

# VERMONT YANKEE NUCLEAR POWER CORPORATION

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BVY 01-80

U.S. Nuclear Regulatory Commission  
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References: (a) Letter, USNRC to VYNPC, "TMI Action Plan Item II.K.3.3, Reporting of Relief Valve and Safety Valve Failures and Challenges," NVY 82-44, dated March 30, 1982

**Subject: Vermont Yankee Nuclear Power Station**  
**License No. DPR-28 (Docket No. 50-271)**  
**Vermont Yankee Cycle 21 10CFR50.59 Report**

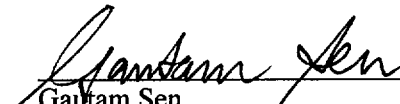
In accordance with 10CFR50.59, attached is a copy of the Vermont Yankee (VY) Cycle 21 10CFR50.59 Report. This report contains a brief description of the safety evaluations that supported changes, tests and experiments made between December 3, 1999 and May 20, 2001.

Additionally, in accordance with Reference (a), VY reports that there were no Relief Valve or Safety Valve failures or challenges during this period.

We trust that the information provided is adequate; however, should you have questions or require additional information, please contact Mr. Jim DeVincentis at (802) 258-4236.

Sincerely,

VERMONT YANKEE NUCLEAR POWER CORPORATION

  
\_\_\_\_\_  
Gautam Sen  
Licensing Manager

**Attachment**

cc: USNRC Region 1 Administrator  
USNRC Resident Inspector – VYNPS  
USNRC Project Manager – VYNPS  
Vermont Department of Public Service

IE47

Docket No. 50-271  
BVY 01-80

Attachment 1

Vermont Yankee Nuclear Power Corporation

Cycle 21 10CFR50.59 Report

## **VERMONT YANKEE CYCLE 21 10CFR50.59 REPORT**

Between December 3, 1999 and May 20, 2001, Vermont Yankee implemented a number of changes requiring evaluation in accordance with 10CFR50.59. This report includes the safety evaluation summaries for Engineering Design Change Requests (EDCRs), Vermont Yankee Design Change Requests (VYDCs), Minor Modifications (MMs), Temporary Modifications (TMs), Installation and Test Procedures (I&T), Basis for Maintaining Operability (BMOs), Special Test Procedures (STPs), procedure changes, Final Safety Analysis Report (FSAR) Changes and the following additional subjects: Basler Relay Installation, Westinghouse Digitrip Microprocessor Based Trip Device Replacement, Core Operating Limits Report (COLR), Revision 1, "RBM Flow Biased Setpoint Intercept Change" and "Cycle 21 Control Blade History MCPR Penalty", Event Report (ER) 2000-0815\_02, "Emergency Plan UHF Radio Transmitter/Receiver Installation" and a Justification for Increasing HPCI Time to Rated Flow From 25 Seconds to 30 Seconds,

The following changes did not require prior Nuclear Regulatory Commission approval. They were reviewed by the Plant Operations Review Committee and approved by the Plant Manager. It was determined that these changes did not involve unreviewed safety questions as defined in 10CFR50.59.

### **Engineering Design Change Request (EDCR) 99-403, "Switchgear Room Heating, Ventilation and Air Conditioning (HVAC) High Energy Line Break (HELB)"**

#### **General Summary**

EDCR 99-403 was written in response to a concern that a High Energy Line Break (HELB) from the feedwater or steam lines could mitigate through an open door leading to radwaste and fail the block wall and the HVAC duct leading into the Switchgear Room. The design consisted of seven modifications, as listed below, that will prevent a HELB in the Feedwater Pump Room and Turbine Stop Valve area from entering the Switchgear Rooms or alter how a required function is performed. These modifications will ensure the Equipment Qualification (EQ) rating of vital equipment necessary to shutdown the plant has not been compromised by a HELB.

EDCR 99-403 modifications:

- 1) Blanked off HVAC duct that connects Turbine Building and West Switchgear Room
- 2) Added a thermostat in the East Switchgear Room to control temperature in the East and West Switchgear Rooms
- 3) Removed non-used ducting from the East and West Switchgear Rooms
- 4) Closed the door leading to the Radwaste Hallway and removed the electromagnetic switch
- 5) Installed a removable filter in the East Switchgear Room air inlet
- 6) Removed the East Switchgear Room exhaust fan, mounting brackets and electrical cables and sealed the conduit penetration created through the concrete wall
- 7) Installed a lower door stop on the Switchgear double doors and replaced the hinge screws to prevent the HELB from deflecting the bottom of the doors

### Safety Evaluation Summary (SE 2000-018)

The East and West Switchgear Rooms contain electrical equipment that is required for accident mitigation and to achieve and maintain safe shutdown. There are also multiple systems powered by busses located in the Switchgear Rooms. None of the above modifications will directly affect the operation of any of these systems.

There was no increase in the probability of occurrence or consequences of an accident or malfunction as previously evaluated in the Final Safety Analysis Report (FSAR) as a result of this change. This change did not present significant hazards not described or implicit in the Vermont Yankee FSAR and there was reasonable assurance that the health and safety of the public was not endangered.

### Engineering Design Change Request (EDCR) 99-405 "Spent Fuel Pool Expansion"

#### General Summary

EDCR 99-405 added three spent fuel storage racks in the east end of the Spent Fuel Pool. This design also revised the Control Rod Blade (CRB) storage arrangement and removed the requirement for a Boron Surveillance Program. The increased storage was reviewed by the NRC and documented in License Amendment 182 and the related Safety Evaluation Report (SER). The safety evaluation addresses related issues.

### Safety Evaluation Summary (SE 2000-030)

Safety Evaluation 2000-030 was written to address the following associated activities:

- 1) CRB Storage Reduction
- 2) Removal of the Boron Surveillance Program
- 3) Temporary storage of the racks in the Dryer/Separator Pit
- 4) Restoration of the SFPCS Post-Appendix R Fire
- 5) Post-LOCA Evaluation of SFPCS

The above activities did not increase the probability of occurrence or consequences of an accident or malfunction as previously evaluated in the FSAR. They did not present significant hazards not described or implicit in the Vermont Yankee FSAR and there was reasonable assurance that the health and safety of the public was not endangered.

### Engineering Change Notice (ECN) 1 to Engineering Design Change Request (EDCR) 94-410, "SW-92 Valve Replacement"

#### General Summary

EDCR 94-410 replaced the Reactor Building Closed Cooling Water (RBCCW) Heat Exchanger Service Water Discharge valves V70-92A/B with specially designed throttle valves. These

modifications were made to allow for improved control of service water flow through the RBCCW heat exchangers.

Engineering Change Notice (ECN) 1 was issued to closeout EDCR 94-410 and to document replacement of non-safety (NNS) related pressure indicators (PI-121A/B, PI-122A/B & PI-123) with Safety Class (SC) 3 pressure indicators. The ECN also incorporated all change requests written following approval of the original EDCR.

#### Safety Evaluation Summary (Pre-dates SE Numbering)

The original Safety Evaluation was revised to identify that pressure indicators purchased as Safety Class (SC) 3 components and various instrumentation fittings and tubing located downstream of the root isolation valves for each of the pressure indicators have been dedicated as SC3. As a result of this change, the isolation valves associated with these pressure indicators may remain normally open. An engineering evaluation was performed to ensure that all modifications made as a result of ECN1 considered all related aspects and interfaces.

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

#### Vermont Yankee Design Change (VYDC) 99-004 Change Request (CR) #3 "Control Rod Drive (CRD) Water Pump Minimum Flow Upgrade"

##### General Summary

VYDC 99-004 installed two 20 gpm capacity, bypass flow lines in parallel with the existing two CRD pumps minimum flow bypass lines. The new lines will provide increased flow to prevent CRD pump failures when the CRD system is placed in isolated return. The CRD return line normally exhausts back through the Reactor Water Cleanup System and subsequently through other systems to the reactor vessel. If a problem in one of these systems necessitates isolation of the exhaust line, then the new minimum flow line will ensure that the pumps are adequately cooled.

Change Request #3 developed new CRD pump curves to ensure that sufficient head is available to enable the new minimum flow lines to be in operation during normal operating mode. An assessment was also conducted that changed the normal flow rate back to the original design of 41 gpm. It was determined that reducing the downstream flow could improve plant efficiency by 0.3 Mwe. The data was evaluated and it was concluded that operating with the new minimum flow recirculation valves open for all operating conditions with a reduced flow control valve (FCV) setpoint would be acceptable.

##### Safety Evaluation Summary (SE 99-28, Rev. 1)

Safety Evaluation 99-028 was revised to reflect the new data as noted above. There was no increase in the probability of occurrence or consequences of an accident or malfunction as

previously evaluated in the FSAR as a result of this change. This Change did not present significant hazards not described or implicit in the Vermont Yankee FSAR, and there was reasonable assurance that the health and safety of the public was not endangered.

### **Vermont Yankee Design Change (VYDC) 99-006 "Main Steam Line Break at Low Power Analysis"**

#### **General Summary**

VYDC 99-006 revised the plant design basis to document acceptable plant performance in the event of a low power Main Steam Line Break (MSLB). This was in response to activities at another plant that raised the issue and initiated Vermont Yankees' review of its design basis and this subsequent design change.

#### **Safety Evaluation Summary (SE 2000-004)**

This Safety Evaluation supports the MSLB analysis conducted for VYDC 99-006. The analysis used current methods and the maximum MSIV closure time allowed per Technical Specifications. The results showed that the current FSAR analysis remains bounding for nuclear system transient effects, radioactive material released to the environment and offsite dose as described in FSAR Sections 14.6 and 14.9.

There was 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.

### **Vermont Yankee Design Change (VYDC) 99-013, "Connecticut River Temperature Upgrades"**

#### **General Summary**

VYDC 99-013 converted the river temperature monitoring system used for Project SAVE to permanent plant equipment. The change consisted of assigning VY component identifications and connecting the equipment to the plant Emergency Response Facility Information System (ERFIS) computer. After conversion, the old Control Room river temperature indications were removed from service. This ensured that the new design was compliant with the National Pollution Discharge Elimination System (NPDES) permit.

#### **Safety Evaluation Summary (SE 2000-017)**

Project SAVE river temperature instruments are classified as Non-Nuclear Safety (NNS) and are not used as an input to any safety class systems and are not used as a basis for maintaining plant operation within any Technical Specification limit.

There was no increase in the probability of occurrence or consequences of an accident or malfunction as previously evaluated in the FSAR as a result of this change. This change did not

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

#### Safety Evaluation Summary (SE 2000-017, Rev. 1)

This revision to the Safety Evaluation 2000-017 addressed seismic issues caused by equipment removal and control board repairs. A review of the effect of the equipment removal and associated control board repairs was completed that determined that no seismic II/I concerns were created.

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

#### Vermont Yankee Design Change (VYDC) 2000-007, "Service Water/Fire Water Pump Flow Test Loop"

##### General Summary

This design change installed a permanent discharge path to the circulating water bay to provide a test loop for full flow testing of the service water and firewater pumps. The design consisted of a 10" stainless steel pipe with flange connections, orifice plate and butterfly valve. These components were mounted along the intake structure roof and wall and discharged into the circulation water inlet bay. A portable differential pressure transmitter will interface with a flow readout to display actual flow rate.

