

## Vermont Yankee

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### Initiating Events

**Significance:**  May 18, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Inadequate Procedure for Tagging and Poor Human Performance Cause Flooding of RCIC Steam Line**

The inspector identified a non-cited violation of Technical Specification (TS) 6.4, "Procedures" for the failure to provide an adequate procedure for removing equipment from service. An improper valve alignment allowed water from the refueling cavity to flood the reactor core isolation cooling (RCIC) steam line during the 2002 Mid-Cycle Outage. Two valves in the RCIC steam line were unintentionally left open during a tagging activity to support filling the refueling cavity for maintenance. AP 0140, "Vermont Yankee Local Control Switching Rules," and Tagging Order 020425 did not provide sufficient controls to ensure the valves were left in the desired position. Human performance errors and poor communication were contributing factors to this event. The failure to provide an adequate procedure for removing equipment from service was considered more than minor because it could be viewed as a precursor to a significant event. However, the inspector determined this issue was of very low safety significance (Green) because there was no actual loss of reactor coolant system inventory and the potential flowpath created by the tagging error would not cause a rapid decrease in inventory. Based on the location of the RCIC steam line, this event did not have the potential to drain the reactor vessel or cause a loss of decay heat removal. With the refueling cavity filled and fuel movements in progress, any loss of inventory through the three inch RCIC steam line (including the turbine and its exhaust check valves) would be slow and well within the capacity of the available CS and RHR pumps.

Inspection Report# : [2002004\(pdf\)](#)

**Significance:**  Mar 30, 2002

Identified By: NRC

Item Type: FIN Finding

#### **Undetected failure of the manual pressure control valve for the steam jet air ejectors**

The inspector identified that the control room operators failed to maintain cognizance of the steam jet air ejector (SJAE) system alignment. During a control panel walkdown the inspector found that the manual pressure control valve for the SJAE steam supply failed while in standby and this problem had not been detected by the operators. The failure to perform adequate control panel walkdowns for this system was attributed to poor human performance. The undetected failure of the manual pressure control valve was considered more than minor because if uncorrected, a more significant plant transient (i.e., a loss of condenser vacuum and manual reactor scram) would result from a failure of the automatic pressure control valve. A Phase 3 SDP evaluation determined that the finding was of very low safety significance (Green) based on a conservative failure frequency estimate for the automatic pressure control valve and consideration of the remaining mitigating equipment. The failure had no actual effect on plant operation because the automatic pressure control valve operated properly throughout the period when the manual pressure control valve was unavailable.

Inspection Report# : [2002002\(pdf\)](#)

**Significance:**  Nov 17, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Inadequate Test Control For 24Vdc ECCS Logic Power Supply (10CFR50, App.B, Crit. XI)**

The inspector identified a Non-cited violation of 10CFR50, Appendix B, Criterion XI, "Test Control," for failure to follow the approved test procedures and specify a post- modification test to demonstrate that a modification of the emergency core cooling system (ECCS) power supply would not result in an unanticipated ECCS actuation. This

finding was considered more than minor because the failure to test the entire circuit design and follow approved test procedures for safety-related equipment could contribute to an inadvertent ECCS actuation and a reactor scram. However, this finding was determined to be of very low safety significance (Green) based on a Phase 1 SDP because even though the frequency of an initiating event may have increased, the ECCS and reactor scram actuation equipment remained operable. Because the finding is of very low safety significance and was captured in the licensee's corrective action program, this finding is being treated as a Non-cited violation, consistent with Section VI.A.1 of the NRC Enforcement Policy.

Inspection Report# : [2001011\(pdf\)](#)

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## Mitigating Systems

**Significance:**  Jun 07, 2002

Identified By: NRC

Item Type: FIN Finding

### Ineffective chemistry control program for RHRSW and SW systems

The inspectors found that the licensee's chemistry control program was not effective at minimizing the buildup of microbiologically influenced corrosion (MIC) in the residual heat removal service water (RHRSW) and service water (SW) systems. Even though the licensee was chemically treating the RHRSW and SW systems to control biofouling, the performance of the RHRSW pumps had degraded on numerous occasions into the alert range during in service testing. Additionally, the SW and RHRSW piping has developed more than 20 documented pinhole leaks that were caused by MIC. This finding was considered greater than minor since an ineffective chemistry control program could be reasonably viewed as a precursor to a significant event or, if left uncorrected, could become a more significant safety concern. However, the inspectors considered this issue to be of very low safety significance (Green) in accordance with Phase 1 of the mitigating systems SDP screening criteria because the ineffective chemistry control program has not rendered the RHRSW or SW system inoperable and because of RHRSW and SW system redundancy.

