July 20, 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 05000454/2005004;
05000455/2005004

Dear Mr. Crane:

On June 30, 2005, 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 July 1, 2005, with Mr. S. Kuczynski and other members of your staff.

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

Based on the results of this inspection, one NRC-identified and three self-revealed findings of very low safety significance (Green) are documented in this report. All of these findings were determined to involve violations of NRC requirements. However, because these violations were of very low safety 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, D.C. 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, D.C. 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/

George Wilson, Acting Chief
Branch 3
Division of Reactor Projects

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

Enclosure: Inspection Report 05000454/2005004; 05000455/2005004
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
Director Licensing
Manager Licensing - Braidwood and Byron
Senior Counsel, Nuclear
Document Control Desk - Licensing
Assistant Attorney General
Illinois Emergency Management Agency
State Liaison Officer, State of Illinois
State Liaison Officer, State of Wisconsin
Chairman, Illinois Commerce Commission
B. Quigley, Byron Station

DOCUMENT NAME: E:\Filenet\ML052020393.wpd

To receive a copy of this document, indicate in the box: "C" = Copy without attachment/enclosure "E" = Copy with attachment/enclosure "N" = No copy

OFFICE	RIII		RIII				
NAME	TTongue		GWilson				
DATE	0720/2005		07/20/2005				

OFFICIAL RECORD COPY

ADAMS Distribution:
GYS
JBH1
RidsNrrDipmlipb
GEG
KGO
RAS
CAA1
C. Pederson, DRS (hard copy - IR's only)
DRPIII
DRSIII
PLB1
JRK1
ROPreports@nrc.gov (inspection reports, final SDP letters, any letter with an IR number)

U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket Nos:	50-454; 50-455
License Nos:	NPF-37; NPF-66
Report Nos:	05000454/2005004; 05000455/2005004
Licensee:	Exelon Generation Company, LLC
Facility:	Byron Station, Units 1 and 2
Location:	4450 N. German Church Road Byron, IL 61010
Dates:	April 1, 2005 through June 30, 2005
Inspectors:	R. Skokowski, Senior Resident Inspector R. Ng, Resident Inspector C. Acosta Acevedo, Reactor Engineer M. Jordan, Consultant B. Jorgensen, Consultant C. Phillips, Senior Operations Engineer G. Roach, Reactor Engineer R. Smith, Reactor Engineer C. Thompson, Illinois Emergency Management Agency, Resident Inspector
Observers:	J. Robbins, Reactor Inspector
Approved by:	G. Wilson, Acting Chief Branch 3 Division of Reactor Projects

SUMMARY OF FINDINGS

IR 05000454/2005004; 05000455/2005004; on 04/01/2005-06/30/2005; Byron Station, Units 1 and 2; Adverse Weather, Fire Protection, Surveillance Testing.

This report covers a 3-month period of baseline resident inspection. The inspections were conducted by Region III inspectors, and the resident inspectors. In addition, inspections were conducted using Temporary Instruction 2515/163. Four Green findings, all of 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: Initiating Events

- Green. A finding of very low safety significance and associated Non-Cited Violation (NCV) of Technical Specification (TS) 5.4.1 regarding procedure adherence was self revealed, when during a tornado watch, operators failed to maintain both essential service water basin levels greater than 90 percent as specified in the associated abnormal operating procedure. Upon recognizing the low level condition, operators restored basin level to greater than 90 percent. The primary cause of this violation was related to the cross-cutting area of Human Performance (personnel) because the operators failed to maintain the required basin level even though adequate guidance for maintaining basin level was provided in the associated procedure.

  This finding was more than minor because the operators allowed the level to drop below the operating limit; which is similar to the more than minor examples of Section 2 of Appendix E to Inspection Manual Chapter (IMC) 0612. The finding was determined to be of very low safety significance because the condition did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available. (Section 1R01)

- Green. The inspectors identified a finding of very low safety significance and associated NCV of the license number NPF-66 Section 2.E, requiring that the licensee shall implement and maintain in effect all provisions of the fire protection program as described in the licensee's Fire Protection Report. Specifically, during an inspection of the Division 21 electrical switchgear room the inspectors identified that a penetration that connected the Division 21 electrical switchgear room with the Unit 2 train A diesel generator had not been properly sealed as part of the 3-hour fire barrier. The licensee's extent of condition review identified two more penetrations in the Division 22 electrical switchgear room which also had not been properly sealed. Upon identification of the degraded penetrations, the licensee established the required compensatory fire watches until the penetrations were properly sealed.

This finding was considered more than minor, because it could be reasonably viewed as a precursor to a significant event, specifically a loss of Division 21 or 22 switchgear rooms with a fire in the Unit 2 train A or B diesel-generator rooms or loss of the Unit 2 train A or B diesel generator with a fire in the Division 21 or 22 switchgear rooms. The finding was determined to be of very low safety significance because the condition reflected a fire protection program element whose performance and reliability will be minimally impacted by the inspection finding. That is, if the fire occurred in the Division 21 switchgear room or Unit 2 train A diesel generator room, the fire would be confined in the two areas and the reliance on the Division 22 switchgear power is not effected. (Section 1R05)

Cornerstone: Mitigating Systems

- Green. A finding of very low safety significance and associated NCV of TS 3.8.4.A.3 regarding DC electrical sources during operations was self-revealed. Specifically, during a work window on the Unit 1 train A battery charge requiring the associated battery to be cross-connected to the Unit 2 train A battery charger, operators incorrectly directed the verifying of the battery float charge ampere to the Unit 2 battery. This resulted in the Unit 1 battery float current not being verified as acceptable in the time required by TS. The primary cause of this violation was related to the cross-cutting area of Human Performance (personnel) because the unit supervisor improperly changed the associated procedure thereby directing the operators to verify the float current on the wrong battery.

  This finding was more than minor because it was similar to the more than minor examples of Section 3 of Appendix E of IMC 0612. The finding was determined to be of very low safety significance because there was no design deficiency, no actual loss of safety function, no single train loss of safety function for greater than the TS allowed outage time, and no risk due to external events. (Section 1R22)

Cornerstone: Barrier Integrity

- Green. A finding of very low safety significance and associated NCV of 10 CFR 50 Appendix B, Criterion V, “Instructions, Drawings and Procedures,” was self-revealed. Specifically, during the calibration of a Unit 1 volume control tank level instrument, technicians incorrectly loosened the low sensor test tap cap for other level instrument. Although the technicians immediately realized their error and closed the low sensor test tap cap, the charging pump control circuitry responded to the two low level signals and unexpectedly opened the refueling water storage tank suction valves to the charging pumps. The primary cause of this violation was related to the cross-cutting area of Human Performance (personnel) because the technicians opened the wrong test tap due to inadequate self or peer checking.

  This finding was more than minor because it affected the human performance attribute of the fuel barrier function of the barrier integrity cornerstone to provide reasonable assurance that physical barriers, specifically the fuel, protect the public from radionuclide releases caused by accidents or events. The finding was determined to be of very low safety significance because the fuel cladding barrier was not degraded. (Section 1R22)

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 with the following exceptions:

- On May 7, 2005, the unit reduced power to 90 percent to perform maintenance on the number 4 governor valve. Following repairs, the unit returned to full power on May 8, 2005.

- On June 5, 2005, the unit reduced power to 95 percent for testing of the train B main feedwater pump. The unit returned to full power on June 6, 2005, after the testing was completed.

- On June 7, 2005, power was reduced to 82 percent due to grid instabilities caused by an off site breaker problem. Grid stability was restored and the unit returned to full power on June 8, 2005.

Unit 2 operated at or near full power throughout the inspection period with the following exceptions:

- On April 3, 2005, the unit reduced power to 85 percent for the quarterly turbine throttle and governor valve surveillance. Full power was restored after testing was completed on the same day.

- On April 23, 2005, the unit ramped down to 60 percent power when the train B main feedwater pump tripped. The unit returned to full power on April 24, 2005, using a redundant main feedwater pump.

- On June 7, 2005, power was reduced to 85 percent due to grid instabilities caused by an off site breaker problem. Grid stability was restored and the unit returned to full power on June 8, 2005.

- On June 23, 2005, the unit reduced power to 96 percent during moderator temperature testing. Power was restored to 100 percent on the same day after testing was completed.

1. REACTOR SAFETY

Cornerstone: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

a. Inspection Scope

The inspectors completed three inspection samples. The first sample reviewed the licensee's response to a tornado watch issued on March 30, 2005. The inspectors

evaluated licensee performance by comparing actual performance to the licensee management expectations and guidelines as presented in Byron Procedures:

- 0BOA ENV-1, Adverse Weather Conditions, Revision 101;
- 1BOA ENV-1, Adverse Weather Conditions, Revision 100;
- 2BOA ENV-1, Adverse Weather Conditions, Revision 100; and
- 0BOL 7.9, Limiting Condition for Operation Action Requirement (LCOAR) Ultimate Heat Sink, Technical Specification 3.7.9, Revision 5.

The other two samples were associated with the review of the licensee's preparations for potential high temperature conditions during the summer season. Specifically, the inspectors reviewed the impact on the following two systems:

- Switchyard; and
- Essential service water makeup system.

