YANKEE ATOMIC ELECTRIC COMPANY

YANKEE NUCLEAR POWER STATION

(DOCKET NO. 50-29)

1987 ANNUAL REPORT

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1987 ANNUAL REPORT

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INTRODUCTION

The Yankee Nuclear Power Station is a pressurized water reactor plant of 185 MW electrical capacity. The Nuclear Steam Supply System is a Westinghouse four-loop design. The architect/engineer and constructor for this plant was Stone & Webster Engineering Corporation of Boston, Massachusetts. The main condenser cooling is a once-through design using the Deerfield River as the cooling medium. The plant is operated in accordance with Facility Operating License DPR-3, issued July 19, 1960. The date of initial reactor criticality was August 19, 1960, and commercial operation began July 1, 1961.

Part 1 of this annual report is submitted in accordance with Technical Specification 6.9.2.b. This report for changes, tests, and experiments is submitted in accordance with 10CFR, Chapter 1, Part 50.59(b).

The changes, tests, and experiments identified in this report have been reviewed for and were determined not to constitute an unreviewed safety question as described in 10CFR50.59(a)(2).

Part 2 of this annual report is submitted in accordance with Technical Specification 6.9.2.d. This report for Specific Activity Analyses is submitted to identify main coolant which has exceeded the limits of Technical Specification 3.4.7.

Part 3 of this annual report is submitted in accordance with TMI Action Plan, Item II.K.3.3. This reports a summary of safety valve and relief valve failures and challenges.

PLANT CHANGES

A. Engineering Design Changes (EDCs)

- EDCR 86-305 - Masonry Wall Upgrades: PAB, Upper Pipe Chase, and Cable Tray House - For SEP

  Some masonry walls, which can affect the Safe Shutdown Equipment, were upgraded. The changes consisted of masonry wall structural modifications and equipment modifications/relocations due to interferences with the structural modifications. Walls modified were in the Primary Auxiliary Building (PAB), Upper Pipe Chase, and the Cable Tray House. Equipment modified: removal of blowdown flash tank line, relocation of ambient temperature switch (thermostat) for heat trace transformer, relocation of exterior PAB lighting and evacuation alarm horn, repositioning of PAB Gaitronics speaker, relocation of various conduit and cables in the PAB and Cable Tray House.

  The walls and equipment are all classified as Non-Nuclear Safety. The Plant Technical Specifications are not affected by the implementation of this change; however, the FSAR was affected and revised to incorporate this change.

- EDCR 86-307 - Replacement of the Hi and Lo Set Safety Valves on the Safety Injection System

  The Low and High Pressure Safety Injection (LPSI, HPSI) relief valves were replaced. The modification includes replacing SI-SV-211, SI-SV-55, LPSI pump discharge piping check valve bolts, HPSI relief valve discharge/inlet piping, and LPSI relief valve discharge/inlet piping. The modification was made to reduce the relief capacities and to reset the pressure setting of the valves.

  The safety classification of the modified system is Safety Class 2. The Plant Technical Specifications are not affected by the implementation of this change; however, the FSAR is affected and will be revised to incorporate this change.

- EDCR 86-315 - Sample Line Off the HPSI Line and Modifications to the Sample Lines for Post-Accident Sampling System (PASS)

  The PASS has been upgraded. The change consists of modifying the PASS sample lines and adding a HPSI sample line. These changes will allow for sampling the containment sump and obtaining a sample at very low main coolant system pressures.

  The sample system and line involved in this change are Non-Nuclear Safety, with the exception of HPSI sample line up to and including SA-V-665. The Plant Technical Specifications are not affected by the implementation of this change; however, the FSAR is affected and will be revised to incorporate this change.

- EDCR 86-318 - Post-Accident Sample System (PASS) Modifications - Replace SA-V-513 with a new Motor-Operated Valve, and install a new Motor-Operater on CH-MOV-525 and Replace Motor-Operater on CH-MOV-527

  The PASS upgrade consisted of 1) changing the sample path from loop drains to the reactor bleed line for main coolant sample, 2) replacing a manual valve SA-V-513 with a motor operated valve to allow for operation following a LOCA, 3) upgrade the motor-operated, power, and control cables of CH-MOV-525. The replacement of CH-MOV-527 is limited to an equivalent type motor operator only.

  The changes to the PASS are classified as Non-Nuclear Safety. CH-MOV-525, 527 and SA-MOV-513 are Safety Class 1 boundary valves and are classified as Safety Class 1. The electrical equipment, i.e., motors, cable, starters, control switches, are Non-Nuclear Safety since these valves are not required to be operated to mitigate the consequences of an accident.

  This change affects equipment which is classified as Safety Class. The Plant Technical Specifications are not affected by the implementation of this change; however, the FSAR is affected and will be revised to incorporate this change.

- EDCR 86-320 - Upgrade of Meteorological Recorders in the Main Control Room

  The plant meteorological recorders in the Main Control Room have been replaced and relocated. This change addresses human factor considerations and resolves operational and maintenance difficulties with the recorders.

  The weather instrument recorders are classified as Non-Nuclear Safety. The Plant Technical Specifications and the FSAR are not affected by the implementation of this change.