Inspection Report# : [2002003\(pdf\)](#)

**Significance:**  May 18, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

### Failure to Follow Procedure for Draining the HPCI Turbine Exhaust Drain Pot Results in Valve Being Left Open

A non-cited violation of TS 6.4, "Procedures," occurred when an operator failed to follow the work order for draining the high pressure coolant injection (HPCI) turbine exhaust steam drain pot. On April 24, when an operator drained the drain pot through valve HPCI-146, the operator did not perform the final step of the work order step text, which was to close HPCI-146. The improper valve alignment was identified approximately eleven hours later when a different operator drained the drain pot. This issue was considered more than minor because the failure to follow procedures for the operation of safety-related equipment could have a credible impact on plant safety. Specifically, the failure to align the HPCI system in accordance with approved procedures could have affected the operability of the system due to increased room temperature during system operation. However, the inspectors determined this issue was of very low safety significance (Green) based on a Phase 1 evaluation of the SDP because a subsequent analysis demonstrated that operability of the HPCI system was not affected, the problem was readily identified, and the system was promptly returned to its normal standby alignment.

Inspection Report# : [2002004\(pdf\)](#)

**Significance:**  May 18, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

**Corrective Action for RHRSW Motor Cooling Pipe Degradation Not Effective and No Further Action Taken**

The inspector identified a non-cited violation of 10 CFR 50 Appendix B, Criterion XVI, "Corrective Action," for the failure to adequately identify and resolve an issue related to degraded cooling water flow to an RHRSW pump motor. Specifically, cooling water flow to the RHRSW subsystem "B" pump motors was degraded by microbiologically induced corrosion (MIC). Indication of this problem was first documented by operators in October 2001, however VY's actions to resolve the issue were not effective and several opportunities to identify the continuing problem were missed. This finding was considered more than minor because the cooling water flow to the RHRSW Subsystem "B" pump motors was actually degraded. However, the inspector determined this issue was of very low safety significance (Green) based on a Phase 1 SDP evaluation. VY was able to show through evaluation that the pump motor bearings would not overheat and that the RHRSW pumps would remain operable.

Inspection Report# : [2002004\(pdf\)](#)

**Significance:**  May 18, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Follow Procedure During Restoration from CS Valve Surveillance Causes System to be Inoperable**

A non-cited violation of TS 6.4, "Procedures," occurred when operators failed to follow the procedure for a core spray (CS) quarterly valve surveillance. The procedure directed that the pump control switch be returned to the "auto" position as a part of system restoration from testing, however, operators left the CS pump "B" control switch in the "pull to lock" position. Additionally, during a subsequent procedurally-directed two-party system lineup verification, operators failed to identify the discrepant condition. As a result, CS subsystem "B" was declared operable following the test when it was actually in an inoperable condition. The problem was identified three hours later during a routine control board walkdown that was performed by a different operator. This issue was considered more than minor because the failure to follow procedures for the operation of this safety-related equipment had a credible impact on plant safety. Specifically, the failure to operate the CS system in accordance with approved procedures affected the operability of the system. However, the inspectors determined this issue was of very low safety significance (Green) based on a Phase 1 evaluation of the SDP because the problem existed for only a short period of time, was readily identified and corrected, and the system was promptly returned to its normal standby alignment (operable).

Inspection Report# : [2002004\(pdf\)](#)

**Significance:**  Mar 30, 2002

Identified By: NRC

Item Type: FIN Finding

**Operator Workaround - HPCI turbine vibration monitor provides spurious upscale indication**

The HPCI turbine vibration monitor on control panel 9-3 has provided suspect indication during at least two quarterly surveillance tests. The surveillance procedure provides explicit criteria for tripping the HPCI turbine based on the indication provided by vibration monitor. Based on the monitor's strip chart data, the absence of work order requests and/or event reports, and the lack of procedural guidance, the inspector concluded that this vibration monitor has been a long standing operator work around. Operator acceptance of this degraded support instrument for safety related equipment was considered to be more than a minor issue because it could be a precursor to a more significant event. However, the inspector determined this issue was Green (of very low safety significance) based on a Phase 1 SDP evaluation. On each occurrence, the HPCI system had been properly removed from service and in no case was there actual degradation of the HPCI turbine.

Inspection Report# : [2002002\(pdf\)](#)

**Significance:**  Mar 30, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to follow procedure during HPCI surveillance**

The inspector identified a non-cited violation of Technical Specification 6.4, "Procedures" during the high pressure coolant injection (HPCI) system quarterly surveillance test. The operating crew failed to trip the HPCI turbine when the

HPCI turbine vibration monitor on control panel 9-3 indicated vibration levels that exceeded the limit specified in the surveillance procedure. The operating crew's failure to follow procedures was attributed to poor human performance. The failure to implement a required procedure step during the operation of safety-related equipment was considered to be more than a minor issue because it could be a precursor to a more significant event. However, the inspector determined this issue was of very low safety significance (Green) based on a Phase 1 SDP evaluation. This issue did not represent an actual loss of safety function because local vibration test equipment did not indicate a HPCI turbine vibration problem. Because the finding is of very low safety significance and was captured in the licensee's corrective action program, this finding is being treated as a non-cited violation, consistent with Section VI.A.1 of the NRC Enforcement Policy.