The current method for performing the Service Water (SW) and Fire Water (FW) Pump testing uses a "Christmas Tree" connection that sprays water into the Connecticut River. This new design change will eliminate setup time, personnel safety considerations and improve the ability to achieve full rated flow when performing the Service Water (SW) and Fire Water Pump (FWP) testing.

#### Safety Evaluation Summary (SE 2000-023)

Current requirements state that the Service Water Pump must supply 2700 gpm at 250 ft Total Dynamic Head (TDH). The new test loop is designed to discharge up to 5250 gpm therefore does not compromise Service Water pump requirements as outlined in the Technical Requirements Manual (TRM). There is no increase in the probability of occurrence or consequences of an accident or malfunction as previously evaluated in the FSAR. This change did not present significant hazards not described or implicit in the Vermont Yankee FSAR and there was reasonable assurance that the health and safety of the public was not endangered.

## **Major Change to Vermont Yankee Design Change (VYDC) 2000-007, "Service Water/Fire Water Pump Flow Test Loop"**

### **General Summary**

This was a major change to the design that modified the method of testing for the SW/FWP Flow Test Loop. Text was added to the design and the safety evaluation regarding the fact that the water discharged into the CW bay will not have entered the plant (nor left the intake structure) and therefore contamination could not enter the CW bay from operation of the test loop. The actual design itself was not changed.

### **Safety Evaluation Summary (SE 2000-023, Rev. 1)**

The addition of this text and the testing modification did not increase the probability of occurrence or consequences of an accident or malfunction as previously evaluated in the FSAR as a result of this change. This change did not present significant hazards not described or implicit in the Vermont Yankee FSAR and there was reasonable assurance that the health and safety of the public was not endangered.

## **Vermont Yankee Design Change (VYDC) 2000-010, "Feedwater Pump Control Circuit Modifications"**

### **General Summary**

This design change replaced the three Control Room control switches for the feedwater pumps with switches containing "slip cams". These cams will permit a contact development which provides "memory" when the switch is in the center or normal position. This will eliminate the potential for two Reactor Feedwater Pumps to start simultaneously by automatic start signal. This new design also eliminates the cycling of reactor feed pump breakers open and closed when automatic trip and close signals are received.

### **Safety Evaluation Summary (SE 2000-033)**

VYDC 2000-010 modified the control circuits of the feedwater pumps by replacing the control switches with ones with different action and contact development. The new switches provide a "normal after stop" and "normal after start" contact. The "normal after stop" contact is used to provide an interlock in the pump automatic close circuitry which blocks the automatic restart of any pump which was previously running. The design also addressed potential cycling on and off of pumps and automatic start of multiple pumps.

The above modification did not increase the probability of occurrence or consequences of an accident or malfunction as previously evaluated in the FSAR. It did not present significant hazards not described or implicit in the Vermont Yankee FSAR and there was reasonable assurance that the health and safety of the public was not endangered.



**Vermont Yankee Design Change (VYDC) 99-007, "General Electric (GE) Containment System Response Analysis"**

**General Summary**

This design change was written to address and resolve containment peak pressure issues. An analysis was performed by GE to address these concerns and documented in calculation VYC-2135. The purpose of the analysis was to determine the short-term containment pressure and temperature response to a large break (DBA) LOCA to assure that drywell pressure does not exceed previously calculated peak containment pressure and to update the FSAR. There was no physical change to the plant as a result of this design change.

**Safety Evaluation Summary (SE 2000-035)**

The analysis performed by GE determined that the calculated peak drywell pressure for the short-term Design Basis Analysis (DBA) is below the calculated peak containment pressure identified in the FSAR and used for VY Appendix J leakage testing. It also concluded that the effects of a LOCA are less severe than previously analyzed. The above change did not involve any physical changes to plant systems, structures or components. Therefore, there was no increase in the probability of occurrence or consequences of an accident or malfunction as previously evaluated in the FSAR and there was reasonable assurance that the health and safety of the public was not endangered.

**Vermont Yankee Design Change (VYDC) 99-012, "ERFIS Data Acquisition System (DAS) A, C, D and G Replacement"**

**General Summary**

VYDC 99-012 was a continuation of EDCR 99-404 which was implemented in 1999 and replaced the majority of the Data Acquisition System (DAS) B analogic components. The replacement was due to the age of the installed equipment and the lack of vendor support. The scope of work included replacing the digital and analog inputs and outputs contained in DAS's A, C, D and G. A new cabinet was also added to the VY computer room which will house the new RTP DAS A equipment. New cables were installed from the computer room to the new DAS locations. All cables were installed in accordance with the VY Separation Criteria.

**Safety Evaluation Summary (SE 2000-038)**

Safety Evaluation 2000-038 was written to support the replacement of the above DAS equipment. The Mechanical/Structural Engineering Group reviewed the installation of the new equipment for II/I concerns to ensure that the new equipment would not fail during a seismic event and negatively impact safety related equipment. No issues were identified.

There was no increase in the probability of occurrence or consequences of an accident or malfunction as previously evaluated in the FSAR as a result of this change. This design did not

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

### **Vermont Yankee Design Change (VYDC) 2000-021, "Noble Chemistry Design Change"**

#### **General Summary**

This design change will implement deposition of Noble Metals to the wetted surfaces of the reactor coolant system. This process will be accomplished using a hydrogen-to-reactor water addition process, which when coupled with noble metals, establishes a favorable negative electrochemical surface potential. This negative potential reduces inter-granular stress corrosion cracking (IGSCC) on wetted BWR reactor and recirc piping surfaces. Fuel corrosion rates as a result of this process will remain within normal performance bands. Dose rates will increase slightly but only for a temporary period of time. There is no change or impact to the plant as a result of this design change. Benefits to be derived from this design change include improved equipment integrity, extended equipment/plant life, and ALARA benefits as a result of fewer required future inspections.

#### **Safety Evaluation Summary (SE 2000-042)**

Safety Evaluation 2000-042 was written in support of VYDC 2000-021. It was based on analyses performed for VY by GE and benchmarked at other plants and the experience gained during the implementation of NobleChem. NobleChem prevents the start of Intergranular Stress Corrosion Cracking (IGSCC) and stops the growth of existing IGSCC within the wetted reactor coolant pressure boundary. All equipment will operate as designed. As stated above, dose increases will be seen as a result of this process but they will be temporary and relatively small.

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

### **Vermont Yankee Design Change (VYDC) 2000-002, "Upgrade to the Recirculation Pump Speed Control System"**

#### **General Summary**

The VY Reactor Recirculation System consists of two forced circulation loops external to the reactor, supplying a driving flow of water to the jet pumps at a variable rate to maintain normal operating temperatures and regulate power. The motive force controlling Recirculation flow is provided by one single stage centrifugal pump in each loop, powered by the output of a variable frequency motor generator (MG Set). MG set frequency is varied by positioning a scoop tube in the fluid drive to regulate the amount of oil in the impeller casing and vary the speed of the output shaft to the generator. Scoop tube position is controlled by a motor driven actuator controlled by a manual loading station. The actuator and associated control devices comprise the Recirculation Pump Speed Control System.

VYDC 2000-002 upgraded the Recirculation Pump Speed Control System by replacing the individual loop process control components and actuators. The existing system was comprised of original components which were obsolete and unreliable. The scope of work included installation of a replacement Scoop Tube positioner compatible with the MG set fluid drive and new speed control instrumentation. The existing equipment was comprised of analog instrumentation and controls and was replaced with state-of-the-art digital devices.

#### Safety Evaluation Summary (SE 2000-044)

This SE was written using GL 95-02 as guidance and documents that the installation of the Moore controller and Jordan actuator will function as designed and the performance of the Recirculation system will remain unchanged. Additionally, a review of the accidents and transients as listed in the Chapter 14 of the FSAR with respect to the component replacements as defined in VYDC 2000-002 determined that replacing these components would not increase the probability of an accident, nor was it an accident mitigator. This change did not present significant hazards not described or implicit in the Vermont Yankee FSAR and there was reasonable assurance that the health and safety of the public was not endangered.

#### Safety Evaluation Summary (SE 2000-044 Revision 1)

Change Request #3 to VYDC 2000-02 added the replacement of the Master Speed Controller to the scope of the design change. This inclusion was a major change to the design and required changes to the design text, safety evaluation, drawings, procedures and calculation.

An evaluation of potential failure modes and the effects of the new instrumentation to determine the acceptability of performing analog to digital replacements were performed. SE 2000-044, Revision 1 was written in accordance with 10CFR50.59 with the additional guidance prescribed by NRC Generic Letter 95-02, "Use of NUMARC/EPRI Report TR-102348, "Guidelines on Licensing Digital Upgrades". It was determined that this addition to the design change would not increase the probability of an accident, nor was it an accident mitigator. This change did not present significant hazards not described or implicit in the Vermont Yankee FSAR and there was reasonable assurance that the health and safety of the public was not endangered.

#### Vermont Yankee Design Change (VYDC) 2000-004, "Installation of Mitigation Monitoring System"

##### General Summary

This design change installed a GE Mitigation Monitoring System (MMS) which supports VYDC 2000-021, "Installation of Noble Metals" and VYDC 2000-006, "Installation of the Hydrogen Water Chemistry System". The MMS consisted of a piping and tubing skid which was connected to the Reactor Water Cleanup (RWCU) system and a data panel. The panel was made up of electronic equipment designed for data processing, signal conditioning and data file maintenance for the ECP electrodes, flow, temperature and other miscellaneous instrumentation. These design changes were written to help control and eliminate intergranular stress corrosion (IGSCC) to the Reactor Coolant System components. The MMS monitored noble metal

durability and the electrochemical corrosion potential of the RCS. The MMS has no safety function.

#### Safety Evaluation Summary (SE 2000-050)

The MMS is a passive monitoring system that has no interlocks or control functions. All instrumentation and software is used for indication, data acquisition and analysis only. The location of the equipment did not adversely impact any safety-related equipment.

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

#### Vermont Yankee Design Change (VYDC) 2000-019, "Turbine Building Crane Hoist Upgrades"

##### General Summary

VYDC 2000-019 modified the Turbine Building Crane by replacing the main and auxiliary hoist motors, load brakes and controls with new motors, variable frequency motor controllers which included electronic load brakes and DC rectified brakes. These modifications will provide more precise control and braking.

#### Safety Evaluation Summary (SE 2000-051)

The above modification resulted in a configuration that provided the same protection as the replaced equipment so that there was no increase in the possibility of a failure resulting from a dropped load. This modification did not interfere with any safety function of any structure, system or component. All replaced equipment is classified as NNS.

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

#### Vermont Yankee Design Change (VYDC) 2000-029, "Main Station Battery Charger Modifications"

##### General Summary

This design change added a new battery charger to the Main Station 125 VDC system and reconfigured the existing "swing" charger resulting in two identical, dedicated chargers being available for each Main Station 125 VDC Battery System. This upgrade will allow testing and maintenance of the chargers to be conducted on-line instead of during refueling outages.

Operator actions will not be required to restore an operating charger following a loss of normal power (LNP).

#### Safety Evaluation Summary (SE 2001-001)

This safety evaluation was written to address the compensatory actions required to address High Energy Line Break (HELB) issues during implementation of VYDC 2000-029. The design requires pulling a cable through a 2" conduit which penetrates the wall separating the Reactor Building from the Cable Vault. The penetration will be reduced to 1 1/2" on the Cable Vault side prior to removing the cap on the Reactor Building side of the penetration, resulting in a 1 1/2" opening between the Cable Vault and the Reactor Building. This wall is an Environmentally Qualified (EQ) barrier that protects equipment in the Cable Vault from HELBs occurring in the Reactor Building.

