

July 30, 2002

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

SUBJECT: CLINTON POWER STATION  
NRC INSPECTION REPORT 50-461/02-06

Dear Mr. Skolds:

On June 30, 2002, the NRC completed a safety inspection at your Clinton Power Station. The enclosed report documents the inspection findings which were discussed on July 3, 2002, with Mr. M. Pacilio and other members of your staff.

This inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspector 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 of these findings were determined to involve violations of NRC requirements. However, because of their very low safety significance and because they were entered into your corrective action program, the NRC is treating these issues as Non-Cited Violations in accordance with Section VI.A.1 of the NRC's Enforcement Policy. If you deny these Non-Cited Violations, you should provide a response with a basis for your denial, within 30 days of the date of this inspection report, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with copies to the Regional Administrator, Region III; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the Clinton Power Station.

The NRC has increased security requirements at the Clinton Power Station in response to terrorist acts on September 11, 2001. Although the NRC is not aware of any specific threat against nuclear facilities, the NRC issued an Order and several threat advisories to commercial power reactors to strengthen licensees' capabilities and readiness to respond to a potential attack. The NRC continues to monitor overall security controls and will issue temporary instructions in the near future to verify by inspection the licensee's compliance with the Order and current security regulations.

In accordance with 10 CFR 2.790 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/NRC/ADAMS/index.html> (the Public Electronic Reading Room).

Sincerely,

**/RA/**

Christine A. Lipa, Chief  
Branch 4  
Division of Reactor Projects

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

Enclosure: Inspection Report No. 50-461/02-06

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  
Senior Vice President - Mid-West Regional Operating Group  
Vice President - Mid-West Operations Support  
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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

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

Report No: 50-461/02-06

Licensee: AmerGen Energy Company, LLC

Facility: Clinton Power Station

Location: Route 54 West  
Clinton, IL 61727

Dates: April 1 through June 30, 2002

Inspectors: P. L. Loudon, Senior Resident Inspector  
C. E. Brown, Resident Inspector  
J. L. Cameron, Project Engineer  
D. E. Jones, Reactor Engineer  
D. E. Funk, Physical Security Inspector  
M. W. Mitchell, Radiation Specialist  
D. E. Zemel, Illinois Department of Nuclear Safety

Approved by: Christine A. Lipa, Chief  
Branch 4  
Division of Reactor Projects

## SUMMARY OF FINDINGS

IR 05000461-02-06, on 04/01 - 06/30/2002, AmerGen Energy Company LLC, Clinton Power Station; Personnel Performance During Non-Routine Plant Evolutions; Refueling and Other Outage Activities; Event Followup.

This integrated report covers a quarterly routine inspection, conducted by resident and regional specialist inspectors. Three findings of very low significance were identified during this inspection. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using IMC 0609, "Significance Determination Process" (SDP). The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described at its Reactor Oversight Process website at: <http://www.nrc.gov/NRR/OVERSIGHT/index.html>.

### A. Inspector Identified Findings

#### **Cornerstone: Mitigation Systems**

Green. A Non-Cited Violation of Technical Specification 5.4.1 was identified for an inadequate procedure used during the performance of a Division III emergency diesel generator (EDG) test. Errors in the procedure led to the loss of the Division III safety-related 4160 Volt electrical bus and unplanned unavailability of the high pressure core spray (HPCS) system.

The finding was greater than minor because if left uncorrected, the issue has a credible impact on safety. Further, the issue did have an impact on mitigation system operability as the loss of the Division III electrical bus rendered the HPCS system inoperable. Using Manual Chapter 0609, "Significance Determination Process," (SDP), Appendix A, phase 1 worksheet, the finding screened out as a very low safety significance issue because the event did not result in the actual loss of safety function for the HPCS system (Section 1R14).

#### **Cornerstone: Fuel Barrier Integrity**

Green. A Non-Cited Violation of Technical Specifications 5.4.1 was identified for workers failing to follow a procedure which contributed to the inadvertent lifting of a double blade guide during fuel movement operations on April 9, 2002.

This self-revealing finding was more than minor because if left uncorrected, inadvertent movement of components from the reactor core could lead to a more significant safety concern. Using the fuel barrier column on the SDP Appendix A phase 1 worksheet, the inspectors assessed the finding as a very low safety significance issue (Section 1R20).

#### **Cornerstone: Initiating Events**

Green. A performance deficiency, associated with the automatic reactor shut down on May 13, 2002, was identified as a failure to establish preventative maintenance or inspections on the "B" turbine driven reactor feed pump (TDRFP) for similar conditions

found on the "A" TDRFP (noted in December 2000) before a component failure which led to the automatic reactor shut down.

This issue was more than minor because if left uncorrected (i.e. appropriate preventive maintenance not being identified and conducted), it could lead to a more significant safety concern and could cause the increased frequency of an initiating event. Consequently, the inspectors evaluated the significance of the issue using the SDP Appendix A phase 1 worksheet. Since the finding contributed only to the likelihood of a reactor trip and did not affect mitigating system availability, the inspectors determined that the finding was of very low safety significance (Section 4OA3b.2).

B. Licensee Identified Findings

Violations of very low safety significance, which were identified by the licensee have been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. These violations and corrective action tracking numbers are listed in Section 4OA7 of this report.

## Report Details

### Summary of Plant Status

During this inspection period the plant was shutdown from 100-percent power for a planned refueling outage which commenced on April 02, 2002, and concluded on May 07, 2002. Following plant restart from the refueling outage, an automatic reactor shutdown occurred on May 13 during the performance of extended power uprate testing. The unit was then operated at approximately 93.5 percent of the new rated thermal power limit to maintain the new 100-percent electrical output for the remainder of the inspection period.

### **1. REACTOR SAFETY**

#### **Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity**

#### 1R01 Adverse Weather (71111.01)

##### a. Inspection Scope

The inspectors reviewed design features, procedure implementation, and conducted independent walkdowns of equipment used to protect mitigating systems from adverse summer weather conditions. The reviews focused on external components which are vulnerable to missile hazards from tornadoes and high winds. The inspection also included observation of the operations department's summer-readiness checklist re-alignments and securing of equipment used for cold-weather protection.

##### b. Findings

No findings of significance were identified.

#### 1R04 Equipment Alignments (71111.04Q and S)

##### a. Inspection Scope

The inspectors reviewed piping and instrument diagrams, system procedures, training manuals, previously identified equipment deficiencies, condition reports, and vendor information as part of a partial system walkdown of high risk-importance, safety systems (listed below) during scheduled system maintenance outages on the opposite division or complementing system.

#### Partial System Equipment Alignments

- Residual Heat Removal (RHR) System "A" during RHR System "B" outage window.
- Plant Startup (Mode 2) valve lineups for Control Rod Scram Time Testing.

- Plant Startup (Mode 2) valve lineups for Emergency Core Cooling Systems.
- Standby Gas Treatment System (VG) “A” during VG “B” system outage.

