



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

REGION III
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August 8, 2012

Mr. Michael Pacilio
Senior Vice President, Exelon Generation Company, LLC
President and Chief Nuclear Officer (CNO), Exelon Nuclear
4300 Winfield Road
Warrenville IL 60555

**SUBJECT: BRAIDWOOD STATION, UNIT 1 & 2, NRC PROBLEM IDENTIFICATION AND
RESOLUTION INSPECTION REPORT 05000456/2012007; 05000457/2012007**

Dear Mr. Pacilio:

On June 29, 2012, the U.S. Nuclear Regulatory Commission (NRC) completed a Problem Identification and Resolution (PI&R) inspection at your Braidwood Station. The enclosed inspection report documents the inspection results, which were discussed at an exit meeting on June 29, 2012, with Mr. J. Bashor and other members of your staff.

The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

On the basis of the samples selected for review, the team concluded that, overall, the corrective action program (CAP) at Braidwood Station was adequate in identifying, evaluating and correcting issues with various degrees of effectiveness. The licensee had a low threshold for identifying issues and entering them into the CAP. Issues entered in the CAP were prioritized and evaluated based on plant risk and uncertainty. Corrective actions were generally implemented in a timely manner, commensurate with their safety significance. Operating Experience (OPEX) was entered into the CAP and appropriately evaluated. The use of OPEX was integrated into daily activities and found to be effective in preventing similar issues at the plant. In addition, self-assessments, audits, and effectiveness reviews were found to be conducted at appropriate frequencies with sufficient depth for all departments. The assessments reviewed were thorough and effective in identifying site performance deficiencies, programmatic concerns, and improvement opportunities. On the basis of the interviews conducted, the inspectors did not identify any impediment to the establishment of a Safety Conscious Work Environment (SCWE) at Braidwood Station. Licensee staff was aware of and generally familiar with the CAP and other station processes, including the Employee Concerns Program (ECP), through which concerns could be raised.

Although implementation of the CAP was determined to be adequate, overall, based on the samples reviewed four findings of very low safety significance (Green) were identified during this inspection in the areas of Corrective Action Program Effectiveness and Operating Experience. Three of these four findings were also determined to involve a violation of NRC

requirements. However, because of their very low safety significance and because the issues were entered into your CAP, the NRC is treating these violations as Non-Cited Violations (NCVs) in accordance with Section 2.3.2 of the NRC Enforcement Policy. In addition, the team identified several issues that were either minor in nature and/or represented negative trends, warranting your attention. Examples include implementation of the operability determination process, CAP procedures not being followed, and the timeliness of corrective actions to address degraded fire barriers.

If you contest the subject or severity of an NCV, 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.

If you disagree with a cross-cutting aspect 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 Resident Inspector Office at the Braidwood Station.

In accordance with 10 CFR 2.390 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 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 Website 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 and 50-457
License Nos. NPF-72 and NPF-77

Enclosure: Inspection Report No. 05000456/2012007 and 05000457/2012007
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 Nos: 05000456/2012007; 05000457/2012007

Licensee: Exelon Generation Company, LLC

Facility: Braidwood Station, Units 1 and 2

Location: Braidwood, IL

Dates: June 11, 2012, through June 29, 2012

Team Leader: R. Ng, Project Engineer

Inspectors: A. Garmoe, Resident Inspector
D. Chyu, Reactor Engineer
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M. Perry, Resident Inspector, Illinois Emergency
Management Agency

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

Enclosure

TABLE OF CONTENTS

SUMMARY OF FINDINGS.....	1
Report Details	4
4. OTHER ACTIVITIES	4
4OA2 Problem Identification and Resolution (71152B)	4
4OA6 Management Meetings	21
SUPPLEMENTAL INFORMATION.....	1
KEY POINTS OF CONTACT	1
LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED.....	1
LIST OF DOCUMENTS REVIEWED	2
LIST OF ACRONYMS	15

SUMMARY OF FINDINGS

Inspection Report (IR) 05000456/2012007; 05000457/2012007; 06/11/2012 – 06/29/2012;
Braidwood Station, Units 1 and 2; Identification and Resolution of Problems.

This inspection was performed by region-based inspectors, the Braidwood Resident Inspector, and the Braidwood Illinois Emergency Management Agency (IEMA) resident inspector. Four findings of very low safety significance (Green) were identified by the inspectors. Three of these findings were determined to involve Non-Cited Violations (NCVs) of NRC requirements. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). Assigned cross-cutting aspects were determined using IMC 0310, "Components Within the Cross-Cutting Areas." Findings for which the SDP does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

Identification and Resolution of Problems

On the basis of the samples selected for review, the team concluded that, overall, the corrective action program (CAP) at Braidwood Station was adequate in identifying, evaluating and correcting issues with various degrees of effectiveness. The licensee had a low threshold for identifying issues and entering them into the CAP. Issues entered in the CAP were prioritized and evaluated based on plant risk and uncertainty. Corrective actions were generally implemented in a timely manner, commensurate with their safety significance. Operating Experience (OPEX) was entered into the CAP and appropriately evaluated. The use of OPEX was integrated into daily activities and found to be effective in preventing similar issues at the plant. In addition, the licensee's self-assessments, audits, and effectiveness reviews were found to be conducted at appropriate frequencies with sufficient depth for all departments. The assessments reviewed were thorough and effective in identifying site performance deficiencies, programmatic concerns, and improvement opportunities. On the basis of the interviews conducted, the inspectors did not identify any impediment to the establishment of a Safety Conscious Work Environment (SCWE) at Braidwood Station. Licensee staff was aware of and generally familiar with the CAP and other station processes, including the Employee Concerns Program (ECP), through which concerns could be raised.

Although implementation of the CAP was determined to be adequate, overall, four findings of very low safety significance (Green) were identified by the inspectors. Three of these findings were also determined to involve NCVs of NRC requirements. Two Green findings concerned the licensee's failure to implement corrective actions to address previously identified NRC violations. The third Green finding was related to the failure to initiate Issue Reports (IRs) as required by licensee procedures to address potential equipment operability issues. The last Green finding was related to the failure to implement corrective actions to prevent recurrence. In addition, the team identified several issues that were either minor in nature and/or represented negative trends. Examples include implementation of the operability determination process, CAP procedures not being followed, and the timeliness of corrective actions to address degraded fire barriers.

A. NRC-Identified and Self-Revealed Findings

Cornerstone: Initiating Events, Mitigating Systems

- Green: A finding of very low safety significance (Green) and an associated NCV of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," was identified by the inspectors when a non-conforming condition previously identified by the NRC was not corrected. Specifically, the licensee did not plan or perform corrective actions for a non-conforming condition where lead blankets were placed on various safety-related pipes without meeting American Society of Mechanical Engineers (ASME) Code requirements. The licensee entered this issue into the CAP as IR 1383554 and planned to perform the required analyses.

The inspectors determined that the failure to correct a non-conforming condition was more than minor 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 licensee failed to ensure compliance with American Institute of Steel Construction (AISC) and ASME Boiler and Pressure Vessel Code Section III requirements to ensure the piping and pipe supports would maintain their structural integrity when subjected to design basis loads. The finding was determined to be of very low safety significance (Green) because it was a design or qualification deficiency confirmed not to result in loss of operability or functionality. This finding had a cross-cutting aspect in the Decision-Making component of the Human Performance cross-cutting area [H.1(b)] because licensee personnel failed to verify the assumption that NCIG-5 could be used in lieu of meeting the design bases ASME Code requirement. (Section 4OA2.1.b.2.ii)

- Green: A finding of very low safety significance (Green) and an associated NCV of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified by the inspectors when licensee personnel failed to adhere to Surveillance Procedure BwHS 4002-012, Revision 9, "AF [Auxiliary Feedwater] Nickel Cadmium Battery Surveillance." Specifically, the licensee failed to identify open spaces between the wooden shim blocks and the end of the battery rack for the diesel-driven AF pump batteries. The licensee entered this issue into the CAP as IR 1379674 and planned to replace the shim blocks.

The inspectors determined that the failure to follow the surveillance procedure was more than minor 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 failed to ensure that batteries were restrained from sliding along the rack to avoid over-stressing the end or base of the racks as specified in the seismic qualification document. The finding was determined to be of very low safety significance (Green) because it was a design or qualification deficiency confirmed not to result in a loss of operability or functionality. This finding had a cross-cutting aspect in the Work Practices component of the Human Performance cross-cutting area [H.4(b)] because the licensee failed to effectively

communicate the expectation and the bases regarding the acceptance criteria of the surveillance procedure. (Section 4OA2.1.b.3.ii)

- Green: A finding of very low safety significance (Green) was identified by the inspectors when licensee personnel failed to follow procedure LS-AA-125-1001, "Root Cause Analysis Manual," Attachment 12, in the implementation of corrective actions to prevent recurrence. Specifically, actions taken in response to the Unit 1 reactor trip on August 16, 2010, did not meet the criteria in procedure LS-AA-125-1001, Attachment 12, CAPR Attributes, for being timely, effective, and long-lasting (i.e. not temporary). The licensee entered this issue into the CAP as IR 1395327.

The inspectors determined the failure to follow procedure LS-AA-125-1001 was more than minor because it could be reasonably viewed as a precursor to a significant event and, if left uncorrected, had the potential to lead to a more significant safety concern. Specifically, the licensee continued to rely on administrative controls, temporary catch containments, and transferring water "slowly" to prevent water overflow events rather than through a permanent modification to the standpipes. As a result, the potential for water overflow events, while reduced, would not prevent recurrence. The inspectors determined that the finding was of very low safety significance (Green) because it did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available. This finding had a cross-cutting aspect in the Corrective Action Program component of the Problem Identification and Resolution cross-cutting area [P.1(d)] since the licensee did not take timely and appropriate corrective actions to prevent recurrence in response to the August 16, 2010, Unit 1 reactor trip. (Section 4OA2.1.b.3.ii)

- Green: 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 initiate IRs in accordance with the CAP procedure. Specifically, the licensee failed to initiate an IR and perform an operability determination during a 10 CFR Part 21 Notification evaluation. The licensee entered this issue into their CAP as IR 1378432 and determined that there were no operability or reportability issues.

The inspectors determined that the finding was more than minor because the finding, if left uncorrected, could become a more significant safety concern. Specifically, if operations staff was not made aware of potentially degraded safety-related components, they might not perform an operability determination and continue operating the plant with the degraded components. The finding was of very low safety significance (Green) because the finding did not result in a loss of operability or functionality of equipment. This finding had a cross-cutting aspect in the Operating Experience component of the Problem Identification and Resolution cross-cutting area [P.2(a)] because the licensee did not systematically evaluate and communicate relevant operating experience to affected internal stakeholders. (Section 4OA2.2.c)

B. Licensee-Identified Violations

None.

