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

January 6, 2022

Mr. David Rhoades
Senior VP, Exelon Generation Company, LLC
President and CNO, Exelon Nuclear
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: BYRON STATION – BIENNIAL PROBLEM IDENTIFICATION AND RESOLUTION INSPECTION REPORT 05000454/2021012 AND 05000455/2021012

Dear Mr. Rhoades:

On December 3, 2021, the U.S. Nuclear Regulatory Commission (NRC) completed a problem identification and resolution inspection at your Byron Station and discussed the results of this inspection with Mr. J. Kowalski, Site Vice President, and other members of your staff. The results of this inspection are documented in the enclosed report.

The NRC inspection team reviewed the station's corrective action program and the station's implementation of the program to evaluate its effectiveness in identifying, prioritizing, evaluating, and correcting problems, and to confirm that the station was complying with NRC regulations and licensee standards for corrective action programs. Based on the samples reviewed, the team determined that your staff's performance in each of these areas adequately supported nuclear safety.

The team also evaluated the station's processes for use of industry and NRC operating experience information and the effectiveness of the station's audits and self-assessments. Based on the samples reviewed, the team determined that your staff's performance in each of these areas adequately supported nuclear safety.

Finally, the team reviewed the station's programs to establish and maintain a safety-conscious work environment, and interviewed station personnel to evaluate the effectiveness of these programs. Based on the team's observations and the results of these interviews the team found no evidence of challenges to your organization's safety-conscious work environment. Your employees appeared willing to raise nuclear safety concerns through at least one of the several means available.

No findings or violations of more than minor significance were identified during this inspection.

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 Title 10 of the *Code of Federal Regulations* 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

Signed by Peterson, Hironori
on 01/06/22

Hironori Peterson, Chief
Branch 3
Division of Reactor Projects

Docket Nos. 05000454 and 05000455
License Nos. NPF-37 and NPF-66

Enclosure:
As stated

cc w/ encl: Distribution via LISTSERV®

Letter to David Rhoades from Hironori Peterson dated January 6, 2022.

SUBJECT: BYRON STATION – BIENNIAL PROBLEM IDENTIFICATION AND RESOLUTION INSPECTION REPORT 05000454/2021012 AND 05000455/2021012

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**U.S. NUCLEAR REGULATORY COMMISSION**
**Inspection Report**

| | |
|---|---|
| Docket Numbers: | 05000454 and 05000455 |
| License Numbers: | NPF-37 and NPF-66 |
| Report Numbers: | 05000454/2021012 and 05000455/2021012 |
| Enterprise Identifier: | I-2021-012-0035 |
| Licensee: | Exelon Generation Company, LLC |
| Facility: | Byron Station |
| Location: | Byron, IL |
| Inspection Dates: | November 15, 2021 to December 03, 2021 |
| Inspectors: | M. Holmberg, Senior Reactor Engineer<br>J. Park, Reactor Inspector<br>N. Shah, Senior Project Engineer and Team Lead<br>M. Siddiqui, General Engineer, NRAN<br>J. Vera, Acting Senior Resident Inspector |
| Approved By: | Hironori Peterson, Chief<br>Branch 3<br>Division of Reactor Projects |

Enclosure

## SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring the licensee's performance by conducting a biennial problem identification and resolution inspection at Byron Station, in accordance with the Reactor Oversight Process. The Reactor Oversight Process is the NRC's program for overseeing the safe operation of commercial nuclear power reactors. Refer to https://www.nrc.gov/reactors/operating/oversight.html for more information.

## List of Findings and Violations

No findings or violations of more than minor significance were identified.

## Additional Tracking Items

None.

## INSPECTION SCOPES

Inspections were conducted using the appropriate portions of the inspection procedures (IPs) in effect at the beginning of the inspection unless otherwise noted. Currently approved IPs with their attached revision histories are located on the public website at http://www.nrc.gov/reading-rm/doc-collections/insp-manual/inspection-procedure/index.html. Samples were declared complete when the IP requirements most appropriate to the inspection activity were met, consistent with Inspection Manual Chapter (IMC) 2515, "Light-Water Reactor Inspection Program - Operations Phase." The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel to assess licensee performance and compliance with Commission rules and regulations, license conditions, site procedures, and standards.

## OTHER ACTIVITIES – BASELINE

71152B - Problem Identification and Resolution

Biennial Team Inspection (IP Section 02.04) (1 Sample)

(1) The inspectors performed a biennial assessment of the licensee's Corrective Action Program, use of operating experience, self-assessments and audits, and safety-conscious work environment.

- Corrective Action Program Effectiveness: The inspectors assessed the Corrective Action Program's effectiveness in identifying, prioritizing, evaluating, and correcting problems. The inspectors also conducted a five-year review of corrosion issues on the essential service water piping.

- Operating Experience, Self-Assessments and Audits: The inspectors assessed the effectiveness of the station's processes for use of operating experience, audits, and self-assessments.

- Safety-Conscious Work Environment: The inspectors assessed the effectiveness of the station's programs to establish and maintain a safety-conscious work environment.

