical and Electrical Maintenance

EQUIPMENT	NATURE OF MAINTENANCE	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
		VENTILATION REACTOR CONTAINMENT			
PLUG	Corrective MD-0591		Modification	ECN M-18440	Installed by UE&C Piping
PEDISAL	Corrective MD-0539		Weld Failure	Memo PSE-245	Weld Repaired
CONT VENT	Corrective MD-0457		Investigation	Holes in Vent	Repaired Holes
14 CONT FAN COOLER	Corrective OD-3809		Motor Malfunction	Trips Out	Adjusted Dampers
14 FCU MOTOR COOLING UNIT	Corrective OD-3443		Gasket Blown	Leak	Replaced Gaskets
13 & 14 FCU	Preventative MD-0277		Motors Disconnected	Motor Sent Out For Repair	Motors Reinstalled & Checked
15 FCU	Corrective OD-2079		Fan Problem	Trips Out	Sent to Westinghouse and Sent Back
15 FCU	Corrective OD-2940		Ruptured Line	Leak of SW	Installed Flex Connections from No. 2 Side
15 FCU	Corrective OD-2931		Diaphragm Malfunction	Leak	Replaced Diaphragm and O Rings
15 FCU	Corrective MD-0186		Oversized Keys	Needs Replacing	Replaced Keys & Tested

SAFETY RELATED EQUIPMENT

Mechanical and Electrical Maintenance

EQUIPMENT	NATURE OF MAINTENANCE	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
		VENTILATION CONTAINMENT			
CONT HVAC 47	Corrective MD-0515		Switch Needs New Setting	Set New Setpoint	Switch Recalibrated
15 FCU	Corrective MD-0278		Motor Switched (#12)	Old One Set Out	Replaced Motor with #22
#14 FAN	Corrective MD-0419		Bad Bearings	Fan Vibrations	Bearings Replaced and Balanced Fan
VC1 & VC4	Corrective OD-2721		Defective Bulb	Trip	Replaced Light Bulb
1VC1 to 1VC6	Corrective MD-0635		Valves Tested	Defective Valves	Switch with Unit #2 Valves
ISOLATION VLV 1VC4	Corrective OD-2384		Valve Won't Close	Valve Stays Open	Replaced Entire Valve From Unit #1
1VC5 & 6	Corrective MD-0707		Design Change	ECN M-7729	Change Flange
#2 VC VALVE	Corrective MD-1066		Flange Needs Slip	Too Large Safety Cage	Cut Down Safety Flange and Reinstalled
		WASTE DISPOSAL GAS			
#12 WASTE GAS COMP	Corrective SU-240		Possible Blockage	System Operation in Question	Removed Check Valve - Checked for Debris & Proper Flow - Reassembled
VALVE 1NT24	Corrective PD-1491		Rust & Foreign Matter on Seat	Valve Leaks Thru	Disassembled Valve, Cleaned and Reassembled

SAFETY RELATED EQUIPMENT

Mechanical and Electrical Maintenance

EQUIPMENT	NATURE OF MAINTENANCE	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
			WASTE DISPOSAL GAS		
VALVE 1WG66	Corrective OD-4056		BA Evaporator Not Venting Properly	Operation of Evaporator not as Spec States	Removed Bonnet of 1WG66 to Vent Gas, Made Repairs to Valve 1WG70 to Correct Problem
VALVE 1WG6	Corrective OD-2718		Plastic in Line	Flow thru Valve Restricted	Disassembled Valve & Removed Piece of Plastic - Reassembled Valve
VLVS 1NT25 & 26	Corrective SU-0140		Leakage Between Seat & Disc	Valves Will Not Pass Leak Test	Relapped Seats on Both Valves
VALVE 12WG24	Corrective SU-262		Possible Improper Setting	Valve Lifts at Wrong Pressure	Removed Valve & Bench Tested Valve Lifted Within Specs
VALVE 1WG70	Corrective SU-280		Spring Tension on Check too High	Will Not Allow Passage of Gas at	Made Adjustment to Spring to Allow Proper Operation
			WASTE DISPOSAL LIQUID		
No. 1 SPENT RESIN STORAGE TANK	Corrective SU-228		Malfunctioning Strainers		Strainers Replaced & Welded in Place
			4KV VITAL		
IN FEED BREAKERS	Corrective MD-0272		Improper Design	Certain Buses Do Not Auto Switch in Blackout if Certain Events Occur	System Redesigned & Changed to Allow Auto Switching to Diesel Power Source with Loss of Voltage

SAFETY RELATED EQUIPMENT

Mechanical and Electrical Maintenance

EQUIPMENT	NATURE OF MAINTENANCE	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
			4KV VITAL		
12ASD 4KV BKR	Corrective OD-3423		Faulty Relay	Breaker Will Not Close	Replaced Faulty Relay
SS1143 & SS1144 4KV BKR	Corrective SU-402		Faulty Closing Spring Bearings	Breaker Will Not Operate Correctly	Replaced Faulty Closing Spring Bearings
			125 VDC		
1B 125V BATTERY GRD	Corrective OD-2855		Ground in System	Ground Shown On Ground Detector	When Investigation Was Made Ground Had Been Cleared
1C2 125V BATT CHG	Corrective OD-3619		Float Adjustment Not Correct	Charger Not Working	Reset Float Adjustment
#30 BREAKER IN 1CCDC	Corrective OD-2558		Ground in System	Ground Shown on Ground Detector	Meggered Out Breaker Found No Ground
#16 & #18 BREAKERS IN 1BDC	Corrective OD-2215		Ground in System	Ground Shown on Ground Detector	Meggered Out Found No Ground
#18 BREAKER IN 1BDC	Corrective OD-2479		Ground in System	Ground Shown on Ground Detector	Found No Grounds
#28 BREAKER IN 1DDC	Corrective OD-2810		Ground in Valve 1SJ166	Ground Shown on Ground Detector	Repaired Valve - Ground Cleared
#30 BREAKER IN 1DCC	Corrective OD-3023		Ground in Snap Lock Switch	Ground Shown on Ground Detector	Dried Out Switch - Cleared Ground
1C BATT BUS	Corrective OD-2977		Wiring Faulty	Ground Shown on Ground Detector	Replaced Wires 1 & 5 in Cable 1UNT29PA-CT For Valve 1VC6

SAFETY RELATED EQUIPMENT

Mechanical and Electrical Maintenance

EQUIPMENT	NATURE OF MAINTENANCE	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
			125 VDC		
1C VITAL INST BUS INVERTER	Corrective OD-2141		Blown Fuses	Low Voltage Output	Replaced (2) 100 Amp Fuses - Tested Unit - Test Satisfactory
1C VITAL INST BUS INVERTER	Corrective OD-2113		Blown Fuses	Low Voltage Output	Replaced Blown Fuses - Tested Unit & Found It Operating Satisfactory
1C VITAL INST BUS INVERTER	Corrective MD-0207		Transistor Failure	Low Voltage Output	Charged Transistor - Checkout System
			VITAL INSTRU BUS		
1A,1B,1C VITAL INST BUS	Corrective OD-2726		Low Voltage Meters Out of Calibration	Voltage Out Of Spec 4.8.2.1	Increased Voltage on 1A,1B,1C Buses
1A & 1C VITAL INST BUS	Corrective OD-2645		Blown Fuses	Voltage Out of Spec	Replaced Fuses & Retested
			HEAT TRACING VITAL		
HEAT TRACE	Corrective MD-0592		Defective 3 RTDs	Must Be Replaced	Installed RTD's and Checked
V.M.T.	Corrective OD-3481		N.G. Ckt. 62	Must Be Replaced	Replaced Heat Trace
			SAFEGUARDS EQUIPMENT CONTROL		
No. 1A SEC CAB	Corrective OD-2593		Door Micro Switch Arm Missing	Causing Door Open Alarm in CR	Replaced Part Needed