Compensatory measures included the timely sealing of the penetration. This action was required to take place within 10 minutes of notification by either Control Room personnel or personnel working on the implementation. Trained personnel were on hand to immediately implement these measures. The penetration was only open for the time necessary to attach the conduit, pull the cable and reseal the penetration. All work was performed in accordance with approved procedures and was completed in a single evolution limiting the time the penetration was open.

Therefore, there was 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 was reasonable assurance that the health and safety of the public was not endangered.

#### Safety Evaluation Summary (SE 2001-002)

Safety Evaluation 2001-002 was written to address items associated with the implementation of VYDC 2000-029 not currently described in the Technical Specification Proposed Change 241 submitted to the NRC on October 25, 2000 under letter BVY 00-98.

#### **Vermont Yankee Design Change (VYDC) 2000-024, "Alternate Cooling System (ACS) Cross-Tie Between Alternate Cooling and the Spent Fuel Pool Cooling (SFPC) Systems"**

##### General Summary

This design change installed a stainless steel line which cross-tied the discharge of the Residual Heat Removal Service Water (RHRSW) pumps to the Spent Fuel Pool RBCCW Service Water (SFPCS SW) supply header. A 4" flanged, manual full port ball valve was installed at each end of the new cross-tie line. All work was conducted on-line utilizing "Hot Taps" to make the pipe connections.

This modification will allow the RHRSW pumps to provide ACS cooling water to the SFPCS Heat Exchangers and will eliminate the need to rely solely on the RHR system in order to maintain fuel pool cooling during events requiring ACS operation.

### Safety Evaluation Summary (SE 2001-003)

The portion of the SW System affected by this design change is Safety Class 3 and Seismic Class I. The SW System will operate and function without change following this design change during all operating modes except ACS. The ACS is not required to mitigate any design basis accidents described in FSAR Chapter 14. Flow analysis has shown that the addition of this new 4" line will allow the RHRSW pumps to provide adequate ACS cooling water to the SFPCS heat exchangers thereby maintaining fuel pool cooling during ACS operation and eliminating the need for Augmented RHR.

Therefore, there was 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 was reasonable assurance that the health and safety of the public was not endangered.

### Vermont Yankee Design Change (VYDC) 2000-030, "Replacement of 24VDC Emergency Core Cooling System (ECCS) Batteries With DC Power Supplies"

#### General Summary

This design replaced the SCE ECCS System A and B battery chargers and batteries with SCE 125 DC/24 VDC converters. The converters are located in the same location as the previous chargers and are fed by the 125 VDC Main Station Batteries and their associated chargers. The design also replaced the NNS standby charger used for Appendix R power to the RCIC Alternate Shutdown (ASD) instrumentation in case of a fire in the cable vault with a 125 VDC/24 VDC converter. This converter is considered SCE as it provides isolation between the SCE ECCS distribution panel and its NNS alternate shutdown power supply (Battery AS-1 and its associated charger). This eliminates operator action during a cable vault fire to install the cable to the battery as the SCE and AS-1 power supplies are both feeding the distribution panel. An additional SCE isolation fuse was installed on the AS-1 feed to ensure that a short on its NNS feed would be isolated from the SCE distribution panel. A SCE diode was installed on the SCE feed to ensure that a fault on the SCE feed would not affect the distribution panel's ability to feed the Appendix R RCIC ASD instrumentation loads.

### Safety Evaluation Summary (SE 2001-004)

Safety Evaluation 2001-004 was written for items not currently discussed in PC-242 submitted to the NRC as BVY 00-107 on 11/27/00.

### Vermont Yankee Design Change (VYDC) 2000-028 "Main Station Battery Cell Replacement"

#### General Summary

This design change replaced the existing C&D LC-31 and LCR-31 Main Station Battery cells with C&D LCR-33 cells. The new cells, which are heavier and produce more hydrogen, are similar in design to the existing cells. Replacing the existing cells with the LCR-33 cells

increased the ampere-hour rating of the Main Station Batteries. The new cells were mounted in the same racks as the existing cells.

#### **Safety Evaluation Summary (SE 2001-012)**

Engineering analysis was conducted that determined the racks will retain their seismic integrity despite the increased weight. A new hydrogen generation rate was determined using the new cell size and changing the cell temperature from 87°F to 100°F. Despite the increased rate of hydrogen generation, existing controls ensure that the Battery Room hydrogen concentration remains within the acceptable limit. The capacity of the new batteries is greater than that of the batteries which were replaced.

Therefore, there was 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 was reasonable assurance that the health and safety of the public was not endangered.

#### **Minor Modification (MM) 99-58 "AC-7 Spool Piece Modification"**

##### **General Summary**

This MM replaced a section of the existing AC-7 line with a flanged line. The portion of the line replaced is between SB 16-19-6A and the 1" VG-117A-D1 line. The new line utilized bolted connections as opposed to welded connections.

##### **Safety Evaluation Summary (SE 99-046)**

This SE evaluated replacing a section of the AC-7 line as described above. The replacement piping is Safety Class (SC) 2 and has the same temperature and pressure rating as the original and values are in excess of primary containment design values.

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

#### **Minor Modification 99-059 – "Control Room Modifications"**

##### **General Summary**

MM 99-059 modified the mechanical and electrical configuration in the Control Room to support upgrading the Control Room workstations.

### Safety Evaluation Summary (SE 2000-02)

The purpose of Safety Evaluation 2000-02 was to describe and evaluate the impact of breaching the Control Room Boundary through the addition of new penetrations in the Control Room floor (interfacing with the Cable Vault) and the opening of various penetrations, to reroute and upgrade cable to components associated with the installation of new Control Room workstations. The evaluation was necessary due to the potential impact on Control Room Habitability associated with the breaching of the Control Room Boundary during implementation of the Minor Modification.

The calculated dose was evaluated and was determined to be within the limits specified in Criterion 19 to 10CFR Part 50.

There was 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 was reasonable assurance that the health and safety of the public was not endangered.

### Minor Modification (MM) 99-050 "Replacement of Existing Fire Detection System in the Emergency Diesel Generator (EDG) Rooms"

#### General Summary

This minor modification replaced the existing smoke detection fire system in the "A" and "B" EDG Rooms with a combination ultraviolet/infrared (UV/IR) system. The modification added a new control panel, four (4) detectors in each room and new conduit and cabling. Control Room indication was tied into the existing zone for the Turbine Loading Bay. The new fire detection system is NFPA code compliant and will adequately function in the EDG room environment.

### Safety Evaluation Summary (SE 2000-009)

This modification will ensure that the new fire detection system will provide early warning capability necessary to alert Control Room personnel in the event of a fire in the EDG rooms. This system will not initiate fire suppression within the EDG rooms and will therefore not affect the operability of the EDGs.

There is no increase in the probability of occurrence or consequences of an accident or malfunction as previously evaluated in the FSAR as a result of this modification. This 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.



### **Minor Modification (MM) 99-003 "Installation of Shunt Trip Capability to MCC 9C-1KR"**

#### **General Summary**

Diesel generator loading is bounded by the assumptions in VYC 836, "Diesel Generator Loading" and the FSAR Diesel Generator Loading Tables. MM 99-003 replaced the existing thermal-magnetic (TM) breaker at MCC 9C-1KR with an equivalent TM breaker with shunt trip capability. This will result in MCC 9C-1KR tripping open when load shed by "Loss of Normal Power" (LNP) control logic. FSAR Figure 8.4-5 was converted to a drawing as a result of this modification.

#### **Safety Evaluation Summary (SE 2000-011)**

This safety evaluation was written to ensure that the assumptions in calculation VYC 836, "Diesel Generator Loading" are still valid. There was no reduction in the margin of safety as a result of this modification as the shunt trip device will assure the maximum calculated load for the "A" diesel is not exceeded upon initiation of a load shed signal by LNP control logic.

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

### **Minor Modification (MM) 99-046 "Recirculation Pump Motor Generator Set Master Speed Controller Replacement"**

#### **General Summary**

MM 99-046 replaced the Recirculation Pump Motor-Generator Set master speed controller and speed demand limiter with a single manual loading station. The master speed controller can be operated to provide a speed signal to both recirc pump speed control loops simultaneously. In addition, the master speed controller can be disabled to allow individual control of each recirc speed control loop. The speed demand limiter establishes maximum and minimum signal levels that are sensed by the recirc pump speed control loops. If the output of the master controller exceeds the maximum or minimum signal levels, the speed demand limiter will clamp the signal at those values. The new manual loading station is a digital device that can be configured to provide various options and functions to satisfy a wide variety of specific field applications. The new station has been configured so that it will not exceed a maximum or minimum value. This feature allows the manual loading station to combine the functions of both the master speed controller and the speed demand limiter into one unit. As a result, the speed demand limiter has been removed from the speed control circuit.

#### **Safety Evaluation Summary (SE 2000-021)**

A review of the FSAR with respect to the component replacements, as defined in MM 99-046 determined that replacing these components did not increase the probability of an accident, nor

was it an accident mitigator. This change did not present significant hazards not described or implicit in the Vermont Yankee FSAR and there was reasonable assurance that the health and safety of the public was not endangered.

**Minor Modification (MM) 2000-016, "Installation of Isolation Valves in Turbine Controls Vacuum Trip #1 and #2 Bellows Sensing Lines"**

**General Summary**

MM 2000-016 was a result of a recommendation made by General Electric. The modification installed isolation valves in the turbine controls vacuum bellows sensing lines in order to facilitate technician access. The existing configuration required the technician to break and remake tubing runs in order to gain access to the trip bellows to perform calibrations. With the installation of the isolation valves, the time required to do the calibration was reduced because there will no longer be a need to break the tubing connections.

**Safety Evaluation Summary (SE 2000-036)**

The installation of Instrument Isolation valves in the Turbine Vacuum Trip Bellows tubing lines facilitated surveillance by eliminating the need to disassemble the sensing lines. The modification did not increase probability of occurrence or consequences of an accident or malfunction as previously evaluated in the FSAR nor did this change present significant hazards not described or implicit in the Vermont Yankee FSAR. There was reasonable assurance that the health and safety of the public was not endangered.

**Minor Modification (MM) 2000-018, "Replacement of Reactor Building Closed Cooling Water (RBCCW) Outlet Valves"**

**General Summary**

MM 2000-18 replaced the Normal Fuel Pool Cooling (NFPC) heat exchanger outlet valves with new manually operated Valtek Mark One control valves. The replacement is required due to problems caused by overthrottling.

The existing valves are 4", 150# manually operated (butt welded) cast steel globe valves manufactured by Walworth Company. The replacement valves are 4" globe valves with trim to increase the throttling capability. The installation of the new valves was performed using a vertical freeze seal. The replacement valves are the same or better as those fabricated for the original RBCCW system. All piping, fittings and fasteners are carbon steel.

**Safety Evaluation Summary (SE 2000-046)**

This modification required a safety evaluation because the loss of the freeze seal could cause a loss of the RBCCW system pressure boundary and a possible plant trip. The fabrication, installation and examination of the components associated with this modification meet or exceed the requirements of ANSI B31.1.

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

**Minor Modification (MM) 99-039, "Replacement of Magnetic Only Circuit Breaker With Thermal Magnetic Circuit Breaker in MCC-8A-2F"**

**General Summary**

MM 99-039 replaced the magnetic only circuit breaker in MCC-8A-2F, which feeds the standby gas treatment electric heater EUH-4, with a thermal magnetic circuit breaker. The new circuit breaker will provide the appropriate heater circuit protection. Replacement of this breaker did not change the system operation.

