February 12, 2004

Mr. Christopher M. Crane
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 05000461/2003009

Dear Mr. Crane:

On December 31, 2003, the U.S. Nuclear Regulatory Commission (NRC) completed an integrated inspection at your Clinton Power Station. The enclosed reports documents the inspection findings which were discussed on January 6, 2004, with Mr. R. Bement 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, the inspectors identified three issues of very low safety significance (Green). Two issues were determined to involve violations of NRC requirements. However, because the issues were determined to be of very low safety significance and because the issues were entered into your corrective action program, the NRC is treating the issues as Non-Cited Violations in accordance with Section VI. A. 1 of the NRC's 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 Clinton Power Station facility.

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
Branch 3
Division of Reactor Projects

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

Enclosure: Inspection Report No. 05000461/2003009
w/Attachment: Supplemental Information

cc w/encl: Site Vice President - Clinton Power Station
Clinton Power Station Plant Manager
Regulatory Assurance Manager - Clinton
Chief Operating Officer
Senior Vice President - Nuclear Services
Vice President - Operations Support
Vice President - Licensing and Regulatory Affairs
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REGION III

Docket No:	50-461
License No:	NPF-62
Report No:	05000461/2003009
Licensee:	AmerGen Energy Company, LLC
Facility:	Clinton Power Station
Location:	Route 54 West Clinton, IL 61727
Dates:	October 1 through December 31, 2003
Inspectors:	B. Dickson, Senior Resident Inspector C. Brown, Resident Inspector J. Bond, NRC Intern T. Ploski, Senior Emergency Preparedness Inspector D. McNeil, Reactor Engineer D. Nelson, Radiation Specialist M. Mitchell, Radiation Specialist T. Tongue, Senior Project Engineer K. Walton, Reactor Engineer D. Zemel, Illinois Emergency Management Agency
Approved by:	A. Stone, Chief Branch 3 Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

Clinton Power Station IR 05000461/2003009; 10/01/2003 -12/31/2003; Clinton Power Station. Personnel Performance During Non-Routine Plant Evolutions and Identification and Resolution of Problems.

This report covers a 3-month period of baseline resident inspection and announced baseline inspections on radiation protection, emergency preparedness, and security. The inspection was conducted by Region III inspectors and the resident inspectors. Three findings of very low safety significance (Green), two of which were Non-Cited Violations (NCVs), were 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 Revealing Findings**

Cornerstone: Initiating Events

Green. The inspectors identified a finding of very low safety significance concerning poor operator performance following a reactor scram on December 2, 2003. The primary cause of this finding was related to the cross-cutting area of Human Performance, in that, poor performance by operations personnel resulted in a momentary loss of reactor pressure vessel level control. This loss of level resulted in a second reactor scram signal being generated. No violations of NRC requirements occurred.

This finding was more than minor because the finding affected the Reactor Safety/Initiating Event objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. The finding did not contribute to the likelihood of a Primary or Secondary system loss of coolant accident initiator, did not contribute to both the likelihood of a reactor trip AND the likelihood that mitigation equipment or functions will not be available, and did not increase the likelihood of a fire or internal/external flood. Therefore, the finding was determined to be of very low safety significance (Section 1R14).

Cornerstone: Mitigating System

Green. The inspectors identified a non-cited violation of 10 CFR 50 Appendix B Criterion XVI involving the licensee's failure to promptly enter an identified condition adverse to quality into their corrective action program. This finding related to the cross-cutting area of Human Performance, in that, engineering personnel were aware of a discrepant condition on the 4160 volt Bus 1C1 Reserve Feed potential transformer cubicle door but did not correct the condition for several days.

The inspectors determined that this issue was more than minor because the finding could be reasonably viewed as a precursor to a significant event if left uncorrected because the station personnel could fail to evaluate non-conforming conditions which could render safety related equipment inoperable. This issue was a design/seismic qualification deficiency that was determined to not cause a loss of function by the licensee's evaluation. Based on this conclusion, this finding was determined to be of very low safety significance using the Phase 1 worksheets. (Section 4OA2)

Cornerstone: Barrier Integrity

Green. The inspectors identified a finding of very low safety significance (Green) concerning the licensee's failure to verify heatup and cooldown rates in accordance with Technical Specification (TS) following a scram on December 2, 2003. This was determined to be a NCV of TS surveillance requirement 3.4.11.1.

This finding was more that minor because if left uncorrected, failure to perform a TS surveillance could become a more safety significant issue. This finding was not suitable for SDP evaluation but has been reviewed by NRC management and was determined to be a finding of very low safety significance. This issue may have been greater than Green if the TS temperature limitations had been exceeded and if subsequent evaluation showed a degradation of the reactor coolant system integrity (Section 1R14).

B. **Licensee-Identified Violations**

No findings of significance were identified.

REPORT DETAILS

Summary of Plant Status

At the beginning of the inspection period, the plant operated at approximately 91 percent power (100 percent of rated electrical output). On October 24, 2003, operators reduced reactor power to approximately 47 percent power to find the source of air in-leakage to the main condenser. On November 1, 2003, operators increased reactor power to 91 percent power. On November 13, 2003, Clinton Power Station entered coast down operations. On December 2, 2003, the operators manually scrammed the plant due to a low suction condition on both the 1A and 1B turbine driven reactor feedwater pumps. The low suction condition was caused by the loss of the Unit Sub 1I 480 Volt Bus. The operators restarted the plant on December 5, 2003. The plant was returned to full power operations on December 7, 2003. On December 9, 2003, the operators reduced reactor power to 45 percent in response to a ruptured tube in the main condenser. Following repair of the main condenser tube rupture, operators returned the plant to full power operations on December 11, 2003. On December 14, 2003, the operators reduced reactor power from full power operation to approximately 45 percent power in response to another tube rupture in the main condenser. The operators returned the plant to full power operation on December 16, 2003. On December 31, 2003, the operators rapidly reduced reactor power from 88 percent to 70 percent in response to a leak in the electro-hydraulic system. The plant remained at that power level through the end of the inspection period.

1. REACTOR SAFETY

Cornerstone: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather (71111.01)

a. Inspection Scope

The inspectors verified that the licensee had completed its seasonal preparations for cold weather in a timely manner before the cold weather actually presented a challenge. The inspectors reviewed the licensee's completed freezing temperature annual surveillance and verified that it adequately covered risk-significant equipment and ensured that the equipment was in a condition to meet the requirements of Technical Specifications (TSs), the Operational Requirements Manual (ORM), and the Updated Safety Analysis Report (USAR) with respect to protection from low temperatures. The inspectors verified that minor issues identified during the inspection were entered into the licensee's corrective action system by reviewing the associated condition reports (CRs).

b. Findings

No findings of significance were identified.

