



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**

REGION III  
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October 26, 2015

Mr. Bryan C. Hanson  
Senior VP, Exelon Generation Company, LLC  
President and CNO, Exelon Nuclear  
4300 Winfield Road  
Warrenville, IL 60555

SUBJECT: BRAIDWOOD STATION, UNITS 1 AND 2 – NRC INTEGRATED INSPECTION  
REPORT 05000456/2015003; 05000457/2015003

Dear Mr. Hanson:

On September 30, 2015, the U.S. Nuclear Regulatory Commission (NRC) completed an integrated inspection at your Braidwood Station, Units 1 and 2. On October 7, 2015, the NRC inspectors discussed the results of this inspection with Mr. M. Kanavos, and other members of your staff. The inspectors documented the results of this inspection in the enclosed inspection report.

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 NRC-identified or self-revealing findings were identified during this inspection. However, the inspectors documented two license-identified violations which were determined to be of very low safety significance. The NRC is treating these violations as Non-Cited Violations (NCVs) consistent with Section 2.3.2 of the NRC's Enforcement Policy.

If you contest the violations or significance of these NCVs, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with copies to the Regional Administrator, U.S. Nuclear Regulatory Commission, Region III; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the Braidwood Station.

B. Hanson

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In accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) 2.390, "Public Inspections, Exemptions, Requests for Withholding," of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC's Public Document Room or from the Publicly Available Records (PARS) component of the NRC's Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

**/RA/**

Eric R. Duncan, Chief  
Branch 3  
Division of Reactor Projects

Docket Nos. 50-456; 50-457  
License Nos. NPF-72; NPF-77

Enclosure:  
IR 05000456/2015003; 05000457/2015003  
w/Attachment: Supplemental Information

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket Nos: 50-456; 50-457  
License Nos: NPF-72; NPF-77

Report No: 05000456/2015003; 05000457/2015003

Licensee: Exelon Generation Company, LLC

Facility: Braidwood Station, Units 1 and 2

Location: Braceville, IL

Dates: July 1 through September 30, 2015

Inspectors: J. Benjamin, Senior Resident Inspector  
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Approved by: E. Duncan, Chief  
Branch 3  
Division of Reactor Projects

Enclosure

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## **SUMMARY**

Inspection Report 05000456/20015003; 05000457/2015003, 07/01/2015 – 09/30/2015, Braidwood Station, Units 1 & 2; Routine Integrated Inspection Report.

This report covers a 3-month period of inspection by resident inspectors and announced baseline inspections by regional inspectors. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process" Revision 5, dated February 2014.

### **Inspector-Identified and Self-Revealed Findings**

No findings were identified.

### **Licensee-Identified Violations**

Two licensee-identified violations of very low safety significance that were identified by the licensee have been reviewed by the inspectors. Corrective actions planned or taken by the licensee have been entered into the licensee's Corrective Action Program. These violations and corrective action tracking numbers are listed in Section 4OA7.

## REPORT DETAILS

### Summary of Plant Status

Unit 1 operated at or near full power for the entire inspection period with one exception. On July 6, 2015, the station down-powered Unit 1 to 80 percent power to repair a switchyard breaker. Unit 1 returned to full power on July 7, 2015.

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

### **1. REACTOR SAFETY**

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

#### 1R01 Adverse Weather Protection (71111.01)

##### .1 Readiness of Offsite and Alternate AC Power Systems

##### a. Inspection Scope (Summer Operations With Increased Grid Load)

The inspectors determined whether plant features and procedures for operation and continued availability of offsite and alternate alternating current (AC) power systems during summer operations with increased electrical grid loading were adequate. The inspectors reviewed the licensee's procedures affecting these areas and the communications protocols between the transmission system operator (TSO) and the plant to verify that the appropriate information was being exchanged when issues arose that could impact the offsite power system. Examples of aspects considered in the inspectors' review included:

- coordination between the TSO and the plant during off-normal or emergency events;
- explanations for the events;
- estimates of when the offsite power system would be returned to a normal state; and
- notifications from the TSO to the plant when the offsite power system was returned to normal.

The inspectors also verified that plant procedures addressed measures to monitor and maintain the availability and reliability of both the offsite AC power system and the onsite alternate AC power system prior to or during summer operations with increased electrical grid loading. Specifically, the inspectors verified that licensee procedures addressed the following:

- actions to be taken when notified by the TSO that the post-trip voltage of the offsite power system at the plant would not be acceptable to assure the continued operation of the safety-related loads without transferring to the onsite power supply;
- compensatory actions identified to be performed if it would not be possible to predict the post-trip voltage at the plant for the current grid conditions;

- re-assessment of plant risk based on maintenance activities which could affect grid reliability, or the ability of the transmission system to provide offsite power; and
- communications between the plant and the TSO when changes at the plant could impact the transmission system, or when the capability of the transmission system to provide adequate offsite power was challenged.

Documents reviewed are listed in the Attachment. The inspectors also reviewed Corrective Action Program (CAP) items to verify that the licensee was identifying adverse weather issues at an appropriate threshold and entering them into their CAP in accordance with station corrective action procedures.

This inspection constituted one readiness of offsite and alternate AC power systems sample as defined in Inspection Procedure (IP) 71111.01–05.

b. Findings

No findings were identified.

1R04 Equipment Alignment (71111.04)

.1 Quarterly Partial System Walkdowns

a. Inspection Scope

The inspectors performed partial system walkdowns of the following risk-significant systems:

- 2B auxiliary feedwater train while the 2A auxiliary feedwater train was unavailable for planned surveillance testing activities;
- 1A auxiliary feedwater train while the 1B auxiliary feedwater train was unavailable for planned surveillance testing activities; and
- 1A emergency diesel generator (DG) while the 1B DG was unavailable for planned surveillance testing activities.

The inspectors selected these systems based on their risk significance relative to the Reactor Safety Cornerstones at the time they were inspected. The inspectors attempted to identify any discrepancies that could impact the function of the system and, therefore, potentially increase risk. The inspectors reviewed applicable operating procedures, system diagrams, the Updated Final Safety Analysis Report (UFSAR), Technical Specification (TS) requirements, outstanding work orders (WOs), issue reports (IRs), and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have rendered the systems incapable of performing their intended functions. The inspectors also walked down accessible portions of the systems to verify system components and support equipment were aligned correctly and operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no obvious deficiencies. The inspectors also verified that the licensee had properly identified and resolved equipment alignment problems that could cause initiating events or impact the capability of mitigating systems or barriers and entered them into the CAP with the

appropriate significance characterization. Documents reviewed are listed in the Attachment.

These activities constituted three partial system walkdown samples as defined in IP 71111.04–05.

b. Findings

No findings were identified.

.2 Semi-Annual Complete System Walkdown

a. Inspection Scope

The inspectors performed a complete system alignment inspection of the Unit 1 component cooling water system to verify the functional capability of the system. This system was selected because it was considered both safety-significant and risk-significant in the licensee's probabilistic risk assessment. The inspectors walked down the system to review mechanical and electrical equipment lineups; electrical power availability; system pressure and temperature indications; component labeling; component lubrication; component and equipment cooling; hangers and supports; operability of support systems; and to ensure that ancillary equipment or debris did not interfere with equipment operation. In addition, the inspectors reviewed the CAP database to ensure that system equipment alignment problems were being identified and appropriately resolved. Documents reviewed are listed in the Attachment.

These activities constituted one complete system walkdown sample as defined in IP 71111.04–05.

b. Findings

No findings were identified.

1R05 Fire Protection (71111.05)

.1 Routine Resident Inspector Tours (71111.05Q)

a. Inspection Scope

The inspectors conducted fire protection walkdowns which were focused on the availability, accessibility, and the condition of firefighting equipment in the following risk-significant plant areas:

- Unit 2 auxiliary building 383' elevation general south area;
- Unit 1 control room refrigeration equipment room;
- Unit 1 auxiliary building 401' elevation general south area;
- Unit 1 system auxiliary transformers 141-1 and 141-2 areas;
- Unit 1 auxiliary building electrical division 11 engineered safety feature switchgear room; and
- Unit 1 auxiliary building electrical division 12 engineered safety feature switchgear room.

The inspectors reviewed areas to assess if the licensee had implemented a fire protection program that adequately controlled combustibles and ignition sources within the plant, effectively maintained fire detection and suppression capability, maintained passive fire protection features in good material condition, and implemented adequate compensatory measures for out-of-service, degraded or inoperable fire protection equipment, systems, or features in accordance with the licensee's fire plan.

The inspectors selected fire areas based on their overall contribution to internal fire risk as documented in the plant's Individual Plant Examination of External Events, their potential to impact equipment which could initiate or mitigate a plant transient, or their impact on the plant's ability to respond to a security event.

Using the documents listed in the Attachment, 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 analyzed limits; and fire doors, dampers, and penetration seals appeared to be in satisfactory condition. The inspectors also verified that minor issues identified during the inspection were entered into the licensee's CAP.

These activities constituted six quarterly fire protection inspection samples as defined in IP 71111.05-05.

b. Findings

No findings were identified.

1R07 Annual Heat Sink Performance (71111.07)

.1 Heat Sink Performance

a. Inspection Scope

The inspectors reviewed licensee change package DRP 4-009, "Ultimate Heat Sink Design Basis Reconstitution," to determine whether the ultimate heat sink could perform its safety-related or risk-significant function by assessing documentation in the licensing basis, and the results of licensee inspections. The inspectors compared the licensee's observations with acceptance criteria, reviewed the correlation of scheduled testing and the frequency of testing, and assessed the impact of instrument inaccuracies on testing results. The inspectors also verified that test acceptance criteria considered differences between test conditions and design conditions. Documents reviewed are listed in the Attachment.

