April 23, 2003

Mr. John L. Skolds, President
and Chief Nuclear Officer
Exelon Nuclear
Exelon Generation Company, LLC
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: CLINTON POWER STATION
NRC INTEGRATED INSPECTION REPORT 50-461/03-03

Dear Mr. Skolds:

On March 31, 2003, the U.S. Nuclear Regulatory Commission (NRC) completed an integrated inspection at your Clinton Power Station. The enclosed report documents the inspection findings which were discussed on April 3, 2003, with Mr. M. Pacilio and other members of your staff.

This inspection examined activities conducted under your license as they relate to safety and to 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, one self-revealing finding of very low safety significance (Green) which involved a violation of NRC requirements was identified. In addition, one licensee-identified violation is listed in Section 4OA7 of this report. Because of their very low safety significance and because they have been entered into your corrective action program, the NRC is treating the finding and the licensee identified violation as a Non-Cited Violation (NCV) consistent with Section VI.A of the NRC Enforcement Policy. If you contest any NCV in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the US Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with a copy to the Regional Administrator, US Nuclear Regulatory Commission - Region III, 801 Warrenville Road, Lisle, IL 60532-4351; the Director, Office of Enforcement, US Nuclear Regulatory Commission, Washington, DC 20555-0001; and the Resident Inspector Office at the Clinton Power Station.

Since the terrorist attacks on September 11, 2001, the NRC has issued two Orders (dated February 25, 2002, and January 7, 2003) and several threat advisories to licensees of commercial power reactors to strengthen licensee capabilities, improve security force readiness, and enhance access authorization. The NRC also issued Temporary Instruction 2515/148 on August 28, 2002, that provided guidance to inspectors to audit and inspect licensee implementation of the interim compensatory measures (ICMs) required by the

February 25th Order. Phase 1 of TI 2515/148 was completed at all commercial nuclear power plants in 2002, and the remaining inspections are scheduled for completion in 2003. Additionally, table-top security drills were conducted at several licensees to evaluate the impact of expanded adversary characteristics and the ICMs on licensee protection and mitigative strategies. Information gained and discrepancies identified during the audits and drills were reviewed and dispositioned by the Office of Nuclear Security and Incident Response. For calendar year 2003, the NRC will continue to monitor overall safeguards and security controls, conduct inspections, and resume force-on-force exercises at selected power plants. Should threat conditions change, the NRC may issue additional Orders, advisories, and temporary instructions to ensure adequate safety is being maintained at all commercial power reactors.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be made 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/

Ann Marie Stone, Chief
Projects Branch 3
Division of Reactor Projects

Docket No. 50-461
License No. NPF-62

Enclosure: Inspection Report No. 50-461/03-03
w/Attachment: Supplemental Information

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REGION III

Docket No:	50-461
License No:	NPF-62
Report No:	50-461/03-03
Licensee:	AmerGen Energy Company, LLC
Facility:	Clinton Power Station
Location:	Route 54 West Clinton, IL 61727
Dates:	December 29, 2002 through March 31, 2003
Inspectors:	P. L. Louden, Senior Resident Inspector C. E. Brown, Resident Inspector B. Dickson, Resident Inspector, Dresden M. W. Mitchell, Radiation Specialist
Observer:	D. E. Zemel, Illinois Department of Nuclear Safety
Approved by:	Ann Marie Stone, Chief Reactor Projects Branch 3 Division of Reactor Projects

SUMMARY OF FINDINGS

IR 05000461-03-03; AmerGen Energy Company LLC; on December 29, 2002 - March 31, 2003, Clinton Power Station. Event Response

This report covers a 3-month period of baseline resident inspection and announced baseline inspections on radiation protection and security. The baseline inspection was conducted by a regional radiation protection inspector. One Green finding with an associated Non-Cited Violation (NCV) was identified. A licensee identified violation was also identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). Findings for which the SDP does not apply may be "Green" or be assigned a severity level after NRC management review. 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. Inspector-Identified and Self Revealed Findings

Cornerstone: Barrier Integrity

Green. A finding of very low safety significance was identified through a self-revealing event when operators failed to close a motor operated valve prior to de-energizing it when taking the valve out of service. The open valve resulted in an inoperable containment isolation pathway. The primary cause of this finding was related to the cross-cutting area of human performance.

This finding is more than minor because it involved the attribute of configuration control under the Barrier Integrity Cornerstone. The finding is of very low safety significance because actual containment integrity was not breached. The failure to isolate an inoperable containment penetration was identified as a Non-cited Violation of Technical Specification 3.6.1.3.

B. Licensee-Identified Violations

A violation of very low safety significance, which was identified by the licensee has been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. The violation and corrective action tracking number is listed in Section 4OA7 of this report.

REPORT DETAILS

Summary of Plant Status

The plant operated at about 91-percent rated thermal power (maintaining 100 percent electrical output) throughout the inspection period.

1. REACTOR SAFETY

Cornerstone: Initiating Events, Mitigating Systems, and Barrier Integrity

1R04 Equipment Alignments (71111.04Q)

a. Inspection Scope

The inspectors performed partial walkdowns of accessible portions of divisions of risk-significant mitigating systems during times when the divisions were of increased importance due to redundant divisions or other related equipment being unavailable. The inspectors utilized the valve and electric breaker checklists listed in the Attachment to this report to verify that the components were properly positioned and that support systems were lined up as needed. The inspectors also examined the material condition of the components and observed operating parameters of equipment to verify that there were no obvious deficiencies. The inspectors reviewed outstanding work orders and condition reports (CRs) associated with the equipment to verify that those documents did not reveal issues that could affect division's function. The inspectors used the information in the appropriate sections of the Updated Safety Analysis Report (USAR) to determine the functional requirements of the systems. Additional documents listed in the Attachment to this report were used by the inspectors to evaluate this area.

