

July 22, 2002

EA 02-053

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

SUBJECT: BYRON STATION, UNITS 1 AND 2  
INSPECTION REPORT 50-454/02-05; 50-455/02-05

Dear Mr. Skolds:

On June 30, 2002, the NRC completed an inspection at the Byron Station, Units 1 and 2. The enclosed report documents the inspection findings which were discussed on June 28, 2002, with Mr. R. Lopriore and other members of your staff.

The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

Based on the inspection results, the inspectors identified a Severity Level IV violation of NRC requirements. Specifically, in July 1998, your staff implemented a change to the Updated Final Safety Analysis Report (UFSAR) that involved an unreviewed safety question and for which prior NRC approval was not obtained per the requirements of 10 CFR 50.59 in effect at the time. The change involved the elimination of performance requirements for one of two valves associated with precluding a loss of coolant accident following a thermal barrier heat exchanger rupture. The change also substituted operator manual actions in place of remote manual actions previously described in the UFSAR. We also evaluated the change against the current and revised 10 CFR 50.59 requirements. We determined that this issue would have been a violation of the revised 10 CFR 50.59 rule because the change created the possibility for an accident of a different type than previously evaluated in the UFSAR. However, because the violation was non-willful and non-repetitive and because it has been entered into your corrective action program, the NRC is treating this issue as a Non-Cited Violation in accordance with Section VI.A.1 of the NRC's Enforcement Policy.

In addition, one issue of very low risk significance (Green) was self revealed. The issue involved a failure to follow procedures during the Unit 1 plant shutdown for refueling outage B1R11 and was determined to involve a violation of NRC requirements. However, because of its very low safety significance and because it was entered into your corrective action program, the NRC is treating the issue as a Non-Cited Violation in accordance with Section VI.A.1 of the NRC's Enforcement Policy.

If you contest the 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 Nuclear Regulatory Commission, ATTN.: Document Control Desk, Washington, DC 20555-0001, with copies to the Regional Administrator, Region III; Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the Byron Station.

The NRC has increased security requirements at the Byron 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/reading-rm/adams.html> (the Public Electronic Reading Room).

We will gladly discuss any questions you have concerning this inspection.

Sincerely,

**/RA/**

Ann Marie Stone, Chief  
Branch 3  
Division of Reactor Projects

Docket Nos. 50-454; 50-455  
License Nos. NPF-37; NPF-66

Enclosure: Inspection Report 50-454/02-05;  
50-455/02-05

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U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket Nos: 50-454; 50-455  
License Nos: NPF-37; NPF-66

Report No: 50-454/02-05; 50-455/02-05

Licensee: Exelon Generation Company, LLC

Facility: Byron Station, Units 1 and 2

Location: 4450 N. German Church Road  
Byron, IL 61010

Dates: April 1 through June 30, 2002

Inspectors: R. Skokowski, Senior Resident Inspector  
P. Snyder, Resident Inspector  
T. Tongue, Project Engineer  
K. O'Brien, Senior Reactor Inspector  
D. Pelton, Senior Operations Inspector  
N. Shah, Resident Inspector, Braidwood  
K. Walton, Reactor Inspector  
R. Alexander, Radiation Specialist  
C. Thompson, Illinois Department of Nuclear Safety

Approved by: Ann Marie Stone, Chief  
Branch 3  
Division of Reactor Projects

## SUMMARY OF FINDINGS

IR 05000454-02-05, IR 05000455-02-05, Exelon Generation Company, LLC; on 04/01-06/30/2002; Byron Station; Units 1 & 2. Personnel performance during non routine plant evolutions and Other Activities.

The baseline inspection was conducted by resident and region-based inspectors. The inspectors identified one Green finding associated with a Non-Cited Violation and one Severity Level IV Non-Cited Violation related to an inadequate 10 CFR 50.59 safety evaluation. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter 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/ASSESS>. Findings for which the SDP does not apply are indicated by "No Color" or by the severity level of the applicable violation.

### A. Inspector Identified Findings

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

- Green. The inspectors identified (self-revealed) that the licensee failed to follow Byron General Operating Procedure 100-4, "Power Descension," during the plant shutdown on March 11, 2002, by not placing the steam dump controls in the steam pressure mode prior to tripping the turbine generator, which resulted in an unanticipated lifting of the steam generator power operated relief valves.

This finding was determined to be of very low safety significance because the unanticipated lifting of the steam generator power operated relief valve did not result in an actual open pathway in the containment. A Non-Cited Violation of Technical Specification 5.4.1.a, for the failure to follow the procedure was identified. (Section 1R14)

#### **Cornerstone: Mitigating Systems**

- NCV. The inspectors identified a Severity Level IV Non-Cited Violation. In July 1998, the licensee implemented a change to the Updated Final Safety Analysis Report (UFSAR) that involved an unreviewed safety question for which prior NRC approval was not obtained per the requirements of 10 CFR 50.59 in effect at the time. Specifically, the licensee changed the UFSAR and failed to adequately evaluate: 1) an elimination of performance requirements for valve 1/2CC-9438 associated with isolation of a loss of coolant accident following a thermal barrier heat exchanger rupture; 2) a decrease in the number, from two to one, of valves in the component cooling water return line that were relied upon to meet the performance requirements of General Design Criteria 44 and 54; and 3) a substitution of operator manual actions for a remote manual valve closure. This change to the facility, as described in the UFSAR, created the possibility for a new accident not previously evaluated in the UFSAR.

Because the Significance Determination Process (SDP) is not designed to assess the significance of violations that potentially impact or impede the regulatory process, this issue was dispositioned using the traditional enforcement process in accordance with Section IV of the NRC Enforcement Policy. However, the results of the violation, that is, the elimination of performance requirements for one of two valves relied upon to isolate a loss of coolant accident involving a thermal barrier heat exchanger rupture, were assessed using the SDP. The severity level of the violation was then based upon the SDP assessment for the results of the violation. The results of the violation were considered to have more than minor safety significance, in that, the results of the violation had a credible impact on safety by affecting the operability, availability, reliability, or functioning of the component cooling water system. However, the results of the violation did not cause a loss of function of the component cooling water system per the guidance of Generic Letter 91-18, "Resolution of Degraded and Non-Conforming Conditions." Therefore, the results of the violation were determined to be of very low safety significance and the violation of 10 CFR 50.59 was classified as a Severity Level IV violation.

Because this non-willful violation was non-repetitive, and was captured in the licensee's corrective action program, this issue is being treated as a Non-Cited Violation, consistent with the NRC Enforcement Policy (Section 40A5).

B. Licensee Identified Violations

No violations of significance were identified.



## Report Details

### Summary of Plant Status

As the inspection period began, the licensee was returning Unit 1 to full power following the completion of refueling B1R11. Unit 1 was operated at or near full power until May 18, 2002, when the licensee reduced power to approximately 20 percent for planned repairs to a feedwater regulating valve. Following the repairs the licensee returned Unit 1 to full power on May 21, 2002. The unit was operated at or near full power for the remainder of the inspection period.

The licensee operated Unit 2 at or near full power until June 24, 2002, when the licensee completed an unplanned shutdown of the unit due to steam generator tube leakage in excess of the procedurally established limits. Following the repairs to the steam generator, the licensee returned Unit 2 to full power on June 28, 2002. The unit was operated at or near full power for the remainder of the inspection period.

### **1. REACTOR SAFETY**

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

#### 1R01 Adverse Weather Protection

##### a. Inspection Scope

The inspectors reviewed the licensee's preparations for potential high temperature conditions during the summer season. Specifically, the inspectors performed the following:

- Reviewed the Updated Safety Analysis Report (UFSAR), Technical Specifications and other plant documents to identify areas potentially challenged by summer temperatures;
- Reviewed applicable licensee procedures and surveillance tests appropriate for monitoring plant conditions during summer weather;
- Verified through interviews and record review, that Nuclear Shift Operators were familiar with plant systems potentially affected by high temperatures and that necessary procedural and/or contingency plans were in place; and
- Verified that the licensee had performed summer readiness reviews for selected plant systems including the auxiliary feedwater, circulating water, main feedwater, main steam, and electrical (auxiliary power, switch yard, and DC battery) systems.

On June 4, 2002, the inspectors performed a walkdown of the A train of the units 1 and 2 auxiliary feedwater, centrifugal charging, and safety injection pumps; the units 1 and 2 component cooling water pumps; the unit 1 A and B emergency diesel generators; the units 1 and 2 miscellaneous electrical equipment rooms; and the main control room.

The purpose of the walkdown was to verify that the associated cooling and ventilation systems were working properly.

The inspectors also reviewed selected items identified by the licensee, to determine if they had been properly addressed by the licensee's corrective action program.

Additionally, the inspectors reviewed the licensee's response to the Severe Thunderstorms Warnings on June 3 and 4, 2002.

The documents listed at the end of this report were used by the inspectors to evaluate this area.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04)

a. Inspection Scope

The inspectors verified the system alignment of the equipment listed below during maintenance activities affecting the availability of associated redundant equipment:

- 2A Emergency Diesel Generator.

In addition, the inspectors performed a complete system walkdown of the following system:

- Unit 1 125 Volt Trains A and B DC Battery and Distribution System.

These safety-related systems were selected because they were designed to mitigate the consequences of a potential accident. The inspectors performed a walkdown of the accessible portions of the systems and verified that the system lineup was in accordance with plant operating procedures and applicable system drawings. The inspectors also assessed the material condition of system equipment and verified that identified discrepancies were properly captured in the licensee's corrective maintenance program. The documents listed at the end of this report were also used by the inspectors to evaluate this area.