Full System Equipment Alignment

The inspectors conducted a full safety system equipment alignment inspection of the shutdown service water system.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05Q)

a. Inspection Scope

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. To assess the control of transient combustibles and ignition sources, the material and operational condition of fire-protection systems and equipment, and the status of fire barriers, the inspectors conducted walk downs of the following risk significant areas:

- Fire Protection Zone T-1m (800-foot turbine building).
- Fire Protection Zone C-2 (containment building).
- Fire Protection Zones A-1a; 2a, b, c, and d; 3a, b, and c (707 foot auxiliaries building).
- Fire Protection Zone T-1e (761' turbine building).
- Fire Protection Zone F-1p (737 foot and 755 foot fuel building).
- Fire Protection Zones F-1a through 1f and 1m through 1p (post refueling outage C1R08 fuel building walkdown).
- Fire Protection Zone T-1 (turbine building tour after plant startup).
- Fire Protection Zones A-2k, 2m, 3e, 3f, 3g, 4, and 5 (762 foot auxiliaries building).
- Fire Protection Zone CB-1f (762 foot control building).

b. Findings

No findings of significance were identified.

1R06 Flood Protection (71111.06)

a. Inspection Scope

The inspector’s reviewed the licensee’s flooding mitigation plans and equipment to assess consistency with the licensee’s design requirements and the risk analysis assumptions. The inspectors reviewed the following licensee documents and

procedures associated with the protection of equipment during external and internal flooding events.

- CPS 4304.01, "Flooding," Revision 4a
- Clinton Updated Safety Analysis Report (USAR), Section 2.4.2, "Floods"
- Procedure 4303.02, "Abnormal Lake Level," Revision 6
- Design Calculation PMED 01ME077, "Calculations for Flooding - Safe Shutdown Analysis"

b. Findings

No findings of significance were identified.

1R08 Inservice Inspection Activities (71111.08)

a. Inspection Scope

The inspectors conducted a review of the implementation of the licensee's inservice inspection program for monitoring degradation of the reactor coolant system boundary and the risk significant piping system boundaries. Specifically, the inspectors conducted a record review of the following examinations:

<u>WELD #</u>	<u>CONFIGURATION</u>	<u>NDE PROCEDURE</u>
N3A	RPV Main Steam	GE-UT-702
N9B-W-1	RPV Nozzle-to-Safe-End	UT-EXLN-105V5
N9A-W-1	RPV Nozzle-to-Safe-End	UT-EXLN-105V5

These examinations were evaluated for compliance with the American Society of Mechanical Engineers Boiler and Pressure Vessel Code requirements. The inspectors also reviewed inservice inspection procedures, equipment certifications, personnel certifications, and NIS-2 forms for Code repairs performed during the last outage to confirm that Code requirements were met.

A sample of inservice inspection related problems documented in the licensee's corrective action program was also reviewed to assess conformance with 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," requirements. In addition, the inspectors determined that operating experience was correctly assessed for applicability by the Inservice Inspection group.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification (71111.11Q)

a. Inspection Scope

The inspectors reviewed licensed operator requalification training to evaluate operator performance in mitigating the consequences of a simulated event, particularly in the areas of human performance. The inspectors evaluated operator performance attributes which included communication clarity and formality, timely performance of appropriate operator actions, appropriate alarm response, proper procedure use and adherence, and senior reactor operator (SRO) oversight and command and control. The inspectors also assessed the performance of the training staff evaluators involved in the requalification process. The inspector observed scenario for this activity was ESG-042 "Scram-Normal Operations" conducted in the main control room simulator.

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:

- Flooding and Mitigation "System 90"
- Plant Service Water (WS)
- Main Steam System (MS)

b. Findings

No findings of significance were identified.

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

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 assessed the effectiveness of risk management activities for the following work activities or work weeks:

- Shutdown risk assessment for electrical power and cooldown capability while pulling generator rotor.
- Risk Assessments for the refueling outage (RFO)
- RFO activities and shut down risk assessments during the outage.
- Risk to plant on loss and on-line recovery of the "6A" feedwater heater.
- Loss of main-power-transformer cooling power supplies.
- Risk for performing main control room panel (P-630) work with system energized.

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 procedural requirements. In particular, the inspectors reviewed personnel performance during the following plant events:

- Restart following RFO 8 and subsequent shut down and restart to repair pressure regulator problems.
- Plant transient from loss of the "6A" Feedwater heater.
- Plant response during inadvertent loss of the Div-III safety related 4160 Volt electrical bus during emergency diesel generator (EDG) testing.
- Modifications to energized P-630 annunciator control panel in main control room.

b. Findings

Green. A Non-Cited Violation of Technical Specification (TS) 5.4.1 was identified for an inadequate procedure used during the performance of a Div-III EDG test. On May 29, 2002, licensee personnel were conducting a differential over-current trip test on the Div-III EDG. During the performance of the over-current testing, which had not been previously done on-line, both the reserve auxiliary transformer (RAT) and the emergency reserve auxiliary transformer (ERAT) feed circuit breakers tripped open and de-energized the Div-III safety-related 4160 Volt electrical bus.

The operating crew entered the appropriate TS action statements for high pressure core spray (HPCS) system inoperability, verified other safety-related electrical bus operability and restored the bus about 2 hours later.

The licensee conducted a prompt investigation to review the event (condition report (CR) 109836) and concluded that the cause of the event was an inadequate procedure. The specific inadequate procedure step identified involved the failure to identify all the possible contacts which make-up during installation and removal of jumpers while conducting the test.

The performance deficiency associated with this finding was the inadequate preparation and qualified review of the test procedure which failed to account for all the various contact make-ups. The finding was greater than minor because if left uncorrected, the issue has a credible impact on safety. Further, the issue did have an impact on mitigation system operability as the loss of the Div-III electrical bus rendered the HPCS system inoperable. Using Manual Chapter 0609, "Significance Determination Process," (SDP), Appendix A, phase 1 worksheet, the finding screened out as a very low safety significance issue because the event did not result in the actual loss of safety function for the HPCS system.

Technical Specification 5.4.1 requires that written procedures be established, written, and maintained covering the activities specified in Regulatory Guide 1.33, Appendix A. Regulatory Guide 1.33, Appendix A, Item 8(b)2(j) requires surveillance and test procedures for Boiling Water Reactor Emergency Core Cooling Systems. Contrary to TS 5.4.1 and Regulatory Guide 1.33, Clinton Power Station Procedure 9080.20 "Diesel Generator 1C Differential Over-current Trip Test and Trip Bypass Operability", was inadequate for the circumstances and was a violation. However, because of the very low safety significance and because the issue is in the licensee's corrective action program (CR 109836), it is being treated as a Non-Cited Violation consistent with Section VI.A.1 of the Enforcement Policy (**NCV 50-461/02-06-01**).

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.

- Evaluated the closure of an operability evaluation associated with the Div-I and Div-II EDG governors.
- Operability Determination for CR 103916 "Div 2 NSPS Inverter Transferred to Alternate Power Supply"
- Operability Determination for CR 104137 "Cracking Identified in the Core Shroud weld H4"
- Operability Determination for CR 111075 "Seismic System Backup Batteries Found Degraded"
- Operability Determination for CR 109620 "VG A Train Secondary Containment Draw-down during CPS 9065.02 [secondary containment integrity surveillance test]"

b. Findings

No findings of significance were identified.

