



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION III
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October 3, 2017

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

**SUBJECT: BYRON STATION, UNITS 1 AND 2 — NRC PROBLEM IDENTIFICATION AND
RESOLUTION INSPECTION REPORT 05000454/2017007; 05000455/2017007**

Dear Mr. Hanson:

On August 25, 2017, the U.S. Nuclear Regulatory Commission (NRC) completed a Problem Identification and Resolution (PI&R) inspection at your Byron Station, Units 1 and 2. The enclosed inspection report documents the inspection results, which were discussed at an exit meeting on August 25, 2017, with Mr. P. Boyle and other members of your staff.

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

On the basis of the samples selected for review, the team concluded that the Corrective Action Program (CAP) at Byron Station, Units 1 and 2, was generally effective in identifying, evaluating and correcting issues. The licensee had a low threshold for identifying issues and entering them into the CAP. A risk based approach was used to determine the significance of the issues and priority for issue evaluation and resolution. Corrective actions were generally implemented in a timely manner, commensurate with their safety significance. Operating experience was entered into the CAP when appropriate and evaluated according to procedure. The use of operating experience was integrated into daily activities and found to be effective in preventing similar issues at the plant. In addition, self-assessments and audits were conducted at appropriate frequencies with sufficient depth for all departments based on the documents the team reviewed. The assessments were thorough and effective in identifying site performance deficiencies, programmatic concerns, and improvement opportunities. On the basis of the interviews conducted, the inspectors did not identify any chilling effect or any impediment to the establishment of a safety conscious work environment at Byron Station. Your staff was aware of and generally familiar with the CAP and other station processes, including the Employee Concerns Program, through which concerns could be raised. The team determined that your station's performance in each of these areas supported nuclear safety.

Based on the results of this inspection, the NRC has identified two issues that were evaluated under the safety significance determination process as having very low safety significance (Green). The NRC has also determined that a violation is associated with each of these issues. Because you have initiated corrective actions to address the issues, these violations are being treated as Non-Cited Violations (NCVs), consistent with Section 2.3.2 of the Enforcement Policy. These NCVs are described in the subject inspection report.

This letter, its enclosure, and your response (if any) will be made available for public inspection and copying at <http://www.nrc.gov/reading-rm/adams.html> and at the NRC Public Document Room in accordance with 10 CFR 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

/RA/

Eric Duncan, Chief
Branch 3
Division of Reactor Projects

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

Enclosure:
IR 05000454/2017007; 05000455/2017007

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Letter to Brian C. Hanson from Eric Duncan dated October 3, 2017

SUBJECT: BYRON STATION, UNITS 1 AND 2 — NRC PROBLEM IDENTIFICATION AND
RESOLUTION INSPECTION REPORT 05000454/2017007; 05000455/2017007

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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: 05000454/2017007; 05000455/2017007

Licensee: Exelon Generation Company, LLC

Facility: Byron Station, Unit 1 and 2

Location: Byron, IL

Dates: August 7 through August 25, 2017

Team Leader: R. Ng, Project Engineer

Inspectors: C. Hunt, Resident Inspector
C. Norton, Senior Resident Inspector, Duane Arnold
A. Dunlop, Senior Reactor Inspector
G. Edwards, Reactor Inspector
C. Thompson, Resident Inspector, Illinois Emergency
Management Agency

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

Enclosure

SUMMARY

Inspection Report 05000454/2017007; 05000455/2017007; 08/07/2017–08/25/2017; Byron Station; Identification and Resolution of Problems.

This inspection was performed by three region-based inspectors, the senior resident inspector at Duane Arnold Energy Center, the resident inspector from the Illinois Emergency Management Agency and the resident inspector at Byron Station. Two Green findings with associated Non-Cited Violations (NCVs) of U.S. Nuclear Regulatory Commission (NRC) regulations were identified. 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 April 29, 2015. Cross-Cutting aspects are determined using IMC 0310, "Aspects within the Cross-Cutting Areas," dated December 4, 2014. All violations of NRC requirements are dispositioned in accordance with the NRC's Enforcement Policy, dated November 1, 2016. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," dated July 2016.

Identification and Resolution of Problems

On the basis of the samples selected for review, the team concluded that the Corrective Action Program (CAP) at Byron Station was generally effective in identifying, evaluating and correcting issues. The licensee had a low threshold for identifying issues and entering them into the CAP. A risk-based approach was used to determine the significance of the issues and priority for issue evaluation and resolution. Corrective actions were generally implemented in a timely manner, commensurate with their safety significance. Operating experience was entered into the CAP when appropriate and evaluated according to procedure. The use of operating experience was integrated into daily activities and found to be effective in preventing similar issues at the plant. In addition, self-assessments and audits were conducted at appropriate frequencies with sufficient depth for all departments based on the documents the team reviewed. The assessments were thorough and effective in identifying site performance deficiencies, programmatic concerns, and improvement opportunities. On the basis of the interviews conducted, the inspectors did not identify any chilling effect or any impediment to the establishment of a safety conscious work environment at Byron Station. Licensee staff was aware of and generally familiar with the CAP and other station processes, including the Employee Concerns Program, through which concerns could be raised. The team determined that Byron Station's performance in each of these areas supported nuclear safety.

Although implementation of the CAP was determined to be effective overall, the inspectors identified several issues that represented a potential weakness in the program.

NRC-Identified and Self-Revealed Findings

Cornerstone: Mitigating Systems

- Green. The inspectors identified a finding of very low safety significance and an associated NCV of TS 5.4.1, "Procedures," when licensee personnel failed to perform maintenance in accordance with written procedures as required by Regulatory Guide 1.33. Specifically, from February 3, 2014, through August 25, 2017, the licensee failed to develop and execute work instructions of sufficient scope to accomplish the

preventive maintenance to replace flexible hoses on the essential service water (SX) makeup pumps and the diesel driven auxiliary feedwater (AFW) pumps and did not have a technical justification for a deviation from the Exelon Corporate Performance Centered Maintenance (PCM) template. The licensee entered this issue into their CAP as Action Request (AR) 03961955, AR 03971962, and AR 04045769 and planned to replace the flexible hoses at the next available opportunity.

The inspectors determined that failure to perform maintenance in accordance with written procedures as required by TS 5.4.1, "Procedures," and Regulatory Guide 1.33 was a performance deficiency. The performance deficiency was more than minor because it was associated with the Mitigating Systems cornerstone attribute of Equipment Performance and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, failing to replace flexible hoses on the SX makeup pumps and the Unit 1 and Unit 2 diesel-driven AFW pumps at a pre-established frequency could allow hose degradation to remain unidentified and lead to the unplanned inoperability of these safety-related systems. Since the finding is a deficiency affecting the design or qualification of mitigating systems, structures and components (SSCs) and the SSCs remained operable and functional, the finding screened as having very low safety significance. This finding affected the Cross-Cutting area of Human Performance in the aspect of Work Management because the licensee failed to perform required maintenance in accordance with their associated maintenance strategy as well as the corporate PCM template [H.5]. (Section 4OA2.1.b.3.ii)

- Green. The inspectors identified a finding of very low safety significance and an associated NCV of Title 10 of the *Code of Federal Regulations* (CFR), Part 50, Appendix B, Criterion XVI, "Corrective Action," when the licensee failed to promptly identify a condition adverse to quality resulting in a safety-related system becoming inoperable. Specifically, from May 5, 2017, to August 4, 2017, the licensee failed to trend available surveillance data in a timely manner and did not identify a degraded condition in the 1A reactor containment fan cooler (RCFC) time delay circuitry prior to the system becoming inoperable. The licensee entered this issue into their CAP as AR 04039037 and AR 04045767, replaced the failed relay, and planned to update the RCFC system monitoring plan to note abnormal changes in time delay relay actuation times and improve coordination between engineering and operations to reduce the time it takes engineering to obtain RCFC surveillance data for trending after surveillances are completed.

The inspectors determined that the failure to promptly identify a condition adverse to quality associated with the time delay relay circuitry in the 1A RCFC was a performance deficiency. The performance deficiency was more than minor because it was associated with the Mitigating Systems cornerstone attribute of Equipment Performance and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the failure to identify a degraded condition in the time delay circuitry associated with the 1A RCFC resulted in a missed opportunity for the licensee to evaluate the cause and initiate prompt actions to respond to the degraded condition prior to the failure. The inspectors answered "No" to questions A.1 through A.4 of IMC 0609, Appendix A, "The Significance Determination Process for Findings At-Power", Exhibit 2, "Mitigating Systems Screening Questions;" therefore, the finding screened as

having very low safety significance. This finding affected the Cross-Cutting area of Problem Identification and Resolution in the aspect of Trending because information was available that indicated a degraded condition in the 1A RCFC time delay relay circuitry for three months prior its failure in August, but was not identified and evaluated by the licensee prior to failure [P.4]. (Section 4OA2.1.b.3.ii)

REPORT DETAILS

4. OTHER ACTIVITIES

4OA2 Problem Identification and Resolution (71152B)

This inspection constituted one biennial sample of problem identification and resolution (PI&R) inspection as defined by Inspection Procedure (IP) 71152, "Problem Identification and Resolution." Documents reviewed are listed in the Attachment to this report. Note that the licensee tracks condition reports as Action Requests (ARs).

.1 Assessment of Corrective Action Program Effectiveness

a. Inspection Scope

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

The inspectors reviewed selected ARs across all seven Reactor Oversight Process (ROP) cornerstones to determine if problems were being properly identified and entered into the licensee's CAP. The majority of the risk-informed samples of ARs reviewed were issued since the last NRC biennial PI&R inspection completed in August of 2015. The inspectors also reviewed selected issues that were more than five years old.

The inspectors assessed the licensee's characterization and evaluation of the issues and examined the assigned corrective actions. This review encompassed the full range of safety significance and evaluation classes, including root cause evaluations, apparent cause evaluations, corrective action program evaluations, and work group evaluations. The inspectors assessed the scope and depth of the licensee's evaluations. For issues that were characterized as high safety significance, the inspectors evaluated the licensee's corrective actions to preclude repetition and for issues that were less significant, the inspectors reviewed the corrective actions to determine if they were implemented in a timely manner commensurate with their safety significance.