The inspectors completed three samples by verifying the alignment of the following systems:

- Residual Heat Removal A and Division 1 Shutdown Service Water.
- Reactor Core Isolation Cooling.
- Division 2 Emergency Diesel Generator.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05Q and 05A)

.1 Quarterly Fire Zone Walkdowns

a. Inspection Scope

The inspectors conducted fire protection walkdowns which were focused on availability, accessibility, and the condition of fire fighting equipment, the control of transient combustibles and ignition sources, and on the condition and operating status of installed fire barriers. The inspectors selected fire areas for inspection based on their overall contribution to internal fire risk, as documented in the Individual Plant Examination of External Events with later additional insights, their potential to impact equipment which could initiate a plant transient, or their impact on the plant's ability to respond to a security event. The inspectors used the documents listed in the Attachment to this report to verify that fire hoses and extinguishers were in their designated locations and available for immediate use; that fire detectors and sprinklers were unobstructed; that transient material loading was within the analyzed limits; and that fire doors, dampers, and penetration seals appeared to be in satisfactory condition. The inspectors verified that minor issues identified during the inspection were entered into the licensee's corrective action program. The documents listed in the Attachment to this report were used by the inspectors to evaluate this area.

The inspectors completed six fire protection samples for the following areas:

- Fire Zones A-2a, 2b, 2c, and 2d; low pressure core spray (LPCS), reactor core injection cooling (RCIC), reactor heat removal (RHR) B and C pump rooms.
- Fire Zones D-4a, 4b, 5a, 5b, 6a, and 6b; Divisions 1, 2, and 3 emergency diesel generator areas.
- Fire Zone F-1p, spent fuel pool area and 781 foot fuel building.
- Fire Zone T-1i, turbine lube oil room.
- Fire Zone T-1h, motor-driven reactor feed water pump room.
- Fire Zone T-1h, main generator cooling system and hydrogen seal-oil skid.

b. Findings

No findings of significance were identified.

.2 Annual Fire Drill Assessment

a. Inspection Scope

The inspectors assessed fire brigade performance and the drill evaluators' critique for an unannounced fire brigade drill using Fire Drill Scenario No. 2003-03, "737' Radwaste WE [waste enclosure] Tent Fire," on February 14, 2003. The drill simulated a fire caused by an overloaded 110 Vac outlet that was not discovered until it had spread into a contaminated work shelter. The inspectors focused on command and control of the fire brigade activities; fire fighting and communications practices; material condition and use of fire fighting equipment; and implementation of pre-fire plan strategies. The

inspectors evaluated the fire brigade performance using the licensee's established fire drill performance criteria. The inspectors verified that minor issues identified during the inspection were entered into the licensee's corrective action program. The documents listed in the Attachment to this report were used by the inspectors to evaluate this area.

The inspectors completed the annual fire drill sample by evaluating this unannounced fire brigade drill.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification (71111.11Q)

a. Inspection Scope

The inspectors reviewed licensed operator requalification training to evaluate operator performance in mitigating the consequences of a simulated event, particularly in the areas of human performance. The inspectors evaluated operator performance attributes which included communication clarity and formality, timely performance of appropriate operator actions, appropriate alarm response, proper procedure use and adherence, and senior reactor operator oversight and command and control. The inspectors also assessed the performance of the training staff evaluators involved in the requalification process. The documents listed in the Attachment to this report were used by the inspectors to evaluate this area.

The inspectors completed one sample by observing the following:

- SE-LOR-04, Group 1 Isolation and Loss of Feedwater, Revision 0, dated December 30, 2002.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12Q)

a. Inspection Scope

The inspectors reviewed the effectiveness of the licensee's maintenance efforts in implementing the maintenance rule (MR) requirements, including a review of scoping, goal-setting, performance monitoring, short-term and long-term corrective actions, and current equipment performance problems. These systems were selected based on their designation as risk significant under the MR, or their being in the increased monitoring (MR category (a)(1)) group. The documents listed in the Attachment to this report were used by the inspectors to evaluate this area.

The inspectors completed two samples by evaluating the following systems:

- Neutron Monitoring
- Containment Monitoring

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

The inspectors observed the licensee's risk assessment processes and considerations used to plan and schedule maintenance activities on safety-related structures, systems, and components particularly to ensure that maintenance risk and emergent work contingencies had been identified and resolved.

The inspectors performed five samples by assessing the effectiveness of risk management activities for the following work activities or work weeks:

- Work following identification of a main turbine electro-hydraulic control system (EHC) leak in the turbine building.
- Risk review and planning for deep down power and repairs to extraction steam valve ES004B and EHC Emergency Trip System piping.
- Risk review of RHR "B" heat exchanger work week (February 18-21).
- Risk review of EHC filter clogging due to ion filter modification.
- Risk review of planned and emergent work week activities with reactor recirculating system "B" flow control valve (FCV) locked out.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

The inspectors reviewed personnel performance during planned and unplanned plant evolutions and selected licensee event reports focusing on those involving personnel response to non-routine conditions. The review was performed to ascertain that operators' responses were in accordance with the required procedures. The documents listed in the Attachment to this report were used by the inspectors to evaluate this area.

The inspectors completed five samples by reviewing personnel performance during the following plant events:

- Followup monitoring of identified EHC leak in the turbine building.
- Reviewed and monitored special test CPS 2805.01, "Main Turbine First Stage Pressure Response Test," Revision 0.

