October 29, 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 05000461/2004006

Dear Mr. Crane:

On September 30, 2004, 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 October 18, 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, one NRC-identified and one self-revealed finding of very low safety significance (Green), one of which was determined to involve a violation of NRC requirements, were identified. However, because of the very low safety significance and because it was entered into your corrective action program, the NRC is treating this finding as a non-cited violation (NCV) consistent with Section VI.A.1 of the NRC Enforcement Policy.

If you contest the subject or severity of a Non-Cited Violation, 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, 2443 Warrenville Road, Suite 210, Lisle, IL 60532-4352; 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 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

Ann Marie Stone, Chief
Branch 3
Division of Reactor Projects

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

Enclosure: Inspection Report No. 05000461/2004006
w/Attachment: Supplemental Information

cc w/encl: Site Vice President - Clinton Power Station
Plant Manager - Clinton Power Station
Regulatory Assurance Manager - Clinton Power Station
Chief Operating Officer
Senior Vice President - Nuclear Services
Vice President - Operations Support
Vice President - Licensing and Regulatory Affairs
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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No:	50-461
License No:	NPF-62
Report No:	05000461/2004006
Licensee:	AmerGen Energy Company, LLC
Facility:	Clinton Power Station
Location:	Route 54 West Clinton, IL 61727
Dates:	July 1 through September 30, 2004
Inspectors:	B. Dickson, Senior Resident Inspector C. Brown, Resident Inspector D. Tharp, Resident Inspector D. Chyu, Reactor Inspector M. Sheikh, Resident Inspector, Dresden Station R. Walton, Operations Engineer D. Zimmel, Illinois Emergency Management Agency Inspector
Approved by:	A. Stone, Chief Branch 3 Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000461/2004006, 07/01/2004 - 09/30/2004; Clinton Power Station. Fire Protection and Event Follow-up.

This report covers a 3-month period of baseline resident inspection. The inspection was conducted by Region III inspectors and the resident inspectors. Two Green findings associated with one Non-Cited Violation (NCV) 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. A finding of very low safety significance was identified by the inspectors for a violation of license-required fire protection program requirements. The licensee had removed a portable fire extinguisher from its designated storage location on the 828 foot elevation of containment and could not locate it. The fire marshal quickly replaced the missing extinguisher and conducted a walkdown of the containment to ensure no other portable fire extinguishers were missing from their required locations.

  This finding was more than minor because left uncorrected, it would become a more significant safety concern. The licensee's ability to cope with fires of limited size in the area was impaired due to the insufficient number of extinguishers. The issue was of very low safety significance because there were two nearby hose stations which could be used for fire suppression activities. The issue was a Non-Cited Violation of the facility operating license section 2.F which required the implementation of the fire protection program. (Section 1R05)

Cornerstone: Mitigating Systems

- Green. A finding of very low safety significance was self-revealed during a maintenance activity when Division essential switchgear heat removal was lost as a result of an inadequate impact statement in the work order. The primary cause of this finding was related to the cross-cutting area of Human Performance. In addition to the maintenance planner missing the relationship between the safety and non-safety supply fan motors, several other opportunities to identify this inadequate impact statement were missed.

  This finding was more than minor because with the division three essential switchgear heat removal system unavailable, the high pressure core spray system may be rendered inoperable. The issue was of very low safety significance because the initial temperature in the division three switchgear room was low and the loss of essential

switchgear heat removal was of short duration, the high pressure core spray system was never actually inoperable. No violation of NRC requirements occurred. (Section 4OA3)

B. **Licensee-Identified Violations**

No findings of significance were identified.