Inspection Report# : [2002002\(pdf\)](#)

G

**Significance:** Dec 29, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Inadequate Design Control of the RCIC Turbine Exhaust Line**

The inspectors identified a non-cited violation of 10CFR50, Appendix B, Criterion III, "Design Control," for inadequate design control of the RCIC turbine exhaust line. Design changes installed in 1998 and 1999 had a synergistic effect, causing the induction and accumulation of torus water in the turbine's exhaust line after shutdown of the turbine. The failure to provide adequate design control for the RCIC turbine exhaust line was considered more than minor since it resulted in a system configuration that had not been analyzed. This finding was of very low safety significance based on a Phase 1 SDP evaluation because VY was able to show that RCIC would remain operable and the containment penetration would not be damaged, if the turbine were started with its exhaust line full of water. Because the finding is of very low safety significance and was captured in the licensee's corrective action program, this finding is being treated as a Non-cited violation, consistent with Section VI.A.1 of the NRC Enforcement Policy.

Inspection Report# : [2001012\(pdf\)](#)

G

**Significance:** Nov 17, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Failure to Initiate Corrective Action Process for Degraded Radiation Monitor Power Supply (10CFR50, App. B, Crit.III)**

The inspector identified a Non-cited violation of 10CFR50, Appendix B, Criterion XVI, "Corrective Action" for failure to identify a significant condition adverse to quality, when on September 20, 2001, radiation monitor 17-453B failed to meet the low-trip setpoint acceptance criteria of OP4326 and no Event Report was initiated as required by AP 0009. Also, on September 30, the degraded condition leading to this failure was the primary cause of an event involving Primary Containment Isolation System (PCIS) Group 3 actuation. This finding was considered more than minor because it had an actual impact in that it caused a PCIS Group 3 actuation. Although this problem resulted in a safety system actuation, the finding was of very low safety significance based on a Phase 1 SDP because the mitigation function of the Group 3 isolation valves and the standby gas treatment system remained operable. Because the finding is of very low safety significance and was captured in the licensee's corrective action program, this finding is being treated as a Non-cited violation, consistent with Section VI.A.1 of the NRC Enforcement Policy.

Inspection Report# : [2001011\(pdf\)](#)

G

**Significance:** Oct 26, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Failure to Follow the Procedure for Securing Torus Cooling**

A non-cited violation of Technical Specifications occurred when an operator failed to follow the procedure for securing torus cooling. Although not directed by the procedure, the operator throttled closed a valve in the RHR SW pump's discharge flow path, causing a relief valve on the system to lift. This issue was considered more than minor because the failure to follow procedures for the operation of safety related equipment could have a credible impact on plant safety.

The failure to operate safety systems in accordance with approved procedures could credibly affect the operability, availability, reliability or function of a system. However, the inspectors determined this issue was of very low safety significance (Green) based on a Phase 1 evaluation of the SDP because the system was not damaged, the problem was readily identified and corrected, and the system was promptly returned to its normal standby alignment (operable). The failure to follow procedures was treated as a non-cited violation and this issue was entered in VY's corrective action program as ER 2001-1828.

Inspection Report# : [2001008\(pdf\)](#)

**Significance:** N/A Oct 26, 2001

Identified By: Licensee

Item Type: NCV NonCited Violation

**Failure to Provide Adequate Procedures for Control of Work on the Backup Air Supply to the Inner Reactor Building Railroad Door Seal**

A violation of very low safety significance was identified by Vermont Yankee in ER 2001-1968 and was reviewed by the inspectors. This violation of technical specification 6.4, "Procedures," involved failure to provide adequate procedures for control of work on the backup air supply to the inner reactor building railroad door seal. As a result, the door's safety-related backup air supply was removed from service and the door was not declared inoperable. This issue did not impact secondary containment since the outer railroad door remained operable.

Inspection Report# : [2001008\(pdf\)](#)

**Significance:**  May 19, 2001

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

**Failure to properly verify 4kV breaker installation as required by OP2142**

The 4 kV breaker for residual heat removal (RHR) pump C failed to close when operators attempted to start the pump for shutdown cooling. At the time the RHR pump was considered available to meet key safety functions during shutdown operations. VY's investigation found that a protective interlock on the breaker had actuated because the breaker had been racked up too far in its cubicle. The inspectors concluded that VY operators had failed to rack up the 4 kV breaker in accordance with procedure OP 2142. This issue was considered more than minor because the failure to follow procedures for the installation of 4 kV breakers could impact the operability of multiple mitigating systems. However, the inspectors determined this issue was Green (of very low safety significance) based on a Phase 2 evaluation of the Shutdown Operations SDP. The failure of RHR Pump C to start did not degrade VY's ability to provide sufficient defense in depth for the decay heat removal or inventory control safety functions. The operators' failure to rack up the 4 kV breaker in accordance with the procedure was treated as a non-cited violation in accordance with Section VI.A.1 of the NRC's Enforcement Policy. This issue was entered in VY's corrective action program as ER 2001-0140.

