



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION III
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February 12, 2019

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

SUBJECT: CLINTON POWER STATION—NRC INTEGRATED INSPECTION REPORT
05000461/2018004; 07201046/2018001

Dear Mr. Hanson:

On December 31, 2018, the U.S. Nuclear Regulatory Commission (NRC) completed an integrated inspection at your Clinton Power Station. On January 15, 2019, the NRC inspectors discussed the results of this inspection with Mr. T. Stoner and other members of your staff. The results of this inspection are documented in the enclosed report.

Based on the results of this inspection, the NRC has identified four issues that were evaluated under the risk significance determination process as having very-low safety significance (Green). The NRC has also determined that four violations are associated with these issues. Because the licensee initiated condition reports to address these 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.

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

If you disagree with a cross-cutting aspect assignment or a finding not associated with a regulatory requirement in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region III; and the NRC Resident Inspector at Clinton Power Station.

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/

Kenneth Riemer, Chief
Branch 1
Division of Reactor Projects

Docket No. 50-461, 72-1046
License No. NPF-62

Enclosure:
IR 05000461/2018004; 07201046/2018001

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Letter to Bryan Hanson from Kenneth Riemer dated February 12, 2019

SUBJECT: CLINTON POWER STATION—NRC INTEGRATED INSPECTION REPORT
05000461/2018004; 07201046/2018001

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket Numbers: 50–461; 72–1046

License Numbers: NPF–62

Report Numbers: 05000461/2018004; 07201046/2018001

Enterprise Identifier: I–2018–004–0021

Licensee: Exelon Generation Company, LLC

Facility: Clinton Power Station

Location: Clinton, IL

Dates: October 1 through December 31, 2018

Inspectors: E. Sanchez Santiago, Senior Resident Inspector
D. Sargis, Resident Inspector
A. Athar, Acting Resident Inspector
J. Dalzell, Health Physicist
R. Edwards, Senior Health Physicist
G. Hansen, Senior Emergency Preparedness Inspector
C. Zoia, Senior Operations Engineer
G. Edwards, Health Physicist

Approved by: K. Riemer, Chief
Branch 1
Division of Reactor Projects

Enclosure

SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring licensee's performance by conducting an integrated quarterly inspection at Clinton Power Station Unit 1 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. Findings and violations being considered in the NRC's assessment are summarized in the table below.

List of Findings and Violations

Failure to Prevent the Installation of Non-Conforming Parts in a Safety-Related System			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000461/2018004-01 Closed	N/A	71111.12 – Maintenance Effectiveness
A self-revealed Green finding and an associated non-cited violation (NCV) of 10 CFR Part 50, Appendix B, Criterion XV, "Nonconforming Materials, Parts, or Components," was identified when the licensee failed to prevent the installation of non-conforming parts in a safety-related system. Specifically, the licensee installed a Moore 535 controller that was known to be defective from a previously issued Part 21 report into the safety-related switchgear heat removal (VX) system. This defective controller caused the system to fail in a manner that would prevent an automatic start on a high temperature signal.			

Failure to Identify a Degraded Condition in the Residual Heat Removal 'B' Shutdown Cooling System			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating System	Green NCV 05000461/2018004-02 Closed	[H.14] – Conservative Bias	71111.15 – Operability and Functionality Determinations
The inspectors identified a Green finding and an associated NCV of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for the licensee's failure to establish measure to ensure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and non-conformances are promptly identified. Specifically, the licensee failed to identify that leakage past a check valve in combination with the body-to-bonnet leakage of the shutdown cooling (SDC) injection valve had the potential to cause voiding, a degraded condition that would need to be evaluated or mitigated prior to putting the residual heat removal (RHR) 'B' SDC system in service.			

Failure to Include Appropriate Acceptance Criteria for the Division 3 Emergency Diesel Generator Air Start System			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000461/2018004-03 Closed	[P.3] – Resolution	71152 – Problem Identification and Resolution

The inspectors identified a Green finding and an associated NCV of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the licensee's failure to include appropriate acceptance criteria to ensure the Division 3 emergency diesel generator (EDG) could perform its safety function. Specifically, the licensee did not include the gauges downstream of the air receiver isolation valves in the operator rounds instructions. In May 2018, this deficiency in the Division 2 EDG contributed to the failure to identify the air start receiver isolation valves were closed.

Failure to Follow Procedures Resulting in a Control Rod Drive Pump Trip			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Initiating Systems	Green NCV 05000461/2018004-04 Closed	[H.13] – Avoid Complacency	71152 – Problem Identification and Resolution
A self-revealed Green finding and associated NCV of TS 5.4.1 was identified for the failure to follow Station Procedure CPS 3304.01, "Control Rod Hydraulic & Control," Revision 38, which resulted in the trip of the running CRD pump as a result of a human performance configuration control event. Specifically, the licensee failed to verify the CRD suction filter isolation valve for the filter that was being placed in service was open prior to closing the suction filter isolation valve for the filter that was being removed from service.			

Additional Tracking Items

Type	Issue Number	Title	Report Section	Status
LER	05000461/2018-004-00	Undervoltage Condition Caused by an Offsite Ameren Transformer Bushing Failure Initiates an Automatic Start of an Emergency Diesel Generator	71153	Closed

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PLANT STATUS

The unit operated at full achievable power (approximately 99 percent power) for the majority of the inspection period with the following exceptions:

On October 27, 2018, the unit was shut down for planned maintenance outage, C1M23. The major scope of work was as follows: repair the 4A feedwater heater leak inside the condenser, repair the leakage from RHR system valve 1E12–F053B, and replace the main power transformer cooling pumps. Following completion of the planned maintenance, the unit returned to full operation on November 7, 2018.

On December 9, 2018, reactor power was reduced to approximately 75 percent power to perform control rod pattern adjustments, perform quarterly surveillances on control rods, main steam isolation valves, turbine stop valves/combined intermediate valves, and turbine control valves. The reactor was returned to full power operation the same day.

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 performed plant status activities described in IMC 2515 Appendix D, “Plant Status” and conducted routine reviews using IP 71152, “Problem Identification and Resolution.” 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.

REACTOR SAFETY

71111.01—Adverse Weather Protection

Seasonal Extreme Weather (1 Sample)

The inspectors evaluated readiness for seasonal extreme weather conditions prior to the onset of seasonal cold temperatures on December 15, 2018.

71111.04—Equipment Alignment

Partial Walkdown (3 Samples)

The inspectors evaluated system configurations during partial walkdowns of the following systems/trains:

- (1) Division 1 AC/DC power systems during Division 2 EDG system outage window (SOW) on October 2, 2018;
- (2) RHR ‘B’ system during RHR ‘A’ SOW on October 17, 2018, and

- (3) Low pressure core spray (LPCS) during high pressure core spray (HPCS) SOW on December 11, 2018.

Complete Walkdown (1 Sample)

The inspectors evaluated system configurations during a complete walkdown of the instrument air system on November 19, 2018.

71111.05AQ—Fire Protection Annual/Quarterly

Quarterly Inspection (4 Samples)

The inspectors evaluated fire protection program implementation in the following selected areas:

- (1) Fire Zone D–5 A/B, Division 1 Diesel Generator (DG) and Day Tank Room on October 2, 2018;
- (2) Fire Zone CB–5, Division 3 Switchgear Room, Elevation 781’–0” on October 24, 2018;
- (3) Fire Zone A–3, RHR ‘B’ Equipment Room, Elevation 707’–6” on December 11, 2018; and
- (4) Fire Zone CB–2, Division 2 Cable Spreading Room, Elevation 781’–0” on December 11, 2018.

Annual Inspection (1 Sample)

The inspectors evaluated fire brigade performance on October 19, 2018.

71111.11—Licensed Operator Regualification Program and Licensed Operator Performance

Operator Regualification (1 Sample)

The inspectors observed and evaluated simulator training on November 15, 2018.

Operator Performance (1 Sample)

The inspectors observed and evaluated shutdown and startup for maintenance outage on October 27, 2018.