REPORT DETAILS

Summary of Plant Status

The plant was operated at about 95 percent rated thermal power (maintaining 103 percent rated electrical output) from the beginning of the inspection period until July 13, 2004, when an automatic shutdown occurred due to a turbine load reject during a severe thunderstorm. On July 17, 2004, operators restarted the plant and reached 95 percent power on July 19, 2004. Except for short duration power decreases for rod pattern adjustments, the plant was operated at about 95 percent through the remainder 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 design features and licensee requirements related to the dam and overflow area were effective in protecting mitigating systems from the effects of possible flooding caused by seasonal heavy rains. The inspectors observed the conditions of the dam and dam overflow area and reviewed the licensee's requirements for maintaining those areas. The inspectors verified that minor issues identified during the inspection were entered into the licensee's work control system by reviewing the associated work request documents. The inspectors completed one sample of the licensee's overall preparations and protection for the heavy rains.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignments (71111.04Q)

.1 Partial Walkdowns

a. Inspection Scope

The inspectors performed partial walkdowns of accessible portions of trains 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 condition reports (CRs) associated with the divisions to verify that those documents did not reveal issues that could affect division 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. The documents listed at the end of this report were also used by the inspectors to evaluate this area. The inspectors performed 2 samples by verifying the alignment of the following divisions:

- Residual heat removal system 'A'.
- Division 2 standby gas treatment system during Division 1 system outage.

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 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 reviewed portions of the licensee's Fire Protection Evaluation Report (FPER) and the Updated Safety Analysis Report (USAR) to verify consistency in the documented analysis with installed fire protection equipment at the station.

The inspectors completed four samples by inspecting the following areas:

- Fire Area C-2, Containment (778' level, 803' level, 828' level)
- Fire zone F-1b, High Pressure Core Spray Pump Room
- Fire zone A-3f, 781' auxiliary building, Division 2 switchgear room
- Fire zone A-1b, General Access Area in Auxiliary building at elevation 737'0"

b. Findings

Introduction: The inspectors identified a Non-Cited Violation (NCV) of the licensee's operating license NPF-62, Section 2.F relating to their fire protection program. Specifically, the violation was of very low safety significance (Green) for failing to

provide the required number of portable fire extinguishers in Fire area C-2, (refueling floor).

Description: During a walkdown of the containment 828 foot level on August 12, 2004, the inspectors identified a portable fire extinguisher missing from its designated storage location as described in CPS 1893.04M250 828' Containment Pre Fire Plan and the USAR Features map FP-7b. The inspectors notified the licensee's fire marshal of the missing extinguisher.

The licensee conducted a database search for the missing extinguisher and was unable to locate it. The fire marshal replaced the missing extinguisher with a new one and conducted a thorough walkdown of the containment to ensure no other portable fire extinguishers were missing from their designated storage locations.

Analysis: The inspectors determined that failing to provide the required minimum numbers of extinguishers on the refueling pool level in the containment is a performance deficiency warranting a significance evaluation. The inspectors concluded that the finding was greater than minor in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Disposition Screening," issued on June 20, 2003. The inspectors determined that the finding was more than minor because if left uncorrected, would become a more significant safety concern because it impacted the licensee's ability to cope with a fire. In addition, the finding involved the attribute of protection against external factors (fire) and could have affected the mitigating systems objective of ensuring the availability of systems that respond to initiating events to prevent undesirable consequences. The licensee's ability to cope with fires of limited size in the area was impaired due to insufficient number of extinguishers. A fire of limited size would grow larger than expected (fire growth is proportion to time squared) due to delay in the initial fire suppression activities.

The inspectors completed a significance determination of this issue using IMC 0609, "Significance Determination Process (SDP)," dated April 21, 2003, Appendix F, "Fire Protection Significance Determination Process," dated May 28, 2004. The finding affected the Fixed Fire Protection Systems category and manual fire suppression equipment. The inspectors assigned a degradation rating of low because there were two nearby hose stations which could be used for fire suppression activities. Therefore, the finding was considered to be of very low safety significance (Green). The finding was assigned to the mitigating systems cornerstone.