During these reviews the inspectors performed the following:

- reviewed the Updated Final Safety Analysis Report (UFSAR), Technical Specifications (TS) and other plant documents to identify areas potentially challenged by summer temperatures;
- reviewed applicable licensee procedures and surveillance tests appropriate for monitoring plant conditions during summer weather;
- determined through interviews and record review, that Nuclear Shift Operators were familiar with plant systems potentially affected by high temperatures and that necessary procedural and/or contingency plans were in place; and
- visually inspected the selected plant systems.

To complete this assessment, the inspectors utilized the guidance provided by the licensee's Procedure MA-AA-716-026, "Station Housekeeping and Material Condition Program," Revision 1, and Procedure WC-AA-107, "Seasonal Readiness," Revision 1.

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

b. Findings

Introduction: A Non-Cited Violation (NCV) of TS 5.4.1a, having very low safety significance (Green) was self-revealed. Specifically, during a tornado watch, operators failed to maintain both essential service water basin levels greater than 90 percent as specified in the associated abnormal operating procedure.

Description: On March 30, 2005, at 11:03 a.m., the National Weather Service issued a Tornado Watch impacting the Byron Station. The operators appropriately entered the associated abnormal operating procedure, 0BOA ENV-1, "Severe Weather Conditions," and took actions in accordance with the procedure. Recent changes to related procedures required the operators to isolate normal makeup to the essential service

water basins. Since the change resulted in a decrease in basin level due to normal plant operations, operator action was required to maintain basin level above the TS required value of 90 percent. In addition, this action was directed by the abnormal operating procedure. At 1:00 p.m., the operators noticed that the 0B basin was at 89 percent, and took actions to restore level.

Analysis: The inspectors determined that the failure to maintain the essential service water basin level in accordance with the abnormal operating procedure was a performance deficiency. This performance deficiency warranted a significance evaluation in accordance with Inspection Manual Chapter (IMC) 0612 "Power Reactor Inspection Reports," Appendix B, "Issue Disposition Screening." The inspectors determined that the finding was more than minor because the operators allowed the essential service water basin level to drop below the operating limit and was similar to the more than minor examples of Section 2 of Appendix E, "Examples of Minor Issues," to IMC 0612.

The inspectors determined that the operators' failure to maintain the specified level in the 0B essential service water basin affected the cross-cutting area of Human Performance because adequate guidance for maintaining basin level was provided in the associated procedure.

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 was associated with a condition related to an increase in the likelihood of an initiating event, specifically a tornado. However, the finding was determined to be of very low safety significance because the condition did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available.

Enforcement: TS 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 abnormal operating procedures. Contrary to the above, on March 30, 2005, operators failed to maintain both basins of essential service water greater than 90 percent as specified in Procedure 1BOA ENV-1, "Adverse Weather Conditions," Revision 101. Because this violation was of very low safety significance and the issue was entered into the licensees corrective action program (CR 319146), it was treated as an NCV, consistent with Section V1.A of the NRC enforcement Policy. (NCV 05000454/2005004-01; 05000455/2005004-01)

1R04 Equipment Alignment (71111.04)

Partial Walkdowns

a. Inspection Scope

The inspectors performed three partial walkdown samples 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 A auxiliary feedwater pump while Unit 2 train B auxiliary feedwater pump was out-of-service for maintenance;
- Offsite power during the system auxiliary transformer 242 out-of-service for maintenance; and
- Unit 2 train A safety injection while the Unit 2 train B safety injection 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)

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 2 train B Emergency Diesel Generator Room (Zone 9.1-2);
- Division 22 4KV Switchgear Room (Zone 5.1-2);
- Main Control Room (Zone 2.1-0);
- Auxiliary Building General Area 426' (Zone 11.6-0);
- Auxiliary Building General Area 364' (Zone 11.3-0);
- Division 11 Miscellaneous Electrical Equipment Room (MEER) (Zone 5.6-1);
- Division 22 MEER (Zone 5.4-2);
- Auxiliary Building General Area 383' (Zone 11.4-0); and
- Division 21 4KV Switchgear Room (Zone 5.2-2).

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

b. Findings

Introduction: The inspectors identified an NCV of License Number NPF-66 Section 2.E having very low safety significance (Green) for a penetration that connected the Division 21 electrical switchgear room with the Unit 2 train A diesel generator since it had not been properly sealed as part of the 3-hour fire barrier. This issue was considered to be NRC identified because the licensee had failed to identify it without the inspectors' questions.

Description: On May 25, 2005, the inspectors performed a walkdown of Division 21 electrical switchgear room. During the walkdown, the inspectors identified a floor penetration that appeared to not have the required fire barrier material installed in it to prevent the spread of fire from the Division 21 electrical switchgear room to the Unit 2 train A diesel-generator room below. The inspectors notified the licensee of the condition. The licensee conducted an investigation of the penetration, and determined it did not meet their Fire Protection Report requirements for a 3-hour fire barrier. Also, based on this finding the licensee performed an extent of condition review and identified two more penetrations in the Division 22 electrical switchgear room which also have not been properly sealed.

The licensee documented the inspectors' observations and their own identified deficient penetrations in CRs 338617, and 338830. As discussed in these CRs, the licensee immediately entered Limiting Operating Condition Action Requirement 10.g, which required an hourly fire watch and a check to ensure required fire detection systems were maintained operable until these penetrations are properly sealed.

Analysis: The inspectors determined that the failure to follow station Fire Protection Report for fire barriers was a performance deficiency warranting a significance evaluation in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Disposition Screening." This finding was considered more than minor, because it could be reasonably viewed as a precursor to a significant event, specifically a loss of Division 21 or 22 switchgear rooms with a fire in the Unit 2 train A

or B diesel-generator rooms or loss of the Unit 2 train A or B diesel generator with a fire in the Division 21 or 22 switchgear rooms. This issue also affected the Mitigating Systems cornerstone objective to ensure that external factors (i.e., fire, flood, etc.) do not impact the availability, reliability and capability of systems that respond to initiating events in order to prevent core damage.

The inspectors performed a significance determination of this issue, using IMC 0609, "Significance Determination Process," Appendix F, "Fire Determination Significance Determination Process," dated May 28, 2004.

As stated, the failure to follow the Fire Protections Report for fire barriers was a performance deficiency that was considered more than minor. This met the Phase I qualitative screening criteria as discussed in IMC 0609 Appendix F. Per step 1.1 of this Appendix, the inspectors determined that this finding affected the category of Fire Confinement penetration seals, in that, the fire penetrations were not properly sealed with the required material to prevent the spread of fire from one area to another.

Per step 1.2, of Appendix F, the inspectors determined that this finding had a Low degradation rating. This reflects a fire protection program element whose performance and reliability will be minimally impacted by the inspection finding. That is, if the fire occurred in the Division 21 switchgear room or Unit 2 train A diesel generator room, the fire would be confined in the two areas and the reliance on the Division 22 switchgear power is not effected. Therefore, the inspectors concluded that this finding was of very low safety significance (Green).

Enforcement: License Number NPF-66 Section 2.E, stated, in part, that the licensee shall implement and maintain in effect all provisions of the fire protection program as described in the licensee's Fire Protection Report. Fire Protection Report Section 2.3.5 stated, in part, that the floor at elevation 426 feet, which is the ceiling of the 2A and 2B Diesel Generator rooms, are 3-hour fire barriers. Contrary to the above, there was insufficient fire sealant material in the penetrations to meet this 3-hour fire barrier requirement. Because this violation was of very low safety significance and it was entered into the licensee's corrective action program, this violation is being treated as an NCV, consistent with Section VI.A of the NRC Enforcement Policy.
(NCV 05000455/2005004-02)

1R06 Flood Protection Measures (71111.06)

a. Inspection Scope

The inspectors evaluated the licensee's controls for mitigating internal and external flooding by completing both a semi-annual and annual sample. The specific areas evaluated for the semi-annual internal flooding sample included the auxiliary building elevations 330', Turbine building 380', and 401'. The specific area evaluated for the annual external flooding sample was the river screen house. During the evaluation, inspectors performed the following:

- Reviewed the licensee's design basis documents including UFSAR, and Safety Evaluation Report, to identify the design basis for flood protection and to identify

those areas susceptible to external or internal flooding;
- Interviewed members of the licensee engineering and operations staff in regards to system design and flood response actions;
- Reviewed selected abnormal operating procedures for identifying and mitigating flooding events;
- Reviewed plant configuration that may impact external flooding controls;
- Inspected areas for control of materials that could potentially clog drains; and
- Inspected the watertight doors and flood seals.

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

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance (71111.07B)

Biennial Review of Heat Sink Performance

a. Inspection Scope

In a letter dated December 17, 2004, the licensee notified the NRC that Units 1 and 2 shared (0CC01A) component cooling water heat exchanger inspection would not be completed within the five-year testing frequency. The licensee stated the test would be completed in March 2005, which was six years and nine months since the last test. The inspectors reviewed the performance test results of the Unit 1 component cooling water heat exchanger. This review did not result in the completion of an inspection sample. The inspectors reviewed completed surveillance tests, and associated calculations. The inspectors reviewed the documentation to confirm that the test methodology was consistent with accepted industry and scientific practices, based on review of heat transfer texts and an Electrical Power Research Institute standard (EPRI NP-7552, "Heat Exchanger Performance Monitoring Guidelines"). The inspectors also reviewed documentation to verify that acceptance criteria, as stated in the procedure, were met.

