



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

REGION III
2443 WARRENVILLE ROAD, SUITE 210
LISLE, IL 60532-4352

December 4, 2008

Mr. Charles G. Pardee
President and Chief Nuclear Officer (CNO), Exelon Nuclear
Chief Nuclear Officer (CNO), AmerGen Energy Company, LLC
4300 Winfield Road
Warrenville, IL 60555

**SUBJECT: BRAIDWOOD STATION UNITS 1 AND 2 NRC PROBLEM IDENTIFICATION
AND RESOLUTION INSPECTION REPORT 05000456/2008009 AND
05000457/2008009**

Dear Mr. Pardee:

On October 24, 2008, the U.S. Nuclear Regulatory Commission (NRC) completed a routine biennial Problem Identification and Resolution Inspection at your Braidwood Station, Units 1 and 2. The enclosed report documents the inspection results, which were discussed on October 24 with Mr. L. Coyle and members of his staff.

This inspection was an examination of activities conducted under your license as they relate to the identification and resolution of problems, and compliance with the Commission's rules and regulations and the conditions of your operating license. Within these areas, the inspection involved examination selected procedures and representative records, observations of activities, and interviews with personnel.

On the basis of the sample selected for review, the team concluded that implementation of the Corrective Action Program at Braidwood was generally good. There was one Green finding identified by the team during this inspection, related to the failure to implement timely corrective actions for a previously identified Non-Cited Violation (NCV). The finding was determined to be a violation of NRC requirements. However, because the violation was of very low safety significance (Green) and because it was entered into your CAP, the NRC is treating this as a Non-Cited Violation in accordance with Section VI.A.1 of the NRC's Enforcement Policy.

If you contest the subject or severity of this NCV, you should provide a response with the basis for your denial, within 30 days of the date of this inspection report, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC, 20555-0001, with copies to the Regional Administrator, 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 NRC Resident Inspectors' Office at the Braidwood Station.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS), accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

Richard A. Skokowski, Chief
Projects Branch 3
Division of Reactor Projects

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

Enclosure: Inspection Report 05000456/2008009; 05000457/2008009
w/Attachment: Supplemental Information

cc w/encl: Site Vice President - Braidwood Station
Plant Manager - Braidwood Station
Regulatory Assurance Manager - Braidwood Station
Chief Operating Officer and Senior Vice President
Senior Vice President - Midwest Operations
Senior Vice President - Operations Support
Vice President - Licensing and Regulatory Affairs
Director - Licensing and Regulatory Affairs
Manager Licensing - Braidwood, Byron and LaSalle
Associate General Counsel
Document Control Desk - Licensing
Assistant Attorney General
J. Klinger, State Liaison Officer,
Illinois Emergency Management Agency
Chairman, Illinois Commerce Commission

C. Pardee

-2-

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Senior Vice President - Operations Support
Vice President - Licensing and Regulatory Affairs
Director - Licensing and Regulatory Affairs
Manager Licensing - Braidwood, Byron and LaSalle
Associate General Counsel
Document Control Desk - Licensing
Assistant Attorney General
J. Klinger, State Liaison Officer,
Illinois Emergency Management Agency
Chairman, Illinois Commerce Commission

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Letter to C. Pardee from R. Skokowski dated December 4, 2008.

SUBJECT: BRAIDWOOD STATION UNITS 1 AND 2 NRC PROBLEM IDENTIFICATION
AND RESOLUTION INSPECTION REPORT 05000456/2008009 AND
05000457/2008009

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No: 50-456; 50-457
License No: NPF-72; NPF-77

Report No: 05000456/2008009 and 05000457/2008009

Licensee: Exelon Generation Company, LLC.

Facility: Braidwood Station, Units 1 and 2

Location: Braceville, IL

Dates: October 6 through October 24, 2008

Inspectors: G. Roach, Senior Resident Inspector, LaSalle Station
C. Brown, Reactor Inspector, DRS
A. Garmoe, Resident Inspector, Braidwood Station
R. Winter, Reactor Inspector, DRS
M. Perry, Resident Inspector, Illinois Emergency
Management Agency

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

SUMMARY OF FINDINGS

IR 05000456/2008009; 05000457/2008009; 10/06/2008 – 10/24/2008; Braidwood Station, Routine Biennial Problem Identification and Resolution Inspection.

This inspection was conducted by two resident inspectors and two regional inspectors, with the assistance of the Illinois Emergency Management Agency (IEMA) resident inspector. One finding of very low safety significance (Green) was identified during this inspection. The finding was classified as a Non-Cited Violation (NCV). The significance of most findings is indicated by their color (Green, White, Yellow, Red) using NRC Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). 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

The team concluded that the implementation of the Corrective Action Program (CAP) at Braidwood was generally good. The licensee had a low threshold for identifying problems and entering them in the CAP. Items entered into the CAP were screened and prioritized in a timely manner using established criteria; were properly evaluated commensurate with their safety significance; and corrective actions were generally implemented in a timely manner, commensurate with their safety significance. The team noted that the licensee was adequate at reviewing and applying industry operating experience lesson learned. Audits and self-assessments were also noted to be acceptable. On the basis of interviews conducted during the inspection, workers at the site expressed freedom to enter safety concerns into the CAP, exhibiting a good safety conscience work environment.

There was one Green NCV identified by the team during this inspection. The finding was related to the licensee's failure to perform timely corrective actions for a previously identified violation.

a. NRC Identified and Self-Revealing Findings

Cornerstone: Mitigating Systems

- Green: The inspectors identified a Green NCV of 10 CFR 50, Appendix B, Criterion XVI, for failure to take timely corrective actions to address a previously issued NCV regarding the substitution of manual actions for automatic actions on the A train auxiliary feedwater pumps. Specifically, the licensee did not perform a full evaluation in accordance with 10 CFR 50.59 for the addition of new Step, 2.c, in Revision 101 of Abnormal Operating Procedure 1/2BwOA-ELEC-4, "Loss of Offsite Power," which instructed operators to place the A train auxiliary feedwater pumps in pull-out position. This violation was originally identified by NRC inspectors in January 2007. The inspection team identified that the licensee had not taken timely actions to correct the violation.

