

November 14, 2007

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 05000454/2007004 AND 05000455/2007004

Dear Mr. Crane:

On September 30, 2007, 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 October 05, 2007, 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.

This report documents two NRC-identified findings of very low safety significance (Green). Both findings involved violations of NRC requirements. In addition, one issue was reviewed under the NRC traditional enforcement process and determined to be an NRC-identified Severity Level IV violation of NRC requirements. However, because of the very low safety significance of the violations and because they were entered into your corrective action program, the NRC is treating these violations as non-cited violations (NCVs) consistent with Section VI.A.1 of the NRC Enforcement Policy. Additionally, a licensee-identified violation is listed in Section 40A7 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 Station.

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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 05000454/2007004 and 05000455/2007004;
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 - 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

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Vice President - Operations Support
Vice President - Licensing and Regulatory Affairs
Director Licensing
Manager Licensing - Braidwood and Byron
Senior Counsel, Nuclear
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SUBJECT: BYRON STATION, UNITS 1 AND 2 NRC INTEGRATED INSPECTION
REPORT 05000454/2007004 AND 05000455/2007004

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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: 05000454/2007004 and 05000455/2007004

Licensee: Exelon Generation Company, LLC

Facility: Byron Station, Units 1 and 2

Location: Byron, IL 61010

Dates: July 1 through September 30, 2007

Inspectors: B. Bartlett, Senior Resident Inspector
R. Ng, Resident Inspector
C. Acosta Acevedo, Reactor Engineer
J. Bartleman, Reactor Engineer
J. Cassidy, Health Physicist
R. Jones, Reactor Engineer
T. Koonce, Reactor Engineer
D. Lords, Reactor Engineer
G. Roach, Braidwood Resident Inspector
S. Sheldon, Reactor Engineer
R. Winter, Reactor Engineer
C. Thompson, Illinois Emergency Management Agency

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

SUMMARY OF FINDINGS

IR 05000454/2007004; 05000455/2007004; 07/01/2007-09/30/2007; Byron Station, Units 1 and 2; Maintenance Effectiveness, Post-Maintenance Test, Component Design Bases Inspection.

This report covers a three-month period of baseline resident inspection and announced baseline inspection on public radiation protection. These inspections were conducted by regional inspectors, regional health physics inspector, and the resident inspectors. One Severity Level IV violation and two Green findings, which were non-cited violations (NCVs), 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. NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

A. Inspector-Identified and Self-Revealed Findings

Cornerstone: Mitigating Systems

- Green. The inspectors identified a NCV of Technical Specification 3.8.1 for the licensee's failure to determine the applicability of a potential common cause failure for the remaining operable Diesel Generator (D/G) following the failure during testing of the Unit 1 Train B D/G. Technical Specification 3.8.1 required that the operability of the remaining D/G be demonstrated by either determining the operable D/G is not inoperable due to common cause failure or to start the remaining D/G starts in accordance with TS Surveillance requirement 3.8.1.2. Contrary to the TS requirements, the remaining D/G was not started and the assessment the licensee performed did not adequately determine that the remaining D/G was not inoperable due to a common cause failure. This finding is related to the cross-cutting area of Human Performance for failure to use conservative assumptions in decision making (H.1(b)). Licensee corrective actions included revising the assessment to adequately demonstrate that the remaining D/G was not inoperable due to a common cause failure and retraining the involved personnel.

The inspectors concluded that the finding was more than minor because if the condition had existed on the remaining D/G and left uncorrected, it could have degraded and impacted the operability and availability of the remaining D/G. The finding was of very low safety significance because the inspectors determined that the finding did not represent an actual loss of a safety function. (Section 1R12)

- SL-IV. The inspectors identified a NCV of 10 CFR 50.59(d)(1) for the licensee's failure to document an evaluation that provided a basis for the determination that the change, test, or experiment did not require a license amendment.

Specifically, for Special Test Procedure SPP-07-002, "Test of 1B DG Voltage Regulator Following Maintenance Via SX Pump Start," the licensee failed to provide an evaluation as to why disconnecting the offsite electrical power feed to the emergency bus during power operation with an inoperable diesel generator did not present more than a minimal increase in the likelihood of occurrence of a malfunction of a structure system or component important to safety previously evaluated in the Updated Final Safety Analysis Report. The licensee entered the appropriate limiting condition of operation for the offsite power circuit during the test, entered this issue into the corrective action program, and initiated actions to complete a 10 CFR 50.59 evaluation to determine if these procedure changes were acceptable without a license amendment. The primary cause of this issue was related to the cross-cutting area of Human Performance for failure to use conservative assumptions in decision making and to adopt a requirement that demonstrates the proposed action is safe in order to proceed (H.1(b)).

Because the issue potentially impacted the NRC's ability to perform its regulatory function, this finding was evaluated using the traditional enforcement process. The finding was determined to be more than minor because the inspectors could not reasonably determine that the special test procedure, that affected the Updated Final Safety Analysis Report described design function of equipment important to safety, would not have ultimately required NRC prior approval. Based upon the Phase 1 screening, the inspectors concluded that the issue was of very low safety significance. (Section 1R19)

- Green. The inspectors identified a NCV of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," having very low safety significance involving the ultimate heat sink (UHS) capability of mitigating the effects of tornado missiles. Specifically, the inspectors identified that the licensee failed to demonstrate that the ultimate heat sink can withstand the effects of tornado borne missiles rendering all cooling tower fans out of service. In addition, the licensee failed to update their current analysis to show the higher heat load generated as a result of power up-rate, steam generator replacement and the ultimate heat sink design basis reconstitution. In response to the issue, the licensee implemented compensatory actions including allowing only one fan to be inoperable at a time and performing an operability evaluation.

The finding was more than minor because the temperature of the UHS could have exceeded its design value in the event of a tornado and a loss of all cooling towers. The finding was of very low safety significance because the inspectors determined that the UHS was in a non-conforming but operable condition and the issue screened as Green using the SDP Phase 1 screening worksheet. (Section 1R21)

B. Licensee Identified Violations

One 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 corrective actions 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 August 25, 2007, the unit reduced power to 94% to start a main feedwater pump for a maintenance run. The unit returned to full power on August 26, 2007.
- On September 2, 2007, the unit reduced power to 95% to swap main feedwater pumps. The unit returned to full power on September 3, 2007.

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

1. REACTOR SAFETY

Cornerstone: Initiating Events, Mitigating Systems, Barrier Integrity and Emergency Preparedness

1R01 Adverse Weather Protection (71111.01)

a. Inspection Scope

The inspectors evaluated the licensee's preparations for impending severe thunderstorm conditions. This was primarily accomplished by verifying that the licensee had completed the requirements of Abnormal Operating Procedures, 0/1/2BOA ENV-1, "Adverse Weather Conditions," after a severe thunderstorm warning was issued by the National Weather Service for the Byron area. The inspectors walked down areas of the plant to look for potential wind generated missiles. The inspectors also verified that all four emergency diesel generators (D/G) were available and operable.

The documents reviewed during this inspection are listed in the Attachment to this report. The inspectors verified that minor issues identified by the licensee were entered into the licensee's corrective action program. This review constituted one sample of the inspection requirement for impending weather conditions.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04Q)

.1 Complete Walkdown

Inspection Scope

During the inspection, the inspectors finished one complete system alignment inspection of the accessible portions of the Unit 2 Component Cooling Water System.

In addition to the walkdowns, the inspectors reviewed the following documentation to verify that the system was properly maintained in accordance with design basis documents:

- Selected operating procedures regarding system configuration;
- The Updated Final Safety Analysis Report (UFSAR), system drawings, and other selected design bases documentation regarding the system; and
- Issue reports (IRs) for the system initiated within the last year.

Documents reviewed as part of this inspection are listed in the Attachment.

b. Findings

No findings of significance were identified.

.2 Partial Walkdowns

a. Inspection Scope

The inspectors performed five 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 Technical Specifications (TS) to determine the functional requirements of the systems.

The inspectors verified the alignment of the following:

- Unit 1 Train A Auxiliary Feedwater (AF) While Unit 1 Train B AF was Out of Service;
- Unit 1 Train A Safety Injection System While Unit 1 Train B Safety Injection System was Out of Service;
- Unit 1 Train A D/G with the Train B D/G Out of Service;
- Unit 1 Train B D/G during the Train A D/G Surveillance; and
- Unit 2 Train B Containment Spray System while Unit 2 Train A Containment Spray System was Out of Service.