REPORT DETAILS

4. OTHER ACTIVITIES

4OA2 Problem Identification and Resolution (71152B)

This inspection constituted one biennial sample of Problem Identification and Resolution (PI&R) as defined by Inspection Procedure 71152, "Problem Identification and Resolution." Documents reviewed are listed in the Attachment to this report.

.1 Assessment of the Corrective Action Program Effectiveness

a. Inspection Scope

The inspectors reviewed the procedures and processes that described Exelon's Corrective Action Program (CAP) at Braidwood Station to ensure, in part, that the requirements of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," were met. The inspectors observed and evaluated the effectiveness of meetings related to the CAP, such as Station Ownership Committee and Management Review Committee (MRC) meetings. Selected licensee personnel were interviewed to assess their understanding of and their involvement in the CAP.

The inspectors reviewed selected Issue Reports (IRs) across all seven Reactor Oversight Process (ROP) cornerstones to determine if problems were being properly identified and entered into the licensee's CAP. The majority of the risk-informed samples of IRs reviewed were issued since the last NRC biennial PI&R inspection conducted in September of 2010. The inspectors also reviewed selected issues that were more than 5 years old.

The inspectors assessed the licensee's characterization and evaluation of the issues and examined the assigned corrective actions. This review encompassed the full range of safety significance and evaluation classes, including root cause evaluations (RCEs), apparent cause evaluations (ACEs), and workgroup evaluations. The inspectors assessed the scope and depth of the licensee's evaluations. For significant conditions adverse to quality (SCAQs), the inspectors evaluated the licensee's corrective actions to prevent recurrence and for less significant issues, the inspectors reviewed the corrective actions to determine if they were implemented in a timely manner commensurate with their safety significance.

The inspectors selected the 125 Volt Direct Current (Vdc) system to review in detail since the 125 Vdc system was a risk-significant Maintenance Rule system. The primary purpose of this review was to determine whether the licensee was properly monitoring and evaluating the performance of Maintenance Rule systems through effective implementation of station monitoring programs. The inspectors interviewed the 125 Vdc system engineer, reviewed numerous 125 Vdc system related IRs, and reviewed system health reports associated with the 125 Vdc system. A 5-year review of 125 Vdc issues was performed to assess the licensee's efforts in monitoring for system degradation due to aging. The inspectors also performed walkdowns, as needed, to verify the resolution of issues.

The inspectors examined the results of self-assessments of the CAP completed during the review period. The results of the self-assessments were compared to self-revealed and NRC-identified findings. The inspectors also reviewed the corrective actions associated with previously identified NCVs and findings to determine whether the station properly evaluated and resolved those issues. The inspectors performed walkdowns, as necessary, to verify the resolution of the issues.

b. Assessment

(1) Identification of Issues

Based on the results of the inspection, the inspectors concluded that, in general, the station was adequate in identifying issues at a low threshold and entering them into the CAP. The inspectors determined that the station was appropriately screening issues from both NRC and industry OPEX at an appropriate level and entering them into the CAP when applicable to the station. The inspectors also noted that deficiencies were identified by external organizations (including the NRC) that had not been previously identified by licensee personnel. These deficiencies were entered into the CAP for resolution.

However, the inspectors noted several occasions where there has been a delay in writing IRs in response to resident inspectors' questions. Some recent examples include questions on available margin with the depth of the ultimate heat sink, High Energy Line Break (HELB) induced differential pressures across doors, whether potentially pertinent information was presented at a Plant Onsite Review Committee meeting, and whether a Title 10 Code of Federal Regulation (CFR) 50.59 evaluation was completed properly. Additionally, the licensee self-identified in IR 1384767 that IRs were sometimes not written until after licensee personnel had analyzed and/or resolved the problem. Although the inspectors considered these delays minor procedural violations, they could potentially affect the effectiveness of the CAP since issues might not receive appropriate attention if they are not identified and documented in a timely manner. The licensee acknowledged this weakness and generated IR 1381936 to address the issue.

The inspectors determined that the station was generally effective at trending low level issues to prevent larger issues from developing. The licensee also used the CAP to document instances where previous corrective actions were ineffective or were inappropriately closed.

i) Observations:

Adverse Trend in Operability Determination Process

The inspectors noted an apparent adverse trend in the quality of operability evaluations completed by site personnel based on a review of prior NRC findings and licensee IRs. The following findings and NCVs were noted to involve inadequacies in operability evaluations:

- NCV 05000457/2011004-05, "Asiatic Clams Identified in the SX [Essential Service Water] System Supply to the AF [Auxiliary Feedwater] System"

- FIN [Finding] 05000456/457/2011005-04, “Operability Evaluation Not Performed in Accordance with Station Standards”
- FIN 05000456/457/2011012-02, “Failure to Adequately Document and Justify Continued Operability of the Auxiliary Feedwater System”

The inspectors also noted numerous recent IRs that were generated based on NRC comments and concerns on several Operability Evaluations, including:

- IR 1193357 – AF Void OpEval [Operability Evaluation] 11-03
- IR 1199223 – HELB [High Energy Line Break] Past Operability Review
- IR 1202772 – AFW [Auxiliary Feedwater] Pump Suction Piping
- IR 1231877 – Green Finding on AFW Voids Operability Justification
- IR 1242942 – NRC Comments on OpEval 11-06
- IR 1276888 – Effect of HELB on Rx [Reactor] Trip Breakers
- IR 1279543 – HELB Single Failure
- IR 1291688 – Green Finding on AF Shells [incorrect operability conclusion]
- IR 1291695 – Failure to Analyze SX to AF configuration [incorrect operability conclusion]
- IR 1299906 – Summary of NRC HELB OpEval Comments & Missed 50.73
- IR 1326152 – HELB OpEval Green Finding
- IR 1366538 – Lack of CST [Condensate Storage Tank] OpEval (from 2010 PI&R)
- IR 1368315 – Questions on HELB Gothic Analysis
- IR 1372307 – 1A MSIV [Main Steam Isolation Valve] Remote Shutdown Panel Not Considered in Op Determination
- IR 1378432 – Braidwood Not Notified of Byron OpEval
- IR 1382574 – NRC Questions Related to HELB (OpEval 11-06 and 12-04)

Based on the information reviewed, the inspectors questioned whether the licensee had identified an adverse trend regarding operability evaluation quality and whether the licensee had performed any type of common cause analysis for this issue. The licensee indicated that no such actions had been completed and subsequently initiated IR 1384115, “NRC Id’d: Adverse Trend in Operability Evaluation Quality,” to evaluate the inspectors’ observations.

In addition to the quality of operability evaluations, the inspectors noted weaknesses in the licensee’s operability determination procedure, OP-AA-108-115, “Operability Determinations.” Specifically, Inspection Manual Chapter (IMC) Part 9900, “Operability Determinations and Functionality Assessments for Resolution of Degraded or Nonconforming Conditions Adverse to Quality or Safety,” stated the following:

- *Circumstance Warranting Operability Determinations.*

Licensees should enter the operability determination process upon discovering any of the following circumstance when the operability of any systems, structures, and components described in the TS [Technical Specifications] is called into question:

- a) *Degraded conditions;*
- b) *Nonconforming conditions; and*
- c) *Discovery of an unanalyzed condition.*

However, procedure OP-AA-108-115 did not include discovery of an unanalyzed condition as a condition warranting an operability evaluation. The inspectors also noted that, as opposed to a three-working-day requirement to complete new operability evaluations, there was no defined time limit for revising an operability evaluation, even if new information potentially challenged an existing operability determination conclusion. The inspectors also noted an example in which the licensee did not thoroughly evaluate the aggregate impact of two operability evaluations that could have affected one another (Operability Evaluations 12-001 and 12-002) because one of the conditions was considered outside of the current licensing basis. The inspectors did not identify any guidance addressing this type of situation in the licensee's procedures. Based on prior inspection observations, as documented in Section 4OA5.5.b of Byron Inspection Report 05000454/2012008; 05000455/2012008, the licensee had previously initiated IR 1325902 for the issue. Assignment 2 of that IR was closed to a corporate action to revise procedure OP-AA-108-115. However, the corporate action to complete the procedure revision was not referenced anywhere in IR 1325902 such that it could be tracked.

Although the individual concerns with the quality of the operability evaluation were considered minor, the trend indicated a potential weakness in the process that had a negative impact on equipment operability determinations.

(2) Prioritization and Evaluation of Issues

Based on the results of the inspection, the inspectors concluded that the station was marginally effective at prioritizing and evaluating issues commensurate with the safety significance of the identified issue, including an appropriate consideration of risk.

The inspectors determined that the MRC CAP review meeting was generally thorough and maintained a high standard for evaluation quality. Members of the MRC discussed the issues presented in sufficient detail and challenged presenters regarding their conclusions and recommendations.

The inspectors reviewed Maintenance Rule action plans and issue reports associated with the 125 Vdc system because, in part, a significant number of identified deficiencies associated with this system had been identified in the last 5 years. The licensee developed action plans to resolve these deficiencies and appropriately adjusted the actions when new issues were discovered.

The inspectors determined that the licensee usually evaluated equipment functionality requirements adequately after a degraded or non-conforming condition was identified.

However, in many instances, NRC involvement was required to ensure appropriate questions were researched, particularly as associated with operability determinations. Many issue evaluations lacked sufficient rigor to define the issues thoroughly and appropriately resolve them. (See Observations in Section 4OA2.1.b.1.i above and Findings in Section 4OA2.1.b.2.ii below). In addition, the inspectors identified a number of weaknesses related to the prioritization and evaluation of issues as described below:

i) Observations:

CAP Procedure Not Being Followed

The inspectors observed several examples where the significance level or assignment type associated with IRs was not in accordance with procedures LS-AA-120, "Issue Identification and Screening Process," or LS-AA-125, "Corrective Action Program Procedure." Specific examples identified by the inspectors included the following:

- IR 1218755 included an assignment to address a contributing cause of an inoperable AF system due to Asiatic clam shells in the inlet piping. The assignment was closed without addressing the cause.
- IR 1295149 was assigned a Significance Level 5, an enhancement, but should have been assigned a Significance Level 4, as a valid calibration was required to perform a surveillance procedure;
- IR 1364132 was assigned a Significance Level 4, but should have been assigned a Significance Level 3 due to the resulting online risk change;
- IR 1257969 had an assignment improperly coded as an Action Tracking Item (ACIT), an improvement item, to address a non-conforming condition;
- IR 1126534 was initiated to address an NRC-issued NCV, but had only ACIT assignments;
- IR 1349305 was generated for a small fire in the turbine building, however, an ACIT assignment was used to evaluate how to clean greasy dust and debris, which was identified as a contributing cause of the fire;
- COMP assignments were not used by the site to track temporary compensatory actions for degraded or non-conforming conditions. Instead, compensatory actions were typically tracked as corrective actions, which was not in accordance with the procedure and procedure definitions; and
- Operability Determination procedure OP-AA-108-115 allowed compensatory measures to be tracked using an ACIT assignment, which was contrary to the significance of the actions since ACITs were not tracked in CAP and could be closed by the department without senior management review.