## INSPECTION RESULTS

| Assessment | 71152B |
|---|---|

Assessment of the Corrective Action Program (CAP)

Based on the samples reviewed, the team determined that the licensee's performance in each of these areas adequately supported nuclear safety; however, there were several observations identified across the spectrum of the problem identification and resolution (PI&R) program that suggest a potential concern with the level of sensitivity and questioning attitude.

Effectiveness of Problem Identification

Overall, the station was effective at identifying issues at a low threshold and was properly entering them into the Corrective Action Program (CAP) as required by station procedures. During interviews, workers were familiar with how to enter issues into the CAP and stated that they were encouraged to use it to document issues. The team determined that the station was generally effective at identifying negative trends that could potentially impact nuclear safety. For the areas reviewed, the team did not identify any issues in the area of problem identification.

The team identified several examples where the specific issues documented in the CAP were resolved, but related issues were not identified or addressed. The team questioned whether these issues indicated an adverse trend regarding a potential lack of questioning attitude or sensitivity during issue screening. Some examples included:

- AR 04139855, "1AF004B Failed its Stroke Time Test." This issue was closed as the test failure was due to a relief valve on the pneumatic actuator that prematurely lifted during the test; however, the reason for the relief valve lifting was not investigated. Although the 1AF004B is safety-related and its stroke time test was required by the Technical Specifications, this valve is normally open and had no safety-function to close; therefore, the valve stroke time failure was not significant. Regardless, the team concluded that since this test was required, the cause of the test failure should be investigated consistent with any other Technical Specification surveillance test failure. Additionally, as the 1AF004B pneumatic actuator was similar to those used in other safety-related valves, the cause of the relief valve lifting early may have generic implications.

- AR 04460963, "Dynamic Baker test on Feed Water Pump." This test was scheduled to be completed prior to B1R24 during the pre-outage timeframe; however, it was not completed and instead rescheduled into the post outage schedule; however, it was not performed at that time either. The test is still pending, and no action was assigned to understand why it had not been performed. This feedwater pump is non-safety related but is risk significant; this test was part of the licensee's program to ensure the pump reliability.

- AR 04277073, "2SI8814 WO#4721625-01 Stem Lube Cannot be Performed." In 2016 and 2019 there were several CAP items generated, documenting that the required stem lubing could not be performed, as the work instructions were not adequate to perform this task. Although an appropriate method had been previously used to lube the valve stems, the instructions had not been propagated and no action was taken to identify why this issue remained uncorrected during this period. Of note was that these valves are safety-related, and although they had passed surveillance testing, the failure to perform proper lubing could have resulted in degraded operation.

There were also several examples (ARs 04395160, 04378500, 4345114, and 4416124) where the licensee had identified a failure to perform a scheduled work activity, which was subsequently rescheduled, but no actions were taken to identify why they had been missed. As stated, the inspectors were concerned about whether this apparent trend was due to a lack of sensitivity and/or questioning attitude during issue screening. This licensee documented this concern as AR 4464539.

Effectiveness of Prioritization and Evaluation of Issues

In-depth reviews of a risk-informed sampling of CAP items, work orders (WOs), and cause evaluations were completed. Issue identification and screening was generally good, based on a review of CAP documents and observations of CAP screening meetings. For these meetings, the inspectors observed that the meeting logistics (quorum, etc.) were enforced and that attendees were prepared and asked good questions. The inspectors observed that the issues were generally being appropriately prioritized and evaluated for resolution, and that the corrective actions (CAs) were implemented to mitigate the risk of issues occurring that could affect overall system operability and/or reliability. However, the inspectors did identify some items that appeared to be incorrectly screened as Non-Corrective Action Program (NCAP) items:

During screening, items were assigned either to the CAP or Non-Corrective Action (NCAP) programs, as appropriate. The latter were typically lower-level issues that were assigned for resolution at the department level, rather than through the formal CAP. These items may include Conditions Adverse to Quality, but not Significant Conditions Adverse to Quality. The screening criteria to determine if an issue should be considered an NCAP was provided in Attachments 4 and 5 to PI-AA-120, "Issue Identification and Screening Process." The inspectors noted that this guidance allowed for some significant issues to be inappropriately screened as NCAPs. For example, Attachment 4 listed items such as: "violations of radiation protection procedures with the potential to cause significant radiological consequences, issues that cause an unplanned power change of > 5%, or issues having an undesired effect on major equipment and support for plant safety [such as an inadvertent trip/start, mis-operation, improper maintenance] that results in significant delays in the return to service or equipment damage" as examples of NCAPs. The inspectors identified some additional examples of issues that also appeared to be inappropriately screened as NCAPs, including:

- In 2019, the station identified ([as documented in] AR 4279156) that the in-service testing vibration monitoring points in Attachment 1 to procedure 1BOSR 5.5.8.CS.5-1C, "Unit One Comprehensive In-service Testing (IST) Requirements for Containment Spray (CS) Pump 1CS01PA," Revision 11 were incorrect, and therefore the collected vibration data was compared to the incorrect reference points. A subsequent extent-of-condition review identified that the same was true of the other Unit 1 and 2 CS pumps. In 2018, the reference values were re-baselined, however

the new reference points were not compared to the revised procedure to ensure that there were no issues. This issue was screened as an NCAP, as it was considered a "procedure or documentation error," consistent with Attachment 4 of PI-AA-120; however, given that these pumps were safety-related, and accounting for the potential regulatory and equipment impact, this issue should have been screened as a CAP consistent with Attachment 5 of PI-AA-120. The inspectors noted that the collected vibration points were low enough that it is unlikely that an alert range was reached on any of the referenced points, therefore there were no operability issues with the CS pumps.