- EDCR 86-321 - HEDs, Main Control Room Panel Labeling Upgrade

  This modification upgrades the present labels by establishing a consistent standard of label identification, size, location, nomenclature, etc., in the Main Control Room with nameplates which are in conformance with Specification YRS-013, "Design Guidance for Human Factors Engineering of Control Room Equipment."

  The replacement nameplates enhanced the operational functions of the plant by containing more definitive/descriptive legends; and in most cases, offers additional information such as power sources and/or component identification numbers.

  The upgraded labels are Non-Nuclear Safety components. The labels are utilized to meet the intent of NUREG-0700. The Plant Technical Specifications and the FSAR are not affected by the implementation of this change.

o EDCR 86-322 - Redundant Turbine Trip System

The modification increases the reliability of the Turbine Generator Trip System by installing redundant trip coils to OCB 1 and OCB 2, and installing a redundant automatic turbine trip. The reliability of the original Turbine Generator Trip System is enhanced with the installation of the redundant trip system powered from an alternate power source, DC Bus 2. Additionally, this modification upgrades the existing scram auxiliary relay control circuit by installing a seal-in feature to ensure 20RS remains energized once actuated via the scram pushbuttons or when the scram breakers are manually tripped locally at the Switchgear Room. This modification does not change the function of the system; however, it does provide a redundant turbine trip control circuit.

The electrical equipment affected by this change is classified as follows: 1) 115 kV Oil Circuit Breakers OCB1/2 and control switches are Non-Nuclear Safety, and 2) 125 V dc Panel DC-2A, 20RSA Redundant Scram Auxiliary Relay, 20TVA Redundant Turbine Trip Solenoid and 20RS Scram Auxiliary Relay Control Circuit are Safety Class.

The Plant Technical Specifications are not affected by the implementation of this change; however, the FSAR is affected and will be revised to incorporate this change.

o EDCR 86-323 - Addition of a 2400 V Breaker

In order to resolve the findings of the voltage and loading studies, ACB 424 was installed to feed SST 4 directly from 2400 V Bus 1. With SST 4 directly connected to Bus 1, each 480 V bus will be energized by its own SST during 240 V bus tie configurations. This eliminates the need to tie 480 V buses together, and alleviates the safeguard load starting and operating concerns identified by the studies.

Since there were no spare breakers or cubicles on 2400 V Bus 1, a new cubicle to accommodate the new breakers and auxiliary equipment was added and the existing bus bars were extended. Synchronized control of the new ACB 424 was provided at the main control board.

2400 V Air Circuit Breaker 424, 2400 V Bus 1, and SST 4 are classified as Non-Nuclear Safety. The 480 V emergency buses and their safety loads are classified as Safety Class. The Plant Technical Specifications are not affected by the implementation of this change; however, the FSAR is affected and will be revised to incorporate this change.

o EDCR 86-325 - Fixed Incore Detection System (FIDS)

This change installed six (6) fixed incore detector assemblies containing five self-power neutron detectors (SPNDs) into six failed movable neutron flux thimble locations. Also installed as part of the FIDS, is a computer based data acquisition system.

The incore detector assemblies are classified as Safety Class 1; the remaining are classified as Non-Nuclear Safety. The Plant Technical Specifications are not affected by the implementation of this change; however, the FSAR is affected and will be revised to incorporate this change.

- <u>EDCR 86-326 - Human Engineering Deficiencies (HEDs) Main Control Room Panels Paint, Mimic, and Zone Coding</u>

  This change addresses the HEDs areas of painting panels, replacing and modifying mimic and zone coding.

  This change affects equipment classified as Safety Class. The Plant Technical Specifications and the FSAR are not affected by the implementation of this change.

- <u>EDCR 86-327 - Human Engineering Deficiencies (HEDs) Diesel Generator - SI Recirculation Panel Enhancement</u>

  The change addresses the HEDs in the areas of the following panels: 1) Recirculation, 2) Safety Injection, 3) Diesel Generator and 4) Main Control Board Panel 1.

  Human Engineering Principles were applied consistently in the use of nameplates, color coding, abbreviations, and mimics. Anthropometric limits were checked as were the type of control and monitoring equipment used for a particular function. Finally the overall panel layouts were reviewed for optimum operator performance considerations.

  This change affects equipment classified as safety class. The Plant Technical Specifications are not affected by the implementation of this change; however, the FSAR is affected and will be revised to incorporate this change.

- <u>EDCR 87-301 - Core Baffle Plugs</u>

  The purpose of this design change is to reduce both the flow through the control rod spacers which will reduce the high pressure differential between the flow channels and the core, thereby reducing the potential baffle jetting mechanism for damaging fuel. During the 1987 refueling outage, a total of 18 plugs were installed.

  This change affects equipment classified as non-nuclear safety. The Plant Technical Specifications are not affected by the implementation of this change; however, the FSAR is affected and will be revised to incorporate this change.

B. Plant Design Changes (PDCs)

o **PDCR 85-003 - Automation of Transformer Deluge System**

This change automated the initiation of the deluge system that protects the outside transformers on the west side of the Turbine Building. To accomplish this, thermal detectors were installed around each transformer. The detectors are wired alternately to provide two detection zones. Control modules were added to the existing Pyrotronics Control Panel for the transformer cooler and seal oil unit deluge system. The controls were wired to provide a cross zone requirement for actuation to the deluge valve. (Cross zone means that at least one detector in each detector zone must be in an alarm condition before the system will actuate.) A manual-electric pull station is provided at the Detection Panel.