This annual heat sink performance inspection constituted one sample as defined in IP 71111.07-05.

b. Findings

No findings were identified.

.2 Triennial Review of Heat Sink Performance (71111.07T)

a. Inspection Scope

The inspectors reviewed completed surveillances, vendor manual information, associated calculations, performance test results and cooler inspection results associated with the Unit 1 component cooling water heat exchanger. The heat exchanger was chosen based on its risk-significance in the licensee's probabilistic safety analysis, its important safety-related mitigating system support functions, and its operating history.

For the Unit 1 component cooling water heat exchanger, the inspectors verified that testing, inspection, maintenance, and monitoring of Biotic Fouling and Macrofouling Programs were adequate to ensure proper heat transfer. This was accomplished by verifying: (1) the test method used was consistent with accepted industry practices, or equivalent; (2) the test conditions were consistent with the selected methodology; (3) the test acceptance criteria were consistent with the design basis values; and (4) the results of heat exchanger performance testing. The inspectors also verified that the test results appropriately considered differences between testing conditions and design conditions, the frequency of testing based on the trending of test results was sufficient to detect degradation prior to loss of heat removal capabilities below design basis values, and test results appropriately considered test instrument inaccuracies and differences.

For the Unit 1 component cooling water heat exchanger, the inspectors also reviewed the methods and results of heat exchanger performance inspections. The inspectors verified the methods used to inspect and clean heat exchangers were consistent with as-found conditions identified and expected degradation trends and industry standards; the licensee's inspection and cleaning activities had established acceptance criteria consistent with industry standards; and the as-found results were recorded, evaluated, and appropriately dispositioned such that the as-left condition was acceptable.

In addition, the inspectors verified the condition and operation of the Unit 1 component cooling water heat exchanger was consistent with design assumptions in heat transfer calculations and as described in the UFSAR. This included verification that the number of plugged tubes was within pre-established limits based on heat transfer capacity and heat transfer assumptions. The inspectors determined whether the licensee's controls and operational limits to prevent heat exchanger degradation due to excessive flow-induced vibration during operation were adequate. In addition, eddy current test reports and visual inspection records were reviewed to determine whether the structural integrity of the heat exchanger was adequate.

The inspectors verified the performance of ultimate heat sink (UHS) and safety-related service water systems, and their subcomponents such as piping, pumps, and valves, by tests or other equivalent methods to ensure the continued availability and accessibility to the in-plant cooling water systems. Specifically, the inspectors reviewed the UHS in accordance with IP 71111.07, "Heat Sink Performance," Section 02.02, "Triennial Review," Sub-Sections d.2 and d.5.

The inspectors reviewed the results of the licensee's inspection following essential service water cooling pond excavation. The inspectors verified that identified settlement or movement indicating loss of structural integrity and/or capacity was appropriately evaluated by the licensee. In addition, the inspectors verified the licensee ensured

sufficient reservoir capacity by trending and removing debris or sediment buildup in the UHS.

The inspectors performed a system walkdown of the service water pumps and reviewed inspection results from the intake structure walkdowns and forebay inspections to verify the licensee's assessment of structural integrity and component functionality. This included a verification that the licensee ensured proper functioning of traveling screens and strainers, and structural integrity of component mounts. In addition, the inspectors verified that service water forebay silt accumulation was monitored, trended, and maintained at an acceptable level by the licensee, and that water level instruments were functional and routinely monitored. The inspectors also verified the licensee's ability to ensure functionality during adverse weather conditions. The inspectors also verified that adequate water would still flow past sand-limiting underwater weir walls during periods of lake level conditions.

In addition, the inspectors reviewed issue reports related to the Unit 1 component cooling water heat exchanger, service water, and heat sink performance issues to verify that the licensee had an appropriate threshold for identifying issues and to evaluate the effectiveness of the corrective actions. Documents reviewed are listed in the Attachment.

These inspection activities constituted two heat sink inspection samples as defined in IP 71111.07-05.

b. Findings

A violation of very low safety significance (i.e., Green) that was identified by the licensee was reviewed by the NRC. This violation and CAP tracking number is listed in Section 4OA7.

1R11 Licensed Operator Regualification Program (71111.11)

.1 Annual Operating Test Results (71111.11A)

a. Inspection Scope

The inspectors reviewed the overall pass/fail results of the Annual Operating Test administered by the licensee from August 17, 2015, through September 18, 2015, required by Title 10, *Code of Federal Regulations* (CFR), Part 55.59(a). The results were compared to the thresholds established in Inspection Manual Chapter (IMC) 0609, Appendix I, "Licensed Operator Regualification Significance Determination Process," to assess the overall adequacy of the licensee's Licensed Operator Regualification Training (LORT) Program in meeting the requirements of 10 CFR 55.59. (02.02)

This inspection constituted one annual licensed operator regualification examination results sample as defined in IP 71111.11-05.

b. Findings

No findings were identified.

.2 Biennial Review (71111.11B)

a. Inspection Scope

The following inspection activities were conducted during the week of September 14, 2015, to assess: (1) the effectiveness and adequacy of the facility licensee's implementation and maintenance of its systems approach to training (SAT) based LORT Program, implemented to satisfy the requirements of 10 CFR 55.59; (2) conformance with the requirements of 10 CFR 55.46 for use of a plant-referenced simulator to conduct operator licensing examinations and for satisfying experience requirements; and (3) conformance with the operator license conditions specified in 10 CFR 55.53. Documents reviewed are listed in the Attachment.

- Licensee Requalification Examinations (10 CFR 55.59(c); SAT Element 4 as Defined in 10 CFR 55.4): The inspectors reviewed the licensee's program for development and administration of the LORT biennial written examination and annual operating tests to assess the licensee's ability to develop and administer examinations that are acceptable for meeting the requirements of 10 CFR 55.59(a).
  - The inspectors conducted a detailed review of four biennial requalification written examination versions to assess content, level of difficulty, and quality of the written examination materials. (02.03)
  - The inspectors conducted a detailed review of 20 Job Performance Measures and four simulator scenarios to assess content, level of difficulty, and quality of the operating test materials. (02.04)
  - The inspectors observed the administration of the annual operating test to assess the licensee's effectiveness in conducting the examinations, including the conduct of pre-examination briefings, evaluations of individual operator and crew performance, and post-examination analysis. The inspectors evaluated the performance of one operating crew (two simulator crews) in parallel with the facility evaluators during four dynamic simulator scenarios, and evaluated various licensed crew members concurrently with facility evaluators during the administration of several Job Performance Measures. (02.05)
  - The inspectors assessed the adequacy and effectiveness of the remedial training conducted since the last requalification examinations and the training planned for the current examination cycle to ensure that they addressed weaknesses in licensed operator or crew performance identified during training and plant operations. The inspectors reviewed remedial training procedures and individual remedial training plans. (02.07)
- Conformance with Examination Security Requirements (10 CFR 55.49): The inspectors conducted an assessment of the licensee's processes related to examination physical security and integrity (e.g., predictability and bias) to verify compliance with 10 CFR 55.49, "Integrity of Examinations and Tests." The inspectors reviewed the facility licensee's examination security procedure, and observed the implementation of physical security controls (e.g., access restrictions and simulator input/output controls) and integrity measures

(e.g., security agreements, sampling criteria, bank use, and test item repetition) throughout the inspection period. (02.06)

- Conformance with Operator License Conditions (10 CFR 55.53): The inspectors reviewed the facility licensee's program for maintaining active operator licenses and to assess compliance with 10 CFR 55.53(e) and (f). The inspectors reviewed the procedural guidance and the process for tracking on-shift hours for licensed operators, and which control room positions were granted watch-standing credit for maintaining active operator licenses. Additionally, medical records for twelve licensed operators were reviewed for compliance with 10 CFR 55.53(l). (02.08)
- Conformance with Simulator Requirements Specified in 10 CFR 55.46: The inspectors assessed the adequacy of the licensee's simulation facility (simulator) for use in operator licensing examinations and for satisfying experience requirements. The inspectors reviewed a sample of simulator performance test records (e.g., transient tests, malfunction tests, scenario-based tests, post-event tests, steady state tests, and core performance tests), simulator discrepancies, and the process for ensuring continued assurance of simulator fidelity in accordance with 10 CFR 55.46. The inspectors reviewed and evaluated the discrepancy corrective action process to ensure that simulator fidelity was being maintained. Open simulator discrepancies were reviewed for importance relative to the impact on 10 CFR 55.45 and 55.59 operator actions as well as on nuclear and thermal hydraulic operating characteristics. (02.09)
- Problem Identification and Resolution (10 CFR 55.59(c); SAT Element 5 as Defined in 10 CFR 55.4): The inspectors assessed the licensee's ability to identify, evaluate, and resolve problems associated with licensed operator performance (a measure of the effectiveness of its LORT Program and their ability to implement appropriate corrective actions to maintain its LORT Program up to date). The inspectors reviewed documents related to licensed operator performance issues (e.g., recent examination and inspection reports including cited and Non-Cited Violations (NCVs); U.S NRC End-of-Cycle and Mid-Cycle reports; NRC Plant Issues Matrix; licensee event reports; licensee issue reports including documentation of plant events and review of industry operating experience). The inspectors also sampled the licensee's quality assurance oversight activities, including licensee training department self-assessment reports. (02.10)

This inspection constituted one biennial licensed operator requalification program inspection sample as defined in IP 71111.11-05.

b. Findings

No findings were identified.