Operator Exams (1 Sample)

The inspectors reviewed and evaluated requalification examination results on December 18, 2018.

71111.12—Maintenance Effectiveness

Routine Maintenance Effectiveness (3 Samples)

The inspectors evaluated the effectiveness of routine maintenance activities associated with the following equipment and/or safety significant functions:

- (1) Switchgear ventilation system on November 16, 2018;
- (2) A(3) Periodic Evaluation on November 27, 2018; and
- (3) EDG system on December 15, 2018.

71111.13—Maintenance Risk Assessments and Emergent Work Control (4 Samples)

The inspectors evaluated the risk assessments for the following planned and emergent work activities:

- (1) Planned Yellow Risk for Division 2 EDG SOW on October 2, 2018;
- (2) Planned Yellow Risk for RHR 'A' SOW on October 16, 2018;
- (3) Plant risk for reserve auxiliary transformer 'B' static Var (Volt-amperes resistance) compensator unavailable on December 15, 2018; and
- (4) Planned Yellow Risk for HPCS SOW on December 11, 2018.

71111.15—Operability Determinations and Functionality Assessments (2 Samples)

The inspectors evaluated the following operability determinations and functionality assessments:

- (1) Action Request (AR) 4172856: NRC Observation [ladder tied to service water piping]; and
- (2) AR 4166749: NRC Question on Potential Voiding of Piping Near 1E12F053B.

71111.18—Plant Modifications (1 Sample)

The inspectors evaluated the following temporary or permanent modifications:

- (1) Engineering Change (EC) 621081: Replace HPCS Relief Valve with Seal Welded Valve.

71111.19—Post Maintenance Testing (2 Samples)

The inspectors evaluated the following post maintenance tests:

- (1) RHR valve test following pressure seal replacement on November 16, 2018; and
- (2) Testing of EDG 1B heat exchanger outlet valve after maintenance on October 19, 2018.

71111.20—Refueling and Other Outage Activities (1 Sample)

The inspectors evaluated maintenance outage (C1M23) activities from October 27, 2018 through November 7, 2018.

71111.22—Surveillance Testing

The inspectors evaluated the following surveillance tests:

Routine (2 Samples)

- (1) Clinton Power Station (CPS) 9080.01 diesel generator 1A operability—manual and quick start operability on December 19, 2018; and
- (2) CPS 9052.01 LPCS/RHR ‘A’ pumps and LPCS/RHR ‘A’ water leg pump operability on October 19, 2018.

71114.02—Alert and Notification System Testing (1 Sample)

The inspectors evaluated the maintenance and testing of the alert and notification system on October 22–26, 2018.

71114.03—Emergency Response Organization Staffing and Augmentation System (1 Sample)

The inspectors evaluated the readiness of the Emergency Response Organization on October 22–26, 2018.

71114.04—Emergency Action Level and Emergency Plan Changes (1 Sample)

The inspector completed the evaluation of submitted Emergency Action Level and Emergency Plan changes on November 30, 2018. This evaluation does not constitute NRC approval.

71114.05—Maintenance of Emergency Preparedness (1 Sample)

The inspectors evaluated the maintenance of the emergency preparedness program on October 22–26, 2018.

RADIATION SAFETY

71124.08—Radioactive Solid Waste Processing and Radioactive Material Handling, Storage, and Transportation

Radioactive Material Storage (1 Sample)

The inspectors evaluated the licensee’s radioactive material storage.

Radioactive Waste System Walk-down (1 Sample)

The inspectors evaluated the licensee’s radioactive waste processing facility during plant walkdowns.

Waste Characterization and Classification (1 Sample)

The inspectors evaluated the licensee's radioactive waste characterization and classification.

Shipment Preparations (1 Sample)

The inspectors evaluated the licensee's radioactive material shipment preparation processes.

Shipment Records (1 Sample)

The inspectors evaluated the licensee's non-excepted package shipment records.

OTHER ACTIVITIES – BASELINE

71151—Performance Indicator Verification (6 Samples)

The inspectors verified licensee performance indicator submittals listed below:

- (1) BI01: RCS Specific Activity—1 Sample (10/01/2017–9/30/2018);
- (2) BI02: RCS Leak Rate—1 Sample (10/01/2017–09/30/2018);
- (3) EP01: Drill/Exercise Performance (DEP)—1 Sample (07/01/2017–06/30/2018);
- (4) EP02: Emergency Response Organization (ERO) Drill Participation—1 Sample (07/01/2017–06/30/2018);
- (5) EP03: Alert and Notification System (ANS) Reliability—1 Sample (07/01/2017–06/30/2018); and
- (6) PR01: RETS/ODCM Radiological Effluent Occurrences—1 Sample (10/01/2017–9/30/2018);

71152—Problem Identification and Resolution

Semiannual Trend Review (1 Sample)

The inspectors reviewed the licensee's corrective action program for trends that might be indicative of a more significant safety issue, procedure quality, and procedure adherence on December 20, 2018.

Annual Follow-Up of Selected Issues (1 Sample)

The inspectors reviewed the licensee's implementation of its corrective action program related to the following issues:

- (1) AR 4187382: CRD Pump 'A' Tripped on October 24, 2018.

71153—Follow-Up of Events and Notices of Enforcement Discretion

Licensee Event Reports (1 Sample)

The inspectors evaluated the following licensee event reports which can be accessed at <https://lersearch.inl.gov/LERSearchCriteria.aspx>:

- (1) Licensee Event Report (LER) 05000461/2018–004–00, Undervoltage Condition Caused by an Offsite Ameren Transformer Bushing Failure Initiates an Automatic Start of an Emergency Diesel Generator. The inspectors reviewed the licensee's actions in response to the event and determined there was no performance deficiency. The cause of the event was an issue with a transformer located offsite and not within the control of the plant. The equipment and the operators responded as expected and in accordance with station procedures. No findings or violations of NRC requirements were identified.

OTHER ACTIVITIES—TEMPORARY INSTRUCTIONS, INFREQUENT AND ABNORMAL

60855.1—Operation of an Independent Spent Fuel Storage Installation at Operating Plants

The inspectors evaluated the licensee's operation of the independent spent fuel storage installation (ISFSI) from October 1–5, 2018. Specifically, the inspectors evaluated:

- (1) the material and radiological condition of the ISFSI and loaded storage casks through performing a walkdown and independent radiological survey on October 1, 2018;
- (2) a heavy lift and placement of an empty multi-purpose canister (MPC) into the transfer cask on October 4, 2018;
- (3) tack welding of MPC No. 58 lid-to-shell weld in accordance with Procedure No. PI-CNSTR-OP-EXE-H-01 on October 1;
- (4) non-destructive evaluations of the lid-to-shell weld for MPC No. 58 in accordance with Procedure No. GQP–9.6 on October 1, 2018;
- (5) processing of MPC No. 58 for storage on October 2–3, 2018, including drying using forced helium dehydration and backfill with helium;
- (6) the fuel selection for MPC No. 58, loaded on October 1, 2018; and
- (7) changes screened and evaluated using 10 CFR 72.48 that revised procedures for calculating the cask time-to-boil and monitoring fuel building temperatures.

INSPECTION RESULTS

71111.12—Maintenance Effectiveness

Failure to Prevent the Installation of Non-Conforming Parts in a Safety-Related System			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000461/2018004–01 Closed	N/A	71111.12 – Maintenance Effectiveness
A self-revealed Green finding and an associated NCV of 10 CFR Part 50, Appendix B, Criterion XV, "Nonconforming Materials, Parts, or Components," was identified when the licensee failed to prevent the installation of non-conforming parts in a safety-related system.			

Specifically, the licensee installed a Moore 535 controller that was known to be defective from a previously issued Part 21 report into the safety-related VX system. This defective controller caused the system to fail in a manner that would prevent an automatic start on a high temperature signal.