In addition, the inspectors reviewed the issues that the licensee entered into its corrective action program to verify that identified problems were being entered into the program with the appropriate characterization and significance. The inspectors also reviewed the licensee's corrective actions for the issues documented in selected condition reports.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

a. Inspection Scope

The inspectors examined the plant areas listed below to observe conditions related to fire protection:

- Auxiliary Building 383' Elevation (Zones 1D-11, 10-12),
- Auxiliary Building 426' Elevation (Zone 11.6-0),
- Auxiliary Building 346' Elevation (Zone 11.2-0), and
- Main Control Room (Zone 2.1-0)

These areas were selected for inspection because risk significant systems, structures and components were located in the areas. The inspectors reviewed applicable portions of the Byron Station Fire Protection Report and assessed the licensee's control of transient combustibles and ignition sources, material condition, and operational status of fire barriers and fire protection equipment. The documents listed at the end of this report were also used by the inspectors to evaluate this area.

In addition, the inspectors reviewed the issues that the licensee entered into its corrective action program to verify that identified problems were being entered into the program with the appropriate characterization and significance. The inspectors also reviewed the licensee's corrective actions for the issues documented in selected condition reports.

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures (71111.06)

a. Inspection Scope

The inspectors evaluated whether the licensee took appropriate precautions to mitigate the risk from external and internal flooding events. Specifically, the inspectors performed the following:

- Reviewed the UFSAR and other selected design basis documents to identify those areas susceptible to flooding;
- Performed a walkdown of the river screen house, essential service water pump rooms, emergency diesel generator 1A, 1B, 2A and 2B, fuel storage tank rooms, and auxiliary building fuel handling area to evaluate whether appropriate flood protection controls were being maintained;
- Reviewed selected surveillance tests and maintenance records for watertight doors, flood seal openings and selected instrumentation (such as sump alarms) that help identify flooding events;

- Reviewed selected station operating procedures used to identify and mitigate flooding events; and
- Interviewed selected operating, training, maintenance and engineering staff regarding flood protection controls.

The river screen house, essential service water pump rooms, emergency diesel generator fuel tank rooms, and auxiliary building fuel handling area were selected for the plant walkdown based on their susceptibility to flooding events as described in the licensee's design basis documents. The walkdown consisted primarily of observing equipment below the postulated floodline, floor and wall penetrations, flood seal openings and watertight doors, and room drains and sumps.

In addition, the inspectors reviewed the issues that the licensee entered into its corrective action program to verify that identified problems were being entered into the program with the appropriate characterization and significance. The inspectors also reviewed the licensee's corrective actions for the issues documented in selected condition reports.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification (71111.11)

a. Inspection Scope

The inspectors assessed licensed operator performance and the training evaluators' critique during a licensed operator training session in the Byron Station operations training simulator on May 21, 2002. The inspectors focused on alarm response, command and control of crew activities, communication practices, procedural adherence, and implementation of emergency plan requirements.

b. Findings

No findings of significance were identified.

1R12 Maintenance Rule Implementation (71111.12)

a. Inspection Scope

The inspectors evaluated the licensee's implementation of the maintenance rule, 10 CFR 50.65, as it pertained to identified performance problems with the following equipment and systems:

- Maintenance Rule Function PC5 - Primary Containment System Leakage and Post Accident Monitoring Instruments.

During this inspection, the inspectors evaluated the licensee's monitoring and trending of performance data, verified that performance criteria were established commensurate with safety, and verified that equipment failures were appropriately evaluated in accordance with the maintenance rule. The documents listed at the end of this report were also used by the inspectors to evaluate this area. The inspectors interviewed system engineers, operations department personnel and the station's maintenance rule coordinator. The inspectors also attended the licensee's maintenance rule expert panel for declaring Function PC5 a maintenance rule a(1) system, requiring performance monitoring.

In addition, the inspectors reviewed the issues that the licensee entered into its corrective action program to verify that identified problems were being entered into the program with the appropriate characterization and significance. The inspectors also reviewed the licensee's corrective actions for the issues documented in selected condition reports.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

The inspectors reviewed the licensee's evaluation of plant risk for maintenance activities for the following emergent issues:

- Increase Trend in the Unit 2C Steam Generator Tube Leakage;
- Simultaneous 1D Feedwater Flow Oscillations and 1D Reactor Coolant Pump Undervoltage Alarms; and
- Decreasing Unit 2 Seal Injection Flow to the 2A and 2D Reactor Coolant Pump Seals.

The inspectors selected these emergent issues because they involved components that were risk significant in the licensee's risk analysis, or were considered significant as potential initiating events. During this inspection, the inspectors reviewed the circumstances associated with each issue, and verified that the licensee evaluated the impact of the emergent issues on the planned maintenance activities. In addition, the inspectors reviewed the licensee's development and implementation of contingency actions to address risk associated with the emergent issues. The inspectors interviewed operations, engineering, maintenance, and work control department personnel. The documents listed at the end of this report were also used by the inspectors to evaluate this area.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

The inspectors reviewed the licensee's response to the following operational events:

- Unit 1 Planned Down Power to Allow for the Repair of the 1D Feedwater Regulating Valve (May 18, 2002); and
- Unit 2 Unplanned Shutdown due to Excessive Steam Generator Leakage (June 22, 2002).

The inspectors also reviewed Unresolved Item 50-454-02-03-02, pertaining to the procedure review to trip the turbine generator at a higher power than prescribed by the procedure that occurred during the plant shutdown for the Unit 1 refueling outage in March 2002. The inspector reviewed the associated condition reports, apparent cause evaluation and interviewed the operators and plant management associated with the shutdown.

In addition, the inspectors reviewed the issues that the licensee entered into its corrective action program to verify that identified problems were being entered into the program with the appropriate characterization and significance. The inspectors also reviewed the licensee's corrective actions for the issues documented in selected condition reports.

The documents listed at the end of this report were also used by the inspectors to evaluate this area.

b. Findings

A finding of very low safety significance (Green) was self-revealed. Specifically, the licensee failed to follow Byron General Operating Procedure 100-4, "Power Descension," during the plant shutdown on March 11, 2002, by not placing the steam dump controls in the pressure mode prior to tripping the turbine generator, which resulted in an unanticipated lifting of the steam generator power operated relief valves. The inspectors determined this to be a Non-Cited Violation of Technical Specification 5.4.1.a. No findings of significance were identified with the other activities reviewed.

During the plant shutdown on March 11, 2002, the licensee experienced difficulties with the startup feedwater pump, such that it was not available for use at the point specified in the Byron General Operating Procedure 100-4, "Power Descension," Revision 24. Therefore, the operators used the motor driven feedwater pump to complete the shutdown. Although the use of the motor driven feedwater pump in lieu of the startup feedwater pump was described in the power descension procedure, the licensee decided to make an exception to the procedure and trip the turbine generator at 180 Megawatts electric (MWe) instead of the specified 100 MWe. Upon tripping the turbine generator, the steam dump valves did not open as expected. As a result, the steam generator (SG) pressure increased and the SG atmospheric relief valves lifted to provide the necessary plant cooldown.

Based on the review of the apparent cause evaluation and discussions with the operators and station management involved with the shutdown, the inspectors concluded that the operators failed to place the steam dump controls in the pressure mode prior to tripping the turbine generator as specified by the power descension procedure. This resulted in the unanticipated lifting of the steam generator power operated relief valves.

The inspectors determined that this issue had a credible impact of safety, specifically on the barrier cornerstone because unanticipated lifting of a steam generator power operated relief valve could result in a bypass of the containment if there was a leak in the steam generator tubes. The inspectors evaluated the issue through the significance determination process (SDP) and determined that this issue was of very low safety significance (Green), because there was no indication of steam generator tube leakage and the failure did not result in an actual open pathway in the containment.

Technical Specification 5.4.1.a, states, in part, that "written procedures shall be established, implemented, and maintained covering the following activities. The applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978." Appendix A to this Regulatory Guide specifies plant shutdown to hot standby as an example of a general operating procedure. Unit 1 Byron General Operating Procedure 100-4, "Power Descension," Revision 24, Step 20, requires that operators transfer steam dumps to the pressure mode at approximately 15 percent power (185 MWE). Contrary to the above, on March 11, 2002, during the plant shutdown for refueling outage B1R11, the operators failed to transfer steam dumps to pressure mode prior to tripping the turbine generator at approximately 15 percent power (185MWE). Because of the very low safety significance of the item and because the licensee had included this item in the corrective action program (Condition Report 00098784), this violation is being treated as a Non-Cited Violation (50-454-02-05-01).

#### 1R15 Operability Evaluations (71111.15)

##### a. Inspection Scope

The inspectors evaluated the licensee's basis that the issues identified in the following operability evaluations and condition reports did not render the involved equipment inoperable or result in an unrecognized increase in plant risk:

- OD 02-007, 2B Diesel Generator Lube Oil Pressure Low,
- OD 02-008, 2A Diesel Generator Lube Oil Pressure Low,
- OD 02-010, CC9438 Potential Unreviewed Safety Question,
- OD 02-011, 2A and 2B Diesel Generator Lube Oil Pressure Low,
- Condition Report 00106083, Reactor Coolant Pump Undervoltage Reactor Trip Alert Alarm, and
- Several condition reports related to the Unit 2 reactor coolant leak detection system.

The inspectors interviewed operations, engineering, maintenance and regulatory assurance department personnel and reviewed applicable portions of the UFSAR, and

Technical Specification. The documents listed at the end of this report were also used by the inspectors to evaluate this area.

In addition, the inspectors reviewed the issues that the licensee entered into its corrective action program to verify that identified problems were being entered into the program with the appropriate characterization and significance. The inspectors also reviewed the licensee's corrective actions for the issues documented in selected condition reports.

b. Findings

No findings of significance were identified.

1R16 Operator Work-Arounds (71111.16)

a. Inspection Scope

The inspectors performed the semiannual review of the cumulative effects of operator work-arounds (OWA). During this review the inspectors considered the cumulative effects of OWA on the following:

- The reliability, availability, and potential for mis-operation of a system;
- The ability of operators to respond to plant transients or accidents in a correct and timely manner; and
- The potential to increase an initiating event frequency or affect multiple mitigating systems.

