January 27, 2005

Mr. Christopher M. Crane
President and Chief Nuclear Officer
Exelon Nuclear
Exelon Generation Company, LLC
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: BYRON STATION, UNITS 1 AND 2
NRC INTEGRATED INSPECTION REPORT 05000454/2004009;
05000455/2004009

Dear Mr. Crane:

On December 31, 2004, the U.S. Nuclear Regulatory Commission (NRC) completed an integrated inspection at your Byron Station, Units 1 and 2. The enclosed report documents the inspection findings which were discussed on January 6, 2005, with Mr. D. Hoots and other members of your staff.

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

Based on the results of this inspection, two self-revealing findings of very low safety significance (Green) are identified in the report. These findings were both determined to involve violations of NRC requirements. However, because these violations were of very low significance and because the issues were entered into your corrective action program, the NRC is treating these findings as Non-Cited Violations in accordance with Section VI.A.1 of the NRC's Enforcement Policy. Additionally, one licensee identified violation is listed in Section 4OA7 of this report.

If you contest the subject or severity of a Non-Cited Violation, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with a copy to the Regional Administrator, U. S. Nuclear Regulatory Commission - Region III, 2443 Warrenville Road, Suite 210, Lisle, IL 60532-4352; the Director, Office of Enforcement, U. S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the Resident Inspector office at the Byron facility.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be made available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

David Passehl, Acting Chief
Branch 3
Division of Reactor Projects

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

Enclosure: Inspection Report 05000454/2004009; 05000455/2004009
w/Attachment: Supplemental Information

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

REGION III

Docket Nos:	50-454; 50-455
License Nos:	NPF-37; NPF-66
Report Nos:	05000454/2004009; 05000455/2004009
Licensee:	Exelon Generation Company, LLC
Facility:	Byron Station, Units 1 and 2
Location:	4450 N. German Church Road Byron, IL 61010
Dates:	October 1, 2004, through December 31, 2004
Inspectors:	R. Skokowski, Senior Resident Inspector P. Snyder, Resident Inspector R. Alexander, Radiation Specialist R. Jickling, Emergency Preparedness Analyst R. Ruiz, Reactor Engineer T. Tongue, Project Engineer A. Walker, Senior Reactor Inspector C. Thompson, Illinois Emergency Management Agency, Resident Inspector
Observers:	G. Roach, Reactor Engineer
Approved by:	D. Passehl, Acting Chief Branch 3 Division of Reactor Projects

SUMMARY OF FINDINGS

IR 05000454/2004009; 05000455/2004009; on 10/01/2004-12/31/2004; Byron Station, Units 1 and 2; Non-Routine Plant Evolutions, Event Followup.

This report covers a 3-month period of baseline resident inspection and announced baseline inspections on emergency preparedness training and radiation protection. The inspections were conducted by Region III inspectors, and the resident inspectors. Two Green findings, which were violations of NRC requirements, were identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). Findings for which the SDP does not apply may be "Green" or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG 1649, "Reactor Oversight Process," Revision 3, dated July 2000.

A. Inspector-Identified and Self-Revealed Findings

Cornerstone: Barrier Integrity

- Green. A finding of very low safety significance and an associated Non-Cited Violation (NCV) of Technical Specification 5.4.1 regarding procedure quality was self-revealed when operators miscalculated a boron addition for Unit 2, resulting in a greater than desired reduction in reactor coolant temperature. The primary cause of this finding was related to the cross-cutting area of Human Performance. Specifically, the operators failed to show adequate self-checking and technical rigor resulting in a boron addition twice as large as required. Upon recognizing the excessive temperature change, the operators properly diluted to restore reactor coolant temperature and subsequently initiated procedure changes to control the calculation and review of boration and dilution activities.

  The finding was more than minor because it affects the Barrier Integrity Cornerstone objective of providing reasonable assurance that the physical design barriers of fuel cladding protect the public from radio nuclide releases caused by accidents or events, and was associated with the attribute of human performance and procedure adherence related to reactor manipulation. The finding was of very low safety significance because the fuel cladding barrier was not degraded and the reactor coolant system temperature remained within the operating criteria. (Section 1R14)

- Green: A finding of very low safety significance was self-revealed when the licensee recognized that essential service water (SX) flows to the 1A, 1B and 1C reactor containment fan coolers (RCFCs) were less than the Technical Specification required value due to incorrectly adjusting the SX flows to the RCFCs 4 months earlier. Upon recognizing the condition, the licensee adjusted flows back within the required values. The primary cause of this finding was related to the cross cutting area of Problem Identification and Resolution. Specifically, while the operators were performing the flow balance of SX to the Unit 1 RCFCs they failed to recognize that the local indicators were not responding as expected during significance adjustments to the associated throttle valves.

This finding was greater than minor because it was associated with the containment barrier integrity cornerstone attribute of risk important systems function and affected the cornerstone objective of providing reasonable assurance that the physical containment barrier would protect the public from radio nuclide releases caused by accidents or events. The finding was of very low safety significance because it did not affect the core damage frequency, and inoperability of a RCFC did not have an effect on the large early release frequency for a pressurized water reactor with a large dry containment. This issue was a NCV of Technical Specification 3.6.6 because the duration of the low flow condition to the RCFC exceeded the specified allowable outage time. (Section 4AO3.2)

B. Licensee Identified Violations

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

REPORT DETAILS

Summary of Plant Status

Unit 1 operated at or near full power throughout the inspection period except on October 17, 2004, when power was reduced about 14 percent for a turbine throttle valve and governor valve surveillance test, on November 21, 2004, when power was reduced about 6 percent for a feedwater pump swap, and on December 14, 2004, when power was reduced by about 3 percent to conduct moderator temperature coefficient measurement at power.

Unit 2 operated at or near full power throughout the inspection period except on October 3, 2004, when power was reduced about 11 percent for a turbine throttle valve and governor valve surveillance test, on October 31, 2004, when power was reduced about 8 percent for a feedwater pump swap, and on November 13, 2004, when power was reduced about 7 percent due to an unexpected feedwater heater transient.

1. REACTOR SAFETY

Cornerstone: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

a. Inspection Scope

The inspectors completed one inspection sample for potential cold weather conditions during the winter season. Specifically, the inspectors performed the following:

- reviewed the Updated Safety Analysis Report (UFSAR), Technical Specifications (TS) and other plant documents to identify areas potentially challenged by winter temperatures;
- reviewed applicable licensee procedures and surveillance tests appropriate for monitoring plant conditions during weather;
- verified through interviews and record review, that Nuclear Shift Operators were familiar with plant systems potentially affected by cold weather and that necessary procedural and/or contingency plans were in place; and
- verified that the licensee had performed winter readiness reviews for selected plant systems including the essential service water and essential service makeup systems.

The documents reviewed during this inspection are listed in the Attachment to this report.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04)

.1 Partial Walkdowns

a. Inspection Scope

The inspectors performed one partial walkdown of accessible portions of trains of risk-significant mitigating systems equipment during times when the trains were of increased importance due to the redundant trains or other related equipment being unavailable. The inspectors utilized the valve and electric breaker lineups and applicable system drawings to determine that the components were properly positioned and that support systems were lined up as needed. The inspectors also examined the material condition of the components and observed operating parameters of equipment to determine that there were no obvious deficiencies. The inspectors used the information in the appropriate sections of the UFSAR and TS to determine the functional requirements of the systems.

The inspectors verified the alignment of the following:

- Unit 2 train B auxiliary feedwater while train A was out of service for maintenance.

The documents reviewed during this inspection are listed in the Attachment to this report.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

.1 Walkdowns

a. Inspection Scope

The inspectors conducted fire protection walkdowns that were focused on availability, accessibility, and the condition of fire fighting equipment; the control of transient combustibles and ignition sources; and on the condition and operating status of installed fire barriers. The inspectors reviewed applicable portions of the Byron Station Fire Protection Report and selected fire areas for inspection based on their overall contribution to internal fire risk, as documented in the Individual Plant Examination of External Events Report. In addition, during these inspections, the inspectors used the following reference documents:

- OP-AA-201-006; Control of Temporary Heat Sources, Revision 0;
- OP-MW-201-007; Fire Protection System Impairment Control, Revision 3 and
- OP-AA-201-009; Control of Transient Combustible Material, Revision 4.

The inspectors verified that fire hoses and extinguishers were in their designated locations and available for immediate use; that fire detectors and sprinklers were unobstructed; that transient material loading was within the analyzed limits; and that fire doors, dampers, and penetration seals appeared to be in satisfactory condition. The Byron Station Pre-Fire Plans applicable for each area inspected were used by the inspectors to determine approximate locations of firefighting equipment.

The inspectors completed nine inspection samples by examining the plant areas listed below to observe conditions related to fire protection:

- Unit 1 auxiliary feedwater tunnel (Zone 18.3-1);
- Unit 1 auxiliary electrical equipment room (Zone 5.5-1);
- Unit 2 auxiliary electrical equipment room (Zone 5.5-2);
- Auxiliary building elevation 364 general area (Zone11.3-0);
- Division 12 miscellaneous electrical equipment room (Zone 5.4-1);
- Unit 2 train B safety injection pump room (Zone 11.3F-2);
- Unit 2 train B centrifugal charging pump room (Zone 11.3G-2);
- Unit 2 containment piping penetration area (Zone 11.3-2); and
- Unit 1 essential service water pump room (Zone 11.1A-0).

The documents reviewed during this inspection are listed in the Attachment to this report.

b. Findings

No findings of significance were identified.

.2 Drill Observation

a. Inspection Scope

The inspectors assessed fire brigade performance and the drill evaluator's critique during a fire brigade drill conducted on November 10, 2004. This was counted as one annual inspection sample. The drill simulated an oil fire in the Unit 1 turbine clean and dirty oil storage tank room. The inspectors focused on command control of the fire brigade activities; fire fighting and communication practices; material condition and use of fire fighting equipment; and implementation of pre-fire plan strategies. The inspectors evaluated the fire brigade performance using the licensee's established fire drill performance procedure criteria. The inspectors verified that minor issues identified during the inspection were entered into the licensee's corrective action program. 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.

1R06 Flood Protection Measures (71111.06)

a. Inspection Scope

The inspectors evaluated the licensee's controls for mitigating internal flooding by completing a semi-annual sample. The specific areas evaluated for the semi-annual internal flooding sample included the river screen house, and the essential service water cooling tower. During the evaluation, inspectors performed the following:

- reviewed the licensee's design basis documents including UFSAR, Safety Evaluation Report, and applicable calculations, to identify the design basis for flood protection;
- inspected areas for control of materials that could potentially clog drains, and
- inspected the watertight doors and flood seals.

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance (Annual)

a. Inspection Scope

The inspectors reviewed selected issues documented in condition reports (CRs), to determine if they had been properly addressed in the licensee's corrective actions program. The documents reviewed during this inspection are listed in the Attachment to this report.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification (71111.11)

.1 Resident Inspector Quarterly Review

a. Inspection Scope

On November 9, 2004, the inspectors completed one inspection sample by observing and evaluating an operating crew during an "out-of-the-box" Requalification examination on the simulator using Scenario "Number 04-6-OOB," Revision 0. The inspectors evaluated crew performance in the areas of:

- clarity and formality of communications;
- ability to take timely actions;
- prioritization, interpretation and verification of alarms;
- procedure use;
- control board manipulations;
- supervisor's command and control;

- management oversight; and
- group dynamics.

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

- OP-AA-101-111, Roles and Responsibilities of On-Shift Personnel, Revision 1,
- OP-AA-103-102, Watchstanding Practices, Revision 3,
- OP-AA-103-103, Operation of Plant Equipment, Revision 0, and
- OP-AA-104-101, Communications, Revision 1.

The inspectors verified that the crew completed the critical tasks listed in the above simulator guide. The inspectors also compared simulator configurations with actual control board configurations. For any weaknesses identified, the inspectors observed the licensee evaluators to determine that they also noted the issues and discussed them in the critique at the end of the session.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

The inspectors completed three inspection samples by evaluating the licensee's implementation of the maintenance rule, 10 CFR 50.65, as it pertained to identified performance problems associated with the following structures, systems, and/or components:

- Unit 2 train B emergency diesel generator speed sensor,
- Reactor containment fan cooler units, and
- Control room ventilation system.

