November 6, 2003

Mr. Jay K. Thayer
Site Vice President - Vermont Yankee
Entergy Nuclear Vermont Yankee, LLC
P.O. Box 0500
185 Old Ferry Road
Brattleboro, Vermont 05302-0500

SUBJECT: VERMONT YANKEE NUCLEAR POWER STATION - NRC INTEGRATED INSPECTION REPORT 05000271/2003006

Dear Mr. Thayer:

On September 27, 2003, the US Nuclear Regulatory Commission (NRC) completed an inspection at your Vermont Yankee Nuclear Power Station. The enclosed report documents the inspection findings which were discussed on October 9, 2003, with Mr. K. Bronson and other members of your staff.

The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel. Based on the results of this inspection, no findings of significance were identified.

Since the terrorist attacks on September 11, 2001, NRC has issued five Orders and several threat advisories to licensees of commercial power reactors to strengthen licensee capabilities, improve security force readiness, and enhance controls over access authorization. In addition to applicable baseline inspections, the NRC issued Temporary Instruction 2515/148, "Inspection of Nuclear Reactor Safeguards Interim Compensatory Measures," and its subsequent revision, to audit and inspect licensee implementation of the interim compensatory measures required by order. Phase 1 of TI 2515/148 was completed at all commercial nuclear power plants during calendar year (CY) '02, and the remaining inspection activities for Vermont Yankee are scheduled for completion in CY '03. The NRC will continue to monitor overall safeguards and security controls at Vermont Yankee.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

Clifford J. Anderson, Chief
Projects Branch 5
Division of Reactor Projects

Docket No. 50-271
License No. DPR-28

Enclosure: Inspection Report 05000271/2003006
w/Attachment: Supplemental Information

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U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket No.	50-271
Licensee No.	DPR-28
Report No.	05000271/2003006
Licensee:	Entergy Nuclear Vermont Yankee, LLC
Facility:	Vermont Yankee Nuclear Power Station
Location:	320 Governor Hunt Road Vernon, Vermont 05354-9766
Dates:	June 29, 2003 - September 27, 2003
Inspectors:	David L. Pelton, Senior Resident Inspector Beth E. Sienel, Resident Inspector Jennifer A. Bobiak, Reactor Engineer Dana Caron, Physical Security Inspector Paul R. Frechette, Security Specialist Joseph T. Furia, Senior Health Physicist Jason C. Jang, Senior Health Physicist Gilbert A. Johnson, Operations Engineer Jeffrey Laughlin, Operations Engineer William J. Raymond, Senior Resident Inspector Julian Williams, Operations Engineer
Approved by:	Clifford J. Anderson, Chief Projects Branch 5 Division of Reactor Projects

SUMMARY OF FINDINGS

IR 05000271/2003-006; 06/28/03 - 09/27/03; Vermont Yankee Nuclear Power Station; Routine Integrated Report.

This report covered a 13-week period of baseline inspection conducted by resident inspectors. Additionally, announced inspections were performed by regional inspectors in the areas of problem identification and resolution, radiation protection, radiological environmental monitoring, security, and emergency planning. No findings of significance were identified. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000.

A. NRC - Identified and Self-Revealing Findings

No findings of significance were identified.

B. Licensee Identified Findings

None.

REPORT DETAILS

Summary of Plant Status

Vermont Yankee Nuclear Power Station operated throughout the inspection period at or near full power, with only minor power reductions for control rod pattern adjustments or surveillances, with the following exceptions: On July 23, 2003, the licensee performed a load dispatcher-requested down power to approximately 80 percent due to an offsite line problem. 100 percent operations were restored early on July 24. On August 11, the licensee performed an unplanned power reduction to 71 percent to support emergent maintenance on a 345 kilovolt (KV) breaker air trip system at a request from the load dispatcher. Power was restored to 100 percent later that day. On September 17, the licensee performed a reduction in power to approximately 30 percent and operated in a single-loop configuration (i.e., operated with one recirculation pump secured) in support of planned maintenance on the "A" recirculation pump motor-generator. The reactor was returned to full power on September 20. On September 27, the licensee performed a Technical Specification (TS) required shutdown due to increased unidentified drywell leakage.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

1. Readiness for Seasonal Susceptibilities

a. Inspection Scope (two samples)

The inspectors reviewed measures established by the licensee for minimizing the impact of weather-related events on the diesel fuel oil transfer system. The inspectors reviewed the Individual Plant Examination of External Events (IPEEE), the Updated Final Safety Analysis Report (UFSAR), and the associated design basis documents (DBDs) to ensure all weather-related vulnerabilities had been identified and appropriately addressed. The inspectors reviewed event reports (ERs) related to the diesel fuel oil transfer system focusing on weather-related events and problems. Finally, the inspectors walked down accessible portions of the diesel transfer system to ensure physical protection against weather-related events was in place and intact.

On July 9, 2003, the inspectors reviewed actions taken by the licensee due to high outside air temperatures in the vicinity of the plant. The high temperature condition caused turbine building (TB) and reactor building (RB) temperatures to exceed administrative limits and resulted in meeting entry conditions into emergency operating procedure (EOP) 4, "Secondary Containment and Radioactive Release Control." The inspectors observed control room operators' actions regarding the high ambient temperature condition including the use of Vermont Yankee Off-Normal Procedure (ON) 3158, "Reactor Building High Temperature/Water Level," and manipulation of RB and TB ventilation systems in order to mitigate the effects of the high ambient air temperature. The inspectors reviewed main control room operator logs to ensure the

entry into EOP-4 was logged, investigated, and appropriately deemed to not be an actual degradation of secondary containment conditions. The inspectors also performed walkdowns of the TB and RB focusing on instruments listed in the appendices to Vermont Yankee Operating Procedure (OP) 3020, "Fire Emergency Response Procedure," that could adversely affect a safe shutdown through erroneous readings.

b. Findings

No findings of significance were identified.