The documents reviewed during this inspection are listed in the Attachment to this report. The inspectors also verified that minor issues identified during the inspection were entered into the licensee's corrective action program.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

.1 Quarterly 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.

The inspectors verified that fire hoses and extinguishers were in their designated locations and available for immediate use; that fire detectors and sprinklers were unobstructed; that transient material loading was within the analyzed limits; and that fire doors, dampers, and penetration seals appeared to be in satisfactory condition.

The Byron Station Pre-Fire Plans, applicable for each area inspected, were used by the inspectors to determine approximate locations of firefighting equipment.

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

- Unit 1 Train B Diesel Fuel Oil Storage Tank (Zone 10.1-1);
- Unit 1 Train B AF Pump Room (Zone 11.4A-1);
- Unit 2 Train B AF Pump Room (Zone 11.4A-2);
- Auxiliary Building Elevation 383' General Area (Zone 11.4-0);
- Turbine Building 451' General Area (Zone 8.6-0);
- Unit 2 Division 21 Miscellaneous Electrical Equipment and Battery Room (Zone 5.2-2);
- Circulating Water pump House (Zone 18.12-0);
- Unit 1 Train B Diesel Generator & Day Tank Rooms (Zone 9.1-1 & 9.4-1); and
- Unit 2 Train B Diesel Generator & Day Tank Rooms (Zone 9.1-2 & 9.4-2).

The inspectors reviewed selected issues documented in IRs, to determine if they had been properly addressed in the licensee's corrective action program. The inspectors also verified that minor issues identified during the inspection were entered 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.

.2 Annual Inspection of Fire Brigade Performance

a. Inspection Scope

The inspectors observed the licensee's fire brigade response to a simulated fire in the Unit 1 250 Volt Battery Room and on a separate occasion, the Unit 1 Train A D/G. The inspectors assessed the following criteria to ensure the licensee's response was in compliance with fire protection requirements:

- Number of fire brigade members, including a brigade leader, properly responded;
- Protective equipment, including self-contained breathing apparatus, was donned properly;
- Fire fighting equipment was adequate and appropriately used at the scene;
- Command and control, communications, and procedure usage were appropriate;
- Victims and fire propagation checks were conducted;
- Fire response was conducted in accordance with training and procedures;
- Smoke removal was simulated;
- Drill objectives were met;
- Emergency action level conditions were discussed; and
- Critique conducted by the licensee identified and discussed the same deficiencies identified by the inspectors.

This inspection constituted one sample of the annual requirement. Documents reviewed as part of this inspection are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures (71111.06)

a. Inspection Scope

The inspectors evaluated the licensee's controls for mitigating internal and external flooding by completing one annual sample for internal flooding and one annual sample for external flooding. The specific areas evaluated for the internal flooding sample included the turbine building elevations 380 and 401, and auxiliary building elevation 401, circulating water screen house and auxiliary building elevation 401. The specific areas evaluated for the external flooding sample included the auxiliary building elevations 346, 364, 383 and 401, and the outside ground elevation areas around the

entire station (Units 1 and 2). During the evaluation, the inspectors performed the following:

- Reviewed the licensee's design basis documents including the UFSAR and Safety Evaluation Report, to identify the design basis for flood protection and to identify areas susceptible to flooding;
- Assessed plant configurations that may be impacted by flooding;
- Inspected areas for control of material that could potentially clog floor drains; and
- Inspected water-tight doors and flood seals.

The inspectors also evaluated the licensee's response to Information Notice 2005-30 Flooding Vulnerabilities Due to Inadequate Design and Conduit/Hydrostatic Seal Barrier Concerns (OpESS) FY 2007-02, which had been entered into the licensee's corrective action program (IR 380153)

The inspectors also reviewed selected issues documented in IRs 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 Regualification (71111.11)

a. Inspection Scope

The inspectors completed one inspection sample by observing and evaluating a small break LOCA scenario with turbine failing to trip. 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.

The inspectors verified that the crew completed the critical tasks listed in the simulator guide associated with the scenario. 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 three inspection samples by evaluating the licensee's implementation of the maintenance rule, 10 CFR 50.65, as it pertained to identified performance problems associated with the following structures, systems, and/or components:

- Station Air Compressors;
- Unit 0 Train A Essential Service Water (SX) Makeup Pump Autostart; and
- Unit 1 Train B D/G Voltage Regulator Failure;

The inspectors evaluated the licensee's handling of structures, systems, and components (SSC) condition problems in terms of work practices and characterization of 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 were risk significant and extent of condition was reviewed as applicable. Work practices were reviewed for contribution to potential degraded conditions of the affected SSCs. Related work activities were observed and corrective actions were discussed with licensee personnel. The licensee's handling of the issues being reviewed was evaluated under the requirements of the maintenance rule.

The inspectors also reviewed selected issues documented in IRs, 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

1. Unit 1 Train B Emergency Diesel Generator (D/G) Voltage Regulator Failure

Introduction: The inspectors identified an unresolved item (URI) concerning the availability of the emergency diesel generator to perform its safety function.

Description: On August 29, 2007, the Unit 1 Train B (1B) D/G was declared inoperable when the generator output voltage showed abnormal swings during the monthly surveillance run. Attempts to correct the voltage swings were unsuccessful. The operator manually opened the 1B D/G output breaker and shutdown the D/G to prevent possible damage to the generator. The licensee performed troubleshooting and identified that two potentiometers within the voltage regulator, one in the error detection circuit (R3) and one in the stabilization circuit (R4), were defective. The licensee replaced the voltage regulator and returned the D/G to service on August 31, 2007.

The licensee subsequently performed a failure analysis on the two potentiometers and identified that both potentiometers showed partially hardened grease impregnated with dirt or debris inside the potentiometers and on the wiper contacts. Additionally, loose wiper contact rings were also found. Both potentiometers exhibited erratic and fluctuating high resistance readings when subjected to very light mechanical agitation. The inspectors determined that the R3 potentiometer was associated with the test circuit of the D/G and the failure of it only affected the manual operation of the D/G. However, the R4 potentiometer was part of the stabilization circuit that was utilized during emergency operation of the D/G. Its failure would affect the emergency operation of the D/G and render the D/G inoperable. Towards the end of this reporting period, the licensee performed an evaluation and determined that potentiometer R4 was damaged during troubleshooting of the D/G voltage swings and it was functioning normally during the event. Therefore, the licensee concluded that the 1B D/G remained operable and capable of supplying power to the emergency bus before the D/G was shutdown for maintenance.

The inspectors are currently reviewing the licensee's evaluation with respect to the operability of the D/G during the event. Therefore, this issue is considered an URI pending NRC review of the licensee's evaluation. (URI 05000454/2007004-01)

2. Inadequate Common Mode Failure Evaluation

Introduction: The inspectors identified a NCV of TS having very low safety significance (Green). Specifically, the licensee declared the 1B D/G inoperable when the generator output voltage showed abnormal swings during the monthly surveillance run, but failed to run the 1A D/G or provide adequate justification that the voltage regulation problem observed on the 1B D/G did not represent a potential for a common mode.

Description: On August 29, 2007, the Unit 1 Train B (1B) D/G was declared inoperable when the generator output voltage showed abnormal swings during the monthly surveillance run. Attempts to correct the voltage swings were unsuccessful. The operator manually opened the 1B D/G output breaker and shutdown the D/G to prevent possible damage to the generator. Technical Specification 3.8.1 required that the operability of the remaining D/G be demonstrated by either determining the operable D/G is not inoperable due to common cause failure or to start the remaining D/G starts in accordance with TS Surveillance requirement 3.8.1.2. The licensee decided not to run the 1A D/G based on indications that the problem was associated with a portion of the voltage regulatory only associated with the test circuitry, specifically potentiometer R3, and therefore no common cause mechanism existed.

The licensee performed troubleshooting and identified that two potentiometers within the voltage regulator, one in the error detection circuit (R3) and one in the stabilization circuit (R4), were defective. Based on the indications and troubleshooting, the licensee believed that potentiometer R3 caused voltage swings and that potentiometer R4 was damaged during the troubleshooting. The licensee replaced the entire voltage regulator, successfully tested and returned the 1B D/G to service on August 31, 2007.

Subsequent evaluation by the resident inspectors and regional specialist inspectors determined that both potentiometers R3 and R4 were utilized by the voltage regulator in

both the emergency and test mode of operations. Therefore, a potential common cause mechanism did exist at the time of the time of the 1B D/G failure, and the justification provided by the licensee was inadequate, therefore the 1A D/G should have been started in accordance with the TS. Subsequent analysis by a licensee laboratory determined that the 1B D/G failure was due to the failure of the R3 potentiometer and the failure of R4 did not contribute to the voltage stabilization issue. In addition, a subsequent successful routine start of the 1A D/G verified that the failure did not exist on the opposite D/G.