The inspectors performed a five-year review of the safety-related component cooling water system based on input from the resident staff. This system provides cooling water to remove heat from plant components of either unit that are required during normal operation, plant shutdown and post-accident conditions. The system also acts as an intermediate system between the potentially radioactive components being cooled and the essential service water system that is open to the environment. The primary purpose of this review was to determine whether the licensee was monitoring and addressing performance issues of the component cooling water system. The inspectors performed walkdowns, as needed, to verify the resolution of issues.

A five-year review of the radiation monitoring system was undertaken to assess the licensee staff's efforts in monitoring system performance. Although this system is non-safety related, it continuously measures, indicates, and trends the levels of radiation in general access and operational areas and thereby assists in avoiding unnecessary or inadvertent exposure. In addition, the system monitors and samples the process and effluent streams in order to control the release of radioactive materials generated as a result of normal operation, anticipated operational occurrences, and during postulated accidents. The inspectors' review was to determine whether the licensee staff was properly monitoring and evaluating the performance of the system through effective implementation of station monitoring programs, such as the system health report. The inspectors performed walkdowns, as needed, to verify the resolution of issues.

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

b. Assessment

(1) Identification of Issues

Based on the results of the inspection, the inspectors concluded that Byron Station was generally effective in identifying issues at a low threshold and entering them into the CAP. The inspectors determined that problems were normally identified and captured in a complete and accurate manner in the CAP. The station was appropriately screening issues from both NRC and industry operating experience at an appropriate level and entering them into the CAP when applicable to the station. The inspectors also noted that deficiencies were identified by external organizations (including the NRC) that had not been previously identified by licensee personnel. These deficiencies were subsequently entered into the CAP for resolution.

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

The inspectors performed a five-year review on the component cooling water system. As part of this review, the inspectors interviewed the current system engineer and reviewed ARs, critical equipment failure evaluations, and condition report evaluations. In addition, the inspectors performed a system walkdown to assess the material condition of the system and surrounding areas. The inspectors identified that a number of design issues had been effectively and adequately resolved during this five year period and that previously identified Issues with the component cooling water pump bearings were being properly monitored and trended. The inspectors concluded that component cooling water system-related concerns were identified and entered into the CAP at a low threshold, and concerns had been resolved in a timely manner commensurate with their safety significance.

i) Observation

Change in Rate of Condition Report Generation

The inspectors identified a declining trend in AR generation rate over the preceding five years. From mid-August 2012 to mid-August 2013, there were roughly 15,000 ARs generated at Byron Station. This number has declined steadily with just over 10,000 ARs generated during the same mid-August 2016 to mid-August 2017 period. The inspectors determined that a number of factors might have affected AR generation during this five-year period. For example, the 2013 period included two outages although the 2017 period did not. Also, the licensee implemented a number of actions to improve performance after 2013 and plant performance improved. Moreover, the licensee had recently implemented a change to the corrective action process to streamline and reduce administrative burdens.

Based on the samples reviewed, the inspectors determined that issues of both low and high safety significance were being identified in the CAP. The inspectors also confirmed with people interviewed that licensee staff were willing to write ARs. The inspectors concluded that there were no evidence that condition reports were not being generated. The licensee acknowledged the decline in AR generation rates and planned to continue to monitor the generation rates and take action if necessary.

ii) Findings

No findings were identified.

(2) Prioritization and Evaluation of Issues

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

The inspectors determined that the MRC and SOC meetings were generally thorough and maintained a high standard for evaluation quality. Members of the committees were engaged and discussed selected issues in sufficient detail and challenged each other regarding their conclusions and recommendations.

The inspectors determined that the licensee usually evaluated equipment functionality requirements adequately after a degraded or non-conforming condition was identified. In general, appropriate actions were assigned to correct the degraded or non-conforming condition.

i) Observations

Prioritization of Corrective Actions to Resolve Design-Related Issues

The inspectors reviewed the list of open condition reports and noticed that a number of the issues had been open for more than ten years. The inspectors reviewed a sample of these condition reports and found that most of these were design-related non-conformances. For example, the licensee identified in 2003 that the 2B containment

spray pump room cooler might have larger diameter and thinner tubes than what was described in design specifications. The licensee performed an engineering evaluation at the time to demonstrate that this discrepancy had no impact on its design functions. Although some vendor drawings had been changed, actions to update the design calculations were never completed.

Another example was related to the Active Valve Table in the Updated Final Safety Analysis Report. The resident inspectors identified in 2003 that the auxiliary feedwater containment isolation valves were not listed in the Active Valve Table. The licensee's extent of condition review discovered a number of other discrepancies in the table. However, corrective actions to resolve these discrepancies were not being implemented. In 2013, the licensee generated a condition report which identified that the actions to update the Active Valve Table were untimely. As a result, the licensee just recently completed updating the Active Valve Table in March of this year.

The licensee documented in condition reports that the delays were due to other higher priority problems taking precedent at different points in time. The inspectors determined that these issues were minor design non-conformances that did not meet the more than minor criteria in IMC 0612, Appendix B and therefore represented violations of minor significance that is not subject to enforcement action in accordance with the NRC's enforcement policy. The licensee acknowledged this issue and planned to resolve long-standing design non-conformance issues in a more timely manner.

ii) Findings

No findings were identified.

(3) Effectiveness of Corrective Actions

Based on the results of the inspection, the inspectors concluded that the licensee was generally effective in addressing identified issues and that assigned corrective actions were generally appropriate. The licensee implemented corrective actions in a timely manner, commensurate with their safety significance, including an appropriate consideration of risk.

Problems identified using root or apparent cause methodologies were resolved in accordance with the Corrective Action Program (CAP) procedure and regulatory requirements. Corrective actions designed to prevent recurrence were generally comprehensive, thorough, and timely. The inspectors sampled corrective action assignments for selected NRC-documented violations and determined that actions assigned were generally effective and timely.

The inspectors conducted a five year review of the radiation monitoring system. This system includes process radiation monitors, area radiation monitors, and containment radiation monitors. The inspectors interviewed the program owner and reviewed corrective action documents, inspection reports, inspection procedures, and system health reports. The inspectors evaluated in-progress and planned actions and performed a partial system walkdown.

The radiation monitoring system had experienced intermediate interruptions and failures over the past five years. The licensee attributed these failures to communication issues that were associated with the series orientation of the instrumentation in the radiation monitor system loops. The licensee had implemented corrective actions to address the issues on a long-term basis. The most recent corrective action was the replacement of the optical stimulator chips that each instrument contained. Following the replacement of these optical stimulator chips, performance from the radiation monitoring system improved. At the end of this inspection, the licensee planned to replace the power supply in each instrument to further the improvements in consistent communication in the radiation monitoring system loops. The inspectors verified the performance improvements through data review and smart sampling of the CAP.

i) Observations

Corrective Action Program Vulnerability

The inspectors identified a programmatic vulnerability in the licensee's CAP process associated with inadvertently eliminating the ability to track corrective actions to address condition reports. The inspectors also identified that a completed corrective action was later removed without any involvement of the CAP.

Licensee procedure PI-AA-125, "Corrective Action Program Procedure," allows items that are assigned as corrective actions to be closed to a WO task in the maintenance planning process where they will be tracked to completion. A priority designation of "C2" is assigned to a corrective action that has been closed to a WO task versus a "C" priority which is assigned to a routine maintenance activity. The "C2" designation provides an administrative control that allows the licensee to track corrective actions in the maintenance planning process through enhanced visibility in the work management system. Although not procedurally driven, the licensee stated that there is an expectation that prior to revising a work item from a "C2" priority to a "C" priority, the work item should be reviewed by MRC.

During a review of open and closed corrective actions in the licensee's CAP database, the inspectors identified several instances where a corrective action was closed to a WO with a "C2" priority only to have that WO be closed or cancelled and the corresponding work rolled into a WO with the different priority of "C". For example, as documented in AR 02657045, the licensee created a corrective action to perform a like-for-like replacement of the Unit 2 main generator reverse power relays during the upcoming B2R20 refueling outage. Once the applicable WOs were coded as "C2," the corrective action was closed in the CAP database. Subsequently, the WOs created from the corrective action were cancelled and the relay work was rolled into a different WO with a "C" priority. Based on the inspectors' inquiry, the licensee recoded the work as "C2" and entered this issue into the CAP as AR 04042808 for evaluation. This issue represents a programmatic vulnerability that could eliminate the ability to track corrective actions in the work management process.

Additionally, the inspectors identified one instance of a completed corrective action that was subsequently removed without any involvement of the corrective action process. Specifically, as documented in AR 01688846, the licensee created a corrective action to mark the engineered safeguards features (ESF) switchgear rooms and 6.9 Kilovolt (kV)

switchgear rooms as “No Radio Areas”, to prevent spurious actuation of degraded protective relays due to radio interference. The corrective action was closed to WO 01832505, which was subsequently performed and annotated as complete. However, during this inspection, the inspectors identified that none of the ESF switchgear rooms or 6.9 kV switchgear rooms were marked off as “No Radio Areas.” The licensee later determined that the markings were most likely removed by repainting of the doors. The licensee’s CAP process does not contain any provision to evaluate any impact before undoing this type of corrective action. The licensee entered this issue into their CAP as AR 04044524. The inspectors determined that this issue was minor because the licensee performed quarterly visual inspections of the diesel generator protective relays in the switchgear room and did not identify any degradation of the relays.

ii) Findings

Failure to Perform Maintenance in Accordance with Performance Centered Maintenance Template

Introduction: The inspectors identified a finding of very low safety significance (Green) and an associated non-cited violation (NCV) of TS 5.4.1, “Procedures,” when licensee personnel failed to perform maintenance in accordance with written procedures as required by Regulatory Guide 1.33. Specifically, from November 2013 through March 2017, the licensee failed to develop and execute work instructions of sufficient scope to accomplish the preventive maintenance to replace flexible hoses on the essential service water (SX) makeup pumps and the diesel-driven auxiliary feedwater (AFW) pumps and did not have a technical justification for a deviation from the Exelon Corporate Performance Centered Maintenance (PCM) template.