1R04 Equipment Alignments (71111.04Q and 04S)

.1 Partial Walkdowns

a. Inspection Scope

The inspectors performed three partial walkdowns of accessible portions of divisions of risk-significant mitigating systems equipment during times when the divisions were of increased importance due to the redundant divisions or other related equipment being unavailable. The inspectors utilized the valve and electric breaker checklists listed at the end of 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 CRs associated with the trains to verify that those documents did not reveal issues that could affect train function. The inspectors used the information in the appropriate sections of the USAR to determine the functional requirements of the systems. The documents listed at the end of this report were also used by the inspectors to evaluate this area.

The following three systems were inspected:

- Division 3 diesel generator.
- Reactor core isolation cooling system while high pressure core spray was out-of-service.
- Residual heat removal pump 'C'.

b. Findings

No findings of significance were identified.

.2 Semi-Annual Complete System Walkdown

a. Inspection Scope

Following a planned system outage, the inspectors performed a complete system alignment inspection of the high pressure core spray system. This system was selected because it was considered both safety-significant and risk-significant in the licensee's probabilistic risk assessment. The inspection consisted of the following activities:

- a review of plant procedures, drawings, and the Updated Safety Analysis Report to identify proper system alignment;
- a walkdown of the system valves, instrumentation, and electrical supplies to verify proper alignment, component accessibility, availability, and current condition;
- a review of outstanding work orders to identify equipment problems and to ensure that problems identified during the walkdown had been placed in the work control program; and

- a review of CRs associated with the system for the last 2 years to verify that issues had been properly identified, prioritized, and resolved.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05Q)

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 at the end of 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 inspectors completed 10 samples for the following areas:

- Fire Zone CB-1g, 781' control-building cable spreading rooms and secondary control instrumentation.
- Fire Zone A-2o, containment electrical penetration area at elevation 781' - 0".
- Fire Zone CB-1d, 737' control building, Division 2, cable spray risers.
- Fire Zone A-2a, reactor core isolation cooling pump room, 707' 6" and 712' elevation.
- Fire Zone F-1a, containment access areas, drywell chillers, drywell water chiller pumps and gamma scanner room Level 712'.
- Fire Zone A-2b residual heat removal 'A' pump and heat exchanger rooms and elevations 707' 6" and 801' 9".
- Fire Zone A-2c, low pressure core spray room.
- Fire Zone A-2n, non-safety related switchgear elevation 762'.
- Fire Area C-2, primary containment elevation level 825'.
- Fire Zone F-1b, high pressure core spray room elevation 712' - 6".

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures (71111.06)

a. Inspection Scope

The inspectors verified that flooding mitigation plans and equipment were consistent with the design requirements and risk analysis assumptions. The inspectors reviewed USAR Section 3.4.1 for internal flooding events, and reviewed CRs and work orders associated with Auxilary Building flood seals. The inspectors also inspected various auxiliary building and fuel building flood seal and penetrations to verify they were intact.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification (71111.11B and 11Q)

.1 Quarterly Review of Testing/Training Activities

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.

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

- OP-AA-101-111, “Roles and Responsibilities of On-Shift Personnel,” Revision 0;
- OP-AA-103-102, “Watchstanding Practices,” Revision 2;
- OP-AA-104-101, “Communications,” Revision 1; and
- OP-AA-106-101, “Significant Event Reporting,” Revision 2.

The inspectors also assessed the performance of the training staff evaluators involved in the requalification process. For any weaknesses identified, the inspectors observed the licensee evaluators to verify that they also noted the issues and discussed them in the critique at the end of the session. The inspectors verified all issues were captured in the training program and licensee corrective action process.

The inspectors also assessed the performance of the training staff evaluators involved in the requalification training as follows:

- Annual requalification exams in simulator, scenario included break in steam supply line to reactor core isolation cooling and a subsequent loss of coolant accident.

b. Findings

No findings of significance were identified.

.2 Biennial Written Examination and Operating Test Results

a. Inspection Scope

The inspectors reviewed the pass/fail results of individual written tests, operating tests, and simulator operating tests (required to be given per 10 CFR 55.59(a)(2)) administered by the licensee during calender year 2003. This activity completes the sample discussed in Inspection Report 05000461/2003005.

b. Findings

No findings of significance were identified.

1R12 Maintenance Rule Implementation (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 systems were:

- Control room ventilation system.
- Average power range monitors.
- Division 1 of residual heat removal system.

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 completed eight samples by assessing the effectiveness of risk management activities for the following work activities or work weeks:

- Risk evaluation for entering high pressure core spray system outage with plant at 47 percent and off-gas at 195 scfm, risk condition ORANGE.

- Control room ventilation system 'A' outage for planned maintenance (OVCO 5YA) hydramotor replacement.
- Assessed licensee risk planning and work activities during Division 3 outage.
- Average power range monitor 'D' back plane connector repair.
- Down power activities during search for increase main condenser in-leakage.
- Standby gas treatment system planned maintenance.
- Risk review of cumulative plant startup activities.
- Division I shutdown service water outage to replace section of piping associated with 1SX019A due to pipe wall thinning.

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 operator's responses were in accordance with the required procedures. In particular, the inspectors reviewed personnel performance during the following four plant events:

- Planned down power to find and repair excessive main condenser air in-leakage.
- Reactor scram due to loss of the 480 volt Unit sub 1I Bus and subsequent 1A and 1B turbine driven reactor feed pump low suction pressure condition.
- Emergency down power due to failure main condenser tube leak (December 9, 2003).
- Emergency down power in response to electro-hydraulic control system leakage on No. 1 control valve accumulator.

b. Findings

.1 Reactor Protection System Actuation Due to Poor Operator Performance.

Introduction: The inspectors identified one Green finding concerning poor operator performance following a reactor scram on December 2, 2003. The poor performance resulted in a momentary loss of reactor pressure vessel level control. This loss of level resulted in a second reactor scram signal being generated. No violations of NRC requirements were identified.