Inspection Report# : [2001004\(pdf\)](#)

**Significance:**  Feb 17, 2001

Identified By: NRC

Item Type: FIN Finding

**As-found Data not Evaluated for Impact on Over-Current Relay Operability Determination**

The inspectors identified that data collected during corrective maintenance for degraded over-current relays was not bounded by the values that had been assumed in an associated operability determination. VY did not confirm the as-found condition was consistent with the deficiency evaluated in Basis for Maintaining Operation (BMO) 2000-016. This was of concern because similar degraded relays were installed in other safety related 4kV breakers. This finding was of very low safety significance (Green) because a revised operability determination provided reasonable assurance of operability for the affected safety related 4kV switchgear and associated systems. VY entered this issue in their corrective action program.

Inspection Report# : [2000011\(pdf\)](#)

**Significance:**  Feb 17, 2001

Identified By: NRC

Item Type: FIN Finding

**Operability Determination did not Evaluate Potential Impact of Degraded Bypass Valve on MCPR Limit**

The inspectors identified that an operability assessment for a main turbine bypass valve problem was inaccurate, because it stated the main turbine bypass valves are not credited in any FSAR analysis. The bypass valves are assumed to function for the Feedwater Controller Failure - Maximum Demand transient discussed in FSAR Chapter 14.5.8. The initial operability evaluation and VY management review did not recognize that the bypass system can affect transient analyses and the minimum critical power ratio (MCPR) operating limit. This finding was of very low safety significance (Green) because the revised operability determination provided reasonable assurance there would be no impact on the MCPR operating limit. VY entered this problem in their corrective action process.

Inspection Report# : [2000011\(pdf\)](#)

**Significance:**  Feb 17, 2001

Identified By: NRC

Item Type: FIN Finding

**Temporary Modification Not Included in On-Line Risk Assessment**

The inspectors identified that VY's on-line risk monitoring program did not accurately model the available main station battery chargers. Temporary Modification 2000-012 eliminated a spare charger for the main station battery system that was assumed to be available in the on-line risk monitoring software. This finding was of very low safety significance (Green) because the primary chargers for both main station batteries had not been removed from service after the installation of the temporary modification. VY entered this problem into their corrective action process.

Inspection Report# : [2000011\(pdf\)](#)

**Significance:**  Nov 18, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

**Incomplete Maintenance Rule Scoping of the Containment Air Monitor System**

Green. The inspectors identified that two radiation monitoring instruments used in the emergency operating procedures, were not included in the Maintenance Rule Program, as required by 10 CFR 50.65(b)(2). This issue was entered in the corrective action program as Event Report (ER) 2000-1717. This finding is considered more than minor, because if left uncorrected, the failure to monitor the effectiveness of maintenance on systems used in emergency operating procedures would become a more significant safety concern. This issue was determined to be Green (of very low safety significance) using Phase 1 of the SDP, since the failure to monitor the effectiveness of maintenance on the equipment did not degrade any cornerstone. The failure to include the two radiation monitoring instruments in their Maintenance Rule Program was determined to be a non-cited violation of NRC requirements. (Section 1R12.1)

Inspection Report# : [2000009\(pdf\)](#)

**Significance:**  Nov 18, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

**Inadequate As-found Testing of RHR Service Water Pumps**

Green. The inspectors identified that a surveillance test for the residual heat removal service water (RHRSW) system did not adequately evaluate the as-found cooling flow to the pump motors. On October 30 operators adjusted the motor cooling flow for RHRSW pump A to meet the acceptance criteria during a surveillance test. Although this adjustment was directed by the test procedure, the operators are not expected to document the as-found test results. The lack of as-found records for previous surveillance tests has hampered VY's ability to identify repetitive problems or adverse trends in cooling flow. This issue was entered in the corrective action program as ER 2000-1670. The failure to perform an adequate as-found test of the RHRSW system is considered an issue of more than minor significance. If left

uncorrected, repeated adjustment of the motor cooling flow prior to collecting the surveillance data would mask degrading conditions that could lead to the loss of a safety function. This finding was determined to be Green (of very low safety significance) using Phase 1 of the SDP, because VY was able to show that RHRSW pump A was degraded but operable under the as-found conditions. The failure to provide an adequate test for demonstrating the RHRSW pumps will perform satisfactorily in service is a violation of 10 CFR 50 Appendix B, Criterion XI, "Test Control." This problem was determined to be a non-cited violation of NRC requirements. (Section 1R22.1)