Enforcement: Clinton Facility Operating License NPF-62, Section 2.F, stated, in part, that the licensee shall implement and maintain in effect all provisions of the approved fire protection program as described in the Final Safety Analysis Report as amended for the Clinton Power Station Unit 1. Clinton Updated Safety Analysis Report, Section 9.5.1, "Fire Protection System," stated, in part, that the Fire Protection Evaluation Report (FPER) constituted the bases for the fire protection program at Clinton Power Station. Fire Protection Evaluation Report, Section 4, "Compliance with BTP APCSB 9.5-1 Appendix A, Plants Under Construction and Operating Plants," stated, in part, that portable fire extinguishers were provided and will conform to the applicable requirement of National Fire Protection Association (NFPA) 10. Based on the building layout and hazards present in Fire Area C-2, the licensee was required to install two Classes A, B, and C extinguishers in the 828 foot elevation of the containment in

accordance with NFPA 10. Contrary to the above, on August 12, 2004, the inspectors identified that only one extinguisher was installed in Fire Area C-2 (refueling floor). Once identified, the licensee entered the issue into its corrective action program as CR 00243925. The licensee replaced the missing extinguisher immediately and conducted an extent-of-condition review at other levels of the containment. No other deficiencies were identified. Because this 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 NCV, consistent with Section VI.A of the NRC Enforcement Policy. (NCV 05000461/2004006-01).

.2 Annual FP Drill Assessment

a. Inspection Scope

The inspectors assessed fire brigade performance and the drill evaluators' critique for an announced fire brigade drill for a simulated fire by the Auxiliary building ALARA monitor and communication equipment as described by fire drill scenario U2004-11-737 on August 20, 2004. 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 two samples for the annual fire drill requirement. One sample was completed by evaluating this fire drill, and one sample by reviewing the self contained breathing apparatus inspection records.

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures (71111.06)

a. Inspection Scope

The inspectors verified that the internal flood protection features, flooding mitigation plans and equipment were consistent with the licensee's design requirements and risk analysis assumptions. The inspectors reviewed USAR Section 3.4.1 for internal flooding events and walked down selected areas to ensure proper sealing of equipment below the floodline, that there were no unsealed penetrations in floors or walls between flood areas, that watertight doors between flood areas were adequate, and that sump pumps, level alarms, and control circuits were functioning as designed. The inspectors also reviewed condition reports and work orders on the flood control measures for flooding in and between the three divisional shut down service water (SX) rooms. The inspection effort constituted one sample of internal flood protection .

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance (71111.07)

a. Inspection Scope

On August 25, 2004, the inspectors completed one sample of the heat sink performance inspection. The inspectors compared the installation of thermocouples, flow meter, and data recording equipment with licensee's procedural requirements and observed the licensee's performance testing on the Division 3 diesel generator jacket water heat exchanger. The inspectors reviewed the test acceptance criteria and test results data to verify the licensee had appropriately considered differences between testing conditions and design conditions and considered test instrument inaccuracies and differences. The inspectors also reviewed the testing frequency to determine if it was sufficient to detect degradation before loss of heat removal capabilities below design basis values.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program (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.

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

- Simulator dynamic exam SE-LOE-31, Revision 00. Which included a loss of coolant accident, core blowdown and reflood scenarios.
- 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 that the licensee evaluators 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.

These activities completed one inspection sample.

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 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 being in the increased monitoring (MR category (a) (1)) group. In addition, the inspectors interviewed the system engineers and maintenance rule coordinator. The inspectors also reviewed condition reports and associated documents for appropriate identification of problems, entry into the corrective action system, and appropriateness of planned or completed actions. The documents reviewed are listed at the end of the report. The inspectors completed three samples by reviewing the following:

- Maintenance scoping and licensee's assessment associated with component cooling system
- Maintenance information on Residual Heat Removal System (RH)
- Auxiliary Power Division 1, 2, and 3 (AP1) (AP2) and (AP3)

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

- Performed Evaluation of Licensee Risk Assessment rated to RCIC system's availability during quarterly surveillance test
- Reviewed the risk assessment for the Division-1 4 kV Bus (2^{nd} level) UV relay
- Reviewed the licensee's risk assessment related to troubleshooting reactor recirculation 'A' flow control valve concurrent with Technical Specifications (TSs) required Main Condenser Low Vacuum, Channel Calibration Testing

