

May 12, 2006

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 05000454/2006002; 05000455/2006002

Dear Mr. Crane:

On March 31, 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 April 10, 2006, with Mr. Dave Hoots 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 one self-revealed findings of very low safety significance (Green) are documented in this report. Both of these findings were determined to involve a violation of NRC requirements. 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.

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.

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Sincerely,

**/RA/**

Richard A. Skokowski, Chief  
Branch 3  
Division of Reactor Projects

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

Enclosure: Inspection Report 05000454/2006002; 05000455/2006002  
w/Attachment: Supplemental Information

cc w/encl: Site Vice President - Byron Station  
Plant Manager - Byron Station  
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U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket Nos: 50-454; 50-455

License Nos: NPF-37; NPF-66

Report Nos: 05000454/2006002; 05000455/2006002

Licensee: Exelon Generation Company, LLC

Facility: Byron Station, Units 1 and 2

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

Dates: January 1 through March 31, 2006

Inspectors: B. Bartlett, Senior Resident Inspector  
J. Taylor, Acting Senior Resident Inspector  
R. Ng, Resident Inspector  
B. Jose, Reactor Inspector  
J. House, Senior Radiation Specialist  
J. Cassidy, Radiation Specialist  
M. Jordan, Consultant  
C. Thompson, Resident Inspector, Illinois Emergency  
Management Agency

Approved by: R. Skokowski, Chief  
Branch 3  
Division of Reactor Projects

## SUMMARY OF FINDINGS

IR 05000454/2006002; 05000455/2006002; on 01/01/2006-03/31/2006; Byron Station, Units 1 and 2; Maintenance Risk Assessments and Emergent Work Control, Identification and Resolution of Problems.

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

### A. Inspector-Identified and Self-Revealed Findings

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

- Green. A finding of very low safety significance and associated Non-Cited Violation (NCV) of Technical Specification 5.4.1, regarding procedure adherence was inspector identified when the inspectors identified that ventilation barrier requirements were not being met during a routine assessment of work activities in the Unit 2 containment spray pump rooms. Upon identification, the licensee restored the barrier. The primary cause of this violation was related to the cross-cutting area of Human Performance.

This finding was more than minor because it affected the barrier integrity objective to provide reasonable assurance that the physical design barriers to protect the public from radionuclide releases caused by accidents or events. The finding was determined to be of very low safety significance because the issue only represented a degradation of the radiological barrier function provided for the auxiliary building. (Section 1R13).

- Green. A finding of very low safety significance and associated NCV of Technical Specifications 5.4.1, "Procedures," was self-revealed. Specifically, licensee personnel conducted unauthorized troubleshooting activities after an abnormal flow condition was encountered during Reactor Coolant System sampling activities and did not report the condition to shift operations promptly. These troubleshooting activities were not allowed by the chemistry sampling, procedures use and adherence, and corrective action program procedures. Shift operations learned about the condition 2 days later and subsequently declared the pressurizer liquid sample containment isolation valves inoperable and completed the required Technical Specification actions. The primary cause of this violation was related to the cross-cutting area of Human Performance.

This finding was more than minor because it affected the human performance attribute of the barrier integrity cornerstone to provide reasonable assurance that physical barriers, specifically the reactor containment, protect the public from radionuclide releases caused by accidents or events. The finding was determined to be of very low

safety significance because it did not represent an actual open pathway or involve an actual reduction in defense-in-depth for the pressure control or hydrogen control functions of the reactor containment. (Section 4OA2)

**B. Licensee Identified Violations**

None.

## REPORT DETAILS

### Summary of Plant Status

Unit 1 operated at or near full power throughout the inspection period with the following exceptions:

- On January 28, 2006, the unit reduced power to 95 percent to swap main feedwater pumps for repair. Following the swap, the unit returned to full power on January 29, 2006.
- On February 9, 2006, the unit reduced power to 94 percent to swap main feedwater pumps for repair. Following the swap, the unit returned to full power on February 10, 2006.
- On February 19, 2006, the unit reduced power to 95 percent to swap main feedwater pumps for repair. Following the swap, the unit returned to full power on February 20, 2006.

Unit 2 operated at or near full power throughout the inspection period.

### **1. REACTOR SAFETY**

#### **Cornerstone: Initiating Events, Mitigating Systems, and Barrier Integrity**

#### 1R04 Equipment Alignment (71111.04)

##### .1 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 Updated Final Safety Analysis Report (UFSAR) and Technical Specification (TS) to determine the functional requirements of the systems.

The inspectors verified the alignment of the following:

- Unit 2 Train B Containment Spray System;
- Unit 1 Train B Auxiliary Feedwater System; and
- Unit 1 Train B Diesel Generator (DG) System.



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

b. Findings

No findings of significance were identified.

.2 Complete Walkdown

a. Inspection Scope

During the inspection, the inspectors completed one complete system alignment inspection of the accessible portions of the safety injection system. This system was selected because it was considered both safety related and risk significant in the licensee's probabilistic risk assessment. The inspection consisted of the following activities:

- Unit 1 Train A Safety Injection.

The inspectors reviewed the issues that the licensee entered into its corrective action program to verify that identified problems were being entered into the program with the appropriate characterization and significance. The documents reviewed during this inspection are listed in the Attachment to this report.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (711111.05)

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 2;
- OP-AA-201-009; Control of Transient Combustible Material, revision 4;
- OP-MW-201-007; Fire Protection System Impairment Control, Revision 3, and
- Byron Station Pre-Fire Plans (Revision 4) for the plant areas listed below.

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 twelve inspection samples by examining the plant areas listed below to observe conditions related to fire protection:

- Unit 2 Main Steam and Auxiliary Feedwater Pipe Tunnel (Zone 18.3-2);
- Unit 1 Turbine Building 426' General Area (Zone 8.5-1);
- Division 22 Engineered Safety Feature (ESF) Switchgear Room (Fire Area 5.1-2);
- Division 22 Miscellaneous Electrical Equipment Room (Zone 5.4-2);
- Division 21 Miscellaneous Electrical Equipment and Battery Room (Zone 5.6-2);
- Auxiliary Building 346' General Area (Zone 11.2-0);
- Unit 1 Auxiliary Feedwater Pump 1B Rom (Zone 11.4A-1);
- Upper Cable Spreading Area (Zone 3.3B-2);
- Unit 1 Upper Cable Spreading Area (Zone 3.3C-1);
- Unit 1 Auxiliary Electrical Equipment Room (Zone 5.5-1);
- Unit 1 Train A Diesel Generator room (Zone 9.2-1); and
- Unit 1 Train A Diesel-Fuel Oil Storage Room (Zone 10.2-1).

The inspectors also reviewed selected issues documented in condition reports (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

.1 Annual Sample of Heat Sink Performance (71111.07A)

a. Inspection Scope

The inspectors completed one annual testing and performance review inspection sample by observing and evaluating the licensee's inspection of the following safety-related heat exchanger:

- Unit 1 Train B Safety Injection Pump Cubicle Cooler.

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.

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 a steam generator tube rupture. 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. The inspectors verified that minor issues were placed into 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.

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:

- Unit 2 Train B DG Repeated VAR swings; and
- Unit 2 Train B Auxiliary Feedwater Pump Loss of Control Power.

The inspectors evaluated the licensee's appropriate handling of structures, systems, and component condition problems in terms of appropriate work practices and characterizing reliability issues. Equipment problems were screened for review using a problem oriented approach. Work practices related to the reliability of equipment maintenance were observed during the inspection period. Items chosen are risk significant, and extent of condition was reviewed as applicable. Work practices were reviewed for contribution to potential degraded conditions of the affected structures, systems, and components. Related work activities were observed and corrective actions were discussed with licensee personnel. Exelon's handling of the issues being reviewed were evaluated under the requirements of the maintenance rule.

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.

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 documents:

- ER-AA-600, Risk Management, Revision 4;
- ER-AA-310, Implementation of the Maintenance Rule, Revision 4;
- OU-AA-103, Shutdown Safety Management Program, Revision 4;
- OU-AP-104, Shutdown Safety Management Program, Revision 8;
- WC-AA-101, On-Line Work Control Process, Revision 11;

- Byron Operating Department Policy 400-47, February 21, 2006, Revision 9; and
- Byron Nuclear Power Station Probabilistic Risk Assessment, Revision 5B.

