



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**  
REGION III  
2443 WARRENVILLE RD. SUITE 210  
LISLE, IL 60532-4352

April 30, 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 05000456/2015001; 05000457/2015001

Dear Mr. Hanson:

On March 31, 2015, the U.S. Nuclear Regulatory Commission (NRC) completed an integrated inspection at your Braidwood Station, Units 1 and 2. On April 21, 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.

Based on the results of this inspection, two NRC-Identified and one self-revealed finding of very low safety significance were identified. These findings were determined to involve violations of NRC requirements. However, because of their very low safety significance, and because the issues were entered into your corrective action program, the NRC is treating these violations as non-cited violations (NCVs), in accordance with Section 2.3.2 of the NRC's Enforcement Policy. A licensee-identified violation which was determined to be of very low safety significance is also documented in Section 4OA7 of this report.

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 a copy to the Regional Administrator, U.S. Nuclear Regulatory Commission-Region III, 2443 Warrenville Road, Suite 210, Lisle, IL 60532-4352; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the Resident Inspector Office at the Braidwood Station. In addition, if you disagree with the cross-cutting aspect assigned to any finding in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region III, 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 05000456/2015001; 05000457/2015001  
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: 05000456/2015001; 05000457/2015001

Licensee: Exelon Generation Company, LLC

Facility: Braidwood Station, Units 1 and 2

Location: Braceville, IL

Dates: January 1 through March 31, 2015

Inspectors: J. Benjamin, Senior Resident Inspector  
D. Betancourt, Resident Inspector  
R. Edwards, Acting Resident Inspector  
B. Boston, Reactor Inspector  
M. Garza, Emergency Preparedness Inspector  
T. Go, Health Physicist

Approved by: E. Duncan, Chief  
Branch 3  
Division of Reactor Projects

Enclosure



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## SUMMARY OF FINDINGS

Inspection Report 05000456/20015001; 05000457/2015001, 01/01/2015–03/31/2015, Braidwood Station, Units 1 & 2; Adverse Weather Protection; Operability Determinations and Functionality Assessments; and Emergency Response Organization Staffing and Augmentation System.

This report covers a 3-month period of inspection by resident inspectors and announced baseline inspections by regional inspectors. Two NRC-identified and one self-revealed finding of very low safety significance (Green) were identified. The findings were considered non-cited violations (NCVs) of NRC regulations. The significance of inspection findings is indicated by their color (i.e., greater than Green, or Green, White, Yellow, Red) and determined using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" dated June 2, 2011. Cross-cutting aspects are determined using IMC 0310, "Aspects Within the Cross-Cutting Areas," dated December 4, 2014. All violations of NRC requirements are dispositioned in accordance with the NRC's Enforcement Policy dated February 4, 2015. 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.

### **Cornerstone: Mitigating Systems**

Green. The inspectors identified a finding of very low safety significance and an associated NCV of 10 CFR Part 50, Appendix B, Criterion III, "Design Control", when licensee personnel failed to establish adequate measures to ensure that temporary equipment and structures stored at the station did not create an unanalyzed condition during a probable maximum precipitation (PMP) event. Specifically, the licensee's processes did not prevent the placement and storage of temporary equipment in a manner that could result in a condition not bounded by the station's plant design that prevents rainwater from impacting safety-related equipment. This issue was entered into the licensee's Corrective Action Program (CAP) as Issue Report (IR) 2473324.

The inspectors determined that the performance deficiency was more than minor in accordance with IMC 0612, Appendix B, "Issue Screening," because it 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, the failure to ensure that credited rainwater runoff flow paths were not impeded by the storage of temporary structures resulted in the licensee not ensuring the availability, reliability, and capability of systems that would be needed to respond to an initiating event. This assessment was based upon the inspector's review of current flood barrier margins, assumed turbine building below-grade flooding levels, the number of safety-related or risk-significant systems that could be adversely affected, and the absence of an abnormal operating procedure or any other similar procedure that could create additional margin. The inspectors determined that because the finding did not involve a confirmed loss or degradation of equipment or function specifically designed to mitigate a PMP external flooding event, the issue was of very low safety significance. The inspectors determined that the finding did not have a cross-cutting aspect because the performance deficiency was not indicative of current performance. (Section 1R01.1b)



Green. The inspectors identified a finding of very low safety significance and an associated NCV of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," when licensee personnel failed to adhere to the operability determination process after identifying a degraded condition on the 0B control room chiller. This issue was entered into the licensee's CAP as IR 2435363.

The inspectors determined that the performance deficiency was more than minor in accordance with IMC 0612, Appendix B, "Issue Screening," because it was associated with the Equipment Performance 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, the licensee did not provide an adequate basis to support 0B control room chiller availability, reliability, and capability to respond to an initiating event. The inspectors determined that the finding was of very low safety significance because all questions related to structures, systems, and components (SSCs) and functionality in the associated significance determination process (SDP) were answered "No." The finding had a cross-cutting aspect in the Design Margins component of the Human Performance cross-cutting area because the licensee failed to adequately evaluate whether the degraded oil return line in the 0B control room chiller had sufficient margin to assure operability (H.6). (Section 1R15.1b)

#### **Cornerstone: Emergency Preparedness**

Green. A self-revealed finding of very low safety significance and an associated NCV of 10 CFR 50.54(q)(2) and 10 CFR 50.47(b)(2) was identified on July 23, 2014, when after a Notice of Unusual Event was declared and the Shift Manager activated the Emergency Response Organization (ERO), several of the ERO members failed to respond as required. This issue was entered into the licensee's CAP as IR 2469494.

The inspectors determined that the performance deficiency was more than minor because it was associated with the Emergency Response Organization Readiness attribute of the Emergency Preparedness cornerstone and adversely affected the cornerstone objective of ensuring that the licensee was capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency. Since the finding involved a failure to comply with emergency preparedness requirements, the inspectors reviewed IMC 0609, Appendix B, Attachment 2, and determined that the finding was of very low safety significance because it involved a degraded planning standard function. The finding had a cross-cutting aspect in the Change Management component of the Human Performance cross-cutting area because the licensee did not appropriately evaluate and implement changes when the new ERO Augmentation System was implemented (H.3). (Section 1EP3.1.b)



## **REPORT DETAILS**

### **Summary of Plant Status**

Unit 1 began the inspection period at full power and operated at or near full power until March 29, 2015, when the unit was shut down for a planned refueling outage. Unit 1 remained shut down at the end of the inspection period.

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

### **REACTOR SAFETY**

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

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

##### **.1 External Flooding**

##### **a. Inspection Scope**

The inspectors evaluated the design, material condition, and procedures for coping with the design basis probable maximum precipitation (PMP) event. The evaluation included a review to check for deviations from the descriptions provided in the Updated Final Safety Analysis Report (UFSAR) for features intended to mitigate the potential for flooding from external factors. As part of this evaluation, the inspectors checked for obstructions that could prevent drainage, checked that the roofs did not contain obvious loose items that could clog drains in the event of heavy precipitation, and determined whether barriers required to mitigate flooding were in place and operable. Additionally, the inspectors performed a walkdown of the protected area to identify any modification to the site which could inhibit site drainage during a PMP event or allow water ingress past a barrier. Documents reviewed are listed in the Attachment.

This inspection constituted one external flooding sample as defined in Inspection Procedure (IP) 71111.01–05.

##### **b. Findings**

##### **Failure to Ensure that Temporary Structures Did Not Adversely Impact Safety During a Postulated Probable Maximum Precipitation Event**

Introduction: The inspectors identified a finding of very low safety significance (Green) and an associated NCV of 10 CFR Part 50, Appendix B, Criterion III, “Design Control,” when license personnel failed to establish adequate measures to ensure that temporary equipment and structures stored at the station did not create an unanalyzed flooding condition during a design basis PMP event. Specifically, the licensee’s processes and procedures did not ensure that the placement and storage of temporary equipment and structures would not adversely impact the graded rainwater runoff flow paths assumed in an associated supporting safety-related design calculation.

Description: Section 2.4 of the Braidwood UFSAR discussed the Braidwood PMP event and described the manner that the station complied with 10 CFR Part 50, Appendix A, Criterion 2, “Design Bases for Protection Against Natural Phenomena,” as associated



with the Current Licensing Basis (CLB). In summary, the PMP event at Braidwood was the design basis heavy rain event that could result in standing water outside of various buildings onsite and could result in flooding in the turbine building basement. This event was based on historical meteorological data and resulted in an assumed maximum rainfall of 31.9 inches over 48 hours covering the station's "footprint" of about 100 acres. A large part of this footprint was concrete and no rainwater absorption into the ground or into the station's storm drain system was assumed.

The station's footprint was designed and graded so that rainwater would move away from buildings and structures and preclude flooding into safety-related areas. The licensee's design credited various rainwater runoff flow paths and did not assume any specific or generic placement of temporary structures or components that could backup, channel, or re-direct rainwater drain flow. Local ponding of backwater was calculated to occur within the design. However, in some specific areas of concern, flood barriers were installed to ensure that the local flooding event would not adversely affect safety-related systems and components.

The inspectors reviewed the associated CLB and performed an outside walkdown prior to the Unit 1 refueling outage. The inspectors observed a number of additional structures and components that had been brought onto the site and were temporarily located to support the outage. These included large dumpsters, a trailer with a trailer skirt to the ground, over a dozen elevated trailers that were tied down to adjacent temporary jersey barriers, cable ramps to allow vehicles to drive over temporary cables, and other miscellaneous equipment and materials.

The inspector questioned how the licensee was ensuring that the rainwater runoff flow paths credited in the plant design were not adversely affected by the storage of any outdoor temporary structure or component since the associated safety-related calculations only modeled permanently installed equipment. The licensee informed the inspectors that their processes and procedures contained no consideration for how the placement and staging of temporary structures may or may not impact the credited rainwater runoff flow paths.

The inspectors independently reviewed the station processes referenced by the licensee and confirmed that no guidance existed. Specifically, SY-BR-101-113, "Safety and Security Interface Maps;" MA-AA-716-026, "Station Housekeeping Material Condition Program;" SY-BR-101-116, "Braidwood Security Vehicle and Foot Patrols;" and EN-AA-103-0003, "Commonly Used Spill Prevention and Response Equipment," were reviewed. During this review, the inspectors identified that the nature of some of these procedures and processes reviewed could actually create a PMP site drainage issue (e.g., environmental procedure controls to prevent offsite release following a spill with a berm.)