SAFETY RELATED EQUIPMENT

Mechanical and Electrical Maintenance

EQUIPMENT	NATURE OF MAINTENANCE	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
		SAFEGUARDS	EQUIPMENT CONTROL		
TEST EQUIPMENT	MD-193				ECN C-16240
SEC CAB 1A,1B,1C	MD-352				ECN C-16338

SAFETY RELATED EQUIPMENT

Instrumentation and Control Equipment Maintenance

EQUIPMENT	NATURE OF MAINTENANCE	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
		AUXILIARY FEEDWATER			
AUX FEED WATER PUMPS	Preventative MD-0315		Faulty Logic In Control Circuit	Malfunction Of Equipment	Retest as per ECN C-16237
		BUILDING & EQUIPMENT DRAINS			
NO. 11 SCREEN WELL SUMP PUMP	Corrective OD-4066		Faulty Control Device (Level)	Pump Runs Continuously	Remounted Displacer on Level Device
SERVICE WATER SUMP PUMP NO. 1 BAY	Corrective OD-2689		Faulty Level Control Device	Pump Runs Continuously	Replace Adjustment Screw on Level Device
NO. 11 SCREEN WELL SUMP PUMP	Corrective OD-2377		Faulty Level Control Device	Pump Does Not Start	Adjusted Contacts on Level Device
SERVICE WATER SUMP PUMP NO. 1 BAY	Corrective OD-2743		Faulty Level Control Device	Pump Does Not Start	Cleaned Switch Which was Corroded
SERVICE WATER SUMP PUMP NO. 3 BAY	Corrective OD-2302		Faulty Level Control Device	Pump Does Not Start	Adjusted Level Device & Tested
		CHILLED WATER			
EX. TANK LEVEL	Preventative MD-561	Refer to: ECN C-16278	System Modification Needed	System Modification Done	Added Alarm as Per ECN C-16278
(PT3771 & PT3773) 11CH9 & 12CH9	Preventative PD-1466		System Modification Needed	System Modification Done	Welded Adaptors on Valves to Allow Placement of Instruments

Instrumentation and Control Equipment Maintenance

EQUIPMENT	NATURE OF MAINTENANCE	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
		RESIDUAL HEAT REMOVAL			
11RM29	Corrective SU-0178		Pushbutton Failure	Valve Will Not Work in Auto	Repaired and Adjusted Pushbutton on Console
		VENTILATION AUX BLDG EQUIPMENT			
PD-7540	Corrective MD-622		Improper Installation	Cannot Adjust Setpoints	Switch Replaced With a Panel 230 & Rewired
			115VAC		
1C VITAL INSTRU. INVERTER	Corrective OD-2901		Short Circuit	Fuses Opened	Replaced Components

EQUIPMENT	WORK ORDER NO.	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
PANEL 401-1 REDUNDANT AIR REGULATOR TO SU-165 & V-1CC149	PD-1285		Leaking Diaphram	Air Not Switching	Replaced Regulator
REACTOR PROTECTION CHANNEL 1LT-518	PD-1286			Functional Test Out of Spec	Recalibrated Trip Points for 1LC518A & 1LC518B
RADIATION MONITORING SYS 1RR3	PD-1316		Interaction Between Recorder and Alarms	Intermittent Alarms	Need Independant Power Supply Recommended
MAIN STEAM TRANSMITTER 1FT-523	PD-1322		Transmitter Malfunctioning	Extreme Zero Shift	Replaced Transmitter
SAFETY INJECTION - REFUELING WATER STORAGE TANK LEVEL	PD-1324		Level Device Out of Calibration	Incorrect Level	Calibrated LT-921 & LA-5905 IB
SAFETY INJECTION - REFUELING WATER STORAGE TANK LEVEL	PD-1325		Level Device Out of Calibration	Incorrect Level	Strapped 1LC-920C & Performed Loop Che
CONTAINMENT VENT VALVES VC1,2,3,4,5	PD-1329		Lack of QAF19 for Installed Vlvs	TDR-075	Replaced Valves
WASTE DISPOSAL - RMS ALARM LIGHT	PD-1330		N/A	N/A	Perform ECN 16363
FEED & CONDENSATE 12BF40 SU546	PD-1335		Solenoid Valve Not Seating Correctly	Valve Leaks Past Seat	Replaced Valve Internals
FEED & CONDENSATE 11BF40 SU548	PD-1336		Solenoid Valve Not Seating Correctly	Valve Leaks Past Seat	Replaced Valve Internals
NUCLEAR INSTRUMENTATION N31 SOURCE RANGE	PD-1343		Connector in Penetration Bad	Failure of Channel	Wrote DR-0224
12 STM GENERATOR STM FLOW TRANSMITTER FT-522	PD-1345		Transmitter Malfunctioning	Excessive Zero Shift	Replaced Transmitter & Recalibrated

EQUIPMENT	WORK ORDER NO.	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
REACTOR PROTECTION FT-532	PD-1348		Comparator 1FC530A-B Malfunctioning	Functional Check Out of Spec	Replaced Comparator & Performed 1PD2.2.048 & 1PD2.6.048
NUCLEAR INSTRUMENTATION NR45 RECORDER	PD-1352		Balancing Motor Malfunctioning	Pen is Binding	Replaced Balancing Motor
REACTOR PROTECTION CHANNEL 1FT-530	PD-1353		1FM530B Out of Calibration	Functional Check Out of Spec	Recalibrated 1FM530B
REACTOR PROTECTION CHANNEL 1FT-520	PD-1354		1FM520B & 1FM520C Out of Calibration	Functional Check Out of Spec	Recalibrated 1FM520B & 1FM520C IAW 1PD2.2.036
#13 STM GEN STM FLOW TRANS-MITTER 1FT-532	PD-1379		Transmitter Malfunctioning	Excessive Zero Shift	Replaced Transmitter & Recalibrated
CVC BORIC ACID COUNTER 1YM-110	PD-1384		Transmitter Has High Zero	Reading High	Reset Zero Adjustment
WASTE DISPOSAL GAS 1WG41	PD-1385		Pilot Stem Retaining Spring Disconnected	Valve Won't Open	Reconnected Spring
RADIATION MONITORING SAMPLER FOR 1R13C	PD-1386		O Ring Was Broken	Leakage From Device	Replace O Ring
RADIATION MONITORING VACUUM PUMP FOR 1R11A,1R12A,1R12B	PD-1387		Sample Valves & Vent Return Line Not Correct	Failure of Pump	Changed Sample Valve & Rerouted Vent Return Line
SOLID STATE PROTECTION SYSTEM	PD-1391		Design	Annunciator Alarms	DCR PD0015 Issued 10-14-76

EQUIPMENT	WORK ORDER NO.	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
ΔT PROTECTION TE-421 A/B	PD-1398		Signal Isolator 1TM421G Bad, & 1TC421A,1TM421G, & 1TM422F Out of Calibration	Functional Test - BS422D Out of Tolerance	Replace Signal Isolator 1TM421G & Recalibrated 1TC421A 1TM421G & 1TM422F
REACTOR COOLANT FLOW	PD-1427		1FC416 Had Drifted	Channel Function Check - Out of Spec	Performed Calibration & Reset 1FC416 Trip
REACTOR COOLANT 1LT-460	PD-1432		N/A	Sensor Calibration Out of Spec	Recalibrated Sensor
NUCLEAR INSTRUMENTATION N43 POWER RANGE	PD-1448		N/A	Positive Rate Trip Actuated 0+3% Rate	Completed PD16.1003 Satisfactory
ΔT PROTECTION LOOP TE431 A/B	PD-1451		Low Level Amps & Function Gen. 1QM-431A Out of Calibration	Functional Check Out of Spec	Recalibrated Low Level Amps & Function Gen
PROTECTION LOOP 1FT-543	PD1452		1FM-543C & 1FM-543D Out of Calibration	Functional Check Out of Spec	Completed Cal Check & Adjusted 1FM543C & 1FM543D
NUCLEAR INSTRUMENTATION N31 SOURCE RANGE	PD-1470		N/A	N/A	Perform Calibration Check, In Spec
REACTOR COOLANT PR-2	PD-1477		Clogged Vent Tube	PR-2 Does Not Close Once It is Opened	Replace Clogged Vent Tube
REACTOR PROTECTION CHANNEL FT-520	PD-1483		N/A	Functional Test Out of Spec	Completed Channel Calib Check
SAFETY INJECTION #11 ACCUMULATOR LEVEL TRANSMITTERS	PD-1486		N/A	N/A	Reset High & Low Setpoints for LT934