The inspectors concluded that the site was not always following established procedural guidance regarding the significance level of IRs and the associated assignment types.

The inspectors considered many of these examples to represent a failure to comply with 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings." However, these violations were of minor significance and in accordance with the NRC's Enforcement Policy were not subject to enforcement action.

ii) Findings:

Non-Conforming Piping Condition Not Corrected

Introduction: The inspectors identified a finding of very low safety significance (Green) and an associated NCV of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," when a non-conforming condition, previously identified by the NRC in September 2011, was not properly corrected. Specifically, the licensee did not plan or perform corrective actions for a non-conforming condition in which lead blankets were placed on various safety-related pipes without ensuring American Society of Mechanical Engineers (ASME) Code requirements were met.

Description: In September 2011, the NRC identified in Inspection Report 05000456/2011008; 05000457/2011008 that permanent lead shielding was added to safety-related piping and pipe supports 1SI06 (Safety Injection) and 1CV18 (Chemical Volume and Control System) without demonstrating compliance with the American Institute of Steel Construction (AISC) and ASME Class III Boiler and Pressure Vessel Code. Instead of meeting the associated AISC and ASME Code requirements, the licensee inappropriately used Electric Power Research Institute (EPRI) document NCIG-05, "Guideline for Piping Reconciliation," to evaluate the permanent modifications to the piping. This issue was documented as NCV 05000456/2011008-02.

The licensee documented their initial response to this NCV in IR 1269227, "NRC MOD/50.59 Inspection – Use of NCIG-05 For Lead Shielding." In that IR, the licensee concluded that the intent of the NRC endorsement of NCIG-05 was not for installations, but only for reconciliations. In response to the NCV, the licensee revised procedure CC-AA-309-1011, "General Station Piping Analysis," to prevent future use of NCIG-05 method for permanent modifications. The licensee also placed a hold on all pending modifications that were based on NCIG-05 until the associated calculations were appropriately revised to address the piping changes.

However, the licensee stated in IR 1269227 that although the use of NCIG-05 for this application was not in accordance with CC-AA-309-1011, the results and conclusions of the design evaluation using these guidelines remained valid and design margins for these subsystems remained acceptable. The licensee noted that in cases where the piping calculations supporting modifications relied upon the tolerances provided within NCIG-05, there was no value in revising the calculations. The licensee mistakenly reasoned that while the modifications were installed without verifying that the Code requirements were met, it was now acceptable to use NCIG-05 as a basis to accept the deviations from the original approved ASME Class III piping analysis. Thus, ASME Code calculations for subsystems 1CV18 and 1SI06 were not revised to restore the non-conforming condition. The licensee entered this issue into the CAP as IR 1383554 and planned to perform the required analyses.

Analysis: The inspectors determined that the failure to properly address a non-conforming condition associated with the installation of permanent lead shielding on 1SI06 and 1CV18 was a performance deficiency. The performance deficiency was determined to be more than minor 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 licensee failed to ensure compliance with AISC and ASME Boiler and Pressure Vessel Code Section III requirements to ensure the piping and pipe supports would maintain their structural integrity when subjected to design basis loads.

The inspectors determined that the finding could be evaluated using the SDP in accordance with IMC 0609, Attachment 4, "Phase 1- Initial Screening and Characterization of Findings." Using Table 2, the inspectors determined that the issues affected the Decay Heat Removal function of the Mitigating Systems Cornerstone. Based on the Mitigating Systems Cornerstone questions in Table 4a, the inspectors determined that the finding was a design or qualification deficiency confirmed not to result in loss of operability or functionality. Therefore, the finding was determined to be of very low safety significance (Green).

The inspectors determined that this finding had a cross-cutting aspect in the Decision-Making component of the Human Performance cross-cutting area [H.1(b)] because licensee personnel mistakenly concluded that NCIG-5 could be used in lieu of satisfying design bases AISC and ASME Code requirements.

Enforcement: Title 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," requires, in part, that measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, and non-conformances are promptly identified and corrected. Contrary to the above, as of June 29, 2012, the licensee failed to correct a non-conformance associated with lead blankets on safety-related piping, which is a condition adverse to quality. Specifically, the licensee did not evaluate the modified piping as required by ASME Boiler and Pressure Vessel Code Section III in order to correct a non-conforming condition identified by the NRC in September of 2011.

Because this violation was of very low safety significance and it was entered into the licensee's CAP as IR 1383554, it is being treated as an NCV, consistent with Section 2.3.2 of the NRC Enforcement Policy. **(NCV 05000456/2012007-01; Non-Conforming Piping Condition Not Corrected)**

(3) Effectiveness of Corrective Action

Based on the results of the inspection, the inspectors concluded that the licensee was adequate in implementing corrective actions in a timely manner to address identified deficiencies, commensurate with their safety significance, including an appropriate consideration of risk. Problems identified using root or apparent cause methodologies were resolved in accordance with the CAP and applicable procedural requirements. Corrective actions designed to prevent recurrence were generally comprehensive, thorough, and timely. The inspectors sampled corrective action assignments for selected NRC-documented violations and determined that actions assigned were

generally effective and timely. However, in many instances, the effectiveness of the corrective actions was impacted by the lack of vigor in evaluating issues, as described in the previous section. This had resulted, in some cases, in rework and NRC enforcement actions.

The inspectors also identified that there were over 3600 open IRs at the time of the inspection. More than 12 percent of these open IRs were greater than 1 year old. The inspectors also identified that the number of outstanding corrective actions was relatively large with three IRs having corrective actions that were over 1700 days old. The inspectors reviewed a sample of these IRs and determined that most of the remaining actions were enhancements and the due dates for the actions had been extended a number of times due to resource limitations or other emergent issues. Other outstanding actions were associated with License Amendment Requests or modifications to the plant. The inspectors verified that the sampled IRs were evaluated and actions assigned appropriately. The inspectors concluded that most of these corrective actions were considered timely due to the relatively long lead time required for modification or for NRC approval. The inspectors regarded this aging IR issue as an improvement opportunity since the outstanding actions, even when some were considered enhancements, could potentially affect the licensee's focus on more important safety issues and complicate resource utilization.

i) Observations:

Untimely Implementation of Corrective Action to Prevent Recurrence

The inspectors identified one example of untimely implementation of corrective actions to prevent recurrence (CAPR). This subject CAPR was to apply human factors to the design of several control room annunciator windows to alert operators of the need to perform immediate actions to address a TS Limiting Condition for Operation (LCO). These actions were being performed to address a previous failure to perform actions required by TSs for an inoperable Boron Dilution Prevention System as described in IR 1101873. The CAPR was approved by the MRC in 2010, but the action was still being evaluated at the time of this inspection. The inspectors determined that because the issue did not involve a safety-related system and the other corrective actions, such as procedure revisions, were in place to prevent recurrence of the event, the issue was not subject to NRC enforcement action.

Degraded Fire Barriers

The inspectors followed up on the licensee's corrective actions to previously issued NRC findings and violations. One of the previously issued violations was NCV 05000457/2010005-01, "Degraded Fire Seal Between Two Fire Zones." This issue was initially documented in IR 1126534 and 1126594. The inspectors noted that the issue of degraded fire seals actually dated back to performance of a fire-rated barriers inspection in 1999. At that time, the fire seals had surface degradation that did not adversely affect seal operability, but could in the future if not repaired. Several work requests were opened to repair the seals, but none of the work was performed.

In August 2007, the licensee identified a partially missing fire seal and initiated IR 659293. They performed an extent of condition assessment, which was documented

in IR 666968. The licensee concluded that the seals were intact and operable, but with surface degradation. It was also noted at the time that the work requests generated in 1999 had not been performed. The licensee subsequently closed those work requests to new Work Orders (WOs). In October 2010, NRC inspectors identified degraded fire seal conditions that were the subject of IR 1126534 and NCV 05000457/2010005-01. At that time, the WOs created in 2007 had not been completed.

During this PI&R inspection, the inspectors noted that many of the WOs created in 2007 had still not been completed, though some fire seals had been repaired. The remaining WOs were scheduled at various times in 2012 and 2013.

The inspectors determined that this issue represented poor performance in terms of CAP timeliness and effectiveness. While the fire seals were intact and operable, with the exception of the issue documented in NCV 05000457/2010005-01, engineering stated in numerous IRs that the seals would continue to degrade to the point of inoperability if they were not repaired in a timely manner. The inspectors considered this to be an example of untimely correction of a non-conforming condition. The inspectors considered many of these examples to represent a failure to comply with 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings." However, because the seals were intact and operable throughout the time period in question, with the exception of the fire seal described in NCV 2010005-01, these issues constituted violations of minor significance that were not subject to enforcement action in accordance with the NRC's Enforcement Policy. This issue was entered into the licensee's CAP as IR 1383304.

ii) Findings:

Surveillance Procedure Not Followed

Introduction: The inspectors identified a finding of very low safety significance (Green) and an associated NCV of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," when licensee personnel failed to adhere to Surveillance Procedure BwHS 4002-012, Revision 9, "AF Nickel Cadmium Battery Surveillance." Specifically, the licensee failed to identify open spaces between the wooden shim blocks and the end of the battery rack for the Unit 1 and Unit 2 diesel-driven AF pump batteries, which represented a seismic concern.

Description: On May 6, 2010, the NRC issued Inspection Report 05000456/20100007; 05000457/2010007 following a Component Design Bases Inspection. That inspection identified that the licensee failed to provide adequate justification as to why the existing wooden shim blocks would seismically qualify the mounting of the diesel-driven AF pump batteries in a postulated seismic event, given several 0.25 inch gaps that were identified. As a corrective action to this NCV, the licensee revised the surveillance procedure to add a note fully explaining the requirements for the shims.

While performing a walkdown of corrective actions from the NCV on June 19, 2012, the inspectors identified that there were wooden shim blocks that were fitting very loosely at the end of battery racks 1/2AF01EA-B and 1/2AF01B-B. Per surveillance procedure, BwHS 4002-012, the acceptance criterion was to fill the open space between the wooden spacer blocks and to have minimum or no free play so that the blocks could

not be easily knocked loose at the end of the battery racks. The shims were required to be the same height as the existing wooden shim blocks and all shims were required to fit snugly (but not force fit). The inspectors reviewed the completed surveillance for June 2012 and determined that the surveillance was documented as satisfactory, but should not have been given the existing shim conditions. The licensee entered the issue into the CAP as IR 1379674 and planned to replace the shim blocks.