1R16 Operator Work-Arounds (71111.16)

a. Inspection Scope

The inspectors reviewed operator workarounds and challenges to identify if such items had any potential effect on the functionality of mitigating systems. The inspectors' review included an assessment of operational procedures for mitigation systems to ascertain if any "proceduralized" workarounds existed.

b. Findings

No findings of significance were identified.

1R17 Permanent Plant Modifications (71111.17A)

a. Inspection Scope

The inspectors reviewed the following plant modifications against the design bases, licensing bases, and performance capabilities to ensure that risk significant structures, systems, and components (SSCs) had not been degraded and that modifications performed during increased risk-significant configurations did not place the plant in an unsafe condition.

- Reviewed nuclear steam supply system (NSSS) extended power uprate modification (EPU activities).
- Hydrogen water chemistry modification

b. Findings

No findings of significance were identified.

1R19 Post Maintenance Testing (71111.19)

a. Inspection Scope

The inspectors reviewed and observed portions of the following post-maintenance testing (PMT) activities involving risk significant equipment to determine whether the activities were adequate to verify system operability and functional capability:

- RPV pressure testing PMT
- PMT on "B" TDRFP
- Rod Control and Indication System repairs and PMT during troubleshooting process
- Div-I VG hydramotor work and testing

b. Findings

No findings of significance were identified.

1R20 Refueling and Outage Activities (71111.20)

a. Inspection Scope

The inspectors evaluated licensee outage activities during the April-May 2002 refueling outage (C1R08). The inspectors review included ensuring that the licensee considered risk in developing outage schedules; adhered to administrative risk reduction methodologies developed to control plant configuration; developed mitigation strategies for loss(es) of key safety functions; adhered to operating license and TS requirements that ensured defense-in-depth; and observed the following outage related activities:

- Operational evolutions such as, plant shutdown, establishing shutdown cooling, reactor startup, and turbine-generator electrical distribution grid synchronization.
- Component and equipment configuration management control to ensure equipment relied on to perform a key safety function would not be adversely affected by outage activities.
- Clearance (tag-out) and special operating permit programs.
- Reactor coolant system instrumentation to ensure operators maintained a clear understanding of accuracy of measurement and contingencies if the instrument indications were lost.
- Decay heat removal system operability and protection during key times of the outage, and during special surveillance testing.
- Core Alterations
- Containment integrity control as required.
- Review of selected outage related maintenance and surveillance activities to ensure the activities were conducted in accordance with station procedures and TS requirements.
- Reactor restart activities including approach to criticality, turbine startup, recirculation system motor speed change, and ascension to 100 percent power.
- Selected Extended Power Uprate (EPU) Testing

b. Findings

Green. A Non-Cited Violation of TS 5.4.1 was identified for workers failing to follow a procedure which contributed to the inadvertent lifting of a double blade guide during fuel

movement operations on April 9, 2002. A fuel bundle was being raised from core location 19-54 when the assembly channel fastener became caught on the double blade guide bail handle. The double blade guide was in-place to stabilize and support the control blade in that cell. Fuel movement personnel did not notice that the double blade guide was raised with the fuel bundle until the fuel bundle was fully raised and was being moved across the core. At that point, personnel monitoring cameras noted the problem and had the fuel handling crew stop the movement. Upon stopping, the double blade guide fell free of the fuel bundle and landed on the core. The licensee immediately suspended fuel movement operations and began assessing if any fuel was damaged due to the impact from the double blade guide. The licensee, along with vendor analyses which included underwater remote camera pictures of the impacted fuel, concluded that no damage occurred to the fuel other than light "scuffing." As a result of the event a CR was generated (CR 103000) to evaluate all programmatic and personnel performance elements that failed leading to the inadvertent double blade guide movement. The results of the prompt investigation identified that proper independent verification techniques for raising fuel out of the core were not being performed. The licensee issued clearly defined standards and expectations for core alterations regarding communications and visual verification techniques before re-commencing fuel movements.

The performance deficiency associated with this event was caused by a failure of workers involved in the fuel movements to carefully verify that all fuel movements were being performed as planned and no other components were being inadvertently moved.

This self-revealing finding was more than minor because if left uncorrected, inadvertent movement of components from the reactor core could lead to a more significant safety concern. Using the fuel barrier column on the SDP Appendix A phase 1 worksheet, the inspectors assessed the finding as a very low safety significance issue.

Technical Specification 5.4.1 requires that written procedures be established, written, and maintained covering the activities specified in Regulatory Guide 1.33, Appendix A. Regulatory Guide 1.33, Appendix A, Item 1(l) requires procedures for refueling and core alterations. Contrary to TS 5.4.1 and Regulatory Guide 1.33, Clinton Power Station Procedure 3703.01 "Core Alterations," was not followed and was a violation. However, because of the very low safety significance and because the issue is in the licensee's corrective action program, it is being treated as a Non-Cited Violation consistent with Section VI.A.1 of the Enforcement Policy (**NCV 50-461/02-06-02**).

## 1R22 Surveillance Testing (71111.22)

### a. Inspection Scope

The inspectors observed portions of the following surveillance tests to determine whether risk significant systems and equipment were capable of performing their intended safety functions. The inspectors also assessed the operational readiness of the systems.

- Div-I EDG load reject testing.
- Div-II EDG integrated testing.
- Nuclear system protection system untested island testing.
- Intermediate range monitor channel functional (shutdown) testing.
- Low pressure core spray and residual heat removal “A” water leg pump operability testing.
- Reactor protection system main steam line isolation valve channel functional testing.

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications (71111.23)

a. Inspection Scope

The inspectors reviewed the following temporary modifications to determine whether the safety functions of important safety systems were affected.

- Reviewed all open temporary modifications following refueling outage C1R08.

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 Plant Walkdowns and Radiation Work Permit Reviews

a. Inspection Scope

The regional radiation specialist inspector conducted walkdowns of selected radiologically controlled areas within the plant to verify the adequacy of radiological boundaries and postings during the refueling outage. Specifically, the inspector walked down several radiologically significant work area boundaries (high and locked high radiation areas) in the containment building and performed confirmatory radiation measurements to verify if these areas and selected radiation areas were properly posted and controlled in accordance with 10 CFR Part 20, licensee procedures, and TS. The inspector also reviewed the radiological conditions within those work areas walked down, to verify adequate radiological housekeeping and contamination controls.

The inspector reviewed selected radiation work permits (RWP) used to access radiologically significant work areas (radiation areas (RA) and high radiation areas

(HRA) during the refueling outage. Work activities in those areas included preparation for control rod drive (CRD) work, drywell scaffolding installation, inservice inspection (ISI) inside and outside the bioshield, and selected valve work. The inspector reviewed the RWPs to verify that they contained adequate work control instructions. In the case of HRA access, the inspector reviewed the RWP controls to verify that the licensee was in compliance with the specific requirements contained in the TS. The inspector also reviewed electronic dosimeter alarm setpoints and compared them to area radiation levels and expected personnel exposures to verify that the alarm setpoints were adequately determined. Finally, the inspector evaluated established work controls to determine if worker exposures were maintained as-low-as-reasonably-achievable (ALARA).

b. Findings

No findings of significance were identified.