- The failure to properly lubricate the 2SI8814 valve stems discussed above (AR 04277073) was also screened as an NCAP. However, as stated, these valves were safety-related and the failure to perform the required lubing potentially degraded their operability and therefore should be considered a CAP, per Attachment 5, to PI-AA-120.

Although as stated, these issues were corrected and there was no actual safety impact, the inspectors questioned whether the licensee demonstrated the appropriate sensitivity and/or questioning attitude when identifying these issues as NCAPs. The licensee documented these issues in the CAP as ARs 4461989, 4464358 and 4464412, respectively.

Effectiveness of Corrective Actions

The team concluded that the licensee was generally effective in developing CAs that were appropriately focused to correct the identified problem, and to address the root and contributing causes for significant conditions adverse to quality to preclude repetition. The licensee generally completed CAs in a timely manner and in accordance with procedural requirements, commensurate with the safety significance of the issue. For NRC-identified issues, the team determined that the licensee generally assigned CAs that were effective and timely.

Although corrective actions were generally appropriate to the issue and were timely, the inspectors identified some examples of issues that were not properly addressed:

- In 2012, the station identified (AR 4376230) that the fire system was not fully compliant with NFPA 20, in that a pressure gauge was not installed on the diesel fire pump raw water line, downstream of the strainers. The purpose of this pressure gauge was to provide indication of discharge pressure, in order to allow operators to avoid over pressurization of the downstream heat exchangers during periods when the electric fire pump is unavailable, and the diesel driven pump is operated in bypass mode. As a corrective action, a modification (EC 389083) was approved by the Plant Health Committee (PHC) to correct this issue. However, to date, this modification has not been installed and there is no formal CAP item to track completion. Additionally, no interim guidance had been developed by the licensee to provide operators to ensure that operation with the diesel driven fire pump in bypass mode could result in system failure from this issue. Since this was considered a low probability event, it is of minor significance, but until resolved, the station remains in code non-compliance.

- AR 4447342 documented that during testing of relief valve 1SI8856B, the valve did not satisfy the acceptance criteria. As required by the ASME Operations and Maintenance Code, and the licensee's program, the testing scope must be expanded, and a cause-and-effect evaluation performed of the failed valve. The scope was expanded to perform additional testing, and the failed valve was replaced with a new one. The failed valve was remanded to storage for eventual repair. The licensee credits the cause-and-effect evaluation to the valve repair process, as the repair must inherently identify any parts that are damaged or out of specification. However, the inspectors noted that there was no work order created to perform this repair, and therefore no tracking mechanism to identify and evaluate the cause-and-effect of the valve failure as required by the code.

- In 2016, the station identified (AR 4435478) that surveillance test 0BHSR FP-4 could not be performed on newer models of fire detectors installed in the training building, as the required tooling had not been obtained. This test is performed every 3 years and was performed in 2016, 2017, and 2021; however, as documented in the surveillance test records, the required tooling for newer detectors was not available. Although these detectors are non-safety related as they are only located in the training building, the testing is required by the fire protection program. The inspectors noted that there was no corresponding action to obtain this tooling and perform the testing. Therefore, it was unclear what was formally driving resolution of this issue.

- There have been 8–9 failures of the 0FP775 A/B discharge valves to open during bench testing documented in the CAP. Although these failures appear to meet the criteria for maintenance rule functional failures, under the system scoping criteria in the maintenance rule, the inspectors did not identify any actions to evaluate them as such.

- As a result of follow up questions asked by the Nuclear Regulatory Commission PI&R team, the licensee identified that a corrective action to implement condition-based monitoring of emergency diesel generator exhaust manifolds (reference, AR 4310359) was cancelled with no action taken.

As stated, these issues were primarily minor, although some were considered conditions adverse to quality. The failure to identify the missed corrective actions were considered additional examples of the overall trend regarding sensitivity and questioning attitude for issues documented in the CAP. The licensee documented these issues in the CAP as ARs 4464531, 4463772, 4464429, and 4461989, respectively.

No violations or findings were identified.

| Assessment | 71152B |
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Assessment of Operating Experience and Self-Assessment and Audits

Based on the samples reviewed, the team determined that licensee performance in the use of Operating Experience (OE) and Self-Assessments and Audits adequately supported nuclear safety.

Use of Operating Experience

The licensee routinely screened industry and NRC Operating Experience information for station applicability. Based on these initial screenings, the licensee-initiated actions in the CAP to fully evaluate the impact, if any, to the station. When applicable, actions were developed and implemented in a timely manner to prevent similar issues from occurring. Operating Experience lessons-learned were communicated and incorporated into plant operations.

Self-Assessments and Audits

The inspectors reviewed several audits and self-assessments and deemed those sampled as thorough and intrusive with regards to following up with the issues that were identified through previous NRC inspections, and in the self-assessments and fleet oversight audits. Reviewed corrective actions for the identified issues were deemed reasonable and completed commensurate with their safety significance. The inspectors regarded licensee performance as adequately self-critical of their own performance, and that performance-related issues were being identified through their self-assessment process.

