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Facility: Vermont Yankee Nuclear Power Station
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EXECUTIVE SUMMARY

Vermont Yankee Nuclear Power Station NRC Inspection Report 50-271/99-01

This integrated inspection included aspects of licensee operations, engineering, maintenance, and plant support. The report covers a six week period of resident inspection; in addition, it includes the results of announced inspections of the Radiological Controls and Security programs by NRC Region I specialists.

Operations

- On two occasions, VY operators did not document a basis for leaving degraded safety-related components in service. After NRC discussions with VY management, appropriate actions were taken. No violations of Technical Specification action requirements occurred and VY has initiated corrective actions to address deficiencies in the procedural guidance for making operability determinations. (Section O1.1)
- Plant operations were well controlled during a planned power reduction for maintenance and a rod pattern exchange. Operators demonstrated good procedure use and formal communications. Reactivity manipulations and a recirculation pump start were done methodically. (Section O1.2)
- On January 5, 1999, the NRC observed that the thermostat for the "A" Emergency Diesel Generator (EDG) room exhaust fan was not set properly. The start and stop temperature setpoints had been adjusted to the same value. The inspector informed VY representatives and the required setpoints were restored by Operations personnel. An unresolved item was opened pending additional information regarding the potential effects of the as-found condition. (Section O2.1)

Maintenance

- The maintenance activities observed during this period were performed well. Workers demonstrated appropriate radiological control techniques and received appropriate RP coverage. Procedural requirements for foreign material exclusion were adhered to and no significant performance deficiencies were noted. (Section M1.1)
- The surveillance activities observed during the period were correctly performed. Test activities were well controlled and coordinated by the control room operators. (Section M1.2)
- Rework of the "B" control rod drive (CRD) pump following an overhaul was the result of unforeseen test equipment limitations. The alignment tolerances required for a new style of pump bushings had not been recognized by the pump vendor or VY, and exceeded the limitations of the alignment tool. VY appropriately resolved this issue and subsequent pump performance has been satisfactory. (Section M1.3)

Executive Summary (cont'd)

Engineering

- As short-term corrective action for degraded RHRSW pump performance, VY dis-associated the pump surveillance tests required by the Technical Specifications and the ASME Code. The two separate tests continue to meet regulatory requirements, monitor for further pump degradation, and assure that design basis functions can be accomplished. (Section E2.1)
- VY identified an error in the RHRSW system model that effects the calculated available net positive suction head (NPSH). As a result, the alternate cooling system function (non-accident, safe shutdown) may have been degraded. Current operability was addressed. An unresolved item was opened pending information on the flow model adequacy and the impact of the NPSH error on past capabilities. (Section E8.1)

Plant Support

- VY established and implemented an effective external and internal exposure control program. There were no significant radiation exposures and VY met its major occupational exposure goals for 1998. VY was initiating action to replace its electronic dosimeters to improve personnel exposure monitoring. (Section R1.2)
- VY implemented generally effective applied radiological controls. High radiation area access controls were implemented in accordance with procedures and general radiation protection program practices and procedures (e.g., posting, barricading, and access controls) were appropriately implemented. Station areas reflected generally good contamination controls practices. The areas were generally clean and equipment was neatly stored. Areas for improvement were identified in the area of radioactive source storage and control and monitoring of RCA egress points. (Section R1.3)
- VY implemented generally effective self-assessments, surveillances, and audits of radiation protection program activities. (Section R7)
- VY was reviewing and updating its 10 CFR 50.75(g) file for adequacy and completeness relative to 10 CFR 50.75(f) decommissioning cost estimates. In some cases, documentation was not sufficiently detailed to fully assess some locations with respect to the requirements of 10 CFR 50.75 relative to its impact on decommissioning. Document evaluations of potential onsite or offsite dose consequences for two onsite areas exhibiting residual contamination had not been prepared as of the time of the inspection. VY expected to complete appropriate dose assessments on or about March 15, 1999, for these areas. Based on data from the ongoing environmental monitoring program, there is no evidence that any of the residual radioactivity has resulted in any dose consequences. The adequacy of records maintained in accordance with 10 CFR 50.75 and the preparation of appropriate evaluations, relative to 10 CFR 20.1501, for residual contamination is an unresolved item. (Section R8.1)

Executive Summary (cont'd)

- VY Security activities involving alarm stations, communications, and access control for personnel and packages were conducted well. This portion of the program, as implemented, met the licensee's commitments and NRC requirements. (Section S1)
- Security facilities and equipment associated with the protected area assessment aids, protected area detection aids, and personnel search equipment were determined to be well maintained and reliable. The equipment was capable of meeting the licensee's commitments and NRC requirements. (Section S2)
- Security procedures and documentation were properly implemented. Event logs were properly maintained and effectively used to analyze, track, and resolve safeguards events. (Section S3)
- The security force members demonstrated the requisite knowledge to effectively implement the duties and responsibilities of their positions. (Section S4)
- Security training was conducted in accordance with the Training and Qualification Plan, and based on interviews, and inspector observations, the training was considered effective. (Section S5)
- VY management support was adequate to ensure effective implementation of the security program, and was evidenced by adequate staffing levels and the allocations of resources to support programmatic needs. (Section S6)
- VY's Security audit program was comprehensive in scope and depth, the audit findings were reported to the appropriate level of management, and the program was being properly administered. In addition, a review of the documentation applicable to the self-assessment program indicated that the program was being effectively implemented to identify and resolve potential weaknesses. (Section S7)
- VY's response to industry information on inadvertent fire protection system actuations was thorough and identified a potential problem with the timing modules used in several systems at the station. The special report and compensatory actions required by Technical Specifications were completed. Fire detection systems remained operable and the measures taken by VY to support the manual use of the CO2 systems, if required, were considered prudent. (Section F2.1)

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ATTACHMENTS

Attachment 1 - List of Acronyms Used

Attachment 2 - Items Opened, Closed, or Discussed

Report Details

Summary of Plant Status

Throughout most of the inspection period, the Vermont Yankee (VY) plant was operated at 100 percent power. Between January 5 and January 6, a power reduction to 30 percent was made in support of corrective and preventive maintenance. Minor power reductions were also made during this inspection period in support of routine surveillance testing.