This finding was considered to be more than minor because it impacted the procedure quality attribute of the mitigating systems cornerstone. As a result, the inspectors completed a Phase 1 Significance Determination Process Screening in accordance with IMC 0609, Appendix A, "Determining the Significance of Reactor

Inspection Findings for At-Power Situations.” The inspectors answered ‘no’ to all of the Mitigating Systems Cornerstone questions in Table 4a of IMC 0609, Attachment 4, and determined the issue to be of very low safety significance, Green. This issue of untimely corrective actions was entered into the licensee’s corrective action program, and the licensee took immediate corrective actions by issuing Revision 104 to 1/2BwOA-ELEC-4, which removed Step 2.c until the full 50.59 evaluation was completed. (Section 4OA2.a.4).

b. Licensee-Identified Violations

None.

REPORT DETAILS

4. OTHER ACTIVITIES (OA)

4OA2 Problem Identification and Resolution (71152B)

Completion of sections a. through d. constitutes one biennial sample of problem identification and resolution as defined by Inspection Procedure 71152.

a. Assessment of the Corrective Action Program Effectiveness

(1) Inspection Scope

The inspectors reviewed the licensee's CAP implementing procedures and attended CAP meetings for both the Station Ownership Committee (SOC) and the Management Review Committee (MRC) to assess the implementation of the CAP by site personnel.

The inspectors reviewed risk and safety significant issues in the licensee's program since the last NRC Problem Identification and Resolution (PI&R) Inspection in May 2007. The selection of issues ensured an adequate review of issues across NRC cornerstones. The inspectors reviewed issue reports (IRs) generated as a result of daily plant activities. In addition, the inspectors reviewed IRs and a selection of completed investigations from the licensee's various investigation methods, which included root cause, apparent cause, common cause, and trending performance investigations. The inspectors also reviewed issues identified through NRC generic communications, department self assessments, licensee audits, operating experience reports, and NRC documented findings.

The inspectors performed a five year review of the residual heat removal system, safety injection system, and the auxiliary building ventilation system to assess the licensee's efforts in monitoring for any system degradation due to aging. The inspectors performed partial system walkdowns and a detailed CAP document review for each of the above mentioned systems.

During the reviews, the inspectors determined whether the licensee staff's actions were in compliance with the facility's CAP and 10 CFR Part 50, Appendix B requirements. Specifically, the inspectors determined if licensee personnel were identifying plant issues at the proper threshold, entering the plant issues into the station's CAP in a timely manner, and assigning the appropriate prioritization for resolution of the issues. The inspectors also determined whether the licensee staff assigned the appropriate level of priority and investigation method to ensure the proper determination of root, apparent, and contributing causes. The inspectors also evaluated the timeliness and effectiveness of corrective actions for selected issue reports, completed investigations, and NRC findings, including non-cited violations.

(2) Assessment – Effectiveness of Problem Identification

Based on the information reviewed, the inspectors concluded that the threshold for initiating issue reports was good and well below the plant procedural requirements. The

inspectors observed one potential vulnerability in the security organization which is discussed below under observations.

The inspectors concluded that the program was effective at identifying issues. However, a review of the IRs attributed to NRC and other outside agency identification in the last two years illustrated that improvements could be made. The control of scaffolding constructed adjacent to safety related and fire protection equipment was an example of an area where identification and resolution were prompted by the NRC.

Observations:

Potential Corrective Action Program Vulnerability

The inspectors identified a low-level issue tracking system utilized by the security organization, referred to informally as the “parking lot.” A review of the items on the “parking lot” list indicated primarily low level issues such as minor housekeeping items. However, the use of an informal tracking list posed a potential vulnerability in that issues may not be widely known or reviewed. In addition members of the security organization expressed concern regarding the eventual resolution of issues binned into the “parking lot” with no formal means of documenting resolution. The licensee reviewed all “parking lot” issues for incorporation into the corrective action program. No violations of NRC requirements were identified.

No findings of significance were identified.

(3) Assessment – Effectiveness of Prioritization and Evaluation of Issues

The inspectors reviewed the classification of issue reports for resolution ranging from “1” for the most significant to “5,” the least significant. In addition, the inspectors verified the licensee response to issue reports of various significance levels was appropriate (root cause reviews, apparent cause evaluations, common cause assessments, and divisional assignments). The inspectors also reviewed the daily SOC and MRC reports and attended meetings to observe the disposition and management review of IR classification. All IRs reviewed were assigned appropriate prioritization and evaluation levels.

The inspectors determined that the evaluations in root cause reports and apparent cause reports that were reviewed were mostly adequate. The corrective actions addressed the identified problems and the timeliness of corrective actions was appropriate to the safety significance. However, the inspectors did identify one equipment apparent cause evaluation (EACE) (IR 803300) where vendor concerns regarding site maintenance practices were not adequately addressed. This issue is recorded in greater detail in the observations section. The inspectors noted that evaluations involving equipment failures also received maintenance rule screenings. A select number of these screenings reviewed by the inspectors indicated that maintenance rule attributes were being properly assigned.

Observations:

Equipment Apparent Cause Evaluation Lacked Sufficient Detail

On August 3, 2008, equipment operators noted that they were adding oil to the safety related 1A component cooling water (CC) pump's inboard pump seal oil bulb on a more frequent basis (weekly) than normal. Subsequent inspection by the system engineer identified an oil leak along the pump shaft and the ratcheting of the stationary portion of the inboard pump bearing oil seal. The 1A CC pump oil seals had been recently replaced with a new style seal in June 2008. A detailed internal inspection of the seal identified that the stationary seal was rotating due to the seal o-ring having the incorrect dimensions. The o-ring was determined to have an outside diameter of 3.119 inches versus the required 3.127 inches necessary to create the interference fit needed to hold the stator in place. Licensee-drawn oil samples and inspection of the o-ring did not indicate that wear had occurred during the short duration the seal had been installed, and therefore it was determined that the vendor had supplied an incorrectly sized part. The inspectors noted that the original EACE referenced a vendor concern that incorrect tooling had been used by the licensee when attempting to establish the interference fit. No explanation of the validity of this concern was addressed in the EACE. In addition, the licensee did not discuss whether there had been a deficiency in the "skill of the craft" work performed during seal installation. The inspectors noted that the corrective actions generated by the EACE called for maintenance procedure changes, requiring in-field measurements of the components creating the seal interference fit. The licensee entered the inspectors' concerns into the CAP under IR 832347. The EACE was reopened and more detail of the vendor's original concerns and how they were addressed was added that showed that licensee technicians installing the seal followed procedures and vendor guidance and that appropriate tooling was used.