No violations or findings were identified.

| Assessment | 71152B |
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Assessment of Safety-Conscious Work Environment

The team reviewed the station's programs to establish and maintain a safety-conscious work environment and interviewed station personnel to evaluate the effectiveness of these programs. Based on the team's observations and the results of these interviews, workers at the station expressed freedom to raise and enter safety concerns through any one of the various avenues available to them, and the team encountered no indications of chilling or retaliation. Finally, all plant personnel interviewed were aware of the Employee Concerns Program and expressed a willingness to use it as an avenue to raise concerns, if desired.

In addition, the team included questions on the topic of the ongoing extended COVID-19 pandemic, including the extended use of telework and the staffing changes from the recently averted potential plant shutdown, to assess for any negative impacts on safety performance or overall safety culture both for the individuals and the organization. Employees consistently communicated the belief that sufficient competency, engagement, resources, and commitment exist at the station to maintain high performance standards at the site but did express some concerns regarding the timeframe for the station to recover full staffing levels.

Based on a review of safety culture surveys, assessments, and audits conducted over the prior two years, the team concluded that an appropriate environment existed for the raising and addressing of concerns, and that workers felt comfortable using the various processes available.

No violations or findings were identified.

| Observation: Long-Standing Corrosion Concerns with 0SX138 A and B Essential Service Water Supply Valves and Associated Piping | 71152B |
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The licensee's acceptance of a long-standing external corrosion condition on the 0SX138A and B valves and associated piping indicated a lack of sensitivity for maintaining the pressure boundary integrity of the service water system. These large bore valves are in the main supply line for the essential service water to the plant in below-grade valve pits. These valves and piping are safety-related, and the valve bodies provide a safety-function - to maintain the system pressure boundary to ensure the service water system safety functions. For this issue, the team focused on licensee actions to address the external corrosion condition on these valves, associated bolting, and adjacent piping over the previous five years. In particular, external corrosion impacting these valves had been a known condition dating back to at least 2007 (reference NRC inspection report 05000454/2007009 & 05000455/2007009 (DRS)).

As part of the in-service inspection program required by the ASME Section XI Code, the licensee performs periodic VT-2 visual examinations to identify leakage from the service water system (at approximately 3-year periods). During these examinations, the licensee did not identify through-wall leakage from the 0SX138A and B valves and associated piping but had identified substantive external corrosion in the more recent inspections as discussed below:

In 2015, the licensee completed an ultrasonic thickness measurement of the piping adjacent to these valves and identified some pipe wall loss that did not fall below the minimum required wall thickness. Although the results were not documented in a CAP, no concerns were identified with regards to the operability of the piping.

In 2018, the licensee completed a VT-2 examination of these valves and piping with no leakage identified and documented the results in AR 4163103 (note an ultrasonic wall-thickness measurement of adjacent piping was not performed). The licensee identified external corrosion on the valve and associated piping and evaluated this as a Level 4 (moderate to severe) condition, and in accordance with ER-AA-335-1005, a work order was initiated to clean, inspect, and paint the piping and valve. The components were assessed as "operable," based on no observed change in corrosion since 2015.

In 2021, the licensee completed a VT-2 examination of these valves and piping with no leakage identified, and the results were documented in AR 4427315. The external corrosion was again identified and evaluated as a Level 4 condition, however the work order generated in 2018 to clean the affected areas had been closed with no action taken. The licensee documented the missed work order in the CAP and created an assignment to generate a new work order to clean, inspect, and paint the piping and valve, which was still pending as of the conclusion of the inspection. The components were again assessed as operable, based on no observed change since the 2018 inspection.

The team noted the following:

- Although the licensee recognized that the 2018 work order to clean the corrosion and recoat the piping components impacted by corrosion had not been performed, and entered this condition into the CAP, the licensee did not recognize that this cancelled work was also inconsistent with expected actions for external corrosion as discussed in procedure ER-AA-335-1005.

- The licensee also elected not to document the external valve and bolting corroded condition in the Service Water System Health Report, nor had the licensee elected to track and evaluate this condition using the Plant Health Committee process.

- Additionally, on a quarterly basis, the licensee performed a visual inspection of the external service water piping coatings under an aging management program. However, this inspection was completed without a detailed inspection procedure and without defined acceptance criteria, and the results were not documented in the CAP.

In addition to the in-service inspection program, these valves are within the scope of the licensee's Underground Piping and Tank program that include guidance for inspections and actions related to external corrosion (reference procedures ER-AA-5400-1002, Revision 10, "Underground Piping and Tank Evaluation Guide" and ER-AA-335-1005, revision 4, "Standard Approach on How to Inspect Outside Diameter (OD) Corrosion on Piping"). However, the licensee had elected not to apply the additional guidance available in these procedures for applying a VT-3 visual examination to the corroded bolted connections for the 0SX138A and B valves.