Description: In July 2012, the licensee received an updated Part 21 report for Moore 535 controllers, which the licensee entered into their corrective action program as AR 1384974, "Update to Moore Controller Part 21." The controllers subject to the Part 21 were assembled with incorrect static random access memory (SRAM) chips that would cause the cards to lose their programmed set point. The licensee evaluated the controllers that were installed in the plant, but did not assess if the supply department or maintenance department had the defective controllers in their possession. As a result, the licensee failed to identify that a controller that was subject to the Part 21 had been issued to maintenance in April of 2012.

On May 24, 2016, the licensee installed the defective Moore 535 controller into the Division 2 VX system as part of a controller replacement project.

On July 24, 2018, the licensee was performing a set point check of Moore 535 controllers. The set point check was part of the licensee's cyber security program. The controller 1TITVX002 was found to be in manual with a set point of 0 degrees Fahrenheit. The controller was expected to be in automatic with a set point of 95 degrees Fahrenheit. The licensee determined that the card had a failed SRAM chip which caused it to lose its programming and revert back to the factory setting.

The licensee evaluated how the non-conforming card was allowed to be installed in the system. They identified that the procedure in place at the time the Part 21 was received was LS-AA-115-1003, "Level 3 OPEX Evaluations", Revision 2. The procedure did not include the necessary notifications to the supply and engineering departments to review the Part 21. Therefore, the action for supply to review the Part 21 for applicability and removal of faulty components was not created. Procedure LS-AA-115-1003 was revised in 2013 to include notifications to supply and engineering for future Part 21 reports.

The purpose of the VX system was to maintain the safety-related AC/DC distribution systems within their qualified temperature limits during accident conditions. The Moore 535 controller 1TITVX002 had a function to automatically start the safety-related VX system for Division 2 switchgear. The automatic start signal would occur at the programmed set point of 95 degrees Fahrenheit. When the card failed and the set point changed to 0 degrees Fahrenheit, the system lost its ability to automatically start on a high temperature condition and was non-functional.

The licensee manually started the VX system to restore functionality and to maintain Division 2 switchgear operable. The Division 2 VX system was non-functional from the time of failure until the time at which the licensee manually started the fan because it did not have its auto-start capability.

Corrective Action: As a corrective action, the licensee replaced the defective controller.

Corrective Action Reference: AR 4158457, "1TITVX002 Controller Found in Manual"

Performance Assessment:

Performance Deficiency: Failure to prevent the installation of non-conforming parts in a safety-related system. Specifically, the licensee installed a Moore 535 controller that was known to be defective from a previously issued Part 21 report into the safety-related VX system. This defective controller caused the system to fail in a manner that would prevent an automatic start on a high temperature signal.

Screening: The inspectors determined the performance deficiency was more than minor because it adversely affected the equipment performance attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, the installation of the defective controller resulted in a loss of auto start capability of the Division 2 safety-related VX system, which reduced the reliability of the Division 2 safety-related switchgear.

Significance: The inspectors assessed the significance of the finding using IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." The issue screened as Green because the inspectors answered "No" to questions 1–4 in Exhibit 2, Section A.

Cross-Cutting Aspect: No cross-cutting aspect was assigned to this finding because the inspectors determined the finding did not reflect present licensee performance. The inspectors noted that the installation of the nonconforming part occurred within the last 3 years. However, the licensee's failure to identify that they had the nonconforming part occurred in 2012 when the licensee became aware of the Part 21 for the Moore 535 controller.

Enforcement:

Violation: Title 10 of CFR Part 50, Appendix B, Criterion XV, "Nonconforming Materials, Parts, or Components," requires, in part, that measures shall be established to control components which do not conform to requirements in order to prevent their inadvertent use or installation.

Contrary to the above, from May 24, 2016, to July 24, 2018, the licensee failed to control components which did not conform to requirements in order to prevent their inadvertent use or installation. Specifically, the licensee installed a non-conforming controller card, which was identified to be defective by a Part 21 report, in a safety-related VX system, and the controller card subsequently failed causing the system to be non-functional.

Disposition: This violation is being treated as a NCV, consistent with Section 2.3.2 of the Enforcement Policy.

71111.15—Operability Determinations and Functionality Assessments

Failure to Identify a Degraded Condition in the Residual Heat Removal 'B' Shutdown Cooling System			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating System	Green NCV 05000461/2018004-02 Closed	[H.14] – Conservative Bias	71111.15 – Operability and Functionality Determinations
<p>The inspectors identified a Green finding and associated NCV of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Actions," for the licensee's failure to identify a condition adverse to quality. Specifically, the licensee failed to identify that leakage past a check valve in combination with the body-to-bonnet leakage of the 'B' RHR SDC injection valve had the potential to cause voiding, a degraded condition that would need to be evaluated or mitigated prior to putting the RHR 'B' SDC system in service.</p>			
<p><u>Description:</u> On August 16, 2018, the licensee identified RHR valve F053B had a previously identified body-to-bonnet leak that was increasing in leak rate. The leakage rate identified at the time was 0.2 gpm. A check valve downstream of F053B separated the cool, low pressure RHR system from the high temperature, high pressure feedwater system. The check valve had a known leak rate of 0.9 gpm.</p> <p>The licensee documented this condition in AR 4164937, "RPID: Valve appears to be slowly increasing in leak rate." The licensee addressed the potential impact of leakage outside of containment and monitored and tracked the quantity to ensure it remained under the established administrative limits. However, the licensee did not evaluate how the condition would impact the SDC mode of RHR.</p> <p>The inspectors noted that some of the leakage was flashing to steam and questioned the potential for a steam void in the segment of piping between the F053B valve and the check valve. The inspectors were concerned that a steam void in the pipe would cause a water hammer in the pipe if the station entered SDC operations. The postulated water hammer would adversely impact the operability of the SDC system.</p> <p>The licensee wrote AR 4166749, "NRC Question on Potential Voiding of Piping Near 1E12F053B," in response to the inspectors' questions. The station evaluated the condition in EC 625392, "Evaluation of Potential Voiding of RHR 'B' Shutdown Cooling Injection Line," and determined that a void would be present if the body-to-bonnet leak worsened or if the system depressurized as it would during shutdown and cooldown. The results of the evaluation were documented in the technical evaluation.</p> <p>The inspectors identified that the results of the engineering evaluation concluded there was a potential operability concern for the SDC mode of RHR. The operations department was not made aware of the conclusion reached by engineering, rather the inspectors communicated the issue to the operations department when they questioned what actions they were taking to preclude putting the 'B' SDC system in service if the mode of applicability was entered. Subsequently, the operations department placed this in their potential limiting condition for operation (LCO) list for items that affect operability functions outside the mode of applicability.</p>			

In response to the inspectors' concern, the licensee wrote IR 4171636, "EC 625392 Eval Potential Voiding in RHR SDC Line."

On September 13, 2018, the licensee performed a water hammer evaluation to determine whether voiding in the line would impact operability. The evaluation was documented in EC 625522, "Evaluation of Water Hammer Forces From Potential Voiding in RHR Shutdown Cooling Injection Line." Based on the evaluation the licensee concluded the resulting water hammer event would be 10 pound-force (lbf), which was within the capability of the piping and support structures. Therefore, the licensee concluded there was no impact to operability, and operations removed the item from the potential LCO list. The inspectors reviewed the calculation and identified multiple deficiencies that significantly impacted the conclusion reached by the licensee. Subsequently the licensee performed a more detailed evaluation that concluded the resulting water hammer event would be approximately 4600 lbf. Though the calculated margin from the initial evaluation was significantly reduced, the conclusion of the second evaluation was still within the capability of the system. The inspectors reviewed the updated calculation and did not identify any additional deficiencies.

Corrective Actions: The licensee revised the water hammer calculation, and repaired the body-to-bonnet leak during a maintenance outage.

Corrective Action Reference: AR 4166749, "NRC Question on Potential Voiding of Piping Near 1E12F053B"

Performance Assessment:

Performance Deficiency: The licensee failed to identify a condition adverse to quality. Specifically, the licensee failed to identify that leakage past a check valve in combination with the body-to-bonnet leakage of the SDC injection valve had the potential to cause voiding, a degraded condition that would need to be evaluated or mitigated prior to putting the RHR 'B' SDC system in service.