No findings of significance were identified.

(4) Assessment – Effectiveness of Corrective Actions

The inspectors reviewed licensee generated effectiveness reviews for corrective actions to prevent recurrence from selected root cause reports. The inspectors determined the reviews to be of sufficient detail and timed appropriately to effectively determine whether the corrective actions led to eventual issue resolution. In addition, the inspectors reviewed licensee corrective actions for NRC identified violations identified since the last PI&R inspection. The inspectors identified one previously identified NCV which the licensee did not adequately resolve and is described below.

Introduction: The inspectors identified a Green NCV of 10 CFR 50, Appendix B, Criterion XVI, for failure to take timely corrective actions to address a previously issued NCV regarding the substitution of manual actions for automatic actions on the A train AF pumps.

Description: NCV 05000456/2007002; 05000457/2007002-02 was issued for the failure to document, in accordance with 10 CFR 50.59, an evaluation that provided the basis for the determination that a change, test, or experiment did not require a license amendment for a change that the licensee made to their "loss of Power" abnormal operating procedure. The licensee added a new step, Step 2.c, in Revision 101 of Abnormal Operating Procedure 1/2BwOA-ELEC-4, "Loss of Offsite Power," which

instructed operators to place the A train auxiliary feedwater (AF) pumps in pull-out position. By procedurally directing operators to place the A train AF pumps in pull-out position, the pumps could no longer respond to accidents as described in Chapter 15 of the Updated Final Safety Analysis Report (UFSAR). The licensee performed a screening in accordance with 10 CFR 50.59 but did not perform a full 50.59 evaluation. By performing only the screening, the licensee did not evaluate if replacing an automatic pump start function with a manual action represented more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component important to safety previously evaluated in the UFSAR.

This issue was originally captured in IR 583152 with an assigned action (Assignment #3) to perform a full evaluation in accordance with 10 CFR 50.59. The full evaluation would address whether a license amendment was required to implement Step 2.c in 1/2BwOA-ELEC-4. The original due date of the corrective action was April 27, 2007. The evaluation was completed and brought for final approval to the Plant Operations Review Committee (PORC) on February 8, 2007. The PORC did not approve the evaluation and assigned Engineering representatives to provide comments to the originator for incorporation. Additional entries were added to IR 583152 on April 25, July 26, and September 27, 2007, that documented extensions to the evaluation due date because the Engineering comments had not been provided to the originator. At the time the PI&R inspection team was on-site the due date for the evaluation had been extended to October 24, 2008. The inspectors also identified that two subsequent revisions to procedure 1/2BwOA-ELEC-4 had not addressed the original NRC concerns with Step 2.c.

This issue of untimely corrective actions was entered into the licensee's corrective action program as IR 831223. The licensee took immediate corrective actions by issuing Revision 104 to 1/2BwOA-ELEC-4, which removed step 2.c until the full 50.59 evaluation was completed.

Analysis: The failure to complete timely corrective actions for a previous NCV is a performance deficiency. The inspectors evaluated the issue in accordance with IMC 0612, Appendix B, "Issue Screening." The traditional enforcement questions were reviewed and the inspectors determined this issue does not warrant review under traditional enforcement. This finding was considered to be more than minor because it impacted the procedure quality attribute of the mitigating systems cornerstone. As a result, the inspectors completed a Phase 1 Significance Determination Process Screening in accordance with IMC 0609, Appendix A, "Determining the Significance of Reactor Inspection Findings for At-Power Situations." The inspectors answered 'no' to all of the Mitigating Systems Cornerstone questions in Table 4a of IMC 0609, Attachment 4, and determined the issue to be Green or of very low safety significance. No cross-cutting issues were identified.

Enforcement: 10 CFR 50, Appendix B, Criterion XVI, requires in part that conditions adverse to quality be promptly identified and corrected. Contrary to this requirement, the licensee failed to take timely corrective actions to address the condition adverse to quality identified in NCV 2007002-02. Because this finding was entered into the licensee's corrective action program as IR 831223, this violation is being treated as a non-cited violation (NCV) in accordance with Section VI.A of the NRC Enforcement Policy. (NCV 05000456/2008009-01; 05000457/2008009-01)

b. Assessment of the Use of Operating Experience

(1) Inspection Scope

The inspectors reviewed the licensee's implementation of the facility's Operating Experience (OPEX) program. Specifically, the inspectors reviewed implementing operating experience program procedure and completed evaluations of a sample of OPEX issues and events.

The inspectors' review was to determine whether the licensee's program was sufficient to prevent future occurrences of previous industry events, and whether the licensee effectively used the information in developing departmental assessments and facility audits. The inspectors also assessed if corrective actions, as a result of OPEX experience, were identified and effectively implemented in a timely manner.

(2) Assessment

The inspectors noted that screening of OPEX was performed frequently via teleconferencing between the site and company headquarters. The inspectors determined that operating experience was adequately reviewed at the site. The inspectors noted that root cause reports and apparent cause evaluations included discussions of OPEX.

Observations:

Corrective Actions for Manual Actions Used in Plant Procedures

The inspectors identified a weakness with regard to the disposition of the timing of manual operator actions used while performing off-normal procedures and emergency operating procedures (EOP). The licensee identified in training OPEX IR 518546 that the time to complete actions to provide centrifugal charging pump (CV) cooling via an alternate min-flow path was never field tested. The IR stated that the probabilistic risk assessment (PRA) assumed the actions could be completed in 10 minutes but noted the valves were located 29 feet in the air. An action to create a formal critical response time was closed to IR 624518-11.