Additionally, the inspectors reviewed the following OWA:

- OWA 272, Containment Sump Monitor 2RF008.

The inspectors interviewed operating and engineering department personnel and reviewed selected procedures and documents listed at the end of this report. In addition, the inspectors reviewed the licensee's changes to address the concerns with containment sump monitor and other associated Unit 2 reactor coolant leak detection system instruments.

b. Findings

No findings of significance were identified.

1R19 Post Maintenance Testing (71111.19)

a. Inspection Scope

The inspectors evaluated the licensee's post maintenance testing activities for maintenance conducted on the following equipment:



- 2B Emergency Diesel Generator.

The inspectors selected this post maintenance activity because the system was identified as risk significant in the licensee's risk analysis. The inspectors reviewed the scope of the work performed and evaluated the adequacy of the specified post maintenance testing. The inspectors verified that the post maintenance testing was performed in accordance with approved procedures, the procedures stated acceptance criteria, and the acceptance criteria were met. During this inspection activity, the inspectors interviewed maintenance and engineering department personnel and reviewed the completed post maintenance testing documentation. The documents listed at the end of this report were also used by the inspectors to evaluate this area.

In addition, the inspectors reviewed the issues that the licensee entered into its corrective action program to verify that identified problems were being entered into the program with the appropriate characterization and significance. The inspectors also reviewed the licensee's corrective actions for the issues documented in selected condition reports.

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 B2F23 forced outage activities to repair the excessive 2C steam generator tube leakage. The inspectors assessed the licensee's control of plant configuration and management of shutdown risk, and verified that activities were completed in accordance with the Technical Specifications. The major outage activities evaluated included:

- Identification and repair of the 2C Steam Generator tube leak, and
- Repair activities associated with the Unit 2 reactor coolant leak detection system.

In addition, the inspectors evaluated portions of the restart activities to verify that requirements of the Technical Specifications and administrative procedure requirements were met prior to changing operational modes or plant configurations.

The inspectors interviewed operations, engineering, work control, radiological protection, and maintenance department personnel and reviewed selected procedures and documents.

The inspectors reviewed the issues that the licensee entered into its corrective action program to verify that identified problems were being entered into the program with the appropriate characterization and significance. The inspectors also reviewed the licensee's corrective actions for refueling outage issues documented in selected condition reports.

The documents listed at the end of the report were used in the assessment of this area.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors evaluated the surveillance testing activities listed below to verify that the testing demonstrated that the equipment was capable of performing its intended function:

- Unit 1 ASME Surveillance Requirements for the 1A Charging Pump, and
- Unit 1 ASME Surveillance Requirements for the 1A Containment Spray Pump.

The inspectors selected these surveillance test activities because the system functions were identified as risk significant in the licensee's risk assessment and the components were credited as operable in the licensee's safety analysis to mitigate the consequences of a potential accident. The inspectors interviewed operations, maintenance, and engineering department personnel; reviewed the completed test documentation; and observed the performance of all or portions of these surveillance testing activities. The documents listed at the end of this report were also used by the inspectors to evaluate this area.

In addition, the inspectors reviewed the issues that the licensee entered into its corrective action program to verify that identified problems were being entered into the program with the appropriate characterization and significance. The inspectors also reviewed the licensee's corrective actions for the issues documented in selected condition reports.

b. Findings

No findings of significance were identified.

**Cornerstone: Emergency Preparedness**

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope

The inspectors observed the emergency response activities associated with the simulator training completed on May 21, 2002. 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 determined that the results were properly counted in the Performance Indicators for emergency preparedness.

b. Findings

No findings of significance were identified.

**2. RADIATION SAFETY**

**Cornerstone: Occupational Radiation Safety (OS)**

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

.1 Post-B1R11 Outage ALARA Reviews

a. Inspection Scope

The regional radiation protection inspector reviewed post-B1R11 Outage Radiation Work Permit (RWP)/ALARA reports to compare the results achieved with the dose estimates established in the licensee's ALARA plans for these work activities. Included in this review, the inspector assessed the reasons (e.g., failure to adequately plan the activity, failure to provide sufficient work controls, etc.) for any inconsistencies between estimated and actual work activity doses. The inspector also reviewed the Radiation Protection (RP) Lessons Learned database and B1R11 RP-related Condition Reports (CRs) to assess the station's ability to identify repetitive problems, contributing causes, and the extent of conditions, and implement corrective actions intended to achieve lasting results for future refueling outages.

b. Findings

No findings of significance were identified.

**Cornerstone: Public Radiation Safety (PS)**

2PS2 Radioactive Material Processing and Transportation (71122.02)

.1 Review and Walkdowns of Radioactive Waste Systems

a. Inspection Scope

The regional radiation protection inspector reviewed the liquid and solid radioactive waste system description in the UFSAR and the most recent Radiological Effluent Release Report (for calendar year 2000) for information on the types and amounts of radioactive waste (radwaste) generated for disposal.

The inspector performed walkdowns of the liquid and solid radwaste processing systems located in the Radwaste and Auxiliary Buildings to verify that the systems were as described in the UFSAR and the Process Control Program, and to assess the material condition and operability of the systems. The inspector also discussed the current operation of the system with members of the radioactive waste operations crew and the radwaste vendor representative. In the case of abandoned radwaste equipment

(i.e., volume reduction and radwaste cement/drumming systems), the inspector reviewed the licensee's administrative and physical controls implemented to isolate these systems to verify the equipment would not contribute to an unmonitored radioactive material release path and would not inadvertently affect operating systems.

b. Findings

No findings of significance were identified.

.2 Waste Characterization and Classification

a. Inspection Scope

The regional radiation protection inspector reviewed the licensee's method and procedures for determining the classification of radioactive waste shipments, including the licensee's use of scaling factors to quantify difficult-to-measure radionuclides (e.g., pure alpha or beta emitting radionuclides). Specifically, the inspector reviewed the licensee's most recent radio-chemical analysis results for the primary resin, radwaste resin, filters, and dry active waste (DAW) waste streams. The inspector reviewed the report to verify that the licensee's scaling factors were accurately determined such that waste shipments were classified in accordance with the requirements contained in 10 CFR Part 61 and the licensee's Process Control Program. The inspector also reviewed the licensee's process for transferring waste materials into shipping containers to determine if appropriate waste stream mixing and/or sampling procedures were utilized for the purposes of waste classification per 10 CFR 61.55.

The inspector additionally reviewed the licensee's procedure employed to ensure that changes in operating parameters, which may result in changes to the waste stream composition, are identified between the annual or biennial scaling factor updates.

b. Findings

No findings of significance were identified.

.3 Shipment Preparation

a. Inspection Scope

The regional radiation protection inspector observed shipment preparation for a high integrity container of dewatered bead resin on May 15, 2002, to ensure that the shipping activities were performed in accordance with the requirements of 49 CFR Parts 172 and 173 and those of the low-level burial ground (e.g., Barnwell, SC) site license. Specifically, the inspector observed the movement of the liner from the storage facility, the final radiological survey, labeling, placarding, vehicle inspections, and the instructions provided to the driver. The inspector observed these activities to assess whether shipping personnel were knowledgeable of the shipping regulations and could adequately demonstrate the skills to accomplish the package preparation with respect to 49 CFR 172 Subpart H and licensee procedure requirements.

b. Findings

No findings of significance were identified.

.4 Shipping Records

a. Inspection Scope

The regional radiation protection inspector reviewed a selection of records for radioactive material shipments completed during calendar years 2001 - 2002 to verify compliance with NRC and Department of Transportation requirements (i.e., 10 CFR Parts 20 and 71; 49 CFR Parts 172 and 173). Specifically, the inspector reviewed the following radioactive materials/waste shipment records:

- RMS 01-064, Fuel Handling Pump [in a 55 gallon drum] (LSA-II, 09/25/2001)
- RWS 01-004, Dewatered Bead Resin (Type B, 04/02/2001)
- RWS 01-007, Dry Active Waste [in a 20' SeaVan] (LSA-II, 06/07/2001)
- RWS 01-008, Dewatered Bead Resin (LSA-II, 06/20/2001)
- RWS 01-009, Nozzle Covers [in a 20' SeaVan] (LSA-II, 07/11/2001)
- RWS 02-001, Dewatered Bead Resin (Type B, 01/20/2002)
- RWS 02-007, Dewatered Bead Resin (LSA-II, 05/15/2002)

b. Findings

No findings of significance were identified.

.5 Identification and Resolution of Problems

a. Inspection Scope

The regional radiation protection inspector reviewed CRs, a Focused Area Self-Assessment, and a Nuclear Oversight Continuous Assessment Report completed since January 2001, which concerned the areas of radioactive waste processing/packaging and radioactive waste/material shipping. The inspector reviewed these documents to assess the licensee's ability to identify repetitive problems, contributing causes, the extent of conditions, and implement corrective actions intended to achieve lasting results.

b. Findings

No findings of significance were identified.

#### 4. OTHER ACTIVITIES (OA)

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

###### a. Inspection Scope

The resident inspectors verified the following performance indicators for both units:

- Unplanned Scrams per 7000 Critical Hours,
- Scrams with Loss of Normal Heat Removal, and
- Unplanned Power Changes per 7000 Critical Hours.

The inspectors reviewed each of the licensee event reports from April 2001 to March 2002, determined the number of scrams that occurred, evaluated each of the scrams against the performance indicator definitions, and verified the licensee's calculation of critical hours for both units. The inspectors also reviewed power history data for both operating units from April 2001 to March 2002, determined the number of power changes greater than 20 percent full power that occurred, and evaluated each of those power changes against the performance indicator definition.

The regional radiation protection inspector reviewed the licensee's assessment of its performance indicator (PI) for occupational radiation safety, to determine if performance indicator related data was adequately assessed and reported. Since no reportable events were identified by the licensee for the 3<sup>rd</sup> and 4<sup>th</sup> quarters of calendar year 2001 and for the 1st quarter of calendar year 2002, the inspector compared the licensee's data with the CR database for these time periods to verify that there were no unaccounted for occurrences in the Occupational Radiation Safety PI as defined by the applicable revision of Nuclear Energy Institute Document 99-02.

