December 5, 2000

Mr. Oliver D. Kingsley
President, Nuclear Generation Group
Commonwealth Edison Company
ATTN: Regulatory Services
Executive Towers West III
1400 Opus Place, Suite 500
Downers Grove, IL 60515

SUBJECT: BYRON INSPECTION REPORT 50-454-00-15(DRP); 50-455-00-15(DRP)

Dear Mr. Kingsley:

On November 15, 2000, the NRC completed an inspection at your Byron 1 and 2 reactor facilities. The enclosed report documents the inspection findings which were discussed on November 15, 2000, with Mr. W. Levis 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.

No findings of significance were identified.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available **electronically** for public inspection in the NRC Public Document Room **or** from the *Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from* the NRC Web site at http://www.nrc.gov/NRC/ADAMS/index.html (the Public Electronic Reading Room).

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

Sincerely,

***/RA/***

Michael J. Jordan, Chief
Reactor Projects Branch 3

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

Enclosure: Inspection Report 50-454-00-015(DRP);
50-455-00-015(DRP)

cc w/encl: D. Helwig, Senior Vice President, Nuclear Services
C. Crane, Senior Vice President, Nuclear Operations
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REGION III

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| Docket Nos: | 50-454; 50-455 |
| License Nos: | NPF-37; NPF-66 |
| Report No: | 50-454-00-15(DRP); 50-455-00-15(DRP) |
| Licensee: | Commonwealth Edison Company |
| Facility: | Byron Generating Station, Units 1 and 2 |
| Location: | 4450 N. German Church Road<br>Byron, IL 61010 |
| Dates: | October 1 - November 15, 2000 |
| Inspectors: | E. Cobey, Senior Resident Inspector<br>B. Kemker, Resident Inspector<br>T. Tongue, Project Engineer<br>W. Scott, Reactor Engineer<br>C. Thompson, Illinois Department of Nuclear Safety<br>R. Jickling, Emergency Preparedness Analyst |
| Approved by: | Michael J. Jordan, Chief<br>Reactor Projects Branch 3<br>Division of Reactor Projects |

## SUMMARY OF FINDINGS

IR 05000454-00-15, IR 05000455-00-15, on 10/01-11/15/2000; Commonwealth Edison Company; Byron Generating Station, Units 1 & 2. Resident Inspector Report and Emergency Action Level and Emergency Plan Changes.

The baseline inspection was conducted by resident inspectors, a regional projects engineer, a regional reactor engineer, and emergency preparedness analysts. No findings of significance were identified in any of the cornerstones.

# NRC's REVISED REACTOR OVERSIGHT PROCESS

The federal Nuclear Regulatory Commission (NRC) recently revamped its inspection, assessment, and enforcement programs for commercial nuclear power plants. The new process takes into account improvements in the performance of the nuclear industry over the past 25 years and improved approaches of inspecting and assessing safety performance at NRC licensed plants.

The new process monitors licensee performance in three broad areas (called strategic performance areas): reactor safety (avoiding accidents and reducing the consequences of accidents if they occur), radiation safety (protecting plant employees and the public during routine operations), and safeguards (protecting the plant against sabotage or other security threats). The process focuses on licensee performance within each of seven cornerstones of safety in the three areas:

| Reactor Safety | Radiation Safety | Safeguards |
|---|---|---|
| ● Initiating Events | ● Occupational | ● Physical Protection |
| ● Mitigating Systems | ● Public | |
| ● Barrier Integrity | | |
| ● Emergency Preparedness | | |

To monitor these seven cornerstones of safety, the NRC uses two processes that generate information about the safety significance of plant operations: inspections and performance indicators. Inspection findings will be evaluated according to their potential significance for safety, using the Significance Determination Process and assigned colors of GREEN, WHITE, YELLOW or RED. GREEN findings are indicative of issues that, while they may not be desirable, represent very low safety significance. WHITE findings indicate issues that are of low to moderate safety significance. YELLOW findings are issues that are of substantial safety significance. RED findings represent issues that are of high safety significance with a significant reduction in safety margin.