IR 624518 questioned the operator's ability to manually cycle certain air operated valves credited for manual operation in the EOPs. Assignment #3 was generated to create procedures to validate that operators could physically operate the equipment in the time frames expected in the EOPs for the equipment listed in Assignment #2, extent of condition. Assignment #8 was to validate the manual operations when plant conditions could be established. This assignment was closed to actions already taken to validate existing time critical actions under IR 829955.

IR 829955 had one assignment: "Operations Crew 3 Shift Manager needs to discuss with Operations Manager and present this request to the Ops Director Peer Group for approval if desired." The action was still open and had a due date of December 11, 2008.

During the inspectors' verification that the licensee had adequately addressed the concern originally identified in IR 518546, the licensee PRA expert indicated that the

original concern was addressed in the latest revision to the PRA model. The new model did not credit the manual lineup to the radioactive waste hold up tank requiring the manipulation of remotely located valves. In addition, the new PRA model allotted the operators 30 minutes to provide adequate cooling to the CV pumps following a loss of component cooling water. The new model did take credit for control room operators realigning the CV pump suction to the refueling water storage tank (RWST) with an assumed time of 1 minute. The inspectors' review of the new PRA model, the inspectors ascertained that the licensee was unable to provide the technical basis for the 30 minute recovery time, how the 1 minute pump suction realignment was derived, and how changing the suction source from the volume control tank to the RWST would protect the pump from overheating with no CC flow.

In IR 834951, the licensee captured that the station's PRA expert was not included in the PRA update plan and that actions to address the review of operator actions were not specifically addressed in the plan. Also in IR 834951, the licensee documented the need to verify the adequacy of rigor associated with the PRA model to ensure the technical basis for all changes were captured.

Actions to Address CV Shaft Failure Vulnerability

The inspectors reviewed actions for a prior NRC concern regarding the licensee's response to industry and plant events involving shaft failures in CV pumps, which are the licensee's high-head safety injection pumps. Industry experience has shown that most of the failures of original manufactured shafts with significant run-time occurred with no indications of problems immediately prior to failure. Westinghouse has recommended replacing the shafts. The licensee initiated a study to determine the best course of action, and assessed the feasibility and cost of several options. The option chosen by Braidwood and Corporate engineering was to replace the shafts if they failed, as documented in IR 443080. This issue was to be brought back to the Plant Health Committee with an action due date of November 13, 2008. The licensee presently maintains a newer generation pump shaft in stores in the event of a shaft failure. The licensee based their decision not to preemptively replace the pump shafts on recently implemented operating procedures that maintain sufficient pump flow and system valve configuration that minimize stress on the CV pumps, and that they could replace the pump shaft without exceeding more than half of the limiting condition for operation allowed outage time of seven days for the CV pumps. No violations of NRC requirements were identified.

No findings of significance were identified.

c. Assessment of Self-Assessments and Audits

(1) Inspection Scope

The inspectors reviewed samples of the governing procedures, schedules, plans, reports, and resulting IRs for licensee self assessments and quality assurance (QA) audits. A sample of corrective actions generated for issues was also reviewed.

(2) Assessment

The licensee used numerous corporate and station performance measures to monitor station activities. Departmental assessments were performed and rolled up into station wide assessments. QA audits were effective in identifying a number of findings pertaining to radiation protection, the corrective action program, and maintenance activities. The self assessment and audit functions appeared to be well established by procedures and functioning effectively. A self assessment of the CAP had been performed. This assessment was thorough and well organized. The issues that were identified had assigned corrective actions. The assessment findings and conclusions generally matched those of the inspection team.

No findings of significance were identified.

d. Assessment of Safety Conscious Work Environment

(1) Inspection Scope

The inspectors assessed the licensee's safety conscious work environment through the reviews of the facility's employee concern program (ECP) implementing procedures, discussions with the ECP manager, interviews with personnel from various departments, and reviews of issue reports. The inspectors interviewed approximately twenty individuals from various departments about their willingness to raise nuclear safety issues and reviewed selected corrective action program records to assess safety-conscious work environment.

(2) Assessment

Based on interviews with plant personnel and reviews of licensee generated safety culture surveys performed across the organization, the inspectors determined that the site possessed a healthy safety conscious work environment. Two potential vulnerabilities were identified through the interview process. In the first instance, multiple members of the licensee's maintenance and security staff reported that they were not able to determine how IRs that they generated were vetted for final closure. This left the members feeling that their issues were not being adequately reviewed or addressed. The licensee entered this concern into the CAP as IR 831248 with action to create a CAP user's guide for the workforce.

The second issue concerned the inactivation of licensee staff computer access due to prolonged periods of inactivity. In this instance licensee staff would need to rely on other personnel to log them into the CAP database in order to generate issues. The inspectors determined that this workaround could potentially lead to low level issues not being entered into the CAP out of inconvenience. This issue was entered into the CAP as IR 834912.

No findings of significance were identified.

4OA6 Management Meetings

Exit Meeting Summary

The inspectors presented the inspection results to Mr. L. Coyle and other members of the Braidwood staff at an exit meeting on October 24, 2008. The licensee acknowledged the issues presented. No proprietary information was identified in the possession of the team.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

B. Hanson, Site Vice President
L. Coyle, Plant Manager
S. Butler, Emergency Preparedness Manager
G. Dudek, Site Training Director
R. Gadbois, Maintenance Director
G. Golwitzer, Acting Regulatory Assurance Manager
D. Gullott, Regulatory Assurance Manager
J. Knight, Nuclear Oversight Manager
T. McCool, Operations Director
J. Moser, Radiation Protection Manager
B. Schipiour, Work Management Director
M. Smith, Engineering Director
T. Schuster, Chemistry, Environmental, and Radioactive Waste Manager

Nuclear Regulatory Commission

R. Skokowski, Chief, Project Branch 3, Division of Reactor Projects, Region III
B. Dickson, Senior Resident Inspector, Braidwood

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

05000456/2008009-01; 05000457/2008009-01	NCV	Failure to take timely corrective action for a previously identified NRC violation (Section 4OA2.a.4)
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Closed

05000456/2008009-01; 05000457/2008009-01	NCV	Failure to take timely corrective action for a previously identified NRC violation (Section 4OA2.a.4)
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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.

