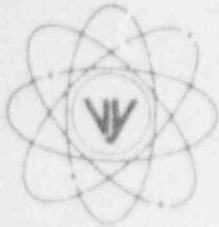


VERMONT YANKEE NUCLEAR POWER CORPORATION



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February 28, 1992
BVY 92-24

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

References: a. License No. DPR-28 (Docket No. 50-271)

Subject: Vermont Yankee 1991 Annual Operating Report

Dear Sir:

Enclosed please find one copy of the Vermont Yankee Nuclear Power Corporation Annual Operating Report submitted in accordance with 10CFR50.59(b)(2). This report describes the facility changes, tests, and experiments conducted without prior NRC approval during the year 1991.

We trust this information is acceptable; however, should you have any questions, please contact this office.

Very truly yours,

VERMONT YANKEE NUCLEAR POWER CORPORATION

Leonard A. Tremblay, Jr.
Senior Licensing Engineer

cc: USNRC Region I Administrator
USNRC Resident Inspector - VYNPS
USNRC Project Manager - VYNPS

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VERMONT YANKEE

1991 ANNUAL OPERATING REPORT

OPERATIONS SUMMARY

Between January 1 and December 31 of 1991, Vermont Yankee implemented a number of changes. The following report describes those changes which constituted a change in the facility as described in the Final Safety Analysis Report (FSAR). The report includes two (2) Engineering Design Change Requests (EDCRs), two (2) Plant Design Change Requests (PDCRs), twenty-three (23) Temporary Modifications (TMs), one (1) Valve Lineup Deviation, and one (1) 345KV Switchyard configuration change. There were no Setpoint Changes, Safety Relief Valve Failures, core modifications, Test Procedures or Special Test Procedures performed during the year that were made per 10CFR50.59.

A reactor scram occurred on April 23, 1991, when the 345 and 115 KV breakers in the switchyard opened unexpectedly during maintenance activities on one of the battery power supply systems associated with these breakers. An Unusual Event was declared as a result of the loss of off-site power. The Unusual Event was terminated on April 24, 1991 and the plant was restarted following a detailed review of the event. An NRC Augmented Inspection Team (AIT) was sent to Vermont Yankee to assist in the evaluation prior to plant start-up.

As a result of the AIT's findings, as well as a follow-up inspection, NRC Inspection Reports 91-13 and 91-21 were issued and found that certain of our activities relative to implementation of 10CFR50.59 were not conducted in full compliance with NRC regulations. On February 6, 1992, we provided a detailed response to your findings. Immediate corrective actions as well as long term corrective actions have been implemented to correct this deficiency. Details of these corrective actions are provided in our letter to you dated February 6, 1992.

Although it is not a requirement of 10CFR 50.59, Safety Relief Valve challenges have been included in this report. The reactor scram on April 23, 1991, discussed in the previous paragraphs, required the subsequent use of the safety relief valves. (Refer to Section D. below for further details.)

A. Changes in Facility Design

- 1, On January 15, 1991 Vermont Yankee submitted Proposed Technical Specification Change 162 to the Commission to request authorization to completely deactivate and remove from service the Toxic Gas Monitor System (TGMS) and the Bottled Gas Pressurization System (BGPS) and remove all references to these systems from associated documents.

On October 24, 1991, Vermont Yankee received approval of this Proposed Change Request from the Commission via Amendment 132 to the Facility Operating License. The subject systems were subsequently taken out of service on December 6, 1991.

2. The following changes did not require Commission approval. These were reviewed by the Plant Operations Review Committee (PORC) and approved by the Plant Manager and the Vice President, Engineering. It was determined that these changes did not involve any unreviewed safety questions as defined in 10 CFR 50.59(a)(2).

- a. EDCR 91-401 "Intake Structure Floating Debris Barrier" was completed October 18, 1991.

General Summary:

This EDCR installed a floating barrier for diverting large debris, such as logs and leaf rafts, away from the Circulating and Service Water systems intake structure. This reduces personnel risk during cleaning of the intake trash racks, allows less debris accumulation on the racks and reduces the time requirements for cleaning them. The floating barrier is classified as non-nuclear safety (NNS). The barrier neither performs, supports, nor inhibits a safety function.