The equipment is classified as Non-Nuclear Safety/QA Required. The Plant Technical Specifications are not affected by the implementation of this change; however, the FSAR is affected and will be revised to incorporate this change.

o **PDCP 86-001 - Addition of an Equalizing Line Between the SI Accumulator and the Accumulator Safety Valve Relief Header**

This change consisted of installing a tubing crosstie between the safety injection accumulator vent valve and the accumulator expansion tank vent valve.

To facilitate venting operations of the safety injection accumulator, a 3/8" stainless steel tube crosstie was installed between SI-V-741 and SI-V-45. This crosstie allows nitrogen venting of the safety injection accumulator and collection of any liquids in the safety injection accumulator expansion tank during venting operations.

The Safety Injection Accumulator and associated piping is classified as Safety Class 2. The Plant Technical Specifications are not affected by the implementation of this change; however, the FSAR affected will be revised to incorporate this change.

o **PDCR 86-002 - Expansion of Level B Storage in the Warehouse**

An area approximately 20 ft x 40 ft on the west end of the existing warehouse has been enclosed and upgraded to meet the requirements for Level B storage. A new wall was installed in the west bay of the warehouse. This area is insulated, heated, and has new lighting. The roof of this enclosure is used as a mezzanine level storage area. Fire protection is provided by tapping off the existing warehouse sprinkler system.

The Fire Protection Piping is classified as Non-Nuclear Safety/QA Required. The remainder of the Level B Storage Project is classified as Non-Nuclear Safety. Plant Technical Specifications are not affected by the implementation of this change; however, the FSAR has been revised to include this change.

o PDCR 86-003 - Removal and Relocation of NNS Loads on EMCCs 3 and 4

The primary purpose of this design change was to remove NNS electrical loads from the plant emergency busses and supply them with power from an NNS source. As a secondary purpose, for improving the electrical services, permanent electric heat and a Gaitronics paging station.

EMCCs 3 and 4 from which the loads were removed are classified as Safety Class. The existing lighting and receptacle circuits removed from the 120 V distribution panels in EMCCs 3 and 4 are Non-Nuclear Safety Class. All new equipment installed is also Non-Nuclear Safety Class. The Plant Technical Specifications are not affected by the implementation of this change; however, the FSAR is affected and will be revised to incorporate this change.

o PDCR 86-005 - Improvements to the PAB and ABR

This change was implemented to improve selected security barriers in the Primary Auxiliary Building (PAB), the Auxiliary Boiler Room (ABR), and the Upper Pipe Chase. This change was made to address NRC observations identified in the 1986 Security Regulatory Effectiveness Review.

The barrier modifications are classified as Non-Nuclear Safety and do not adversely impact upon any other safety-related system. The Plant Technical Specifications and the FSAR are not affected by the implementation of this change.

o PDCR 86-006R1 - HPSI Flow Channel Upgrade

The old Rosemount transmitter, SI-FT-5, used to measure hot leg safety injection flow was replaced with a new Rosemount transmitter having a lower upper range limit and therefore, a better post-accident accuracy than the old transmitter.

An electronic square root extractor was added to the cold leg Safety Injection Flow Loop, SI-F-6, and the scale for flow indicator, SI-FI-6, has been replaced with a scale having linear divisions.

The square root extractor is located in the Safety Injection Panel (SIP). All signal and power wiring required to implement this change is confined to the SIP.

The modifications made as a result of this change are classified as Safety Class. The Plant Technical Specifications and the FSAR are not affected by the implementation of this change.

o PDCR 86-008 - Additional Main Coolant Vent Piping Supports

This change installed a 3/8 inch rod hanger (VRL-154-8) on a 1" main coolant vent line. The hanger is located on a short horizontal run before the pipe enters the vertical pipe chase.

Also, the existing saddle support (VL-154-5) on a 1" line located approximately 19" downstream of VD-V-696 was modified.

The main coolant vent line (VRL-154-8) is classified as Safety Class 3. The vent line (VL-154-5) is classified as Non-Nuclear Safety. The Plant Technical Specifications and FSAR are not affected by the implementation of this change.

- <u>PDCR 87-001 - Relocation of the Heater Drain Tank Level Control Power Supply From the NEUPS to Vital Bus 1</u>

  This change modifies the power source for the Heater Drain Tank (HDT) and No. 3 Feedwater Heater (FWH) level control channels from the MG Nonessential Uninterruptible Power Supply (NEUPS) which feed Set Distribution Panel to Vital Bus (VB) No. 1.

  The NEUPS has been subject to failure in the past due to nearby lightning strikes. The HDT level control channel is powered from this source and, if the power is interrupted to the control channel, a plant trip may result. This has happened twice in the past. To improve reliability, the power supply was changed to VB No. 1.

  The safety classification of the HDT and No. 3 FWH level channels are Non-Nuclear Safety. The vital bus, up to and including the individual circuit breaker which supplies the power, is Safety Class. The Plant Technical Specifications and the FSAR are not affected by the implementation of this change.

- <u>PDCR 87-003 - Install Lights to Monitor the Operation of the Steam Generator Narrow-Range Level Trip Channel Low Level Trip Relays</u>

  Two GE ET-16 red indicating lights were installed inside the main control board Section 6R, below Terminal Block FTB645, to indicate the operation of the steam generator narrow-range level trip relays. One light is dedicated for the Train A relays and the other light is dedicated for the Train B relays. Each indicating light lights whenever a respective train relay is operated. Both lights are powered by the 120 V ac Vital Bus 1 from FTB645.