During this inspection, the inspectors evaluated the licensee's monitoring and trending of performance data for the past 2 years, verified that performance criteria were established commensurate with safety, and verified that equipment failures were appropriately evaluated in accordance with the maintenance rule. These aspects were evaluated using the maintenance rule scoping and report documents. The inspectors also verified the basis for classification as (a)(1) or (a)(2) and the criteria for change of classification. For the systems reviewed, the inspectors also reviewed the significant work orders, condition reports and other documents to determine that failures were properly identified, classified, and corrected, and that unavailable time had been properly calculated.

The inspectors also reviewed selected issues documented in CRs, to determine if they had been properly addressed in the licensee's corrective actions program. The documents reviewed during this inspection are listed in the Attachment to this report.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

The inspectors reviewed the licensee's management of plant risk during emergent maintenance activities or during activities where more than one significant system or train was unavailable. The inspectors chose activities based on their potential to increase the probability of an initiating event or impact the operation of safety-significant equipment. The inspectors verified that the evaluation, planning, control, and performance of the work were done in a manner to reduce the risk and the work duration was minimized where practical. The inspectors also verified that contingency plans were in place where appropriate.

The inspectors reviewed configuration risk assessment records, UFSAR, TS, and Individual Plant Examination. The inspectors also observed operator turnovers, observed plan-of-the-day meetings, and reviewed other related documents to determine that the equipment configurations had been properly listed, that protected equipment had been identified and was being controlled where appropriate, and that significant aspects of plant risk were being communicated to the necessary personnel. The inspectors verified that the licensee controlled work activities in accordance with the following:

- WC-AA-101, On-Line Work Control Process, Revision 10,
- ER-AA-600, Risk Management, Revision 3,
- ER-AA-310, Implementation of the Maintenance Rule, Revision 3,
- Byron Operating Department Policy 400-47, June 23, 2004, Revision 5, and.
- Byron Nuclear Power Station Probabilistic Risk Assessment, Revision 5B.

The inspectors completed two inspection samples by reviewing the following activities:

- Unit 2 train A auxiliary feedwater concurrent with Unit 1C feedwater pump, November 18, 2004; and
- Unit 2 safety injection cross tie valve concurrent with the Unit 1C reactor containment fan cooler, December 27, 2004.

The inspectors also reviewed selected issues documented in CRs, to determine if they had been properly addressed in the licensee's corrective actions program. The documents reviewed during this inspection are listed in the Attachment to this report.

b. Findings

No findings of significance were identified.

1R14 Personnel Performance Related to Non-routine Plant Evolutions and Events (71111.14)

a. Inspection Scope

The inspectors completed one inspection sample by observing and evaluating control room operators during the following non-routine evolution:

- increased indications of Unit 1 primary to secondary system leakage, October 22, 2004.

The inspectors evaluated crew performance in the areas of:

- prioritization, interpretation and verification of alarms,
- procedure use,
- control board manipulations,
- supervisor's command and control,
- management oversight, and
- group dynamics.

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

- OP-AA-101-111, Roles and Responsibilities of On-Shift Personnel, Revision 1,
- OP-AA-103-102, Watchstanding Practices, Revision 3,
- OP-AA-103-103, Operation of Plant Equipment, Revision 0, and
- OP-AA-104-101, Communications, Revision 1.

The inspectors also reviewed selected issues documented in CRs, to determine if they had been properly addressed in the licensee's corrective actions program. The documents reviewed during this inspection are listed in the Attachment to this report.

b. Findings

No findings of significance were identified during the review of the inspection sample. However, one finding was identified during the review of related issues within the licensee's corrective actions program.

Introduction: A Non-Cited Violation (NCV) of TS 5.4.1a having very low safety significance (Green) was self-revealed when operators miscalculated a boron addition for Unit 2 while at full power, resulting in an adjustment of reactor coolant system average temperature (Tave) that exceeded the desired change.

Description: On September 28, 2004, while Unit 2 was at full power, a batch of fifty gallons of boric acid was added to the reactor coolant system (RCS) in an attempt to reduce Tave by 0.5 degrees Fahrenheit (°F) in order to match the reference temperature (Tref). Upon completion, Tave dropped 2.1°F which exceeded the planned change by 1.6°F. Reactor power remained unchanged because the main turbine governor valves closed slightly to compensate for the slight change in the steam pressure resulting from the lower Tave. Following the erroneous boric acid addition, the operators noticed the

excessive change in Tave, and they evaluated the condition and made a dilution to compensate for the error.

After the event, the licensee determined that ten gallons of boric acid would have been sufficient for the desired temperature change. However, a senior licensed operator (SRO) and a licensed nuclear station operator (NSO) independently miscalculated the addition by different techniques. The SRO incorrectly used the shift turnover sheet by interpreting that a 25-gallon dilution would change RCS temperature by 0.25°F and read it as a 25-gallon boration would change RCS temperature by 0.25°F and then multiplied 25 gallons by 2. The NSO on the unit independently calculated the addition by using "Thumbrules - ReMA [Reactivity Maneuver Approval]" particularly the Thumbrules for gallons of boric acid/°F, but miscalculated in his head by multiplying by 2 rather than dividing by 2, thus, the SRO and NSO validated each others errors.

Subsequently, the licensee reviewed the event and determined that although Procedure BOP CV-6 "Operation of the Reactor Makeup System in the Boration Mode" was used for the boron addition, there was no specific procedural direction on calculating or verifying the amount of the boron addition. As corrective actions, the licensee created a more robust review and verification attachment to Policy No: 600-05, Revision 2, to "Byron Operating Department Policy Statement," Attachment 2, "Reactivity Changes Determination Form" dated November 29, 2004, whereby reactivity changes, e.g., boration or dilution calculations require three levels of development, review and approval.

Analysis: The inspectors determined that the miscalculation and incorrect boron addition to Unit 2 was an operator performance deficiency warranting a significance evaluation in accordance with Inspection Manual Chapter (IMC) 0612 "Power Reactor Inspection Reports," Appendix B, "Issue Disposition Screening" issued on June 20, 2003. The inspectors determined that the finding was more than minor because it affected the human performance attribute regarding reactor manipulations associated with the Reactor Safety Barrier Integrity cornerstone objective to provide reasonable assurance that physical barriers, specifically fuel cladding, protect the public from radio nuclide releases caused by accidents or events. The inspectors also determined that the errors by the operators affected the cross-cutting area of Human Performance because the operators failed to show adequate self-checking and technical rigor resulting in a boron addition twice as large as required.

The inspectors determined that the finding could be evaluated using the Significance Determination Process (SDP) in accordance with IMC 0609, "Significance Determination Process," because the finding is associated with the Barrier Integrity cornerstone and protection of the fuel cladding. The Phase 1 screening, under the "RCS Barrier or Fuel Barrier" screened as Green for fuel barrier issues.

Enforcement: Technical Specification 5.4.1 states that written procedures shall be established, implemented and maintained covering the applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. This includes operating procedures for the chemical and volume control system, and power operations and process monitoring. Contrary to the above, prior to September 28, 2004, the licensee did not have adequate procedures to ensure proper development, review

and approval for boration or dilution calculations related to the chemical and volume control system, and power operations and process monitoring. Because this violation was of very low system significance and the issue was entered into the licensees corrective action program (CR 257801 "U2 RCS Boration"), it was treated as a NCV, consistent with Section V1.A of the NRC enforcement Policy. (NCV 05000455/2004-009-01)

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors evaluated plant conditions, selected condition reports, engineering evaluations and operability determinations for risk-significant components and systems in which operability issues were questioned. These conditions were evaluated to determine whether the operability of components was justified.

The inspectors completed three inspection samples by reviewing the following evaluations and issues:

- CR 263338, "Control Room HVAC [Heating, Ventilation and Air Conditioning] System - B Train Work Window" potential dual train inoperability, October 13, 2004,
- Operability Determination 04-007, "Inadequate Soil Cover Over Essential Service Lines, November 22, 2004, and
- CR 273817, "Unit 1A Residual Heat Removal Pump Room Cooler Fan Failure to Start During American Society of Mechanical Engineers (ASME) Surveillance," November 16, 2004.

The inspectors compared the operability and design criteria in the appropriate section of the TS including the TS Basis, the technical requirements manual (TRM) and UFSAR to the licensee's evaluations to determine that the components or systems were operable. The inspectors determined whether compensatory measures, if needed, were taken, and determined whether the evaluations were consistent with the requirements of licensee's Procedure LS-AA-105, "Operability Determination Process," Revision 1. The inspectors also discussed the details of the evaluations with the shift managers and appropriate members of the licensee's engineering staff.

The inspectors utilized the following references during the completion of their review:

- NRC Inspection Manual Part 9900: Technical Guidance; Operable/Operability: Ensuring the Functional Capability of a System or Component;
- NRC Inspection Manual Part 9900: Technical Guidance; Resolution of Degraded and Nonconforming Conditions; October 8, 1997; and
- NRC Generic Letter No 91-18: Information to Licensees Regarding NRC Inspection Manual Section on Resolution of Degraded and Nonconforming Conditions, Revision 1.

The documents reviewed during this inspection are listed in the Attachment to this report.

b. Findings

No findings of significance were identified.

1R17 Permanent Plant Modifications (71111.17A)

a. Inspection Scope

The inspectors reviewed selected issues documented in CRs, to determine if they had been properly addressed in the licensee's corrective actions program. The documents reviewed during this inspection are listed in the Attachment to this report.

b. Findings

No findings of significance were identified.

1R19 Post Maintenance Testing (71111.19)

a. Inspection Scope

The inspectors reviewed the post maintenance testing activities associated with maintenance or modification of mitigating, barrier integrity, and support systems that were identified as risk significant in the licensee's risk analysis. The inspectors reviewed these activities to determine that the post maintenance testing was performed adequately, demonstrated that the maintenance was successful, and that operability was restored. During this inspection activity, the inspectors interviewed maintenance and engineering department personnel and reviewed the completed post maintenance testing documentation. The inspectors used the appropriate sections of the TS, TRM, and UFSAR, and other related documents to evaluate this area. The inspectors verified that the licensee controlled post maintenance testing in accordance with the following:

- Byron Administrative Procedure (BAP) 1600-11, Work Request Post Maintenance Testing Guidance, Revision 12,
- Nuclear Station Procedure MA-AA-716-012, Post Maintenance Testing, Revision 2, and
- Engineering Change 351821, Containment Spray Pump Motor Inspection and Maintenance, Revision 0.

The inspectors completed four inspection samples by observing and evaluating the post maintenance testing subsequent to the following activities:

- Unit 1 train A containment spray pump following motor overhaul, October 23, 2004,
- Unit 2 train A auxiliary feedwater pump following lubricating oil system modification, November 19, 2004,
- Unit 1D main steam isolation valve actuator repair, December 20, 2004, and
- Unit 1C reactor containment fan cooler switch replaced, December 27, 2004.

The inspectors also reviewed selected issues documented in CRs, to determine if they had been properly addressed in the licensee's corrective actions program. The documents reviewed during this inspection are listed in the Attachment to this report.

b. Findings

No findings of significance were identified.

1R20 Refueling and Outage Activities (71111.20)

a. Inspection Scope

The inspectors reviewed selected issues documented in CRs, to determine if they had been properly addressed in the licensee's corrective actions program. The documents reviewed during this inspection are listed in the Attachment to this report.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors witnessed selected surveillance testing and/or reviewed test data to determine that the equipment tested using the surveillance procedures met the TS, the TRM, the UFSAR, and licensee procedural requirements. The inspectors also verified that the surveillance tests demonstrated that the equipment was capable of performing its intended safety functions. The activities were selected based on their importance in ensuring mitigating systems capability and barrier integrity.

The inspectors completed three inspection samples by observing and evaluating the following surveillance tests:

- Unit 2 train A component cooling water pump and check valve surveillance test,
- Unit 1 train A feedwater pump slave relay (K621) surveillance, and
- Unit 1 moderator temperature coefficient measurement at power - end of life.

Additionally the inspectors used the documents listed in the Attachment to this report to determine that the testing met the frequency requirements; that the tests were conducted in accordance with the procedures including establishing the proper plant conditions and prerequisites; that the test acceptance criteria were met; and that the results of the tests were properly reviewed and recorded. The inspectors verified that the individuals performing the tests were qualified to perform the test in accordance with the licensee's requirements, and that the test equipment used during the test were calibrated within the specified periodicity. In addition, the inspectors interviewed operations, maintenance and engineering department personnel regarding the tests and test results.