Analysis: The inspectors determined that this issue was a performance deficiency warranting a significance evaluation, because the licensee failed to run the 1A D/G or provided an adequate justification that a potential common cause mechanism did not exist as required by TS following the failure of the 1B D/G voltage regulator on August 29, 2007. The inspectors concluded that the finding was greater than minor in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Disposition Screening." Specifically, if the condition had existed on the remaining D/G and left uncorrected, it could have degraded and impacted the operability and availability of the remaining D/G. This finding screened as very low safety significance (Green) as it did not represent a loss of system safety function, an actual loss of safety function of a single train greater than the TS allowable outage time, an actual loss of safety function of non-TS equipment, or screen as potentially risk significant due to a seismic, flooding or severe weather initiating events. This finding is related to the cross-cutting area of Human Performance for failure to use conservative assumptions in decision making (H.1(b)).

Enforcement: Technical Specification 3.8.1, "AC Sources - Operating," required action B.4 states, "Determine OPERABLE DG is not inoperable due to common cause failure. OR Perform SR 3.8.1.2 for OPERABLE DG." Required action B.4 has a completion time requirement of 24 hours. Contrary to the above, the licensee failed to either determine that the operable D/G (Unit 1 Train A) was not inoperable due to a common cause failure following the failure of the Unit 1 B D/G nor was the operable D/G started in accordance with TS Surveillance requirement 3.8.1.2 within 24 hours. Because this violation was determined to be of very low safety significance, and it was entered into the licensee's corrective action program it is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy. This licensee entered this issue into its corrective action program as IR 666981. This information was not known to licensee personnel at the time of the original 1B D/G failure. Licensee corrective actions included revising the assessment to adequately demonstrate that the remaining D/G was not inoperable due to a common cause failure and retraining the involved personnel. (NCV 05000454/2007004-001).

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 completed five inspection samples by reviewing the following activities:

- Emergent Risk due to work on the 345 kV Cherry Valley Line
- Unit 1 Train B SX Pump Work Window While Unit 0 Train B SX Make-up Pump was Out of Service
- Unit 1 Train A SX Pump Work Window While Unit 0 Train A Auxiliary Building Charcoal Booster Fan was Out of Service
- Emergent Risk due to Unit 0 Train A SX Make-up Pump Level Switch Failure; and
- Emergent Risk due to Failure of the Unit 1 Train B D/G.

The documents reviewed during this inspection are listed in the Attachment to this report. The inspectors also verified that minor issues identified during the inspection were entered into the licensee's corrective action program.

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 samples by reviewing the following evaluations and issues:

- Unit 2 Emergency Core Cooling System Excessive Air Venting;
- Ultrasonic Testing Thickness on Unit 0 Train B SX piping below 87.5%;
- Steam Generator Tube Rupture Analysis Input Error;
- Barton Transmitter Environmental Qualification; and
- Elevated Vibrations on the Unit 2 Train B Rod Control Motor Generator Set.

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 reviewed the licensee's adverse condition monitoring plan and determined whether the evaluation was consistent with the requirements of licensee procedures. The inspectors determined whether compensatory measures, if needed, were taken, and determined whether the evaluations were consistent with the requirements of licensee procedures. The inspectors also discussed the details of the evaluations with the shift managers and appropriate members of the licensee's engineering staff.

The inspectors also reviewed selected issues documented in IRs, 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 (71111.17A)

a. Inspection Scope

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

- Unit 2 Train B SX Pump Oil Cooler Replacement

The inspectors reviewed the setpoint scaling change after the SX makeup pump low lube oil pressure trip was received prematurely during pump operation. The inspectors verified that the design basis, licensing basis, and performance capability of SX were not degraded by the scaling change. The inspectors considered the design adequacy of the modification by performing a review of the modification's impact on plant electrical requirements, response time, control signals, equipment protection, operation, failure modes, and other related process requirements. Implementation and testing was reviewed to ensure SSC performance criteria were met.

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

- Updated Final Safety Analysis Report; and
- Technical Specifications.

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

- Unit 2 Train B Component Cooling Water Pump Work Window;
- Unit 0 Train B SX Makeup Pump ;
- Unit 1 Train A SX Pump Work Window;
- Unit 0 Train A SX Pump Autostart Circuit Failure;
- Unit 1 Train B EDG Following Voltage Regulator Replacement;
- Unit 1 Train A Steam Generator Power Operated Relief Valve Limit Switch Sealrite and Circuit Repairs; and
- Unit 1 Train B Instrument Bus 213 Work Window.

The inspectors also reviewed selected issues documented in IRs 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

Inadequate Basis in 10 CFR 50.59 Evaluation Associated with a Special Test Procedure

Introduction: The inspectors identified a Severity Level IV NCV of 10 CFR 50.59, "Changes, Tests, and Experiments," having very low safety significance (Green) for the licensee's failure to perform an adequate safety evaluation review associated with a special test procedure for the emergency diesel generator.

Description: On August 29, 2007, the Unit 1 Train B (1B) emergency diesel generator was declared inoperable when the generator output voltage showed abnormal swings. The cause of the abnormal indications was determined to be a faulty voltage regulator. Subsequently the voltage regulator was replaced and the licensee prepared a special test procedure, SPP-07-002, "1B Diesel Generator Voltage Regulator Special Procedure," to functionally test the emergency diesel generator voltage regulator by starting the 1B emergency diesel generator, paralleling the diesel generator to Engineering Safety Feature Bus 142, removing Bus 142 from the offsite powered System Auxiliary Transformer 142-2 and stating a large single load, Unit 1 Train B SX

pump. This test was performed to verify proper voltage response during emergency operation of the diesel generator.

The inspector reviewed the special test procedure and determined that the 50.59 review for the procedure did not provide a basis as to why disconnecting the offsite electrical power feed to the emergency bus during power operation with an inoperable diesel generator did not present more than a minimal increase in the likelihood of occurrence of a malfunction of a structure system or component important to safety previously evaluated in the Updated Final Safety Analysis Report. Per UFSAR, under normal and emergency conditions, offsite power is the preferred power source for the engineered safety feature electrical bus and is required to be connected to the safety bus. The emergency diesel generator serves as a backup power source in case offsite power is lost. The inspectors also identified that the emergency diesel generator sequence test, a similar test with the safety bus disconnected from offsite power and supplied by bus with loads auto-connected sequentially, was prohibited to be performed at power since the sequence test would remove a required offsite circuit from service, perturb the electrical system and challenge safety system. In addition, entry to limiting condition for operation with one offsite electrical circuit and one emergency diesel generator inoperable was not directed by the special test procedure.

Upon questioned by the inspectors, the licensee agreed to enter the appropriate limiting condition for operation with one offsite electrical circuit and one emergency diesel generator inoperable during the test. However, the 50.59 evaluation was not revised. After further evaluation, the licensee subsequently determined that the 50.59 evaluation was inadequate. This issue was entered into the corrective action program (IR 680067) to revise the 50.59 evaluation.

Analysis: The inspectors determined that this issue was a performance deficiency warranting a significance evaluation, because the licensee failed to provide an adequate basis for a special test procedure in accordance with 10 CFR 50.59. Specifically, the licensee failed to provide an adequate basis as to why disconnecting the offsite electrical power feed to the emergency bus during power operation with an inoperable diesel generator did not present more than a minimal increase in the likelihood of occurrence of a malfunction of a structure system or component important to safety previously evaluated in the UFSAR. The finding was determined to be more than minor because the inspectors could not reasonably determine that the test would not have ultimately required NRC prior approval. This finding is related to the cross-cutting area of Human Performance for failure to use conservative assumptions in decision making and to adopt a requirement that demonstrates the proposed action is safe in order to proceed with respect to reviewing the plant design and license basis. (H.1(b))

Because violations of 10 CFR 50.59 are considered to be violations that potentially impede or impact the regulatory process, they are dispositioned using the traditional enforcement process instead of the SDP. However, if possible, the underlying technical issue is evaluated under the SDP to determine the severity of the violation. In this case, the underlying technical issue affected the Mitigating Systems Cornerstone. The finding was evaluated under the SDP using NRC's IMC 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations." This finding screened as very low safety significance (Green) as it did not represent a loss of system

safety function, an actual loss of safety function of a single train greater than the TS allowable outage time, an actual loss of safety function of non-TS equipment, or screen as potentially risk significant due to a seismic, flooding or severe weather initiating events.