- Monitored and assessed just-in-time training for reactor operators to control reactor power with reactor recirculation (RR) “B” FCV locked out.
- Observation of planned down power with known RR FCV problems. Down power was canceled due to emergent issues associated with the “B” RR FCV control circuitry.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors reviewed the following operability determinations and evaluations affecting mitigating systems to determine whether operability was properly justified and the component or system remained available such that no unrecognized risk increase had occurred. The documents listed in the Attachment to this report were used by the inspectors to evaluate this area.

The inspectors completed six samples by evaluating the following:

- Supporting operability determination (SOD) for CR 131956, “Division 1 Containment Atmosphere Monitoring system (hydrogen/oxygen) problems.”
- SOD for CR 140953, “General Electric Marathon Control Blade Indications.”
- SOD for CR 138743, “Division 1 Shutdown Service Water (SX) Pump Potential Degrading Conditions.”
- SOD for CR 146462 “Lower than allowable SX flow readings during partial SX flow test.”
- Operability determination for emergency diesel generator (EDG) keep warm heaters.
- SOD for CR 150197 Fire Protection drain line valve FP092.

b. Findings

No findings of significance were identified.

1R16 Operator Work-Arounds (71111.16)

a. Inspection Scope

The inspectors completed a review of the following operations work-around with particular focus on the method by which instructions and contingency actions were communicated and reviewed to on-shift licensed operators.

The inspectors completed one sample by reviewing the following:

- Reactor Recirculation system FCV "B" contingency plan 03-12 dated February 12, 2003, which addressed plant operations while the RR FCV "B" was in the locked-out position and hydraulically disabled.

b. Findings

No findings of significance were identified.

1R19 Post Maintenance Testing (71111.19)

a. Inspection Scope

The inspectors reviewed the post maintenance testing activities associated with maintenance or modification of important mitigating, barrier integrity, and support systems that were identified as risk significant in the licensee's risk analysis. The inspectors reviewed these activities to verify that the post maintenance testing was performed adequately, demonstrated that the maintenance was successful, and that operability was restored. During this inspection activity, the inspectors interviewed maintenance and engineering department personnel and reviewed the completed post maintenance testing documentation. The inspectors used the appropriate sections of the Technical Specifications (TS) and USAR, as well as the documents listed in the Attachment to this report, to evaluate this area.

The inspectors performed six samples by observing and evaluating the testing subsequent to the following activities:

- Main Control Room Ventilation system (VC) "A" after planned work outage.
- Stand-by Liquid Control (SLC) system "B" after supply breaker replacement.
- Division 3 EDG after air-start motor replacement.
- Stand-by Gas Treatment (VG) system A.
- Motor Driven Reactor Feedwater Pump 1C and feed regulation valve 1FW004.
- Low Pressure Coolant Injection (RHR) "C" after minimum-flow valve actuation channel calibration and unplanned inoperability.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors witnessed selected surveillance testing and/or reviewed test data to verify that the equipment tested using the surveillance procedures met the TS, the operations requirement manual (ORM), the USAR, and licensee procedural requirements, and demonstrated that the equipment was capable of performing its intended safety functions. The activities were selected based on their importance in verifying mitigating systems capability and barrier integrity. The inspectors used the

documents listed in the Attachment to this report to verify that the testing met the frequency requirements; that the tests were conducted in accordance with the procedures, including establishing the proper plant conditions and prerequisites; that the test acceptance criteria were met; and that the results of the tests were properly reviewed and recorded. In addition, the inspectors interviewed operations, maintenance and engineering department personnel regarding the tests and test results.

The inspectors performed 6 samples by evaluating the following surveillance tests:

- Reactor core isolation cooling surveillance per CPS 9054.01, C002, "RCIC (1E51-C001) High Pressure Operability Checks," Revision 0.
- Division 3 EDG monthly surveillance test "CPS 9080.03, "Diesel Generator 1C Operability," Revision 26a.
- Low pressure core spray (LPCS) surveillance per CPS 9052.01, "LPCS/RHR A Pumps & LPCS/RHR A Waterleg Pump Operability," Revision 42.
- Standby liquid control system "A" per CPS 9015.01, "Standby liquid Control System Operability," Revision 39.
- Division 1 EDG monthly surveillance test per CPS 9080.01, "Diesel Generator 1A Operability - Manual and Quick Start Operability," Revision 49a.
- Division 2 EDG monthly surveillance test CPS 9080.02, "Diesel Generator 1B Operability - Manual and Quick Start Operability," Revision 46a.

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope

The inspectors observed the emergency response activities associated with the drills conducted on March 10 and March 17, 2003. Specifically, the inspectors verified that the emergency classification and simulated notifications were properly completed, and that the licensee adequately critiqued the training. Additionally, the inspectors observed licensee activities during the drill in the simulated control room, the technical support center, and the operational support center (OSC). Additionally, the inspectors observed activities of a team dispatched into the plant by the OSC. The documents listed in the Attachment to this report were also used by the inspectors to evaluate this area

The inspectors performed two samples by evaluating the following two exercises.

- Emergency Preparedness drill (fish run affecting service water).

- Emergency Preparedness drill (Station Blackout).

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Occupational Safety

2OS1 Access Control to Radiologically Significant Areas (71121.01)

.1 Plant Walkdowns and Radiological Boundary Verification

a. Inspection Scope

The inspectors conducted walkdowns of selected radiologically controlled areas within the plant to verify the adequacy of radiological boundaries and postings. Specifically, the inspectors walked down several radiologically significant work area boundaries (high and locked high radiation areas) in the auxiliary building and underwater sampling work in the refuel pool. The inspectors performed confirmatory radiation measurements to verify that these areas and selected radiation areas were properly posted and controlled in accordance with 10 CFR Part 20, licensee procedures, and the TS.

b. Findings

No findings of significance were identified.