The documents that were reviewed are included 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

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 "05-2-00B," 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 whether 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.

.2 Annual Operating Test Results

a. Inspection Scope

The inspectors reviewed the overall pass/fail results of the annual operating examination which consisted of Job Performance Measure operating tests, and simulator operating tests (required to be given per 10 CFR 55.59(a)(2)) administered by the licensee from May 3 through June 1, 2005. In addition, the inspectors reviewed the overall pass/fail results for the biennial written examination (also required to be given per 10 CFR 55.59(a)(2)) administered by the licensee from May 3 through June 1, 2005. The overall results were compared with the significance determination process in

accordance with NRC Manual Chapter 0609I, "Operator Requalification Human Performance SDP."

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

The inspectors completed two 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:

- Recurring hydraulic actuation problems with the main steamline isolation valves; and
- Hydrogen recombiner not properly restored following maintenance.

During this inspection, the inspectors evaluated the licensee's monitoring and trending of performance data for the past two 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 evaluated selected 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. In addition, for the hydrogen recombiner, the inspectors focused their review on the work practices associated with the improper restoration of the equipment following maintenance.

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

b. Findings

The regulatory aspects associated with the improper restoration of the hydrogen recombiner following maintenance were described in Section 4AO7 of this report.

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:

- ER-AA-600, Risk Management, Revision 3;
- ER-AA-310, Implementation of the Maintenance Rule, Revision 3;
- OU-AA-103, Shutdown Safety Management Program, Revision 4;
- OU-AP-104, Shutdown Safety Management Program, Revision 7;
- WC-AA-101, On-Line Work Control Process, Revision 10;
- Byron Operating Department Policy 400-47, June 23, 2004, Revision 7; and
- Byron Nuclear Power Station Probabilistic Risk Assessment, Revision 5B.

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

- Unit 2 train B auxiliary feedwater unavailability concurrent with the Unit 2 train B solid state protection system testing, and the out-of-service of Unit 2 train B condensate/condensate booster pumps, the Unit 0 train C circulating water makeup pump and the Unit 0 train B control room chiller;
- Emergent failure of Unit 1 pressurizer pressure channel 458, concurrent with the out-of-service of the Unit 1 train L steam dump valve and the Unit 0 train C circulating water makeup pump;
- Emergent unavailability of the Unit 2 train A emergency diesel generator following the failure of the lockout relay for the Bus 241 feeder breaker from the system auxiliary transformer;
- System auxiliary transformer 242 maintenance concurrent with the out-of-service of the Unit 0 train C circulating water makeup pump;
- Unit 2 train B essential service water out-of-service for planned maintenance concurrent with the out-of-service of the Unit 0 train C circulating water makeup pump;
- Unit 2 train B safety injection out-of-service for maintenance concurrent with the unavailability of the Unit 0 train C circulating water makeup pump;
- Unit 1 train B emergency diesel generator out-of-service for planned overhaul concurrent with the unavailability of the Unit 0 train C circulating water makeup pump; and
- Unit 1 train B solid state protection system testing concurrent with the out-of-service of the Unit 1 train D condensate/condensate booster pump, and the Unit 0 train C circulating water makeup pump.

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

b. Findings

No findings of significance were identified.

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 six inspection samples by reviewing the following evaluations and issues:

- CR 319637, Unit 1 engineered safety feature (ESF) relay K644A failed to latch during testing;
- CR 333983, TSLB-2.9-1, 1LB-0556B, Unit 1 train A steam generator Hi-2 level indicating light did not light;
- OD 04-008, 1B emergency diesel generator intercooler inadequate thread engagement;
- OD-05-002, Fire protection piping leak;
- CR 328721, Unit 2 train A emergency diesel generator following the failure of the lockout relay for the bus 241 feeder breaker from system auxiliary transformer 242; and
- CR 334938, train B solid state protection system (SSPS) bi-monthly test had to be aborted.

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 Modificaitions (Annual) (71111.17)

a. Inspection Scope

The inspectors completed one inspection sample by evaluating the following permanent plant modification:

- Engineering Change 79647: Removal of 1SX101A auxiliary feed motor driven cooling to solve single failure vulnerability. Also, includes 1SX2102 and 1SX2103A replacement with stainless steel gate valves.

The inspectors reviewed the modification installed in April 2005 to verify that the design basis, licensing basis, and performance capability of risk significant systems were not degraded by the installation of the modification. The inspectors considered the design adequacy of the modification by performing a review of the modification's impact on plant electrical requirements, material requirements and replacement components, response time, control signals, equipment protection, operation, failure models, and other related process requirements.

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; and
- Nuclear Station Procedure MA-AA-716-012, Post Maintenance Testing, Revision 5.

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

- Unit 2 train B auxiliary feedwater pump following the modification to remove the lube oil cooler cooling water isolation valve;
- Unit 2 train B safety injection pump following maintenance; and
- Unit 1 train A emergency diesel generator following maintenance.

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 reviewed applicable design documents including plant drawings, to verify 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 eight inspection samples by observing and evaluating the following surveillance tests:

- Unit 2 train B emergency diesel generator monthly surveillance test;
- Unit 2 train B safeguards actuation relay K608 surveillance test;
- Unit 1 reactor containment fan cooler surveillance test;
- Unit 0 train B essential service water makeup pump surveillance test;
- Unit 2 reactor coolant leakrate surveillance test;
- Unit 1 train B solid state protection system surveillance test;
- Unit 1 train A battery float charge amp verification; and
- Unit 1 calibration of the volume control tank level instrument.

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

Introduction: Two findings of very low safety significance (Green), and associated NCVs related to surveillance testing were self-revealed. First, during the calibration of the Unit 1 volume control tank level instrument 1LT-0185, technicians incorrectly loosened the low sensor test tap cap for instrument 1LT-0112 resulting in the unexpectedly opening of the refueling water storage tank (RWST) suction valves to the charging pumps. This was an NCV of 10 CFR 50 Appendix B Criterion V, "Instructions, Drawings and Procedures." Second, during a work window on the Unit 1 train A battery charger that required the associated battery to be cross-connected to the Unit 2 train A battery charger, operators incorrectly directed the verifying of the battery float charge ampere to the Unit 2 battery. This resulted in a failure to complete TS required actions within the specified time and was an NCV of TS 3.8.4.A.3.

.1 Calibration of the Unit 1 Volume Control Level Loop

Description: On May 11, 2005, during the calibration of the Unit 1 volume control tank (VCT) level instrument 1LT-0185, the RWST suction valves to the charging pump (1CV112D and 1CV112E) unexpectedly opened. After evaluating the situation, the control operators took timely actions to close the valves. Based on a review of the reactor coolant system (RCS) average temperature, the licensee determined that no RWST water, which is at higher boron concentration than the VCT, was charged into the RCS. The licensee's review of the event determined that the RWST suction valves to the charging pump opened due to a short duration VCT low level indication caused by the technicians calibrating the VCT level instrument 1LT-0185. Specifically, while they were in the mist of calibrating 1LT-0185 which caused the instrument to indicate a low level; the technicians inadvertently loosened the low sensor test tap cap for 1LT-0112 causing a second low level signal to occur. The technicians immediately realized their error and closed the low sensor test tap cap for 1LT-0112 and the second low level signal cleared. However, the charging pump control circuitry responded to the two low level signals and opened the RWST suction valves to the charging pumps. Furthermore, based on the short duration of the second low level signal, the normal VCT suction valves to the charging pumps did not close.

The inspectors discussed the events with the control room operators, the system engineer and the instrumentation technician supervisor and determined that the system responded as expected for the condition experienced during the event, and that the operators responded properly. Additionally, the inspectors visually inspected the Unit 1 VCT level instrumentation arrangement and labeling, and noted no concerns that should have prevented the technicians from properly completing the calibration had more rigorous self or peer checking been implemented. The inspectors also verified that the

procedure guidance contained in BSIR 3.3.9.7-002, "Surveillance Calibration of the Volume Control Tank Level Loop," Revision 2, was adequate to properly complete the calibration.

Analysis: The inspectors determined that the incorrect loosening of the 1LT-0112 low sensor test tap cap during the calibration of the 1LT-0185 VCT level instrument, which resulted in the unexpected opening of the RWST suction valves to the charging pumps, 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." The inspectors determined that the finding was more than minor because it affected the human performance attribute of the fuel barrier function of the barrier integrity cornerstone to provide reasonable assurance that physical barriers, specifically the fuel, protect the public from radio nuclide releases caused by accidents or events.

The inspectors determined that the incorrect loosening of the wrong low sensor test tap cap during the VCT level calibration affected the cross-cutting area of Human Performance because adequate self or peer checking was not used.