Screening: The inspectors determined the performance deficiency was more than minor because it adversely affected the equipment performance attribute of the Mitigating System Cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, by failing to identify and evaluate the impact of the RHR valve F053B leakage in combination with the downstream check valve leakage, the licensee did not ensure the RHR 'B' shutdown cooling system was capable of responding to an initiating event.

Significance: The inspectors assessed the significance of the finding using SDP Appendix A, "The Significance Determination Process for Findings At-Power," Exhibit 2, "Mitigating Systems Screening Questions." The finding screened as having very low safety significance (Green) because it did not result in the loss of operability or functionality of the RHR system.

Cross-Cutting Aspect: The finding had a cross-cutting aspect in the Conservative Bias component of the Human Performance cross-cutting area, which states that the licensee will use decision making-practices that emphasize prudent choices over those that are simply allowable. A proposed action is determined to be safe in order to proceed, rather than unsafe in order to stop. Specifically, the licensee focused on the required actions for the mode of

applicability and did not consider any additional degraded conditions that could impact the integrity of the system when shutdown cooling is put into service. (H.14)

Enforcement:

Violation: Title 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," requires, in part, that measures be established to ensure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and non-conformances are promptly identified.

Contrary to the above, from August 16 to September 13, 2018, the licensee failed to identify a condition adverse to quality. Specifically, the licensee failed to identify leakage between two valves in the RHR system piping, a system subject to the requirements in Appendix B, had the potential to create a steam void in the piping and water hammer, both conditions adverse to quality.

Disposition: This violation is being treated as an NCV, consistent with Section 2.3.2 of the Enforcement Policy.

71152—Problem Identification and Resolution

Failure to Include Appropriate Acceptance Criteria for the Division 3 Emergency Diesel Generator Air Start System

Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000461/2018004–03 Closed	[P.3] – Resolution	71152 – Problem Identification and Resolution

The inspectors identified a Green finding and associated NCV of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the licensee's failure to include appropriate acceptance criteria to ensure the Division 3 EDG could perform its safety function. Specifically, the licensee did not include the gauges downstream of the air receiver isolation valves in the operator rounds instructions. In May 2018, this deficiency in the division 2 EDG contributed to the failure to identify that the air start receiver isolation valves were closed.

Description:

On May 17, 2018, the licensee discovered the Division 2 EDG air start receiver isolation valves were closed. This resulted in the Division 2 EDG being declared inoperable as well as an unplanned increase in shutdown risk. As a result of this issue, a special inspection was performed which identified multiple violations of regulatory requirements as documented in NRC Inspection Report 05000461/2018050. One of the performance deficiencies identified was the failure to include appropriate acceptance criteria to ensure the Division 2 EDG could perform its safety function. Specifically, the inspectors documented that the licensee failed to include the Division 2 EDG air start manifold pressures in the 'C' area rounds, points which contributed to the failure to identify the Division 2 air start receiver isolation valves were closed.

The licensee entered the Division 2 EDG configuration control issue into the corrective action program as AR 4138790. The licensee also performed a root cause investigation and developed multiple corrective actions to address the identified issues. One of the actions taken that addressed the violation identified by the special inspection team was to add additional gauges downstream of the air start receiver isolation valves to ensure that the best available indications were being utilized to ensure operability of equipment. Though there are three EDGs, when taking the aforementioned actions to address the identified performance deficiency, the licensee focused on Divisions 1 and 2 and did not take any actions associated with Division 3.

During a walkdown of the Division 3 EDG, the inspectors questioned which parameters were included in the operator rounds procedure for Division 3. The inspectors identified indications were available downstream of the air start receiver isolation valves but had not been added to the 'C' area operator rounds procedure; therefore, no actions had been taken to ensure adequate acceptance criteria was established for the Division 3 EDG.

Corrective Actions: The licensee added an additional pressure gauge located downstream of the air start receiver isolation valves to the equipment operator rounds procedure for the Division 3 EDG.

Corrective Action Reference: AR 4203045, "NRC ID: Improve Rounds Point for Div 3 EDG"

Performance Assessment:

Performance Deficiency: The licensee failed to include appropriate acceptance criteria to ensure the Division 3 EDG could perform its safety function. Specifically, the licensee did not include the gauges downstream of the air receiver isolation valves in the operator rounds instructions. In May 2018, this deficiency in the Division 2 EDG contributed to the failure to identify that the air start receiver isolation valves were closed.

Screening: The inspectors determined the performance deficiency was more than minor because it adversely affected the equipment performance attribute of the Mitigating Systems Cornerstone and its objective of ensuring the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences (i.e. core damage). Specifically, by not including the air start manifold pressures in the operator round points, the licensee failed to ensure the Division 3 EDG would be operable when it was being relied upon as a source of emergency power. This deficiency existed in the Division 2 EDG and contributed to the failure to identify that the Division 2 EDG was inoperable during the May 2018 refueling outage.

Significance: The inspectors assessed the significance of the finding using SDP Appendix A, "The Significance Determination Process for Findings At-Power," Exhibit 2, "Mitigating Systems Screening Questions." The finding screened as having very low safety significance (Green) because it did not result in the loss of operability or functionality of the electrical distribution system.

Cross-Cutting Aspect: The finding had a cross-cutting aspect in the Resolution component of the Problem Identification and Resolution cross-cutting area, which states that the licensee will take effective corrective actions to address issues in a timely manner commensurate with their safety significance. Specifically, as part of the corrective actions associated with the

May 2018 EDG configuration control issue, the licensee changed the equipment operator instruction for the Divisions 1 and 2 EDG but failed to do so for Division 3. (P.3)

Enforcement:

Violation: Title 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires, in part, that activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings. Instructions and procedures shall include appropriate quantitative or qualitative acceptance criteria for determining that important activities have been satisfactorily accomplished. The licensee established the 'C' area round points as the implementing procedure for logging Division 3 EDG parameters to ensure its ability to perform its intended safety function, an activity affecting quality.

Contrary to the above, prior to December 14, 2018, the licensee failed to include appropriate quantitative acceptance criteria in procedures for determining that important activities have been satisfactorily accomplished. Specifically, the licensee's 'C' area round points failed to include appropriate quantitative acceptance criteria for the Division 3 EDG air start system to ensure the Division 3 EDG could perform its safety function.

Disposition: This violation is being treated as an NCV, consistent with Section 2.3.2 of the Enforcement Policy.

Failure to Follow Procedures Resulting in a Control Rod Drive Pump Trip

Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Initiating Systems	Green NCV 05000461/2018004-04 Closed	[H.12] – Avoid Complacency	71152 – Problem Identification and Resolution

A self-revealed Green finding and associated NCV of TS 5.4.1 was identified for the failure to follow Station Procedure CPS 3304.01, "Control Rod Hydraulic & Control," Revision 38, which resulted in the trip of the running CRD pump as a result of a human performance configuration control event. Specifically, the licensee failed to verify the CRD suction filter isolation valve for the filter that was being placed in service was open prior to closing the suction filter isolation valve for the filter that was being removed from service.

Description:

On October 24, 2018, the licensee, specifically the Fix-it-Now (FIN) team, was performing maintenance on the filter for the 'A' CRD pump. In order to perform this maintenance, the licensee needed to swap the CRD pump suction source from the 'A' filter to the 'B' filter to avoid an inadvertent trip of the running pump and a transient on the plant.

The function of the CRD pumps was to provide a motive force to insert and withdraw control rods, to provide cooling water flow for the control rod drive mechanisms, and to provide a high pressure source of water to hydraulic control units for scramming the reactor.

When performing the evolution, a senior reactor operator (SRO) informed the technicians performing the maintenance that the plant alignment was ready to support the planned work. When in the field, the technicians did not take additional actions to confirm/verify the CRD pump suction had been swapped. When they proceeded with the maintenance, the 'A' CRD pump tripped. The control room operators received several alarms and took prompt action to restore a suction source to the CRD pumps and start the standby pump.