The barrier consists of approximately 40 individual floats connected by wire rope which is anchored to the shore on each end of the barrier. The primary effect of the barrier is to straighten the shoreline in front of the intake structure, which results in large debris being diverted away from the intakes, to continue downstream in the river. The barrier was not designed to deflect or tolerate the build-up of ice, and will be removed during the winter months. The floating barrier operates in a passive manner similar to a natural shoreline; there are no operational concerns associated with it.

Safety Evaluation Summary:

The floating barrier, installed off-shore beyond the Circulating and Service Water intake structure, has no effect on the capability of the structure to draw cooling water from the river; nor will it affect the inflow of water to the pumps in the intake structure. This

holds true even if the barrier should become dislodged and drift to the intake structure. The most severe failure scenario would be that of the floating barrier becoming free and drifting in the river, in which case the barrier itself effectively becomes floating debris, presenting a situation equivalent to current operation.

There is no increase in the probability of occurrence or consequences of an accident or malfunction as previously evaluated in the FSAR. This design change did not present significant hazards not described or implicit in the Vermont Yankee FSAR, and there is reasonable assurance that the health and safety of the public is not endangered.

- b. EDCR 91-402 "House Heating Steam Piping Modification" was completed October 18, 1991.

General Summary:

This design change installed supports on the 8" House Heating Steam System piping which is routed through the "A" Diesel Generator Room from the House Heating Boilers. These supports ensure that this piping will not lose its integrity during a Design Basis Earthquake; and therefore precludes any adverse environmental impact from a failure which could render the diesel inoperable. This design change also identified configuration control of the house heating system, to ensure any future modifications to this piping will not invalidate any assumptions made in this evaluation.

Safety Evaluation Summary:

The House Heating Steam System is classified Non Nuclear Safety (NNS). The addition of the supports to the piping ensures that the "A" diesel will be available to mitigate any accidents which are concurrent with a seismic event. The effect of the added loading on the diesel room enclosure was evaluated and shown to have no effect on the structural capability of the structure.

There is no increase in the probability of occurrence or consequences of an accident or malfunction as previously

evaluated in the FSAR. This design change did not present significant hazards not described or implicit in the Vermont Yankee FSAR, and there is reasonable assurance that the health and safety of the public is not endangered.

- c. PDCR 91-04 "Instrument Air Dryer Skid Replacement" was completed August 19, 1991.

General Summary:

This design replaced the two Instrument Air dryer skids, supporting the initiative established in Vermont Yankee's response to NRC Generic Letter 88-14 "Instrument Air Supply System Problems Affecting Safety Related Equipment". The replacement dryers are double the capacity of the previous dryers, allowing the station instrument air needs to be supplied through one dryer, and minimizing the need to supplement Instrument Air with Service Air during dryer maintenance. A full flow crossconnect was installed, connecting the discharge of both dryers.

The prefilter and afterfilter were replaced. The separator, not required by the new prefilter, was removed. In accordance with current air quality standards, the new filters remove particulate material equal to or greater than 3 microns in diameter (the previous filters removed particulate equal to or greater than 5 microns). The replacement dryer tower regeneration cycle allows a selection of cycling on either time or moisture (the previous cycle was based on time only). The dryers are equipped with a solid state controller that controls tower switching, depressurization, heater control and repressurization; this should limit dryer cycling, minimize component wear and improve overall system reliability. The replacement dryer is equipped with continuous dewpoint monitoring, with a local low dewpoint indicator and alarm which allows for early warning of desiccant depletion.

Safety Evaluation Summary:

Safety related components supplied by the Instrument Air system are either designed to fail safe upon a loss of air or are equipped with an accumulator assembly that ensures an adequate supply of air to the component to satisfy design basis licensing requirements. Since the portion of the Instrument Air system affected by this design is Non-Nuclear Safety (NNS), it is not a precursor to a plant operational transient or design basis accident, nor is it relied upon to support accident or transient mitigation.

This design improves the quality of the air to these safety related components and should improve their reliability.

There is no increase in the probability of occurrence or consequences of an accident or malfunction as previously evaluated in the FSAR. This design change did not present significant hazards not described or implicit in the Vermont Yankee FSAR, and there is reasonable assurance that the health and safety of the public is not endangered.

- d. PDCR 91-007 "Removal of Service Water Radiation Monitor Flowswitch" was completed July 22, 1991.

General Summary:

This PDCR disconnected flow switch FS-104-31 from the circuitry of Service Water Radiation Monitor, RM-17-351. Silt build-up had caused the flow switch (FS-104-31) to stick, indicating loss of flow to the Radiation Monitor (RM-17-351) and rendering the monitor inoperable.