PLANT PROCEDURES

<u>Number</u>	<u>Description or Title</u>	<u>Date or Revision</u>
LS-AA-115	Operating Experience	12
LS-AA-120	Issue Identification and Screening Process	8
LS-AA-125	Corrective Action Program (CAP) Procedure	12
LS-AA-125-1001	Root Cause Analysis Manual	6
LS-AA-125-1002	Common Cause Analysis Manual	5
LS-AA-125-1003	Apparent Cause Evaluation Manual	7
LS-AA-125-1004	Effectiveness Review Manual	4
LS-AA-125-1005	Coding and Analysis Manual	5
LS-AA-126	Self-Assessment Program	6
LS-AA-126-1001	Focused Area Self-Assessments	5
LS-AA-126-1005	Check-In Self Assessments	4
LS-AA-126-1006	Benchmarking Program	2
MA-AA-716-210	Performance Centered Maintenance Program	7
1BwOA PRI-6	Component Cooling Malfunction Unit 1	101
1BwOA ELEC-4	Loss of Offsite Power Unit 1	101
1BwOA ELEC-4	Loss of Offsite Power Unit 1	102
1BwOA ELEC-4	Loss of Offsite Power Unit 1	103
1BwOA ELEC-4	Loss of Offsite Power Unit 1	104
ER-AA-2007	Evaluating Margins	1
CC-AA-13	Margin Management	1
BwVSR 3.7.12.4	Auxiliary Building Non-Accessible System Filter Plenum Test	0
NSWP-5-03	Conduit and Junction Box Installation and Inspection	3
HU-AA-102	Technical Human Performance Practices	2
OP-BR-108-101- 1002	Operations Department Standards and Expectations	0
MA-AA-716-210	Performance Centered Maintenance Program	7

CORRECTIVE ACTION PROGRAM DOCUMENTS REVIEWED

<u>Number</u>	<u>Description or Title</u>	<u>Date or Revision</u>
IR 201496	Low SX Flow Through 2VA02SB (2B RH Pp Cubicle Cooler)	February 12, 2004
IR 332013	Incorrect Temperature Indicator Installed at	May 4, 2005

CORRECTIVE ACTION PROGRAM DOCUMENTS REVIEWED

<u>Number</u>	<u>Description or Title</u>	<u>Date or Revision</u>
IR 328487 Assign 04	2TI-SI068 Complete ACE on Wrong Valve Body Installed for 2RH8734A During A2R11	June 20, 2005
IR 544399	2SI070A Valve Orientation is Incorrect	October 13, 2006
IR 548829	ECCS Sump Mod Torque Wrenches not Pre-Cal'd Both Directions	October 23, 2006
IR 549140	NDE Indications Found During Weld Examination	October 26, 2006
IR 563178	NOS ID: Inconsistent Information Within LLRT/ILRT Procedures	November 29, 2006
IR 693444	Possible Previous Operability Concern – Line 1SI06BA-24	November 2, 2007
IR 610707	1A RH Pump Numerous Rust Spots	March 30, 2007
IR 629942	Simulator Sets for Spurious SI are not Timed	May 15, 2007
IR 649076	CDBI FASA U0 CC HX Surveillance Needs Update	May 7, 2007
IR 649079	CDBI FASA UFSAR Discrepancies	July 11, 2007
IR 649087	CDBI FASA Lack of PRA Support Documentation	July 11, 2007
IR 770898	Safety Potential Line of Fire Incident Getting (sample) U2 RWST	May 2, 2008
IR 808677	1SI061 Boric Acid @ Body to Bonnet	June 6, 2008
IR 808666	2SI036 Boric Acid @ Body to Cover	June 6, 2008
IR 668169	Effectiveness Review for CCA 543773-08, CA 06 not Effective	September 5, 2007
IR 749786	CAP PI for Collectively Ineffective EFRS is Red for Feb 2008	March 14, 2008
IR 748714	Effectiveness Review for CCA 543773-06 not Effective	March 12, 2008
IR 689533	NOS ID: RP 3Q07 Performance Yellow	October 25, 2007
IR 672101	NOS: RP 2007 Audit Issue Roll Up PDR	September 17, 2007
IR 655785	NOS ID: Rad Worker DLA Objective not Met /Late Individual	July 31, 2007
IR 646432	Chemistry EFR for CCA 569468 Corrective Action Determined to be Ineffective	July 2, 2007
IR 638166	NOS ID: Trend Codes Not Entered/Updated in Passport	June 7, 2007
IR 368166	2CC01PA Discharge Flange Corrective Action from IR 353439	August 30, 2005
IR 728305	Inadequate Closure of ACIT (Operations)	January 29, 2008
IR 728292	Inadequate Closure of ACIT (Engineering)	January 29, 2008
IR 728162	ACITS Inadequately Closed by Reactor	January 28, 2008