The impact of no CRD pumps running would be that the pressure in the CRD accumulators would be impacted by leakage that passed the check valves with no back pressure applied by the CRD pumps. This would cause the accumulator pressure to be reduced to below the TS-required values and ultimately require a manual SCRAM be inserted. The control room operators restored the CRD system prior to the control rod accumulators becoming inoperable; therefore, a manual SCRAM was not required or initiated for this event.

Station Procedure CPS 3304.01, "Control Rod Hydraulic & Control," Revision 38, Section 8.1.4, documented instructions for suction filter operations. Specifically, Section 8.1.4.2, "Shifting Suction Filters," stated in part to open the CRD suction filter outlet isolation valve for the on-coming filter prior to closing the suction filter outlet isolation valve on the off-going filter. The work order instructions included the task to close the off-going suction filter isolation valve, but did not have a step to open the on-going suction filter isolation valve. The reason being the re-alignment was supposed to occur prior to starting the maintenance.

Corrective Actions: The immediate actions taken were to start the standby CRD pump and restore the plant to a configuration that would not impact plant stability. The licensee also performed a stand down with the FIN department to ensure they understood the importance of following procedures and maintaining proper configuration of the plant to avoid unnecessary transients and challenges to the licensed operators.

Corrective Action Reference: AR 04187382, "CRD Pump A Tripped"

Performance Assessment:

Performance Deficiency: The licensee failed to follow Station Procedure CPS 3304.01, "Control Rod Hydraulic & Control," Revision 38, which resulted in the trip of the running CRD pump as a result of a human performance configuration control event. Specifically, the licensee failed to verify the CRD suction filter isolation valve for the filter that was being placed in service was open prior to closing the suction filter isolation valve for the filter that was being removed from service.

Screening: The inspectors determined the performance deficiency was more than minor because it adversely affected the configuration control attribute of the Initiating Events Cornerstone and its objective of limiting the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, the failure to follow procedures causing the trip of the 'A' CRD pump increased the likelihood of a SCRAM if the alternate pump were not able to be manually started in a timely manner.

Significance: The inspectors assessed the significance of the finding using SDP Appendix A, "The Significance Determination Process for Findings At-Power," Exhibit 1 "Initiating Events Screening Questions." The finding screened as having very low safety significance (Green) because although it resulted in the loss of a support system that contributes to the likelihood of an initiating event, the finding did not affect mitigation equipment.

Cross-Cutting Aspect: The finding had a cross-cutting aspect in the Avoid Complacency component of the Human Performance cross-cutting area, which states that the licensee will recognize and plan for the possibility of mistakes, latent issues, and inherent risk, even while expecting successful outcomes. Individuals implement appropriate error reduction tools. Specifically, when directing the work to be performed, the SRO informed the technicians the components were in the correct alignment (the B filter was not yet aligned) without performing a verification or using any other error reduction tools. (H.12)

Enforcement:

Violation: Technical Specification 5.4.1 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, Revision Z, Appendix A, Section 3 requires, in part, that procedures for energizing, filling, venting, draining, startup, shutdown, and changing modes of operation shall be established and implemented for the control rod drive system.

Station Procedure CPS 3304.01, "Control Rod Hydraulic & Control," Revision 38, Section 8.1.4.2.2 required, "Open 1C11-F114A(B), Suct Filt A(B) Outlet Isol on the on-coming filter." Section 8.1.4.2.3 stated in part, "Close 1C11-F114B(A), Suct Filt B(A) Outlet Isol on off-going filter." Station Procedure CPS 3304.01 was a continuous use procedure.

Contrary to the above, on October 24, 2018, the licensee failed to implement a written procedure for the shutdown of the control rod drive system suction filters. Specifically, the licensee failed to open suction filter outlet isolation valve B on the A CRD pump prior to closing suction filter outlet isolation valve A on the A CRD pump.

Disposition: This violation is being treated as an NCV, consistent with Section 2.3.2 of the Enforcement Policy.

Observation – Procedure Quality and Procedure Use and Adherence Trend Review	71152 – Semi Annual Trend Review
<p>During the inspection quarter, the inspectors reviewed a significant number of licensee corrective action program (CAP) documents to assess the following performance attributes:</p> <ul style="list-style-type: none"> • complete, accurate, and timely documentation of the identified problem in the CAP; • evaluation and timely disposition of operability and reportability issues; • consideration of extent of condition and cause, generic implications, common cause, and previous occurrences; and • classification and prioritization of the problem's resolution commensurate with the safety significance; and identification of negative trends associated with human or equipment performance that can potentially impact nuclear safety. <p>The inspectors reviewed the site's response to procedure adherence and procedure quality issues due to the quantity of issues identified after the Division 2 EDG configuration control issue in May 2018. The inspectors noted an increased sensitivity to procedure quality issues as evidenced by the number of corrective action documents generated to address these issues. The licensee also provided additional guidance to their staff regarding "stop work criteria" especially focused on stopping when the procedures could not be executed as</p>	

written. The inspectors observed multiple instances where the “stop work criteria” was implemented. In addition, the inspectors reviewed the actions taken in response to identified issues and identified a finding and associated NCV related the procedure quality of the equipment operator rounds procedure. This finding is documented in this inspection report as NCV 05000461/2018004–03

Observation—Review of AR 4187382, “CRD Pump A Tripped”	71152 – Annual Sample Review
<p>During the inspection quarter, the inspectors reviewed AR 4187382, which documented the trip of the ‘A’ CRD pump as a result of a configuration control event. The licensee was performing maintenance on a CRD filter and did not verify the system was in the necessary configuration to perform the maintenance without impacting normal plant operations. The inspectors assessed the following performance attributes in their review:</p> <ul style="list-style-type: none"> • complete, accurate, and timely documentation of the identified problem in the CAP; • evaluation and timely disposition of operability and reportability issues; • consideration of extent of condition and cause, generic implications, common cause, and previous occurrences; and • classification and prioritization of the problem’s resolution commensurate with the safety significance; and identification of negative trends associated with human or equipment performance that can potentially impact nuclear safety. <p>The inspectors selected this sample for review because it was an example of a human performance issue that occurred subsequent to the actions taken to address a series of human performance issues from January 2018 through May 2018. The inspectors reviewed the associated procedures, work orders, causal evaluations, and corrective actions. The inspectors identified a finding and NCV associated with this issue which is documented in this report as NCV 05000461/2018004–04.</p>	

EXIT MEETINGS AND DEBRIEFS

The inspectors confirmed that proprietary information was controlled to protect from public disclosure. No proprietary information was documented in this report.

- On January 15, 2018, the inspector presented the quarterly integrated inspection results to Mr. T. Stoner, and other members of the licensee staff.
- On October 5, 2018, the inspectors presented the ISFSI inspection results to Mr. B. Kapellas, and other members of the licensee staff.
- On October 26, 2018, the inspector presented the emergency preparedness program inspection results to Mr. B. Kapellas, and other members of the licensee staff.
- On November 29, 2018, the inspector presented the radiation protection program inspection results to Mr. T. Krawczyk, and other members of the licensee staff.
- On December 10, 2018, the inspector presented the emergency preparedness program inspection results to Mr. Z. Smith.
- On December 18, 2018, the inspector discussed the completed 2018 Licensed Operator Requalification Program annual operating test inspection results with Mr. P. Marvel.