EQUIPMENT	WORK ORDER NO.	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
SAFETY INJECTION #12 ACCUMULATOR LEVEL TRANSMITTERS	PD-1487		N/A	N/A	Reset High & Low Setpoints for LT-934 & LT-935B
SI #13 ACCUMULATOR LEVEL TRANSMITTERS	PD-1488		N/A	N/A	Reset High & Low Setpoints for LT-934 & LT-935C
SI #14 ACCUMULATOR LEVEL TRANSMITTERS	PD-1489		N/A	N/A	Reset High & Low Setpoints for LT-934 & LT-935D
RP CHANNEL 1FT-542	PD-1493			Functional Test Out of Spec	Completed Channel Calib. Check
FEEDWATER 11 & 12BF19 Valves	PD-1502		Solenoids Not Sized Properly	Valves Not Closing in Time Allowed	Replace Solenoids
FEEDWATER 13 & 14BF19 Valves	PD-1503		Solenoids Not Sized Properly	Valves Not Closing in Time Allowed	Replace Solenoids
REFUELING WTR STORAGE TK LEVEL INDICATION & ALARM	PD-1514		Ground Problem in Annunciators & Inst. Out of Calibration	Level Indication is Different by 3' & High Alarm is Alarming	Calibrated 1LT-921 & Cleared Ground
REACTOR PROTECTION CHANNEL FT-540	PD-1517		1FC540 A/B Output #2 Out of Calibration	Setpoint for FC540 A/B Out of Spec	Reset 1FC540 A/B Output #2
CONTAINMENT VENT 1VC7 thru 1VC14	PD-1521		Limit Switches Solenoids & Tubing in Error	Valves Not Operating Properly	Replaced Limit Switc Solenoids & Tubing Restroked Valves

EQUIPMENT	WORK ORDER NO.	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
MAIN STEAM FT-541	PD-1525		Trip & Reset Points Not Calculated Correctly	Functional Test Out of Spec	Recalculated Trip & Reset Points . Functional Test in Spec.
NUCLEAR INSTRUMENTATION N31 & N35	PD-1527		Noise	Sporatic Spiking on Channel N31	See PD Work Order PD-1558
CVC 1MC110B	PD-1550		Servo Setpoint Amplifier Failed	Setpoint Does Not Track Properly in Manual	Replaced Servo Setpoint's Amplifie Adjusted Gain & Cal Pot
CONTAINMENT VENT 1VC6	PD-1551		N/A	N/A	Remove & Replace Tubing & Solenoids for Maintenance
REACTOR PROTECTION LOOP #13 ΔT/TAVE	PD-1557		Summator & Lead-Lag & Function Generator Out of Calibration	Functional Test Out of Spec	Recalibrated Summat Lead-Lag & Function Generator
NUCLEAR INSTRUMENTATION	PD-1558		Inner to Outer Shield Resistance Reading Out of Spec Low	Sporadic Spiking	
SAMPLING 1SS107	PD-1559		Open Limit Switch Constantly Closed	Will Not Stay Closed	Readjusted Limit Switch & Cycled Val
CONTAINMENT VENT 1VC6	PD-1561		Ground on Limit Switches	Low Ground Reading	Replaced Cams & Mic Switches & Restroke Valves
NUCLEAR INSTRUMENTATION N36 INTERMEDIATE RANGE	PD-1563			Noise Problems ON N36 SUR	Problem Cleared Whe CU Cable was Discon nected at the Detector

EQUIPMENT	WORK ORDER NO.	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
REACTOR PROTECTION CONT. PRESS CHAN IV	PD-1566		PT-948A Out of Calibration	Recorder Does Not Read Zero Psi	Completed Calibratic Check
REACTOR PROTECTION CONT. PRESS CHANN III	PD-1567		1PC948B/E Power Supply Capacitors Failed	Recorder Does Not Read Zero Psi	Replaced Capacitors & Recalibrated
REACTOR PROTECTION CONT PRESS CHAN II	PD-1568		Sensor PT-948C Out of Calibration	Transmitter Output 43mu Low	Completed Sensor Calibration
REACTOR PROTECTION CONT PRESS CHAN I	PD-1569		Sensor PT-948D Out of Calibration	Transmitter Output 30mu High	Completed Sensor Calibration
NUCLEAR INSTRUMENTATION N32 & N36	PD-1572		Low Inner to Outer Shield Resistance		WO Specified to Read Cables Only
NUCLEAR INSTRUMENTATION N43	PD-1573		Bistable Out of Calibration	Functional Test Out of Spec	Reset NC308 PRN43 Bistable
REACTOR COOLANT CHANNEL PT-405	PD-1585		Cold Solder Joint on Indicator	Indication is Erratic	Fixed Cold Solder Joint & Calibrated Press Indicator & Transmitter
NUCLEAR INSTRUMENTATION NEUTRON DETECTOR FOR N31 & N35	PD-1587		Bad Neutron Detector		Replaced Neutron Detector
NI SOURCE & INTERMEDIATE RANGE N31 & N35 DETECTORS	PD-1593		N/A	N/A	Removed & Cleaned Detectors & Reinsta
SAFETY INJECTION PANEL 235	PD-1597		Salt Water Deposits		Cleaned Panel & Components
SAMPLING SYSTEM PANEL 245	PD-1598		Salt Water Deposits		Cleaned Panel & Components

EQUIPMENT	WORK ORDER NO.	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
NI NEUTRON DETECTOR N32 & N36	PD-1600		Detector Faulty		Replace Detector
RM 1R13 & SAMPLER	PD-1602		Ruptured Liner & Faulty O Rings	Leaking System	Replaced Liner & O Rings
CONT VENTILATION 1VC6	PD-1604		Salt Water Deposits		Cleaned Salt Deposi from Tubing, Soleno and Terminal Boxes
CONT VENTILATION 1VC2 & 1VC3	PD-1605		Salt Water Deposits		Cleaned Salt Deposi from Tubing,Solenoi & Terminal Boxes
PRESSURIZER RELIEF 1PR15 & 1PR17	PD-1606		Salt Water Deposits		Cleaned Salt Deposi
CONTAIN VENT & SI PANELS	PD-1607		Water		No Water Damage Found
SI PANEL 241 & JT-479	PD-1609		Salt Water	N/A	Clean Panels & Components
SERVICE WATER 13SW223	PD-1610		N/A	Manual Actuator Cannot Engage	Cleaned & Lubricate Actuator
NI N32 & N35 DETECTORS	PD-1633		N/A	N/A	Clean & Reinstall Detectors DR PD0244 Issued
NI CABLE 1NIS2CQ-AQ	PD-1640		N/A	Low Resistance Reading	Removed 2' & Reinstalled Connect Reading Satisfactor
NUCLEAR INST N32 & N36	PD-1642		Detector Faulty		Detector Replaced
NI N32 SOURCE RANGE	PD-1649		Cable in Cont. & Placement of Preamp	Spikes to 2000cps	Moved Preamp & Replaced Cables See DR's PD0266,0267

EQUIPMENT	WORK ORDER NO.	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
ΔT PROTECTION #12 LOOP ΔT	PD-1655		Transistors Q2 & Q3	ΔT Indicator Erratic	Replaced Q2 & Q3
CONTAINMENT VENT 1VC6	PD-1662		N/A	N/A	Replaced Conduit to Solenoid Valve
NUCLEAR INSTRUMENTATION	PD-1666		N/A	N/A	Replace Signal "B" Connector at Rear of Cabinet
SI #14 ACCUMULATOR LT-934D	PD-1667		LT-934D Out of Calibration	Instr. Reading ~7% Difference	Instrument Calibrate
SI #13 ACCUMULATOR LT-934C	PD-1669		LT-934C Out of Calibration	Instr. Reading ~5% Difference	Instrument Calibrate
SERVICE WATER 14SW223	PD-1680		N/A	N/A	Lubricate Hand Jack Inspect Gears
NUCLEAR INSTR. IRN 36	PD-1694		N/A	N/A	Checkout Spare Power Supply
REACTOR PROTECTION	PD-1716		N/A	N/A	Change Capacitor C-2 from 0.1MFD to 0.01M Per ECN C-16161