  The modifications are classified as Safety Class. The Plant Technical Specifications and the FSAR are not affected by the implementation of this change.

- <u>PDCR 87-005 - Reactor Vessel Sliding Inspection</u>

  During the 1987 refueling outage, the area between the concrete wall and neutron shield tank was inspected to see if there was a gap which could allow the shield tank to move. The inspection consisted of a visual inspection of the annulus below the outer reactor cavity seal ring.

  The outer seal ring was machined using a portable hole saw. Three adjacent holes were cut into the seal ring plate. The resulting open area measured approximately 7" x 2.5".

Upon completion of the inspection, the open sections of the annulus were sealed with a bolted and gasketed cover plate.

The outer cavity seal is classified Non-Nuclear Safety. The Plant Technical Specifications and the FSAR are not affected by the implementation of this change.

- PDCR 87-006 - Modify Containment Isolation Blank Flanges for the Fuel Chute, Containment Purge Blanks, and the Fuel Chute Dewatering Line

  This change modified the containment isolation blank flanges identified below by machining the face of each flange between the existing O-ring grooves to a depth of .024 inches. This provides a test volume which ensures that the entire O-ring seating surface is subjected to test pressure during 10CFR50, Appendix J, Type B, leak rate testing.

VC Penetration Number	Description
77	Fuel Chute
91	Containment Air Purge Inlet
92	Containment Air Purge Outlet

  This change also modified the fuel chute dewatering pump discharge containment penetration (78) closure by replacing the double O-ring type flange with a gasket type flange and adding a removable spool piece.

  The subject flanges form part of the containment pressure boundary and are classified as Safety Class 2. The Plant Technical Specifications are not affected by the implementation of this change; however, the FSAR is affected and will be revised to incorporate this change.

- PDCR 87-008 - Security Upgrade of the Switchgear Room and the Screenwell House

  This change was implemented to improve security in the Switchgear Room and the Screenwell House. This change was made to address NRC observations identified in the 1986 Security Regulatory Effectiveness Review.

  The barrier modifications are classified as Non-Nuclear Safety and do not adversely impact upon any other safety-related system. The Plant Technical Specifications and the FSAR are not affected by the implementation of this change.

C. Plant Alterations (PAs)

o PA 85-009 - Drainage Improvement at South Fence

Drainage Improvement at South Fence

The work consists of channeling the drainage ditch located immediately outside of the south environmental fence.

Approximately 1,000 ft of channel was improved. The new channel has a depth of 7.5 ft, a base width of 8 ft, and side slopes of 1.5 ft horizontal and 1 ft vertical. The side slopes and the areas disturbed by construction have been seeded with grass. The bottom of the channel has a crushed stone base.

Access Road

This work consists of the following:

1. Installation of a new 16'-0" wide double leaf gate near the southwest corner of the security fence and modifications of the Inertia Guard Alarm System to provide continuity at the new gate.

2. Installation of a new 4' chain link fence to provide a barrier between the primary and secondary sides. This also includes relocation of the sliding gate.

3. Construction of a paved road along the west security fence, through the southwest corner of the fence, and to the Pole Barn. This also includes installation of new culvert to provide for proper drainage.

This change is classified as Non-Nuclear Safety. The Plant Technical Specifications and the FSAR are not affected by the implementation of this change.

o PA 85-016 - Extend APPLE/CYBORG Inputs to the RE Office

The Reactor Engineering APPLE/CYBORG Computer System was moved from its present location at the rear of the Main Control Room to the Reactor Engineering Office.

Because of the new computer location the following input signal cables were extended from the junction box above the Teleflex Control Cabinet in the Control Room to the Reactor Engineering Office:

1. 1 VC Pressure Channel (Mensor)
2. 1 Barometric Pressure Channel (Setra)
3. 25 VC Temperature RTD Channels
4. 1 Atmospheric Temperature RTD Channel
5. 4 VC Dewpoint Channels

Two VC Pressure Channels (VC-P-237 and VC-P-238) were added as inputs to the Computer System at this time.

This change is classified as Non-Nuclear Safety. The Plant Technical Specifications and the FSAR are not affected by the implementation of this change.

o PA 86-001 - Addition of Blowdown Valves on the North and South Control Air Header in the Lower PAB

Two drain lines and a dew point apparatus were added to the control air lines near where they enter the Lower Level PAB. Each of the drain lines has an isolation valve and each of the taps for flow to the dew point apparatus has a throttle valve to adjust the air flow.

The drain lines are added so that moisture can be drained off to prevent possible freezing and ice problems. The taps and the dew point apparatus were installed so that the Chemistry Department can check the dew point of the air the same as is presently done in the Pump Room.

This change is classified as Non-Nuclear Safety. The Plant Technical Specifications and the FSAR are not affected by the implementation of this change.

o PA 86-004 - Installation of NEPEX Telemetering System

This alteration will enable a NEPEX computer to access a dedicated in-plant telephone extension via the microwave system to read YNPS's KWH meters.