The inspectors reviewed the existing margin in the licensee's safety-related calculations, potential safety system functions that could be adversely affected, and the fact that the licensee did not have an abnormal operating procedure or any other procedure to address a PMP event on site that could be used to create additional margin. The inspectors concluded that without considering the potential impact of blocking or restricting rainwater runoff flow paths prior to staging temporary equipment on site, the licensee could not ensure that safety-related and/or risk-significant equipment would be available as assumed in the CLB during a heavy rain event.



The licensee entered this issue into their CAP as IR 2473324. Corrective actions included a walk down of staged outage equipment, which did not identify any immediate safety concern. As part of their long-term corrective actions, the licensee planned to revise station processes to ensure that any temporary equipment stored outside would not adversely affect the assumptions in the design basis PMP calculations.

Analysis: The inspectors determined that the failure to establish adequate design control measures to ensure that the storage of temporary buildings and structures onsite did not adversely impact safety during a PMP event was a performance deficiency. Specifically, the licensee's processes and procedures did not prevent or consider the storage of temporary structures or components within the PMP area.

The inspectors determined that the performance deficiency was more than minor in accordance with IMC 0612, Appendix B, "Issue Screening," dated September 7, 2012, because it 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, the failure to ensure that credited rainwater runoff flow paths were not impeded by the storage of temporary structures resulted in the licensee not ensuring the availability, reliability, and capability of systems that would be needed to respond to an initiating event. This assessment was based upon the inspector's review of current flood barrier margins, assumed turbine building below grade flooding levels, the safety-related or risk-significant systems that could be adversely affected, and the absence of an abnormal operating procedure or any other procedure that could create additional design margin.

The inspectors determined that the finding could be evaluated using the SDP in accordance with IMC 0609, Appendix A, "Significance Determination Process for Findings At-Power," Exhibit 4, "Mitigating System Screening Questions," dated June 19, 2012. The inspectors determined that the finding did not involve a confirmed loss or degradation of equipment or function specifically designed to mitigate a PMP external flood event and, as a result, the issue was screened as having very low safety significance (Green).

The inspectors determined that the finding did not have a cross-cutting aspect because the performance deficiency was not indicative of current performance since the failure to establish adequate design control measures in process and procedures has existed for more than 3 years.

Enforcement: Title 10 CFR Part 50, Appendix B, Criterion III, "Design Control," requires, in part, that design control measures provide for verifying or checking the adequacy of design, by the performance of design reviews, by the use of alternate or simplified calculation methods, or by the performance of a suitable testing program. Additionally, design changes, including field changes, shall be subject to the design control measures commensurate with those applied to the original design.

Contrary to the above, on March 24, 2015, the inspectors identified that the licensee did not have design control measures in place that verified or checked the adequacy of the station's PMP design. Specifically, plant design and the associated safety-related



calculation did not account for the placement of any temporary structure and component, although plant procedures and processes allowed such an activity to occur.

Corrective actions for this issue included plans to update procedures to ensure that any structure or component stored within the PMP footprint would not adversely affect plant design. Because this issue was of very low safety significance and was entered into the licensee's CAP as IR 2473324, this violation is being treated as a NCV consistent with Section 2.3.2 of the NRC Enforcement Policy (**NCV 05000456/2015001-01; 05000457/2015001-01, Failure to Ensure that Temporary Structures Did Not Adversely Impact Safety During a Postulated PMP Event**)

.2 Readiness for Impending Adverse Weather Condition—Heavy Snowfall Conditions

a. Inspection Scope

On February 2, 2015, a winter weather advisory was issued for expected heavy snowfall conditions in the area. The inspectors observed the licensee's preparations and planning for the significant winter weather potential. The inspectors reviewed licensee procedures and discussed potential compensatory measures with control room personnel. The inspectors focused on plant management's actions for implementing the station's procedures for ensuring adequate personnel for safe plant operation and emergency response would be available. The inspectors conducted a site walkdown including walkdowns of various plant structures and systems to check for maintenance or other apparent deficiencies that could adversely affect system operations during the predicted significant weather. The inspectors also reviewed 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. Documents reviewed are listed in the Attachment.

This inspection constituted one readiness for impending adverse weather condition sample as defined in IP 71111.01-05.

b. Findings

No findings were identified.

.3 Readiness for Impending Adverse Weather Condition—Extreme Cold Conditions

a. Inspection Scope

Since extreme cold conditions were forecast in the vicinity of the facility for February 19, 2015, the inspectors reviewed the licensee's overall preparations and protection for the expected weather conditions. On February 19, 2015, the inspectors walked down the lake intake, associated intake structure, and associated systems because their safety-related and nonsafety-related functions could be affected or required as a result of the extreme cold conditions forecast for the facility. The inspectors observed insulation, heat trace circuits, space heater operation, and weatherized enclosures to ensure affected systems were functional. The inspectors reviewed licensee procedures and discussed potential compensatory measures with control room personnel. Documents reviewed are listed in the Attachment.



This inspection constituted one readiness for impending adverse weather condition sample as defined in 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 diesel generator with 1A diesel generator out-of-service for maintenance;
- 1A/2A essential service water (SX) system with 1B/2B SX system out-of-service for maintenance; and
- 2B diesel generator with 2A diesel generator out-of-service for 6-year maintenance.

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 UFSAR, Technical Specification (TS) requirements, outstanding work orders (WOs), 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

On February 25, 2015, the inspectors performed a complete system alignment inspection of the fuel pool cooling system following a Unit 1 fuel pool cooling system



maintenance period 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. A review of a sample of past and outstanding WOs was performed to determine whether any deficiencies significantly affected the system function. 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 condition of firefighting equipment in the following risk-significant plant areas:

- 1A/2A SX pump room;
- 1B/2B SX pump room;
- 1A/1B auxiliary feedwater pumps;
- diesel driven fire pump;
- auxiliary building vent chiller rooms; and
- 2B diesel generator 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 with later additional insights, 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 the 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.

.2 Annual Fire Protection Drill Observation (71111.05A)

a. Inspection Scope

On January 7, 2015, the inspectors observed a fire brigade activation during an announced drill in the 2B feedwater pump area. Based on this observation, the inspectors evaluated the readiness of the plant fire brigade to fight fires. The inspectors verified that the licensee staff identified deficiencies; openly discussed them in a self-critical manner at the drill debrief, and took appropriate corrective actions. Specific attributes evaluated were:

- proper wearing of turnout gear and self-contained breathing apparatus;
- proper use and layout of fire hoses;
- employment of appropriate firefighting techniques;
- sufficient firefighting equipment brought to the scene;
- effectiveness of fire brigade leader communications, command, and control;
- search for victims and propagation of the fire into other plant areas;
- smoke removal operations;
- utilization of pre-planned strategies;
- adherence to the pre-planned drill scenario; and
- drill objectives.

Documents reviewed are listed in the Attachment.

These activities constituted one annual fire protection inspection sample 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 the licensee's testing of Unit 2A diesel generator upper and lower lube oil cooler heat exchangers to verify that potential deficiencies did not mask the licensee's ability to detect degraded performance, to identify any common cause issues that had the potential to increase risk, and to ensure that the licensee was adequately addressing problems that could result in initiating events that would cause an



increase in risk. The inspectors compared inspection results with acceptance criteria, determined whether there were any potential implications of the testing results on the current testing frequency, and reviewed the impact of instrument inaccuracies on test results. The inspectors also verified that test acceptance criteria considered differences between design conditions and testing 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.

1R11 Licensed Operator Requalification Program (71111.11)

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

a. Inspection Scope

On March 18, 2015, the inspectors observed a crew of licensed operators in the plant's simulator during licensed operator requalification training to verify that operator performance was adequate, evaluators were identifying and documenting crew performance problems and training was being conducted in accordance with licensee procedures. The inspectors evaluated the following areas:

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

The crew's performance in these areas was compared to pre-established operator action expectations and successful critical task completion requirements. Documents reviewed are listed in the Attachment.

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

b. Findings

No findings were identified.



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

a. Inspection Scope

On March 17, 2015, the inspectors observed control room activities during a Unit 1 low pressure turbine rotor engineered lift that occurred in the turbine building. 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;
- ability to take timely actions in the conservative direction;
- prioritization, interpretation, and verification of annunciator alarms;
- correct use and implementation of procedures;
- control board and/or equipment manipulations;
- oversight and direction from supervisors; and
- 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.

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:

- main steam isolation valves and secondary power-operated relief valve; and
- latching issues with numerous credited door barriers.

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 SSCs/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 SSCs. 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:

- 1B/2B SX system work window—planned Yellow risk;
- 1A/2A SX system work window—planned Yellow risk;
- 2B diesel generator failed to start during surveillance—unplanned Yellow risk
- fuel pool cooling work window—planned Yellow risk;
- 2A diesel generator 6-year maintenance—planned Yellow risk;
- K–9 solar magnetic disturbance—unplanned risk management consideration; and
- Unit 2 211–111 direct current bus crossties—planned Yellow risk.

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 the 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 seven 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:

- Part 21 ABB defective relay report, IR 2438210;
- 0B VC chiller oil recovery line degraded, IR 2435363;
- 1B diesel generator emergency stop, IR 2443510;
- 2A diesel generator cylinder liner glaze and potential indications, IR 2462093;
- 1A diesel generator SX system pinhole piping leak and application of N-513-3 Code Case, IR 2468066;
- leading edge flow meter bias with insulation installed, IR 2475499;
- 2B diesel generator failed to sequence during surveillance testing, IR 2459044; and
- Westinghouse IG-15-1, reactor coolant pump seal leakoff line, IR 2463746.

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 TS and 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 eight samples as defined in IP 71111.15–05.

b. Findings

Failure to Adequately Evaluate Operability of a Degraded Control Room Chiller

Introduction: The inspectors identified a finding of very low safety significance (Green) and an associated NCV of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," when licensee personnel failed to adhere to the operability



determination process after identifying a degraded condition on the 0B control room chiller.

Description: The inspector's identified that the licensee failed to perform a detailed evaluation of a degraded condition discovered on the oil recovery line of the 0B control room chiller. The oil recovery line recovers oil at low load from the chiller evaporator and returns it to the intake of the compressor. The control room chillers support the control room ventilation safety function of providing environmental conditions conducive to habitability in the control room under normal and abnormal station conditions. The control room chillers are designated safety-related with the refrigerant and oil portions classified as safety category I and seismic category I as identified in Table 3.2-1 of the UFSAR. The licensee's engineers were monitoring the 0B chiller's performance following startup on January 9, 2015, and noted oil accumulating beneath the chiller's oil recovery line. Upon further investigation, significant corrosion was identified on the return line. The control room was notified of the condition and the licensee subsequently performed an initial operability determination. The operability determination for the 0B control room chiller deficiency was documented in IR 2435363, "Oil/Refrig Leak Identified on 0B VC Chiller Oil Recover Line," and was reviewed by the inspectors. In this IR, the licensee concluded the chiller was operable as the condition was not believed to be significant enough to result in a substantial loss of refrigerant or oil. No additional oil leakage was observed and the oil level remained stable within an acceptable operable band. Additionally, leak checks were performed and no indications of a refrigerant leak were identified. The licensee concluded in the immediate operability determination that, "based on the configuration of the oil recovery line, no additional degradation is expected due to a design basis seismic event." However, no further objective evidence was documented to support the capability of the oil recovery line to withstand a seismic event.