EQUIPMENT	WORK ORDER NO.	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
REACTOR PROTECTION 1PM-506B	PD-1717		N/A	N/A	Change Capacitor C21 From 0.1mfd to 0.01mfd Per ECN 16161
REACTOR PROTECTION CHANNEL 1FT-511	PD-1718		Sq. Root Extractor Out of Calibration	Functional Test Out of Spec	Calibrated Sq. Root Extractor
REACTOR PROTECTION CHANNEL 1FT-521	PD-1719		Sq. Root Extractor Out of Calibration	Functional Test Out of Spec	Calibrated Sq. Root Extractor
REACTOR PROTECTION CHANNEL 1FT-531	PD-1720		Sq. Root Extractor Out of Calibration	Functional Test Out of Spec	Calibrated Sq. Root Extractor
REACTOR PROTECTION CHANNEL 1FT-541	PD-1721		Sq. Root Extractor Out of Calibration	Functional Test Out of Spec	Calibrated Sq. Root Extractor
MAIN STM #11 STM GEN LEVEL RECORDER	PD-1723		N/A	N/A	Recorder Tracking With Indicator Leve
SAMPLING 12SS94	PD-1726		Pushbutton Switch Open Was Sticking	Valve Will Not Stay Closed	Repaired
REACTOR COOLANT PT-405	PD-1744		Out of Calibration & Bad Indicator	PT403 & 405 Read ~200# Difference	Replaced Indicator & Recalibrated
REACTOR PROTECTION CHANNEL FT-416	PD-1764			Functional Test Out of Spec	Calibrated Channel
RADIATION MONITORING SAMPLE PMP	PD-1780		N/A	N/A	Replaced Pump With Spare

EQUIPMENT	WORK ORDER NO.	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
SAFETY INJECTION FLOW TRANSMITTERS FT946,FT947,FT956,FT957	PD-1802		N/A	N/A	Recalibrate to Agre With New Orifices
MAIN STEAM #11 & 13 STEAM GENERATOR RECORDERS	PD-1810		Recorder Out of Calibration	Recorders Not Indicating Zero	Recalibrated Record
REACTOR PROTECTION 1FT-540	PD-1829		Sq. Root Extractor Out of Calibration	Functional Test Out of Spec	Recalibrated Sq. Ro Extractor
REACTOR PROTECTION 1FT-530	PD-1830		Sq. Root Extractor Out of Calibration	Functional Test Out of Spec	Recalibrated Sq. Ro Extractor
REACTOR PROTECTION 1FT-522	PD-1831		Sq. Root Extractor Out of Calibration	Functional Test Out of Spec	Recalibrated Sq. Ro Extractor
RADIATION MONITORING SAMPLE VLVS 1VC7 Thur 1VC14	PD-1833		N/A	N/A	Tighten Solenoid Valves Mounting Plates
RADIATION MONITORING SAMPLE PMP 1R11A,1R12A,1R12B	PD-1842		N/A	N/A	Replace Present Pumps With Spares
REACTOR PROTECTION FT-531 CHANNEL	PD-1844		Instruments Out of Calibration	Functional Test Out of Spec	Calibrated Sq. Root Extractor & Channel II FW Flow Indicato
REACTOR PROTECTION FT-543 CHANNEL	PD-1847		Instrument Out of Calibration	Functional Test Out of Spec	Calibrated Sq. Root Extractor
REACTOR PROTECTION CHANNEL 1FT-533	PD-1848		Instrument Out of Calibration	Functional Test Out of Spec	Recalibrated Instr.
REACTOR PROTECTION FT-523	PD-1849		Instrument Out of Calibration	Functional Test Out of Spec	Recalibrated Instr.

EQUIPMENT	WORK ORDER NO.	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
SW #11 HEADER PRESS TRANSMITTER	PD-1856		PA-2747-Z Failed		Replaced & Calibrated PA-2747-Z
SW 11SW49, 11SW305	PD-1857		Balls Are in Flow Path	Limiting Flow	Restroked Valves
SOLID STATE PROTECTION SYSTEM	PD-1860		N/A	N/A	Design Change IAW DCR#ED-0024
SW 12SW49, 12SW305	PD-1866		N/A	N/A	Remove Spacers & Restroke Valves
REACTOR PROTECTION CHANNEL TE-411A/B	PD-1874		Instr. Out of Calibration	Functional Test Out of Spec	Performed Calibration
SOLID STATE PROTECTION TURBINE STOP VALVES	PD-1876		N/A	N/A	Perform DCR#ED-0031
NI N43 POWER RANGE	PD-1917		N/A	N/A	Calibrate Recorder NR42 & NR43
NI N35, N36 INTERMEDIATE RANGE	PD-1919		Noise	Oscillating SUR Indication	Took Noise Readings
RADIATION MONITORING 1R13A, 1R13B SAMPLERS	PD-1922		Service Water Sprayed		Cleaned Equipment
RADIATION MONITORING 1R31A, 1R31B, 1R31C	PD-2012		N/A	Different Readings Between Channels	Performed Compariso Between Channels Sat.
STEAM FLOW TRANSMITTER	PD-2014		N/A	N/A	Performed Calibrati Checks & Record Dat
REACTOR COOLANT FLOW TRANSMITTER	PD-2015		N/A	N/A	Performed Calibrati Checks & Record Dat

EQUIPMENT	WORK ORDER NO.	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
1FT-532	PD-2016		Out of Calibration	Functional Test Out of Spec	Performed Calibrati Checks
1FT-444	PD-2017		Defective Transmitter	Indicates 60% Flow	Performed Calibrati Checks. Issued W.O #PD-2030
RADIATION MONITORING 1R13A	PD-2018		Defective Rate Card PB3	Out of Spec	Performed Calibrati Checks. Replaced Rate Card PB3
LT-1688	PD-2021		Cannot Determine	LT-1688 Instrument Line Freezing	Heat Tracing Sat. Perform Calibration Checks
1FT-532	PD-2022		N/A	Out of Spec	None Required
1FT-446	PD-2029		Out of Calibration	Out of Spec	Performed Calibrati Checks.
1FT-444	PD-2030		Zero Shift	Cannot Calibrate	Installed New Transmitter
MAIN TURBINE SSPS	PD-2032		Out of Calibration	Out of Spec	Performed Calibrati Checks
1FT-435	PD-2033		Out of Calibration	Out of Spec	Performed Calibrati Checks
1FT-445	PD-2034		Out of Calibration	Out of Spec	Performed Calibrati Checks
1FT-434	PD-2036		Out of Calibration	Out of Spec	Performed Calibrati Checks
1FT-436	PD-2038		Out of Calibration	Out of Spec	Performed Calibrati Checks

EQUIPMENT	WORK ORDER NO.	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
1FT-414,415, & 416	PD-2039		Out of Calibration	Out of Spec	Performed Calibrati Checks
1FT-425	PD-2040		Out of Calibration	Out of Spec	Performed Calibrati Checks
1FT-426, 424	PD-2048		Out of Calibration	Out of Spec	Performed Calibrati Checks
FEED SYSTEM NO. 11 SGFF	PD-2049		N/A	N/A	Cal. Due
FEED SYSTEM NO. 12 SGFF	PD-2050		N/A	N/A	Cal. Due
FEED SYSTEM NO. 13 SGFF	PD-2051		N/A	N/A	Cal. Due
FEED SYSTEM NO. 14 SGFF	PD-2052		N/A	N/A	Cal. Due
1TC-421 G/H	PD-2060		Out of Calibration	Out of Spec	Performed Calibrati Checks
1FT-531 A&B	PD-2066		Out of Calibration	Out of Spec	Performed Calibrati Checks
1FT-415	PD-2069		Leaking Sensor Line	Intermittent Low Flow Alarm	Repaired Leaks on High Pressure Senso Line
LT-538	PD-2081		Defective LT-538	Drifting	Replaced Unit
NIS-N44	PD-2085		Out of Calibration	Upper Flux Amp Output Out of Spec	Performed Calibrati Checks
RADIATION MONITORING CONTAIN. VENT APD	PD-2086		Defective Low Speed Drive Motor	Low Speed Does Not Operate	Replaced Low Speed Drive Motor
1FT-424	PD-2107		Defective Bulk-head Fitting	Leaking in Panel	Replaced Bulkhead Fitting