CORRECTIVE ACTION PROGRAM DOCUMENTS REVIEWED

<u>Number</u>	<u>Description or Title</u>	<u>Date or Revision</u>
	Services	
IR 726811	Inadequate Closure of ACIT (Supply)	January 25, 2008
IR 722341	PCRA 45283-03 Was Closed Before Revision OU-AP-200	January 15, 2008
IR 714435	Procedures Have Not Been Revised as Required by RCR 632816	December 20, 2007
IR 710863	Inadequate Closure of Corrective Action (Nuclear Oversight)	December 12, 2007
IR 707675	NOS ID ATI 's not Created Prior to Assignment Closure (Work Control)	December 5, 2007
IR 704947	TRP, Document Type and Sub Type, Incorrect on EC 364814 ADL	November 29, 2007
IR 689010	Inadequate Closure of Two Corrective Actions (Operations)	October 24, 2007
IR 657545	NOS ID: Inadequate CAP Closure, FLS Missed Training, Second Quarter	August 6, 2007
IR 656252	Corrective Action Documentation Not Easily Retrievable (Radiation Protection)	August 1, 2007
IR 633678	Inadequate Closure of CAPR Assignments (Maintenance)	May 25, 2007
IR 632027	Inadequate Foreign Material Recovery Effort	May 21, 2007
IR 730223	Collectively Ineffective EFR – Concern With Wording of Corrective Actions	February 1, 2008
IR 708767	Corrective Action Found Ineffective During EFR – Human Performance Trend	December 7, 2007
IR 614078	Chemistry CAPCO Did Not Identify Corrective Action was Inadequately Closed	April 6, 2007
IR 611965	Inadequate Corrective Action Closure	April 2, 2007
IR 611791	Inadequate Corrective Action Closure	April 2, 2007
IR 611784	Inadequate Corrective Action Closure	April 2, 2007
IR 611778	Inadequate Corrective Action Closure	April 2, 2007
IR 680890	Transfer System Panel Knife Switch in Off Position	October 6, 2007
IR 717116	Lack of Ownership Found as Common Case in Common Cause Assessments	January 2, 2008
IR 716500	1DR1-136: Rubber Zero Seal Missing on Door	December 30, 2007
IR 813142	Abnormal System Response During 1SX01PA Run	September 2, 2008
IR 716843	2007 Operations Reactivity Management FASA Standards Deficiency #3	December 31, 2007
IR 671150	LCO 3.8.1 Application During Diesel Generator Testing	September 13, 2007

CORRECTIVE ACTION PROGRAM DOCUMENTS REVIEWED

<u>Number</u>	<u>Description or Title</u>	<u>Date or Revision</u>
IR 631177	Radiation Protection Department Backlog for Trend Coding and Closure Review	May 18, 2007
IR 660983	Large Number of IRs Coded Dose Control Potential Trend	August 15, 2007
IR 649414	IST Flow Instrument Does Not Have Calibration PMID	July 12, 2007
IR 611773	Inadequate Corrective Action Closure of ATI 593879-02	April 2, 2007
IR 632100	Inadvertent Entry into LCO 3.0.3 on Both Units due to Auxiliary Building Ventilation	May 22, 2007
IR 671150	LCO 3.8.1 Application During DG Testing	September 13, 2007
IR 728982	Supply of #1 Diesel Fuel Oil is Becoming Scarce	January 30, 2008
IR 373976	Anatech Analysis of Fuel Being Evaluated by Fuel Vendor	September 15, 2005
IR 698130	External Corrosion on 1SX01FB	November 12, 2007
IR 662465	Thickness Readings Below 87.5 percent Criteria Line 1SX37BA-2	August 20, 2007
IR 601437	MSPI System SX Defined to Have Low Margin to White Indication	March 9, 2007
IR 586879	Line 1SX37AA Does not Meet Wall Thickness Screening Criteria	February 2, 2007
IR 461552	Observed Wall Thinning on Line 1SX956AB-2	March 3, 2006
IR 461510	Observed Wall Thinning on Line 1SX956A-2	March 3, 2006
IR 459295	Observed Wall Thinning on Line 2WS177AA-15	February 7, 2006
IR 711676	Regulatory Commitments not Annotated in Radiation Protection Procedures	December 14, 2007
IR 713742	Actions Needed for Reduction of Site RAD Materials	December 19, 2007
IR 644490	RCR-625625 Trend Extent of Cause as Complacency IRs	June 26, 2007
IR 685087	NOS ID: Adverse Trend in Procedure Adherence & Place Keeping	October 15, 2007
IR 706690	Potential Adverse Trend in Peer Check Defense	December 3, 2007
IR 751252	Unit 2 Reactor Coolant System Lithium High Above Action Level One	March 18, 2008
IR 766472	Potential Clearance Order Event on 2FW01PB Clearance Order 60221	April 23, 2008
IR 803300	Lowering Oil Level in Oil Bubbler – 1CC01PA	August 3, 2008
IR 766773	PBI Compensatory Actions Changed, not Identified by Shift	April 23, 2008
IR 789448	0FC03PB Wet Boric Acid at Pump Seal	June 23, 2008

CORRECTIVE ACTION PROGRAM DOCUMENTS REVIEWED

<u>Number</u>	<u>Description or Title</u>	<u>Date or Revision</u>
IR 796786	Declining Trend in Operations CAP Self Identification Ratio	July 15, 2008
IR 340644	1CW096B Tripping Thermals	June 3, 2005
IR 813891	2A SX Pump High Differential Pressure Alarm	September 4, 2008
IR 696549	NOS Adverse Finding: Inoperable and Degraded Fire Barriers	November 8, 2007
IR 636968	EP improvement items form 2nd qtr drill-ERO performance	June 4, 2007
IR 636989	EP improvement item form Second QTR drill-Facilities/Equipment	June 4, 2007
IR 647967	EP items for facilities and equipment from June mini drill	July 7, 2007
IR 647968	EP item for procedure quality from June mini drill	July 7, 2007
IR 647969	EP item for exercise management from June mini drill	July 7, 2007
IR 647970	EP enhancement in ERO Performance from June mini drill	July 7, 2007
IR 647972	EP enhancement for facilities/equip. from June mini drill	July 7, 2007
IR 647973	EP enhancement in program admin from June mini drill	July 7, 2007
IR 650195	Lessons learned during Braidwood July 2007 EP drill	July 15, 2007
IR 711721	Drill identified enhancement of BWAP	December 14, 2007
IR 750136	Improvement areas from Fourth QTR 07 EP drill	March 15, 2008
IR 750140	Enhancement areas from Fourth QTR 07 EP drill	March 15, 2008
IR 754035	Enhancement areas from First QTR 08 EP drill	March 24, 2008
IR 808196	TSC deficiencies and enhancements from 7/23 PI drill	August 18, 2008
IR 808219	OSC deficiencies and enhancements from 7/23 PI drill	August 18, 2008
IR 465719 Assign 11	EFR: FRAC Tank Berm Pushed Flat Due to High Wind Condition	March 13, 2006
IR 363693	EFR: Engineers Performed Activities Without Proper Certification	August 16, 2005
IR 428868	EFR: Elevated Tritium Levels in On-Site Monitoring Wells	November 30, 2005
IR 472697	EFR: Typo in BOSR	March 30, 2006
IR 526093	EFR: NRC Potential NCV Unplanned LCO Entry Due to 1CV243 Bumped	August 31, 2006
IR 252888	EFR: 2B Component Cooling Pump Declared Inoperable During Operability	September 14, 2004