Description: During this inspection, the inspectors reviewed a sample of corrective actions to address prior NRC-identified violations. The licensee documented a NCV in the fourth quarter 2013 integrated inspection report that was issued on February 3, 2014, for the failure to have adequate procedures in place that incorporated preventive maintenance schedules for the replacement of SX makeup pump diesel engine flexible hoses in accordance with the vendor recommendations and Exelon Corporate PCM templates. Specifically, the licensee was only inspecting the flexible hoses on the SX makeup pump diesel engines instead of replacing them in accordance with the PCM template for small diesel engines.

The PCM template specified a 12-year replacement frequency for the flexible hoses that was based, in part, on industry operating experience that reflected a service life of 15 to 20 years for the flexible hoses. A technical evaluation performed by an external contractor also concluded that a 12-year replacement frequency was aligned with the manufacturer’s recommendation of 700 to 1000 hours of operation between preventive maintenance replacements. At the time of the previous NRC inspection, the licensee was unable to provide flexible hose replacement documentation for 43 of the 52 SX makeup pump flexible hoses since Unit 1 and Unit 2 began commercial operation in 1985 and 1987, respectively. Additionally, the Unit 1 and Unit 2 AFW pump flexible hoses were being inspected instead of being replaced on a 12-year frequency.

The licensee documented the issue in their CAP as AR 01582656 and AR 01590368 and created corrective actions to track the implementation of service requests to ensure that the previously issued NRC violation was adequately addressed. These service requests were intended to establish a flexible hose replacement schedule frequency for the SX makeup pumps and diesel-driven AFW pumps of 12 years in accordance with the PCM template.

The inspectors noted that from November 2013 through March 2017, the licensee did not replace all of the applicable flexible hoses on each affected system despite five available work window opportunities associated with WOs 01649132, 01778793, 01847544, 01760098, and 01888896.

The licensee performed a work group evaluation concerning the issue and determined, in part, that the WOs that were written to replace the flexible hoses did not contain the proper scope to credit the maintenance. Licensee procedure MA-AA-716-010, "Maintenance Planning," states, in part, that work packages should be developed with instructions to a level of detail appropriate for the circumstances, which address the aspects of the work package. Specifically, the scope of work should be addressed in either the work package or procedures used within the work package. On at least four different occasions, the work package scope as written in the work package, or procedures contained in the work package, were not sufficient to direct workers to replace vice inspect the flexible hoses, change out all the applicable flexible hoses, or allowed enough lead time for replacement flexible hoses to be ordered to accomplish the preventive maintenance.

Additionally, the service request for the diesel-driven AFW pumps was created on February 28, 2014, but was subsequently canceled on March 17, 2014. A new service request for the diesel-driven AFW pumps was created on August 25, 2015, and approved on December 1, 2015. After the original service request was canceled, but prior to the second service request being approved, WO 01649132 was performed on the Unit 2 diesel-driven AFW pump. At that time, the flexible hoses were only inspected in accordance with the WO instead of being replaced as required by the PCM template. Licensee procedure ER-AA-200, "Performance Centered Maintenance," states, in part, that all deviations from the PCM template shall have a technical basis documented by the site subject matter expert. No such technical basis was documented by the licensee for continuing to inspect the flexible hoses instead of replacing them after the NCV was issued in 2014.

The licensee entered this issue into their CAP as Action Requests (AR) 03961955, AR 03971962, and AR 04045769. The licensee planned to replace the flexible hoses for each affected diesel-driven AFW pump at the next available opportunity starting with the Unit 2 diesel-driven AFW pump during the Unit 2 fall 2017 refueling outage. This issue was not a current safety concern because the licensee has performed visual inspections of the hoses and verified that they were functional. The licensee planned to continue to monitor system performance during periodic testing.

Analysis: The failure to perform maintenance in accordance with written procedures as required by TS 5.4.1, "Procedures," and Regulatory Guide 1.33 was a performance deficiency.

Using guidance in Inspection Manual Chapter (IMC) 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening," dated September 7, 2012, the inspectors determined that the performance deficiency was more than minor because it was associated with the Mitigating Systems cornerstone attribute of Equipment Performance and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the failure to replace flexible hoses on the SX makeup pumps and the Unit 1 and Unit 2 diesel-driven AFW pumps at a pre-established frequency as required by preventive maintenance procedures could allow hose degradation to remain unidentified and lead to the inoperability of these safety-related systems.

The inspectors evaluated the finding using the Significance Determination Process (SDP) in accordance with IMC 0609, Attachment 4, "Initial Characterization of Findings," dated October 7, 2016, which directed the inspectors to IMC 0609, Appendix A, "The Significance Determination Process for Findings At-Power," Exhibit 2, "Mitigating Systems," dated June 19, 2012. The inspectors answered "Yes" to question A.1, "If the finding is a deficiency affecting the design or qualification of a mitigating SSC, does the SSC maintain its operability or functionality," therefore the finding screened as having very low safety significance (Green).

The inspectors determined this finding affected the Cross-Cutting area of Human Performance in the aspect of Work Management where the organization implements a process of planning, controlling, and executing work activities such that nuclear safety is the overriding priority. Specifically, since originally identified by the U.S. Nuclear Regulatory Commission (NRC) in 2013, the licensee failed to replace all of the applicable flexible hoses on each of the affected diesel engines in accordance with their associated maintenance strategy as well as the corporate PCM template [H.5].

Enforcement: Technical Specification 5.4.1.a, "Written Procedures," requires, in part, that written procedures shall be established, implemented, and maintained covering the applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Regulatory Guide 1.33, Appendix A, lists administrative procedures for performing maintenance and states, in part, that maintenance that can affect the performance of safety-related equipment should be properly preplanned and performed in accordance with written procedures, documented instructions, or drawings appropriate for the circumstances.

The stated purpose of licensee procedure ER-AA-200, "Preventive Maintenance Program," was to maintain plant structures, systems and components (SSCs) at an appropriate state of reliability based on the relative importance of the SSCs to safety, production and cost. The procedure stated, in part, that the site subject matter expert develops a maintenance strategy for a component using the Exelon Corporate PCM template as a guide and that all deviations from the PCM template shall have a technical basis documented by the site subject matter expert.

Additionally, the stated purpose of licensee procedure MA-AA-716-010, "Maintenance Planning," was to provide guidance on the requirements and expectations of the maintenance planning process. The procedure stated, in part, that work packages should be developed with instructions to a level of detail appropriate for the

circumstances, which address the aspects of the work package. Specifically, the scope of work should be addressed in either the work package or procedures used within the work package.

Contrary to the above, from February 3, 2014, through the end of this inspection on August 25, 2017, the licensee failed to document a technical basis for deviating from the PCM template for small diesel engines and failed to develop work instructions for the replacement of flexible hoses on the SX makeup pumps and the Unit 1 and Unit 2 diesel-driven AFW pumps to an appropriate level of detail such that the scope of work to be performed was understood and executed in accordance with the assigned preventive maintenance. As a result, each engine had flexible hoses that remained in service past the 12-year replacement frequency specified in the PCM template.

At the end of the inspection, the licensee planned to replace the flexible hoses in each of the four affected diesels at the next available opportunity. Because this violation was of very low safety significance and was entered into the licensee's CAP as ARs 03961955, 03971962, and 04045769, this violation is being treated as an NCV, consistent with Section 2.3.2 of the Enforcement Policy. **(NCV 05000454/2017007-01; 05000455/2017007-01, Failure to Perform Maintenance in Accordance with Performance Centered Maintenance Template)**

Failure to Promptly Identify Degraded Reactor Containment Fan Cooler Circuitry

Introduction: The inspectors identified a finding of very low safety significance (Green) and an associated NCV of Title 10 of the *Code of Federal Regulations* (CFR), Part 50, Appendix B, Criterion XVI, "Corrective Action," when the licensee failed to promptly identify a condition adverse to quality resulting in a safety-related system becoming inoperable. Specifically, from May 5, 2017, to August 4, 2017, the licensee failed to trend available surveillance data in a timely manner and did not identify a degraded condition in the 1A Reactor Containment Fan Cooler (RCFC) time delay circuitry prior to the system becoming inoperable.

Description: During this inspection, the inspectors reviewed a sample of corrective actions from the licensee's CAP to assess their effectiveness.

The inspectors reviewed an apparent cause evaluation (ACE) documented in AR 02507247 concerning a 1D RCFC surveillance testing failure that occurred on May 29, 2015. Specifically, during the performance of surveillance procedure 1BOSR 3.2.8-610B, "Unit One ESFAS [Engineered Safety Features Actuation System] Instrumentation Slave Relay Surveillance And Automatic Actuation Test (Train B Automatic Safety Injection – K610)," a time-delay relay failed to shift the 1D RCFC from high speed to low speed within the 33 second acceptance criterion, rendering the 1D RCFC inoperable. During an extent of condition evaluation, the licensee identified that the same type of relay was used in the same application in the other seven RCFCs.

While performing the ACE discussed above, the licensee discovered that a previous 1D RCFC surveillance test performed on October 31, 2014, identified that although the surveillance data obtained met the acceptance criterion, the recorded time-delay relay actuation time of 28.39 seconds was much longer than what had been previously recorded. Additionally, the time measured for the 1D RCFC to start from an initial

stopped condition was only 3.41 seconds; much shorter than the expected time of 20 seconds. To address this issue, the licensee generated a WO for troubleshooting the abnormal start times; however the WO was not scheduled to be performed until March of 2016.

The ACE discussed above ultimately concluded that gaps in system performance monitoring prevented a degrading 1D RCFC time-delay relay from being properly addressed prior to failure. The licensee implemented a corrective action to add trending of the time-delay relays to the RCFC system monitoring plan.