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

Enforcement: 10 CFR 50 Appendix B, Criterion V, "Instructions, Drawings, and Procedures," states, in part, that activities affecting quality shall be prescribed by documented instructions, procedures or drawings, of types appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures and drawings. Procedure BISR 3.3.9.7-002, "Surveillance Calibration of Volume Control Tank Level Loop," Revision 2, Step 4.10.20 regarding the calibration of the 1LT-0185 specifies the connecting the demineralized pressure source to the instrument low sensor test tap. Contrary to the above, on May 11, 2005, during the calibration of the Unit 1 VCT level instrument 1LT-0185, as prescribed in Procedure BISR3.3.9.7-002, Revision 2, the technicians incorrectly attempted to connect the demineralized pressure source to the instrument low sensor test tap for 1LT-0112. Because this violation was of very low safety significance and the issue was captured in the licensee's corrective action program (CR 334316), this violation is being treated as an NCV, consistent with Section VI.A of the NRC Enforcement Policy. (NCV 05000454/2005004-03)

.2 Missed Technical Specification Required Action during Planned Maintenance on Battery Charger 111

Description: On May 23, 2005, at 9:05 p.m., DC Bus 111 was crossed tied with DC Bus 211, due to planned work on battery charger 111. In this condition, TS 3.8.4 A.3 required verifying the battery float current is equal to or less than 3 amps every 12 hours. During the review of the procedure used by the licensee to direct technical specification required actions, Procedure 1BOL 8.4, the Unit 1 unit supervisor,

a senior reactor operator, concluded the BOL procedure incorrectly designated the use of Procedure 1BSOR 8.6.1-1 for verifying the float current on Bus 111, and the unit supervisor improperly made a pen an ink change to the BOL to verify the float current on the DC Bus 211 using Procedure 2BOSR 8.6.1-1. The Unit 1 unit supervisor incorrectly assumed that since Battery 111 was being charged by Battery Charger 211 therefore float current reading should be taken at the DC Bus 211. On May 24, 2004, at 4:52 a.m., operators verified acceptable float current on DC Bus 211 in accordance with Procedure 2BSOR 8.6.1-1. Subsequently, a peer review of the associated paperwork was performed by the Unit 2 unit supervisor. Also, the use of Procedure 2BOSR 8.6.1-1 was discussed with the day shift Unit 1 unit supervisor during watch turnover indicating that the BOL had a typographical error directing the use of wrong unit procedure.

On May 24, 2005, at 3:48 p.m., during the preparation to take the next 12 hour float current reading, the operators determined that for the conditions with Battery Charger 111 out of service, to verify the float current to Battery 11, the readings needed to be taken at DC Bus 111 and that Procedure 1BSOR 8.6.1-1 was the correct procedure to be used. Furthermore, the reading taken earlier at DC Bus 211 did not satisfy the TS requirement of 3.8.4.A.3. Therefore, since at 9:05 a.m., Unit 1 should have been in TS action 3.8.4.E, which would have required the unit to be shutdown in Mode 3 by 3:05 p.m.. At 4:00 p.m., the operators successfully verified Battery 111 float current in accordance with Procedure 1BOSR 8.6.1-1 and Unit 1 was back in compliance with the Technical Specification.

Analysis: The inspectors determined that verifying the float current on the incorrect battery during the planned maintenance activity on Battery Charger 111, which resulted in the failure to complete a Technical Specification required action, 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.” The inspectors determined that the finding was more than minor because it was similar to the more than minor examples of Section 3 of Appendix E, “Examples of Minor Issues,” of IMC 0612.

The inspectors determined that verifying the float current on the incorrect battery during the planned maintenance activity on Battery Charger 111 affected the cross-cutting area of Human Performance because it was due to the improper procedure change made by the unit supervisor.

The inspectors determined that the finding could be evaluated using the SDP in accordance with IMC 0609, “Significance Determination Process,” because the finding was associated with the operability, availability and reliability of a train in the mitigating system cornerstone. For the Phase 1 screening, the inspectors answered “no” to the questions in the Mitigating System column, because there was no design deficiency, no actual loss of safety function, no single train loss of safety function for greater than the TS allowed outage time, and no risk due to external events. Therefore, the finding was of very low safety significance (Green).

Enforcement: Technical Specification 3.8.4, “DC Sources - Operating,” Condition A, one battery charger inoperable, Required Action A.3 is to verify battery float current less than 3 amps once per 12 hours, if not able, then be in Mode 3 in 6 hours. Contrary to the

above, on May 23, 2005, at 9:05 p.m., Battery Charger 111 was declared inoperable, Battery 111 float current was not verified to be less than 3 amps until 4:00 p.m. on May 24, 2005, while the plant continued to operate at full power. Because this violation was of very low safety significance and the issue was captured in the licensee's corrective action program (CR 338178), this violation is being treated as an NCV, consistent with Section VI.A of the NRC Enforcement Policy.
(NCV 05000454/2005004-04)

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope

On June 22, 2005, the inspectors complete one inspection sample by observing an Emergency Preparedness Exercise. The inspectors assessed the licensee's exercise performance and looked for weaknesses in the risk significance areas of emergency classification, notification and protective action development. The inspectors observed the licensee's performance from the simulator control room and from the technical support center. The inspectors compared issues noted during their observations to those identified during the licensee's critique as contained in the licensee's exercise findings and observation report. Additionally, the inspectors verified that items identified during the licensee's critique were appropriately entered into their corrective action program.

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

b. Findings

No findings of significance were identified

4. OTHER ACTIVITIES

Cornerstones: Mitigating Systems, Barrier Integrity, Public Radiation Safety

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. This does not count as an annual sample.

b. Findings

No findings of significance were identified.

.2 Annual Sample - Root Cause Evaluation for Missed Technical Specification required Ventilation Surveillance Tests (71152)

Introduction: On January 13, 2005, during a Nuclear Oversight Audit, the licensee identified that 15 Technical Specification required ventilation surveillance tests were not performed. This concern was documented in the licensee's corrective action program under CR 290634. The licensee's subsequent root cause evaluation and investigation determined that the missed surveillance tests were due to willful falsification of documents by a non-licensed employee. The licensee's associated extent of condition review identified 12 additional TS required ventilation surveillance tests that were also falsified. Upon performing the 27 falsified surveillance requirements, 6 failed. Specifically:

- train B fuel handling building charcoal filter penetration test;
- train C auxiliary building non-accessible area charcoal filter penetration test;
- train A main control room make-up flow rate test;
- train B main control room make-up flow rate test;
- train B main control room ventilation system make-up charcoal bank bypass leakage test; and
- train B main control room ventilation system recirculation charcoal bank bypass leakage test.

a. Prioritization and Evaluation of Issues

(1) Inspection Scope

The inspectors reviewed the root cause evaluation associated with CR 290634, and discussed the evaluation methodology with members of the licensee's root cause team, compared the root cause method used to the guidance in the licensee's procedures, and discussed the technical aspects of the issues with members of the licensee's engineering staff.

(2) Issues

Based on the licensee's review, they determined that the system manager, a non-licensed individual, had electronically indicated that these surveillance tests were "finished" in the licensee's computer tracking program. The licensee's program considered surveillance tests in the "finished" status sufficient to be credited as fulfilling the technical specification requirement. However, the completed surveillance tests with the appropriate review signatures were not provided to the site administrator in accordance with the licensee's process.

The inspectors' review of the root cause evaluation found that the licensee completed it using the analytical method of TapRoot. The inspectors considered the evaluation to be of appropriate scope and depth for the situation. Also, the inspectors considered the associated the extent of condition review to be extensive and appropriate.

b. Effectiveness of Corrective Actions

(1) Inspection Scope

The inspectors assessed the licensee's immediate and long term corrective actions associated with the missed surveillance tests to determine if the corrective actions were appropriately focused to address the problems identified.

(2) Issues

The inspectors reviewed the licensee's root cause evaluation and determined that the corrective actions addressed the causes identified. The inspectors determined that the immediate corrective actions, which included the extent of condition review for other activities completed by the individual as well as a station-wide review for other similar concerns, were appropriate. Regarding the long term corrective actions, the inspectors considered them to be appropriate; however, since these actions were just implemented, it was too early to assess the effectiveness of these actions. Some of the corrective actions taken by the licensee included:

- the individual's employment was terminated;
- all technical specification surveillance procedures performed by the individual were reperformed unless the results could be independently verified by other means;
- 584 work documents completed by the individual during his tenure in the Byron Engineering Department were reviewed;
- an extent of condition review of the engineering and other departments for similar issues;
- improvements made to the management oversight of the system engineers, such as providing clear expectations to engineering supervisors for performing and documenting quality field observations, and increasing the time allotted for supervisory activities; and
- improvements made to the predefined process, including weekly reviews of the "finished" status, and creating a plant indicator for predefines at the "finished" status for the senior management team.

At the conclusion of this inspection period, the NRC was still evaluating the regulatory aspects of this issue. Therefore, this issue is considered an unresolved item (URI 50-454/2005004-05; 50-455/2005-004-05) pending the completion of the NRC's evaluation.

.3 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, October 2004 to March 2005
- Quarterly CAP Trend Analysis for Operations, January 2005 to April 2005
- Quarterly CAP Trend Analysis for Maintenance, July 2004 to February 2005
- CM/EM Leak Back Log dated June 24, 2005
- Component Health Indicator Program
- System Health Indicator Program

The inspectors reviewed the above information for the time periods designated or for the past two years, and discussed these programs and reports with the applicable members of the licensee's staff. The inspectors discussed the recently established Leak Mitigation and Housekeeping 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 the 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 grouping of issues:

- Oil leaks in the plant; and
- Missed fire watches.

