



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

November 8, 2013

Mr. Michael J. Pacilio
Senior Vice President, Exelon Generation Co., LLC
President and Chief Nuclear Officer, Exelon Nuclear
4300 Winfield Road
Warrenville, IL 60555

**SUBJECT: BYRON STATION, UNITS 1 AND 2, PROBLEM IDENTIFICATION AND
RESOLUTION INSPECTION REPORT 05000454/2013007; 05000455/2013007**

Dear Mr. Pacilio:

On September 27, 2013, the U.S. Nuclear Regulatory Commission (NRC) completed a Problem Identification and Resolution (PI&R) inspection at Byron Station, Units 1 and 2. The enclosed report documents the inspection results, which were discussed at an exit meeting on September 27, 2013, with Mr. R. Kearney and other members of your staff.

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

The inspection team concluded that the corrective action program (CAP) and overall performance related to identifying, evaluating, and resolving problems at Byron Station, Units 1 and 2 was effective. Licensee-identified problems were entered into the CAP at a low threshold and were effectively prioritized and evaluated commensurate with their safety significance. Corrective actions were generally implemented in a timely manner and addressed the identified causes of problems. Lessons learned from industry operating experience were generally reviewed and applied when appropriate. Audits and self-assessments were effectively used to identify problems and appropriate actions. 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 Byron Station.

However, the inspectors identified several areas of concern, which may lead to long-term erosion of the CAP if not effectively addressed. Some of these issues had previously been identified during prior assessments and actions to address these issues were in progress at the conclusion of this inspection. The remaining issues were entered into your CAP for evaluation and resolution.

Three NRC-identified findings of very low safety significance (Green) were identified during this inspection. These findings were determined to involve violations of NRC requirements. However, because of their very low safety significance, and because these issues were entered into your CAP, the NRC is treating these violations as non-cited violations (NCVs) consistent with Section 2.3.2 of the Enforcement Policy.

M. Pacillio

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

If you disagree with a cross-cutting aspect assignment in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region III and the NRC Resident Inspector at the Byron 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 made available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records System (PARS) component of NRC's Agencywide Documents Access and Management System (ADAMS), accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

Eric Duncan, Chief
Branch 3
Division of Reactor Projects

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

Enclosure: Inspection Report 05000454/2013007; 05000455/2013007
w/Attachment: Supplemental Information

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U. S. NUCLEAR REGULATORY COMMISSION

REGION III

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

Report No: 05000454/2013007; 05000455/2013007

Licensee: Exelon Generation Company, LLC

Facility: Byron Station, Units 1 and 2

Location: Byron, IL

Dates: September 9 through 27, 2013

Inspectors: N. Shah, Project Engineer/Team Lead
B. Bartlett, Senior Resident Inspector
A. Dahbur, Reactor Inspector
M. Jones, Reactor Engineer
C. Thompson, Resident Inspector, Illinois Emergency
Management Agency

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

Enclosure

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SUMMARY OF FINDINGS

Inspection Report (IR) 05000454/2013007 and 05000455/2013007; 09/09/2013 - 09/27/2013; Byron Station, Units 1 & 2; Biennial Baseline Inspection of the Identification and Resolution of Problems.

This team inspection was performed by three regional inspectors and the Byron senior resident inspector. Three Green findings were identified by the inspectors. The findings were considered non-cited violations (NCVs) of NRC regulations. The significance of inspection findings is indicated by their color (i.e., Greater than Green, or Green, White, Yellow, Red) and determined using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process (SDP)," dated June 2, 2011. Cross-cutting aspects are determined using IMC 0310, "Components Within the Cross Cutting Areas," dated October 28, 2011. All violations of NRC requirements are dispositioned in accordance with the NRC's Enforcement Policy dated January 28, 2013. 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

Overall, the Corrective Action Program (CAP) was appropriately identifying, evaluating, and correcting issues. Issues were generally being identified at a low threshold, evaluated appropriately and corrected. Overall performance in prioritization and evaluation of issues was acceptable. The inspectors' review going back five years of the licensee's efforts to address issues with the component cooling water system did not identify any significant concerns.

In general, Operating Experience (OE) was properly evaluated for applicability to the station and communicated during pre-job briefings and daily meetings. Nuclear Oversight (NOS) audits and licensee self-assessments were thorough and deficiencies were captured in the CAP. Workers were encouraged to raise safety issues and were generally positive about management's support of the CAP, including addressing significant issues.

However, the inspectors identified some common themes which may lead to long-term erosion of the CAP if not effectively addressed. These included:

- Evaluations were sometimes narrowly focused in that the effectiveness of prior corrective actions for station events and prior opportunities to use OE to prevent issues were not considered. Additionally, some evaluations focused on the specific issues and not underlying programmatic concerns.
- A lack of operational focus sometimes prevented the effective identification and evaluation of issues.
- CAP standards and expectations were not always being met due to a lack of enforcement/accountability.
- Evaluation conclusions sometimes conflicted with the empirical evidence, yet there was no evaluation justifying the discrepancy.

- Although NOS was intrusive, common themes/assessments were not always identified and/or communicated. This reduced the ability of NOS to be a catalyst for change.

These observations were captured in the CAP as Issue Report (IR) 1566070, “PI&R General Themes.” The inspectors also identified three findings with associated NCVs during the inspection.

A. NRC-Identified and Self-Revealed Findings

Cornerstone: Initiating Events

- Green. The inspectors identified a finding of very low safety significance and an associated NCV of Byron Operating License (OL) Condition 2.C.6 for Unit 1 and 2.E for Unit 2 when licensee personnel failed to identify that a fire sprinkler curtain on Elevation 346’ had degraded. Specifically, a ball valve had a twisted stem, which had the effect of indicating that an isolation valve was fully open, when in fact it was significantly closed. As part of their immediate corrective actions, the licensee declared the auxiliary building Elevation 346’ fire curtain inoperable and initiated compensatory measures that included fire watches until the isolation valve stem was replaced. The licensee entered this issue into their CAP as IR 1560667, “Adverse Trend in Main Drain Results for 346 AB [Auxiliary Building] Sprinkler System.”

The performance deficiency was determined to be more than minor because it was associated with the External Factors attribute of the Initiating Events cornerstone and adversely affected the cornerstone objective of limiting the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. The inspectors determined that the finding could be evaluated using the SDP in accordance with IMC 0609, Appendix F, “Fire Protection Significance Determination Process,” because it was associated with fire protection defense-in-depth strategies involving fire confinement. The inspectors determined that while flow to the sprinkler heads was significantly degraded, because less than 10 percent of the heads were obstructed or fouled, and no adjacent heads were fouled, the water curtain had a low degradation rating in accordance with IMC 0609, Appendix F, Attachment 2. Therefore, in accordance with IMC 0609, Appendix F, Attachment 1, Step 1.3.1.B, the finding was determined to be of very low safety significance (Green). This finding had a cross-cutting aspect in the CAP component of the PI&R cross-cutting area (P.1.(a)), because licensee personnel twice failed to identify the degraded sprinkler curtain and when NRC personnel identified the issue and informed licensee personnel, the issue was not entered into the licensee’s CAP in a timely manner. (Section 40A2(1).(1))

Cornerstone: Mitigating Systems

- Green. The inspectors identified a finding of very low safety significance and an associated NCV of Technical Specification (TS) 3.8.1 when licensee personnel failed to properly assess the operability of the 2A emergency diesel generator (EDG) following a post-maintenance test that rendered the 2A EDG ventilation fan, a credited support system, incapable of performing its auto-start support system function for a period of two days. As part of the licensee’s immediate corrective actions, a trip signal that prevented the 2A EDG fan from starting was reset. The licensee entered this issue into their CAP as IR 1252529, “2A DG [EDG] Vent Fan Trip Signal Not Reset.”

The performance deficiency was determined to be more than minor because it was associated with the Configuration Control and Human Performance attributes of the Mitigating Systems cornerstone and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, following an August 15, 2011, post-maintenance test of the 2A EDG room ventilation system high differential pressure (D/P) trip time delay, the licensee failed to implement the necessary procedural steps that ensured the high D/P trip signal was reset. This resulted in the 2A EDG room ventilation fan from auto-starting, resulting in the inoperability of the 2A EDG from August 15-17, 2011. The inspectors determined that this finding screened as having very low safety significance (Green) in accordance with IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings at Power," Exhibit 2, "Mitigating Systems Screening Questions," as it did not represent an actual loss of function of at least a single train of safety-related equipment for greater than its Technical Specification (TS) allowed outage time and did not represent an actual loss of function of one or more non-TS trains of equipment designated as high safety-significant in accordance with the licensee's maintenance rule program for greater than 24 hours. This issue had a cross-cutting aspect in the Work Practices component of the Human Performance cross-cutting area (H.4(a)), because licensee personnel failed to use appropriate human performance techniques to ensure that work tasks were performed safely and individuals do not proceed in the face of uncertainty. (Section 40A2(1)(.2))

- Green. The inspectors identified a finding of very low safety significance and an associated NCV of 10 CFR Part 50, Appendix B, Criterion XI, "Test Control," when licensee personnel failed to account for test instrument uncertainty in the acceptance criteria for TS Surveillance procedure 2BOSR 8.6.1-2, "125VDC [Volt Direct Current] ESF [Engineered Safety Feature] Battery Bank and Charger 212 Operability Weekly Surveillance." As part of the licensee's immediate corrective actions, the voltage of the affected battery charger was adjusted. The licensee also planned to perform a fleet-wide evaluation of the issue. The licensee entered this issue into their CAP as IR 0156440, "125 VDC Battery TS Surveillance Values."