2 High Radiation Area and Very High Radiation Area Access Controls

a. Inspection Scope

The inspectors reviewed the licensee's procedures, practices, and associated documentation for the control of access to radiologically significant areas (high, locked high, and very high radiation areas) and assessed compliance with TS, procedures, and the requirements of 10 CFR 20.1601 and 20.1602. Specifically, radiological postings were reviewed and access control boundaries were assessed by the inspectors throughout the plant to verify that high and locked high radiation areas were properly controlled.

b. Findings

No findings of significance were identified.

2OS3 Radiation Monitoring Instrumentation (71121.03)

.1 Identification of Radiological Monitors Associated With High/Very High Radiation Areas

a. Inspection Scope

The USAR was reviewed to identify those area radiation monitors (ARMs) that were associated with transient high and very high radiation areas. These monitors included, but were not limited to, the following:

- Containment/drywell high range gamma monitor
- Leak detection system drywell gas radiation monitor
- Main steam line
- Standby gas treatment system exhaust PRM
- Control room air intake PRM
- Leak detection system drywell particular radiation monitor
- Fixed constant air monitors

Additional radiation monitoring instrumentation was identified, including portable monitors and whole body counter equipment.

The inspectors completed walkdowns and reviewed calibration records to verify the accuracy and operability of radiation monitoring instruments used for the protection of occupational workers. Instrumentation included ARMs, continuous air monitors (CAMs), portable survey meters, portal monitors and the whole body counter and selected radiation detection instruments utilized for personnel release from the radiologically controlled area. These instrument systems were walked down to review operability and material condition.

b. Findings

No findings of significance were identified.

.2 Calibration and Operability of Radiological Instrumentation

a. Inspection Scope

The inspectors reviewed the most recent calibrations and alarm set points for selected ARMs and CAMs. A representative sample of current calibration records were also reviewed for the whole body counter, personnel contamination monitors, portable radiation survey instruments, electronic dosimeters, and whole body frisking monitors. The inspectors observed the calibration of a portable survey instrument, reviewed source check data and walked through source checks of instruments staged for use to verify compliance with procedures.

b. Findings

No findings of significance were identified.

.3 Problem Identification and Resolution

a. Inspection Scope

The inspectors reviewed a radiation protection department's focus area self-assessment of radiological instrumentation and self-contained breathing apparatus (SCBA) controls, and condition reports covering radiological incidents involving personnel internal contamination events and radiological instrumentation, to verify that the licensee could identify, track, and correct radiological problems in these areas.

b. Findings

No findings of significance were identified.

.4 Radiation Protection Technician Instrument Use

a. Inspection Scope

The inspectors reviewed the calibration expiration and the current source response check data on selected radiation detection instruments staged for use and observed radiation protection technicians for appropriate instrument selection and self-verification of instruments operability to verify proper instrument availability and proficient use.

b. Findings

No findings of significance were identified.

.5 Respiratory Protection - Self-Contained Breathing Apparatus

a. Inspection Scope

The inspectors reviewed the status and surveillance records for apparatus SCBA that were located in various areas onsite, including those units reserved for fire brigade and control room personnel. In addition, the inspectors verified that applicable emergency response and control room personnel were properly trained, mask fit, and medically qualified in the use of SCBA. Additionally, the inspectors reviewed the qualification documentation for onsite personnel designated to perform maintenance on the vendor-designated vital components to verify that licensee personnel assigned to conduct SCBA repairs were trained and qualified.

b. Findings

No findings of significance were identified.

Cornerstone: Public Radiation Safety

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

.1 Review of Environmental Monitoring Reports and Data

a. Inspection Scope

The inspectors reviewed the 2001 Annual Environmental Monitoring Report. Sampling location commitments, monitoring and measurement frequencies, land use census, the vendor laboratory's Interlaboratory comparison program, and data analysis were assessed. Anomalous results including data, missed samples, and inoperable or lost equipment were evaluated. The review of the radiological environmental monitoring program (REMP) was conducted to verify that the REMP was implemented as required by the Offsite Dose Calculation Manual (ODCM), and associated TS and that changes, if any, did not affect the licensee's ability to monitor the impacts of radioactive effluent releases on the environment. The most recent quality assessment of the licensee's REMP vendor was reviewed to verify that the vendor laboratory performance was consistent with licensee and NRC requirements.

b. Findings

No findings of significance were identified.

.2 Walkdowns of Radiological Environmental Monitoring Stations and Meteorological Tower

a. Inspection Scope

The inspectors conducted a walkdown of selected environmental air and water sampling stations and thermoluminescent dosimeters to verify that their locations were consistent with their descriptions in the ODCM and to evaluate the equipment material condition and operability. The inspectors also conducted a walkdown of primary and back-up meteorological monitoring sites to validate that sensors were adequately positioned and operable. The inspectors reviewed the 2001 Annual Environmental Monitoring Report to evaluate the onsite meteorological monitoring program's data recovery rates, routine calibration and maintenance activities, and non-scheduled maintenance activities. The review was conducted to verify that the meteorological instrumentation was operable and was calibrated and maintained in accordance with licensee procedures. The inspectors also reviewed indications of wind speed, wind direction, and atmospheric stability measurements to verify that the indications were available in the control room and that the instrument indications were operable.

b. Findings

No findings of significance were identified.