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications (71111.23)

a. Inspection Scope

The inspectors completed one inspection sample by evaluating the following temporary plant modification on risk-significant equipment:

- Engineering Change 350192, Isolate Coil and Alarm for Relay 27-3 at 1E Main Power Transformer.

The inspectors reviewed this temporary plant modification to determine that the instructions were consistent with applicable design modification documents and that the modification did not adversely impact system operability or availability. The inspectors verified that the licensee controlled temporary modifications in accordance with Nuclear Station Procedure NSP CC-AA-112, "Temporary Configuration Changes," Revision 8.

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

1EP2 Alert and Notification System (ANS) Testing (71114.02)

a. Inspection Scope

The inspectors discussed with corporate and Byron Station Emergency Preparedness (EP) staffs the operation, maintenance, and periodic testing of the ANS in the Byron Station's Emergency Planning Zone (EPZ) to determine whether the ANS equipment was adequately maintained and tested in accordance with Emergency Plan commitments and procedures. The inspectors reviewed records of preventive and non-scheduled maintenance activities for the period from March 2003 through May 2004, as well as July 2002 through June 2004 ANS operability test results.

These activities completed one inspection sample.

b. Findings

No findings of significance were identified.

1EP3 Emergency Response Organization (ERO) Augmentation Testing (71114.03)

a. Inspection Scope

The inspectors reviewed and discussed with EP staff the procedures that included the primary and alternate methods of initiating an ERO activation to augment the onshift ERO, plus provisions for maintaining the ERO call-out roster. The inspectors also reviewed reports and a sample of corrective action program records of unannounced, offhours augmentation drills, which were conducted monthly between January 2003 and November 2004, to determine the adequacy of the drill critiques and associated corrective actions. The inspector reviewed an Exelon Nuclear Emergency Preparedness Fundamentals brochure that emphasized safe nuclear operation fundamentals and specified nineteen EP expectations which included ERO on-call duties, drill participation, ERO pagers, and ERO activation responsibilities. The inspectors additionally reviewed the EP training records of a random sample of 77 Byron Station ERO members, who were assigned to key and support positions, to determine whether they were currently trained for their assigned ERO positions.

These activities completed one inspection sample.

b. Findings

No findings of significance were identified.

1EP5 Correction of Emergency Preparedness Weaknesses and Deficiencies (71114.05)

a. Inspection Scope

The inspector reviewed Nuclear Oversight staff's 2003 and 2004 audits of the Byron Station EP program to verify that these independent assessments met the requirements of 10 CFR 50.54(t). The inspector also reviewed a sample of critique reports and corrective action documents that were associated with the 2003 biennial exercise, as well as selected EP drills conducted between December 2002 and August 2004 in order to verify that the licensee fulfilled its drill commitments and to evaluate the licensee's efforts to identify, track, and resolve concerns identified during these activities. The inspector reviewed first, second, third, and fourth quarters 2003 and first and third quarters 2004 focused area self-assessments on the performance indicators, EP public information organization, drill and exercise accident assessment, standard emergency plan and procedures, facilities, equipment, EP program readiness, and training.

These activities completed one inspection sample.

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation (7114.06)

a. Inspection Scope

The inspectors completed two inspection samples by observing the following emergency response training activities:

- table top drills completed November 3, 2004, and
- emergency response activities associated with the simulator training completed on November 9, 2004.

Specifically, the inspectors determined that the emergency classification and simulated notifications were properly completed, and that the licensee adequately critiqued the training. The documents reviewed during this inspection are listed in the Attachment to this report.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety (OS)

2OS1 Access Control to Radiologically Significant Areas (71121.01)

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

a. Inspection Scope

The inspectors reviewed the licensee's reporting of occupational exposure control performance indicator (PI) occurrences to determine whether or not the conditions surrounding the PI occurrences had been evaluated and identified problems had been entered into the corrective action program for resolution. For the time period of the 3rd Quarter 2003 through the 3rd Quarter 2004, the licensee did not identify any occupational exposure control PI occurrences.

This review represented one inspection sample.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

The inspectors discussed with the Radiation Protection (RP) staff refueling outage and other online RWPs controlling areas/activities having a history of, or the potential for, airborne transuranic isotopes to verify that the licensee had considered the potential for transuranic isotopes and provided appropriate worker protection, as necessary.

The inspectors assessed the adequacy of the licensee's internal dose assessment process by reviewing personnel contamination event logs (and associated dose assessments) for the B2R11 refueling outage. However, no personnel contamination events had resulted in dose assignments of greater than 10 millirem committed effective dose equivalent during the refueling outage.

The inspectors reviewed the licensee's physical and programmatic controls for highly activated and/or contaminated materials (non-fuel) stored within spent fuel pool, to verify that licensee controls for such items are appropriate to prevent the inadvertent creation of high and/or very high radiation areas.

These reviews represented three inspection samples.

b. Findings

No findings of significance were identified.

.3 Problem Identification and Resolution

a. Inspection Scope

The inspectors reviewed the licensee's self-assessments, audits, Licensee Event Reports, and Special Reports (as available) related to the access control program to verify that identified problems were entered into the corrective action program for resolution.

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

As discussed in Section 2OS1.1, for the time period of the 3rd Quarter 2003 through the 3rd Quarter 2004, the licensee did not identify any occupational exposure control PI occurrences. As such, the inspectors were unable to review licensee documentation packages for PI events to determine which barriers failed and if any unintended exposures constituted regulatory overexposures or substantial potential for overexposures.

These reviews represented three inspection samples.

b. Findings

No findings of significance were identified.

.4 High Risk Significant, High Dose Rate High Radiation Area (HRA) and Very HRA Controls

a. Inspection Scope

The inspectors held discussions with the RP Manager concerning high dose rate-HRA and very high radiation area (VHRA) controls and procedures, including procedural changes that had occurred since the last inspection, in order to verify that any procedure modifications did not substantially reduce the effectiveness and level of worker protection.

The inspectors discussed with RP supervisors the controls that were in place for special areas that had the potential to become high dose rate-HRAs and/or VHRAs during certain plant operations, to determine if these plant operations required communication beforehand with the RP group, so as to allow corresponding timely actions to properly post and control the radiation hazards.

The inspectors conducted plant walkdowns to verify the posting and locking of entrances to reasonably accessible high dose rate-HRAs and VHRAs.

These reviews represented three inspection samples.

b. Findings

No findings of significance were identified.

.5 Radiation Worker Performance

a. Inspection Scope

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

These reviews represented one inspection sample.

b. Findings

No findings of significance were identified.

.6 Radiation Protection Technician Proficiency

a. Inspection Scope

The inspectors reviewed several corrective action program reports which found that the cause of the event was radiation protection technician error to determine if there was an observable pattern traceable to a similar cause, and to determine if this perspective matched the corrective action approach taken by the licensee to resolve the reported problems.

These reviews represented one inspection sample.

b. Findings

No findings of significance were identified.

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

.1 ALARA/Radiological Work Planning

a. Inspection Scope

The inspectors compared the results achieved including dose rate reductions and person-rem used with the intended dose established in the licensee's ALARA planning for several B2R11 refueling outage work activities. For the B2R11 RWPs, only two RWPs resulted in actual work activity collective doses in excess of 5 person-rem (RWP No. 10003223, Steam Generator Eddy Current Inspection and Repairs; and RWP No. 10003261, Scaffolding). Neither of these RWPs exceeded their initial dose estimations by greater than 50 percent. However, the reasons for inconsistencies between intended and actual work activity doses for these and the other RWPs were reviewed.

These reviews represented one inspection sample.

b. Findings

No findings of significance were identified.

.2 Source-Term Reduction and Control

a. Inspection Scope

The inspectors reviewed licensee records to determine the historical trends and current status of tracked plant source terms, and to determine if the licensee was making allowances and had developed contingency plans for potential changes in the source term due to changes in plant fuel performance issues or changes in plant primary chemistry. In particular, the inspectors reviewed the licensee's 2004 Exposure Reduction Plan (and related station procedures), which included actions to evaluate and mitigate station source terms.

These reviews represented one inspection sample.

b. Findings

No findings of significance were identified.

.3 Declared Pregnant Workers

a. Inspection Scope

The inspectors reviewed dose records and the licensee's exposure tracking processes for declared pregnant workers in the current assessment period (as available) to verify that the exposure results and monitoring controls employed by the licensee were in compliance with the requirements of 10 CFR 20.1208.

These reviews represented one inspection sample.

b. Findings

No findings of significance were identified.

.4 Problem Identification and Resolutions

The inspectors reviewed the licensee's self-assessments, audits, and Special Reports (as available) related to the ALARA program since the last inspection to determine if the licensee's overall audit program's scope and frequency for all applicable areas under the Occupational Cornerstone met the requirements of 10 CFR 20.1101©). In particular, the inspectors reviewed the licensee's Radiation Protection Post Outage (B2R11) ALARA Assessment and the Nuclear Oversight Rapid Trending Report for B2R11.

These reviews represented one inspection sample.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

Cornerstones: Mitigating Systems, Barrier Integrity, Public Radiation Safety

4OA1 Performance Indicator Verification (71151)

.1 Reactor Safety Strategic Area

a. Inspection Scope

The inspectors sampled the licensee's submitted materials for PIs listed below, covering July 2003 through September 2004. The inspectors used PI definitions and guidance contained in Revision 2 of Nuclear Energy Institute Document 99-02, "Regulatory

Assessment Performance Indicator Guideline" to determine the accuracy of the PI data. These reviews represented ten inspection samples.

The inspectors reviewed applicable condition reports and data from logs, licensee event reports, and work orders from July 2003 to September 2004 for each PI area specified above. The inspectors independently reperformed calculations where applicable. The inspectors compared that information with the performance indicator definitions in the guideline to ensure that the licensee reported the data accurately.

- safety system functional failures,
- emergency AC system unavailability,
- high pressure safety injection systems unavailability,
- auxiliary feedwater system unavailability, and
- residual heat removal system unavailability.

b. Findings

No findings of significance were identified.

.2 Emergency Preparedness Strategic Areas

a. Inspection Scope

The inspectors reviewed the licensee's records associated with the three EP PIs listed below. The inspectors verified that the licensee accurately reported these indicators in accordance with relevant procedures and Nuclear Energy Institute guidance endorsed by NRC. Specifically, the inspectors reviewed licensee records associated with PI data reported to the NRC for the period October 2003 through September 2004. Reviewed records included: procedural guidance on assessing opportunities for the three PI; assessments of PI opportunities during pre-designated Control Room Simulator training sessions, the 2003 biennial exercise, and drills; revisions of the roster of personnel assigned to key ERO positions; and results of periodic ANS operability tests. The following PIs were reviewed:

Common

- ANS;
- ERO Drill Participation; and
- Drill and Exercise Performance.

b. Findings

No findings of significance were identified.

.3 Radiation Protection Strategic Area

a. Inspection Scope

The inspectors sampled the licensee's submittals for the PIs and periods listed below. The inspectors used PI definitions and guidance contained in Revision 2 of Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," to verify the accuracy of the PI data. The following PI was reviewed:

- Occupational Exposure Control Effectiveness

Since no occurrences under this PI were identified by the licensee for the 3rd Quarter 2003 through the 3rd Quarter 2004, the inspectors compared the licensee's data with the corrective action program database and the radiological controlled area exit electronic dosimetry transaction records for these time periods, to verify that there were no unaccounted for occurrences in the PI. Additionally, the inspectors conducted walkdowns of accessible locked high radiation area and very high radiation area entrances to verify the adequacy of controls in place for these areas.

4OA2 Identification and Resolution of Problems (71152)

.1 Routine Review of Identification and Resolution of Problems

a. Inspection Scope

As discussed in previous sections of this report, the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to determine that they were being entered into the licensee's corrective action system at an appropriate threshold, that adequate attention was being given to timely corrective actions, and that adverse trends were identified and addressed. Minor issues entered into the licensee's corrective action system as a result of inspectors' observations are generally denoted in the list of documents reviewed at the back of the report.

b. Findings

No findings of significance were identified.

.2 Annual Sample - Review of Post Maintenance Testing Failures (71152)

Introduction: During this and previous inspection periods the inspectors have identified that issues entered into the licensee corrective action program included a number of post maintenance testing (PMT) failures. Failed PMTs usually extend out of service time of equipment since the PMTs then have to be reperformed prior to returning the equipment to service. If the equipment in question is safety related or risk significant this results in an extension of the amount of time this equipment is unavailable to perform its intended safety functions.