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 (i.e., core damage). Specifically, the acceptance criteria for the battery voltage did not assure the availability of the safety-related direct current (DC) batteries that would meet the minimum voltage as required by the TSs. This finding screened as having very low safety significance, in accordance with Exhibit 2 of IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings for At-Power," because it was a design deficiency confirmed not to result in a loss of operability. The inspectors did not identify a cross-cutting aspect associated with this finding because the finding was not representative of current performance. Specifically, the decision to not include the instrument uncertainty was made in 2003, as part of an evaluation for a previously identified issue. (Section 40A2(2)(.1))

B. Licensee-Identified Violations

None.

REPORT DETAILS

4. OTHER ACTIVITIES

4OA2 Problem Identification and Resolution (71152B)

The activities documented in Sections .1 through .4 constituted one biennial sample of PI&R as defined in Inspection Procedure (IP) 71152.

.1 Assessment of Corrective Action Program Effectiveness

a. Inspection Scope

The inspectors reviewed the licensee's CAP implementing procedures and attended selected CAP program meetings to assess the implementation of the CAP by site personnel.

The inspectors reviewed risk-significant and safety-significant issues in the licensee's CAP since the last NRC biennial PI&R inspection in September 2011. The items selected ensured an adequate review of issues across the NRC cornerstones. The inspectors used issues identified through NRC generic communications, department self-assessments, licensee audits, operating experience reports, and NRC-documented findings as sources to select issues. Additionally, the inspectors reviewed CAP items generated as a result of facility personnel performance in daily plant activities. The inspectors also reviewed CAP items and a selection of completed investigations from the licensee's various investigation methods, including root cause evaluations (RCEs), apparent cause evaluations (ACEs), and common cause evaluations (CCEs).

The inspectors performed a more extensive review of the component cooling water system. This review consisted of a five-year search of related issues identified in the CAP and discussions with appropriate licensee staff to assess the licensee's efforts in addressing identified concerns.

The inspectors attended meetings of the Station Oversight Committee and Management Review Committee to observe how issues were being screened and evaluated, and to obtain insights into the licensee's oversight of the CAP program. The inspectors also interviewed members of the licensee's staff.

During the reviews, the inspectors evaluated whether the licensee's actions were in compliance with the facility's CAP and 10 CFR Part 50, Appendix B requirements. Specifically, the inspectors determined whether 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 assessed whether the licensee staff assigned the appropriate investigation method to ensure the proper determination of root, apparent, and contributing causes. The inspectors also reviewed the timeliness and effectiveness of corrective actions for selected issue reports, completed investigations, and NRC findings, including NCVs.

Specific documents reviewed are listed in the Attachment.

b. Assessment

(1) Effectiveness of Problem Identification

The inspectors concluded that issues were being identified at a low threshold, evaluated appropriately, and corrected in the CAP, and that workers were familiar with the CAP and felt comfortable raising concerns. This was evident by the large number of CAP items generated annually, which were reasonably distributed across the various departments. A shared, computerized database was used for creating individual reports and for subsequent management of the processes of issue evaluation and response. These processes included determining the issue's significance, addressing such matters as regulatory compliance and reporting, and assigning any actions deemed necessary or appropriate.

The inspectors concluded that the station was generally effective at trending low level issues to prevent larger issues from developing. A review of specific trend evaluations did not identify any concerns.

Observations

Failure to Identify Potential Maintenance Rule Unavailability

On April 15, 2013, the licensee was unable to complete a required surveillance test of the 1A auxiliary feedwater pump (a safety-related pump) engineered safety feature (ESF) actuation relays. This issue was documented in IR 1502138, "1BOSR 3.2.8-632A Failed ESF Relay Surveillance," dated April 15, 2013. The cause of the failure was an unexpected alteration of the control circuitry due to a recently installed temporary modification. The effect of the modification was not recognized during its development and subsequent installation. The licensee was able to successfully complete the surveillance and performed an ACE to evaluate the issue and develop appropriate corrective actions. However, the inspectors identified that the ACE failed to account for any accrued maintenance unavailability for this system. Subsequently, the licensee issued IR 1558136, "PI&R Maintenance Rule Unavailability Not Counted," dated September 13, 2013, identifying that an additional 7 hours and 6 minutes of unavailability time should have been assessed. The inspectors determined that the missed time did not have an overall adverse effect on the system's maintenance rule status and therefore that the performance deficiency was minor.

Lack of Operational Focus Prevented Identification of Issues

The inspectors identified some examples in which underlying performance issues were not identified due to a lack of operational focus. These examples included:

- The inspectors identified that the licensee had missed several opportunities to identify an adverse trend potentially affecting the operability of the fire sprinklers around the elevator area in the 346' elevation of the Unit 2 auxiliary building. This area was considered safety-related and required that compensatory measures (fire watches) be taken if the sprinklers were inoperable. The failures to identify the trend and institute compensatory actions were documented in

IRs 1560667, "Adverse Trend in Main Drain Results for 346 AB [Auxiliary Building] Sprinkler System," dated September 18, 2013, and 1563676, "346 AB Stairwell/Hatch Sprinkler System," dated September 25, 2013. This issue was also considered a finding as documented below;

- The licensee documented high resistance readings on a relay contact during surveillance testing of the safety-related 1A auxiliary feedwater pump. This issue was documented in IR 1545604, "Difficult to Get Ohms Readings on R8A Contacts 1 and 2," dated August 12, 2013. Specifically, the test procedure required that operators verify a resistance reading of less than 10 ohms on the tested relays. The inspectors noted the licensee made four attempts to obtain the readings before meeting the acceptance criteria and satisfying the surveillance requirements. In IR 1545604, the licensee stated that the operators were aware of prior occurrences in which incorrect placement of the test instrumentation had resulted in incorrect resistance readings. Therefore, no questions were raised regarding the multiple attempts to obtain the resistance reading. Subsequently, the licensee concluded that the operator actions were appropriate and that the pump was operable.

Although the inspectors agreed with the licensee's conclusion that the pump was operable, they questioned whether the operators' actions were conservative. Specifically, the inspectors identified that the operators had non-conservatively determined that the high resistance readings were due to the past performance issues, rather than questioning whether there was an operability issue with the relay. The inspectors questioned whether the proper action would have been to enter the associated Technical Specification after the first or second reading and then perform troubleshooting to verify whether the issue was with the test equipment placement or with the relay. The licensee documented this issue in IR 1563943, "NRC PI&R: Procedure Not Followed During 1BOSR 3.2.3-1," dated September 26, 2013.

- In August 2011, the licensee installed a time delay relay in the Unit 2A emergency diesel generator (EDG) ventilation fan. After the installation, the 2A EDG fan was left in a state where it would not auto-start concurrent with an auto-start of the EDG. This was identified 2 days later during a routine surveillance test. At the time, the licensee concluded that the 2A EDG was operable based upon an existing high energy line break (HELB) analysis, which stated that the EDG would remain available if the fans were started within 2 hours after the EDG started. The licensee documented this issue in IR 1252529, "2A DG Fan Trip Signal Not Reset," dated August 12, 2011.

The inspectors disagreed with this conclusion, as the automatic start of the fan (concurrent with an auto-start of the EDG) was part of the operability basis as defined in the associated Technical Specification. Therefore, the licensee should have entered the applicable EDG Technical Specification for the period of time during which the auto-start of the fan was disabled. The inspectors agreed with the HELB analysis conclusion that the EDG would likely have remained available provided the fans were started within 2 hours. Specifically, the inspectors concluded that the licensee had narrowly focused on the availability of the EDG and not on its operability as defined by the Technical Specifications. This issue was considered a violation and finding as discussed below. The licensee

documented this issue in IR 1567369, "NRC PI&R: Procedure Not Followed During 1BOSR 3.2.3-1," dated September 26, 2013.

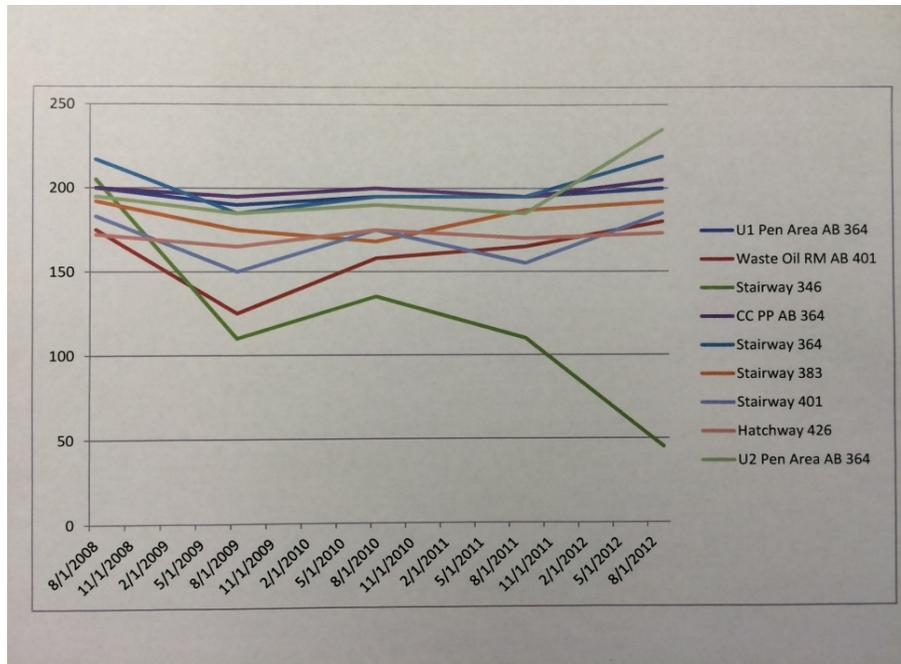
In these examples, the licensee failed to evaluate whether the involved staff had maintained an appropriate operational focus during the specific events. Specifically, the licensee only evaluated the specific issue and not the underlying behaviors. This was contrary to CAP implementation expectations and meant that the licensee could potentially miss identifying (and therefore correcting) some organizational causes for events.