During the inspection, the inspectors utilized the following licensee's procedure as references:

- LS-AA-125, Corrective Action Program Procedure, Revision 8;
- LS-AA-125-1002, Common Cause Analysis Manual, Revision 3; and
- LS-AA-125-1005, Coding and Trending Manual, Revision 4.

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

b. Issues

No findings of significance were identified. The inspectors identified that the station implemented a Station Leak Tracking Program. The active work orders to repair leaks are trended and discussed on a weekly basis at a plan of the day meeting. A goal has

been established for the Station Leak Tracking Program and compared to a national standard, however, the trending data may be misleading to the station management because not all work orders addressing leaks are shown on the trending data. The inspectors noted that the number of work orders for oil leaks on the Leak Tracking Program differed from the number of oil leak work orders given to the inspectors. Discussion with the manager of the Station Leak Tracking Program determined that the difference was due to some work orders relating to leaks were being tracked in a separate program called Condition-based Monitoring. Thus, using the Station Leak Tracking Program as a trending tool for oil leaks in the plant does not give a clear picture of how many work orders need to be completed and if a trend in a particular leak area is increasing or decreasing.

Regarding fire watches, the inspectors noted that during the last six months an increase trend had occurred in missed fire watches. The station addressed each condition report individually and performed an apparent cause evaluation (ACE) review after the fourth event. The ACE concentrated the review to the radiation protection (RP) department because three of the four events were attributed to the RP department. The review and actions taken were thorough, however, they were concentrated in RP department. Subsequent to the ACE, two additional missed fire watches occurred outside of the RP department. The licensee has included into the corrective action for the sixth missed fire watch a common cause assessment to review the recent missed fire watch. This action is currently scheduled to be completed next month so effectiveness could not be determined at this time.

Through discussions with station personnel, the inspectors determined that missed fire watch issues are assessed by each department individually for negative trends. This could lead to a missed opportunity by the licensee to identify a negative trend in fire watch performance. Since fire watches are conducted by many departments, an individual department assessment may not rise to a concern with a negative trend in fire watches, however, if an assessment was conducted across the departments a different trend or assessment could be determined.

4OA3 Event Follow-Up

.1 (Closed) Licensee Event Report (LER) 05000454, 455-2005-002-00: "One of Two Trains of Hydrogen Recombiners Inoperable Longer Than Allowed by Technical Specifications Due to Inadequate Procedure"

On February 14, 2005, the licensee identified that a flow transmitter test tap pipe cap was not installed on the train A Hydrogen Recombiner system, which rendered the recombiner train inoperable. The licensee then entered into the appropriate TS limiting condition for operation (LCO), reinstalled the test cap and exited the TS LCO. The licensee later determined that the test cap had been uninstalled since August 27, 2004, due to an inadequate procedure. The licensee evaluated the safety significance of the hydrogen recombiner inoperability including the potential for containment leakage into the Auxiliary Building general area. The inspectors reviewed and concurred with the licensee's evaluation. However, the inspectors determined that this issue involved a violation of T.S. 3.6.8, "Hydrogen Recombiners." The enforcement aspects of this issue were discussed in Section 4OA7. This LER is closed.

.2 (Closed) LER 05000454-2005-003-00: "TS 3.9.4 Violation Due to Imprecise Original Wording TS and TS Bases Wording."

On March 2, 2005, through a review of a LLRT Procedure 1BOSR 6.1.1-12 Revision 5, "Primary Containment Type C Local Leak Rate tests and ISI Tests of Component Cooling System," the NRC determined that the procedure had no prohibitions in the precautions and limitations about performing the procedure during core alterations. Implementation of the procedure created a direct access path from the containment atmosphere to the outside atmosphere and was not in accordance with the TS requirement for refueling operations. Review of past refueling outages revealed that LLRTs were completed on both units during core alteration, and that the containment penetrations were not controlled in accordance with the TS. The inspectors reviewed the LER and determined that it met the requirements of 10 CFR 50.73. The event was reviewed and the enforcement aspects of this issue were discussed by the NRC in Inspection Report 50-454/2005003. This LER is closed.

.3 (Closed) LER 05000454-2005-001-00: "Failed Technical Specification Ventilation Surveillance Requirements During Surveillance Requirement 3.0.3 Delay Period."

The technical and regulatory aspects of this LER were described in Section 4OA2.2 of this report. The inspectors reviewed the LER and determined that it met the requirements of 10 CFR 50.73. This LER is closed.

4OA4 Cross-Cutting Aspects of Findings

.1 A finding described in Section 1R01 of this report had as a primary cause a human performance deficiency (personnel). Specifically, during a tornado watch on March 30, 2005, operators failed to maintain the specified level in the 0B essential service water basin even though adequate procedural guidance for maintaining basin level was provided.

.2 A finding described in Section 1R22 of this report had as a primary cause a human performance deficiency (personnel). Specifically, during the calibration of a VCT level instrument, the technicians incorrectly loosened the wrong low sensor test tap due to inadequate self or peer checking.

.3 A finding described in Section 1R22 of this report had as a primary cause a human performance deficiency (personnel). Specifically, during the planned maintenance activity on Battery Charger 111, operators verified the float current on the incorrect battery due to the improper procedure change made by the unit supervisor.

4OA5 Other Activities

.1 Operational Readiness of Offsite Power (Temporary Instruction (TI) 2515/163)

a. Inspection Scope

The objective of TI 2515/163, "Operational Readiness of Offsite Power," was to confirm, through inspections and interviews, the operational readiness of offsite power (OSP)

systems in accordance with NRC requirements. The inspectors reviewed licencee procedures and discussed the attributes identified in TI 2515/163 with licensee personnel. The results of the inspectors' review included documenting observations and conclusions in response to the questions identified in TI 2515/163.

b. Observations

Summary: The licensee meets NRC requirements for managing the operational readiness of Offsite Power systems.

Evaluation of Inspection Requirements

In accordance with the requirements of TI 2515/163, inspectors evaluated licensee procedures against the attributes discussed below.

The operating procedures that the control room operator uses to assure the operability of the OSP have the following attributes:

- Identify the required control room operator actions to take when notified by the transmission system operator (TSO) that post-trip voltage of the OSP at the Nuclear Power Plant (NPP) will not be acceptable to assure the continued operation of the safety-related loads without transferring to the onsite power supply.

- Identify the compensatory actions the control room operator is required to perform if the TSO is not able to predict the post-trip voltage at the NPP for the current grid conditions.

- Identify the notifications required by 10 CFR 50.72 for an inoperable offsite power system when the nuclear station is either informed by its TSO or when an actual degraded voltage condition is identified.

The procedures to ensure compliance with 10 CFR 50.64(a)(4) have the following attributes:

- Direct the plant staff to perform grid reliability evaluations as part of the required maintenance risk assessment before taking a risk-significant piece of equipment out-of-service to do maintenance activities.

- Direct the plant staff to ensure that the current status of the OSP system has been included in the risk management actions and compensatory actions to reduce the risk when performing risk-significant maintenance activities or when loss-of-offsite-power or station black out (SBO) mitigating equipment are taken out-of-service.

- Direct the control room staff to address degrading grid conditions that may emerge during a maintenance activity.

- Direct the plant staff to notify the TSO of risk changes that emerge during ongoing maintenance at the nuclear power plant.

The procedures to ensure compliance with 10 CFR 50.63 have the following attribute:

- Direct the control room operators on the steps to be taken to try to recover offsite power within the SBO coping time.

c. Findings

The information gathered during this TI was forwarded to the Office of Nuclear Reactor Regulation for further analysis.

4OA6 Meetings

.1 Exit Meeting

The inspectors presented the inspection results to Mr. S. Kuczynski and other members of licensee management at the conclusion of the inspection on July 1, 2005. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

Additionally, the licensee management was informed of a typographical error in NRC Inspection Report 05000454/2005003; 05000455/2005003. Specifically, Section 4OA5.3, regarding the evaluation for Unit 1 potentially exceeding license thermal power limits, the report incorrectly indicated that the unresolved item number was 50-454/455/03-02-02, the correct unresolved item number was 50-454/455/03-02-03.

.2 Interim Exit Meetings

An interim exit meeting was conducted for:

- Operator Requalification Program Examination Result Review with Mr. S. Gackstetter on June 03, 2005

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 Policy for being dispositioned as an NCV.

Cornerstone: Barrier Integrity

Technical Specification 3.6.8 requires, in part, that two hydrogen recombiners shall be operable in Modes 1 and 2. With one hydrogen recombiner inoperable, the recombiner must be restored to operable status within 30 days, or the unit be placed in Mode 3 within the next 6 hours. Contrary to this, while Unit 1 and Unit 2 are in Mode 1 between August 27, 2004, to February 14, 2005, the 0A train of the hydrogen recombiner was

inoperable when the flow transmitter test tap pipe cap was not installed. This violation was of very low safety significance because it did not degrade the RCS boundary as a mitigator following plant upset, it did not degrade the containment barrier, nor did it degrade the fuel cladding barrier. Specifically, there were available radiation monitoring and alarm instruments and sufficient time for operator to realign the auxiliary building ventilation system prior to exceeding the 10CFR100 offsite dose limit. Because this violation was of very low safety significance and the issue was captured in the licensee's corrective action program (CR 301187), it was treated as an Non-Cited Violation (NCV), consistent with Section VI.A of NRC Enforcement Policy. The maintenance effectiveness aspects of this issue are documented in Section 1R12 of this report.