DOCUMENTS REVIEWED

71111.01—Adverse Weather Protection

- Site Certification Letter for Winter Readiness; December 21, 2018
- Op-AA-108-111-1001; Severe Weather and Natural Disaster Guidelines; Revision 17
- WC-AA-107; Seasonal Readiness; Revision 18
- CPS 1860.01; Cold Weather Operation; Revision 9

71111.04—Equipment Alignment

- CPS 3312.01E001; Residual Heat Removal Electrical Lineup; Revision 17
- CPS 3312.01V002; Residual Heat Removal Instrument Valve Lineup; Revision 9a
- CPS 3312.01V001; Residual Heat Removal Valve Lineup; Revision 17c
- CPS 3502.01E001; 480 Vac Distribution Electrical Lineup; Revision 16e
- CPS 3501.01E001; High Voltage Auxiliary Power System Electrical Lineup; Revision 14
- CPS 3503.01E001; Battery and DC Distribution Electrical Lineup; Revision 14b
- CPS 3214.01V002; Plant Air Instrumentation Valve Lineup; Revision 7a
- CPS 3214.01E001; Plant Air Electrical Lineup; Revision 10a
- CPS 4004.01; Instrument Air Loss; Revision 10a
- CPS 3214.01V001; Plant Air Valve Lineup; Revision 26a
- CPS 3313.01V001; Low Pressure Core Spray Valve Lineup; Revision 13b
- CPS 3313.01V002; Low Pressure Core Spray Instrument Valve Lineup; Revision 8a
- CPS 3313.01E001; Low Pressure Core Spray Electrical; Revision 11b
- EC 401727; Design Considerations Summary (Mod/Design); Revision 0
- AR 4177818; NRC ID: Valve 1IA1160 Identified Open

71111.05AQ—Fire Protection Annual/Quarterly

- CPS 1893.04M353; 781 Control: Div 3 Switchgear and Battery Room Prefire Plan; Revision 6a
- CPS 1893.04M511; 737 Diesel Generator: Div 1 Diesel Generator & Day Tank Room Prefire Plan; Revision 6b

71111.11—Licensed Operator Requalification Program and Licensed Operator Performance

- CPS 3005.01; Unit Power Changes; Revision 43d
- CPS 3006.01; Unit Shutdown; Revision 46b

71111.12—Maintenance Effectiveness

- AR 4187792; Failed Barriers Allowed Installation of Defective Controller
- AR 4158457; 1TITVX002 Controller Found in Manual
- AR 1384974; Update to Moore Controller Part 21
- AR 4161275; VC 'B' Chiller Oil Level dropped Out of Sight During Startup
- EC 402610; Evaluation of Functionality of Critical AC Components Under Elevated Temperatures Due to Unavailability of VX Equipment; Revision 0
- ER-AA-310-1004; Maintenance Rule – Performance Monitoring; Revision 14
- ER-AA-310; Implementation of the Maintenance Rule; Revision 11

71111.13—Maintenance Risk Assessments and Emergent Work Control

- Protected Equipment Posting Map RR 'A' OOS
- CPS 6505.01C004; RAT 'C' LTC Manual Switching Order; Revision 0c
- CPS 3505.01; 345 & 138kV Switchyard; Revision 20e
- CPS 5008.05; 4kV Bus Low Voltage Alarm Response Procedure; Revision 32a
- WC-AA-101; On-Line Work Control Process; Revision 28
- OP-AA-111-101; Operating Narrative Logs and Records; Revision 13
- ER-AA-600; Risk Management; Revision 7
- OP-AA-300; Reactivity Management; Revision 12
- ER-AA-600-1023; Paragon Model Capability; Revision 8

71111.15—Operability Determinations and Functionality Assessments

- Drawing M-1SX03005R; Revision C
- Drawing M-1SX03006R; Revision B
- Drawing M-1SX03016X; Revision F
- AR 4172856; NRC Observation
- AR 4164937; RPID: Valve Appears to be Slowly Increasing in Leak Rate
- AR 4166749; NRC Question on Potential Voiding of Piping Near 1E12F053B
- AR 4171636; EC 625392 Eval Potential Voiding in RHR 'B' SDC
- AR 4178305; NRC ID: Errors in RHR B Water Hammer Eval
- EC 625530; Evaluation of Ladder Being Supported from Safety Related Piping; Revision 0
- EC 625530; Evaluation of Ladder Being Supported from Safety Related Piping; Revision 1
- EC 625392; Evaluation of Potential Voiding in RHR B Shutdown Cooling Injection Line; Revision 0
- EC 625392; Evaluation of Potential Voiding in RHR B Shutdown Cooling Injection Line; Revision 1
- EC 625522; Evaluation of Water Hammer Forces From Potential Voiding in RHR Shutdown Cooling Injection Line; Revision 0
- EC 625522; Evaluation of Water Hammer Forces From Potential Voiding in RHR Shutdown Cooling Injection Line; Revision 1
- CPS 3506.01C001; Diesel Generator 1A Pre-start Checklist; Revision 16b
- CPS 1019.05; Acceptable/Unacceptable Anchorage; Revision 24b
- CPS 1019.07; Leakage Reduction and Monitoring Program; Revision 5e
- Cal. No. SD-Q10-94DG05; Mechanical Component Support Documentation Sheet; Revision 1
- MA-AA-716-025; Non-Permanent Scaffold Request Form; Revision 14
- MA-AA-716-025-F-1; Non-Permanent Scaffold Request Form; Revision 0
- MA-AA-796-024; Scaffold Installation, Inspection, and Removal; Revision 11
- MA-AA-716-025; Scaffold Installation, Modification, and Removal Request Process; Revision 15
- CPS 1019.05; Transient Equipment/Materials; Revision 24a
- NES-MS-04.1; Seismic Prequalified Scaffolds; Revision 7

71111.19—Post Maintenance Testing

- AR 4191265; 1E12F053B Running Loads High
- AR 4194912; As Found Condition of 1E12F053B Needs Documented

- WO 4808997; 1E12-F053B Packing Leak (60 to 80 DPM); 09/20/2018
- WO 1931060; Replace Limitorque Actuator 1SX063B

71111.20—Refueling and Other Outage Activities

- Shutdown Safety Approval/Notification Form; Outage C1M23; 10/24/2018
- Shutdown Safety Approval/Notification Form; Outage C1M23; 10/24/2018
- Shutdown Safety Approval/Notification Form; Outage C1M23; 10/26/2018
- EC 626104; Decay Heat in C1M23; Revision 0
- EC 350224; Evaluation of Proposed Heatup/Startup of RHR in Shutdown Cooling in Mode 3; Revision 1
- CPS 3312.03; RHR—Shutdown Cooling (SDC) & Fuel Pool Cooling and Assist (FPC&A); Revision 11d

71114.02—Alert and Notification System Testing

- Offsite Emergency Plan Alert and Notification System Addendum for Clinton Station; May 2013
- U.S. Department of Homeland Security, FEMA Letter; Backup Alert and Notification System; 12/10/2012
- KLD-TR-987; Clinton Power Station Alert and Notification System (ANS) Design Report; 09/19/2018
- Exelon Nuclear Manager, Midwest Emergency Preparedness Letter to Program Enhancement Manager, Illinois Emergency Management Agency; Submission of Clinton Power Station Public Alert and Notification System (ANS) Design Report, Revision 3; 10/01/2018
- DeWitt County Siren Operations Manual; 11/09/2017
- EP-AA-1000; Exelon Nuclear Standardized Radiological Emergency Plan; Revision 29
- EP-AA-1003; Exelon Nuclear Radiological Emergency Plan Annex for Clinton Station; Revision 28
- Clinton Station Monthly Siren Availability Reports; September 2016 through September 2018
- Clinton Station Siren Corrective Maintenance Reports; September 2016 through September 2018
- Semi-Annual Clinton Power Siren Report; 01/01/2017 through 06/30/2017
- Semi-Annual Clinton Power Siren Report; 07/01/2017 through 12/31/2017
- Semi-Annual Clinton Power Siren Report; 01/01/2018 through 06/30/2018
- 2018/2019 Emergency Planning for the Clinton Area (Community Information Booklet)
- AR 4013452; EP-Siren Failure (CL36)
- AR 4049071; EP-Siren Failure (CL13)
- AR 4063452; EP-Siren Failure (CL10)
- AR 4091231; EP-Siren Failure (CL34)
- AR 4101326; EP-Siren Failure (CL13, CL36)
- AR 4133121; EP-Siren Failure (CL38)

71114.03—Emergency Response Organization Staffing and Augmentation System

- EP-AA-1000; Exelon Nuclear Standardized Radiological Emergency Plan; Revision 29
- EP-AA-1003; Exelon Nuclear Radiological Emergency Plan Annex for Clinton Station; Revision 28
- EP-AA-112-100-F-06; ERO Notification or Augmentation; Revision W