I. Operations

O1 Conduct of Operations¹

O1.1 Observation of Routine Plant Operations

a. Inspection Scope (71707)

The inspectors toured the control room to assess the conduct of activities, verify safety system alignments, and verify compliance with Technical Specification (TS) requirements. Event Reports used to document plant deficiencies were reviewed, and discussed with shift supervision, to evaluate both the equipment condition discussed and the licensee's initial response to the issue.

b. Observations and Findings

On two occasions during this inspection period, the inspectors found that the shift supervisor did not document a basis for leaving a degraded safety-related components in service. In one case, the initiation of an Event Report was delayed by five days. In the second case, an ER was promptly generated but the shift supervisor deferred his decision on operability pending evaluation by engineering personnel. Specifically,

- During the "B" EDG monthly surveillance on January 20, the inspector noted that the room exhaust fan appeared to be cycling off and on at a short interval (on the order of a minute). When the inspector questioned this condition, control room operators indicated they were aware of the problem. The inspector subsequently discovered that a work order was generated to replace the thermostat 30 days later, but there was no documented assessment of operability. Following NRC discussion with VY management, an Event Report and operability determination were written, five days after the condition was identified.
- On February 1, auxiliary operators (AOs) were unable to drain the line between the inboard (RHR-31B) and outboard (RHR-26B) containment spray isolation valves during surveillance procedure OP 4124. This meant that the RHR keepfill system water was leaking by the RHR-26B valve, an Appendix J tested containment isolation valve. Although the finding was logged by the Shift Supervisor, an operability determination regarding the valve's containment isolation function was deferred pending further evaluation.

¹Topical headings such as O1, M8, etc., are used in accordance with the NRC standardized reactor inspection report outline. Individual reports are not expected to address all outline topics.

The inspector determined that there was no additional risk to public health and safety as the result of these events. The degraded EDG ventilation system was addressed in an operability determination and allowed to remain in service. Although the leaking containment spray isolation valve, RHR-26B, was later declared inoperable, the redundant isolation valve was closed and operable. Technical Specification required actions were met by the physical condition of the equipment.

Appropriate follow-up actions and documentation were provided after these events were discussed with VY management. The inspector noted that VY management's expectations regarding operability calls had been re-emphasized in a December 6, 1998, memorandum from Operations management to all crews. Based on the examples above and a review of AP-0009, "Event Reports," the inspector concluded that this guidance had not been followed and that VY's procedures do not provide clear requirements.

The inspector discussed these findings with VY's Plant Manager and Operations Manager. The Operations Manager has an internal commitment to revise and enhance the Basis for Maintaining Operation (BMO) procedure to provide more explicit direction for making and documenting operability determinations.

c. Conclusions

On two occasions, VY operators did not document a basis for leaving degraded safety-related components in service. After NRC discussions with VY management, appropriate actions were taken. No violations of Technical Specification action requirements occurred and VY has initiated corrective actions to address deficiencies in the procedural guidance for making operability determinations.

O1.2 Power Reduction in Support of Maintenance

a. Inspection Scope (71707)

On January 5, VY reduced power to approximately 30 percent to conduct several maintenance activities and a rod pattern exchange. The inspector observed control room operations to support these activities.

b. Observations and Findings

VY utilized the scheduled rod pattern exchange of January 5 to conduct a number of maintenance and surveillance activities that either required low power to be performed, or were advantageous in terms of ALARA. Work items included: Valve replacement on a hydraulic control unit which required the associated control rod to be fully inserted; single control rod scram time testing; main steam isolation valve and turbine bypass valve testing; brush replacement on both recirculation pump motor generators which required single loop operations; and a temporary steam leak repair on the high pressure turbine.

The inspector observed portions of the rod pattern exchange. Control rod manipulations were performed methodically. A reactor engineer and the control room operator verified

rod selection and positioning in accordance with the move sheet. Other activities in the control room were appropriately managed by the senior control room operator and the shift supervisor to minimize distraction to the operator performing the control rod moves. No problems were observed during this operation.

The inspector observed restoration of flow in an idle recirculation loop. Control room operators were focused on this operation and the shift supervisor provided appropriate supervision. The inspector observed good self-checking while performing the procedure and consistent use of three-part communications by the operators. The operation was completed with minimal effect on other operational parameters. No problems were observed during this operation.

c. Conclusions

Plant operations were well controlled during a planned power reduction for maintenance and a rod pattern exchange. Operators demonstrated good procedure use and formal communications. Reactivity manipulations and a recirculation pump start were done methodically.

O2 Operational Status of Facilities and Equipment

O2.1 "A" Diesel Generator Room Exhaust Fan Control

On January 5, 1999, the inspector observed that the thermostat for the "A" Diesel Generator (DG) room exhaust fan was not set properly. The start and stop temperature setpoints had been adjusted to the same value (56°F). The inspector informed VY personnel and the thermostat setpoints were restored by Operations to the start (65°F) and stop (56°F) values specified in OP 2126, "Diesel Generators".

As an immediate corrective action the licensee required Auxiliary Operators to verify the correct settings for both EDGs twice per shift. A review was conducted by VY's security department and they concluded that this was not a security event. In response to this and other events where thermostats in the plant have been repositioned without authorization, VY management issued a memorandum to all personnel reinforcing expectations. Planned corrective actions include the installation of improved labeling for the thermostats and clarification of existing AO round sheet criteria for the thermostat setting.

The inspector reviewed VY's assessment of the as-found condition on the DG operability documented in the Reportability Evaluation of ER 99-0020. Additional details regarding the temperature control until are necessary to assess VY's conclusion that the DG operability would not have been impacted by the as-found condition. This issue will be tracked as an unresolved item. **(URI 99-01-01: DG Exhaust Fan Controller Settings)**

O8 Miscellaneous Operations Issues

O8.1 In-Office Review of LERs Related to Operations (90712)

An in-office review of a Licensee Event Report (LER) was performed to assess whether further NRC actions were required. The adequacy of the overall event description, immediate actions taken, cause determination, and corrective actions were considered during this review. The following issue was closed-out based on the in-office review.

(Closed) LER 98-019-01: Off-normal System Alignment Following a Plant Trip Which Involved the Loss of a Reactor Water Recirculation System Pump and Reactor Water Thermal Stratification Results in a Spurious Shutdown Cooling Isolation

VY submitted the supplemental LER after concluding that this event was not reportable under 10 CFR 50.73(a)(2)(iv) because the VY FSAR identifies the high pressure isolation signal as a non-ESF function and because the safety function, to protect the RHR piping from over-pressurization, had been accomplished when the plant was depressurized. The inspector noted that the invalid isolation was evaluated and restored by operators in the control room within 8 minutes. After discussions with representatives from the NRC's Office of Analysis and Evaluation of Operational Data (AEOD), the inspector concluded that VY's recharacterization of this LER as a voluntary report was acceptable. Based on this review, the supplemental LER is closed.