On August 4, 2017, during the performance of 1BOSR 3.2.8–610A, “Unit One ESFAS Instrumentation Slave Relay Surveillance and Automatic Actuation Test (Train A Automatic Safety Injection—K610),” and as documented in AR 04039037, a time-delay relay failed to shift the 1A RCFC from high speed to low speed within the 33 second acceptance criteria, rendering the 1A RCFC inoperable. The inspectors reviewed the previous surveillance for the 1A RCFC that was performed on May 5, 2017, and identified that although the surveillance data obtained met the acceptance criteria, the recorded time-delay relay actuation time of 27.17 seconds was much longer than what had been previously measured. The inspectors also identified that the time recorded for the 1A RCFC to start from an initial stopped condition was 28.85 seconds; much longer than the expected time of 20 seconds. However, since both of these recorded values were within the acceptance criteria of 1BOSR 3.2.8–610A, no issue reports were generated.

Based on the corrective actions to add trending of time-delay relay surveillance data to the RCFC system monitoring plan to address the May 29, 2015, 1D RCFC surveillance failure, the inspectors questioned whether licensee staff had reviewed the trend data from the May 5, 2017, surveillance test of the 1A RCFC. The licensee stated that although the data was available from the 1A RCFC surveillance performed in May, it had not been captured and trended in the RCFC system monitoring plan prior to the 1A RCFC failure that occurred on August 4, 2017. Therefore, no condition report was generated and no assessment was made concerning the data. Additionally, the licensee’s RCFC system monitoring plan only specified that trending data be recorded during the 1BOSR 3.2.8–610A 18-month surveillance portion of the procedure, and did not require trending of data recorded during the 1BOSR 3.2.8–610A quarterly surveillance portion of the procedure. As such, only two data points had been recorded in the RCFC system monitoring plan for the 1A RCFC since 2015.

The licensee entered this issue into their Corrective Action Program (CAP) as AR 04039037 and AR 04045767 and performed a work group evaluation to determine additional corrective actions to address this issue. These actions include updating the RCFC system monitoring plan to identify large changes in time-delay relay actuation times and improving coordination between engineering and operations to reduce the time required for engineering to obtain RCFC surveillance data for trending after surveillances were completed. The licensee also discussed assessing whether more data could be collected for the relays by adding the time-delay relay actuation data from the quarterly surveillances to the data recorded during the 18-month surveillance.

Analysis: The failure to promptly identify a condition adverse to quality associated with the time-delay relay circuitry in the 1A RCFC was a performance deficiency. Using the

guidance in IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening," dated September 7, 2012, the inspectors determined that the performance deficiency was more than minor because it was associated with the Mitigating Systems cornerstone attribute of Equipment Performance and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the failure to identify a degraded condition in the time-delay circuitry associated with the 1A RCFC resulted in a missed opportunity for the licensee to evaluate the cause and initiate prompt actions to respond to the degraded condition prior to failure.

The inspectors evaluated the finding using the SDP in accordance with IMC 0609, Attachment 4, "Initial Characterization of Findings," dated October 7, 2016, which directed the inspectors to IMC 0609, Appendix A, "The Significance Determination Process for Findings At-Power", Exhibit 2, "Mitigating Systems Screening Questions," dated June 19, 2012. The inspectors answered "No" to questions A.1 through A.4 and therefore the finding screened as having very low safety significance (Green).

The inspectors determined that this finding affected the Cross-Cutting area of Problem Identification and Resolution in the aspect of Trending where the organization periodically analyzes information from the CAP and other assessments in the aggregate to identify programmatic and common cause issues. Specifically, information was available that indicated a degraded condition in the 1A RCFC time-delay relay circuitry for three months prior its failure, but was not identified and evaluated [P.4].

Enforcement: Title 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," requires, in part, that conditions adverse to quality, such as deficiencies, deviations, and defective material and equipment, are promptly identified.

Contrary to the above, from May 5, 2017, to August 4, 2017, the licensee failed to promptly identify a condition adverse to quality in the 1A RCFC time-delay circuitry. Specifically, the licensee failed to trend surveillance data in a timely manner and did not identify a degraded condition in the 1A RCFC time-delay circuitry prior to the system becoming inoperable. Trending of the time-delay relays in the RCFC system monitoring plan was established as a corrective action from a previous failure of a similar relay in the 1D RCFC.

As an immediate action, the licensee planned to update the RCFC system monitoring plan to note abnormal changes in time-delay relay actuation times and improve coordination between engineering and operations to reduce the time required for engineering to obtain RCFC surveillance data for trending after surveillances were completed. Because this violation was of very low safety significance and was entered into the licensee's CAP as AR 04039037 and AR 04045767, this violation is being treated as an NCV, consistent with Section 2.3.2 of the Enforcement Policy. **(NCV 05000454/2017007-02; 05000455/2017007-02, Failure to Promptly Identify Degraded Reactor Containment Fan Cooler Circuitry)**

.2 Assessment of the Use of Operating Experience

a. Inspection Scope

The inspectors reviewed the licensee's implementation of the facility's Operating Experience (OE) program. Specifically, the inspectors reviewed the OE program implementing procedures, attended CAP meetings to observe the use of OE information, and reviewed licensee evaluations of OE issues and events. The objective of the review was to determine whether the licensee was effectively integrating OE into the performance of daily activities, whether evaluations of issues were appropriate, 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, were identified and implemented in an effective and timely manner.

b. Assessment

The inspectors observed that operating experience was discussed as part of daily and pre-job briefings. Operating experience evaluations included NRC generic communications, significant industry issues, and Part 21 reported issues. Additional industry OE was disseminated across plant departments for their review and use, if needed. Specific equipment-related issues were distributed to appropriate engineers for evaluation and screening into the CAP. The inspectors also verified that the use of OE in formal CAP products such as root cause evaluations and equipment apparent cause evaluations was appropriate and adequately considered. Generally, OE that was applicable to Byron Station was thoroughly evaluated and actions were implemented in a timely manner to address any issues that resulted from the evaluations.

Based on the results of the inspection, the inspectors concluded that OE was effectively utilized at the station. No significant issues were identified during the inspectors' review of selected licensee OE evaluations.

c. Findings

No findings were identified.

.3 Assessment of Self-Assessments and Audits

a. Inspection Scope

The inspectors reviewed department self-assessments and Nuclear Oversight audits, as well as the schedule of past and future assessments. The inspectors evaluated whether these audits and self-assessments were effectively managed, adequately covered the subject areas, and properly captured identified issues in the CAP. In addition, the inspectors interviewed licensee personnel regarding the implementation of the audit and self-assessment programs.

b. Assessment

Based on the results of the inspection, the inspectors concluded that self-assessments and audits were typically accurate, thorough, and effective at identifying issues and enhancement opportunities at an appropriate threshold. The inspectors concluded that these audits and self-assessments were completed by personnel knowledgeable in the subject area. In many cases, these self-assessments and audits had identified numerous issues that were not previously recognized by the station. These issues were entered into the CAP as required by the licensee's procedures. The inspectors also determined that findings from the CAP self-assessment were consistent with the inspectors' assessment.

c. 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 a review of the facility's Employee Concerns Program (ECP), Safety Culture Monitoring Panel (SCMP), CAP, and Safety Culture Surveys. The inspectors reviewed these programs' implementing procedures, ECP cases, SCMP condition reports, CAP documents and the results of licensee initiated safety culture surveys and pulses conducted in 2016 and 2017.

The inspectors interviewed eight individuals and conducted five focus group meetings. A total of 37 licensee staff and contractors participated in these discussions. The interviews and focus groups included individual contributors, supervisors, and managers from the licensee and its contractor organizations. During the interviews and focus group meetings, the inspectors assessed the staff's willingness to raise nuclear safety issues. Additionally, the inspectors interviewed other personnel informally to ascertain their views on the effectiveness of the CAP and their willingness and freedom to raise issues.

The inspectors selected interviewees to include program owners, managers and individuals with knowledge of selected plant issues. The inspectors selected focus group participants to provide a distribution across various departments at the site as well as a top to bottom review of the engineering department. In addition to assessing individuals' willingness to raise nuclear safety issues, the individual interviews and focus group meetings included discussion on any issues over the last 12 to 24 months that affected the SCWE at the plant. Items discussed included:

- knowledge and understanding of the CAP;
- effectiveness and efficiency of the CAP;
- willingness to use the CAP; and
- knowledge and understanding of the ECP.

The inspectors also discussed the functioning of the ECP with the program coordinator, reviewed program logs from 2015 through 2017, and reviewed selected case files to identify any emergent issues or potential trends.

b. Assessment

The inspectors did not identify any issues of concern regarding the licensee's SCWE, nor did the inspectors observe any evidence of a chilled environment at the Byron Station. Information obtained from interviews and focus groups indicated that an environment was established where licensee personnel felt free to raise nuclear safety issues without fear of retaliation. Licensee personnel were generally aware of and familiar with the CAP and other processes, including the ECP and the NRC's allegation process, through which concerns could be raised. In addition, a review of the types of issues in the ECP indicated that the licensee staff members were appropriately using the CAP and ECP to identify issues. The inspectors did not observe and were not provided any examples where there was retaliation for raising nuclear safety issues. Documents provided to the inspectors regarding surveys and monitoring of the safety culture and SCWE generally supported the conclusions from the interviews.

c. Findings

No findings were identified.

4OA6 Management Meetings

Exit Meeting

On June 23, 2017, the inspectors presented the inspection results to Mr. P. Boyle and other members of the licensee staff. The licensee acknowledged the issues presented. The inspectors confirmed that none of the potential report input discussed was considered proprietary.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

T. Chalmers, Plant Manager
G. Armstrong, Organizational Effectiveness Manager
B. Barton, Radiation Protection Manager
P. Boyle, Work Management Director
G. Gugle, Maintenance Director
C. Keller, Engineering Director
D. Spitzer, Regulatory Assurance Manager
H. Welt, Operations Director

U.S. Nuclear Regulatory Commission

K. Stoedter, Branch Chief
J. McGhee, Senior Resident Inspector

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Open

05000454/2017007-01	NCV	Failure to Perform Maintenance in Accordance with Performance Centered Maintenance Template (Section 4OA2.1.b.3.ii)
05000454/2017007-02	NCV	Failure to Promptly Identify Degraded Reactor Containment Fan Cooler Circuitry (Section 4OA2.1.b.3.ii)

Closed

05000454/2017007-01	NCV	Failure to Perform Maintenance in Accordance with Performance Centered Maintenance Template (Section 4OA2.1.b.3.ii)
05000454/2017007-02	NCV	Failure to Promptly Identify Degraded Reactor Containment Fan Cooler Circuitry (Section 4OA2.1.b.3.ii)

Discussed

None.