Inspection Report# : [2000009\(pdf\)](#)



**Significance:** Nov 18, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Failure to Identify a Condition Adverse to Quality During Surveillance Testing**

Green. The inspectors identified that VY operators had accepted leakage from an RHRSW valve when the surveillance procedure they were performing specified that no leakage was acceptable. The operators referenced an open 1998 work order as an explanation; however, no operability determination was documented with the work order and no ER was initiated, as required by VY's administrative procedure AP 0009, "Event Reports." This issue was considered more than minor because the RHRSW valve leakage reduces the available water inventory for the Alternate Cooling System (ACS) and therefore has a credible impact on safety. However, this issue was determined to be Green (of very low safety significance) using the Phase 1 screening of the SDP because the current RHRSW leakage rate will not prevent the ACS from meeting its 7-day mission time specified in the safety design basis. The failure to properly identify this condition adverse to quality is a violation of 10 CFR 50 Appendix B, Criterion XVI, "Corrective Action." This problem was determined to be a non-cited violation of NRC requirements. (Section 1R22.2)

Inspection Report# : [2000009\(pdf\)](#)



**Significance:** Oct 20, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Inadequate Safety Evaluation (HPCI/RCIC Suction Swap-Over Setpoint)**

Green. The team found that VY, in implementing the results of a calculation they had prepared to address vortex formation in the condensate storage tank (CST), raised the setpoint at which the suction source of the HPCI and RCIC pumps was swapped over from the CST to the suppression pool. This change invalidated the UFSAR statement that committed sufficient inventory in the CST to provide reactor cooling for 8 hours. Therefore, it should have resulted in a 50.59 safety evaluation to determine whether the change adversely impacted the design and licensing basis of the plant. The licensee did not prepare a safety evaluation and in the screening review process they did not provide a justification for not performing a safety evaluation. The team also determined that the 50.59 screening review associated with the CST swap-over setpoint change failed to recognize that the existing TS setpoint for swap-over was no longer conservative. Specifically, the existing TS swap-over setting of greater than or equal to 3%, corresponding to a CST nominal level of 23.36 inches above the tank bottom, was within the vortex range predicted by the vortex calculation and could potentially result in pump degradation. The failure by VY to conduct a safety evaluation for a change to the UFSAR and to change the technical specification was determined to be of very low risk significance (Green) by the SDP phase 1 screening. This conclusion was based on the suppression pool being available to support the 8-hour decay heat makeup requirements to the vessel in hot standby conditions. Therefore, no loss of function due to air entrainment from the CST would have occurred during an actual event. The failure to perform a safety evaluation was considered a non-cited violation of 10 CFR 50.59. The issue was entered in the VY corrective action program. (Section 1R21.1, Design-Mechanical, Electrical and Instrumentation and Control)

Inspection Report# : [2000008\(pdf\)](#)



**Significance:** Oct 20, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Inadequate Design Control (CST Minimum Inventory) - First Example of NCV2000-008-02**

Green. The team found that operating procedures OP-4120 and OP-4121 (HPCI and RCIC system surveillance tests) contained precautions and statements requiring assurance that CST level remained above 15% of the measured volume. The team found that the minimum level of 15% specified in the above procedures allowed the licensee to drop the CST inventory below the height of the CST standpipe by approximately 8,000 gallons and, hence, below the 75,000 gallons specified in the UFSAR and required by the Technical Specifications. The CST standpipe was originally designed to ensure that sufficient inventory would be reserved for HPCI and RCIC operation. The team determined this issue to be of very low risk significance (Green) by the SDP phase 1 screening process. This conclusion was based upon: (1) the CST level being maintained well above the HPCI and RCIC inventory requirements; and, (2) the team having no evidence that the level had ever dropped below the CST standpipe. The failure by VY to correctly translate design basis assumptions into surveillance procedure acceptance criteria was considered a non-cited violation of 10 CFR 50, Appendix B, Criterion III, Design Control. The issue was entered in the VY corrective action program. (Section 1R21.1, Design-Mechanical, Electrical and Instrumentation and Control)

Inspection Report# : [2000008\(pdf\)](#)

**Significance:**  Oct 20, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

**Inadequate Design Control (CST Level Instrument) - Second Example of NCV2000-008-02**

Green. The team found that the CST level monitoring transmitters and associated sensing tubing were not heat traced and, therefore, exposed to the ambient conditions of their mounting location. The transmitters perform a safety function in that they are used for the RCIC and HPCI suction switchover from the CST to the suppression pool. The team also found that the mounting location of the transmitters was unheated and not subject to winterization controls. Therefore, the potential existed for the sensing line to freeze during prolonged winter cold spells. Freezing of the sensing line could prevent, or render erratic, the switchover of the RCIC and HPCI suction source to suppression pool. The team determined this issue to be of very low risk significance (Green) by the SDP phase 1 screening process. This conclusion was based upon: (1) the freezing of the line was potentially recognizable by the operators due to erratic CST level indications; (2) there was no evidence that the line ever froze during past winters; and (3) following an event requiring the use of the HPCI and/or RCIC systems, the licensee could manually transfer the suction source from the CST to the suppression pool. VY's failure to ensure the availability of the CST level instrumentation during all environmental conditions was considered an additional example of a non-cited violation of 10 CFR 50, Appendix B, Criterion III, Design Control. The issue was entered in the VY corrective action program. (Section 1R21.2, Operations, Maintenance and Testing)