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
S. Gackstetter, Operations Training Manager
W. Grundmann, Regulatory Assurance Manager
D. Hoots, Plant Manager
S. Kerr, Chemistry Manager
W. Kouba, Nuclear Oversight Manager
M. Marchionda, Shift Operations Supervisor
D. Palmer, Radiation Protection Manager
M. Prospero, Operations Manager
M. Snow, Work Management Director
S. Stimac, Operations Manager
B. Youman, Maintenance Manager

Nuclear Regulatory Commission

Doris Chyu, Reactor Engineer, RIII

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000454/2005004-01 05000455/2005004-01	NCV	Failure to Follow Severe Weather Procedure Results in less than Required Essential Service Water Basin Level (Section 1R01)
05000455/2005004-02	NCV	Insufficient Fire Seal Material in Penetration Between Emergency Diesel Generator Rooms and Associated Switchgear Rooms (Section 1R05)
05000454/2005004-03	NCV	Failure to Follow Procedure During VCT Level Instrument Calibration Results in Work on Wrong Train and Unexpected Opening of the RWST Suction Valves to the Charging Pumps (Section 1R22)

05000454/2005004-04	NCV	Technical Specification 3.8.4.a.3 Violation for Untimely Verification of Battery Float Current Due to Improper Procedure Change (Section1R22)

Opened

05000454/2005004-05 05000455/2005004-05	URI	Review of Missed Ventilation And Filtration System Technical Specification Surveillance Requirements (Section 4OA2.2)

Closed

05000454-2005-002-00 05000455-2005-002-00	LER	One of Two Trains of Hydrogen Recombiners Inoperable Longer Than Allowed by Technical Specifications Due to Inadequate Procedure (Section 4OA3.1)
05000454-2005-003-00	LER	TS 3.9.4 Violation Due to Imprecise Original Wording TS and TS Bases Wording (Section 4OA3.2)
05000454-2005-001-00	LER	Failed Technical Specification Ventilation Surveillance Requirements During Surveillance Requirement 3.0.3 Delay Period. (Section 4OA3.3)

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

CR 223047; Ultimate Heat Sink (UHS) LCO 7.9 Not Entered for Tornado Warning, May 22, 2004
CR 227945; Lack of Questioning Attitude and Technical Rigor, June 10, 2004
CR 234455; Open-Sided Crate on Turbine Roof, July 08, 2004
CR 235612; Unexpected LCOAR Entry on UHS Due to Tornado Watch, July 13, 2004
CR 241419; Affects of Severe Thunderstorm Passing Through Byron Station, August 03, 2004
CR 269526; Turbine Building Vent Found Open After High Winds, November 01, 2004
CR 274433; Uncertain Tornado-Generated Missile Protection for Essential Service Water (SX) Line, November 17, 2004
CR 297680; Summer Readiness Production Risk Tasks Not Coded Correctly, February 04, 2005
CR 303018; River Screen House (RSH) Traveling Screens Blocked, February 18, 2005
CR 304063; Summer Readiness Work Order (WO) - Old U1 Chemical Analysis Facility (CAF) Condensate Collection System, February 22, 2005
CR 304326; Summary of River Debris Impact on Plant Equipment, April 21, 2005
CR 318994; Tornado Warning Issued, Unplanned Entry Into 0BOL 7.9, March 30, 2005
CR 319016; 2BOA ENV-1 Fatal Flaw, March 30, 2005
CR 319963; Production Vs Safe Operations, March 30, 2005
CR 328448; Evaluate Need for Summer Readiness/Contingency WO, April 25, 2005
CR 330755; Wind Blew Tree on Fence, May 01, 2005
CR 330799; Aquaguard Screen Plugging Up CWPH, May 01, 2005
CR 341068; Scaffolding Potential Concern for Severe Weather, June 04, 2005

1R04 Equipment Alignment

BOP SI-E2A; Train A Safety Injection System Electrical Lineup, Revision 2
BOP SI-M2A; Train A Safety Injection System Valve Lineup, Revision 1
Pre-Fire Plan; Zone 3.1-1, September 6, 2000

1R05 Fire Protection

CR 326121; NRC Walkdown Identifies 2 Halon Extinguishers Out of Place, April 19, 2005 (NRC Identified)
CR 329737; Typographical Error in the Byron Safe Shutdown Cable Report, April 28, 2005 (NRC Identified)

CR 330167; Fire Protection Triennial Assessment (FPTA) - BOP FR-1 Not Consistent with Fire Protection Requirement (FPR), April 29, 2005
CR 338617; NRC Inspector Walkdown Questions, May 26, 2005 (NRC Identified)
CR 338830; Extent of Condition Fire Barrier Problems, May 26, 2005
0BMSR 3.10.f.1; Common Fire Hose Station 92 Day Inspection, Revision 8
0BMSR 3.10.f.2-3; Common Fire Hose Station 18-Month Inspection, Revision 7
0BMSR 3.10.f.4; TRM Common Fire Hose Station 3-Year Surveillance, Revision 4
0BMSR FP-3A; Portable Fire Extinguisher Inspection, Revision 5
0BMSR FP-4A; Portable Fire Extinguisher Annual Maintenance/Inspection, Revision 5
0BVSR 10.g.6-1; Fire Barrier Penetration Visual Inspection 18-Month Surveillance, Revision 7
0BVSR 10.g.8-1; Fire Rated Assemblies Visual Inspection, Revision 4

1R06 Flood Protection

BAR 1-17 B13; Circulating Water (CW) Pressure Low; Revision 1
BAR 1-17-E11; CW Pump Cooling Water Press Low, Revision 3
BMP 3100-35; Anderson-Greenwood Type CV1B Wafer Check Valve Repair, Revision 6
BOP CW-13; Contingency Plan for Catastrophic Failure of a Waterbox Isolation Valve With It's Waterbox Manway Open, Revision 30
WO 456910; Inspect Check Valve Internals, May 24, 2004
CR 163638; Technical Support Center (TSC) Roof, June 17, 2003
CR 167453; Information Notice (IN) 2003-08/Potential Flooding through Unsealed Floor Cracks, July 14, 2003
CR 170732; Results of Residual Heat Removal (RH) Heat Exchanger (HX) Sump Walkdown per ATI 150691-14, August 06, 2003
CR 171651; Found 2B Containment Spray (CS) Pump Room Floor Wet, August 14, 2003
CR 171718; Drain Valve Leakby, August 15, 2003
CR 172696; Cable Vault Problems, August 18, 2003
CR 214175; B2R11 LL MSSV Drains Plugging, April 09, 2004
CR 304314; Drain Line Draining Very Slowly, February 22, 2005
CR 328481; Well Water (WW) Sump Pump Not Working, April 25, 2005
Plumbing Auxiliary Building Diagram A-69 Floor Elevation 330'-0: & 346'-0" Area 3, 6, 7
Auxiliary Building Basement Floor Plan A-212 Areas 5 & 7
Plumbing Auxiliary Building Flow Diagram A-703
Diagram of Auxiliary Building Equipment Drains, —82
S-WE 100-497; Building Equipment Drains System
Diagram of Containment Spray, —129
Diagram of Waste Disposal Turbine Building Floor Drains, —48
Diagram of Miscellaneous Sumps & Pumps, —48

1R07 Heat Sink Performance

LTR Byron 2004-0131; Notification of Deferral of a Generic Letter (GL) 89-13 Component Cooling Heat Exchanger Inspection; dated December 17, 2004
WO 00394057; 0CC01A - HX Inspection Per Generic Letter 89-13/BVP 800-30; dated February 28, 2005