The regional radiation protection inspector reviewed the licensee's assessment of its PI for public radiation safety by reviewing the dose records related to both liquid and gaseous effluent releases from the station from July 2001 to March 2002, to determine if this data was adequately assessed and reported. Since no reportable events were identified by the licensee for the 3<sup>rd</sup> and 4<sup>th</sup> quarters of calendar year 2001 and for the 1st quarter of calendar year 2002, the inspector also compared the licensee's data with the CR database for these time periods to verify that there were no unaccounted for occurrences in the Public Radiation Safety PI as defined by the applicable revision of Nuclear Energy Institute Document 99-02.

###### b. Findings

No findings of significance were identified.

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

##### a. Inspection Scope

The inspectors assessed the licensee's apparent cause evaluation (ACE) associated with Condition Report 00098784, "B1R11 Shutdown Events and Unexpected Occurrences." In addition to reviewing the ACE, the inspectors also interviewed the operators and station management associated with the event. The documents listed at the end of this report were also used by the inspectors to evaluate this area. The technical issues associated with this event are described in Section 1R14 of this report.

##### b. Findings

The inspectors determined that the ACE associated with the event was adequate. However, two significant shortcomings were identified.

First, during the investigation of the event, the licensee failed to interview the Unit 1 Unit Supervisor. The inspectors considered this a major oversight by the licensee since the Unit 1 Unit Supervisor was the main decision maker involved with the decision to trip the turbine generator at a higher power than that specified by the procedure, and his insights were critical in understanding why the steam dump controls were not placed in the pressure mode as prescribed by the procedure.

Second, during the evaluation of the event, the licensee identified that the reactor operators were not afforded the opportunity to weigh in on the decision to trip the turbine at a higher power level than that prescribed by the procedure. Based on the inspectors' interviews of the operators involved with the event, the inspectors concluded that although the licensee's corrective actions addressed improving the supervisory communications and command and control, no actions were taken to ensure that the management expectations and communications have been understood by the reactor operators.

#### 4OA3 Event Follow-up (71153)

- .1 (Closed) Licensee Event Report (LER) 50-454-2002-001-00: "Multiple Main Steam Safety Valve (MSSV) Relief Tests Exceeded Required Tolerance Due to Disk to Nozzle Metallic Bonding and Setpoint Drift." On March 7 and 8, 2002, the licensee identified three of 20 MSSVs on Unit 1 had exceeded the Technical Specification limit of 3 percent of lift pressure during surveillance testing. After identifying each test failure, the licensee entered into the appropriate Technical Specification LCO, adjusted the MSSV setpoint, and retested the valve satisfactorily within the TS allowed outage time. The licensee evaluated the impact of the three MSSVs being out of tolerance and concluded that the condition was bounded by the safety analysis report. The inspectors reviewed and concurred with the licensee's evaluation. The licensee entered this event into its action tracking system as CR 98531. This event did not constitute a violation of NRC requirements. This LER is closed.
- .2 (Closed) LER 50-454-2002-002-00: "Two of Three Pressurizer Safety Valve Relief Tests Exceeded Required Tolerance Due to Setpoint Drift." On March 8, 2002, the

licensee was notified by a test vendor that two Unit 1 pressurizer safety relief valves (SRVs) had “as found” lift settings (+1.1 percent and +2.0 percent, respectively) above the  $\pm 1$  percent tolerance allowed by Technical Specification 3.4.10. These valves provide for reactor coolant system overpressure protection and had been removed for testing during the prior Unit 1 refuel outage. The licensee identified no evidence of seat binding or prior maintenance that could have affected the valve performance. The out of tolerance was attributed to “setpoint drift” combined with the close tolerance between the Technical Specification requirements and the actual response capability of the valve. Additionally, the licensee determined that even with the out of tolerance, all the acceptance criteria for the UFSAR Chapter 15 Accident Analyses were met. The inspectors reviewed the licensee’s investigation and had no findings. This event did not constitute a violation of NRC requirements. This LER is closed.

- .3 (Closed) Unresolved Item 50-454/455/01-11-02: “Failure to perform required testing of the Units 1 and 2 MSIVs.” On September 26, 2001, the licensee identified that both units’ Main Steam Isolation Valves (MSIV) were not tested in Mode 3 as required by Technical Specifications. The licensee requested a Notice of Enforcement Discretion for both units. The NRC approved this NOED on September 27, 2001. The licensee determined the Mode 3 testing requirement was specifically stated in the Improved Technical Specifications, which was implemented in January 01, 1999. Prior to this date, the licensee’s Technical Specification did not explicitly require that the testing be performed in Mode 3; with testing typically occurring in Modes 4 or 5. The inspectors determined that the root cause was an administrative oversight during the change process to the Improved Technical Specifications. Subsequently the inspectors observed that the Units 1 and 2 MSIVs were successfully tested in Mode 3 on March 25 and June 27, 2002, respectively. The failure to perform the testing in Mode 3 as required in TS 3.7.2.1 constituted a violation of minor significance that is not subject to enforcement actions in accordance with Section IV of the NRC’s Enforcement Policy. This violation was captured in the licensee’s corrective action program (CR 76845).

#### 40A5 Other

- .1 (Closed) Unresolved Item (URI) 50-454/455-01-03-01 (DRS): Review of the Licensee’s Change to the Performance Requirements for Valve 1/2CC-9438. The inspectors initiated a Task Interface Agreement which requested additional assistance from the Office of Nuclear Reactor Regulation (NRR).

The inspectors identified a Severity Level IV Non-Cited Violation associated with the licensee’s failure to obtain prior NRC approval and a licensee amendment, in accordance with 10 CFR 50.59, for a change to the performance requirements for component cooling water valve 1/2CC-9438.

In January 2001, the inspector identified a URI associated with a 10 CFR 50.59 evaluation for a change the licensee made to the UFSAR-specified performance requirements for valve 1/2CC-9438. Specifically, the change removed a UFSAR requirement that the valve would be available for [remote] manual isolation of the component cooling water return flow following a reactor coolant pump thermal barrier heat exchanger rupture and a concurrent failure of the automatic isolation valve. The



change also substituted local, manual operator actions, to close the automatic isolation valve if the valve did not automatically close.

The inspectors determined that the licensee initiated the change, in part, due to the results of early 1990s motor operator valve testing. The testing identified that both the automatic (1/2CC-685) and remote-manual (1/2CC-9438) isolation valves, for this line, may not be able to close against the differential pressure expected following a thermal barrier heat exchanger rupture. The licensee implemented a separate plant equipment change, which upgraded the closing capability of the automatic isolation valve (1/2CC-685), to ensure that the automatic isolation valve could perform its intended safety function. However, the licensee did not implement changes to valve 1/2CC-9438 or to the UFSAR-specified valve performance requirements.

In March 2001, the 10 CFR 50.59 requirements were revised. Because the licensee reviewed and approved this change to the UFSAR in July 1998, the NRR staff reviewed the issue against the previous 10 CFR 50.59 requirements. The NRR staff concluded that the licensee's actions to remove a UFSAR performance requirement for valve 1/2CC-9438 to be available and capable to respond to a thermal barrier heat exchanger rupture event was an unreviewed safety question. As such, the change required the licensee to obtain prior NRC review and approval. Specifically, the staff determined:

1. A thermal barrier heat exchanger rupture was considered a credible event for Byron Station. The licensee's modification to the performance requirements for valve 1/2CC-9438 introduced a previously unanalyzed, and potentially unisolable, containment-bypassing loss of coolant accident into Byron Station's licensing basis, thereby creating an unreviewed safety question.
2. The licensee may not rely upon a single valve to isolate a thermal barrier heat exchanger rupture event. Two isolation barriers were required for compliance with the NRC's General Design Criteria 44 and 54, 10 CFR 50.46, and the plant licensing basis.
3. The NRC had not accepted the radiological consequences for Byron Station resulting from an unisolable, containment-bypassing loss of coolant accident through the component cooling water thermal barrier heat exchanger return line. This accident was not evaluated by the NRC during the Byron Station's initial licensing because the accident was not considered credible, based upon the requirements to which Byron Station was licensed.

Because violations of 10 CFR 50.59 are considered to be violations that could potentially impede or impact the regulatory process, they are dispositioned using the traditional enforcement process instead of the SDP. Since the SDP is not designed to assess the significance of violations that could potentially impact or impede the regulatory process, the results of a 10 CFR 50.59 violation are assessed using the SDP and the severity level of the violation is then based on this significance determination. In this case, the licensee modified the plant design by eliminating the performance requirements for one of two valves previously relied upon to isolate a loss of coolant accident following a thermal barrier heat exchanger rupture. The licensee formally eliminated the performance requirements in the UFSAR in 1998; however, the licensee

was aware of the valve's potential inability to meet the UFSAR-specified performance requirements since the early 1990s.

The inspectors concluded that the issue had a credible impact on safety because the licensee's elimination of the valve performance requirements resulted in an increased likelihood of a malfunction and could have affected the operability, availability, reliability, or function of the component cooling water system. Because this issue only affected the mitigating systems cornerstone, the inspectors performed a Phase I analysis using the SDP. The inspectors answered yes to Question 1. Specifically, the inspectors determined that the licensee's modification of the UFSAR and acceptance of diminished performance requirements for valve 1/2CC-9438 decreased the availability and reliability of the valve and the component cooling water system's ability to function following a loss of coolant accident. However, this issue did not result in a loss of the component cooling water system's function, per Generic Letter 91-18, "Resolution of Degraded and Non-Conforming Conditions." Therefore, the issue was determined to be of very low safety significance.