To provide the equivalent protection, necessitated by disconnecting the switch, the flow of service water into the radiation monitor is now monitored by using the Auxiliary Operator rounds at a frequency of once per shift.

Safety Evaluation Summary:

The flow switch is only associated with the service water radiation monitor, which takes a sample of the service water discharge, and performs a monitoring function only. There is no connection to any safety system. The only function being lost is the alarm feature for loss of flow; the radiation monitor remains operable to monitor any potential release through the service water system. By verifying flow through the monitor on a periodic basis, the equivalent protection is provided.

There is no increase in the probability of occurrence or consequences of an accident or malfunction as previously evaluated in the FSAR. This design change did not present significant hazards not described or implicit in the Vermont Yankee FSAR, and there is reasonable assurance that the health and safety of the public was not endangered.

- e. Temporary Modification 91-006 was installed January 29, 1991.

General Summary:

This Temporary Modification removed the non-safety related Clean Up Filter Demineralizer (CUFD) Valve SB-57 and installed a blind flange to prevent leakage by the SB-57 seat until a replacement valve could be procured and installed. SB-57 is a normally closed valve in the Reactor Water Cleanup Unit system which provides a backup flow path in an alternate Standby Liquid Control injection scenario. This modification was removed November 7, 1991.

Safety Evaluation Summary:

SB-57 is a normally closed non-safety class valve. The blind flange cannot affect the operation of any piece of equipment necessary for nuclear safety. The only potential use of SB-57, in an accident, is as an alternate path of boron injection; with the blind flange installed, boron injection can still be accomplished through the Control Rod Drive pump path.

There is no increase in the probability of occurrence or consequences of an accident or malfunction as previously evaluated in the FSAR. This modification did not present significant hazards not described or implicit in the Vermont Yankee FSAR, and there is reasonable assurance that the health and safety of the public was not endangered.

- f. Temporary Modification 91-008 was installed July 29, 1991.

General Summary:

This Temporary Modification removed mechanical and electrical components from the Cask Room as a preliminary step to the installation of the new resin dewatering system; which allowed the room to be cleaned, decontaminated and painted. The components that were removed rendered the centrifuges and hoppers inoperable. As these are not needed in the new system, no problem was created by this. Instrument air lines were capped and electrical cables were left as spares.

Safety Evaluation Summary:

Components affected by this change are in the Solid Radwaste System (SRW) and are classified Non-Nuclear Safety (NNS). This system is sufficiently isolated mechanically, structurally and electrically so that a malfunction of the SRW system will not affect equipment

important to safety previously evaluated in the FSAR. The equipment removed from service did not affect the design basis as stated in Section 9 of the FSAR. The removed components had no effect on containment or control of the radwaste process.

There is no increase in the probability of occurrence or consequences of an accident or malfunction as previously evaluated in the FSAR. This modification did not present significant hazards not described or implicit in the Vermont Yankee FSAR, and there is reasonable assurance that the health and safety of the public was not endangered.

- g. Temporary Modification 91-010 was installed March 26, 1991.

General Summary:

This Temporary Modification installed a temporary work platform on top of the Condensate Storage Tank (CST). This platform supports work to ultrasonically measure the thickness of the bottom of the tank to evaluate the extent and depth of floor corrosion. This modification was removed April 5, 1991.

Safety Evaluation Summary:

The temporary platform did not affect the functional capability of the CST. The platform was within the design load (40 psf) for the CST and did not compromise the tank's structural integrity.

There is no increase in the probability of occurrence or consequences of an accident or malfunction as previously evaluated in the FSAR. This modification did not present significant hazards not described or implicit in the Vermont Yankee FSAR, and there is reasonable assurance that the health and safety of the public was not endangered.

- h. Temporary Modification 91-011 was installed March 26, 1991.

General Summary:

This Temporary Modification installed temporary personnel protection screens on the High Pressure Coolant Injection (HPCI), Reactor Core Isolation Cooling (RCIC) and Condensate Transfer System (CST) suctions located inside the CST, in support of work performed in the CST (see TM 91-010). The temporary screens provided personnel

protection to divers in the CST in the event of HPCI or RCIC initiation, and protection from the CST suction while in the Condensate Storage Tank.

This installation did not prevent nor impede normal system operation. Core spray remained operable since its suction is normally lined up to the Torus. The alternate suction was tagged to prevent opening the suction to the CST without first notifying the divers. This modification was removed April 1, 1991.