**Safety Evaluation Summary (SE 2000-054)**

A safety evaluation was required for this modification because a change to the FSAR will be required to reflect the change from magnetic to thermal magnetic breakers. This modification does not change the operation of the Standby Gas Treatment system nor does it change the function or performance of any structure, system or component.

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

**Minor Modification (MM) 2000-047, "Replacement of Obsolete General Electric IAC Overcurrent Relays With Basler Digital Overcurrent Relays"**

**General Summary**

This MM installed 28 Basler Model BE1-50/51B-214 digital overcurrent relays. These relays replaced the current General Electric IAC analog relays and were installed in the existing relay case using the existing connection plug. These replacement relays met all the existing design requirements including seismic, overload and fault protection, reliable operation, surge withstand capability, fast transient testing and impulse testing.

**Safety Evaluation Summary (SE 2000-055)**

These relays did not alter the system or its operation. They will provide the same or better overcurrent protection for the 4160 Volt AC system. A previous safety evaluation (SE) 2000-019 provided documentation that the replacement relays (analog to digital) were acceptable. SE 2000-019 was written for SCE relays only. This safety evaluation was written to include NNS relays as well as the SCE relays.

Therefore, there was 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 was reasonable assurance that the health and safety of the public was not endangered.

**Minor Modification (MM) 2001-005, "Corrections of Cable Deficiencies as noted in Basis for Maintaining Operability (BMO) 2000-12"**

**General Summary**

MM 2001-005 rerouted a total of eight cables identified in BMO 2000-12 as being out-of-compliance with VY Separation Criteria and FSAR Section 8.4.6.6. The cables were rerouted and tested and applicable drawings revised to reflect the changes. There was no change in the function of the cables as a result of this re-routing. There was no change to system design or operation as a result of this modification.

**Safety Evaluation Summary (SE 2001-011)**

This safety evaluation was written in support of the above cable reroute due to breaching of the Control Room envelope by the opening of various floor penetrations. Compensatory measures were in place to have dedicated personnel immediately seal the openings upon directions from Control Room personnel or personnel performing the modification. As an added precaution, the Cable Vault CO2 system was disabled prior to breaching the Control Room envelope.

These measures ensured that there was no increase in the radiological dose to Control Room personnel in the event of a Design Basis Accident (DBA) Loss of Coolant Accident (LOCA) or a Main Steam Line (MSL) break during implementation of this modification. Therefore, there was 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 was reasonable assurance that the health and safety of the public was not endangered.

**Minor Modification (MM) 2000-040, "Installation of 150 Amp Breaker in DC-2"**

**General Summary**

MM 2000-040 installed a 150 amp thermal magnetic breaker on the DC-2 distribution panel and a cable connecting the DC-2 panel to the DC-3B panel. This breaker and cable will be used to power panel DC-3B while DC-3 is de-energized during the performance of OP 5295, "125V DC-3 Distribution Panel Inspection and Testing". This testing will only be performed during shutdown or refueling.

**Safety Evaluation Summary (SE 2001-015)**

Safety Evaluation 2001-015 was written because the work to be performed under MM 2000-040 required tying into safety class equipment. The 150 amp breaker provides isolation between the

DC-2 distribution panel, which is designated safety-class, and the non-safety related DC-3B panel.

This modification did not increase the probability of occurrence or consequences of an accident or malfunction as previously evaluated in the FSAR nor did it present significant hazards not described or implicit in the Vermont Yankee FSAR. There was reasonable assurance that the health and safety of the public was not endangered.

#### **Minor Modification (MM) 2000-051, "Modification to the Main Steam Line Drain (MSD) Piping"**

##### **General Summary**

This minor mod was implemented to limit steam flow from a MSD line break and keep the main condenser available for shutdowns with a break in the MSD System in the Torus compartment. This was accomplished by altering the existing piping paths and adding a valve so that the MSD header in the Torus compartment can be isolated from high pressure during normal operations. Additionally, a valve, with an orifice sized to limit the amount of steam that can enter the torus area, was installed. No new concerns regarding condensate buildup and potential waterhammer were introduced by this change.

##### **Safety Evaluation Summary (SE 2001-017)**

This modification was designed to assure that any MSD piping break would be bounded by the existing MSLB and RCIC line break analysis from an Environmental Qualification of equipment perspective. No additional analysis was required. This design did not create any pipe whip or jet impingement concerns.

Therefore, this modification did not increase the probability of occurrence or consequences of an accident or malfunction as previously evaluated in the FSAR nor did it present significant hazards not described or implicit in the Vermont Yankee FSAR. There was reasonable assurance that the health and safety of the public was not endangered.

#### **Minor Modification (MM) 2001-012, "Phase 2 - Control Room Heating, Ventilation and Air Conditioning (HVAC) Modifications for High Energy Line Breaks (HELBs)"**

##### **General Summary**

This MM provided modifications to the Control Room HVAC system which strengthened the system so that it will remain intact following a HELB. This was accomplished by adding screws at the required duct joints. This modification also converted Temporary Modification (TM) 99-034 to a permanent configuration. This TM defeated the latch mechanism in door T-18. T-18 is a double door to the HVAC room and is configured to swing out into the hallway in the event of a HELB.

### Safety Evaluation Summary (SE 2001-018)

SE 2001-018 documents why the Control Room HVAC system is not required following a HELB.

The duct strengthening modifications do not adversely affect the Control Room HVAC equipment and do not increase system leakage. The equipment's ability to function following a LOCA is not changed. A Main Steam Line break would result in the largest pressure increase in the HVAC room of any HELB and would result in a differential pressure across the ducting which would be terminated when the large Turbine Building blowout panels opened. Once the blowout panels opened, the steam/hot air mixture would exit the building or condense.

Testing was conducted which determined that the Control Room Supply/Return duct and flex joints and the Cable Vault Supply duct will maintain their pressure integrity when subjected to the maximum anticipated HELB pressure.

Penetration seals into the Control Room and Cable Vault are capable of withstanding approximately 3 psid which is significantly greater than required.

Therefore, this modification did not increase the probability of occurrence or consequences of an accident or malfunction as previously evaluated in the FSAR nor did it present significant hazards not described or implicit in the Vermont Yankee FSAR. There was reasonable assurance that the health and safety of the public was not endangered.

### Minor Modification (MM) 2000-034, "Documentation Change to the Service Water (SW) System Flow Diagram"

#### General Summary

MM 2000-034 was a documentation change to the Service Water Flow Diagram, drawing G-191159, only. No fieldwork was required. The change deleted the NNS to SCE break presently located on the outlet side of and between isolation valve V70-830A/B and pressure indicator PI-104-74A/B. A SC3/NNS break was also added on the outlet side of the normally open isolation valves V70-171A - E to pressure switch PSL-104-17A - E. There was no change to the operation of the Service Water system.

### Safety Evaluation Summary (SE 2001-023)

With the exception of the pressure switches, the portion of the Service Water system affected by this MM is Safety Class 3 and Seismic Class I. The pressure switches do not have to function to mitigate any accident. Flow analysis has shown that a break at the pressure switch will not prevent the Service Water System from performing its safety function. Therefore, this modification did not increase the probability of occurrence or consequences of an accident or malfunction as previously evaluated in the FSAR nor did it present significant hazards not described or implicit in the Vermont Yankee FSAR. There was reasonable assurance that the health and safety of the public was not endangered.

**Minor Modification (MM) 2001-018, "Modification to the Ground Detection Circuit for Main Station Batteries DC-1 and DC-2 to Increase Sensitivity"**

**General Summary**

MM 2001-018 added 50 K ohm resistors in series with the existing 150 K ohm resistors to the ground detection circuit for the Main Station Batteries. This resulted in a 200 K ohm ground detector bridge circuit. The ground detector meter was also recalibrated from 1 mA full scale to .75 mA full scale. This modification increased the sensitivity of the ground detection circuit and assured that no single ground would prevent a component from operating. All work was NNS and was performed on CRP 9-8.

**Safety Evaluation Summary (SE 2001-026)**

The Ground Detection System is classified as NNS. A review of the FSAR determined that this change does not increase the probability of occurrence or consequences of an accident or malfunction as previously evaluated in the FSAR nor did it present significant hazards not described or implicit in the Vermont Yankee FSAR. Therefore, there was reasonable assurance that the health and safety of the public was not endangered.

**Minor Modification (MM) 2001-020, "Replacement of Springs in Valves V13-6/7"**

**General Summary**

MM 2001-020 replaced the spring in V13-6 and V13-7. This modification did not have any affect on the ability of the Reactor Core Isolation Cooling (RCIC) turbine to achieve the safety function of the system. The new springs will provide higher closing forces to ensure that the valves close when required.

**Safety Evaluation Summary (SE 2001-030)**

Safety Evaluation 2001-030 was written to document that the change of springs in V13-6 and V13-7 is acceptable and will not result in an unreviewed safety question. The design, fabrication, quality assurance, implementation and testing of the spring meets all requirements of the specification used to purchase the valves. Therefore, this modification did not increase the probability of occurrence or consequences of an accident or malfunction as previously evaluated in the FSAR nor did it present significant hazards not described or implicit in the Vermont Yankee FSAR. Therefore, there was reasonable assurance that the health and safety of the public was not endangered.

**Minor Modification (MM) 2001-021, "Replacement of Springs and Radial Guides in Valves V23-3 and V23-4"**

**General Summary**

MM 2001-021 replaced the springs and radial guides in V23-3 and V23-4. The new springs will provide higher closing forces to ensure that the valves close when required. A revision to calculation VYC-1888 determined that replacement of the springs and guides would not affect the safety function of the High Pressure Core Injection (HPCI) turbine. The radial guides are identical to the existing guides with the exception that they will be made from Inconel X-750 material instead of 316 stainless steel.

**Safety Evaluation Summary (SE 2001-031)**

Safety Evaluation 2001-031 was written to document that the change to the springs and the radial guides material is acceptable and will not result in an unreviewed safety question. The design, fabrication, quality assurance, implementation and testing of the spring meet all requirements of the specification used to purchase the valves. Therefore, this modification did not increase the probability of occurrence or consequences of an accident or malfunction as previously evaluated in the FSAR nor did it present significant hazards not described or implicit in the Vermont Yankee FSAR. Therefore, there was reasonable assurance that the health and safety of the public was not endangered.

**Temporary Modification (TM) 2000-005, "Disabling of Rod Positions 03, 13, 23, 33 and 43 on Control Rod 10-35"**

**General Summary**

TM 2000-005 was written due to an intermittent problem with the Position Indication Probe (PIP) "threes" line input to the Rod Position Information System (RPIS) for Rod 10-35. TM 2000-005 disabled rod positions 03, 13, 23, 33 and 43 on Control Rod 10-35 in order to prevent the masking of future drift signals to the process computer and annunciator. The disabling of these rod positions restored the drift capability of all other rod positions on rod 10-35 and all positions of all other control rods.

**Safety Evaluation Summary (SE 2000-026)**

Neither the control rod drive mechanism position indication nor the associated electronics are initiators of any accidents analyzed in the FSAR. This TM also does not increase the probability of any malfunctions, which initiate abnormal operational transients, because neither the Rod Worth Minimizer (RWM) nor the Reactor Protection Indication System (RPIS) are associated with any of these events.