Description: On December 2, 2003, the 480 volt Unit sub 1I Bus tripped. Following the loss of the Unit sub 1I Bus, the 'B' turbine driven reactor feed pump's (TDRFP) discharge valve and the minimum flow valve failed in the open position. The opening of the minimum flow valve resulted in a low pressure suction condition for the 1A and 1B TDRFPs. In response to this low suction pressure condition and in anticipation of decreasing level, the operators inserted a manual reactor scram. Concurrent with the manual scram, both the 1A and 1B TDRFP tripped on low suction pressure. In

accordance with the licensee's emergency operating procedures and scram response procedures, the operators immediately started the 1C motor driven reactor feed pump (MDRFP) to restore reactor pressure vessel water level to its required level band. The required level was achieved and maintained using the 1C MDRFP through the startup level controller; however, the operators noted that the minimum flow valve for the 1C MDRFP failed to open as designed under low flow conditions. The operators were concerned that the 1C MDRFP was being dead headed under these condition. While the operators were using the 1C MDRFP, several high vibration alarms were received in the main control room, compounding the operators' concerns. Attempts were made by the operators, both from the control room and locally, to open the minimum flow valve; however, these efforts were not successful.

In response to this issue, operators decided to use a condensate/condensate booster pump alignment as the primary feed water injection source. To accomplish this, the operators needed to reduce reactor pressure below the dead head pressure of the condensate booster pump. Operators decided that the reactor pressure vessel pressure band needed to be reduced from 800 to 1065 psig to 550 to 650 psig to accomplish water injection using condensate/condensate booster pumps.

The operators concluded that the best way to accomplish lowering reactor pressure would be to raise reactor water level to high in the emergency operating procedure required level band, secure the MDRFP, and depressurize using the main steam bypass valves. The control room supervisor briefed the operating crew regarding this plan. Following this brief, the operators raised reactor water level to approximately 45 inches, secured the MDRFP, and commenced reducing reactor pressure vessel pressure using the pressure set controller in the electro-hydraulic control (EHC) system. During the depressurization reactor pressure vessel (RPV) level dropped rapidly and a Level 3 scram signal was received before pressure could be reduced to the point of injecting with the condensate/condensate booster pumps. In response, the operators restarted the MDRFP and restored RPV level to within the emergency operating procedure level band.

The inspectors noted the following:

- During the debrief for reducing reactor pressure, the operators did not discuss how the EHC system would be used to reduce reactor pressure. The control room supervisor expected the reactor operator manipulating the EHC system to use the bypass valve jack controls rather than the pressure set. Use of the pressure set resulted in a much slower rate of depressurization than expected by the operators. This expectation was not communicated to the reactor operator.

- During the brief, no discussion regarding what specific actions would be taken if the evolution did not go as expected. For example, the control room supervisor did not discuss at what specific RPV level the operators would restart the MDRFP.

- The control room supervisor failed to utilize all operator resources in the control room. The operator performing the pressure reduction through the EHC system was also the operator assigned to level control actions. After the recognition that

RPV level control was not trending as expected, this operator did not have enough time the restart the MDRFP to maintain RPV level above scram set point.

Analysis: The inspectors considered the operators' poor performance following the scram on December 2, 2003, to be a performance deficiency. The inspectors used IMC 0612, Appendix B, to disposition this issue and determined that it was more than minor because the finding affected the Reactor Safety/Initiating Event objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. This finding also related to the cross-cutting area of Human Performance, in that, poor performance by operations personnel resulted in a momentary loss of RPV level control. The inspectors entered the significance determination process using Manual Chapter 0609, Appendix A, "Significance Determination For Reactor Inspection Findings For At-Power Situations." Using the SDP Worksheet 1, the inspectors answered "no" to all three questions in the Phase I analysis under the initiating event cornerstone which resulted in the finding screening out as Green. Based on this conclusion, this finding was determined to be of very low safety significance (Green).

Enforcement: This issue was the result of the operators failing to meet the licensee's expectations as delineated in various operation standards and policy statements. No specific licensee procedure or instruction required by 10 CFR 50 Appendix B was violated; therefore, no violation of regulatory requirements occurred. This issue was considered a finding of very low safety significance (FIN 05000461/2003009-001). The licensee entered the event into its corrective action system as CR 188848.

.2 Excessive Heatup and Cooldown Rate

Introduction: The inspectors identified a finding of very low safety significance (Green) concerning the licensee's failure to verify heatup and cooldown rates in accordance with Technical Specification following a scram on December 2, 2003. This was determined to be a NCV of TS surveillance requirement 3.4.11.1.

Description: As stated previously, on December 2, 2003, operators manually shutdown the unit in anticipation of a low level condition in the vessel. The operators implemented the emergency response procedures and within 15 minutes established a level band between Level 3 (8.9 in) to Level 8 (52 in) using the motor driven reactor feedwater pump. The inspectors noted that at this time, the total recirculation flow was low (less than 15 percent) and that the operators did not reset the scram signal for approximately fifty-six minutes. The inspectors were concerned that thermal stratification may occur at the bottom region of the vessel due to cold control rod drive water flow through the bottom head penetrations and reduced circulating flow. The inspectors also noted that although the operators were instructed to maintain a specific pressure band, no direction was given to monitor and log the metal temperature of the reactor flange surfaces, bottom head outside surface, bottom head inside surface as measured by the bottom head drain line temperature and the reactor recirculation loop.

At 8:00 p.m. on December 2, the operators began logging heatup and cooldown rates in accordance with Clinton Power Station (CPS) 9600.01D001, "Heatup/Cooldown, In-

service Testing 30 Minutes Temperature Log." This procedure required monitoring temperature indications for the bottom head drain, vessel bottom head, shell flange, vessel head flange, recirculation pump A suction, recirculation pump B suction, steam dome and reactor pressure and limited temperature increases of 100 degrees within one hour. At about 10:00 am on December 3, the operators increased recirculation flow by further opening the recirculation flow control valve and noted that the bottom head drain temperature increased about 108 degrees. The operators notified licensee management that the temperature limitation was exceeded and that an evaluation of its impact on vessel stresses was required per TS 3.4.11 Action A2. The licensee's evaluation concluded that the reactor coolant system integrity was not comprised by this issue.

On December 5, while reviewing the event, training personnel noted that the heat up rate was exceeded once early in the event and the cooldown rate had been exceeded at least twice as shown on computer printouts. These computer points indicated that the bottom head drain temperatures changed greater than 250 degrees within a one hour period following the initial December 2, 2003, scram. The subsequent heatup rate following the reset of the scram signal which was approximately 56 minutes after the initial scram also resulted in the heatup rate exceeding 250 degrees, as indicated by the bottom head drain temperature.