Enforcement: 10 CFR 50.59 (d)(1) states, in part, that the licensee shall maintain records of tests and experiments as described in UFSAR and must include a written evaluation which provides the bases for the determination that the test does not require a license amendment. Contrary to this, the licensee failed to provide an adequate basis for the determination that the special test procedure, SPP-07-002, 1B Diesel Generator Voltage Regulator Special Procedure, was acceptable without a licensee amendment. Specifically, in the safety evaluation for SPP-07-002, the licensee failed to provide an adequate basis as to why disconnecting the offsite electrical power feed to the emergency bus during power operation with an inoperable diesel generator did not present more than a minimal increase in the likelihood of occurrence of a malfunction of a structure system or component important to safety previously evaluated in the USFAR.

In accordance with the Enforcement Policy, this violation of the requirements of 10 CFR 50.59 was classified as a Severity Level IV violation because the underlying technical issue was of very low safety significance. Because this non-willful violation was non-repetitive, and was captured in the licensee's corrective action program, it is considered an NCV consistent with VI.A.1 of the NRC Enforcement Policy. (NCV 05000454/2007004-02)

1R21 Component Design Bases Inspection (71111.21)

a. Inspection Scope

Unresolved Item (URI 05000454/2005002-07; URI 05000455/2005002-07) was opened during the 2005 NRC safety systems design, performance and capability inspection (SSDPC) due to discrepancies in the UFSAR related to the licensee's coping analysis during a design basis tornado. During this inspection period, the inspectors reviewed several documents and discussed the issue with members of the Office of Nuclear Reactor Regulation (NRR). This inspection did not represent an inspection sample.

b. Findings

Discrepancies with Tornado Analysis

Introduction: The inspectors identified a Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," having very low safety significance (Green) related to the ultimate heat sink's ability to remove heat during a design basis tornado. Specifically, the inspectors identified that the licensee failed to demonstrate that the ultimate heat sink would perform its safety functions during a design basis tornado as it was approved in their original Safety Evaluation Report (SER).

Description: As stated above, an URI was previously opened due to discrepancies in the UFSAR related to the licensee's coping analysis during a design basis tornado. These evaluations were presented in UFSAR Section 3.5.4.1 Essential Service Water

Cooling Tower (Byron) and Section 9.2.5.3.2 Essential Service Water Cooling Towers. Both of these sections referred to analysis conducted to determine the cooling tower capacity during a tornado with no fans available. These analysis assumed the plant was shutdown with a loss-of-offsite-power without a loss-of-cooling-accident and concluded that the service water temperature would not exceed 110 degrees Fahrenheit (°F). These analyses were equivalent to the analyses presented in Byron's original Safety Evaluation Report (NUREG 0876).

While reviewing these design basis tornado analyses, the inspectors noted that the heat load used in the calculations was smaller than the actual heat load that the ultimate heat sink would experience. When the inspectors questioned the licensee about this non-conservative calculation, the licensee's staff determined that these analysis had not been updated to reflect the changes to the heat load as a result of the steam generator replacement and the power uprate. The licensee's staff also added that the analysis presented in UFSAR Section 9.2.5.3.5 presented an evaluation for a more severe tornado than the Design Basis Tornado.

As a result of the SSDPC inspection, two issue reports were written to address this URI: IR 296033, "SX [essential service water] Cooling Tower Missiles Protection in UFSAR Section 3.5.2.b Did Not Get Properly Revised During the Design Basis Reconstitution," and IR 295141: "UFSAR Described Analysis of the Effects of Multiple Tornado Missiles on the SXCT [essential service water cooling tower] was not Updated to Reflect Changes to the Heat Load Made During the Design Basis Reconstitution."

As part of the closing actions taken to resolve this issue, the inspectors requested additional information from the licensee to understand what is Byron Station's design and licensing basis tornado coping analysis. The inspectors noted the following:

- Byron's original SER Section 3.5.2, "Structures, Systems and Components to be Protected from Externally Generated Missiles," stated "the results of an analysis showed that in the event of a failure of all the essential service water cooling tower fans SXCT, the SX system temperature can be maintained within acceptable limits for proper operation" and that the licensee "has satisfactorily demonstrated the availability of the SX system and ultimate heat sink (UHS) in the event of postulated tornado missiles." The NRC concluded that the design of the SXCT met the guidelines of Regulatory Guide 1.27, "Ultimate Heat Sink for Nuclear Power Plants," with respect to missile protection.
- Section 3.5.2, stated, in part, that based on these analyses, the NRC concluded that "the applicant's list of safety-related structure, systems, and components to be protected from externally generated missiles and the provisions in the plant design providing this protection are in accordance with the requirements of General Design Criteria (GDC) 4 with respect to missile effects."
- Section 9.2.5, "Ultimate Heat Sink", of NUREG-0876, stated, in part, "the UHS function is not affected by tornado missiles as discussed further in Section 3.5.2 of this SER."

- In a letter to the NRC titled, "Deferral of Limited Aspects of the Initial Test Program," dated November 3, 1986, the licensee stated that the licensing basis for a tornado assumed the loss of one four-cell cooling tower as a result of passive failure and one additional cell in the other cooling tower due to a tornado borne missile.
- As a result of the UHS Design Basis Reconstitution, the licensee submitted an Application for Amendment to the Facility dated March 31, 1992, to request changes to Specification 3/4.7.5 and the Bases Section 3/4.7.5 for the Ultimate Heat Sink. In this Amendment, the licensee stated that discussions of basin (UHS) temperature following a design basis tornado event has been removed from the Bases. Prior to removal, the bases stated that: "With water in the cooling tower basin at the initial temperature less than or equal to 80 °F, shutdown can be achieved, for meteorological conditions following a design basis tornado, without operation of the cooling tower fans and without temperature of the water discharged from the SX pump exceeding 110 °F, the maximum acceptable temperature for components and systems cooled by the essential cooling water system."

In response to this application, the NRC issued an SER which concluded that staff (NRC) reviewed the changes and found that the licensee met the requirement of GDC 44; however, the staff did not comment on the ability to meet GDC 4.

After further discussions with members of the NRR, the inspectors concluded that the licensing and design basis tornado analysis for Byron Station included the evaluation which had been presented in the original SER (NUREG 0876). Therefore, the licensee needed to demonstrate operability of the UHS assuming no fans available. In addition, the inspectors noted that the licensee had not determined the impact of the higher heat generated as a result of the power uprate, the steam generator replacement and the design basis reconstitution of the UHS. In response to the issue, the licensee implemented compensatory actions including allowing only one fan to be inoperable at a time, performing an operability evaluation, and revising the calculations to include the higher heat loads.

Analysis: The inspectors determined that failure to demonstrate that the ultimate heat sink can meet its design safety-related function of removing decay heat during a design basis tornado was a performance deficiency. The inspectors determined that the finding was more than minor in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Dispositioning Screening," because it was associated with the attribute of design control, which affected the Mitigating Systems cornerstone objective of ensuring the availability and reliability of safety-related systems. Specifically, the temperature of the UHS could exceed its design value in the event of a tornado and a loss of all cooling towers.

The inspectors determined the finding could be evaluated using the SDP in accordance with IMC 0609, Appendix A, using the Phase 1 worksheet for the Mitigating System cornerstone. The inspectors concluded the UHS had been operable because UHS temperatures were less than the initial temperature assumed in the tornado analysis for

the past year. The inspectors determined that the UHS was in a non-conforming but operable condition, answered "yes" to the first question in the worksheet, and concluded the issue was of very low safety significance (Green).

The inspectors did not identify a cross-cutting aspect associated with this finding because the failure to demonstrate the ability to meet the design basis occurred several years ago and was not reflective of current performance.

Enforcement: Title 10 CFR Part 50, Appendix B, Criterion III, "Design Control," required, in part, that design control measures shall provide for verifying or checking the adequacy of design, such as by the performance of design reviews, by the use of alternate or simplified calculational methods, or by the performance of a suitable testing program.

Contrary to the above, as of March 31, 1992, the licensee's design control measures failed to verify the adequacy of design of the ultimate heat sink. Specifically, the licensee did not demonstrate that with the higher heat load experienced as a result of the steam generator replacement and increased power levels, the UHS could withstand the effects of tornado borne missiles. The licensee entered the finding into their corrective action program as IR 663350 to revise the affected analyses. 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.1 of the NRC Enforcement Policy (NCV 05000454/2007004-003; 05000455/2007004-003).

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors witnessed selected surveillance tests 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.