A Remote Access Pulse Recorder (RAPR) was installed in the Main Control Board and connected to both the plant telephone system and four new KWH meters. The new KWH meters directly replaced the existing four KWH meters measuring gross generator output, and energy consumption by Station Service Transformers 1, 2 and 3. The new KWH meters are Westinghouse, similar to the existing meters, but have a pulse initiator contact which signals the RAPR of registered KWHs. The NEPEX computer now performs a "call up" to the RAPR every 24 hours, around midnight, to read the plant KWH meters individually. The computer calculates the net station output by subtracting the station service from the gross generation.

This change is classified as Non-Nuclear Safety. The Plant Technical Specifications are not affected by the implementation of this change; however, the FSAR is affected and will be revised to incorporate the change.

o PA 86-013 - Removal of the Resin Alarm Circuit on the No. 1 and No. 2 Demineralizers - Install a Resin Trap in the Overflow Header

The existing Loss of Resin Alarm Instrumentation for Nos. 1 and 2 Demineralizers in the Water Treatment Plant were removed along with the associated wiring and hardware. A sight flow indicator with a resin trapping screen (50 mesh) was installed in the common backwash piping of the two demineralizers. This serves as a positive indication to the operator of loss of resin and also traps the resin before it is lost overboard.

This change is classified as Non-Nuclear Safety. The Plant Technical Specifications are not affected by the implementation of the change; however, the FSAR is affected and will be revised to incorporate the change.

- <u>PA 86-019 - Upgrade of Water Treatment Instrumentation</u>

  This change enables a more integrated and complete monitoring of Water Treatment and Secondary Water Chemistry Control parameters at a centralized location.

  The Water Treatment, Quality Monitoring Instrumentation was upgraded with new state of the art equipment. Additional monitors were added to monitor additional parameters to aid both the Operations and Chemistry Departments. All monitored parameters associated with this change, except a Turbidity Channel, will have a digital readout located in a Double Bay Control Cabinet in the Water Treatment Plant, and powered from Circuit "15" of the MG Set Distribution Panel. The Turbidity Channel has a local readout at the coagulator.

  This change is classified as Non-Nuclear Safety. The Plant Technical Specifications and the FSAR are not affected by the implementation of this change.

- <u>PA 86-020 - Modification of Switchgear Room Elevator Entrance</u>

  This change installed a barrier in front of the switchgear entrance. This change is a security upgrade.

  This change is classified as Non-Nuclear Safety. The Plant Technical Specifications and the FSAR are not affected by the implementation of this change.

- <u>PA 86-026 - Addition of a Fill Line on the Breathing Air Compressor System for Scott Air Bottles</u>

  Installation of 3/8" x .049" stainless steel tubing line from the Breathing Air Accumulator (TK-75) discharge line to the Scott Air Pak fill stations in the Auxiliary Boiler Room. The line taps off downstream from the accumulator discharge filter. Isolation valves were installed in the new tubing line and just upstream of the accumulator discharge pressure regulator. The new line runs outside along the Turbine Building south wall, enter the Auxiliary Boiler Room above the roll-up door, and go to the air-pak fill stations at the breathing air compressors. Existing unistrut supports and hangers were used to support the tubing. The two fill stations each consist of a pressure regulator, downstream shut-off valve, and flexible hose, fed directly from one of the two compressors. The new line ties in just upstream of each pressure regulator and can be isolated from the compressor discharge line by an isolation valve. This isolation valve allows filling air-paks directly from the compressors if the accumulator or breathing air control system is out of service.

This change is classified as Non-Nuclear Safety. The Plant Technical Specifications and the FSAR are not affected by the implementation of this change.

- PA 86-027 - Removal of Valves WD-V-735 and WD-V-773

  This change removes valves WD-V-735 and WD-V-773 to protect and assist in transferring and monitoring of waste.

  Valve WD-V-735 was removed and the pipes capped to eliminate the cross connect between the waste liquid transfer pumps, P-28-1 and P-28-2, discharge and the test tank effluent pump, P-31, discharge.

  Valve WD-V-773 was removed and the pipes capped to isolate monitored waste tank transfer pump, P-26-2, from the monitored waste tanks.

  This change is classified as Non-Nuclear Safety. The Plant Technical Specifications are not affected by the implementation of the change; however, the FSAR is affected and will be revised to incorporate this change.

- PA 86-029 - Control Point Modifications

  This change implemented the redesign and upgrade of the access Control Point to the Radiation Control Area (RCA). The upgrade involved the removal of selected walls and all lockers in the existing Control Point with the creation of a dressing facility for donning protective clothing (PC) and a Women's Clean Locker Room. General control over the flow of all personnel and administrative functions is exercised by Radiation Protection personnel from a newly installed central counter area. Personnel at the counter area provide administrative assistance to both clean side and RCA personnel.

  Decontamination of the Control Point floors is improved by the installation of an epoxy flooring system throughout the Control Point.

  Respiratory protection devices are stored in and issued from a dedicated facility adjacent to the dressing facility. Respirator washing and small tool decontamination will be located in the area adjacent to the Contaminated Toilet. The implementation of one time use of protective clothing will be facilitated by the installation of a Contaminated Laundry Storage area. Installation of state-of-the-art whole body friskers reduces frisking time while improving the reliability of the frisking program. The existing Contaminated Shower was modified to provide privacy during decontaminations and subsequent manual frisking. The transition to a single Control Point access for men and women was facilitated by minor alterations to the Men's Locker Room involving locker relocations and modesty bath partitions.