Inspection Report# : [2000008\(pdf\)](#)

**Significance:**  Aug 19, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Implement Compensatory Measures Prior to Removing John Deere Diesel Generator from Service**

The inspectors identified that a compensatory measure, specified by procedure, was not implemented prior to removing the John Deere diesel generator from service for planned maintenance. The operating crews' review of the system operating procedure had been the only process to ensure this action was taken. VY management initiated corrective action to address the identification of compensatory actions as part of the maintenance planning process (reference ER 2000-1235). This finding was determined to be Green (of very low safety significance) using Phase 1 of the SDP, because no cornerstones were degraded by the failure to implement the compensatory measure, and VY demonstrated that the temporary generator, which had not been staged as required, was readily available. VY's failure to implement the procedure was determined to be a non-cited violation of NRC requirements. (Section 1R04.1)

Inspection Report# : [2000006\(pdf\)](#)

**Significance:**  Jul 01, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

**Violation of FSAR Cable Separation Criteria**

The inspectors identified two examples of nonconformances with the cable separation design basis described in the Final Safety Analysis Report. In the first example, adjacent cable trays in the cable spreading room were not properly enclosed, and in the second example, several nonsafety-related cables in the switchgear room went between two safety-related cable trays. This finding was determined to be Green (of very low safety significance) using Phase 1 of the SDP because the non-conforming conditions did not render the associated equipment inoperable. The failure to maintain adequate design control for cable separation was determined to be a non-cited violation of NRC requirements. (Section 1R05).

Inspection Report# : [2000005\(pdf\)](#)

**Significance:**  Jul 01, 2000

Identified By: Licensee

Item Type: NCV NonCited Violation

**Failure to Test Primary Containment Vacuum Breakers at the Required Frequency**

VY identified that the unseating force for the primary containment vacuum breakers had been tested on a semiannual frequency, not the quarterly frequency required by Technical Specification 4.6. E and Section OM - 10 ASME/AMSI OMA-1988. This finding was determined to be Green (of very low safety significance) using Phase 1 of the SDP, because the vacuum breakers were demonstrated to be operable during the semiannual testing. VY's failure to measure the primary containment vacuum breaker unseating force on a quarterly basis is a non-cited violation of 10 CFR 50.55a and TS 4.6.E. (Section 4OA4)

Inspection Report# : [2000005\(pdf\)](#)

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## Barrier Integrity

**Significance:**  Mar 30, 2002

Identified By: NRC

Item Type: FIN Finding

**Undetected failure of the drywell floor drain sump fill timer**

The inspector identified that the drywell floor drain sump fill timer had failed and that this problem had not been identified by the control room operators. The inspector concluded that the operators failed to perform an adequate control panel walkdown for this system and that this failure could be attributed to poor human performance. An operability determination prepared by VY concluded that the drywell leakage detection system can be considered operable based on other control room alarms and instrumentation. The undetected failure of the drywell floor drain sump fill timer was considered more than minor because there was degradation of a system required for the detection of leakage inside the primary containment. However, the inspector determined this issue was Green (of very low safety significance) based on a Phase 1 SDP evaluation. The remaining control room alarms and control panel instrumentation provide sufficient redundant information such that operators would have been alerted to excessive leakage inside containment, and therefore the drywell leakage detection system remained operable.

Inspection Report# : [2002002\(pdf\)](#)

**Significance:**  Nov 17, 2001

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

**Inadequate Design Control for H2O2 Monitor Instrument Lines (10CFR50, App. B, Crit. III)**

The inspector identified a Non-cited violation of 10CFR50, Appendix B, Criterion III, "Design Control" for inadequate design control of the instrument tubing (wall thickness) used in the primary containment atmosphere H2O2 monitoring system that contributed to a failure of this line on November 4, creating an open pathway in the physical integrity of primary containment. The finding was considered more than minor because it had an actual impact on the physical

integrity of primary containment. This finding was of very low safety significance based on a Phase 2 SDP because (1) the 0.25 inch diameter instrument tubing could not cause a large early release of radioactive materials under post accident conditions; (2) the failures resulted in control room alarms so control room operators could take timely action to isolate the system; and (3) any releases via this pathway would be into the reactor building's filtered and monitored ventilation system. Because the finding is of very low safety significance and was captured in the licensee's corrective action program, this finding is being treated as a Non-cited violation, consistent with Section VI.A.1 of the NRC Enforcement Policy.