On December 6, after further research into vendor documents and comparison with other utilities, the licensee concluded that the less than 100 degree Fahrenheit change limitation applied to bulk reactor coolant temperature and that the bottom head drain temperature was not an appropriate measure of bulk temperature. The licensee re-reviewed the event data using the recirculation flow temperatures and concluded that the bulk temperature never exceeded a change of 100 degrees within one hour limitation. The licensee then revised their procedures and TS bases which had referenced using the bottom head drain temperature.

The inspectors noted that Technical Specification surveillance requirement 3.4.11.1 required verification that the heatup and cooldown rate were within limitations (change of less than 100 degrees Fahrenheit within one hour) every thirty minutes during heatup and cooldown operations. The technical specification bases for 3.4.11.1 surveillance requirement section stated that verification of this limitation is required every 30 minutes when RCS pressure and temperature conditions are undergoing planned changes. The inspectors concluded that the apparent temperature concerns would have been identified at the time of the events had the licensee performed this required surveillance. The licensee stated that the surveillance was not required to be performed because the cooldowns and heatups were not planned, ie. not being performed as a result of procedures. The inspectors consulted with NRR and confirmed that TS requirement to verify temperatures was required during heatup or cooldown operations, specifically when these conditions were expected to occur such as recovery from reactor scrams. After discussion with the inspectors, the licensee initiated condition reports 189318 and 189523.

Analysis: The inspectors considered the licensee's failure to perform surveillance requirement 3.4.11.1 a performance deficiency. The inspectors used IMC 0612 to disposition this issue. The inspectors determined that the missed surveillance examples

listed in Appendix E did not apply. Although the licensee determined after the event that the results of the surveillance were acceptable, the licensee's procedure requirements at the time of the event would have led to a different conclusion. The inspectors reviewed the Appendix B questions and determined that the issue was more than minor because if left uncorrected, failure to perform a TS surveillance could become a more safety significant issue. This finding was not suitable for SDP evaluation but has been reviewed by NRC management and was determined to be a finding of very low safety significance (Green). This issue may have been greater than Green if the TS temperature limitations were exceeded and if subsequent evaluation showed a degradation of the reactor coolant system integrity.

Enforcement: Technical Specification surveillance requirement 3.4.11.1 required verification that the heatup and cooldown rates are within limitations (change of less than 100 degrees Fahrenheit within one hour) every thirty minutes during RCS heatup and cooldown operations. Clinton Power Station (CPS) 9600.01D001, "Heatup/Cooldown, In-service Testing 30 Minutes Temperature Log." was established to meet this TS requirement. Contrary to the above, on December 2, 2003, following a reactor scram, the operators failed to verify reactor coolant temperature every minutes in accordance with their surveillance procedure. Because this failure to follow technical specification is of very low safety significance and has been entered in the licensee's corrective action program, this violation is being treated as an non-cited violation (NCV) consistent with Section VI.A of the NRC Enforcement Policy (NCV 05000461/2003009-02).

1R15 Operation 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 inspectors completed three samples of the operability determinations and evaluations.

- Operability Evaluation 170723, Revision 1, revised Division 3 emergency diesel generator operability after an instrumented 10 hour run on the outboard generator bearing.
- Division 3 Diesel Generator outage.
- Operability Evaluation 186659-08, Rev 0, 1SX04A pipe wall corrosion.

b. Findings

No findings of significance were identified.

1R16 Operator Workarounds (71111.16)

.1 Review of Selected Operator Workarounds

a. Inspection Scope

The inspectors completed a review of selected operator workarounds to determine whether the identified deficiencies affected functional capability of the system or human reliability in responding to an initiating event was affected. The inspectors evaluated the effect of the operator work-around on the operator's ability to implement abnormal or emergency operating procedures.

The following operator workarounds were reviewed:

- Main power transformer 1C bank 2 fans (1MP04EC) found running at low temperature (WO 622049).
- Condensate recycle valve (1CP - RCV1) operation with three broken hangers.

b. Findings

No findings of significance were identified.

.2 Cumulative Effects of Operator Workarounds

a. Inspection Scope

The inspectors completed a cumulative effect review of all open operator workarounds on the reliability, availability and potential for misoperating a system. Additionally, the inspectors evaluated the effect of the operator workaround on the operator's ability to implement abnormal or emergency operating procedures.

b. Findings

No findings of significance were identified.

1R17 Permanent Plant Modifications (71111.17)

a. Inspection Scope

The inspectors reviewed one permanent plant modification to verify that the instructions were consistent with applicable design modification documents and that the modifications did not adversely impact system operability or availability. The inspectors interviewed operations, engineering and maintenance personnel as appropriate and reviewed the design modification documents and the 10 CFR 50 Part 50.59 evaluations against the applicable portions of the USAR. The documents listed at the end of this report were also used by the inspectors to evaluate this area.

The inspectors also verified that permanent plant modifications performed during increased risk-significant configurations do not place the plant in an unsafe condition. The inspectors reviewed a design change package associated with Engineering Change 338996, "Modify Timing of Turbine Driven Feed Water Pump Time of Low Suction Pressure So That Only One Feed Pump is Tripped at a Time - To Avoid Scram."

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 TS and USAR, as well as the documents listed at the end of this report, to evaluate this area.

Testing subsequent to the following two activities was observed and evaluated:

- Repair and inspections of the Division 1 diesel generator 1A air compressor, following the discovery of debris in discharge header.
- Repair of residual heat removal pump B room cooler isolation valve (1SX027B) following failure of quarterly surveillance test (CPS 9053.04) (Control Power Fuse Replacement).

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 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 at the end of 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 evaluated the following four surveillance tests:

- Division-3 emergency diesel generator's 18-month surveillance test including 24 hour run, load reject, and overspeed testing.
- Division-1 emergency diesel integrated online testing.
- Control Rod Hydraulic and Control Scram Time Testing.
- Division-3 4.16 KV Bus undervoltage relief functional test (WO 642555).

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications (71111.23)

a. Inspection Scope

The inspectors reviewed one temporary plant modification to verify that the instructions were consistent with applicable design modification documents and that the modification did not adversely impact system operability or availability. The inspectors interviewed operations, engineering and maintenance personnel as appropriate and reviewed the design modification documents and the 10 CFR 50 Part 50.59 evaluations against the applicable portions of the USAR. The documents listed at the end of this report were also used by the inspectors to evaluate this area.

The inspectors reviewed the issues that the licensee entered into its corrective action program to verify that identified temporary modification problems were being entered into the program with the appropriate characterization and significance. The inspectors also reviewed the licensee's corrective actions for temporary modification related issues documented in selected CRs. The CRs are specified in the Attachment to this report.