Step 4.1.5 of licensee procedure OP-AA-108-115, "Operability Determinations," Revision 15, stated in part, "immediately determine operability from a detailed examination of the deficiency." Step 2.18 of OP-AA-108-115 required that the operability of a SSC be based on a "reasonable expectation" from the evidence collected, that the SSC is operable and that the operability determination will support that expectation. Step 2.18 of OP-AA-108-115 also required that the supporting basis provide a high degree of confidence that the SSC remained operable.

Following additional questions, the inspectors determined that the licensee had not satisfied the standard of reasonable expectation that the 0B control room chiller was operable during their initial evaluation. In particular, the inspectors noted that the licensee did not provide a strong supporting basis for their expectation that the SSC was capable of withstanding a design basis seismic event. Specifically, the licensee failed to identify the design requirements for the safety-related oil recovery line and compare the degraded condition to those design requirements. Additionally, no quantitative measurements were performed to evaluate the condition of the piping, leading to a less than detailed examination as required per OP-AA-108-115. The inspectors concluded that the oil recovery line was added to the control room chillers after initial installation as part of Field Change Request 23311 and was technically evaluated in calculation CQD-031659, Revision 0, and calculation 0WO01CA-H-09106, Revision 0. The inspectors concluded that the licensee never validated whether the recovery line satisfied the design requirements specified in these calculations in the identified degraded condition. In addition, safety-related calculation 0WO01CA-H-09106, that was



requested by the inspectors for review, could not be located by the licensee. Corrective actions were assigned to recreate this document (Ref: IR 2459806). Without this information, the inspectors concluded that the licensee did not have a reasonable expectation that the 0B control room chiller was capable of withstanding a seismic event and was therefore operable.

As part of the licensee's corrective actions, the degraded oil recovery line was replaced during the week of January 26, 2015.

Analysis: The inspectors determined that the failure to perform an adequate operability assessment for the degradation identified on the 0B control room chiller oil recovery line was a performance deficiency. Specifically, the licensee failed to perform a detailed examination of the degradation and provide a supporting basis such that the licensee satisfied the reasonable expectation standard that the SSC was capable of withstanding a design basis seismic event.

The performance deficiency was determined to be more than minor in accordance with IMC 0612, Appendix B, "Issue Screening," dated September 7, 2012, because it affected the Equipment Performance 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, the licensee did not provide an adequate basis to support 0B control room chiller availability, reliability, and capability to respond to an initiating event.

The inspectors evaluated the significance of the finding in accordance with IMC 0609, "Significance Determination Process," Attachment 0609.04, "Initial Characterization of Findings," and Appendix A, "The Significance Determination Process for Findings At-Power," issued June 19, 2012. Using Exhibit 2, "Mitigating Systems Screening Questions," the finding screened as having very low safety significance (Green) because all questions related to mitigating SSCs and functionality were answered "No."

This finding had a cross-cutting aspect in the Design Margins component of the Human Performance cross-cutting area because the licensee failed to adequately evaluate whether the degraded 0B control room chiller oil return line had adequate margin to assure operability (H.6).

Enforcement: Title 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires, in part, that activities affecting quality shall be prescribed and accomplished by instructions, procedures, and drawings appropriate to the circumstances, and shall be accomplished in accordance with these instructions, procedures, and drawings. Licensee Operability Determination procedure OP-AA-108-115, Revision 15, Step 4.1.5 stated in part, "immediately determine operability from a detailed examination of the deficiency," and Step 2.18 of OP-AA-108-115 required that the operability of an SSC, "be based on 'reasonable expectation,' from the evidence collected, that the SSC is operable and that the operability determination will support that expectation...The supporting basis for the reasonable expectation of SSC operability should provide a high degree of confidence that the SSC remains operable."



Contrary to the above, on January 9, 2015, the licensee failed to adhere to OP-AA-115, Revision 15, Step 4.1.5 and Step 2.18, after identification of a degraded oil recovery line on the 0B control room chiller. Specifically, the licensee failed to perform a detailed examination of the degradation and provide a supporting basis such that the licensee satisfied the reasonable expectation standard that the SSC was capable of withstanding a design basis seismic event.

As part of the licensee's corrective actions, the degraded oil recovery line was replaced during the week of January 26, 2015. Because this issue was of very low safety significance and was entered into the licensee's CAP as IR 2435363, this violation is being treated as a NCV, consistent with Section 2.3.2 of the NRC Enforcement Policy. **(NCV 05000456/2015001-02; 05000457/2015001-02, Failure to Adequately Evaluate Operability of a Degraded Control Room Chiller).**

1R18 Plant Modifications (71111.18)

.1 Plant Modifications

a. Inspection Scope

The inspectors reviewed the following modification:

- degraded voltage 5 minute timer design modification.

The inspectors reviewed the configuration changes and associated 10 CFR 50.59 safety evaluation screening against 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 system. The inspectors, as applicable, observed ongoing and completed work activities to ensure that the modification was installed as directed and consistent with the design control documents; the modification 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 procedure, 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 the operation with the plant modification in place could impact overall plant performance. Documents reviewed are listed in the Attachment.

This inspection constituted one plant modification sample 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 test activities were adequate to ensure system operability and functional capability:

- 2A SX pump inspection and suction valve preventative maintenance;
- 2B SX pump work inspection; and
- 2A diesel generator 10R cylinder liner replacement.

These activities were selected based upon the SSC'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 these activities against TSSs, 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 three post-maintenance testing samples as defined in IP 71111.19-05.

#### b. Findings

No findings were identified.

## 1R20 Outage Activities (71111.20)

### .1 Other Outage Activities

#### a. Inspection Scope

During this inspection period the inspectors observed and inspected the following activities and conditions as part of the planned Unit 1 Refueling Outage that began on March 31, 2015.

- new fuel receipt inspections;
- numerous and various pre-outage temporary scaffold installations;
- low pressure turbine engineered lift; and



- portions of the reactor and plant shutdown and reactor coolant system cooldown.

Documents reviewed are listed in the Attachment.

This inspection effort did not constitute an outage sample as defined in IP 71111.20–05 because the outage was still in progress at the end of the inspection period.

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:

- 1A diesel generator slave relay start (Routine);
- 1B auxiliary feedwater pump bank A battery A capacity test (Routine);
- 2B diesel generator slave start (Routine);
- Unit 1 movable control rod assemblies quarterly surveillance (Routine);
- 1B SX American Society of Mechanical Engineers (ASME) test (IST); and
- reactor coolant system unidentified leak rate 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 four routine surveillance testing samples, one IST sample, and one RCS leak detection inspection sample as defined in IP 71111.22, Sections–02 and–05.

b. Findings

No findings were identified.

**Cornerstone: Emergency Preparedness**

1EP2 Alert and Notification System Evaluation (71114.02)

.1 Alert and Notification System Evaluation

a. Inspection Scope

The inspectors held discussions with the licensee's Emergency Preparedness (EP) staff regarding the operation, maintenance, and periodic testing of the primary and backup Alert and Notification System (ANS) in the plume pathway Emergency Planning Zone. The inspectors reviewed monthly trend reports and siren test failure records from January 2013-2015. Information gathered during document reviews and interviews were used to determine whether the ANS equipment was maintained and tested in accordance with Emergency Plan commitments and procedures. Documents reviewed are listed in the Attachment.

This ANS evaluation inspection constituted one sample as defined in IP 71114.02–06.

b. Findings

No findings were identified.



1EP3 Emergency Response Organization Staffing and Augmentation System  
(71114.03)

.1 Emergency Response Organization Staffing and Augmentation System

a. Inspection Scope

The inspectors reviewed and discussed with plant EP staff the Emergency Plan Commitments and Procedures for ERO on-shift and augmentation staffing levels. A sample of ERO training records for personnel assigned to key and support positions were reviewed to determine the status of their training as it related to their assigned ERO positions. The inspectors reviewed the ERO Augmentation System and activation process, the primary and alternate methods of initiating ERO activation, unannounced off-hour augmentation tests from January 2013-2015, and the provisions for maintaining the plant's ERO roster.

The inspectors reviewed a sample of corrective actions related to the facility's ERO staffing, Augmentation System Program, and activities from January 2013-2015 to determine whether corrective actions were completed in accordance with the site's CAP. Documents reviewed are listed in the Attachment.

This ERO staffing, and augmentation system inspection constituted one sample as defined in IP 71114.03–06.

b. Findings

Failure to Activate the ERO During an Actual Event

Introduction: A self-revealed finding of very low safety significance (Green) and an associated NCV of Title 10 CFR 50.54(q)(2) and 10 CFR 50.47(b)(2) was identified on July 23, 2014, after a Notice of Unusual Event when the Shift Manager activated the ERO in accordance with site procedures and several of the ERO members did not respond as required.

Description: On July 23, 2014, at 7:43 p.m., a Notice of Unusual Event was declared in response to a security issue at Braidwood Station. At 7:54 p.m., the ERO call out system was activated in accordance with site procedure EP-AA-112-100-F-01, "Shift Emergency Director Checklist." The activation message was intended to direct the ERO to report to the alternate facility. However, several ERO members that were expected to respond to the alternate facility did not, including seven radiation protection technicians, four electrical maintenance personnel, and two mechanical maintenance personnel. These individuals were additional ERO personnel designated to augment on-shift personnel in accordance with the licensee's emergency plan. The licensee's staff were confused by the message received through the notification system and did not understand that they were being directed to respond to the alternate facility and, as a result, did not respond at all. The notification system, Everbridge Awareness System, was implemented in June 2013. After it was implemented, the licensee conducted only call-in drills using the new system. No drills were conducted that required the ERO members to physically respond to the site or to a facility. The licensee conducted a review of this issue and identified a failure to implement the emergency plan. After reviewing the event and the evaluation conducted by the licensee, the inspectors concluded that the failure of the Everbridge Awareness System to provide clear



messaging, which caused the designated ERO members to not respond to the alternate facility, constituted a failure to comply with the licensee's emergency plan.