.2 High Radiation Area and Very High Radiation Area Controls

a. Inspection Scope

The regional radiation specialist inspector reviewed the licensee's controls for high radiation areas (HRA) and very high radiation areas. In particular, the inspector reviewed the licensee's procedures for posting and controlling HRAs to verify the licensee's compliance with 10 CFR Part 20 and TS. The inspector also reviewed licensee records of HRA boundary and posting surveillances during the outage and performed walkdowns to verify the adequacy of boundaries, controls, and postings.

b. Findings

No findings of significance were identified.

.3 Identification and Resolution of Problems

a. Inspection Scope

The inspector reviewed corrective action documentation to verify that previous access control and radiation worker performance related issues were adequately addressed. The inspector selectively reviewed year 2001 and 2002 CRs that addressed access control and worker performance program deficiencies, to verify that the licensee had effectively implemented the corrective action program.

b. Findings

No findings of significance were identified.

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

### .1 Job Site Inspections and ALARA Control

#### a. Inspection Scope

The regional radiation specialist inspector selected a number of refueling outage high exposure or high radiation area work activities to evaluate the licensee's use of ALARA controls for each activity. This evaluation included review of job-in-progress activities conducted by the ALARA staff and RWP job briefings.

The inspector reviewed ALARA plans for each activity and observed work associated with each activity to verify the use of proper engineering controls to achieve dose reductions. The inspector conducted walkdowns of the areas to determine if workers were utilizing the low dose waiting areas for each activity and whether the first-line supervisor for each job ensured that the jobs were conducted in a dose efficient manner. The inspector made job site observations and reviewed individual exposures of selected work groups to determine if there were any significant exposure variations which may exist among workers and to verify that multiple dosimetry was employed during jobs that involved significant dose gradients.

The inspector reviewed the 50.59 proposal entitled, USAR change No. 10-105 and Establishment of New Low Level Radioactive Waste Storage Areas, the associated environmental evaluation for onsite storage of replaced turbine components, and walked down the storage areas as proposed to assess the safety implications of new low level radioactive storage areas in the owner controlled area. Additionally, the inspector attended the management meeting that approved the 50.59 proposal to verify proper technical and management oversight of the process was used.

#### b. Findings

No findings of significance were identified.

### .2 Source Term Reduction and Control

#### a. Inspection Scope

The regional radiation specialist inspector evaluated the licensee's source term reduction program in order to verify that the licensee had an effective program in place and was knowledgeable of plant source term and techniques for its reduction.

#### b. Findings

No findings of significance were identified.

.3 Radiological Work Planning

a. Inspection Scope

The regional radiation specialist inspector selected high collective dose refueling outage job activities to assess the adequacy of the radiological controls and work planning. For each job activity selected, the inspector reviewed ALARA evaluations including initial reviews, in-progress reviews, and associated dose mitigation techniques and evaluated the licensee's exposure estimates and performance to assure that the licensee was using the established work planning procedures and tools. The inspector also assessed the integration of ALARA requirements into work packages to evaluate the licensee's communication of radiological work controls.

The inspector reviewed the exposure results for the selected activities to evaluate the accuracy of exposure estimates in the ALARA plan. The inspector compared the actual exposure results versus the initial exposure estimates, the estimated and actual dose rates, and the estimated and actual man-hours expended to assess the accuracy of planning estimates. The inspector reviewed each of the selected activity exposure histories to determine if management had reviewed the exposure status of each activity, if in-progress ALARA job reviews were needed, whether additional engineering/dose controls had been established, and if required corrective action documents had been generated.

The inspector reviewed the Outage Exposure Goal Revision submitted to the station ALARA committee that requested a total goal reduction to confirm that the goal reduction was based on lower than expected dose rates and contamination planning, not the lack of proper planning.

b. Findings

No findings of significance were identified.

.4 Identification and Resolution of Problems

a. Inspection Scope

The inspector reviewed departmental self-assessments of the ALARA program to evaluate the effectiveness of the self-assessment process to identify, characterize, and prioritize problems. The inspector also reviewed corrective action documentation to verify that previous ALARA related issues were adequately addressed. The inspector selectively reviewed year 2001 and 2002 CRs that addressed the ALARA program deficiencies, to verify that the licensee had effectively implemented the corrective action program.

b. Findings

No findings of significance were identified.

### 3. SAFEGUARDS

#### Cornerstone: Physical Protection

##### 3PP1 Access Authorization (AA) Program (Behavior Observation Only) (71130-01)

###### a. Inspection Scope

The regional security inspector interviewed five supervisors and five non-supervisors (both licensee and contractor employees) to determine their knowledge level and practice of implementing the licensee's behavior observation program responsibilities. Selected procedures pertaining to the Behavior Observation Program and associated training activities were also reviewed. Also licensee fitness-for-duty semi-annual test results were reviewed. In addition, the inspector reviewed a sample of licensee self-assessments, audits, and security logged events. The inspector also interviewed security managers to evaluate their knowledge and use of the licensee's corrective action system.

###### b. Findings

No findings of significance were identified.

##### 3PP2 Access Control (Identification, Authorization and Search of Personnel, Packages, and Vehicles) (71130.02)

###### a. Inspection Scope

The regional security inspector reviewed the licensee's protected area access control testing and maintenance procedures. The inspector observed licensee testing of all access control equipment to determine if testing and maintenance practices were performance based. On two occasions, during peak ingress periods, the inspector observed in-processing search of personnel, packages, and vehicles to determine if search practices were conducted in accordance with regulatory requirements. Interviews were conducted and records were reviewed to verify that security staffing levels were consistently and appropriately implemented. Also the inspector reviewed the licensee's process for limiting access to only authorized personnel to the protected area and vital equipment by a sample review of access authorization lists and actual vital area entries. The inspector reviewed the licensee's program to control hard-keys and computer input of security-related personnel data.

The regional security inspector reviewed a sample of licensee self-assessments, audits, maintenance request records, and security logged events for identification and resolution of problems. In addition, the inspector interviewed security managers to evaluate their knowledge and use of the licensee's corrective action system.

###### b. Findings

No findings of significance were identified.

### 3PP3 Response to Contingency Events (71130.03)

#### a. Inspection Scope

The inspectors reviewed the licensee's current protective strategy which included designated targets and target sets, their associated analysis, and security and operation response procedures. The inspector also reviewed security event reports, and portions of the licensee's problem identification and resolution program to determine that issues related to the licensee's contingent event program were identified at the appropriate threshold and were entered into the licensee's corrective action program. Items reviewed included self-assessments, audits, and a sample of training records, force on force drill evaluations, and the licensee's procedure for their corrective action process. In addition, the inspectors conducted interviews with security officers and security management to evaluate their knowledge and use of the licensee's corrective action system.

The inspectors reviewed appropriate security records and procedures that were related to security drills, drill demonstrations, and drill critiques to verify the licensee's continuing capabilities to identify issues that represented uncorrected performance weaknesses or program vulnerabilities.

The inspectors reviewed records and interviewed three selected members of the uniformed contract security force to evaluate and verify security training that related to alarm station operations, tactical "force-on-force" training, and weapon proficiency training.

The inspectors also reviewed performance indicator information related to alarm equipment performance to determine if isolated or system problems with the protected area intrusion alarm system and/or assessment system had become predictable and potentially exploitable by an adversary.