.3 Resident Inspector Quarterly Review of Licensed Operator Requalification (71111.11Q)

a. Inspection Scope

On September 30, 2015, the inspectors observed both classroom and simulator training in preparation for an upcoming Unit 2 reactor shutdown and associated reactor startup. The inspectors verified that the training provided met the licensee's objectives.

Documents reviewed are listed in the Attachment.

This inspection constituted one quarterly licensed operator requalification activity program simulator sample as defined in IP 71111.11-05.

b. Findings

No findings were identified.

.2 Resident Inspector Quarterly Observation During Periods of Heightened Activity or Risk (71111.11Q)

a. Inspection Scope

On September 29, 2015, the inspectors observed the performance of a 2A component cooling water pump American Society of Mechanical Engineers (ASME) surveillance test. This was an activity that required heightened awareness or was related to increased risk. The inspectors evaluated the following areas:

- licensed operator performance;
- crew's clarity and formality of communications;
- the ability to take timely actions in the conservative direction;
- prioritization, interpretation, and verification of annunciator alarms;
- correct use and implementation of procedures;
- control board (or equipment) manipulations;
- oversight and direction from supervisors; and
- the ability to identify and implement appropriate TS actions and Emergency Plan actions and notifications.

Performance in these areas was compared to pre-established operator action expectations, procedural compliance, and task completion requirements. Documents reviewed are listed in the Attachment.

This inspection constituted one quarterly licensed operator heightened activity/risk sample as defined in IP 71111.11-05.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12)

.1 Routine Quarterly Evaluations

a. Inspection Scope

The inspectors evaluated degraded performance issues involving the following risk-significant systems:

- diesel fuel oil system (pumps, check valves, diverse flexible mitigation capability modification issues); and
- process radiation monitors.

The inspectors reviewed events including those in which ineffective equipment maintenance resulted in valid or invalid automatic actuations of engineered safeguards systems and independently verified the licensee's actions to address system performance or condition problems in terms of the following:

- implementing appropriate work practices;
- identifying and addressing common cause failures;
- scoping of systems in accordance with 10 CFR 50.65(b) of the maintenance rule;
- characterizing system reliability issues for performance;
- charging unavailability for performance;
- trending key parameters for condition monitoring;
- ensuring 10 CFR 50.65(a)(1) or (a)(2) classification or re-classification; and
- verifying appropriate performance criteria for structures, systems, and components/functions classified as (a)(2), or appropriate and adequate goals and corrective actions for systems classified as (a)(1).

The inspectors assessed performance issues with respect to the reliability, availability, and condition monitoring of the system. In addition, the inspectors verified maintenance effectiveness issues were entered into the CAP with the appropriate significance characterization. Documents reviewed are listed in the Attachment.

This inspection constituted two quarterly maintenance effectiveness samples as defined in IP 71111.12-05.

b. Findings

No findings were identified.

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

.1 Maintenance Risk Assessments and Emergent Work Control

a. Inspection Scope

The inspectors reviewed the licensee's evaluation and management of plant risk for the maintenance and emergent work activities affecting risk-significant and safety-related equipment listed below to verify that the appropriate risk assessments were performed prior to removing equipment for work:

- Planned Yellow Risk, Unit 2 corrective maintenance associated with 345 kV Bus 9 disconnect;
- Planned Yellow Risk, 1A containment spray pump unavailable during surveillance testing;
- Planned Yellow Risk, Work on the Auxiliary Building ventilation system; and
- Planned Yellow Risk, 2A DG unavailable during surveillance testing.

These activities were selected based on their potential risk significance relative to the Reactor Safety Cornerstones. As applicable for each activity, the inspectors verified that risk assessments were performed as required by 10 CFR 50.65(a)(4) and were accurate and complete. When emergent work was performed, the inspectors verified that plant risk was promptly reassessed and managed. The inspectors reviewed the scope of maintenance work, discussed the results of the assessment with the licensee's probabilistic risk analyst or shift technical advisor, and verified plant conditions were consistent with the risk assessment. The inspectors also reviewed TS requirements and walked down portions of redundant safety systems, when applicable, to verify risk analysis assumptions were valid and applicable requirements were met.

Documents reviewed are listed in the Attachment. These maintenance risk assessments and emergent work control activities constituted four samples as defined in IP 71111.13-05.

b. Findings

No findings were identified.

1R15 Operability Determinations and Functional Assessments (71111.15)

.1 Operability Evaluations

a. Inspection Scope

The inspectors reviewed the following issues:

- 2A charging pump IST flow surveillance results below acceptance criteria;
- Part 21 notification 41280, NAMCO limit switch issue; and
- Engineering Change (EC) 402988 1RY000A hot short-related modification.

The inspectors selected these potential operability issues based on the risk significance of the associated components and systems. The inspectors evaluated the technical adequacy of the evaluations to ensure that TS operability was properly justified and the subject component or system remained available such that no unrecognized increase in risk occurred. The inspectors compared the operability and design criteria in the appropriate sections of the TSs and the UFSAR to the licensee's evaluations to determine whether the components or systems were operable. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were properly controlled. The inspectors determined, where appropriate, compliance with bounding limitations associated with the evaluations. Additionally, the inspectors reviewed a sample of corrective action documents to verify that the licensee was identifying and correcting any deficiencies associated with operability evaluations. Documents reviewed are listed in the Attachment.

This operability inspection constituted three samples as defined in IP 71111.15–05.

b. Findings

No findings were identified.

1R18 Plant Modifications (71111.18)

.1 Plant Modifications

a. Inspection Scope

The inspectors reviewed the following modifications:

- station auxiliary transformer 242-2 temporary configuration change process to defeat alarm – EC 394144; and
- 1MOV-RY8000A pressurizer power operated relief valve – EC 402988.

The inspectors compared the configuration changes and associated 10 CFR 50.59 safety evaluation screening with the design basis, the UFSAR, and the TSs, as applicable, to verify that the modification did not affect the operability or availability of the affected systems. The inspectors, as applicable, observed ongoing and completed work activities to ensure that the modifications were installed as directed and consistent with the design control documents; the modifications operated as expected; post-modification testing adequately demonstrated continued system operability, availability, and reliability; and that operation of the modification did not impact the operability of any interfacing systems. As applicable, the inspectors verified that relevant procedures, design, and licensing documents were properly updated. Lastly, the inspectors discussed the plant modification with operations, engineering, and training personnel to ensure that the individuals were aware of how operation with the plant modification in place could impact overall plant performance. Documents reviewed are listed in the Attachment.

This inspection constituted two plant modification samples as defined in IP 71111.18-05.

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19)

.1 Post-Maintenance Testing

a. Inspection Scope

The inspectors reviewed the following post-maintenance testing activities to verify that procedures and testing activities were adequate to ensure system operability and functional capability:

- 1A safety injection pump cold leg isolation valve maintenance (WO 0167732);
- Unit 1 safety injection system miniflow isolation valve 1SI8814 maintenance (WO 1627976);
- Unit 2 essential service water 2SX93A piping replacement activity;

- Unit common diesel fuel oil check valve 0DO00965 maintenance (WO 1849075);
- 2A DG fuel rack adjustment activity (WO 1835883); and
- 2B auxiliary feedwater diesel engine fuel oil leak repair activity (WO 854157.)

These activities were selected based upon the structure, system, and component's ability to impact risk. The inspectors evaluated these activities for the following (as applicable): whether the effect of testing on the plant had been adequately addressed; whether testing was adequate for the maintenance performed; whether acceptance criteria were clear and demonstrated operational readiness; whether test instrumentation was appropriate; whether tests were performed as written in accordance with properly reviewed and approved procedures; whether equipment was returned to its operational status following testing (temporary modifications or jumpers required for test performance were properly removed after test completion); and whether test documentation was properly evaluated. The inspectors evaluated the activities against TSs, the UFSAR, 10 CFR Part 50 requirements, licensee procedures, and various NRC generic communications to ensure that the test results adequately ensured that the equipment met the licensing basis and design requirements. In addition, the inspectors reviewed corrective action documents associated with post-maintenance tests to determine whether the licensee was identifying problems and entering them in the CAP and that the problems were being corrected commensurate with their importance to safety. Documents reviewed are listed in the Attachment.

This inspection constituted six post-maintenance testing samples as defined in IP 71111.19-05.

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22)

.1 Surveillance Testing

a. Inspection Scope

The inspectors reviewed the test results for the following activities to determine whether risk-significant systems and equipment were capable of performing their intended safety function and to verify testing was conducted in accordance with applicable procedural and TS requirements:

- 1B DG monthly run (Routine);
- 2B auxiliary feedwater capacity test (Routine);
- 1B essential service water pump comprehensive test (Routine);
- 1A auxiliary feedwater American Society of Mechanical Engineers (ASME) (IST);
- 2B auxiliary feedwater capacity test (IST); and
- Unit 2 reactor coolant system water inventory balance surveillance (RCS).