The licensee entered this issue into their CAP as IR 2469494. As part of their corrective actions, the licensee revised the messaging provided by the Everbridge Awareness System to clarify the instructions to the ERO regarding a response to the alternate facility.

Analysis: The inspectors determined that the failure of the Everbridge Awareness System to provide clear messaging which caused designated ERO members to not adequately respond to the alternate facility, as required, was a performance deficiency.

The inspectors reviewed IMC 0612, Appendix B, dated September 7, 2012, and determined that the performance deficiency was more than minor because it adversely affected the Emergency Response Organization Readiness attribute of the EP cornerstone and adversely affected the cornerstone objective of ensuring that the licensee was capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency. Although the performance deficiency was revealed during the licensee's response to a Notice of Unusual Event, the deficiency was indicative of a non-compliant program element. Since the finding involved a failure to comply with regulatory requirements, the inspectors reviewed IMC 0609, Appendix B, Attachment 2, dated September 23, 2014, and determined that this was a finding of very low safety significance (Green) because it did not involve a loss of a planning standard function.

This finding had a cross-cutting aspect in the Change Management component of the Human Performance cross-cutting area because the Everbridge Awareness System was new and different from the previous augmentation system and ERO members were not familiar enough with the differences to adequately respond to an event when called upon. (H.3)

Enforcement: Title 10 CFR 50.54(q)(2) requires, in part, that a holder of a license under this part shall follow and maintain the effectiveness of an emergency plan that meets the requirements of Appendix E, Part 50, and for nuclear power reactor licensees, the planning standards of 10 CFR 50.47(b). Title 10 CFR 50.47(b)(2) requires, in part, that adequate staffing to provide initial facility accident response in key functional areas is maintained at all times and that timely augmentation of response capabilities is available.

Contrary to the above, on July 23, 2014, the licensee failed to maintain a process for timely augmentation of on-shift staff. Specifically, the Shift Manager activated the ERO during an actual event, and the Everbridge Awareness System message was confusing to personnel such that the designated ERO members did not respond to the alternate facility as directed.

As part of their corrective actions, the licensee revised the messaging provided by its automated system to clarify the instructions to the ERO regarding a response to the alternate facility. Because this finding was of very low safety significance and it was entered into the licensee's CAP as IR 2469494, this violation is being treated as a NCV, consistent with Section 2.3.2 of the NRC Enforcement Policy.



**(NCV 05000456/2015001-03; 05000457/2015-03, Failure to Activate the ERO During an Actual Event.)**

1EP5 Maintenance of Emergency Preparedness (71114.05)

.1 Maintenance of Emergency Preparedness

a. Inspection Scope

The inspectors reviewed a sample of nuclear oversight staff audits of the EP Program to determine whether these audits met the requirements of 10 CFR 50.54(t). The inspectors also reviewed critique reports and samples of CAP records associated with the 2014 Biennial Exercise, as well as various EP drills that were conducted, to determine whether the licensee fulfilled its drill commitments and to evaluate the licensee's efforts to identify, track, and resolve concerns identified during these activities. The inspectors reviewed a sample of EP items and corrective actions related to the facility's EP Program and activities from January 2013-2015 to determine whether corrective actions were completed in accordance with the site's CAP. Documents reviewed are listed in the Attachment.

This correction of EP weaknesses and deficiencies inspection constituted one sample as defined in IP 71114.05-06.

b. Findings

No findings were identified.

1EP6 Drill Evaluation (71114.06)

.1 Emergency Preparedness Drill Observation

a. Inspection Scope

The inspectors evaluated the conduct of a routine licensee emergency drill on March 19, 2015, to identify any weaknesses and deficiencies in classification, notification, and protective action recommendation development activities. The inspectors observed emergency response operations in the technical support center to determine whether the event classifications, notifications, and protective action recommendations were performed in accordance with licensee procedures. The inspectors also attended the licensee drill critique to compare any inspector-observed weakness with those identified by the licensee staff to evaluate the critique and to determine whether the licensee staff was properly identifying weaknesses and entering them into the CAP. As part of the inspection, the inspectors reviewed the drill package and other documents listed in the Attachment.

This emergency preparedness drill inspection constituted one sample as defined in IP 71114.06-06.

b. Findings

No findings were identified.



## 2. RADIATION SAFETY

### 2RS6 Radioactive Gaseous and Liquid Effluent Treatment (71124.06)

This inspection constituted one complete sample as defined in IP 71124.06–05.

#### .1 Inspection Planning and Program Reviews (02.01)

##### Event Report and Effluent Report Reviews

##### a. Inspection Scope

The inspectors reviewed the Radiological Effluent Release Reports issued since the last inspection to determine if the reports were submitted as required by the Offsite Dose Calculation Manual (ODCM) and TSs. The inspectors reviewed anomalous results, unexpected trends, or abnormal releases identified by the licensee for further inspection to determine if they were evaluated, were entered in the CAP, and were adequately resolved.

The inspectors selected radioactive effluent monitor operability issues reported by the licensee as provided in Effluent Release Reports, to review these issues during the onsite inspection, as warranted, given their relative significance, and determine if the issues were entered into the CAP and adequately resolved.

##### b. Findings

No findings were identified.

### Offsite Dose Calculation Manual and Updated Final Safety Analysis Report Review

##### a. Inspection Scope

The inspectors reviewed UFSAR descriptions of the radioactive effluent monitoring systems, treatment systems, and effluent flow paths so they could be evaluated during inspection walkdowns.

The inspectors compared changes to the ODCM made by the licensee since the last inspection with the guidance in NUREG–1301, 1302 and 0133, and Regulatory Guides (RGs) 1.109, 1.21 and 4.1. When differences were identified, the inspectors reviewed the technical basis or evaluations of the change during the onsite inspection to determine whether they were technically justified and maintained effluent releases as-low-as-reasonably-achievable.

The inspectors reviewed the licensee's documentation to determine if the licensee had identified any non-radioactive systems that had become contaminated as disclosed either through an event report or the ODCM since the last inspection. This review provided a sample list for the onsite inspection of any 10 CFR 50.59 evaluations, and allowed a determination if any newly contaminated systems had an unmonitored effluent discharge path to the environment, whether any required ODCM revisions were made to incorporate these new pathways, and whether the associated effluents were reported in accordance with RG 1.21.



b. Findings

No findings were identified.

Groundwater Protection Initiative Program

a. Inspection Scope

The inspectors reviewed reported groundwater monitoring results and changes to the licensee's written program for identifying and controlling contaminated spills and/or leaks to groundwater.

b. Findings

No findings were identified.

Procedures, Special Reports, and Other Documents

a. Inspection Scope

The inspectors reviewed licensee event reports (LER), event reports and/or special reports related to the Effluent Program issued since the previous inspection to identify any additional focus areas for the inspection based on the scope and/or breadth of problems described in these reports.

The inspectors reviewed effluent program implementing procedures, particularly those associated with effluent sampling, effluent monitor setpoint determinations, and dose calculations.

The inspectors reviewed copies of the licensee's and third party's (independent) evaluation reports of the Effluent Monitoring Program since the last inspection to gather insights into the licensee's program and aid in selecting areas for inspection review (smart sampling).

b. Findings

No findings were identified.

.2 Walkdowns and Observations (02.02)

a. Inspection Scope

The inspectors walked down selected components of the gaseous and liquid discharge systems to evaluate whether equipment configuration and flow paths aligned with the documents reviewed in Section 02.01 above, and to assess equipment material condition. Special attention was made to identifying potential unmonitored release points (such as temporary structures butted against turbine, auxiliary or containment buildings), building alterations which could impact airborne or liquid effluent controls, and ventilation system leakage that communicated directly with the environment.

For equipment or areas associated with the systems selected for review that were not readily accessible due to radiological conditions, the inspectors reviewed the licensee's material condition surveillance records, as applicable.



The inspectors walked down filtered ventilation systems to assess for conditions such as degraded high efficiency particulate air/charcoal banks, improper alignment, or system installation issues that could impact system performance or the effluent monitoring capability of the effluent system.

As available, the inspectors observed selected portions of the routine processing and discharge of radioactive gaseous effluents, including sample collection and analysis, to evaluate whether appropriate treatment equipment was used and whether the processing activities aligned with discharge permits.

The inspectors determined if the licensee had made significant changes to their effluent release points (e.g., changes subject to a 10 CFR 50.59 review or required NRC approval of alternate discharge points).

As available, the inspectors observed selected portions of the routine processing and discharge of liquid waste, including sample collection and analysis, to determine whether appropriate effluent treatment equipment was being used, whether radioactive liquid waste was being processed and discharged in accordance with procedure requirements, and whether the actual discharges aligned with discharge permits.

b. Findings

No findings were identified.

.3 Sampling and Analyses (02.03)

a. Inspection Scope

The inspectors selected effluent sampling activities, consistent with smart sampling, and assessed whether adequate controls had been implemented to ensure representative samples were obtained (e.g., provisions for sample line flushing, vessel recirculation, composite samplers, etc.).

The inspectors selected effluent discharges made with inoperable (declared out-of-service) effluent radiation monitors to assess whether controls were in place to ensure compensatory sampling was performed consistent with the radiological effluent TSs/ODCM and whether those controls were adequate to prevent the release of unmonitored liquid and gaseous effluents.

The inspectors determined whether the facility was routinely relying on the use of compensatory sampling in lieu of adequate system maintenance, based on the frequency of compensatory sampling since the last inspection.

The inspectors reviewed the results of the Inter-Laboratory Comparison Program to evaluate the quality of the radioactive effluent sample analyses, and assessed whether the Inter-Laboratory Comparison Program included hard-to-detect isotopes as appropriate.

b. Findings

No findings were identified.



.4 Instrumentation and Equipment (02.04)

Effluent Flow Measuring Instruments

a. Inspection Scope

The inspectors reviewed the methodology the licensee used to determine the effluent stack and vent flow rates to determine whether the flow rates were consistent with radiological effluent TSs and ODCM or UFSAR values, and whether differences between assumed and actual stack and vent flow rates affected the results of the projected public doses.

b. Findings

No findings were identified.

Air Cleaning Systems

a. Inspection Scope

The inspectors assessed whether surveillance test results since the previous inspection for TS required ventilation effluent discharge systems (high efficiency particulate air and charcoal filtration), such as the Standby Gas Treatment System and the Containment/Auxiliary Building Ventilation System, met TS acceptance criteria.

b. Findings

No findings were identified.