O8.2 Review of Open Items Related to Operations (92901)

The following open item was reviewed based on information provided by VY in response to the open item and a sampling of VY's corrective actions where appropriate.

(Closed) VIO 98-08-03: Fourteen Day Delay in 4-hour Event Notification for Potential Common Mode Failure of SGTS

On June 2, VY discovered incorrect circuit breaker settings which could have prevented operation of both standby gas treatment system (SGTS) fans. 10 CFR 50.72(b) requires licensee's to report, within 4 hours, any condition that alone could have prevented fulfillment of a safety function of a system needed to control the release of radioactive material. However, shift supervision and the Event Report screening committee failed to identify the event as a reportable condition. As a result, the required 4-hour NRC notification was not made until 14 days after the condition was discovered.

In response to this violation, VY management communicated to Department Heads the need for timely and conservative determination of NRC notification requirements. The importance of providing the shift supervisor with the necessary information to make this determination was also stressed. Recent issues identified and reported by VY reflect a better sensitivity to the reporting requirements of 10 CFR 50.72. The inspector concluded that these actions adequately addressed the issue, and therefore, this violation is closed.

II. Maintenance

M1 Conduct of Maintenance

M1.1 Maintenance Observations

a. Inspection Scope (62707)

The inspector observed portions of plant maintenance activities to verify that the correct parts and tools were utilized, the applicable industry code and technical specification requirements were satisfied, adequate measures were in place to ensure personnel safety and prevent damage to plant structures, systems, and components, and to ensure that equipment operability was verified upon completion of post maintenance testing.

b. Observations and Findings

The inspector observed all or portions of the following maintenance activities:

- "B" SLC pump repack, WO 98-12051-00, "SLC P45-1B Repack Pump," observed January 26

The inspector observed torquing of the plunger head and part of the restoration lineup. No problems were noted.

- "C" RHR pump discharge check valve inspection, WO 98-07864-00, "V10-48C Check Valve Inspection," performed per OP-4222, "Disassembly and Inspection of Check Valves," observed February 2

This work was performed as part of a scheduled maintenance outage for the "A" loop of the residual heat removal (RHR) system. The inspector observed cleaning and reassembly preparation of the valve canopy seating surfaces. Good radiation protection (RP) coverage was provided. The opened valve was posted as a foreign material exclusion (FME) area, and the required FME log was being maintained by a dedicated individual. No problems were noted.

- "A" RHR pump motor inspection, WO 98-12020-00, "OP-5235 Inspection - Minor," per OP-5235, "AC and DC Motor Maintenance," observed February 2

This work was also part of the "A" loop RHR maintenance outage. The inspector observed motor internal cleaning and visual inspection, and no problems were noted.

c. Conclusions

The maintenance activities observed during this period were performed well. Workers demonstrated appropriate radiological control techniques and received appropriate RP coverage. Procedural requirements for foreign material exclusion were adhered to and no significant performance deficiencies were noted.

M1.2 Surveillance Observations

a. Inspection Scope (61726)

The inspector observed portions of surveillance tests to verify proper calibration of test instrumentation, use of approved procedures, performance of work by qualified personnel, conformance to Limiting Conditions for Operations (LCOs), and correct post-test system restoration.

b. Observations and Findings

The inspectors observed portions of the following surveillance testing activities:

- "B" Emergency diesel generator monthly surveillance, observed January 20

A problem with the temperature control band of the room exhaust fan thermostat was noted and is discussed in section O1.1 of this report. No problems other problems were noted.

- Reactor building closed cooling water system quarterly surveillance, observed February 9

This quarterly surveillance was performed at a six week interval due to pump vibrations being in the alert range. The inspector observed good procedure use and compliance by the operators. No problems were noted.

c. Conclusions

The surveillance activities observed during the period were correctly performed. Test activities were well controlled and coordinated by the control room operators.

M1.3 Control Rod Drive Pump Maintenance Rework

a. Inspection Scope (62707)

The "B" control rod drive (CRD) pump was overhauled in December 1998, but required rework during this inspection period. The inspector reviewed VY's cause determination and corrective actions for this maintenance problem.

b. Observations and Findings

The "B" CRD pump overhaul was done to improved pump reliability during long term operation at low flow by installing interstage bushings made of a different material (a plastic, rather than bronze). One week after the pump was returned to service in December 1998, high differential pressure developed across the discharge filter. Filter cleaning revealed that the cause was an accumulation of the plastic material used for the CRD pump interstage bushings. The pump was disassembled and the interstage bushings were found to be degraded.

With the assistance of a vendor representative, the cause of the interstage bushing degradation was determined to be slight misalignment of the pump rotating assembly. The new interstage bushings are less resilient than those previously in use, and require greater alignment precision than was previously needed. The existing alignment tool was not sufficient to consistently achieve the required accuracy. This was not recognized during the December overhaul, although a vendor representative had assisted VY throughout that activity. A new alignment method was proposed by VY engineering and accepted by the vendor. Satisfactory alignment was achieved using the new technique, and the pump was returned to service on January 30.

Prior to the December 1998 overhaul, the "B" train of CRD was already in Maintenance Rule (a)(1) status. When the "B" CRD pump was returned to service in February, the "B" train three year unavailability was 4.95 percent, exceeding the unavailability goal of 1.79 percent. In light of the recent pump problem, VY will be reviewing the adequacy of the existing "B" train CRD goals and monitoring.

c. Conclusions

Rework of the "B" control rod drive (CRD) pump following an overhaul was not a reflection of poor maintenance practices, but rather, the result of unforeseen test equipment limitations. The alignment tolerances required for a new style of pump bushings had not been recognized by the pump vendor or VY, and exceeded the limitations of the alignment tool. VY appropriately resolved this issue and subsequent pump performance has been satisfactory.

M8 Miscellaneous Maintenance Issues

M8.1 Review of Open Items Related to Maintenance (92902)

The following open item was reviewed for closure based on a review of additional information from VY and a sampling of the licensee's corrective actions where appropriate.

(Closed) VIO 98-08-01: Inadequate Procedure Guidance for DC Electrical Ground Investigation

OP-2145, "Normal 125VDC Operation," was used to investigate a DC system ground and did not provide adequate instructions regarding the safety systems that would be affected or the steps necessary to restore their normal standby alignment. Core spray system valve CS-5A closed during the activity and was not returned to its normal alignment.