2. Readiness for Impending Adverse Weather Conditions

a. Inspection Scope (one sample)

The week of September 14, 2003, the inspectors reviewed licensee actions taken in response to predictions of potential high winds and rain due to the effects of Hurricane Isabel. The inspectors reviewed licensee procedure OP 3127, Natural Phenomena, Revision 16; TS; emergency action levels (EALs); and Operations Department night orders to ensure the licensee complied with all applicable requirements. The inspectors also walked down the exterior of the plant and discussed the weather preparations with plant management to ensure appropriate attention to potential contingency plans and risk significant conditions were addressed, including consideration of postponement of a planned power reduction for control rod pattern adjustment and action to temporarily fill in a trench dug to effect repairs of the "B" service water (SW) system header piping until the storm passed.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04)

1. Full Equipment Alignment

a. Inspection Scope (one sample)

The inspectors performed a complete equipment alignment inspection of accessible portions of the instrument air (IA) and containment air (CA) systems. The inspectors walked down the IA and CA systems and compared actual equipment alignment to approved piping and instrumentation diagrams, operating procedure lineups, and the licensee's UFSAR. The inspectors observed valve positions, the availability of power supplies, and the general condition of selected components to verify there were no unidentified deficiencies. The inspectors also confirmed that licensee-identified equipment problems did not affect operability of the system.

b. Findings

No findings of significance were identified.

2. Partial Equipment Alignment

a. Inspection Scope (three samples)

The inspectors performed partial system walkdowns of risk significant systems to verify system alignment and to identify any discrepancies that could impact system operability. Observed plant conditions were compared with the standby alignment of equipment specified in the licensee's system operating procedures. The inspectors also observed valve positions, the availability of power supplies, and the general condition of selected components to verify there were no obvious deficiencies. The inspectors verified the alignment of the following systems:

- The "B" Train of core spray (CS) and other low pressure injection sources on July 1, 2003;
- The "A" Train of CS July 2, 2003; and
- The "A" emergency diesel generator (EDG) on September 23, 2003.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

Routine Fire Area Inspection

a. Inspection Scope (ten samples)

The inspectors identified fire areas important to plant risk based on a review of the licensee's Safe Shutdown Capability Analysis, Revision 6, as well as the IPEEE. Additional plant areas were selected based on their increased significance due to on-going plant maintenance. The inspectors toured these plant areas important to safety in order to verify the suitability of the licensee's control of transient combustibles and ignition sources, and the material condition and operational status of fire protection systems, equipment, and barriers. In addition, the inspectors discussed attributes of several of the areas with the fire protection engineer. The following ten fire areas were inspected:

- RB, 252 foot elevation, separation zone, S1 cable trays (fire zone CFZ 3/4);
- RB, 252 foot elevation, separation zone, S2 cable trays (fire zone CFZ 3/4);
- RB, 303 foot elevation (fire zone FZ RB7);
- RB, 345 foot elevation (fire zone FZ RB7);
- Reactor core isolation cooling (RCIC) system corner room (fire zone FZ RB1S);
- Torus room, 213 foot elevation, North (fire zone FZ RB1);
- Torus room, 213 foot elevation, South (fire zone FZ RB2);
- TB, all areas (fire area FA TB);

- Circulating water pump room in the intake structure (fire zone FZ 14); and
- 345 KV relay house (no fire zone designation).

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification (71111.11)

a. Inspection Scope (one sample)

The inspectors observed simulator examinations for one operating crew to assess the performance of the licensed operators and the ability of the licensee's Training Department staff to evaluate licensed operator performance. The crew was evaluated using Simulator Evaluation Guide (SEG) 12, Loss of All High Pressure Injection-Emergency Depressurization, Revision 10, and SEG 22, Suppression Pool Low Level Emergency Depressurization, Revision 7. The inspectors evaluated the crew's performance in the areas of:

- Clarity and formality of communications;
- Ability to take timely actions;
- Prioritization, interpretation, and verification of alarms;
- Procedure use;
- Control board manipulations;
- Oversight and direction from supervisors; and
- Group dynamics.

Crew performance in these areas was compared to licensee management expectations and guidelines as presented in the following documents:

- Vermont Yankee Administrative Procedure (AP) 0151, "Responsibilities and Authorities of Operations Department Personnel, Revision 9;
- AP 0153, "Operations Department Communication and Log Maintenance," Revision 20; and
- Vermont Yankee Department Procedure (DP) 0166, "Operations Department Standards," Revision 7.

The inspectors verified that the crew completed the critical tasks listed in the above SEGs. The inspectors also compared simulator configurations with actual control board configurations. For any weaknesses identified, the inspectors observed the licensee evaluators to verify that they also noted the issues to be discussed with the crew.

b. Findings

No findings of significance were identified.