#### b. Findings

No findings of significance were identified.

### 3PP4 Security Plan Changes (71130.04)

#### a. Inspection Scope

The inspectors reviewed Revision 32 (dated July 30, 2001) and Revision 33 (dated September 6, 2001) to the Clinton Power Station Physical Security Plan to verify that the changes did not decrease the effectiveness of the security plan. The referenced revisions were submitted in accordance with 10 CFR 50.54(p).

#### b. Findings

No findings of significance were identified.

#### 4. OTHER ACTIVITIES

##### 4OA1 Performance Indicator Verification (71151)

The inspectors reviewed the licensee's assessment of the performance indicators (PIs) discussed below to determine the accuracy and completeness of the PI data.

##### **Cornerstones: Mitigating Systems and Barrier Integrity**

##### .1 Reactor Coolant System Leakage

##### a. Inspection Scope

The inspectors verified that the reactor coolant system leakage data reported by the licensee for the period of January to March 2002 was accurate. This was accomplished, in part, through a review of plant operating report data and discussions with licensee personnel.

##### b. Findings

No findings of significance were identified.

##### .2 Safety System Unavailability - Reactor Core Isolation Cooling System

##### a. Inspection Scope

The inspectors verified that the reactor core isolation cooling system data reported by the licensee for the period of January to March 2002 was accurate. This was accomplished, in part, through a review of operating report data and discussions with licensee personnel.

##### b. Findings

No findings of significance were identified.

##### .3 Safety System Unavailability - High Pressure Core Spray System

##### a. Inspection Scope

The inspectors verified that the high pressure core spray system data reported by the licensee for the period of January to March 2002 was accurate. This was accomplished, in part, through a review of operating report data and discussions with licensee personnel.

##### b. Findings

No Findings of significance were identified.

### **Cornerstone: Occupational Radiation Safety**

a. Inspection Scope

The inspectors verified that the occupational radiation safety PI data reported by the licensee for the period of April 2001 to March 2002 was accurate. This was accomplished, in part, through a review of operating report data, a review of condition reports, and discussions with licensee personnel.

b. Findings

The inspectors confirmed that the licensee had appropriately accounted for and documented in the corrective action program, one occurrence in the occupation radiation safety cornerstone that was reported with the first quarter 2002 PI data. One finding of very low safety significance (Green) and an associated Non-Cited Violation (NCV) were identified (Section 40A7).

### **Cornerstone: Physical Plant Protection**

a. Inspection Scope

The inspectors verified that the data for the Physical Protection PIs pertaining to Fitness-For-Duty Personnel Reliability, Personnel Screening Program, and Protected Area Security Equipment reported by the licensee for the period of October 2000 to March 2002 was accurate. This was accomplished, in part, through a review of security report data, security shift activity logs, fitness-for-duty reports, and other applicable security records.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

The inspectors selected an issue for in-depth review from the licensee's corrective action program. The selected sample involved a common cause assessment (CCA) initiated to analyze several low significance human performance errors in the operations functional area (CR 102988). The inspectors chose this CCA for in-depth review because of the number of low level significance human performance errors in operations being reported through the corrective action program. The focus of the inspectors review was to determine the adequacy of the CCA process in identifying common problems and establishing effective corrective actions to those identified problems.

b. Findings

Prioritization and Evaluation of Issues

The inspectors conducted an independent review and assessment of assorted CRs all of which described human errors in the operations area. The inspectors used the NRC Human Performance Investigation Process (HPIP) Investigator's Guide (NUREG/CR-5455) as a reference while conducting the assessment.

The inspectors determined that the licensee's common cause assessment (CCA) accurately identified two major common "themes" within the CRs reviewed. Those two being workers' "taking shortcuts/making assumptions" and errors due to "distractions." Further, the corrective actions proposed to address the deficiencies were appropriate for most areas. However, the inspectors did note one program deficiency.

Processing the identified error types through the stimulus-operation-response-team-maintenance human performance assessment table, the inspectors identified that contributing causes for the two error types discussed above also involved deficiencies in the supervision area as well as in the organizational factors/management systems area. The inspectors noted that the licensee's CCA did not address these two areas as contributors to the errors. The inspectors discussed this observation with licensee management who acknowledged the issue.

Further, the inspectors identified that the licensee's general practice for many of the CCAs, did not involve systematic process such as the one the inspectors used for this sample. The typical process for CCAs is for the investigator to "bin" the causes of a group of CRs based on experience and specific knowledge of an issue.

The inspectors discussed with licensee management that the current root cause evaluation tool used at the station contains similar elements as the tool used by the inspectors. In fact, had the licensee applied the elements of their root cause evaluation process, similar results to the inspectors' would have been obtained. The licensee stated that the corrective action program currently does not require the use of a systematic root cause evaluation tool for CCAs. However, based on the results of the inspectors' review, licensee management indicated that this area would be reviewed for possible enhancement.

4OA3 Event Follow-up (71153)

a. Inspection Scope

The inspectors evaluated licensee events regarding plant status and mitigating actions in order to provide input to determine the need for an incident investigation team (IIT), augmented inspection team (AIT), or special inspection (SI). Specifically, the inspectors conducted follow-up to the following operational events and activities:

- Licensee Event Report (LER) 2002-002-00, "Lack of barriers to limit impact of grid disturbance during reverse feed of new Main Power Transformers results in

trip of the Static VAR Compensators, auto-start of emergency diesel generator and Shutdown Service Water System pump,” on April 25, 2002, during reverse feed testing on the new main power transformers.

- The May 13, 2002, automatic reactor shut down due to a high reactor vessel water level condition during extended power uprate testing.

b. Findings

.1 (Closed) Licensee Event Report (LER) 50-461/02-002: “Lack of barriers to limit impact of grid disturbance during reverse feed of new Main Power Transformers results in trip of the Static VAR Compensators [SVC], automatic start of the Division III emergency diesel generator and the Division III Shutdown Service Water System pump.” On April 25, 2002, while initiating a reverse feed through the new main power transformers, the licensee experienced a larger than expected current surge after closing the switchyard breaker per the reverse feed procedure. The large magnetizing inrush current caused voltage drops in the 345kV and 138kV switchyards and generated harmonic currents which resulted in tripping the reserve auxiliary transformer (RAT) and emergency reserve auxiliary transformer (ERAT) SVC units off line. Additionally, the Division III, 2<sup>nd</sup> level under-voltage relay actuated, resulting in the Division III EDG starting and powering the Division III safety-related 4160 Volt electrical bus. The licensee reported the event based on the unplanned actuation of Emergency Safety Features equipment; however, since the plant was shutdown, TS did not require Division III EDG operability. The inspectors reviewed the LER and no findings of significance were identified. The licensee documented the issue in CR 105267. This LER is closed.

.2 Automatic Reactor Shutdown on May 13, 2002

On May 13, 2002, with the reactor at approximately 88 percent rated thermal power, the reactor automatically shutdown due to a high reactor vessel water level signal (Level 8). The licensee was conducting extended power uprate testing at the time of the automatic shut down. During feedwater level control testing, the operators adjusted feedwater flow to assess the system’s response to fast changes in reactor vessel water level. The testing had been completed successfully earlier in the shift and the crew was continuing with the various procedurally directed tests. During one of the level tests, the feedwater control system did not respond properly and the reactor vessel water level reached the high level set point and the reactor automatically shutdown. The reactor shut down with all control rods inserting and all systems performed as designed.