- EP-AA-112-200; TSC Activation and Operation; Revision 11
- EP-AA-112-300; OSC Activation and Operation; Revision 10
- EP-AA-112-400; EOF Activation and Operation; Revision 14
- EP-AA-112-600; PIC Organization Activation and Operation; Revision 14
- EP-AA-112-700; Alternative Facility Activation and Operation; Revision 0
- TQ-AA-113; ERO Training and Qualification; Revision 34
- September 25, 2017, Emergency Response Organization Drive-In Drill Report; 10/26/2017
- Quarterly Unannounced Off-Hours Call-In Augmentation Drill Results; September 2016 through September 2018
- Emergency Response Organization Duty Roster; 10/24/2018
- AR 4026649; Engineering Duty ERO Member Did Not Respond to Call-In Drill
- AR 4067474; Drive-In Drill Critique Items
- AR 4173268; EP ID: 1 Hour Responder Failed to Call During Augmentation Drill

71114.04—Emergency Action Level and Emergency Plan Changes

- AR 4173268; EP ID: 1 Hour Responder Failed to Call During Augmentation Drill
- EP-AA-120; Emergency Plan Administration; Revision 21
- EP-AA-120-1001; 10 CFR 50.54(q) Change Evaluation; Revision 9
- EP-AA-1000; Exelon Nuclear Standardized Radiological Emergency Plan; Revision 29
- EP-AA-1003; Exelon Nuclear Radiological Emergency Plan Annex for Clinton Station; Revisions 27 and 28
- EP-AA-1003 Addendum 1; Clinton Station On-Shift Staffing Technical Basis; Revision 1
- EP-AA-1003, Addendum 3; Emergency Action Levels for Clinton Station; Revision 2
- 10 CFR 50.54(q) Evaluator Qualification Spreadsheet; 05/30/2018
- 50.54(q) Evaluation No. 17-65; EP-AA-1003, Exelon Nuclear Radiological Emergency Plan Annex for Clinton Station (Revision 28) Evaluation and Effectiveness Review; 08/23/2017
- AR 04098152; EAL Bases in Error for Leaks Inside Primary Containment
- AR 04098720; EAL Bases Change Requested for Loss of Indications EAL

71114.05—Maintenance of Emergency Preparedness

- EP-AA-1000; Exelon Nuclear Standardized Radiological Emergency Plan; Revision 29
- EP-AA-1003, Addendum 2; Evacuation Time Estimates for Clinton Power Station Plume Exposure Pathway Emergency Planning Zone; Revision 1
- KLD-TR-1002; Clinton Power Station 2018 Population Update Analysis; 09/08/2018
- EP-AA-122; Drills and Exercise Program; Revision 19
- EP-AA-124-F-03; Site & Site-Specific EOF Communications 9.3 & EMNET Satellite Communication Systems Semi-Annual Testing & Inventory; 05/09/2018
- EP-MW-124-1001-F-01; Control Room/Simulator Inventory Records; 1st Quarter 2018 through 3rd Quarter 2018
- EP-MW-124-1001-F-02; CR/Simulator/TSC/OSC Equipment Test—TSC Software and Reference Document Inventory Records; 1st Quarter 2018 through 3rd Quarter 2018
- EP-MW-124-1001-F-03; Technical Support Center Inventory Records; 1st Quarter 2018 through 3rd Quarter 2018
- EP-MW-124-1001-F-04; Operations Support Center Inventory Records; 1st Quarter 2018 through 3rd Quarter 2018
- EP-MW-124-1001-F-05; Field Team Inventory Records; 1st Quarter 2018 through 3rd Quarter 2018

- EP-MW-124-1001-F-06; Assembly Area Inventory Records; 1st Quarter 2018 through 3rd Quarter 2018
- EP-MW-124-1001-F-08; Medical Response Kit Inventory Records; 1st Quarter 2018 through 3rd Quarter 2018
- EP-MW-124-1001-F-14; Monthly NARS Communications Test Records; January 2018 through October 2018
- EP-MW-124-1001-F-15; Monthly ENS Communications Test Records; January 2018 through October 2018
- EP-MW-124-1001-F-17; Quarterly Director's Hotline Test Records; 1st Quarter 2018 through 3rd Quarter 2018
- EP-MW-124-1001-F-18; Quarterly Operations Status Line Test Records; 1st Quarter 2018 through 3rd Quarter 2018
- EP-MW-124-1001-F-19; Quarterly Damage Control Line Test Records; 1st Quarter 2018 through 3rd Quarter 2018
- EP-MW-124-1001-F-20; Quarterly Technical Support Line Test Records; 1st Quarter 2018 through 3rd Quarter 2018
- NOSA-CPS-17-03; Emergency Preparedness Audit Report; 04/25/2017
- NOSA-CPS-18-03; Emergency Preparedness Audit Report; 04/25/2018
- Clinton 2016 Off-Year Exercise Evaluation Report; 09/09/2016
- Clinton Power Station 2016 Assembly & Accountability Drill Report; 01/09/2017
- 2017 1st Half Health Physics Drill; 06/09/2017
- Focus Area PI Drill 03-2017 Report; 04/12/2018
- Clinton 2017 Medical and Health Physics Drill Findings and Observation Report; 12/07/2017
- Clinton 2017 NRC Graded Exercise Evaluation Report; 11/01/2017
- 2018 1st Half Health Physics Drill; 07/12/2018
- Focus Area TSC/OSC PI Drill—July 31, 2018 Report; 08/01/2018
- Clinton 2018 Off Year Exercise Evaluation Report; 08/28/2018
- Clinton 2018 Medical and Health Physics Drill Findings and Observation Report; 10/04/2018
- AR 2726456; EP Full Scale Drill Issues
- AR 2715149; No Reception of ERO Notification at Work Via Cell Phone
- AR 4007063; EP Drill Evaluation Results
- AR 4130446; EP Drill Critique Items
- AR 4117810; OSC Computers Perform Automatic Updates During ERO Drill
- AR 4137566; EP-Dewitt County EOC NARS Phone Issues
- AR 4148541; MCR NARS Phone Not Working
- AR 4156301; EP ID: Outer TSC Envelope Airlock Door Not Latching Properly
- AR 4169007; Clinton EP Off-Year Exercise Performance Issues
- AR 4170522; EP ID: Deficiency Found During EP Self-Assessment

71124.08—Radioactive Solid Waste Processing and Radioactive Material Handling, Storage, and Transportation

- RP-AA-600; Radioactive Material/Waste Shipments; Revision 17
- RP-AA-600-1001; Exclusive Use and Emergency Response Information; Revision 10
- RP-AA-600-1002; Highway Route Controlled Quantity/Advance Notification for Radioactive/Waste Shipments; Revision 6
- RP-AA-600-1005; Radioactive Material and Non Disposal Site Waste Shipments; Revision 19
- RP-AA-600-1010; Use and Operation of WMG Software for Creative Containers, Samples,

Waste Streams and Waste Types; Revision 3

- RP-AA-600-1011; Use and Operation of WMG Software for Gross Gamma Characterization and Generation of Shipping Paperwork; Revision 5
- RP-AA-6001; Transportation Accident Response; Revision 2
- RP-AA-601; Surveying Radioactive Material Shipments; Revision 20
- RP-AA-602; Packaging of Radioactive Material Shipments; Revision 21
- RP-AA-603; Inspection and Loading Radioactive Material Shipments; Revision 10
- RP-AA-600-1005; Attachment 1, Radioactive Shipment Notification Form; Shipment Number W18-006; 05/01/2018
- RP-AA-600-1005; Attachment 1, Radioactive Shipment Notification Form; Shipment Number W18-009; 05/17/2018
- RP-AA-600-1007; Attachment 1, Energy Solutions Bulk Waste Facility Shipment Checklist; Shipment Number W18-012; 08/01/2018
- RP-AA-600-1005; Attachment 1, Radioactive Shipment Notification Form; Shipment Number W18-016; 08/28/2018
- RP-AA-600-1005; Attachment 1, Radioactive Shipment Notification Form; Shipment Number W18-019; 10/29/2018
- PI-AA-126-1001-F-01; Self-Assessment, NRC Inspection 71124.08 Radioactive Solid Waste Processing and Radioactive Material Handling, Storage and Transportation; 09/28/2018
- AR 04029231; RP ID: Valve Not Secured for Shipment; 07/06/2017
- AR 04045476; RP ID: DOT Shipment; 08/24/2017
- AR 04066994; RP ID: Truck Breakdown During Shipment; 10/25/2017
- AR 04085932; RP ID: Waste Classification; 12/20/2017
- AR 04165749; Radwaste Polisher 0WE01DC Resin Dump and Reload; 08/20/2018