The inspectors observed in-plant activities and reviewed procedures and associated records to determine the following:

- did preconditioning occur;
- were the effects of the testing adequately addressed by control room personnel or engineers prior to the commencement of the testing;
- were acceptance criteria clearly stated, sufficient to demonstrate operational readiness, and consistent with the system design basis;
- was plant equipment calibration correct, accurate, and properly documented;
- were as-left setpoints within required ranges; and was the calibration frequency in accordance with TSs, the UFSAR, plant procedures, and applicable commitments;
- was measuring and test equipment calibration current;
- was the test equipment used within the required range and accuracy and were applicable prerequisites described in the test procedures satisfied;
- did test frequencies meet TS requirements to demonstrate operability and reliability;
- were tests performed in accordance with the test procedures and other applicable procedures;
- were jumpers and lifted leads controlled and restored where used;
- were test data and results accurate, complete, within limits, and valid;
- was test equipment removed following testing;
- where applicable for inservice testing activities, was testing performed in accordance with the applicable version of Section XI of the ASME Code, and were reference values consistent with the system design basis;
- was the unavailability of the tested equipment appropriately considered in the performance indicator data;
- where applicable, were test results not meeting acceptance criteria addressed with an adequate operability evaluation, or was the system or component declared inoperable;
- where applicable for safety-related instrument control surveillance tests, was the reference setting data accurately incorporated into the test procedure;
- was equipment returned to a position or status required to support the performance of its safety function following testing;
- were all problems identified during the testing appropriately documented and dispositioned in the licensee's CAP;
- where applicable, were annunciators and other alarms demonstrated to be functional and were annunciator and alarm setpoints consistent with design documents; and
- where applicable, were alarm response procedure entry points and actions consistent with the plant design and licensing documents.

Documents reviewed are listed in the Attachment.

This inspection constituted three routine surveillance testing samples, two in-service test (IST) samples, and one reactor coolant system (RCS) leak detection inspection sample as defined in IP 71111.22, Sections–02 and–05.

## 2. RADIATION SAFETY

### Cornerstones: Occupational and Public Radiation Safety

#### 2RS1 Radiological Hazard Assessment and Exposure Controls (71124.01)

The inspection activities supplement those documented in Inspection Report 05000456/2015002; 05000457/2015002 and constitute a partial sample as defined in IP 71124.01-05.

##### .1 Contamination and Radioactive Material Control (02.04)

###### a. Inspection Scope

The inspectors selected several sealed sources from the licensee's inventory records and assessed whether the sources were accounted for and verified to be intact.

The inspectors evaluated whether any transactions, since the last inspection, involving nationally tracked sources were reported in accordance with 10 CFR 20.2207.

###### b. Findings

No findings were identified.

##### .2 Radiological Hazards Control and Work Coverage (02.05)

###### a. Inspection Scope

The inspectors reviewed the application of dosimetry to effectively monitor exposure to personnel in high radiation work areas with significant dose rate gradients.

###### b. Findings

No findings were identified.

#### 2RS2 Occupational As-Low-As-Reasonably-Achievable Planning and Controls (71124.02)

The inspection activities supplement those documented in Inspection Report 05000456/2014003; 05000457/2014003 and 05000456/2015002; 05000457/2015002, and constitute a partial sample as defined in IP 71124.02-05.

##### .1 Inspection Planning (02.01)

###### a. Inspection Scope

The inspectors reviewed pertinent information regarding plant collective exposure history, current exposure trends, and ongoing or planned activities in order to assess current performance and exposure challenges. The inspectors reviewed the plant's 3-year rolling average collective exposure.

b. Findings

No findings were identified.

.2 Radiological Work Planning (02.02)

a. Inspection Scope

The inspectors selected the following work activities of the highest exposure significance.

- Radiation Work Permit (RWP)-10016657; Auxiliary Building Outage Shielding;
- RWP-10017215; Reactor Head CRDM Emergent Weld Repair;
- RWP-10016675; A1R18 Outage Containment Scaffolds; and
- RWP-10016683; A1R18 Reactor Head Disassembly/Reassembly.

The inspectors compared the results achieved (dose rate reductions and person-rem used) with the intended dose established in the licensee's as-low-as-reasonably-achievable (ALARA) planning for these work activities. The inspectors compared the person-hour estimates provided by maintenance planning and other groups to the radiation protection group with the actual work activity time requirements, and evaluated the accuracy of these time estimates. The inspectors assessed the reasons (e.g., failure to adequately plan the activity and failure to provide sufficient work controls) for any inconsistencies between intended and actual work activity doses.

b. Findings

No findings were identified.

**4. OTHER ACTIVITIES**

4OA1 Performance Indicator Verification (71151)

.1 Mitigating Systems Performance Index—Emergency AC Power Systems

a. Inspection Scope

The inspectors sampled licensee submittals for the Mitigating Systems Performance Index (MSPI) - Emergency AC Power Systems (MS06) performance for Braidwood Unit 1 and Unit 2 for the period from the 2<sup>nd</sup> quarter 2014 through 3<sup>rd</sup> quarter 2015. To determine the accuracy of the performance indicator (PI) data reported during those periods, PI definitions and guidance contained in Nuclear Energy Institute (NEI) 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, dated August 31, 2013, were used. The inspectors reviewed the licensee's operator narrative logs, MSPI derivation reports, IRs, event reports and NRC Integrated Inspection Reports for the period of April 1, 2014, through August 30, 2015, to validate the accuracy of the submittals. The inspectors reviewed the MSPI component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, whether the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's IR database to determine if any problems had been identified with the PI data collected or transmitted for this indicator. Documents reviewed are listed in the Attachment.

This inspection constituted two MSPI emergency AC power system samples as defined in IP 71151–05.

b. Findings

No findings were identified.

.2 Mitigating Systems Performance Index—High Pressure Injection Systems

a. Inspection Scope

The inspectors sampled licensee submittals for the MSPI - High Pressure Injection Systems (MS07) performance for Braidwood Unit 1 and Unit 2 for the period from the 2<sup>nd</sup> quarter 2014 through 3<sup>rd</sup> quarter 2015. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in NEI 99–02, “Regulatory Assessment Performance Indicator Guideline,” Revision 7, dated August 31, 2013, were used. The inspectors reviewed the licensee’s operator narrative logs, IRs, MSPI derivation reports, event reports and NRC Integrated Inspection Reports for the period of April 1, 2014, through August 30, 2015, to validate the accuracy of the submittals. The inspectors reviewed the MSPI component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, whether the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee’s IR database to determine if any problems had been identified with the PI data collected or transmitted for this indicator. Documents reviewed are listed in the Attachment.

This inspection constituted two MSPI high pressure injection system samples as defined in IP 71151–05.

b. Findings

No findings were identified.

.3 Mitigating Systems Performance Index—Heat Removal System

a. Inspection Scope

The inspectors sampled licensee submittals for the MSPI - Heat Removal System (MS08) performance for Braidwood Unit 1 and Unit 2 for the period from the 2<sup>nd</sup> quarter 2014 through 3<sup>rd</sup> quarter 2015. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in NEI 99-02, “Regulatory Assessment Performance Indicator Guideline,” Revision 7, dated August 31, 2013, were used. The inspectors reviewed the licensee’s operator narrative logs, IRs, event reports, MSPI derivation reports, and NRC Integrated Inspection Reports for the period of April 1, 2014, through August 30, 2015, to validate the accuracy of the submittals. The inspectors reviewed the MSPI component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, whether the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee’s IR database to determine if any problems had been identified with the PI data collected or transmitted for this indicator. Documents reviewed are listed in the Attachment.

This inspection constituted two MSPI heat removal system samples as defined in IP 71151–05.

b. Findings

No findings were identified.

.4 Mitigating Systems Performance Index—Residual Heat Removal System

a. Inspection Scope

The inspectors sampled licensee submittals for the MSPI - Residual Heat Removal System (MS09) performance for Braidwood Unit 1 and Unit 2 for the period from the 2<sup>nd</sup> quarter 2014 through 3<sup>rd</sup> quarter 2015. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in NEI 99–02, “Regulatory Assessment Performance Indicator Guideline,” Revision 7, dated August 31, 2013, were used. The inspectors reviewed the licensee’s operator narrative logs, IRs, MSPI derivation reports, event report, and NRC Integrated Inspection Reports for the period of April 1, 2014, through August 30, 2015, to validate the accuracy of the submittals. The inspectors reviewed the MSPI component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, whether the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee’s IR database to determine if any problems had been identified with the PI data collected or transmitted for this indicator. Documents reviewed are listed in the Attachment.

This inspection constituted two MSPI residual heat removal system samples as defined in IP 71151–05.

b. Findings

No findings were identified.

.5 Mitigating Systems Performance Index—Cooling Water Systems

a. Inspection Scope

The inspectors sampled licensee submittals for the MSPI - Cooling Water Systems (MS10) performance for Braidwood Unit 1 and Unit 2 for the period from the 2<sup>nd</sup> quarter 2014 through 3<sup>rd</sup> quarter 2015. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in NEI 99–02, “Regulatory Assessment Performance Indicator Guideline,” Revision 7, dated August 31, 2013, were used. The inspectors reviewed the licensee’s operator narrative logs, IRs, MSPI derivation reports, event reports and NRC Integrated Inspection Reports for the period of April 1, 2014, through August 30, 2015, to validate the accuracy of the submittals. The inspectors reviewed the MSPI component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, whether the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee’s IR database to determine if any problems had been identified with the PI data collected or transmitted for this indicator. Documents reviewed are listed in the Attachment.