VY's response to the Notice of Violation, BVY 98-115, dated July 31, 1998, acknowledged the violation and stated that procedure OP-2145 was revised to add precautions regarding the effect on CS-5A and specific direction to restore the valve to its normal position. The inspector verified that DI 98-255 had been issued to add the information described in VY's NOV response. The inspector noted that in November 1998, VY changed its practice for investigating a DC ground. The VY maintenance

department now uses a non-intrusive "DC Ground Chaser" rather than cycling breakers off until the ground indication clears. The inspector concluded that the new process was a substantial improvement over the old practice. Based on VY's response to the problem, this violation is closed.

III. Engineering

E1 Conduct of Engineering

E1.1 Modification Error Results in Design Non-conformance

On February 5, 1999, VY made a 1-hr NRC notification in accordance with 10 CFR 50.72(b)(1)(ii)(B) for a condition that was considered to be outside the plant's design basis (EN# 35349). During the 1998 refueling outage, a modification was implemented to upgrade the RHR and CS instruments to Regulatory Guide 1.97 Type "A" Category 1 criteria. An error during this modification resulted in the use of power supply cables that shared a common section of cable tray for the independent instrument channels. Because of this error, the applicable RG 1.97 separation criteria were not met.

An operability determination was prepared in conjunction with ER 99-0167 and the inspector's review found that it provided a reasonable justification for operability of the instruments. Considerations evaluated by VY included the cable voltage, safety class over-current protection, location of the common cable tray, and Appendix R requirements. Additional information from VY is necessary to assess the adequacy of this design change and VY's efforts to evaluate the extent of the condition. Pending receipt of this information, this issue will be tracked as an unresolved item. (**URI 99-01-02: Design Control for RHR and CS Instrument Modification**)

E2 Engineering Support of Facilities and Equipment

E2.1 New Baseline Data for RHR Service Water Pump Testing

a. Inspection Scope (37551)

As part of the corrective action plan for the degraded residual heat removal service water (RHRSW) pumps (see IR 50-271/98-14), VY took actions to dis-associate the surveillance tests for Technical Specifications and ASME Section XI. The inspector reviewed VY's technical justification for the new inservice test reference baseline values.

b. Observations and Findings

The four RHRSW pumps at VY are credited in the FSAR for two functions. In a post-accident scenario, the RHRSW pumps work in conjunction with the service water (SW) pumps to provide cooling for the RHR heat exchangers. The second function of RHRSW is to provide an alternate method of cooling for essential plant equipment if the Vernon Dam were to fail or the SW pump house became otherwise unavailable. This second mode is referred to as the Alternate Cooling System (ACS).

Although corrective actions for the pump degradation discussed in IR 50-271/98-14 had been planned and scheduled, VY determined it was necessary to change the surveillance testing for RHRSW as a short term action. On February 1, VY established new inservice test reference values for all four RHRSW pumps. A technical justification for each pump was developed by the System Engineer and accepted by the Inservice Test Program Coordinator. This justification has been filed as part of the permanent surveillance test record.

A single combined test had been used by VY to satisfy both TS surveillance requirements and the ASME Section XI requirements. The test was performed at the TS specified value for flow (2700 gpm) and required a minimum differential pressure that corresponds to the limiting design basis value for the ACS function. Testing to these requirements was conservative, since the post-accident function requires less pressure to be developed by the pump than the ACS function. Also, the ACS function requires less flow from each pump than is specified by the TS. VY dis-associated the TS and ASME Section XI tests in order to assure that the individual requirements for each could be satisfied, while the mechanical cleaning of the RHRSW pumps is being accomplished. VY's planned corrective actions include a method for maintaining the clean pump condition. The inspector noted that the completion of the mechanical cleaning and long term maintenance efforts should restore margin to the capability of the pumps.

The inspector discussed VY's plans to dis-associate the testing activities with representatives from NRC Region I and the Office of Nuclear Reactor Regulation's Mechanical Engineering Branch. The inspector concluded that VY's actions met the ASME Code requirements and that, because physical corrective actions were being taken to address the pumps' degradation, the corrective action requirements of 10 CFR 50 Appendix B, Criterion XVI were being met.

c. Conclusions

As short-term corrective action for degraded RHRSW pump performance, VY dis-associated the pump surveillance tests required by the Technical Specifications and the ASME Code. The two separate tests continue to meet regulatory requirements, monitor for further pump degradation, and assure that design basis functions can be accomplished.

E8 Miscellaneous Engineering Issues

E8.1 In-office Review of LERs Related to Engineering (90712)

An in-office review of Licensee Event Reports (LERs) was performed to assess whether further NRC actions were required. The adequacy of the overall event description, immediate actions taken, cause determination, and corrective actions were considered during this review. The following issues were closed-out based on the in-office review.

(Closed) LER 98-023-00: Inadequate Review of Engineering Design Change Resulted in a Core Spray In-Service Testing Valve Not Being Properly Tested

During the 1998 refueling outage, VY modified the core spray (CS) system instrumentation to allow the CS full flow test valves, V14-26A and B, to be opened while an accident signal was present. This was done to address a potential problem during certain accident scenarios, in which the installed minimum flow line would not provide adequate pump recirculation flow for long term operation. Specifically, it provided operators with the ability to increase pump recirculation flow by using the full flow test line in parallel with the installed minimum flow line. As a result, the ability to open the full flow test valves became an active safety function, therefore making the valves subject to in-service testing (IST). However, the modification package did not identify this requirement, and its omission was not noted until September 24, 1998.

VY determined that the root cause of this event was inadequate review of the engineering design change for IST requirements. As immediate corrective action, VY stroke time tested V14-26A and B in the open direction and added this test to the IST program. Long term corrective action consisted of review of the event with responsible engineering department personnel.

This event was of minimal safety significance, because the valves operated properly and had been excluded from the IST program for only a short period of time. The inspector concluded that the failure to include open stroke time testing of the subject valves in the IST program was a violation of minor significance and is not subject to formal enforcement action. Therefore, this LER is closed.

(Closed) LER 99-001-00: Inadequate Communication Between Licensee and Equipment Manufacturer Results in the Incorrect Application of a Manufacturer Supplied Pump Curve and an Unanalyzed Condition

On January 8, VY made a 1-hour NRC notification based on their discovery of an error in the RHRSW system performance model (see EN# 35231). The LER explained that the net positive suction head (NPSH) loss due to the pump's suction barrel was not included in the RHRSW model and that there may be inadequate NPSH under the alternate cooling system's (ACS's) maximum design basis conditions. Because the RHRSW system is supplied by the SW system for post-accident design basis scenarios, this error is most relevant to the RHRSW systems ACS function.