To assess the extent of the problem associated with failed PMTs, the inspectors performed an independent search of the licensee's corrective action document database

and then selected CRs to review from this search. In particular CR 140358 entitled "Potential Trend - Failed PMTs" dated January 21, 2003 was selected. As a corrective action in this CR the licensee performed a common cause assessment (CCA) on a number of failed PMTs noted between January 1, 2002 and February 28, 2003. Based on the relatively large number failed PMT related CRs generated after the completion of the licensee's CCA, the inspectors selected this area for review as one annual sample of the licensee's problem identification and resolution program.

During the course of this review the inspectors used the following documents as references:

- LS-AA-125, Corrective Action Program (CAP) Procedure, Revision 8;
- LS-AA-125-1002, Common Cause Analysis Manual, Revision 3; and
- LS-AA-125-1005, Coding and Trending Manual, Revision 3.

Additional documents reviewed as part of this inspection are listed in Attachment A of this report.

a. Effectiveness of Problem Identification

(1) Inspection Scope

The inspectors reviewed CR 140358 and compared the licensees identification of issues in the subject area of failed PMTs to the issues the inspectors identified from their independent search. This was done to verify that the licensee's identification of the problems were complete, accurate, and timely, and that the extent of condition review, generic implications, and common causes were adequately reviewed.

(2) Issues

In CR 140358 the licensee determined that 35 failed PMTs existed as documented in CRs between January 1, 2002, to December 31, 2002. Also in this CR the licensee determined that further review was needed to determine if an adverse trend was present that could lead to a larger issue. The licensee assigned corrective action assignment number three of CR 140358 to perform a CCA evaluation of the collective issues.

In the CCA the licensee further identified that 49 CRs documented failed PMTs between January 1, 2002, and February 28, 2003. The licensee then determined that this was a statistically significant trend. The licensee also determined that the existing maintenance rework procedure did not identify this trend.

The number of issues the licensee identified in CR 140358 corresponded to the number of issues the inspectors identified during their independent search for the same time period. The extent of condition review done for this trend was appropriate. In general the inspectors determined that the CCA was complete and accurate. Also, individual problems identified in the CCA were documented by the licensee in other CRs for further review.

b. Prioritization and Evaluation of Issues

(1) Inspection Scope

The inspectors reviewed CR 140358 and other CRs generated as a result of the licensees CCA. The inspectors considered the licensee's evaluation and disposition of performance issues and application of risk insights for prioritization of issues.

(2) Issues

In general the inspectors found that the licensee prioritized and evaluated issues appropriately. No significant issues were identified in this area.

c. Effectiveness of Corrective Actions

(1) Inspection Scope

The inspectors reviewed the corrective actions of the CRs generated as a result of the CCA to determine if the condition reports addressed the issues and that corrective actions were appropriately focused to address the problem.

(2) Issues

The inspectors reviewed the condition reports generated in response to the individual problem areas identified in the CCA. Most of the problem areas had been appropriately identified on CRs and had what appeared to be appropriate corrective actions taken for the problems. The inspectors identified one area however where problems identified in the CCA were not carried through into corrective action assignments in the CR generated to resolve the issue.

The CCA had identified that in following the licensees existing maintenance procedure for rework the licensee did not identify the high number of failed PMTs from the data they routinely monitored. It also stated that trending and trend monitoring was done via monthly maintenance department meetings. CR 150110 entitled "Trending and Analysis of Rework Evaluations Improvement" dated March 21, 2003, was generated to correct this problem as identified in the CCA.

The licensee stated in CR 150110 that the existing procedure for rework was lacking in the definition of what constituted an adverse trend and it did not specify what data was to be reviewed for trending. In the area of the CR reserved for explanation of procedure impacts the licensee stated that maintenance procedure MA-AA-716–013 "Rework Reduction" requirements were vague in this area. Based on the problems as described in the CCA and in CR 150110, the inspectors concluded that the licensee intended to change the procedure to ensure that adequate trending could be accomplished by specifying what to trend and establishing proper thresholds so they could recognize future trends.

The supervisory reviewer section of CR 150110 however characterized the issue differently. It characterized this issue as a missed opportunity for reporting and trending

improvements to the rework program and the CR did not carry through the idea of a procedure change. Furthermore, the inspectors noted that this corrective action assignment was often combined with other actions, diluting the original intent of the corrective actions. Specifically:

- CR 150110 assignment number ten, the licensee required development of trending data and verification that all planned actions stated in the supervisory reviewer comments be addressed prior to closure.

- The corrective action assignment number ten from CR 150110 was then closed to assignment number fourteen of CR 150148, which was to discuss how to improve evaluation of trending data during monthly meetings.

- Based on the results of the discussions, the licensee generated corrective action assignment number seventeen of CR 150148. In this corrective action licensee stated that information would be formatted to benefit individual maintenance disciplines and again be discussed at bi-monthly meetings through which trending data would be discussed to minimize rework. This corrective action assignment was closed on September 12, 2003.

After independently searching the licensee's procedures the inspectors determined that the licensee's rework procedure was revised. Maintenance procedure MA-AA-716-013 "Rework Reduction" Revision 0, was superceded by MA-AA-716-017 "Equipment Readiness and Reliability Program" Revision 0 on October 4, 2004. However, the revised procedure only included the areas to trend but did not establish thresholds so that the licensee could determine when an unacceptable trend existed.

To determine the impact of not establishing trend thresholds, the inspectors independently searched the licensee's corrective actions database for indications of continued problems associated with failed PMTs. The searched covered from September 2003 through November 2004 and identified that approximately 54 CRs were generated documenting failed PMTs. This was approximately the same number of issues within a similar time period that resulted in the licensee's CCA. The inspectors discussed these results with licensee personnel. The licensee then generated CR 273608 entitled "Potential Adverse Trend Identified in Failed PMTs" dated November 15, 2004. This CR identified that the trend in failed PMTs has potentially continued.

In conclusion the inspectors determined that the corrective actions to correct the adverse trend in failed PMTs have been less than effective in addressing the trend. Additionally, the licensee's attempts to improve awareness to failed PMT and rework issues had been unsuccessful. As the licensee stated in CR 150148 inattention to this trend could ultimately impact the material condition of the facility, however, no violations of NRC requirements noted during this review.

.3 Annual Sample - Review of Filling and Venting Issues (71152)

Introduction: During the third quarter inspection period of 2004 after assessing the results of equipment related findings identified in Inspection Report 05000454/2004007;

05000455/2004007 the inspectors recognized that some of the issues appeared to share a common cause related to filling and venting activities. As a result of this observation, the licensee generated CR 261112 entitled "Potential Filling and Venting Adverse Trend/Silting Common Cause" dated October 6, 2004.

The inspectors had an independent search done of the licensee's corrective action database for the time period of March 1, 2002, until October 1, 2004 using the keywords "fill" and "vent." The searches resulted in 188 issues identified containing the word "fill" and 150 issues identified containing the word "vent." Based on the number of issues identified the inspectors selected this area for review as one annual sample of the licensee's problem identification and resolution program.

During the course of this review the inspectors used the following documents as references:

- LS-AA-125, Corrective Action Program (CAP) Procedure, Revision 8;
- LS-AA-125-1002, Common Cause Analysis Manual, Revision 3; and
- LS-AA-125-1005, Coding and Trending Manual, Revision 3.

Additional documents reviewed as part of this inspection are listed in Attachment A of this report.

a. Prioritization and Evaluation of Issues

(1) Inspection Scope

The inspectors performed a more detailed review of the CRs identified their search of the licensee's database, and determined that 38 CRs were related to filling and venting activities. These CRs are listed in Attachment A of this report.

The inspectors reviewed CR 261112 and the sample of 38 CRs. The inspectors considered the licensee's evaluation and disposition of performance issues, and application of risk insights for prioritization of issues.

(2) Issues

In CR 261112, the licensee searched their corrective actions program database for issues related to filling and venting during the period April 1, 2003, to October 15, 2004. In searching for the words "fill" or "vent" the licensee found fourteen total issues. The licensee stated in the CR that two of the issues were related to the essential service water system, and that the other twelve issues were on many different systems and related to procedure issues, design issues and scheduling issues. Based on this review the licensee determined that there was not an adverse trend associated with filling and venting activities. Additionally, the licensee's qualitative assessment of the risk of these issues was that they were very low level.

The inspectors reviewed their independently selected sample of 38 CRs. The inspectors determined that nine of the 38 CRs had common corrective action types. The corrective actions were common in the fact that the licensee had determined in all cases that the

procedure for the filling or venting operation had inadequate instructions that needed revision.

Although the time periods varied slightly between the sample the inspectors selected for review and the sample that the licensee selected, eight of the nine of the issues identified by the inspectors occurred during the dates included in the licensee's sample. Based on their review, the inspectors determined that the licensee evaluation incorrectly determined that no trend existed. Per the licensee's trending guidelines the licensee should have been able to identify the commonality in the corrective actions for the reviewed CRs. Furthermore, the inspectors did not agree with the licensees assessment that the qualitative risk of the individual issues was low, as evidenced by the NCV, documented in Inspection Report 05000455/2004007, related to the filling and venting issues that resulted in the jacket water leak of the Unit 2 diesel driven axillary feedwater pump diesel. However, the licensee's failure to identify this trend itself was not a violation of NRC requirements. Nonetheless, the licensee generated CR 291416, "Filling and Venting Issues," to address this issue.

.4 Semi-Annual Trending Review (71152)

a. Inspection Scope

The inspectors completed a semi-annual review for potential or identified trends. The purpose of this review was to determine if any potential or identified trends might indicate a more significant safety issue.

The inspectors reviewed equipment issues that were documented in the following licensee programs, analysis, assessments or lists:

- Quarterly CAP Trend Analysis for Engineering, March to August 2004;
- Quarterly CAP Trend Analysis for Security, March to August 2004;
- Quarterly CAP Trend Analysis for Operations, March to August 2004;
- Quarterly CAP Trend Analysis for Chemistry/Environmental/Radwaste, March to August 2004;
- Quarterly CAP Trend Analysis for Rad Protection/Safety, March to August 2004;
- Quarterly CAP Trend Analysis for Materials Management, March to August 2004;
- Quarterly CAP Trend Analysis for Maintenance, March to August 2004;
- Equipment Out of Tolerance Program;
- Component Health Indicator Program;
- Focused Area Self Assessment, Action Tracking Number 274565, entitled "Byron Station Mid Cycle Self Assessment"; and
- Equipment Reliability Clock Reset List.

The inspectors reviewed the above information for the time periods designated or for the past 2 years, and discussed these programs and reports with the applicable members of the licensee's staff. The inspectors discussed the transition that the licensee made between the licensees Rework Program and the Equipment Readiness and Reliability Program with the program coordinator. Additionally, the inspectors verified that any trends identified by these programs and reports were appropriately entered and classified in the licensee's corrective action program.

The inspectors also considered aspects of their day-to-day inspection activities and categorized CRs that the inspectors accumulated during their daily reviews of issues entered into the licensee's corrective action program to determine if trends existed that were overlooked by the licensee. The inspectors focused on the following areas or groupings of issues:

- radiation monitor failures;
- parts issues;
- logic card failures;
- main steam isolation valve test failures;
- feed water isolation valve or regulating valve issues;
- boric acid control program issues; and
- ventilation fan issues.

During the course of the inspection, the inspectors utilized the following licensee's procedures as references:

- LS-AA-125 Corrective Action Program Procedure, Revision 8;
- LS-AA-125-1002, Common Cause Analysis Manual, Revision 3;
- LS-AA-125-1005, Coding and Trending Manual, Revision 3;
- MA-AA-716-230, Predictive Maintenance Program, Revision 2;
- MA-AA-716-013, Rework Reduction, Revision 0;
- MA-AA-716-017, Equipment Readiness and Reliability Program, Revision 0.

Additional documents reviewed as part of this inspection are listed in Attachment A of this report.

b. Issues

No findings of significance were identified. The inspectors' review of the programs and reports found the identified trends appropriately captured and classified in the licensee's corrective action program. The licensee's action tracking item number 274565 Byron Station Mid Cycle Self Assessment review was comprehensive and thorough in that it captured all trends that the inspectors independently identified. Based on a review of the data contained in the programs mentioned above, the inspectors did not identify any additional trends.