EQUIPMENT	WORK ORDER NO.	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
RADIATION MONITORING 1R14	PD-2147		Defective High Voltage Pwr Supply	Channel Alarming	Replaced High Volta Power Supply and Recalibrated
SV-545	PD-2160		Defective SV-545	Cannot Open 12BF40	Rebuilt SV-545
FEED FLOW TRANSMITTERS	PD-2161		Leaking Tubing & Fittings	Unable to Place Instruments in Service Due to Leaks	Repair Tubing & Tighten Fittings
TE-441	PD-2171		Out of Calibration	Out of Spec	Performed Calibrati Checks
NIS	PD-2178		Defective Meter NI301 & Switch S301	Inoperable	Replaced Current Meter & Switch
1PA-5411-IB	PD-2184		Out of Calibration	No. 12 Accum. Press Bezel Indic. Differs 40psi From Local Indicator	Performed Calibrati Checks
1FT-522	PD-2186		Out of Calibration	Out of Spec	Performed Calibrati Checks
1FT-523	PD-2187		Sensing Line Full of Condensate	#12 Stm Gen Stm Flow Increasing Continuously	Drain Sensing Line
1FT-522	PD-2189		N/A	N/A	Perform Functional Checkout
STEAM FLOW TRANSMITTERS	PD-2190		N/A	N/A	Vented Each Condens Pot & Zeroed Set Ea Transmitter Under Pressure

EQUIPMENT	WORK ORDER NO.	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
FEED FLOW TRANSMITTERS	PD-2191		N/A	N/A	Set all Transmitter for Static Shift
1FT-543	PD-2193		Buildup of Condensate	#14 Stm Flow Has Erratic Indication	Vented Condensate Pot
13BF19	PD-2196		Out of Alignment	Does Not Provide Tight Shut-off	Restroked & Verifie Tight Shut-off
NO. 12 STEAM GENERATOR LEVEL	PD-2204		Out of Calibration	Reactor Tripped at 30% Level	Perform Channel Calibration Checks Reset Point Out of Spec
LT-528	PD-2205		Out of Calibration	Out of Spec	Performed Calibrat Checks
LT-529	PD-2206		Out of Calibration	Reads 4% High	Drained Sensing Li & Performed Calibra tion Checks
1LM-500Y	PD-2207		Out of Calibration	#13 Stm Gen Level Controls Low	Performed Calibrat Checks
125 VDC BUS	PD-2212		Not Determined	Ground	Ground Cleared Bef Troubleshooting Started
1LT-315	PD-2213		Instrument Line Clogged	Boric Acid Evaporator Level Indication Incorrect	Blewdown Instrumen Lines, Vented and Put into Service Sa
1FT-523	PD-2222		Buildup of Condensate in Instrument Lines	Channel II Stm Flow Indicating 40% With No Flow	Blewdown Instrumen Lines. Put into Service Sat.
NIS	PD-2223		NR-41 Out of Calibration	Red Pen Out of Spec on Calibration Check	Adjusted Span

EQUIPMENT	WORK ORDER NO.	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
NIS N41 POWER RANGE	PD-2224		R354 Had Intermittent Open	Negative Rate Trip Won't Lock In	Replaced R354
SERVICE WATER 15SW57	PD-1928		Clevis Link Needs Replacement		Rework 15SW57
REACTOR PROTECTION CHANNEL TE-411 A/B	PD-1933		1QM-204A Failed	Functional Test Out of Spec	Replaced 1QM-204A Adjusted 1TM-441A
RADIATION MONITORING R14 MONITOR	PD-1941		N/A	N/A	Install Detector Adjust H.V.
RADIATION MONITORING R11A,12A, 12B	PD-1942		Sheer Pin in Drive Mechanism Sheered	Filter Failure Alarm	Replaced Sheer Pin
AUX FEED #13 AUX FEED WTR PUMP	PD-1947		Governor Oil Level High & Air Present	Speed Control Hunting	Vented Governor Oil System
#12 STM GEN LEVEL CHANNEL I	PD-1949			Channel is Erratic	
MAIN STEAM 14MS10	PD-1951		Power Supply Failed	Valve Does Not Work in Auto	Replaced Power Supply DR#PD0293
REACTOR PROTECTION CHANNEL FT-543	PD-1954		Comparator Out of Spec	Functional Test Out of Spec	Calibrated the Comparator 1FC541 A/B
#11 AUX FEED FLOW TO 11 STM GENERATOR	PD-1955		Wires Disconnected From Trans. to Sq. Root Ext.	Loss of Indication on Console	Reconnected Wires
REACTOR COOLANT PANEL TRANSMITTER FITTINGS	PD-1960		No Tape on Vent Plugs	Leaks	Taped Vent Plugs

EQUIPMENT	WORK ORDER NO.	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
#13 AUX FEED PUMP	PD-1964		1MS132 Restricted Steam Flow	Speed Will Not Increase > 2000rpm	
MAIN STEAM 1FT-540	PD-1983		1FT-540 Out of Calibration	Functional Test Out of Spec	Performed Channel Calibration
RADIATION MONITORING 1R14	PD-1985		Detector & Preamp Failed	Failure Alarm	Replaced Detector & Preamp
RADIATION MONITORING 1R18	PD-1988				Clean & Dry-out Sampler & Connector
RADIATION MONITORING 1R13B	PD-1989		Relay Contacts Not Making Properly	Spurious Alarm	Fixed Relay
RADIATION MONITORING 1R13C	PD-1990		Top & Bottom "O" Rings Need Replacement	Sampler Leaking	Replaced "O" Rings
MAIN STEAM GAUGES	PD-1993		N/A	N/A	Install Temp Gauges to Test Relief Valves

EQUIPMENT	WORK ORDER NO.	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
SERVICE WATER 12SW122	OD-2705		N/A	12SW122 Will Not Open	Stroked Valve Sat.
CONTAINMENT PURGE 1VC3	OD-2708		Wiring Error	Valve Indicates Open & Closed	Changed Valve Limit Switch Wiring from N.C. to N.O. to Agree With Dwg. & Set Switches
12BF19 DEMAND METER	OD-2746		Defective Meter	Demand Meter Reads Wrong & Needle Vibrates	Cleaned Meter Movement, Repaired Case Short, Replaced Shunt & Recalibrated
12BF19	OD-2747		Solenoid Valve Restricted Air Supply Flow	12BF19 Doesn't Shut Fast Enough to Meet SP(O) 4.05-V	Changed Solenoid Valve IAW ED-0007. See WO#PD1502 & 1503
13MS18	OD-2761		Leaking Diaphram	Air Leaks Around Operator Head	Replaced Diaphram
CVCS BORON FLOW CONT 1FC110	OD-2767		System Was Not Tuned	Flow Indication Swinging $\pm$ 20gpm from Setpoint and Oscillating	Tuned 1FC110 for ½" Stroke of 1CV172. Revised Procedure 2.1.007 for Rate 100
NO. 12 CONT FAN COIL UNIT	OD-2811		Existing Limit Switch Brackets do not Provide Fine Adjustment	HEPA Filter Inlet Damper Open Close Lights Both Energized	Replaced Limit Switch Brackets