Licensee investigation into the cause of the errant feedwater level control response was identified as mechanical binding at the limit switch mounting unit for the “B” turbine driven reactor feed pump (TDRFP). This binding caused the feedwater flow for the “B” TDRFP to not respond to control demand signals and continued to provide increased feedwater flow to the reactor vessel until the high reactor vessel water level set-point was reached.

The licensee documented the event in CR 107813 and conducted a root cause analysis

of the event. The root cause of the mechanical binding was due to mechanical wear and debris on the guide and rod for the limit switch mounting combined with the longer travel distances that the guide rod underwent due to the EPU testing. The root cause analyzed prior work conducted on both TDRFPs and identified that in December 2000, corrective maintenance repairs were completed on the "A" TDRFP which noted wear and damage to the level control limit switch linkage. At that time the repairs were completed without documenting the as-found condition of the components and the "B" TDRFP was not inspected for similar problems. The root cause analysis attributed the cause of the event to inadequate preventative maintenance and a lack of questioning attitude by workers involved with the "A" TDRFP repairs in December 2000.

The performance deficiency associated with this event was the failure to establish preventative maintenance or inspect the "B" TDRFP for similar conditions found on the "A" TDRFP before a component failure. The December 2000 repairs activities identified condition that provided the licensee with an opportunity to identify a similar condition on the "B" TDRFP. This issue was more than minor because if left uncorrected (i.e. appropriate preventive maintenance is not identified and conducted), could lead to a more significant safety concern and could cause the increased frequency of an initiating event. Consequently, the inspectors evaluated the significance of the issue using the SDP Appendix A phase 1 worksheet. Since the finding contributed only to the likelihood of a reactor trip and did not affect mitigating system availability, the inspectors determined that the finding was of very low safety significance (**FIN 50-461/02-06-03**).

#### 40A6 Meeting(s)

##### Exit Meetings

The inspectors presented the inspection results to Mr. M. Pacilio and other members of licensee management at the conclusion of the inspection on July 3. The licensee acknowledged the findings that were presented. Other interim exits were held during the period as listed below. No proprietary information was identified for any inspections.

Senior Official at Briefing:	M. Hefley, Site Vice President
Date:	April 8, 2002
Proprietary:	No
Subject:	Access Control to Radiologically Significant Areas, ALARA Planning, and Occupational Radiation Safety Performance Indicator

Senior Official at Briefing:	M. Hefley, Site Vice President
Date:	April 10, 2002
Proprietary:	No
Subject:	Inservice Inspection

Senior Official at Briefing:	M. Pacilio, Site Vice President
Date:	April 26, 2002 & June 21, 2002

Proprietary:  
Subject:

No  
Safeguards Inspection

40A7 Licensee Identified Violations The following findings of very low significance (Green) were identified by the licensee and are violations of NRC requirements which meets the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as a Non-Cited Violation (NCV).

NCV Tracking Number  
(1) NCV 461/02-06-04

Requirement Licensee Failed to Meet

Technical Specification 5.4.1 requires that written procedures be established, implemented and maintained covering the activities specified in Regulatory Guide 1.33 Appendix A. Regulatory Guide 1.33, Appendix A, Item 7e.1, requires procedures for access control to radiation areas. Exelon Nuclear procedure RP-CI-462 (Revision 0), Controls for Radiography Activities, Section 5.2.4, requires radiation protection staff to ensure that during radiography, radiation areas be identified and controlled and assure that affected areas are clear of unauthorized personnel. Contrary to the above, on April 5, 2002, the RP staff did not assure that all personnel were clear of the controlled radiation area during radiography. The NCV is not greater than Green because the controlled radiation area was on the opposite side of a 4-foot thick concrete wall from the radiography operation and the planned subsequent radiography was suspended as a result of the finding, but would have required the radiographer set-up in the area occupied by the unauthorized personnel and they would have been readily identified and cleared from the area. This NCV is documented in the licensee's Condition Report 102646.

(2) NCV 461/02-06-05

Technical Specification 5.7.2.b. requires that areas accessible to personnel with radiation levels greater than 1000 millirem per hour at 12 inches from the radiation source or from any surface which the radiation penetrates requires the doors be locked to prevent unauthorized entry and the keys shall be maintained under the administrative control of the Shift Manager on duty or health physics supervision. Contrary to the above, from November 6, 2001, to March 21, 2002, the licensee failed to properly control Cubicle R3-24, an area with radiation levels greater than 1000 millirem per hour at 12 inches from the radiation. This NCV is not greater than Green because the finding was not an ALARA finding, did not involve an overexposure or a substantial potential for an overexposure, and did not compromise the licensee's

ability to assess personnel dose. This NCV is documented in the licensee's Condition Report 100959.

(3) NCV 461/02-06-06

Criterion XVI of 10 CFR Part 50 Appendix B "Corrective Actions," requires, in part, that conditions adverse to quality are promptly identified and corrected. Contrary to the above, on April 18, 2002, the licensee identified that ineffective corrective actions had been implemented to address a concern regarding the inadvertent actuation of reactor protection system (RPS) logic during anticipated transient without scram/alternate rod insertion testing. The April 18, 2002 event was similar in nature to an event which occurred during the previous refueling outage in October 2000. This NCV is not greater than Green because the finding involved the actuation of the reactor protection system while the reactor was shut down and the control rods were already in their safety function position (inserted). This NCV is documented in the licensee's Condition Report 113969.

## KEY POINTS OF CONTACT

### Licensee

D. Anthony, Level III ISI Engineer  
M. Baig, ISI Engineer  
A. Daniels, Chemistry Manager  
C. Dieckmann, Shift Operations Superintendent  
R. Frantz, Regulatory Assurance Representative  
J. Heffley, Site Vice President  
W. Iliff, Regulatory Assurance Director  
S. Kirven, Corporate Security  
J. Madden, Nuclear Oversight Manager  
T. McLean, Nuclear Oversight  
B. Metrow, Inspector, Illinois Department Nuclear Safety  
M. Pacilio, Site Vice President  
K. Polson, Plant Manager  
J. Randich, Work Management Director  
R. Schmidt, Maintenance Manager  
J. Sears, Radiation Protection Director  
D. Smith, Security Manager  
R. Svaleson, Operations Director  
F. Tsakeres, Training Manager  
C. Williamson, Security Analyst  
J. Williams, Site Engineering Director  
E. Wrigley, Security Manager

### General Electric

Phil Bailey, Project Manager

## LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

### Opened

NCV 50/461/02-06-01	Technical Specification 5.4.1 was identified for an inadequate procedure used during the performance of a Division III EDG test (Section 1R 14).
NCV 50-461/02-06-02	Technical Specification 5.4.1 was identified for workers failing to follow a procedure which contributed to the inadvertent lifting of a double blade guide during fuel movement operations on April 9, 2002 (Section 1R20).
FIN 50-451/02-06-03	On May 13, 2002, with the reactor at approximately 88 percent rated thermal power, the reactor automatically shutdown due to a high reactor vessel water level signal (Level 8) (Section 4OA3).