The inspectors reviewed and evaluated the following temporary plant modification on risk-significant equipment:

- Temporary modification (Engineering Change 330799) Monitor Temperature at Valve 1CMO16 and 1CMO033.

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

1EP4 Emergency Action Level and Emergency Plan Changes (71114.04)

a. Inspection Scope

The inspectors reviewed Revisions 2, 3, and 4 of the Clinton Station Annex to Exelon's Standardized Emergency Plan to determine if changes identified in these annex revisions reduced the Plan's effectiveness, pending on-site inspection of the implementation of these changes.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety

2OS1 Access Control to Radiologically Significant Areas (71121.01)

.1 Review of Licensee Performance Indicators for the Occupational Exposure Cornerstone

a. Inspection Scope

The inspectors reviewed the licensee's records to determine if any occupational exposure control cornerstone performance indicators (PIs) had been identified during the previous five calender quarters. If PIs had been identified, the inspectors determined whether or not the conditions surrounding the PIs had been evaluated and identified problems had been entered into the corrective action program for resolution. This review represented one sample.

b. Findings

No findings of significance were identified.

.2 Plant Walkdowns and Radiation Work Permit (RWP) Reviews

a. Inspection Scope

The inspectors reviewed the RWPs and work packages used to access containment, the heater bays and other high radiation work areas to identify the work control instructions and control barriers that had been specified. Electronic dosimeter alarm set points for both integrated dose and dose rate were evaluated for conformity with survey indications and plant policy. Workers were interviewed to verify that they were aware of the actions required when their electronic dosimeters noticeably malfunctioned or alarmed. This review represented one sample.

The inspectors walked down and surveyed (using an NRC survey meter) the perimeter of high and locked high radiation areas to verify that the prescribed radiation work permit (RWP) and procedural controls were in place and that licensee surveys and postings were complete and accurate.

The inspectors reviewed records to determine if airborne radioactivity areas with the potential for individual worker internal exposures of >50 millirem committed effective dose equivalent (CEDE) had been identified within the facility. Work areas having a history of, or the potential for, airborne transuranics were also evaluated to verify that the licensee had considered the potential for transuranic isotopes and provided appropriate worker protection. This review represented one sample.

The adequacy of the licensee's internal dose assessment process for internal exposures >50 millirem committed effective dose equivalent was assessed. This review represented one sample.

The inspectors also reviewed the licensee's physical and programmatic controls for highly activated and/or contaminated materials (non-fuel) stored within spent fuel or other storage pools. This review represented one sample.

b. Findings

No findings of significance were identified.

.3 Problem Identification and Resolution

a. Inspection Scope

The inspectors reviewed selected self-assessments and Nuclear Oversight assessments related to the access control program to verify that identified problems were entered into the corrective action program for resolution. This review represented one sample.

The inspectors reviewed selected CRs related to access controls and high radiation area radiological incidents when available (non-PIs identified by the licensee in high radiation areas <1R/hr). Staff members were interviewed and corrective action documents were reviewed to verify that follow-up activities were being conducted in an effective and timely manner commensurate with their importance to safety and risk. This review represented one sample.

The inspectors evaluated the licensee's process for problem identification, characterization, and prioritization and verified that problems were entered into the corrective action program and resolved. For repetitive deficiencies and/or significant individual deficiencies in problem identification and resolution, the inspectors verified that the licensee's self-assessment activities were capable of identifying and addressing these deficiencies. This review represented one sample.

The inspectors reviewed licensee documentation packages for all PI events occurring since the last inspection to determine if any of these PI events involved dose rates >25 R/hr at 30 centimeters or >500 R/hr at 1 meter. Barriers were evaluated for failure and to determine if there were any barriers left to prevent personnel access. Unintended exposures >100 millirem total effective dose equivalent (or >5 rem shallow dose equivalent or >1.5 rem lens dose equivalent) were evaluated to determine if there were any regulatory over exposures or if there was a substantial potential for an overexposure. This review represented one sample.

b. Findings

No findings of significance were identified.

.4 Job-In-Progress Reviews

a. Inspection Scope

The inspectors observed jobs that were being performed in radiation areas and high radiation areas for observation of work activities that presented the greatest radiological risk to workers. The jobs observed included routine maintenance in Containment and radiography in the Auxiliary Building. The inspectors reviewed radiological job requirements for these activities, including RWP requirements and work procedure requirements, and attended ALARA job briefings. This review represented one sample.

Job performance was observed with respect to these requirements to verify that radiological conditions in the work area were adequately communicated to workers through pre-job briefings and postings. The inspectors also verified the adequacy of radiological controls including required radiation, contamination, and airborne surveys for system breaches; radiation protection job coverage which included audio and visual surveillance for remote job coverage; and contamination controls. This review represented one sample.

Radiological work in high radiation work areas having significant dose rate gradients was reviewed to evaluate the application of dosimetry to effectively monitor exposure to personnel and to verify that licensee controls were adequate. These work areas involved areas where the dose rate gradients were severe which increased the necessity of providing multiple dosimeters and/or enhanced job controls. This review represented one sample.

b. Findings

No findings of significance were identified.

.5 High Risk Significant, High Dose Rate Area and Very High Radiation Area Controls

a. Inspection Scope

The inspectors held discussions with the Radiation Protection Manager concerning high dose rate/high radiation area and very high radiation area controls and procedures, including procedural changes that had occurred since the last inspection, in order to verify that any procedure modifications did not substantially reduce the effectiveness and level of worker protection. This review represented one sample.

The inspectors discussed with radiation protection (RP) supervisors the controls that were in place for special areas that had the potential to become very high radiation areas during certain plant operations, to determine if these plant operations required communication beforehand with the RP group, so as to allow corresponding timely actions to properly post and control the radiation hazards. This review represented one sample.

b. Findings

No findings of significance were identified

.6 Radiation Worker Performance

a. Inspection Scope

During job performance observations, the inspectors evaluated radiation worker performance with respect to stated radiation protection work requirements and evaluated whether workers were aware of the significant radiological conditions in their workplace, the RWP controls and limits in place, and that their performance had accounted for the level of radiological hazards present. This review represented one sample.

The inspectors reviewed radiological problem reports which found that the cause of the event was due to radiation worker errors to determine if there was an observable pattern traceable to a similar cause, and to determine if this perspective matched the corrective action approach taken by the licensee to resolve the reported problems. These problems, along with planned and taken corrective actions were discussed with the Radiation Protection Manager. This review represented one sample.

b. Findings

No findings of significance were identified.