INSTRUMENTATION AND CONTROL CORRECTIVE MAINTENANCE

EQUIPMENT	WORK ORDER NO.	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
RADIATION MONITORING SAMPLE VALVE 1VC11	OD-2847		Valve Limit Switch out of Adjustment	No Close Indication	Readjusted Valve Limit Switch
1CC215	OD-2903		Valve Limit Switch out of Adjustment	Valve Does Not Cycle in $\leq$ 10 sec	Adjusted Limit Switch Stroked in $\leq$ 10 sec Now as Indicated on Bezel
NO. 11 NOZZLE SUPPORT VENT FAN	OD-2917		Limit Switch Couplings Missing	Sequence Complete Light Does Not Energize	Installed Limit Switch Couplings & Springs and Adjusted Switch
RADIATION MONITOR 1-R11A	OD-2926		High Concentration of Welding Particulate in Sampler Area	Hi Rad Alarm Cannot Be Reset	None Required
PANEL 241-1	OD-2938		N/A	Salt Water in Panels & Ground	See WO#PD1577,1585, 1607, & 1609
PANEL 235	OD-2939		N/A	Salt Water in Panels & Ground	See WO#PD1597
12SW49	OD-2964		Worn Ring Seal	Valve Leaks Thru	Replaced Seal Ring & Restroked
OVERHEAD ANNUNCIATOR POINT D-12	OD-2985		Blown Fuse	Boron Inj. Tk. High Disch Press Alarms	Replaced 5amp Fuse on 1PC-942
1PI-403	OD-3002		Defective Signal Summator 1PM403D	Hot Leg Pressure Loop II not Indicating Correctly	Replaced 1PM403D

EQUIPMENT	WORK ORDER NO.	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
1CV172	OD-3004		Controller 1FC110 was not Tuned to the System	1CV172 Hunts During Auto Operation	Tuned Controller 1FC110 While in Service
SI - COLD LEG INJECTION FLOW	OD-3359		Blown Fuse	Indicator Failed Down Scale	Replace Power Supply Fuse
NO. 11 CHILLER	OD-3370		V1v 11SW92 Limit Switch Out of Adjustment	Will Not Run	Readjusted 11SW92 Valve Limit Switch
15SW223	OD-3372		Defective Valve	Valve Causes Flow Oscillations	Replaced Valve
1WL16	OD-3375		Open Limit Switch Out of Adjust-ment	Valve Will Not Stay Open	Reset Opening Limit Switch
NO. 15 FCU DRAIN FLOW ALARM	OD-3383		Out of Calibra-tion	Energized All the Time	Readjusted Diff. Controller
YIC-110	OD-3389		Out of Calibra-tion	Boric Acid Flow Register Does Not Indicate	Recalibrated Loop
11SW49 & 12SW49 LIMIT SWITCHES	OD-3396		Valve Limit Switches Out of Adjustment	Continuous Alarm	Readjusted Valve Limit Switches
PR948A & PR948B	OD-3476		Out of Calibra-tion	Recorders Do Not Agree with Each Other	Recalibrated Recorders
NO. 11 BORIC ACID TANK TEMP INDICATOR	OD-3516		Temp Transmitter Out of Calibra-tion	Boric Acid Tk Temp Indicates 15° Higher. Low Temp Alarm Energized	Recalibrated Temp Transmitter ECN Required to Revise Alarm Buttons

EQUIPMENT	WORK ORDER NO.	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
1PR18	OD-3521		Valve Limit Switch Out of Adjustment Due to Loose Vlv. Components	Valve Position Indication Does Not Work	Removed Bonnet, Tighten Diaphram Stem Locknut, Restroked & Set Limit Switches
VITAL HEAT TRACING	OD-3537		Pipe Insulation Missing at This Time	Recorder Temp Does Not Agree With Local Temp Indicators	Equipment Sat. Pipe to be Insulated Later
NO. 11 NOZZLE SUPPORT FAN LIMIT SWITCH	OD-3538		Defective Limit Switch	No Sequence Complete Light	Repaired Limit Switch
NO. 12 STEAM GENERATOR	OD-3553		Out of Calibration	Feedwater Flow Recorder Indicating Wrong Flow	Recalibrated Recorder
SOLID STATE PROTECTION SYSTEM	OD-3568		No Power Available to Test Circuit. Design Deficiency	Initialed 1C SEC Sys. Actuation When TS602, TS604, & TS610 in Test	AP8 Initialed
1SS49	OD-3571		Valve Limit Switch Out of Adjustment Due to Loose Vlv Components	Valve Will Not Stay Open. No Vlv. Position Indication	Disassembled Valve to Tighten Locknut. Stroked & Readjusted Limit Switches
RADIATION MONITORING 1R11A	OD-3582		Check Source Solenoid Stuck	Indicates High Radiation Levels	Lubricated and Recalibrated Detector
12SW40	OD-3624		Loose Packing Nut	Air Leaks	Tightened Packing Nut
SV541 & SV553	OD-3625		Worn Internals	Air Leaks	Replace Solenoid Valve Internals
RADIATION MONITORING CONTAIN. VENT APD	OD-3650		Defective Gas Pump	Pump Failed	Replaced Gas Pump

EQUIPMENT	WORK ORDER NO.	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
1FT957, 1FT947, & 1FIC-641B	OD-3658		Loose Fittings	Leaking Fittings	Tighten Fittings to Flow Transmitters
NO. 13 FCU FLOW INDICATION FA-3541Z-1	OD-3699		Open Flow Transmitter Equalizing Vlv.	No Flow Indication	Closed Flow Transmitter Equalizing Valve
1A2 28VDC CHARGER	OD-3724		Sys. Voltage Meter Out of Calibration	Low 28VDC	Recalibrated Sys. Voltage Meter
1FT542 & 1FT543	OD-3734		Condensate Accumulation Due to Insufficient Instr. Line Slope	Wrong Stm Flow for #14 Steam Gen.	Changed Slope of Instrument Line
AUX FEED WTR FLOW INDICATOR TO NO. 14 STEAM GENERATOR	OD-3736		Out of Calibration	Wrong Feedwater Flow Indication	Recalibrated Loop
1FL1593	OD-3774		Out of Calibration	Flow Indicates 100gpm When Vlv is Shut	Recalibrated Loop
15SW24	OD-3799		Valve Seat Chewed Up	Valve Does Not Open	None - Refered to Maint. Dept.
RADIATION MONITORING CONTAIN. VENT APD	OD-3802		Loose Winding Reel	High Filter Paper Alarm	Disassembled & Repaired Winding Reel Shaft
14SW223	OD-3814		Valve Limit Switch Out of Adjustment	Overhead Trouble Alarm Will Not Energize When Vlv Goes Shut	Readjusted Valve Limit Switch
NO. 11 ACCUMULATOR LEVEL INDIC.	OD-3815		Out of Calibration	Wrong Level	Recalibrated 1LT935A

EQUIPMENT	WORK ORDER NO.	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
PRESSURIZER CHANNEL I	OD-3816		Transmitter Was Isolated	No Indication	Open Transmitter Isolation Valves
NO. 12 RHR LOCAL FLOW INDICATION	OD-3817		Incorrect Flow Setpoint	12RHR29 Opened at 300gpm Instead of 500gpm	Reset Low Flow Setpoint
VOLUME CONTROL TANK LOW PRESSURE ALARM	OD-3818		Defective Low Pressure Comarator	No Low Pressure Alarm	Replaced Low Pressure Comparator
1CV35	OD-3820		Wrong Level Observed by Operator	Valve Does Not Divert on VCT High Level	None Required System Working Sat.
1FT425 & 1FT426	OD-3827		Defective Transmitters	No Flow Indications	Replace Transmitters
NO. 11 AUX BLDG EXHAUST FAN	OD-3838		Per Design	Discharge Dampers Do Not Close When Fan is Stopped.	None. Damper Controls Independant of Fan Operation
12AF21			Valve Positioner Out of Calibration	Valve Leaks Thru	Restroke Valve and Adjusted Positioner & Tension Spring
1MS132	OD-3846		Rupture Diaphram	Valve Will Not Close	Replaced Diaphram
NO. 14 S.G. FLOW CHANNEL 2	OD-3860		Out of Calibration	Indicates 20% Flow With No Actual Flow	Recalibrated Loop
14AF21	OD-3864		Valve Stroke Out of Adjustment	Valve Does Not Provide Tight Shut-off	Readjusted Positioner Spring & Stem