The licensee issued AR 4464342 to document the team's observations and re-opened AR 4427315 to clarify the basis for continued operability with this condition, given the lack of completed actions to evaluate the corroded components. The inspectors reviewed the revised licensee operability assessment and questioned the lack of a documented basis to confirm the integrity of the corroded valve bolting during a seismic event, which prompted the licensee to generate ARs 4464417 and 4464431 and assign actions to complete an engineering assessment demonstrating the integrity of the valve bolting during a seismic event. Upon further discussion with licensee technical staff, the inspectors concluded that the components were likely operable, given the current information; however, the delay in follow up actions to clean, inspect, and evaluate the condition of the 0SX138A and B valves and lack of detailed basis for operability of these valves under a seismic event indicated a lack of sensitivity to external corrosion that may challenge the pressure boundary integrity of the service water system. The licensee generated ARs 4464417 and 4464431 to perform a more detailed engineering assessment of operability, and to address the lack of station oversight of this issue, respectively.

No violations or findings were identified.

## EXIT MEETINGS AND DEBRIEFS

The inspectors verified no proprietary information was retained or documented in this report.

- On December 3, 2021, the inspectors presented the biennial problem identification and resolution inspection results to Mr. J. Kowalski, Site Vice President, and other members of the licensee staff.

**DOCUMENTS REVIEWED**

| Inspection Procedure | Type | Designation | Description or Title | Revision or Date |
|---|---|---|---|---|
| 71152B | Calculations | BYR15-108 | Minimum Wall Thickness for SX Piping Components (B2R19) | Revision 0 |
| | Corrective Action Documents | 1249721 | NRC Mod/50.59 Insp NCV-Edg Fuel Calc Didn't Cnsdr Freq Vari | |
| | | 1306607 | Long Term Extent of Condition Review for IR 1298667 | |
| | | 2044209 | OIO Info Only Bench Mark from Braidwood Support Trip | |
| | | 2462764 | Main Power Transformer Trips | |
| | | 2657045 | Generator Output Breakers Did Not Open Per 2BGP 100-5 | |
| | | 3981686 | UT Indications Discovered in Penetration 76 | |
| | | 4063537 | MCC 233V3 Cubicle A1 Breaker Failed to Trip Within Tolerance | |
| | | 4065772 | Perform A(1) Determination for Function SA-01 to Provide for Emergency Start of Air Compressor with Station Air Unavailable | |
| | | 4070169-24 | Engineering Changes and Engineering Change Packages | |
| | | 4081532 | ICES #422706 Review - Applicable to Byron Station | |
| | | 4105961 | S/D Plnt Trip Control Not Tuned to Restore RCP Temperature to No Load | |
| | | 4139855 | 1AF004B Failed Its Stroke Time Test | |
| | | 4163103 | Corrosion on 0SX138A | |
| | | 4169586 | Chemical Residue from Inactive SX Leak | |
| | | 4170307 | Leak on AF Pumps Recirc Return to SX Piping | |
| | | 4179233 | Issues with RVLIS | |
| | | 4228044 | SX Leak by 0SX007 | |
| | | 4242250 | A(1) Review | |
| | | 4242829 | Aux Feedwater Used At NOP/Not to Supply U2 Steam Generators | |
| | | 4244490 | 1MS018D Failed to Stroke During Post Maintenance Test | |
| | | 4253086 | Westinghouse Nuclear Safety Advisory Letter (NSAL) 19-1 Reactor Coolant Pump Model 93A Turning Vane Bolts | |
| | | 4263474 | NRC ID - Inaccuracies in Calculation BYR03-115 | |
| | | 4277073 | 2SI8814 WO#4721625-01 Stem Lube Cannot Be Performed | |

| Inspection Procedure | Type | Designation | Description or Title | Revision or Date |
|---|---|---|---|---|
| | | 4278050 | Industry Scram: Automatic Reactor Trip Saint Lucie | |
| | | 4278477 | NRC ID Caustic Buildup and Wastage in Valve Bowl | |
| | | 4278487 | Rust Colored Buildup on Valve Stem | |
| | | 4279156 | CS Comprehensive IST Procedure Issues | |
| | | 4279693-01 | Byron Station Review of LER 4162019001 (Grand Gulf) | |
| | | 4280647 | Aggregate Review of Radiation Monitor Failures | |
| | | 4281774 | NOS ID'D - ODM's Were Missing Sections and Actions | |
| | | 4281861 | NOS ID Errors Identified in Simulator Evaluations | |
| | | 4282002 | NOS ID Items Stored Under Catwalk at the U-1 CW PP House | |
| | | 4282591 | NOS ID Administrative Issues Identified with Standing Orders | |
| | | 4282596 | Five Signage Issues Observed During Operator Rounds | |
| | | 4282603 | NOS ID: Record Logs Did Not Contain All Non-Op Min Man Positions | |
| | | 4284953 | Byron Station Review of NRC EN 54607 | |
| | | 4289798-01 | Byron Station Review of LER 3822019007 (Waterford) | |
| | | 4293255 | Byron Station Review of NRC 2019-26-00 Part 21 NSAL-19-2 | |
| | | 4296864 | Cracked Air Baffle on 1B SI Pump Motor | |
| | | 4297407 | ILT 18-1 Throughput Requires Investigation | |
| | | 4298181 | Green Finding: WO Didn't Have Steps to Perform Alignment | |
| | | 4299087 | TCC EC 630050 Installation | |
| | | 4301258 | Increased Temperature Trend on 1DG01KA-C 1A EDG JW Motor | |
| | | 4309831 | Active Boric Acid Leak on 2CS043A | |
| | | 4310359 | Early Shutdown of 1B DG due to Excessive Exhaust Leak | |
| | | 4311830 | Byron Station Review of LER 3342019002 Beaver Valley | |
| | | 4313407 | NRC Observation on 2PT-524 Leak Response | |
| | | 4313415 | NRC Observation on 2A Emergency Diesel Generator Pneumatic Check Valve OPEX | |
| | | 4313417 | NRC Observation on ASME STT in Safety Related Valves | |
| | | 4313465 | Debris Discovered in 2CV01PB Mech Seal Cooling Line Outlet | |
| | | 4314063 | Indirect CDA Transmitter Calibrated with Non-DTE | |
| | | 4315044 | 1CC01PA OB Bearing Oiler Not Plumb | |