BMO 99-44 was developed to address the degradation of the RHRSW pump performance (apparently due to biofouling), but this BMO also provides a reasonable basis for operability with the error in the RHRSW model. The BMO was originally reviewed in NRC Inspection Report 50-271/98-14 and since then VY appropriately revised the document to fully explain and incorporate this new issue. No problems were identified during the NRC review of BMO 99-44.

VY identified that the design of the RHRSW pumps was not accurately reflected in the computer model used to verify the RHRSW system's design. 10 CFR 50 Appendix B, Criterion III, Design Control requires that VY provide adequate measures for verifying or checking the adequacy of the design. Additional information regarding the development and verification of the RHRSW flow model, and the consequences of the error, are necessary to determine whether the model provided an adequate method for

verifying the adequacy of the design. This issue will be tracked as an unresolved item.
(URI 99-01-03: Design Control for RHRSW System Model)

IV. Plant Support

R1 Radiological Protection and Chemistry (RP&C) Controls

R1.1 Radiation Protection Program Changes

a. Inspection Scope (83750)

The inspector reviewed selected radiation protection program changes made or planned since the previous inspection. The inspector reviewed changes to program procedures, organization and staffing, facilities, and equipment.

b. Observations and Findings

There were no significant radiation protection program changes since the previous radiation protection inspection. VY did select two new supervisors in radiation protection. The individuals met applicable Technical Specification qualification requirements.

VY was in the process of evaluating various personnel electronic dosimeters as replacements for its current electronic dosimeter system. VY was using applicable industry guidance in its evaluation of the devices.

VY has constructed an engineering support facility outside the protected area. VY took the initiative to monitor ambient radiation levels at the facility with environmental thermoluminescent dosimeters during construction activities. No significant radiation exposure was identified. VY was also continuing to monitor the ambient radiation levels at the facility attributable to station operations.

c. Conclusions

There were no program changes made that negatively impacted the radiation protection program.

R1.2 Radiation Protection Program Performance

a. Inspection Scope (83750)

The inspector selectively reviewed radiation protection program performance for 1998 relative to the VY's previously defined performance goals and applicable regulatory requirements. The review was against criteria contained in 10 CFR 20 and applicable program procedures.

b. Observation and Finding

VY met its 1998 occupational exposure goal (199 person-rem versus a 220 person-rem goal) including its 1998 refueling outage exposure goal (161 person-rem versus a 190 person-rem goal). VY station departments also generally met their occupational exposure goals though some were slightly over their department goals.

There were no significant external or internal exposures in 1998 including during the 1998 refueling outage. No individual sustained a deep dose equivalent in excess of 2.5 rem. Shallow dose equivalent and extremity exposures were well within applicable limits. There were no significant exposures to the skin of the whole body due to unplanned skin or clothing contamination. Reasonable skin dose assessment methods were implemented. VY performed and documented a review of personnel contaminations that occurred in 1998 and their principle causes for review and evaluation.

No significant neutron exposure was received by station personnel. A radiation protection technician, involved with an instrument calibration, did sustain low-level neutron exposure in 1998. Although the exposure was well below applicable limits, and appeared to be an isolated instance, the licensee initiated a review to evaluate this exposure to determine the potential to reduce future neutron exposures during radiation survey meter calibration activities.

Dosimetry anomalies were reviewed and evaluated. The total accumulated radiation exposure, based on electronic dosimeter readings, reasonably compared with that recorded by thermoluminescent dosimeters. However, as a result of repetitive problems with electronic dosimetry performance, VY was evaluating a replacement system for its electronic dosimetry system. VY was using applicable industry guidance to assist in evaluation and selection of replacement dosimetry.

VY was using whole body dosimetry accredited by the National Voluntary Laboratory Accreditation Program (NVLAP) for appropriate test categories specified in ANSI 13.11, 1993. Extremity dosimetry also met applicable performance standards.

c. Conclusions

VY established and implemented an overall effective external and internal exposure control program. There were no significant radiation exposures and VY met its major occupational exposure goals for 1998. VY was initiating action to replace its electronic dosimeters to improve personnel exposure monitoring.

R1.3 Applied Radiological Controls

a. Inspection Scope (83750)

The inspector reviewed general radiological controls. The inspector toured various portions of the radiological controlled area, made independent radiation measurements, reviewed radiological posting practices, and reviewed access control to high radiation areas. The inspector selectively reviewed control practices for radioactive material and

contamination during tours of the station and also controls and leak testing of licensed sources. The reviews were against criteria contained in 10 CFR 20, applicable program procedures, and Section 13.4 of the Updated Final safety Analysis Report.

b. Observations and Findings

VY posted proper warning signs for radiological controlled areas. High radiation areas were properly controlled, as were keys to locked high radiation areas. Survey maps were current and monitoring instruments were functional and in-calibration. VY was actively tracking hot spots for flushing and shielding opportunities. Radioactive material and contaminated material were properly posted including hot spots.

The North Warehouse, a building used by VY to store and process limited amounts of low level radioactive material, exhibited recent degraded conditions due to recent severe weather. Shallow standing water was present and condensation was dripping from the roof in a portion of the building. In addition, some drums of stored radioactive material stored in the area exhibited rusting, several drums were not properly aligned on their leak catcher pallets, and unmarked bags of material were within the area. VY did perform periodic inspection of designated material in the area, however, numerous containers, containing low level radioactive material, were stacked in a manner precluding visual inspections. Although no immediate health and safety concern or spread of contamination was noted, recent documented VY inspections of the area indicated conditions were satisfactory. Also, the station Radiation Protection Manager had not been fully informed as to the extent of the degraded conditions.

VY immediately initiated work orders to remove collected ice and snow from the warehouse roof and remove standing water. Although the areas and material designated by VY for periodic visual inspection were not impacted by the conditions (i.e. were located in adjoining areas), VY issued guidance to personnel who inspect the area to be alert to conditions that could affect container integrity and notify supervisors when less than satisfactory conditions were identified.

Inspector surveys of operations department and numerous maintenance department facilities outside the radiological controlled area, including tool storage areas, lockers and meeting areas, did not identify any radioactive contamination. However, a survey of the floor immediately outside the radiological controlled area boundary leading to the maintenance facility identified trace levels of contamination on a dirt collection carpet. VY radiation protection personnel took control of the carpet and initiated an investigation as to the nature and reasons for the contamination as well as a review of its survey practices at RCA egress points. The exit point allowed for general access to and egress from the radiological controlled area by maintenance personnel. The egress point was remote and under periodic video surveillance. However, alarms of personnel monitors were not readily visible by radiation protection personnel, there was no logging of survey results upon alarm, and a communication box to contact radiation protection personnel at a remote station, was not working when initially tested. VY was performing daily smear surveys at egress points and did not identify any removable contamination indicative of poor contamination control practices. VY believed the observation was attributable to build up of trace, non-detectable levels of contamination.