Because this issue was identified prior to March 2001, the issue was evaluated against the previous 10 CFR 50.59 requirements. Specifically, 10 CFR 50.59(a)(1) stated, in part, that the holder of a license authorizing operation of a utilization facility may make changes in the facility, as described in the safety analysis report, without prior Commission approval, unless the proposed change involved an unreviewed safety question. A change in the facility was deemed to involve an unreviewed safety question, per 10 CFR 50.59(a)(2)(ii), if a possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report may be created. The licensee was also required to maintain records of changes in the facility to the extent that these changes constitute changes in the facility, as described in the safety analysis report, per 10 CFR 50.59(b)(1). Prior to the licensee's 1998 revision, the design basis of the 1/2CC-9438 valve to mitigate a thermal barrier heat exchanger rupture was described in the Byron Station UFSAR, Section 9.2.2.4.4, as follows: "A second motor-operated valve in series with [1/2CC-685] is available for [remote] manual isolation of the line, if required."

The inspectors also evaluated the issue against the current 10 CFR 50.59 requirements in accordance with the guidance of Chapter 8 of the Enforcement Policy. The current 10 CFR 50.59 requirements, as outlined in 50.59(c)(1)(ii) and (c)(2)(v), allow, in part, that a licensee may make changes in the facility, as described in the final safety analysis report (as updated), without obtaining a license amendment only if the change does not create a possibility for an accident of a different type than previously evaluated in the final safety analysis report (as updated). Based upon NRR's review of the issue, the inspectors determined that, prior to the licensee's July 1998 change to the performance requirements for valve 1/2CC-9438, the NRC did not consider a rupture of the thermal barrier heat exchanger followed by a failure of valves 1/2CC-685 and 1/2CC-9438 to close as a credible accident scenario.

Contrary to the above, on July 28, 1998, the licensee failed to perform an adequate written safety evaluation which: 1) provided a bases that the facility change did not involve an unreviewed safety question [old 10 CFR 50.59 requirement], and 2) ensured that a possibility for an accident of a different type than previously evaluated in the

UFSAR was not created [new 10 CFR 50.59 requirement]. Specifically, Safety Evaluation 6G-98-0200, "Editorial Clarification to Byron/Braidwood UFSAR, Section 9.2.2.4.4," failed to adequately evaluate the licensee's: 1) removal of a UFSAR requirement for valve 1/2CC-9438 to be available and capable to respond to a thermal barrier heat exchanger rupture event; 2) decrease, from two to one, in the number of valves in the component cooling water return line that were relied upon to meet the performance requirements of General Design Criteria 44 and 54; and 3) substitution of operator manual actions for a remote manual valve closure. This change to the facility, as described in the UFSAR, created the possibility for an unanalyzed, unisolable, containment-bypassing loss of coolant accident. Since this type of accident had not been previously evaluated by the Commission as a part of the Byron Station's licensing basis, this change represented an unreviewed safety question that had not received prior Commission approval. The results of the violation were determined to be of very low safety significance; therefore, this violation of 10 CFR 50.59 was classified as a Severity Level IV violation. However, because this non-willful violation was non-repetitive, and was captured in the licensee's corrective action program (CR 110460), it is considered a Non-Cited Violation (NCV 50-454/455-02-05-02 (DRP)) consistent with Section VI.A.1 of the NRC Enforcement Policy. This URI is closed.

- .2 The inspectors reviewed the Institute of Nuclear Power Operations (INPO) Final Report of the July 2001 Evaluation of the Byron Station issued March 7, 2002.

#### 4OA6 Meetings

##### .1 Interim Exits

The results of the public radiation safety transportation and radioactive waste inspection were presented to Mr. Rich Lopriore and other members of licensee management at the conclusion of the inspection on May 17, 2002. The results of the thermal barrier heat exchanger issue was discussed with Mr. W. Grundmann on July 18, 2002. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

##### .2 Resident Inspector Exit Meeting

The inspectors presented the inspection results to Mr. R. Lopriore and other members of licensee management at the conclusion of the inspection on June 28, 2002. The licensee acknowledged the findings presented. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

## KEY POINTS OF CONTACT

### Licensee

B. Adams, Engineering  
B. Altman, Maintenance Manager  
D. Combs, Site Security Manager  
D. Drawbaugh, NRC Coordinator  
D. Goldsmith, Radiation Protection Director  
B. Grundmann, Regulatory Assurance Manager  
K. Hansing, Site Nuclear Oversight Manager  
D. Herrmann, Chemistry Radwaste Specialist  
D. Hoots, Operations Manager  
S. Kerr, Chemistry Manager  
W. Kolo, Work Management Director  
S. Kovall, Radiation Protection Shipping Specialist  
S. Kuczynski, Station Manager  
R. Lopriore, Site Vice President  
T. Roberts, Engineering Director  
B. Sambito, Byron Radiation Protection  
D. Spoerry, Training Manager  
S. Stimac, Shift Operations Superintendent  
D. Thompson, Radiation Protection Dose Assessment Health Physicist

### Nuclear Regulatory Commission

K. Karwoski, Senior Level Advisor for Steam Generators and Material Inspection  
E. Murphy, Senior Materials Engineer  
A. Stone, Chief, Projects Branch 3, Division of Reactor Projects

## LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

### Opened

50-454-02-05-01	NCV	Failure to Follow the Power Descension Procedure
50-454/455-02-05-02	NCV	Inadequate 50.59 evaluation related to thermal barrier heat exchangers

### Closed

50-454-02-05-01	NCV	Failure to Follow the Power Descension Procedure
50-454-2002-001-00	LER	Multiple Main Steam Safety Valve (MSSV) Relief Tests Exceeded Required Tolerance Due to Disk to Nozzle Metallic Bonding and Setpoint Drift

50-454-2002-002-00	LER	Two of Three Pressurizer Safety Valve Relief Tests Exceeded Required Tolerance Due to Setpoint Drift
50-454/455/01-11-02	URI	Failure to perform required testing of the Units 1 and 2 MSIVs

Discussed

None

## LIST OF ACRONYMS USED

ALARA	As-Low-As-Reasonably-Achievable
ASME	American Society of Mechanical Engineers
Aux	Auxiliary
B1R11	Byron Unit 1's Eleventh Refueling Outage
BGP	Byron General Operating Procedure
BOA	Byron Abnormal Operating Procedure
BOL	Byron Operating Limit Procedure
BOP	Byron Operating Procedure
BOSR	Byron Operating Surveillance Requirement Procedure
BVSR	Byron Technical Surveillance Requirement Procedure
CC	Component Cooling Water
CFR	Code of Federal Regulations
CR	Condition Report
CV	Chemical and Volume Control System
CW	Circulating Water
DAW	Dry Active Waste
DC	Direct Current
DG	Diesel Generator
DRP	Division of Reactor Projects
ENV	Environmental
EPRI	Electric Power Research Institute
ER	Engineering Requirements
ESF	Engineered Safety Features
FASA	Focus Area Self-Assessment Report
FME	Foreign Material Exclusion
GPD	Gallons Per Day
HRSS	High Radiation Shutdown Station
IN	Information Notice
IST	In-service Testing
LCO	Limiting Condition for Operation
LCOAR	Limiting Condition for Operation Action Requirement
LER	Licensee Event Report
LI	Level Indication
LSA	Low Specific Activity
MSIV	Main Steam Isolation Valves
MSSV	Main Steam Safety Valves
MW	Megawatt
MWE	Megawatt Electrical
NCV	Non-Cited Violation
NEI	Nuclear Energy Institute
NRC	Nuclear Regulatory Commission
0B	Unit 0, Train B
OD	Operability Determination
OOS	Out-of-Service
OP	Operating
OWA	Operator Work-Around
PBI	Plant Barrier Impairment

PCS	Primary Containment System
PI	Performance Indicator
PTLR	Pressure-Temperature Limits Report
RC	Reactor Coolant
RCP	Reactor Coolant Pump
RCS	Reactor Coolant System
RP	Radiation Protection
RWP	Radiation Work Permit
RWST	Refueling Water Storage Tank
SDP	Significance Determination Process
SEC	Secondary
SWGR	Switchgear or Switchgear Room
TRM	Technical Requirements Manual
TS	Technical Specification
U1	Unit 1
U2	Unit 2
UFSAR	Updated Final Safety Analysis Report
WC	Work Control
WR	Work Request

## LIST OF DOCUMENTS REVIEWED

### 1R01 Adverse Weather Conditions

	Byron Station River Management Plan 2002	Revision 0
	Exelon Generation Extreme Heat Implementation Plan for Byron	Summer 2002
	Transmission Planning Studies for Increased Ratings at Byron Station	March 21, 2000
	Action Item List	Summer 2002
0B0A ENV-1	Adverse Weather Conditions Unit 0	Revision 100
2B0A ENV-1	Adverse Weather Conditions Unit 2	Revision 3
CR 00087079	Focus Area Self Assessment: Adverse Weather Preparation	December 17, 2001
CR 00107759	Expectations for Severe Weather Checks Not Clear	May 09, 2002
CR 00110607	Discrepancy Between TRM 3.7.d and UFSAR Table 3.11-2	June 28, 2001
CR 00110499	0/1/2 BOA ENV-1 Entry Due To Severe Thunderstorm Warning	June 3, 2002
CR B2001-02150	0B CW Makeup Pump Motor Stator High Temperature Followup Report	April 6, 2001
CR B2001-03270	High Temperatures in U2 MSIV Room	July 23, 2001
Action Request Identification	B2001-02150 0B CW Makeup Pump Motor Stator High Temperature Follow	May 9, 2001
Action Request Identification	B2001-02999 U1 Operation Liabilities During Hot Weather	July 7, 2001
	Operating Rounds, Aux-2 (12-Hr)	May 29, 2002
Work Order 00327018	High Temperature Equipment Protection	April 2, 2002
Work Order 00446033	Determination of Maximum Allowable Lowdown	May 24, 2002
Work Order 00448596	Determination of Maximum Allowable Lowdown	June 2, 2002