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

- Unit 2 Train A Containment Spray ESF Relay and American Society of Mechanical Engineers (ASME) Surveillance while Unit 2 Train D Steam Generator Atmospheric Relief Valve is Out of Service;
- Unit 2 Train B Residual Heat Removal Pump Miniflow Valve ASME Surveillance while Unit 2 Train B Containment Spray Pump is Out of Service;
- Unit 1 Essential Service Water Suction Valve for the Unit 0 Component Cooling Heat Exchanger Work Windows while the Unit 1 Station Air Receiver is Out of Service;
- Emergent Work on Unit 0 Train A Essential Service Water Make-up Pump and Unit 2 Component Cooling Water Discharge Cross-tie Isolation Valve;
- Unit 2 Train A Auxiliary Feedwater pump work window while Unit 2 Component Cooling Water pump was in a monthly surveillance;
- Unit 2 Train A DG testing while Unit 1 Auxiliary Building ventilation fan was out of service; and
- Unit 2 Train B DG maintenance work window in conjunction with ASME testing of the Unit 2 Train B Containment Spray 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

Introduction: The NRC identified an Non-Cited Violation (NCV) of TS 5.4.1 finding of very low safety significance (Green). Specifically, the inspectors identified that a Plant Barrier Impairment (PBI) was incorrectly written and reviewed resulting in a ventilation barrier being impaired contrary to plant procedure.

Description: On February 6, 2006, the inspectors were performing a routine assessment of maintenance risk by walking down the areas involved in ongoing maintenance activities. The inspectors noted the door between the Unit 2 Train A Containment Spray Pump Room and the rest of the auxiliary building (door 0DSD246) was secured fully open. At that time work activities were ongoing in the Unit 2 Train B Containment Spray Pump Room and that pump was inoperable; however, no work activities were ongoing in the Unit 2 Train A Containment Spray Pump Room. The licensee's procedural requirements for auxiliary building ventilation barrier impairments allowed barriers to be removed only if the equipment was inoperable, or not required by TS. Otherwise, the barrier is limited to a one inch opening. Therefore, the inspectors questioned the as-found condition.

The door was immediately reduced to being open only one inch or less, air flow into the room was verified, and the PBI was corrected. Maintenance personnel in the area were also informed of the revised PBI.

Analysis: The inspectors determined that the failure to properly control ventilation barrier in accordance with plant procedures was a performance deficiency warranting a significance evaluation. This determination was made in accordance with Inspection Manual Chapter (IMC) 0612 "Power Reactor Inspection Reports," Appendix B, "Issue Disposition Screening" issued on September 30, 2005. The inspectors determined that the finding was more than minor because it affected the barrier integrity objective to provide reasonable assurance that the physical design barriers to protect the public from radionuclide releases caused by accidents or events.

Technical Specification 3.7.12, requires that the difference in air pressure between the Unit 2 Train A Containment Spray Pump Room and the outside atmosphere be less than 0.25 inches of water. The inspectors determined that the finding could be evaluated using the Significance Determination Process (SDP) in accordance with IMC 0609, "Significance Determination Process," dated November 22, 2005, because the finding was associated with the Barrier Integrity cornerstone and protection of the auxiliary building integrity. This NRC identified issue was determined to be of very low safety significance (Green) by the significance determination process because the issue only represented a degradation of the radiological barrier function for the auxiliary building.

Enforcement: Technical Specification 5.4.1 states that written procedures shall be established, implemented and maintained covering the applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. This includes general procedures for the control of maintenance. Contrary to the above, on February 6, 2006, the inspectors identified that auxiliary building door 0DS0246 was not maintained in the position required by BAP 1100-3, PBI Program, Revision 17, pre-evaluated matrix 3A3, Revision 18.

Because this violation was of very low safety significance and the issue was captured in the licensee's corrective action program (CR 451041), this violation is being treated as a Non-Cited Violation consistent with Section VI.A of the NRC Enforcement Policy (NCV 05000454/2006002-01; 05000455/2006002-01).

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

a. Inspection Scope

The inspectors completed two inspection samples by observing or evaluating control room and equipment operators during the following non-routine evolutions:

- Operator Response to a Fire in the Unit 1 Refueling Water Storage Tank Tunnel; and
- Operator Response to Unit 2 Train D Feedwater Flow Channel Malfunction.

The inspectors evaluated crew performance in the areas of:

- Prioritization, interpretation and verification of alarms; Procedure use;
- Control board manipulations;

- Supervisor's command and control
- Management oversight; and
- Group dynamics.

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

- OP-AA-101-111, Roles and Responsibilities of On-shift Personnel;
- OP-AA-103-102, Watchstanding Practices;
- OP AA-103-103, Operation of Plant Equipment; and
- OP-AA-104-101, Communications.

Additional 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 five inspection samples by reviewing the following evaluations and issues:

- Unit 1 Safety Injection Accumulator Leakage;
- Unit 1 Train A Centrifugal Charging Pump Oil Leak;
- Unit 1 Train B DG Operation with Elevated Air Intake Manifold Temperatures;
- Unit 2 Train A DG Operation and Operability With Flame-Hardened Pushrods; and
- Unit 1 Train A Control Room Ventilation Intake Damper 0AVC032Y Inoperable.

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, Operability Determinations & Functionality Assessments for Resolution of Degraded or Nonconforming Conditions Averse to Quality or Safety; September 26, 2005; and
- NRC Regulatory Issue Summary RIS-05-020, Revision to Guidance Formerly Contained in NRC Generic Letter 91-18, Information to Licensees regarding Two NRC Inspection Manual Sections on Resolution of Degraded and Nonconforming Conditions and on Operability.

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.

1R17 Permanent Plant Modification (71111.17)

a. Inspection Scope

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

- Logic Change to Unit 1 Containment Chiller Containment Valve 1SX147A.

The inspectors also reviewed selected issues documented in CR's, 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.

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:

- BAP 1600-11, Work Request Post Maintenance Testing Guidance, Rev.12; and
- MA-AA-716-012, Post Maintenance Testing, Revision 5.

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

- Unit 1 Train B Safety Injection Pump Work Window;
- Unit 2 Train B DG Following Maintenance;
- Unit 2 Train B DG 110 percent run;
- Unit 2 Component Cooling Discharge Cross-tie Isolation Valve 2CC9473A Repair;
- Unit 0 Train A Essential Service Water Makeup Pump Repair;
- Logic Change to Unit 1 Containment Chiller Containment Valve 1SX147A.

The inspectors also reviewed selected issues documented in CR's, 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.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors witnessed selected surveillance testings 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 twelve inspection samples by observing and evaluating the following surveillance tests:

- Unit 2 Train A Automatic Containment Spray ESF Slave Relay Surveillance;
- Unit 2 Train A Containment Spray Pump ASME Surveillance;
- Unit 1 Reactor Coolant System (RCS) Leakrate;
- Unit 1 Train B Safety Injection Pump Motor;
- Unit 2 ESFAS Relay K608 and K621;
- 2 BVSR 6.64-2, Unit 2 ASME Surveillance Requirements for the 2B Containment Spray Pump;

- 2 BOSR 3.2.8-644B, Unit 2 Engineered Safety Feature Actuation System (ESFAS) Instrumentation Slave Relay Surveillance;
- MA-BY-723-330, Testing of AC Motors using Baker Advanced winding Analyzer on the Unit 1B SI Pump Motor;
- 2 BOSR 3.2.8-621B, Unit 2 Train B Feedwater Pump Trip on Steam Generator Level HI HI;
- 2 BOSR 3.2.8-632B, Unit 2 Train B Auxiliary Feedwater Actuation Relays K632 and K639;
- Unit 1 Train B Diesel Auxiliary Feedwater Pump Battery Bank A Battery A Capacity Test; and
- 1 BOSR 3.2.8-608B, Unit 1 Train B Automatic Safety Injection.

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 procedures 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.

The inspectors also reviewed selected issues documented in CR's, 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.

1R23 Temporary Plant Modifications (71111.23)

a. Inspection Scope

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

- Temporary Configuration Change Package EC 356816, Disable the 1B FW Pump Low Reservoir Level Alarm.