This TM will not affect scram insertion times governed by Technical Specifications and therefore there is no reduction in the margin of safety.



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

**Temporary Modification (TM) 2000-008 "Installation of Freeze Seal on 'A' EDG SW Line 8"SW-18A"**

**General Summary**

This Temporary Modification installed a freeze seal on the "A" Emergency Diesel Generator (EDG) Service Water line 8" SW-18A. The freeze seal was required due to scheduled maintenance on the diesel inlet isolation valve V70-44C and pressure control valve PCV-104-73A. This modification did not change the operation of the system or any component.

**Safety Evaluation Summary (SE 2000-028)**

This freeze seal was installed to provide isolation while performing work on PCV-104-73A. This freeze seal was installed and controlled using approved procedures therefore there was reasonable assurance that the activity would not introduce stresses above code allowables. There was no increase in the probability of occurrence or consequences of an accident or malfunction as previously evaluated in the FSAR. This activity did not present significant hazards not described or implicit in the Vermont Yankee FSAR, and there was reasonable assurance that the health and safety of the public was not endangered.

**Temporary Modification (TM) 2000-010, "Disabling of Rod Positions 07, 17, 27, 37 and 47 on Control Rod 10-35"**

**General Summary**

This TM was implemented due to an intermittent problem with the Position Indication Probe (PIP) "sevens" line input to the Rod Position Information System (RPIS) for rod 10-35. The problem resulted in a decrease in input resistance sensed by RPIS for that line. All other rod indications, rod drift, and rod block functions will remain unchanged as a result of this installation.

**Safety Evaluation Summary (SE 2000-034)**

Neither the control rod drive mechanism position indication nor the associated electronics are initiators of any accidents analyzed in the FSAR. This TM also does not increase the probability of any malfunctions, which initiate abnormal operational transients, because neither the Rod Worth Minimizer (RWM) nor the Reactor Protection Indication System (RPIS) are associated with any of these events. This TM will not affect scram insertion times governed by Technical Specifications and therefore there is no reduction in the margin of safety. This Temporary Modification did not present significant hazards not described or implicit in the Vermont Yankee

FSAR, and there was reasonable assurance that the health and safety of the public was not endangered.

**Temporary Modification (TM) 2000-012, "Connection of Battery Charger BC-1-1C to Allow Corrective Maintenance to Battery Charger BC-1-1A"**

**General Summary**

TM 2000-012 was written to allow the connection of battery charger BC-1-1C to DC-1 in order to maintain a fully operational DC train as specified in the Technical Specifications. This connection was necessary due to a series of problems with the "A" charger. The "A" charger had been experiencing alarms with regard to float voltage and current readings.

**Safety Evaluation Summary (SE 2000-040)**

In accordance with the VY FSAR, a standby battery charger must be available. Implementation of this TM temporarily removed that design feature in order to attempt to rectify a known degraded condition. In the event of a failure of either train of the DC system while this TM was being installed, a 3-day LCO per the Technical Specifications would have been entered and appropriate compensatory actions would have been taken to restore the DC system to an operable condition.

There was 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 was reasonable assurance that the health and safety of the public was not endangered

**Temporary Modification (TM) 2001-013, "Installation of a Freeze Seal on the 8"SW-18A Line"**

**General Summary**

This Temporary Modification installed a freeze seal on the 'A' Emergency Diesel Generator Service Water supply line 8"SW-18A to facilitate maintenance on the 'A' Inlet Pressure Control Valve, PCV-104-73A. The Service Water system was unaffected by the use of the freeze seal as the seal functions in the same manner as the Diesel Generator Service Water cooling isolation valve, V70-44C.

**Safety Evaluation Summary (SE 2001-020)**

The follow summarizes the findings determined in SE 2001-020 which confirmed that the freeze seal used in TM 2001-013 would function as required:

1) Operators were available to isolate the Service Water supply header supplying the "A" diesel in the event that any freeze seal problems were encountered.

2) In the event of any problems, personnel were instructed to reassemble the valve or re-establish the pressure boundary.

3) The seal location and length provided reasonable assurance that the seal would prevent significant Service Water flow diversion. If the seal had moved, it would have become lodged in the Service Water line elbows. By the time the seal melted, the operators would have been able to isolate the supply line and/or the valve in order to re-establish the pressure boundary.

4) The SW system is coated with uneven tubercles resulting from MIC. This uneven surface would have made seal migration unlikely.

Therefore, this modification did not increase the probability of occurrence or consequences of an accident or malfunction as previously evaluated in the FSAR nor did it present significant hazards not described or implicit in the Vermont Yankee FSAR. There was reasonable assurance that the health and safety of the public was not endangered.

### **Temporary Modification (TM) 2001-009, "Installation of Temporary Plugs in the Main Steam Isolation Valves (MSIVs)"**

#### **General Summary**

This TM installed eight temporary plugs in the Main Steam Lines while maintenance was being performed on the Main Steam Isolation Valves (MSIVs) and the turbine stop and bypass valves. The plugs provided secondary containment integrity during this scheduled maintenance time and also functioned as a Foreign Material Exclusion (FME) barrier.

#### **Safety Evaluation Summary (SE 2001-021)**

The plugs installed by TM 2001-009 are passive components which can only be installed when the plant is shutdown and the main steam stop and bypass valves are open for maintenance. They are designed to provide a secondary containment boundary when any outboard MSIV and any Turbine Stop Valve are open simultaneously. The plugs were tested following installation to ensure their integrity, to act as a Secondary Containment boundary.

The plugs were made of fire resistant materials and met all required design characteristics.

Therefore, this modification did not increase the probability of occurrence or consequences of an accident or malfunction as previously evaluated in the FSAR nor did it present significant hazards not described or implicit in the Vermont Yankee FSAR. There was reasonable assurance that the health and safety of the public was not endangered.

### **Installation and Test Procedure (I&T) for VYDC 2000-003, "IPEEE Vernon Tie"**

#### **General Summary**

The scope of work encompassed in this I&T included the installation of replacement cables between Bus 3, 4 and CRP 9-8, testing of the circuits after cable installation, functional testing of the 3V, 4V and 3V4 breakers and removal of old cables. Compensatory measures were included

which would allow for the immediate sealing of all open penetrations upon direction from the Control Room personnel.

#### Safety Evaluation Summary (SE 2000-032)

A safety evaluation was required for this I&T due to breaching the Control Room boundary by opening various floor penetrations. Explicit direction was given within the I&T for dedicated personnel to be on hand to immediately seal all open penetrations if prompted. Therefore, it is concluded that the above activities did not increase the probability of occurrence or consequences of an accident or malfunction as previously evaluated in the FSAR. They did not present significant hazards not described or implicit in the Vermont Yankee FSAR and there was reasonable assurance that the health and safety of the public was not endangered.

#### Bases for Maintaining Operability (BMO) 99-08, Rev. 2 "Alternate Cooling/Augmented Fuel Pool Cooling"

##### General Summary

The original BMO was written when it was determined that a potential nonconforming condition existed regarding insufficient procedural guidance for the initiation and operation of the Alternate Cooling System (ACS) relative to providing adequate fuel pool cooling.

BMO 99-08, rev. 2 was written to address the increase in initial Spent Fuel Pool temperature from 110°F to 120°F and the procedural changes associated with that change. The procedures affected were:

- ON 3184 "Loss of Service Water
- OP 2124 "Residual Heat Removal System"
- OP 2184 "Normal Fuel Pool Cooling System"
- OP 2179 "Standby Fuel Pool Cooling"
- OP 4179 "Standby Fuel Pool Cooling Surveillance"
- AP 0150 "Conduct of Operator Rounds" and
- OP 2181 "Service Water/Alternate Cooling Operating Procedure"

#### Safety Evaluation Summary (SE 99-017, Rev. 2)

This Safety Evaluation was written to address issues covered by BMO 99-08 and to address the compensatory measures required by that BMO which includes procedure changes for the above listed procedures and a revision in the administrative limits for the Spent Fuel Pool from 80-110°F to 80-120°F.

There was no increase in the probability of occurrence or consequences of an accident or malfunction as previously evaluated in the FSAR. This BMO 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.

**Bases for Maintaining Operability (BMO) 99-08, Rev. 3 "Alternate Cooling/Augmented Fuel Pool Cooling"**

**General Summary**

Revision 3 to BMO 99-08 was initiated to correct minor errors in the previous revision and included additional information regarding the two-hour restriction. Revision 2 provided temperature-based actions and should have removed the two-hour restriction from the BMO and the associated safety evaluation (SE 99-017, Rev. 2).

**Safety Evaluation Summary (SE 99-017, Rev. 3)**

This safety evaluation updated the previous revision as noted above. A paragraph was also added regarding a walkdown that was completed on valves V10-9, V19-50 and V19-25. These valves form the flow path between RHR and Spent Fuel Pool Cooling used in Augmented Fuel Pool Cooling. The walkdown revealed no indications of excessive corrosion or leakage. The valve operators for these valves also appeared to be in good order. These valves will be removed from the ISI Program after implementation of VYDC 2000-024, "Cross-Tie Between Alternate Cooling and SFPC Systems".

There was no increase in the probability of occurrence or consequences of an accident or malfunction as previously evaluated in the FSAR. This BMO 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.

**Basis for Maintaining Operability (BMO) 2000-22, Revision 0, "HELB Analysis of Combined Main Steam and Feedwater Line Break"**

**General Summary**

During the performance of corrective actions for Event Report (ER) 97-0064 " RWCU Return Line Passes Through EQ Vol. 30 without an RWCU Break Identified in that Volume", a combined Main Steam Line Break (MSLB) and Feedwater (FW) break was investigated. The results of that investigation determined that this type of event is within the VY licensing basis. However, the break had not been analyzed with the current reactor building as-built configuration depicted in the HELB model. This type of break was also not addressed in the Environmental Qualification Program.

BMO 2000-22 initiated corrective actions to address the above issues which included performing an analysis for the combined MSLB/FWTR line break and incorporating the conclusions from that analysis into the affected DBD and EQ Program.

**Safety Evaluation Summary (SE 2001-028)**

Safety Evaluation (SE) 2001-028 was written to document the results of the analysis and evaluated acceptability of using a different computer model when performing the licensing basis analysis. There was no change to any equipment or the operation of the plant as a result of these corrective actions. Therefore, this BMO 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.

**Special Test Procedure (STP) 2000-001, "Differential Pressure (DP) Testing of Service Water (SW) Motor Operated Valves (MOVs) V70-19A and V70-20"**

**General Summary**

This Special Test was performed to gather information for the BWR Owners' Group Joint Owners' Group (JOG) Periodic Verification (PV) Program regarding motor operated valve (MOV) performance when tested under design basis differential pressure (DP) and flow conditions. Service Water (SW) system valves V70-19A and V70-20 were tested independently. Static testing was also conducted before and after the dynamic testing to ensure no degradation or damage had occurred to the valves. Testing was performed during the plant refueling outage when SW to the normal Turbine Building loads was not required. The dynamic tests were performed in the "close" direction under guidance contained in VY procedure OP 4181.

**Safety Evaluation Summary (SE 2001-010)**

STP 2000-001 was performed using approved procedures to ensure that all activities were in accordance with Technical Specifications and consistent with equipment and system operability restrictions and limitations. Valves V70-19A and V70-20 were not declared inoperable at the same time and Service Water system isolation to non-essential loads was maintained.