Inspection Report# : [2001011\(pdf\)](#)

**Significance:**  Aug 18, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Inadequate Design Control For Torus-Drywell [Expansion Bellows] Cover**

VY did not provide adequate design control for a non-safety-related cover installed over a safety-related expansion bellows. The cover had been attached to the adjoining piping at both ends of the bellows, potentially restricting expansion and/or contraction of the metal bellows. This issue was considered more than minor because the physical problem existed and because restriction of the bellows could have a credible impact on safety during a design basis accident. Degradation (restriction) of the bellows could credibly affect the operability of the primary containment or its pressure suppression function. However, the inspectors determined this issue was of very low safety significance (Green) based on a Phase 1 evaluation of the SDP, because VY was able to show that the cover brackets would deform and not restrict movement or otherwise damage the bellows. The failure to provide adequate design control for the bellows cover was treated as a non-cited violation in accordance with Section VI.A.1 of the NRC's Enforcement Policy. This issue was entered in VY's corrective action program as ER 2001-1665.

Inspection Report# : [2001006\(pdf\)](#)

**Significance:**  Jun 30, 2001

Identified By: Self Disclosing

Item Type: FIN Finding

#### **Inadequate HPCI Turbine Exhaust Check Valve Design**

Required testing of the high pressure coolant injection (HPCI) turbine exhaust check valves during the Spring 2001 refueling outage found that the leakage rates of both valves exceeded the Technical Specification allowable leak rate limit. These safety-related valves were new in this application and had been installed during the previous refueling outage. The inspectors concluded that the valves were not adequately designed for this application. The valves were purchased from a qualified safety-related supplier and the inspectors did not identify any violations associated with VY's procurement, installation, or initial testing of the valves. As corrective action for the test failures, VY worked with the vendor to install stronger springs and stiffer radial guides. This issue was considered more than minor because the failure to provide reliable isolation check valves can have a credible impact on safety and affect the integrity of the reactor containment. This issue was determined to be of very low safety significance (GREEN) because any post-accident leakage through these valves would have a tortuous release path to the reactor building, greatly limiting the size of a potential release, and would be filtered by the standby gas treatment system. Based on this information, it was determined that the change in large early release frequency (delta-LERF) resulting from the HPCI turbine exhaust valve failures was very low.

Inspection Report# : [2001005\(pdf\)](#)

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## **Emergency Preparedness**

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## **Occupational Radiation Safety**

## Public Radiation Safety

### Physical Protection

**Significance:**  Nov 28, 2001

Identified By: NRC

Item Type: FIN Finding

#### **Operational Safeguards Response Evaluation (OSRE) Force-On-Force Exercise Results**

On August 23, 2001, the NRC completed an Operational Safeguards Response Evaluation (OSRE) at the Vermont Yankee power reactor facility. The evaluation consisted of a selective examination of physical security plans, procedures and representative records; review and walkdown of selective portions of the Vermont Yankee facility; conduct of table-top exercises; examination and review of target sets; observations of force-on-force response exercises and exercise critiques; observation of firearms proficiency by security officers; and interviews with selected personnel. During the conduct of the force-on-force exercises, response strategy weaknesses were identified. This finding was determined to be a Yellow finding based on the Interim Physical Protection Significance Determination Process. Upon identification of the finding, VY established immediate compensatory measures. These were taken to assure the security program was adequate while necessary longer term corrective actions are implemented. Before leaving the site, the inspectors determined that the security program at Vermont Yankee was sound, an important step given the current threat environment. The maintenance of the completed compensatory measures were confirmed by a NRC Security Specialist on September 27, 2001 and October 16, 2001. In a letter dated November 21, 2001, Vermont Yankee confirmed its commitment to continue these actions, and the compensatory measures addressing the weaknesses revealed from the OSRE, pending the implementation of long-term corrective actions. The finding will continue to be considered in our assessment process until the appropriate supplemental inspection (95002), has been completed and we have determined that corrective actions relative to root cause and extent of condition are appropriate. As a result, the event date has been changed from September 26, 2001 (exit date) to November 28, 2001 (issued report date) to keep the finding active in our assessment process.