This inspection constituted two MSPI cooling water system samples as defined in IP 71151–05.

b. Findings

No findings were identified.

4OA2 Identification and Resolution of Problems (71152)

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

a. Inspection Scope

As part of the various baseline inspection procedures discussed in previous sections of this report, the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify they were being entered into the licensee's CAP at an appropriate threshold, that adequate attention was being given to timely corrective actions, and that adverse trends were identified and addressed. Attributes reviewed included: whether identification of the problem was complete and accurate; whether timeliness was commensurate with the safety significance; whether evaluation and disposition of performance issues, generic implications, common causes, contributing factors, root causes, extent-of-condition reviews, and previous occurrences reviews were proper and adequate; and whether the classification, prioritization, focus, and timeliness of corrective actions were commensurate with safety and sufficient to prevent recurrence of the issue. Minor issues entered into the licensee's CAP as a result of the inspectors' observations are included in the Attachment.

These routine reviews for the identification and resolution of problems did not constitute any additional inspection samples. Instead, by procedure they were considered an integral part of the inspections performed during the quarter and documented in Section 1 of this report.

b. Findings

No findings were identified.

.2 Daily Corrective Action Program Reviews

a. Inspection Scope

In order to assist with the identification of repetitive equipment failures and specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the licensee's CAP. This review was accomplished through inspection of the station's daily condition report packages.

These daily reviews were performed by procedure as part of the inspectors' daily plant status monitoring activities and, as such, did not constitute any separate inspection samples.

b. Findings

No findings were identified.

.3 Selected Issue Follow-Up Inspection: 1C Reactor Coolant Pump Elevated Bearing Temperature

a. Inspection Scope

On June 16, 2015, operators noted that the lower seal water bearing temperature of the 1C reactor coolant pump rose 20 degrees Fahrenheit over a 10 minute period. A review of plant operating conditions by the operators at the time of the temperature increase revealed no discernible changes in the reactor coolant, component cooling, or charging systems parameters that would account for the temperature increase. The licensee documented the issue in IR 2516573, "1C Reactor Coolant Pump Lower Water Bearing Temperature Indication Shift," and conducted a simple troubleshooting activity to determine whether the instrument was responsible for the anomalies. Based on the available information, the licensee concluded that the pump bearing high temperature indication was valid, and established an adverse condition monitoring plan to detect potential degradation.

During this inspection period, the inspectors reviewed the licensee's investigation of the events, reviewed the adverse condition monitoring plan, and observed in-plant activities to determine whether the corrective actions planned addressed the issues identified.

This review constituted one in-depth problem identification and resolution sample as defined in IP 71152-05.

b. Findings

No findings were identified.

.4 Selected Issue Follow-Up Inspection: Adverse Trend in RD-10B Detector Performance

a. Inspection Scope

On August 3, 2015, Engineering completed an Apparent Cause Evaluation related to an adverse trend in radiation detector model RD-10B performance. Since 2012, the area radiation monitoring system has experienced decreased reliability due to detector replacements due to failures, check source failures, source degradation, and missing calibration data.

During this inspection period, the inspectors reviewed the licensee's investigation of the events, corrective action documents, and planned corrective actions.

This review constituted one in-depth problem identification and resolution sample as defined in IP 71152-05.

b. Findings

No findings were identified.

.5 Selected Issue Follow-Up Inspection: Essential Service Water Strainer Backwash Line Through-Wall Leak Extent of Condition Review

a. Inspection Scope

On August 25, 2015, the licensee identified a pinhole size leak on an 8-inch to 6-inch piping reducer downstream of the 2B essential service water strainer backwash line. Operations took prompt action to isolate the 2B essential service water backwash line and declared the 2B essential service water system inoperable until repairs could be made.

The inspectors reviewed the licensee causal analysis results and associated extent of condition review for the other essential service water strainer backwash lines (i.e., 1A, 1B, and 2A trains). Additionally, the inspectors performed an independent field walk down to identify any apparent issues that had not been identified by the licensee.

This review constituted one in-depth problem identification and resolution sample as defined in IP 71152-05.

b. Findings

No findings were identified.

4OA3 Follow-Up of Events and Notices of Enforcement Discretion (71153)

.1 (Closed) Licensee Event Report (LER) 05000456/2015-002-00, Indication in Control Rod Drive Mechanism Nozzle Weld Due to Embedded Flaws Opening Up from Thermal and Pressure Stresses During Operation

a. Inspection Scope

On April 3, 2015, an in-service liquid dye penetrant examination was performed on control rod drive mechanism nozzle penetration 69. This penetration had been repaired during previous outages and was examined in accordance with the station's In-service Inspection Program Plan and relief request I3R-09 requirements. During the examination of a previously identified acceptable indication, the flaw was shown to have expanded to a 3/8-inch rounded indication and exceeded the acceptance criteria for the liquid dye penetrant examination. The flaw remained embedded and there was no indication of a pressure boundary through-wall leak.

The unacceptable indication was documented in IR 2479588 and repaired using WO 1689688. Flaw reduction was accomplished through blending/grinding the material in accordance with the guidance provided by engineering in ECR 417737.

Re-examination was performed by liquid dye penetrant examination and the indication met the acceptance criteria. Documents reviewed are listed in the Attachment. This LER is closed.

This event follow-up review constituted one sample as defined in IP 71153-05.

b. Findings

No findings were identified.

.2 (Closed) LER 05000457/2015-003-00, Degraded Valve Causes Loss of Diesel Fuel Oil System Volume for One Train of the Diesel Generator System Resulting in Inoperability Longer than Allowed by Technical Specifications

a. Inspection Scope

On June 24, 2015, during the 2B DG monthly surveillance run, the level of fuel oil in the redundant 2A diesel oil storage tank (DOST) increased unexpectedly. Upon investigation it was discovered that the change in 2A DOST level was caused by a leaking isolation valve between the two trains. The DG fuel oil system had recently been modified in a manner that reduced the DG fuel oil system train separation from two isolation valves to one isolation valve. Engineering performed an evaluation of the 2B DOST fuel oil volume with consideration of the degraded fill valve, and determined that the 2B DG did not have enough fuel oil to satisfy its 7-day mission time specified in TS 3.8.3, "Diesel Fuel Oil." The inspectors reviewed available documentation related to the event and the associated corrective actions. This LER is closed.

This event follow-up review constituted one sample as defined in IP 71153–05.

b. Findings

A violation of very low safety significance that was identified by the licensee was reviewed by the NRC. This violation and CAP tracking number is listed in Section 4OA7 of this report.

4OA5 Other Activities

.1 World Association of Nuclear Operators (WANO) Peer Review – Final Report

The inspections reviewed the final WANO Peer Review report, dated February 2015. The evaluation was conducted by WANO in lieu of the periodic INPO evaluation. The inspectors reviewed the report to ensure that issues identified in the report were consistent with the NRC perspectives of licensee performance and to determine if any significant safety issues were identified that required further NRC follow-up.

4OA6 Management Meetings

.1 Exit Meeting Summary

On October 7, 2015, the inspectors presented the inspection results to Mr. M. Kanavos, Braidwood Site Vice President, and other members of the licensee staff. The inspectors confirmed that proprietary material received during the inspection period that was no longer under review was returned to the licensee and none of the potential input discussed was considered proprietary.

.2 Interim Exit Meetings

Interim exits were conducted for:

- On July 1, 2015, the inspectors presented the inspection results regarding the Triennial Review of Heat Sink Performance to Ms. M. Marchionda, Braidwood Plant Manager, and other members of the licensee staff.

- On August 14, 2014, the inspectors presented the inspection results for the areas of Radiological Hazard Assessment and Exposure Controls, and Occupational ALARA Planning and Controls to Mr. John Bashor, Engineering Director, and other members of the licensee staff.
- On September 18, 2105, the inspectors presented the inspection results in the area of Operator Licensing to Mr. K. Dovas, Training Director, and other members of the licensee staff.

The inspectors confirmed that none of the potential report input discussed was considered proprietary. Proprietary material received during the inspection was returned to the licensee.

#### 40A7 Licensee-Identified Violations

The following two violations of very low safety significance (Green) were identified by the licensee and are violations of NRC requirements which meets the criteria of the NRC Enforcement Policy for being dispositioned as NCVs.

- Title 10 of the *Code of Federal Regulations*, Part 50, Appendix B, Criterion III, "Design Control," requires, in part, that measures shall be established to assure that applicable regulatory requirements and the design basis are appropriately translated into specifications, drawings, procedures, and instructions.

Contrary to the above, as of October 10, 2014, the licensee failed to translate the design basis essential service cooling pond berm height into procedures and instructions. Specifically, procedure BwVSR 3.7.9.3, "Braidwood Cooling Lake Hydrographic Survey," did not ensure that the height of the essential service cooling pond berm was being verified. This issue was entered into the licensee's CAP as IR 2400960; "The UHS EL. At Top of the East Slope Found Less than 590 ft," dated October 24, 2014, and the procedure was corrected.

The inspectors determined that the performance deficiency was more than minor in accordance with IMC 0612, Appendix B, "Issue Screening," because the issue was associated with the Design Control attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, following a seismic event that drains the non-essential main Braidwood cooling pond, the essential cooling pond (i.e., UHS) would have a decrease in available inventory at the start of a design basis event. This could reduce the available net positive suction head for the service water pumps that take suction from the UHS, as well as potentially resulting in the UHS design temperature of 100 degrees Fahrenheit being exceeded.