.5 Dose Calculations (02.05)

a. Inspection Scope

The inspectors compared all significant changes (e.g., a factor of five, or increases that approach Appendix I criteria) in reported dose values to the previous Radiological Effluent Release Report to evaluate the factors which may have resulted in the change.

The inspectors reviewed radioactive liquid and gaseous waste discharge permits to assess whether the projected doses to members of the public were accurate and based on representative samples of the discharge path.

The inspectors evaluated the methods used to determine the isotopes that were included in the source term to ensure all applicable radionuclides were included within detectability standards. The review included the current Part 61 analyses to ensure hard-to-detect radionuclides were included in the source term.

The inspectors reviewed changes in the licensee's offsite dose calculations since the last inspection to evaluate whether these changes were consistent with the ODCM and RG 1.109. The inspectors reviewed meteorological dispersion and deposition factors used in the ODCM and effluent dose calculations to evaluate whether appropriate factors were being used for public dose calculations.



The inspectors reviewed the latest Land Use Census to assess whether changes (e.g., significant increases or decreases to population in the plant environs, changes in critical exposure pathways, the location of the nearest member of the public, or critical receptor, etc.) had been factored into the dose calculations.

For the releases reviewed above, the inspectors evaluated whether the calculated doses (monthly, quarterly, and annual doses) were within the 10 CFR Part 50, Appendix I, and TS dose criteria.

The inspectors reviewed, as available, records of any abnormal gaseous or liquid tank discharges (e.g., discharges resulting from misaligned valves, valve leak-by, etc.) to ensure the abnormal discharge was monitored by the discharge point effluent monitor. Discharges made with inoperable effluent radiation monitors or unmonitored leakages were reviewed to ensure that an evaluation was made of the discharge to satisfy 10 CFR 20.1501 so as to account for the source term and projected doses to the public.

b. Findings

No findings were identified.

.6 Groundwater Protection Initiative Implementation (02.06)

a. Inspection Scope

The inspectors reviewed monitoring results of the Groundwater Protection Initiative to determine if the licensee had implemented its program as intended and to identify any anomalous results. For anomalous results or missed samples, the inspectors assessed whether the licensee had identified and addressed deficiencies through its CAP.

The inspectors reviewed identified leakage or spill events and entries made into 10 CFR 50.75 (g) records. The inspectors reviewed evaluations of leaks or spills and reviewed any remediation actions taken for effectiveness. The inspectors reviewed onsite contamination events involving contamination of ground water, and assessed whether the source of the leak or spill was identified and mitigated.

For unmonitored spills, leaks, or unexpected liquid or gaseous discharges, the inspectors assessed whether an evaluation was performed to determine the type and amount of radioactive material that was discharged by:

- Assessing whether sufficient radiological surveys were performed to evaluate the extent of the contamination and the radiological source term, and assessing whether a survey and/or evaluation had been performed to include consideration of hard-to-detect radionuclides.
- Determining whether the licensee completed offsite notifications as provided in its Groundwater Protection Initiative implementing procedures.

The inspectors reviewed the evaluation of discharges from onsite surface water bodies that contained or potentially contained radioactivity and the potential for ground water leakage from these onsite surface water bodies. The inspectors assessed whether the licensee was properly accounting for discharges from these surface water bodies as part of their effluent release reports.



The inspectors assessed whether onsite ground water sample results and a description of any significant onsite leaks and/or spills into ground water for each calendar year were documented in the Annual Radiological Environmental Operating Report for the Radiological Environmental Monitoring Program or the Annual Radiological Effluent Release Report for the Radiological Effluent TSs.

For significant, new effluent discharge points, such as significant or continuing leakage to ground water that continued to impact the environment if not remediated, the inspectors evaluated whether the ODCM was updated to include these new discharge points.

b. Findings

No findings were identified.

.7 Problem Identification and Resolution (02.07)

a. Inspection Scope

The inspectors assessed whether problems associated with the Effluent Monitoring and Control Program were being identified by the licensee at an appropriate threshold and were properly addressed for resolution in the licensee's CAP. In addition, the inspectors evaluated the appropriateness of the corrective actions for a selected sample of problems documented by the licensee involving radiation monitoring and exposure controls.

b. Findings

No findings were identified.

4. **OTHER ACTIVITIES**

**Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, Emergency Preparedness, Occupational and Public Radiation Safety, and Security**

4OA1 Performance Indicator Verification (71151)

.1 Safety System Functional Failures

a. Inspection Scope

The inspectors sampled licensee submittals for the Safety System Functional Failures performance indicator (PI) for Unit 1 and Unit 2 (MS05) for the period from the first quarter 2014 through the fourth quarter 2014. To determine the accuracy of the 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, and NUREG-1022, "Event Reporting Guidelines 10 CFR 50.72 and 50.73" definitions and guidance, were used. The inspectors reviewed the licensee's operator narrative logs, operability assessments, maintenance rule records, maintenance work orders, IRs, event reports and NRC Integrated Inspection Reports for the period of January 1, 2014 through December 31, 2014. The inspectors also reviewed the licensee's issue report 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 safety system functional failures samples as defined in IP 71151–05.

b. Findings

No findings were identified.

.2 Reactor Coolant System Specific Activity

a. Inspection Scope

The inspectors sampled licensee submittals for the RCS specific activity PI for Units 1 and 2 (B101) for the period from the first quarter 2014 through the fourth quarter 2014. The inspectors used PI definitions and guidance contained in NEI 99–02, “Regulatory Assessment Performance Indicator Guideline,” Revision 7, dated August 2013, to determine the accuracy of the PI data reported during those periods. The inspectors reviewed the licensee’s RCS chemistry samples, TS requirements, IRs, event reports and NRC Integrated Inspection Reports to validate the accuracy of the submittals. The inspectors also reviewed the licensee’s issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator. In addition to record reviews, the inspectors observed a chemistry technician obtain and analyze a RCS sample. Documents reviewed are listed in the Attachment.

This inspection constituted two RCS specific activity samples as defined in IP 71151–05.

b. Findings

No findings were identified.

.3 Drill/Exercise Performance

a. Inspection Scope

The inspectors sampled licensee submittals for the Drill/Exercise Performance (DEP) PI from the fourth quarter 2014 (EP01). The PI definitions and guidance contained in NEI 99–02, “Regulatory Assessment PI Guideline,” Revision 7, were used to determine the accuracy of the PI data reported during those periods. The inspectors reviewed the licensee’s records and processes including procedural guidance on assessing opportunities for the PI, assessments of PI opportunities during pre-designated control room simulator training sessions, performance during the 2014 Biennial Exercise, and performance during other drills associated with the PI to validate the accuracy of the submittals. The inspectors also reviewed the licensee’s issue report 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 constitutes one DEP sample as defined in IP 71151–05.



b. Findings

No findings were identified.

.4 Emergency Response Organization Readiness

a. Inspection Scope

The inspectors sampled licensee submittals for the ERO Readiness PI from the fourth quarter 2014 (EP02). The inspectors used PI definitions and guidance contained in NEI 99-02, "Regulatory Assessment PI Guideline," Revision 7, dated August 2013, to determine the accuracy of the PI data reported during those periods. The inspectors reviewed the licensee's records and processes including procedural guidance on assessing opportunities for the PI, performance during the 2014 Biennial Exercise and other drills, and revisions of the roster of personnel assigned to key ERO positions to validate the accuracy of the submittals. The inspectors also reviewed the licensee's issue report database to determine if any problems were identified with the PI data collected or transmitted for this indicator. Documents reviewed are listed in the Attachment.

This inspection constituted one ERO readiness sample as defined in IP 71151-05.

b. Findings

No findings were identified.

.5 Alert and Notification System

a. Inspection Scope

The inspectors sampled licensee submittals for the ANS Reliability PI from the fourth quarter 2014 (EP03). The inspectors used PI definitions and guidance contained in NEI 99-02, "Regulatory Assessment PI Guideline," Revision 7, dated August 2013, to determine the accuracy of the PI data reported during those periods. The inspectors reviewed the licensee's records and processes including procedural guidance on assessing opportunities for the PI and results of periodic ANS operability tests to validate the accuracy of the submittals. The inspectors also reviewed the licensee's issue report database to determine whether 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 one ANS reliability sample as defined in IP 71151-05

b. Findings

No findings were identified.

4OA2 Identification and Resolution of Problems (71152)

**Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, Emergency Preparedness, Public Radiation Safety, Occupational Radiation Safety, and Security**



.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 IR 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.

40A3 Follow-Up of Events and Notices of Enforcement Discretion (71153)

.1 (Closed) Licensee Event Report 05000457/2014-001-00; 05000456/2014-001-00, Inadequate Procedural Guidance Results in Non-Compliance with Technical Specification 3.4.3-RCS Pressure and Temperature Limits

On April 17, 2014, the licensee submitted this LER in accordance with 10 CFR 50.73 (a)(2)(i)(B) after identifying that Braidwood Station Unit 2 had not



complied with TS 3.4.3, "RCS Pressure and Temperature (P/T) Limits," between March 2011 and October 2013, during startup of the plant following plant refueling outages. The licensee determined that the cause of these issues was due to the application of an inadequate procedure that allowed the P/T limits lower pressure bound to be exceeded during vacuum fill operations.

The inspectors reviewed this LER and identified a Severity Level IV violation that is documented in Section 4OA7 of this inspection report. This LER is closed.

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

.2 (Closed) Licensee Event Report 05000457/2014-002-00, Age Related Degradation of Heat Trace Leads to Refueling Water Storage Tank Vent Path Temperature Decreasing Below Technical Specification Value

On May 5, 2014, the licensee submitted this LER in accordance with 10 CFR 50.73(a)(2)(v)(D) after identifying, on January 18, 2012, that the Unit 2 refueling water storage tank (RWST) vent path temperature decreased below the TS Surveillance Requirement limit of 35 degrees Fahrenheit for about 2 hours. The cause of the unplanned TS action statement entry was caused by a RWST vent line heat trace failure during cold weather conditions.

The licensee concluded that due to no actual blockage being established along the vent path, the Unit 2 RWST vent line was capable of performing its safety function during the period the RWST vent path temperature was below the TS temperature limit.

The inspectors reviewed this LER. No findings were identified. This LER is closed

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

.3 (Closed) Licensee Event Report 05000456/2014-003-00; 05000457/2014-003-00, Unanalyzed Condition Due to Lack of Procedural Guidance Related to the Ultimate Heat Sink

On August 25, 2014, the licensee submitted this LER in accordance with 10 CFR 50.73(a)(2)(ii)(B) after identifying, on June 25, 2015, that station procedures did not contain a step to secure the non-essential service water pumps upon a postulated loss of the cooling lake dike event. A subsequent engineering review determined the insufficient procedure guidance represented an unanalyzed condition because the design analysis did not consider the ultimate heat sink inventory loss due to the running non-essential service water pumps. Following a dike failure, and unlike the safety-related essential service water pumps, the nonsafety-related non-essential service water pumps discharge to a section of the lake that is not part of the plant's ultimate heat sink.