The inspectors reviewed this temporary plant modification to determine that the instructions were consistent with applicable design modification documents and that the modification did not adversely impact system operability or availability. The inspectors verified that the licensee controlled temporary modifications in accordance with Nuclear Station Procedure NSP CC-AA-112, "Temporary Configuration Changes," Revision 9.

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

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope

On March 15, 2006, the inspectors completed 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 reviewed during this inspection are listed in the Attachment to this report.

b. Findings

No findings of significance were identified.

**2. RADIATION SAFETY**

**Cornerstone: Occupational Radiation Safety**

2OS1 Access Control to Radiologically Significant Areas (71121.01)

.1 High Risk Significant, High Dose Rate High Radiation Area, and Very High Radiation Area Controls

a. Inspection Scope

The inspectors reviewed the licensee's performance indicators for high risk high radiation areas (HRA) and very high radiation areas (VHRA) and observed the placing of a resin filled high integrity container into a shipping cask. Discussions were held with radiation protection (RP) management, concerning high dose rate/HRA and VHRA controls and procedures, including procedural changes that had occurred since the last inspection. This was done to determine if workers were adequately protected from radiological overexposure and whether procedure modifications could have substantially reduced the effectiveness and level of worker protection. This review represented one sample.

The inspectors evaluated the controls including Procedures RP-AA-460; "Controls For High And Very High Radiation Areas, Revision 10" and RP-BY-460-1001; "High

Radiation Area & Locked High Radiation Barrier Guidance (Defense In Depth Strategy), Revision 2" that were in place for special areas that had the potential to become VHRAs during certain plant operations. Discussions were held with RP supervisors to determine how the required communications between the RP group and other involved groups would occur beforehand in order to allow corresponding timely actions to properly post and control the radiation hazards. This review represented one sample.

During plant walkdowns, the posting and locking of entrances to high dose rate HRAs and VHRAs were reviewed for adequacy. This review represented one sample.

b. Findings

No findings of significance were identified.

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

.1 Inspection Planning

a. Inspection Scope

The inspectors reviewed plant collective exposure history, current exposure trends along with ongoing and planned activities, in order to assess current performance and exposure challenges. This included determining the plant's current 3 year rolling average collective exposure. This review represented one sample.

Site specific trends in collective exposures and source-term measurements were reviewed to evaluate the effect of the plant's source term on worker exposure. This review represented one sample.

b. Findings

No findings of significance were identified.

.2 Source-Term Reduction and Control

a. Inspection Scope

The inspectors reviewed licensee records to evaluate the historical trends and current status of tracked plant source terms and to determine if the licensee was making allowances and had developed contingency plans for expected changes in the source term due to changes in plant fuel performance issues, or changes in plant primary chemistry. This review represented one sample.

The inspectors reviewed the source term reduction plan to determine if the licensee understood the plant source-term including input mechanisms in order to reduce the source term. The licensee's source-term control strategy, which included a process for evaluating radionuclide distribution plus a shutdown and operating chemistry plan, which can minimize the source-term external to the core, was evaluated. Other methods used by the licensee to control the source term, including component/system

decontamination, hotspot flushing and the use of shielding, were evaluated. These reviews represented one sample.

The licensee's process for identification of specific sources was reviewed along with exposure reduction actions and the priorities the licensee had established for implementation of those actions. Results achieved against these priorities since the last refueling cycle were reviewed to evaluate the effectiveness of the licensee's source term reduction program. For the current assessment period, source-term reduction evaluations and actions taken to reduce the overall source-term were reviewed and compared to the previous year. These reviews represented one sample.

b. Findings

No findings of significance were identified.

.3 Declared Pregnant Workers

a. Inspection Scope

The inspectors reviewed the licensee's procedure and process for monitoring the radiological exposure of declared pregnant workers to determine if the controls complied with the requirements of 10 CFR 20.1208. There were no declared pregnant workers during the assessment period. This review represented one sample.

b. Findings

No findings of significance were identified.

**Cornerstone: Public Radiation Safety**

2PS1 Radioactive Gaseous And Liquid Effluent Treatment And Monitoring Systems (71122.01)

.1 Inspection Planning

a. Inspection Scope

The inspectors reviewed the most recent Radiological Effluent Release Reports for 2003, dated April 30, 2004; and for 2004, dated April 30, 2005, along with current effluent release data to determine if the program was implemented as described in the Radiological Environmental TSs/Offsite Dose Calculation Manual (RETS/ODCM) and UFSAR. The effluent report was also evaluated to determine if there were any significant changes to the ODCM or to the radioactive waste system design and operation. There were no significant changes to the ODCM, and no significant modifications had been made to the design or operation of the radioactive waste system.

The RETS/ODCM and UFSAR were reviewed to identify the effluent radiation monitoring systems and associated flow measurement devices. Licensee records

including CRs, self-assessments, audits, and special reports were reviewed to determine if there were any radiological effluent performance indicator occurrences or any unanticipated offsite releases of radioactive material for follow-up. The UFSAR description of all radioactive waste systems was reviewed. This review represented one sample.

b. Findings

No findings of significance were identified.

.2 Onsite Inspection

a. Inspection Scope

The inspectors walked down the major accessible components of the gaseous and liquid release systems, including radiation and flow monitors, tanks, and vessels. This was done to observe current system configuration with respect to the description in the UFSAR, ongoing activities, and equipment material condition. This review represented one sample.

The inspectors reviewed system diagrams of the radioactive liquid waste processing and release systems to determine how liquid radwaste was processed. Liquid effluent release packages including projected doses to the public were reviewed to determine if regulatory effluent release limits were exceeded. The inspectors reviewed system diagrams of the radioactive gaseous effluent processing and release systems and observed the collection and analysis of a gaseous radwaste sample to determine if appropriate treatment equipment was used and that the radioactive gaseous effluent was processed and released in accordance with RETS/ODCM requirements. Radioactive gaseous effluent release data including the projected doses to members of the public was evaluated to determine if regulatory effluent release limits were exceeded. This review represented one sample.

The inspectors reviewed the licensee's process for making releases with inoperable effluent radiation monitors to determine if adequate compensatory sampling and analyses was performed and to determine if an adequate defense-in-depth was maintained against an unmonitored, unanticipated release of radioactive material to the environment. This included projected radiological doses to members of the public. There were no abnormal releases noted. This review represented one sample.

There had been no significant changes made to the ODCM or to the liquid and gaseous radioactive waste system design, procedures, or operation including effluent monitoring and release controls since the last inspection. The inspectors reviewed the licensee's verification of the offsite dose calculation software. This review represented one sample.

The inspectors reviewed a selection of monthly, quarterly, and annual dose calculations to ensure that the licensee properly calculated the offsite dose from radiological effluent releases and to determine if any annual RETS/ODCM

(i.e., Appendix I to 10 CFR Part 50) values were exceeded. This review represented one sample.

The inspectors reviewed air cleaning system surveillance test results to determine if the system was operating within the licensee's acceptance criteria. The inspectors reviewed surveillance test results for the vent flow rates and determined if the flow rates were consistent with UFSAR values. This review represented one sample.

The inspectors reviewed records of instrument calibrations performed since the last inspection for each point of discharge effluent radiation monitor and flow measurement device. The current effluent radiation monitor alarm set point values were reviewed for agreement with RETS/ODCM requirements. The inspectors also reviewed calibration records of radiation measurement (i.e., counting room) instrumentation associated with effluent monitoring and release activities. Quality control data for the radiation measurement instruments were evaluated to determine if the instrumentation was operating under statistical control and that any problems observed were addressed in a timely manner. This review represented one sample.