The inspectors determined the finding could be evaluated using the Significance Determination Process in accordance with IMC 0609, "Significance Determination Process," Attachment 0609.04, "Initial Characterization of Findings," dated June 19, 2012, and Appendix A, "The Significance Determination Process for Findings At-Power," Exhibit 2, "Mitigating Systems Screening Questions," dated June 19, 2012. The inspectors determined that the finding affected the design of the UHS, but did not result in a loss of operability, and therefore screened the finding as having very low safety significance (Green).

- Title 10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” requires, in part, that activities affecting quality shall include appropriate quantitative or qualitative acceptance criteria for determining that important activities have been satisfactorily accomplished.

Contrary to the above, from April 23, 2015, to June 24, 2015, the licensee failed to translate specific acceptance criteria into procedures and instructions. Specifically, when the licensee modified the DG fuel oil system in a manner that reduced the DG fuel oil system train separation from two isolation points to one isolation point, the licensee failed to establish quantifiable acceptance criteria in the post-maintenance test, and failed to establish performance monitoring with acceptance criteria, as specified in the design change. This issue was entered into the CAP as IR 2519208 with immediate corrective actions of re-establishing the dual isolation point.

The inspectors determined that the performance deficiency was more than minor in accordance with IMC 0612, Appendix B, “Issue Screening,” because the issue was associated with the Design Control attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). The inspectors determined the finding could be evaluated using the SDP in accordance with IMC 0609, “Significance Determination Process,” Attachment 0609.04, “Initial Characterization of Findings,” dated June 19, 2012, and Appendix A, “The Significance Determination Process for Findings At-Power,” Exhibit 2, “Mitigating Systems Screening Questions,” dated June 19, 2012. The inspectors determined that the finding was of very low safety significance (Green), because the issue did not prevent the 2B DG from operating for its specified probable risk assessment mission time of 24 hours.

ATTACHMENT: SUPPLEMENTAL INFORMATION

## **SUPPLEMENTAL INFORMATION**

### **KEY POINTS OF CONTACT**

#### Licensee

M. Kanavos, Site Vice President  
M. Marchionda, Plant Manager  
J. Bashor, Engineering Manager  
J. Cady, Radiation Protection Manager  
J. Coughlin, Radiation Protection Supervisor  
R. Cameron, Operations Training Manager  
K. Dovas, Training Director  
A. Ferko, Operations Manager  
B. Finlay, Site Security Manager  
C. Ingold, Maintenance Manager  
J. Overstreet, Training Support Manager  
P. Rausch, Regulatory Assurance Manager  
S. Reynolds, Nuclear Oversight Manager  
D. Riedinger, Senior Manager Design Engineering  
J. Taff, LORT Lead  
A. Trespalacios, Maintenance Planning Manager

#### U.S. Nuclear Regulatory Commission

E. Duncan, Chief, Reactor Projects Branch 3

## LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

### Closed

05000456/2015-002-00	LER	Indication in Control Rod Drive Mechanism Nozzle Weld Due to Embedded Flaws Opening Up from Thermal and Pressure Stresses During Operation (Section 4OA3.1)
05000457/2015-003-00	LER	Degraded Valve Causes Loss of Diesel Fuel Oil System Volume for One Train of the Diesel Generator System Resulting in Inoperability Longer than Allowed by Technical Specifications (Section 4OA3.2)

### Discussed

None

## LIST OF DOCUMENTS REVIEWED

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

### 1R01 Adverse Weather Protection

- OP-AA-108-107-1001; Stations Response to Grid Capacity Conditions; Revision 6

### 1R04 Equipment Alignment

- BwOP AF-E2; Electrical Lineup – Unit 2 Operating; Revision 10
- BwOP AF-M2; Operating Mechanical Lineup, Auxiliary Feedwater, Unit 2; Revision 16
- BwOP AF-M1; Operating Mechanical Lineup Unit 1; Revision 19
- BwOP AF-E1; ; Electrical Lineup – Unit 1 Operating; Revision 15
- BwOP CC-E1; Electrical Lineup – Unit 1 Operating; Revision 8
- BwOP CC-M1; Operating Mechanical Lineup Unit 1; Revision 18
- BwOP DG-M1; Operating Mechanical Lineup 1A DG; Revision 17
- M-37; Diagram of Auxiliary Feedwater Unit 1; Revision BK
- M-66; Diagram of Component Cooling, Unit 1; Sheet 2

### 1R05 Fire Protection

- Pre-Fire Plan #43; SGA 426' Division 11 ESF Switchgear Room
- Pre-Fire Plan #134; AB 383' Unit 2 Aux. Bldg. General Area South; FZ 11.4-0 South
- Pre-Fire Plan #135; AB 383' Control Room Refrigeration Equipment Room; FZ 11.4A-0
- Pre-Fire Plan #148; AB 401' Aux. Bldg. General Area – South; FZ 11.5-0
- Pre-Fire Plan #221; OUT 401' System Auxiliary Transformers 141-1 & 141-2
- Safe Shutdown Analysis; Section 2.4.2.98, Control Room Refrigeration Equipment Room; FZ 11.4-0
- Fire Hazards Analysis; Section 2.3.11.30, Control Room Refrigeration Equipment Room; FZ 11.4-0
- Safe Shutdown Analysis; Section 2.4.2.109, Auxiliary Building General Area, EI 401'; FZ 11.5-0
- Fire Hazards Analysis, Section 2.3.11.41; Auxiliary Building Elevation 401'; FZ 11.5-0

### 1R07 Triennial Review of Heat Sink Performance

- MOD DRP 4-009; Transmittal of Byron/Braidwood UFSAR Draft Revision Package for Review and Comment
- UFSAR Change Package 15-112; Clarify Reference to Single Active Failure for the UHS; Revision 0
- Letter from ComEd to NRC; Byron Essential Service Water Cooling Towers; May 26, 1987
- Letter from ComEd to NRC Byron Essential Service Water Cooling Towers; May 29, 1987
- Letter from ComEd to NRR; Byron Ultimate Heat Sink; May 18, 1992
- Letter from ComEd to NRR; Byron Application for Amendment to Facility Operating Licenses NPF-37 and NPF-66; March 31, 1992
- Braidwood UFSAR; Section 2.4.11.6, Heat Sink Dependability Requirements; Amendment 43 – September 1983 and Revision 4 – December 1992

- Byron Station UHS Design Basis Reconstitution Effort; March 15, 1991 to January 9, 1992
- S&L Project 4683-02; Design Check for UHS; January 25, 1979
- S&L Project 8880-56; Heat Load to the UHS During Loss of Coolant Accident; March 12 and April 1, 1992
- Regulatory Guide 1.27; UHS for Nuclear Power Plants; Revision 2 – January 1976
- IR 2516399; Potential TS Bases B3.7.9, UHS, Revision; June 18, 2015
- NUREG-0800; Cooling Water Supply; Revision 2 – July 1981
- 0BWOA ENV-1; Adverse Weather Conditions, Unit 0; Revision 119
- 0BWOA ENV-3; Braidwood Cooling Lake Low Level; Revision 103
- 1Bw0A PRI-6; Component Cooling Malfunaction Unit 1; Revision 107
- 1Bw0A PRI-8; Essential Service Water Malfunaction; Revision 105
- 1BwOSR 0.1-1,2,3; Unit One – Modes 1, 2, and 3 Shiftly and Daily Operating Surveillance; Revision 78
- 1BWOSR 0.1-1,2,3; Unit One Modes 1, 2, and 3 Shiftly and Daily Operating Surveillance; Revision 82
- 2Bw0A PRI-8; Essential Service Water Malfunaction; Revision 106
- IR 01271816; 1CC01A: Unit 1 CC HX East Channel Flange Degraded – Repair; October 3, 2011IR 01627087; As Found Conditions of 1CC01A (U1 CC Heat Exchanger); February 27, 2014
- IR 01698143; Deficiency 01 VIAC Needs to be Established and EC 357161 Rev; August 29, 2014
- IR 021521321; 50.59 Not Done for Increasing CC Temp from 120 to 128F; June 29, 2015
- IR 02400960; The UHS At Top of East Slope Found Less the 590 FT; October 24, 2014
- IR 02403268; Procedure BwVSR 3.7.9.3. Needing Revision; October 29, 2014
- IR 02415812; TS 3.7.9, “UHS,” Surveillance Requirements; November 21, 2014
- IR 02517129; RCS Cooldown Calc Not Aligned With CC HX Calc; June 19, 2015
- IR 02517142; Incorrect Accuracy Value Identified in Procedure BwVS 900-29; June 19, 2015
- ATD-0063; Heat Load to the UHS; Revision 5
- ATD-0109; Thermal Performance of the UHS; Revision 3
- BRW-00-0018-M Rev. 000B– Ultimate Heat Sink Evaluation For Power Uprate Heat Load Condition
- BRW-03-0055-M; Evaluation of Replacement Tubing and Effects on CC Heat Exchangers; Revision 1
- BRW-97-1072-M; Component Cooling Heat Exchanger Tube Plugging Evaluation; Revision 4
- BwAR 1-2-C5; CC HX Outlet Temp High; Revision 11
- BwOP CC-1; Component Cooling Water System Startup; Revision 21
- BwOP SX-12; Essential Service Water System Pump Discharge Flow Rate Adjustment; Revision 6
- BWVSR 3.7.9.3; Cooling Lake Hydrographic Survey; December 15, 1978
- CN-SEE-I-10-26; MUR Cooldown; Revision 0
- CWE-88-304, CAE-88-371, CCE-88-573; Zion/Byron/Braidwood Stations Units 1 and 2 CCW Inter-unit Sharing; December 19, 1988
- CY-BR-120-412; Braidwood Lake Chemistry Control; Revision 12
- Document No. 01-10-52; Piping Design Specification; August 14, 2012
- EC 357161; Acceptance Criteria for As Found Heat Tube Blockage of the Clean-Only GL 89-13 Coolers at Braidwood; Revision 1
- EC 383476; Revise 1CC01A HX Parameters & Performance Test Acceptance Criteria – 278 out of 1,956 Tubes Plugged (Jan 2005); Revision 0
- EC 396177; Evaluate Degradation of the U1 Component Cooling Heat Exchanger (1CC01A) East and West Flange Faces; February 27, 2014EC 398614; Uncertainty Evaluation for Loop 0L-CW041