0BOSR 0.1-0	Unit Common All Modes/All Times Shiftily and Daily Operating Surveillance Data Package	Revision 8 June 3, 2002
OP-AA-108-109	Seasonal Readiness	Revision 0
LER 2002-002-00	Two of Three Pressurizer Safety Valve Relief Tests Exceeded Required Tolerance Due to Setpoint Drift	May 16, 2002

1R04 Equipment Alignment

	Technical Specifications	
	Updated Final Safety Analysis Report (UFSAR)	
	Byron Unit 1 Pressure Temperature Limits Report (PTLR)	Revision June 28, 1999
1B0A ENV-1	Adverse Weather Conditions Unit 1	Revision 3
BOP DG-1	Diesel Generator Alignment To Standby Condition	Revision 8
BOP DG-11	Diesel Generator Startup	Revision 15
BOP DG-12	Diesel Generator Shutdown	Revision 15
BOP DC-E1A	DC Battery & Distribution System, Unit 1 Train A, Electrical Lineup	Revision 1
BOP DC-E1B	DC Battery & Distribution System, Unit 1, Electrical Lineup	Revision 2
	List of Open Work Requests	
CR 00100059	Possibly Multiple Missed LCOAR Entries	March 20, 2002
CR 00103539	Personnel Entered Unit 2 HRSS Panel With Sampling in Progress	April 11, 2002
Drawing	125V DC ESF Distribution Center Bus 111	Part 1
Drawing	125V DC ESF Distribution Center Bus 111	Part 2

1R05 Fire Protection

	Byron Station Pre-Fire Plans	Revision 4
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	Byron Fire Protection Report, Section 2.3.9, "Diesel Generator Areas"	Amendment 13
BGP 1100-3	Plant Barrier Impairment (PBI) Program	Revision 17
BGP 1100-3TI	Plant Barrier Impairment Permit (PBI No. 1999-483)	Revision 4
CR B2001-00165	Excessive Combustible in Storage Cage	January 11, 2001
CR B2001-00432	Use of Cable Risers as Storage Areas	January 30, 2001
CR B2001-00513	Radiation Protection Cage Contains an Excessive Amount of Combustibles	February 2, 2001
CR 00080246	Failed Fire Detector In Zone ID-20	October 25, 2001
CR 00098053	Non-Fire Retardant Wood Pallets In Auxiliary Building	March 5, 2002
CR 00104178	Unsecured Carts on 346' Aux Building (NRC Identified)	April 17, 2002
WC-AA-201	Plant Barrier Impairment Permit (PBI No. 01-327), (PBI No. 01-328), (PBI No. 02-027)	Revision 3

1R06 Flood Protection Measures (71111.06)

	Byron Station Technical Specifications	
	Byron/Braidwood Stations Updated Final Safety Analysis Report	
CR 00103324	WR 99090414 Set To "Complete" Without Work Being done	April 11, 2002
CR 00103373	Inconsistency Between UFSAR Sections 3.4.1.1 and 2.4.2.3	April 11, 2002
CR 00109713	Water-Tight Barrier Inspection	May 28, 2002
CR 00110551	The Inappropriate Action or Equipment Problem and its Negative Result	June 4, 2002
CR B2001-02471	CC Surge Tank Flooding Concerns	May 27, 2001
CC-AA-201	Plant Barrier Control Program	Revision 3
LSA-AA-126	FASA for NRC IP 71111.06 "Flood Protection Measures"	Revision 0

	Assessment of Flooding Protection in Preparation for NRC Flooding Inspection, Byron Station	April 12, 2002
Focus Area Self-Assessment Report	Review of the Diesel Oil Storage Tank Rooms	May 1, 2000 to May 10, 2000

1R12 Maintenance Rule Implementation

	Technical Requirements Manual	
	Technical Specifications	
Maintenance Rule-Performance Criteria PC5	Primary Containment System Leakage and Post Accident Monitoring Instruments	
Byron Station Plant Review Report 01-068	Revision to Technical Specification Bases 3.4.15, "RCS Leakage Detection Instrumentation"	December 26, 2001
CR 00078896	Tech Spec Instruments Affected By Containment Release	October 14, 2001
CR 00083725	Unplanned LCOAR Entry For 2LI-PC003	November 22, 2001
CR 00088421	Improvement For 2LI-PC003 Comp. Action Documentation	December 29, 2001
CR 00098062	Maintenance Rule: PC5 Enters (a)(1) Due to Repeat Failures	March 1, 2002
CR 00098471	LCOAR Entry (2BOL 4.15) Due To 2LI-PC002	March 8, 2002
CR -1-241	Unplanned BOL Entry 2PC002	March 21, 2002
CR 00100961	Unplanned LCOAR Entry 2PC002	March 25, 2002
CR 00102319	Unplanned LCOAR For 2BOL 3.I On 2PC003	April 4, 2002
CR 00102733	Unplanned LCOAR Entry Into 2BOL 3.I For 2PC003	April 7, 2002
CR 00106076	Maintenance Rule: PC4 Enters (a)(1) Status	April 26, 2002
WC-AA-11-	Complex Troubleshooting Plan, RF008, PC002/3	March 18, 2002

Regulatory Guide 1.45	Reactor Coolant Pressure Boundary Leakage Detection Systems	May 1973
ER-AA-310-1005	Maintenance rule (a)(1) Action Plan, Goals, and Monitoring Template, Function PCS Redundant Containment Sump Level Indication	May 10, 2002
TRM LCO 3.0.c	Failure To Restore 2LI-PC003 Within Required 30 Days Per 2BOL 3.I, Entered Probatively To Avoid Time Pressure. Do Not Expect To Correct This Condition Prior to 30 Days	December 5, 2001

1R13 Maintenance Risk Assessments and Emergent Work Evaluation

Byron Operating Department Policy 400-47	On-Line Risk/Protected Equipment	Revision 2
Unit 2 Byron Abnormal Operating Procedure (2BOA) SEC-8	Steam Generator Tube Leak - Unit 2	Rev. 102
NRC Inspection Manual, Part 9900: Technical Guidance	Steam Generator Tube Primary-to-Secondary Leakage	October 11, 2001
NRC Information Notice 91-43	Recent Incidents Involving Rapid Increases in Primary-to-Secondary Leak Rate	July 5, 1991
NRC Information Notice 94-43	Determination of Primary-to-Secondary Steam Generator Leak Rate	June 10, 1994
Apparent Cause Evaluation Content	CV Seal Injection Flow Changes Caused By FME	May 31, 2002
BGP 300-9	Steam Generator Tube Leak Rate Determination	Revision 20
2BEP-3	Steam Generator Tube Rupture-Unit 2	Revision 100
2BOA RCP-2	Loss of Seal Cooling - Unit 2	Revision 100
BOP MS-11	Operation With Steam Generator Tube Leakage	Revision 3
2BOSR 5.5.1-1	RCS Seal Injection Flow Verification Monthly Surveillance-Unit 2	Revision 2

Complex Troubleshooting	Unexpected Receipt of TSLB Annunciator and Computer Point Alarms on Bus 159	April 30, 2002
	Shift Manager Log	April 30, 2002
CR 00105044	Unit 2 RC Filter Plugging By Unknown Contaminants	April 23, 2002
CR 00105968	Feed Flow Oscillations Drive Calorimetric Oscillations	April 29, 2002
CR 00106083	RCP Bus 159 Undervoltage Reactor Trip Alert Alarm	April 30, 2002
CR 00106695	Increase Noted in Unit 2 Primary to Secondary Leak Rate	May 2, 2002
CR 00106857	Superceded Standing Order Not Updated in Main Control Room - NRC Identified	May 5, 2002
CR 00107072	U-2 Primary to Secondary Leak Greater than 30 GPD	May 5, 2002
CR 00107210	Post Seal Injection Filter Change-up Surveillance	May 7, 2002
CR 00107294	High D.S. On SI Filters and Seal Injection Flow Problems	May 8, 2002
WC 0000337224 000	Potential FME (resin) on the 2A and 2D Reactor Coolant Pump (RCP) Seals and Pump Radial Bearing	May 21, 2002
Unit 2 Standing Order Log Number 02-040	2C Steam Generator Tube Leak Mitigation Strategy	May 3, 2002
Drawing M-64, Sheet 3A	Diagram of Chemical & Volume Control & Boron Thermal Regeneration	Revision AW
MA-AA-716-004	Complex Troubleshooting - Decreased Seal Injection Flow to 2A & 2D RCP Seal	Revision 0
MA-AA-716-004	Complex Troubleshooting - Increasing RC Filter	Revision 0
	Contingency Plan For U-2 Seal Injection Issues	
	Shift Manager Log	May 8, 2002
Policy No 400-47	Byron Operating Department Policy Statement	Revision 2

WC-AA-101	On Line Work Control Process	Revision 6
WC-AA-101-1001	Work Screening and Processing	Revision 1
WC-AA-101-1002	On Line Scheduling Process	Revision 0

1R14 Personnel Performance During Non-routine Plant Evolutions

Electric Power Research Institute (EPRI) Test Report No. TR-105872	Safety and Relief Valve Testing and Maintenance Guide	August 1996
IN 86-92	Pressurizer Safety Valve Reliability	November 4, 1986
IN 88-68	Setpoint Testing of Pressurizer Safety Valves with Filled Loop Seals Using Hydraulic Assist Devices	August 22, 1988
IN 89-90	Pressurizer Safety Valve List Setpoint Shift	December 28, 1989
IN 89-90, Supplement 1	Pressurizer Safety Valve Setpoint Shift	April 3, 1991
IN 91-74	Changes in Pressurizer Safety Valve Setpoint Before Installation	November 25, 1991
OP-AA-106-101-1001	Event Response Guidelines	Revision 0
OP-AA-106-101	Significant Event Reporting	Revision 0
1BGP 100-4	Power Descension	Revision 24
BOP HD-2	Heater Drain System Shutdown	Revision 5
BOP FW-2a	Shutdown of a Unit 1 Turbine Driven Main Feedwater Pump	Revision 8
BOP FW-7	Startup of a Motor Driven Feedwater Pump	Revision 15
CR 00108684	1B FW pp Shutdown Due to High Vibration	May 19, 2002
CR 00109577	Power Up-rate Numbers For MWs Not Updated In BGP	May 19, 2002
CR 00109647	1C FW PP Did Not Go To Speed Setter When Pump Tripped	May 19, 2002
CR 00112888	Gland Steam Not Aligned to AS Delaying U2 Cooldown	June 22, 2002