1R12 Maintenance Rule Implementation (71111.12)

a. Inspection Scope (three samples)

The inspectors performed one issue/problem-oriented inspection of actions taken by the licensee in response to the “C” residual heat removal service water (RHRSW) system pump cooling water solenoid valve which failed to open as required during a pump start. Additionally, the inspectors performed two system/function performance history-oriented inspections of the IA system and the reactor water cleanup (RWCU) system. The inspectors reviewed each of the reviewed system’s maintenance rule scoping document, most recent system health report, maintenance rule functional failure determination, and corrective actions taken in response to the equipment problem in accordance with station procedures and the requirements of 10CFR50.65, “Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants.” The inspectors also confirmed that the licensee appropriately tracked the occurrences against the systems’ performance criteria, both for functional failures and unavailability time, if applicable.

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessment and Emergent Work Evaluation (71111.13)

a. Inspection Scope (six samples)

The inspectors evaluated on-line risk management for one emergent and five planned maintenance activities. The inspectors reviewed maintenance risk evaluations, work schedules, recent corrective actions, and control room logs to verify that other concurrent or emergent maintenance activities did not significantly increase plant risk. The inspectors also compared these items and activities to requirements listed in procedures AP 0125, "Equipment Release," Revision 12, and AP 0172, "Work Schedule Risk Management - Online," Revision 4. The inspectors determined the following work activities were effectively managed for on-line risk:

- Planned limiting condition for operation (LCO) outage of the “A” Train of CS;
- Planned LCO outage of the “B” Train of CS;
- Planned LCO outage of the “B” EDG;
- Planned maintenance on the Vernon dam electrical tie breaker;
- Planned LCO maintenance of the RHRSW system concurrent with (emergent) elevated cooling tower deep basin temperatures (resulted in an Orange risk condition); and
- The planned downpower to 30 percent and single loop operations to support “A” recirculation pump motor-generator corrective maintenance.

b. Findings

No findings of significance were identified.

1R14 Personnel Performance During Non-routine Plant Evolutions (71111.14)

a. Inspection Scope (six samples)

The inspectors assessed the control room operators' performance during the following planned and unplanned non-routine evolutions:

- A planned downpower to 70 percent in support of main steam isolation valve (MSIV), main turbine stop valve and main turbine control valve testing;
- An unplanned request by the system operator for a reduction in station output to 80 percent;
- An unplanned downpower to 350 megawatts to support emergent maintenance on 345 KV breaker 79-40 air trip system;
- Response to an unplanned major electrical grid perturbation that resulted in a large swing in main turbine output;
- A planned power reduction to less than 30 percent power and subsequent single loop operation to perform corrective maintenance on the "A" recirculating pump motor generator; and
- An unplanned technical specification-required shutdown due to increased, unidentified drywell leakage.

The inspectors evaluated personnel performance in coping with these evolutions (i.e., adequacy of personnel performance, procedure compliance, use of the corrective action process, etc.) against the requirements and expectations contained in technical specification and the following station procedures:

- AP 0151, "Responsibilities and Authorities of Operations Department Personnel," Revision 9;
- AP 0153, "Operations Department Communication and Log Maintenance," Revision 20;
- DP 0166, "Operations Department Standards," Revision 7; .
- OP 0105, "Plant Operations," Revision 10;
- OP 2110, Recirculation System, Revision 35; and
- AP 0009, "Event Reports," Revision 14.

Where applicable, the inspectors performed walkdowns of affected areas both in-plant and in the main control room, evaluated the initiating causes of the unplanned events to determine if personnel error caused or contributed to the event, and reviewed main control room logs and plant computer data to ensure all systems responded as expected.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope (seven samples)

The inspectors reviewed seven operability determinations prepared by the licensee. The inspectors evaluated the selected operability determinations against the requirements and guidance contained in NRC Generic Letter 91-18, "Resolution of Degraded and Nonconforming Conditions," as well as procedure AP 0167, "Operability Determinations," Revision 1. The inspectors verified the adequacy of the following evaluations of degraded or non-conforming conditions:

- Service water (SW) piping pin-hole leak in the "A/B" pump discharge piping and application of American Society of Mechanical Engineering (ASME) code requirements;
- "A" feedwater regulating valve leakage adjustment and potential impact on valve control and isolation;
- Standing water in the torus vent header bowl area;
- Standby liquid control (SLC) system suction line low temperature alarm inoperability;
- Difficulty synchronizing the "A" EDG to support output breaker closure;
- MSIV accumulator operability, testing, and basis for maintaining operation in regards to previous industry operating history; and
- All service water flow routed through "A" strainer following core bore into "B" SW line.

b. Findings

No findings of significance were identified.

1R16 Operator Work-Arounds (71111.16)

a. Inspection Scope (one sample)

The inspectors reviewed the effect that multiple degraded area radiation monitors (ARMs) had on operators' ability to respond to plant transients and accidents as well as for increased potential of mis-operation of affected systems. Affected ARMs included:

- ARM 6, Reactor Building, 280 foot elevation;
- ARM 9, Reactor Water Cleanup (RWCU) System Pump Room; and
- ARM 20, Turbine Building, 248 foot elevation, feedwater pump room.

The inspectors compared actions taken with regards to the degraded ARMs to the requirements of the licensee's program for the control and management of operator work-arounds and burdens contained in Vermont Yankee DP 0166, "Operations Department Standards," Revision 7. The inspectors also performed in-plant and main control room walkdowns and reviewed applicable event reports in order to understand the scope of identified problems with ARMs.

b. Findings

No findings of significance were identified.