These activities represented seven samples. The following surveillance tests were selected:

- Unit 2 SX Pump 2SX01PB Group A Inservice Test (Inservice Test (IST));
- Unit 1 Train A D/G Operability Monthly Surveillance (Routine);
- Unit 2 Train A Containment Spray Pump Inservice Test (IST);
- Unit 2 Train A D/G Engineered Safeguards Feature (ESF) start and run (Routine);
- Monthly Operational Test Security D/G (Routine); and
- Unit 2 Loop A Main Steam Power Operated Relief Valve Stroke Test (IST);
- Unit 1 Train B Safety Injection Pump Inservice Test.

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. Also, the inspectors verified that minor issues identified during this inspection were entered into the licensee's corrective action program.

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

1EP1 Drill Evaluation (71114.06)

a. Inspection Scope

On September 5 and September 29, 2007, the inspectors observed licensee performance during two site emergency preparedness drills in the Technical Support Center and the simulator control room. The inspectors observed communications, event classification, and event notification activities by the simulated shift manager and station emergency director. The inspectors also observed portions of the post drill critique to determine whether their observations were also identified by the licensee's evaluators. The inspectors verified that minor issues identified during this inspection were entered into the licensee's corrective action program. The inspectors completed one inspection sample.

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: 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 2006 Radiological Effluent Release Report to evaluate whether the program was implemented as described in the Radiological Effluent Technical Specification/Offsite Dose Calculation Manual (RETS/ODCM). The inspectors evaluated the licensee's analysis for any additional discharge pathways as a result of a spill, leak, routine, normal, abnormal, or unexpected liquid discharge or gaseous

discharges, which may have developed since the previous inspection. The inspectors verified that the licensee had records on sampling locations, type of monitoring and frequency of sampling.

The inspectors reviewed the licensee's RETS/ODCM to identify the licensee's program for identifying potential contaminated spills and leakage and reviewed the licensee's process for control and assessment.

These reviews combined with the reviews included in Inspection Report 05000454/2006002; 05000455/2006002 represented one inspection sample.

b. Findings

No findings of significance were identified.

.2 Groundwater Protection

a. Inspection Scope

The inspectors reviewed the licensee's 10 CFR 50.75(g) file which documented the tritium contamination identified near vacuum breaker valve vaults. The inspectors reviewed the licensee's evaluation of the spill/leak incident and the licensee's remedial actions including the associated projected dose to the public. The inspectors reviewed a 2006 investigation report developed for the Byron Station which evaluated the hydro-geologic characteristics of the site including the groundwater flow patterns. Additionally, the inspectors reviewed the licensee's recently implemented groundwater monitoring program for detecting potential leaks and spills. These reviews were performed to determine if the licensee had a program for early detection of spills/leaks, understood the site's groundwater flow pathways, and had the capability to assess the radiological impact of a spill/leak should it occur.

These reviews combined with the reviews included in Inspection Report 05000454/2006002; 05000455/2006002 represented two inspection samples.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151)

Cornerstone: Mitigating Systems, Barrier Integrity

.1 Initiating Events and Barrier Integrity Performance Indicators

a. Inspection Scope

The inspectors sampled the licensee's submitted materials for performance indicators (PIs) and periods listed below. The inspectors used PI definitions and guidance contained in Revision 5 of Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," to verify the accuracy of the PI data. The following four PIs for Unit 1 and Unit 2, for a total of four samples, were reviewed:

- Unit 1 Reactor Coolant System Identified Leakage (January 2006 to March 2007)
- Unit 2 Reactor Coolant System Identified Leakage (January 2006 to March 2007)
- Unit 1 Safety System Functional Failures (January 2006 to March 2007)
- Unit 2 Safety System Functional Failures (January 2006 to March 2007)

The inspectors reviewed selected applicable condition reports and data from logs, licensee event reports, and work orders from January 2006 through March 2007 for each PI area specified above. The inspectors independently reperformed calculations where applicable. The inspectors compared that information with the performance indicator definitions in the guideline to ensure that the licensee reported the data accurately.

The inspectors reviewed Chemistry Department records including isotopic analyses for selected dates between August 2006 through June 2007 to determine if the greatest dose equivalent iodine values determined during steady state operations corresponded to the values reported to the NRC. The inspectors also reviewed selected dose equivalent iodine calculations including the application of dose conversion factors as specified in plant Technical Specifications. Additionally, the inspectors accompanied a chemistry technician and observed the collection and preparation of reactor coolant system samples to evaluate compliance with the licensee's sampling procedures. Further, sample analyses and calculation methods were discussed with chemistry staff to determine their adequacy relative to Technical Specifications, licensee procedures and industry guidelines. This review supplemented the PI verification for Reactor Coolant System Specific Activities documented in Inspection Report 05000454/2007003; 05000454/2007003.

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

b. Findings

No findings of significance were identified.

Cornerstone: Public Radiation Safety, Occupational Radiation Safety

.2 Radiation Safety Strategic Area

a. Inspection Scope

The inspectors sampled the licensee's submittals for the performance indicator (PI) listed below for the period indicated. The inspectors used PI definitions and guidance contained in Revision 5 of Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," to verify the accuracy of the PI data. The following PIs were reviewed:

1. Radiological Effluent Technical Specification/Offsite Dose Calculation Manual Radiological Effluent Occurrence; and
2. Occupational Exposure Control Effectiveness.

The inspectors reviewed the licensee's corrective action database and selected individual reports generated since August 2006, to identify any potential occurrences such as unmonitored, uncontrolled, or improperly calculated effluent releases that may have impacted offsite dose. The inspectors reviewed gaseous effluent summary data and the results of associated offsite dose calculations for selected dates between August 2006 and July 2007 to determine if indicator results were accurately reported. The inspectors also reviewed the licensee's methods for quantifying gaseous and liquid effluents and determining effluent dose.

The inspectors reviewed the licensee's assessment of the PI for occupational radiation safety to determine if indicator related data was adequately assessed and reported during the previous four quarters. The inspectors compared the licensee's PI data with the corrective action report database, reviewed radiological restricted area exit electronic dosimetry transaction records and discussed data collection and analysis methods for PIs with licensee representatives.

These reviews represented two inspection samples.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152)

.1 Review of Items Entered into the Corrective Action Program:

a. Inspection Scope

As required by Inspection Procedure 71152, Identification and Resolution of Problems, and in order to help identify repetitive equipment failures or specific Human Performance issues for follow-up, the inspectors performed screening of all items entered into the licensee's corrective action program. This was accomplished by reviewing the description

of each new IR and attending selected daily management review committee meetings. Documents reviewed are listed in the Attachment to this report.

b. Findings

No findings of significance were identified.

.2 Annual Sample - Operator Workarounds

a. Inspection Scope

The inspectors reviewed the licensee's ability to identify operator workarounds as well as the timeliness by which they were addressed. The inspectors conducted walkdowns of the plant in order to assess for any deficiencies in the plant that may prevent an operator from performing their job in a timely and safe manner. In addition, a thorough records review was conducted which included the adverse condition monitoring program, the temporary configuration change log, the degraded equipment list, the approved operator aid list, and a historical review of issue reports for potential operator workarounds. Documents reviewed as part of this inspection are listed in Attachment to this report. This review represented one inspection sample for Operation Workarounds.

b. Assessment and Observations

The licensee's corporate procedure for classifying operator workarounds created the category of operator challenges which was differentiated from an operator workaround based on the challenge being an obstacle to normal plant operation while the workaround was described as an obstacle to emergency or safe plant operation (TS/safety-related equipment). There were two items classified as operator challenges and one identified operator workaround. The inspectors noted that the use of a separate category for operator challenges was an acceptable management tool. Interviews with operators determined that they liked the two-tier system as they felt it allowed for a lower threshold of items to be added to the operators' challenges list and they had not observed a decline in the timeliness of addressing operational issues.

c. Findings

No findings of significance were identified.

4OA3 Event Followup

.1 D/G Voltage Regulator Failure

a. Inspection Scope

On August 29, 2007, the Unit 1 Train B (1B) emergency diesel generator was declared inoperable when the generator output voltage showed abnormal swings. The cause of the abnormal indications was determined to be a faulty voltage regulator. Subsequently the voltage regulator was replaced, the D/G was tested and returned to service. The inspectors observed licensee actions taken to verify that they were taken in accordance

with licensee procedures, and reviewed corrective actions to identify and resolve the D/G test failure. Specific issues identified were described in Section 1R12 and Section 1R19 of this report.

b. Findings

No findings of significance were identified.