Findings

.1 Inadequate Identification of Fire Curtain Sprinkler Degradation for an Auxiliary Building Stairwell

Introduction: A finding of very low safety significance (Green) and an associated NCV of Byron Unit 1 Operating License (OL) Condition 2.C.6 for Unit 1 and 2.E for Unit 2 was identified by the inspectors when licensee personnel failed to properly maintain an automatic sprinkler system as required by the Fire Protection Program (FPP). Specifically, the auxiliary building elevation 346' sprinklers were determined to be degraded by a partially-closed valve.

Description: On September 18, 2013, the inspectors requested that the licensee provide an explanation for the apparent degradation of the as-found pressure readings during the annual surveillance tests performed on the elevation 346' stairwell water curtain fire barrier. On August 22, 2013, visiting NRC auditors had observed a low pressure reading for one of the auxiliary building sprinkler main drain surveillance tests. The data for the 346' stairwell indicated 45 pounds per square inch gauge (psig) although other auxiliary building sprinklers indications ranged between 173 psig and 235 psig. Section 2.3.11.3 of the Fire Protection Report stated, in part, that elevation 346' of the auxiliary building had a sprinkler system provided around the stairwell at location P-18. Licensee design drawings identified that 7 psig was required for a sprinkler head to be considered operable. Because the surveillance test readings for the subject sprinkler line were identified to be as low as 45 psig, the inspectors were concerned that the minimum pressure required for each individual sprinkler head of 7 psig may not have been met. The unusually low 346' stairwell sprinkler pressure data had not been identified by licensee personnel although the surveillance data was reviewed by the Non-Licensed Operators who performed the test and by a licensed Senior Reactor Operator. The NRC auditors requested data from previously performed annual surveillance tests for this and other sprinklers and were presented with the graph below:



The visiting NRC auditors left the site and on September 18, 2013, informed the resident inspectors of the above information. The resident inspectors requested that the PI&R inspection team further evaluate this issue.

The PI&R inspectors determined that licensee personnel had not performed any additional follow-up and had not initiated an IR following identification of the issue. In response to inspector questions, the licensee then initiated IR 1560667, "Adverse Trend in Main Drain Results for 346 AB Sprinkler System," dated September 19, 2013, to document the adverse trend in main drain surveillance test results. The licensee also initiated corrective actions regarding the failure to initiate an IR when the adverse trend was first identified by the NRC auditors and documented this in IR 1563676, "346 AB Stairwell/Hatch Sprinkler System," dated September 25, 2013.

Based upon the data from the previously performed surveillance test, performed September 4, 2012, the licensee declared the auxiliary building elevation 346' fire curtain inoperable and initiated compensatory measures that included fire watches. Work Order (WO) 01676766 was subsequently performed on October 7, 2013, and when the mechanics opened line valve 0FP897 they determined that the stem of the ball valve was twisted. This had the effect of visually indicating that the valve was full open when, in fact, it was partially closed. Based upon the trend line in the graph, the inspectors concluded that this condition had existed for some time and likely degraded further during previously performed activities.

As part of the licensee's corrective actions, the licensee replaced the bent isolation valve stem. In addition, as-found pressures were taken before the isolation valve was repaired, a hydraulic analysis was performed to more accurately assess past system operability, the engineering staff was added to the list of personnel who received the surveillance test data, and the engineer who failed to initiate the IR received additional training and counseling.

Analysis: The inspectors determined that the failure to properly maintain an automatic sprinkler system as required by the FPP was a performance deficiency that warranted a significance determination.

The inspectors concluded that the performance deficiency was more than minor in accordance with IMC 0612, Appendix B, "Issue Disposition Screening," because it was associated with the External Factors attribute of the Initiating Events cornerstone and adversely affected the cornerstone objective of limiting the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations.

The inspectors determined that the finding could be evaluated using the SDP in accordance with IMC 0609, Appendix F, "Fire Protection Significance Determination Process," because it was associated with fire protection defense-in-depth strategies involving fire confinement. The inspectors determined that in accordance with IMC 0609, Appendix F, Attachment 2, that although flow to the sprinkler heads was significantly degraded, because less than 10 percent of the heads were obstructed or fouled, and no adjacent heads were fouled, the water curtain had a low degradation rating. Therefore, in accordance with IMC 0609, Appendix F, Attachment 1, Step 1.3.1.B, the finding was determined to be of very low safety significance (Green).

This finding had a cross-cutting aspect in the CAP component of the PI&R cross-cutting area (P.1.(a)), because licensee personnel twice failed to identify the degraded sprinkler and when NRC personnel identified it and informed licensee personnel, the issue was not entered into the licensee's CAP in a timely manner.

Enforcement: Byron Operating License (OL) Condition 2.C.6 for Unit 1 and Condition 2.E for Unit 2, stated, in part, that the licensee shall implement and maintain in effect all provisions of the approved FPP as described in the licensee's Fire Protection Report. Section 2.3.11.3 of the Fire Protection Report stated, in part, that elevation 346' of the auxiliary building had a sprinkler system provided around the stairwell at location P-18. Licensee design drawings identified that 7 psig was required for a sprinkler head to be considered operable.

Contrary to the above, on September 18, 2013, NRC inspectors identified that the sprinkler system at location P-18 on elevation 346' of the auxiliary building did not have the required amount of pressure to ensure the design requirement of 7 psig was met for all sprinkler heads. As part of their immediate corrective actions, the licensee declared the auxiliary building elevation 346' fire curtain inoperable and initiated compensatory measures that included fire watches until the isolation valve stem was replaced. Because this violation was of very low safety significance and because the issue was entered into the licensee's CAP as IR 1560667, "Adverse Trend in Main Drain Results for 346 AB Sprinkler System," this violation is being treated as a NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy. **(NCV 05000454/2013007-01; 05000455/2013007-01: Inadequate Identification of Fire Curtain Sprinkler Degradation for an Auxiliary Building Stairwell)**

.2 Failure to Assess Operability of the 2A Emergency Diesel Generator

Introduction: The inspectors identified a finding of very low safety significance (Green) and an associated NCV of TS 3.8.1 when licensee personnel failed to properly assess the operability of the 2A EDG following a post-modification test that rendered the

2A EDG ventilation fan, a credited support system, incapable of performing its auto-start support system function for two days.

Description: On Monday, August 15, 2011, the licensee entered TS 3.8.1 to complete a modification to the 2A EDG room ventilation fan in accordance with Engineering Change (EC) 385198. The purpose of this modification was to install a 30-second time delay on the high differential pressure (D/P) trip of the fan, as a result of a Byron/Braidwood High Energy Line Break (HELB) analysis issue to restore margin to EDG operability.

Following the completion of the modification, the licensee performed post-modification testing in accordance with the work instructions contained in WO 01454201-02, "Ops Perform 'Post Installation Testing' 2VD01CA." Specifically, the workers were instructed to use procedure BOP VD-5, "DG Room Ventilation System Operation," to start the fan and then inject a simulated high D/P signal to trip the relay. The testing was completed satisfactorily and the 2A EDG was returned to service later that same day.

On Wednesday, August 17, 2011, the licensee performed the ESF Relay Start and Monthly Surveillance in accordance with 2BSOR 8.1.2-1, "Unit Two 2A Diesel Generator Operability Surveillance." During the test, the licensee identified that the 2A EDG room ventilation fan failed to auto-start, concurrent with the auto-start of the EDG, upon receipt of the ESF signal. Subsequently, the 2A EDG was declared inoperable and TS 3.8.1 was entered. The licensee identified that the fan failed to start because the high D/P trip had not been reset following the post-modification testing on August 15, 2011, as required by BOP VD-5. After resetting the trip, the licensee successfully completed the surveillance test and the EDG was returned to service.

The licensee documented this issue in IR 1252529, "2A DG Vent Fan Trip Signal Not Reset," dated August 17, 2011, to evaluate the failure. The licensee determined operators failed to reset the 2A EDG vent fan interlock due to specific instructions not being included in the associated WO. The inspectors determined that control room operators should have recognized the need to reset the high D/P trip due to instructions contained in Step 6, "Limitations and Actions," of BOP VD-5. This step stated that "If a fan trips on high differential pressure, the control switch must be placed in the Pull-Out position momentarily to reset the high differential pressure interlock." The inspectors noted that operators matched the main control board control switch position with the target to clear the high D/P alarm, but failed to ensure the trip reset actions contained in BOP VD-5 were performed.

In the IR, the licensee concluded that the 2A EDG remained operable, even though the 2A EDG ventilation fan was incapable of auto-starting. Specifically, the licensee stated:

The 2A D/G vent fan was functional and available with operator action, but not capable of automatically starting when the 2A D/G started. The Fan is a "support system" and is designed to Auto-start, but is not required to Auto-start for operability of the D/G as discussed in the Updated Final Safety Analysis Report 8.3.1.1.2.2: "Short term unavailability of the diesel generator room ventilation fans and dampers is bounded by the HELB analysis (See Subsection 9.4.5.2.1.3.e)."