The inspectors reviewed the results of the interlaboratory comparison program to determine the adequacy of the quality of radioactive effluent sample analyses performed by the licensee. The inspectors reviewed the licensee's quality control evaluation of the interlaboratory comparison test results. In addition, the inspectors reviewed the results from the licensee's quality assurance audits to determine whether the licensee met the requirements of the RETS/ODCM. This review represented one sample.

b. Findings

No findings of significance were identified. However, the inspectors evaluated the adequacy of the licensee's surveillance program for the plant circulating water blow-down line which returns plant cooling water along with batch releases of low level liquid radiological waste to the Rock River. These liquid radiological waste releases conformed to NRC requirements for radioactivity concentrations, were part of the licensee's NRC approved effluent release program described in the ODCM, and followed a defined pathway from the site through the blow-down line to the Rock River. Industry experience has shown that the failure of circulating water blow-down line vacuum breakers has resulted in the release of contaminated water into the offsite environment resulting in groundwater contamination. During the inspection, the licensee could not demonstrate that the line was intact. However, the licensee performed a survey of the vacuum breaker vaults. This surveillance demonstrated the presence of water in some of the vaults which indicated that leakage had occurred. The licensee planned to perform additional inspections on the blow-down line vacuum breaker vaults and to perform analyses for tritium and gamma emitting isotopes on any water found in the vaults. Leakage of water from the blow-down line could result in the release of radioactive material into the environment via a release path that was undefined in the ODCM and had no offsite dose estimates. Therefore, this issue remains under review by the NRC and is categorized as an Unresolved Item (URI), (URI 05000454/2006002-02;05000455/2006002-02).

.3 Identification and Resolution of Problems

a. Inspection Scope

The inspectors reviewed the licensee's self assessments, audits, and special reports related to the radioactive effluent treatment and monitoring program since the last inspection to determine if identified problems were entered into the corrective action program for resolution. The inspectors also determined whether the licensee's self-assessment program identified and addressed repetitive deficiencies or significant individual deficiencies that were identified in problem identification and resolution.

The inspectors also reviewed corrective action reports from the radioactive effluent treatment and monitoring program, interviewed staff and reviewed documents to determine if the following activities were being conducted in an effective and timely manner commensurate with their importance to safety and risk:

- Initial problem identification, characterization, and tracking;
- Disposition of Operability/reportability issues;
- Evaluation of safety significance/risk and priority for resolution;
- Identification of repetitive problems;
- Identification of contributing causes;
- Identification and implementation of effective corrective actions;
- Resolution of non-cited violations tracked in the corrective action system; and
- Implementation/consideration of risk significant operational experience feedback.

This review represented one sample.

b. Findings

No findings of significance were identified.

2PS2 Radioactive Material Processing and Transportation (71122.02)

.1 Shipment Preparation

a. Inspection Scope

The inspectors observed packaging and surveying, and reviewed shipping papers for a spent resin shipment. The inspectors observed radiation worker practices to determine if the workers had adequate skills to accomplish each task, to determine if the shippers were knowledgeable of the shipping regulations and if shipping personnel demonstrated adequate skills to accomplish the package preparation requirements for public transport with respect to NRC Bulletin 79-19 and 49 CFR Part 172 Subpart H. The inspectors determined if the receiving licensee was authorized to receive the shipment package. This review was conducted to determine if the licensee's training program provided training consistent with NRC and Department of Transportation requirements.

This inspection sample was partially completed and will be finished at a later time.



b. Findings

No findings of significance were identified.

**4. OTHER ACTIVITIES**

4OA2 Identification and Resolution of Problems (71152)

.1 Routine Review of Identification and Resolution of Problems

a. Inspection Scope

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

b. Findings

No findings of significance were identified.

.2 Selected Issue Follow-up Review - Inadvertent De-boration of the RCS

Introduction: On October 11, 2005, the Unit 2 RCS experienced an unexpected 30 ppm boron dilution below the target boron concentration of greater than or equal to 1790 ppm. This boron concentration was required to support Digital Rod Position Indication operability testing as specified in the Core Operating Limits Reports. Since the testing had not been started, this reduction in boron concentration did not adversely challenge established TSs Shutdown Margin limits. However, it indicated a degradation of one or more barriers to proper reactivity management. The inspectors selected this issue as one annual sample of the licensee's problem identification and resolution program.

Documents reviewed as part of this inspection are listed in the attachment to this report.

a. Prioritization and Evaluation of Issues

(1) Inspection Scope

The inspectors reviewed the apparent cause evaluation associated with CR 384495 and discussed the evaluation with member of the licensee's investigation team. The inspectors compared the evaluation method used to the guidance in the licensee's procedures, and discussed the technical aspects of the issue with member of the licensee's operation staff. The inspectors considered the licensee's evaluation and disposition of performance issues and prioritization of issues. The inspectors also

conducted an independent search on the licensee's corrective action program database to verify if there were similar event in the past.

(2) Issues

In general, the inspectors found that the licensee prioritized and evaluated issues appropriately. The licensee used a TapRoot Root Cause Tree to determine the root cause for each causal factor and the root causes identified were being addressed. Based on the search on the corrective action program database, the inspectors determined that the licensee had performed an adequate review of previous events in the ACE. No significant issues were identified in this area.

b. Effectiveness of Corrective Actions

(1) Inspection Scope

The inspectors reviewed the correction actions prescribed for each apparent cause to determine if the issues were being resolved promptly and appropriately.

(2) Issues

The inspectors determined that the corrective actions addressed the causes that were identified. Although some of the corrective actions were not completed, the inspectors determined that they were appropriate and were being implemented in a timely manner. No significant issues were identified in this area.

.3 Selected Issue Follow-up Review - Unit 1 Pressurizer Containment Isolation Valves Leakage

Introduction: The inspectors identified a Non-Cited Violation of very low safety significance (Green) for failure to follow procedures after an abnormal condition was identified during sampling activities. Specifically, the licensee's personnel failed to follow the chemistry sampling, procedure use, and corrective action program procedures when leakage through the Unit 1 pressurizer liquid sample containment isolation valves was identified. As a result, operability evaluation and entry into TS 3.6.3 for the containment isolation valves were not completed in a timely manner. The inspectors determined that this issue was a violation of TS 5.4.1, "Procedures."

Description: On January 23, 2006, at approximately 9:02 a.m., a chemistry technician was performing daily RCS sampling using chemistry procedure BCP 300-23, "Reactor coolant or Pressurizer Liquid and/or Pressurized Grab Sample" on both units. After requesting the Unit 1 reactor operator to open the RCS containment isolation valves for both units, the technician observed indication of flow on Unit 2 RCS sample line but not on Unit 1 sample line. He then backed out of the procedure and proceeded to line up the Unit 1 pressurizer liquid sample valves to troubleshoot the problem. This action was not consistent with the chemistry sampling procedure, nor with the procedure use and adherence procedure for a situation when an abnormal condition was identified. Per BCP 300-23, the technician should have generated a condition report, contacted supervision and/or the Operations Department for an alternate isolation valve if a

process sample valve could not be verified in its required position. Per HU-AA-104-101, "Procedure Use and Adherence," the technician should have discussed with supervisor and the Operations Department to determine the proper method to place the system in a stable and safe condition if the procedure could not be continued. In addition, per LS-AA-120, "Issue Identification and Screening Process," the technician should have notified Operations Shift Management to discuss potential operability or reportability of the issue upon discovery.

During the unauthorized troubleshooting activities, the chemistry technician observed flow from the Unit 1 pressurizer sample line and was able to confirm with the Unit 1 reactor operator that the pressurizer liquid sample containment isolation valves (1PS9355A/B) were not opened. Therefore, potential leak-by on the Unit 1 pressurizer liquid sample containment isolation valves was identified. The technician did not notify his immediate supervision, the High Radiation Sampling system (HRSS) chemist, until 3 hours later, nor did he write a condition report.

Furthermore, the HRSS chemist did not write a condition report or notify the shift manager immediately. He continued to troubleshoot the problem, and attempted to correct the isolation issue but was unsuccessful. A condition report was eventually generated at 9:30 a.m. on January 24, 2006, but not routed to the shift manager for immediate review. Per LS-AA-120, any equipment issue-related condition report required immediate review by the operations shift management. This condition report was not reviewed by the shift manager until 5:00 a.m. on January 25, 2006.

The shift manager subsequently declared both containment isolation valves inoperable and entered the limiting condition for operations at 12:50 p.m. on January 25, 2006. The pressurizer liquid sample line was then isolated in accordance with the TS Action statement within 1 hour.

Analysis: The inspectors determined that the failure to follow the chemistry sampling, procedure use, and the corrective action program procedures was a performance deficiency. This performance deficiency warranted a significance evaluation 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 did not resemble any of the minor examples in Appendix E, "Examples of Minor Issues," to IMC 0612 and it affected the human performance attribute of the containment function of the barrier integrity cornerstone to provide reasonable assurance that physical barriers protect the public from radio nuclide releases caused by accidents or events. The inspectors also determined that the chemistry technician's and the HRSS chemist's failure to follow procedures and engaged in unauthorized troubleshooting activities affected the cross-cutting area of Human Performance.