Safety System Summary:

Installation of the personnel barriers did not degrade the operability of any plant safety system. The small amount of weight added by the barriers to the suction lines was analyzed for seismic affects and presented no additional challenge to the suction lines or integrity of the tank.

There is no increase in the probability of occurrence or consequences of an accident of malfunction as previously evaluated in the FSAR. This modification did not present significant hazards not described or implicit in the Vermont Yankee FSAR, and there is reasonable assurance that the health and safety of the public was not endangered.

- i. Temporary Modification 91-012 was installed February 27, 1991.

General Summary:

This Temporary Modification replaced a leaking brass valve, used for testing fire hoses, with a temporary carbon steel cap. The replaced valve, FP-8H, is one of eight valves, installed on a test manifold, used to test hoses for Technical Specification requirements. Removal of the valve did not reduce the capacity to adequately test fire hoses. This modification was removed April 11, 1991.

Safety Evaluation Summary:

This valve was used for testing fire hoses; there are no accidents described in the FSAR relating to this test valve. A cap is a static component which does not create the possibility of an equipment malfunction.

There is no increase in the probability of occurrence or consequences of an accident or malfunction as previously

evaluated in the FSAR. This modification did not present significant hazards not described or implicit in the Vermont Yankee FSAR, and there is reasonable assurance that the health and safety of the public was not endangered.

- j. Temporary Modification 91-014 was installed March 16, 1991.

General Summary:

This Temporary Modification added jumpers which allowed for the deenergization of Residual Heat Removal (RHR) valve V10-17 control circuitry while maintaining shutdown cooling to facilitate maintenance activity on the valve. V10-17 is one of two vessel suction valves to the RHR system. Without the modification, deenergization of the V10-17 circuit would normally cause the pump(s) to stop with the subsequent loss of Shutdown Cooling. This modification was removed March 17, 1991.

Safety Evaluation Summary:

This modification did not impact or bypass a safety function. If a loss of suction had occurred, the pumps would still have received a trip signal from the unaffected isolation valve V10-18 via a logic relay.

There is no increase in the probability of occurrence or consequences of an accident or malfunction as previously evaluated in the FSAR. This modification did not present significant hazards not described or implicit in the Vermont Yankee FSAR, and there is reasonable assurance that the health and safety of the public was not endangered.

- k. Temporary Modification 91-016 was installed April 9, 1991.

General Summary:

This Temporary Modification installed a temporary gasketed clamp on a pinhole leak from the 1" inlet to the Advanced Off Gas (AOG) Drain Tank. The installation of the clamp assembly had no effect or change to normal AOG system operation. This modification was removed April 25, 1991.

Safety Evaluation Summary:

This line is part of a Non-Nuclear Safety (NNS) service system for the AOG. The loss of this line would not result in a loss of AOG; further, the loss of AOG

would not increase the probability or consequences of any FSAR accident scenarios. This line and AOG service system does not affect the ability of any nuclear safety related equipment to perform its function.

There is no increase in the probability of occurrence or consequences of an accident or malfunction as previously evaluated in the FSAR. This modification did not present significant hazards not described or implicit in the Vermont Yankee FSAR, and there is reasonable assurance that the health and safety of the public was not endangered.

1. Temporary Modification 91-017 was installed April 15, 1991.

General Summary:

This Temporary Modification provided a temporary bypass of the Condensate Phase Separator Filter Decant System to utilize pump P95-1A to take the place of radwaste sump pump P14-1A, which was not operating properly due to resin build-up. This modification allowed the Decant system pump P95-1A, a diaphragm pump designed to pump slurries, to pump the resin from the radwaste sump pump pit. This modification was removed April 16, 1991.

Safety Evaluation Summary:

This modification did not interact with any system or component that could initiate an accident or operational transient previously evaluated, nor was it associated with or connected to any systems or components utilized to mitigate the consequences of an accident or operational transient. The ability to remove liquid radwaste from the radwaste floor drains sump was not reduced.

There is no increase in the probability of occurrence or consequences of an accident or malfunction as previously evaluated in the FSAR. This modification did not present significant hazards not described or implicit in the Vermont Yankee FSAR, and there is reasonable assurance that the health and safety of the public was not endangered.

- m. Temporary Modification 91-020 was installed April 25, 1991 and removed April 25, 1991.

See details in o. below.

- n. Temporary Modification 91-037 was installed June 16, 1991 and removed June 16, 1991.