EQUIPMENT	WORK ORDER NO.	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
RADIATION MONITORING 1R13B	OD-3867		See WO#PD-1990	No Alarm	See WO#PD-1990
	OD-3871		Per Design	No Flow Indication When 12AF21 Open 11% and SG Level is Increasing 1% Minute	Calibration Check Sat. Transmitter Has Low Flow Cutout
11AF21	OD-3877		Valve Limit Switch Out of Adjustment	No Closed Indication	Readjusted Valve Limit Switch
NO. 11-15 FCU's HEPA FILTER DAMPER POSITIONS	OD-3882		Burned Out Indicator Bulbs	Damper Position Indication Did Not Energize After SI Operation	Change Burned Out Bezel Bulbs. Damper Operation Sat.
1BBDC BKR. #19	OD-3883		No Apparent Problem	Breaker Tripped Durine SEC	Checked Out Sat.
PRESSURIZER LEVEL CONTROLLER	OD-3893		Out of Calibration	Getting Letdown Isolation	Recalibrated Recorder & Checked Trip Point
ROD POSITION - ROD BOTTOM 2C2	OD-3958		Out of Calibration	Bank C Rod Bottom Light Will Not De-energize	Recalibrated Rod Bottom Light
NO. 13 AUX FEED PUMP PAT3964	OD-3964		Broken Wire on PAT3964	No Loss of 115VAC Alarm. No Speed Demand Indication	Broken Wire on Wiper in PAT3964
NO. 14 ACCUMULATOR LEVEL	OD-3985		Out of Calibration	Low Level Alarm Energized When Level is Correct	Recalibrated Level & Comparator
CONTAINMENT PRESSURE INDICATION	OD-3993		Recorder Pressure Increments Cannot be Read Accurately	Containment Pressure as Indicated on Bezel Recorder Exceeds STS Specs	Checkout Sat. Computer Printout Pressure is Being Used Instead

EQUIPMENT	WORK ORDER NO.	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
1LT-538	OD-3997		Out of Calibration	No. 13 SG Level Channel II Indicating Higher Than Normal	Recalibrated

EQUIPMENT	WORK ORDER NO.	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
CVCS - PRIM. WTR FLOW CONT 1FC110	OD-4022		Defective Controller	Excessive Flow	Replace 1FC110
RWST - LEVEL CONT 1LT-920	OD-4036		1LT-920 Isol. Valve Closed	Wrong Level	Open 1LT-920 Isol. Valve
AUX FEED 12AF40	OD-4047		Valve Limit Switches out of Adjustment	No Open or Closed Valve Indication	Reset Valve Limit Switches
SERVICE WATER 15SW58	OD-4058		Burned Out Light Bulb	No Open Valve Indication	Replace Bezel Light Bulb
REACTOR CONTROL - RECORDER N-45	OD-4073		Defective Slow Speed Drive Shaft Set Screw	Will Not Run in Slow Speed	Replace Set Screw in Drive Shaft & Recalibrated
MAIN STEAM - CONT 1PT-535	OD-4078		Leaking Fittings on 1PT-535	Water in Panel 686-1C	Tighten Fittings and Drained Water From Panel
NO. 13 ST. GEN LEVEL	OD-4091		Reference Leg Filled With Water	Wrong Level	Drained Reference Leg
AUX FEED - #12 PUMP DISC PRESS IND	OD-4094		PA-1082 & PA-5732 IB out of Calibration	Wrong Pressure Indication	Recalibrated
PRESSURIZER LEVEL - 1LT-459	OD-4095		1LT-459 out of Calibration	Wrong Level	Recalibrated
REACTOR COOLANT FLOW 11 & 14 RCP CONSOLE IND	OD-4096		Instr. out of Calibration	Low Flow Indication	Recalibrated

EQUIPMENT	WORK ORDER NO.	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
NO. 12 STEAM GENERATOR FEED PUMP	OD-4098		Design	Failed Trip on Hi Hi Steam Generator Level	Simulated Trip Sat.
1B 125VDC BUS	OD-4100		N/A	Ground Indication	See Work Order PD-2212
CVCS BORON EVAP LEVEL LT-315 & LT-306	OD-4115		Clogged Instr. Lines	Wrong Level	Flushed Instr. Lines
NO. 11 FCU EMERG. DAMPER	OD-4148		N/A	HEPA Damper Open in Hi Speed Fan	Operated Solenoid Valve & Stroked Damper Sat.
RADIATION MONITORING 1R14	OD-4000		Defective Bistable	High Radiation Alarm Not Working	Replace Bistable
11CA330	SU-467		Out of Adjustment	Does Not Provide Tight Shut-off	Restroke Valve & Reset Spring
11SW49	SU-419		Valve Limit Switch Out of Adjustment	No Alarm	Reset Valve Limit Switch
FA-3176-Z3	SU-436		Defective	Cannot Calibrate	Replaced Instrument
12SW122	SU-398		Broken Pipe Nipple on Valve Positioner/Regulator	Valve Does Not Maintain Proper Flow	Replaced Broken Pipe Nipple on Valve Positioner/Regulator
FA-3169(E/P)	SU-358		Dirt Inside Restrictor	No Output	Cleaned Restrictor and Recalibrated
LD-2727	SU-351		Alarm Switches Change Calibration Due to Lack of Locking Device	Screen Trouble Alarms at Wrong Setpoint	Recalibrated Alarm Switches & Installed Locking Devices

INSTRUMENTATION AND CONTROL CORRECTIVE MAINTENANCE

EQUIPMENT	WORK ORDER NO.	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
LD-2725	SU-342		Alarm Switches Change Calibration Due to Lack of Locking Device	Screen Trouble Alarms at Wrong Setpoint	Recalibrated Alarm Switches & Installed Locking Devices
LD-2726	SU-343		Silt Buildup Inside of SWIS Pump Cells	Indicates 2.2H_2O" All The Time	Blew Down Bubbler Tubes, Recalibrated & Installed Alarm Switch Locking Device
SV-853 & SV-569	SU-344		Defective SV's	Bay 1 SWIS Prop. Damper Does Not Operate Thru Full Stroke	Repaired Solenoid Valves
SV-563	SU-345		Open Coil	Damper 1SWV8 Does Not Close When #12 SW Vent Fan Stops	Replaced Coil
LD-2729	SU-346		Alarm Switches Change Calibration Due to Lack of Locking Devices	Screen Trouble Alarms at Wrong Setpoint	Recalibrated Alarm Switches & Installed Locking Devices
SV-562	SU-347		Open Coil	Damper 1SWV7 Does Not Close When #11 SW Vent Fan Stops	Replace Coil
1SWV3	SU-348		Binding Diaphram	Damper Does Not Operate	Lubricated Diaphram & Restroked Sat.
1WR80	SU-174		SV507 Restricting Exhaust Air	Opening Time Too Long	None. Valve Will Close in 2 Sec.

EQUIPMENT	WORK ORDER NO.	LER OR OUTAGE NUMBER	MALFUNCTION		CORRECTIVE ACTION
			CAUSE	RESULT	
1PR17	SU-175		Valve Limit Switch Out of Adjustment	Will Not Stay Closed	Readjusted Valve Limit Switch
1CC215	SU-176		N/A	Bent Limit Switch Actuator Rod	Tightened Limit Switch Actuator Rod & Readjusted Limit Switches
1WL98, 1WL12, 1WL17, 1WL13, 1WR80	SU-188		Wrong Type Solenoid Valve	Do Not Close in $\leq$ 10 Sec.	Replaced Solenoid Valves
TA-745C	SU-229		Out of Calibration	Low Output at 120°F	Recalibrated
TA-6416,6417, & 6418	SU-307		Wrong Thermowell Installation	Output Responds Too Slow to Chilled Water Temperature Changes	Thermowells Relocated
1WL7	SU-310		Leaking Diaphram	Air Leaks Around Valve Operator Head	Replaced Diaphram

LICENSEE EVENT REPORTS

During this reporting period, a total of thirty-one (31) events occurred which resulted in Licensee Event Reports. Each of these events occurred at a reactor power level of less than 20% design power and are not applicable to or included in this report.