.7 Radiation Protection Technician (RPT) Proficiency

a. Inspection Scope

During job performance observations, the inspectors evaluated RPT performance with respect to radiation protection work requirements and evaluated whether they were aware of the radiological conditions in their workplace, the RWP controls and limits in place, and if their performance was consistent with their training and qualifications with respect to the radiological hazards and work activities. This review represented one sample.

The inspectors reviewed radiological problem reports to identify events caused by radiation protection technician error to determine if there was an observable pattern traceable to a similar cause, and to determine if this perspective matched the corrective action approach taken by the licensee to resolve the reported problems. This review represented one sample.

b. Findings

No findings of significance were identified.

2OS2 As-Low-As-Is-Reasonably-Achievable (ALARA) Planning And Controls (71121.02)

.1 Inspection Planning

a. Inspection Scope

The inspectors reviewed plant collective exposure history, current exposure trends, ongoing and planned activities in order to assess current performance and exposure challenges. This included determining the plant's current 3-year rolling average for collective exposure in order to help establish resource allocations and to provide a perspective of significance for any resulting inspection finding assessment. This review represented one sample. The inspectors determined site specific trends in collective exposures and source-term measurements. This review represented one sample.

b. Findings

No findings of significance were identified.

.2 Declared Pregnant Workers

a. Inspection Scope

The inspectors reviewed dose records of declared pregnant workers for the current assessment period to verify that the exposure results and monitoring controls employed by the licensee complied with the requirements of 10 CFR 20. This review represented one sample.

b. Findings

No findings of significance were identified.

Cornerstone: Public Radiation Safety

2PS2 Radioactive Material Processing and Transportation (71122.02)

.1 Shipment Preparation

a. Inspection Scope

The inspectors reviewed the records of training provided to personnel responsible for the conduct of radioactive waste processing and radioactive shipment preparation activities. The review was conducted to verify that the licensee's training program provided training consistent with NRC and U. S. Department of Transportation requirements.

b. Findings

No findings of significance were identified.

4. **OTHER ACTIVITIES (OA)**

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, Occupational Radiation Safety, and Physical Protection

4OA1 Performance Indicator Verification (71151)

.1 Reactor Safety Strategic Area

a. Inspection Scope

The inspectors reviewed documents listed in the Attachment to verify that the licensee had corrected reported PI data, in accordance with the criteria in Nuclear Energy Institute 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 2. The data reported by the licensee was compared to a sampling of control room logs, CRs, and other sources of data generated between September 2002 through September 2003. The inspectors completed two samples by verifying the following PIs

- Residual Heat Removal System Unavailability
- Reactor Coolant System Activity.

.2 Radiation Safety Strategic Area

a. Inspection Scope

The inspectors reviewed the licensee records to verify the following performance indicators:

- Occupation Exposure Control Effectiveness and
- RETS/ODCM Radiological Effluents

The inspectors used PI guidance and definitions contained in Nuclear Energy Institute Document 99-02, Revision 2, "Regulatory Assessment Performance Indicator Guideline," as well as reviews of selected documents including data from logs, licensee event reports, CRs, and calculations to verify the accuracy of the licensee's PI data.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (Routine) (71152)

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. In addition, the inspectors reviewed the licensee's action following the NRC's discovery that the Bus 1C1 Reserve Feed Potential Transformer (PT) drawer was misaligned and not fully closed.

b. Findings

Introduction: The inspectors identified a Green NCV of 10 CFR 50, Appendix B, Criterion XVI involving the licensee's failure to promptly enter an identified condition adverse to quality into their corrective action program. This finding related to the cross-cutting area of Human Performance, in that, engineering personnel were aware of a discrepant condition on 4160 volt Bus 1C1 Reserve Feed potential transformer cubicle door but did not correct the condition for several days.

Description: On October 21, 2003, during a system walkdown, NRC Safety System Design Inspection inspectors identified that the 4160 volt Bus 1C1 Reserve Feed potential transformer cubicle door was misaligned and not properly secured. Following an investigation, the licensee's engineering staff determined that the potential transformer cubicle was inserted sufficiently to energize the emergency reserve auxiliary transformer (ERAT) potential transformer. Therefore, the ERAT source to the 1C1 4160 volt was available. However, the seismic qualification of the potential transformer drawer cubicle 106 was indeterminate because the drawer was not securely latched as intended by the design and the qualification report. The licensee also determined that the qualification of the Division 3 Switchgear and adjacent cubicles may also be adversely affected by the misalignment of cubicle 106 potential transformer drawer. This investigation had been ongoing a little over 3 days without the knowledge of operation shift management. The licensee documented this issue in CR 182734.

During follow-up discussions with the licensee, the resident inspectors determined that the licensee's operation shift management was unaware of this issue until October 24, 2003. After becoming aware of this issue, the operators reinstalled and latched the cubicle drawer properly, such that the seismic requirements and the ERAT feed to the 1C1 bus was operable.

The inspectors concluded that based on the licensee's information, the condition of the 1C1 Reserve Feed potential transformer cubicle door was a condition adverse to quality. The inspectors noted that a loss of the capability of the emergency reserve auxiliary transformer to supply the 1C1 bus would result in a TS limiting condition for operation time limit of 72 hours if the cubicle drawer was determined to be inoperable. The inspectors also concluded that the licensee did not respond to the condition promptly because the delay in communicating the issue to the operations. The licensee documented the inspectors' conclusion in CR 186557 and performed an investigation. The licensee identified flawed defenses and barriers designed to prevent this type of issue from occurring, included inadequate supervision and management oversight.

Analysis: The inspectors determined that the licensee's failure to promptly identify and correct conditions adverse to quality was a performance deficiency and used IMC 0612 to disposition the issue. The inspectors determined that this issue was more than minor because the finding could be reasonably viewed as a precursor to a significant event and if left uncorrected, the finding would become a more significant safety concern because the station personnel could fail to evaluate non-conforming conditions which could render safety related equipment inoperable. The finding impacted the mitigating systems cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The

finding also affected the cross-cutting area of Human Performance, in that, engineering personnel were aware of a discrepant condition on Bus 1C1 Reserve Feed potential transformer cubicle door but did not correct the condition for several days.

The inspectors entered the significance determination process using Manual Chapter 0609, Appendix A, "Significance Determination For Reactor Inspection Findings For At-Power Situations." Using the SDP Worksheet 1, the inspectors answered "yes" to Question 1 in the Phase I analysis under the Mitigation System cornerstone because the licensee determined that despite the cubicle drawer not being aligned as indicated by the design and the qualification report, the potential transformer would remain operable during a seismic event. Based on this conclusion, the inspectors determined that this issue is of very low safety significance (Green).