.3 Review of REMP Sample Collection and Analysis

a. Inspection Scope

The inspectors accompanied the licensee REMP technician to observe the collection and preparation of air filters and milk samples to verify that representative samples were being collected in accordance with procedures and the ODCM. The inspectors observed the technician perform air sampler field check maintenance to verify that the air samplers were functioning in accordance with procedures. Selected air sampler calibration and maintenance records for 2001 and 2002 were reviewed to verify that the equipment was being maintained as required. The environmental sample collection program was compared with the ODCM to verify that samples were representative of the licensee's release pathways. Additionally, the inspectors reviewed results of the vendor laboratory's interlaboratory comparison program to verify that the vendor was capable of making adequate radio-chemical measurements.

b. Findings

No findings of significance were identified.

.4 Unrestricted Release of Material From the Radiologically Controlled Area

a. Inspection Scope

The inspectors evaluated the licensee's controls, procedures, and practices for the unrestricted release of material from radiologically controlled areas and conducted reviews to verify that: (1) radiation monitoring instrumentation used to perform surveys for unrestricted release of materials was appropriate; (2) instrument sensitivities were consistent with NRC guidance contained in Inspection and Enforcement (IE) Circular 81-07 and Health Physics Positions in NUREG/CR-5569 for both surface contaminated and volumetrically contaminated materials; (3) criteria for survey and release conformed to NRC requirements; (4) licensee procedures were technically sound and provided clear guidance for survey methodologies; and (5) radiation protection staff adequately implemented station procedures.

b. Findings

No findings of significance were identified.

.5 Identification and Resolution of Problems

a. Inspection Scope

The inspectors reviewed corrective action process documents addressing issues involving the REMP as well as a nuclear oversight (NO) audit of the Clinton Environmental Monitoring Program and 2002 observation reports addressing the REMP to determine if problems were being identified and entered into the corrective action program for timely resolution.

b. Findings

No findings of significance were identified.

4 OTHER ACTIVITIES (OA)

4OA1 Performance Indicator Verification (71151)

Cornerstone: Initiating Events

.1 Reactor Safety Strategic Area

a. Inspection Scope

The inspectors reviewed documents listed in the Attachment to verify that the licensee had corrected reported performance indicators data, in accordance with the criteria in Nuclear Energy Institute 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 2. The following performance indicators were reviewed for the specified period through December 31, 2002:

The inspectors performed three samples by reviewing the following:

- Scrams with loss of normal heat removal.
- Unplanned Scrams per 7,000 Critical hours.
- Unplanned power changes per 7,000 critical hours.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152)

.1 Routine Operations

a. Inspection Scope

As discussed in previous sections of this report, the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify that they 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. Minor issues entered into the licensee's corrective action system as a result of inspectors' observations are generally denoted in the report.

b. Findings

No findings of significance were identified.

.2 Routine Review of Identification and Resolution of Problems

Stand-by Liquid Control System Surveillance Problems

Introduction

The inspectors identified that several CRs had been generated over the last 24 months regarding problems the licensee encountered while conducting the quarterly pump and valve operability surveillances for the stand-by liquid control (SLC) system. The inspectors chose to review how the licensee was addressing the problems identified with this surveillance because of its potential risk significance. The licensee utilizes the "dedicated operator" options for specific actions during the performance of this surveillance test to maintain overall plant risk "Green". Without using dedicated operators, the plant risk condition would be "Orange" (high risk) for increased risk per the Safety Function Assessment Tree and the Plant Transient Assessment Tree models.

During this inspection period, the licensee encountered problems conducting the SLC quarterly surveillance on February 12 and 13, 2003. The specific problems involved a mis-computation of system flow and differential pressure on two occasions. The problems resulted in additional TS out-of-service time for the system. The inspectors particularly focused on the prioritization and evaluation of issues and the effectiveness of corrective actions for the issues associated with the SLC surveillance.

a. Prioritization and Evaluation of Issues

(1) Inspection Scope

The inspectors reviewed the CRs 144074, 144272, and 144360. Each CR pertained to problems the operations staff encountered while conducting an SLC quarterly surveillance on February 12 and 13. The inspectors focused on the manner in which the issues were prioritized and evaluated given known historical problems identified during past surveillance performance.

(2) Issues

The inspectors noted that the licensee initiated two "quick" human performance reviews to determine the cause of the incorrect computations. These reviews were initiated to capture "clearly apparent" human performance deficiencies in a timely manner to implement any needed changes prior to the continuation of similar work. The results of the "quick" human performance reviews identified weaknesses in the areas of supervision, peer verification, and procedural use.

The inspectors conducted and independent analysis of the subject events using the NRC Human Performance Improvement Program (HPIP) methodology. These analyses yielded similar areas of weakness. Therefore, the inspectors determined that the licensee had effectively prioritized and evaluated the initial human performance weaknesses associated with the February SLC system surveillance.

b. Effectiveness of Corrective Actions

The licensee also completed an apparent root cause review of the SLC surveillance problems that also pointed out weaknesses with the supervision of the task, and procedural weaknesses.

In light of the problems identified during the SLC surveillance and other human "lower level" human performance weaknesses in the Operation Department, the licensee conducted a common cause analysis in an attempt to identify other personnel, programmatic, or organizational weaknesses which could have contributed to the events. The results of the common cause analysis identified that the events also involved elements of procedural compliance issues and effective use of human error reduction techniques. These fundamental weaknesses were also identified in a common cause analysis performed in November 2002. Operations department management were still in the implementation phase of some of the corrective actions; therefore, the inspectors determined that the similar nature of the more recent events would still fall under the corrective action implementation time frame that was ongoing.

.3 Routine Review of Identification and Resolution of Problems

Excessive Motor Operated Valve Starts During a RCIC Surveillance

Introduction

During a surveillance test on January 15, 2003, the inspectors noted that a dc motor operated valve (MOV) was started in excess of the allowed number of times per the precaution in the procedure. The inspectors questioned the operators action and the shift manager (SM) had the surveillance stopped for the specified cooldown time for the motor. The SM contacted the system manager for clarification of the procedure precautions. After consultation with corporate engineering staff, the system manager clarified the precaution as no more than nine starts within a 5-minute window. After the 90-minute cooldown period, the surveillance was successfully completed.