1R12 Maintenance Effectiveness

CR 203093; Main Steam Isolation Valve (MSIV) CR Trend, February 20, 2004
CR 301187; WO 581889, NUREG Test OG—1 Finds Mission Cap on Test Line, February 14, 2005
CR 305272; 1D-MSIV Air Oil Pump is Cycling Approximately Once Per 50 Seconds, February 25, 2005
CR 305787; 1D MSIV Turbo Electro-Hydraulic Control (EH_ Leak Followup), February 26, 2005
CR 314740; Air Regulator Defective on 1MS101B, March 18, 2005
CR 315326; B1R13LL - 1D MSIV Microswitch Problem, March 21, 2005
CR 315858; B1R13 LL - 1D MSIV Indicated Dual Position (POS) After Full Open Ind, March 22, 2005
CR 316999; Unexpected Alarm, 1MS001C, MSIV Low Pressure - B1R13, March 25, 2005
CR 317295; NOS Identified Concerns on 1D MSIV Maintenance Restoration, March 25, 2005
CR 317325; Pilot Operated Check Valves on 1MS001D Traceability, March 25, 2005
CR 317455; 1C MSIV Has No Indicated Reservoir Level, March 26, 2005
CR 317545; Open 1MS001D, Make It Inoperable, Increase Power, March 25, 2005
CR 317582; 1C MSIV Accumulator #1 Pressure Low, March 26, 2005
CR 317790; Received 1D MSIV Hydraulic Pressure High, March 27, 2005
CR 317830; Hydraulic Leak on 1D MSIV, March 27, 2005
CR 318254; Unit 1 MSIV Accumulator Pressure Low Alarms, March 29, 2005
CR 318390; B1R13 LL - Terrible Troubleshooting Terrain, March 25, 2005
CR 318557; Conservative Decision Making Involving 1MS001D (1D MSIV), March 25, 2005
CR 318874; B1R13 LL MSIV Refurbishment Lessons Learned, March 25, 2005
CR 319086; 1D MSIV Related Issues for ACE, March 30, 2005
CR 320649; High Pressure on 1MS001D Hydraulic System and Standby Accumulator, April 3, 2005
CR 321821; 1C MSIV Oiler Suspected of Blowing Oil, April 6, 2005
CR 321897; Oil Puddles All Over the Floor in 1C MSIV Room, April 6, 2005
CR 322860; 1A, 1B, and 1D MSIV Reservoir Levels Higher Than Acceptable, April 8, 2005
CR 323065; Large Fyrquel Leak on 2MS001D (MSIV), April 10, 2005
CR 323519; Declining Reliability of Hydraulic Operators on MSIVs, April 10, 2005
CR 323655; 1MS101A Failed Stroke Test, April 12, 2005
CR 325626; Unexpected MCR Alarm - 1D MSIV Hydraulic Pressure High, April 17, 2005
CR 328929; Perform Containment Cooling Actuation (CCA) on MSIV Issues, April 26, 2005
WO 551350; Cal of Hydrogen Recombiner Inlet Flow Loop (OG041), 08/27/04
BISR Z.6.a.1-202; Surveillance Calibration of Hydrogen Recombiner Inlet Flow Loop, Revision 1
0BVSR XII-2; Gaseous Leak Testing of the Off Gas System Hydrogen Recombiners, Revision 1
Search of AR Subject and Initial OLE; January 1 - April 20, 2005
Protective Placard Locations; 1A Diesel Generator (DG) Unavailable, May 15, 2005

1R13 Maintenance Risk Assessments and Emergent Work Control

CR 263752; Unconservative Philosophy, October 14, 2004
CR 301269; Check Valve May be Leaking BY, February 14, 2005
CR 301777; Followup to IR #301269 on 1SA181D, February 15, 2005
CR 325459; Unit 1 Pressurizer Press Instrument Failure Results in Orange Online Risk, April 16, 2005
Unit 1 Risk Configurations, week of April 11, 2005
Unit 1 & 2 Risk Configurations; Week of May 2, 2005
Byron Logs, April 14, & 16, 2005
Unit 1 Risk Configurations, week of May 9, 16 and 23, 2005
Protective Placard Locations, 2B SX Pump Out of Service, May 9, 2005
1BOA INST-2; Operation with a Failed Instrument Channel, Unit 1, Revision 103
1BOL 3.1; LCOAR Reactor Trip System (RTS) Instrumentation Tech Spec LCO # 3.3.1, Revision 4
1BOL 3.2; LCOAR Engineered Safety Feature Actuation System (ESFAS) Instrumentation Tech Spec LCO 3.3.2, Revision 4
Byron Operating Department Policy 400-47; June 23, 2004, Revision 5
Byron Probabilistic Risk Assessment, Revision 5B
WC-AA-101; On-Line Work Control Process, Revision 10
Policy Number 400-47; On-Line Risk/Shutdown Risk/Protected Equipment, April 6, 2005

1R15 Operability Evaluations

Operations Narrative Logs, May 11, 2005
WO 604276, 01 & 02; Right Side Intercooler Leaks at Second Bolt from Bottom, March 5, 2005
CR 098961; Problems Encountered with Performance of 1BOSR 3.2.9-2; March 13, 2002
CR 198400; LL-K647 Failure to Latch During Bi-Monthly Surveillance, January 29, 2004
CR 277440; Bolting on Right Bank Turbo Intercooler - Improper Thread Engagement, November 29, 2004
CR 338073; Unit 1 Train B SSPS Bi-Monthly Test Results, May 23, 2005
Applicable Plant Drawings

1R17 Permanent Plant Modificaitions (Annual)

EC 0000079647, Removal of 1SX101A AF Mtr Drvn Cooling Sov. Single Failure Vulnerability. Also Includes 1SX2102 and 1SX2103A Replacement with Stainless Steel Gate Valves, December 15, 2004

1R19 Post Maintenance Testing

CR 325124; 2B Auxiliary Feedwater (AF) Pump (PP) Jacket Tank Overflow, April 14, 2005
CR 325254; 2B AF PP Shutdown During Maintenance Run Due to Oil Temperature ISS Diesel Driven AF PP Operating Log, April 14, 2005
2BOSR 0.5-2.SI.1-2; Unit 2 2SI8821B, 2SI8812B, 2SI8804B and 2SI8920 Stroke Test, Revision 5

2BOSR 0.5-2.SI.3-2; Unit 2 2SI8821B, 2SI8812B, 2SI8804B and 2SI8920 Position Indication Test, Revision 8
2BOSR 7.5.4-2; Unit 2 Diesel Driven AF PP Monthly Surveillance, Revision 7
2BOP FS-300-2; Valve Stem Lubrication, Revision 0
Byron Site Policy Memo 600.12; Preconditioning, Revision 3
Byron Calculation BYR-97-493; Changes of AC Motor Operated Valve Stroke Times Due to Stem Lubrication; Revision 0

1R22 Surveillance Testing

0BOSR 7.9.6-2; Essential Service Water Makeup Pump 0B Monthly Operability Surveillance, Revision 17
1BOSR 3.1.5-2; Unit 1 Train B SSPS Bi-Monthly Surveillance, Revision 23
1BOSR 6.6.2-1; Unit 1 Reactor Containment Fan Cooler Monthly Surveillance, Revision 13
1BOSR 8.6.1-1; 125 DC ESF Battery Bank and Charger 111 Operability, May 24, 2005
2BOSR 3.2.8-608D; Unit Two Non-ESFAS instrumentation Slave Relay Surveillance, Revision 1
2BOSR 4.13.1-1; Unit 2 Reactor Coolant System Water Inventory Balance 72 Hour Surveillance, May 24, 2005
2BOSR 8.1.1-1; Normal and Reserve Offsite AC Power Availability Weekly Surveillance, Revision 4
2BOSR 8.1.2-2; Unit 2B Diesel Generator Operability Surveillance, Revision 14
2BOSR 8.6.1-1; 125V DC ESF Battery Bank and Charger 211 Operability, May 24, 2005
1BOL 8.4; LCOAR DC Sources - Operating Technical Specifications LCO 3.8.4, Revision 3
2BOL 8.4; LCOAR DC Sources - Operating Technical Specifications LCO 3.8.4, Revision 3
0BVSR 5.5.8.SX.1-2; Test of the 0B Essential Service Water Makeup Pump; Revision 4
WO 789856; 2B Diesel Generator Operability Monthly Surveillance, April 13, 2005
WO 794171; Unit 1 Reactor Containment Fan Cooler Monthly Surveillance, April 22, 2005
WO 812277; 1BOSR 3.1.5-2, Train B SSPS Bi-Monthly Surveillance, May 23, 2005
WO 812746; 2BOSR 8.6.1-1, 125V Battery & Charger 211 Operability, May 23, 2005
WO 814350; RCS Water Inventory Balance 72 Hour Surveillance, May 24, 2005
WR 990204373-01; Support SED with Engine to Gear Unit Coupling Balance, dated November 29, 2000
Diesel Generator Operating Log; Diesel Generator 2B, April 13, 2005
ER-AP-331; Boric Acid Corrosion Control (BACC) Program, Revision 1
ER-AP-331-1003; RCS Leakage Monitoring and Action Plan, Revsion 0
Prompt Investigation Report - CR 338178
Prompt Investigation Report for Unit 1 VCT Swapover
IST-BYR-BDOC-V-09; Inservice Testing Bases Document, Revision 09/21/01
Calibration of Volume Control Tank Level Loop Test Report Package BISR 3.3.9.7-002, Revision 2
CR 334316; VCT Auto Swapover to the RWST, May 11, 2005
CR 334390; Labeling Needed on Sensing Lines, May 12, 2005
CR 338178; Wrong Surveillance Completed for 1BOL 8.4 Condition A.3, May 24, 2005

CR 338503; Missed Hydrogen Monitor Pressure Transmitter/Turbine Building Ventilation (PT/VT) Surveillance, Both Units Apply, May 25, 2005
CR 338805; Update to Risk Evaluation Needed and Completed, May 26, 2005
CR 339103; Visual Inspections Not Performed Correctly, May 26, 2005
CR 339120; IR 33850 Extent of Condition - Identified Additional Piping, May 27, 2005
BISR 3.3.9.7-002; Surveillance Calibration of Volume Control Tank Level Loop, Revision 2
Risk Significance of Hydrogen Monitor PT/VT Surveillance at Byron/Braidwood (Byron IR 338503 & Braidwood IR 338480)
6E-2-4030EF02; Schematic Diagram ESF Sequencing and Actuation Cabinet Train B, Revision N
6E-2-4030EF06; Schematic Diagram Safeguards Test Cabinet Train B Testing Scheme, Revision L
6E-2-4030EF58; Schematic Diagram Reactor Protection System Master & Slave Relays Testing Circuit Train B, Revision O