See details in o. below.

- o. Temporary Modification 91-051 was installed September 8, 1991 and removed September 9, 1991.

General Summary:

The three identical Temporary Modifications listed above installed two pressure transducers to monitor the pressure surges in the "B" RHR loop and "B" Recirc Loop when the "B" RHR was started in Shutdown cooling. The electrical output of these transducers was connected to a multi channel recorder to provide a record of the magnitude of the pressure surges in the systems when the "B" RHR loop was started in Shutdown Cooling.

Safety Evaluation Summary:

One transducer was connected to the "B" Recirc Suction Loop in parallel with a pressure switch and one transducer was placed on an instrument tap in the "B" RHR Loop. This test instrumentation was maintained in an isolated condition and only put into service during testing. It was rated for pressures in excess of those occurring during the test. The test instrumentation had no effect on actual system operation.

In the unlikely event that a rupture of the piping to the instrumentation should occur, the piping connecting the instruments to the plant systems is 3/4 inch or less. Any leakage would be minor and would not prevent the systems from performing their safety functions.

There is no increase in the probability of occurrence or consequences of an accident or malfunction as previously evaluated in the FSAR. This modification did not present significant hazards not described or implicit in the Vermont Yankee FSAR, and there is reasonable assurance that the health and safety of the public was not endangered.

- p. Temporary Modification 91-021 was installed April 27, 1991.

General Summary

This Temporary Modification supplied an alternate source of compressed air to the instrument and service air systems, providing added assurance of the availability of service and instrument air following a loss of offsite power which caused cooling water problems to the station air compressors. The temporary hoses, associated fittings and special adapter used to connect the compressor to the air system met or exceeded the EBASCO (AE) piping

specifications for this service. This modification was removed April 29, 1991.

Safety Evaluation Summary

FSAR Section 10.14 states that the Service and Instrument Air System is designed to operate at a pressure of 100 psig and supply 323 scfm compressed air with one compressor operating. The temporary air compressor was capable of meeting the design requirements of the system and was piped into the existing system to be filtered and dried.

There is no increase in the probability of occurrence or consequences of an accident or malfunction as previously evaluated in the FSAR. This modification did not present significant hazards not described or implicit in the Vermont Yankee FSAR, and there is reasonable assurance that the health and safety of the public was not endangered.

- q. Temporary Modification 91-022 was installed April 25, 1991.

General Summary:

This Temporary Modification repaired the RHR valve V10-46A bonnet leak using the Furmanite process and materials. The bonnet was drilled and tapped and a sealing compound, which was compatible with the system/process conditions, was injected. The sealant was injected external to the pressure retaining area of the valve; therefore, operation of the valve was unaffected.

Safety Evaluation Summary:

The seal is external to any operational component of this valve, and the sealing technique did not affect the valve's operation or compromise its structural integrity. The process has been evaluated in accordance with the appropriate codes, and the materials are certified for nuclear applications. The process has no functional effect and does not compromise any pressure boundary.

There is no increase in the probability of occurrence or consequences of an accident or malfunction as previously evaluated in the FSAR. This modification did not present significant hazards not described or implicit in the Vermont Yankee FSAR, and there is reasonable assurance that the health and safety of the public was not endangered.

- r. Temporary Modification 91-023 was installed April 26, 1991.

General Summary:

This Temporary Modification allowed the temporary attachment of pressure indicators to threaded connections in the Service Water (SW) and Residual Heat Removal Service Water (RHRSW) Systems to assess system performance of an apparent flow imbalance wherein the alternate service water flow to the station air compressors was in the reverse direction. This modification was removed January 28, 1992.

Safety Evaluation Summary:

The sizes of connections involved with the indicator installations were small enough to be of negligible impact to system capacity if the system pressure boundary was breached at these locations; therefore, system availability was ensured during accidents or transients. The installations had no potential to impact other essential system equipment, and were restricted from existing taps designed for control functions.

There is no increase in the probability of occurrence or consequences of an accident or malfunction as previously evaluated in the FSAR. This modification did not present significant hazards not described or implicit in the Vermont Yankee FSAR, and there is reasonable assurance that the health and safety of the public was not endangered.

- s. Temporary Modification 91-024 was installed April 26, 1991.

General Summary:

This Temporary Modification opened the normally closed Service Water (SW) valve V70-20D to provide a water supply for cleaning the main condenser tube sheets and tubes. This supplied water to a temporary pump to facilitate the cleaning. This modification was removed May 23, 1991.