This change is classified as Non-Nuclear Safety. The Plant Technical Specifications are not affected by this change; however, the FSAR is affected and will be revised to incorporate the change.

- <u>PA 86-030 - Installation of a Flow Meter in the Blowdown Tank Discharge</u>

  This change installed a flow metering instrument system manufactured by Flow Research Corporation to monitor the blowdown tank effluent which discharges to the service water overboard system.

  The Flow Research Model FL-1000 RT analog rate indicator is mounted on the lower PAB north wall near the blowdown tank. This readout device which interprets the electrical signal from the flow transducer, has the following capabilities:

  1. Displays rate of flow (0-150 gpm)
  2. Totalizes flow
  3. has a 4-20 MA analog output option

  The FL-1000 RT analog indicator is powered, 120 V ac, from lighting panel P1 circuit 30. This circuit presently powers the blowdown tank sampling system.

  This change is classified as Non-Nuclear Safety. The Plant Technical Specifications and the FSAR are not affected by the implementation of this change.

- <u>PA 87-004 - Relocation of 100# Instrument Air System to Water Treatment</u>

  This change removed the 1/2" copper tubing which supplies instrument air to the Radiation Protection Lab. Install a new air supply station at column line 4, near MCC 3, in Water Treatment.

  The supply station consists of a regulated and an unregulated (100 psig) air supply tap with an isolation valve for each tap. An existing regulator in the 1/2" copper line, which was removed, was reused at the supply station.

  The tubing will be labeled "Instrument Air" to preclude its use for other purposes.

  The instrument air lines are classified Non-Nuclear Safety. The Plant Technical Specifications and the FSAR are not affected by the implementation of this change.

D. Plant Operation Changes

1. Removal of Ion Exchange Canister From Service

Due to problems with overheating and vessel weakening, the Ion Exchange Canister has been removed from service. Valves WD-V-901 and WD-V-902 have been tagged closed and the bypass valve, WD-V-900 has been opened. This has removed not only the Ion Exchange Canister but also the filter from service. In order to return the filter to service, the Ion Exchange Canister was replaced by a spool piece. This spool piece remained in place until the new Ion Exchange Canister was installed. The addition of this spool piece will in no way affect the operation of the filter.

FSAR Section 209, Radioactive Waste Disposal System, mentions the Ion Exchange Canister and filter as being used to remove nonvolatile fission and corrosion products from the Evaporator Distillate. While this change made the system different than its description in the FSAR, it made the current operation closer to the designed conditions by returning one filtration unit to service. The spool piece was made to the same specifications as the rest of the system in terms of material and pressure retaining capability. As a result, the change did not reduce the pressure retaining capabilities of the system. Based on these facts, this change did not present a significant hazard not described or implicit in the Final Safety Analysis Report.

2. Removal of Moat Drain Line

The moat drain line and cavity fill lines are classified NNS. The affected line is being temporarily removed to reduce area dose rates and retrieve a hot chip lodged in CS-V-600. The pipe removal does not eliminate the function of the lines during normal operation since the open ends will continue to provide a shield tank cavity drain path (i.e., during an accident, water will drain from the shield tank cavity to the Loop 1 compartment as per the existing design).

A review of the FSAR (Sections 203 and 211) and the Plant Technical Specifications has been performed with no impact noted, other than that Figure FM-8A does show the line to be removed. The "as left" configuration is adequately supported because of its short length and will require no additional stiffening. Contamination control will be established by RP. Equipment in the vicinity of the open piping will not be adversely impacted by this temporary modification.

TESTS

No tests were performed during 1987 which are reportable pursuant to 10CFR50.59.

EXPERIMENTS

There were no experiments conducted during 1987.

SAFETY AND RELIEF VALVE FAILURES AND CHALLENGES

There were no challenges to the pressurizer or steam generator's safety and relief valves, nor were there any failures of those safety and relief valves required to be operable by the Plant Technical Specifications. The main steam safety valves (SV-409E and SV-409F) setpoint drift was previously reported in Licensee Event Report 50-29-87-005. The pressurizer code safety valve (PR-SV-182) setpoint tolerance error was reported in Licensee Event Report 50-29/87-007.

SPECIFIC ACTIVITY ANALYSES

Plant Technical Specification 6.9.2.d requires that the results of specific activity analysis in which the primary coolant exceeded the limits of Specification 3.4.7. On October 15, 1987 the dose equivalent iodine-131 concentration of the primary coolant exceeded one (1.0) microcurie per gram for a period of one hundred and thirty five (135) minutes. Table 1 and Figure 1 accompanying this report depicts the remaining information required by Plant Technical Specification 6.9.2.d.