- NCV 50-461/02-06-04 Technical Specification 5.4.1 requires that written procedures be established, implemented and maintained covering the activities specified in Regulatory Guide 1.33 Appendix A. Regulatory Guide 1.33, Appendix A, Item 7e.1, requires procedures for access control to radiation areas. Exelon Nuclear procedure RP-CI-462 (Revision 0), Controls for Radiography Activities, Section 5.2.4, requires radiation protection staff to ensure that during radiography, radiation areas be identified and controlled and assure that affected areas are clear of unauthorized personnel (Section 4OA7).
- NCV 50-461/02-06-05 Technical Specification 5.7.2.b. requires that areas accessible to personnel with radiation levels greater than 1000 millirem per hour at 12 inches from the radiation source or from any surface which the radiation penetrates requires the doors be locked to prevent unauthorized entry and the keys shall be maintained under the administrative control of the Shift Manager on duty or health physics supervision (Section 4OA7).
- NCV 50-461/02-06-06 Criterion XVI of 10 CFR Part 50 Appendix B "Corrective Actions," requires, in part, that conditions adverse to quality are promptly identified and corrected (Section 4OA7).

Closed

- LER 50-461/02-002 Lack of barriers to limit impact of grid disturbance during reverse feed of new Main Power Transformers results in trip of the Static VAR Compensators, automatic start of the Division III emergency diesel generator and the Division III Shutdown Service Water System pump (Section 4OA3).

## LIST OF ACRONYMS USED

AIT	Augmented Inspection Team
ALARA	As-Low-As-Is-Reasonably-Achievable
CCA	Common Cause Assessment
CR	Condition Report
CRD	Control Rod Drive
DRP	Division of Reactor Projects
DRS	Division of Reactor Safety
EDG	Emergency Diesel Generators
EPU	Extended Power Uprate
FPER	Fire Protection Evaluation Report
HRA	High Radiation Area
HPIP	Human Performance Investigation Process
IIT	Incident Investigation Team
LHRA	Locked High Radiation Area
MR	Maintenance Rule
NCV	Non-Cited Violation
NRC	Nuclear Regulatory Commission
NSSS	Nuclear System Steam Supply
PI	Performance Indicator
PMT	Post Maintenance Testing
RA	Radiation Areas
RFO	Refueling Outage
RHR	Residual Heat Removal
RPT	Radiation Protection Technician
RWP	Radiation Work Permit
SDP	Significance Determination Process
SI	Special Inspection
SRO	Senior Reactor Operator
SSCs	Structures, Systems and Components
SX	Shutdown Service Water System
TDRFP	Turbine Driven Reactor Feed Pump
TS	Technical Specifications
USAR	Updated Safety Analysis Report
UTI	Untested Islands

## LIST OF DOCUMENTS REVIEWED

### 1R04 Equipment Alignments

Operational Schematics 1073	Low Pressure Core Spray System	Revision 7
Operational Schematics 1074	High Pressure Core Spray System	Revision 7
Operational Schematics 1075	Residual Heat Removal System	Revision 14
Operational Schematics 1077	Standby Liquid Control System	Revision 4
Operational Schematics 1079	Reactor Core Isolation Cooling	Revision 8
Operational Schematics 1105	Standby Gas Treatment System	Revision 3

### 1R05 Fire Protection

Fire Protection Evaluation Report	<u>Chapter 3</u>
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### 1R06 Flood Protection

CPS 4304.01	Flooding	Revision 4a
Clinton Updated Safety Analysis Report (USAR)	Section 2.4.2, Floods	
CPS 4303.02	Abnormal Lake Level	Revision 6
Design Calculation PMED 01ME077	Calculations for Flooding - Safe Shutdown Analysis	

### 1R08 Inservice Inspection

02-010	GE Nuclear Energy UT Examination Summary Sheet
02-029	GE Nuclear Energy UT Examination Summary Sheet

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02-028	GE Nuclear Energy UT Examination Summary Sheet	
MT-EXLN-100V3	Procedure for Magnetic Particle Examination (Dry Particle, Color Contrast or Wet Particle, Fluorescent)	March 26, 2002
PT-EXLN-100V3	Procedure for Liquid Penetrant Examination Using Fluorescent and Visible Dye Liquid Penetrant Inspection Methods	March 26, 2002
UT-EXLN-300V4	Procedure for Manual Ultrasonic Examination of Reactor Vessel Assembly Welds	April 3, 2002
UT-EXLN-105V5	Procedure for Manual Ultrasonic Examination of Piping Welds and Safe Ends Outside the Scope of PDI-UT-1 and PDI-UT-2	April 3, 2002
GE-UT-311	Procedure for Manual Ultrasonic Examination of Nozzle Inner Radii and Bore	April 4, 2002
GE-UT-309	Procedure for Manual Ultrasonic Planar Flaw Sizing of Nozzle Inner Radius and Bore Regions	April 2, 2002
GE-UT-702	Procedure for GERIS 2000 Ultrasonic OD Examination of RPV Assembly Welds	April 5, 2002
GE-UT-704	Procedure for the Examination of Reactor Pressure Vessel Welds with GERIS 2000 OD in Accordance with Appendix VIII	March 27, 2002
	Inservice Inspection (ISI) Summary Report, RF-7 Refueling Outage	January 11, 2001
AR 00076669	CR 64612 CA's Do Not Address All Identified Problems	
AR 00084999	ISI Work Authorized Without Proper Review	
CR 00103006	ISI Program Manual Revision	
	GE Nuclear Energy, ISI Equipment List for C1RO8	April 6, 2002

1R11 Licensed Operator Requalifications

ESG-042 Scram-Normal Operations

1R14 Personnel Performance During

CPS 3003.01	Preparation for Startup & Approach to Critical	Revision 23
Work Order 352941-08	NSS Annunciator Panel P630 PB Jumper Installation	June 25, 2002
Contingency Plan 02-016	Developed for Partial P630 annunciator outage	

1R15 Operability Evaluations

CR-103916	Division 2 NSPS Inverter Transferred to Alternate Power Supply	
CR-104137	Cracking Identified in the Core Shroud weld H4	
CR-109620	VG A Train Secondary Containment Draw-down Surveillance 9065.02	
CR-111075	Seismic system Backup Batteries Found Degraded	
CPS 9065.02	Secondary Containment Integrity	Revision 29

1R17 Permanent Plant Modifications

Engineering Change 331404	Extended Power Uprate_Nuclear Steam Supply System Setpoint Changes_for Division I	
Design Change Package 331590	Hydrogen Water Chemistry	
RTE-02-018ED	Hydrogen Water Chemistry_Initiation Survey Plan	Revision 0

1R19 Post Maintenance Testing

CPS 2802.04	Diesel Generator 1A (1B) Woodward Governor Replacement PMT	Revision 0a
CPS 8679.03	SB & PR Pressure Control Circuit Calibration	Revision 0b