Safety Evaluation Summary:

This modification was on a Non Nuclear Safety (NNS) portion of the SW system. The plant was shutdown during the evolution. The modification's required flow of 20 gallons per minute (gpm) did not affect the Technical Specification's required flow of 10,800 gpm.

There is no increase in the probability of occurrence or consequences of an accident of malfunction as previously evaluated in the FSAR. This modification did not present significant hazards not described or implicit in the Vermont Yankee FSAR, and there is reasonable assurance that the health and safety of the public was not endangered.

- t. Temporary Modification 91-025 was installed April 29, 1991.

General Summary:

This Temporary Modification installed drain tubing on the HPCI Turbine Gland Seal Exhauster, providing a drain path for condensate from the Gland Seal Exhauster housing. This prevented the condensate from coming in contact with the exhauster impeller, which caused the exhauster motor to run at a higher amperage. The drain tubing empties into a 30-gallon drum, and includes a loop seal to ensure that the exhauster exhausts to the Standby Gas Treatment (SBGT) system.

Safety Evaluation Summary

This modification was made to an electro/mechanical component that does not have a control function. The installation of drain tubing adds assurance that the non-EQ Gland Seal Exhauster will be able to perform its job, preventing condensate from collecting in the exhauster housing. The size of the tubing is small enough that a loss of loop seal water will not affect the SBGT system. This modification does not change the function of the Gland Seal Exhauster.

There is no increase in the probability of occurrence or consequences of an accident or malfunction as previously evaluated in the FSAR. This modification did not present significant hazards not described or implicit in the Vermont Yankee FSAR, and there is reasonable assurance that the health and safety of the public was not endangered.

- u. Temporary Modification 91-026 was installed April 29, 1991.

General Summary:

This TM provided a temporary repair of a leak in a sockolet weld that attached the RHRSW-811D and 831B valve manifold to the 12"-SW-7B line in the "B" RHR Heat Exchanger Loop. The sockolet was replaced by a 3/4"-

3000# union welded to a pipe nipple. The nipple was machined internally to accommodate a plug during the installation; this eliminated any leakage during the welding process. The plug was subsequently removed and the union recoupled. This type of repair minimized the amount of time that the "B" RHR Loop was out of service.

Safety Evaluation Summary

A seismic evaluation determined that the modification did not affect the seismic qualification of the Residual Heat Removal Service Water (RHRSW) instrument tap line. A standard pipe union was used in compliance with applicable codes. There was no change to the components or system operation.

There is no increase in the probability of occurrence or consequences of an accident or malfunction as previously evaluated in the FSAR. This modification did not present significant hazards not described or implicit in the Vermont Yankee FSAR, and there is reasonable assurance that the health and safety of the public was not endangered.

- v. Temporary Modification 91-039 was installed June 17, 1991.

General Summary:

This modification disconnected the leads from the steam line drain level switch LSH-2-143 to the control room annunciator. The function of this switch is to provide an indication of the failure of the steam line drain trap. The rated temperature of this switch was not sufficient at the installed location; high temperatures caused the switch to malfunction, creating a nuisance alarm. This modification was removed September 12, 1991.

Safety Evaluation Summary:

The disconnection of LSH-2-143 prevented the failure of this switch from affecting the Main Steam Line Drain alarms which are on a common annunciator. LSH-2-143 only provides an alarm function. In the worst case, the only potential problem resulting from the removal of the switch would be that no indication of a failure of that particular steam trap would be evident. This would result in increased moisture in the steam to the turbine, but would not result in any accident or transient evaluated in the FSAR. All potential failure modes were evaluated and would not result in an accident or transient of a different type than analyzed.

There is no increase in the probability of occurrence or consequences of an accident or malfunction as previously evaluated in the FSAR. This modification did not present significant hazards not described or implicit in the Vermont Yankee FSAR, and there is reasonable assurance that the health and safety of the public was not endangered.

- w. Temporary Modification 91-040 was installed June 18, 1991.

General Summary:

This Temporary Modification removed the mechanical interlock for the 4A-5A Battery Charger, which allowed Relay House DC Distribution Panels 4A and 5A to be cross connected through the 4A-5A Battery Charger and fed from one switchyard battery while the other battery was removed from service for maintenance. This ensured that both DC buses would remain operable even on the loss of all battery chargers due to a loss of AC power to the relay house. This modification was removed June 19, 1991.