LIST OF DOCUMENTS REVIEWED

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

Condition Reports

AR 00076849	Weld Leak on 1SI081	09/28/01
AR 00110460	NRC Response to Unresolved Item 50-454/455-01-03-01	06/03/02
AR 00159974	1/2AF013A-h Not Listed in UFSAR Active Valve Table	05/21/03
AR 00162580	2B CS Pp Rm Cooler Tube or Plug Discrepancy Found	06/10/03
AR 00300149	SSDPC SX168 Controlled by Non-SR Thermostat	02/10/05
AR 00639540	FP Sprinkler Heads Above Drop Ceiling Needs Resolved	06/12/07
AR 00838568	OPEX Needs Review by Plant and Program Engineering	10/31/08
AR 00885124	Probable CCF Due to Downpower Related to 1RC8037A Leak	02/25/09
AR 00921050	NRC Identified 3 Gaps in Implementation of NEI 07-07	05/18/09
AR 01119520	Clean, Coat, and Install Galvanic Corrosion Protection Kit	09/29/10
AR 01131291	Review CS009 Concern for Past Reportability	10/27/10
AR 01153873	Division 22 ESF Switchgear Room Vent Fan Tripped	12/17/10
AR 01199886	B1R17 Max Acceptable SX to AF Suct Void Criteria Desired	04/08/11
AR 01331535	1PR21J Has High Pressure Alarm and Won't Clear	01/08/17
AR 01377834	NRC CDBI – Lack of Formal Analysis	06/14/12
AR 01398422	NRC CDBI Green NCV – Failure to Verify CCW Capability	08/08/12
AR 01423553	Flow Indication Erratic	10/07/12
AR 01474066	Issues with SX to CC Mod Installation	02/13/13
AR 01477993	CC to SX Seismic Calculation Does Not Address New Equipment	02/20/13
AR 01488097	Untimely Corrective Action – Active Valve List Discrepancies	03/15/13
AR 01496970	1B CC PP Outboard Seal is Leaking	04/03/13
AR 01520414	No Flow to TR Compositor Noted After Start-Up of System	06/02/13
AR 01536816	1B CC Pump Outer Pump Oil Color is Getting Darker	07/17/13

AR 01556325	Cloudy Oil in the Outboard Bearing Oiler on 1B CC Pump	09/10/13
AR 01563816	0VC02FA Charcoal Sample Failed Acceptance Criteria	09/26/13
AR 01568475	1B CC Pump Outboard Oil Bubbler Cloudy	10/06/13
AR 01579361	Valves 0SX161A/B Closure Not Functionally Tested	10/31/13
AR 01582051	U1 RCP Thermal Barrier CC Return Flow is Out of Spec Low	11/07/13
AR 01582656	NRC-ID Vender Manual Recommendation Not Being Implemented	11/08/13
AR 01582804	PI&R NRC Green NCV FP Sprinkler	11/08/13
AR 01590368	NRC ID-PCM Template/Vender Manual Recommendation	11/26/13
AR 01617468	Green NCV: SX Blowdown Isolation Valves Not Tested	02/05/14
AR 01617475	Green NCV: Failure to Implement PM to Replace Hoses	02/05/17
AR 01620849	Unexpected Alarm on 1C RCP Therm Barrier CC Flow Low	02/13/14
AR 01655054	11 Tubes Plugged on 0CC01A	05/02/14
AR 01670253	2BOSR CC-6B Failed Acceptance Criteria	06/11/14
AR 02417530	Security—Weekly Operational Test Outside 7-Day Period	11/26/14
AR 02438129	No Vortexing Calculation for the Boric Acid Storage Tank	01/15/15
AR 02440279	Safety Related Cable Vault PM Inspection	01/21/15
AR 02441727	1B AF Pump Oil Cooler has Significant Fouling	01/23/15
AR 02448665	NOS ID: Install Robust Barrier on Emergency Off Button	02/06/15
AR 02456450	2B CS Eductor Flow Required Adjustment	02/20/15
AR 02458839	Security—Equipment – Primary Security Radio is INOP	02/25/15
AR 02466822	Cyber—Non-DTE Computer Used on Security Card Reader	03/11/15
AR 02467656	Issues Identified in Engineering Evaluation (RCP Flywheels)	03/12/15
AR 02471534	CDBI FASA Review of NCV Findings. ECCS Valves	03/20/15
AR 02473291	Security 2015 PIIM / Excellence Plan	03/24/15
AR 02477078	B&W S/G Tube to Tube-Sheet Weld ASME Section III Code Compliance	03/31/15
AR 02485664	IMD Tech Received Unplanned ED Rate Alarm	04/15/15
AR 02486781	NRC Question on Dose Rate in FHB During FHA	04/17/15
AR 02491607	Worker (NDE) Received Dose Rate Alarm During ECCS Testing	04/27/15

AR 02491958	2B Component Cooling Outer Pump Bearing	04/28/15
AR 02492243	Security Documentation Administrative Errors	04/28/15
AR 02493289	Procedure Needed for PM on 1/2RH8725A/B	04/30/15
AR 02494393	B&W S/G Tube to Tube-Sheet Weld ASME Section III Code Compliance	05/01/15
AR 02495335	Review of Graphs in OU-AP-104 for Core Boil/Uncovery Times	05/04/15
AR 02495580	CDBI Question Related to BEP ES-1.3 Cold Leg Recirculation	05/04/15
AR 02506852	Evaluation of Previous Leakby Past 1DO001C for Reportability	05/28/15
AR 02508243	2B CC Pump Bearing Degraded	06/01/15
AR 02516430	Deluge Actuation On UAT 241-1	06/18/15
AR 02516933	1A30J Water Intrusion	06/19/15
AR 02521062	Motor Spinning in Wrong Direction at 1MS018B (1B S/G PORV)	06/29/15
AR 02522390	Protected Equipment Posting Not IAW Procedure	07/01/15
AR 02526104	NRC Identified 2VV05SB Not Working with Est Tag 2012	07/09/15
AR 02528826	OPS Focus-OLR Component Impact Not Addressed by Surveillance	07/16/15
AR 02530477	Incorporate Lower Mode Target Sets into Drill and Exercise	07/20/15
AR 02531342	Enhancement for Combustible Loading Calculation ATD 0026	07/22/15
AR 02531368	EP Respirator Qualification Margin, Declining Trend	07/22/15
AR 02532073	GRN NCV/FIN: Failure to Evaluate Effects of Sharing RWST	07/23/15
AR 02535393	Inaccessible Valve and Inadequate Response	07/30/15
AR 02536284	Unit 1 Fuel Pool Cooling Work Window Delays	08/01/15
AR 02536496	1FC01P Bushing Lessons Learned	08/02/15
AR 02536538	Abnormal Trend in Co-58 and Co-60 in U-1 RCS	08/02/15
AR 02536736	Adverse Trend In Workmanship Identified	08/03/15
AR 02537811	CCP-BAR 0-36-F2 & DWG 6E-0-4117A Not Correct	08/05/15
AR 02542482	TRM Compliance Issue for EC 398684	08/16/15
AR 02543239	Apparent Procedure Mistake in Streamline Rad Monitor Cal Proc	08/18/15
AR 02544737	Minimizing Inaccessible Valve Use	08/21/15

AR 02544915	Security Equipment Inventory Discrepancies	08/21/05
AR 02547869	NOS ID: Security Performance Rated Chronic Yellow	08/28/15
AR 0254878	CB&I Individual Received Accumulated Dose Alarm	08/31/15
AR 02549053	Concrete Block Rigging Point Failed	08/31/15
AR 02550794	DC Cook Crankshaft Failure	09/03/15
AR 02552358	Properly Coated BRG. HSG Not Available for 2B CC PP Repair	09/08/15
AR 02555691	High Flush Needed for 2CC01PB Outer Pump Bearing	09/16/15
AR 02557940	Work Continued After RP Directed Hold	09/21/15
AR 02559056	Troubleshooting Results For High Pressure From 1B DO Pumps	09/23/15
AR 02559958	OPS Focus: Operability and Functionality Review Trend	09/24/15
AR 02559980	Individual Removed ED in CNMT to Avoid Potential Rate Alarm	09/24/15
AR 02560050	DG Watertight Door Continues to Fail. Needs Resolved	09/24/15
AR 02560118	B1R20M5 1CV90 Not Assembled – Delaying RX Head Reset	09/24/15
AR 02560603	Management of Temporary Power Compliance	09/25/15
AR 02560682	Cyber Security – Insufficient Knowledge of Procedure	09/25/15
AR 02562742	Cyber Security – Vendor Not Complying with SQAD-7 Requirement	09/30/15
AR 02562830	ACE 2537946 was Pulled from MRC	09/30/15
AR 02562956	Maintenance ACE 2537946 Pulled from MRC Package	09/30/15
AR 02564014	LL Incorporating Corporate Input into ACE 2537946	10/01/15
AR 02568016	NOS ID'D: CO ₂ Discharge Timing Less Than Required	10/08/15
AR 02571385	Time Delay Relay 1CO01J-TR2 Needs to be Calibrated	10/15/15
AR 02571385	Time Delay Relay 2CO18J-TR2 Needs to be Calibrated	10/15/15
AR 02571839	2A Diesel Generator Room CO ₂ Discharge Time	10/16/15
AR 02571908	Emergent Dose Request. U–1 Containment Entry	10/16/15
AR 02574421	NOS ID – 2A Diesel Generator Room CO ₂ Testing	10/21/15
AR 02574512	Security—Level 3 Procedure Review / MRM	10/21/15
AR 02576258	OPS Shift Staffing Less than Desired	10/24/15
AR 02576459	2AR26 Rad Monitor No Pulses Received	10/25/15