The inspectors reviewed the LER. A licensee-identified violation associated with this issue was documented in Section 4OA7 of Braidwood Inspection Report 05000456/2014004; 05000456/2014004. This LER is closed.

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



#### 4OA6 Management Meetings

##### .1 Exit Meeting Summary

On April 21, 2015, the inspectors presented the inspection results with Mr. M. Kanavos, 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:

- The inspection results for the areas of radioactive gaseous and liquid effluent treatment and RCS specific activity PI verification with Mr. M. Kanavos, Site Vice President, on January 30, 2015.
- The inspection results of the Biennial Emergency Preparedness Program Review with Ms. K. Aleshire, Corporate Emergency Preparedness Director, on February 27, 2015.

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.

#### 4OA7 Licensee-Identified Violations

The following violation of very low safety significance (Green) was identified by the licensee and is a violation of NRC requirements which meets the criteria of the NRC Enforcement Policy for being dispositioned as a NCV.

- On February 19, 2014, the licensee identified that Braidwood Station had not complied with TS 3.4.3, "RCS Pressure and Temperature Limits," between March 2011 and October 2013, during startup of the plant following plant refueling outages. Braidwood TS 3.4.3 stated, "RCS pressure, RCS temperature, and RCS heat up and cooldown rates shall be maintained within the limits specified in the PTLR (Pressure Temperature Limits Report.) The PTLR is generated by Westinghouse and contains graphs depicting the acceptable operating ranges of RCS pressure and temperature supported by the analysis. The lower bound of these graphs was 0 pounds per square inch gauge (psig). Braidwood Procedure BwOP RC-9 was used by the station to fill the loops. This procedure allowed RCS piping pressure to go as low as 28 inches of mercury (or about -14 psig) which was below the lower limit of the PTLR acceptable region. At the licensee's request, Westinghouse performed the additional analysis needed to expand the lower value of the curves and determined that the lower bounding parameter could be revised to -14.7 psig with no impact to RCS barriers. The analysis was subsequently revised and the PTLR was revised to designate the lower boundary accordingly. Title 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires, in part, that activities affecting quality be prescribed by procedures appropriate to the circumstances. Contrary to the above, from March 2011 through October 2013,



BwOP RC-9 allowed RCS pressures to be lower than the analyzed bound of the parameter inputs of the PTLR graphs and, as a result, was not appropriate to the circumstances. The finding was more than minor because it impacted the Procedural Quality attribute of the Barrier Integrity Cornerstone and adversely affected the cornerstone objective to provide reasonable assurance that the RCS design barrier would function to protect the public from radionuclide release caused by accidents or events. Given the analytical conclusions that the condition was acceptable with the new lower bounding parameter, the inspectors determined that the issue was of very low safety significance (Green). The licensee entered this issue into their CAP as IR 1625970 and corrective actions consisted of updating the PTLR.

ATTACHMENT: SUPPLEMENTAL INFORMATION



## **SUPPLEMENTAL INFORMATION**

### **KEY POINTS OF CONTACT**

#### Licensee

M. Kanavos, Site Vice President  
M. Marchionda, Plant Manager  
K. Aleshire, Corporate EP Director  
J. Bashor, Engineering Manager  
P. Boyle, Maintenance Manager  
J. Cady, Radiation Protection Manager  
K. Dovas, Operation Training Manager  
A. Ferko, Operations Manager  
B. Finlay, Site Security Manager  
G. Golwitzer, Deputy Maintenance Director  
C. Hardy, System Engineer  
C. Ingold, Chemistry Manager  
J. Lizalek, Security Operations Manager  
S. McKinney, Emergency Preparedness Coordinator  
R. Radulovich, Nuclear Oversight Manager  
P. Raush, Regulatory Assurance Manager  
R. Simonsen, Radiation Protection Technician Support Manager

#### Nuclear Regulatory Commission

E. Duncan, Chief, Reactor Projects Branch 3



## LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

### Opened and Closed

05000456/2015001-01; 05000457/2015001-01	NCV	Failure to Ensure that Temporary Structures Did Not Adversely Impact Safety during Postulated Probable Maximum Precipitation Event (Section 1R01.1b)
05000456/2015001-02; 05000457/2015001-02	NCV	Failure to Adequately Evaluate Operability of a Degraded Control Room Chiller (Section 1R15.1b)
05000456/2015001-03	NCV	Failure to Activate the ERO During an Actual Event (Section 1EP3.1b)

### Closed

05000456/2014001-00; 05000457/2014001-00	LER	Inadequate Procedural Guidance Results in Non-Compliance with Technical Specification 3.4.3 – RCS Pressure and Temperature (P/T) Limits (Section 4OA3.1)
05000457/2014002-00	LER	Age Related Degradation of Heat Trace Leads to Refueling Water Storage Tank Vent Path Temperature Decreasing Below Technical Specification Value (Section 4OA3.2)
05000456/2014003-00; 05000457/2014003-00	LER	Unanalyzed Condition Due to Lack of Procedural Guidance Related to the Ultimate Heat Sink (Section 4OA3.3)

### 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

- IR 2431622; Security – Material Staged in the PAF Beyond Removal Date; January 1, 2015
- IR 2432914; Snow/Ice Buildup on Lower Dry Cask Vents; January 5, 2015
- IR 2435570; Entered 0,1,2 BwOA ENV-1; January 10, 2015
- IR 2445786; Hi-Storm Area Required Snow Removal; February 1, 2015
- IR 2453260; Winter Readiness Improvement – Cabinet Heaters; February 16, 2015
- IR 2459747; Ice and Snow on Dry Cask Screens; February 26, 2015
- IR 2473324; Procedural Enhancement to MA-AA-716-026; March 24, 2015
- MA-AA-716-206; Station Housekeeping Material Control Program; Revision 026
- SY-BR-101-113; Safety and Security Interface; Revision 003
- SY-BR-101-116; Braidwood Security Vehicle and Foot Patrols; Rev 008
- 0BwOA ENV-1; Adverse Weather Conditions; Rev 119
- 1BwOA ENV-1; Adverse Weather Conditions, Unit 1; Rev 005
- 2BwOA ENV-1; Adverse Weather Conditions, Unit 2; Rev 005

### 1R04 Equipment Alignment

- IR 1516360; NOS ID: UFSAR Discrepancy Related to FC Anti-Siphon; May 20, 2013
- CC-AA-118; Diverse and Flexible Coping Strategies (Flex) and Spent Fuel Pool Instrumentation Program Document; Revision 0
- BwOP FC-1; Fuel Pool Cooling System Startup; Revision 26
- BwOP FC-E1; Electrical Lineup – Unit 1; Revision 1
- BwOP FC-M1; Operating Mechanical Lineup Unit 1; Revision 9
- BwOP FC-M2; Operating Mechanical Lineup Unit 2; Revision 7
- BwOP DG-1; Diesel Generator Alignment to Standby Condition; Revision 29
- BwOP DG-E4; Electrical Lineup – Unit 2B Diesel Generator; Revision 7
- BwOP DG-M4; Operating Mechanical Lineup Unit 2B DG; Revision 16
- BwOP SX-E2; Electrical Lineup – Unit 2 Essential Service Water System; Revision 12
- BwOP SX-M2; Operating Mechanical Lineup Unit 2; Revision 33
- Drawing M-42; Diagram of Essential Service Water Units 1 and 2
- Drawing M-63; Diagram of Fuel Pool Cooling and Clean-Up Units 1 and 2; Sheets 1A, 1B and 1C

### 1R05 Fire Protection

- Braidwood Pre-Fire Plan #96; AB 330' Unit 1 Aux. Bldg. Basement (1A/2A SX); FZ 11.1A-0
- Braidwood Pre-Fire Plan #97; AB 330' Unit 2 Aux. Bldg. Basement (1B/2B SX); FZ 11.1B-0
- Braidwood Pre-Fire Plan #132; AB 383' Aux. Bldg. General Area – Center; FZ 11.4-0
- Braidwood Pre-Fire Plan #133; AB 383' Unit 1, Aux. Bldg. General Area – North; FZ 11.4-0
- Braidwood Pre-Fire Plan #137; AB 383' Unit 1 Aux. Feedwater Pump Diesel; FZ 11.4A-1
- Braidwood Pre-Fire Plan #203; Unit 1, Main Steam & AF Pipe Tunnel; FZ 18.3-1



- OP-BR-201-012-1001; 2A SX Pump Work Window With 1SX01FA OOS – February 2, 2015; Revision 1
- Figure 1.3-16; Essential Service Water Pump Room, El. 330'-0"; Sheet 1 of 1

#### 1R07 Annual Heat Sink

- IR 2437165; U2 CC Heat Exchanger 2CC01A Work Window Lessons Learned; January 16, 2015

#### 1R11 Licensed Operator Requalification Program

- LORT Simulator Scenario and Grading Standard used on March 18, 2005

#### 1R12 Maintenance Effectiveness

- IR 1371387; 1A MSIV Accumulator Pressure Low Alarm; May 28, 2012
- IR 1467206; 2MS018A Failed to Close; January 25, 2013
- IR 2442215; 2MS019C Cannot be Closed; January 26, 2015
- IR 2432276; Door 507 Not Working Properly; January 4, 2015
- IR 2434430; Door Latch Not Releasing; November 9, 2014
- IR 2439134; Door D-4 Closure Broken; January 18, 2015
- IR 2441845; Door 205 S/L 815 Won't Secure; January 24, 2015
- IR 2449317; Fire Door D326 Found Unsecured; February 7, 2015
- IR 2450049; Door D-461 Handles Fall Off When Door is Opened/Closed; February 9, 2015
- IR 2451051; D-326 Door Handle Loose; February 11, 2015
- IR 2452182; D-358 Door to Hall From Chemistry Hot Lab Doesn't Latch; February 13, 2015
- IR 2463468; SD-169 Not Working Properly; March 4, 2015
- IR 2468762; 1DG01JF Door Latch is Broken; March 15, 2015
- IR 2470650; Door Handle Broken; March 18, 2015
- IR 2471311; NOS ID Fire Door D-30 Found Open; March 19, 2015
- MR Function Evaluation; Unit 2 Main Steam System; February 3, 2015
- MR Function Evaluation; Unit 2 Main Steam; February 19, 2015

