

Maine Yankee

RELIABLE ELECTRICITY FOR MAINE SINCE 1970

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UNITED STATES NUCLEAR REGULATORY COMMISSION
Attention: Document Control Desk
Washington, DC 20555

References: (a) License No. DPR-36 (Docket No. 50-309)
(b) MYAPCo Letter to USNRC dated March 11, 1981 (FMY-81-33)

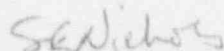
Subject: Annual Report of Facility Changes and Relief and Safety Valve
Failures and Challenges

Gentlemen:

In accordance with 10 CFR 50.59, attached is a report containing a brief description of the facility change completed at the Maine Yankee Atomic Power Station during 1990 and a summary of the safety evaluation for the change.

In Reference (b), Maine Yankee committed to reporting any challenges and/or failures of PORV and pressurizer safety valves. During 1990 there were no such events.

Very truly yours,



S. E. Nichols, Manager
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Summary of Design Changes Completed In 1990

EDCR-88-41 Water Treatment Plant Improvement - Resin Retention

EDCR-88-46 H. P. Turbine Replacement

EDCR-89-31 Third, Fourth, Fifth Point Feedwater Heater Replacement

EDCR-89-51 Control Element Drive (CED) System Reliability Improvements

EDCR-89-53-1 Appendix J, Primary Drain System Modification

EDCR-89-53-2 Appendix J, Primary Vent System Modification

EDCR-89-53-3 Appendix J, Cardox System Modification

EDCR-89-53-4 Appendix J, Nitrogen System Modification

EDCR-89-65 Emergency Diesel Generator (EDG) Component Cooling Water System Improvements

EDCR-89-121 Security Lighting Modifications

EDCR-89-123 Security System Closed Circuit Television Console

EDCR-89-507 Electrical EQ Penetration Upgrade

EDCR-89-600 High Energy Line Break (HELB) Sigma Meters Replacement

EDCR-89-703 Reactor Vessel Level Measurement Improvements

EDCR-89-704 Conformance to Reg. Guide 1.97 Rev. 3 Transmitter Installation

EDCR-89-708 Heat Trace of MOV in RWST Enclosure

EDCR-89-801 Service Water Radiation Monitoring System (RMS) Input to Plant Computer

EDCR-89-802-1 MOV Limit Switch and Position Indication Modification

EDCR-89-28 Inverter Reliability Upgrades

EDCR-89-603 Minor Modification to Power Range A9 Buffer Amplification Cards

EDCR-88-41

WATER TREATMENT PLANT IMPROVEMENTS - RESIN RETENTION

This modification sought to improve the performance of the water treatment plant. A viewing window was installed to permit monitoring ideal operating resin level. Also, resin traps and a sight glass plug was installed to establish resin retention screen performance monitoring capabilities and to prevent resin loss in the event of a screen failure.

This design change improved the reliability of the water treatment plant by preventing resin fine fouling of system components. This change did not involve an unreviewed safety question as defined in 10 CFR 50.59.

EDCR-88-46

HP TURBINE REPLACEMENT

This design change replaced the existing high pressure turbine with a new rotor, blade carriers, gland seals, and modified nozzle chambers to accommodate the new shaft line. The improved design provides for an increase in reliability, availability and efficiency of Maine Yankee's turbine components.

The new HP turbine was a replacement activity and did not involve an unreviewed safety question as defined in 10 CFR 50.59.

EDCR-89-31

THIRD, FOURTH, FIFTH POINT FEEDWATER HEATER REPLACEMENT

This design change involved the replacement of the existing copper bearing feedwater heaters with new feedwater heaters bearing ferritic stainless steel tubing. This alternative material was selected to eliminate copper ingress which was believed to be promoting steam generator tube denting and other forms of tube degradation.

This change enables plant operation with higher feedwater pH as well as eliminating copper ingress to the feedwater train. This change did not increase the probability of an occurrence or the consequences of an accident or malfunction of equipment important to safety. This change did not involve an unreviewed safety question as described in 10 CFR 50.59.

EDCR-89-51

CED SYSTEM RELIABILITY IMPROVEMENTS

This design change replaced and relocated the control element drive (CED) system coil power programming unit timer power supplies with redundant supplies and provided a method for holding one control rod in place during maintenance activities. The

redundant installation improved reliability over the single installation as well as providing a means of performing maintenance without altering the manual or automatic scram function.

This change did not impact any system or structure as described in the Maine Yankee FSAR. This change did not involve an unreviewed safety question as described in 10 CFR 50.59.

EDCR-89-53-1

APPENDIX J PRIMARY DRAIN SYSTEM MODIFICATION-PENETRATION NO. 39

This change installed an additional isolation valve in the primary drain system line from containment in order that the following advantages would be realized: 1) The differential pressure applied during 10 CFR 50, Appendix J leak testing would not have to be corrected for system back pressure; 2) The addition would permit valve alignments for monitoring leakage past containment isolation boundary valves.