Analysis: The inspectors determined that licensee's failure to follow Surveillance Procedure BwHS 4002-012, Revision 9, "AF Nickel Cadmium Battery Surveillance," was a performance deficiency. The performance deficiency was determined to be more than minor 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. Specifically, the licensee failed to ensure that batteries were constrained from sliding along the rack to avoid over-stressing the end or base of the racks as specified in the seismic qualification document.

The inspectors determined that the finding could be evaluated using the SDP in accordance with IMC 0609, Attachment 4, "Phase 1 - Initial Screening and Characterization of Findings." Using Table 2, the inspectors determined the issue affected the Secondary Heat Removal Function of the Mitigating Systems Cornerstone. Using the Mitigating Systems cornerstone questions in Table 4a, the inspectors determined that the finding was a design or qualification deficiency confirmed not to result in loss of operability or functionality. Therefore, the finding was determined to be of very low safety significance (Green).

The inspectors determined that this finding had a cross-cutting aspect in the Work Practices component of the Human Performance cross-cutting area [H.4(b)] because the licensee failed to effectively communicate expectations regarding the acceptance criteria of the surveillance procedure.

Enforcement: Title 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires, in part, that activities affecting quality shall be prescribed by documented instructions, procedures, or drawings of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedure, or drawings. Braidwood procedure BwHS 4002-012, Revision 9, "AF Nickel Cadmium Battery Surveillance," prescribes the safety-related battery surveillance, which is an activity affecting quality. The acceptance criterion in Step 6.4 of that procedure states, "Ensure wooden spacer blocks are installed tightly in the battery rack." Contrary to the above, the licensee failed to accomplish an activity affecting quality. Specifically, the licensee failed to identify gaps in AF pump battery racks between the wooden shim blocks and the end frames and had shims that did not meet the conditions specified in the procedure note that applies to Step 6.4.

Because this violation was of very low safety significance and it was entered into the licensee's CAP as IR 1383554, it is being treated as an NCV, consistent with Section 2.3.2 of the NRC Enforcement Policy. **(NCV 05000456/2012007-02; Surveillance Procedure Not Followed)**

Untimely Completion of a Corrective Action to Prevent Recurrence

Introduction: The inspectors identified a finding of very low safety significance (Green) when licensee personnel failed to follow procedure LS-AA-125-1001, "Root Cause Analysis Manual," Attachment 12, CAPR Attributes, in the implementation of CAPRs. Specifically, actions taken to date in response to the Unit 1 reactor trip on August 16, 2010, did not meet the criteria in procedure LS-AA-125-1001, Attachment 12, for being timely, effective, and long-lasting (i.e. not temporary).

Description: On August 16, 2010, the site experienced reactor trips of both units within approximately 15 minutes for unrelated reasons. The details of the event are documented in NRC Inspection Reports 05000456/2010004; 05000457/2010004 and 05000456/2010010; 05000457/2010010. Following the Unit 2 reactor trip, condenser hotwell level rose to the point where a hotwell reject occurred. This transferred water into a piping header that communicates with the CST, AF system, and several other plant water systems. The piping header contained a stand pipe that was open-ended onto the turbine deck. When the hotwell reject occurred, approximately 12,000 gallons of water spilled from the stand pipe onto the turbine deck. This water dripped into a Unit 1 motor control center on a lower elevation and caused two Unit 1 circulating water pumps to trip. As a result of reduced condenser vacuum, the Unit 1 turbine and reactor tripped as designed.

The licensee performed a root cause evaluation of the Unit 1 reactor trip and identified two root causes. Root Cause #1 was determined to be an inadequate design of the AF stand pipes. The assigned CAPR for root cause #1 was to install a design feature on the AF stand pipe which prevents water spill events. The licensee's root cause evaluation also stated that two condensate system valves, 1/2CD142 and 1/2CD145, should be closed as an interim correction action for the respective units. The Engineering Change evaluation for changing the operating configuration of these two valves was approved on August 19, 2010 and procedures were revised to implement this action. The revised procedures directed operators to position a temporary catch containment at the discharge of the standpipes during a hotwell reject due to high hotwell level or the transfer of water between the hotwells and CSTs for temperature control.

On October 17, 2010, during a Unit 1 refueling outage, Operations personnel were refilling portions of the condensate system when it was discovered that a substantial amount of water was overflowing onto the turbine deck from the Unit 1 AF stand pipe. The overflow was terminated when the CSTs for each unit were cross-tied. The licensee performed a Prompt Investigation of the issue and determined the cause to be system design. Operations Standing Order 10-16 was created to control CST level at or below 91 percent, to provide guidance on filling systems with water slowly, and to station a watch at the stand pipes to identify overflow conditions. Even with closing the two condensate system valves, these actions might not prevent overflow for all system line-ups and operations.

The root cause evaluation for the August 16, 2010, Unit 1 reactor trip was completed on November 11, 2010. On June 14, 2011, the licensee documented in CAP that the installation of a vacuum breaker valve on the Unit 1 and Unit 2 standpipes would prevent water overflow. The licensee approved the design change on January 26, 2012, for

inclusion in the Unit 1 and Unit 2 refueling outages in October 2013 and May 2014, respectively.

On April 5, 2012, the licensee generated IR 1350723 to evaluate revising the root cause evaluation to remove the CAPR to install the modification on the AF standpipe. Instead, the licensee desired to credit the plant lineup changes and administrative controls previously implemented as the CAPR. As of the conclusion of the inspection period, the licensee had not completed the originally documented CAPR #1 and had also not completed their determination of whether to change the CAPR from a design modification to the existing actions.

The inspectors concluded that the actions taken to date, which were the closure of valves 1/2CD142 and 1/2CD145 and related procedure revisions, controlling CST level via Standing Order 10-16, and the use of temporary catch containments did not meet several of the CAPR attributes contained in licensee procedure LS-AA-125-1001, "Root Cause Analysis Manual," Attachment 12. Specifically, these actions did not meet the attributes of being timely, effective, and long lasting (i.e. not temporary). The attribute of timeliness was not met because the licensee was continuing to evaluate what the appropriate CAPR was and the existing CAPR had not been completed. The attribute of effectiveness was not met because the actions taken to date would still result in a pressurized system open to the turbine deck under manual hotwell reject and water transfer conditions, which might result in water overflow. The attribute of long lasting (i.e. not temporary) was not met because the credited catch containments were temporary devices and the control of CST level remained under a temporary process (Operations Standing Order). In addition, the inspectors identified that the credited catch containments had been missing for several months.

Analysis: The inspectors determined that the failure to follow procedure LS-AA-125-1001, "Root Cause Analysis Manual," Attachment 12, in the implementation of CAPRs was a performance deficiency. Specifically, actions taken to date in response to the Unit 1 reactor trip on August 16, 2010, did not meet the attributes in procedure LS-AA-125-1001, Attachment 12, CAPR Attributes, for being timely, effective, and long-lasting (i.e. not temporary). In accordance with IMC 0612, Appendix B, the inspectors determined the issue was more than minor because the performance deficiency could be reasonably viewed as a precursor to a significant event and, if left uncorrected, has the potential to lead to a more significant safety concern. Specifically, the licensee continued to rely on administrative controls, temporary catch containments, and transferring water "slowly" to prevent water overflow events rather than eliminating the problem with a permanent modification to the stand pipes. As a result, the potential for water overflow events, while reduced, would not prevent recurrence.

The inspectors performed a significance review of the finding in accordance with IMC 0609, Attachment 4, "Initial Characterization of Findings." In accordance with Table 2, the inspectors determined the issue affected the Transient Initiator Contributor function of the Initiating Events Cornerstone. The inspectors answered 'No' to the Transient Initiators questions in Table 4a and, as a result, the finding screened as having very low safety significance (Green).

This finding had an associated cross-cutting aspect in the CAP component of the PI&R cross-cutting area. Specifically, the licensee did not take timely and appropriate

corrective actions to prevent recurrence in response to the August 16, 2010, Unit 1 reactor trip [P.1(d)].

Enforcement: The inspectors determined that this finding does not involve any violation of regulatory requirements. The licensee entered the issue into the CAP as IR 1395327. **(FIN 05000456/2012007-03; 05000457/2012007-03; Untimely Completion of a Corrective Action to Prevent Recurrence)**

.2 Assessment of the Use of Operating Experience

a. Inspection Scope

The inspectors reviewed the licensee's implementation of the OPEX program. Specifically, the inspectors reviewed the OPEX program implementing procedures, and completed evaluations of OPEX issues and events. The inspectors determined whether the licensee was effectively integrating OPEX experience into the performance of daily activities, whether evaluations of issues were proper and conducted by qualified personnel, whether the licensee's program was sufficient to prevent future occurrences of previous industry events, and whether the licensee effectively used the OPEX information in developing departmental assessments and facility audits. The inspectors also assessed if corrective actions, as a result of OPEX experience, were identified and implemented in an effective and timely manner.

b. Assessment

Based on the results of the inspection, the inspectors concluded that in general, OPEX was effectively used at the station. The inspectors observed that OPEX was discussed as part of the daily station and pre-job briefings. Industry OPEX was effectively disseminated across plant departments and no issues were identified during the inspectors' review of licensee OPEX evaluations. During various discussions with licensee staff, several licensee personnel commented favorably on the use of OPEX in their daily activities. Although, in general, OPEX was effectively used at the station, in one case, OPEX was not properly evaluated as discussed below.

c. Findings

Failure to Follow Corrective Action Program Procedure

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 initiate an IR in accordance with the CAP procedure. Specifically, the licensee failed to initiate an IR and perform an operability determination during a 10 CFR Part 21 Notification evaluation.

Description: On January 14, 2011, ABB Inc. (ABB) issued a 10 CFR Part 21 Notification associated with potential defects in overcurrent relays. The potential concern dealt with seismic specifications of COM 5, COM 9, and COM 11 relays. ABB stated that the zero period acceleration rating on its quality Certificate of Conformance document was incorrect, whereas a higher "g" value was reported. The licensee completed and

approved OPEX evaluation 1165423, "ENS [Event Notification System] 46545 – Part 21 Notification of Potential Defect for Overcurrent Relays," on April 29, 2011, after they reviewed the information.

Licensee staff determined during the OPEX evaluation that COM 5 and COM 11 relays were installed in safety-related 6.9 kilovolt (kV) switchgear in the plant as documented in Blocks I and III of the evaluation.

Block II of the evaluation required the OPEX evaluator to:

Evaluate the component(s)..... to determine if similar deficiencies are present that could represent potential operability issues. Provide sufficient justification to support whether potential operability concerns may exist. If an operability concern is established, provide the associated IR number. IR # _____

The evaluator documented in his response that it was not possible to make an operability determination at that time because there was inadequate information from the relay vendor, ABB. The licensee further documented their response as:

Since we do not have definitive information available to perform a detailed technical evaluation at this time, there is no need to evaluate the potential impact on operability, i.e. this issue is not in operability space at this time.