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

**Special Test Procedure (STP) 2000-021-01, "Noble Metals Chemical Addition"**

**General Summary**

This Special Test established instructions and criteria for maintaining plant control during the noble metals chemical addition process. The scope of the procedure included instructions for mobilizing, pre-test checks, conductivity control, injection and demobilization. Dedicated personnel were assigned as Coordinators and Test Directors to oversee the chemical addition process.

**Safety Evaluation Summary (SE 2001-013)**

SE 2001-013 evaluated the installation of noble metals in the Reactor Coolant System during hot shutdown. The installation process, connection and removal of temporary equipment,

establishing stable reactor conditions for the injection and short-term increases in the Main Steam Line (MSL) dose rate were evaluated. The impact of Noble Chem on affected plant systems was also evaluated.

This evaluation determined that all equipment would operate as designed. Past experience and testing from other plants indicated that NobleChem would have no adverse affect on the thermal or mechanical properties of fuel or vessel components. Therefore, it was determined that there would be no increase in the probability of occurrence or consequences of an accident or malfunction as previously evaluated in the FSAR. This Special Test did not present significant hazards not described or implicit in the Vermont Yankee FSAR, and there was reasonable assurance that the health and safety of the public was not endangered.

#### Safety Evaluation Summary (SE 2001-013, Rev. 1)

This revision changed the wording in the SE to indicate that another NNS demin water valve (other than valve DW 129B) would be used to supply water to the injection skid. This was due to the previously selected valve being difficult to use.

Switching valves did not change the objective or scope of the STP and the safety class of the equipment being utilized was not changed. Therefore, it was determined that there would be no increase in the probability of occurrence or consequences of an accident or malfunction as previously evaluated in the FSAR. This change did not present significant hazards not described or implicit in the Vermont Yankee FSAR, and there was reasonable assurance that the health and safety of the public was not endangered.

#### Safety Evaluation Summary (SE 2001-013, Rev. 2)

This revision changed wording in the SE to expand the expected 4 pump RHR flow operation band during noble metal injection. This expansion provided additional margin from potential RHR pump cavitation, while maintaining near-ideal noble metal flow distribution.

The methods for monitoring for RHR cavitation remained the same. Expanding the acceptable flow range (in the conservative direction relative to RHR pump cavitation), did not change the objective or scope of the STP. Therefore, it was determined that there would be no increase in the probability of occurrence or consequences of an accident or malfunction as previously evaluated in the FSAR. This change did not present significant hazards not described or implicit in the Vermont Yankee FSAR and there was reasonable assurance that the health and safety of the public was not endangered.

#### Procedure OP 4033, "Standby FPCS Heat Exchanger Thermal Performance Test", Original Revision

##### General Summary

OP 4033, "Standby FPCS Heat Exchanger Thermal Performance Test" provided the steps necessary to perform the SFPCS heat exchanger thermal performance testing to ensure heat removal capability during worst case accident scenarios.

### Safety Evaluation Summary (SE 2000-01)

Safety Evaluation 2000-001 was written in support of OP 4033. In response to a Notice of Violation (BVY 98-33), Vermont Yankee committed to assure that the test instruments used in the SFPC heat exchanger thermal performance tests were adequate to assure that the test requirements relative to measurement uncertainties were satisfied. It was also desirable that these measurement uncertainties be kept to the minimum practicable, in line with the significance of these tests to demonstrate adequate design basis heat removal capability.

The test instrumentation was installed per STP 98-008. All tubing, hoses and mounting hardware were safety class (SC3). The instrumentation used did not affect any of the automatic features of the SFPC and SW systems.

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

### Procedure Change for OP 2192, Rev. 29 "Heating, Ventilating and Air Conditioning System"

#### General Summary

This revision to OP 2192 added a new section (R) to the procedure. Section R gives direction for local manual operation of the Emergency Diesel Generator (EDG) A/B room exhaust fans. Prior to the revision, the fans would not run without the diesel running. Due to high temperatures during the day, it became necessary to run the fans without the aid of the diesel. The new section will allow manual operation of the fans when the temperature exceeds 56°F with Shift Supervisor approval. A dedicated Auxiliary Operator will be stationed at the selected Diesel Generator Room area prior to placing the D/G Exhaust Fan local control switch to RUN.

### Safety Evaluation Summary (SE 2000-008)

Manual operation of the EDG room exhaust fans will not adversely impact the operation of the system. There was no increase in the probability of occurrence or consequences of an accident or malfunction as previously evaluated in the FSAR. This 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.

### Procedure Change for ON 3148, Rev. 11, "Loss of Service Water"

#### General Summary



ON 3148 was revised to address a postulated service water discharge pipe break in the Reactor Building. In the event of a rupture, compensatory measures, such as shutting down the pumps, would be immediately implemented. This would result in a stoppage of Service Water flow within a span of four to five hours. Compensatory measures of this nature would not conflict with the Emergency Operating Procedures (EOPs).

#### Safety Evaluation Summary (SE 2000-037)

ON 3148 was revised to provide guidance for mitigation of and recovery from a large break or small leak in the SW discharge header located in the Reactor Building. An internal flooding probabilistic safety assessment (PSA) was performed which concluded that a random, non-mechanistic failure of a large pipe in the discharge header significantly contributes to the total internal flooding-induced core damage frequency (CDF). Safety Evaluation 2000-037 was written to support the procedural enhancements established to best respond to this flooding scenario.

This procedure revision did not increase the probability of occurrence or consequences of an accident or malfunction as previously evaluated in the FSAR. It did not present significant hazards not described or implicit in the Vermont Yankee FSAR and there was reasonable assurance that the health and safety of the public was not endangered.

#### Procedure OP 0105, Revision 7, LPC-5, "Reactor Operations"

##### General Summary

OP 0105, Reactor Operations, was revised to provide an allowance for putting the mode switch in Shutdown before coolant temperature is reduced below 212°F with the permission of the Operations Superintendent.

##### Safety Evaluation Summary SE 2001-024)

A safety evaluation was required for this procedure change because the proposed action could result in increased thermal cycling of the Control Rod Drive Reactor Pressure Vessel (CRD RPV) nozzles (stub tubes). The stub tube transient analysis, "Section S5, Stress Analysis of the Control Rod Drive Penetrations", CBI 9-6201-1 indicates that the CRD nozzles have substantial design margin when compared with the expected number of scram transients. Therefore, the impact of additional thermal cycles is small and will not challenge the ASME III fatigue cycle limits for this component.

This revision to OP 0105 did not increase the probability of occurrence or consequences of an accident or malfunction as previously evaluated in the FSAR nor did it present significant hazards not described or implicit in the Vermont Yankee FSAR. There was reasonable assurance that the health and safety of the public was not endangered.

### **Procedure Change to OP 2179, Revision 3, LPC3, "Standby Fuel Pool Cooling"**

#### **General Summary**

OP 2179 was revised to allow reactor cavity cooling using a crosstie to the Standby Fuel Pool Cooling System. A revision to calculation VYC-1279, "SW System Hydraulic Analysis", determined that an adequate amount of cooling water and a positive differential pressure could be maintained on the SW side of the standby fuel pool heat exchanger if the flow rate to non-essential loads in the Reactor Building and Turbine Building were either isolated or throttled back.

#### **Safety Evaluation Summary (SE 2001-027)**

It was possible that, in the event of a loss of normal power (LNP), a positive differential pressure would not always be maintained. Safety Evaluation 2001-027 was written to document that sufficient cooling to the Emergency Diesel Generator could be maintained with a positive or negative differential pressure and that there was also sufficient time to compensate for any loss of flow to the SFPCS, if warranted.

Therefore, this revision to OP 2179 did not increase the probability of occurrence or consequences of an accident or malfunction as previously evaluated in the FSAR nor did it present significant hazards not described or implicit in the Vermont Yankee FSAR. There was reasonable assurance that the health and safety of the public was not endangered.

### **FSAR Change FCR 16/138, "Revision 9 to Calculation VYC-836 "Diesel Generator Loading"**

#### **General Summary**

Change 16/138 to the FSAR was required as a result of Calculation VYC-836 being revised to account for a more realistic and accurate loading of the diesel generators during loss of air conditioning following a loss of the Vernon Pond. The loading was based on the revised Alternate Cooling System cooling tower basin inventory analysis as documented in calculation VYC-1803AR1.

#### **Safety Evaluation Summary (SE 2000-03)**

VYC-836, Revision 9 does not alter the conclusion of the calculation that the diesel generators are able to accept the required operating kilowatt loads with sufficient spare capacity and therefore they will perform their intended safety functions.

There was no increase in the probability of occurrence or consequences of an accident or malfunction as previously evaluated in the FSAR. This FSAR revision did not present

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

**FSAR Change, Section 7.2.5 (FCR 16/270) "Elimination of Interim Measurement in Reactor Protective System (RPS) Time Response"**

**General Summary**

FCR 16/270 revised the wording in Section 7.2.5 of the FSAR in order to make the FSAR consistent with current procedures that were previously modified. The revised wording will reflect the current method used to test the RPS time response. The testing has not changed, only an intermediate measurement step will no longer be performed. The testing method meets both the design basis and Technical Specification requirements.

**Safety Evaluation Summary (SE 2000-005)**

This safety evaluation supports the change in the method of RPS time response testing. There is no change in plant equipment as a result of this change. Therefore, there was no increase in the probability of occurrence or consequences of an accident or malfunction as previously evaluated in the FSAR. This change did not present significant hazards not described or implicit in the Vermont Yankee FSAR and there was reasonable assurance that the health and safety of the public was not endangered.

**FSAR Change, Section 7.3.2 (FCR 16/221) Change Trip Setting for Reactor Water Clean-up System Space High Temperature**

**General Summary**

FCR 16/221 changed the trip setting for the Reactor Water Clean-up System Space High Temperature (alarm only) from  $\leq$  to 140°F to  $\leq$  115°F. This change will alert the Control Room operator at a lower ambient temperature in the RWCU area than the previous alarm setting temperature. This change was in response to a revision to VYC-1043, "Area Temperature Monitoring Setpoint/Uncertainty Calculation".

**Safety Evaluation Summary (SE 2000-006)**

Safety Evaluation 2000-006 was written to ensure that the above change did not result in either a change to the Technical Specifications or an unreviewed safety question.

There was no increase in the probability of occurrence or consequences of an accident or malfunction as previously evaluated in the FSAR. This 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.

**FSAR Change (FCR 16/280), Section 8.6.4 "Clarification of Redundant DC Control Power to 4160V Switchgear"**

**General Summary**

FCR 16/280 clarifies section 8.6.4 of the FSAR by adding the words "except for Buses 5A and 5B". This is a wording change only. There was no change in plant equipment or the Technical Specifications as a result of this change. Equipment failure associated with NNS switchgear 5A and 5B, which does not have redundant DC control power, will not affect the Technical Specifications basis.

**Safety Evaluation Summary (SE 2000-007)**

This change was a clarification of Section 8.6.4 and therefore cannot be an initiator of any accidents previously evaluated in the FSAR nor does it change any margin of safety. This 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.

**FSAR Change (FCR 16/305) "Wiring Separation Requirements in the Cable Vault"**

**General Summary**

FCR 16/305 clarifies statements in Section 8.4.6.1 regarding wiring separation requirements in the Cable Vault. Cable separation in the Cable Vault is in accordance with specifications noted in VYS-027. This is a wording change only; there is no change to the plant configuration.