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 integrity of reactor containment. Since this finding did not represent an actual open pathway in the physical integrity of reactor containment and did not involve an actual reduction in defense-in-depth for the atmospheric pressure control or hydrogen control functions of the reactor containment. Based on this, the finding was determined to be of very low safety significance.

Enforcement: Technical Specifications 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 chemistry sampling and various administrative procedures. Contrary to the above, between January 23, 2006, and January 24, 2006, a chemistry technician and a chemist failed to follow the chemistry sampling, procedure use and corrective action program procedures after an abnormal condition was identified during sampling activities. Because this violation was of very low safety significance and the issue was entered into the licensee's corrective action program (CR 445208), it was treated as an NCV, consistent with Section V1.A of the NRC enforcement Policy. (NCV 05000454/2006002-03)

The enforcement aspects for the untimely TS action completion is discussed in Section 4OA3 of this report.

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

- .1 (Closed) Licensee Event Report (LER) 05000455-2005-001-00: Unit 2 Automatic Reactor Trip Due to Low Steam Generator Level Resulting from a Software Fault on the Turbine Control Power Runback Feature.

On August 19, 2005, the licensee experienced a reactor trip on low steam generator level, as the 2A Condensate/Condensate Booster pump developed a fault in the motor and tripped offline. The 2D Condensate/Condensate Booster pump was not available due to maintenance. A turbine runback was initiated by the operators in an attempt to match steam flow and feed flow. However, a recently modified turbine control system failed to respond. The licensee later determined that an application software fault caused the failure of the Digital Electro-Hydraulic system to automatically runback the turbine when required. The licensee evaluated the safety significance of the reactor trip and the inspectors reviewed the licensee's evaluation. The inspectors determined that no violation of NRC requirements occurred. However, an inspection finding associated with this issue was discussed in Section 1R17 of NRC Inspection Report 05000454/455/2005011. This LER is closed.

- .2 (Open) Licensee Event Report (LER) 05000454-2006-001-00: Technical Specification Required Action Completion Time Exceeded for Inoperable Containment Isolation valves Due to Untimely Operability Determination

On January 23, 2006, licensee personnel identified that the pressurizer liquid sample containment isolation valves were leaking by. They did not promptly notify shift operations to review the potential impact on containment integrity on this condition. A condition report was written on January 24, 2006, but it was not forwarded to shift operations for a prompt operability determination. Shift operations became aware of this condition during routing condition report review on January 25, 2006. Technical Specification 3.6.3 states that when one or more penetration flow paths with two containment isolation valves inoperable, the affected penetration flow path shall be isolate within 1 hour. Subsequently, the licensee declared the containment isolation valves inoperable and completed all required TS actions. Since the condition was discovered 2 days before, the required TS action completion time would have been

exceeded. However, the inspectors cannot determine if there was a TS violation because the licensee was not able to quantify the leakage due to existing plant configuration. In September 2006 the licensee plans to perform a test to quantify the leakage. Therefore, this issue remains under review by NRC and is categorized as an Unresolved Item 05000454/2006002-04. The human performance aspects of the event was discussed in Section 4OA2 of this report. This LER is closed.

.3 Unit 1 Fire and Notification of Unusual Event

a. Inspection Scope

On February 24, 2006, the inspectors responded to the control room after hearing a plant announcement of a fire in the auxiliary building. Control room personnel had received a fire alarm at 8:36 a.m. for the Unit 1 Train B safety injection pump room. The presence of smoke was confirmed and the fire brigade was dispatched. At 8:54 a.m., a Notification of Unusual Event for "Fire in the Protected Area not extinguished in # 15 minutes or explosion in the Protected Area" was declared. Offsite fire department assistance was requested and received.

The fire was limited to the Unit 1 Refueling Water Storage Tank heater and associated power cable. A large amount of smoke was generated but neither the fire nor the smoke had any significant impact on plant operation. The Notification of Unusual Event was terminated at 11:09 a.m. after a non-safety related breaker, which failed to automatically trip, and an associated electrical short was isolated. The inspectors assessed licensee performance during the event, damage assessment activities following the event, and root cause analysis efforts.

b. Findings

No findings of significance were identified.

.4 Unit 2 Train D Steam Generator Feedwater Control Malfunction

a. Inspection Scope

On March 31, 2006, the inspectors responded to the control room after notified by the licensee that the feedwater controlling channel to the Unit 2 Train D steam generator malfunctioned. Control room personnel received numerous alarms when the Unit 2 Train D steam generator feedwater channel spiked high momentarily. Plant system responded automatically by decreasing feedwater flow to the affected steam generator. Operators took manual control of the feedwater regulation valve and stabilized the plant. The event was terminated when operators restored steam generator level to normal.

The inspectors assessed the operators' actions during the event, evaluated plant parameters, system responses, and fission product barrier integrity.

b. Findings

No findings of significance were identified.

#### 4OA5 Other

##### 1. Implementation of Temporary Instruction (TI) 2515/165 - Operational Readiness of Offsite Power and Impact on Plant Risk

###### a. Inspection Scope

The objective of TI 2515/165, "Operational Readiness of Offsite Power and Impact on Plant Risk," was to confirm, through inspections and interviews, the operational readiness of offsite power systems in accordance with NRC requirements. On March 15 through 17, 2006, the inspectors reviewed licensee procedures and discussed the attributes identified in TI 2515/165 with licensee personnel. In accordance with the requirements of TI 2515/165, the inspectors evaluated the licensee's operating procedures used to assure the functionality/operability of the offsite power system, as well as, the risk assessment, emergent work, and/or grid reliability procedures used to assess the operability and readiness of the offsite power system.

The information gathered while completing this Temporary Instruction was forwarded to the Office of Nuclear Reactor Regulation for further review and evaluation.

###### b. Findings

No findings of significance were identified.

#### 4OA6 Meetings

.1 The inspectors presented the inspection results to Mr. D. Hoots and other members of licensee management on April 10, 2006. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

##### .2 Interim Exit Meetings

Interim exits were conducted for:

- Radiation Protection inspection with Mr. S. Kuczynski on February 3, 2006.

#### 4OA7 Licensee Identified Violations

None.

ATTACHMENT: SUPPLEMENTAL INFORMATION

## SUPPLEMENTAL INFORMATION

### KEY POINTS OF CONTACT

#### Licensee

D. Hoots, Site Vice President  
M. Snow, Plant Manager  
B. Adams, Engineering Director  
D. Drawbaugh, Emergency Preparedness Manager  
S. Gackstetter, Operations Training Manager  
W. Grundmann, Regulatory Assurance Manager  
S. Kerr, Chemistry Manager  
W. Kouba, Nuclear Oversight Manager  
S. McCain, Corporate Emergency Preparedness Manager  
M. Marchionda, Shift Operations Supervisor  
D. Palmer, Radiation Protection Manager  
B. Perchiazzi, Engineering Supervisor  
M. Prospero, Operations Manager  
M. Snow, Work Management Director  
B. Youman, Maintenance Manager

#### Nuclear Regulatory Commission

R. Skokowski, Chief, Division of Reactor Project

### LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

#### Opened

05000454/2006002-02 05000455/2006002-02	URI	Licensee Unable to Verify Pipe Integrity (Section 2PS1.2)
05000454/2006002-04	URI	Quantification of Containment Isolation Valve Leakage

#### Opened and Closed

05000454/2006002-01 05000455/2006002-01	NCV	Degraded Incorrect Plant Barrier Impairment Evaluation Resulted in an Auxiliary Building Integrity (Section 1R13)
05000454/2006002-03	NCV	Failure to Follow Procedure Resulted in Untimely Completion of Operability Evaluation (4OA2)
05000455/2005-001-00	LER	Unit 2 Automatic Reactor Trip Due to Low Steam Generator Level Resulting From a Software Fault on the Turbine Control Power Runback Feature
05000454/2006-001-00	LER	Technical Specification Required Action Completion Time Exceeded for Inoperable Containment Isolation Valves Due to Untimely Determination

Closed

None

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 or 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.