Performance indicator data will be compared to established criteria for measuring licensee performance in terms of potential safety. Based on prescribed thresholds, the indicators will be classified by color representing varying levels of performance and incremental degradation in safety: GREEN, WHITE, YELLOW, and RED. GREEN indicators represent performance at a level requiring no additional NRC oversight beyond the baseline inspections. WHITE corresponds to performance that may result in increased NRC oversight. YELLOW represents performance that minimally reduces safety margin and requires even more NRC oversight. And RED indicates performance that represents a significant reduction in safety margin but still provides adequate protection to public health and safety.

The assessment process integrates performance indicators and inspection so the agency can reach objective conclusions regarding overall plant performance. The agency will use an Action Matrix to determine in a systematic, predictable manner which regulatory actions should be taken based on a licensee's performance. The NRC's actions in response to the significance (as represented by the color) of issues will be the same for performance indicators as for inspection findings. As a licensee's safety performance degrades, the NRC will take more and increasingly significant action, which can include shutting down a plant, as described in the Action Matrix.

More information can be found at: http://www.nrc.gov/NRR/OVERSIGHT/index.html.

## Report Details

Summary of Plant Status

At the start of the inspection period, Unit 1 was shutdown for refueling outage B1R10. Following completion of the refueling outage, the unit was returned to criticality on October 10, 2000, and synchronized the unit to the grid on October 12, 2000. The unit was operated at or near full power for the remainder of the inspection period.

The licensee operated Unit 2 at or near full power for the duration of the inspection period.

## 1. REACTOR SAFETY

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

1R04 Equipment Alignment

a. Inspection Scope

The inspectors verified the alignment of the electrical distribution system during the Unit 1 system auxiliary transformer 142 outage. The inspectors also verified the alignment of the 1A containment spray (CS) train while the 1B CS train was inoperable for testing. The inspectors performed walkdowns of the accessible portions of the systems and verified the system lineup and each of the system operating parameters. The inspectors also reviewed the applicable portions of the Updated Final Safety Analysis Report, the Technical Specifications, and the procedures listed below.

- Byron Administrative Procedure 340-2, “Initiation and Use of System Lineups (Mechanical and Electrical),” Revision 11
- Byron Operating Procedure (BOP) AP 80, “Isolating Unit 1 System Aux Transformer 142-1 While Unit is at Power,” Revision 4
- BOP AP 82, “Isolating Unit 1 System Aux Transformer 142-2 While Unit is at Power,” Revision 4
- BOP AP 83, “Restoring Unit 1 System Aux Transformer 142-1 or 142-2 While Unit is at Power,” Revision 4
- Byron Operating Surveillance Requirement Procedure (BOSR) 8.1.1-1, “Normal and Reserve Offsite AC Power Availability Weekly Surveillance,” Revision 3
- BOP CS-E1, “Containment Spray System Electrical Lineup (Unit 1),” Revision 4
- BOP CS-E1A, “Containment Spray System Train ‘A’ Electrical Lineup (Unit 1),” Revision 1
- BOP CS-M1, “Containment Spray System Valve Lineup,” Revision 12
- BOP CS-M1A, “Containment Spray System Train ‘A’ Valve Lineup,” Revision 1
- BOP CS-M1C, “Containment Spray System Train ‘C’ Valve Lineup,” Revision 2

In addition, the inspectors reviewed the issues that the licensee entered into its corrective action program to verify that identified problems were being entered into the program with the appropriate characterization and significance. The inspectors also

reviewed the licensee's corrective actions for equipment alignment issues documented in the following condition reports.

- B2000-01970 Unplanned LCOAR [Limiting Condition for Operation Action Requirement] Entry - 1B RH [Residual Heat Removal] HX [Heat Exchanger] CC [Component Cooling Water] Flow Low/1CC9507B Throttled
- B2000-02069 OOS [Out-of-Service] PS [Primary Sample] Valve Not in Position Required by OOS
- B2000-02149 MCC [Motor Control Center] Breaker Found Open for Valve 2SX033

b. Findings

No findings of significance were identified.

1R05 Fire Protection

a. Inspection Scope

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

- Unit 1 Miscellaneous Electrical Equipment Room (Zone 5.4-1)
- Unit 2 Miscellaneous Electrical Equipment Room (Zone 5.4-2)

These areas were selected for inspection because they were identified as risk significant in the Byron Station Individual Plant Examination of External Events. The inspectors reviewed applicable portions of the Byron Station Fire Protection Report and assessed the licensee's control of transient combustibles and ignition sources, material condition, and operational status of fire barriers and fire protection equipment. During this inspection, the inspectors interviewed engineering department personnel and the station's fire marshal.