- EC 401667; Evaluation of Unit 1 CC Heat Exchanger Thermal Performance Data Using EPRI Methodology; Revision 0
- EC 402454; Operability Evaluation 15-005 Related to IR 02517129 – RCS Cooldown Calculation Not Aligned with CC HX Calculation; Revision 0
- PI-AA-126-1001-F-01; Braidwood Pre-NRC Triennial Heat Sink and 89-13 FASA; Revision 0
- Essential Service Water Quarterly Walkdown; January 12, 2015
- Essential Service Water Quarterly Walkdown; April 1, 2015
- WO 01265013; Unit 1 Component Cooling Heat Exchanger Inspection Report; October 3, 2011
- WO 01380626 01; Thermal Performance Test of the U1 Component Cooling Heat Exchanger; March 21, 2012
- WO 01473613; Braidwood Cooling Lake Hydrographic Survey; March 4, 2013
- WO 01538365 01; Thermal Performance Test of the U1 Component Cooling Heat Exchanger; September 5, 2013
- WO 01573305; 1B Forebay – August Diver Inspection and Screen ADJ; September 24, 2013
- WO 01626723 01; 1CC01A Eddy Current Testing and Inspection; December 21, 2013
- WO 01681097 01; Thermal Performance Test of the U1 Component Cooling Heat Exchanger; March 20, 2015
- WO 01694632; 1A Forebay – August Diver Inspection and Screen ADJ; September 26, 2014
- WO 01466325; 1A Forebay Diver Inspections and Screen Adj; May 26, 2012

#### 1R11 Licensed Operator Requalification Program

- Shutdown Reactor Coolant Chemistry Training Slides
- BwVS 500-6; Low Power Physics Test Program; Revision 37
- Action Request Report 01993687 and 01993654; Tracking CR; 2014 Biennial Failure
- TQ-AA-224-F090; Performance Review Committee Data Sheet; Revision 5; September 29, 2014
- TQ-AA-224-F100; Remedial Training Notification and Action on Failure; Revision 5; October 9, 2014
- TQ-AA-224-F090; Performance Review Committee Data Sheet; Revision 5, September 9, 2014
- TQ-AA-224-F100; Remedial Training Notification and Action on Failure; Revision 5; October 3, 2014
- OP-AA-105-102 Rev. 11; Reactivation of License Log, Att. 2; January 9, 2015
- OP-AA-105-102 Rev. 11; Reactivation of License Log, Att. 2; January 21, 2015
- TQ-AA-201; Examination Security and Administration; Revision 16
- OP-AA-105-102; Active License Tracking Log; Revision 11
- LRTP 2015-2016; Integrated Training Schedule; Revision 4
- TQ-AA-150-F28; Continuing Training Attendance Form; Revision 2

#### Open Simulator Work Requests

- 16322, Computer Database Change PPC2015-143: PPC Add Display of Trends Relevant to 1/2BwOS RF-1; August 10, 2015
- 16354, Need New MF HV18A/B (VC Return Fan Trip); August 31, 2015

### Closed Simulator Work Requests

- 14996, AF Flow Computer Point Overrides; October 17, 2013
- 15087, New Electrical Model/Open Sim 6.0; December 9, 2013
- 15100, OTDT C3 Bypass Still Allows Turbine Runback; December 16, 2013
- 15142, Earthquake/Steam Break Noise Simulation; January 22, 2014
- 15271, EC 394153: Diesel AF Pump SX Cooling (FLEX); March 26, 2014
- 15372, Need GS Rupture Disc MF (post event review); March 20, 2014
- 15471, Inconsistent CAE Execution; July 25, 2014
- 15603, IA Meter Pressure Should Be Lower Than SA Meter Pressure; October 15, 2014
- 16055, Modify RF EP20 Earthquake Severity; March 31, 2015
- 16097, SER Points 0413 and 2116 are Swapped; April 20, 2015

### Simulator Tests

- Site Acceptance Test – Electrical Model & Open Sim 6.0 Upgrades; 4th Quarter 2013
- SS-1, Steady State Testing; June 19, 2015
- TR-1, Transient Test – Manual Reactor Trip; December 5, 2013
- TR-4, Transient Test – Simultaneous Trip of all RCPs; December 7, 2013
- TR-5, Transient Test – Trip of Any Single RCP; December 7, 2013
- TR-8, Transient Test – Maximum Size Reactor Coolant System Rupture Combined with a Loss of All Offsite Power; December 7, 2013
- Simulator Scenario Based Testing Package for BR-26, Response to a Large Break LOCA and Miscellaneous Malfunctions; September 8, 2015
- Simulator Core Physics Tests for Fuel Cycle 19; June 2015

### Other

- 2014 Braidwood Station Licensed Operator Requalification Program Crew 1 RO and SRO Biennial Written Examinations; August 2014
- 2015 Braidwood Station Licensed Operator Requalification Program Crew 1 RO and SRO Annual JPM Examination; September 2015
- 2015 Braidwood Station Licensed Operator Requalification Program Crew 1 Annual Simulator Evaluation Scenarios; September 2015

### 1R12 Maintenance Effectiveness

- IR 1475052; 1AR12J Spike Caused Containment Vent Isolation Signal
- IR 1515379; 1RE-AR012 Readings are Failing Low
- IR 1524473; Numerous “Alarms”
- IR 1592912; Primary Sample Room Has Defective Area Rad Monitor
- IR 1594048; 2B Main Steam Line Rad Monitor Brief Failure
- IR 1600981; 0AR058J Monitor Not Responding to Poll
- IR 1604049; Aux Bldg Area Rad Monitor 0AR061J Spiked High
- IR 1691969; 0PR60J in Operate Failure
- IR 1692009; 2AR12 Trend Increasing Contrary to Expectation
- IR 2395476; WSA: 0R-AR063 WO 1509401-01 Unable to be Worked
- IR 2442536; Test Report Package Update Needed – 1RT-AR023
- IR 2504246; Main Steam Line Monitor Setpoint Verifications
- IR 2517832; Adverse Trend in RD-10B Detector Performance; August 3, 2015

### 1R13 Maintenance Risk Assessments and Emergent Work Control

- WC-AA-101; Switchyard Work on OSYBT 9-15; July 6, 2015
- WC-AA-101-1006; On-line Risk Management; Revision 0

### 1R15 Operability Determinations and Functionality Assessments

- IR 2527973; Acceptance Criteria Not Met for 2BwOSR 5.5.8.CV-4A; July 14, 2015
- IR 2541523, Part 21 – Namco Limit Switch; August 13, 2015
- Op Eval 15-004; RSG Nonconformance with ASME NB-3000
- Op Eval 15-005; RCS Cooldown Calculation Not Aligned with CC Hx
- NRC Event Notification: 51280, Part 21 Report Involving Limit Switches EA180 and EA170 Manufactured in a Specific Date Range; July 31, 2015 2BwOSR 5.5.8.CV-4A; Group A IST Requirements for 2A Centrifugal Charging Pump (2CF01PA) and Check Valve 2CV8480A Stroke Test; Revision 8
- Drawing M-64; Diagram of Chemical & Volume Control & Boron Thermal Regeneration – Unit 1; August 5, 1978

### 1R18 Plant Modifications

- IR 2526103; 2CC01PA Breaker Stationary Auxiliary Switch S-2 Not Made Up; July 9, 2015
- IR 2527524; SAT 142-2 Gas Pressure Relay – 1AP71E; July 13, 2015
- IR 2550306; EOC Review of IR 2544447 PORV Fire SSD Strategy; September 2, 2015
- WO 394144 000; Defeat Alarm for SAT 142-2 Gas Operated Relay; October 16, 2014
- EC 402988; 1MOV-RY8000A Pressurizer PORV Conductor Modification

### 1R19 Post Maintenance Testing

- WO 01627731 01; 1SI18923A Lubricate Valve Stem; August 4, 2015
- WO 01627732 01; 1SI8821A Lubricate Valve Stem; August 5, 2015
- WO 01627928 02; 1SI18814A Perform Grease Inspection on Gearcase & Gearbox; August 5, 2015
- WO 01627976 02; 1SI8814 Lubricate Valve Stem; August 5, 2015
- WO 01684477 02; 1SI18807A Surveillance for Age Related Degradation; August 5, 2015
- WO 01712104; 2SX93A Piping Replacement; August 26, 2015
- WO 01854157 02; AF Diesel Engine Fuel Oil Leak; August 18, 2015
- WO 1855343; 1RY8000A EC 402968 Installation; August 24, 2015
- VT-2 Visual Examination in Accordance with ASME 2001 Edition, 2003 Addenda, Revision 0
- Install Fuel Manifolds Instructions – Section 2.4 – 1993 Detroit Diesel Corporation