However, during the review of day-to-day inspections insights, specifically, during the inspection samples described in Sections 4OA2.2 and 4OA2.3, the inspectors identified trends either not identified or improperly characterized by the licensee. In Section 4OA2.2 the inspectors identified the failure of the licensee to identify a continuing trend in PMT failures. In Section 4OA2.3 the inspectors identified a failure of the licensee to characterize procedure deficiency issues identified in the filling and venting of equipment or systems as a trend. These specific issues were not violations of NRC requirements.

4OA3 Event Follow-up (71153)

.1 Boric Acid Leak Identified Inside Unit 2 Containment

a. Inspection Scope

On October 28, 2004, during a routine tour of containment, the licensee identified a boric acid leak. The leak was approximately 30 drops per second and was located at the pipe cap of a drain line (2RH029A) on the 2A residual heat removal pump suction header. Upon identifying the leak, the licensee initiated actions to repair the leak, and clean up the boric acid residue. On October 29, 2004, the inspectors observed the licensee's repairs, which included verifying that the drain valve was completely closed and replacing the associated pipe cap. These repairs successfully stopped the leak. The inspectors also observed portions of the cleanup effort, which adequately removed the boric acid residue. Subsequently, the licensee assessed the impact of the boric acid to the exposed support structures with no concerns noted.

Based on the location of the leak, which was in the shutdown cooling suction line and was separated from the reactor coolant system by an isolation valve, there was no impact on RCS leakage. The inspectors confirmed no changes in RCS leakage by reviewing the Unit 2 leak rate data. Additionally, the inspectors reviewed the work history associated with the leaking drain line and the licensee's assessment regarding the impact of the boric acid residue on the exposed support structures with no significant issues noted. Documents reviewed as part of this inspection are listed in the Attachment.

b. Findings

No findings of significance were identified.

.2 (Closed) Licensee Event Report (LER) 454-2004-001-00: 1C Reactor Containment Fan Coolers Flow Rates Below Technical Specification Requirements Due to Inaccurate Flow Indication

a. Inspection Scope

The inspectors reviewed LER 454-2004-001-00: "1C Reactor Containment Fan Coolers Flow Rates Below Technical Specification Requirements Due to Inaccurate Flow Indication," to verify that it was completed in accordance with 10 CFR 50.72. Additionally, the inspectors assessed the technical issues associated with the LER as compare to the related information in the UFSAR and TS.

b. Findings

Introduction: An NCV of Technical Specification 3.6.6 having very low safety significance (Green) was self-revealed when the essential service water (SX) flow to the 1A, 1B, and 1C reactor containment fan coolers (RCFC) were determined to be less than the TS required value due to incorrectly adjusting the SX flows to the RCFCs in April 2004.

Description: On August 17, 2004, during a surveillance test on 1A SX pump, the system engineer, noted that the SX water flow rate in the 1A SX supply header to the loads inside containment was lower than expected. Although the purpose of the surveillance was to evaluate the performance of the SX pump and not to ensure proper SX flows to the RCFCs, the system engineer pro-actively pursued the unexpected flow indication. Subsequent investigation identified that the sum of the SX flow rates through the RCFCs measure at the local indicators inside containment was higher than the total SX flow rate into containment. As a result, the licensee rechecked RCFC flow rates using ultrasonic flow instrumentation. The licensee concluded that the local indications were incorrect and that the SX flows to 1A, 1B, and 1C RCFC were below the limit of 2660 gallons per minute (gpm) of TS 3.6.6. Upon identification of this condition, the licensee correctly adjusted the SX flow to all four Unit 1 RCFCs using the ultrasonic flow instrumentation. In addition, the licensee completed a successful thermal performance test of the RCFC that experienced the lowest flow condition, and they also used the ultrasonic instruments to verify adequate flow to the Unit 2 RCFCs.

The licensee's investigation determined that flow had been below the TS limit since April 20, 2004. On April 20, during a RCFC flow verification surveillance test, the licensee determined that SX flow to the 1D RCFC was lower than desired and as part of the flow adjusted it was necessary to re-balance the flow to the other three RCFCs. At that time the flows to the 1A, 1B and 1C were incorrectly adjusted below the TS values due to inaccurate local flow indications.

Analysis: The inspectors determined the inappropriate adjustments made to the Unit 1 SX flow through the RCFCs in April 2004 was a performance deficiency warranting a significance evaluation. This determination was made in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Disposition Screening," issued on June 20, 2003. The inspectors also determined that the issue was greater than minor. This was based on the function of the RCFCs to remove heat to limit the post-accident pressure in the containment; therefore, the finding was associated with the containment barrier integrity cornerstone attribute of risk important systems function and affected the cornerstone objective of providing reasonable assurance that the physical containment barrier would protect the public from radio nuclide releases caused by accidents or events.

The inspectors also determined that the finding impacted the cross cutting area of Problem Identification and Resolution because the operators balancing the flow on April 20, 2004, failed to recognized that the local indicators were not responding as expected during significance adjustments to the associated throttle valves.

The inspectors determined that the finding could be evaluated using the SDP in accordance with IMC 0609, "Significance Determination Process," dated April 21, 2003, because the finding was associated with the integrity of the reactor containment. Using the Phase 1 screening worksheet, the inspectors answered "yes" to Question 3 in the Containment Barriers column because the finding caused an actual reduction of the atmospheric pressure control function of the reactor containment. As a result, the inspectors assessed the finding in accordance with IMC 0609 Appendix H, "Containment Integrity Significance Determination Process," dated May 6, 2004. The finding was screened as Green because it did not affect the core damage frequency, and

inoperability of a RCFC did not have an effect on the large early release frequency for a pressurized water reactor with a large dry containment. Therefore, this finding was considered to be of very low safety significance (Green) and was assigned to the Barrier Integrity cornerstone of Unit 1.

Enforcement:

Technical Specification 3.6.6 required that two containment spray trains and two containment cooling trains shall be operable in Modes 1,2,3, and 4. With one or more containment cooling trains inoperable the trains must be restored to operable within 7 days, or the unit be placed in Mode 3 within 6 hours. Surveillance Requirement 3.6.6.3 for demonstrating operability of the containment cooling train units required that the cooling water flow to each unit be greater than or equal to 2660 gpm. Contrary to this, while Unit 1 was in Mode 1 between April 20 and August 18, 2004, a period greater than 7 days, 2 trains of containment cooling were inoperable because the cooling water flows to containment cooling units 1A, 1B and 1C were less than 2660 gpm. Because this violation was of very low safety significance and the issue was captured in the licensee's corrective action program (CR 245125), it was treated as a NCV consistent with Section VI.A of NRC Enforcement Policy (NCV 05000/454/2004009-02).

4OA4 Cross-Cutting Aspects of Findings

- A finding in Section 1R14 of this report affected the cross cutting area of human performance when operators failed to show adequate self-checking and technical rigor resulting in a boron addition twice as large as required.

- A finding in Section 4OA3.2 of this report affected the cross cutting area of problem identification and resolution because during the April 2004 flow balance of SX to the Unit 1 RCFCs, the operators failed to recognized that the local indicators were not responding as expected during significance adjustments to the associated throttle valves.

4OA6 Meetings

.1 Exit Meeting

The inspectors presented the inspection results to Mr. D. Hoots and other members of licensee management at the conclusion of the inspection on January 6, 2004. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. The Exelon Outage Schedule was identified as proprietary information which was used for inspection planning activities and destroyed.

.2 Interim Exit Meetings

An interim exit meeting was conducted for:

- Emergency Preparedness Inspection with Mr. S. Stimac on November 5, 2004, and

- Occupational Radiation Safety access control and ALARA programs inspection with Mr. D. Hoots on December 2, 2004.

4OA7 Licensee Identified Violations

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

Cornerstone: Emergency Preparedness

Title 10 CFR 50.47 (b) (15) requires, in part, that radiological emergency response training is provided to those who may be called on to assist in an emergency. The licensee's Standardized Radiological Emergency Plan (EP-11-1000), Table B.1, required that the minimum on-shift staffing was two radiation protection (RP) personnel for in-plant protective actions. As described in Assignment Reports (ARs) 00256735, 00257536, and 0028767 dated September 24, 28, and 27, 2004, this requirement was met by one on-shift RP technician and one on-shift chemistry technician that had been trained and qualified to perform in-plant protective actions. The licensee determined that the chemistry technician no longer met requirements to provide in-plant protection actions due to changes in the chemistry training requirements. However, because no emergencies had occurred that required in-plant protective actions and the licensee's corrective actions were to staff a minimum of two RP technicians on-shift, this violation is not more than of very low significance, and is being treated as a Non-Cited Violation.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

S. Kuczynski, Site Vice President
D. Hoots, Plant Manager
B. Adams, Engineering Director
S. Briggs, Shift Operations Supervisor
D. Combs, Site Security Manager
D. Drawbaugh, Emergency Preparedness Manager
T. Fluck, NRC Coordinator
D. Goldsmith, Radiation Protection Director
W. Grundmann, Regulatory Assurance Manager
K. Hansing, Nuclear Oversight
S. Kerr, Chemistry Manager
S. McCain, Cantera Emergency Preparedness Manager
S. Merrell, Emergency Preparedness Coordninator
R. Meyer, Training Staff
B. Overton, Nuclear Oversight
D. Palmer, Radiation Protection - ALARA
M. Snow, Work Management Director
W. Spahr, Operations Training Manager
S. Stimac, Operations Manager
D. Thompson, Radiation Protection Technical Supervisor
B. Youman, Maintenance Manager
C. Arnone, Kennette Square Emergency Preparedness Director - via phone conference

Nuclear Regulatory Commission

A. Stone, Chief, Projects Branch 3, Division of Reactor Projects
D. Passehl, Acting Chief, Projects Branch 3, Division of Reactor Projects

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000455/2004009-01	NCV	Inadequate Procedures Associated with Calculating, Reviewing and Approving Dilutions and Borations (Section 1R14)
05000454/2004009-02	NCV	Technical Specification 3.6.6 Violation for Inoperable Reactor Containment Fan Coolers due to Low Essential Service Water Flow (Section 4AO3.2)

Closed

05000454-2004-001-00	LER	Reactor Containment Fan Cooler Flow Rates Below Technical Specification Requirements Due to Inaccurate Flow Indications (Section 40A3.2)

Discussed

None

LIST OF DOCUMENTS REVIEWED

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

1R01 Adverse Weather Protection

Work Order (WO) 637729; Freezing Temperature Protection - Protected Area Buildings Ventilation System and Tanks, November 15, 2004
WO 637730; Freezing Temperature Protection - Plant Ventilation System, November 12, 2004
WO638854; Freezing Temperature Protection - Non-Protected Area Buildings Ventilation System and Tanks, November 12, 2004
WO 735959; Freezing Temperature Protection - Auxiliary Steam Boiler Testing, November 11, 2004
0BOSR XFT-A2; Freezing Temperature Equipment Protection Auxiliary Steam Boilers, Revision 0
0BOSR XFT-A4; Freezing Temperature Equipment Protection Protected Area Buildings Ventilation Systems and Tanks, Revision 1
0BOSR XFT-A5; Freezing Temperature Equipment Protection Non-Protected Area Buildings Ventilation Systems, Revision 1
0BOSR XFT-A3; Freezing Temperature Equipment Protection Plant Ventilation Systems, Revision 2

1R04 Equipment Alignment

BOP AF-1; Unit 2 Diesel Driven Auxiliary Feedwater Pump Alignment to Standby Condition, Revision 21
BOP AF-E2B; Unit 2 Auxiliary Feedwater Train “B” Electrical Lineup, Revision 1
BOP AF-M2B; Auxiliary Feedwater System Train “B” Valve Lineup, Revision 3

1R05 Fire Protection

Issue 270377; Cover Screws Missing, November 04, 2004 (NRC Identified)
Issue 277222; Excessive Paper Storage in Hallway, November 29, 2004 (NRC Identified)

1R06 Flood Protection

CR 275264; NRC Identified Housekeeping Issues, November 18, 2004 (NRC Identified)

1R07 Heat Sink Performance

CR 137005; As-Found Acceptance Criteria for 2SX01AB Was Not Met, December 20, 2002