1EP6 EP Drill Evaluation

Reactor Plant Event Notification Worksheet, June 22, 2005
Nuclear Accident Reporting System Form, Utility Message #1, June 22, 2005
Nuclear Accident Reporting System Form, Utility Message #2, June 22, 2005
Nuclear Accident Reporting System Form, Utility Message #3, June 22, 2005
Nuclear Accident Reporting System Form, Utility Message #4, June 22, 2005

4OA2 Identification and Resolution of Problems

BAP 1100-16, Administrative Controls for Required Fire/Flood Watch Inspections, Revision 9
WC-AA-106, Appendix A, Condition Monitoring Program, Revision 2
Nuclear Oversight Quarterly Report - Byron - NOSPA-BY-05-1Q - January - March 2005, April 22, 2005
Byron Site Policy Memo 200.44; Surveillances, Revision 0
Root Cause Investigation Charter for CR 290634, January 20, 2005
Prompt Investigation Report; CR 290634
List of Open Condition Reports addressing oil leaks, June 28, 2005
List of Condition Reports for 2 years with subject of Missed Firewatch, June 28, 2005
CR 184795, Intolerance for Unexpected Equip Fail threshold inadequate, November 4, 2003
CR 202038; Thermography Identifies 1CW01PB Hot Relay Coil, February 16, 2004
CR 214164; Air Lines Worn - Causing Valve Failure 2CD210A and 2CD210B, April 08, 2005
CR 229406, Flange connection oil DRN line, June 17, 2004
CR 266431; Water in Service Air (SA) System, October 23, 2004
CR 274943; Oil Leak, November 18, 2004
CR 288359; NLO Reports 2B CW Pump Exciter Amps Pegged Hi, January 06, 2005
CR 288375; Exciter Ammeter Failure Suspected, January 06, 2005
CR 288396; 2CW01PB Trip Due to Exciter Ammeter Failure; Thermography, January 06, 2005

CR 290623; Nuclear Oversight (NOS) Identified Lack of Documentation For Completed Surveillances, January 13, 2005
CR 291197; The hourly fire watch required for OBOL 10.A was missed, January 15, 2005
CR 297122; 2A CW Pump Fluctuating Amps on Shutdown, February 02, 2005
CR 300933; 0B CW Makeup Pump Trip, February 13, 2005
CR 301058; Could not determine oil level in upper motor bearing sight glass, February 14, 2005
CR 301163; Instrument Air Line Going to 1ES005 May Break Soon, February 14, 2005
CR 301707; IN Support of U-2 CW Box Work, Non-Essential Service Water (WS) Was Isolated to Both Units, February 15, 2005
CR 302887; Falsification of Signature on Ventilation Surveillances, February 18, 2005
CR 305265; Potential LER and 2 VC Trains Inoperable Concurrently, February 25, 2005
CR 307154; Missed fire watch, March 1, 2005
CR 307903; Nine IA Leaks From 0A Radioactive Waste Gas (GW) Comp Level Control/Indicator Lines, March 3, 2005
CR 307908; Five IA Leaks From 0B GW Comp Level Control/Indicator Lines, March 3, 2005
CR 308700; Missed fire watch for PBI 05-98 426 Elev area 5 door, March 5, 2005
CR 309036; Blockage in CW Line, March 6, 2005
CR 310623; Air Line to 1TIC-WS039 Has a Leak, March 9, 2005
CR 312025; 1IA066 Failed Stroke Time Test and PIT, March 13, 2005
CR 312063; IA Leak on Back of ½" Air Line, March 13, 2005
CR 312151; Venture Found IA Line Broken, March 12, 2005
CR 313902; Fitting Loose on EH OPC Tripblock - Massive Leak Awaiting, March 17, 2005
CR 313971; IA Regulator to Steam Dump I/P Has Bad Leakage, March 17, 2005
CR 313974; IA Regulator to Steam Dump I/P Has Bad Leakage, March 17, 2005
CR 313982; IA Regulator to Steam Dump I/P Has Bad Air Leak, March 17, 2005
CR 314001; 1CB039E - IA Regulator Completely Blown, March 17, 2005
CR 314004; IA Regulator Blowing Excessively From Blead Port, March 17, 2005
CR 314239; EH System Relief Valve Not Responding to Raise System Pressure, March 17, 2005
CR 314681; Relief Has Evidence of External Leakage, March 18, 2005
CR 314760; 1HD059B Air Test Valve is On Constant Blowdown, March 19, 2005
CR 314766; 1SA181D Left Bank Starting Air Check Valve Leak, March 19, 2005
CR 315598; Improper termination of fire watch and missed fire watches, March 20, 2005
CR 315598; Improper termination of fire watch and missed fire watches, Assign #2, Perform ACE on this issue and 307608, 308700, and 307154, May 26, 2005
CR 315680; 1IA 1393 Leaks By the Seat, March 22, 2005
CR 316071; Replace Ball Valve - Broken in the Open Position, March 23, 2005
CR 317936; Unit 0 Service Air Compressor (SAC) Unloader Failed Open, March 28, 2005
CR 319585; Security suspended fire watch prior to PBI closeout, March 31, 2005
CR 322082; During Valve Replacement, Found Flange Studs Untorqued, April 05, 2005
CR 324654; 2A MS Dump Valve Positioner IA Line - Rubbing on Tube Track, April 14, 2005
CR 326972; U-0 SAC Aftercooler WS Leak, April 21, 2005

CR 330137; PP Leaking oil/grease, April 29, 2005
CR 330142; Non-Destructive Examination (NDE) Request for 2SA144D, April 20, 2005
CR 331211; Low oil level, lower motor bearing, 2C CW PP, May 3, 2005
CR 332177; 2B EH PP Flow instrument has EHC leak, May 5, 2005
CR 332471; EH Leak, May 6, 2005
CR 332821; Failed PMT on 2B EH pump flow indicator work, May 6, 2005
CR 338809; Problem with Remote Start/Stop of 2B Station Air Compressor, May 26, 2005
CR 341824; NRC Observations During Plant Tour, June 7, 2005 (NRC Identified)
Adverse Condition Monitoring and Contingency Plan; 1CW01PA Packing Temperature Monitoring, April 27, 2005
CR 343164; 2B SAC tripped while starting 24 hr reliability run, June 10, 2005
CR 344211; B1R13 Reactor Head Volumetric Exam Results Missed Reporting, June 14, 2005
CR 344235; Oil leak on 0C CW makeup PP, June 15, 2005
CR 344799; Missed hourly fire watch, June 16, 2005
CR 341824; NRC Observation during plant tour, June 7, 2005
CR 343884; Deficiencies Identified at River Screen House with NRC Inspector on Rounds, June 14, 2005
EACE - IR 288396 - 2B CW Pump Trip Due to Exciter Ammeter Failure, January 6, 2005

4OA5 Other Activities

0BOA ELEC-1; Degraded Swyd Voltage Unit 0, Rev. 2
WC-AA-101; On-line Work Control Process, Rev. 10
LS-AA-1010; Exelon Reportability Reference Manual, Rev. 8
ER-AA-600-1042; On-Line Risk Management, Rev. 3
OP-AA-108-107-1001; Station Response to Grid Capacity Conditions, Rev. 1
OU-AA-103; Shutdown Safety Management Program, Rev. 4
OP-AA-108-107-1002; Interface Agreement between Exelon Energy Delivery and Exelon Generation for SwitchYard Operations; Rev. 1
1(2)BCA-0.0; Loss of All AC Power Unit 1(2), Rev. 105

LIST OF ACRONYMS USED

ACE	Apparent Cause Evaluation
ADAMS	Agency wide Documents Access and Management System
CFR	Code of Federal Regulations
CR	Condition Report
DRP	Division of Reactor Projects; Region RIII
EH	Turbo Electro-Hydraulic Control
ESF	Engineered Safety Feature
IMC	Inspection Manual Chapter
IR	Inspection Report
ISI	Inservice Inspection
LCOAR	Limiting Condition for Operation Action Requirement
LER	Licensee Event Report
NCV	Non-Cited Violation
NPP	Nuclear Power Plants
NRC	United States Nuclear Regulatory Commission
NRR	Office of Nuclear Reactor Regulation
OSP	Offsite Power
PARS	Public Availability Records
RCS	Reactor Coolant System
RP	Radiation Protection
RWST	Refueling Water Storage Tank
SBO	Station Blackout
SDP	Significance Determination Process
SSPS	Solid State Protection System
SX	Essential Service Water
TI	Temporary Inspection
TRM	Technical Requirements Manual
TS	Technical Specification
TSO	Transmission System Operator
UFSAR	Updated Final Safety Analysis Report
URI	Unresolved Item
VCT	Volume Control Tank
WO	Work Order
WS	Non-Essential Service Water