1R19 Post Maintenance Testing (71111.19)

a. Inspection Scope (six samples)

The inspectors reviewed post-maintenance test (PMT) activities on risk significant systems to verify that the effect of the test on the plant had been evaluated adequately. Where the testing was specifically observed, the inspectors verified test equipment was appropriate and controlled and the test was properly performed in accordance with station procedures. The inspectors either directly observed or reviewed completed PMT documentation to verify the test data met the required acceptance criteria contained in the licensee's TS, UFSAR, and in-service testing program; the test activity was adequate to verify system operability and functional capability following maintenance; systems were properly restored following testing; and that discrepancies were appropriately documented in the corrective action process. The inspectors reviewed the following PMT activities:

- PMT performed in support of returning the "A" train of the CS system to operable status following planned maintenance;
- PMT performed in support of returning the "B" train of the CS system to operable status following planned maintenance;
- PMT performed following replacement of reactor protection system power supplies;
- PMT performed in support of returning residual heat removal (RHR) system valve RHR-57 to operable status following planned maintenance;
- PMT performed following replacement of "C" RHRSW system pump overcurrent relay; and
- PMT performed in support of returning the "B" train of SW system to operable status following emergent work to repair a breach of the discharge piping.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope (five samples)

The inspectors reviewed and observed surveillance testing to verify that the test acceptance criteria was consistent with TS and UFSAR requirements, the test was performed in accordance with the written procedure, the test data was complete and met procedural requirements, and the system was properly returned to service following testing. The inspectors reviewed Administrative Procedure (PP) 7013, "Inservice Testing Program Implementation," Revision 13, AP 4000, "Surveillance Testing Program," Revision 22; and observed selected pre-job briefs for the test activities. The inspectors verified that systems were properly restored following testing and that discrepancies were appropriately documented in the corrective action process. The inspectors verified that the following surveillances met all applicable requirements:

- OP 4113, "Main and Auxiliary Steam System Surveillance," Rev. 23, Section A;
- OP 4124, "RHR and RHRSW System Surveillance," Rev. 55, Section G;
- OP 4124, "RHR and RHRSW System Surveillance," Rev. 55, Section H;
- OP 4126, "Diesel Generators Surveillance," Rev. 47, Section C; and
- OP 4346, "Core Spray Pump Discharge Pressure Functional/Calibration," Rev. 21.

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications (71111.23)

a. Inspection Scope (one sample)

The inspectors reviewed temporary modification (TM) 2003-018, "A Reactor Recirculation MG [motor generator] Set Scoop Tube lockup Monitor," to ensure that the modification did not adversely affect the availability, reliability, or functional capability of any risk-significant structures, systems, and components. The inspectors compared the information in TM 2003-018 to the licensee's TM requirements contained in AP 0020, "Control of Temporary and Minor Modifications," Revision 26. The inspectors also walked down accessible portions of this TM to verify that required tags and markings were applied and that the TM was properly maintained. The inspectors also reviewed a sample of TM-related problems identified in the licensee's corrective action program to verify that the licensee has identified and implemented appropriate corrective actions.

c. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope (one sample)

On September 24, 2003, the inspectors observed an operator crew evaluate events using the station emergency action levels during a licensed operator requalification simulator exam. The inspectors discussed the performance expectations and results with the lead instructor and operations training manager. The inspectors focused on the ability of licensed operators to perform event classification and make proper notifications in accordance with the following station procedures and industry guidance:

- AP 0156, "Notification of Significant Events," Revision 24;
- AP 0153, Operations Department Communications and Log Maintenance," Revision 20;
- AP 3125, "Emergency Plan Classification and Action Level Scheme (Implementing Procedure for the licensee's VY Emergency Plan)," Revision 19;
- DP 0093, "Emergency Planning Data Management," Revision 2;
- OP 3540, "Control Room Actions During an Emergency," Revision 3; and
- NEI 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 2.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety

2OS1 Access Control to Radiologically Significant Areas (71121.01)

a. Inspection Scope (Twelve samples)

The inspectors reviewed exposure significant work areas (i.e., High Radiation Areas, Locked High Radiation Areas, Very High Radiation Areas, and Airborne Radioactivity Areas) in the plant and associated controls and surveys of these areas to determine if the controls (e.g., surveys, postings, barricades) were acceptable. For these areas, the inspectors reviewed radiological job requirements and attended job briefings to determine if radiological conditions in the work area were adequately communicated to workers through briefings and postings. The inspectors also verified radiological

controls, radiological job coverage, and contamination controls to ensure the accuracy of surveys and applicable posting and barricade requirements. The controls implemented were compared to those required under TS 6.5 and the requirements contained in 10 CFR 20, Subpart G. Additionally, the inspectors accompanied licensee workers entering the condenser bay while at reduced power to check for a suspected steam leak, perform minor maintenance, and retrieve stored equipment in preparation for the Spring 2004 refueling outage. Reactor power was lowered to approximately 50 percent prior to the commencement of work in this posted locked high radiation area, which involved seven separate work teams entering various locations within the condenser bay.

b. Findings

No findings of significance were identified.

2OS2 As Low as is Reasonably Achievable (ALARA) Planning and Controls (71121.02)

a. Inspection Scope (Eight samples)

The inspectors reviewed work being performed during calender year 2003 and the exposure goal established for 2003 (a non-outage year) of 52 person-rem. This goal was established administratively and does not include any emergent work activities during the year. Through September 15, 2003, site occupational exposure was approximately 40 person-rem. The licensee estimated that the end-of-year dose would be between 52 and 60 person-rem. The major work activities remaining for the year were outage preparations and the initiation of hydrogen water chemistry.