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

- B2000-01725 Fire Brigade SCBA [Self-Contained Breathing Apparatus] Unavailable
- B2000-02686 Hourly Fire Watch Requirement Exceeded by Fire Watch Personnel
- B2000-01938 Excessive Waste Oil Drums on 369' Elevation of the Turbine Building

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification

a. Inspection Scope

The inspectors assessed licensed operator performance and the training evaluators' critique during a licensed operator evaluated training session in the Byron Station operations training simulator on October 23, 2000. The inspectors focused on alarm response, command and control of crew activities, communication practices, procedural adherence, and implementation of emergency plan requirements.

b. Findings

No findings of significance were identified.

1R12 Maintenance Rule Implementation

a. Inspection Scope

The inspectors evaluated the licensee's implementation of the maintenance rule, 10 CFR Part 50.65, as it pertained to identified performance problems with process radiation monitors, containment gaseous and particulate radiation monitors, and components in the 345 kilovolt (KV) switchyard that were documented in the following condition reports.

- B2000-00981 Unplanned LCOAR [Limiting Condition for Operation Action Requirement] Entry for 2PR011J
- B2000-02032 0PR036J Maintenance Rule Failure
- B2000-02070 Unplanned LCOAR Entry
- B2000-02113 345 KV BTB [Bus Tie Breaker] ACB [Air Circuit Breaker] 10-11 Failed to Close on Demand
- B2000-02249 Unplanned LCOAR Entry
- B2000-02365 No CR [Condition Report] Submitted for SY [Switchyard] BTB 3-7 Maintenance Rule Functional Failure on 06/23/00

During this inspection, the inspectors evaluated the licensee's monitoring and trending of performance data, verified that performance criteria were established commensurate with safety, and verified that the equipment failures were appropriately evaluated in accordance with the maintenance rule. The inspectors interviewed the station's maintenance rule coordinator and system engineers and also reviewed Nuclear Station Procedure ER-3010, "Maintenance Rule," Revision 0, and Nuclear Engineering Maintenance Rule System Monitoring Standard NES-G-15.04, Revision 1.

In addition, the inspectors reviewed the issues that the licensee entered into its corrective action program to verify that identified problems were being entered into the program with the appropriate characterization and significance. The inspectors also

reviewed the licensee's corrective actions for maintenance rule program issues documented in the following condition reports.

- B2000-01139 Maintenance Rule Implementation Focus Self-Assessment Deficiencies
- B2000-02097 Maintenance Rule (a)(2) At Risk Reviews Reliability/Availability Performance Concerns

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Evaluation

a. Inspection Scope

The inspectors reviewed the licensee's evaluation of plant risk for planned maintenance activities on the 0A essential service water makeup pump and the Unit 1 station auxiliary transformer 142. The inspectors also reviewed the licensee's evaluation of plant risk for emergent work and testing on the 2A centrifugal charging pump. The inspectors selected these maintenance activities because they involved systems which were risk significant in the licensee's risk analysis.

During this inspection, the inspectors assessed the operability of redundant train equipment and verified that the licensee's planning of the maintenance activities minimized the length of time that the plant was subject to increased risk. The inspectors also interviewed operations and work control department personnel and reviewed Nuclear Station Procedure WC-AA-103, "On-Line Maintenance," Revision 0.

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

- B1999-03732 Nuclear Oversight Identified Deficiencies With Protected Equipment Status

b. Findings

No findings of significance were identified.

1R14 Personnel Performance During Non-routine Plant Evolutions

.1 Unit 1 Startup Following Refueling Outage B1R10

a. Inspection Scope

On October 10, 2000, the inspectors observed the startup of Unit 1 following refueling outage B1R10. This non-routine plant evolution was selected for observation to evaluate the performance of operators and qualified nuclear engineers. The inspectors interviewed operations and engineering department personnel, attended the pre-startup briefing, and reviewed the following procedures.

- Unit 1 Byron General Operating Procedure (BGP) 100-2, "Plant Startup," Revision 24
- 1BGP 100-2A1, "Reactor Startup," Revision 17

b. Findings

No findings of significance were identified.