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. In particular, the inspectors reviewed personnel performance during the following two plant events (two samples):

- Operator attempting to put RHR B in SDC following a reactor scram
- Response to the automatic shutdown on July 13, 2004

• 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 inspectors completed five samples of the operability determinations and evaluations by reviewing the following:

- VC 'A' operability evaluation review from changes during outage
- Division 2 service water/shutdown service water cross tie valve indicating intermediate, Issue Report (IR) 237902
- E.C. Engineering Evaluation (350620) Reactor Core Isolation Cooling oil leak
- IR 240608 oil leak on the reactor core isolation cooling system pump shaft drive oil pump
- Condition Reports 250070 and 250072 (duct tape on electrical penetrations 1EE34E and 1EE10E

b. Findings

No findings of significance were identified.

1R16 Operator Work-Arounds (71111.16)

a. Inspection Scope

The inspectors reviewed the licensee's work-around list and interviewed operators to identify any potential effects on the functionality of mitigating systems or human reliability in responding to an initiating event caused by an operator work-around. The inspectors completed a cumulative effects review of all operator workarounds to identify

any potential effect on the reliability, availability, and potential for misoperation of a system.

The inspectors completed to two samples by performing:

- A review of the Division-2 diesel generator air compressor replacement
- A semi-annual cumulative effects review of all operator workarounds

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.

The inspectors completed five samples by observing and evaluating testing subsequent to the following activities:

- Reviewed Post Maintenance Test WO 689609 VC 'B' valve operability (scaffold interference.)
- WO# 689609 Control Room Ventilation 'B' valve operability following damper linkage adjustments
- WO# 711968 Drywell post LOCA vacuum breaker verification test
- Troubleshooting and repair of OVG05YB standby gas treatment system B exhaust damper per WO#572413
- WO# 572413, Limit Switch Adjustment

b. Findings

No findings of significance were identified.

1R20 Refueling and Outage Activities (71111.20)

a. Inspection Scope

The inspectors evaluated the licensee's conduct of forced outage activities to assess the licensee's control of plant configuration and management of shutdown risk. The inspectors reviewed configuration management to verify that the licensee maintained

defense-in-depth commensurate with the shutdown risk plan, and reviewed major outage work activities to ensure that correct system lineups were maintained for key mitigating systems. Other major outage activities conducted included a partial drywell closeout and observation of startup activities after the July 13, 2004 automatic shutdown and forced outage activities. These inspection activities constituted one inspection sample.

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 TRM, 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 completed four samples by evaluating the following surveillance tests:

- Division-2 EDG second-level undervoltage relay channel functional test
- Reactor core isolation cooling quarterly operability test per CPS 9054.01
- Division-3 monthly operability surveillance test and EDG diagnostic test per CPS 9080.03 and CPS 2713.01
- Standby liquid control system operability test per CPS 9015.01

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope

The inspectors observed the emergency response activities associated with the annual unannounced ERO drive-in and table top drill conducted on September 16, 2004. 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 technical support center. These inspection activities constituted one inspection sample.

b. Findings

No findings of significance were identified.

4 OTHER ACTIVITIES (OA)

4OA1 Performance Indicator Verification (71151)

Cornerstones: Mitigating Systems

a. Inspection Scope

The inspectors sampled the licensee's submittals for performance indicators (PIs) for the specified period through June 30, 2004. The inspectors used PI definitions and guidance contained in Revision 2 of Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline" to verify the accuracy of the PI data. The inspectors completed two samples by reviewing the following:

- Safety System Unavailability (SSU) - Emergency AC power system
- Safety System Functional Failures (SSFF)

b. Findings

No findings of significance were identified.