VY subsequently revised its survey practices for egress points to provide for weekly surveys by use of enhanced sensitivity handheld monitoring devices of non-smearable areas (e.g., carpets) that could exhibit some buildup of trace activity. VY was routinely collecting mop water and mops, used for mopping egress points, from the RCA and conservatively transferring it to the RCA. VY had also monitored sediment and water samples from onsite storm drains. This is further discussed in Section 8.1 of this report.

VY had previously identified elevated levels of hard to detect contamination (Cr-51) in the RCA during the previous refueling outage and had established special monitoring of areas exhibiting the contamination. VY was evaluating its source term in preparation for outage activities to ensure appropriate monitoring was implemented.

Station areas reflected generally good contamination controls practices. The areas were generally clean, and equipment was neatly stored. Areas were generally accessible and none were significantly contaminated or considered as inaccessible locations. The station exhibited approximately five percent contaminated area within the radiological controlled area.

VY maintained sources stored at various locations within the radiological controlled area and implemented its Technical Specification requirements for source control and inventory. The sources stored at the radiation protection counting room, although stored within a restricted area, were readily available to unauthorized individuals, in that the source storage drawers were not locked. Also, a neutron source was unlocked within a room which was accessible to various personnel who had key access to the room. VY immediately locked the sources and initiated an event report. Although no violation was identified, the observations indicated areas for improvement of source control.

c. Conclusions

VY implemented generally effective applied radiological controls. High radiation area access controls were implemented in accordance with procedures and general radiation protection program practices and procedures (e.g., posting, barricading, and access controls) were appropriately implemented. Station areas reflected generally good contamination controls practices. The areas were generally clean, and equipment was neatly stored. While no violations were identified, VY initiated various improvements relative to the storage of radioactive material and sources, and monitoring and control of RCA egress points.

R7 Quality Assurance in RP&C Activities

a. Inspection Scope (83750)

The inspector reviewed VY's self-assessment, surveillance and audit programs in the area of radiation protection. The evaluation of VY's performance in this area was based on discussions with personnel and review of documentation.

b. Observations and Findings

VY conducted effective audits of the radiation protection program. Self-assessments were conducted of selected areas where warranted. Audits were sufficiently thorough and performed by technical specialists. VY performed functional area assessments of individual programs to evaluate areas for improvement. VY was also evaluating the methods of detection of events in an attempt to enhance the effectiveness of its self-assessment program.

c. Conclusions

VY implemented effective self-assessments, surveillances, and audits of radiation protection program activities, as evidenced by the conduct and documentation of various audits, initiatives to evaluate functional areas for improvements, and the enhanced effectiveness of self-assessment activities.

R8 Miscellaneous RP&C Issues

R8.1 Decommissioning Records

a. Inspection Scope (83750)

The inspector selectively reviewed VY's implementation of its record keeping for decommissioning planning purposes. The review was with respect to criteria contained in 10 CFR 50.75. The evaluation of the licensee's performance in this area was based on discussion with personnel and review of records.

b. Observations and Findings

In accordance with 10 CFR 50.75(f), VY was updating its decommissioning cost estimates. As part of the update, VY was reviewing its radioactive contamination spill records maintained in accordance with 10 CFR 50.75(g). To support this effort, VY established a special project team and was evaluating instances of onsite contamination for purposes of inclusion in the update. VY's reviews identified several locations where residual contamination remained from past activities. VY had previously evaluated the majority of the locations and had sought and received NRC approval to maintain these areas as alternate disposal areas consistent with the current 10 CFR 20.2002 and the former 10 CFR 20.302 which was superseded by 10 CFR 20.2002. However, in one case (an area of residual soil contamination behind and adjacent to the radwaste building), the documentation was not sufficiently detailed to fully assess the location with respect to the requirements of 10 CFR 50.75 relative to its impact on decommissioning. Also, documented evaluations of potential onsite or offsite dose consequences for this area and a second area (a quantity of soil excavated from the protected area and stored near the cooling towers on the owner controlled property) had not been prepared as of the time of the inspection.

VY initiated actions to perform and document worst case onsite and offsite dose assessments for the two areas based on known information and perform a more

complete characterization of the area near the radwaste building, including core boring and sampling of the area near the radwaste building, when weather conditions allowed. VY indicated that it would complete and document, on or about March 15, 1999, an assessment of the two areas to better characterize bounding radiological conditions.

VY's environmental monitoring program data did not indicate any onsite or offsite impact associated with these areas. VY also monitored onsite monitoring wells, including drinking water wells, which did not identify any radioactive material attributable to station operations. VY had also recently performed a 10 CFR 50.59 evaluation of trace detectable levels of contamination in its storm drain system. VY concluded the release of radioactive material from the storm drain system, and associated offsite dose consequences, was not significant (less than five percent of Technical Specification dose objectives).

While a complete record of radiological conditions and assessment has not been developed or made available, no immediate health and safety consequence was apparent. VY's actions to affect improved assurance that residual radioactive materials have not and will not affect the health and safety of workers, the public, and the environment appear appropriate.

VY's evaluation of the above two areas in accordance with 10 CFR 50.75 and 10 CFR 20.1501, relative to onsite and offsite dose potential, is an unresolved item. **(URI 99-01-04: Impact on Decommissioning and Dose Potential of Residual Onsite Contamination)**

c. Conclusions

VY was reviewing and updating its 10 CFR 50.75(g) file for adequacy and completeness relative to 10 CFR 50.75(f) decommissioning cost estimates. In some cases, documentation was not sufficiently detailed to fully assess some locations with respect to the requirements of 10 CFR 50.75 relative to its impact on decommissioning. Also, documented evaluations of potential onsite or offsite dose consequences for two areas exhibiting residual contamination had not been prepared as of the time of the inspection. VY expected to complete appropriate dose assessments on or about March 15, 1999, for these areas. Based on data from the ongoing environmental monitoring program, there is no evidence that any of the residual radioactivity has resulted in any offsite dose consequences. The adequacy of records maintained in accordance with 10 CFR 50.75 and the preparation of appropriate evaluations, relative to 10 CFR 20.1501, for residual contamination is an unresolved item.