.2 (Closed) Licensee Event Report (LER) 50-454-00-002-00: "Acceptance Criteria for the Control Room Ventilation System Train Monthly Surveillance Not Met Due to Human Performance Error." This issue was entered into the licensee's corrective action program as condition report B2000-02378. This occurrence constituted a violation of Technical Specification Surveillance Requirement 3.7.10.1, in that, the licensee did not demonstrate flow through the control room ventilation makeup system filters for greater than or equal to 10 hours. The inspectors determined that this violation was of minor significance because system operation had been successfully demonstrated during the surveillance tests immediately prior to and after the occurrence. This LER is closed.

.3 Problem Identification and Resolution of Selected Human Performance Issues

a. Inspection Scope

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

- B1999-02994 Procedural Adherence Trend
- B1999-03702 Unit 2 Pressurizer Cooldown/Heatup While Changing Pressurizer Level
- B1999-04167 LER [Licensee Event Report] 455-1999-02 - 2B Steam Generator Level Decrease to Lo-2 Setpoint While Priming 2FW009B
- B1999-04200 Inadvertent Trip of Bus 244
- B1999-04292 Pre-Job Brief Procedural Non-compliance and Ineffective Corrective Actions

- B2000-02718 Inadvertent HUT [Holdup Tank] Water Transferred to the SFP [Spent Fuel Pool]

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations

a. Inspection Scope

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

- Operability Evaluation 00-009 Hydrogen Recombiner Piping Insulation Does Not Match Design Basis Piping Stress Reports
- Byron Letter 00-5043 Generic Jacket Water Leakage Evaluation for Emergency Diesel Generators
- B2000-03227 RH/RY [Residual Heat Removal/Pressurizer Systems] Temperature Stratification

The inspectors interviewed engineering department personnel and reviewed Nuclear Station Procedure CC-3001, "Operability Determination Process," Revision 0, and the applicable portions of the Updated Final Safety Analysis Report.

The inspectors reviewed the licensee's justification for not correcting existing degraded and nonconforming conditions during refueling outage B1R10 consistent with the timeliness guidance contained in Generic Letter 91-18, "Information to Licensees Regarding NRC Inspection Manual Section on Resolution of Degraded and Nonconforming Conditions," Revision 1.

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

- B1998-04714 Incorrect Seismic Response Spectra Used in Pump Analysis
- B1998-05355 NTS [Nuclear Tracking System] Item 454-201-97-0128-02 Incorrectly Closed
- B1999-03125 Operability Evaluations in the WEC [Work Execution Center] Are Not Being Maintained Current
- B1999-04424 Operability Assessment Corrective Action for PIF [Problem Identification Form] 454-201-96-0576

b. Findings

No findings of significance were identified.

1R16 Operator Work-Arounds

a. Inspection Scope

The inspectors evaluated the operator work-arounds (OWAs) listed below to identify any potential affect on the functionality of mitigating systems or on the operators' response to initiating events.

- OWA 231 Unit 2 Component Cooling Water Surge Tank
- OWA 236 PR27J Radiation Monitor Has a History of Tripping

The inspectors selected OWA 231 because it involved a system that was identified as risk significant in the licensee's risk analysis. The inspectors selected OWA 236 because the recurring radiation monitor malfunctions have been a significant distraction to control room operators. The inspectors interviewed operating and engineering department personnel and reviewed Nuclear Station Procedure OP-AA-101-303, "Operator Work-Around Program," Revision 0.

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

- B2000-02245 OWA Program
- B2000-02357 Operator Workaround Deficiencies
- B2000-02416 Operator Workaround Program Deficiency
- B2000-02421 Operator Workaround Program is Ineffective

b. Findings

No findings of significance were identified.

1R19 Post Maintenance Testing

a. Inspection Scope

The inspectors evaluated the licensee's post maintenance testing activities for maintenance conducted on the 2B auxiliary feedwater (AF) pump and the 2A residual heat removal (RH) system train. These activities included the following work requests.