The inspectors asserted that while the HELB analysis was the bounding case for environmental conditions in the EDG room, operability required that support systems remained capable of performing their support system function. In this case, the required function was that the 2A EDG ventilation fan automatically start when the EDG received a start signal, without operator action. This was consistent with the definition of OPERABLE-OPERABILITY in the TSs, which stated, in part:

A system, subsystem, train, component, or device shall be OPERABLE or have OPERABILITY when it is capable of performing its specified safety function(s) and when all necessary attendant instrumentation, controls, normal or emergency electrical power, cooling and seal water, lubrication, and other auxiliary equipment that are required for the system, subsystem, train, component, or device to perform its specified safety function(s) are also capable of performing their related support function(s).

By failing to reset the relay during the post-modification testing, the licensee failed to maintain the safety function of the 2A EDG ventilation fan support system. Additionally, by incorrectly concluding that the EDG was operable, the licensee failed to identify that TS 3.8.1 should have been in effect from August 15-17, 2011, during the period the support system was affected, and that the associated, required actions be implemented. Specifically, that the required actions of TS 3.8.1, Conditions B.1, B.2, and B.4.1 or B.4.2 be performed: the indicated completion time for B.1, to verify both opposite-unit EDGs operable; and B.2, perform SR [Surveillance Requirement] 3.8.1.1 for the required qualified circuits within 1 hour of identifying the inoperable condition; and the required action of either B.4.1, to determine the operable EDG was not inoperable due to common cause failure or B.4.2, perform SR 3.8.1.2 for the operable EDG, were to be performed within 24 hours. Technical Specification 3.8.1 also required that the affected EDG be restored to operability within 14 days.

The licensee documented the failure to enter TS 3.8.1 in their CAP as IR 1567369, "PI&R 2A DG Operability Concern," dated October 3, 2013. The inspectors noted that the 2A EDG was available had there been a loss of offsite power event, based on the actions taken by the licensee during the August 17, 2011, surveillance test and the bounding conditions discussed in the aforementioned HELB analysis.

Analysis: The inspectors determined that the failure to properly assess continued operability of the 2A EDG following a post-modification test that rendered a support system incapable of performing its auto-start support system function was a performance deficiency that warranted a significance determination.

This performance deficiency was screened in accordance with IMC 0612, Appendix B, "Issue Screening," and was determined to be more than minor because it was associated with the Configuration Control and Human Performance attributes of the

Mitigating Systems cornerstone and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, following an August 15, 2011, post-modification test of the 2A EDG room ventilation system high D/P trip time delay, the licensee failed to implement the necessary procedural steps to ensure the high D/P trip signal was reset. This resulted in the 2A EDG room ventilation fan from auto-starting, resulting in the inoperability of the 2A EDG from August 15-17, 2011.

The inspectors determined the finding could be evaluated using the SDP in accordance with IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings at Power," Exhibit 2, "Mitigating Systems Screening Questions." The inspectors answered 'No' to the A.2 screening questions since the finding did not represent an actual loss of function of at least a single train of safety-related equipment for greater than its TS allowed outage time and did not represent an actual loss of function of one or more non-TS trains of equipment designated as high safety-significant in accordance with the licensee's maintenance rule program for greater than 24 hours. Therefore, this finding was of very low safety significance (Green). The inspectors determined that a significant contributor to this finding was the failure of the operating crew to ensure "Limitations and Actions" steps of procedure BOP VD-5, "DG Room Ventilation System Operation," were understood and implemented as written. As a result, the inspectors identified a cross-cutting aspect in the Work Practices component of the Human Performance cross-cutting area (H.4(a)), because licensee personnel failed to use appropriate human performance techniques to ensure that work tasks were performed safely and individuals do not proceed in the face of uncertainty.

Enforcement: Technical Specification 3.8.1, Condition B.1, required that the licensee verify both opposite unit EDGs operable within 1 hour and once per 24 hours thereafter; and Technical Specification 3.8.1, Condition B.2, required that the licensee verify correct breaker alignment and indicated power availability for each required qualified circuit within 1 hour and once every 8 hours thereafter; and Technical Specification 3.8.1, Condition B.4.1, required that the licensee determine the operable EDG is not inoperable due to common cause failure within 24 hours; or Technical Specification 3.8.1, Condition B.4.2, required that the licensee verify each operable EDG starts from a standby condition and achieves steady state voltage ≥ 3950 Volts (V) and ≤ 4580 V and frequency ≥ 58.8 Hertz (Hz) and ≤ 61.2 Hz within 24 hours.

Contrary to the above, on August 15, 2011, licensee personnel failed to properly assess the operability of the 2A EDG following a post-modification test that rendered a support system incapable of performing its auto-start support system function. As a result operations personnel failed to verify both opposite unit EDGs were operable within 1 hour and once every 24 hours thereafter. Additionally, operations personnel did not verify correct breaker alignment and indicated power availability for each required qualified circuit within 1 hour and once every 8 hours thereafter. The licensee also failed to determine the operable EDG was not inoperable due to a common cause failure within 24 hours, or verify that each operable EDG started from a standby condition and achieved steady state voltage ≥ 3950 V and ≤ 4580 V and frequency ≥ 58.8 Hz and ≤ 61.2 Hz within 24 hours. As part of the licensee's immediate corrective actions, a trip signal that prevented the 2A EDG fan from starting was reset. Because this violation was of very low safety significance and the issue was entered into the licensee's CAP as IR 1252529, "2A DG Vent Fan Trip Signal Not Reset," this violation is being treated as a

NCV, consistent with Section 2.3.2 of the NRC Enforcement Policy (**NCV 05000454/2013007-02; 05000455/2013007-02: Failure to Properly Assess Operability of the D2 EDG Following Post-Modification Testing**).

(2) Effectiveness of Prioritization and Evaluation of Issues

The inspectors concluded that the overall performance in the prioritization and evaluation of issues was effective. In particular, the inspectors observed that the majority of issues identified were at a low level and were either closed to a trend or at a level appropriate for a condition evaluation. Issues were being appropriately screened by both the Station Oversight and Management Review Committees and the inspectors had no concerns with those items assigned an ACE, CCE, or RCE. There were no items identified by the inspectors in the operations, engineering, or maintenance backlogs that were risk-significant, either individually or collectively.

Observations

Effectiveness of Previous Corrective Actions Were Not Always Evaluated

The inspectors identified several examples where the failure to implement corrective actions were not documented in the CAP. This potentially resulted in some causes for issues in the CAP not being properly addressed. The inspectors identified the following examples:

- The RCE for IR 1275855, "Byron Declining Performance Clearance and Tagging," dated September 26, 2011, identified a potential station-wide adverse trend in worker risk assessment, however, no action was assigned to evaluate this trend;
- The ACE for IR 1262639, "U2 [Unit 2] CC [Component Cooling Water] Heat Exchanger Not Included in OLR [On-Line Risk] Evaluation," dated September 13, 2011, identified that a corrective action from a prior CCE should have prevented this event. Specifically, the licensee identified that station procedure WC-AA-101-1066, "On-Line Risk Management and Assessment," had not been revised as required by the evaluation. Although a new action was generated to correct the procedure (which the inspectors verified was completed), no action was assigned to evaluate why the procedure had not been revised earlier; and
- The ACE for IR 1502138, "1BOSR 3.2.8-632A Failed ESF Relay Surveillance," dated April 15, 2013, identified that a corrective action from a previous ACE should have prevented the issue. Specifically, the ACE included actions that operations, engineering, maintenance, chemistry and radiation protection staff review station procedure HU-AA-1212, "Technical Task Risk/Rigor Assessment," which contained guidance on identifying potential unexpected, adverse system interactions for modifications. The licensee identified that the failure to properly use this procedure was a contributing cause to the issue documented in IR 1502138. Although a corrective action was taken to re-emphasize this procedure among the appropriate staff, no action was assigned to determine why the previous action had not been effective.

Although the overall corrective actions appeared sufficient to address the specific issues, the failure to evaluate these other contributing causes could potentially lead to recurring problems. The licensee documented the inspectors' concern in IR 1563891, "NRC PI&R Identified RCE/ACE Issue With CAP Process," dated September 26, 2013.

Conclusions of Evaluations Not Always Justified or Clearly Stated

The inspectors identified some evaluations in which the conclusions conflicted with the empirical evidence, and there was no evaluation justifying the discrepancy. For example, IR 1321587, "2B D/G Auto Start," dated February 1, 2012, documented a failure of the 2B EDG to automatically start as required during a surveillance test. The cause was attributed to a faulty chart recorder that was used to monitor the EDG during the surveillance. This conclusion was contrary to the results of an analysis performed by an offsite vendor on the chart recorder, which verified that it was functioning properly. The inspectors found no discussion regarding the basis for the conclusion given the contrary vendor analysis results nor consideration of other, likely failure mechanisms, such as the failure to properly set up the recorder. The licensee documented this observation in the CAP as IR 1563915, "NRC PI&R: IR 1321587 Disagreed with Power Labs Conclusion," dated September 26, 2013, and IR 1557757, "PI&R Inspections: Enhancements Identified to EACE [Equipment ACE] 1421286," dated September 12, 2013.