CR 168022; Incorrect Use of Grace Period for Generic Letter 89-13 Heat Exchanger Inspection Frequency, July 2, 2003
CR 169367; 89-13 Inspection of 1A SX Pump Oil Heat Exchanger Failed Acceptance Criteria, July 29, 2003
CR 169661; Inadequate 50.59 Prepared for Revision 3 of Byron Technical Procedure 800-30, March 10, 2000
CR 177861; 1B Auxiliary Fed Pump Room Cooler 1VA08S - Tubes Found Plugged, September 27, 2003
CR 182809; Insufficient Tube Plugging Criteria for 0WO01CA/B, October 24, 2003
CR 184409; 2SI01SB Oil Cooler 89-13 As Found Inspection Not Performed, November 3, 2003
CR 207797; Lack of Certification Guide for Heat Exchanger Capacity Analysis, March 10, 2004
CR 210788; Jacket Water Heat Exchanger tube Indications, March 25, 2004
CR 217635; Document Suitability Evaluation for Existing Tube Plug in Unit 2 Component Cooling Water Heat Exchanger, January 11, 2000
Engineering Change 339308; Develop Tube Plugging Criteria for Generic Letter 89-13 Heat Exchangers, December 9, 2002

1R12 Maintenance Effectiveness

Maintenance Rule - Performance Monitoring Graph, Criteria VC1, November & December 2002 through 2004
Reactor Operating Events Report; Capacitor Failures
Reactor Operating Events Report Since 1998; Hydramotor Failures
Issue 270002; 0B VC Chiller Cycle Timer Found Degraded During Inspection, November 3, 2004
CR 188849; PM Opportunity on Worn Gear for Main Lube Oil Pump, December 2, 2003
CR 217899; NRC Maintenance Rule (MR) Inspection Observation: (A)(2) Performance Criteria, April 30, 2004
CR 219645; Determination of Lubrication Requirements for Bearings, May 6, 2004
CR 231066; Auxiliary Feedwater MR (A)(1) Action Plan Due Date Not Met, June 23, 2004
CR 239347; MR Expert Panel Documentation Issues, July 27, 2004
CR 240174; NOS ID: Maintenance Rule Periodic (A)(3) Assessment Issues, July 30, 2004
CR 240352; PI1 Performance Criteria in Conflict with ER-AA-31, July 30, 2004
CR 242854; Insufficient Information Provided For Equipment Autopsy Report, August 9, 2004
Apparent Cause Evaluation; 0A VC Control Room Return Fan Motor Failure, CR 244846, September 23, 2004
CR 270309; MR Unavailability Not Validated for September, November 4, 2004
Issue 276025; Modification Installation Problems on 0FIC-VC235, November 23, 2004
Issue 280416; Followup Actions From IR 272757 - Retune 0FIC-VC235, December 8, 2004
Criteria VC1; Expert Panel Evaluation
Maintenance Rule - Performance Monitoring Graph; Criteria VC1, Train 0A, December 1, 2002 through December 17, 2004

Maintenance Rule - Performance Monitoring Availability Graph, Unit 1 Train A & Unit 2 Train A, November 1, 2002 - November 8, 2004
CR 158638; 0VC08Y Damper Failed open, Unplanned Limiting Condition Operation Action Requirement (LCOAR) Entry, May 13, 2003
CR 161868; Mechanical Governor Oil Sight Glass Filled to the Top, June 4, 2003
Apparent Cause Evaluation; 2B Diesel Generator (DG) Governor Oil Sight Glass Filled to the Top, August 11, 2003
CR 175115; 2B DG Failed to Start During Semi-Annual Engineered Safety Feature (ESF) Relay Surveillance, September 10, 2003
Apparent Cause Evaluation Content; 2B DG Emergency Start Failure, January 13, 2004
Root Cause Analysis; Essential Service Water Flow to 1A, 1B, and 1C Reactor Containment Fan Coolers Found Below Technical Specification Requirements Due to Inaccurate Flow Indication, October 18, 2004
CR 201486; SysMon Plans Weak, February 13, 2004
CR 220960; Unplanned LCOAR Entry - 0BOL 7.10, 0BOL 3.7 and C, May 13, 2004
CR 245125; Low Flow in 1A SX Service Loops to the 1A Reactor Containment Fan Cooler Train, August 17, 2004
CR 249664; Issues and Risks Identified with First Time VC Damper Work, September 2, 2004
CR 243654; 2B Diesel Generator Abnormal Start Indications, August 11, 2004
Apparent Cause Evaluation; CR 243654, September 13, 2004
Failure Analysis of an Airpax Model 1-0003 Standard Magnetic Pickup from Byron Station Unit 2, September 23, 2004
CR 256314; Byron/Braidwood VC System Operating Difference, September 23, 2004
CR 257415; Online Risk Evaluation Not Complete for 2AB03P C/O
CR 263317; Tracer Gas Test Procedure, October 13, 2004
CR 272403; 0VC08Y Damper Flow Controller Causes VC Makeup Fan Trip, November 11, 2004
CR 272757; 0VC08Y Slow to Respond to a Zero Flow Demand, November 12, 2004
EC 351992; Evaluation of Past Operability of Main Control Room Ventilation System with Slightly Negative Pressure in the Security Control Center/Electronics Shop, Revision 0
Maintenance Rule - Performance Monitoring; VP2 Unit 1 & 2 - Train A & Train B, December 1, 2002 through December 21, 2004

1R13 Maintenance Risk Assessments and Emergent Work Control

CR 132702; Work Carried into 11/21/02 Without Proper On-Line Risk (OLR) Documentation, November 21, 2002
CR 133737; OLR Not Evaluated For Planned Activities, November 27, 2002
CR 161443; OLR Not Evaluated For Emergent Failure, June 2, 2003
CR 170331; Potential Missed OLR Evaluation & Operator Log Errors, August 5, 2003
CR 180269; OLR Effectiveness Review Recommended, October 10, 2003
CR 183287; CC Pump ASME May Lead to RH Loss of Safety Function, October 28, 2003
CR 184908; Impact of 0BOA PRI-7 on PRA, November 4, 2003
CR 189715; 2A DG Component Scheduled in 2B DG Work Week, December 9, 2003
CR 205177; 1D Steam Generator (SG) PORV Planned Maintenance During a B Train Work Week, March 1, 2004

CR 227862; Unit 1 OLR Configuration Incorrect, June 11, 2004
CR 267352; Work Scheduled on Protected Equipment, October 26, 2004

1R14 Personnel Performance Related to Non-routine Plant Evolutions and Events

CR 266203; Indications of Secondary Radiation During Transfer of Cat Resin, October 22, 2004
Dilution/Boration/Rod Motion Log, September 28, 2004
Byron Archival Operations Narrative Logs, September 27 - 28, 2004
Thumbrules ReMA, September 28, 2004
Unit Supervisor's Turnover, September 28, 2004
Root Cause Analysis; Inappropriate Boration of Byron Unit 2, November 14, 2004
BOP CV-6; Operation of the Reactor Makeup System in the Borate Mode, Revision 23
Policy No. 600-05; Byron Operating Department Policy Statement, November 29, 2004

1R15 Operability Evaluations

CR 263338; VC B-Train Work Window, October 13, 2004
CR 267684; Adequate Soil Cover for Protection of Buried SX Piping, October 26, 2004
CR 271600; Operability Evaluation Did Not Consider One Failure Effect, November 1, 2004

1R17 Permanent Plant Modifications

CR 190376; Revisions Made to BOP AP-7 After SQR Approval, June 23, 2003
CR 192726; Weak Documentation Identified in Motor Operator Disconnects (MOD) Federal Acquisition Streamlining Act (FASA), December 29, 2003
CR 192734; No Formal Release of Engineering Hold Identified in MOD FASA, January 15, 2002
CR 197017; Apparent UFSAR Discrepancy, January 22, 2004
CR 206859; Documentation of EC Training Completion Week, November 5, 2003
CR 212889; Wiring Error Identified Testing 2E/2W SPR Modifications, March 31, 2004
CR 212901; Problems Encountered With Engineering Change 337255, W000626557 Tasks 19 and 20, April 2, 2004
CR 220080; Containment Drain Leak Detect Flow High Alarm SER Points Need Update, May 10, 2004
CR 225099; Modification Installed with Insufficient Procedural Direction for Main Control Board (MCB), June 1, 2004

1R19 Post Maintenance Testing

CR 233611; CETC is 21degrees Higher Than Lowest Reading CETC, July 2, 2004
CR 264842; Work Window For 1A Containment Spray (CS) Pump Delayed 24 Hours, October 18, 2004
CR 264974; Delay in Fabrication of CS Pump/Motor Stand Cribbing, October 18, 2004
CR 265766; Impeller Nut On 1A CS Pump Was Found Loose, October 20, 2004
CR 265851; Instructions of EC Not Followed or Understood By Maintenance, October 21, 2004

CR 266326; Shop Equipment Determined, Not Available For Fabrication, October 22, 2004
CR 266507; Incorrect Bolt Torque Values Identified For 1A Containment Spray Pump Seal, October 23, 2004
CR 266753; Containment Spray Pump Runout Readings, October 23, 2004
CR 284266; 1D Main Steam Isolation Valve (MSIV) Low Pressure Alarm, December 20, 2004
CR 284444; 1D MSIV Inoperable Due to Failed Regulator, December 20, 2004
CR 284606; 1D MSIV Active Train Control Air System Check Valve, December 20, 2004
CR 284609; Replace 1MS001D Active Train Control Air Check Valve, December 20, 2004
CR 284740; Need IR to Check 1D MSIV Control Air Pressures, December 21, 2004
CR 284747; New Air Hydraulic Pumps Had Debris in Them; Required Cleanup, December 20, 2004
CR 284879; OCC Critique of 1D MSIV Response and Actions From 12/20/04, December 21, 2004
Adverse Condition Monitoring and Contingency Plan; 1D MSIV, Revision 1
1BVSR 6.6.4-1; Unit 1 ASME Surveillance Requirements for the 1A Containment Spray Pump
1BVSR 6.6.4-1.BY01; 1CS01PA ASME Acceptance Criteria Data Sheet, Revision 0
WO 655047 01; EM Replace Bearings for 15 Year Motor Rebuild, October 28, 2004
WO 655047 07; Perform 15 Year PM and Overhaul Using Contracted Vendor Supervisor, October 25, 2004
WO 673184 01; Unit 1 RCFC Auto Actuation Test, December 29, 2004
WO 690044 01; EM 1A CS PP MTR - E. Q. Surveillance, September 10, 2004
WO 7222599; Relocate 2A AF Pump Oil Return Lines per Engineering Change 350569, October 18, 2004
WO 744911 03; Run Pump Verify No Leakage on Oil Line, October 24, 2004
WO 764010 01; Unit 1 MSIV Check Weekly Surveillance, December 18, 2004
1BOSR MS-W1; Unit 1 MSIV Checks Weekly Surveillance, Revision 7
1BVSR 6.6.7-1A; Unit 1 A-Train Reactor Containment Fan Cooler Automatic Actuation Test, Revision 2
WO 99217915 01; Mechanical Maintenance (MM) Contingency For Replacement of Air/Oil Pump & Regulations
WO 99217915 02; Verify That Air Oil Pump Operates & No Leaks
WO 99217915 03; SEB PMT Control Air Regulator Replacement Test
Prompt Investigation Report; 1D Main Steam Isolation Valve Low Pressure Alarm/Valve Inoperable, December 20, 2004
0/1/2BHSR EQ-03-01; Electric Motor Inspection and Insulation Resistance Tests, Revision 9
Issue 266407; 1CS01PA Lower Motor Stand Out of Tolerance (OOT) Due to Corrosion, October 23, 2004
Issue 267577; EQR2 - 1A Containment Spray Pump Window Extended >10 percent, October 27, 2004
Issue 267598; 2A Containment Spray Pump Room Leak Detection Switch, October 27, 2004
BOP Af-5; Unit 1 & 2 Motor Driven Auxiliary Feedwater Pump - A Startup on Recirc, Revision 17
Detailed Work Instructions for Operation Post Maintenance Test on December 25, 2004