Block IV of the evaluation stated, in part, that, "an IR must be initiated for any/all conditions adverse to quality that were identified in this evaluation." The licensee staff, during their review, did not identify the potential seismic qualifications of the relays as a condition adverse to quality (CAQ), and therefore did not initiate an IR. The licensee's CAP procedure, LS-AA-125, Step 4.1.2, stated that:

If at any time a SCAQ or CAQ or any question of either current or past Operability/Reportability arises, then initiate an issue report in accordance with LS-AA-120.

Procedure LS-AA-120, "Issue Identification and Screening Process," required that all nuclear personnel and contractors identify any conditions that could have an undesirable effect on the performance of equipment, personnel, or organizations; ensure immediate actions are taken to place the situation in a safe condition; verbally report to a supervisor or the control room; and properly document the issue. Operations shift management was also required by LS-AA-120 to ensure appropriate immediate actions were taken, including determining impact on operability and reportability, and that operations management should complete these reviews within the same shift, with the operability determination completed within 24 hours.

Step 1.2 of Procedure OP-AA-108-115, "Operability Determinations," required that:

Whenever the ability of an SSC (structure, system, or component) to perform its specified safety function is called into question, operability must be determined from a detailed examination of the deficiency.

Step 4.1.2 of Procedure OP-AA-108-115 stated:

If the Originator or Supervisor identifies any potential operability or reportability issues, then the Originator or Supervisor shall personally CONTACT Operations Shift Management of the affected unit and DISCUSS the issue.

The inspectors determined that the OPEX evaluator failed to initiate an IR and submitted it to the operations shift management for their review once the OPEX evaluator identified that potentially degraded safety-related components were installed in the plant. An operability determination was never performed. On February 28, 2012 the licensee completed design analysis BYR12-025/BRW-12-0033-E, "Review ABB Seismic Qualification Report for COM Overcurrent Relays Installed in Westinghouse 6.9 kV Switchgear (ABB Report No. CTR-COM-SUM, Rev. 01)," and determined that the seismic qualification of the relays was suitable for their intended applications in the 6.9 kV switchgear. However, if the analysis had determined that the seismic qualification had been inadequate the plant would have operated for 10 months with the degraded components.

The inspectors determined that the OPEX evaluation was performed by staff at the Byron Station and then incorporated into the Braidwood Station evaluation. During the 2011 Problem Identification and Resolution Inspection at Byron (ADAMS Accession Number ML112910140), the NRC inspectors identified a similar concern with Byron's evaluation. Licensee staff at Braidwood was not aware of the issue at Byron.

The licensee entered this issue into their CAP as IR 1378432, "Braidwood Wasn't Notified of a Byron OP Evaluation," and the operations shift manager determined that there were no past operability or reportability issues. The conclusion was documented in design analysis BYR12-025/BRW-12-0033-E.

Analysis: The inspectors determined that the failure to initiate IRs in accordance with the CAP procedure was contrary to 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," and was a performance deficiency. Specifically, the licensee failed to initiate an IR and perform an operability determination during a 10 CFR Part 21 Notification evaluation.

The finding was determined to be more than minor because the finding, if left uncorrected, could become a more significant safety concern. Specifically, if operations staff is not made aware of potentially degraded safety-related components they may not perform an operability determination and continue operating the plant with the degraded components. The inspectors concluded this finding was associated with the Mitigating Systems Cornerstone.

The inspectors determined the finding could be evaluated using the Significance Determination Process in accordance with IMC 0609, "Significance Determination Process," Attachment 0609.04, "Phase 1 - Initial Screening and Characterization of Findings," Table 4a, "Characterization Worksheet for IE, MS, and BI Cornerstones," for the Mitigating Systems Cornerstone. The inspectors confirmed that the finding did not result in a loss of operability or functionality per Part 9900, Technical Guidance, "Operability Determination Process for Operability and Functional Assessment," because the licensee was able to demonstrate that the seismic qualification of the relays was suitable for their intended applications in the 6.9 kV switchgear. Therefore, this finding was of very low safety significance (Green).

This finding had a cross-cutting aspect in the Operating Experience component of the PI&R cross-cutting area because the licensee did not systematically evaluate and communicate relevant operating experience to affected internal stakeholders. Specifically, the individual performing the 10 CFR Part 21 notification evaluation did not communicate to operations personnel that a potentially degraded component was installed in safety-related equipment in the plant [P.2(a)].

Enforcement: Title 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires, in part, that activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings. Procedure LS-AA-125, Revision 16, "Corrective Action Program (CAP) Procedure," is a quality procedure and requires, in part, that "If at any time a SCAQ or CAQ or any question of either current or past Operability/Reportability arises, then initiate an issue report in accordance with LS-AA-120." Procedure LS-AA-120, Revision 14, "Issue Identification and Screening Process," requires that all nuclear personnel and contractors identify any conditions that could have an undesirable effect on the performance of equipment, personnel, or organizations and properly document the issue. LS-AA-120 also requires that operations shift management takes appropriate immediate actions.

Contrary to the above, from April 29, 2011 until February 28, 2012, the licensee failed to follow the instructions in accordance with Procedure LS-AA-125. Specifically, the licensee failed to initiate an issue report and perform an operability determination once an incorrect zero period acceleration rating were identified for safety-related components during a 10 CFR Part 21 Notification evaluation.

Because this violation was of very low safety significance and it was entered into the licensee's CAP as IR 1378432, this violation is being treated as an NCV, consistent with Section 2.3.2 of the NRC Enforcement Policy. **(NCV 05000456/2012007-04; 05000457/2012007-04, Failure to Follow Corrective Action Program Procedure)**

.3 Assessment of Self-Assessments and Audits

a. Inspection Scope

The inspectors reviewed selected Focused Area Self-Assessments (FASAs), check-in self assessments, root cause effectiveness reviews, and Nuclear Oversight (NOS) audits. The inspectors evaluated whether these audits and self-assessments were effectively managed, adequately covered the subject areas, and properly captured identified issues in the CAP. In addition, the inspectors interviewed licensee personnel regarding the implementation of the audit and self-assessment programs.

b. Assessment

Based on the results of the inspection, the inspectors concluded that self-assessments and audits were typically accurate, thorough, and effective at identifying issues and enhancement opportunities at an appropriate threshold. The inspectors concluded that these audits and self-assessments were completed by personnel knowledgeable in the subject area. In many cases, these self-assessments and audits had identified

numerous issues that were not previously recognized by the station. For example, NOS had identified a number of Significance Level 3 issues for the site to address since the last biennial PI&R inspection. These issues included weaknesses in management oversight of the CAP. Although NOS had lifted their escalation (increased oversight) of the CAP, the inspectors still had concerns on the licensee's ability to maintain this focus, as evidenced by the findings and observations described above.

c. Findings

No findings were identified.

.4 Assessment of Safety Conscious Work Environment

a. Inspection Scope

The inspectors interviewed selected Braidwood Station personnel to determine if there were any indications that licensee personnel were reluctant to raise safety concerns, both to their management and the NRC, due to fear of retaliation. In addition, the inspectors discussed the implementation of the ECP with the ECP coordinators, and reviewed ECP activities to identify any emergent issues or potential trends. The inspectors also assessed the licensee's SCWE through a review of ECP implementing procedures, discussions with ECP coordinators, interviews with personnel from various departments, and reviews of IRs. The licensee's programs to publicize the CAP and ECP programs were also reviewed. The inspectors reviewed the licensee's semi-annual safety culture survey to assess if there were any organizational issues or trends that could impact the licensee's safety performance.

b. Assessment

The inspectors did not identify any issues that suggested conditions were not conducive to the establishment and existence of a SCWE at Braidwood Station. Licensee staff was aware of and generally familiar with the CAP and other station processes, including the ECP, through which concerns could be raised. In addition, a review of the types of issues in the ECP indicated that site personnel were appropriately using the CAP and ECP to identify issues. The staff also indicated that management had been supportive of the CAP by providing time and resources for employee to generate their own issue reports.

The staff also expressed a willingness to challenge actions or decisions that they believed were unsafe. All employees interviewed noted that any safety issue could be freely communicated to supervision and safety significant issues were being corrected. Some employees indicated a small degree of frustration related to low level items not being corrected in a timely manner. The inspectors determined that the timeliness of the planned corrective actions for the examples given were commensurate with their safety significance.

c. Findings

No findings were identified.

4OA6 Management Meetings

a. Exit Meeting Summary

On September 29, 2012, the inspectors presented the inspection results to Mr. J. Bashor, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspectors confirmed that none of the potential report input discussed was considered proprietary.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

J. Bashor, Acting Plant Manager
D. Baracco, Radiation Protection Supervisor
S. Butler, Site Corrective Action Program Manager
C. VanDenburgh, Regulatory Assurance Manager
J. Rappeport, Chemistry Manager
R. Radulovich, Nuclear Oversight Manager
B. Schipiour, Maintenance Director
M. Sears, Engineering Programs Manager
G. Stopka, Shift Operations Superintendent

NRC

E. Duncan, Branch Chief

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

05000456/2012007-01	NCV	Non-Conforming Piping Condition Not Corrected (Section 40A2.1.b.2.ii)
05000456/2012007-02	NCV	Surveillance Procedure Not Followed (Section 40A2.1.b.3.ii)
05000456/2012007-03; 05000457/2012007-03	FIN	Untimely Completion of a Corrective Action to Prevent Recurrence (Section 40A2.1.b.3.ii)
05000456/2012007-04; 05000457/2012007-04	NCV	Failure to Follow Corrective Action Program Procedure (Section 40A2.2.c)

Closed

05000456/2012007-01	NCV	Non-Conforming Piping Condition Not Corrected (Section 40A2.1.b.2.ii)
05000456/2012007-02	NCV	Surveillance Procedure Not Followed (Section 40A2.1.b.3.ii)
05000456/2012007-03; 05000457/2012007-03	FIN	Untimely Completion of a Corrective Action to Prevent Recurrence (Section 40A2.1.b.3.ii)
05000456/2012007-04; 05000457/2012007-04	NCV	Failure to Follow Corrective Action Program Procedure (Section 40A2.2.c)