TABLE 1

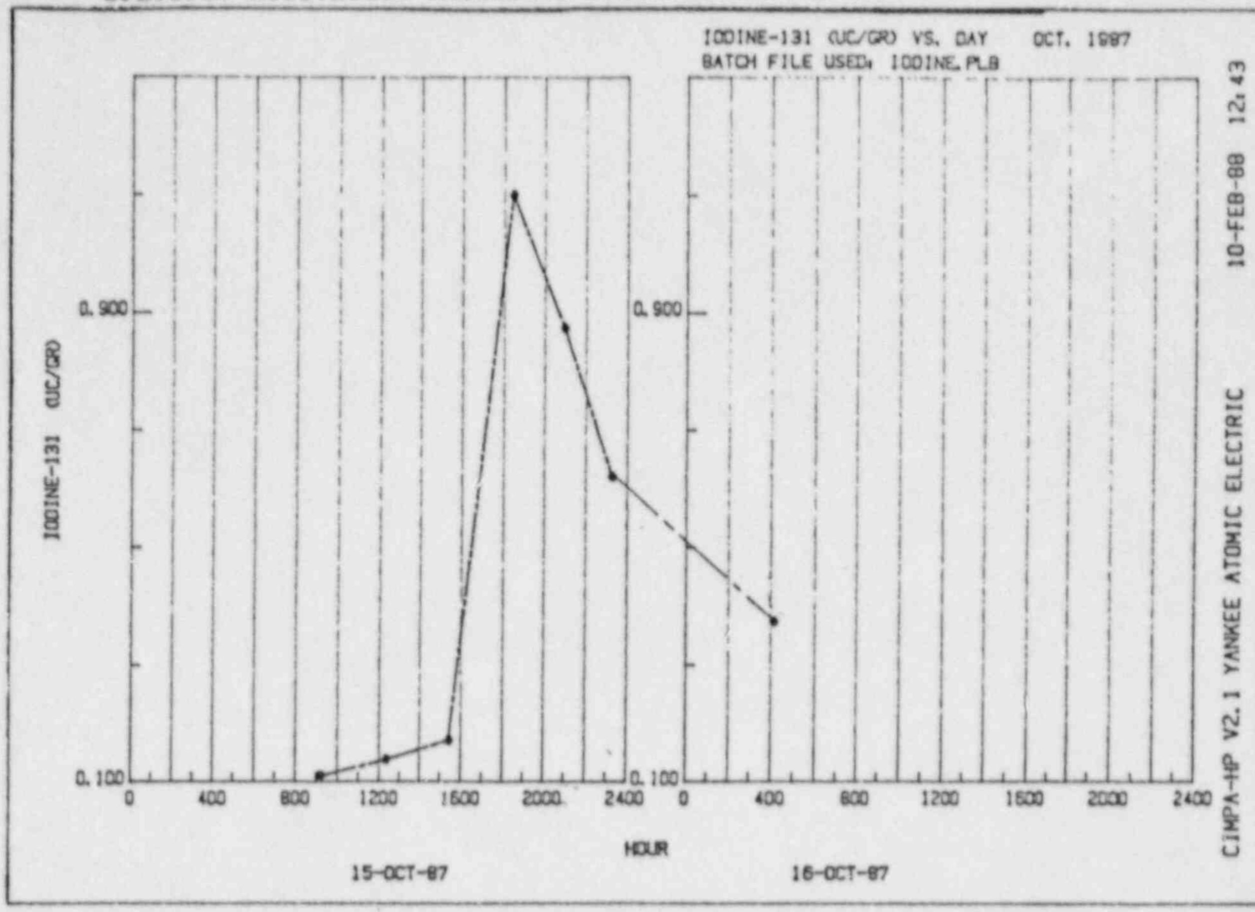
Specific Activities Exceeding Technical Specification 3.4.7