| Inspection Procedure | Type | Designation | Description or Title | Revision or Date |
|---|---|---|---|---|
| | | 4316631-04 | INPO Significant Event Unintentional Draining Reactor Cavity | |
| | | 4318045 | OPEX Evaluation Siemens SIMATIC S7 Threat Analysis | |
| | | 4323603 | APS As Found - Potential Safety Issue - NSB Fire Dr ODSD857 | |
| | | 4325926 | 1SI8801B Failed to Open Fully | |
| | | 4325984 | Discrepancy Between UFSAR and Vendor Safety Class Thermal Sleeves | |
| | | 4326940 | APS As Found - FM Found in 1OG22AF Vent Line During Demo | |
| | | 4333276 | Leak on AF Pumps Recirc Return to SX Piping | |
| | | 4334155 | Leak Found on 2VV29SA/B WO #4702016-01 | |
| | | 4335416 | SOC Closed IR 4334192 Improperly with No Actions Taken | |
| | | 4340347 | 2A EDG Crankcase Vent Tubing Discovered Broken | |
| | | 4341661 | NOSA-BYR-20-05 Byron Station Engineering Programs Audit | |
| | | 4341710 | Entry into High Radiation Area with Undetermined Dose Rates | |
| | | 4341779 | Fleet Assessment Focus Area (MA.1-10) | |
| | | 4341834 | Trend in HU Fundamental Usage in Operations | |
| | | 4341849 | Rod Control Urgent Failure Alarm | |
| | | 4345114 | Work Scheduled Not Performed | |
| | | 4349085 | 2SX01AA HX Failed GL 89-13 Acceptance Criteria | |
| | | 4352827 | 1B AF Pump Jacket Water Hose Leak | |
| | | 4360987 | 0SX138A Valve Pit Repairs Could Not Be Completed | |
| | | 4362109-03 | IG-20-1 Westinghouse CRDM Latch Assembly Gripper Wear | |
| | | 4364465 | NOS ID Station Blackout Calculations Omit Loads | |
| | | 4366426 | Follow up to IR 4303417 - FLEX Pump Unable to Draw Suction | |
| | | 4368468-02 | Level 3 OPEX Review of DC Cook Rx Trip - This is a Level 3 OPEX Review | |
| | | 4369557 | APS - TB2 ~426 Mezz Floor Drilled Thru During CEA Install | |
| | | 4375482 | Outlet Piping Found Degraded on 2AF01AB | |
| | | 4376230 | Untimely Resolution of Noncompliance with NFPA 20 | |
| | | 4378500 | 2C TDFWP Hot Zero Calibration Not Performed | |
| | | 4379922 | 0BOL EPA3 Entered | |
| | | 4384110 | Green NCV:  Inappropriate WO for Flexible Hoses | |

| Inspection Procedure | Type | Designation | Description or Title | Revision or Date |
|---|---|---|---|---|
| | | | 1B AF Pump | |
| | | 4385922 | Unit 2 Reactor Vessel Level Instrumentation System (RVLIS) Heater Controller Failure | |
| | | 4387757 | U1 RF Level Not Responding to Water Input | |
| | | 4392079 | Possible Through Wall Leak SX-1B Auxiliary Feedwater Pump | |
| | | 4392836 | Steam Leak from Welded Connection on 2B FW Pump Casing Vent | |
| | | 4393880 | 2B Turbine Driven Feedwater Pump Steam Leak | |
| | | 4394380 | Received Unexpected Alarm 1-7-B2 (RCP Seal Water Injection Flow Low) | |
| | | 4395160 | Failure to Initiate IR for PM-ISM Not Performed | |
| | | 4397516 | Byron Station Review of Jeff Place Letter - SOER 07-2 | |
| | | 4403043 | IRIS 482888 Applicable to Byron Station | |
| | | 4404081 | GL 89-13 As Found Inspection for 2VA03SA | |
| | | 4405352 | DBAI Self-Assessment Finding, MIDAS Calculation Error | |
| | | 4405355 | DBAI Self-Assessment Finding, Calculation Issues | |
| | | 4407950 | Trend IR for SX Leaks on Cubical Coolers | |
| | | 4408152 | NOSA-BYR-21-02 Byron Procurement Audit | |
| | | 4409160 | Byron 2021 T-6 Fleet Assessment Report GTE-MA.1-1 | |
| | | 4412733-02 | Byron Station Review of IRIS 470213. This is a Level 3 OPEX Review | |
| | | 4414552 | NRC DBAI Calc 5.6.1 BYR 19-010 Issue | |
| | | 4418541 | Through-Wall SX Leak - 1B AF Pp Oil Cooler | |
| | | 4419745 | 1A DG Manually Secured due to Exhaust Leak | |
| | | 4427315 | Corrosion on 0SX138A | |
| | | 4429459 | NERC Reliability Standard PRC019-2 | |
| | | 4433151 | NOS ID Trng Rqmnts Not Assigned for 15 Eng, Expired for 1 | |
| | | 443445 | Incorrect O-Ring Material Installed | |
| | | 4435478 | Unable to Test Smoke Detector Model CPD-7051 | |
| | | 4438943 | PIR 2021 SA DEF--CA Process and Closure Issues | |
| | | 4438946 | PIR 2021 SA DEF--Inadequate Due Date Set | |
| | | 4438948 | PIR 2021 SA DEF--CAPR Closure Inadequate | |
| | | 4447342 | 1SI8856B Failed as Found Testing | |