CORRECTIVE ACTION PROGRAM DOCUMENTS REVIEWED

<u>Number</u>	<u>Description or Title</u>	<u>Date or Revision</u>
IR 574353	Evaluation EFR: NOS ID: RPS FLS Qualification Documentation	January 2, 2007
IR 484671	EFR: Repack on 1FW039D Causes Decrease in 1D Steam Generator Level A1R12	April 29, 2006
IR 583152	50.59 Evaluation Should Have Been Performed	January 25, 2007
IR 601659	NRC Green Severity Level IV NCV For BwOA ELEC-4 50.59 Eval	March 9, 2007
IR 831223	NRC P&IR ID'd 50.59 Eval Not Completed for 1/2BwOA ELEC-4	October 15, 2008
IR 831234	Missed Opportunities – RA Oversight of NCV Corrective Action	October 15, 2008
IR 755862	NRC B.5.b Potential NCV Related to SFP Mitigating Strategy	March 28, 2008
IR 762265	NRC Identified NCV Related To Tech Spec SR 3.7.12.4 Aux Building Ventilation	April 11, 2008
IR 563129	NRC Identified NCV for Fire Dampers Not Installed	November 29, 2006
IR 723753	URI From NRC Initial License Exam Report (Reg Guide 1.97)	January 17, 2008
IR 761391	NRC Finding and NCV Related to B.5.b Containment Fill Strategy	April 10, 2008
IR 609576	NRC Green Finding – Operability Impact of Cabinet Latches	March 27, 2007
IR 563117	NRC Identified NCV Issued – Cylinders Not in Pre-Fire Plan	November 29, 2006
IR 680968	1B CC Pump Trip	October 6, 2007
IR 632680	Maintenance Rule (A)(1) Evaluation Needed for PR5 Criteria	May 23, 2007
IR 648794	MR (A)(1) Classification Warranted MS4 Performance Criterion	July 10, 2007
IR 657453	Rod Control Urgent Failure Alarm Most Likely Due to Lightning	August 5, 2007
IR 328487	Wrong Valve Body Installed for 2RH8734A During A2R11	April 25, 2005

OPERATING EXPERIENCE

<u>Number</u>	<u>Description or Title</u>	<u>Date or Revision</u>
IR 542786	LLRT Proc. Extent of Condition Review from Byron IR 542407	October 11, 2006
IR 547083	Potential Calculation Non-Conservatism	October 21, 2006

OPERATING EXPERIENCE

<u>Number</u>	<u>Description or Title</u>	<u>Date or Revision</u>
	for RWST Vortexing (Byron FASA)	
IR 681892	Request for Plant Engineering Evaluation on SI Recirc (reference Byron IR 149199)	October 09, 2007
IR 827817	NRC INFO Regarding Biodiesel Fuel for Fleet	October 6, 2008
	OPEX SME Review of NRC IN 2006-22, "New Ultra-Low Sulphur Diesel Fuel Oil could adversely impact Diesel Engine Performance	October 8, 2006
EC 363874	Change to Ultra Low Sulphur Diesel Fuel Design Consideration	Revision 000
50.59 Review, Screening BRW-S-2007-5/6E-07-0005	Change to Ultra Low Sulphur Diesel Fuel (EDGs, AF pump diesel, SX M/U Pump Diesel (BYRON only, FP pump, Security Diesel and Auxiliary Boiler)	Revision 0/0
EPN 0DO03T	Analysts, Inc, Laboratory Report – Diesel Fuel Braidwood	September 1, 2008
EPN 0DO12T	Analysts, Inc, Laboratory Report - Diesel Fuel Braidwood	September 1, 2008
Truck Sample 9161	Analysts, Inc, Preliminary Report - Diesel INPO SOER 97-1-Potential Loss of High Pressure Injection	September 30, 2008 December 9, 1997
	OPEX review of NON BY-01-025	March 3, 2001
	OPEX review of NON BY-02-012	March 14, 2002
IR 725229	NRC Identified Potential Low Margin on CV Pump Shafts	January 22, 2008
IR 647485	Part 21 NSAL-07-05 Fisher 67C, CR, CF, CFR Regulator Screws	July 5, 2007
IR 591281	NRC Generic Letter 2007-01, Power Cable Failures	February 7, 2007
IR 678868	IN 2007-29 Operability Effects of Temporary Scaffold	October 21, 2007
IR 787042	IN 2008-09, Turbine Driven Aux Feed Pump Bearing Issues	May 22, 2008
IR 813496	IN 2008-10, Response to Potential Tampering, Vandalism, Mischief	May 1, 2008
IR 792767	IN 2008-11, Service Water Degradation at Brunswick 1	June 18, 2008
IR 813512	IN 2008-13, Main Feedwater Issues and Related 2007 Reactor Trip Data	July 30, 2008
IR 828969	FP Sprinkler at Stairwell Impaired by Scaffolding	October 9, 2008
IR 829434	Inadequate Review of Scaffold Packages	October 10, 2008
IR 518546	Training OPEX Review-Operator Response Time Questioned	August 9, 2006
IR 624518	OPEX Review Identified Issue with	May 2, 2007