Inspection Report# : [2001010\(pdf\)](#)

Inspection Report# : [2003001\(pdf\)](#)

**Significance:**  Feb 17, 2001

Identified By: NRC

Item Type: FIN Finding

#### **The licensee's protective strategy did not fully conform to 10 CFR 73.55(a) General Performance Objectives and Requirements**

During the conduct of table-top drills (a simulated contingency response drill using a facility model) on January 18, 2001, issues associated with protective strategies and target set development were identified. It was determined that some aspects of the currently established protective strategy did not fully conform to the General Performance Objective and Requirements of 10 CFR 73.55(a). The vulnerability was detected through a table-top drill, and consequently is not considered a violation of NRC requirements. Notwithstanding, corrective measures were initiated upon identification. This issue was of very low safety significance (Green) because, although it indicated vulnerabilities in the safeguards program, no actual intrusion occurred, and there have not been greater than two similar findings in the past four quarters. (Section 3PP1)

Inspection Report# : [2000011\(pdf\)](#)

**Significance:**  Feb 17, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure of the Intrusion Detection System to Perform in Accordance with 10 CFR 73.55 (c)(4)**

During an NRC-conducted test of the Intrusion Detection System, the system failed to detect two attempted penetrations into the Protected Area, which did not comply with 10 CFR 73.55 (c)(4) and Section 6.3.b of the Vermont Yankee Physical Security Plan. This finding is considered a non-cited violation of 10 CFR 73.55 (c)(4). Corrective measures were initiated upon identification. The finding was of very low safety significance (Green), because although it indicated a vulnerability of safeguards systems, no actual intrusion occurred; in addition, there have not been greater than two similar findings in the past four quarters.(Section 3PP1)

Inspection Report# : [2000011\(pdf\)](#)

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## Miscellaneous

**Significance: N/A** Dec 30, 2000

Identified By: Licensee

Item Type: NCV NonCited Violation

**Failure to use self-contained breathing apparatus during fire brigade drills**

A violation of very low safety significance was identified by Vermont Yankee in a self-assessment and was reviewed by the inspectors. This violation involved the failure to use self-contained breathing apparatus during fire drills as required by 10 CFR 50, Appendix R, Section III, Paragraph I.3.e(2). VY failed to assess each fire brigade member's use of self-contained breathing apparatus during drills, as required by 10CFR 50, Appendix R, Section III, Paragraph I.3.e (2).

Inspection Report# : [2000010\(pdf\)](#)

**Significance: N/A** Nov 18, 2000

Identified By: Licensee

Item Type: NCV NonCited Violation

**Inadequate Service Water Pump Post Maintenance Test Procedure**

A violation of very low safety significance was identified by Vermont Yankee and was reviewed by the inspectors. Corrective actions taken or planned by VY appear reasonable. VY's failure to adequately integrate design information into a SW pump test procedure resulted in the unintended start of two fire protection system pumps. This issue was a violation of Technical Specification 6.4.F and was entered into VY's corrective action program as ER2000-1712. (Section 40A7)

Inspection Report# : [2000009\(pdf\)](#)

**Significance: N/A** Sep 30, 2000

Identified By: NRC

Item Type: VIO Violation

**Maintenance Manager deliberately violated procedure for control of contracted services (valve maintenance) required by 10CFR50, Appendix B, Criterion VII, during the 1998 Refueling Outage.**

10CFR50, Appendix B, Criterion VII, Control of Purchased Material, Equipment, and Services, requires that the effectiveness of the control of quality by contractors shall be assessed at intervals consistent with the importance, complexity, and quantity of the services. VY administrative procedures require that contractors procured under non-nuclear safety purchase orders be supervised by plant staff members who are qualified by experience and/or training to judge the technical adequacy and quality of the work. Contrary to the above, during a 1998 refueling outage, contract valve technicians procured under a non-nuclear safety purchase order performed work on reactor core isolation cooling valve 13-20, and at the time, those technicians were not adequately supervised. The NRC Office of Investigations determined this violation was the result of a delibert act by a maintenance manager. Because the violation was deliberate, it was categorized at Severity Level III, in accordance with the NRC Enforcement Policy (NUREG-1600). [NOTE: This violation was not issued in inspection report 50-271/00-07, but rather via separate correspondence during this report period. See NRC letter dated 9/18/2000 or reference EA 00-165/01013. This violation was closed in inspection report 50-271/01-06 issued on September 25, 2001]

Inspection Report# : [2000007\(pdf\)](#)

**Significance:** N/A May 11, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Initiate an Event Report for Out-of-Service Equipment, as Required by Procedure**

NO COLOR. The team identified that the augmented off-gas building ventilation system failed a surveillance in May 1999. Subsequently, the licensee identified that the shutdown iodine filter for the mechanical vacuum pump for the main condenser failed a surveillance in March 1998. In both cases, a work request was initiated to repair the system; but no ER was written, as required by the ER procedure. The team identified a third example where a work request was initiated to resolve a discrepancy related to an alarm setpoint, but the request was canceled without resolving the problem. Nonetheless, the failure to initiate ERs for the first two issues is a violation of the VY Technical Specifications related to procedure implementation, and is being treated as a Non-Cited Violation. The violation was not assessed using the Significance Determination Process, as it did not impact one of the cornerstones; however, it provides substantive information relative to the cross cutting issue of problem identification and resolution. (Section 4OA2.1)

Inspection Report# : [2000003\(pdf\)](#)

Last modified : December 02, 2002