Enforcement: 10 CFR 50, Appendix B, Criterion XVI, requires that measures shall be established to assure that conditions adverse to quality are promptly identified and corrected. Contrary to this, on October 21, 2003, the licensee failed to promptly implement effective corrective actions following the identification of an misaligned cubicle drawer in the 4160 Volt Bus 1C1 Reserve Feed Potential Transformer cubicle. Because of the very low safety significance, this violation is being treated as a Non-Cited Violation (NCV 05000461/2003009-03) consistent with Section VI.A.1 of the NRC Enforcement Policy. This issue was entered into the licensee corrective action program as CR 145061.

4OA3 Event Follow-up (71153)

.1 Operability Investigation for 4160 volt Bus 1C1 Reserve Feed

a. Inspection Scope

On November 13, 2003, the inspectors monitored the licensee's investigation (pull test) for Division 3 potential transformer fuse carrier drawer in response to the drawer not being latched in place for seismic qualification (discussed in Section 4OA2 above). The inspectors reviewed WO 632210, "Measure Pull-Out Force for Division 3 Reserve Feed PT [potential transformer] Drawer and witnessed the test. The test results were instrumental in the licensee's evaluation for seismic operability.

b. Findings

No findings of significance were identified.

.2 SCRAM due to Loss of 480Vac Unit sub 1I

a. Inspection Scope

The inspectors monitored licensee response and classification for SCRAM due to loss of 1I Bus power on December 2, 2003 (operator actions discussed in Section 1R14). The inspectors also monitored the management meetings for reviewing the SCRAM report and the licensee's restart activities.

b. Findings

No findings of significance were identified.

4OA6 Meetings

.1 Exit Meeting

The inspectors presented the inspection results to Mr. R. Bement and other members of licensee management at the conclusion of the inspection on January 16, 2004. 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

An interim exit meeting was conducted for:

- Licensed Operator Requalification Testing for Calendar Year 2003 and Applicability of NRC Inspection Manual Chapter 0609, Appendix I, "Operator Requalification Human Performance Significance Determination Process (SDP)," with Mr. K. McCall on October 20, 2003.
- Radiation Protection inspection with Mr. R. Bement on November 20, 2003.
- Emergency Preparedness inspection with Mr. S. McCain on December 18, 2003.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee
R. Bement, Site Vice President
K. Polson, Plant Manager
J. Cunningham, Work Management Director
R. Davis, Radiation Protection Director
R. Frantz, Regulatory Assurance Representative
M. Hiter, Access Control Supervisor
W. Iliff, Regulatory Assurance Director
J. Madden, Nuclear Oversight Manager
S. McCain, Corporate Emergency Preparedness Manager
R. Schmidt, Maintenance Manager
D. Schavey, Operations Director
J. Sears, Chemistry Manager
T. Shortell, Training Manager
C. Williamson, Security Manager
J. Williams, Site Engineering Director
R. Zacholski, Shift Operations Superintendent

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Opened and Closed

05000461/2003009-01	FIN	Automatic Shutdown Signal Generated Due to Personnel Error
05000461/2003009-02	NCV	Failure to Perform a TS Required Surveillance
05000461/2003009-03	NCV	Failure to Promptly Implement Corrective Actions

Discussed

None

LIST OF DOCUMENTS REVIEWED

The following is a list of documents reviewed during the inspection. Inclusion on this list does not imply that the NRC inspectors reviewed the documents in their entirety but rather that selected sections of portions of the documents were evaluated as part of the overall inspection effort. Inclusion of a document on this list does not imply NRC acceptance of the document or any part of it, unless this is stated in the body of the inspection report.

1R01 Adverse Weather

CPS 1860.01, Cold Weather Preparations Checklist, Revision 3a.

1R04 Equipment Alignment

CPS 3506.01D003, Diesel Generator 1C Operating Logs
CPS 3506.01E001, Diesel Generator and Support Systems Electrical Lineup
CPS 3310.01, Reactor Core Isolation Cooling System
CPS 3310.01E001, Reactor Core Isolation Cooling System Electrical Lineup
CPS 3310.01V001, Reactor Core Isolation Cooling System Valve Lineup
CPS 3312.01, Residual Heat Removal System
CPS 3312.01V001, Residual Heat Removal System Valve Lineup
CPS 3309.01, High Pressure Core Spray
CPS 3309.01E001, High Pressure Core Spray Electrical Lineup
CPS 3309.01V001, High Pressure Core Spray Valve Lineup
CR 187929, NRC Inspector identified Deficient Condition, dated November 21, 2003
CR 188845, Bolt Attaching Linkage to 1VD01YB Damper found Loose, dated December 6, 2003
CR 185819, HPCS Waterleg Pump Bubbler Oil Leak, dated November 6, 2003
CR 178096, Minor Cavitation Noted on RHR B Test Return Line Orifice, dated September 29, 2003
CR 177868, Small Oil Accumulation at RCIC Governor, dated September 27, 2002
CR 177806, Enhancement to ID the RCIC Lube Oil Cooler as “NO STEP,” dated September 26, 2003
CR 184107, Miscellaneous Deficiencies Identified by NRC Senior Resident, dated October 31, 2003
CR 185500, Enhancement CR for RCIC Valve Lineup, dated November 11, 2003

1R05 Fire Protection

Updated Safety Analysis Report (USAR) 9.5.1, “Fire Protection”
Fire Protection Evaluation Report,
Fire Protection Safe Shutdown Analysis.
CPS 1019.05 Control of Transient Material

1R06 Flood Protection

CPS 4304.01, Flooding, Revision 4a
CR 182634, NRC Resident Inspector Identified large Amount of Condensation, dated

1R13 Maintenance Risk Assessment and Emergent Work Evaluation

WC-AA-101, On-Line Work Control Process
WC-AA-104-1001, Human Performance Review Process for High Risk Maintenance

1R14 Personnel Performance During Non-routine Plant Evolutions

OP-AA-101-111, Roles and Responsibilities of On-Shift Personnel
OP-AA-1, Conduct of Operations
OP-AA-106-101-1006, Operational and Technical Decision Making Process
CPS 1041.01, Post Trip Review
CR 188848, Automatic Scram Transferring Level Control from FW to CD/CB dated December 2, 2002
CR 188839, Reactor Scram dated December 6, 2002
CPS 3514.01E017, 480 Volt Unit Bus 1I Outage Restoration Electrical Lineup
GE SIL 430, "Reactor Pressure Vessel Temperature Monitoring"
GE SIL 251, " Control of RPV Bottom Head Temperatures"
GE SIL 251S1, "BWR Vessel Bottom Head Coolant Temperature Measurement"