AR 02577916	Firefighting Protein Foam Failed Lab Test	10/28/15
AR 02579724	Premature Failure of Critical Fuses	10/30/15
AR 02583454	Fireproofing Missing on Beams in U-1 AEER	12/06/15
AR 02586454	SX Makeup Calculation Requires Revision	11/12/15
AR 02588100	LIC ID NCV: Failed to Enforce Mobile Device Security and Integrity	11/16/15
AR 02588531	Security—Employee Tailgated into the Aux Bldg	11/17/15
AR 02589242	CCP—Error Found on Drawing M900 Sheet 7	11/18/15
AR 02591054	Security—Burst Dial Not Completed	11/22/15
AR 02591770	Increased Radiation Background at Aux Exit – Argos Monitor	11/24/15
AR 02599397	Evaluation of Pre-Conditioned 1CC201A Stroke Time Needed	12/12/15
AR 02602656	EP 4th Quarter After-Hour Call-in Drill Results	12/19/15
AR 02605343	Key Calculation BYR03–171 Should be Revised	12/29/15
AR 02606277	Potential Trend in EP Phone Failures	12/31/15
AR 02607148	Procedure Discrepancy on Failing IA to AF005 Valves	01/03/16
AR 02608308	Puddle of Water in Area 7	01/06/16
AR 02610745	EP-Siren Failure (BY27)	01/11/16
AR 02615354	Cyber Security – Milestone 4 Fleet-Wide Non-Compliance Issue	01/21/16
AR 02617307	U1 CC HX As-Found Inspection Results	01/26/16
AR 02618527	LIC ID NCV. Rice Paper In DO System	01/28/16
AR 02618529	LIC ID NCV – Operator Compliance With Rema	01/28/16
AR 02618530	LIC ID NCV – PZR PORV And Block Valve Spurious Operation	01/28/16
AR 02618532	LIC ID NCV – Control Of Electronic Dosimeter	01/28/16
AR 02622024	NOS ID: ACIT Action and Closure Documentation	02/04/16
AR 02622029	NOS ID: Procedure Guidance Not Met for Security Follow-up	02/04/16
AR 02624760	2A DG Crankcase Sample After Monthly Run	02/11/16
AR 02625665	Security Equipment—Delay Fencing Broken with Sharp Edges	02/13/16
AR 02627138	Debris Identified Inside Pipe Cap For 2DO132A	02/16/16
AR 02628064	First Level CFAM Elevation – Security Department Performance	02/18/16

AR 02628100	MSIV IA Check Valves Not in an Engineering Program	02/18/16
AR 02628165	Aggregate Review of 2A DG Window For Maintenance	02/18/16
AR 02638407	1MS101A Failed to Go Open for Surveillance Testing	03/10/16
AR 02643982	1C CD/CB Abnormal Indications During Troubleshooting	03/22/16
AR 02650149	OPS Focus: 2BOSR 8.9.1-2, ESF Onsite Power Distribution Surv	04/03/16
AR 02652901	2A CC Pump IST Indicates Alert Value for Developed Head	04/08/16
AR 02655195	Engineer Received an Unplanned Dose Rate Alarm in Area 7	04/13/16
AR 02655460	0A WX Demin Leak	04/14/16
AR 02657166	Inactive Packing Leak (2SI8877C) – WR Only	04/18/16
AR 02659434	EP March SIM/TSC/OSC Drills – Failed DCS – TSC	04/22/16
AR 02659447	EP March SIM/TSC/OSC Drills – Failed DCS – CR/SIM	04/22/16
AR 02659493	Boric Acid on Packing of 2SI8877C	04/22/16
AR 0266061	Investigation Rejected At MRC	04/23/16
AR 02660908	1B CV Pump Outboard Motor Bearing Bad Oil	04/26/16
AR 02665487	Operations BAR Procedures Need to All be Revised	05/04/16
AR 02665832	LIC ID NCV – 10 CFR Part 37 Inspection Report	05/05/16
AR 02666942	Security Equipment – Admin Gate Weekly Testing Not Completed	05/08/16
AR 02667727	Enhancements to Site Thermography Program	05/10/16
AR 02667810	Cyber Security: CDA Media Left Unattended	05/10/16
AR 02668880	New 2D Narrow Range RTD 2TE–0441A1 Reading 50 Degrees High	05/12/16
AR 02670511	LIC ID Green NCV Security Baseline Inspection	05/17/16
AR 02673391	Cyber Security: Powertrakr Incorrectly Utilized	05/24/16
AR 02677128	Operations Request Engineering Calculation for AF Void Limit	06/02/16
AR 02683626	Cyber—Kiosk Detected Potential Threat on CDA Media	06/20/16
AR 02685801	1CC200A Will Not Fully Close	06/26/16
AR 02687320	1SI138A Has Dried Boric Acid Around the Vent Cap Threads	06/29/16
AR 02688269	Boric Acid Leakage at Gauge Fitting—2PI–WE001	07/01/16
AR 02691943	Packing Leak	07/12/16

AR 02693072	Security—NRC Identified Potential Enhancement to EWS	07/15/16
AR 02694254	Everbridge System Degraded (E-Plan Notification System)	07/18/15
AR 02694770	RMS System Not Included in DAE Cyber Security Scope	07/20/16
AR 02695454	Cyber Security: Potential Threats Flagged during Kiosk Scan	07/21/16
AR 02695674	Security—NRC Triennial FOF Pre-Week Observations	07/22/16
AR 02696731	OIO BM. 2016 NITSL Conference	07/26/16
AR 02697104	As Found Thrust Value for 1CC9412B Exceeded Max Limit	07/26/16
AR 02697793	LIV: Violation of 10 CFR 50, Appendix B, Criterion III	07/28/16
AR 02697795	LIV: Violation of T.S. 5.4.1.C	07/28/16
AR 02698888	1B AF Pump SX Booster Pump Surveillance Failed	07/31/16
AR 02699409	Completion of Cyber Security CDA Assessment	08/01/16
AR 02699830	Cyber Security—CDA Media Checked Out from Limerick	08/02/16
AR 02701697	Boric Acid Buildup at 3/4" NPT to 1/8" Compression Fitting	08/07/16
AR 02702037	LIV: Violation of T.S. 5.4.1.C	08/08/16
AR 02702625	SA-AA-115, Rev 14 Not Implemented in 120 Days	08/10/16
AR 02703861	EP—Discrepancies Identified in EAL Addendum	08/12/16
AR 02707738	U-1 Wide Range CNMT Pressure Channel Failed Low	08/24/16
AR 02710293	Gap in Lapel Air Sampler Analysis Methodology	08/30/16
AR 02711798	As Found Inspection Results of HX 1OG04A	09/02/16
AR 02711974	ASME Test of DO Transfer System	09/03/16
AR 02712162	0D SXCT High Speed Fan BRKR Failed Close	09/04/16
AR 02712353	1PR27J Loss of Sample Flow	09/05/16
AR 02712375	1PR27J Loss of Sample Flow	09/05/16
AR 02714517	Security—Equipment Improvement Opportunity	09/11/16
AR 02715090	1B AF Pp Fuel Supply Line Leak	09/13/16
AR 02719257	Containment Entry Governance (And) Support	09/23/16
AR 02720377	Loss Of Sample Flow on 0PR05J	09/26/16
AR 02720594	Quarterly Review of Fire Brigade Drill Performance	09/27/16
AR 02720698	SEP12: Remediation Actions Needed for Remaining Systems	09/27/16

AR 02720732	RMS Loop 3 Communication Issues	09/27/16
AR 02724925	Ops Focus – Loop 3 Failure Trend	10/06/16
AR 02725521	0SX163B – SXCT Riser Valve Galvanic Corrosion Protection Kit	10/07/16
AR 02725526	0SX163D – SXCT Riser Valve Galvanic Corrosion Protection Kit	10/07/16
AR 02726414	Issue During Previous UHS Triennial Insp Still Not Resolved	10/10/16
AR 02726962	Cyber Security – Potential Threats Flagged on Kiosk	10/11/16
AR 02727475	3Q2016 Area DLR Results	10/12/16
AR 02730950	Temp Door For DOST 1A Room Air Gap	10/21/16
AR 02733552	0PR034J Failed Source Check	10/27/16
AR 02735156	Unexpected Alarm, U-2 TGTMS Temp Alarm Setpoint Exceeded	10/31/16
AR 02737632	Security Equipment – Door Exceeded Seven Day Testing	11/05/16
AR 02737912	Operating Shift Below Minimum Staffing for Less Than 1-Hr	11/07/16
AR 02739021	Green FIN/NCV: VIO of 10 CFR 71.5 (A) and 49 CFR 171. (B)(12)	11/09/16
AR 02739021	REMP – Environmental Dosimeter Relocated	05/11/17
AR 02739637	SX Flex Hose Joints PM and Spare Parts Challenge	11/10/16
AR 03946962	1A SX Room Sump Pump Continues to Run Excessively	11/29/16
AR 03947554	Counting Room Upgrade Requires Station Support	11/30/16
AR 03948305	Cyber Security – CDA Classification of DC Ground Recorders	12/01/16
AR 03949986	Cyber Security: DTE Left Unattended	12/06/16
AR 03950903	NOS ID: SGI Material Not Marked Correctly	12/08/16
AR 03950905	NOS ID: DTE Found Not in a Secure Storage Location	12/08/16
AR 03958236	Pump has Seal Leak	01/01/17
AR 03958581	Seal Leak 2PS64PA Secondary Cooler Pump	01/03/17
AR 03960342	CDA Monitor Replaced Without Following Proper Process	01/06/17
AR 03960431	LCO Exit for 1FI-AF013A and 1FI-AF014A	01/07/17
AR 03960665	DSA – OPS SXCT Fan Monthly Surveillance	01/08/17
AR 03961955	SX and AF Diesel Flex Hose PMS	01/11/17
AR 03970088	Cyber Security: Non-CDA Media Inserted into CDA Scan Kiosk	02/03/17