The inspectors reviewed ALARA job evaluations, exposure estimates, and exposure mitigation requirements and compared ALARA plans with the results achieved. A review of actual exposure results versus exposure estimates for work performed was conducted including comparison of estimated and actual dose rates and person-hours expended; determination of the accuracy of estimations to actual results. Additionally, the inspectors reviewed the level of exposure tracking detail, exposure report timeliness and exposure report distribution to determine conformance with the requirements contained in 10 CFR 20.1101(b).

The inspectors reviewed the licensee's preliminary dose estimates for work to be performed during the Spring 2004 refueling outage (RFO24). Preliminary outage dose exposures were estimated to be 140 person-rem, while the 2004 dose total, including normal plant operations, was 220 person-rem. Dose significant work activities include: equipment modifications/replacement for power up rate, replacement of eight control rod blades and five local power range monitors, torus cleaning, and feedwater heater replacement.

b. Findings

No findings of significance were identified.

2OS3 Radiation Monitoring Instrumentation (71121.03)

a. Inspection Scope (Five samples)

The inspectors reviewed field instrumentation utilized by health physics technicians and plant workers to measure radioactivity including portable field survey instruments, "friskers," portal monitors, and small article monitors, all of which were utilized to ensure that occupational exposures were maintained in accordance with 10 CFR 20.1201. The inspectors reviewed portions of the internal exposure monitoring program, as defined in licensee procedure OP 0533, including the most recent annual system calibration of the whole body counter, daily whole body counter performance tests, and current calibration data for the system used to perform respirator fit testing.

The inspectors reviewed the licensee program for utilization of atmosphere-supplying suits to meet the requirements of 10 CFR 20.1703(f). Airline-supplied respirators are used at Vermont Yankee when accessing the area beneath the reactor vessel for control rod drive work and during operation of the carbon dioxide decontamination booth.

b. Findings

No findings of significance were identified.

Cornerstone: Public Radiation Safety

2PS3 Radiological Environmental Monitoring Program (REMP) and Radioactive Material Control Program (71122.03)

a. Inspection Scope (Eleven samples)

The inspector reviewed the requirements of the REMP, specified in the Technical Specifications/Offsite Dose Calculation Manual (TS/ODCM). Additionally, the inspectors compared TS/ODCM requirements to the licensee's implementing procedures (listed in Attachment) and toured/observed the following activities to evaluate the effectiveness of the licensee's REMP:

- Observations of the meteorological monitoring instruments located at the primary tower;
- Observed the licensee's control of the onsite disposal of very-low-level radioactive material pile originated from cooling tower silt (NRC Approval NVY 97-85, June 18, 1997);
- Observed all air sampling stations (7 stations); and

- Performed walkdowns of milk farms and walkdowns of the posted TLDs to ensure these were located as described in the ODCM (including control and indicator stations) and for determining the equipment material condition.

The inspector also reviewed the following documents to ensure that the licensee met the requirements specified in the licensee's program for the unrestricted release of material from the Radiologically Controlled Area (RCA):

- Calibration results for the radiation monitoring instrumentation (SAM-11), including the alarm settings, the response to the alarm, and the sensitivity;
- The licensee's criteria for the survey and release of potentially contaminated material using gamma spectroscopy (including calibration efficiency for bulk sample analyses);
- The methods used for control, survey, and release from the RCA; and
- Observed monitor calibration and records.

The results of the above review were compared to the requirements contained in 10CFR20, NRC Circular 81-07, NRC Information Notice 85-92, NUREG/CR-5569, Health Position Data Base, and the licensee's procedures.

b. Findings

No findings of significance were identified.

3. SAFEGUARDS

Cornerstone: Physical Protection

3PP2 Access Control (71130.02)

a. Inspection Scope (Four samples)

The inspectors reviewed site access controls and equipment in-place to detect and prevent the introduction of contraband (i.e., firearms, explosives, incendiary devices, etc.) into the protected area. The adequacy of the above controls and equipment was measured against 10 CFR 73.55(d) and the Physical Security Plan and Procedures:

The inspectors reviewed safeguards log entries and ERs for the previous twelve months associated with the licensee's Access Control Program. The inspectors reviewed the licensee's procedures for the performance of periodic testing of search equipment to ensure the testing program was sufficiently challenging and implemented in accordance with the Physical Security Plan and associated procedures.

The inspectors observed site access control activities, including personnel and package processing through the search equipment during peak ingress. The inspectors also conducted observations of vehicle search activities and observed the testing of all access control equipment including metal detectors, explosive material detectors, and X-ray examination equipment.

The inspectors reviewed the licensee's Annual Security audit, several self-assessment documents and associated ERs to verify that issues associated with the access control and search programs were properly entered into the corrective action program.

b. Findings

No findings of significance were identified.