4OA5 Other Activities

.1 (Closed) Unresolved Item (URI) 05000454/2005002-07; URI 05000455/2005002-07 Discrepancies with Tornado Analysis

This item is discussed in Section 1R21.b of this report. The inspectors identified an NCV of 10 CFR Part 50, Appendix B, Criterion III, "Design Control." This URI is closed.

4OA6 Meetings

.1 On October 5, 2007, the resident inspectors presented the inspection results to Ms. M. Snow and her staff, who acknowledged the findings. 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:

- The progress of the review for the URI associated with Discrepancies with Tornado Analysis was presented to Mr. E. Blondin and his staff on Monday, March 26, 2007. An exit meeting was held for Byron staff on August 22, 2007.
- Radiation Protection (RETS/ODCM) inspection with Mr. Hoots and other licensee staff on September 7, 2007.

4OA7 Licensee-Identified Violations

The following violations of very low safety significance (Green) were identified by the licensee and are violations of NRC requirements which meet the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being disposition as NCVs.

Cornerstone: Mitigating Systems

- Technical Specification 5.4 required implementation of the applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A. Regulatory Guide 1.33, Appendix A, Part 1, Subsection b, recommended procedures for specifying the authorities and responsibilities for safe operation. Procedure OP-AA-101-111, "Roles and Responsibilities of On-Shift Personnel," Revision 1, Step 4.6.4, required that one reactor operator (RO) on each unit shall be designated the Unit RO and shall be at the controls. Contrary to the above, on

August 9, 2007, licensee Senior Reactor Operators (SROs) determined that the Unit 2 RO left the at-the controls area. This issue was considered to be more than minor because if left uncorrected it could become a more significant safety concern. This issue was considered to be of very low safety significance because the operator was about three feet outside the boundary and was still inside the control room and thus available to respond to alarms; the Unit 2 SRO was within the Unit 2 at-the controls area; the RO was outside of the licensee defined at the controls area for approximately 10 seconds; and Unit 2 was in a stable condition. This issue was entered into the licensee's corrective action system as IR 659072.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

D. Hoots, Site Vice President

M. Snow, Plant Manager

D. Thompson, Radiation Protection Manager

A. Giancatarino, Engineering Director

W. Grundmann, Regulatory Assurance Manager

S. Swanson, Maintenance Director

Nuclear Regulatory Commission

R. Skokowski, Chief, Branch 3, Division of Reactor Projects

A. Stone, Chief, Engineering Branch 2

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None

Opened and Closed

05000454/2007004-01	NCV	Inadequate Common Mode Failure Evaluation
05000454/2007004-02	NCV	Inadequate Basis in 10 CFR 50.59 Evaluation Associated with a Special Test Procedure
05000454/2007004-03 05000455/2007004-03	NCV	Discrepancies with Tornado Analysis

Closed

05000454/2005002-07 05000455/2005002-07	URI	Discrepancies with Tornado Analysis
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Discussed

None

LIST OF DOCUMENTS REVIEWED

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

1R01 Adverse Weather Protection

1BOA ENV-1; Adverse Weather Conditions Unit 1, Revision 100
0BOA ENV-1; Adverse Weather Conditions Unit 0, Revision 102
OP-AA-108-111-1001; Severe Weather and Natural Disaster Guidelines, Revision 2

Corrective Action Documents as a Result of NRC Inspection

IR 665063; NRC Identified NDCT Area Debris, August 27, 2007 (NRC Identified)
IR 666814; NRC ID'd Possible Discrepancy with Conduit in CWPB, August 31, 2007 (NRC Identified)

1R04 Equipment Alignment

BOP CC-10; Alignment of the U-0 CC Pump and U-0 HX to a Unit
BOP CC-1; Component Cooling Water System Startup, Revision 9
BOP CC-E2; Component Cooling System Unit 2, Electrical Lineup, Revision 3
BOP CC-M2; Component Cooling System Valve Lineup, Revision 20
BOP CC-M2B; Train "B" Component Cooling System Valve Lineup, Revision 4
BOP CS-M2B; Containment Spray System Train B Valve Lineup; Revision 1
BOP CS-E2B; Containment Spray System Train B Electrical Lineup; Revision 1
BOP AF-M1; Auxiliary Feedwater System Valve Lineup, Revision 14
BOP AF-M1A; Auxiliary Feedwater System Train "A" Valve Lineup, Revision 3
BOP AF-M1C; Auxiliary Feedwater System Train "C" Valve Lineup, Revision 1
BOP AF-E1; Auxiliary Feedwater System Electrical Lineup, Revision 9
BOP AF-E1A; Auxiliary Feedwater System Train "A" Electrical Lineup, Revision 1
BOP SI-M1; Safety Injection System Valve Lineup, Revision 19
BOP SI-M1A; Train "A" Safety Injection System Valve Lineup, Revision 2
BOP SI-M1C; Safety Injection System Valve Lineup, Revision 10
BOP SI-E1; Safety Injection System Electrical Lineup, Revision 7
BOP SI-E1A; Safety Injection System Train "A" Electrical Lineup, Revision 2
BOP SI-E1C; Safety Injection System Electrical Lineup, Revision 4
AR 653379; Trending of Pump Performance - 2CC01PA, July 24, 2007
Drawing M-37; Diagram of Auxiliary Feedwater
Drawing M-50; Diagram of Diesel Fuel Oil, Sheet 1C
Drawing M-61; Diagram of Safety Injection, Sheets 1A & B, 2, 3, 4, 5 and 6
Drawing M-66A; Composite Diagram of Component Cooling, Sheet 1
Drawing M-93; Diagram of Penetration Cooling, Sheet 3, Revision M
Drawing M-97; Diagram of Diesel Generator Room 1A & 1B Ventilation System
Drawing M-129, Sheet 1A; Diagram of Containment Spray; Revision AK

Drawing M-129, Sheet 1C; Diagram of Containment Spray; Revision AG
Drawing M-152; Diagram of Starting Air, Sheet 18, Revision 0
IR 620103; 2B CS Pump Did Not Meet Acceptance Criteria; April 21, 2007

Corrective Action Documents as a Result of NRC Inspection

IR 676700; Boric Acid Leak on Pipe Cap; September 27, 2007 (NRC Identified)

1R05 Fire Protection

Pre-Fire Plans; Circulating Water Pump House, Zone 18.12-0, Revision 4
Pre-Fire Plans; Auxiliary Building - 383' Elevation - General Area - North, Zone 11.4-0 North, Revision 6
Pre-Fire Plans; Auxiliary Building - 383' Elevation - General Area - South, Zone 11.4-0 South, Revision 5
Pre-Fire Plans; Auxiliary Building - 383' Elevation - General Area - West, Zone 11.4-0 West, Revision 5
Pre-Fire Plans; 1B Auxiliary Diesel Feedwater Pump Room, Zone 11.4A-1, Revision 5
Pre-Fire Plans; 2B Auxiliary Diesel Feedwater Pump & Day Tank Room, Zone 11.4A-2, Revision 5
Pre-Fire Plans; 1B Diesel Fuel Oil Storage Tank Room, Zone 10.1-1, Revision 5
Pre-Fire Plans; 2B Diesel Generator & Day Tank Room, Zone 9.1-2, Revision 5
Fire Drill Scenario No. 41; DG Explosion & CO2 Discharge, July 25, 2007
Fire Drill Scenario No. 42; Unit 1 250 Volt Battery Fire, June 17, 2007
Pre-Fire Plan; Auxiliary Building - Elevation 383'-0", Zone 11.4A-2, January 31, 2007
Pre-Fire Plan; Auxiliary Building Elevation 451'-0", Zone 5.2-2, Revision 5
Pre-Fire Plan; Turbine Building Elevation 451'-0", Zone 8.6-0, Southeast & Southwest End, January 31, 2007
Pre-Fire Plan; Turbine Building Elevation 451'-0" Zone 8.6-0, Southeast & Northeast Center, January 31, 2007
Pre-Fire Plan; Turbine Building Elevation 451'-0" Zone 8.6-0, Northeast & Northwest End, January 31, 2007
Pre-Fire Plan; Turbine Building Elevation 451'-0" Zone 8.6-0, Northwest & Southwest Center, January 31, 2007

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IR 655601; NRC Questions Concerning Fire Pre-Plan and Walkdown, July 30, 2007 (NRC Identified)
IR 666800; NRC Question Regarding 2B AF Pump Wall Fire Rating, August 31, 2007 (NRC Identified)
IR 656295; NRC SR Resident Identified Debris in FME 1 Zone, August 1, 2007 (NRC Identified)
IDNS Resident Questions CO2 LCO Applicability with Open Door, July 10, 2007 (NRC Identified)