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|---|---|---|---|---|
| | | 4460646 | NRC Challenge of SI Accumulator Setpoints | |
| | | 4460963 | 1A FW Pp Dynamic Baker Test Not Completed Before/After B1R24 | |
| | Corrective Action Documents Resulting from Inspection | 4461182 | NRC ID: Issue ID and Screening Process Improvement | |
| | | 4461619 | NRC ID: PI&R Incorrect Pipe Thickness Listed in Design Calc | |
| | | 4461989 | NRC ID: Inappropriate Closure of Action Item Step ATI | |
| | | 4463772 | NRC ID: Spare Relief Valve Removed from Plant 1SI8856B | |
| | | 4463774 | NRC ID: Missing NDE Report 2018-179 | |
| | | 4463883 | NRC ID: Missed Opportunity to Include Corporate Oversight | |
| | | 4464100 | NRC ID: Untimely Closure of WO 1313273-01 | |
| | | 4464342 | NRC identified PI&R Observation Operability Detail IR 04427315 | |
| | | 4464358 | NRC ID: PI&R Inspection--IR 4279156 NCAP vs CAP | |
| | | 4464412 | NRC ID: PI&R Inspection--IR 04277073 NCAP vs CAP | |
| | | 4464417 | NRC ID: Request Engineering Analysis on Degraded 0SX138A Bolting | |
| | | 4464429 | NRC ID: Detector Sensitivity Testing Repeatedly Missed | |
| | | 4464431 | NRC ID: Application of Buried Pipe and System Health on 0SX138A | |
| | | 4464432 | NRC ID: PI&R Observation Operability Detail IR 04427315 | |
| | | 4464524 | NRC Identified PI&R Concerns with 0FP775A Maintenance Rule and Testing | |
| | | 4464531 | NRC ID: PI&R Concerns with Current NFPA 20 Non-Compliance | |
| | | 4464539 | NRC ID: Utilizing CAP to Repair but not for Identifying Cause | |
| | | 4464573 | NRC Identified PI&R Concerns with IR 4325926 Past-Op Review | |
| | | 4464588 | NRC ID: Further Review into Cause of 1AF004B SST | 12/03/2021 |
| | Drawings | M-61, Sheet 1A | Diagram of Safety Injection | Revision AW |
| | | M-64, Sheet 3A | Diagram of Chemical and Volume Control & Boron Thermal Regeneration | Revision AZ |
| | | M-64, Sheet 4B | Diagram of Chemical and Volume Control & Boron Thermal Regeneration | Revision L |

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|---|---|---|---|---|
| | Engineering Changes | 626390/631753 | Unit 1A RVLIS Sensor 4 Transferred from TCC to this PCTCC | |
| | | 630419 | Lifting AR-VD62X Trip Contact FOR DG Room 1B Supply Fan 1VD01CB | 01/16/2020 |
| | | 633137 | TCC to Remove U2A RVLIS Sensor 5 and 8 | |
| | | 634165 | Lifting AR-VD52X Trip Contact FOR DG Room IA Supply Fan IVD0lCA | 04/28/2021 |
| | Engineering Evaluations | 632208 | Review Ability OF 1B AF Pump to Have Performed All Required Design Requirements When the Leaking Jacket Water Hose was Identified in IR 4352827 | Revision 0 |
| | Miscellaneous | | Station Ownership Committee (SOC) Meeting Package | 11/18/2021 |
| | | | Management Review Committee (MRC) Meeting Package | 11/19/2021 |
| | | | Daily Industry Events Report | 11/08/2021 |
| | | | Effectiveness Review for INPO SOER 7-2 "Intake Cooling Water Blockage Recommendation 1" | |
| | | 4310380-58 | 2020-33-0 Nuclear Product Advisory: Barton 752, 752A, 752B, 764 Transmitters | |
| | | BYR-53745 | Failure Analysis of Rubber Flexible Hose | 08/07/2020 |
| | | BYRON 2021-0073 | Letter - Byron Station Ownership Committee (SOC) Membership | 11/01/2021 |
| | | ENS 54588 | Engine Systems Incorporated Part 21 Notification Test Stand Deficiency Resulting in Potential Damage to Fuel Injectors | |
| | | ENS 55463 | TE Connectivity--Part 21 Transfer of Information--TE-024 | |
| | | NO-AA-10 | Quality Assurance Topical Report | Revision 94 |
| | | NOSA-BYR-19-08 | Byron Operations Audit | 08/08/2019 |
| | | NOSA-BYR-20-05 | Engineering Programs Audit Report | 06/10/2020 |
| | | NOSA-BYR-21-02 | Materials Management and Procurement Engineering Audit Report | 04/21/2021 |
| | | NOSA-BYR-21-03 | Engineering Design Control Audit Report | 07/21/2021 |
| | Procedures | 1BOSR 3.2.12-2 | Automatic SI Actuated Equipment Response Time Test (AF Valves) | Revision 0 |
| | | BMP 3100-84 | Fabrication of Aeroquip Hoses | Revision 0 |
| | | EI-AA-101-1001 | Employee Concerns Program Process | Revision 15 |
| | | ER-AA-2001 | Plant Health Committee | Revision 27 |