3PP3 Response to Contingency Events (71130.03)

a. Inspection Scope (Three samples)

The inspectors conducted the following activities to determine the effectiveness of the licensee's response to contingency events; as measured against the requirements of 10 CFR 73.55 and the Vermont Yankee Safeguards Contingency Plan:

- A review of documentation associated with the licensee's force-on-force exercise program was conducted. The review included documentation of training exercises conducted since the first quarter of 2002 (this is when these exercises were resumed following the events of September 11, 2001);

- Observed the performance testing of the licensee's intrusion detection and alarm assessment systems was conducted. This testing was accomplished by one inspector who toured the plant perimeter and selected, and subsequently observed performance tests, of areas of potential vulnerability in the intrusion detection system. Concurrently, a second inspector observed both the audible alarms and the alarm assessment capabilities from the Central Alarm Station. During the walkdown of the intrusion detection system, all 13 zones were performance tested, by a combination of nine walk, two run, and four crawl tests; and

- Performed a review of the Annual Security audit, and several self-assessment documents was conducted, to verify that any issues associated with response to contingency events, were entered into the corrective action program as appropriate and that these issues were effectively resolved.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151)

a. Inspection Scope (Nine samples)

The inspectors sampled licensee submittals for the performance indicators (PIs) listed below for the period from July 2002 to June 2003. To verify the accuracy of the PI data reported during that period, PI definitions and guidance contained in NEI 99-02, "Regulatory Assessment Indicator Guideline," Revision 2, were used.

Mitigating Systems Cornerstone

- High Pressure Injection Systems (High Pressure Coolant Injection);
- Heat Removal Systems (RCIC);

The inspectors reviewed licensee event reports (LERs), portions of operator logs, maintenance rule out of service logs, and ERs to assess the accuracy and completeness of the PI data submitted by the licensee. The inspectors also interviewed licensee personnel associated with the PI data collection, evaluation, and distribution.

Emergency Preparedness Cornerstone

- Drill and Exercise Performance;
- Emergency Response Organization Drill Participation; and
- Alert and Notification System Reliability.

The inspectors reviewed the licensee's process for identifying the data utilized for the three emergency preparedness PIs. The inspectors also reviewed PI data from the second quarter of 2002 through the second quarter of 2003. Finally, the inspectors verified that the raw quarterly data was consistent with the data reported to the NRC.

Occupational Radiation Safety Cornerstone

- Occupational Exposure Control Effectiveness.

The inspectors reviewed a listing of LERs related to non-conformance with high radiation areas greater than 1 rem per hour and unplanned personnel exposures greater than 100 millirem total effective dose equivalent (TEDE), five rem shallow dose equivalent (SDE), 1500 millirem lense dose equivalent (LDE), or 100 millirem to an unborn child. The inspectors also interviewed licensee personnel associated with the PI data collection, evaluation, and distribution.

Physical Protection Cornerstone

- Fitness-for-Duty/Personnel Reliability Program Performance;
- Personnel Screening Program Performance; and
- Protected Area Security Equipment performance Index.

The review of PIs included the licensee's tracking and trending reports, personnel interviews, and security event reports for the PI data. The inspectors also interviewed licensee personnel associated with the PI data collection, evaluation, and distribution.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152)

1. Routine Review of Identification and Resolution of Problems

a. Inspection Scope

The inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify these issues were being entered into the licensee's corrective action system at an appropriate threshold, that adequate attention was being given to timely corrective actions, and that adverse trends were identified and addressed. A listing of documents reviewed is included in the Attachment to this report.

b. Findings

No findings of significance were identified.

2. Annual Sample Review of the Instrument Air System.

a. Inspection Scope (one sample)

The inspectors selected the instrument air (IA) system for inspection based on recent issues involving unexpected low pressure annunciators observed in the main control room during system operation and debris identified within the system. A listing of reviewed ERs is included in the Attachment to this report. The ERs were reviewed to ensure the full extent of documented issues were identified, an appropriate evaluation was performed, and appropriate corrective actions were specified and prioritized. The inspectors evaluated ERs against the requirements of AP 0009, "Event Reports," Revision 14. The inspectors performed walkdowns of accessible portions of the IA system to assess system material condition. The inspectors also interviewed system engineers to understand the basis of established long-term corrective actions and interviewed control room operators to ensure IA system issues were being corrected in a timely enough manner to avoid creating operator burdens.

b. Findings and Observations

There were no findings identified associated with the above sample or with the licensee's problem identification and resolution program implementation.

3. Annual Sample Review of Licensee's Fitness For Duty Program

a. Inspection Scope (one sample)

The fitness for duty (FFD) testing program was selected for review based on several previous NRC-identified issues with the licensee's FFD tracking system and a recent NRC finding regarding a failure to complete random FFD testing at a rate of 50 percent during the first six months of calender year 2002. An in-depth review was performed to verify that the licensee had taken appropriate corrective actions for this failure. The review included the problem identification, intermediate corrective actions, extent of condition reviews, and long term corrective actions to determine if the following attributes had been adequately addressed:

- Complete, accurate and timely identification of problems;
- Evaluation of reportability issues;
- Consideration of previous failures, extent of condition, and generic or common cause implications;
- Prioritization and resolution of the issue commensurate with the safety significance;
- Identification of the root and contributing causes of the problem; and
- Identification and implementation of corrective actions commensurate with the safety significance.

b. Findings and Observations

No findings of significance were identified. The inspectors concluded that the corrective actions established subsequent to February 12, 2003, were adequate to provide reasonable assurance that the FFD program would perform random testing at a level of 50 percent or greater. These corrective actions identified the cause of the previous testing performance failure, and established a new computer program to track random testing, to insure that the FFD program continuously meets regulatory requirements. As part of the corrective actions, the licensee acquired new personnel, with sufficient technical expertise, to monitor the FFD program. Finally, during the development and testing of the new computer program, adequate interim corrective actions were implemented to insure that the FFD program met regulatory requirements.