1R20 Refueling and Outage Activities

CR 207131; Oversight of Non Station Personnel, March 9, 2004
CR 210341; Reactor Stud Tensioner Lifting Lugs Not Fully Inserted, March 23, 2004
CR 210417; 2D CRDM Ductwork Disch Ductwork Has Debris in Grating, March 24, 2004
CR 210854; Temporary Power and Temporary Lighting, March 25, 2004
CR 211461; Spent Fuel Pool Bridge Crane Auto Re-Booting, March 29, 2004
CR 211641; Lessons Learned - Movement of Spent Fuel in Spent Fuel Pool, March 29, 2004
CR 211985; B2R11 Lessons Learned for Steam Generator Allowable Outage Time (AOT) Schedule Ties, March 31, 2004
CR 213779; B2R11 Lessons Learned - Containment Walkdown Process Improvements, April 7, 2004
CR 214076; 2SI8900D Cap Leak History, April 8, 2004
CR 226061; Nuclear Oversight Identified Deficiency - Control of Contractor Training, June 4, 2004

1R22 Surveillance Testing

Byron's Archival Operations Narrative Logs, November 22, 2004
MA-AA-716-004; Attachment 1 Troubleshooting Log
1BOSR 3.28-621A; Unit 1 Engineered Safety Features Actuation System (ESFAS) Instrumentation Slave Relay Surveillance, Revision 1 & 2
2BVSR 5.5.8.CC.1-1; Unit 2 ASME Surveillance Requirements for Component Cooling (CC) Pump 2CC01PA, Revision 8
CR 267307; Portable Hoist Found Contacting Underside of CC Pipe, October 26, 2004 (NRC Identified)
CR 275725; Light Bulb Needs Replaced To Complete 1BOSR 3.2.8-621A, November 22, 2004
Predefined History for Slave Relay Surveillance Train A, November 23, 2004
WR 990265987 01; Slave Relay Train A SG Hi-2, Feedwater Pump Trip - K621, May 30, 2001
WO 327850 01; Slave Relay Train A SG Hi-2, Feedwater Pump Trip - K621, January 30, 2003
WO 660695 01; SEP Perform 2BVSR 5.5.8.CC.1-1, May 4, 2004
WO 694419 01; Perform 2BVSR 5.5.8.CC.1-1, July 29, 2004
WO 722152 -1; SEP Perform 2BVSR 5.5.8.CC.1-1, October 26, 2004
WO 98089147 01; EM Troubleshoot 1FW002A Test Circuit During 1BOS 3.2.1-981, September 25, 1998
IST-BYR-BDOC-V-05; Byron Inservice Testing Program Bases Document
Schematic Diagram Feedwater Pumps 1A & 1B Discharge Valves 1FW002A & 1FW002B, October 23, 1998, Revision K
OP-AA-102-104; Unit 1 Standing Order, Byron Unit 1 End of Life (EOL) Moderator Temperature Coefficient (MTC) Testing (1BVSR 1.3.2-1), Revision 0
1BVSR 1.3.2-1; Unit 1 MTC Measurement at Power - EOL, Revision 8

IEP2 Alert and Notification System (ANS) Testing

EP-AA-125-1004; Emergency Response Facilities and Equipment Performance Indicator Guidance, Revision 3
Byron Off-Site Siren Test Plan; Revision 3
Siren Operations Manual for Ogle County; dated February 28, 2003
Byron Plant Warning System Maintenance and Operational Report Mark 2003 through May 20, 2004
Exelon Semi-Annual Siren Report for Byron July 1, 2002, through June 30, 2004
Letter from Fulton Contracting Company to Exelon; Prompt Notification System Testing; dated December 28, 2001
CR 00146898; Semi-Annual Review of Second Half 2002 Siren Data; dated February 28, 2003
CR 00208758; Semi-Annual Review of Second Half 2003 Siren Data; dated March 6, 2004
CR 0026077; Semi-Annual Review of First Half 2004 Siren Data; dated October 6, 2004

1EP3 Emergency Response Organization (ERO Augmentation Testing

EP-AA-1000, Sections A and B; Exelon Nuclear Standardized Radiological Emergency Plan, Revision 15
EP-AA-112-100-F-01; Shift Emergency Director Checklist, Revision B
EP-AA-112-100-F-06; Midwest ERO Augmentation, Revision B
EP-AA-122-1001; Attachment 2; Conduct of Call-In Augmentation Drills, Revision 3
EP-AA-1102; 19 Emergency Preparedness Fundamentals, 2003
ERO Augmentation Monthly Call-In Drill Results Records, January 2003 through November 2004
Emergency Response Organization Roster, October 6, 2004
ERO Team Matrix Roster, October 6, 2004
ERO Needs Training List, November 3, 2004
Byron Training Data Base, November 4, 2004
CR 00198225; EP Augmentation Drill Problem, January 29, 2004
CR 00183800; Byron Station October 29, 2003 Augmentation Drill, October 31, 2003

1EP5 Correction of Emergency Preparedness Weaknesses and Deficiencies

NOSA-BYR-04-03; NOS Audit Report Emergency Preparedness, April 30, 2004
NOSA-BYR-03-04; NOS Audit Report Emergency Preparedness, June 13, 2004
NOS Corporate Comparative Audit Report 2003 Emergency Preparedness, September 16, 2003
Byron NRC Exercise Inspection Self Assessment Report, completed October 31, 2003
FASA AT#196670; Emergency Planning Training Program, April 14, 2004
FASA AT#193606; Byron EP Program Review Using NRC IP 71114, October 9, 2004
FASA AT#140246; EP Standard Plan and Procedures, October 16, 2003
FASA AT#140241; Emergency Plan Public Information Organization, July 11, 2003
Memorandum From Midwest EP Manager; Byron 2004 Off-Year Exercise Findings and Observation Report, September 23, 2004
Memorandum From Midwest EP Manager, Byron 2003 Exercise Findings and Observation Report, December 17, 2003
AR 00258767; Chemistry Technician ‘B’ Qualifications Lapsed - ERO On-Shift Radiation Protection Requirements, September 30, 2004

AR 00257536; EP On-Shift Chemistry Technician Qualifications, September 28, 2004
AR 00256735; EP On-Shift Staffing Chemistry Technician Qualifications, September 24, 2004
AR 00255268; Byron Off-Year Exercise 25 Enhancement Items, September 21, 2004
AR 00248951; Byron EP Off-Year Exercise Improvement Items; August 31, 2004
AR 00245068; EP Exercise - Failed Exercise Objectives In TSC, August17, 2004
AR 00209304; Offsite Agency Interface, June 1, 2004
AR 00215366; EP Training Qualifications Lapsed, April 19, 2004
AR 00201292; Mechanical and Instrument Maintenance Departments Not Meeting Respiratory Requirements For Emergency Plan, February 17, 2004
AR 00191143; Improvements Identified in TSC From 2003 Exercise, December 16, 2003
AR 00191135; Improvements Identified in TSC From 2003 Exercise, December 16, 2003
AR 00191081; Improvements Identified in Simulator From 2003 Exercise, December 16, 2003
AR 00191071; Improvements Identified in Simulator From 2003 Exercise, December 16, 2003
AR 00191042; 2003 Exercise Management and Scenario Improvements, December 16, 2003
AR 00182807; Failed TSC Objective During Byron 2003 Pre-Exercise, October 28, 2003
AR 00178357; Failed EP Objectives During EP Drill Series, October 1, 2003
AR 00168171; Dose Assessment Problems Identified, July 18, 2003
AR 00162816; GSEP Respiratory Equipment Not Inspected Per RP-AA-440 and 825, June 11, 2003
AR 00159965; NOS Identified Review and Certification of Offsite Agencies Not Performed Annually, May 21, 2003
AR 00141247; Site Focus Area Self-Assessment Schedule Weakness, January 27, 2003
AR 00137195; 2002 Assembly/Accountability ERO Readiness Issues, December 23, 2002

1EP6 Drill Evaluation

EP-AA-125-1004; Emergency Response Facilities and Equipment Performance Indicator Guidance; Revision 3
Byron Off-Site Siren Test Plan; Revision 3
Siren Operations Manual For Ogle County; February 28, 2003
Byron Plant Warning System Maintenance and Operational Report March 2003 through May 20, 2004
Exelon Semi-Annual Siren Report For Byron, July 1, 2002 through June 30, 2004
Letter From Fulton Contracting Company to Exelon; Prompt Notification System Testing; December 28, 2001
CR 146898; Semi-Annual Review of Second Half 2002 Siren Data, February 28, 2004
CR 208758; Semi-Annual Review of Second Half 2003 Siren Data, March 6, 2004
CR 260747; Semi-Annual Review of First Half 2004 Siren Data, October 6, 2004
Nuclear Accident Reporting system (NARS) Form, November 3, 2004

2OS1 Access Control to Radiologically Significant Areas

Check-In AT No. 188564-03; Check-In Self-Assessment Report - Access Control to Radiologically Significant Areas; dated March 17, 2004

IR 204029; Rad Postings Found Degraded and Outside on the Ground; dated February 25, 2004
IR 206622; Ladder in Place to Access U2 CAF Roof, No Documented Survey; dated March 6, 2004
IR 210422; Wrong RWP Used During Filter Change; dated March 23, 2004
IR 210876; Individuals Key Carded Into MGPAC System with Wrong SS Number; dated March 25, 2004
IR 210895; Exceeded Digy Dose Rate Alarm; dated March 25, 2004
IR 213913; Mechanical Maintenance Department (MMD) Workers Exceeded Dose Rate Alarm Set Point; dated April 8, 2004
IR 247880; Radiological Rope and Site Posting Awareness Concerns; dated August 26, 2004
IR 260746; Containers Found in Radiologically Posted Area (RPA) Not Labeled In Accordance With (IAW) RP-AA-376 4.4.1; dated October 6, 2004
NOL-06-04-004; Byron Station Nuclear Oversight Rapid Trending Report - B2R11; dated April 5, 2004
PCE No. 04-004; Personnel Contamination Event (> 5000 ccpm); dated April 6, 2004
RP-AA-250; External Dose Assessments from Contamination; Revision 2
RP-AA-460; Controls for High and Very High Radiation Areas; Revision 6
RP-AA-460-1001; Additional High Radiation Exposure Control; Revision 0
RP-BY-460-1001; High Radiation Area and Locked High Radiation Barrier Guidance "Defense in Depth Strategy;" Revision 2
RP-BY-500-1003; Radiological Controls for Handling Items and Hanging Activated Parts in the Spent Fuel Pool; Revision 0

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

B2R11 - RP Post Outage Report; dated May 4, 2004
Byron Power Station 2004 Exposure Reduction Plan; dated October 28, 2004
Check-In AT No. 205187-05; Check-In Self-Assessment - Radiation Protection Post Outage ALARA Assessment; dated November 5, 2004
Evaluation for Business Plan Initiative OE.2.RP.07, "Purchase NOREM or Nitronic-60 Discs for Valves Containing Stellite;" dated August 1, 2004
IR 211376; Dose Rates Inside the U-2 SG Channel Heads; dated March 28, 2004
IR 245715; 2003 - 2004 Maintenance Dose Issues; dated August 18, 2004
IR 271977; B1R13 Failed Fuel Team Action Plan; dated November 11, 2004
NOL-06-04-004; Byron Station Nuclear Oversight Rapid Trending Report - B2R11; dated April 5, 2004
Post Job ALARA Review; RWP 10003222 - Steam Generator Installation/Removal of Nozzle Covers and Bowl Clean-Out; dated April 15, 2004
Post Job ALARA Review; RWP 10003223 - Steam Generator Eddy Current Inspection and Repairs; dated April 15, 2004
Post Job ALARA Review; RWP 10003238 - Vents/Drains; dated April 7, 2004
Post Job ALARA Review; RWP 10003261 - Scaffold; dated April 15, 2004
Post Job ALARA Review; RWP 10003497 - 2B CV Letdown Heat Exchanger Head Gasket Replacement; dated April 9, 2004
RP-AA-270; Prenatal Radiation Exposure; Revision 2
RP-AA-550-1001; Hot Spot and Radiation Source Component Tracking; Revision 1
RP-AA-551; Cobalt Reduction Program; Revision 0

RP-AA-551-1001; Identification, Ranking and Prioritization of Cobalt Bearing Material; Revision 0
RP-AA-551-1002; Evaluation and Estimation of Cobalt Introduction into Systems by Valves; Revision 0