Discussed

None

LIST OF DOCUMENTS REVIEWED

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

Issue Reports

IR 659293	Cerablanket Missing from Fire Seal	August 10, 2007
IR 666968	Byron Seismic Gap Seal Issue – Braidwood Extent of Condition	August 31, 2007
IR 675805	Unit 1 (Area 5) Seismic Gap Repairs – IR 666968 EOC	September 26, 2007
IR 675807	Unit 2 (Area 7) Seismic Gap Repairs – IR 666968 EOC	September 26, 2007
IR 675812	Unit 1 Containment Outdoor Seismic Gap Repairs – IR 666968 EOC	September 26, 2007
IR 675813	Unit 2 Containment Outdoor Seismic Gap Repairs – IR 666968 EOC	September 26, 2007
IR 770884	FME Event – A2R13 Initial FOSR – Foreign Object Identified	May 2, 2008
IR 813142	Abnormal System Response During 1SX01PA ASME	September 2, 2008
IR 852770	Results of RCMT Audit of OPS Procedures	December 5, 2008
IR 1018119	CDBI FASA Additional Actions Required to Address EDG Frequency Variation	January 19, 2010
IR 1030831	Midcycle Gap PI.1-2 Management Not Intrusive in CAP	February 15, 2010
IR 1048015	CDBI Identified Instrument Uncertainty Not Used in CS Surveillance	March 23, 2010
IR 1050763	CDBI Identifies Instrument Uncertainty Not factored Into CS Surveillance	March 31, 2010
IR 1076651	Six PMs are Past Late for Chemistry Dept.	May 29, 2010
IR 1082508	NRC Baseline Inspection Exit Meeting Follow-up Requested	June 20, 2010
IR 1086764	NOS ID – Seismic Evaluation Not Documented in an ER	July 1, 2010
IR 1088765	CC Operations Inconsistent With Documents Submitted to NRC	July 8, 2010
IR 1101858	Unit 1 Trip Due to Loss of Circulating Water	August 16, 2010
IR 1101873	Unplanned Entry Into LCO 3.3.9 and 3.0.3	August 16, 2010
IR 1102706	Assessment of Done Siding Damage and Additional Actions	August 17, 2010
IR 1106404	NRC Id'd Potential Effects of Containment Buttress Panels	August 26, 2010

IR 1106410	Evaluation Process for Forebay Inspection Results Needs Review	August 26, 2010
IR 1106414	Non-Conservative Liquid Discharge Alarm Setpoints	August 26, 2010
IR 1109712	NOS ID – Op Eval Corrective Action Tracking	September 3, 2010
IR 1112646	NRC/IEMA Questions to WEC	September 13, 2012
IR 1114604	Concern with Operability Determination	September 17, 2010
IR 1121912	RCS Pressure Transient During VCT Level Transient	October 4, 2010
IR 1122038	DC Bus 123 Ground Detector – No Time Delay (1ER-DC09E)	October 5, 2010
IR 1124021	Individual Entered High Radiation Area Without HRA Brief	October 8, 2010
IR 1126534	Seal Between Floor and Containment Wall Pulled Away From Wall	June 14, 2010
IR 1126594	Unit 1 Need Seismic Gap Repaired – Electrical Pen Area	October 14, 2010
IR 1127314	Overflow of the 1RC087A Vent Line	October 17, 2010
IR 1129838	A1R15 LL – Radiological Event – Multiple PCEs	October 22, 2010
IR 1132998	Missed Samples for 2RE-PR002	October 29, 2010
IR 1135933	NOS IDs Op Eval Discrepancies	November 5, 2010
IR 1136054	Pressurizer Heater Structural Failures in a Westinghouse PWR	November 5, 2010
IR 1139383	Noble Gas Channel Setpoint for Control Room Intake Incorrect	November 12, 2010
IR 1139610	Potential Non-Conservative Tech Specs for Component Cooling	November 12, 2010
IR 1139618	Potential Non-Conservative Tech Specs for CC and RH	November 12, 2010
IR 1140025	Debris in Various Battery 223 Cells	November 14, 2010
IR 1141377	Additional Actions for Potential Non-Conservative TS	November 17, 2010
IR 1142307	NOS ID, Low Level Issues Re-Occurring/Not Addressed for CA	November 11, 2010
IR 1144077	1FP124 Limit Switch Bumped During Cleaning Activities	November 23, 2010
IR 1146544	2A RH Pump ASME Failed 2% Acceptance Criteria	November 30, 2010
IR 1148143	2A RH Pump MIN Flow Trending Downward	December 3, 2010
IR 1150364	NOS ID: Mission Time Not Addressed for 1VX04C	December 7, 2010
IR 1155372	RH System Issue Resulting in LER – Tracking	December 22, 2010
IR 1155372	RH System Issue Resulting in LER	December 22, 2010
IR 1155389	WCAP-16631 Data Error in B/B Gas Intrusion Calc	December 22, 2010

IR 1155389	WCAP-16631 Data Error in B/B Gas Intrusion Calc	December 22, 2010
IR 1173073	NOS ID'd Improper Closing of CA and Op Eval Not Revised	February 29, 2011
IR 1174764	Impact of Voids in SI Accumulator Lines Not Accounted For	February 14, 2011
IR 1176942	Unit 2 RCS in Action level 1 for Low Lithium	February 18, 2011
IR 1177681	Unit 2 in Action Level 1 for Low RCS Lithium	February 19, 2011
IR 1182804	Configuration Management Deficiencies	March 3, 2011
IR 1183342	NOS ID: Impact on Unit 1 SI from 1A SI Leak	February 25, 2011
IR 1184265	NOS Escalation – CAP Performance	March 7, 2011
IR 1191244	Investigate RXS Head Flange and O-Ring Inspection Processes	March 23, 2011
IR 1191497	Westinghouse – Exciter PCM Template or Circuit Card Templates	March 24, 2011
IR 1193357	NRC Questions on AF Suction Void Op Eval 11-03	March 25, 2011
IR 1199223	HELB Past Operability Review	April 7, 2011
IR 1199930	NRC SIT Questions UE Declaration Time	April 8, 2011
IR 1202772	NRC Questions on Auxiliary Feedwater Pump Suction Piping	April 8, 2011
IR 1204004	Failed TS Surveillance Criteria K630 K638 FW Test	April 18, 2011
IR 1204398	Action Tracking Items in Response to IR 1155389	April 19, 2011
IR 1206309	125V DC Batt CHGR 212 Trouble Alarm Received and Cleared	April 22, 2011
IR 1209312	Level 1 Personnel Contamination Event	April 28, 2011
IR 1211958	Overdue RP Predefine Surveillance	May 4, 2011
IR 1212908	Breaker Clearance and Tagging Event	April 28, 2011
IR 1215761	2A RH Pump Seal and Bolt Leak	May 13, 2011
IR 1218755	EC 384507 for Past Inoperability of the 2A AF Train	May 21, 2011
IR 1221226	IEMA Identified Loose Debris in Unit 2 Transformer Yard	May 26, 2011
IR 1238177	NRC Green Finding – Failure to Document Operability of AFW	June 16, 2011
IR 1238860	BEACON Error in Calculation of FQ Power Margin	July 12, 2011
IR 1240236	Uncontrolled Contingency Weapon in Weapons Cabinet	July 15, 2011
IR 1241998	NOS ID: Issues from HELB Op Eval Review	July 15, 2011
IR 1242813	Potential Part 21 for Hydramotors	July 21, 2011
IR 1242942	NRC Comments on Op Eval 11-006 Rev. 1	July 22, 2011

IR 1246870	IEMA Informed WEC of Unsecured Material in Secured Zone	August 1, 2011
IR 1247294	New Radiological Hot Spot Identified in AUX Building	August 3, 2011
IR 1247386	NOS Elevation: Inadequate Control of TCCs	August 3, 2011
IR 1248918	Safety Near Miss Chemical Spill at LSH	August 8, 2011
IR 1249480	Potential Sediment in 125K DOST – 0DO03T	August 9, 2011
IR 1251726	0DO03T Has Higher Than Normal Particulate Levels	August 16, 2011
IR 1257366	Adverse Trend Identified in EMD	August 30, 2011
IR 1257969	Calculations Use AOVs as Relief Valves	October 27, 2011
IR 1265054	Procedure REV Needed RP-BR-825-1037	September 19, 2011
IR 1267356	NRC Mod 50.59 Inspection Pipe Support Calculations	September 23, 2011
IR 1269227	NRC Mod/50.59 Inspection – Use of NCIG-05 for Lead Shielding	September 28, 2011
IR 1271013	Three Dimensional Corrosion Found on 125 VDC ESF Battery 112	October 1, 2011
IR 1271810	Effluent Monitor Setpoint Determination	October 3, 2011
IR 1273864	1A EDG Cooling Valve Opened Unexpectedly	October 7, 2011
IR 1276888	NRC Question – Effects of TB HELB on Reactor Trip Breakers	October 14, 2011
IR 1279543	NRC Challenged Handling of HELB Single Failure	August 12, 2011
IR 1282782	NRC Questioned Why Door D-855 Was Held Open During a Fire Drill	October 28, 2011
IR 1284080	Past Operability Review of HELB Rollup Doors	October 31, 2011
IR 1288384	Change Management Impacts Associated with ODCM Revision	November 9, 2011
IR 1288474	Potential Green NCV – Classification of EQ Zones from HELB	November 8, 2011
IR 1289597	Braidwood Lake High Alkalinity May Require Sulfuric Acid Add	November 11, 2011
IR 1291688	NRC Green Finding – Shells ID'd in 2A AF Pump SX Suction Pipe	November 9, 2011
IR 1291695	NRC Green Finding – Failure to Analyze Configuration of SX to AF	November 9, 2011
IR 1292097	Procedural Enhancement Required for LCO Entry Conditions	November 18, 2011
IR 1293363	Ongoing Issues at Braidwood with AR/PR Setpoint Calculations	November 22, 2011
IR 1293363	Ongoing Issues at Braidwood with AR/PR Setpoint Calculations	November 22, 2011