- WR 980135276-01 Replace Entire Battery Bank With 2-Cell Blocks
- WR 960058903-01 Perform Valve Votes Testing
- WR 990005843-01 Perform Instrument Maintenance Calibration of RH Pump 2A Miniflow Indicator Switch

- WR 990005844-01 Perform Instrument Maintenance Calibration of RH Low Pressure 2A Return Bypass Flow Loop
- WR 990037239-01 2RH606 - Rebuild Actuator/Replace Elastomers
- WR 990037291-01 2RH618 - Rebuild Actuator/Replace Elastomers
- WR 990037898-01 Replace AR Relay - Containment Sump Isolation Valve Relay SI8811AX
- WR 990045081-01 Replace AR Relay HVAC [Heating, Ventilation, Air Conditioning] RH Pump Cubicle Cooler Fan Breaker

The inspectors selected these post maintenance testing activities because they involved systems which were risk significant in the licensee's risk analysis.

The inspectors reviewed the scope of the work performed and evaluated the adequacy of the specified post maintenance testing. The inspectors verified that the post maintenance tests were performed in accordance with approved procedures, that the procedures clearly stated acceptance criteria, and that the acceptance criteria were met. During these inspection activities, the inspectors interviewed operations and engineering department personnel and reviewed the completed post maintenance testing documentation.

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

- B1999-04424 0A Main Control Room Ventilation Supply Fan Fails to Start

b. Findings

No findings of significance were identified.

1R20 Refueling and Outage Activities

a. Inspection Scope

The inspectors evaluated the licensee's conduct of B1R10 refueling outage activities to assess the licensee's control of plant configuration and management of shutdown risk. The inspectors reviewed configuration management to verify that the licensee maintained defense-in-depth commensurate with the shutdown risk plan; reviewed major outage work activities to ensure that correct system lineups were maintained for key mitigating systems; and observed refueling activities to verify that fuel handling operations were performed in accordance with the Technical Specifications (TS) and approved procedures. Other major outage activities evaluated included:

- the licensee's control of containment penetrations in accordance with the TS;
- the licensee's control of systems, structures, and components (SSCs) which could cause unexpected reactivity changes;

- the licensee's control of flow paths, configurations, and alternate means for reactor coolant system (RCS) inventory addition and control of SSCs which could cause a loss of inventory;
- the licensee's control of RCS pressure, level, and temperature instrumentation;
- the licensee's control of spent fuel pool cooling during and after core offload;
- the licensee's control of switchyard activities and the configuration of electrical power systems in accordance with the TS and shutdown risk plan; and
- the licensee's control of SSCs required for decay heat removal.

The inspectors observed portions of the plant cooldown, including the transition to shutdown cooling, to verify that the licensee controlled the plant cooldown in accordance with the TS. In addition, the inspectors evaluated portions of the restart activities to verify that requirements of the TS and administrative procedure requirements were met prior to changing operational modes or plant configurations. Major restart inspection activities performed included:

- verification that RCS boundary leakage requirements were met prior to entry into mode 4 (cold shutdown) and subsequent operational mode changes;
- verification that containment integrity was established prior to entry into mode 4;
- inspection of the containment building to assess material condition and search for loose debris, which if present could be transported to the containment recirculation sumps and cause restriction of flow to the emergency core cooling system (ECCS) pump suctions during loss-of-coolant accident conditions;
- verification that the material condition of the containment building ECCS recirculation sumps met the requirements of the TS and was consistent with the design basis; and
- observation and review of reactor physics testing to verify that core operating limit parameters were consistent with the core design so that the fuel cladding barrier would not be challenged.

The inspectors interviewed operations, engineering, work control, nuclear oversight, radiological protection, and maintenance department personnel and reviewed the following procedures and documents.

- Byron Administrative Procedure 370-3, "Administrative Control During Refueling," Revision 28
- 1BGP 100-1, "Plant Heatup," Revision 33
- 1BGP 100-1T1, "Plant Heatup Flowchart 1BGP-100 Flowchart," Revision 14
- 1BGP 100-1T2, "Mode 5 to 4 Checklist," Revision 11
- 1BGP 100-1T3, "Mode 4 to 3 Checklist," Revision 11
- 1BGP 100-1T5, "Containment Integrity Checklist," Revision 9
- 1BGP 100-2, "Plant Startup," Revision 25
- 1BGP 100-2A1, "Reactor Startup," Revision 18
- 1BGP 100-2T2, "Mode 3 to 2 Checklist," Revision 7
- 1BGP 100-5, "Plant Shutdown and Cooldown," Revision 32
- 1BGP 100-6, "Refueling Outage," Revision 25
- 1BGP 100-6T2, "Mode 6 to 5 Checklist," Revision 9
- BOP CV-14, "Degassing the Reactor Coolant System and Pressurizer," Revision 19