**Safety Evaluation Summary (SE 2000-010)**

The FSAR was not revised concurrent with the revision to VYS-027. This change will bring the FSAR and VYS-027 into agreement. This was a wording change only. There was no change to plant configuration as a result of this change.

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

**FSAR Change (FCR 16/151) "Revision of Table 3.3.1 - Outside Dimensions for Steam Separators"**

**General Summary**

FCR 16/151 revised Table 3.3.1 regarding steam separator dimensions. The dimensions are being changed from 13.25" to 12.75". The original FSAR contained the 13.25" dimension for the outside diameter and was not changed following a revision made to the GE Specifications and Vermont Yankee drawing 5920-567.

**Safety Evaluation Summary (SE 2000-012)**

This change is acceptable based on the revised value being consistent with the as-built condition and based on a review of calculations that may have made use of the steam separator outside dimensions. The review of these calculations determined where either the correct dimensions for the steam separators were used, or in those instances where the incorrect dimension was used, the results were 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 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.

**FSAR Change (FCR 16/259) "Change in Method of Testing for the Engineered Safety Feature (ESF) Instrumentation Channels"**

**General Summary**

FCR 16/259 modified FSAR Section 7.4.5 to bring it into agreement with the current method of testing for the ESF Instrumentation Channels. The change eliminated performing the ESF Channel functional test in conjunction with the once per year cycle sensor calibration. Functional testing will be conducted separately using calibrated equipment. All other testing and calibration remained the same.

**Safety Evaluation Summary (SE 2000-013)**

The statement in the FSAR regarding the method of testing the ESF Instrumentation Channels was not updated when the procedures were previously revised. At that time, it was determined that the equipment contained the capability to confirm proper operation without performing the functional test using the input from the sensor. The test is now performed using an installed testing unit and provides a more accurate measurement of the trip setpoints.

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

### **FSAR Change (FCR 16/297) "Replacement of Cromalox Analog Temperature Unit With a Programmable Logic Controller"**

#### **General Summary**

Minor Modification 97-064 replaced the existing Cromalox temperature monitoring equipment located in CRP 9-21 with a Programmable Logic Controller (PLC) and a touchscreen monitor. This replacement was due to multiple failures of the existing equipment. The new Programmable Logic Controller will perform the same function as the Cromalox Analog Temperature Unit. FCR 16/297 revised Figure 7.3-6 to reflect this replacement.

#### **Safety Evaluation Summary (SE 2000-014)**

The PLC is used for alarm purposes only and does not perform any control functions. There was no increase in the probability of occurrence or consequences of an accident or malfunction as previously evaluated in the FSAR. This change did not present significant hazards not described or implicit in the Vermont Yankee FSAR and there was reasonable assurance that the health and safety of the public was not endangered.

### **FSAR Change (FCR 16/322) "Trip Setting Change for Residual Heat Removal (RHR) System Space High Temperature"**

#### **General Summary**

FCR 16/322 changed the trip setting for the RHR System Space High Temperature from  $\leq 170^{\circ}\text{F}$  to  $\leq 125^{\circ}\text{F}$ . This change was due to a revision of calculation VYC-1043, "Area Temperature Monitoring Setpoint/Uncertainty Calculation", and affected the alarm function only.

#### **Safety Evaluation Summary (SE 2000-015)**

This change reduced the alarm setting from  $\leq 170^{\circ}\text{F}$  to  $\leq 125^{\circ}\text{F}$ , which will alert the Control Room operator at a lower ambient temperature in the RHRS area. There was no increase in the probability of occurrence or consequences of an accident or malfunction as previously evaluated in the FSAR. This change did not present significant hazards not described or implicit in the Vermont Yankee FSAR and there was reasonable assurance that the health and safety of the public was not endangered.

### **FSAR Change (FCR 16/190) "Revision of FSAR Tables 5.2.2 and 7.3.1"**

#### **General Summary**

FCR 16/190 revised and updated FSAR Tables 5.2.2 and 7.3.1. Table 7.3.1 is a compilation of the Primary Containment penetration isolation valves, isolation signals, valve and actuator types, opening and closing power types and valve closing rates. Information contained in Table 7.3.1

was inconsistent with information in Table 5.2.2. The Tables were re-organized, obsolete data removed and numerous administrative changes were made throughout. There were no resulting changes to the Technical Specifications.

#### Safety Evaluation Summary (SE 2000-016)

The revisions made in Tables 5.2.2 and 7.3.1 were administrative in nature only and do not alter the physical plant.

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

#### FSAR Change (FCR 16/121), "Seismic Requirements for the 24 VDC Neutron Monitoring/Process Radiation Monitoring Power System"

##### General Summary

FCR 16/121 removed the seismic requirements for the  $\pm 24$  VDC power system that provides power for the operation of the neutron monitoring system and process monitoring instrumentation.

#### Safety Evaluation Summary (SE 2000-020)

FSAR Section 8.7.3 indicated that the  $\pm 24$  VDC battery racks were designed to withstand the effects of a design basis earthquake. The  $\pm 24$  VDC power system is not relied upon to accomplish any safety functions and has been classified as Non-Nuclear Safety (NNS). This SE determined that there are also no Seismic II/I concerns, the 24VDC batteries will not fail or negatively affect any SCE equipment and the batteries will not fail in a way that would create a fire. A walkdown was conducted and verified that the walls in the battery room protect the 125v batteries from the 24v batteries. A floor drain also prevents potential acid spills from negatively affecting surrounding equipment.

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

#### FSAR Change (FCR 17/036) "Addition of 2% Tube Plugging Allowance to the Standby Fuel Pool Cooling Heat Exchanger"

##### General Summary

FCR 17/036 revised the FSAR to ensure that the design heat transfer capacity values agreed with design capacities based on new design temperatures and an increase in the Spent Fuel Pool

Cooling System (SFPCS) heat exchanger tube plugging to 2%. There were no hardware changes to the system and no procedures were required to be changed.

**Safety Evaluation Summary (SE 2000-027)**

Calculation VYC 2069, Rev. 0 re-evaluated design decay heat removal capacity of the Standby Fuel Pool Cooling System (SFPCS). The calculation changed the tube plugging allowance from 0% to 2% and applied the design basis Service Water inlet temperature of 85°F instead of the previously assumed 90°F.

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

**FSAR Change (FCR 17/035) "Clarification of Differences Between Design Basis Analyses in Section 14.6 and Analyses Performed at the request of the Atomic Energy Commission (AEC)"**

**General Summary**

FCR 17/035 revised FSAR Sections 14.6 and 14.9 to clarify the difference between the design basis analyses found in Section 14.6 and the additional analyses performed at the request of AEC found in Section 14.9.

**Safety Evaluation Summary (SE 2000-029)**

There was no change to any procedures, systems, components or structures as a result of this change. Any revision to information in these sections was for clarification purposes only. The revision also included a number of spelling and grammar corrections.

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

**FSAR Change (FCR 17/096) "Changes to FSAR Section 5.2.4.8 and Appendix F Criterion 55 - Instrument Line Break Analysis"**

**General Summary**

FCR 17/096 revised the text in FSAR Section 5.2.4.8 to reflect a revised Reactor Building instrument line break analysis and to clarify a statement regarding the presence of 1/4 inch orifices in instrument lines. FSAR Appendix F, Section F.2 was revised to reflect that selected (not all) instrument lines are orificed inside the containment.



### Safety Evaluation Summary (SE 2000-031)

A new analysis regarding instrument line breaks in the Reactor Building verified that the conclusions from the previous markups remain valid. Therefore, it is concluded that the above activities did not increase the probability of occurrence or consequences of an accident or malfunction as previously evaluated in the FSAR. They did not present significant hazards not described or implicit in the Vermont Yankee FSAR and there was reasonable assurance that the health and safety of the public was not endangered.

### FSAR Change (FCR 17/094) to Section 10.11, Fire Door Daily Inspections"

#### General Summary

FCR 17/094 revised FSAR Section 3.1.10 to allow the use of daily door inspections to verify that doors are shut for doors that are not locked closed or not supervised. Fire doors will be checked closed once a day. The position of the doors will remain unchanged. The change was considered an equivalent to locking or supervising the door.

### Safety Evaluation Summary (SE 2000-039)

Fire doors are not accident initiators nor will changing the method of door inspections increase the radiological consequences of an accident. Therefore, there was no increase in the probability of occurrence or consequences of an accident or malfunction as previously evaluated in the FSAR. This FSAR revision did not present significant hazards not described or implicit in the Vermont Yankee FSAR, and there was reasonable assurance that the health and safety of the public was not endangered.

### FSAR Change (FCR 17/130), "Control Room Habitability"

#### General Summary

FCR 17/130 revised FSAR Section 14.9.1.5 due to new conservatism in the original Control Room dose analysis related to the determination of atmospheric dispersion factors (X/Q) associated with post-LOCA MSIV leakage via the Turbine Building. The X/Q factors calculated for this release path appear to have been inadvertently taken from the 297' elevation of the meteorological tower rather than the more appropriate 35' elevation. This revision ensures that the appropriate X/Q factors were used and that an acceptable operator dose, consistent with the guidance provided in NUREG 0737, could still be attained. The re-analysis resulted in the following changes:

- 1) Elimination of the double counting of the MSIV leakage contribution to primary containment leak rate,
- 2) A change in the atmospheric dispersion factors for the Turbine Building to Control Room Intake,
- 3) A change to the unfiltered in-leakage rate from 20 cfm to 1000 cfm,

- 4) Deletion of the basis for 20 cfm,
- 5) Reduction of the assumed condenser leakage rate from 1%/day to 0.5%/day,
- 6) Revision to the maximum calculated thyroid and whole body dose (stack contribution) from 18 rem and 0.10 rem to 8.25 rem and 0.02 rem respectively and
- 7) A revision to the maximum calculated thyroid and whole body dose (MSIV contribution) from 18 rem and 0.002 rem to 20.21 rem and 0.003 rem respectively.

#### **Safety Evaluation Summary (SE 2000-043)**

This change to the X/Q values more accurately reflect the anticipated atmospheric dispersion and are consistent with VY's licensing basis for NUREG 0737. The other changes were the result of evaluating the dose impact of a higher assumed in-leakage rate based on concerns about the previous assumption. Therefore, this change did not increase the probability of occurrence or consequences of an accident or malfunction as previously evaluated in the FSAR. This change did not present significant hazards not described or implicit in the Vermont Yankee FSAR and there was reasonable assurance that the health and safety of the public was not endangered.

#### **FSAR Change (FCR 17/017) to Section 8.4.7 and 8.5.5, "Vernon Tie Interlocks"**

##### **General Summary**

FCR 17/017 clarified and made consistent, statements regarding the Vernon Tie line contained in Sections 8.4 and 8.5 of the VY FSAR. Section 8.4.7 states "The Vernon Tie line breakers are interlocked in such a way that this source can only be connected to one bus at a time." Section 8.5.5 states "Interlocks block connection to both buses simultaneously." A review of the circuitry indicated that interlocks prevent connecting Vernon Tie to an energized emergency bus. This prevents paralleling of power sources. The interlocks do not prevent connecting the Vernon Tie to two isolated and de-energized emergency buses.

FSAR Sections 8.4 and 8.5 were revised to update the description of interlocks for Vernon Tie line breakers to correct and fit the context of the paragraph which describes manual connection of the Vernon Tie to the emergency buses.