AR 03971075	OPR05J Lost Sample Flow and Wouldn't Restart	02/07/17
AR 03971962	AF Diesel Metal Flex Hoses, Response to IR 3961955	02/09/17
AR 03972107	OPR10J Went Into Alert During Liquid Release	02/09/17
AR 03976707	Cyber Security: AV Scan Flagged Potential Threat on New CDAs	02/21/17
AR 03977377	Security – Equipment – Video Capture system Temporarily INOP	02/23/17
AR 03979800	Locking Pins Found Mission on Two RVLIS Connectors	02/28/17
AR 03980702	Non-Active Boron Leak on 1FT-0424	03/02/17
AR 03980765	Boron Leak on 1FT-0424	03/02/17
AR 03981072	Unrecovered FME from RVLIS Connectors	03/03/17
AR 03982085	Security Equipment—D652 Lock Mechanism	03/06/17
AR 03982402	Security Door 0DSD652 Does Not Latch	03/07/17
AR 03982655	Dry Boric Acid on Pipe Cap by 1SI138 Valve	03/07/17
AR 03983586	Foreign Material Found In 1B AF PP Jacket Water Heater Line	03/09/17
AR 03984215	Level 4 C&T – Excessive WS Piping Removed	10/04/17
AR 03984306	RMS Loop 3 Of Communication RMS Loop 3	03/17/17
AR 03984825	1CC9486 Hinge Pin Bent	03/14/17
AR 03985156	Potential Non-Compliance with 10 CFR 73.55(F)(7)(I)(C)	03/14/17
AR 03988838	2AR14J Communication Failure	03/23/17
AR 03989287	RC Head Vents Leaking Approx 2 Drops/Minute	03/24/17
AR 03989385	Outboard and Inboard Mechanical Seals Leaking	03/25/17
AR 03989523	1 Drop Every 10 Seconds from Tailpipe Downstream of 1RC014's	03/25/17
AR 03989538	2LL10JA Panel CKT Breaker B/02 Broken	03/25/17
AR 03990171	OPR19J In Operate Failure	03/23/17
AR 03990803	Hoses That Were Not Replaced During B1R21	03/29/17
AR 03996721	Security—Corporate Identified Illuminate Issue	04/11/17
AR 03999004	B1R21 LL From RP	04/17/17
AR 04009060	LIV: Violation of T.S. 5.4.1.A	05/10/17
AR 04013935	Security—Security Force on Force Exercises	05/23/17

AR 04014955	Cyber Security: Powertrakr Not Updated	05/25/17
AR 04018542	Condition Resolution Timeliness Concern	06/05/17
AR 04026347	EOI Students Entered RCA Signed On To Wrong RWP	06/28/17
AR 04028784	New Operating TCA Unable to be Completed in the Time Allotted	07/05/17
AR 04030317	Transuranics Identified By Vendor In DAW Sample Smears	07/10/17
AR 04030318	Cyber Security: DTE Overdue in Powetrakr	07/10/17
AR 04030418	Possible Degradation of 2B CC Outboard Pump Bearing	07/11/17
AR 04031167	NOS ID: Security Entered RCA Without RP Briefing	07/12/17
AR 04033030	CWBD Vacuum Breaker(s) May Be Leaking	07/18/17
AR 04035395	Instrument Inverter Trouble Alarms	07/25/17
AR 04036291	Filter Change Required To Lower Dose Rate For Now Fuel Download	07/27/17
AR 04037410	Cyber Security Remediation Requirements	07/31/17
AR 04039037	1A RCFC Failed to Start within 33 Seconds	08/04/17
AR 09989539	Circuit Breaker Will Not Reset	03/25/17
AR 20577237	NOS CPA-BY-15-10 Maintenance rating—Yellow	10/27/15

Apparent Cause Evaluation

ACE 01688846	1A Emergency Diesel Generator Lockout While in Standby	08/04/14
ACE 02506852	Evaluation of Previous Leakby Past 1DO001C for Reportability	05/28/15
ACE 02507247	1D RCFC Failed Surveillance 1BOSR 3.2.8-610B	05/29/15
ACE 02537946	Cyber Security—CDA Media Used on Non-DTE (Digital Test Equipment) Equipment	09/06/15
ACE 02557781	TCC'S and Clearance Order Overlap	09/20/15
ACE 02557940	Declining Trend In Rad Worker Behaviors	12/23/15
ACE 02559056	Troubleshooting Results For High Pressure From 1B DO Pumps	10/23/15
ACE 02563847	Mode 3 Entered with K640 Relay Leads Lifted	10/01/15
ACE 02567914	Restoration Issues with 1A Circulating (CW) Pump	11/20/15
ACE 02577237	Maintenance Rated Yellow By NOS During NOSCPA-BY-15-10	11/25/15

ACE 02587139	OPS Line & Training Management Alignment/Crew Performance	01/06/16
ACE 02623798	Security—Vehicle Struck by Active Vehicle Barrier During Testing	03/04/16
ACE 02628165	Aggregate Review of 2A DG Window for Maintenance	02/18/16
ACE 02639241	Performance ACE To Document Learnings From U2 GC Pump Swap	03/11/16
ACE 02639241	U2 GC Pump Swap	04/14/16
ACE 02657045	Reverse Power Relay GGP–53C CCF	04/18/16
ACE 02727378	MCC 234V4 Not Energized Subsequent RX Trip	10/12/16

Audit, Assessment and Self-Assessments

AR 02412957	Check-In Self-Assessment—Equipment Performance, Testing & Maintenance IP 71130.04	04/28/15
AR 02415844	ER–AA–2003; Performance Monitoring	12/31/15
AR 02415856	Plant IQ, Complex Troubleshooting, and WGE Check-In	03/13/15
AR 02415865	Byron Maintenance Rule Program	08/25/15
AR 02421079	NOSA–BYR–15–05; Engineering Design Control Audit Report	07/22/15
AR 02421081	NOSA–BYR–15–06 Radiation Protection Audit 2015	12/05/14
AR 02437419	FASA-Review of Diablo Canyon Finding, Diesel Generator Room Heat Loading	01/14/15
AR 02567008	Check-In Self-Assessment—Fluid Leak Management Program	08/30/16
AR 02567063	Check-In Self-Assessment—MMD Training/Qualifications	07/29/16
AR 02607943	Security Programs Audit Report NOSA–BYR–16–02	01/12/16
AR 02608417	NOSA–BYR–16–01 Byron Maintenance Audit	01/06/16
AR 02618339	Check-In Self-Assessment—Pre-NRC 71130.02, 71130.08 & 71151	12/06/16
AR 02623105	Safety-Related Coatings Periodic Self-Assessment	01/18/17
AR 02625290	Check-In Self-Assessment—NRC EP Baseline Inspection Assessment	09/02/16
AR 02630576	Check-In Self-Assessment—OP–AA–101–113, Operator Fundamentals	11/19/16
AR 02637902	NOSA–BYR–16–05; Engineering Programs and Station Blackout Audit Report	04/13/16
AR 02645620	Check-In Self-Assessment—Radiation Protection Dosimetry	10/19/16
AR 02645621	Check-In Self-Assessment—Radiation Protection Instrumentation	10/19/16

AR 02670712	NOSA-BYR-16-04 Chemistry, Radwaste, Eff & Env Monitor Audit	05/17/16
AR 02691283	An Assessment by Design Engineering on Design Calculations/ECs that support Engineering Programs that have a Vendor Performing	01/16/17
AR 02691293	Engineering Mid-Cycle Emerging GTE	02/23/17
AR 02707439	Check-In Self-Assessment—2016 INPO Mid-Cycle AFI	05/16/17
AR 02727391	NOSA-BYR-16-11 Byron ISFSI Audit	10/12/16
AR 02738678	Cyber Security Audi Report NOSA-BYR-16-12	12/14/16
AR 03958785	Check-In Self-Assessment—EP Exercise NRC PI 71114.01, 06, 08 & 71	06/02/17
AR 03961447	Effectiveness Review from RC 2683455. OJT/TPE	04/17/17
AR 03977510	Corrective Action Audit Report NOSA-BYR-17-04	03/07/17
AR 03990354	Check-In Self-Assessment—Preparation for NRC Problem Identification and Resolution (PI&R) Inspection Per Inspection Procedure 71152	06/02/17
AR 04014448	NOSA-BYR-17-06 Byron Radiation Protection Audit	05/24/17
AR 04014930	NOSA-BYR-17-05; Engineering Design Control Audit Report	07/19/17

Miscellaneous

Cyber Security Malware Investigation Form	06/20/16
Letter from J. Armstrong to R. Kearney, "NOS Chronic Yellow Response"	09/21/15
Letter from T. Chalmers to C. Kelley, "Security CFAM Elevation Response Letter"	02/25/16
Management Review Committee Agenda	Various Dates
Station Ownership Committee Review Package	Various Dates
System Health Report: CC – Component Cooling Water Reports	2012 – 2017

BYR11-035	Boric Acid Storage Tank Critical Submergence Height Evaluation to Prevent Air Intake due to Vortices	Revision 1
BYR-15-0067	Silting in the Ultimate Heat Sink and Small SX Heat Exchangers	Revision 0
DRP 16-034	Revise USFAR Table 3.9-16 Active Valve List for Byron Station in Accordance with Approved EC 360252	07/20/15
DRP 16-063	Update Byron UFSAR Table 3.9-16 to Add New Active Valves	03/16/17
DRP 17-014	Add 0SX161A/B to UFSAR Table 3.9-16, Active Valves for Byron	04/18/17
EC 343288	Evaluate Apparent Tube Size Discrepancy for the CS Cubicle Cooler (2VA03SB)	06/10/03
EC 395012	Op Eval 13-008—Hydrodynamic Analysis of RH Suction Relief to the Boric Acid Relief	Revision 1
EC 401126	Non-conformance Evaluation for the RCP Flywheels	Revision 1
EC 401608	Boric Acid Storage Tank Vortexing Calculation	Revision 0
EC 402542	Procedurally Controlled TCC Evaluation to Install a Temporary Ball Valve Downstream of 1/2RH8725A/B	Revision 0
EC 403257	Dose Rates Due to Fuel Handling Accident	Revision 1
EC 403611	Document Revision to Calculation VD-100 per Diablo Canyon Finding (DG Room Temperatures)	Revision 0
EC 406534	Evaluation of Gas Voids in the AF Suction Crosstie Piping from SX	Revision 0
LER 2015-003-01	One Train of the Diesel Generator System Inoperable Longer than Allowed by Technical Specifications Due to Loss of Diesel Fuel Oil System Volume	08/27/15
LER 2015-006-00	Mode 3 Entered with Turbine Trip Safety Function Disabled due to Safety Related Relay Leads Lifted	11/30/15
LER 2016-001-01	Manual Reactor Trip Due to Circuit Breaker Failure that Caused Actuation of Feedwater Hammer Prevention System with Automatic Isolation of Feedwater to Two Steam Generators and Low Steam Generator Levels	02/15/17
Op Eval 02-010	CC9438 Potential Unreviewed Safety Question	Revision 1
Standing Order 15-025	Protected Equipment Checklist	06/05/15
WO 00184077	Verify Oil Operation 2B CC Pump	09/01/15
WO 01737110-01	Perform STT 0BOSR SX-1	10/21/15
WO 01760098	Replacement Flexible Hoses	07/19/16
WO 01823813	Sample/Change Component Cooling Pump 2B Shaft Lubricant	04/17/15
WO 01847544	Replace Hoses on 0A SX MU Pump	07/05/16
WO 01852463	Replace Capacitors on Differential Relay	01/30/17
WO 01852464	Inspect Capacitors on Differential Relay	04/17/17