Corrective Action Program Standards and Expectations Were Not Always Met

As documented in this report, the inspectors identified examples where the effectiveness of prior corrective actions for station events and prior opportunities to use OE to prevent issues were not evaluated. The inspectors also identified several examples where effectiveness reviews for RCEs and CCEs were not scheduled or were improperly performed. In each of the examples, the expectations were clearly defined in the CAP procedures, but the guidance was either not being reviewed by the workers or not being enforced during the review of the RCEs, ACEs and CCEs by the department supervisors and/or by the Management Review Committee. In some examples, the underlying programmatic causes of issues were not evaluated; which was also contrary to CAP procedures. The inspectors were concerned that the failure to reinforce expectations may lead to a degradation of the CAP over time. The licensee documented these issues in IR 1563947, "Discrepancy With Common Cause Evaluations," dated September 26, 2013; IR 1563965, "All Causes Not Addressed In RCE 1323547," dated September 26, 2013; IR 1563990, "PI&R: Common Cause Evaluation Procedure Not Being Followed," dated September 26, 2013; IR 1563891, "NRC PI&R Identified RCE/ACE Issue With CAP Process," dated September 26, 2013; and IR 1563898, "NRC PI&R Identified CAP Documentation Not 'Stand-Alone'," dated September 26, 2013.

Findings

.1 Acceptance Criteria for Battery Voltage in Technical Specifications Surveillance Procedure Failed to Account for Test Equipment Uncertainty

Introduction: The inspectors identified a finding of very low safety significance (Green) and an associated NCV of 10 CFR Part 50, Appendix B, Criterion XI, "Test Control," when licensee personnel failed to account for test instrument uncertainty in the

acceptance criteria for TS Surveillance procedure 2BOSR 8.6.1-2, "125VDC ESF Battery Bank and Charger 212 Operability Weekly Surveillance."

Description: On September 10, 2011, DC Bus 212 showed 128VDC on the local bus voltage indication and also on the Main Control Room indication. This voltage was below the administrative limit of 128.2 VDC. As an immediate action, an equipment operator was dispatched to check the terminal voltage locally in accordance with TS Battery Surveillance procedure 2BOSR 8.6.1-2, "125VDC ESF Battery Bank and Charger 212 Operability Weekly Surveillance." The operator used a Fluke digital multimeter to measure the battery voltage. The measured terminal voltage was 127.9 VDC, above the TS required value of 127.6 VDC, therefore, the licensee concluded that Battery 212 remained operable. In addition, as part of the licensee's immediate corrective actions, the voltage of the affected battery charger was adjusted. The licensee also planned to perform a fleet-wide evaluation of the issue.

The inspectors noted that procedure 2BOSR 8.6.1-2 did not account for the test equipment uncertainty in the acceptance criteria for the battery terminal voltage. According to the calibration certificate for the Fluke multimeter, the meter had an instrument uncertainty of +/- 0.5 VDC in the 500 volts range. This meant that the measured voltage could be below the required TS value, given the measured uncertainty. The inspectors noticed that the acceptance criteria for the pilot cell voltage (≥ 2.07 VDC) also did not account for the instrument accuracy.

Technical Specification Bases SR 3.8.4.1 stated that the requirement to verify the battery terminal voltage while on the float charge was to ensure the effectiveness of the battery chargers, which supported the ability of the batteries to perform their intended function. This section also stated that the battery voltage requirements were based on the nominal design voltage and were consistent with the minimum float voltage established by the battery manufacturer (2.20V per cell or 127.6V at the battery terminals). This voltage maintained the battery plates in a condition that supported maintaining the battery expected life of approximately 20 years.

The inspectors noticed that TS Bases SR 3.8.6.2 and SR 3.8.6.5 indicated that optimal long-term battery performance was obtained by maintaining a float voltage greater than or equal to the minimum established design limits provided by the battery manufacturer, which corresponded to 126.6 VDC.

In response to the inspectors' concerns, the licensee entered this issue into their CAP as IR 0156440, "125 VDC Battery TS Surveillance Values," dated September 27, 2013. The licensee indicated that this issue was previously evaluated by corporate engineering in 2003, as part of the resolution for a similar concern identified at Braidwood Station. For this issue, the licensee concluded that the stated acceptance value was appropriate consistent with NRC Inspection Manual, Part 9900, Technical Guidance, Section 3.0, "Acceptance Measurement Tolerances for Technical Specification Limits." This guidance stated that, "the TS limits are established with allowance for measurement tolerances already incorporated. The limits take into consideration measurement uncertainties as necessary to assure safe plant operation. The stated limit presupposes that the licensee have tolerances consistent with normal industry standards."

The inspectors disagreed with this position, because the TS battery parameter limits did not incorporate the measurement tolerances, but were vendor-provided

recommendations. In addition, the licensee used the TS values in the battery calculations as the minimum requirements to demonstrate the capability of the safety-related batteries to perform their function.

Analysis:

The inspectors determined the licensee's failure to include the test equipment uncertainty in the acceptance criteria specified in the TS Surveillance procedures was contrary to 10 CFR Part 50, Appendix B, Criterion XI, "Test Control," and was a performance deficiency that warranted a significance determination.

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 (i.e., core damage). Specifically, the acceptance criteria for the battery voltage did not assure that the safety-related DC batteries would meet the minimum voltage as required by the TSs.

The inspectors determined the finding could be evaluated using the SDP in accordance with IMC 0609, "Significance Determination Process," Attachment 0609.04, "Initial Characterization of Findings." Because the finding impacted the Mitigating Systems cornerstone, the inspectors screened the finding through IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," using Exhibit 2, "Mitigating Systems Screening Questions." The finding screened as having very low safety significance (Green) because it was a design deficiency confirmed not to result in a loss of operability. Specifically, the batteries had excess capacity that a slight voltage reading below 127.6 VDC would not have affected the ability of the batteries to perform their safety function.

The inspectors did not identify a cross-cutting aspect associated with this finding, because the finding was not representative of current performance. Specifically, the decision to not include the instrument uncertainty was made in 2003, as part of an evaluation for a similar concern identified at Braidwood Station.

Enforcement: Title 10 CFR Part 50, Appendix B, Criterion XI, "Test Control," requires, in part, that a test program shall be established to assure that all testing required to demonstrate that structures, systems, and components will perform satisfactorily in service is identified and performed in accordance with written test procedures which incorporate the requirements and acceptance limits contained in applicable design documents.

Contrary to the above, on September 10, 2011, the licensee failed to assure that the testing required to demonstrate that the safety-related DC station battery would perform satisfactorily in service was identified and performed in accordance with written test procedures which incorporated the requirements and acceptance limits contained in applicable design documents. Specifically, TS Surveillance procedure 2BOSR 8.6.1-2 failed to ensure that the safety-related DC Battery 212 met the TS required voltage, as the associated acceptance criteria did not account for test instrument uncertainty. As part of the licensee's immediate corrective actions, the voltage of the affected battery charger was adjusted. The licensee also planned to perform a fleet-wide evaluation of

the issue. Because this violation was of very low safety significance and it was entered into the licensee's CAP as IR 0156440, "125 VDC Battery TS Surveillance Values," this violation is being treated as a NCV, consistent with Section 2.3.2 of the NRC Enforcement Policy (**NCV 05000454/2013007-03; 05000455/2013007-03, Acceptance Criteria for Battery Voltage in TS Surveillance Procedure Failed to Account for Test Equipment Uncertainty**).

(3) Effectiveness of Corrective Actions

On the basis of the corrective action documents reviewed, the inspectors concluded that the corrective actions were appropriate for the identified issues. Those corrective actions addressing selected NRC documented violations were also determined to be effective and timely. The inspectors' review of the previous five years of the licensee's efforts to address issues with the component cooling water system did not identify any negative trends or inability by the licensee to address long-term issues.

Observations

Potential to Inappropriately Close Corrective Actions to Prevent Recurrence

The licensee issued IR 1275855, "Byron Declining Performance Clearance and Tagging," dated September 26, 2011, and performed a RCE addressing a declining performance trend in clearing and tagging events. The root cause was determined to be a failure to enforce the proper standards for clearance and tagging over time. The Corrective Actions to Prevent Recurrence (CAPR) was to form a working group to further evaluate the issue and develop corrective actions. Subsequently, an effectiveness review was conducted to verify that the corrective actions were appropriate and that performance had improved.

The inspectors noted that the corrective actions developed by the working group were not linked to the CAPR in the CAP. As a result, the individual actions could be closed, effectively closing the CAPR, without meeting the necessary approvals required in station procedure LS-AA-125, "Corrective Action Program Procedure," Revision 17. The inspectors were concerned that this was a potential loophole in the CAP allowing CAPRs to be inappropriately closed by either closing or cancelling any related sub-assignments. The licensee entered this issue into their CAP as IR 1563953, "No Clear Linkage Between CAPRs and Sub Assignments in CAP," dated September 26, 2013.

Failure to Properly Evaluate the Effectiveness of Prior Corrective Actions

The inspectors noted that the effectiveness review for the CAPR associated with RCE 1275855 (see above) only verified that the working group was established, and did not address the corrective actions developed by the group. The inspectors questioned whether this was adequate since the specific corrective actions were not evaluated. The inspectors also identified several examples where ACEs and RCEs had identified issues with past corrective actions for similar events, but failed to evaluate why those prior actions had failed. The inspectors were concerned that this prevented the licensee from incorporating insights into future corrective actions to correct identified issues.

The licensee entered these issues into the CAP as IR 1563957, "RCE 1275855 Not Complete," dated September 26, 2013, and IR 1563903, "NRC PI&R Identified CAs [Corrective Actions] Not Evaluated for Effectiveness," dated September 26, 2013.