4OA3 Event Follow-up (71153)

.1 High Pressure Core Spray (HPCS) inoperable due to trip of Division-3 Essential Switchgear Heat Removal Supply Fan

a. Inspection Scope

On August 24, 2004, with the safety-related subsystem of Division-3 essential switchgear heat removal (VX) system removed from service, the non-safety Division-3 VX heat removal supply fan 1VX04CC, tripped due to the breaker for the safety-related fan being removed for replacement. Since both safety and non-safety subsystems of VX were unavailable, operators declared the HPCS system inoperable per TS 3.7.2, Action A.1. The licensee reported the event in accordance with 10CFR50.72(b)(3)(v)(D), documented the event in a condition report (CR) 246788 and initiated a prompt investigation. The inspectors reviewed the licensee's initial response to this event including their assessment of system operability. This inspection activity constituted one inspection sample.

b. Findings

Introduction: A finding of very low safety significance (Green) resulting from the licensee's failure to accurately identify the impact of removing the safety-related Division-3 essential switchgear heat removal (VX) supply fan breaker was self-revealed. When this breaker was removed, the non-safety fan tripped off resulting in both

subsystems of Division-3 VX being unavailable and the high pressure core spray system being declared inoperable. No violation of NRC requirements were identified.

Description: On August 23, 2004 the safety-related subsystem of the Division-3 VX system was removed from service and declared inoperable to verify system flow and balance. The test included an as-found flow check on the condensing unit, rendering the safety-related chiller inoperable. The non-safety VX subsystem remained operable during the test.

On August 24, 2004, 1AP78E-1E breaker HE-B015 was removed under work order (WO) 524760 to perform molded case circuit breaker/bucket component functional testing and maintenance. When the breaker was removed, the supply fan for the non-safety subsystem, 1VX04CC, tripped. Because the VX system maintained safety-related switchgear, battery and inverter room, and cable spreading areas within the design temperature limits of the equipment and was a support system for the HPCS system, operators assessed the operability of the HPCS system. With both the safety and non-safety subsystems of VX unavailable, the operators declared the high pressure core spray (HPCS) system inoperable per TS 3.7.2, Action A.1. The shift manager and maintenance first line supervisor conducted a review and determined the time to replace the breaker vice restoring the old breaker was approximately equivalent. The shift manager granted permission to complete breaker replacement activities associated with WO 524760 to return the supply fan to service.

The licensee conducted a prompt investigation of the event and determined that, before the event, operations and electrical maintenance personnel had reviewed the impact statement provided by maintenance planning in WO 524760 and understood that breaker removal could drop out relay 1UAY-VX509A and could result in the loss-of-permissive for discharge damper 1VX04YC (non-safety related train); however, they did not expect the loss of supply fan 1VX04CC. The licensee also determined that maintenance planning was aware that permissive logic would be affected to close damper 1VX04YC. When the impact statement was developed, the planner focused on the impact of dropping out relay 1UAY-VX509A and believed the impact was limited to 1VX04YC. The licensee did not recognize that the removal of the breaker also dropped out the optical isolator that controlled the motor for supply fan 1VX04CC. As a result, the motor for supply fan 1VX04CC also immediately tripped.

In the prompt investigation report the licensee identified several contributors to the apparent cause of the trip of the non-safety Division-3 VX supply fan. These contributors included an inadequate impact statement in WO 524760 and several missed opportunities to identify the inadequate impact statement in the work week review, the pre-job walkdown and pre-job brief, and during work authorization. Other contributors included the job not being classified as a first time evolution and incomplete communications between operations and electrical maintenance regarding permission to begin work. The inspectors reviewed the E02-1VX99 drawings with an operations work control supervisor and concluded that the licensee should have identified the inadequate impact statement in their work planning and work review process prior to commencing work on the Division-3 VX system.

On October 8, 2004, the licensee retracted the notification of this event after performing additional analysis and concluding that the areas cooled by the Division-3 VX system, at

design bases heat-up rate would not have exceeded design temperatures while the cooling was secured or prior to cooling recovery, and that the supported systems remained operable. Based upon this additional analysis, it can be reasonably concluded that the safety function of HPCS, as a single train safety system, was fulfilled. Therefore, this event was not reportable.