### 1R04 Equipment Alignment

Drawing M-61, Sheet 1A, "Diagram of Safety Injection," Revision AP;  
Drawing M-61, Sheet 1B, "Diagram of Safety Injection," Revision AT;  
Drawing M-61, Sheet 3, "Diagram of Safety Injection," Revision AE;  
Drawing M-61, Sheet 4, "Diagram of Safety Injection," Revision AP;  
Procedure, BOP CS-M2B, Containment Spray System, Train B Valve Lineup, Rev. 1;  
Procedure, BOP CS-E2B, Containment Spray System, Train B Electrical Lineup, Rev. 1;  
Procedure, BOP SI-M1A, Safety Injection System Valve Lineup;  
Procedure, BOP SI-E1A, Safety Injection System Lineup Sheet;  
CR 441589, NRC Identified Housekeeping Issues;  
CR 442048, Issues Identified in the Auxiliary Building;  
CR 442745, Seal Tight Needs Repair.

### 1R05 Fire Protection

OP-AA-201-006; Control of Temporary Heat Sources, Revision 2;  
OP-AA-201-009; Control of Transient Combustible Material, Revision 4;  
OP-MW-201-007; Fire Protection System Impairment Control, Revision 3;  
Byron Station Pre-Fire Plans, Turbine Building-426' Elevation (Zone 8.5-1), Revision 3;  
Byron Station Pre-Fire Plans (Revision 4) for the Plant Areas Listed in Report Section 1R05;  
1BOSR SX-SA1; Unit 1 Diesel Generator Essential Service Water Crosstie Line Semi-Annual Flush, Revision 11;  
Drawing (P&ID) M-42, Sheet 3; Diagram of Essential Service Water, Revision AZ;  
Drawing (P&ID) M-42, Sheet 4; Diagram of Essential Service Water, Revision AM;  
Drawing (P&ID) M-37; Diagram of Auxiliary Feedwater, Revision AV;  
UFSAR Section 9.2.1.2; Essential Service Water System;  
UFSAR Section 10.4.9; Auxiliary Feedwater System;  
CR 446846, NRC Identified Non-Secured Items in the Plant;  
CR 448721, Temporary Scaffolds in Turbine Building Greater Than 90 Days;  
CR 448769, Auxiliary Building Storage Issues, February 01, 2006;  
CR 449621, Seismic Housekeeping Issues in the Auxiliary Building, February 03, 2006.

### 1R07 Heat Sink Performance

CR 448673, Degraded Cooler Flange Connection, February 01, 2006;  
WO 570105, 1VA04SB, HX Inspection per Generic Letter 89-13, February 07, 2006.

1R11 Licensed Operator Requalification Program (Quarterly)

CR 461308, NRC Inspector Questions Design Basis Steam Generator Tube Rupture Operator Acceptance Criteria;  
Byron Station Licensed Operator Requalification Simulator Scenario Guide, Design Basis Steam Generator Tube Rupture - Time Evaluation #06-2-1, Revision 0.

1R12 Maintenance Effectiveness

CR 394647, No Control Power to the 2B Auxiliary Feedwater Pump, November 04, 2005;  
CR 452218, Unit 2 Train B DG VAR Swings;  
CR 436037, Apparent Cause Report, 1A Emergency Diesel Generator Experienced Large Swings in VARS;  
CR 438938, Loss of Control Power 2B AF Pump, January 05, 2006;  
CR 451493, 2B DG VARS Rapid Swing of 10000 KVARs, February 08, 2006;  
BYR 86162, Failure analysis (1) Basler Potentiometer Part Number 04768/R1379525-148, February 03, 2006.

1R13 Maintenance Risk Assessments and Emergent Work Control

Work Order 858956, Unit 2 AF Pump ASME Surveillance;  
Byron's Archival Operations Narrative Logs, March 20, 2006;  
Policy No: 400-47, Byron Operating Department Policy Statement, Revision 9;  
Unit 1 & Unit 2 Risk Configuration, Week of March 20, 2006, Revision 3;  
Protected Equipment Log, March 21, 2006;  
Issue-472308, Emergent OLR Evaluation Completed for 2BOSR 8.1.12-1, March 29, 2006;  
Unit 1 and Unit 2 Risk Configurations, Week of February 06, 2006, Revision 1;  
Unit 1 and Unit 2 Risk Configurations, Week of February 20, 2006, Revision 2;  
WC-AA-101, Protected Equipment Log, Revision 11, February 08, 2006;  
CR 451041, IDNS and NRC Find Ventilation Barrier Requirements Not Met, February 7, 2006;  
CR 467573, IDNS and NRC Find Incomplete Operability Discussion in CR 451041.

1R14 Non Routine Evolutions

BAR 2-15-D3, SG 2D Flow Mismatch Steam Flow Low, Revision 1;  
BAR 2-15-D11, SG 2D FW Nozzle Flow High Low, Revision 6;  
BAR 2-15-D4, SG 2D Flow Mismatch FW Flow Low, Revision 1  
BOA-INST-2, Operation With a Failed Instrument Channel Unit 2, Revision 103;  
CR 458296, Disagreement on Emergency Action Level Classification;  
CR 459402, Unusual Event Critique Items;  
CR 463483, Safety of Toxic Atmosphere;  
CR 458458, Critique of Unit 1 RWST Heater Fire Event;  
CR 458146, Unit 1 RWST Heater Failure and Smoke Generated.

## 1R15 Operability Evaluations

UFSAR Table 9.4-2, Control Room HVAC System Failure Analysis;  
NUREG-0876, Safety Evaluation Report related to the operation of Byron Station Units 1 and 2, Dated February 1982;  
Emergency Operating Procedure 1BEP-0, "Reactor Trip or Safety Injection," Rev. 107;  
CR 430681, Air/Gas Vented From the 1B RH System, December 05, 2005;  
CR 430695, ECCS Venting Observations, December 05, 2006;  
CR 439818, 1A Charging Pump Using Excessive Oil, January 07, 2006;  
CR 446599, 1A CV Pump Oil Leak at 1TE-CV001D Journal BRG Temperature Indicator, January 27, 2006;  
CR 446604, 1A CV Pump Oil Leak at 1TE-CV001E Thrust BRG Temperature Indicator, January 27, 2006;  
CR 446614, 1A CV PP Three Minor Oil Leaks at Outboard Journal BRG BKT, January 27, 2006;  
CR 455202, CV Pump Oil Usage Monitoring Plan Enhancements, February 17, 2006;  
CR 461744, NRC Questions Regarding The Zero Alpha Control Room Ventilation System Train Operability Basis;  
CR 462041, Zero Alpha VC Inlet Dampers 0VC32Y/281Y Not Tested Per the UFSAR;  
CR 461881, Equipment Status Tag on Zero Alpha VC Supply Fan Creates Issues;  
CR 461353, Two VC Makeup Filter Trains Line Up At The Same Time;  
CR 461596, Zero Alpha VC Train Inoperability 0VC032Y Failure;  
CR 461245, Prompt Investigation Report For Degraded Zero Alpha VC Train Damper Caused By Failure of Damper to Reposition During Upon Demand;  
CR 461319, VC Damper 032Y Failed and Retested Without Determining The Cause of the Failure;  
SPP-04-009, "Control Room Envelope Tracer Gas Test," Revision 0;  
Technical Specification Basis B 3.7.10-2, VC Filtration System;  
CR 438719, Temperature Swings During Run of Unit 1 Train B D/G;  
CR 449700, Engineering Product Was Graded QRT Level 3;  
CR 441557, NRC Question, Should Temperature Controller Be Safety Related;  
CR 441546, NRC Question Regarding the Need to Revise BOP DG-11T2 to Remove the Air Manifold Temperature Manual Trip;  
Procedure BOP DG-11T2, Diesel Generator Operating Log, Revision 11;  
CR 456315, Broken Pushrod on the 5L cylinder of the Unit 2 Train A D/G;  
CR 456933, Crossover Rocker Arm Binding on the 5L Cylinder of the Unit 2 Train A D/G;  
CR 456857, Multiple Cracked Pushrods Found During NDE of the Unit 2 Train A D/G;  
EC 355497, Operability Evaluation, 1B CV Pump Oil Leak, Revision 1;  
EC 359619, Operability Evaluation 05-002, D/G Operation and Operability with Flame Hardened Pushrods;  
EC 359550, Unit 2 Train a D/G Push Rod Breakage Evaluation;  
BYR-94248, Metallurgical Evaluations of Cracked Pushrods from the 2A EDG at Byron Station;  
CR 462373, Problem with Spare D/G Push Rod Delivery;  
Work Order 690628, Inspection and Lubrication of Bubble Tight Dampers;  
Work Order 660655, Hydromotor Damper Actuator Preventive Maintenance for Damper 032Y;

Work Order 777033, Trouble Shoot and Repair Possible Failure of the Actuator to Damper 032Y;  
SER 2005-31, Issue Resolution Documentation Information, December 07, 2005;  
Adverse Condition Monitoring and Contingency Plan, Unit 1 Cycle 14 Accumulator Leakage, Revision 0;  
Op Deter/ER 99-028, Operability Documentation, Revision 4.