The inspectors selected dc powered MOV multiple starts precautions as a sample due to the high risk significance of the RCIC system. The inspectors reviewed the licensee's actions following this occurrence, reviewed all previous condition reports on dc powered MOVs, reviewed all dc MOV applications in plant systems, and all normally procedurally required uses of dc MOVs. The inspectors did not identify any other applications susceptible to multiple starts or any trend in the licensee's corrective action program. The inspectors also evaluated the corrective actions for CR 139659, "Procedure Interpretation Resulted in Longer RCIC Run."

a. Effectiveness of Corrective Actions

(1) Inspection Scope

The inspectors reviewed CR 139659 and previous instances related to multiple starts of dc powered MOVs to determine the effectiveness of the corrective actions.

(2) Issues

The inspectors noted that Engineering Memo Y-109161, "DC MOV Duty Cycle Limits," was previously written to address the requirements for multiple starts on dc powered MOVs. As a result of this memo, the licensee revised several procedures to clarify the number of starts a motor could tolerate in a specified period of time. However, the requirements had not been clearly entered into a new procedure, CPS 9054.01, RCIC (1E51-C001) High Pressure Operability Checks," Revision 0. After performing the test for the first time, the licensee revised the surveillance procedure precautions to clearly state the base requirements for multiple dc MOV starts. The inspectors had no concerns with the revised procedure. Although the engineering memo should have been incorporated into the new procedure, no violation of NRC requirements occurred.

4OA3 Event Followup

a. Inspection Scope

The inspectors reviewed the circumstances associated with an RHR system tag-out error which resulted in an inoperable containment isolation pathway. This event was documented in CR-145537, "RHR B Suppression Pool Suction Valve."

b. Findings

Introduction: A finding of very low safety significance associated with a Non-cited Violation was identified through a self-revealing event when operators failed to close a motor operated valve prior to de-energizing it when taking the valve out of service. The open valve resulted in an inoperable containment isolation pathway. The primary cause of this finding was related to the cross-cutting area of human performance.

Description: On February 20, 2003, the licensee noted that the RHR "B" suppression pool suction valve was open and de-energized which rendered the primary containment isolation valve inoperable. This condition was not recognized until after the TS 4-hour action statement, which required the penetration to be isolated, had been exceeded. The penetration was in an un-isolated condition for approximately 34 hours beyond the required action time before it was noted. The licensee determined that the valve should have been de-energized and in the closed position due to current maintenance activities on the system. Upon discovery of the condition, the licensee isolated the penetration, and determined that the event would be reportable as a Licensee Event Report pursuant to 10 CFR Part 50.73(a)(2)(i)(B). The licensee determined that the root caused of the event were inadequate self checking on the part of the tag-out writer to ensure completeness of the boundary and attention to detail deficiencies when implementing TS requirements .

Analysis: The inspectors determined that deficiencies in the completeness and accuracy of the tag-out preparation and failures on the part of several technical and

independent reviewers to recognize the problem until 34 hours after the TS action period had expired were performance deficiencies that warranted a significance evaluation.

The inspectors concluded that this finding was greater than minor in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Disposition Screening," issued on April 29, 2002. The finding involved the attribute of configuration control under the Barrier Integrity Cornerstone to ensure the functionality of primary containment. The finding also affected the cross-cutting area of Human Performance because the operations staff failed to adequately prepare the tag-out for the RHR system and opportunities to identify the problem were missed until approximately 34 hours after the TS required Action time had been exceeded.

The inspectors completed a significance determination of this issue using IMC 0609, "Significance Determination Process (SDP)," dated April 30, 2002, phase 1 worksheet. The inspectors answered "No" to all three questions under the containment barrier cornerstone because the issue did not involve ventilation system and did not impact the physical integrity of the containment as other valves in the system were closed. Therefore, the issue was screened as a Green finding of very low safety significance.

Enforcement

Technical Specification 3.6.1.3 requires that with the plant in Mode 1, 2, or 3 each primary containment isolation valves shall be operable. Action A.1 states that if a penetration becomes inoperable, the penetration shall be isolated within 4 hours. Contrary to this, on February 20, 2003, the licensee failed to isolate an inoperable primary containment isolation valves within the allowed action time of 4 hours. However, because the violation was of very low safety significance and it was entered into the licensee's corrective action program, this violation is being treated as a Non-Cited Violation, consistent with Section VI.A of the NRC Enforcement Policy:
NCV 50-461/03-03-01.

4OA4 Cross Cutting Findings - Human Performance

A finding described in Section 4OA3 of this report, involved elements of human performance deficiencies involving licensee personnel during the preparation of a tag-out for the RHR system.

4OA6 Meetings

.1 Exit Meeting

The inspectors presented the inspection results to Mr. M. Pacilio and other members of the licensee management at the conclusion of the inspection on April 3, 2003. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

2. Interim Exit Meetings

- Radiation Protection inspection with Mr. M. Pacilio on January 17, 2003.
- Radiation Safety inspection with Mr. M. Pacillo on March 7, 2003.

4OA7 Licensee Identified Violation

The following violation of very low safety significance was identified by the licensee and is a violation of NRC requirements which meets the criteria of Section VI of the NRC Enforcement Manual, NUREG-1600, for being dispositioned as an NCV.