#### **Safety Evaluation Summary (SE 2000-047)**

The Vernon Tie and interlocks associated with the Vernon Tie are not considered accident initiators. Current operator procedures assure that the Vernon Tie is not connected to two emergency buses. Therefore, there was no increase in the probability of occurrence or consequences of an accident or malfunction as previously evaluated in the FSAR. This change did not present significant hazards not described or implicit in the Vermont Yankee FSAR and there was reasonable assurance that the health and safety of the public was not endangered.

## **FSAR Change (FCR 17-005), "Tray Loading/Cable Sizing Criteria"**

### **General Summary**

FCR 17/005 clarifies the criteria for cable sizing by splitting the criteria into criteria for sizing cable installed in trays and criteria for cable installed in conduit and ductbanks. The proposed change is consistent with calculations VYC-1854, "Determination of Ampacity for Safety Related Power Cables for the AC Auxiliary Power Distribution System" and VYC-1875, "Determination of Cable Ampacity for 125 VDC and 24 EC Power Cables," which documents adequacy of cable ampacity.

### **Safety Evaluation Summary (SE 2000-048)**

This change to the FSAR clarified cable sizing criteria and is consistent with calculations VYC-1854 and VYC-1875 which document the adequacy of cable ampacity. These calculations concluded that all cables are conservatively sized with margin and are capable of supporting their safety functions. Therefore, there was no increase in the probability of occurrence or consequences of an accident or malfunction as previously evaluated in the FSAR. This change did not present significant hazards not described or implicit in the Vermont Yankee FSAR and there was reasonable assurance that the health and safety of the public was not endangered.

## **FSAR Change (FCR 17/142), "Justification for Increasing HPCI Time to Rated Flow From 25 Seconds to 30 Seconds"**

### **General Summary**

FCR 17/142 revised FSAR Section 6.4 to change the Time to Rated Flow (TTRF) from 25 to 30 seconds following an initiation signal. Calculation VYC-2146 documents the results of an evaluation which supports changing the High Pressure Coolant Injection (HPCI) System time to rated flow from 25 to 30 seconds.

### **Safety Evaluation Summary (SE 2000-049)**

Calculation VYC-2146, "Evaluate Margin in HPCI Initiation Time", documents the results of an evaluation of all transients and accidents for which HPCI may be used for recovery and concludes that the proposed change of increasing the HPCI System time to rated flow from 25 seconds to 30 seconds would not lead to a condition which violates a safety limit.

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

### **FSAR Change (FCR 17/173), "Correction of Seismic Class of Startup and Auxiliary Transformers"**

#### **General Summary**

FCR 17/173 was written to delete the startup and auxiliary transformers from the Seismic Class 1 list contained in FSAR Chapter 12. The startup and auxiliary transformers do not have any seismic requirements. FCR 17/173 also added an additional statement to the items listed under Class II Structures and Class II Equipment to clarify that not all systems, structures and components have seismic design requirements.

#### **Safety Evaluation Summary (SE 2001-006)**

The current FSAR Section 12.2.1.1.2 states that the startup and auxiliary transformers are Seismic Class I. These transformers are not relied upon to mitigate seismic events. This section was revised to correct this discrepancy. An additional statement was also added to Section 12.2.1.1.4 to clarify that not all structures, systems and components at Vermont Yankee have seismic requirements applied to them.

This was an administrative change only. There was no change to the physical plant as a result of this change. Therefore, there was no increase in the probability of occurrence or consequences of an accident or malfunction as previously evaluated in the FSAR. This change did not present significant hazards not described or implicit in the Vermont Yankee FSAR, and there was reasonable assurance that the health and safety of the public was not endangered.

### **FSAR Change (FCR 17/169), "Reference Changes to Valve Stem Leakoffs Due to Stem Removal Because of Change in Packing"**

#### **General Summary**

FCR 17/169 revised FSAR Sections 4.10.3.1 and 10.16.3.2.1 to reflect the modifications made to the drywell valves regarding leak-off lines. Recent design changes and minor modifications have changed the packing used in these valves from a double seal packing to a live loaded spring type packing. As part of the modifications, the valve stem leak-off lines on some of these valves have also been removed.

#### **Safety Evaluation Summary (SE 2001-007)**

Due to recent design changes, statements in FSAR Sections 4.10.3.1 and 10.16.3.2.1 required updating. These sections reference "double seals" and states that the valve stem leak-off is piped directly to the Drywell equipment drain sump. Most valves have been modified and installed with live loaded spring type packing and the leak-off lines have been removed. This change to the FSAR is an administrative wording change only which will reflect these past modifications.

There was no change to the physical plant as a result of this change. Therefore, there was no increase in the probability of occurrence or consequences of an accident or malfunction as

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

### **FSAR Change (17/208), "Clarification of Section 10.7.6"**

#### **General Summary**

FCR 17/208 revised FSAR Section 10.7.6 to provide clarification of the requirement to maintain a higher water pressure on the tube side than the shell side of the RHR Heat Exchanger. Review of the GE design specification determined that this requirement only applies when in shutdown or containment cooling modes and only when cooling water is flowing.

#### **Safety Evaluation Summary (SE 2001-025)**

This revision to the FSAR is for clarification purposes. There is no change to plant systems or operations. This revision to the FSAR did not increase the probability of occurrence or consequences of an accident or malfunction as previously evaluated in the FSAR nor did it present significant hazards not described or implicit in the Vermont Yankee FSAR. There was reasonable assurance that the health and safety of the public was not endangered.

### **Basler Relay Installation**

#### **General Summary**

Basler Digital Overcurrent relays were installed in 4kv safety class electrical switchgear. These relays provide overload and fault protection. These relays replaced the original General Electric (GE) electromechanical overcurrent relays. The digital relays rely on built-in software to generate the time/current trip characteristics for each relay.

#### **Safety Evaluation Summary (SE 2000-019)**

This SE was written using GL 95-02 and documents that the installation of the Basler relays will function as designed and the performance of all safety systems will remain unchanged. GL 95-02 endorses the use of NUMARC/EPRI Report TR-102348, "Guidelines on Licensing Digital Upgrades."

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

## **Westinghouse Digitrip Microprocessor Based Trip Device Replacement**

### **General Summary**

Westinghouse Digitrip microprocessor based overcurrent trip devices were installed in non-safety related and safety class electrical 480 Volt switchgear. These trip devices use software and microprocessor based systems to generate their time-current tripping characteristics.

GL 95-02 endorses the use of NUMARC/EPRI Report TR-102348, "Guidelines on Licensing Digital Upgrades." This analysis determined that the digital replacement devices are fully qualified and acceptable.

### **Safety Evaluation Summary (SE 2000-022)**

The change from an electromechanical trip device to the Westinghouse Digitrip Microprocessor Based trip devices did not reduce the difference between a system failure point and an accepted safety limit because the function of these devices remains the same. This change did not increase the probability of occurrence or consequences of an accident or malfunction as previously evaluated in the FSAR nor did it present significant hazards not described or implicit in the Vermont Yankee FSAR. There was reasonable assurance that the health and safety of the public was not endangered.

## **Core Operating Limits Report (COLR), Revision 1, "RBM Flow Biased Setpoint Intercept Change" and "Cycle 21 Control Blade History MCPR Penalty"**

### **General Summary**

The Core Operating Limits Report (COLR) was revised to incorporate Rod Block Monitor (RBM) flow biased intercept (N of 44), the fresh fuel Control Blade History Minimum Critical Power Ratio (MCPR) penalty and the reference to Cycle 21 Supplemental Reload Licensing Report (SRLR). General Electric (GE) had performed an evaluation of the impact of control blade history (CBH) on R-factor and Critical Power Ratio (CPR). This evaluation determined that an upward adjustment of 0.04 was required to the Operating Limit MCPR (OLMCPR). Two safety evaluations were written to support these changes.

### **Safety Evaluation Summary (SE 2000-024)**

Safety Evaluation 2000-024 changed the value of the RBM flow biased rod block intercept, N, given in the Cycle 21 COLR from 42 to 44. It is required by Technical Specifications that the RBM flow biased rod block setpoint be  $\leq 0.66 (W - \Delta W) + N$ , where W is the percent of rated drive flow,  $\Delta W$  is the difference between two loop and single loop flow indication at the same core flow, and N is the intercept given in the COLR. GE performed an analysis of the Rod Withdrawal Error, RWE, to determine the maximum allowable RBM setpoint. For Cycle 21, the maximum allowable RBM setpoint is 110%. Since the analysis completed by GE is performed at 100% flow and the equation for the RBM flow biased rod block setpoint is  $0.66 (W - \Delta W) + N$ , it follows that the maximum allowable value of N for Cycle 21 is 44.

Use of a RBM setpoint of 110% does not violate any Safety Limit MCPR or fuel rod mechanical overpower limits. Therefore, there is no increase in the probability of occurrence or consequences of an accident or malfunction as previously evaluated in the FSAR. This change did not present significant hazards not described or implicit in the Vermont Yankee FSAR and there was reasonable assurance that the health and safety of the public was not endangered.

#### Safety Evaluation Summary (SE 2000-025)

An evaluation of the impact of control blade history (CBH) on R-factor and Critical Power Ratio (CPR) was performed by GE. This evaluation determined that the use of moderate control intervals for fresh fuel led to a non-negligible impact on R-factor and hence CPR. The model used in 3D MONICORE is not able to account for this impact accurately. Safety Evaluation 2000-025 adjusted the Operating Limit MCPR (OLMCPR) by 0.04.

This change ensures adequate margin to the SLMCPR during abnormal operational transients by increasing the OLMCPR between cycle exposures from 1500 to 6750 MWd/ST. Therefore, there is no increase in the probability of occurrence or consequences of an accident or malfunction as previously evaluated in the FSAR. This change did not present significant hazards not described or implicit in the Vermont Yankee FSAR and there was reasonable assurance that the health and safety of the public was not endangered.

#### Event Report (ER) 2000-0815-02, "Emergency Plan UHF Radio Transmitter/Receiver Installation"

##### General Summary

Equivalency Evaluation (EE) #1057 was written to install a 100 watt Ultra High Frequency (UHF) radio transmitter/receiver in place of the aging 75 watt transmitter/receiver. This equipment is located in the VY Meteorological House which is a remote plant area that will not create any negative interactions with any VY equipment.

#### Safety Evaluation Summary (SE 2000-045)

This replacement constituted a change in the FSAR because the power rating for the existing 75 watt transmitter/receiver was identified in the VY Emergency Plan which will be revised as a result of this replacement. The VY E-Plan is not specifically referenced in the VY Technical Specifications. The UHF radio repeater is used for plant communication during normal and post-accident operation. Use of this repeater does not reduce or negatively affect any plant component or system. Therefore, there was no increase in the probability of occurrence or consequences of an accident or malfunction as previously evaluated in the FSAR. This change did not present significant hazards not described or implicit in the FSAR and there was reasonable assurance that the health and safety of the public was not endangered.

## SUMMARY OF VERMONT YANKEE COMMITMENTS

**BVY NO.:** 01-80 Vermont Yankee Cycle 21 10CFR50.59 Report

The following table identifies commitments made in this document by Vermont Yankee. Any other actions discussed in the submittal represent intended or planned actions by Vermont Yankee. They are described to the NRC for the NRC's information and are not regulatory commitments. Please notify the Licensing Manager of any questions regarding this document or any associated commitments.

COMMITMENT	COMMITTED DATE OR "OUTAGE"
None	N/A