IR 1295149	Instrument Calibration Issues Identified in 0/1/2BWOS AB-1	November 28, 2011
IR 1299906	NRC ID'd Missed 10 CFR 50.73 Notification for HELB Design	March 8, 2012
IR 1300907	BWOP FW-23 Enhancement Needed	December 11, 2011
IR 1301672	Enhancement to BWOP FW 23 and FW-7	December 13, 2011
IR 1304939	Design Change Quality Below Expectations	December 19, 2011
IR 1307401	NRC Concern on Station Handling of HELB Barriers	December 28, 2011
IR 1307403	NRC Concern – AF/SX Cross-Tie Line Draining Due to Valve Leakage	December 28, 2011
IR 1314133	Security Officer Slipped and Twisted Right Ankle	January 17, 2012
IR 1326152	NRC Green Finding – HELB Operability Evaluation	March 8, 2012
IR 1327209	Oil Drain Modification Actions Needed ASAP	February 15, 2012
IR 1331097	NOS ID: Op Eval Comp Action Implementation Deficiency	February 23, 2012
IR 1337484	Unnecessary Level 2 IRs for Weather Related Events	March 7, 2012
IR 1337661	Compensatory Measure for Op Eval 11-11 Not Being Performed	March 7, 2012
IR 1339645	EFR Bryozoa Depth Success Criteria Not Consistent with CAPR	March 12, 2012
IR 1344137	Acceptance Criteria for Bryozoa Depth Not Developed	February 25, 2012
IR 1348776	Need Clarification for Instructions of HRS Key Tag	April 1, 2012
IR 1349305	Dust/Lint Fire in Unit 1 Turbine Building	April 2, 2012
IR 1350723	Evaluate Revising Root Cause Report 1101858	April 5, 2012
IR 1353728	TB-12-5, Baffle Bolt Failures in W Downflow Plant Issued	April 13, 2012
IR 1355707	Security to Perform a CCA on Documentation Processes/Issues	April 18, 2012
IR 1359300	Training: Firewatch Extinguishes Smoldering Insulation	April 26, 2012
IR 1361456	Unit 1 Refuel Machine Trolley Wheels Identified Off Rails	May 2, 2012
IR 1362040	1B Main Condenser Zone Tube Bundle Cleaning Failed Inspection	May 3, 2012
IR 1364132	NRC ID: Variance in Adverse Weather Reports	May 6, 2012
IR 1366538	3Q10 NRC Green Finding – Lack of CST Op Eval	October 27, 2010
IR 1366625	4Q2010 Severity Level IV Violation – Untimely LER Submittal	May 15, 2012
IR 1366625	4Q10 Severity Level IV Violation – Untimely LER Submittal	February 8, 2012

IR 1367970	Missed ENS Call on Unit 1 CRDM Penetration 69	April 23, 2012
IR 1368315	NRC Questions Regarding Turbine Building GOTHIC Analyses	May 18, 2012
IR 1369943	Extraction Steam Valves Found Out of Expected Position	May 22, 2012
IR 1372307	NRC Question on 1A MSIV	May 30, 2012
IR 1372598	MSIV Administrative Control Gap	May 30, 2012
IR 1373856	Emergent Tech Spec 1AR12J Due to Non-Conservative Setpoint	June 3, 2012
IR 1376695	NOS ID: Operability Basis for UHS Warrants Review	June 11, 2012
IR 1378432	Braidwood Wasn't Notified of a Byron Op Eval	June 15, 2012
IR 1382547	NRC Questions Related to HELB	June 27, 2012
IR 1383367	NRC Resident Questions the Answer to Question 2 of a Safety Evaluation	June 29, 2012

Apparent Cause Evaluations

ACE 1124021	High Radiation Area Boundary Violation by Supplemental Workforce Pipe Fitter	November 2, 2010
ACE 1129838	Braidwood Steam Generator Bowl Restoration Personnel Contamination Events on 10/22/2010	November 16, 2010
ACE 1139383	Incorrect Calculation Methodology for TS Rad Monitors	December 7, 2010
ACE 1176942	Unit 2 RCS in Action Level 1 for Low Lithium	February 18, 2011
ACE 1191244	Latent Organizational Weakness (LOW) was Discovered Within Reactor Services During Performance of EACE	June 7, 2011
ACE 1208681	Sewage Treatment Effluent Elevated BOD	April 27, 2011
ACE 1211673	Adverse Trend in Configuration Control Events	May 27, 2011
ACE 1212908	Breaker Clearance and Tagging Event	May 6, 2011
ACE 1217246	Total Suspended Solids Elevated in MUDS Composite	May 17, 2011
ACE 1231757	Failure of 0FZ-VC006B to Operate. B-Train Control Room Ventilation Emergency Makeup Flow Control	May 7, 2011
ACE 1243186	Loose Debris in Secured Material Zone	July 23, 2011
ACE 1247386	Inadequate Control of Temporary Configuration Changes	September 19, 2011
ACE 1247386	Inadequate Control of Temporary Configuration Changes (TCCs)	August 3, 2011
ACE 1260456	Sewage Treatment Effluent Elevated BOD	September 7, 2011
ACE 1273864	Unexpected Alarms Associated with 1A Diesel Generator	November 18, 2011

ACE 1342976	Kankakee Water Quality Thermal Standard Exceedance	March 19, 2012
ACE 1346204	Inadequate Execution and Oversight of Work on 1A VP Chiller	March 27, 2012
ACE 1353148	Incomplete, Inaccurate & Conflicting EP Inventories & Equipment Tests	April 23, 2012

Common Cause Evaluations

CCA 1128647	Initiate CCA on Maintenance Procedure Adherence	October 20, 2010
CCA 1130241	A1R15 Outage Personnel Contamination Events (PCE) Goal of ≤15	December 9, 2010
CCA 1137683	Adverse Trend FME Practices	November 9, 2011
CCA 1144541	Operations QHPI Analysis For 2010	December 21, 2010
CCA 1168347	Chemistry Human Performance Trending IR	January 28, 2011
CCA 1176855	Braidwood Station Configuration Control Events from September 2010 Through February 2011	March 8, 2011
CCA 1182804	Evaluate Adverse Trend Recognized in Configuration Management	March 23, 2011
CCA 1193251	Trend Identified During Review of Hydramotor Failure Analyses	March 20, 2011
CCA 1211696	A2R15 Personnel Contamination Events	May 27, 2011
CCA 1218047	0CFX20 Braided Hose Connection Leak SX Scale Inhibitor	May 19, 2011
CCA 1220035	Perform a CCA on Leaks Identified on Unit 2 Following A2R15	May 24, 2011
CCA 1257366	Adverse Trend Identified in EMD	August 30, 2011
CCA 1272005	Chemistry Inter-Intralab For CL Did Not Meet Acceptance Criteria	October 4, 2011
CCA 1283860	Operations Human Performance Trending	November 23, 2011
CCA 1307864	Adverse Trend ID'd in Expired Plant Staging Area Signage	December 30, 2011
CCA 1310493	Negative Trend in Design Quality	February 3, 2012

Audits, Assessments and Self-Assessments

IR 1141012	Corrective Action Program Audit Report	April 12, 2011
IR 1141013	Engineering Design Control Audit Report (NOSA-BRW-11-05)	August 3, 2011
IR 1141013	Engineering Design Control Audit Report (NOSA-BRW-11-05)	August 3, 2011

IR 1141014	NOSA-BRW-11-06 Radiation Protection Audit Report	August 31, 2011
IR 1141015	NOSA-BRW-11-08 Operations Functional Area Audit	November 1, 2011
IR 1267082	Check-In Self Assessment – Level Three Operating Experience (OPEX) Annual Self Assessment	December 20, 2011
IR 1267082	Check-In Self Assessment – Level Three Operating Experience (OPEX) Annual Self Assessment	December 20, 2011
IR 1299937	Emergency Preparedness Audit Report (NOSA-BRW-12-03)	April 18, 2012
IR 1299937	Emergency Preparedness Audit Report (NOSA-BRW-12-03)	April 18, 2012
IR 1311622	Preparation for NRC Problem Identification and Resolution Inspection per Inspection Procedure 71152	April 25, 2012

Miscellaneous

BRW-S-2011-94	50.59 Screening and 50.59 Review for EC 385165	Revision 0
BYR12-025 / BRW-12-0033-E	Review ABB Seismic Qualification Report for COM Overcurrent Relays Installed in Westinghouse 6.9 kV Switchgear (ABB Report No. CTR-COM-SUM Rev. 01)	Revision 0
Drawing A-256	Auxiliary Building Mezzanine Floor Plan Area 5	
Drawing A-302:	Auxiliary Building Sections & Details Sheet 8 Units 1 and 2	
EC 385165	Temporarily Remove Various VE and VX Fan High Differential Pressure Trip Functions	Revision 0
NCIG-05	Guidelines for Piping System Reconciliation	Revision 1
Operability Evaluation 10-005	Potential Non-Conservative Tech Spec Value for the 300+/- Second Time Delay Associated with the Degraded Voltage Relay Logic	Revision 0; Revision 1; and Revision 2
Operability Evaluation 10-011	U-0 CC Pump Potential Non-Conservative Tech Spec	November 22, 2012
RS-12-009:	Letter From Exelon to NRC: License Amendment Request – Diesel Generator Steady State Maximum Frequency and Adoption of TSTF-501	
Standing Order 10-016	Condensate Storage Tank Level Administrative Limit and Administrative Controls	Revision 3
Standing Order 10-018	Component Cooling and Residual Heat Removal Administrative Controls	Revision 7
Standing Order 12-004	Degraded Voltage Compensatory Actions	Revision 7
Standing Order 12-006	Current TRM Section 3.7.b Actions Un-Conservative	Revision 0
Standing Order 12-010	Unit 1 Calorimetric Power Limit	Revision 0

Standing Order 12-011	MSIV Accumulator Operability	Revision 0
TCCP 385165	Temporarily Remove VE and VX Fans High Differential Pressure Trip Due to Turbine Building High Energy Line Break Issue	July 13, 2011
Work Order 01068682	MM-U1 Containment Outside Seismic Gap Repairs	
Work Order 01068687	CM-U2 Containment Seismic Gap Repairs	
Work Order 01378409	Unit 1 Need Seismic Gap Repaired – Electrical Pen Area	
Work Order 1068681	CM-U2 Aux Seismic Gap Repairs	
Work Order 1068690	MM-U1 (Area 5) Seismic Gap Repairs	
Work Order 99049747	Touch-Up/Repair Seismic Gap Insulation/Flex Material	
2012 Bryozoa Inspection Plan		November 7, 2011
Risk Management Review of Actions to Restore RH/CC System 7-Day AOTs		March 11, 2011
Success Review – Follow-up With Adverse Trend in Configuration Management (CCA 1182804) and Inadequate Control of TCCs (ACE 1247386)		June 8, 2012
Success Review – Adverse Trend in Configuration Management (CCA 1182804)		January 15, 2012
Braidwood Nuclear Safety Culture Assessment		January 2010
Braidwood Semi-Annual Safety Culture Review Report		January - February 2011
Braidwood Semi-Annual Safety Culture Review Report		July - December 2011
Braidwood Site Employee Issues Advisory Committee Meeting Report		January – March 2011
Braidwood Site Employee Issues Advisory Committee Meeting Report		April – June 2011
Braidwood Semi-Annual Senior Leadership Team Nuclear Safety Culture Health Review		July - December 2011
Braidwood 2011 SCWE Survey Preliminary Summary Results		
Executive Review of Exelon Nuclear’s Learning Program for March 2012		
Historical Circulating Water Temperature Average From 1998 Through 2009		
Performance Improvement Action Plan – Equipment Reliability		