Analysis: The inspectors considered the licensee's failure to provide an adequate impact statement, and failure to identify the inadequate impact statement for the Division-3 VX work a performance deficiency. The inspectors used IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening," to disposition this issue and determined that it was more than minor because the finding was associated with the Human Performance attribute of the Mitigating Systems cornerstone and affected the objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the VX system maintained safety-related switchgear, battery and inverter room, and cable spread areas within the design temperature limits of the equipment and was a support system for the HPCS system. With both subsystems of VX out of service, HPCS may not have been capable of performing its safety function to provide emergency core cooling, aid in depressurization and maintain reactor vessel water level following a loss of coolant accident. The inspectors used IMC 0609, "Significance Determination Process", Appendix A , "Determining the Significance of Reactor Inspection Findings for At-Power Situations" to determine the significance of the finding. The finding was of very low safety significance because the loss of function did not actually cause the HPCS system to be inoperable.

Enforcement: Though the failure to provide an adequate impact statement and the failure to identify the inadequate impact statement for WO 524760 was a performance deficiency, no violation of regulatory requirements occurred. This issue was considered a finding of very low safety significance (FIN 05000461/2004006-02). This issue was documented in the licensee's corrective action program as IR 246788.

.2 Reactor automatic shutdown and level transient

a. Inspection Scope

The inspectors observed plant parameters, status, and the performance of mitigating systems and control room operators following an automatic reactor shutdown on July 13, 2004, as a result of a turbine load reject during a severe thunderstorm. The inspectors also monitored licensee response and communications in the outage control center which was manned at the time of the scram for planned maintenance work and functioned as the assembly area during the severe thunderstorm and tornado warning that was in affect. On July 14, 2004, the inspectors observed equipment performance and operator actions both in the control room and in the field while attempting to place the "B" residual heat removal system into shutdown cooling. These operations resulted in a reactor vessel level drop of 24 inches and another reactor protection system and isolation actuation. The inspection activities constituted one sample.

b. Findings

A special inspection was conducted as a result of these events and inspectors identified two Green findings with associated NCVs. The special inspection results are documented in Inspection Report 05000461/2004007.

.3 (Closed) LER 0500461/2004002-00: Mispositioned Standby Liquid Control (SLC) Air Sparge Valve Results in High Boron Concentration

On April 1, 2004, control room operators noted the SLC tank liquid level had decreased approximately 350 gallons (4250 gallons to 3900 gallons) since the tank had been filled during refueling outage C1R09. On April 6, 2004, the licensee identified that the normally locked-closed SLC air-sparge valve was unlocked and in the open position. This incident was previously evaluated in Inspection Report 05000461/2004005. Two very low safety significant findings and associated non-cited violations were identified: (1) failure to implement a corporate locked-valve program which resulted in the SLC system being declared inoperable and the SLC tank contents concentration exceeding TS limits; and (2) failure to perform timely corrective action after discovery that the SLC storage tank air-sparge valve was in the wrong position.

In addition, the inspectors identified that the licensee did not assess reportability properly. Specifically, 10 CFR Part 50.73, required, in part, the licensee to submit a Licensee Event Report for any operation or condition which was prohibited by the plant's TS within 60 days after discovery of the event. The licensee submitted the report in August 2004. Failure to submit a license event report within 60 days of the event constituted a violation of minor significance that is not subject to enforcement action in accordance with Section IV of the NRC's Enforcement Policy. This LER is closed.

.4 (Closed) LER 05000461/2004003-00: Main Power Transformer Protective Relaying System Design and Lightning Cause Scram

At 1608 on Tuesday, July 13, 2004, an automatic scram occurred from 95 percent power (which is the maximum power achievable under the authorized power uprate) due to an apparent instantaneous neutral phase over current fault trip on the main power transformer. All plant systems operated normally on the scram with the exception of the "A" recirculation pump that ran back per design and failed to restart on low speed (15 cycles.) In addition, during the recovery, the "B" feedwater pump tripped on low suction pressure when operators secured the "A" feedwater pump. This incident was previously evaluated in Inspection Report 05000461/2004007. The LER was reviewed by the inspectors and no additional findings of significance were identified. This LER is closed.