Failure to Capture Recommended Actions in the Corrective Action Program

On July 13, 2013, the licensee issued IR 1532246, "Pitot Tube Array Broke Free From Mounting," dated July 13, 2013, after identifying that the pitot tube array on the Unit 2 auxiliary building ventilation system had broken off from its mounting. This array was used to measure airflow in the ventilation system. The IR recommended that the Unit 1 pitot tube array be inspected and that the issue be forwarded to Braidwood Station, which was of a similar design. The inspectors identified that the licensee had not implemented these recommendations in the CAP. The licensee entered this issue into their CAP as IR 1563368, "PI&R Recommended Actions Not Acted Upon," dated September 25, 2013. Subsequently, the licensee identified that there was no change to the Unit 1 pitot tube array.

Findings

No findings were identified.

.2 Assessment of the Use of Operating Experience

a. Inspection Scope

The inspectors reviewed the licensee's implementation of the facility's OE program. Specifically, the inspectors reviewed OE program procedures, observed daily meetings for the use of OE information, and reviewed completed evaluations of OE issues and events. The intent was to determine if the licensee was effectively integrating OE 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 information in developing departmental assessments and facility audits. The inspectors also assessed if corrective actions, as a result of OE experience, were identified and implemented effectively and in a timely manner. Specific documents reviewed are listed in the Attachment.

b. Assessment

In general, the inspectors concluded that OE was effectively utilized at the station. The inspectors observed that OE was discussed as part of the daily station and pre-job briefings. Industry OE was effectively disseminated across the various plant departments and no issues were identified during the inspectors' review of licensee OE evaluations. During interviews, several licensee personnel commented favorably on the use of OE in their daily activities.

The inspectors did not identify any instances where procedural OE review requirements were not met. Generally, OE that was applicable to the station was thoroughly evaluated and actions were taken to address any issues that resulted from the evaluations in a timely manner.

Observations

The inspectors identified some examples in which, although RCEs and ACEs had identified industry OE as being applicable to a specific issue, no action had been taken to identify whether the OE had been properly received and screened by the station prior to the evaluated event. As a result, the licensee could not determine whether the ineffective use of OE was a precursor to plant events. The licensee entered this issue into their CAP as IR 1563909, "NRC PI&R Identified Several Examples Where OE Not Evaluated," dated September 26, 2013.

The inspectors also identified an example in which a 10 CFR Part 21 Report from Watts Bar Nuclear Generating Station was not properly evaluated by the station. The licensee documented this issue as IR 1557063, "PI&R Inspection—Incomplete IR 01447667 Follow-Up Review," dated September 11, 2013. Subsequently, the licensee determined that this OE was not applicable to Byron Station. The inspectors agreed with this conclusion.

Findings

No findings were identified.

.3 Assessment of Self-Assessments and Audits

a. Inspection Scope

The inspectors assessed the licensee staff's ability to identify and enter issues into the CAP program, prioritize and evaluate issues, and implement effective corrective actions through efforts from departmental assessments and audits. The inspectors reviewed NOS audits, departmental self-assessments, and departmental performance assessment reports. The inspectors also interviewed an NOS audit leader. Specific documents reviewed are listed in the Attachment.

b. Assessment

Based on the self-assessments and audits reviewed, 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 audits and self-assessments were completed by personnel knowledgeable in the subject area, and the NOS audits were thorough and critical. The department self-assessments were acceptable, but were assessed by the inspectors to not be of as high a level of quality as the NOS audits. The inspectors observed that CAP items had been initiated for issues identified through NOS audits and self-assessments. The inspectors reviewed the self-assessment performed on the CAP and found no issues and generally agreed with the overall results and conclusions drawn.

Observations

The inspectors concluded that the NOS organization did not always effectively communicate audit findings to station management, particularly when the identified deficiencies had a common performance theme. For example, in a 2013 audit of the CAP, NOS identified 10 deficiencies with a common theme of failing to reinforce CAP

expectations and standards. Although the individual deficiencies were discussed at the NOS exit meeting and captured in the CAP, the underlying theme was not. The inspectors noted that although this theme had been identified as a prior weakness during a 2012 industry audit of the CAP, the NOS audit did not evaluate whether the corrective actions from the 2012 audit were effective. Also, as stated above, the failure to reinforce CAP expectations and standards was a common theme identified by the inspectors. The licensee entered this issue into their CAP as IR 1566070, "PI&R General Themes," dated October 1, 2013.

Findings

No findings were identified.

.4 Assessment of Safety-Conscious Work Environment

a. Inspection Scope

The inspectors assessed the licensee's safety-conscious work environment (SCWE) through the review of the facility's Employee Concerns Program (ECP) implementing procedures, discussions with ECP coordinators, interviews with personnel from various departments, and reviews of IRs. The inspectors also reviewed the results of the most recent licensee safety culture survey.

b. Assessment

Based on the interviews of the licensee's staff and a review of the licensee ECP, the inspectors concluded that plant staff were aware of the importance of having a strong SCWE and expressed a willingness to raise safety issues. No one interviewed had experienced retaliation for safety issues raised or knew of anyone who had failed to raise issues. All persons interviewed had an adequate knowledge of the CAP process. These results were consistent with the results of the licensee's internal safety culture surveys. Based on these limited interviews, the inspectors concluded that there was no evidence of an unacceptable SCWE.

Findings

No findings were identified.

4OA6 Management Meetings

.1 Exit Meeting Summary

On September 27, 2013, the inspectors presented the inspection results to Mr. R. Kearney, and other members of the licensee's 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

R. Kearney, Site Vice-President
B. Youman, Plant Manager
G. Armstrong, Security Manager
E. Blondin, Engineering
A. Christianson, On-Line Work Manager
S. Gackstetter, Regulatory Assurance Manager
S. Kerr, Training Manager
B. Peters, Operations
E. Topping, NOS Manager

Nuclear Regulatory Commission

K. Riemer, Chief, Branch 2, Division of Reactor Projects
J. Robbins, Resident Inspector

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Opened/Closed

05000454/2013007-01; 05000455/2013007-01	NCV	Inadequate Identification of Fire Curtain Sprinkler Degradation for an Auxiliary Building Stairwell (Section 40A2(1)(.1))
05000454/2013007-02; 05000455/2013007-02	NCV	Failure to Properly Assess Operability of the 2A EDG Following Post-Modification Testing (Section 40A2(1)(.2))
05000454/2013007-03; 05000455/2013007-03	NCV	Acceptance Criteria for Battery Voltage in TS Surveillance Procedure Failed to Account for Test Equipment Uncertainty (Section 40A2(2)(.1))

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 of 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

Number	Description or Title	Date or Revision
LS-AA-125	Corrective Action Program Procedure	Revision 17
LS-AA-125-1002	Common Cause Analysis Manual	Revision 7
LS-AA-125-1003	Apparent Cause Evaluation Manual	Revision 10
LS-AA-125-1005	Effectiveness Review Manual	Revision 5
LS-AA-125-1001	Root Cause Analysis Manual	Revision 10
LS-AA-125-1005	Coding and Analysis Manual	Revision 8
LS-AA-120	Issue Identification and Screening Process	Revision 14
LS-AA-126	Self-Assessment and Benchmark (SAB) Program	Revision 7
MA-MW-772-799	Acceptance Criteria for Protective Relays	Revision 4
LS-AA-115-1003	Processing of Level 3 OPEX Evaluation	Revision 3
2BOSR 8.6.1-2	125V DC ESF Battery Bank and Charger 212 Operability Weekly Surveillance	Revision 14
2BOSR FW-1	Unit Two Turbine Driven Feedwater Pumps Mechanical Overspeed Trip Testing	Revision 2
BMP 3100-13	Kerotest Globe Valve Repair	Revision 11
BOP CC-10	Alignment of the U-0 CC Pump and U-0 HX to A Unit	Revision 28
BOP CC-14	Post LOCA Alignment of the CC System	Revision 10
BOP VD-5	DG Room Ventilation System Operation	Revision 9
ER-AA-10	Equipment Reliability Process Description	Revision 7
ER-AA-200	Preventive Maintenance Program	Revision 0
ER-AA-2012	Operational Critical Component Work Identification and Review	Revision 1
ER-AA-310	Implementation of the Maintenance Rule	Revision 9
ER-AA-310-1004	Maintenance Rule – Performance Monitoring	Revision 11
ER-AA-310-105	Maintenance Rule – Dispositioning Between (a)(1) and (a)(2)	Revision 6
MA-AA-716-210	Performance Centered Maintenance (PCM) Process	Revision 13
CY-BY-120-200- 300-36	Steam Generator Blowdown HRSS Grab Sample	Revision 1