S1 Conduct of Security and Safeguards Activities

a. Inspection Scope (81700)

The purpose of the inspection was to determine whether the conduct of security and safeguards activities met the licensee's commitments in the NRC-approved security plan (the Plan) and NRC regulatory requirements. The security program was inspected

during the period of January 19-22, 1999. Areas inspected included: alarm stations; communications; and protected area (PA) access control of personnel and packages.

b. Observations and Findings

Alarm Stations: Multiple observations of operations in the Central Alarm Station (CAS), and the Secondary Alarm Station (SAS) provided verification that the alarm stations were equipped with appropriate alarms, surveillance and communications capabilities. Interviews with the alarm station operators found them knowledgeable of their duties and responsibilities. It was also verified, through observations and interviews, that the alarm stations were continuously manned, independent, and diverse, so that no single act could remove the plants capability for detecting a threat and calling for assistance, and that the alarm stations did not contain any operational activities that could interfere with the execution of the detection, assessment and response functions.

Communications: Document reviews and discussions with alarm station operators, demonstrated that the alarm stations were capable of maintaining continuous intercommunications, communications with each security force member (SFM) on duty, and were exercising communication methods with the local law enforcement agencies as committed to in the Plan.

PA Access Control of Personnel, Hand-Carried Packages and Material: On January 20, personnel and package search activities were observed at the personnel access portal. It was determined that positive controls were in place to ensure only authorized individuals were granted access to the PA and that all personnel and hand carried items entering the PA were properly searched.

c. Conclusions

The licensee was conducting its security and safeguards activities in a manner that protected public health and safety and that this portion of the program, as implemented, met the licensee's commitments and NRC requirements.

S2 Status of Security Facilities and Equipment

a. Inspection Scope (81700)

The areas inspected were: PA assessment and detection aids, and personnel search equipment; testing and maintenance; and compensatory measures.

b. Observations and Findings

PA Assessment Aids: On January 20, the effectiveness of the assessment aids was evaluated, by observing on closed circuit television, an SFM conducting a walkdown of the perimeter of the PA. The assessment aids had good picture quality and excellent zone overlap. Additionally, to ensure Plan commitments are satisfied, the licensee has procedures in place requiring the implementation of compensatory measures in the event the alarm station operators are unable to properly assess the cause of an alarm.

Personnel and Package Search Equipment: On January 20, both routine use and performance testing of the licensee's personnel and package search equipment were observed. Observations and procedural reviews indicated that the search equipment performed in accordance with licensee procedures and Plan commitments.

PA Detection Aids: Multiple observations of an SFM conducting performance testing of the perimeter intrusion detection system (PIDS) were conducted. The testing consisted of three intrusion attempts in each of seven different zones. The appropriate alarms were generated in each attempt. In addition, during the perimeter walkdown, random intrusions were attempted with the appropriate alarm being generated in each case. The equipment was functional and effective and met the requirements of the Plan.

c. Conclusions

The licensee's security facilities and equipment were determined to be well maintained and reliable and were able to meet the licensee's commitments and NRC requirements.

S3 Security and Safeguards Procedures and Documentation

a. Inspection Scope (81700)

Areas inspected were implementing procedures and security event logs.

b. Observations and Findings

Security Program Procedures: Verification that the procedures were consistent with the Plan commitments, and were properly implemented was accomplished by reviewing selected implementing procedures associated with PA access control of personnel, packages and materials, testing and maintenance of personnel search equipment and performance testing of PA detection aids.

Security Event Logs: The Security Event Logs for the previous twelve months were reviewed. Based on this review, and discussion with security management, it was determined that the licensee appropriately analyzed, tracked, resolved and documented safeguards events that the licensee determined did not require a report to the NRC within one hour.

c. Conclusions

Security and safeguards procedures and documentation were being properly implemented. Event Logs were being properly maintained and effectively used to analyze, track, and resolve safeguards events.

S4 Security and Safeguards Staff Knowledge and Performance

a. Inspection Scope (81700)

The area inspected was security staff requisite knowledge.

b. Observations and Findings

Security Force Requisite Knowledge: Observations of a number of SFMs in the performance of their routine duties were conducted during the inspection period. These observations included alarm station operations, personnel, and package searches, and performance testing of the PIDS. Additionally, interviews of SFMs were conducted. Based on the responses, it was determined that the SFMs were knowledgeable of their responsibilities and duties, and could effectively carry out their assignments.

c. Conclusions

The SFMs adequately demonstrated that they had the requisite knowledge necessary to effectively implement the duties and responsibilities associated with their position.

S5 Security and Safeguards Staff Training and Qualification

a. Inspection Scope (81700)

The areas inspected were security training and qualifications, and training records.

b. Observations and Findings

Security Training and Qualifications: On January 21, 10 randomly selected training and qualification (T&Q) records of SFMs were reviewed. Physical and requalification records were inspected for armed and supervisory personnel. The results of the review indicated that the security force was being trained in accordance with the approved T&Q plan.

Training Records: Review of training records indicated that the records were properly maintained, accurate and reflected the current qualifications of the SFMs.

c. Conclusions

Security force personnel were being trained in accordance with the requirements of the T&Q Plan. Training documentation was properly maintained and accurate and the training provided by the training staff was effective.

S6 Security Organization and Administration

a. Inspection Scope (81700)

The areas inspected were management support, effectiveness, and staffing levels.

b. Observations and Findings

Management Support: Various program enhancements made since the last program inspection which was conducted in August, 1998, were reviewed. These enhancements included the allocation of resources for procurement of additional weapons, a new x-ray

screening system, EMT training and new equipment to enhance tactical training. In addition, the licensee has begun the implementation of the ISO9000 quality standard certification program.

Management Effectiveness: The inspector reviewed the management organizational structure and reporting chain and noted that the Security Manager's position in the organizational structure provides a means for making senior management aware of programmatic needs.

Staffing Levels: The inspector verified that the total number of trained SFMs immediately available on shift met the requirements specified in the Plan.

c. Conclusions

The level of management support was adequate to ensure effective implementation of the security program, and was evidenced by adequate staffing levels and the allocations of resources to support programmatic needs.

S7 Quality Assurance (QA) in Security and Safeguards Activities

a. Inspection Scope (81700)

The areas inspected were audits, problem analyses, corrective actions, and effectiveness of management controls.

b. Observations and Findings

Audits: The 1998 QA audit of security conducted October 19-23, 1998, (Audit No. 98-04) was reviewed. The audit were found to have been conducted in accordance with the Plan and was enhanced by the use of technical specialists as members of the audit team.

Audit report 98-04 identified three findings. The findings were related to administrative and procedural issues and were not indicative of programmatic weaknesses, and the findings would enhance program effectiveness.