.5 (Closed) LER 05000461/2004004-00: Reactor Scram While Placing Residual Heat Removal B into Shutdown Cooling

On Wednesday, July 14, 2004, at 0045 when the reactor pressure vessel level dropped about 24 inches another reactor protection system and isolation actuation resulted. Prior to this event, the unit was in Mode 3 with reactor pressure at 18 psig and level stable at 32 inches. The licensee was preparing the "B" residual heat removal (RHR) system for the shutdown cooling mode of operation. The licensee warmed the heat exchanger portion of the system through natural circulation using a flow path from the

reactor vessel to the radwaste system. Once secured, the licensee verified the system was filled and vented; however, pressure and temperature in the heat exchanger decreased. When the licensee re-established the heating sequence, reactor vessel level dropped. This incident was previously evaluated in Inspection Report 05000461/2004007. The LER was reviewed by the inspectors and no additional findings of significance were identified. This LER is closed.

4OA4 Cross-Cutting Aspects of Findings

.1 A finding described in Section 4OA3.1 of this report had, as its primary cause, a human performance deficiency, in that, the licensee maintenance planner and work planning and operations department reviewers failed to identify the relationship between the safety and non-safety subsystems of the Division-3 essential switchgear heat removal system and the inadequate impact statement associated with removal of the safety sub-system supply fan breaker.

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 October 18, 2004. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

R. Bement, Site Vice President
M. McDowell, 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
R. Coon, Nuclear Oversight Manager
J. Domitrovich, Maintenance Director
D. Schavey, Operations Director
J. Madden, Chemistry Manager
T. Shortell, Training Manager
C. Williamson, Security Manager
R. Peak, Site Engineering Director
W. Carsky, Shift Operations Superintendent

NRC

A. Stone, Branch Chief, Division of Reactor Projects

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Opened and Closed

05000461/2004006-01	NCV	Portable fire extinguisher missing from its designated storage.
05000461/2004006-02	FIN	Division-3 essential switchgear heat removal (VX) system tripped due to inadequate impact statement for maintenance.

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 pat of it, unless this is stated in the body of the inspection report.

1R01 Adverse Weather

CR 142205, Dam related maintenance work was not performed by due date; January 31, 2003
CR 187991, Dam related maintenance work was not performed by due date; November 24, 2003
AR 424377, Cut and remove large willow trees and shrubs from emergency spillway; February 16, 2001

1R04 Equipment Alignments

CPS 3319.01; Standby Gas Treatment, Revision 15a.
CPS 3319.01C001; VG Loop Seal Fill Checklist, Rev.0.
CPS 3319.01E001; Standby Gas Treatment Electrical Lineup, Revision 10b.
CPS 3319.01V001; Standby gas treatment valve lineup, Revision 8.
CPS 3319.01V002; Standby gas treatment instrument valve lineup, Revision 5a.

1R05 Fire Protection

Fire Protection Evaluation Report, August 1985
Clinton Updated Safety Analysis Report, Appendix F, Fire Protection, Rev. 10
Safe Shutdown Analysis, Section 4.2

1R06 Flood Protection

CPS 4304.01 Critical Flood Matrix, Revision 4c
Updated Safety Analysis Report (USAR) section 3.4.1, “Flood Protection.”

1R07 Heat Sink Performance

CPS 2700.19 Division 3 Diesel Generator Jacket Water Cooler Heat Exchanger Performance Covered by NRC Generic Letter 89-13, Revision 3.
IR 247309, Heat Exchanger Performance Test Estimate Inaccurate, August 28, 2004.
IR 173409, Possible Cavitation of Division 3 Diesel Generator HX Outlet Valve 1SC006C, August 27, 2003
IR220602, GE Betz test results indicate Microbiological activity in SX, May 122004
IR142761,Silt levels in the SX and Fire Protection Pump Bays, February 8, 2003
WO 632328, Test HX Performance for 1DG13A Heat Exchanger Division 3, Engine