4OA6 Meetings, including Exit

Resident Exit

On October 9, 2003, the resident inspectors presented the inspection results to Mr. K. Bronson and other members of his staff. The inspectors asked whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel:

J. Thayer	Site Vice President
K. Bronson	General Plant Manager
P. Corbett	Maintenance Manager
M. Desilets	Technical Services Manager
J. Geyster	Radiation Protection Superintendent
D. Giorowall	Programs Supervisor
S. Goodwin	Mechanical Design Department Manager
M. Gosekamp	Superintendent of Operations Training
D. Leach	Director of Engineering
F. Marcussen	Security Operations Manager
R. Morissette	Principal ALARA Engineer
J. Patrick	Acting Security Operations Manager
M. Pletcher	Radiation Protection Supervisor - Instruments
B. Renny	Supervisor, Access Authorization
K. Stupak	Technical Training
L. Tkaczyk	Manager, Emergency Planning
C. Wamser	Operations Manager
R. Wanczyk	Director of Nuclear Safety

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None.

Closed

None.

LIST OF DOCUMENTS REVIEWED

Section 2PS3: Radiological Environmental Monitoring Program (REMP) and Radioactive Material Control Program

Reports

The 2001 and 2002 Annual REMP Reports;
The 2002 Quality Assurance (QA) Audit Report (Report Number: VY-2002-02-Chemistry) for the REMP/ODCM and Meteorological Monitoring Program implementations, and review of corrective actions for the QA Audit Findings;

Procedures

The most recent ODCM (Revision 30, November 19, 2002) and technical justifications for ODCM changes, including sampling media and locations;
The Land Use Census procedure and the 2002 results;

Miscellaneous Data

Selected analytical results for 2003 REMP samples;
Calibration results for ODCM air samplers;
Calibration results of the meteorological monitoring instruments for wind direction, wind speed, and temperatures (Primary and Backup Towers);
The 2002/2003 meteorological monitoring data recovery statistics.

Audits/Assessments

The 2002 QA Audit for a vendor laboratory (CG-04232-02);
The 2002 Annual Quality Assurance Report-Teledyne Brown Engineering.

Section 3PP2: Access Control

Security Audit, SRVY-2003-036, July 23, 2003;
Safeguards Event Log, June 2002 - July 2003;
Perimeter Intrusion Detection System (PIDS) Data Sheet, August 21, 2003;
Performance Indicator Report, July, 2003;
Procedure DP0863, Operational Inspection and Testing of Security Equipment, Revision 4, March 18, 2003.

Section 4OA2.1: Routine Review of Problem Identification and Resolution

Event Reports (ERs)

1996-0368	Safety Classifications Incorrect While Preparing The Appendix J Program;
1996-1096	Safety Relief Valve (SR-72-10B)Failed IST Testing;
1997-0127	The Air Instrument Air Dryer Failed To Change Towers Upon Reaching A High D;
1997-0130	Failure To Submit An ER In A Timely Manner For A MRFF Of D-1-1A Per AP0021;
1997-0176	CA Dryer Discharge Valve, CA-94A, And Dryer Bypass Valve, CA-94B Were Mispositioned;
1997-0584	Lack Of Tornado Missile Protection;
1997-0589	Excess Purge Flow On “B” Instrument Air Dryer, D-1-1B;
1997-0844	IA Valves Misidentified;
1998-1321	Cont. Air Over Pressure Protection Inadequate;
1998-1463	Change In Plant Design Basis Without A Safety Evaluation;
1999-0076	Premature Failure Of PA Dryer Check Valve;
2001-1184	Instrument Air Header Regulators Do Not Operate As Specified;
2001-1250	Solenoid Valve Failure to Isolate Flow;
2001-1600	Leaks In Valve Packing And Downstream Tee;
2001-1601	Existing Plant Valves Have No Empac ID Number;
2001-1852	Regulator Would Not Adjust Into Calibration Tolerance;