Technical Specification 5.4.1 requires that written procedures shall be established, implemented and maintained covering the applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. The licensee documented in Condition Report 149156 the discovery on March 14, 2003 that an Operational Requirements Manual (ORM) surveillance had not been met. Specifically, the motor-operated valve thermal overload bypass surveillance for the component cooling water system containment return line valve (1CC054) had not been performed within its required ORM frequency (every 18 months) as directed by Clinton Power Station Procedure 9381.01, “MOV Thermal Overload Bypass Verification,” Revision 32a. The last time 1CC054 had been tested was on October 23, 2000, which placed the valve approximately 11 months over due for the required testing. The licensee addressed the missed surveillance by completing the required surveillance on 1CC054 within 24 hours of the time of discovery. The test was completed satisfactorily.

KEY POINTS OF CONTACT

Licensee
M. Pacilio, Site Vice President
K. Polson, Plant Manager
B. Campbell, Chemistry and REMP Supervisor
J. Cunningham, Work Management Director
R. Davis, Plant Radiation Protection Manager
C. Dieckmann, Shift Operations Superintendent
R. Frantz, Regulatory Assurance Representative
W. Iliff, Regulatory Assurance Director
J. Madden, Nuclear Oversight Manager
J. Martin, Radiation Protection Supervisor
D. Schavey, Operations Director
R. Schmidt, Maintenance Manager
J. Sears, Chemistry Manager
F. Tsakeres, Training Manager
J. Williams, Site Engineering Director
E. Wrigley, Security Manager and Executive Assistant to the Vice President

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Opened and Closed

50-461/03-03-01	NCV	Failure to isolate an inoperable primary containment isolation valve within the allowed action time.

Discussed

None

LIST OF DOCUMENTS REVIEWED

1R04 Equipment Alignments

Plant Drawing OS5-1075, “Residual Heat Removal System,” Revision AG
Plant Drawing OS5-1052, “Shutdown Service Water System,” Revision AG
Plant Drawing OS5-1078, “Reactor Core Isolation Cooling System,” Revision AG
Plant Drawing OS5-1035, “Emergency Diesel Generator System,” Revision AG

1R05 Fire Protection

Updated Safety Analysis Report (USAR) 9.5.1, “Fire Protection”
Fire Protection Evaluation Report, Fire Zones A-2a, 2b, 2c, 2d, D-4a, 4b, 5a, 5b, 6a, 6b, F-1p, T-1i, and T-1h.
Fire Protection Safe Shutdown Analysis.
Fire Drill Scenario No. 2003-03, 737' Radwaste WE [waste enclosure] Tent Fire.

1R11 Licensed Operator Requalification

SE-LOR-04; Group 1 Isolation and Loss of Feedwater, Revision 0.

1R12 Maintenance Effectiveness

LP87406-01, The H_2/O_2 Containment Atmosphere Monitoring System.

1R14 Personnel Performance During Non-routine Plant Evolutions

CPS 2805.01; Main Turbine First State Pressure Response Test, Revision 0.
CPS, Reactivity Maneuver, Summary / Challenge, Unit maneuver scheduled 1/11/02.
RE Instructions for 1/11/03 Down power and Return.
CPS 2202.01F002, Control Rod Maneuver Review.
RE Instructions for 2/15/03 Down power and Return.

1R15 Operability Evaluations

CR 131956; Division 1 Containment Atmosphere Monitoring system (hydrogen/oxygen) problems.
CR 140953; GE Marathon Control Blade Indications.
CR 138743; Division 1 Shutdown Service Water Pump Potential Degrading Conditions.
CR 146462; Lower than allowable SX flow readings during partial SX flow test.
CR 150197 Rev 0, The “as-installed” configuration of the drain line for valve 1FP092. does not conform to the standard configuration shown on M07-1001-001, Detail 3.

1R19 Post Maintenance Testing

CPS 9433.38, ECCS LPCI Minimum Flow E12-N052A (B, C) Channel Calibration.

1R22 Surveillance Testing

CPS RCIC (1E51-C001) High Pressure Operability Checks, Revision 0.
CPS 9080.03; Diesel Generator 1C Operability, Revision 26a.
CPS 9052.01; LPCS/RHR A Pumps & LPCS/RHR A Waterleg Pump Operability, Revision 42.
CPS 9015.01; Standby liquid Control System Operability, Revision 39.

1EP6 Drill Evaluation

1st Quarter 2003 Full Scale PI Mini Drill.

2OS1 Access Control to Radiologically Significant Areas

RWP 2283; Refuel Tools/Fuel Pool Work; Revision 0.

2PS3 Radiological Environmental Monitoring and Radioactive Material Control Programs

AR 00096537; Calibration Parameters Found Reset On PCM Monitor; February 24, 2002.
AR 00101685; PCM Returned to Service Without Calibration; March 30, 2003.
AR 00114377; Degraded PCM Sources; July 3, 2002.
AR 00118034; Instrument Not Removed From Service; August 2,2002.
AR 00131671; CO Detector on Bristol Air Compressor Failed; November 14, 2002.
AR00104240; Procedural Noncompliance with 9911.73.
AR00109124; Failure to Complete an ATI on the revised Due Date.
AR00109251; Incorrect Procedure Revision Used to Conduct Surveillance.
AR00112979; Incorrect Recording o Sample Collection Results.
AR00113150; Wether Monitoring Sensors are Not Repairable.
AR00113398; ODCM Vegetable Sample Not Available.
AR00121771; REMP Program was Not Transitioned to a Vendor Appropriately.
AR00136699; Untimely Correction of Holes in Turbine Rotor Storage Building.

CR 147575; Oil Leak on MCR Breathing Air and ADS Recharge Compressor; March 5, 2003.
CR 98506; SCBA Mask Vibration Identified During Use; March 9, 2002.
CR 147375; Respirators Found in Painters Storage Area; March 4, 2003.