1R06 Flood Protection Measures

UFSAR Sections: 1.2.1; 2.1.3.3.2; 2.1.3.3.3; 2.4 & 9.3.3.2
IR 665328

Corrective Action Documents as a Result of NRC Inspection

IR 666246; Potential Flying Missile Debris U-2 Transformer Area, August 30, 2007
(NRC Identified)

1R11 Licensed Operator Qualification Program (Quarterly)

Cycle 07-4 Out of the Box Evaluation 07-4-1, Revision 0, August 18, 2007

Corrective Action Documents as a Result of NRC Inspection

IR 663325; NRC Identified Non-Work Related Material In MCR, August 22, 2007

1R12 Maintenance Effectiveness

Maintenance Rule Evaluation for Service Air System, June 2007
IR 34912; 0A SX M/U Pump Auto Started with Normal SX Basin Level, July 01, 2005
IR 369851; 0B SX M/U Pump Auto-Started Unexpectedly, September 03, 2005
IR 372033; 0B SX M/U Pump Spurious Auto Start, September 09, 2005
IR 372185; 0B SX M/U Pump Auto-Start, September 10, 2005
IR 645432; 1B SAC Trip, June 28, 2007
IR 665452; 0A SX M/U Pump Spurious Start, August 28, 2007
Equipment Apparent Cause Report; 0A and 0B SX M/U Pumps Auto-Started
Unexpectedly, December 29, 2005
SAC Work Order History, January 2006 - June 2007
SAC Issue History, July 2005 - June 2007
System Health Overview Report for Service Air, June 2007
Root Cause Report; Unintended Service Air Compressor Shutdowns During Control Panel
Manipulations, August 09, 2007
BOP SA-12; Operations of Sierra Station Air Compressor, Revision 20
Apparent Cause Report; 0A SX M/U Pump Failed to Start by 58% Level,
December 18, 2006
Work Order 1057613 01; 0A SX M/U Pump Spurious Start, August 31, 2007
Maintenance Rule Evaluation; Essential Service Water System, July 2007

1R13 Maintenance Risk Assessments and Emergent Work Control

Unit 1 Risk Configurations; Week of August 06, 2007, Revisions 1 & 2
Unit 1 Risk Configurations; Week of August 27, 2007, Revision 2 & 3
IR 648906; Summer Readiness - Emergency System Product Risk Activity, July 10, 2007
IR 662859; 2BOSR SX-SA1 Schedule Issue, August 21, 2007
WC-AA-101; On-Line Work Control Process, Revision 13
WC-AA-101 Attachment 7; Protected Equipment Process and Methodology, Revision 13

Clearance Order 55026; 0VA03CA, OA VA Charcoal Booster Fan, Change MCC Breaker; July 18, 2007
Clearance Order 54349; 0A VA Non-Access Plenum - Replace 0VA03FA/B/C Filters; July 22, 2007
Protected Equipment Log, August 21, 27 & 29, 2007
Policy No: 400-47; Byron Operating Department Policy Statement, On-Line Risk/Shutdown Risk/Protected Equipment, Revision 12

1R15 Operability Evaluations

Issue 657748; UT Thickness Results on 0B SX Piping in the River Screen House Below 87.5%, August 06, 2007
EC 362535; Operability Evaluation for the Barton Transmitter Issue, June 15, 2007
EC 366877; Minimum Wall Evaluation for "B" SX Makeup Pump Oil Cooler, Jacket Water Cooler, and 8" Pump Discharge Piping, August 08, 2007
NES-MS-03.1; Piping Minimum Wall Thickness Calculation, Revision 3
OP-AA-108-111; Adverse Condition Monitoring and Contingency Plan; 2B Rod Control MG Set; September 21, 2007
OP-BY-106-101-1006; Issue Resolution Documentation Form: 2007-25; September 11, 2007
IR 553027; Unit 1 Rod Control Maintenance Rule (MR) (A)(1) Determination Required-MG Sets; November 13, 2006
IR557813; 1A Rod Control MG Set Did Not Synchronize with the 1B MG Set; November 14, 2006
IR 568495; U1 RD System MG Set Synchronization and parallel Operation; December 12, 2006
IR 618689; R1 2B Rod Drive MG Set Making Abnormal Noise; April 18, 2007
IR 644501; Potential Non-Conservatism in Steam Relief Capacity Modeling, June 26, 2007
IR 652168; Need Work Order (WO) - Elevated Vibration Levels 2B Rod Drive Motor; July 20, 2007
IR 662494; SGTR Analysis Input Error, August 20, 2007
IR 670435; Reactivate Retire Preventative Maintenance for Greasing RD Couplings; September 12, 2007
IR 671100; Motor/Generator Coupling Air Gap Has a 0.068" Discrepancy; September 13, 2007
MA-AA-716-230; Predictive Maintenance Program; Revision 3
MA-AA-716-1002; Vibration Analysis/Acceptance Guideline; Revision 1
UFSAR/FPR Change Request # DRP 9-009
AT 502730; Licensed Operator Time Critical Task Evaluation - SGTR, June 22, 2006
BOP-FR-8, Revision 1; Functional Requirements and Design Criteria Residual Decay Heat Standard
Technical Bulletin TB-07-6; Credited Relief Capacity of Atmospheric Steam Relief System, May 31, 2007
Design Analysis # PSA-B-00-04, Revision 3; Byron/Braidwood Steam Generator Tube Rupture Analysis for Power Upgrading
Operations Evaluation 07-007, Revision 0; Main Steam PORV Steam Relief Capacity
Westinghouse Nuclear Safety Advisory Letter NSAL-06-013, Barton Model 763, 763A and 764 transmitters With Defective External Lead Wire Connectors; dated October 24, 2006.

Corrective Action Documents as a Result of NRC Inspection

IR 675438; Flexible Ductwork Coming Loose at 2RD02J; September 25, 2007
(NRC Identified)

IR 675438; NRC Id'd Flexible Ductwork Coming Loose at 2RD02J, September 25, 2007
(NRC Identified)

1R17 Permanent Plant Modification (71111.17A)

IR 668134; Change Gasket Style on 2SX01AB Oil Piping
WO 974216; Start/Stop 2B SX Pump From 2PL05J, Revision 11

1R19 Post Maintenance Testing

WO 772997 03; SEP Visual on Gear Oil and Oil Leaks, October 10, 2007
WO 854882 02; Operations PMT - Verify Proper CV Pump/Motor Oil Level,
October 10, 2007
WO 906314 02; Operations Post Maintenance Test - 1A MS PORV L. S. Sealtite Repair-
STT/PIT, September 18, 2007
WO 946346 03; 0B SX Makeup Pump Discharge Check Valve Rebuild with Pump
Rebuild, August 09, 2007
WO 953986; OPS PMT-1A MS PORV Cap Replace-STT/PIT & MS & LED Status,
September 18, 2007
WO 99040347 02; SEP Perform 2B CV Pump ASME Per 2BVSR 5.5.8.CV.5-2A,
October 10, 2007
WO 99040347 06; ST CMO Vibration Testing For Uncoupled Motor Run,
October 10, 2007
WO 1021843 01; Align/Adjust Stem to Actuator Coupling
WO 1021843 02; Operations Post Maintenance Test Stroke 1SX143A, August 22, 2007
WO 1027254 01; 2CC01PB Group A IST Requirement for Component Cooling Pump,
July 13, 2007
WO 1045328 01; 2CV01PB Group A IST Requirements for CV Pump, October 10, 2007
WO 1051798; 1B DG Operability Monthly Surveillance
WO 1057613 01; 0A SX M/U Pump Spurious Start, August 31, 2007
IR 666536; Concrete Expansion Anchor Nut Improperly Removed, August 30, 2007
Byron Station Plant Review Report 2001-062; PMT Plan for 2A DG voltage Regulator
Test Procedure SPP-07-002; 1B DG Voltage Regulator Special Procedure,
August 29, 2007
IR 666122; 1B DG Inspection Should Be in Troubleshooting Plan, August 30, 2007
IR 666546; Inverter 112 & 114 AC Input Breaker Trip, August 30, 2007
2BOSR 8.9.1-1; Unit 2 ESF Onsite Power Distribution Weekly Surveillance Division 21,
Revision 9

Corrective Action Documents as a Result of NRC Inspection

IR 663403; PMT Instructions Not Modified in Passport After Pre-Job Brief,
August 22, 2007 (NRC Identified)