1R19 Post Maintenance Testing

MA-AA716-012, Post Maintenance Testing

1R22 Surveillance Testing

CPS 9080.23, Diesel Generator 1C - ECCS Integrated, Revision27c.
CPS 9080.24, DG 1A Test Mode Override, Load Reject Operability, and Idle, Revision 0d.
CPS 9080.21, Diesel Generator 1A - ECCS Integrated, Revision 25d.
CPS 3304.04, Control Rod Exercising Modes 3, 4, or 5, Revision 0a.
CPS 9801.13, Control Rod Scram Time Testing
CPS 9801.13C001, Control Rod Scram Time Testing Checklist
CPS 9333.46, Division III 4.16kV Main Feed Under-voltage Protective Relay (Loss of Voltage) Calibration with Doble F2000 Test Equipment, Revision 1.
CR 173409, Possible Cavitation of Div 3 DG Heat Exchanger Outlet Valve 1SX006C, dated August 27, 2003
CR 0174498, Operator Training on Channel Bow Impacts, dated September 9, 2003

1R23 Temporary Plant Modifications

LS-AA-104, Exelon 50.59 Review Process

EP4 Emergency Action Level and Emergency Plan Changes

Clinton Station Annex to Exelon's Standardized Emergency Plan, Revision 2
Clinton Station Annex to Exelon's Standardized Emergency Plan, Revision 3
Clinton Station Annex to Exelon's Standardized Emergency Plan, Revision 4

Midwest Region Annex EAL Revision in Response to the Peach Bottom Event, undated
50.54(q) Evaluation and Effectiveness Review for Revision 2 of the Clinton Annex to the Standardized Emergency Plan, dated August 2002
50.54(q) Evaluation and Effectiveness Review for Relocation of the Joint Public Information Center for Clinton Power Station, dated May 2003
Change Management Initiative - Revise Toxic Gas Alert EAL to Comply with Nuclear Energy Institute 99-01 and NRC Requirements, dated March 2003
Implementing Procedure EP-AA-111, Attachment 1, Event Termination and Recovery Criteria, Revision 5

20S1 Access Control to Radiologically Significant Areas

CR 13054; Failure to Follow RP Briefing During LHRA Entry, dated November 6, 2002
CR 131588; Elevated Dose Rates in CT Stairwell, dated November 14, 2002
CR 138655; Authority to Exceed Stop Work Limits Not Documented Correct, dated January 8, 2003
CR 142677; Rad Protection Self-Assessment/TEDE Evaluation Deficiency, dated February 3, 2003
CR 149892; Multiple Entries into a LHRA, dated March 19, 2003
CR 153562; MG Alarmed on Dose, dated April 11, 2003
CR 166607; ED Alarm Not Documented IAW RP-CL-213-1001
CR 173921; Lessons Learned from 828' IFTS Diving Project, dated September 2, 2003
CR 176906; Unexpected Electronic Dosimeter Rate Alarm Received, dated September 22, 2003
CR 181552; Dose Alarm Exceeded; dated October 17, 2003
CR 183439; Electronic Dosimeter Alarm; dated October 28, 2003
CR 187087; Numerous Areas of Water Found on the Floor; dated November 18, 2003
CR 187296; Failure to Use Collimator during Radiography Evolution; dated November 19, 2003
CR 187331; OTF03T Excessive In-leakage; dated November 19, 2003
RWP 10002282; CPS 2003 Radiography; Revision 2
RWP 10002812; Helium Leak Test; Revision 2
RWP 10002812; Work-in-Progress Review; dated August 13, 2003
RWP 10002813; Repair of 1HD012A and 1HD021A; Revision 2
RWP 10002813; Work-in-Progress Review; dated October 30, 2003
Clinton Power Station 3-Year Rolling Average
Clinton Power Station Fuel Pool Inventory; dated March 2003
Clinton Power Station HRA LHRA Controls Self Assessment Report; February 3 to 7, 2003
Radiation Protection Self Assessment; July 14 to August 16, 2003
RCCL 4E.320; NOS Assessment of RG6 ALARA Controls
02-025ID; Radiological Technical Evaluation Internal Dose Calculation; dated December 18, 2002
RP-AA-376-1001; Radiological Posting, Labeling and Marking Standard; Revision 2
RP-AA-460; Controls for High and Very High Radiation Areas; Revision 2

2OS2 As Low As Is Reasonably Achievable Planning And Controls (ALARA)

Clinton Power Station 2003 to 2005 Exposure Reduction Plan

Clinton Power Station Prenatal Radiation Exposure; July 1, 2002 to November 17, 2003
Clinton Power Station BRAC Point Measurements from RF-1 to C1M13

4OA1 Performance Indicator Verification

Clinton PI Data Summary Report Q3/2003
LS-AA-2150; Monthly PI Data Elements for RETS/ODCM Radiological Effluent Occurrences; Revision 3
Clinton Power Station CR Titles (7/1/2002 - 11/17/2003) Generated by Radiation Protection Department; dated November 19, 2003
Clinton Power Station Electronic Dosimeter Alarm Log; July 1, 2002 to November 17, 2003

2PS2 Radioactive Material Processing and Transportation

Certificates of Training (Transportation) for Philip Short and Dan Seal; dated July 26, 2001

LIST OF ACRONYMS USED

ADAMS	Agency wide Documents Access and Management System
ALARA	As Low As Reasonably Achievable
CEDE	Committed Effective Dose Equivalent
CFR	Code of Federal Regulations
CPS	Clinton Power Station
CR	Condition Reports
EHC	Electro-hydraulic Control
EP	Emergency Preparedness
ERAT	Emergency Reserve Auxilary
HPCS	High Pressure Core Spray
IMC	Inspection Manual Chapter
MDRFP	Motor-Driven Reactor Feed Pump
MR	Maintenance Rule
NCV	Non-Cited Violation
NRC	Nuclear Regulatory Commission
ORM	Operations Requirements Manual
PARS	Publicly Available Records
PI	Performance Indicator
PT	Potential Transformer
RHR	Residual Heat Removal
RP	Radiation Protection
RPT	Radiation Protection Technician
RPV	Reactor Pressure Vessel
RWP	Radiation Work Permit
SDP	Significant Determination Process
Sub	Substation
TDRFP	Turbine Driven Reactor Feed Pump
TS	Technical Specification
USAR	Updated Safety Analysis Report