CPS 3214.02; Breathing Air (RA); Revision 11.
CPS 7600.04; Operating The Eagle Air System/Bristol W4 Air Compressor; Revision 2.
CPS 7600.05; Operation of the Bauer K-18 Breathing Air Compressor; Revision 3.
CPS 7910.90; Calibration of Fastscan Whole Body Counter; Revision 4b.
CPS 7911.48; Calibration of Gamma-60 Portal Monitor; Revision 2.
CPS 7911.52; Calibration of PCM-1; Revision 0.
CPS 7911.53; Calibration of PCM-2; Revision 0.
CPS 9437.65; Containment/Drywell High Range Gamma Monitor Channel Calibration; Revision 32b.
CPS 9437.67; Area Radiation Monitors Channel Calibration; Revision 33b.
CPS 9443.03; Leak Detection System Drywell Air Particulate Radiation Monitor Calibration; Revision 35c.

CPS 9443.08; Leak Detection System Drywell Gas Radiation Monitor Calibration; 38b.
CPS 9437.14; Meteorology System Loop Calibration; Revision 36C.

CPS-9911.70; Radiological Environmental Surveillance Radioiodine and Particulate Monitoring; Revision 30.
CPS-9911.71; Radiological Environmental Surveillance Milk Monitoring; Revision 28a.
CPS-9911.72; Radiological Environmental Surveillance Direct Radiation Monitoring; Revision 30a.
CPS-9911.73; Radiological Environmental Aquatic Pathway Sampling Surveillance; Revision 29b.
CPS-9911.75; Radiological Environmental Surveillance Annual Land Use Census; Revision 27b.
CPS-9911.78; Radiological Environmental Surveillance Surface and Drinking Water Monitoring; Revision 31b.
CPS-9911.79; Radiological Environmental Surveillance Ground Water Monitoring; Revision 25a.

RP-AA-440; Respiratory Protection Program; Revision 3.
RP-AA-441; Evaluation and Selection Process for Radiological Respirator Use; Revision 2.
RP-AA-700; Controls for Radiation Protection Instrumentation; Revision 0.
RP-AA-443; Quantitative Respirator Fit Testing, Revision 1.

RP-CL-825-101; CPS Maintenance and Care of Respiratory Protective Equipment; Revision 1.
RP-CL-825-1001; Flow Testing of MSA, Custom 4500 II SCBA Belt Mounted Regulators; Revision 0.
RP-CL-500-102; CPS Unconditional Release Survey; Revision 0.

100884-28, NOS Field Observation Report-P1H3 RP Equipment Control, May 21, 2002.
2002 Respiratory Protection Annual Program Review; February 20, 2003.

Radiation Monitoring Instrument Self-Assessment Report-FASA; June 3 to 22, 2002.

Waste Characterization Summary - Phase Sep Waste; May 30, 2001.

Waste Characterization Summary - Waste Sludge (14-215); August 19, 2002.

Waste Characterization Summary -Spent Resin (21-300); June 14, 2002.

96-020-IN Radiological Technical Evaluation - Evaluation of New Product SAM-9.

Clinton Power Station 2001 Annual Radiological Environmental Operation Report.

Monthly Progress Reports to Exelon Nuclear, Clinton - REMP for Clinton Power Station; January to November, 2002.

Interlaboratory Comparison Program Results, October, 2001 to September 2002.

Focus Area Self Assessment Report, November 11 to 15, 2002.

Nuclear Utilities Procurement Issues Committee (NUPIC) Joint Quality Assurance Program Audit Report Exelon Audit No. 2001-341.

4OA2 Identification and Resolution of Problems

NSED Memo Y-109161, DC MOV [motor operated valve] Duty Cycyle Limits
CR-139659, Procedure Interpretation Resulted in Longer RCIC Run .

4OA3 Event Response

CR-145537, RHR 'B' Suppression Pool Suction Valve.
CR-140223, Common Cause Analysis, An increase was identified in the number of Operations Human Performance events over the last four months.

4AO7 CR-149156, Missed Thermal Overload Relay Surveillance on Valve 1CC054.
CPS 9381.01, MOV Thermal Overload Bypass Verification.

LIST OF ACRONYMS USED

ADAMS	Agency wide Documents Access and Management System
ARM	Area Radiation Monitor
CAM	Continuous Air Monitor
CR	Condition Report
EDG	Emergency Diesel Generator
EHC	Electro-hydraulic Control
FCV	Flow Control Valve
HPIP	Human Performance Improvement Program
IE	Inspection and Enforcement
IMC	Inspection Manual Chapter
LPCS	Low Pressure Core Spray
MR	Maintenance Rule
MOV	Motor Operated Valve
NCV	Non-Cited Violation
NO	Nuclear Oversight
NRC	Nuclear Regulatory Commission
ODCM	Offsite Dose Calculation Manual
OPC	Operational Support Center
OPCM	Offsite Dose Calculation Manual
ORM	Operations Requirement Manual
OSC	Operational Support Center
PARS	Publicly Available Records
PI	Performance Indicator
RCIC	Reactor Core Injection Cooling
REMP	Radiological Environmental Monitoring Program
RHR	Reactor Heat Removal

RR	Reactor Recirculation
SCBA	Self Contained Breathing Apparatus
SDP	Significance Determination Process
SLC	Stand-by Liquid Control
SM	Shift Manager
SOD	Supporting Operability Determination
SRO	Senior Reactor Operator
SX	Shutdown Service Water
TS	Technical Specifications
USAR	Updated Safety Analysis Report
VC	Ventilation System
VG	Stand-by Gas Treatment