Operating Experience

IR 904537	NEI Actions – Stainless Steel Pressurizer Heater Sleeves	April 8, 2009
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IR 1057139	IN 2010-09 Circuit Breaker Control Power Indications	April 15, 2010
IR 1057515	Preliminary Review of SEN 282/IN 2010-09	April 16, 2010
IR 1073616	RH System Issue Associated With Westinghouse NSAL 09-08	May 26, 2010
IR 1086314	IN 2010-11 Steam Voiding Causing RHR System Inoperability	June 30, 2010
IR 1126180	IN 2010-11 Response Comparison With Byron	October 14, 2010
IR 1130840	IN 2010-20 Turbine-Driven Auxiliary Feedwater Pump Repetitive Failures	January 27, 2011
IR 1130952	Part 21 Dresser Masoneilan Regulator Model 77N-40	October 26, 2010
IR 1132130	PWR Reactor Internals Baffle-Former Bolt Cracking	October 28, 2010
IR 1137202	Westinghouse IG10-2 Low-Watt-Density PRZ HTR Structure Failures	November 8, 2010
IR 1146917	OE 32309 Steam Generator Eddy Current Probe Issues	December 1, 2010
IR 1153779	PWR Reactor Internals Baffle-Former Bolt Cracking at Surry	December 17, 2010
IR 1155143	OE32356 Review – SG Upper Lateral Support Shim Damage – DC Cook	December 22, 2010
IR 1159960	NEI 03-08: Stainless Steel ODSCC Interim Strategy	January 7, 2011
IR 1161145	OE32309 – SG Eddy Current Probe Issues	January 11, 2011
IR 1165423	Part 21 END 46545 ABB Potential Overcurrent Relay	April 29, 2011
IR 1172382	IN 2011-02 Operator Performance Issues at Nuclear Power Plts	February 8, 2011
IR 1182369	OPEX Evaluation for Millstone Event and IN 2011-02	March 2, 2011
IR 1187158	NRC IN 2011-004 Stress Corrosion Cracking in PWR Stainless Steel Piping	March 14 2011
IR 1247004	NRC IN 2011-14 Component Cooling Water Sys Gas Accumulation	August 2, 2011
IR 1270514	GE Action Level Threshold Values Beyond Effluent Rad Monitor	September 30, 2011
IR 1317987	IER L3 12-6, Manual Scram Following Unexpected Turbine Stop Valve Closure (Prairie island)	April 10, 2012

Procedures

1BwEP ES-0.1	Reactor Trip Response Unit 1	Revision 202
1BwFR-H.1	Response to Loss of Secondary Heat Sink Unit 1	Revision 201
1BwOS AB-1	Performance Testing of The Unit 1 Boric Acid Transfer Pump (1AB03P) and the Associated Discharge Check Valve 1AB8487	Revision 1

2BwFR-H.1	Response to Loss of Secondary Heat Sink Unit 2	Revision 201
BwAR 1VE01J-1-B6	AMEER Exhaust Fan 1VE05C AUTO-TRIP"	Revision 7
BwAR 1VE01J-A2	MEER Vent Fan 1VE01C Diff Press High	Revision 10
BwAR 2-17-A12	Condenser Hotwell Level High/Low	Revision 12
BwAR 2VE01J-1-A2	MEER Vent Fan 2VE01C DIFF PRESS HIGH	Revision 9
BwMP 3300-091	Lake Screen House Diver Related Inspections	Revision 25
BwOP CD-1	Hotwell to CST Water Transfer	Revision 2
CY-BR-120-4130	Braidwood Lake Macro Biological Strategic Plan	Revision 3
ER-AA-2001	Plant Health Committee	Revision 16
LS-AA-115	Operating Experience Program	Revision 17
LS-AA-115-1003	Processing of Level 3 OPEX Evaluations	Revision 2
LS-AA-120	Issue Identification and Screening Process	Revision 14
LS-AA-125	Corrective Action Program (CAP) Procedure	Revision 16
LS-AA-125-1001	Root Cause Analysis Manual	Revision 9
LS-AA-125-1003	Apparent Cause Evaluation Manual	Revision 10
LS-AA-126-1005	Check-In Self-Assessments	Revision 5
OP-AA-102-104	Pertinent Information Program	Revision 2
OP-AA-108-115	Operability Determinations (CM-1)	Revision 11
OP-AA-108-115	Operability Determinations	Revision 11
WC-AA-106	Work Screening and Processing	Revision 12

Quick Human Performance Investigation Reports

IR 794534	Loss of Control of 250-Volt Battery Cell Resulting in Electrolyte Leakage	July 8, 2008
IR 1000700	Battery Electrolyte Spill While Replacing Cells (1DC07E)	December 2, 2009
IR 1060809	Battery 112 Welded Test Lead During Quarterly Surveillance	April 23, 2010
IR 1266785	212 Battery Charger Wire Discrepancy Found and Corrected	September 22, 2011
IR 1306053	Communication Breakdown When Releasing Clearance Order	January 9, 2012
IR 1132998	Missed Samples for 2RE-PR002	October 30, 2010

IR 1144077	1FP124 Limit Switch Bumped During Cleaning Activities	November 23, 2010
IR 1148870	Unit 1 Action Level 1 for Feedwater MPA	December 6, 2010
IR 1161163	Cord Ran Across Roadway Unmarked and Covered With Snow	January 11, 2011
IR 1203544	GCA Performed Compensatory Fire and Flood Watch Late	April 16, 2011
IR 1240236	Uncontrolled Contingency Weapon in Weapons Cabinet	July 15, 2011
IR 1248918	Safety Near Miss Chemical Spill at Lake Screen House	August 8, 2011
IR 1313110	NOS ID Security Finding	January 13, 2012
IR 1314133	Security Officer Slipped and Twisted Right Ankle	January 17, 2012
IR 1349305	Dust/Lint Fire in Unit 1 Turbine Building	April 3, 2012

Root Cause Evaluations

RCE 1101873	Operator Response During Unit 1 Reactor Trip Recovery Resulting in One Hour LCO Action Not Completed	September 13, 2010
RCE 1139618	Inadequate License Amendment Request Submittal for Component Cooling, Cause Indeterminate	January 6, 2011
RCE 1184265	NOS Escalation of CAP due to Behaviors that Limit the Organization's Effectiveness at Correcting Performance Shortfalls	December 25, 2011
RCE 1187600	Perform RCE for AFI in Maintenance Fundamentals	March 15, 2011
RCE 1194196	Auxiliary Feedwater Pump Suction Void	June 8, 2011
RCE 1218755	Asiatic Clam Shells in SX Supply Piping to 2A Auxiliary Feedwater Pump Result in Auxiliary Feedwater System Inoperability	June 30, 2011

Issue Reports Generated As a Result of the NRC Inspection

IR 1376944	IR#1295149 Inappropriate Coded SL5	June 12, 2012
IR 1377338	Electrolyte Level Above High Level Mark	June 13, 2012
IR 1377871	Approval for Change of Intent Not Documented	June 14, 2012
IR 1378313	ACITS Versus CA Assignments for Rad Monitor Setpoint Changes	June 15, 2012
IR 1378432	Braidwood Wasn't Notified of a Byron OP Evaluation	June 15, 2012
IR 1378927	IEMA Question on AF Battery Block Gaps	June 18, 2012
IR 1379674	NRC Walkdown for AF Battery Blocks	June 19, 2012
IR 1379675	NRC Identified Cover Missing over Top of 2AF01EA-B Terminals	June 19, 2012

IR 1380364	Crew Clock Reset Missing From CCA Review	June 21, 2012
IR 1381726	NRC Question on Standing Orders	June 25, 2012
IR 1381936	Two Examples of IR Not Generated When IR Could Have Been	June 26, 2012
IR 1382015	2012 NRC PI&R – Temp Cord for NOS Resolution Not Complete	June 26, 2012
IR 1382057	2012 NRC PI&R – WR to Seal DV Conduit Openings Cancelled	June 26, 2012
IR 1382385	Improper Closure of Assignment 02 from IR 1132130	June 27, 2012
IR 1382413	Four OPS CA Assignments in IR 1199930 Closed Incorrectly	June 27, 2012
IR 1383302	NRC Observations From the PI&R Inspection	June 29, 2012
IR 1383304	NRC Observation From PI&R Inspection (Engineering)	June 29, 2012
IR 1383306	NRC Observations From PI&R Inspection (OPS)	June 29, 2012
IR 1383334	NRC Observation From PI&R Inspection (Maintenance)	June 29, 2012
IR 1383554	PI&R: Action to Address Previous Issue Not Adequate	June 29, 2012
IR 1395327	2012 NRC PI&R – Timeliness of CAPR-1 from RCR 1101858	July 31, 2012

LIST OF ACRONYMS

ACE	Apparent Cause Evaluation
ACIT	Action Tracking Item
ADAMS	Agencywide Documents Access and Management System
AFW	Auxiliary Feedwater
AISC	American Institute of Steel Construction
ASME	American Society of Mechanical Engineers
CAP	Corrective Action Program
CAPR	Corrective Action to Prevent Recurrence
CAQ	Condition Adverse to Quality
CFR	Code of Federal Regulations
CST	Condensate Storage Tank
ECP	Employee Concerns Program
ENS	Event Notification System
EPRI	Electric Power Research Institute
FASA	Focused Area Self-Assessment
FIN	Finding
HELB	High Energy Line Break
IEMA	Illinois Emergency Management Agency
IMC	Inspection Manual Chapter
IR	Inspection Report
IR	Issue Report
kV	Kilovolt
MRC	Management Review Committee
NCV	Non-Cited Violation
NRC	Nuclear Regulatory Commission
NOS	Nuclear Oversight
OPEX	Operating Experience
PI&R	Problem Identification & Resolution
RCE	Root Cause Evaluation
ROP	Reactor Oversight Process
SCAQ	Significant Condition Adverse to Quality
SCWE	Safety Conscious Work Environment
SDP	Significance Determination Process
SX	Essential Service Water
Vdc	Volt Direct Current

requirements. However, because of their very low safety significance and because the issues were entered into your CAP, the NRC is treating these violations as Non-Cited Violations (NCVs) in accordance with Section 2.3.2 of the NRC Enforcement Policy. In addition, the team identified several issues that were either minor in nature and/or represented negative trends, warranting your attention. Examples include implementation of the operability determination process, CAP procedures not being followed, and the timeliness of corrective actions to address degraded fire barriers.

If you contest the subject or severity of an NCV, 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.

If you disagree with a cross-cutting aspect 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 Resident Inspector Office at the Braidwood Station.

In accordance with 10 CFR 2.390 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 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 Website 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 and 50-457
License Nos. NPF-72 and NPF-77

Enclosure: Inspection Report No. 05000456/2012007 and 05000457/2012007
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Letter to M. Pacilio from E. Duncan dated August 8, 2012.

SUBJECT: BRAIDWOOD STATION, UNIT 1 & 2, NRC PROBLEM IDENTIFICATION AND
RESOLUTION INSPECTION REPORT 05000456/2012007; 05000457/2012007

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