This change modified the primary drain system, however, the function and pressure rating of the system remain unchanged. The function and operability of the containment isolation valves associated with this piping penetration were not affected. The consequences of an accident previously evaluated in the FSAR was not increased. This design change did not involve unreviewed safety question as defined in 10 CFR 50.59.

EDCR-89-53-2

APPENDIX J PRIMARY VENT SYSTEM MODIFICATION

This change installed an additional isolation valve in the primary vent system piping line from containment. Installation permitted isolation of the containment penetration from the remainder of the waste gas disposal system during Appendix J leak testing. In addition, the differential pressure applied across the containment isolation valves would not have to be corrected for system back pressure during penetration leak testing.

This change modified the primary vent system, however, the function and pressure rating of the system remain unchanged. The function and operability of the containment isolation valves associated with the containment piping penetration were not affected. The consequences of an accident previously evaluated in the FSAR was not increased. This design change did not involve an unreviewed safety question as defined in 10 CFR 50.59.

EDCR-89-53-3

APPENDIX J MODIFICATIONS TO THE CARDOX SYSTEM

This change installed valves and vent lines in the cardox fire protection system to containment. Installation of this additional equipment permitted leak testing of

the containment isolation valves in accordance with the guidelines set forth in 10 CFR 50, Appendix J. Specifically, the test pressure applied is now in the direction of flow for the containment isolation valves as required by 10 CFR 50, Appendix J. The differential pressure applied across the containment isolation valve C-A-15 would not have to be corrected for system back pressure during plant penetration leak testing. Finally, the modification permits the isolation boundary to be exposed to test pressures in containment during Class A containment structure leak testing as required by 10 CFR 50, Appendix J. A check valve installed as the original inside containment isolation valve was removed as its isolation was taken over by a globe trip valve.

This modification did not adversely affect the cardox fire protection system. The function and pressure rating of the system remain unchanged. The consequences of an accident previously evaluated in the FSAR was not increased. This design change did not involve an unreviewed safety question as defined in 10 CFR 50.59.

EDCR-89-53-4

APPENDIX J MODIFICATIONS TO THE NITROGEN SYSTEM PENETRATION #44

This change installed additional test boundary valves as well as replaced an existing maintenance intensive high leak rate check valve. The additional test boundary valves permit testing of the nitrogen system containment isolation valves in accordance with 10 CFR 50, Appendix J requirements. The replacement of the isolation boundary checkvalve with a different model corrected a binding problem as well as provided a better seal at high and low pressure applications.

This modification did not adversely affect the nitrogen system. The function and rating of the system remain unchanged. The probability of occurrence of an accident previously evaluated in the FSAR was not increased. This design change did not involve an unreviewed safety question as defined in 10 CFR 50.59.

EDCR-89-65

IMPROVEMENTS TO EDG COMPONENT COOLING WATER SYSTEM

This change resolved automatic actuation discrepancies associated with the primary component cooling/secondary component cooling and firewater systems as they relate to the emergency diesel generators. The air actuators for the backup firewater cooling outlet valves and the entire assemblies for the firewater inlet valves were removed and modified/replaced with handwheels and manual valves respectively. This modification eliminated problems associated with automatic actuation causing a cross-connection of the PCC and SCC systems.

This modification provided full time PCC/SCC flow to the diesels with manual actuation of firewater as backup cooling thereby increasing diesel generator reliability. This modification did not involve an unreviewed safety question as defined in 10 CFR 50.59.

EDCR-89-121

SECURITY LIGHTING MODIFICATIONS

This change provided for additional lighting to be installed on site to upgrade current lighting levels.

This change did not involve an unreviewed safety question per 10 CFR 50.59.

EDCR-89-123

SECURITY SYSTEM CLOSED CIRCUIT TELEVISION CONSOLE

This modification increased existing security parameter alarm assessment capabilities. It installed a closed circuit television system permitting immediate assessment of all isolation zones that were not observed by guard towers.

This change is non-nuclear safety in nature. This change did not involve an unreviewed safety question as defined in 10 CFR 50.59.

EDCR-89-507

ELECTRICAL EQ PENETRATION UPGRADE

This change installed ten replacement electrical penetration assemblies which are fully qualified in accordance with IEEE 317 and meet the environmental, seismic, and electrical requirements of Maine Yankee. This modification also provides improved calculated instrument loop accuracies during harsh environmental conditions as a result of higher insulation resistance values of replacement penetration assemblies. The replacement penetration assemblies do not exceed existing reactor containment integrity requirements.

This modification did not change the mode of operation or response of any plant safety system. The modification improved accuracy and reliability of safety-related components in the event of an accident. This modification did not involve an unreviewed safety question as defined in 10 CFR 50.59.