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|---|---|---|---|---|
| | | ER-AA-335-015-2013 | VT-2 Visual Examination in Accordance with ASME 2013 Edition | Revision 1 |
| | | ER-AA-335-1005 | Standard Approach on How to Evaluate and Inspect Outside Diameter (OD) Corrosion on Piping | Revision 4 |
| | | ER-AA-5400 | Buried Piping and Raw Water Integrity Management Programs Guide | Revision 13 |
| | | ER-AA-5400-1001 | Raw Water Piping Integrity Management Guide | Revision 11 |
| | | ER-AA-5400-1002 | Underground Piping and Tank Examination Guide | Revision 10 |
| | | ER-AA-700-1003 | Use of Operating Experience for License Renewal Implementation / Aging Management | Revision 5 |
| | | PA-AA-120 | Issue Identification and Screening Process | Revision 9 |
| | | PI-AA-1012 | Safety Culture Monitoring | Revision 2 |
| | | PI-AA-115 | Operating Experience Program | Revision 5 |
| | | PI-AA-115-1001 | Processing of Level 1 AND 2 OPEX Evaluations | Revision 3 |
| | | PI-AA-115-1003 | Processing of Level 3 OPEX Evaluations | Revision 6 |
| | | PI-AA-115-1004 | Processing of Nuclear Event Bulletin (NEB) and Industry Reporting and Information System (IRIS) Reports | |
| | | PI-AA-125 | Corrective Action Program (CAP) Procedure | Revisions 7 and 11 |
| | Self-Assessments | | Fleet Assessment T-6 Assessment Report, Byron Station | 03/12/2021 |
| | | | Safety Results Survey (7/6/2021–8/9/2021) | |
| | | 1BYR-SR2020 | Fleet Assessment Summary Report, West Region: Byron Station | 05/04/2020 |
| | | 4248960 | Biennial Safety Culture Self-Assessment (Byron) | |
| | | 4294776 | 2T19 Nuclear Safety Culture Review Meeting (RSCRM) Action Item | |
| | | 4404699 | 2021 Preparation for NRC Problem Identification and Resolution (PI&R) Inspection | |
| | | 4439785 | Biennial Safety Culture Self-Assessment (Byron) | |
| | | NOSA-BYR-20-01 | Maintenance Functional Area Audit Report | 02/26/2020 |
| | | NOSA-BYR-21-05 | Corrective Action Program Audit Report | |
| | Work Orders | 00193315-01 | OPS PMT - 1AF004B STT / PIT | 03/18/2017 |
| | | 01304318-01 | Change Grease in Coupling Per BMP 3229-1 Section F.2 | 12/07/2013 |

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|---|---|---|---|---|
| | | 01580792-01 | 1B AF Valve Emergency Actuation Signal Verification Test | 09/15/2015 |
| | | 01720134-07 | OPS PMT - Stroke and Pit Surveillance | 09/29/2015 |
| | | 01888896-01 | Diesel Driven AF Pump Insp Per BMP 3203-1 | 03/23/2017 |
| | | 04633339-01 | 1AF004B Repacked/Need Retorque Task Per Procedure | 05/21/2018 |
| | | 04787180-01 | 1AF004B Failed Its Stroke Time Test | 08/29/2018 |
| | | 04830416-01 | EWP-MM Clean / Paint 0SX138A | 06/03/2021 |
| | | 05055822-01 | 1B AF Pump Replace Jacket Water Flex Hose | 06/26/2020 |
| | | 4721625 | PM - Mov Stem Lube | 12/10/2019 |
| | | 5107848-01 | Install Remove TCCP EC 633137 U2 RVLIS Train A #5 and #8 | 12/22/2020 |
| | | 5166969-04 | EPP LR - Inspection of 0B SXCT 0SX138B Pit | 11/23/2021 |
| | | 5166970-04 | EPP LR - Inspection of 0A SXCT 0SX138A Pit | 11/17/2021 |