1R17 Permanent Plant Modifications (Annual)

EC 349674, Implement Logic Change to Valve 1SX147A (T40-022), February 17, 2006.

1R19 Post Maintenance Testing

WR 894176-02, "A" Train Essential Service Water Valve Indication Test, February 22, 2006;  
WO 785399 Load the D/G to 110% of Real Load and Then to Maximum VARS For 1 Minute Per 2BOSR 8.1.14-2 Step 10, Then After 1 Minute to Reduce Diesel Loading To Normal as Specified in 2BOSR 8.1.2-2;  
WO 805702, Operations Post Maintenance Testing For 1SX147A Logic Changes, February 17, 2006;  
WO 869997, Slave Relay Train A SI-K610/WO, SX, VP, February 22, 2006;  
WO 872664, ASME Surveillance Requirements for Safety Injection Pump, February 03, 2006;  
WO 894067 (Performance Monthly Surveillance) for PMT of the Unit 2 B D/G;  
WO 894176, Operations Post Maintenance Test-STT/PIT Per Applicable BOSRs on 1SX114A, February 22, 2006;  
1BOSR 0.5-3.SX.1-1, 1SX016A, 1SX027A, 1SX112A, 1SX114A, 1SX147A, 1SX169A and 1SX005 Stroke Test, Revision 6;  
2BOSR 0.5-3.CC.1-3, STT for 2CC9473A and 2CC9473B, March 22, 2006;  
CR 455341, 1SX114A Would Not Open During Testing of 1SX147A, February 17, 2006;  
CR 468858, TSs Applicability Question, March 21, 2006;  
CR 468916, 0A SX Makeup Pump Trip, March 21, 2006;  
CR 469149, 2CC9473A Will Not Stroke Open, March 21, 2006;  
CR 469881, Tubing Plumbed From Lube Oil Filter to DP Switch Backwards, March 23, 2006;  
CR 893433, 0A Sx Makeup Pump Monthly Operability Surveillance, March 23, 2006.

1R22 Surveillance Testing

WO 861968, ASME Surveillance Requirements for 2A Containment Spray, January 26, 2006;  
WO 861969, Slave Relay Train A CS-K644/CS (WK F), January 26, 2006;  
WO 874689, Unit 2 Slave Relay Train B K644 Containment Spray;  
2BOSR 3.2.8-644B, Unit 2 ESFAS Instrument Slave Relay Surveillance, Revision 1;  
CR 458431, Contingency Unit 1 Train B Safety Injection Pump Motor Testing;  
MA-BY-723-330, "Testing of AC Motors Using Baker Advanced Winding Analyzer," Revision 0;

1BVSR-AF-1AA, Unit 1B Diesel Auxiliary Feedwater Pump Battery Bank A Battery A (1AF01EA-A) Capacity Test, Revision 3;  
2BOSR 3.2.8-621B, ESFAS Instrumentation Slave Relay Surveillance (Train B FW Pump Trip, S/G Level Hi-Hi K621), Revision 1;  
2BOSR 3.2.8-632B, Unit 2 ESFAS Instrumentation Slave Relay Surveillance (Train B Auxiliary Feedwater Actuation - Relays K632, K639);  
WO 874681, Slave Relay Train B Safety Injection K608, 1BOSR 3.2.8-608B, Unit 1 ESFAS Instrumentation Slave Relay Surveillance, Train B Automatic Safety Injection K608;  
CR 450707, NRC Review of Completed 1BVSR AF-1AA, February 06, 2006;  
CR 461135, RCS Leakrate Accuracy and Variables, March 02, 2006;  
CR 467573, NRC Identifies Incomplete Operability Discussion in IR 45104, March 17, 2006;  
B 3.6.6, Containment Spray and Cooling Systems, TS Bases;  
BOP CS-5, Containment Spray System Recirculation to the RWST, Revision 7;  
1ST-BYR-BDOC-V-06, Inservice Testing Bases Document, Containment Spray Pump.

1R23 Temporary Modification

CR 466385, NRC Identified Unit 1 B Feedwater Pump Oil Reservoir Out of Specification Readings With No Corrective Actions;  
Temporary Configuration Change Package (TCCP) EC 356816, "Disable the 1B FW Pump Low Reservoir Level alarm".

1EP6 EP Drill Evaluation

EP-AA-102, Exelon Nuclear Radiological Emergency Plan Annex for Byron Station, Revision 18.

2OS1 Access Control to Radiologically Significant Areas; and

2OS2 ALARA Planning And Controls

RP-AA-460; Controls For High And Very High Radiation Areas; Revision 10;  
RP-AA-227; Prenatal Radiation Exposure; Revision 3 ;  
Byron Station 2005 Source Term Reduction Plan;  
CR 441039; NOS Identifies RP Assessment Deficiency & Enhancement; Dated January 11, 2006;  
CR 439717; Alara Concerns When Entering and Exiting HRAs; dated January 6, 2006;  
CR 440371; Recommendation From B2R11 RP Post Outage Check-In Not Complete; dated January 9, 2006;  
CR 248901; Increased Dose Rates At 401' Aux Bldg; dated August 31, 2004;  
B2R12 Alara Index;  
S/G Project Outage Alara Report B2R12;  
RWP10005515; B2R12 Scaffold Work; Revision 1;  
RWP10005515; TEDE Alara Evaluation; dated September 17, 2005;  
RP-BY-460-1001; HRA & LHRA Barrier Guidance; Revision 2;  
RP-BY-460-1004; Secure HRA Controls; Revision 0;  
OBMSR-RD-1; High Rad Door Inspection; Revision 1;

RP-AA-19; HRA Program Description; Revision 1;  
RP-AA-10; RP Process Description; Revision 1.

2PS1 Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems Program

CR 00438474; Recorder Reading 30 to 40 GPM Less Than Calculated, January 4, 2006;  
CR-00399730; GDT's Are Losing Pressure For No Apparent Reason; November 11, 2005;  
CR 00398501; Steady Pressure Loss In GDT's; November 14, 2005;  
CR 00350931; Leakage Of 0CW276 CW B/D Vacuum Breaker; July 7, 2005;  
CR 00398539; Potential Uncontrolled Release Of Radioactive Material; November 14, 2005;  
CR 00334935; OPR05J CPU Board Appears To Be Bad; May 13, 2005;  
CR 380500; OPR02J LOCAR Restoration Not Meeting 14 Day Requirement; September 30, 2005;  
CR 324066; U1 & U2 Exceeded ODCM Projection For Organ Dose For March; April 11, 2005;  
CR 308076; ODCM Compositor Sample Line Loss Of Flow; August 5, 2004;  
CR 245024; Iodine Releases Concerns For B1R13; August 5, 2004;  
CR 350931; Leakage Of 0CW276 CW B/D Vacuum Breaker; July 7, 2005;  
Byron Radioactive Effluent Release Report January, 2003 through December, 2003;  
Byron Radioactive Effluent Release Report January, 2004 through December, 2004;  
BCP-400-TCMNT; Routine Gaseous Effluent, Release Number 60027;  
BCP-400-TWX26; Liquid Radwaste Release Tank 0WX26T, Release Number 60028;  
BCP-400-TWASTE GAS, Gaseous Effluent, Release Number 60030;  
BCP-400-TWX26, Liquid Radwaste Release Tank 0WX26T, Release Number 60033;  
BCP-400-TCMNT/Routine, Gaseous Effluent, Release Number 60034;  
WO 727927; Inspect Repair, Pump Out CW B/D Vault PM ID 98871; July 7, 2005;  
0B05R0.1-0; Radiation Gaseous Effluent Monitoring Channel Check; June 30, 2005;  
WO 643419; Cal Of Aux Bldg Unit 2 Exhaust Tunnel Air Filter; May 24, 2005;  
OBVSR 7.12.2-11; OB Non-accessible Exhaust Filter Plenum Carbon Sample Analysis; May 2, 2005;  
WO 643419; Cal Of Aux Bldg Unit 2 Exhaust Tunnel Air Flow Loop; May 24, 2005;  
Lab QA Data; Lower Limits Of Detection; February 1, 2006;  
10CFR50.75(g)(1) CW B/D Leaks Occurring April 1986; October 28, 1997;  
WO 564380; Cal Of Aux Bldg Vent Stack Gas Monitor; November 18, 2004;  
WO 587348; Cal Of Liquid Radwaste Release Flow Control Loop; January 13, 2005;  
WO 520483; Liquid Radwaste Effluent Rad Monitor Cal; August 12, 2004;  
NOSA-COMP-05-08; 2005 ODCM REMP, Effluent & Environmental Monitoring;  
NOSA-BYR-05-08; ODCM REMP, Effluent & Environmental Monitoring.