2001-1958 Gage Found To Be Inaccurate;
2001-2149 Procedure Precaution Conflict;
2001-2150 Per P3 Schedule For Week 142, WO 01-2908 Did Not Require Tags;
2001-2349 Insufficient Testing Requirements Specified By EDCR 97-409;
2002-0547 Minor Mod Constraint Did Not Take Into Account Diesel Inoperable;
2002-0765 "D" RHRSW Motor Cooling Solenoid Valve Failed to Reposition;
2002-1255 Inadequate Corrective Actions For ER#97-0176 Pertaining To Securing Of The Containment Air Dryer;
2002-1445 Inconsistencies In IA Valve Numbers Associated With The AOG System;
2002-1873 Pressure Control Valves Springs Replaced Without The Appropriate Documentation;
2002-2030 Air Leak On PCAC Suction Valve V72-38A Causes Valve To Go To Mid-Position;
2002-2114 HPCI-14 Valve Will Not Close;
2002-2160 HPCI Stop Valve Disc Was Found With Cracks;
2003-0323 Relief Valve Set-Point Lifted High During IST Bench Test;
2003-0331 Adverse Trend In Class 2 & 3 Relief Valve Setpoint Testing For IST;
2003-0400 Design Pressure And Temperature Undefined;
2003-0441 RCIC-16 MOV Had a Fast Open Time;
2003-0715 Replacement Gauge Exhibits Same Fault As One To Be Replaced;
2003-0839 HPCI Oil Pressure Gauge Indication Over Ranged During System Operation;
2003-0843 Adverse Trend In Relief Valve As-Found Set-Point ISTs;
2003-0857 Failed Relief Valve Set-Point Test;
2003-1073 OE 16087 Identifies Standing Water Found In Torus Vent Header;
2003-1112 Difficulty Synchronizing "A" DG Breaker for Closing During Surveillance;
2003-1150 Failed Relief Valve Set-Point Test;
*2003-1381 Missing Covers On Risers In Cable Separating Room;
2003-1501 Through Wall Service Water Pipe Leakage;
2003-1509 "C" RHRSW Pump Cooling Water Supply SOV Failed to Open;
2003-1511 Review Of Engineering Human Performance Observations And ERs Indicate; Continuing Self Checking And Procedural Usage Issues;
*2003-1512 Critical Plant Equipment Sign Not Posted As Required;
2003-1514 Main Transformer Deluge Valve Test Switch Box Found Open;
2003-1520 Activity For Ops To Perform Monthly Vacuum Breaker Surveillance Was Not Performed;
2003-1521 Unidentified Leakage In DW Equipment Drain Sumps Shows A Slightly Increasing Trend;
2003-1543 SLC Suction Line Low Temperature Alarm Inoperable;
2003-1598 Forced Power Reduction to 400 MWe Due to Scobie Line Problem;
*2003-1577 Inattentiveness Of RP Technician While Providing Job Coverage;
2003-1727 Down Power Due to Breaker Out of Service;
2003-1748 Maintenance History Indicates A Failure To Analyze A Potential Safety Issue;
2003-1759 Grid Voltage Fluctuation Event;
2003-1839 Recirc MG "A" Actuator Position Spikes;
2003-1957 Core Bore into Service Water Header;
*2003-2237 Minor Accounting Error Results in Under Reporting Unavailability by 12 Minutes for October 2002.

* Inspector-identified issue.

Section 4OA2.2: Annual Sample Review of the IA System

1995-0321	Check Valves V72-89B & C Failed Type A And LRT;
1996-0066	Safety Relief Valve SR-72-9A Failed To Meet OP4161 Acceptance Criteria;
1996-0493	Safety Relief Valves SR-72-9B and SR-72-10A Failed To Meet IST Testing Acceptance Criteria;
1996-0719	Operations Was Unable To Complete The “A” Diesel Generator Starting Air Compressor Capacity Surveillance Test;
1996-0907	Check Valve V72-80BX Failed To Fully Stroke;
1996-0908	Check Valve V72-80BX Failed To Open;
1997-0087	Unexpected Alarm In 6-D-1, 1A Receiver Header Pressure Lo;
1999-0049	Low Inst Air Header Pressure Alarm;
1999-0579	Low Instrument Air Header Alarm W/Right Tower In-service;
1999-1276	Degraded Pre-filter For “13" IA Dryer;
2000-0900	D-1-1B Inability To Handle Loop Load;
2002-0272	Metal Pieces Found In Instrument Air Dryer;
2002-2974	Potential Adverse Trend Of Instrument Air Quality;
2002-2983	Unexpected Low Inst Air Press Alarm Received In Control Room.

Documents Reviewed During the Second Quarter of ROP 4 Under Section 1R02: Evaluations of Changes, Tests, or Experiments

10 CFR 50.59 Safety Evaluation "Screenings"

2000-04, "Safety Evaluation for a New MSLB (Main Steam Line Break) Analysis; Vermont Yankee Design Calculation 99-006."

2001-020, "Safety Evaluation for Installation of a Freeze Seal on the "A" Emergency Diesel Generator Service Supply Line; Temporary Modification 2001-013."

LIST OF ACRONYMS

ADAMS	Automated Document Access Management System
ALARA	As Low as is Reasonably Achievable
AP	Administrative Procedure
ARM	Area Radiation Monitors
ASME	American Society of Mechanical Engineering
CA	Containment Air
CFR	Code of Federal Regulation
CS	Core Spray
CY	Calendar Year
DBD	Design Basis Document
DP	Department Procedure
EAL	Emergency Action Level
EDG	Emergency Diesel Generator
EOP	Emergency Operating Procedure
ER	Event Report
FFD	Fitness For Duty

HPCI	High Pressure Coolant Injection
IA	Instrument Air
IPEEE	Individual Plant Evaluation of External Events
IR	Inspection Report
IST	In-Service Testing
KV	Kilovolt
LDE	Lense Dose Equivalent
LER	Licensee Event Report
LCO	Limited Condition for Operation
MG	Motor Generator
MSIV	Main Steam Isolation Valve
NEI	Nuclear Energy Institute
NRC	Nuclear Regulatory Commission
ODCM	Offsite Dose Calculation Manual
ON	Off-Normal Procedure
OP	Operating Procedure
PI	Performance Indicator
PMT	Post Maintenance Testing
PP	Administrative Procedure
QA	Quality Assurance
RB	Reactor Building
RCA	Radiologically Controlled Area
RCIC	Reactor Core Isolation Cooling
REMP	Radiological Environmental Monitoring Program
RFO	Refueling Outage
RHR	Residual Heat Removal
RHRSW	Residual Heat Removal Service Water
RWCU	Reactor Water Cleanup
SDE	Shallow Dose Equivalent
SEG	Simulator Evaluation Guide
SLC	Standby Liquid Control
SW	Service Water
TB	Turbine Building
TEDE	Total Effective Dose Equivalent
TLD	Thermoluminescent Dosimeter
TM	Temporary Modification
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report
VY	Vermont Yankee