CORRECTIVE ACTION PROGRAM DOCUMENTS REVIEWED

Assessment of Problem Identification		
Number	Description or Title	Date or Revision
1323547	B2F27 U-2 Manual Reactor Trip and Manual Auxiliary Feedwater Actuation	02/06/2012
1275855	Byron Declining Performance Clearance and Tagging	09/26/2011
1466550	Byron 2012 INPO Evaluation (AFI PI.2-1)	12/14/2012
1502138	1BOSR 3.2.8-632A Failed ESF Relay Surveillance	04/15/2013
1262639	U2 CC Heat Exchanger Not Included in OLR Evaluation	09/13/2011
1290725	Common Cause Analysis Needed for Overdue CAP Products	11/15/2011
1305212	CAP IR Not Updated When Investigation Reversed Justification	12/20/2011
1427049	1D Steam Generator Level Controller Not Working in Auto	10/16/2012
1252952	NRC PI&R Previously Identified Equipment Issue Not Given Adequate Priority	08/17/2011
0662494	Steam Generator Tube Rupture Analysis Input Error	08/16/2007
1422122	Unanticipated Water Intrusion in Unit 1 Auxiliary Building	10/03/2012
1396502	Request CCA on Reactivity Management Issues	08/02/2012
1238644	CCA is Needed From 2011 NOS CAP Audit	07/11/2011
1338871	Ops Recommend CCA on Unplanned Entries Into Shutdown LCOs	03/09/2012
1292288	CCA Needed for CAP Elevation	11/18/2011
1238644	Evaluate Deficiencies Identified During the CAP NOS Audit at Byron Station	04/25/2011 to 05/5/2011
1238644	CCA is Needed from 2011 NOS CAP Audit	07/11/2011
1276325	2PDI-VP236/231 Not Responding to Containment Pressure Changes	09/28/2011
1334298	1A DG SX Low Flow Alarm Coming In With DG Running	02/29/2012
1247444	2C RCP Motor 10 Year PM/Motor Swap PM Deferral	09/02/2011
1247683	ISFSI Cask Rocking Potential Impact Factors	09/03/2011
1248389	Wires Landed on Incorrect Terminals	10/03/2011
1534026	Ops Action Items at Notify > 10 Days	07/03/2013
1248435	0VA02FE Medium Efficiency Filter Need Replaced	08/06/2011
1249304	Byron Station Tracking of Priority WR/WO's in POD	08/08/2011
1321523	NANTEL SABA Issues Experienced with NGET for Three Trainees	01/30/2012
1321742	Byron New Revision of Procedure MA-AA-716-021 Revision 19A	02/02/2012

1323445	B2F26 Estimated Critical Condition Versus Actual Conditions	02/06/2012
1333645	Unexpected Alarm 1-4-D6, Cont CAB Power Supply Trouble	02/28/2012
1458179	Missing Paint Due to Rust/Scale on Wall South of 0DSD254	01/03/2013
1458246	NOS ID: Improvement Opportunity—B2R17 Safety Shutdown	01/01/2013
1510636	Gas Void In Line 2CS12AA	05/03/2013
1512827	1B CW Pump Seal/Cooler Flow Issues	05/10/2013
1466581	Byron 2012 INPO Evaluation (AFI OF.1-1)	12/14/2012
1513287	1Q2013 NRC Finding Ext Flood Scope Missed in Fukushima Walkdown	04/10/2013
1506871	NRC Question Operability Impact of Degraded SX Flood Barrier	04/25/2013
1375103	NRC 1Q2012 Green NCV Operation of 8 Valves Lack Control	04/05/2012
1375096	NRC 1Q2012 Green NCV—Incomplete CCW and SX Code Examination	04/05/2012
1260159	NRC PI&R Trending Process Enhancements	09/07/2011
1255650	Extent of Cause of RCR 116626 Lacks Documentation	08/25/2011
1252952	NRC PI7R Previously Identified Equipment Issue Not Given Adequate Priority	08/17/2011
1400323	2B NDCT Riser Section Failed	08/13/2012
1285361	Potential Multiple Starts of Diesel-Driven AF Pump	11/02/2011
129075	Common Cause Analysis Needed for Overdue CAP Products	11/15/2011
0877430	NRC Identified Tornado Missile Protection of Diesel Oil Storage Tank Vent Line	02/06/2009
1161381	Op Eval 09-001 Needs Corrective Actions Reviewed and Updated Plan Created	01/11/2011
1388508	Actions for HUT Issues	07/13/2012
1356698	HELC Locations Need Postulation to Comply with Licensing Basis	04/20/2012
0680626	NRC Potential Green Finding and Associated NCV – HUT	10/04/2007
1269928	Potential NCV Identified During PI&R Inspection	09/29/2011
1236919	Determine if Additional Extent of Condition Review is Needed	07/06/2011
1213429	Byron Design Engineering Owns 32 of the 67 Corrective Actions	05/09/2011
0649710	Potential Vulnerability with RH Suction Relief Discharge to HUT	07/13/2007
0622574	Concerns Regarding Relief Valves and Inputs Into the HUT	04/27/2007
1545604	Difficult to Get Ohms Readings on R8A Contacts 1and 2	08/12/2013

1490535	Hard to Get Proper Ohm Reading During AF Surveillance	03/21/2013
1561167	Missed Opportunity to Prioritize an Equipment Issue	09/18/2013
1555865	Work Not Performable Due to Westinghouse NSAL 13-2	09/09/2013
0843147	Found Bad Circuit Card and Capacitors During Calibration	11/10/2008
1558207	SX Cooling Tower Concrete Inspection Results	09/13/2013
1558307	SX Cooling Tower D Grout Repairs Need Scheduled for Next Work Window	09/13/2013
1399107	Operability Rationale for Unit 2 SG PORV Needs Updating	08/08/2012
1415602	NOS ID that a QV Inspection was Performed by an Unqualified Inspector	09/19/2012
1419800	Secured 1B SI Pump During Surveillance Test Due to High Temperature	09/28/2012
1427836	NOS ID Non-Permanent Scaffolding Installed for Greater than 90 Days and Associated ACE	10/17/2012
1454096	HEPA Vacuum Management Trend	12/19/2012
1454609	Ineffective Actions Addressing Emergency Lighting Battery Packing Targeting	12/20/2012
1474137	Transformer Exclusion Area Elevation Issued by NOS	02/12/2013
1488006	Improper Control of Quality Parts	03/15/2013
1516516	Request CCA for Outage Modification Scope Stability	05/22/2013
1438953	ENS 48492 – Part 21 Report – Commercial Grade Dedication	11/12/2012
1284371	Issue with Calculation AF-TH05	11/01/2011
1470860	DC Bus Cross-Tie Failure	02/04/2013
1451675	2011-37-01-Part 21 – Browns Ferry Inadequate Design of EDG	12/13/2012
1292429	Loss of the 211 Instrument Inverter	11/18/2011
1241286	1A Diesel Generator Vent Fan Did Not Restart During 1A DG Testing	10/02/2012
1266503	233Z2 Feed Breaker Will Not Trip	09/22/2011
1321587	2B D/G Auto Start	02/01/2012
1377764	NRC CDBI – Protective Relay Setting Tolerances	06/12/2012
1249721	NRC Mod/50.59 Inspection NCV – EDG Fuel Calculation Didn't Consider Frequency Variation	08/10/2011
1492006	Generate CCA Actions for 7300 Circuit Cards	03/25/2013
1322212	B@F26 Potential Design Vulnerability in SY Single Open Phase	02/03/2012
1357610	Recommend CCA for Issues Trend as Design Inadequate	04/23/2012
1367726	Non-Conservative TS for DG Full Load Reject Testing	05/17/2012

1557490	Part 21-2012-22 Unexpected Degradation of Vital Batteries	09/12/2013
1272802	2B CS Pump Did Not Auto Start During 2B DG Sequence Test	10/05/2011
1261533	DC Bus 212 Voltage Shows 128 VDC Locally and on MCR Meter	09/10/2011
1319908	Unit 2 Reactor Trip Loss of Offsite Power Root Cause Investigation Report 2012	03/08/2012
1479663	Byron Management & Leadership Organizational Shortfalls	03/26/2013
1252529	2A DG Fan Trip Signal Not Reset	08/17/2011
1274269	U1 Containment H3 Concentration Elevated	10/09/2011
1339375	Steam Leak Identified IMB Containment 1RC8042B	03/11/2012
1290831	1A RD M/G Set Increasing Vibrations	11/15/2011
1404610	CAP Performance Review Meeting – Maintenance Programs Yellow	08/23/2012
1386706	Annual CCA on CCF/MRFF/Unplanned FLR, Unplanned Shutdown LCO	07/09/2012
1375887	Reliability Perf. Criteria is Exceeded for MTCE Rule	06/08/2012
1303665	New CC Failure Mode, Potential Loss of Safety Function	06/13/2011
1509845	2B Turbine Overspeed Trip Occurred Early	05/03/2013
1505654	Copper I/A Line Cracked and Leaking Instrument Air 2SD054B	04/23/2013
1505341	R2 2SI 8889B Will Not Open	04/22/2013
0214156	B2R11-11 SG Sample Flow Unavailable	04/08/2004
1505340	R2 2CS010A Valve Will Not Open	04/22/2013
1088765	CC Operations Inconsistent with Documents Submitted to NRC	07/07/2010

OPERATING EXPERIENCE

<u>Number</u>	<u>Description or Title</u>	<u>Date or Revision</u>
1479156	OPEX Review – Part 21 Watts Bar Interim Report on Batteries	02/23/2013
1476973	Part 21 Review Per LS-AA-115	02/18/2013
1465905	Part 21 2013-04-00 Fisher Transducers 546 and 546NS	01/23/2013
1361976	OPEX Review of Holtec Letter 5014701	05/03/2012
1418601	Westinghouse NSAL 12-7 Insufficient SG AVB Insertion	09/26/2012
1451723	Part 21 – Masoneilan Evaluation 12-04	12/06/2012
1477898	OPEX Review of IN 2012-25 Seismic Instrument Performance Issue	02/20/2013
1481380	OPEX Review of IN 2013-01 EAL Thresholds Radiation Monitor	03/04/2013

1398344	ENS 48164 Part 21 ITT Enidine Pneumatic Filter Regulator	08/08/2012
1393021	OPEX Review of NRC IN 2012-11	09/18/2012
1456334	OPEX Review of NRC IN 2012-21	01/04/2013
1479178	Westinghouse NSAL 13-1	02/25/2013