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

- WC-AA-104; Integrate Risk Management; Rev 22
- WC-AA-101-1006; On-Line Risk Management & Assessment; Rev 001
- OP-AA-108-117; Protected Equipment Program; Rev 004
- ER-AA-600-1042; Online Program Risk Management; Rev 009

#### 1R15 Operability Determinations and Functionality Assessments

- IR 2438210; Part 21, ABB Notification of Potential Defect KF Relay ZPA; January 15, 2015
- IR 2435363; Oil/Refrig Leak Identified on 0B VC Chiller Oil Recovery Line; 2/23/2015
- IR 2443510; 1B EDG Emergency Stopped – 1DG01KB; January 28, 2015
- IR 2462093; 2A EDG – Inspection Found Indications on 10R Cylinder Liner; March 2, 2015
- IR 2442215; 2MS019C Can Not be Closed; January 26, 2015
- IR 2442323; Possible Issue With 1AF01EA-A Battery Charger; January 23, 2015
- IR 2442675; DC Bus 211 Positive Ground Volts Reading High Out of Spec; January 26, 2015
- IR 2448240; Westinghouse NSAL 15-1; 2/5/2015
- IR 2457260; Pressurizer Variable Heater Erratic – 2RY03EC; February 22, 2015
- IR 2459044; 2B EDG Manual Trip on Incomplete Sequence Alarm; February 25, 2015



- IR 2459806; Recreate Calculation for VC Chiller Oil Recovery; February 24, 2015
- IR 2463746; Station Receipt of Westinghouse IG-15-1; March 5, 2015
- IR 2463457; 1RD03E-A-IRV-A Rod Drive MG "A" Phase Dir OC Relay Issue; February 27, 2015
- IR 2466613; 2A Residue Noted on the Bottom of 5R, 6R, and 3L; March 11, 2015
- IR 2468066; Thru Wall Leak on 1SX27DA Line Down Stream of 1SX169A; March 13, 2015
- IR 2469079; 1MS101A Failed to Open; March 16, 2015
- IR 2471444; 1B AF Pump 1AF01EB-A Cell 12 Voltage Low; March 20, 2015
- IR 2472891; Scaffold Pole Built Thru EOP Valve Handle; March 23, 2015
- IR 2475499; LEFM Insulation Followup from Byron; March 27, 2015
- OP-AA-108-115; Operability Eval 15-001 Part 21 – ABB Notification of Potential Defect KF Relay ZPA; Revision 15
- 1PS-DG110B MA-BR-IM-2-0021; Calibration of DG 1B Start Solenoid Air Valve Malfunction-L Bank Pressure Switch; Revision 001
- Drawing 20E-1-4030DG53; Diesel Generator 1B Starting Sequence Control DG01KB – Part 3; March 7, 1984
- Drawing 20E-1-4099D; Internal/External Wiring Diesel Generator 1B 1DG01KB Engine Skid Part 4; August 28, 1978
- Drawing M-152; Control Diagram Starting System and Alarms; December 15, 1984
- Figure 1 - Limitorque Actuator Cut Away View
- Fragnet: 2SX01PA0215 Schedule – Week of February 2, 2015
- Westinghouse Technical Bulletin TB-15-1; March 3, 2015

#### 1R18 Plant Modifications

- IB 7.4.1.7-7; Single Phase Voltage Relays Instructions; Issue E
- MA-AA-796-024; Scaffold Installation, Inspection, and Removal; Revision 9
- WO 01610922 09; OAP Bus 242 Wiring Verification and Relay Test, EC#392216; May 11, 2014
- WO 01610922 13; OAP Obtain/Calibrate/Stage ABB 27N Relays Per EC#392216; May 5, 2014
- Drawing 20E-2-4002D; Single Line Diagram 4.16KV Switchgear Bus 242 & 244 Diesel Gen. 2B & 480V Switchgear
- Drawing 20E-2-4006B; Key Diagram 4160V ESF Switchgear Bus 242 (2AP06E)
- Drawing 20E-2-4018B; Relaying & Metering Diagram; 4160 ESF Switchgear Bus 242
- Drawing 20E-2-4030AP39; Schematic Diagram 4160V ESF Switchgear 242 Undervoltage Relays PR29A-427-B242 & PR29C-427-B242, PR5A-427-ST22 & PR5C-427-ST22
- Drawing 20E-2-4132P; Internal Wiring Diagram; Annunciator Logic Cabinet (Programming Cables) 2PA19J, Part-5
- Drawing 20E-2-4156A; Internal/External Wiring Diagram; Annunciator Input Cabinet (ESF 22) 2PA32J, Part 1
- Drawing 20E-2-4612A; Elevation 4160V Switchgear Bus 242 (Div. 22) 2AP06E
- Drawing 20E-2-4612F; Nameplate Schedule 4160V Switchgear Bus 242 2AP06E Part 2
- Drawing 20E-2-4613Q; Internal/External Wiring Diagram 4160 ESF Switchgear Bus 242 Cub. 15 (AP06EQ)
- Drawing 20E-2-4613S; Internal/External Wiring Diagram 4160V ESF Switchgear Bus 242 Cub. 17 2AP06ES

#### 1R19 Post-Maintenance Testing

- IR 2447769; 2SX001A Tripped During Performance of MOV SIG Trace; February 5, 2015



- BwOP SX-1; Essential Service Water Pump Startup; Revision 21
- MA-AA-734-453; Limitorque (SMB-0) Operator Maintenance; Revision 4
- WO 01627623 05; OP PMT – Functional Stroke 2SX001A and Pump Start Interlock; February 5, 2015
- WO 01662679 02; OP PMT 2SX01PA Functional Run and Leak Check; February 5, 2015
- WO 01802923 03; IST For 1SX002B – ASME Surveillance Requirements for 1B Essential Service Water Pump; March 18, 2015
- Letter from NRC to Licensees; Request for Information Related to the Resolution of Generic Issue 130, Essential Service Water System Failures at Multi-Unit Sites, Pursuant to 10 CFR 50.54(f) – Generic Letter 91-13; September 19, 1991

#### 1R20 Refueling and Other Outage Activities

- IR 2435209; New Fuel Elevator Underload Failure; January 9, 2015
- IR 2460464; Reactor Special Lifting Devices Require Added Inspections; February 27, 2015
- IR 2462030; Potential Orange Risk for Unit 2 During A1R18 Bus Outage; February 17, 2015
- IR 2466445; NOs ID; Issues with 1C LP Rotor Lift Work Package; March 10, 2015
- IR 2476833; Questions Concerning EC 294152 Connection to the AF Line in; March 30, 2015
- IR 2477341; U1 Polar Crane Overspeed; April 1, 2015
- IR 2478371; Potential Adverse Trend – FME Prevention; April 1, 2015
- IR 2479023; Fuel Transfer Canal Cover Dropped into SFP; April 2, 2015
- NF-AA-411; Receipt Inspection of Nuclear Fuel & Associated Core Components; Rev 005
- MA-AA-716-022; Control of Heavy Load Program; Rev 012
- MA-AA-716-021; Rigging & Lifting Program; Rev 024
- NEI 08-05; Industry Initiative on Control of Heavy Loads; July 2008
- RIS 2005-025; Clarification of NRC Guidelines for Control of Heavy Loads; October 31, 2015

#### 1R22 Surveillance Testing

- IR 2440361; Confusing Capacity Acceptance Criteria in AF Battery Test; January 21, 2015
- IR 2456528; 2B AF Pump SX Booster Low DP During ASME – 2AF01PB; February 20, 2015
- IR 2480377; 1SI8811A Failed Pressurization Test; April 6, 2015
- 1BwHSR 3.7.5-AA; 1B Diesel Aux Feed Pump Battery Bank A Battery A (1AF01EA-A) Capacity Test; Revision 1
- 1BwHS 384-5; 24 Volt ESF Aux Feed Diesel Battery BT1 and BT1A Performance Test; Revision 0
- 1BwOSR 3.1.4.2; Movable Control Assemblies Surveillance; Revision 25
- 1BwOSR 3.3.2.8-611A; ESFAS Instrumentation Slave Relay Surveillance (Train A Automatic Safety Injection – K611); Revision 11
- CC-AA-309-1001; BRW-97 0340-E – Battery Duty Cycle and Sizing for Braidwood Diesel Driven Auxiliary Feedwater Pumps; April 20, 2005
- NEP-12-02; Calculation No. BRW-97-0340-E, BYR-97-193; Battery Sizing for Byron and Braidwood Diesel Driven Auxiliary Feedwater Pump and Byron Diesel Driven Essential Service Water Pump; April 11, 1997; Revision 4
- NEP-12-02; Calculation BRW-97-0340E; Revision 5
- WO 01802923 01; IST For 1SX002B – ASME Surveillance Requirements for 1B Essential Service Water Pump; March 17, 2015
- WO 01802923 02; IST For 1SX002B – ASME Surveillance Requirements for 1B Essential Service Water Pump; March 18, 2015
- WO 01802923 04; IST For 1SX002B – ASME Surveillance Requirements for 1B Essential Service Water Pump; March 18, 2015



### 1EP2 Alert and Notification System Evaluation

- Alert and Notification System Summary; February 24, 2015
- Exelon Mid-West Siren Status Report; February 3, 2015
- IR 2406446; EP Siren Failure BD10; November 4, 2014
- IR 1586957; EP ANS Siren Failures BWD; November 18, 2013
- IR 1678295; EP Siren Failures (BD03, BD06, BD11, BD13); July 2, 2014
- IR 1678496; EP Siren Failure (BD03, BD06, BW02); July 3, 2014

### 1EP3 Emergency Response Organization Staffing and Augmentation System

- EP-AA-112-100-F-01; Shift Emergency Director Checklist; Revision U
- Call-In Drill Reports; Dates from June 2013 to December 2014
- IR 1685179; Mazon Facility Lessons Learned for Unusual Event; July 23, 2014
- IR 1685420; 4.0 Critique For Security Response to OCA Unusual Event; July 24, 2014
- IR 1687262; Braidwood UE Activation Issues; July 30, 2014
- IR 1685243; Lack of Clarity in Braidwood UE Event Notifications; July 23, 2014
- IR 1685031; 4.0 Critique For MCR Response to Emergency Declaration; July 23, 2014