OPERATING EXPERIENCE

<u>Number</u>	<u>Description or Title</u>	<u>Date or Revision</u>
IR 829955	Operator EOP Response Establishing Time Critical Actions Procedure and Data-base	October 12, 2008
IR 518169	CDBI FASA-Operator Response Time not Credible	August 9, 2006
IR 534815	Bryon/Braidwood HRA Notebook Needs Improvement to Meet ASME	September 22, 2006
IR 443080	AM.03 Reduce Equipment Performance Issues and Backlog	January 18, 2008
IR 725229	NRC Identified Potential Low Margin on CV Pump Shafts	January 22, 2008

AUDITS, ASSESSMENTS AND SELF-ASSESSMENTS

<u>Number</u>	<u>Description or Title</u>	<u>Date or Revision</u>
	Braidwood Station 2007 Mid-Cycle Assessment	April 2007
	Braidwood 2007 Mid-Cycle Assessment Plan	February 2007
IR 711912	RP Department Corrective Action Program Self Assessment	June 5, 2008
IR 754902	Security Training / Owner Controlled Area Self Assessment	July 17, 2008
IR 710567 Assign 03	Preparation for NRC Problem Identification and Resolution Inspection	July 29, 2008
IR 561255 Assign 04	FASA Report Readiness Review for 2007 NRC Component Design basis Inspection	July 13, 2007
IR 620582 Assign 04	FASA Report Braidwood Boric Acid Corrosion Program	August 10, 2007
IR 623361 Assign 04	FASA Report Braidwood Appendix J Program	August 28, 2007
	Exelon Braidwood Nuclear Power Plant Boric Acid Corrosion Control Program Leakage tracking and Trending	October 22, 2008
IR 731948	FASA-Operating Experience Usage	February 5, 2008
IR 801481	PIR FASA Id'd Issue Not Re-presented to PHC as Requested	July 29, 2008

DRAWINGS

<u>Number</u>	<u>Description or Title</u>	<u>Date or Revision</u>
M-61 Sh. 1A	Diagram of Safety Injection Unit 1	BG
M-61 Sh. 1B	Diagram of Safety Injection Unit 1	BD
M-61 Sh. 2	Diagram of Safety Injection	AI
M-61 Sh. 3	Diagram of Safety Injection Unit 1	AD
M-62	Diagram of Residual Heat Removal	BO
M-136 Sh. 1	Diagram of Safety Injection Unit 2	BL
M-136 Sh. 3	Diagram of Safety Injection Unit 2	AW
M-136 Sh. 4	Diagram of Safety Injection	BE
M-136 Sh. 5	Diagram of Safety Injection Unit 2	V
M-136 Sh. 6	Diagram of Safety Injection Unit 2	AN
M-137	Diagram of Residual Heat Removal Unit 2	BE

ISSUE REPORTS GENERATED DURING INSPECTION

<u>Number</u>	<u>Description or Title</u>	<u>Date or Revision</u>
IR 831248	NRC PI&R Enhancement – Originator Knowledge of CR Resolution	10/15/2008
IR 834951	NRC PI&R ID'd IR Documentation Does Not Address PRA Changes	10/23/2008
IR 834912	NRC PI&R Comment About Inactive Maintenance Computer User IDs	10/23/2008
IR 834817	Flex Conduit Pulled Loose From Connector at Rigid Conduit	10/23/2008
IR 835049	NRC PI&R ID'd Use of Rad Tape Around Leak Detection Pumps	10/23/2008
IR 834469	2VA02SA – 2A RH PP Cubicle Cooler: Need WO to Clean Fins	10/22/2008
IR 834448	NRC PI&R ID'd Issues with Security IR Generation	10/22/2008
IR 834253	NRC PI&R Challenged Response to Opex Review on Scaffold IN	10/22/2008
IR 834234	NRC PI&R ID'd – Gasket Piece (FME) Observed in Rotometer	10/22/2008
IR 833530	Multiple Items Noted During Aux Building Walkdown	10/20/2008
IR 833506	NRC PI&R ID Loose Items in 2B RH PP Rm & Ladder Not Secure	10/20/2008
IR 833546	NRC PI&R ID'd – Hardened Lubrication on OWS136B Valve Stem	10/20/2008
IR 833544	NRC PI&R ID'd – No Lubrication on OWS137C Valve Stem	10/20/2008
IR 833542	NRC PI&R ID'd - No Lubrication on OWS137A Valve Stem	10/20/2008

ISSUE REPORTS GENERATED DURING INSPECTION

<u>Number</u>	<u>Description or Title</u>	<u>Date or Revision</u>
IR 833513	NRC PI&R ID'd – No Insulation & Loose Banding Clamp on Pipe	10/20/2008
IR 832347	NRC PI&R ID'd – EACE Comment Not Addressed in Report	10/17/2008
IR 829247	NRC ID'd Enhancement – Need to Consolidate Ops DG Survs	10/10/2008
IR 827785	NRC ID'd Phone Lines in the Cable Tray Next to 364' RP Shack	10/7/2008
IR 827384	NRC ID'd Light Burnt Out on 1B SX Pump Cubicle Clr Fan 1E	10/06/2008
IR 827382	VC Chiller Cabinet Door Latches Were Loose	10/06/2008
IR 827379	NRC ID'd No Ground Cable to Junction Box 2JB059A	10/06/2008
IR 827307	NRC Identified Leakage Near 1FW079B	10/06/2008

LIST OF ACRONYMS USED

AF	Auxiliary Feedwater System
ASME	American Society of Mechanical Engineers
CAP	Corrective Action Program
CC	Component Cooling Water System
CFR	Code of Federal Regulations
EACE	Equipment Apparent Cause Evaluations
EOP	Emergency Operating Procedures
IEMA	Illinois Emergency Management Agency
IMC	Inspection Manual Chapter
IR	Issue Report
MRC	Management Review Committee
NCV	Non Cited Violation
NRC	U.S. Nuclear Regulatory Commission
OPEX	Operating Experience
PI&R	Problem Identification and Resolution
PORC	Plants Operations Review Committee
PRA	Probabilistic Risk Assessment
QA	Quality Assurance
RWST	Refueling Water Storage Tank
SDP	Significance Determination Process
SOC	Station Ownership Committee
UFSAR	Updated Final Safety Analysis Report