Safety Evaluation Summary:

The battery removed for maintenance provided a backup source of power from one of the DC systems; this modification allowed the battery on the unaffected side to provide the backup DC power should AC be lost to the Relay House. All protective relay functions remained available for proper tripping of switchyard breakers to prevent a Loss of Normal Power (LNP) due to loss of both the 345KV and 115 KV yards. This modification was removed June 19, 1991.

There is no increase in the probability of occurrence or consequences of an accident or malfunction as previously evaluated in the FSAR. This modification did not present significant hazards not described or implicit in the Vermont Yankee FSAR, and there is reasonable assurance that the health and safety of the public was not endangered.

- x. Temporary Modification 91-045 was installed August 1, 1991.

General Summary:

This Temporary Modification installed two safety relief valves on each refrigeration loop next to the Control Room Air Conditioner roof condensers, as required by ANSI/ASHRAE Standard 15-1989 and vendor tech manual

VYEM-175. The FSAR shows one safety relief valve on each refrigeration loop, but single relief valves with the minimum required capacity could not be procured at this time; installation of two relief valves on each loop does not affect component/system operation.

Safety Evaluation Summary:

The installation of the safety valves provided the Control Room Heating, Ventilation and Air Conditioning (HVAC) system with over pressure protection as required by the industry code and vendor supplied literature. Calculations were performed to ensure that the relief valves were sized properly and that the seismic adequacy of the Control Room HVAC refrigerant piping is not affected.

There is no increase in the probability of occurrence or consequences of an accident or malfunction as previously evaluated in the FSAR. This modification did not present significant hazards not described or implicit in the Vermont Yankee FSAR, and there is reasonable assurance that the health and safety of the public was not endangered.

- y. Temporary Modification 91-046 was installed October 2, 1991.

General Summary:

This Temporary Modification provided piping connections in the Radwaste Building for a Chem Nuclear Resin Dewatering System, which will be installed under a separate temporary modification. The connections installed in this modification were on the centrifuge resin supply line, condensate transfer line, centrifuge effluent lines, and Instrument Air line, in the Radwaste Control Room. This modification was removed October 31, 1991.

Safety Evaluation Summary:

The Rad Waste System and its components affected by this Temporary Modification are Non-Nuclear Safety (NNS). The modification does not interface with and is not located in the same area as any safety related equipment, and does not interact with any system or component that could possibly initiate an accident or operational transient previously evaluated.

There is no increase in the probability of occurrence or consequences of an accident or malfunction as previously

evaluated in the FSAR. This modification did not present significant hazards not described or implicit in the Vermont Yankee FSAR, and there is reasonable assurance that the health and safety of the public was not endangered.

- z. Temporary Modification 91-053 was installed October 2, 1991.

General Summary:

This Temporary Modification changed the way resin is processed into a High Integrity Container (HIC). With the new resin dewatering system, resin slurry is sent to the HIC where it is dewatered and dried inside the cask. The original system dewatered the resin outside of the cask, which resulted in handling dry resin with subsequent contamination of the cask room.

Safety Evaluation Summary:

The Radwaste System (RWS) and its components affected by this Temporary Modification are classified as Non-Nuclear Safety (NNS); it does not interface with and is not located in the same area as any safety related equipment. Systems attached to the Resin Dewatering System (RDS) that are considered to be uncontaminated should not become contaminated as a result of the RDS operation.

There is no increase in the probability of occurrence or consequences of an accident or malfunction as previously evaluated in the FSAR. This modification did not present significant hazards not described or implicit in the Vermont Yankee FSAR, and there is reasonable assurance that the health and safety of the public was not endangered.

- aa. Temporary Modification 91-054 was installed September 13, 1991.

General Summary:

To achieve the required operator thrust for Core Spray valve V14-5A, the original 2 ft.-lb, 0.13 horsepower motor was replaced with a 5 ft.-lb, 0.33 horsepower motor. The larger motor accommodates the new thrust value incorporated into the valve setting, based on the conservative thrust data obtained from the MOVATS database, as part of the plant's scheduled updating of Motor Operated Valves (MOV).

Safety Evaluation Summary:

The function and configuration of the valve and piping system has not been changed. The new motor meets all the functional requirements of the old motor, except for the increased horsepower, as required to achieve the necessary thrust.