### 1R22 Surveillance Testing

- IR 2523828; Leakrate Exceeds Action Level 3; July 4, 2015
- IR 2540890; Deviation Action Levels II and III Exceeded on U2 Leakrate; August 12, 2015
- BwOP DG-11; Diesel Generator Startup and Operation; Revision 045
- 1BwOSR 3.8.1.2-2; Unit One, 1B Diesel Generator Operability Surveillance; Revision 38
- 1BwOSR 5.5.8.AF-3A; Group A IST Requirements for Unit One Motor Driven Auxiliary Feedwater Pump; Revision 10
- 1BwOSR 5.5.8.SX-6B; Comprehensive Inservice Testing Requirements for 1B Essential Service Water Pump (1SX01PB); Revision 7

- 2BwOSR 3.4.13.1; Reactor Coolant System Water Inventory Balance Surveillance; Revision 35
- WO 01757351; Comprehensive IST Requirements for 1SX01PB; September 14, 2015
- WO 01846232; IST- 1B D/G Operability Monthly; July 22, 2015
- TS Surveillance Requirements 3.8.1.2, 3.8.1.3, 3.8.1.4, 3.8.1.6, 3.8.1.7 and Associated Bases

#### 2RS1 Radiological Hazard Assessment and Exposure Controls

- RP-AA-800; Semi Annual Inventory and Leak Test; Revision 7RP-AA-800-001; National Source Tracking Program; 2015 Annual Inventory Reconciliation for National Source Tracking NSTS
- Fax Resources; Received Confirmation that NSTS Help Desk has Received Annual Inventory Reconciliation Submission; January 21, 2015
- BRW-15-002; Alpha Program Re-Evaluation Post A1R18
- RP-AA-462; Controls for Radiographic Operations; Revision 9
- RP-AA-460-003; Access to HRAs/VHRAs and Contaminated Areas in Response to a Potential or Actual Emergency; Revision 7
- RP-AA-460; Controls for High and Locked High Radiation Areas; Revision 26
- A1R18 Dose//Dose Rate Alarms; from April 3, 2015, through April 12, 2015

#### 2RS2 Occupational ALARA Planning and Controls

- PI-AA-126-1005-F-01; Self-Assessment to Assess Braidwood Station under NRC Inspection Procedure Regarding Plant's Collective History and Current Exposure Trends; June 10, 2015
- Braidwood Station Spring 2015 A1R18 Radiation Protection Outage Report
- ALARA/RWP-10016657; Auxiliary Building Outage Shielding; April 11, 2015
- ALARA/RWP-10017215; Reactor Head CRDM Emergent Weld Repair; April 12, 2015
- ALARA/RWP-10016675; A1R18 Outage Containment Scaffolds; April 12, 2015
- ALARA/RWP-10016683; A1R18 Reactor Head Disassembly/Reassembly; April 12, 2015
- ALARA/RWP-10016701; A1R18 Seal Table Activities; April 12, 2015
- ALARA/RWP-10016713; A1R18 CRDM Vent Line Volumetric Exam and PT Penetration 69 Activities; April 14, 2015
- ALARA/RWP-10016675; A1R18 Outage Containment Scaffold Activities; April 15, 2015
- RWP-10016657; ALARA Waiver Form; Auxiliary Building Outage Shielding; April 11, 2015
- RWP-10016667; ALARA Work in Progress Review; A1R18 Auxiliary Building Valves; April 5, 2015
- RWP-10016667; ALARA Work in Progress Review; A1R18 Auxiliary Building Valves Work with Added Controls; April 8, 2015
- RWP-10016671; ALARA Work in Progress Review; A1R18 Shielding Installation Activities; April 2, 2015
- RWP-10016673; ALARA Work in Progress Review; A1R18 Containment Insulation; April 2, 2015
- RWP-10016675; ALARA Work in Progress Review; A1R18 Containment Outage Scaffold; April 2, 2015
- RP-AA-401; ALARA Waiver Form; ALARA -0016657; Auxiliary Building Outage Shielding; April 5, 2015
- RP-AA-401; RWP-10016682; ALARA Work in Progress Review; A1R18 Containment Valves; April 7, 2015
- RP-AA-401; RWP-10016683; ALARA Work in Progress Review; A1R18 Reactor Head Disassembly/Reassembly; April 13, 2015

#### 4OA1 Performance Indicator Verification (71151)

- ER-AA-2008; Mitigating Systems Performance Index Monitoring and Margin Evaluation; Revision 4
- LS-AA-2200; Mitigating System Performance Index Data Acquisition & Reporting; Revision 5
- Reactor Oversight Program MSPI Bases Document Braidwood Nuclear Generating Station; May 2013 – Revision 13

#### 4OA2 Problem Identification and Resolution

- IR 1605160; Byron IR Fuel Oil Pump Discrepancy; January 7, 2014
- IR 1632324; 1DG5218A Seeping Oil; March 12, 2014
- IR 1668468; 1A EDG Fuel Oil Weeping from 5L Injector Pump; June 5, 2014 IR 1697622; Initiate EACE for Through-Wall Leak on 1SX25AA; August 28, 2014
- IR 2403937; 2B EDG Fuel at Piping Connection; December 2014 IR 2428856; Inadvertent Drain of 1D/1B DO Storage Tanks; December 22, 2014
- IR 2432845; EOC Inspection of 2SX03A-30” Based on Byron Thru-Wall Leak; January 2015
- IR 2468066; Thru Wall Leak on 1SX27DA Line Downstream of 1SX169A; March 13, 2015
- IR 2483411; 2A DG Lube Oil Filter Leaking Oil; April 10, 2015
- IR 2489259; 2A DG Oil Appearance; April 22, 2015
- IR 2490205; 1B EDG Fuel Oil Pressure Oscillation; April 23, 2015
- IR 2501820; Through Wall Leak Downstream 1SX007; May 17, 2015
- IR 2506291; 2B EDG – KVAR Oscillations during Monthly Surveillance; May 27, 2015
- IR 2506303; MCR Annunciator in Solid 0-33-E3 (1FIC-VQ093); May 27, 2015
- IR 2506306; Inadequate Risk Perception Safety Issue Not Mitigated; May 27, 2015
- IR 2506341; OPEX Review – Byron PPC Failure (IR 2505102); May 25, 2015 IR 2516573; 1C RCP Lower Water Bearing Temperature Indication Shift; June 18, 2015
- IR 2523775; 2A RCP Seal Water Injection Flow Low Alarm Received; July 4, 2015
- IR 2532133; NRC Identified Incomplete Documentation on Wheeled Extinguisher; July 23, 2015
- IR 2535056; NRC Observations in 2A DG room; July 30, 2015
- IR 2544447; NRC Identified Potential In-Adequate Safe Shutdown Strategy; August 20, 2015
- IR 2546103; 2SX93AA has Pinhole Leak; August 25, 2015
- IR 2547406; 4.0 Critique for Leak on 2A SX Strainer Backwash Line; August 26, 2015 OP-AA-108-11; 1C RCP Pump Bearing Temperature, Revision 1; Revision 10
- Reactivity Maneuver Approval Plan # BR2C18-09.0; Unit 2 Cycle 18 Coastdown

#### 4OA3 Follow-Up of Events and Notices of Enforcement Discretion

- IR 2479588; OSP-A Rejectable Indication on CRDM Penetration 69 Weld Buildup
- WO 1689688; NDE Report Number A1R18-PT-017
- ECR 417737; Request Engineering ECR Equivalent to Byron’s ECR 415739 & EC 365445 for A1R18 Outage REF IR 1691959
- Braidwood ISI Program Plan; Third Ten-Year Inspection Interval
- ER-AA-335-1008; Code Acceptance & Recording Criteria for Non-destructive (NDE) Surface Examination; Revision 3

## LIST OF ACRONYMS USED

AC	Alternating Current
ADAMS	Agencywide Documents Access and Management System
ALARA	As-Low-As-Reasonably-Achievable
ASME	American Society of Mechanical Engineers
CAP	Corrective Action Program
CFR	<i>Code of Federal Regulations</i>
DG	Diesel Generator
DOST	Diesel Oil Storage Tank
EC	Engineering Change
IMC	Inspection Manual Chapter
IP	Inspection Procedure
IR	Issue Report
IST	Inservice Test
kV	Kilovolt
LER	Licensee Event Report
LORT	Licensed Operator Requalification Training
MSPI	Mitigating Systems Performance Index
NCV	Non-Cited Violation
NEI	Nuclear Energy Institute
NRC	U.S. Nuclear Regulatory Commission
PARS	Publicly Available Records System
PI	Performance Indicator
RCS	Reactor Coolant System
RWP	Radiation Work Permit
SAT	Systems Approach to Training
SDP	Significance Determination Process
TS	Technical Specification
TSO	Transmission System Operator
UFSAR	Updated Final Safety Analysis Report
UHS	Ultimate Heat Sink
WANO	World Association of Nuclear Operators
WO	Work Order

B. Hanson

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Sincerely,

**/RA/**

Eric R. Duncan, Chief  
Branch 3  
Division of Reactor Projects

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