EDCR-89-600

REPLACEMENT OF HELB SIGMA METERS

This change involved the replacement of indicator/controllers in the engineered safeguards features panels A&B. The existing indicator/controllers meter movement were driven by a stepping motor, the operation of which caused a temperature rise within each indicator resulting in a temperature increase in the panels. This condition caused frequent indicator failure and false alarms. Also, maintenance and testing on existing units was difficult due to equipment configuration. To resolve

these concerns, the existing indicator/controllers were replaced with comparable non-stepping indicators to reduce overheating problems and to ease maintenance.

This challenge did not involve an unreviewed safety question as described in 10 CFR 50.59.

EDCR-89-703

REACTOR VESSEL LEVEL MEASUREMENT IMPROVEMENTS

This modification arose out of concerns that faulty vessel level indication is the most significant contributor to the loss or degradation of RHR, during reduced inventory or mid-loop operating conditions. The implementation of this change resulted in the replacement of the existing single narrow range channel level indicator with two channel level indicators using separate ICI guide tubes as sensing lines. In addition, two differential pressure indicators were provided for local indication.

This installation is a plant enhancement for non-power operations. The probability of an accident of a different type than any previously evaluated has not increased by this modification. The modification did not involve an unreviewed safety question as defined in 10 CFR 50.59.

EDCR-89-704

CONFORMANCE TO REG GUIDE 1.97 REV 3 TRANSMITTER INSTALLATION

This modification was implemented in accordance with Maine Yankee's commitment to REG GUIDE 1.97 Rev 3. An existing control room containment air temperature monitoring instrument loop was modified by replacing the existing temperature transmitter with one that has narrow and wide range outputs capable of providing existing loop function as well as input to the plant computer.

This design change provides containment air temperature information during and following accident conditions. This modification did not increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the FSAR. This change did not involve an unreviewed safety question as defined in 10 CFR 50.59.

EDCR-89-708

HEAT TRACE OF MOTOR OPERATORS OF VALVES IN RWST ENCLOSURE

This design change added freeze protection to the main gear case of six motor operated valves located in the refueling water storage tank enclosure. Electric heat tape was wrapped around the main gear case of each valve and controlled by a thermostat. A low temperature alarm was also included in this modification. This

modification is designed to maintain the viscosity of the lubricating grease in the motor operators of the six safety-class valves so that the grease would not harden and cause a delay in the valve cycling time.

This change modifies the control and alarm circuits of the heat tracing system. Failure of a heating circuit or loss of control power to a local alarm panel would not create an unsafe condition for plant operations. The modification did not involve an unreviewed safety question as defined in 10 CFR 50.59.

EDCR-89-801

SERVICE WATER RMS INPUT TO PLANT COMPUTER

This modification provided plant computer trending and historical data collection of radiation monitoring system data. This modification also permitted unused channels to be shut off without causing main control board alarms. This change involved the addition of 9 RMS channel inputs to the plant computer and the rewiring of annunciator circuits in the RMS panel. This also involved the removal of power and annunciator wiring from two radiation monitors to make them installed spares.

Plant operation, procedures or reliability were not affected by the installation activities. Adequate radiation monitoring instrumentation remains available for event identification and rad effluent release and post accident monitoring. This change did not involve an unreviewed safety question as defined in 10 CFR 50.59.

EDCR-89-802-1

MOV LIMIT SWITCH AND POSITION INDICATION MODIFICATION

This design change involved modifications to existing motor operated valves to address indication discrepancies as well as limit switch functional limitations. Indication discrepancies were addressed by rewiring overload relays such that the valve motor operator if tripping out on a torque overload due to internal obstruction would indicate as such at the main control board rather than simply on limit. In addition a torque bypass feature allows the torque switch to be bypassed using a limit switch contact permitting a heavily seated valve to unseat and either open or close on limit.

This modification changed the gear limit switches from 2 rotor to 4 rotor providing a more accurate valve position indication and torque bypass. This modification did not compromise nuclear safety. The affect of this modification enhances the valves' operability in an accident condition in respect to the actual position indication of the valve. The action did not involve an unreviewed safety question as defined in 10 CFR 50.59.

EDCR-90-28

INVERTER RELIABILITY UPGRADES

This design change added forced ventilation to the safety class inverters. Fans were added to improve performance and reliability by decreasing the aging effect on internal components due to temperature.

This modification did not involve an unreviewed safety question as defined in 10 CFR 50.59.

MINOR-EDCR-90-603

MINOR MOD TO POWER RANGE A9 BUFFER AMPLIFICATION CARDS

This minor modification involved restoration of the reactor protective system power range safety channel buffer amplification cards. The modification reconfigured the circuits' output signals from linear amplifiers A & B to the TEC plant computer to improve the circuit's reliability.

This change did not involve an unreviewed safety question as defined in 10 CFR 50.59.