### 1EP5 Maintenance of Emergency Preparedness

- EP-AA-1000; Exelon Nuclear Standardized Radiological Emergency Plan; Revisions 24 and 25
- EP-AA-1001; Exelon Nuclear Radiological Emergency Plan Annex For Braidwood Station; Revision 33
- PI-AA-126-1005-F-01; Check-In Self-Assessment: NRC Emergency Preparedness Baseline Inspection; December 31, 2014
- Emergency Preparedness Audit Report; March 18, 2013 to April 12, 2013
- Emergency Preparedness Audit Report; March 17, 2014 to March 28, 2014
- Memorandum to Marri Marchionda-Palmer, Braidwood Station Plant Manager, from Deborah Poi, Braidwood Station EP Manager; Subject: Braidwood Station Unusual Event Report from July 23, 2014; August 19, 2014
- IR 1505170; BRW Emergency Preparedness Yellow Zone Breach in Mar 2013; April 22, 2013
- IR 1514358; NOS IDS IR Not Written for DEP Failure; May 15, 2013
- IR 1519983; EP Not Notified of ERO Team Member Long Term Absence; May 28, 2013

### 1EP6 Drill Evaluation

- Drill Scenario and Evaluation Package for Drill Performed on March 19, 2015

### 2RS6 Radioactive Gaseous and Liquid Effluent Treatment (71124.06)

- AMO Environmental Decisions; July through September 2014 RGPP Summary Monitoring Report (3<sup>rd</sup> Quarter 2014); Published January 15, 2015
- RP-BR-911; Unit 1 and 2 RE-PR011J Radiation Monitor Radiological and Non-Radiological Air Sampling; Revision 12
- RP-BR-928; Unit 1 and 2 RE-PR028J Radiation Monitor Air Sampling; Revision 5
- RP-BR-932; Containment Vent and Mini Purge Gaseous Effluents with 1(2) PR01J Inoperable; Revision 3
- RP-BR-980; Containment Vent and Mini Purge Gaseous Effluents; Revision 17
- B/B-UFSAR; Process and Effluent Radiological Monitoring and Sampling System; 11.5-1



- RP-BR-980; Containment Release Form; Release Number G-14-240 and G-14-24; December 9 and December 11, 2014
- BwOP GW-500T1; Revision 42; Gas Decay Tank Release Form: Release Number; GW-14-03
- NUCON International, Inc.; Radioiodine Test Report; 0VA05FA, 0VA05FB, 0VA05FA; November 11, 2014
- NUCON International, Inc.; Radioiodine Test Report; 0VA05FD, 0VA05FE, 0VA05FF; October 29, 2014
- NUCON International, Inc.; Radioiodine Test Report; 0VA05FG, 0VA05FH, 0VA05FI; February 19, 2014
- NUCON International, Inc.; Radioiodine Test Report; 0VA09FA, 0VA09FA; July 9, 2014
- NUCON International, Inc.; Radioiodine Test Report; 0VA09FB; March 5, 2014
- IR-01680605; 0VA09FA – Fuel Handling Building (FHB) Charcoal Sample Failure; July 10, 2014
- WO 0392179; Completed the Replacement of Bad Charcoal Filter on the FHB; August 8, 2014
- WO 01608688; Auxiliary Building NAC Filter Plenum Vent System Total Bypass Leakage DOP Testing; August 28, 2014
- WO 01551946; Fuel Handling Building Exhaust Plenum Total Bypass Leakage DOP Testing; January 9, 2014
- 1REPR011 Containment Air Monitor Particulate Radionuclide Analysis; January 23, 2015
- 2REPR011 Containment Air Monitor Particulate Radionuclide Analysis; January 23, 2015
- CY-BR-170-301; Braidwood Station Offsite Dose Calculation Manual (ODCM); Revision 8
- Braidwood Nuclear Power Station Radioactive Effluent Release Report for 2013; Unit 1 and 2 Docket Number 50-456 and 50-457
- IR 1615759; Failed Check Source during Calibration; January 31, 2014
- IR 1624739; 1PR01J Iodine Channel in High Alarm; February 22, 2014
- IR 1628346; Liquid Discharge 0PR90J Failed Check Source; March 2, 2014
- IR 0465030; 1PR08J Unit-1 Blowdown Radiation Monitor Skid Failed Automatic Check Source; May 15, 2014
- IR 1676274; Missed Admin Limit for Gas Grab on 2RE-PR28J Auxiliary Building Vent; June 27, 2014
- IR 1690931; 2PR027J SJAE/Gland Steam Exhaust Process Monitor Reads Higher Activity After Maintenance; August 9, 2014
- IR 1698080; Barium Source Used for Iodine Detector Calibrations Found Low; August 29, 2015
- IR 2165715; Barium-133 Source from Salem Not Compatible with Braidwood 1PR028; September 10, 2014
- IR 2167014; Premature Failure of New Iodine Detector for 1RT-PR028C; September 10, 2014
- IR 2178672; Preventive Maintenance Activity Required to Address IMD Radioactive Sources Used for 1RE-PR028C Calibration; September 10, 2014

#### 4OA1 Performance Indicator Verification

- LS-AA-2090: Monthly Data Elements for NRC Reactor System Specific Activity; Revision 4
- Data Element from January 2014 through December 2014
- NRC Performance Indicator Data; Emergency Preparedness – Drill/Exercise Performance; 4th Quarter 2014
- NRC Performance Indicator Data; Emergency Preparedness – ERO Readiness 4th Quarter 2014
- NRC Performance Indicator Data; Emergency Preparedness – Alert and Notification System Reliability; 4th Quarter 2014



#### 4OA2 Problem Identification and Resolution

- IR 2432103; 4.0 Critique 2SD002C Failure to Open and MCR Response; January 2, 2015
- IR 2440808; NRC Question on Unit 1 DOST Anchor Bolts Thread Engagement; January 22, 2015
- IR 2442120; Safety Issue with Scaffolding in 1B/1D DOST Room; January 24, 2015
- IR 2443251; Seal Injection Filter DP HI Alarm Coming in Early; January 27, 2015
- IR 2443510; 1B EDG Emergency Stopped – 1DG01KB; January 28, 2015
- IR 2445775; 2MS018JCE Battery Cell Level at Minimum; February 1, 2015
- IR 2447115; Issues Impacting LCO Work Window on 2SX150A; February 4, 2015
- IR 2447502; Outage Rollup Door Testing Not Compliant with HELB; February 4, 2015
- IR 2448524; 1A EDG Emergency Stop Pushbutton Missing Red Cover; February 6, 2015
- IR 2450461; 2SX01PB Oil Return Line Fitting Weeping Oil; February 10, 2015
- IR 2451142; U2 LEFM Work Needs Evaluation – 1FW10J; February 6, 2015
- IR 2453299; AF Suction Swap Over Mod Delay; February 16, 2015
- IR 2464041; 1CV8524B is Very Difficult to Operate; March 4, 2015
- IR 2464613; Div 11 MEER Room Temperature Below Admin Limit; March 6, 2015
- IR 2471446; 2CD 05PC Outboard Bearing Weeping Oil; March 20, 2015
- IR 2474020; U1 RCP Seal Inject Troubleshooting Post Job Critique; March 25, 2015
- IR 2475499; LEFM Insulation Follow-up to Byron IR 02474017; March 27, 2015
- IR 2476238; Pre-A1R18 MSSV Trevitest Results Summary; March 30, 2015
- IR 2477824; 1BwOA ELEC-7 Entered Due to Failure of Some Annunciators; April 1, 2015
- IR 2479901; All Girls Trucking Driver Declared Prohibited at Checkpoint; April 14, 2015
- WO 00749784; DL – Packing Leak and Stem Need Work – HS Rise Isolation Valve (TB)
- WO 00868969; DL – Perform Repairs to 0FP03PB Room Thermafiber (LSH)
- WO 00874938; CL – 0FP0456B Seat/Stem May Have Separated (LSH)
- WO 00966195; DL – MM-Fire Pump Stuffing Box and Shaft Wear (LSH)
- WO 01023189; DL – Repack Valve/Clean Corrosion, Active Leak (TB – CP)
- WO 01173415; DL – 0FP934 Sprinkler Isolation Valve is Leaking (Warehouse #2)
- WO 01173650; DL – Well is Filling With Sand/Debris (Buffalo Box – Outdoors)
- WO 01174650; DL – Replace Field Wiring and Enlarge Sealtight for 1PS-FP117 (TB)
- WO 01359780; DL – Repair/Replace Leaking Valve – 0FP590 to Gate House (Outdoors)
- WO 01360179; DL – Leak From Hose Station 108 Auto Drain Valve (AB – Gen Area)
- WO 01361571; DL – Leakage From Hose Station 139 Auto Drain Valve (AB – CWA)
- WO 01375500; DL - 0FP472 Has 2 DPM Leak of Water at Weepole (AB – UCSR)
- WO 01375895; DL – Handwheel Broken & Valve Stem Bent (TB)
- WO 01376195; DL – Overhead Crane Contacted FP Hanger – Relocate Hanger (LSH)
- WO 01398588; DL – Six Drop Per Minute Leak From 0FP328 (AB 0 LCSR)
- WO 01458015; DL – Damaged Lamp Holder on 0FP08J (RSH)O 0

#### 4OA7 Licensee Identified Violations

- IR 1625970; RCS Vacuum Fill Potential to Exceed PTLR Pressure Limit; April 21, 2014



## LIST OF ACRONYMS USED

ADAMS	Agencywide Document Access Management System
ANS	Alert and Notification System
ASME	American Society of Mechanical Engineers
CAP	Corrective Action Program
CFR	Code of Federal Regulations
CLB	Current Licensing Basis
DEP	Drill/Exercise Performance
EP	Emergency Preparedness
ERO	Emergency Response Organization
IMC	Inspection Manual Chapter
IP	Inspection Procedure
IR	Issue Report
IST	Inservice Testing
LER	Licensee Event Report
MSIV	Main Steam Isolation Valve
NCV	Non-Cited Violation
NEI	Nuclear Energy Institute
NRC	U.S. Nuclear Regulatory Commission
ODCM	Offsite Dose Calculation Manual
PARS	Publicly Available Records System
PI	Performance Indicator
PMP	Probable Maximum Precipitation
PMT	Post-Maintenance Testing
psig	Pounds Per Square Inch Gauge
P/T	Pressure and Temperature Limits
PTLR	Pressure Temperature Limits Report
RCS	Reactor Coolant System
RG	Regulatory Guide
RP	Radiation Protection
RWST	Refueling Water Storage Tank
SDP	Significance Determination Process
SSC	Systems, Structures, and Components
SX	Essential Service Water
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report
WO	Work Order



B. Hanson

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Sincerely,

**/RA/**

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

Docket Nos. 50-456; 50-457  
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