IR 672834; 1MS018A Clearance Order Card Found on Deck, September 18, 2007
IR 674200; Posting Enhancement Identified, September 21, 2007

1R21 Safety System Design and Performance Capability

EC 367082; Op Eval 07-008, UHS Capability with Failure of Sx Fans; August 25, 2007

Corrective Action Documents as a Result of NRC Inspection

IR 663338; Resolution of 2005 SSDI Unresolved Item on UHS; August 22, 2007

1R22 Surveillance Testing

WO 1021950 01; 2SX01PB Group A IST Requirements for Essential Service Water, July 02, 2007

WO 1033685; Unit 1 Train B Safety Injection Pump Inservice Test Surveillance (IST), August 08, 2007

WO 1040701 01; 1A Diesel Generator Operability Monthly Surveillance, July 18, 2007

BOP CS-5; Containment Spray System Recirculation to the RWST, Revision 7

Schematic Diagram Diesel Generator 1A Fuel Oil Transfer Pumps, Revision H

0BOSR IS-M1; Security Diesel Generator Monthly Operability Surveillance, Revision 10

OP-AA-101-102; General Area Checks and Operator Field Rounds, Revision 5

2BOSR 0.5-2.MS.3; Unit Two Main Steam System Valve Indication Test, Revision 1

2BOSR 3.2.8-611A; Unit Two Engineered Safeguards Features Actuation System (ESFAS) Instrumentation Slave Relay Surveillance (Train A Automatic Safety Injection - K611); Revision 1

2BOSR 6.3.5-19; Unit 2 Main Steam System Containment Isolation Valve Stroke Test, Revision 5

ER-AA-321; Administrative Requirements for Inservice Testing, Revision 8

Corrective Action Documents as a Result of NRC Inspection

IR 654687; Group A IST Test Performed in Lieu of Group B IST, July 26, 2007 (NRC Identified)

IR 675517; Guage Needs Replacing/Calibrating, September 25, 2007 (NRC Identified)

IR 675527; Run Times Differ on Similar Surveillances for the Sec Diesel, September 25, 2007 (NRC Identified)

IR 676974; Ratio Relay Leaking Fuel Oil During DG Run, September 28, 2007 (NRC Identified)

IR 676978; 2A DG washer Found on Wrong Side of Connection, September 28, 2007 (NRC Identified)

1EP1 Drill Evaluation

Byron 2007 Simulator TSC-OSC PI Drill; Scenario Information

EP-AA-125-1002; R.EP.01 and EPPI.01a-c PI Summary Attachment, Revision 4

EP-MW-114-100-F-01; Nuclear Accident Reporting System (NARS) Form; Revision B

LS-AA-1150; Reactor Plant Event Notification Worksheet; Revision 0

2PS1 Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems

CY-BY-170-301; Byron Station Offsite Dose Calculation Manual; Revision 4
Clinton Power Station 2006 Annual Radioactive Effluent Release Report;
dated April 30, 2007
10 CFR 50.75(g) file for Circulating Water Blowdown Line Vault Leaks
AR 00668775; Tritium Risk Assessment Review and documentation of Updates; dated
September 7, 2007
CY-BY-4160; Radioactive Groundwater Protection Program Scheduling and Notification;
Revision 2
EN-AA-407; Response to Unplanned Discharges, Spills, and Venting of Licensed
Radionuclides to Groundwater; Surface Water or Soil; Revision 0
CY-AA-170-0400; Radiological Groundwater Protection Program; Revision 1
Hydrogeologic Investigation Report for the Byron Generating Station; Revision 1; dated
September 2006
CT-AA-170-415; Controlled RGPP Sample Point Data Standard Control Limits; Revision 2
CY-AA-170-4000; RGPP Reporting Requirements; Revision 2
CY-AA-170-4100, Radiological Groundwater Protection Program Environmental Sample
Collection Implementation; Revision 1
CY-AA-170-4200; RGPP Data Analysis and Annual Report Preparation; Revision 1
CY-AA-170-4400; Groundwater Well and Surface Water Sample Point Selection Criteria;
Revision 1

Corrective Action Documents as a Result of NRC Inspection

IR 668959; NRC ID - Potential Minor Violation with the ARERR; dated September 7, 2007;
(NRC Identified)

4OA1 Performance Indicator Verification

Monthly Data Elements for NRC Safety System Functional Failure, January 2006 -
July 2007
Unit 1 Monthly RCS Leakrate Tracking Data Sheet, January 2006 - July 2007
Quarter 2, 2007 Performance Indicators - Byron Unit 1; Reactor Coolant System Leakage
Quarter 2, 2007 Performance Indicators - Byron Unit 2; Reactor Coolant System Leakage
Monthly Data Elements for NRC Reactor Coolant System (RCS) Leakage, January 2006 -
July 2007
Unit 2 Monthly RCS Leakrate Tracking Data Sheet, January 2006 - July 2007
LS-AA-2150; Monthly Data Elements for RETS/ODCM Radiological Effluent Occurrences;
for Selected Periods of August 2006 through July 2007
LS-AA-2140; Monthly Data elements for NRC Occupational Exposure Control
Effectiveness; for selected periods in July 2005 through November 2006
LS-AA-2150; Monthly Data Elements for NRC Reactor Coolant System (RCS) Specific
Activity; for selected periods of August 2006 through June 2007
1BCP 300-29; Unit 1 CVCS Letdown Hx (CVCS Demin Inlet) HRSS Grab Sample;
Revision 7
2BCP 300-29; Unit 2 CVCS Letdown Hx (CVCS Demin Inlet) HRSS Grab Sample;
Revision 5

4OA2 Identification and Resolution of Problems

Operator Work-Arounds Inspection Data; OWA Board Meeting Minutes, July 31, 2007
IR 660888; CA Closed to Unapproved Lost Parts Evaluation, August 15, 2007

Corrective Action Documents as a Result of NRC Inspection

IR 656855; Oil Usage Log Inconsistently Used, August 3, 2007 (NRC Identified)
IR 664722; Unit 2 NDCT Riser Bypass Valve Leaking By, August 26, 2007
(NRC Identified)

4OA3 Event Follow-up

AC Sources-Operating; Tech Spec Bases B 3.8.1
Unit 0/1/2 Standing Order; Tech Spec 3.8.1 Requirements 07-042, September 12, 2007
1BOSR 8.1.1-1; Normal and Reserve Offsite AC Power Availability Weekly Surveillance,
Revision 6 & 7
1BwOSR 3.8.1.1; Unit One Offsite Power Availability Surveillance, Revision 2
IR 667109; Potential Lack of Defined Process (DG Example), September 01, 2007
OP-AA-102-104, Unit 0/1/2 Standing Order; Technical Specification 3.8.1 Requirements,
Log Number 07-042, September 12, 2007
1BOL 8.1; LCOAR AC Sources - Operating Technical Specification LCO 3.8.1,
Revision 12, August 29, 2007

Corrective Action Documents as a Result of NRC Inspection

IR 666529; LCO 3.8.1 Application During DG Testing, August 30, 2007 (NRC Identified)
IR 666981; 1A DG Common Mode Failure Evaluation, August 31, 2007 (NRC Identified)

4OA7 Licensee-Identified Violations

Unit 0/1/2 Standing Order, Log Number 07-040; "At the Controls Area" Controls -
Revision 1
Quick Human Performance Investigation Report; Reactor Operator (RO) Momentarily Not
"at the Controls" for Unit 2 Main Control Room (MCR)
BAP 300-1; OP-AA-100, Conduct of Operations Manual, Byron Addendum, Revision 23
OP-AA-103-102; Watchstanding Practices, Revision 6
Magazine Article; "A Deadly Clash at Donkey Island, August 19, 2007

LIST OF ACRONYMS USED

ADAMS	Agencywide Documents Access and Management System
AF	Auxiliary Feedwater System
CFR	Code of Federal Regulations
D/G	Emergency Diesel Generator
GDC	General Design Criteria
IMC	Inspection Manual Chapter
IR	Issue Report
NCV	Non-Cited Violation
NRC	United States Nuclear Regulatory Commission
NRR	Office of Nuclear Reactor Regulation
ODCM	Offsite Dose Calculation Manual
PI	Performance Indicator
PT	Dye Penetrant Examination
RETS	Radiological Effluent Technical Specification
SDP	Significance Determination Process
SER	Safety Evaluation Report
SSC	Structure, System or Component
SSDPC	Safety System Design and Performance Capability
SX	Essential Service Water
TRM	Technical Requirements Manual
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report
UHS	Ultimate Heat Sink
URI	Unresolved Item