CR 00112951	2C SG Primary to Secondary Tube Leak Greater Than 75 GPD	June 21, 2002
Unit 2 Byron Abnormal Operating Procedure (2BOA) SEC-8	Steam Generator Tube Leak - Unit 2	Rev. 102
	Shift Manager Log	June 22, 2002
Apparent Cause Evaluation 98784-01	B1R11 Shutdown Events and Unexpected Occurrences	March 12, 2002
98784	B1R11 Shutdown Events and Unexpected Occurrences	March 12, 2002
98775	Unit 1 Steam Dump Operation Inappropriate Response	March 12, 2002
GL 91-18	Information to Licensees Regarding NRC Inspection Manual Section on Resolution of Degraded and Nonconforming Conditions	Revision 1

#### 1R15 Operability Evaluations

	UFSAR	
	Technical Specifications	
Regulatory Guide 1.45	Reactor Coolant Pressure Boundary Leakage Detection Systems	May 1973
Complex Troubleshooting	Unexpected Receipt of TSLB Annunciator and Computer Point Alarms on Bus 159	April 30, 2002
Byron Station Plant Review Report 01-068	Revision To Technical Specification Bases 3.4.15, "RCS Leakage Detection Instrumentation"	December 26, 2001
TRM LCO 3.0.c	Failure To Restore 2LI-PC003 Within Required 30 Days Per 2BOL 3.I, Entered Probatively To Avoid Time Pressure. Do Not Expect to Correct This Condition Prior To 30 Days	December 5, 2001
CR 00078896	Tech Spec Instruments Affected By Containment Release	October 14, 2001
CR 00083725	Unplanned LCOAR Entry For 2LI-PC003	November 22, 2001
CR 00088421	Improvement for 2LI-PC003 Comp. Action Documentation	December 29, 2001

CR 00097770	Problems With RCS Leakage Detection Systems	March 4, 2002
CR 00098471	LCOAR Entry (2BOL 4.15) Due to 2LI-PC002	March 8, 2002
CR 00097770	Apparent Cause Evaluation Content, Problems With The RCS Leakage Detection Systems	May 8, 2002
CR 00100221	Seismic Concern With RCS Leak Detection	March 20, 2002
CR 00100241	Unplanned BOL Entry 2PC002	March 21, 2002
CR 00100961	Unplanned LCOAR Entry 2PC002	March 25, 2002
CR 00102319	Unplanned LCOAR For 2BOL 3.I on 2PC003	April 4, 2002
CR 00102586	RM-11 Crash Requires MIS Assistance to Restore	April 5, 2002
CR 00102558	RM-11 Loop-5 Communications Failure Causing Unexpected LCOAR	April 5, 2002
CR 00102733	Unplanned LCOAR Entry Into 2BOL 3.I For 2PC003	April 7, 2002
CR 00103251	Observations/Issues Associated With Unit 2 RF Sump Inst.	April 10, 2002
CR 00103308	Unjustified Assumption Regarding RCS Leakage	April 11, 2002
CR 00103605	Unplanned LCOAR Entry For 1PR11J	April 12, 2002
CR 00104200	Maintenance Rule: RF1 Enters (a)(1) Status	April 12, 2002
CR 00104799	Unplanned LCOAR Entries to RM-11 Loss of Communication	April 22, 2002
CR 00104996	Unplanned LCOAR Entries On RM-11 Radiation Monitors	April 23, 2002
CR 00105565	Unplanned LCOAR Entry on Rad Monitors For Loss of Comm.	April 26, 2002
CR 00106083	BGP Bus 159 Undervoltage Reactor Trip Alert Alarm	April 30, 2002
CR00110759	2LI-PC002 is showing Early Signs of Degradation	June 5, 2002



CR 00108431	2B DG Turbocharger Lube Oil Pressure Alarm	May 16, 2002
CR 00109147	Received 2B Diesel Generator Valves From Com Ed Investment	May 22, 2002
CR 00109297	2B DG Low Oil Pressure	May 23, 2002
CR 00110030	Lower Than Expected Lube Oil Pressure For 2A DG	May 30, 2002
CR 00110840	Possible Inoperability of 2LI-PC002 But U-2 Unaware	June 6, 2002
CR 00111315	2LI-PC002 Continued Degradation Following 6/7/02 "BURP"	June 10, 2002
CR 00111712	Lower Than Expected Oil Pressure During 2B DG Surveillance	June 12, 2002
CR 00112480	2LI-PC002 is Showing Signs of Degradation	June 19, 2002
	Shift Manager Log	March 8, 2002
	Shift Manager Log	April 30, 2002
Supporting Operating Documentation	2A DG Lube Oil Pressure Low	Revision 1
Drawing 6E-1-4017D	Relaying and Metering Diagram 6900V SWGR Bus 159	Revision H
Drawing 6E-1-4030AP13	Schematic Diagram 6.9KV SWGR. Bus 159 Undervoltage and Under frequency Relays	Revision P
Westinghouse Drawing 1046F57 A	Schematic Diagram Universal Board	
Drawing 6E-1-4030EF12	Schematic Diagram Annunciator and Computer Demultiplexer, Part 1	Revision H
Drawing 6E-1-4030EF28	Byron Unit 1 Schematic Diagram Reactor Protection - Reactor Coolant Pump Under frequency and Undervoltage and Overpower and Overtemperature Trips	Revision G
Drawing 6E-1-4030EF48	Schematic Diagram Demultiplexer Cont. Cards 1PA17J - Part 1	Revision B
Drawing 6E-1-4030EF72	Byron Unit 1 Schematic Diagram Reactor Prot. Reactor Coolant Pump Under frequency and Undervoltage and Over Power and Over Temperature Trips	Revision F

Drawing 6E-1-4030AN094	Schematic Diagram Demultiplexer Control Cabinet 1PA17J, Part 4	Revision H
WC-AA-110	Complex Troubleshooting Plan, RF008, PC002/3	March 18, 2002
2BOSR RF-1	Unit 2 Containment Floor Drain Monitoring System Non Routine Surveillance	Revision 5
O.D. #02-007	2B DG Lube Oil Pressure Low	May 17, 2002
O.D. #02-008	2A DG Lube Oil Pressure Low	June 3, 2002
O.D. # 02-010	CC9438 Potential Unreviewed Safety Question	June 14, 2002
O.D. #02-011	2A & 2B DG Lube Oil Pressure Low	June 13, 2002
Unit 2 Standing Order 02-042	Engineering Evaluation Supporting Operability of 2LT-PC002 After 5/10/02	May 13, 2002
Engineering Change	WC Evaluation Supporting Operability of 2LT-PC003 (Containment Floor Drain Sump Level Transmitter) As An RCS Leak Detection Instrument Per Requirements of TS 3.4.15	March 15, 2002
Engineering Change	Evaluation Supporting Operability of 2LT-PC003 For Meeting Post Accident Monitoring (PAM) Instrumentation Requirements of TS Manual (TRM) Section 3.3.1	March 19, 2002
Engineering Change	Evaluation Supporting Operability of the 2LT-PC002 and 2LT-PC003 Containment Floor Drain Sump Level Transmitters for RCS Leakage Detection and Post Accident Monitoring	March 21, 2002
GL 91-18	Resolution of Degraded and Nonconforming Conditions	October 23, 1997
Info Notice 97-78	Crediting of Operator Actions in Place of Automatic Actions	October 8, 1997
Operability Determination 02-010	CC9438 Potential Unreviewed Safety Question	June 14, 2002
1104060	NRC Response to Unresolved Item 50-454/455-01-03-01	May 31, 2002

Memorandum	Response to Task Interface Agreement 2001-009 Regarding Potential Unisolable Reactor Coolant Leak Outside Containment at the Byron Station (TAC NOS. MB2907 and MB2908)	May 24, 2002
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1R16 Operator Workarounds

OP-AA-101-303	Operator Work-Arounds Program	Revision 0
	Fourth Quarter 2001 Operator Work Around Aggregate Impact Assessment	March 6, 2002
	Operator Work Arounds	April 10, 2002
OWA 272	Containment Sump Monitor 2RF008	May 1, 2002
	Operator Work Around Committee Meeting Agenda	April 4, 2002

1R19 Post Maintenance Testing

2BOSR 8.1.2-2	Unit Two 2B Diesel Generator Operability Surveillance	Revision 10
BOP DG-3	Filling the Diesel Generator Jacket Water System	Revision 9
BOP DG-4	Draining the Diesel Generator Jacket Water System	Revision 7
CR 00077039	Apparent Cause Evaluation - 2A SI Pump Circuit Breaker Damaged	April 8, 2002
CR 00077039	2A SI Pp Circuit Breaker Damaged	September 30, 2001
CR 00076679	2VA04CB Failed to Start on 2A SI Pump Start	September 27, 2001

1R20 Refueling and Outage Activities

CR 00112862	Unit 2 Shutdown Due to 2C SG Tube Leak	June 22, 2002
CR 00113088	Bubbler Tube Location for RF008 & WEIR Box Cover (NRC Identified)	June 24, 2002
Exelon Memo	Tube Plugging List for Steam Generator C-B2F23	June 25, 2002