1R20 Refueling and Outage Activities

CPS 9059.01	Reactor Coolant System Leakage Test	Revision 6
CPS 3105.01	Turbine System Operating Procedure	Revision 29a
CPS 3703.01	Core Alterations	Revision 24
CPS 2811.00	EPU Feedwater Level Control Regulation Test	Revision 2
CPS 3001.01	Preparation for Startup & Approach to Critical	Revision 23
CPS 2202.04D001	Point ECP [estimated critical position] Data Sheet for May 4, 2002	Revision 6
CPS 2801.04	EPU Power Ascension Test	Revision 0a

1R22 Surveillance Testing

CPS 9080.25	DG 1B Test Mode Override, Load Reject Operability, and idle Speed Override	Revision 0
CPS 9080.22	Diesel Generator 1B - ECCS Integrated	Revision 26
CPS 9430.30	UTI (Untested Islands) 999 Second Time Delay	Revision 36c
CPS 9031.14	IRM Channel Functional (Shutdown)	Revision 29
CPS 9052.01	LPCS/RHR A Water leg Pum0p Operability	Revision 41e
CPS 9053.04	LPCS and RHR A Valve Stroking	Revision 43a
CPS 9031.10	RPS Main Steam Line Isolation Valve Channel Functional	Revision 25

2OS1 Access Control to Radiologically Significant Areas

CR00088943	High Rad Area Found R1-37	January 4, 2002
CR00089324	Incomplete Corrective Action on RP	January 7, 2002
CR00090940	Ineffective Contamination Cause Determination	January 16, 2002
CR00093313	Untimely Root Cause Corrective Action Completion	January 13, 2002
CR00094981	Resin Found on Floor in T1-10/11	February 13, 2002
CR00098299	Improper Control of Exempt Source	March 07, 2002

CR00088943	High Rad Area Found R1-37	January 4, 2002
CR00100228	Individual Exited Protected Area After Alarming Gamma 60	March 20, 2002
CR00100959	LHRA Identified in Locked Cubicle R3-24	March 25, 2002
CR00101630	Individual Failed to Use PCM Prior to Exiting the RCA	March 21, 2002
CR00101685	PCM Returned to Service Without Calibration	March 30, 2002
CR00102646	Failure to Control Radiation Area around Radiology	April 5, 2002
RP-CL-462	Controls for Radiography Activity	Revision 0

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

CR00093536	ED Dose Rate Alarm not Logged Jaw CPS Procedure 7705.01	January 25, 2002
CR00094719	Exposure Received Greater Than Projected ON IFTS Work	February 11, 2002
CR00102672	Worker Entered High Radiation Area on Generic RWP	April 6, 2002
RWP-10000439	C1R08-Drywell-1B33F067A/B Valve Work	Revision 0
RWP-10000440	C1R08-Drywell-CRD Exchange	Revision 0
RWP-10000446	C1R08-Drywell-Bioshield Work (ISI)	Revision 1
RWP-10000455	C1R08-Drywell-Scaffolding	Revision 0
RWP-10000469	C1R08-ECCS/Containment-RHR System work	Revision 1
RWP-06011036	SRV Replacement USAR Change No. 10-105 and Establishment of New Low Level Radioactive Waste Storage Areas	Revision 1 Revision 0

3PP1   Physical Protection

SY-AA-102	Exelon's Nuclear Fitness-for-Duty Program	Revision 5
SY-AA-102-201	Call-Outs for Unscheduled Work	Revision 3
SY-AA-102-203	FFD Follow-up Testing	Revision 3

SY-AA-102-205	Fitness-for-Duty (FFD) Appeal	Revision 2
SY-AA-102-221	Processing Fitness for Duty Allegations	Revision 1
SY-AA-103-512	Continual Behavioral Observation Program	Revision 3
TQ-AA-118	Nuclear General Employee Training-N-GET	Revision 3
Focus Area Self Assessment	Fitness-For-Duty	May 29, 2001 - July 17, 2001
Security Event Reports		November, 2000 - June, 2002
Clinton Semi-Annual Fitness for Duty Report Second Period - 2001		February 6, 2002

3PP2 Physical Protection

SY-AA-101-112	Searching Personnel and Packages	Revision 5
SY-AA-101-115	Controlling Gates	Revision 2
SY-AA-101-117	Processing Visitors and Vehicles	Revision 5
SY-AA-101-119	Control of Receiving Warehouse	Revision 2
SY-AA-101-120	Control of Security Keys and Cores	Revision 1
SY-AA-101-122	Testing Security Equipment	Revision 5
SY-AA-101-123	Searching Vehicles and Cargo/Material	Revision 6
SY-AA-103-511	Request for Unescorted Access	Revision 7
SY-AA-103-514	Fabrication of Security Badges	Revision 6
SY-AA-103-518	Outprocessing of Personnel (Employee and Contractor)	Revision 4
LS-AA-125	Corrective Action Program (CAP) Procedure	Revision 2
Condition Report No. 95304	Failure to Terminate Keycard Access in a Timely Manner	
Condition Report No. 104451	Laundry Shipment left Unattended and Unsearched	
Condition Report No. 111820	Unescorted Access Not Canceled as Required	

Focus Area Self Assessment	Access Authorization	February 25, 2002 - March 22, 2002
Self-Assessment Report on Security Safeguards Inspection	Pre-NRC Inspection of Security Safeguards Areas (IP 71130.01,02,04, IP 71151)	June 3 - 12, 2002
Nuclear Oversight Field Observation Report	Vehicle Search	June 4, 2002
Nuclear Oversight Field Observation Report	Visitor Processing	May 28 - 29, 2002
Security Event Reports		November, 2000 - June, 2002

### 3PP3 Physical Protection

LS-AA-125	Exelon Nuclear Corrective Action Program (CAP) Procedure	Revision 2
SY-AA-101-124	Operation of the Security Control Centers	Revision 1
CPS 4305.01	Security Threat/Intrusion	October 15, 2001
Lesson Plan (LP) 101-124	Security Control Center Operations	Revision 1
LP 101-131	CPS Defensive Strategy	Revision 1
CPS Nuclear Security Training Program	Stress Fire Course	Revision 20
Training Records	Weapons Qualifications, Force on Force, Deadly Force, and Table Tops	January 2001 - March 2002
CPS Condition Report (CR) 2-00-09-029	Near Miss - Inadvertent Weapons Discharge	September 7, 2000
Root Cause Analysis	CR 2-00-09-029 Near Miss - Inadvertent Weapons Discharge	September 7, 2000
CR 98030	A Round of Ammunition Found on the 800 Turbine Deck	January 29, 2002

Security Event Report		January 1, 2001 - April 24, 2002
Quality Assurance (QA) Field Observation Report 2000-63-006	Status of OSRE Action Items	June 20, 2000
Lessons Learned	Security Quarterly Force on Force Drills	June 2000 - February 2002
Nuclear Oversight (NOS) Field Observation AR 48106-26	Security Tactical Drills	June 5, 2001
NOS Field Observation AR 48106-27	Security Tactical Drills	June 7, 2001
NOS Field Observation	Security Terrorism Training - Operations	October 22, 2001
Security Self-Assessment Report	Security Protective Strategy	December 3 - 27, 2001
NOS Field Observation	Security Tactical Drill Review	February 22, 2002