Main Steam Generator Safety Valves - Setpoint Change

Following certain Unit #1 Startup Tests, there were indications that several Main Steam Generator safety valves were weeping. In order to correct this problem, the vendor was requested to lap the valve seat for each safety valve. In addition, the vendor was queried as to whether or not seat lapping would affect the lift pressure. The vendor's response was that this action would not affect the lift setpoint.

Upon the completion of seat lapping, Unit #1 was again brought to normal operating temperature. During the subsequent heatup, several Main Steam Generator safety valves lifted at a below normal pressure. Accordingly, all steam generator safety valves were tested pursuant to Maintenance Department Procedure M9E, "Steam Generator Safety Valve Testing". After testing, nine (9) out of twenty (20) safety valves were found to have needed minor lift setpoint adjustments.

Fuel Performance

During the receipt of the initial 193 fuel assemblies (October 1975 - January 1976), a small percentage of assemblies showed minor discoloration, which was termed rust, on the top nozzles. After an on-site inspection and subsequent investigation by Westinghouse, it was concluded that the rust was cosmetic in nature and there was no operational impact. The vendor hand cleaned all observable discolorations.

Initial criticality was achieved on 12-11-76. As of 12-31-76, the core had a total exposure of 1600 MWD (18 MWD/MTU).

During hot zero power physics testing, a core quadrant tilt of 2.5 to 4.5%, depending on control rod position, was measured. The tilt appears to be centered about fuel assembly locations defined by the intersections of columns B, M, N and rows 13 and 14. These assemblies are running 10 to 15 percent above the predicted relative power.

Technical specifications do not address radial power tilts below 50% power. Hot channel factors are monitored above 5% power for Technical Specification compliance. The effect of the tilt on F_{xy} and $F_{\Delta H}$ will be monitored.

At higher power levels, the leveling effect of xenon and doppler will tend to minimize the tilt. Core exposure will also aid in flattening the flux.

DATA TABULATIONS

Net Electrical Power Generation

Unit Shutdowns and Forced Power Reductions

Number of Personnel and Man/Rem Exposure by Work and Job Function

NET ELECTRICAL POWER GENERATION

	1976	CUMULATIVE
Number of hours the reactor was critical		301.6
Reactor reserve shutdown hours		0.0
Hours generator on-line		40.3
Unit reserve shutdown hours		0.0
Gross thermal energy generated (MWH)		48697
Gross electrical energy generated (MWH)		3230
Net electrical energy generated (MWH)		0
Reactor service factor		N/A
Reactor availability factor		N/A
Unit service factor		N/A
Unit availability factor		N/A
Unit capacity factor (using MDC)		N/A
Unit capacity factor (using design MWe)		N/A
Unit forced outage rate		N/A

UNIT SHUTDOWNS AND POWER REDUCTIONS

Date	Type F: Forced S: Scheduled	Duration (Hours)	Reason (1)	Method Of (2) Shutting Down The Reactor Or Reducing Power	Reportable Occurrence Number	Corrective Actions/Comments
12/25/76	F	33.7	G	3	76-1	Feedwater Flow in Manual-12 Steam Generator Low, Low Level Trip.
12/27/76	F	7.4	H	3	76-2	11 Steam Generator Feed Pump Trip on Low Suction Pressure-13 Steam Generator Low, Low Level Trip.
12/27/76	F	11.6	H	3	76-3	12 Steam Generator Feed Pump Trip on Low Suction Pressure-11 Steam Generator High Level Trip.
12/29/76	F	61.3	A	3	76-4	12 Steam Generator Feedwater Regulating Valve - 12 Steam Generator High Level Trip.

(1) Reason:

A - Equipment Failure (Explain)
B - Maintenance or Test
C - Refueling
D - Regulatory Restriction
E - Operator Training and License Examination
F - Administrative
G - Operational Error (Explain)
H - Other (Explain)

(2) Method:

1 - Manual
2 - Manual Scram.
3 - Automatic Scram.
4 - Other (Explain)

Number of Personnel and Man-Rem by Work and Job Function

Work & Job Function	Number of Personnel (>100 mrem)			Total Man-Rem		
	Station Employees	Utility Employees	Contract Workers And Others	Station Employees	Utility Employees	Contract Workers And Others
REACTOR OPERATIONS & SURVEILLANCE						
Maintenance Personnel	0	0	0	13	0	25
Operating Personnel	0	0	0	172	0	0
Health Physics Personnel	0	0	0	45	0	225
Chemistry Personnel	0	0	0	369	0	5
Supervisory Personnel	0	0	0	119	0	25
Engineering Personnel	0	0	0	0	0	0
I & C Personnel	0	0	0	31	0	0
Security Personnel	0	0	0	0	0	13
ROUTINE MAINTENANCE						
Maintenance Personnel	0	0	0	70	0	61
Operating Personnel	0	0	0	0	0	0
Health Physics Personnel	0	0	0	1	0	0
Chemistry Personnel	0	0	0	6	0	3
Supervisory Personnel	0	0	0	23	0	32
Engineering Personnel	0	0	0	0	0	0
I & C Personnel	0	0	0	102	0	0
Security Personnel	0	0	0	0	0	0
INSERVICE INSPECTION						
Maintenance Personnel	0	0	0	0	0	0
Operating Personnel	0	0	0	75	0	0
Health Physics Personnel	0	0	0	70	0	0
Chemistry Personnel	0	0	0	0	0	0
Supervisory Personnel	0	0	0	110	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	20
SPECIAL MAINTENANCE						
Maintenance Personnel	0	0	0	138	0	183
Operating Personnel	0	0	0	2	0	0
Health Physics Personnel	0	0	0	0	0	0
Chemistry Personnel	0	0	0	0	0	0
Supervisory Personnel	0	0	0	9	0	22
Engineering Personnel	0	0	0	0	0	0
I & C Personnel	0	0	0	36	0	0
Security Personnel	0	0	0	9	0	9
WASTE PROCESSING						
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
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
TOTAL						
Maintenance Personnel	0	0	0	221	0	269
Operating Personnel	0	0	0	249	0	0
Health Physics Personnel	0	0	0	116	0	225
Chemistry Personnel	0	0	0	375	0	8
Supervisory Personnel	0	0	0	261	0	79
Engineering Personnel	0	0	0	0	0	0
I & C Personnel	0	0	0	169	0	0
Security Personnel	0	0	0	9	0	42
GRAND TOTAL	0	0	0	1400	0	623

UNIQUE REPORTING EQUIREMENTS

PRIMARY COOLANT CHEMISTRY - 1976

DECEMBER 11 - 31

	pH At 25°C	Conductivity (umhos/cm)	Chlorides (ppm)	Fluoride (ppm)	Dissolved Oxygen (ppb)	Suspended Solids (Crud) (ppm)	Boron (ppm)	Lithium (ppm)	Hydrogen (cc/kg)	Silica (ppm)	Gross Activity 15 Min. (μCi/ml)	Gross Activity 7 Day (μCi/ml)	Tritium (μCi/ml)	Iodine-131 (μCi/ml)
MAX.	6.80	12.0	0.149	0.014	93	6.9	1974	0.69	28.8	1.8	2.8×10^{-2}	1.3×10^{-4}	5.1×10^{-3}	2.0×10^{-5}
AVG.	5.75	6.16	0.079	<0.011	15	6.9	1244	0.49	12.5	0.93	3.3×10^{-3}	2.3×10^{-5}	8.7×10^{-4}	4.8×10^{-6}
MIN.	5.40	2.72	0.026	<0.011	<2	6.9	665	0.36	7.0	.27	7.1×10^{-6}	1.3×10^{-6}	5.5×10^{-8}	2.5×10^{-7}