4OA1 Performance Indicator Verification

LS-AA-2080; Monthly Data Elements for NRC Safety System Functional Failure, July 2003 - September 2004
Byron Off-Site Siren Test Plan; Revision 3
Siren Daily Operability Data Sheets; October 1, 2003, through December 31, 2003
Siren Daily Siren Reports; January 1, 2004, through September 30, 2004
Monthly Siren Reports; October 2003 through September 2004
Monthly Data Elements For NRC ERO Drill Participation, October 2003 through September 2004
Monthly Data Elements For NRC Drill and Exercise Performance, October 2003 through September 2004
Byron's Monthly Performance Indicator (PI) Data Elements for Safety System Unavailability-Emergency AC Power, July 2003 - September 2004
Byron's Monthly PI Data Elements for Safety System Unavailability-Residual Heat Removal Systems, July 2003 to September 2004
Byron's Monthly PI Data Elements for Safety System Unavailability High Pressure Safety Injection, July 2003 - September 2004
Byron's Archival Operations Narrative Logs, July 1, 2003, - October 1, 2004
Byron's Archival Operations Narrative Logs, June 30, 2003, - September 30, 2004
1BISR 3.2.2-001; Channel Operation Test of Train A Auxiliary Feedwater Pump Suction Pressure Loop, Revision 5
1BOSR SX-M1; 1A AF Pump SX Suction Line Monthly Flushing Surveillance, Revision 3
1BOSR 3.2.3-1; Unit 1 Undervoltage Simulated Start of 1A Auxiliary Feedwater Pump Monthly Surveillance, Revision 2
Check-In AT No. 205187-03; Check-In Self-Assessment - Occupational Exposure Control Effectiveness PI Verification; dated November 10, 2004
Electronic Dosimetry RPA Entry Logs for Greater than 100 millirem Entries; dated October 2003 through September 2004
IR 256482; Electronic Dosimeter Not Responding to Neutron Radiation; dated September 23, 2004
IR 267026; Locked High Rad Area; dated October 26, 2004
LS-AA-2140; Monthly Performance Indicator (PI) Data Elements for Occupational Exposure Control Effectiveness; dated October 2003 through September 2004

4OA2 Identification and Resolution of Problems

Issue 246234; Inadequate Vent of Fire Protection Piping During FC of Carbon Dioxide System (CO) 29841, August 21, 2004
Issue 273608; Potential Adverse Trend Identified in Failed Post Maintenance Tests, November 15, 2004 (NRC Identified)
CR 074895; PMT Keyword Trending, September 11, 2001
CR 113478; Unexpected Result During Performance of 2BOSR RF-2, June 26, 2002
CR 115327; Turbine Electro-Hydraulic Control (EH) Reservoir Fill, July 12, 2002

CR 139878; BOP TO-8 is Incomplete, January 17, 2003
CR 140358; Potential Adverse Trend – Failed PMTs, January 21, 2003
CR 145839; Procedure Areas for Improvement From C Shift Licensed Operator Requalification Training, February 23, 2003
CR 147063; 2VF05MA Sightglass Water Solid, March 2, 2003
CR 147065; NRC Concern, Procedure Inadequacies/Incomplete CV Pump Vent, March 2, 2003
CR 150110; Trending and Analysis of Rework Evaluation Improvement, March 21, 2003
CR 150148; Declining Mechanical Maintenance Department Performance Related to Work Practices, March 21, 2003
CR 150244; Some PMTs Are Not Adequate Commensurate with Work Performed, March 21, 2003
CR 152510; Unexplained Increase in Unit 2 Refueling Water Storage Tank (RWST) Since 1515 on April 4, 2003, April 5, 2003
CR 152563; Previously Failed PMTs Not Ready for Test After Rework, April 4, 2003
CR 157940; NRC SSDI Concern for AF Non-Vented Loop-Seal (Inverted), May 8, 2003
CR 157954; Ultrasonic Test Reveals Air In ½" Auxiliary Feedwater Line, May 8, 2003
CR 160201; AF Suction Pressure Fluctuations with CC Surge Tank Makeup, May 22, 2003
CR 160901; 1B/1D Diesel Oil Storage Tank Project Critique, May 29, 2003
CR 168668; 0A SX Makeup Pump Failed to Start and Run During Post Maintenance Test, July 23, 2003
CR 165855; 1A Containment Spray Add Line Discovered Partially Empty, July 1, 2003
CR 166072; Lessons Learned From Attempted Run of 1BVSR 6.7.5-1, July 1, 2003
CR 171662; 1CV8436 Freeze Seal Concerns, August 14, 2003
CR 174216; Minor Anomalies Noted During 2B Residual Heat Removal (RH) ASME Pump run, September 3, 2003
CR 177928; B1R12 LL - Communication Improvement on Position of 1CC9413A, September 26, 2003
CR 179092; Significant Amount of Air Vented From 1A CV Pump, October 1, 2003
CR 180066; Containment Building and Auxiliary Building Filtered Vents (VF) Header Containment of Chemical and Volume Control System (CV) Seal Injection, October 9, 2003
CR 180905; Emergency Core Cooling System (ECCS) Check Valve Leakage Into The Safety Injection (SI) System, October 14, 2003
CR 187082; Potential Adverse Trend - Maintenance Rework, November 18, 2003
CR 194027; Potential for Improper Bearing Lubrication, January 8, 2004
CR 205811; Waste Water Treatment (TR) Collection Tank Not Aligned Per Procedure, March 3, 2004
CR 210611; Loss of Pressure Level Indication, March 24, 2004
CR 211119; SG Unit 2 Drain Activity Was Delayed, March 25, 2004
CR 211283; As Found Condition of Unit 2 Condensate System (CD) Condensate Booster System (CB) Lube Oil System, March 27, 2004
CR 211964; Fuel Reload Critical Path Impacted By Start of 2B RH Train, March 30, 2004
CR 211973; Fluctuating Motor Amps on the 2B RH Pump Start, March 30, 2004
CR 212071; Lack of Communication - Unsure of Status of SX System, March 31, 2004
CR 212385; No Communication Between Outage Control Center (OCC), Operations, and Unit 2, April 1, 2004

CR 212710; Additional Delays Encountered in 1/2SX001B Project, March 31, 2004
CR 212992; 2B AF Pump Lessons Learned, April 2, 2004
CR 213007; Clean Oil Storage Tank (COST) Pump Back Pressure Control Valve Failure Delays Turbine Oil Reservoir Fill
CR 213027; 2PT-0614 Overanged During Pump Run, April 4, 2004
CR 213338; B2R11 Outage Lessons Learned - Accumulator Lines Not Full, April 5, 2004
CR 213628; 2B AF Pump Tripped on High Jacket Water Temperature During Surveillance, April 7, 2004
CR 221094; Improper Venting of Gearbox Sightglass, May 12, 2004
CR 221115; Work Instructions No Detail & Past Feedback Not Incorporated, May 13, 2004
CR 222815; 0GW9300F Relief Valve As Found Failure, May 20, 2004
CR 238720; Symmetric CETC Deviation Above Allowable Limits, July 25, 2004
CR 240501; Relief Valve Failed As Found Test, July 29, 2004
CR 242483; Relief valve Failed As Left Test. 0GW9300B, August 5, 2004
CR 246206; Results of Byron & Braidwood AF System Walkdown, August 20, 2004
CR 246984; Need WR to Replace 0SX175A Replacement in B, August 24, 2004
CR 254383; Flow Recorder Oscillating, September 18, 2004
CR 259160; 0A VC Chilled Water Train Suction Press Near Rounds Min, October 1, 2004
CR 211766; Failed PMT on 2B DG Jacket Water Lower Cooler, March 30, 2004
CR 261112; Potential Filling & Venting Adverse Trend/Silting Common Cause, October 6, 2004
CR 265717; Failed PMT for 0AS01PA, October 21, 2004
CR 270810; Active Leak Not Addressed in Timely Manner, November 5, 2004
CR 275672; Mid-Cycle Assessment AFI OF.2-1, November 12, 2004
CR 275675; Mid-Cycle Assessment AFI ER.1-1, November 12, 2004
CR 275688; Mid-Cycle Assessment AFI CM.2-1, November 12, 2004
CR 275689; Mid-Cycle Assessment AFI CM.4-1, November 12, 2004
Search Results of a Search of Byron Condition Reports Related to Failed PMT's September 1, 2002 - November 1, 2004
Search Results of a Search of Byron Condition Reports Related to Filling & Venting, March 1, 2002 - October 1, 2004
Byron's Active Operations Narrative Logs, March 30, 2004
MA-AA-716-013; Rework Reduction, Revision 0
MA-AA-716-017; Equipment Readiness and Reliability Program, Revision 0
Braidwood and Byron Station Equipment Reliability Management Review Meeting, January 6, 2004
Assignment #1; CR 150148 - Apparent Cause Evaluation (ACE) to Evaluate Data Extension of This ACE Requires Management Review Committee (MRC) Approval. The ACE Should Address the Supervisor's Problem Statement and any MRC Comments, June 12, 2003
Assignment #3; CR 140358; Common Cause Analysis - Failed PMTs Extension of This Assignment Requires MRC Comments, April 11, 2003
Assignment #4; CR 150244 - Corrective Action To Review the Information, May 28, 2003
Assignment #10; CR 150110 - ACIT to Develop Trending Data Verify All Planned Actions Identified in the Supervisory Reviewer Comments are Addressed Prior to CR Closure

Assignment #14; CR 150148 - Improve Trending, Analysis, & Reporting of Rework Data See ACE Assignment 01 for More Details, July 30, 2003
Assignment #17; CR 150148 - Report Results of Department Staff Meeting for Rework Document Results of Department Staff Meeting on 8/25/03 Regarding Rework Trending and Reporting. Reference Action Item 150148-14, September 12, 2003

4OA3 Event Follow-up

CR 184714; Unit 1 Containment Mode 4 Walkdown with NRC, October 11, 2003
CR 213801; Containment Walkdown Items, April 7, 2004
CR 215931; 1D Reactor Containment Fan Cooler (RCFC) Flow Below Acceptance During Surveillance, April 20, 2004
CR 245125; Low Flow in 1A Essential Service Water (SX) Service Loops To The 1A RCFC Train, August 17, 2004
CR 245180; 1FI-SX122 Indicating High Compared to Ultrasonic - Need Work Request, August 18, 2004
CR 252653; Boric Acid Puddle in Containment, September 14, 2004
CR 265858; Unit 1 RCFC SX Flow Surveillance, October 21, 2004
CR 268041; Leak From Pipe Cap Downstream of Valve 2RH029A, October 28, 2004
Root Cause Analysis; SX Flow to 1A, 1B, and 1C RCFC Found Below TS Requirements Due to Inaccurate Flow Indication, October 14, 2004
CR 270810; Active Leak not Addressed in a Timely Manner, November 5, 2004
Plant Drawing M0-137; Residual Heat Removal System, Revision BB
WO 472757 01; Drain Cap Leaking Dry Boron, Decon
WO 684738 01; MM Tighten Pipe Cap at Valve, Minor Leak
WO 738531 01; Boric Acid Puddle in Containment
WR 155312; Boric Acid Puddle in Containment
OP-AA-108-108-1001; Drywell/Containment Closeout, Revision 0

LIST OF ACRONYMS USED

ADAMS	Agency wide Documents Access and Management System
ALARA	As Low As Reasonably Achievable
ANS	Alert and Notification System
AR	Action Request
ASME	American Society of Mechanical Engineers
B2R11	Byron Unit 2's Eleventh Refueling Outage
BAP	Byron Administrative Procedure
CAP	Corrective Actions Program
CCA	Common Cause Analysis
CFR	Code of Federal Regulations
CR	Condition Report
DRP	Division of Reactor Projects; Region RIII
EP	Emergency Preparedness
EPZ	Emergency Planning Zone
ERO	Emergency Response Organization
FASA	Focused Area Self Assessment
gpm	gallons per minute
HRA	High Radiation Area
IMC	Inspection Manual Chapter
IR	Inspection Report
LER	Licensee Event Report
NCV	Non-Cited Violation
NRC	United States Nuclear Regulatory Commission
NSO	Nuclear Station Operator
PARS	Public Availability Records
PI	Performance Indicator
PMT	Post Maintenance Testing
RCFC	Reactor Containment Fan Cooler
RCS	Reactor Coolant System
ReMA	Reactivity Maneuver Approval
RP	Radiation Protection
RWP	Radiation Work Permit
SDP	Significance Determination Process
SRO	Senior Reactor Operator
SX	Essential Service Water
Tave	Reactor Coolant System Average Temperature
Tref	Reference Temperature
TRM	Technical Requirements Manual
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report
URI	Unresolved Item
VHRA	Very High Radiation Area
WO	Work Order