There is no increase in the probability of occurrence or consequences of an accident or malfunction as previously evaluated in the FSAR. This modification did not present significant hazards not described or implicit in the Vermont Yankee FSAR, and there is reasonable assurance that the health and safety of the public was not endangered.

bb. 345KV Switchyard Configuration

General Summary

On 12/14/90, NEPEX (New England Power Exchange) ordered that the 345KV (Scobie) transmission line be declared out of service until relay problems associated with the line were resolved. In addition, Vermont Yankee was informed that a power reduction to 400MW was recommended, with the Scobie line out of service, because of the potential for the grid to become unstable if additional faults were to occur on the grid while operating above this limit.

VY's switchyard features a breaker and a half ring bus design which maximizes reliability and flexibility while minimizing the number of breakers and relays required.

The scenario to arrive at the 400MW limit postulated that a fault occurs on another 345KV (Northfield) transmission line with a breaker failure to open which results in insufficient load for the generator and a subsequent trip.

However, further engineering review was performed and concluded that with our switchyard design, Vermont Yankee can configure the breakers such that with the Scobie line opened and one of the ring bus breakers open, specifically the 381 breaker, Vermont Yankee can operate at full capacity without a trip if a fault were to occur on any other line. The following is a summary of the safety evaluation which was completed prior to taking the Scobie line out of service and opening the 381 breaker.

Safety Evaluation

The FSAR states that the output of the generator may have to be limited in order to maintain stability if a line is out of service. The assumptions in the analysis which determined this was the Scobie line out of service, a fault on the Northfield line and failure of the 381 breaker to open. By operating with the 381 breaker open this scenario cannot occur and NEPEX has advised us that full power operation is allowed.

Operation with the 381 breaker open is acceptable. A review of the accidents and transients analyzed in the FSAR reveals that only the following transients could be impacted by the opening of the 381 breaker: 1) loss of offsite power; 2) generator trip; and 3) turbine trip and these are bounded by the FSAR analysis.

B. Tests and Experiments

1. none

C. Valve Lineup Deviation

General Summary

Valve lineup deviation 91-16 was written to isolate the automatic fill line to the Turbine Building Closed Cooling Water (TBCCW) Surge Tank by closing the inlet to the automatic fill valve. This valve was closed as a temporary measure due to excessive leakage past the automatic fill valve (LCV-104-6).

Safety Evaluation Summary

The power generation design basis of the TBCCW system, as described in the FSAR, is to provide cooling for the turbine building auxiliary equipment under normal station operations.

The TBCCW system does not have any safety design basis and does not support any safety design bases provided by other plant systems; therefore there is no increase in the probability of occurrence or consequences of an accident or malfunction as previously evaluated in the FSAR. This lineup deviation did not present significant hazards not described or implicit in the Vermont Yankee FSAR, and there is reasonable assurance that the health and safety of the public was not endangered.

D. Safety and Relief Valve Challenges and/or Failures

1. April 23, 1991 Reactor Scram

At 1448 hours on April 23, 1991, a plant scram occurred as a result of a loss of offsite power and subsequent Turbine Control Valve Fast Closure Scram. Following the reactor scram, the reactor vessel was isolated by Primary Containment Isolation System signals due to the subsequent loss of Instrument AC and the Reactor Protection System MG sets.

At 1449 hours, reactor vessel pressure increased, due to Main Steam Line Isolation Valve closure, to approximately 1065 psig and Safety Relief Valve (SRV) "A" was manually opened to control pressure and was reclosed at approximately 900 psig.

At 1716 hours, SRV "C" was manually opened to reduce pressure from approximately 1000 psig to approximately 800 psig, and the RCIC system tripped due to vessel swell from the SRV operation.

At 1717 hours, SRV "B" was manually opened to reduce vessel pressure from approximately 990 psig to approximately 800 psig.

At 2112 hours, SRV "D" was manually opened to reduce vessel pressure to approximately 600 psig.

Between 2225 hours on 4/23/91 and 0850 hours on 4/24/91 each SRV was used 5 additional times to reduce vessel pressure.

At 1338 hours on 4/24/1991 the Main Condenser was established as a heat sink and no further use of the SRV's was required.

The decision to manually open the relief valves was made to satisfy the requirements for maintaining reactor pressure. The use of the SRV's successfully reduced the reactor pressure and had no adverse effects. The relief valves operated as designed

During this event, each SRV (A,B,C, and D) was opened and closed 6 times to control reactor pressure.

E. Special Test Procedures

1. none