AUDITS, ASSESSMENTS, AND SELF-ASSESSMENTS

<u>Number</u>	<u>Description or Title</u>	<u>Date or Revision</u>
NOSA-BYR-13-04	Corrective Action Program Audit Report	03/18-28/2013
AR 1311895	Operations Fundamental Focused Area Self-Assessment	08/23/2012
AR 1494048	Preparation for NRC Problem Identification and Resolution Inspection	07/09/2013
831124-02	Security Functional Area Self-Assessment for SCWE	10/16/2008
1418200	Potential Adverse Trend – Procedure Inadequate	09/25/2012
1453162	NOS Identified Security Video Monitors Failure Trend	12/17/2012
1459877	2012-Event Free Clock Reset Analysis	01/08/2013
1475874	Common Cause Analysis to be Performed on NOS Identified Issues Since January 2012	02/15/2013
1367004	CCA – Security 1Q2012 Employee Observation Increase in Documentation Errors	06/05/2012
1536086	NOS Identified Trend in RP Survey Map Issues	07/16/2013
1276530	Perform a Common Cause Analysis on the On-Line Work Management Risk Assessments	10/14/2011
1250223	NOS Identified ALARA Area Requiring Management Attention	08/11/2011
1399107	ACE 2C and 2D SG PORV Inverter Failure and TS Basis Change	08/08/2012
1415602	ACE B1R18 Quality Verification Inspection Issues	09/24/2012
1419800	ACE Unit 1 Train B Safety Injection Pump Thrust and Outboard Bearing High Temperatures	09/28/2012
1316886	4Q2011 Maintenance Trend Review	01/23/2012

CONDITION REPORTS GENERATED DURING INSPECTION

<u>Number</u>	<u>Description or Title</u>	<u>Date or Revision</u>
1566070	PI&R General Themes	10/1/13
1557063	PI&R Inspection: Incomplete IR 01447667 Follow-Up Review	09/11/13
1563368	PI&R Recommended Actions Not Acted Upon	09/25/2013
1563915	NRC PI&R: IR 1321587 Disagreed with Power Labs Conclusion	09/26/13
1563990	PI&R: Common Cause Evaluation Procedure Not Being Followed	09/26/13

1563965	All Causes Not Addressed IN RCE 1323547	09/26/13
1563947	Discrepancy With Common Cause Evaluations	09/26/13
1563891	NRC PI&R Identified RCE/ACE Issue With CAP Process	09/26/13
1563898	NRC PI&R Identified CAP Documentation Not "Stand-Alone"	09/26/13
1563953	No Clear Linkage Between CAPRs and Sub Assignments in CAP	09/26/13
1563957	RCE 1275855 Not Complete	09/26/13
1557757	PI&R Inspections: Enhancements Identified to EACE 1421286	09/12/13
1558136	PI&R Maintenance Rule Unavailability Not Counted	09/13/13
1563903	NRC PI&R Identified CAs Not Evaluated for Effectiveness	09/26/13
1563909	NRC PI&R Identified Several Examples Where OE Not Evaluated	09/26/13
1563872	NRC PI&R Identified Unclear CAP PIs [Performance Indicators]	09/26/13
1563943	NRC PI&R: Procedure Not Followed During 1BOSR 3.2.3-1	09/26/13
1564400	NRC PI&R Inspection: 125 VDC Battery TS Surveillance Values	09/27/13
1567369	PI&R 2A DG Operability Concern	10/03/13
1560667	Adverse Trend in Main Drain Results for 346 AB Sprinkler System	09/18/13
1563676	346 AB Stairwell/Hatch Sprinkler System	09/25/13
1567369	PI&R 2A EDG Operability Concern	09/26/13

MISCELLANEOUS

<u>Number</u>	<u>Description or Title</u>	<u>Date or Revision</u>
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	Semi-Annual Safety Culture Review	03/13/2013
	Semi-Annual Safety Culture Review	08/10/2012
	Semi-Annual Safety Culture Review	02/17/2012
LER 2011-002-00	Unit 1 Reactor Pressure Vessel Head Penetration Nozzle Weld Flaws Attributed to Primary Water Stress Corrosion Cracking	05/18/2011
	Byron Improvement: Functional Area Gap Review—[Operations]	06/10-14/2013
	B&B Design Issue Resolution Project Status Update	09/11/2013
	Executive Review of Exelon Nuclear's Learning Programs	06/2013
	Executive Review of Exelon Nuclear's Learning Programs	07/2013
OpEval 10-004	Operability Evaluation of the Diesel Oil Storage Tank Vent Lines	Revision 2
EC 374391	Diesel Oil Storage Tank Vent Lines Crimp Versus Break	07/09/2013
WO 1585567	Work Order to Perform Annual Inspection D Cell SX Cooling Tower	09/16/2013
Byron Fire Protection Report	Section 2.4.2.71, Auxiliary Building General Area Elevation 346 (Fire Zone 11.2-0)	Amendment 25
WO 1676766	Open Line Valve 0FP897 and Investigate Valve	10/03/2013
0BOSR 10.c.3-1	Annual Sprinkler and Deluge System Visual Inspection	10/04/2013
0BOSR 10.c.3-1	Annual Sprinkler and Deluge System Visual Inspection	11/30/2012
BYR-40138	Failure Analysis of Homewood Product OTIA Motor Cutoff Switch	03/01/2013
0010619252	PowerLabs Certificate of Calibration	11/01/2010
WO 01454201	OPS Perform "Post Installation Testing" 2VD01CA	08/15/2011
WO 01324044	Overhaul Pump Turbine Per TMS Program Program	04/04/2013
WO 1636407	R2 EM Troubleshoot 2CS010A Not Opening	04/23/2013
WO 1454201	Ops Perform "Post Installation Testing" 2VD01CA	09/25/2013
M-52, Sheet 7	Diagram of Fire Protection Auxiliary Building	Z
FPR Figure 2.3-39	Cable Tray Installation Elevation 346-0	Amendment 6, January 1985
WO 1471059	Perform 0BOSR 10.c.3-1 Annual Sprinkler and Deluge Surveillance	11/30/2012
WO 1676766	Open Line Valve 0FP897 and Investigate	10/07/2013
FPR Figure 2.3-38, Sheet 1 of 2	Cable Tray Installation Elevation 364-0	Amendment 6, January 1985
FPR Figure 2.3-38, Sheet 2 of 2	Cable Tray Installation Elevation 364-0	Amendment 6, January 1985
FPR Figure 2.2-15	General Arrangement Floor Plan at Elevation 346 ft 0 inches	Amendment 6, January 1985
FPR Figure 2.4.2.71	Auxiliary Building General Area Elevation 346 (Fire Zone 11.2-0)	Amendment 25, December 2012

0BOSR 10.c.3-1	Annual Sprinkler and Deluge System Visual Inspection and Main Drain Test Surveillance	Revision 8, performed October 4, 2013
Pre-Fire Plan	Byron Station PFP Fire Zone 11.2-0 North	Revision 0
Pre-Fire Plan	Byron Station PFP Fire Zone 11.2-0 North, Detection Zones Unit 2 17 and 40	Revision 0
FPR Section 2.3.11.3	Fire Hazards Analysis Auxiliary Building General Area Elevation 346 ft 0 inches, Fire Zone 11.2-0	Amendment 25, December 2012
FHA Table 2.2-2	Fire Hazards Analysis Equipment Tabulation, Unit 1	Amendment 25, December 2012
FHA Table 2.2-3	Fire Hazards Analysis Equipment Tabulation, Unit 2	Amendment 25, December 2012
FPR Section 2.3.11.12	Fire Hazards Analysis Auxiliary Building General Area Elevation 364 ft 0 inches, Fire Zone 11.3-0	Amendment 25, December 2012

LIST OF ACRONYMS USED

AB	Auxiliary Building
ACE	Apparent Cause Evaluation
ADAMS	Agencywide Document Access Management System
CA	Corrective Action
CAP	Corrective Action Program
CAPR	Corrective Action to Prevent Recurrence
CCE	Common Cause Evaluation
CFR	Code of Federal Regulations
DC	Direct Current
DG	Emergency Diesel Generator
D/P	Differential Pressure
DRP	Division of Reactor Projects
EACE	Equipment Apparent Cause Evaluation
EC	Engineering Change
ECP	Employee Concerns Program
EDG	Emergency Diesel Generator
ESF	Engineered Safety Feature
FPP	Fire Protection Program
HELB	High Energy Line Break
Hz	Hertz
IMC	Inspection Manual Chapter
IP	Inspection Procedure
IR	Inspection Report
IR	Issue Report
NCV	Non-Cited Violation
NOS	Nuclear Oversight
NRC	U.S. Nuclear Regulatory Commission
OE	Operating Experience
OL	Operating License
OLR	On-Line Risk
PARS	Publicly Available Records System
PI&R	Problem Identification and Resolution
psig	Pounds Per Square Inch Gauge
RCE	Root Cause Evaluation
SCWE	Safety-Conscious Work Environment
SDP	Significance Determination Process
TS	Technical Specification
V	Volts
VDC	Volts Direct Current
WO	Work Order

M. Pacillio

-2-

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If you disagree with a cross-cutting aspect assignment in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region III and the NRC Resident Inspector at the Byron Station.

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Sincerely,

/RA/

Eric Duncan, Chief
Branch 3
Division of Reactor Projects

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

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Letter to Michael J. Pacilio from Eric Duncan dated November 8, 2013

SUBJECT: BYRON STATION, UNITS 1 AND 2, PROBLEM IDENTIFICATION AND
RESOLUTION INSPECTION REPORT 05000454/2013007; 05000455/2013007

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