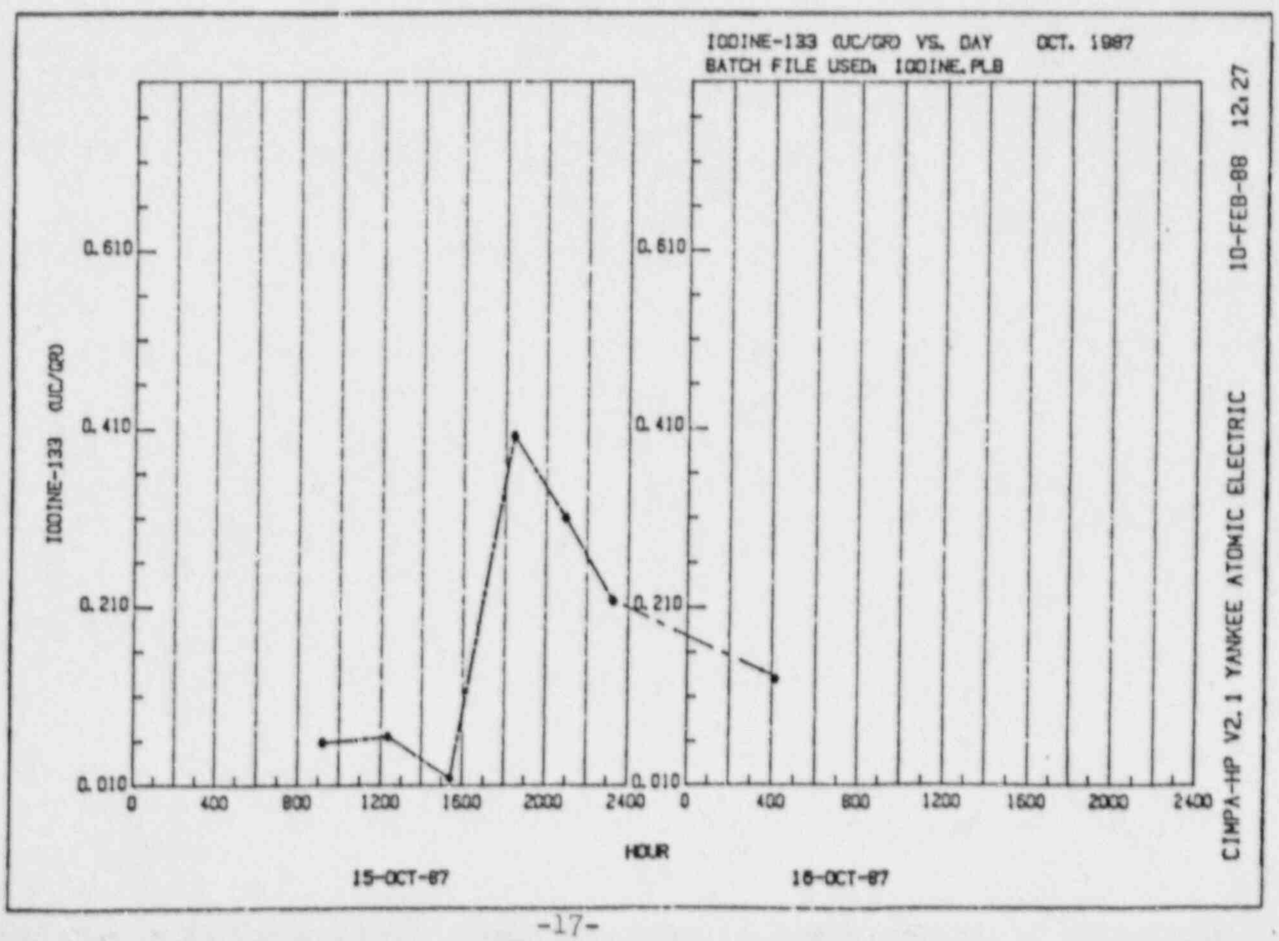
Date	Time	MWT	Letdown Flow (gpm)	DE I-131	I-131	I-133
10/13/87	0905	599.9	25	8.24E-2	1.27E-2	1.28E-1
10/14/87	0645	69.9	26	5.96E-2	1.05E-2	9.86E-2
10/14/87	0940	0.0	27	4.80E-2	1.20E-2	7.76E-2
10/14/87	1315	0.0	39	4.08E-2	1.55E-2	5.60E-2
10/14/87	1730	0.0	40	4.07E-2	2.20E-2	4.40E-2
10/14/87	2035	0.0	40	4.73E-2	3.26E-2	3.66E-2
10/15/87	0005	0.0	40	6.43E-2	4.73E-2	3.94E-2
10/15/87	0340	0.0	40	1.03E-1	8.28E-2	5.46E-2
10/15/87	0655	0.0	38	1.33E-1	1.10E-1	6.41E-2
10/15/87	0925	0.0	36	1.32E-1	1.11E-1	5.88E-2
10/15/87	1235	0.0	40	1.61E-1	1.39E-1	6.56E-2
10/15/87	1545	0.0	38	1.95E-1	1.72E-1	1.88E-2
10/15/87	1845*	108.9	40	1.23E-0	1.10E-0	4.02E-1
10/15/87	2100	228.8	40	9.68E-1	8.74E-1	3.09E-1
10/15/87	2330	276.2	40	6.94E-1	6.21E-1	2.17E-1
10/16/87	0415	320.1	38	4.24E-1	3.74E-1	1.29E-1
10/16/87	0740	366.3	40	2.65E-1	2.23E-1	9.33E-2
10/16/87	1145	374.1	40	1.77E-1	1.40E-1	7.59E-2
10/16/87	1505	236.8	40	1.21E-1	9.22E-2	6.37E-2
10/16/87	2030	0.0	40	6.50E-2	4.70E-2	3.55E-2
10/16/87	2200	99.6	40	1.28E-1	9.93E-2	6.32E-2
10/16/87	2335	213.5	40	1.03E-1	7.65E-2	5.74E-2
10/17/87	0920	338.9	38	5.18E-2	2.56E-2	4.35E-2

*Radioiodine limit exceeded for 135 minutes

FIGURE 1

SPECIFIC ACTIVITIES EXCEEDING SPECIFICATION 3.4.7





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YANKEE ATOMIC ELECTRIC COMPANY

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February 29, 1988

FYR 88-026

United States Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

Reference: License No. DPR-3 (Docket No. 50-29)

Subject: 1987 Annual Report

Dear Sir:

Enclosed is the Yankee Atomic Electric Company Annual Report for 1987. This report is submitted in accordance with 10CFR50.59 (b) and the requirements of YNPS Technical Specification 6.9.2.b and 6.9.2.d.

The report briefly describes (1) facility changes, tests, and experiments implemented without prior NRC approval under the provisions of 10CFR50.59, and (2) specific activity analyses in which coolant exceeded the limits of Technical Specification 3.4.7. Also included is a summary of safety valve and relief valve failures and challenges, as required by TMI Action Plan, Item II.K.3.3.

We trust this information is satisfactory. If you have any questions, please contact us.

Very truly yours,

YANKEE ATOMIC ELECTRIC COMPANY

George Papanic, Jr.

George Papanic, Jr.
Senior Project Engineer
Licensing

GP/1.203

cc: USNRC, Region I
USNRC, Resident Inspector
YNPS

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