- BOP RC-4a, “Unit 1 Reactor Coolant System Drain,” Revision 17
- BOP RC-10a, “Draining an Isolated Reactor Coolant Loop for Unit 1,” Revision 8
- BOP RH-6, “Placing the RH System in Shutdown Cooling,” Revision 19
- BOP RH-11, “Securing the RH System From Shutdown Cooling,” Revision 15
- 1BOSR 4.3.1-1, “Unit One Reactor Coolant System Pressure/Temperature Limit Surveillance,” Revision 2
- 1BOSR 4.c.1-1, “Unit One Pressurizer Temperature Limit Surveillance,” Revision 2
- 1BOSR XLE-R1, “Locked Equipment 18 Month Surveillance,” Revision 7
- 1BOSR Z.5.b.1-1, “Unit One Containment Loose Debris Inspection,” Revision 1
- Unit One Byron Technical Surveillance Requirement Procedure (BVSR) 1.2.1-1, “Unit 1 BOL [Beginning of Life] HZP [Hot Zero Power] ARO [All Rods Out] Core Reactivity Balance,” Revision 1
- 1BVSR 1.3.1-3, “Unit 1 Moderator Temperature Coefficient - Low Power - BOL Using DRWM [Differential Rod Worth Measurement] Methodology,” Revision 0
- 1BVSR 5.2.8-1, “Unit 1 Visual Inspection of the ECCS Recirculation Sumps,” Revision 2
- 1BVSR XPT-23, “Unit 1 Low Power Physics Test Program With the Westinghouse ADRC [Advanced Digital Reactivity Computer],” Revision 2
- Nuclear Station Procedure (NSP) OU-AA-103, “Shutdown Safety Management Program,” Revision 0
- NSP OU-AP-104, “Shutdown Safety Management Program Byron/Braidwood Annex,” Revision 2
- Byron Unit 1 Cycle 10 Core Loading Pattern and Minimum Required Boron Concentration for Mode 3, 4, 5, and 6
- Byron Unit 1 Cycle 11 Core Loading Plan, Revision 1
- Byron Unit 1 Pressure and Temperature Limits Report
- Byron Unit 1 Cycle 11 Core Operating Limits Report
- Nuclear Component Transfer List for Byron Unit Cycle 10 Core Offload
- Nuclear Component Transfer List for Byron Unit Cycle 11 Core Reload
- Byron/Braidwood Stations Updated Final Safety Analysis Report
- Byron Station Technical Specifications

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing

a. Inspection Scope

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

- 0BVSR SX-5 Inspection of River Screen House and Essential Service Water Cooling Tower Basins
- 1BVSR 5.5.8.SI.2-1 Unit 1 Safety Injection Check Valve Stroke Test
- 1BVSR 5.c.3 Unit 1 ECCS System Flow Balance Test

The inspectors selected these surveillance test activities because the system functions were identified as risk significant in the licensee's risk assessment and the components were credited as operable in the licensee's safety analysis to mitigate the consequences of a potential accident. The inspectors interviewed operations and engineering department personnel, reviewed the completed test documentation and applicable portions of the Updated Final Safety Analysis Report and the Technical Specifications, and observed the performance of all or portions of these surveillance testing activities.

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

- B1999-03309 Main Control Room Not Notified of Failure of ASME [American Society of Mechanical Engineers] Surveillance
- B1999-04466 Operating Surveillance Status Not Updated
- B2000-02378 Math Error Causes Apparent Missed BOSR 7.10.1-2
- B2000-02589 Document Surveillance Error in Accordance With RCI [Root Cause Investigation] 34257 CA4
- B2000-02821 Surveillance Errors for Week of 9/18/00

b. Findings

No findings of significance were identified.

**Cornerstone: Emergency Preparedness**

1EP04 Emergency Action Level and Emergency Plan Changes

a. Inspection Scope

The inspector reviewed Revision 9 to Sections 1.0, 4, 8,and 9 of the Generating Stations Emergency Plan, which was submitted by letter dated April 26, 2000, in order to determine whether the changes in Revision 9 might decrease the plan's effectiveness. This emergency plan revision was submitted in accordance with 10 CFR 50.54(q).

b. Observations and Findings

There were no findings of significance identified during this inspection. Implementation of these changes will be subject to future inspection.