Problem Analyses: A review of data derived from the security department's self-assessment program was accomplished. Potential weaknesses were being properly identified, tracked, and trended.

Corrective Actions: A review of the corrective actions implemented by the licensee in response to the QA audit and self-assessment program indicated that the corrective actions were technically sound and were performed in a timely manner.

Effectiveness of Management Controls: The licensee had programs in place for identifying, analyzing and resolving problems. They included the performance of annual QA audits, a departmental self-assessment program and the use of industry data such

as violations of regulatory requirements identified by the NRC at other facilities, as a criterion for self-assessment.

c. Conclusions

The review of the licensee's audit program indicated that the audits were comprehensive in scope and depth, that the audit findings were reported to the appropriate level of management, and that the program was being properly administered. In addition, a review of the documentation applicable to the self-assessment program indicated that the program was being effectively implemented to identify and resolve potential weakness.

F2 Status of Fire Protection Facilities and Equipment

F2.1 Fire Systems Out of Service for Greater Than 14 Days

a. Inspection Scope (71750)

The inspector reviewed a VY report to the NRC concerning the temporary removal from service of several fire systems.

b. Observations and Findings

On December 17, 1998, VY submitted a Special Report to the NRC to meet Technical Specification requirements for several fire systems that were to be removed from service for greater than 14 days. VY's letter (BVY 98-168) provided the bases for removing the system from service and a tentative date for restoration of the equipment. The following equipment was effected:

- Smoke Detectors for the EDG rooms were to be blocked during the installation of modifications to improve the capacity of the EDG room sprinkler system. The degraded sprinkler system was reported in LER 97-019-00 and these modifications should resolve the design inadequacy reported by VY.
- The automatic actuation feature of the Cable Vault CO2 Suppression System was removed from service on December 7, 1998, based on VY's assessment of industry information. In one event, the timing module model used in VY's system failed and resulted in a Halon system discharge without warning. VY is currently working with the vendor to resolve this vulnerability.
- The automatic actuation systems for the Switchgear Rooms' CO2 System was removed from service after their digital control panels provided unexpected results during routine testing. Although the microprocessors for each control panel have been replaced, the system remains out of service because it also uses the type of timing module which could result in a discharge without warning.

The inspector observed that the compensatory 1-hour fire watches required by TS 3.13.A.2 were being performed based on routine tours of the area and VY's logs. The

inspector considered briefings for Fire Brigade Leaders, noted in VY's letter, a prudent measure that would support the manual actuation of the CO2 systems if required.

c. Conclusions

VY's response to industry information on inadvertent fire protection system actuations was thorough and identified a potential problem with the timing modules used in several systems at the station. The special report and compensatory actions required by Technical Specifications were completed. Fire detection systems remained operable and the measures taken by VY to support the manual use of CO2 systems, if required, were considered prudent.

V. Management Meetings

X1 Exit Meeting Summary

The resident inspectors met with VY representatives periodically throughout the inspection and with VY management at an exit meeting on March 11, 1999. The Region I inspectors met with licensee representative at the conclusion of their on-site activities. At these meetings, the purpose and scope of the inspection were reviewed, and the preliminary findings were presented. The licensee acknowledged the preliminary inspection findings. In addition, Mr. Michael Balduzzi, VY's Plant Manager, stated that it was VY's intention to supplement LER 99-001-00 with the results of their investigation of the incorrect application of pump curves in the RHRSW system model.

The inspector asked the licensee whether any material examined during the inspection should be considered proprietary. No proprietary information was identified.

LIST OF ACRONYMS USED

ACS	Alternate Cooling System
AEOD	Office of Analysis and Evaluation of Operational Data
ALARA	As Low As Reasonably Achievable
ANSI	American National Standards Institute
AO	Auxiliary Operator
ASME	American Society of Mechanical Engineers
BMO	Basis for Maintaining Operation
CAS	Central Alarm Station
CFR	Code of Federal Regulation
CRD	Control Rod Drive
CS	Core Spray
DI	Department Instruction
EDG	Emergency Diesel Generator
EMT	Emergency Medical Technician
ESF	Engineered Safety Feature
FME	Foreign Material Exclusion
FSAR	Final Safety Analysis Report
IR	Inspection Report
IST	In-Service Testing
LCO	Limiting Condition for Operation
LER	Licensee Event Report
NCV	Non-Cited Violation
NOV	Notice of Violation
NPSH	Net Positive Suction Head
NRC	Nuclear Regulatory Commission
NVLAP	National Voluntary Laboratory Accreditation Program
PA	Protected Area
PIDS	Perimeter Intrusion Detection System
Plan	NRC-approved physical security plan
QA	Quality Assurance
RCA	Radiological Controlled Area
RHR	Residual Heat Removal
RHRSW	Residual Heat Removal Service Water
RP	Radiation Protection
SAS	Secondary Alarm Station
SFM	Security Force Member
SGTS	Standby Gas Treatment System
SLC	Standby Liquid Control

LIST OF ACRONYMS USED

SW	Service Water
T&Q	Training and Qualification
TS	Technical Specifications
URI	Unresolved Item
VIO	Violation
VY	Vermont Yankee
WO	Work Order

ITEMS OPENED, CLOSED, OR DISCUSSED

OPENED

- URI 99-01-01: DG Exhaust Fan Controller Settings (page 3)
- URI 99-01-02: Design Control for RHR and CS Instrument Modification (page 8)
- URI 99-01-03: Design Control for RHRSW System Model (page 11)
- URI 99-01-04: Impact on Decommissioning and Dose Potential of Residual Onsite Contamination (page 16)

CLOSED

- LER 98-019-01: Off-normal System Alignment Following a Plant Trip Which Involved the Loss of a Reactor Water Recirculation System Pump and Reactor Water Thermal Stratification Results in a Spurious Shutdown Cooling Isolation (page 4)
- VIO 98-08-03: Fourteen Day Delay in 4-hour Event Notification for Potential Common Mode Failure of SGTS (page 4)
- VIO 98-08-01: Inadequate Procedure Guidance for DC Electrical Ground Investigation (page 7)
- LER 98-023-00: Inadequate Review of Engineering Design Change Resulted in a Core Spray In-Service Testing Valve Not Being Properly Tested (page 9)
- LER 99-001-00: Inadequate Communication Between Licensee and Equipment Manufacturer Results in the Incorrect Application of a Manufacturer Supplied Pump Curve and an Unanalyzed Condition (page 10)

DISCUSSED

None

NON-CITED VIOLATIONS