WO 01854092-01	MM – Repair 2B DG DOST Room Watertight Door	07/28/16
WO 01888896	Diesel Drive AF Pump Inspection Per BMP 3203-1	03/01/17
WO 1003657	Perform 2BVSr 6.7.5-2, Unit 2 CS Train B CS Additive Flow Rate Verification	01/23/09
WO 1560173	Perform 2BOSr 6.7.5-2, Unit 2 CS Train B CS Additive Flow Rate Verification	04/24/14
WO 1691011	Inspect Safety Related Cable Vault 1H2	10/28/14

Operating Experience

AR 01539630	Part 21 Event Report 49205—Firmware Notice For Users of Yokogawa	07/25/13
AR 02449962	Part 21—Shutdown Margin Monitor Environmental	02/09/15
AR 02451699	Part 21—Applicability Review, S/D Margin Monitor	02/12/15
AR 02466151	OPEX Evaluation NRC In 2015-03, Improper Operation of Spent Fuel Transfer Cask Neutron Shield Equipment Leading to Elevated Radiation Levels Adjacent to Spent Fuel Transfer Cask	03/10/15
AR 02596745	OPEX Eval NRC RIS 2015-15, Information Regarding A Specific Exemption in the Requirements for the Physical Protection of Category 1 and Category 2 Quantities of Radioactive Material	12/07/15
AR 02647765	OPEX—NRC In 2016-04 Leak Testing of Type B RAM Packages	03/30/16
AR 02652763	NRC GL 2016-01, Monitoring of Neutron-Absorbing Materials in Spent Fuel Pools	04/08/16
AR 02673352	OPEX EVAL ICES 321534, Automatic Reactor Trip on Main Generator	05/24/16
AR 02676471	OPEX from Point Beach Applicable to Byron	06/01/16
AR 02678423	10 CFR Part 21—Not Approved CT Installed In SR Inverters	06/06/16
AR 02686762	OPEX Eval NRC In 2016-08, Inadequate Work Practices Result In Faulted Circuit Breaker Connections	06/28/16
AR 02712875	Part 21—Crane Nuclear, Inc. 2016-41-00—Safety Related Co	09/07/16
AR 02735046	10 CFR Part 21 Applicability Determination	10/31/16
AR 02742405	OPEX Eval NRC RIS 2016-11, Requests to Dispose of Very Low-Level Radioactive Waste Pursuant to 10 CFR 20.2002	11/17/16
AR 02786755	OPEX Eval NRC in 2016-07, Operating Experience Regarding Impacts on Site Electrical Power Distribution from Inadequate Oversight of Contractor Activities	06/28/16
AR 03944740	Informal OPEX Review of BRW-16-003	11/23/16

AR 03974493	SEC: NRC RIS 2017-02, Applicability of Title 10 of the <i>Code of Federal Regulations</i> Part 37 to Non-Manufacturing and Distribution Service Provider Licensees	02/15/17
AR 03997656	2AS162 to be Added into B2R20	04/13/17
AR 04006988	OPEX Eval NRC In 2017-01, Reactor Coolant System Leakage from a Control Rod Drive Threaded Connection	05/05/17
AR 04022757	OPEX Review Of NRC In 2017-03: Anchor/Darling Double Disc Gate Valve Wedge Pin and Stem-Disc Separation Failures	06/16/17
AR 04030743	Review of Braidwood IR 4029478 for Lessons Learned	07/11/17
AR 04040543	Green NER NC-17-019 EDG Mission Time in Op Evals	08/09/17

Procedures

0BOSR SX-1	0SX161A and 0SX161B IST Valve Strokes	Revision 1
1BEP ES-1.3	Transfer to Cold Leg Recirculation Unit 1	Revision 300
1BOSR 5.5.8.AF.5-1a	Unit 1 Group A In-Service Testing Requirements for the Motor Driven Auxiliary Feed Water Pump	Revision 9
2BOSR 6.7.5-2	2B CS Train B CS Additive Flow Rate Verification	Revision 4
2BOSR 6.7.5-2	2B CS Train B CS Additive Flow Rate Verification	Revision 2
2BVSR 6.7.5-2	2B CS Additive Flow Rate Verification	Revision 1
AD-AA-1110	Corporate Functional Area Manager (CFAM), Core Peer Group, Peer Group and Working Group Conduct	Revision 12
BAP 320-1	Shift Staffing	Revision 23
BHP 4200-177	Preventive Maintenance on Underground Cable Vaults	Revision 1
BMP 3208-1	Emergency Stand-By Diesel Generator Engine 6-Year/20-Year Surveillance	Revision 31
BMP 3208-2	Emergency Stand-By Diesel Generator Engine Inspection 24 Month Surveillance	Revision 23
BOP FP-22A19	Manual Initiation of CO to 1A Diesel Generator Day Tank Room	Revision 1
CC-AA-501-1026	Exelon Nuclear Welding Program Purging Techniques	Revision 4
ER-AA-200	Preventive Maintenance Program	Revision 3
ER-AA-2002	System Health Monitoring	Revision 20
ER-AA-300-150	Cable Condition Monitoring Program	Revision 4
MA-AA-716-010	Maintenance Planning	Revision 24

MA-AA-716-011	Work Execution & Close Out	Revision 23
MA-BY-1-FP003-002	Fire Suppression Zones 9.2-2, 9.3-2 Suppression Zones 2S-38 and 2S-40	Revision 4
MA-BY-1-FP004-001	Fire Suppression Zones 11.4A-1, 1U1,1U2 Suppression Zones 1S-42 and 1S-42	Revision 2
MA-BY-MM-4-RH01	Installation and Removal of a Temporary Sample Isolation Valve in the RH System	Revision 1
MA-MW-716-010-1020	Writer's Guide for Maintenance Work Order Instructions	Revision 1
NO-AA-102-002	Nuclear Oversight Issue Elevation and Escalation	Revision 4
OP-BY-102-106	Operator Response Time Program at Byron Station	Revision 10
PI-AA-115	Operating Experience Program	Revision 2
PI-AA-120	Issue Identification and Screening Process	Revision 7
PI-AA-125	Corrective Action Program (CA) Procedure	Revision 5
PI-AA-125-1001	Root Cause Analysis Manual	Revision 3
PI-AA-125-1003	Correction Program Evaluation Manual	Revision 4
PI-AA-126-1001	Self-Assessments	Revision 2
SY-AA-101-112	Exelon Security Search Processes	Revision 34
SY-AA-500-126	Duties and Responsibilities of the Exelon Nuclear Security Organization	Revision 15
WC-AA-106	Work Screening and Processing	Revision 17

Root Cause Evaluations

RCE 02694254	Everbridge System Degradation Root Cause Investigation Report	07/18/16
RCE 02683455	Gap Identified in Operations on the Job Training (OJT) and Task Performance Evaluation (TPE) Performance	07/13/16
RCR 02669711	Unit 2 RCDT (Reactor Coolant Drain Tank) Pressurization and Unusual Event	05/15/16

Issue Reports Generated As a Result of the NRC Inspection

AR 04040514	Security—NRC PI&R Inspection Issue Resolution	08/09/17
AR 04040578	NRC PI&R Identified—Operable Basis Does Not Align with WGE	08/09/17
AR 04040982	NRC PI&R Identified—AR 4013935, Assignment 03 Closure Questioned	08/10/17

AR 04042808	Response Provided to NRC without Expert Panel Review	08/16/17
AR 04044524	NRC PI&R Identified—Signs No Longer Posted	08/22/17
AR 04045048	NRC PI&R Identified—IR Incorrectly Coded as NCAP	08/23/17
AR 04045053	NRC PI&R Identified—Incorrect Cross Reference	08/23/17
AR 04045767	Potential Green NCV Identified from PI&R Inspection	08/25/17
AR 04045769	Potential Green NCV Identified from PI&R Inspection	08/25/17
AR 04046468	PI&R NRC ID Action Inappropriately Changed to ACIT	08/28/17

LIST OF ACRONYMS

ACE	Apparent Cause Evaluation
ADAMS	Agencywide Documents Access and Management System
AFW	Auxiliary Feedwater System
AR	Action Request
CAP	Corrective Action Program
CFR	<i>Code of Federal Regulations</i>
ECP	Employee Concerns Program
ESF	Engineered Safety Feature
IMC	Inspection Manual Chapter
IP	Inspection Procedure
kV	Kilovolt
MRC	Management Review Committee
NCV	Non-Cited Violation
NRC	U.S. Nuclear Regulatory Commission
OE	Operating Experience
PCM	Performance Centered Maintenance
PI&R	Problem Identification and Resolution
ROP	Reactor Oversight Program
RCFC	Reactor Containment Fan Cooler
SCMP	Safety Culture Monitoring Panel
SCWE	Safety Conscious Work Environment
SDP	Significance Determination Process
SOC	Station Ownership Committee
SSC	Structures, Systems, and Components
SX	Essential Service Water System
WO	Work Order