## 4. OTHER ACTIVITIES (OA)

### 4OA6 Meetings, including Exit

Exit Meeting Summary

The inspectors presented the inspection results to Mr. W. Levis and other members of licensee management at the conclusion of the inspection on November 15, 2000. The licensee acknowledged the findings presented. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. Proprietary information was reviewed during this inspection period but is not discussed in this report.

## PARTIAL LIST OF PERSONS CONTACTED

Licensee

S. Gackstetter, Shift Operations Superintendent
D. Hoots, Operations Manager
S. Kuczynski, Maintenance Manager
W. Levis, Site Vice President
R. Lopriore, Station Manager
P. Reister, Regulatory Assurance Manager
R. Roton, Regulatory Assurance
G. Stauffer, Regulatory Assurance
D. Wozniak, Engineering Manager

## ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None

Closed

| | | |
|---|---|---|
| 50-454-00-002-00 | LER | Acceptance criteria for the control room ventilation system train monthly surveillance not met due to human performance error |

Discussed

None

## LIST OF BASELINE INSPECTIONS PERFORMED

The following inspectable-area procedures were used to perform inspections during the report period. Documented findings are contained in the body of the report.

| Inspection Procedure | | |
|---|---|---|
| Number | Title | Report Section |
| 71111-04 | Equipment Alignment | 1R04 |
| 71111-05 | Fire Protection | 1R05 |
| 71111-11 | Licensed Operator Requalification Program | 1R11 |
| 71111-12 | Maintenance Rule Implementation | 1R12 |
| 71111-13 | Maintenance Risk Assessments and Emergent Work Control | 1R13 |
| 71111-14 | Personnel Performance During Non-routine Plant Evolutions and Events | 1R14 |
| 71111-15 | Operability Evaluations | 1R15 |
| 71111-16 | Operator Workarounds | 1R16 |
| 71111-19 | Post Maintenance Testing | 1R19 |
| 71111-20 | Refueling and Outage Activities | 1R20 |
| 71111-22 | Surveillance Testing | 1R22 |
| 71114.04 | Emergency Action Level and Emergency Plan Changes | 1EP04 |
| (none) | Meetings, including Exit | 4OA6 |

LIST OF ACRONYMS USED

| | |
|---|---|
| ACB | Air Circuit Breaker |
| ADRC | Advanced Digital Reactivity Computer |
| AF | Auxiliary Feedwater |
| ARO | All Rods Out |
| ASME | American Society of Mechanical Engineers |
| BAP | Byron Administrative Procedure |
| BGP | Byron General Operating Procedure |
| BOL | Beginning of Life |
| BOP | Byron Operating Procedure |
| BOSR | Byron Operating Surveillance Requirement Procedure |
| BTB | Bus Tie Breaker |
| BVSR | Byron Technical Surveillance Requirement Procedure |
| CC | Component Cooling Water |
| CFR | Code of Federal Regulations |
| CR | Condition Report |
| CS | Containment Spray |
| DRP | Division of Reactor Projects |
| DRWM | Differential Rod Worth Measurement |
| ECCS | Emergency Core Cooling System |
| HUT | Holdup Tank |
| HX | Heat Exchanger |
| HZP | Hot Zero Power |
| KV | Kilovolt |
| LCOAR | Limiting Condition for Operation Action Requirement |
| LER | Licensee Event Report |
| MCC | Motor Control Center |
| NRC | Nuclear Regulatory Commission |
| NSP | Nuclear Station Procedure |
| NTS | Nuclear Tracking System |
| OOS | Out-of-Service |
| OWA | Operator Work-Around |
| PARS | Publically Available Records |
| PIF | Problem Identification Form |
| PS | Primary Sample |
| RCI | Root Cause Investigation |
| RCS | Reactor Coolant System |
| RH/RY | Residual Heat Removal/Pressurizer (system designations) |
| SAT | Station Auxiliary Transformer |
| SFP | Spent Fuel Pool |
| SCBA | Self-Contained Breathing Apparatus |
| SSC | Systems, Structures, and Components |
| SY | Switchyard |
| TS | Technical Specifications |
| WEC | Work Execution Center |
| WR | Work Request |