	2C Steam Generator IN SITU Pressure Testing	June 25, 2002
OU-AP-104	Shutdown Safety Management Program Byron/Braidwood Annex	Revision 4
BOP FW-22	Pressurizing the Steam Generators with Nitrogen to Identify Primary to Secondary Tube Leaks	June 22, 2002
<u>1R22 Surveillance Testing</u>		
	Technical Specifications	
	Updated Final Safety Analysis Report	
Memo 300.14	Byron Site Policy Memo (Subject: Climbing)	Revision 0
BOP CS-5	Containment Spray System Recirculation To The RWST	Revision 7
BOP CV-29	Operation of the CV Pump on Recirculation	Revision 1
1BOSR 3.2.8-644A	Unit 1 Train A Automatic Containment Spray - K644	Revision 0
BVP 200-1T3	Technical Review of Pump Performance Parameters	May 15, 1989
1BVSr 5.2.4-5	Unit 1 Train "A" ASME Surveillance Requirements For Centrifugal Charging Pump 1A and Chemical and Volume Control System Valve Stroke Test	Revision 6
1BVSr 6.6.4-1	Unit 1 ASME Surveillance Requirements For The 1A Containment Spray Pump	Revision 3
CR00100536	Incorrect Recorder Connections During 1B DG Testing	March 18, 2002
CR 00103267	Chart Recorder for Quarterly DG Start Not Properly Set-up	April 10, 2002
CR 00080014	2B DG Inoperable, LCOAR, Slow Start Time	October 23, 2001
CR 00080017	EDG Fast Starts Not Timed as Required By TS	October 23, 2001
CR 00182931	Incorrectly Installed Test Equipment Caused Short Circuit on 2A DG Circuit.	November 14, 2001

Root Cause Review	A Miss Wired Chart Recorder Hooked up to 2A DG Shorts Out the Voltage Regulator Causing the 2A DG To Be Inoperable	January 8, 2002
Root Cause Review	Procedure Revision Errors Result in Emergency Diesel Generator Fast Start Not Timed as Required by TS and Operating Complications	March 4, 2002
Drawing M-64, Sheet # 3A	Diagram of Chemical and Volume Control and Boron Thermal Regeneration	Revision AW
Drawing M-64, Sheet # 4A	Diagram of Chemical and Volume Control and Boron Thermal Regeneration	Revision K
Drawing M-64, Sheet # 4B	Diagram of Chemical and Volume Control Boron Thermal Regeneration	Revision 3
ER-AA-321	IST Pump Evaluation Form, Report 01-006, Pump EPN 1CV01PA	March 16, 2001
WO 00406445	ASME Surveillance Requirements For CV Pump	April 29, 2002

2PS2 Radioactive Material Processing and Transportation

	Byron/Braidwood Updated/Final Safety Analysis Report, Chapter 11	Revision 8
	Focus Area Self-Assessment: Radioactive Material shipping	April 15 - 26, 2002
BRP 5600-13	Trending for Shifts in Scaling Factors and Waste Stream Sampling	Revision 4
CC-AA-109	Interim Abandoned Equipment Identification, Evaluation and Control	Revision 1
CR B2001-01821	Shipment of Smoke Detectors to LaSalle Station without Appropriate Rad.	April 13, 2001
CR B2001-02827	Issue with Resin Beads Outside Burial Container at Barnwell	June 22, 2001
CR 00079523	Resin Identified on Radwaste HIC Intended for Off-Site Disposal	October 17, 2001
CR 00085686	Radwaste Vendor Hoses Plugged with Spent Resin	December 7, 2001

CR 00105179	AB Condensate Demin Resin Too High in Activity to Ship	April 24, 2002
CR 00107996	Radwaste Shipping Concerns	May 10, 2002
CR 00108212	Tape Found on Outside of Radwaste Burial Container	May 15, 2002
CR 00108337 <sup>1</sup>	Items Identified During NRC Walkdown	May 14, 2002
CR 00108556 <sup>1</sup>	Resin Beads Outside Burial Container at Barnwell	May 17, 2002
NOA-BY-01-3Q	Nuclear Oversight Continuous Assessment Report	October 16, 2001
Radioactive Material Shipment 01-064	Fuel Handling Pump (Shipped to Braidwood Station, IL)	September 25, 2002
Radioactive Waste Shipment 01-004	Dewatered Bead Resin (Shipped to Barnwell, SC)	April 2, 2001
Radioactive Waste Shipment 01-007	Dry Active Waste (Shipped to US Ecology in Oak Ridge, TN)	June 7, 2001
Radioactive Waste Shipment 01-008	Dewatered Bead Resin (Shipped to Barnwell, SC)	June 20, 2001
Radioactive Waste Shipment 01-009	Nozzle Covers (Shipped to GTS Duratek in Oak Ridge, TN)	July 11, 2001
Radioactive Waste Shipment 02-001	Dewatered Bead Resin (Shipped to Barnwell, SC)	January 20, 2002
Radioactive Waste Shipment 02-007	Dewatered Bead Resin (Shipped to Barnwell, SC)	May 15, 2002
RP-AA-600	Radioactive Material/Waste Shipments	Revision 5
RP-AA-600-1003	Radioactive Waste Shipments to Barnwell and the Defense Consolidation Facility (DCF)	Revision 0
RP-AA-601	Surveying Radioactive Material Shipments	Revision 2
RW-AA-1003	Process Control Program for Radioactive Wastes	Revision 2

4OA1 Performance Indicator Verification

First Quarter 2002 PI Data Submittal April 18, 2002

NEI [Nuclear Energy Institute] 99-02	Regulatory Assessment Performance Indicator Guideline	Revision 2
Common Cause Analysis	NEI NRC Performance Indicator for Unplanned Power Changes Exhibits Negative Trend	December 5, 2001
CR B2001-02983	NEI/NRC PI- Unplanned Scrams-Has a Negative Trend	July 6, 2001
CR B2001-03100	Data Error For NEI/NRC Unplanned Scrams PI	July 16, 2001
CR 00074907	1FW510 Positioner Washer Missing Causes Derating to 25% Power	September 11, 2001
	Shift Manager Log	April 25, 2001
CR 00077724	U-1 Secondary Chemistry Action Levels Due To 1B CW Box Leak	October 2, 2001
CR 00078419	Increased Number of Unplanned Power Changes	October 10, 2001
CR 00102052	RETDAS Software Disparity	March 28, 2002
CR 00108504	Public Dose PI Notebook Contains Inaccurate Supporting Data	May 16, 2002
LSA-AA-2140	Monthly Performance Indicator Data Elements for Occupational Exposure Control Effectiveness	Revision 2
RS-AA-122-115	Performance Indicator - Occupational Exposure Control Effectiveness	Revision 2
LSA-AA-2150	Monthly Performance Indicator Data Elements for RETS/ODCM Radiological Effluent Occurrences	Revision 2

#### 4OA2 Identification and Resolution of Problems

Apparent Cause Evaluation 98784-01	B1R11 Shutdown Events and Unexpected Occurrences	March 12, 2002
98784	B1R11 Shutdown Events and Unexpected Occurrences	March 12, 2002
98775	Unit 1 Steam Dump Operation Inappropriate Response	March 12, 2002

98912	Early Replacement of C/O delayed B1R11 SI Test	March 12, 2002
99832	Unplanned BOL-Entry 2PR28-Bus 143 Outage	March 18, 2002
99665	B1R11-Bus 143 Outage: Loss of Unit 2 RCDT Level Indication	March 18, 2002
100065	Bus 143 Outage with Emrg. Lighting OOS & No Temp Lighting	March 19, 2002
100327	Summary of Bus 143 Outage items during B1R11	March 21, 2002
BOP AP-104	Bus 143 Outage while in Mode 5, 6, or Defueled	Revision 0

4OA3 Event Follow-up

	Shift Manager Log	March 29, 2002
	Shift Manager Log	April 4, 2002
WO 99267655	Main Steam Isolation Valves Full Stroke	March 25, 2002
1BOSR 7.2.1-1	U-1 Main Steam Isolation Valve Operability Test	Revision 2
CR 00102358	Missing Rubber Insulator on 2A DG Fuel Oil Supply Line (NRC Identified)	April 4, 2002
ER-AA-520	Instrument Performance Trending	Revision 0
AR 98531	Main Steam Safety Valve Test Failure	
BMP 3114-15	Main Steam Safety Valve Verification of Lift Point Using Furmanite's Trevitest Equipment	Revision 12, May 5, 2000
Licensee Letter	Request for Notice of Enforcement Discretion and Exigent Licensee Amendment for Technical Specification 3.7.2, "Main Steam Isolation Valves (MSIVs)"	October 1, 2001
NRC Letter	Notice of Enforcement Discretion for Exelon Generation Company, LLC, Regarding Byron Station, Unit 1 and 2	October 3, 2001



Action Item 99785 & 100114	Multiple Failures of Pressurizer Safeties	April 3, 2002
Document Procedure NWS-T-29	NWS Safety Valve Test Procedure for Commonwealth Edison Company - Byron Nuclear Station Crosby Pressurizer Safety Valves	Revision 2
Letter	Proposed Amendment to Technical Specifications for Facility Operating License Nos. NPF-37 and NPF-66 NRC Docket Nos. 50-454 and 50-455	June 8, 1987
Drawing	Crosby Safety Relief Valves Used in Byron Pressurizer	December 12, 1991
Drawing	Dresser Main Steam Safety Valves Used at Byron Station	February 15, 1975
CR B2000-02827	Pressurizer Safety "As Found" Test Lift Pressure Outside Limits	September 30, 2000
LER 2002-02-00	Two of Three Pressurizer Safety Valve Relief Tests Exceeded Required Tolerance Due to Setpoint Drift	May 16, 200
NUREG-1022	Event Reporting Guidelines 10 CFR 50.72 and 50.73	Revision 2
2BOSR 7.2.1-1	Unit 2 Main Steam Isolation Valve Operability Test	June 27, 2002

<sup>1</sup> - Condition Report issued as a result of the inspection