71151—Performance Indicator Verification

- NRC Performance Indicator Data; Emergency Preparedness—Drill/Exercise Performance; 3rd Quarter 2017 through 2nd Quarter 2018
- NRC Performance Indicator Data; Emergency Preparedness—ERO Readiness 3rd Quarter 2017 through 2nd Quarter 2018
- NRC Performance Indicator Data; Emergency Preparedness—Alert and Notification System Reliability; 3rd Quarter 2017 through 2nd Quarter 2018
- Monthly RCS Specific Activity Performance Indicators and Supporting Documentation; October 2017 through November 2018
- Monthly RETS/ODCM Radiological Effluent Occurrences Performance Indicators and Supporting Documentation; October 2017 through November 2018

71152—Problem Identification and Resolution

- AR 4198001; PCRA Improvement for OPS Shutdown Procedures
- AR 4192299; NRC Question on Restoration from 9861.05D002
- AR 4203045; NRC ID: Improve Rounds Point for Div 3 EDG
- AR 4187382; CRD Pump A Tripped
- AR 4138790; CC: Division 2 DG Air Receiver Found Isolated During Rounds
- AR 4180203; 1SX010C Stroked Out of Limiting Time in IST Baseline 118
- AR 4191933; NRC ID: Grease Found Under 1E51C003 Coupling Area
- AR 4190356; Stem Locking Keys Missing From Valves 1B21-F001 and F002
- AR 4201968; PCRA – Procedure Needs Fixed

- AR 4203633; PCRA of Loss of Feedwater Heating 4005.01
- AR 4211338; PCRA Required for HU-CL-104-101-1001
- EC 402769; Past Operability for Tele-Tower in Div 3 DG Room from IR 2529227; Revision 0
- CPS 3304.01; Control Rod Hydraulic & Control; Revision 38
- HU-AA-104-101; Procedure Use and Adherence; Revision 5

60855.1—Operation of an Independent Spent Fuel Storage Installation

- 2016 Annual Radiological Environmental Operating Report; 04/26/2017
- 2017 Annual Radiological Environmental Operating Report; 04/27/2018
- 2018 NDE Report of HI-TRAC Lift Lugs; 06/12/2018
- 2018 NDE Report of HI-TRAC Lift Yoke; 08/15/2018
- 2018 NDE Report of MPC Lift Lock; 08/15/2018
- 72.48-CL-2016-S-007; HI-STORM FW Time to Boil Calculation; Revision 1
- 72.48-CL-2018-S-007; 72.48 Screening for HPP-2226-090; Revision 0
- 72.48-CL-2018-S-008; 72.48 Screen for HPP-2226-100; Revision 0
- 72.48-CL-2018-S-009; 72.48 Screen for HPP-2226-200; Revision 0
- 72.48-CL-2018-S-010; 72.48 Screen for HPP-2226-300; Revision 0
- 72.48-CL-2018-S-011; 72.48 Screen for HPP-2226-400; Revision 0
- 72.48-CL-2018-S-012; 72.48 Screen for HPP-2226-500; Revision 0
- 72.48-CL-2018-S-012; 72.48 Screen for HPP-2226-600; Revision 0
- 72.48-CL-2018-S-014; 72.48 Screen for HPP-2226-700; Revision 0
- 72.48-CL-2018-S-015; 72.48 Screen for HPP-2226-200; Revision 0
- 72.48-CL-2018-S-018; 72.48 Screening for HPP-2226-500; Revision 0
- AR 2730203; TUGGER SHEER PIN FAILED DURING HI-STORM TRANSFER; 10/20/2016
- AR 4172022; Foreign Material Identified on 2 Fuel Bundles in MPC-006; 09/10/2018
- AR 4172988; FME Zone 2 Loss of Welding Tungsten Along Annulus of MPC #6; 09/13/2018
- AR 4178253; Shear Pin Failure During LPT/HI-STORM Transfer; 09/28/2018
- AR 4179919; Lessons Learned from Wedge Indentation Outer Edge MPC 058; 10/01/2018
- AR 4180245; DCS—Degraded Center Threshold on Outer Truck Bay Doors; 10/04/2018
- AR 4180284; DCS—Clarification on DCS Processing Procedure Needed; 10/04/2018
- AR 4180342; Typographical Error ISFSI, FSAR; 10/02/2018
- AR 4180368; DCS—Evaluate Best Location to Take FB Temperature; 10/04/2018
- CL-1-18-00204-1; Dry Cask Storage ALARA Plan
- Clinton Power Station Unit 1 10 CFR 72.212 Evaluation Report; Revision 0
- Clinton Spent Fuel Loading Campaign Readiness Assessment; 08/10/2018
- Fabrication Drawing No. 9894; Assembly, Low Profile Transporter; Revision 9
- GQP-9.2; High Temperature Liquid Penetrant Examination and Acceptance Standards for Welds, Base Materials, and Cladding; Revision 10
- GQP-9.6; Visual Examination of Welds; Revision 18
- HI-2135813; Thermal Evaluation of HI-TRAC VW in Decontamination Pit at Clinton; Revision 4
- HSP-320; Standard Remedial Work Practices in Fabrication of Safety Significant Components; Revision 35
- Holtec 72.48 No. 1136; HI-STORM FW FSAR; Revision 1
- HPP-2226-200; MPC Loading at Clinton; Revision 9
- HPP-2226-300; MPC Sealing at Clinton; Revision 10
- HPP-2226-400; MPC Transfer at Clinton; Revision 7
- HPP-2226-500; HI-STORM Movements; Revision 7

- IP-F-018; Clinton Fuel Selection Package for 2018 Campaign ISFSI; Revision 0
- MPC-006 Physical Inventory; 09/18/2018
- NOSA-CPS-16-11; Independent Spent Fuel Storage Installation Audit Report; 11/08/2016
- PI-CNSTR-OP-EXE-H-01; Closure Welding of Holtec Multi-Purpose Canisters at Exelon Facilities; Revision 18
- Report No. 913023-058-01; Report of Nondestructive Examination—Lid to Shell/MPC 89; 10/02/2018
- Report No. 913023-058-02; Report of Nondestructive Examination—Lid to Shell/MPC 89; 10/02/2018
- Report No. 913023-058-03; Report of Nondestructive Examination—Lid to Shell/MPC 89; 10/02/2018
- Report No. 913023-058-04; Report of Nondestructive Examination—Lid to Shell/MPC 89; 10/02/2018
- RP-AA-305; Holtec HI-TRAC Radiation Survey; Revision 0
- RP-AA-306; Holtec HI-STORM Radiation Survey; Revision 0
- RRTI-2858-001; Request for Technical Information; 09/11/2018
- RRTI-2858-004; Request for Technical Information; 10/02/2018
- WO 4593328-01; RFT 1HC07G Lubricate Fuel Building Crane; 12/21/2017
- WO 4593752-01; RFT Electrical PM and Lube 1HC07G; 01/04/2018
- WO 4598590-01; RFT Electrical PM 1HC07G FB Crane; 01/04/2018
- WO 4598591-01; RFT 1HC07G Crane Mechanical Annual Inspection; 12/20/2017
- WO 4777047-11; DCS—Compile Docs/Verify Vendor Rigging/Special Devices; 07/26/2018