1R11 Licensed Operator Requalification Program

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
OP-AA-106-101; Significant Event Reporting, Revision 2

1R16 Operator Work-Arounds

OP-AA-102-103; Operator Work-Around Program, Rev. 1
Operator Work-Arounds and Challenges List, August 9, 2004
Aggregate Review of Unit Operations to Detect Hazards to Nuclear Safety, July 14, 2004

1R19 Post Maintenance Testing

CPS 9170.02; Control Room HVAC Chilled Water valve operability test, Rev 31A
CPS 9064.02; Drywell Post-LOCA Vacuum Breaker Verification Test, Rev 27A
EQ-CL044-01; Inspect 0VG05YB Linear Converter

1R22 Surveillance Testing

CPS 9054.01C004; Combined RCIC (1E51-C001) High Pressure Operability Checks And RCIC Cold Quick Restart.
WO# 00686890; OP RCIC System Operation (RCIC Water Leg Pump).
CPS 2700.23; Diesel Generator Diagnostic Testing.
CPS 9080.03; Diesel Generator 1C Operability - Manual and Quick Start Operability.
CPS 3506.01D003; Diesel Generator 1C Operating Logs.
CPS 9015.01; Standby Liquid Control System Operability, Rev. 39B.

EP6 Drill Evaluation

Drill Scenario, 2004 Clinton/Cantera Station Combined Drive-In Augmentation Drill.
EP-AA-122-1001, Attachment 3, Conduct of Drive-in augmentation drills, Revision 3.
EP-AA-1003, Radiological Emergency Plan Annex for Clinton Station, Revision 5.

OA1 Performance Indicator Verification

Q2/2004 PI Summary Data
Operations log entries dated January 1, 2004 through June 30, 2004
Maintenance Rule database System Status Report
Maintenance Rule database Unavailable Hours Report
Diesel Generator System Engineer Notebook journal entries for 2003 and 2004
System Engineer monthly Diesel Generator availability reports for January through June 2004
IR 202570, Fuel injector rack mismatch on Division 2 Diesel Generator, February 18, 2004
IR 218828, Diesel Generator unavailability for April 2004 - Enhancement CR, May 5, 2004
IR 194427, Load imbalance between tandem engines for 1DG01KA, January 9, 2004

IR 194276, Adverse trend on High Pressure Core Spray pump DP during 9051.01, January 9, 2004
IR 200632, Loud Noise during High Pressure Core Spray pump start during CPS 9080.23, February 9, 2004
IR 201838, 1E22F005 did not pass High Pressure Core Spray valve operability test 9051.02, February 15, 2004
LER 4612003003, Clinton 1 Reactor Scram Due to Loss of Power to 480 Volt Unit Substation 1, December 2, 2003
LER 4612004001, Clinton 1 Generator Over - Voltage / Lockout Leads to Reactor Cram, March 22, 2004
LER 4612004002, Clinton 1 Mis-positioned Standby Liquid Control Air Sparge Valve Results in High Boron Concentration, April 7, 2004

LIST OF ACRONYMS USED

ADAMS	Agency wide Documents Access and Management System
ALARA	As Low As Reasonably Achievable
CRs	Condition Reports
ERO	Emergency Response Organization
EP	Emergency Preparedness
FPER	Fire Protection Evaluation Report
HPCS	High Pressure Core Spray
IMC	Inspection Manual Chapter
MR	Maintenance Rule
NCV	Non-Cited Violation
NFPA	National Fire Protection Agency
NRC	Nuclear Regulatory Commission
OPC	Operational Support Center
ORM	Operations Requirement Manual
PARS	Publicly Available Records
PI	Performance Indicator
SDP	Significant Determination Process
SSF	Safety System Unavailability
SSU	Safety System Functional Failures
SX	Shutdown Service Water
TS	Technical Specifications
USAR	Updated Safety Analysis Report
VX	Switchgear Heat Removal System
WO	Work Order