2PS2 Radioactive Material Processing and Transportation

RWP 10006407; Shipment Of High Level HICS/Liners Including All Preps; December 16, 2005;

CR 361876-03; Quick Human Performance Investigation: Seavan Dose Rate Greater Than 10 mr/hr At 2 Meters; September 19, 2005;  
Radwaste Manifest 1003-C-0014; Shipment # RWS 06-003; January 31, 2006.

#### 4OA2 Identification and Resolution of Problems

CR 384495, Inadvertent DeBoration of the Unit 2 Reactor Coolant System;  
CR 385012, Inadvertent DeBoration Appears to Meet Expectations, October 12, 2005;  
CR 386359, Lack of Reactivity Management, October 14, 2005;  
CR 441548, Feed Breakers for Pressurizer Heaters Failed Surveillance,  
January 12, 2006;  
CR 444368, Missed LCOAR Entry for Waste Gas Analyzer, January 21, 2006;  
CR 446538, Breaker Tripped During Testing and Would Not Reset, January 27, 2006;  
CR 446542, Breaker Failed Testing, January 27, 2006;  
CR 449347, TLCO Documentation Issues for CNMT Overcurrent Devices (8.A),  
February 02, 2006;  
CR 450707, NRC review of completed Unit 1 B aux feed pump battery bank A Battery A  
Surveillance Identified Two Questions;  
CR 456444, 0BOL 10.A Not Entered for 2A DG CO2 Inoperability, February 21, 2006;  
BCP 300-23, Reactor Coolant or Pressurizer Liquid and/or Pressurized Grab Sample,  
Revision 30;  
OP-AA-108-112, Definition and Measurement of Mispositioned Plant Components,  
Revision 1;  
OP-AP-300-1003, PWR Reactivity Maneuver, Revision 0;  
OP-AP-300-1004, PWR Boration and Dilution Requirements, Revision 0;  
CR 445208, Apparent Cause Report, Unit 1 Pressurizer Containment Isolation Valves  
Unplanned LCO Entry, March 06, 2006;  
EC 359098, Evaluate Crediting Valves 1PS5553A, 1PS158 and 1PS133 To Stop PS  
System Leakage Past Containment Isolation Valves, January 25, 2006;  
LS-AA-120, Issue Identification and Screening Process, Revision 4;  
LS-AA-125, Corrective Action Program Procedure, Revision 9;  
HU-AA-104-101, Procedure Use and Adherence, Revision 1;  
Unit 2 Standing Order Log No. 05-030, Byron Unit 2 Cycle 13 RCS Boron Requirements  
for Modes 2-5, October 07, 2005.

#### 4OA3 Event Followup

CR 472586, Flex Conduit from 1JB1253A Needs Inspect/Repair, March 30, 2006;  
CR 458250, ALERT Declaration Challenge Following NOUE Termination;  
CR 458146, Root Cause investigation of Fire and NOUE;  
CR 471952, NRC Items of Interest, Unit 1 RWST Tunnel, March 29, 2006;  
CR 473251, NRC Identified That the Feeder Breaker for Bus 134Y May Have Been  
Challenged and Failed To Trip;  
Point History - SG Levels, RCS Penetration, Delta Flux Power, Pressure Level, Loop  
Delta T, March 31, 2006;  
LER 05000455/2005-001-00, Unit 2 Automatic Reactor Trip Due to Low Steam  
Generator Level Resulting from a Software Fault on the Turbine Control Power Runback  
Feature;

CR 458296, Disagreement on Emergency Action Level Classification;  
CR 463945, Need megger of RWST Heater Cable;  
CR 459402, Unusual Event critique items;  
CR 458563, Unit 1 Train B Safety Injection Pump Room Cooler Isolation Valve Found Not Full Open;  
CR 463483, Safety of Toxic Atmosphere;  
CR 458474, Auxiliary Contact of Breaker Check Required Following Fire;  
CR 458458, Critique of Unit 1 RWST Heater Fire Event;  
CR 458146, Unit 1 RWST Heater Failure and Smoke Generated;  
ASME N509-2002, "Nuclear Power Plant Air-Cleaning Units and Components";  
Regulatory Guide 1.52, Revision 2 and Revision 3, "Design, Inspection, and Testing Criteria for Air Filtration and Adsorption Units of Post-Accident Engineered-Safety-Feature Atmosphere Cleanup Systems in Light-Water-Cooled Nuclear Power Plants";  
Drawing 6E-1-4007L, "Key Diagram 480V Turbine Building Substation Bus 134Y (1AP17E)," Revision M;  
Drawing 6E-1-4653E, "Internal/External Wiring Diagram 480V Turb BLDG Substation 134Y (1AP17E)," Revision K;  
Drawing 6E-1-4030SI39, "Schematic Diagram Refueling Water Storage Tank Heating System," Revision G;  
Drawing 6E-1-4030SI38, "Schematic Diagram Refueling Water Storage Tank Heating Pump 1SI03P," Revision G;  
DS Breaker Data sheet for Breaker Serial Number 02YN133B2-2.

#### 4OA5 Operational Readiness of Offsite Power and Impact on Plant Risk (TI 2515/165)

OP-AA-108-107-1001, Station Response to Grid Capacity Conditions, Rev. 1;  
WC-AA-104, Review and Screening for Production Risk, Revision 9;  
OP-AA-101-113-1004, Guidelines for the Morning Plant Status Reports, Rev. 7;  
WC-AA-101, On-Line Work Control Process, Revision 11, Page 1 of 32;  
OBOA Elec-1, Degraded SWYD Voltage Unit 0, Revision 5;  
Unit ½ Standing Order, Log No. 06-007, GenManager Tickets;  
CR 00463784, Unplanned LCOAR Entry on Bus 131X, March 09, 2006



## LIST OF ACRONYMS USED

ADAMS	Agency wide Documents Access and Management System
AFW	Auxiliary Feedwater
ASME	American Society of Mechanical Engineers
CFR	Code of Federal Regulations
CR	Condition Report
DG	Diesel Generator
DRP	Division of Reactor Projects; Region RIII
ESF	Engineered Safety Feature
GL	Generic Letter
HRA	High Radiation Area
IMC	Inspection Manual Chapter
IR	Inspection Report
ISI	Inservice Inspection
LCOAR	Limiting Condition for Operation Action Requirement
LER	Licensee Event Report
MSIV	Main Steam Isolation Valve
NCV	Non-Cited Violation
NOUE	Notification of Unusual Event
NRC	United States Nuclear Regulatory Commission
NRR	Office of Nuclear Reactor Regulation
ODCM	Offsite Dose Calculation Manual
PARS	Public Availability Records
PI	Performance Indicator
PWR	Pressurized Water Reactor
RCS	Reactor Coolant System
RETS	Radiological Environmental TSs
RP	Radiation Protection
RWST	Refueling Water Storage Tank
SDP	Significance Determination Process
SG	Steam Generator
SSC	Structure, System and Component
SX	Essential Service Water
TI	Temporary Inspection
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report
URI	Unresolved Item
VHRA	Very High Radiation Area
WO	Work Order
WR	Work Request